SUMITOMO

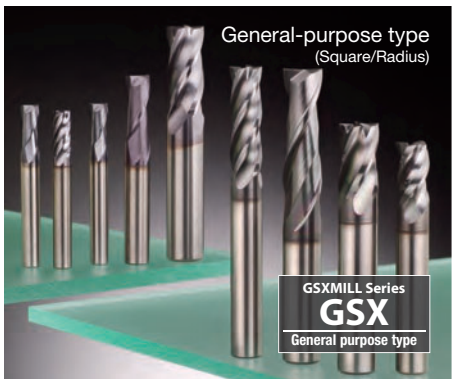
CARBIDE - CBN - DIAMOND

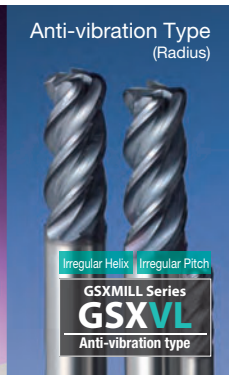
Global Support, Global Solutions.

Global Standard Solid Endmills

GSXMILL series

Rev. 14



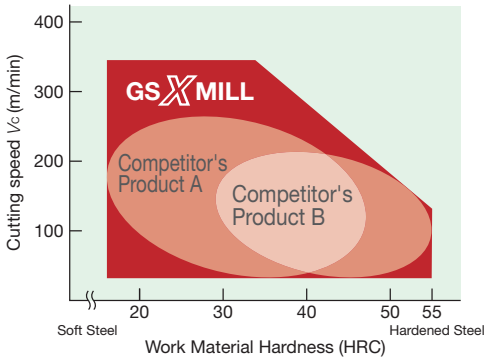


Revised standard price (July 2022)

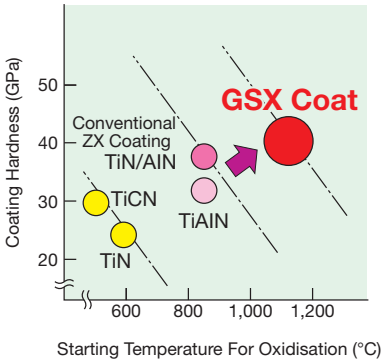
■ Features and Applications

- A wide selection with 3 types of cutting flute configurations and 4 cutting lengths to cover a wide range of applications
- Micro-grained carbide substrate provides high transverse rupture strength and excellent thermal shock resistance, improving reliability in wet cutting applications
- GSX Coat has increased wear resistance and thermal resistance for improved reliability and longer tool life
- Large rake angle and unique flute design improve sharpness and chip evacuation
- Utilizing a gash land improves cutting edge corner strength

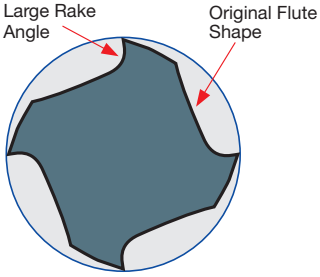
● Wear resistance



● Thermal resistance



● Improved chip evacuation

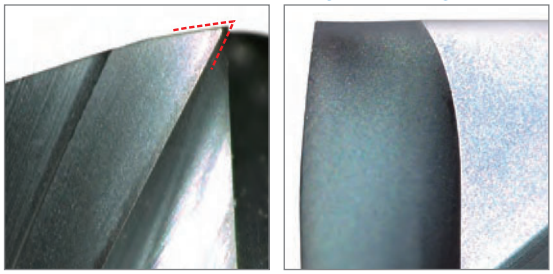


Large rake angle combined with our unique flute design improves sharpness and chip evacuation.

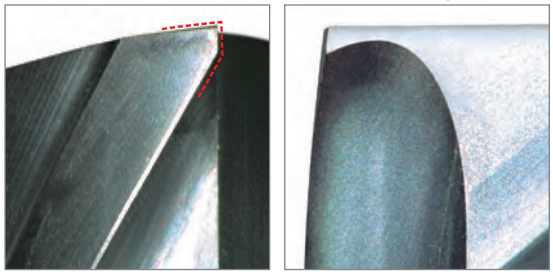
■ Expanded machining applications with 2 cutting edge corner styles

Sharp edged S type and fracture-resistant C type are available.

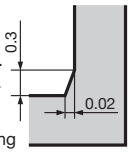
Sharp Corner: Sharp Edged Design S Type



Gash Land: Fracture Resistant Design C Type



Note: When using endmills with gash land, some material remains as shown on the right. Use the S type to obtain sharp corners.



Example: Corner after ø10mm milling (Unit: mm)

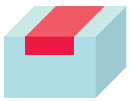
■ Work Material

◎: Best ○: Suitable Blank: Not recommended

P					H			M	S		K	N			
General Structural Rolled Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Die Steel	Hardened Steel			Stainless Steel	Titanium Alloy	Heat-Resistant Alloy	Cast Iron	Aluminum Alloy	Copper Alloy	Graphite	CFRP
					45 to 55HRC	55 to 60HRC	60HRC								
○	◎	◎	◎	◎	◎ *1			◎	○	○	○				

*1: GSXSLT30000C is recommended for 50 HRC or less.

■ Recommended Machining Examples (General-purpose Type)

Applications	Side Milling		Groove Milling		Groove Finishing	
Form						
Cutting Edge Corner	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
S Type		◎		○ *2		◎
C Type	◎	○	◎	◎	◎	○

The S type is best for removing inside corners.

*2: Use with small depth of cut.

■ Product Range

Applications	Number of Teeth	Cutting Edge Length						
		1.5D	2D		3D		4D	
		C Type	S Type	C Type	S Type	C Type	S Type	C Type
General-purpose	2 Flutes	GSX20000C-1.5D ø0.5 to ø25.0mm →P8	GSX20000S-2D ø0.3 to ø25.0mm →P10	GSX20000C-2D ø0.5 to ø25.0mm →P14	GSX20000S-3D ø0.5 to ø25.0mm →P16	GSX20000C-3D ø0.5 to ø25.0mm →P18	GSX20000S-4D ø0.5 to ø25.0mm →P20	GSX20000C-4D ø0.5 to ø25.0mm →P22
	3 Flutes	GSX30000C-1.5D ø1.0 to ø12.0mm →P24		GSX30000C-2D ø1.0 to ø12.0mm →P26				
	4 Flutes	GSX40000C-1.5D ø1.0 to ø25.0mm →P28	GSX40000S-2D ø1.0 to ø25.0mm →P30	GSX40000C-2D ø1.0 to ø25.0mm →P32	GSX40000S-3D ø1.0 to ø25.0mm →P38	GSX40000C-3D ø1.0 to ø25.0mm →P40	GSX40000S-4D ø1.0 to ø25.0mm →P42	GSX40000C-4D ø1.0 to ø25.0mm →P44
Multi-purpose	3 Flutes	GSXSLT30000C-1.5D ø1.0 to ø12.0mm →P54						
Radius	4 Flutes		GSX40000-R-2D ø3.0 to ø12.0mm →P46					

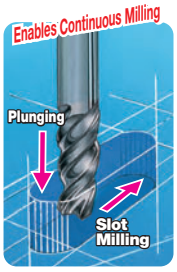
High-efficiency Square Type: GSV4000-2.5D →P.34 GSXVL4000-2.5D →P.36 High-efficiency Radius Type: GSV4000-R-2.5D →P.48 GSXVL4000-R-2.5D →P.50
Ballnose Type: GSXB20000 →P.52

■ High Precision

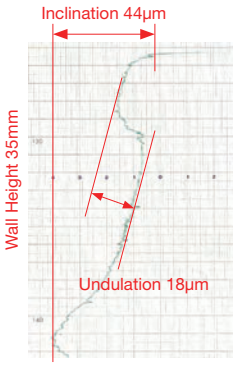
- Endmill tolerance is reduced to 2/3 of conventional types, so diameter compensation is not required when changing tools.

■ Multi-purpose

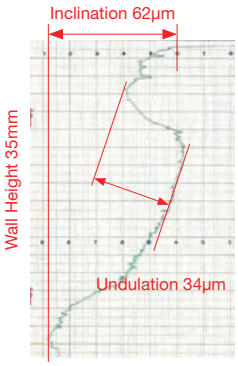
- Optimised flute design of slot mill 3 flute (short) type reduces cutting force.
  (1) Continuous (composite) applications such as plunging and groove milling is possible
  (2) Perfect for use with thin plates and small machining centres.



■ Long Cutting Edge Length with High Rigidty (C Type)



GSX MILL-4D

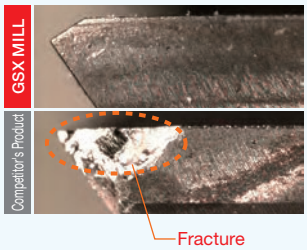


Competitor's Product

Tool Diameter	ø10 (2 Flutes)	Work Material	S50C
Cutting Conditions	V_c = 44m/min (n = 1,400min^{-1})	Feed Rate	V_f=240mm/min (f_z=0.086mm/t)
Depth of Cut	a_p = 35mm	Coolant	Wet
	a_e = 0.1mm × 25 times	Machine	Vertical Machining Centre BT30

■ Application Examples (Square)

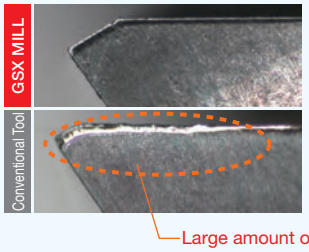
● Carbon Steel Groove Milling with GSX20000C



Gash land for stronger cutting edge

Tool Diameter	ø6 (2 Flutes)
Work Material	S50C
Cutting Conditions	V_c=87m/min (n=4,615min^{-1})
	V_f=553mm/min(f_z=0.06mm/t)
	a_p=3mm
	a_e=6mm
	Dry
Machine	Vertical Machining Centre BT50

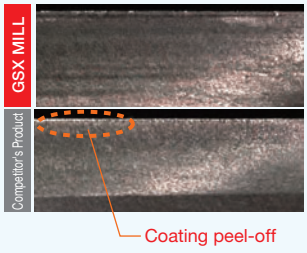
● Cast Iron Groove Milling with GSX20000C



GSX Coat for improved wear resistance

Tool Diameter	ø10 (2 Flutes)
Work Material	FCD600 equivalent
Cutting Conditions	V_c=66m/min (n=2,100min^{-1})
	V_f=302mm/min(f_z=0.072mm/t)
	a_p=5mm × 5 times
	a_e=10mm
	Dry
Machine	Vertical Machining Centre BT40

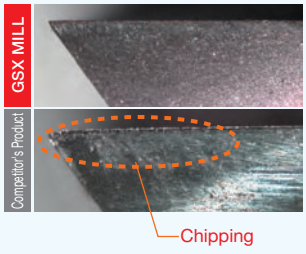
● Stainless Steel Machining with GSX20000C



Improved reliability even with wet machining

Tool Diameter	ø10 (2 Flutes)
Work Material	SUS304
Cutting Conditions	V_c=50m/min (n=1,591min^{-1})
	V_f=127mm/min(f_z=0.04mm/t)
	a_p=10mm
	a_e=0.5mm
	Dry
Machine	Vertical Machining Centre BT50

● S50C Side Milling with GSX20000S



The S type delivers optimum sharpness

Tool Diameter	ø6 (2 Flutes)
Work Material	S50C
Cutting Conditions	V_c=87m/min (n=4,615min^{-1})
	V_f=553mm/min(f_z=0.06mm/t)
	a_p=10mm
	a_e=0.3mm
	Dry
Machine	Vertical Machining Centre BT50

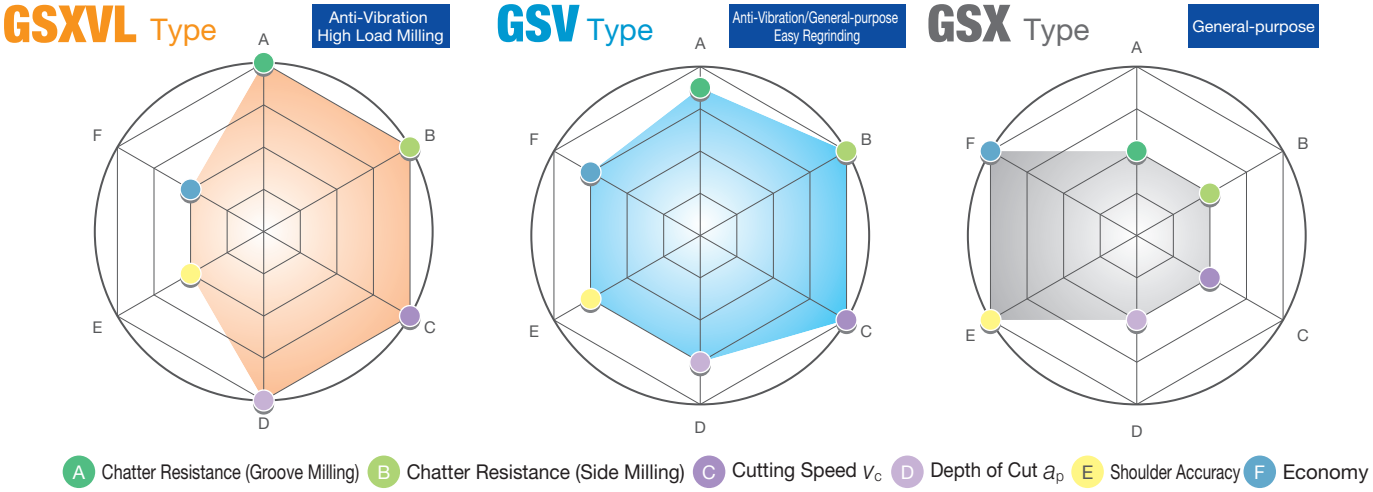
☞P36・P50 ☞P34・P48

■ Recommended Milling Examples

Applications	Side Milling		Groove Milling		Groove Finishing	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
GSXVL Type	◎	○	◎	◎	◎	○
GSV Type	◎	◎	○	◎	◎	○

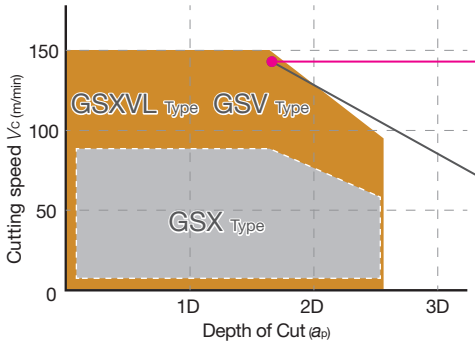
■ Differentiating the Usage of Anti-vibration GSXVL Type / GSV Type

GSXVL type exhibit outstanding performance for high load milling. GSV type is both chatter-resistant and economical.

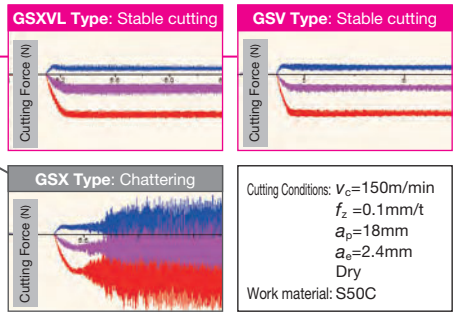


■ Application Range

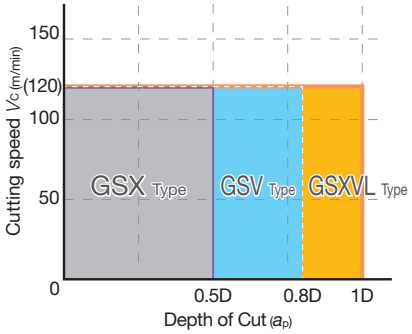
● Side Milling



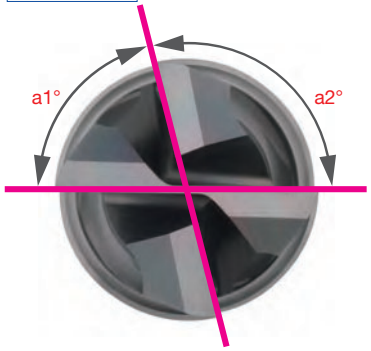
● Cutting Force



● Groove Milling

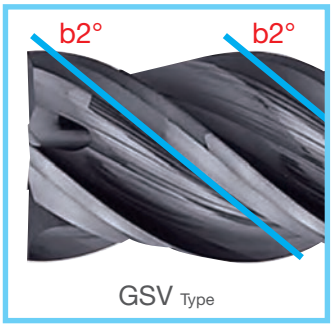


Irregular Pitch a1° ≠ a2°



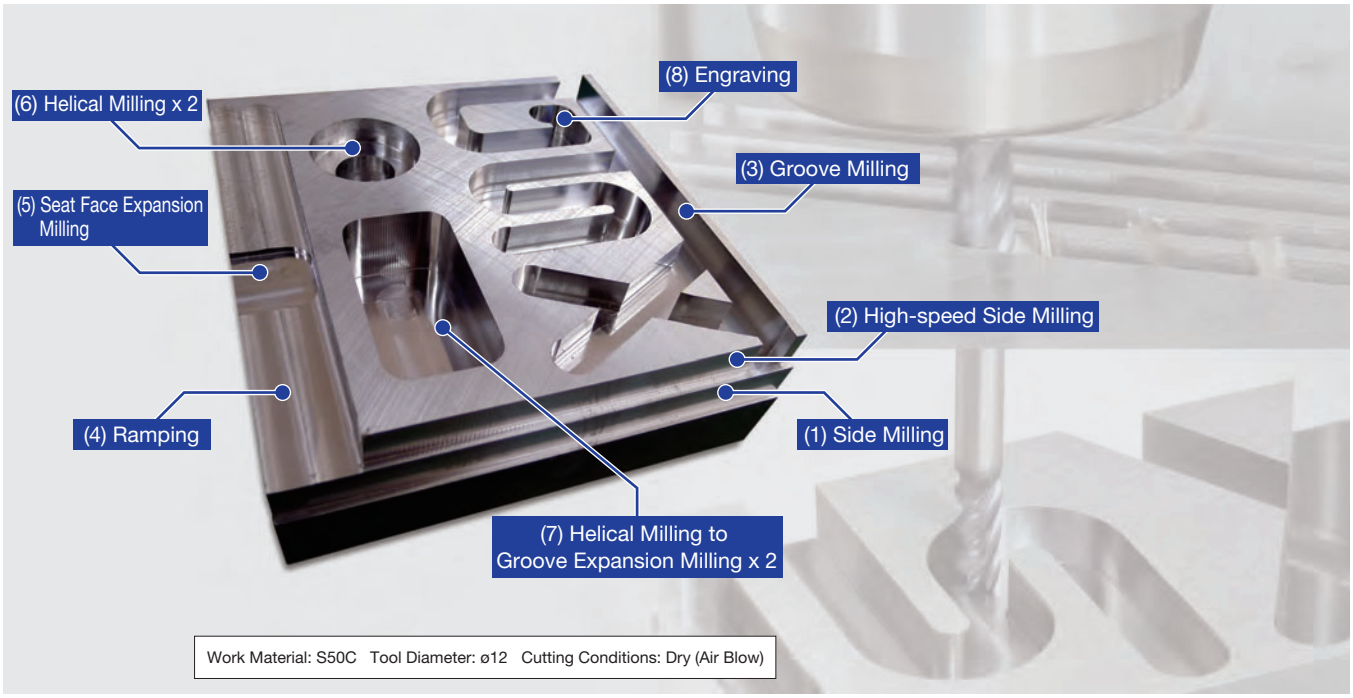
Irregular Lead b1° ≠ b2°

Regular Lead b2° = b2°



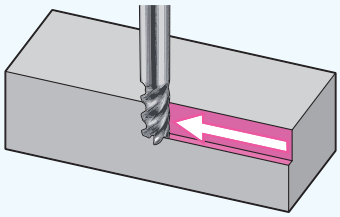
Rounded Land (Used for ø5mm and larger sizes)

■ Application Examples (Anti-vibration Type)



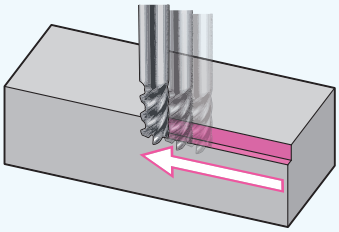
Work Material: S50C Tool Diameter: ø12 Cutting Conditions: Dry (Air Blow)

(1) Side Milling GSXVL Type ◯ / GSV Type ◎



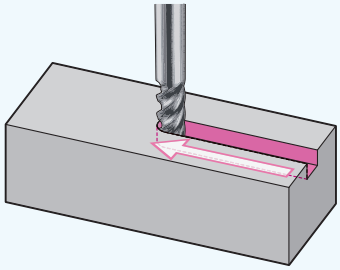
Cutting Conditions: v_c = 102m/min (n = 4,100min^{-1}) Tool Diameter: ø8
v_f=1,080mm/min (f_z=0.1mm/t)
a_p=24mm, a_e=2.0mm

(2) High-speed Side Milling GSXVL Type ◎ / GSV Type ◎



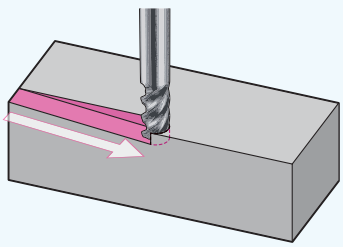
Cutting Conditions: v_c = 151m/min (n = 4,000min^{-1}) Tool Diameter: ø12
v_f=4,800mm/min (f_z=0.3mm/t)
a_p=12mm, a_e=2.0mm

(3) Groove Milling GSXVL Type ◎ / GSV Type ◯



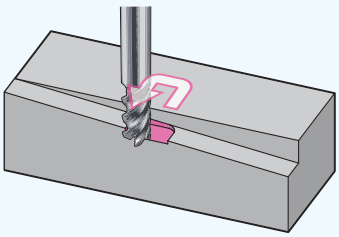
Cutting Conditions: v_c = 90m/min (n = 2,400min^{-1}) Tool Diameter: ø12
v_f=960mm/min (f_z=0.1mm/t)
a_p=12mm

(4) Ramping GSXVL Type ◎ / GSV Type ◯



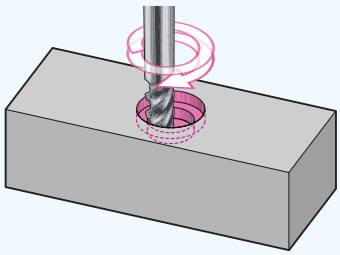
Cutting Conditions: v_c = 90m/min (n = 2,400min^{-1}) Tool Diameter: ø12
v_f=480mm/min (f_z=0.05mm/t)
Ramp Angle 5°

(5) Seat Face Expansion Milling GSXVL Type ◎ / GSV Type ◎



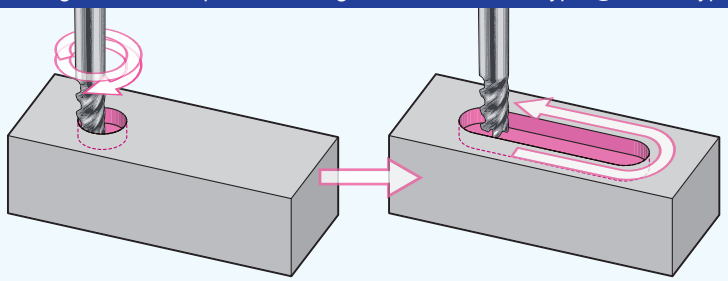
Cutting Conditions: v_c = 90m/min (n = 2,400min^{-1}) Tool Diameter: ø12
v_f=960mm/min (f_z=0.1mm/t)

(6) Helical Milling x 2 GSXVL Type ◎ / GSV Type ◎



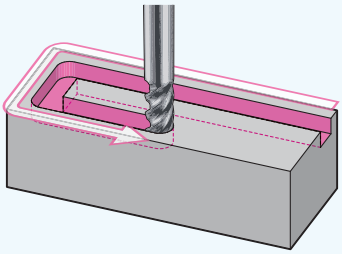
Cutting Conditions: v_c = 90m/min (n = 2,400min^{-1}) Tool Diameter: ø12
v_f=480mm/min (f_z=0.05mm/t)
Ramp Angle 3°

(7) Helical Milling to Groove Expansion Milling x 2 GSXVL Type ◎ / GSV Type ◎



Cutting Conditions: v_c = 90m/min (n = 2,400min^{-1}) Tool Diameter: ø12
[Helical] v_f=480mm/min (f_z=0.05mm/t) [Groove Expansion] v_f=672mm/min (f_z=0.07mm/t) [Finishing] v_f=1,920mm/min (f_z=0.2mm/t)
Ramp Angle 3°
a_p=24mm, a_e=0.1mm

(8) Engraving GSXVL Type ◎ / GSV Type ◯



Cutting Conditions: v_c = 79m/min (n = 2,100min^{-1}) Tool Diameter: ø12
v_f=588mm/min (f_z=0.07mm/t)
a_p=12mm

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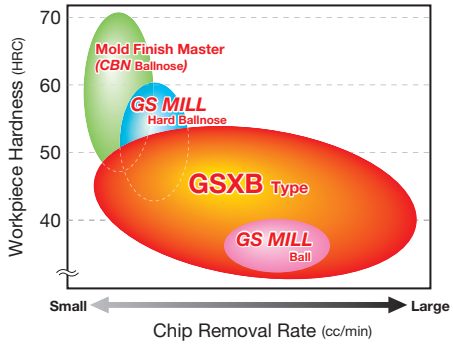
■ Recommended Milling Examples

Applications	Radius Milling		Profiling		Pocketing	
	Roughing	Finishing	Roughing	Finishing	Roughing	Finishing
GSXB Type	◎	◎	◎	◎	◎	◎

■ Improved Thermal Resistance and Wear Resistance

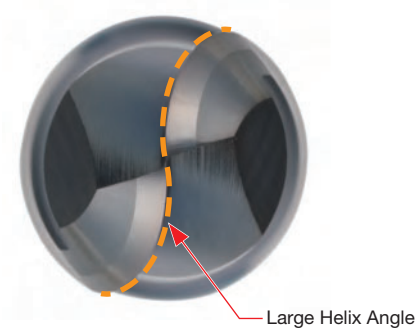
New coating combined with an ultra-fine grained carbide substrate for better thermal and wear resistance.

■ Application Range



■ Reduced Cutting Force

Large helix angle on curved cutting edge reduces cutting force

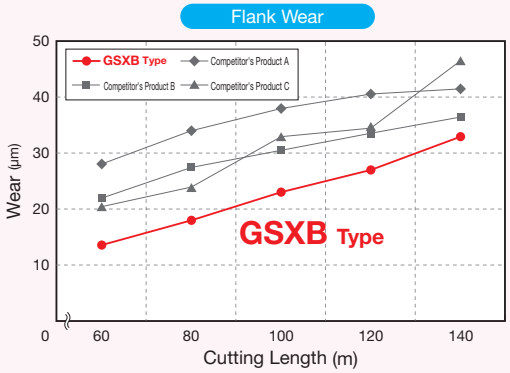


■ Improved Chip Evacuation

Unique pocket design and expanded pocket area promote better chip evacuation.

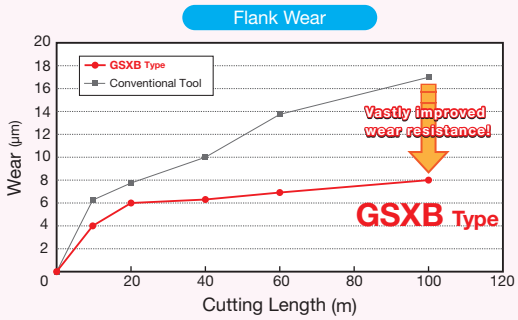
■ Application Examples (Ballnose)

● Die Steel Machining with GSXB20000



Work Material: SKD61(50HRC)
Tool Diameter: R3.0 (2 Flutes)
Cutting Conditions: v_c=179m/min (n=9,500min^{-1}), v_f=2,250mm/min (f_z=0.12mm/t)
a_p=0.2 to 1.0mm, p_f=0.3mm Wet
Equipment: Vertical Machining Centre BT40

● Die Steel (Raw Material) Machining with GSXB20000



Work Material: SKD11 (Soft)
Tool Diameter: R0.5 (2 Flutes)
Cutting Conditions: v_c=60m/min (n=19,000min^{-1}), v_f=1,140mm/min (f_z=0.03mm/t)
a_p=0.02mm, p_f=0.05mm, Dry
Equipment: Vertical Machining Centre BT40

GSX 20000C-1.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

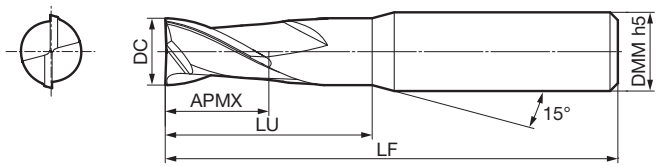
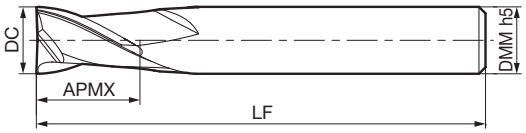


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050C-1.5D	●	**0.5**	1.0	1.4	40	4	1	2,430
20100C-1.5D	●	**1.0**	1.5	2.5	40	4	1	2,120
20150C-1.5D	●	**1.5**	2.3	3.3	40	4	1	2,120
20200C-1.5D	●	**2.0**	3.0	4.0	40	4	1	2,120
20250C-1.5D	●	**2.5**	3.8	4.8	40	4	1	2,120
GSX 20300C-1.5D	●	**3.0**	4.5	6.0	45	6	1	2,680
20350C-1.5D	●	**3.5**	5.3	6.8	45	6	1	4,730
20400C-1.5D	●	**4.0**	6.0	7.5	45	6	1	3,070
20450C-1.5D	●	**4.5**	6.8	8.3	50	6	1	5,580
20500C-1.5D	●	**5.0**	7.5	9.5	50	6	1	3,300
GSX 20550C-1.5D	●	**5.5**	8.3	10.3	50	6	1	5,580
20600C-1.5D	●	**6.0**	9.0	—	50	6	2	3,530
20650C-1.5D	●	**6.5**	10.0	12.0	60	8	1	5,690
20700C-1.5D	●	**7.0**	11.0	13.0	60	8	1	7,950
20750C-1.5D	●	**7.5**	12.0	14.0	60	8	1	5,690
GSX 20800C-1.5D	●	**8.0**	12.0	—	60	8	2	5,810
20850C-1.5D	●	**8.5**	13.0	15.0	70	10	1	9,490
20900C-1.5D	●	**9.0**	14.0	16.0	70	10	1	10,600
20950C-1.5D	●	**9.5**	15.0	17.0	70	10	1	9,490
21000C-1.5D	●	**10.0**	15.0	—	70	10	2	7,060
GSX 21050C-1.5D	●	**10.5**	16.0	18.5	75	12	1	13,900
21100C-1.5D	●	**11.0**	17.0	19.5	75	12	1	13,900
21150C-1.5D	●	**11.5**	18.0	20.5	75	12	1	13,900
21200C-1.5D	●	**12.0**	18.0	—	75	12	2	10,000
21300C-1.5D	●	**13.0**	20.0	23.5	90	16	1	22,200
GSX 21400C-1.5D	●	**14.0**	21.0	24.5	90	16	1	22,300
21500C-1.5D	●	**15.0**	23.0	26.5	90	16	1	28,200
21600C-1.5D	●	**16.0**	24.0	—	90	16	2	29,900
21700C-1.5D	●	**17.0**	26.0	30.5	100	20	1	43,600
21800C-1.5D	●	**18.0**	27.0	31.5	100	20	1	46,200
GSX 21900C-1.5D	●	**19.0**	29.0	33.5	100	20	1	48,800
22000C-1.5D	●	**20.0**	30.0	—	100	20	2	50,400
22500C-1.5D	●	**25.0**	38.0	—	120	25	2	81,800

Grade: ACF20

The List price is a price only for Japan.

Identification Table

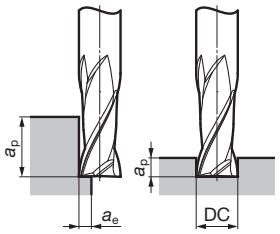
GSX 2 1000 C - 1.5D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000C-1.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
2.0		11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
4.0		6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
6.0		4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
8.0		3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
10.0		2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
12.0		2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
16.0		1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
20.0		1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
25.0		1,080	300	1,080	300	1,080	300	1,040	220	720	130	520	70	640	80	520	60
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
2.0		11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
4.0		6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
6.0		4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
8.0		3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
10.0		2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
12.0		2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
16.0		1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
20.0		1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
25.0		1,080	240	1,080	304	1,080	304	1,040	224	720	128	520	72	640	56	256	24
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 20000S-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

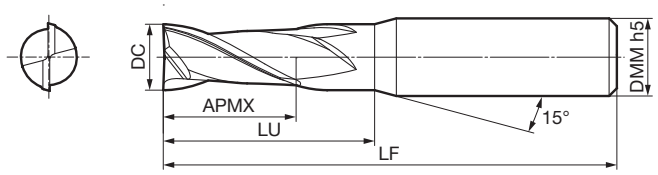
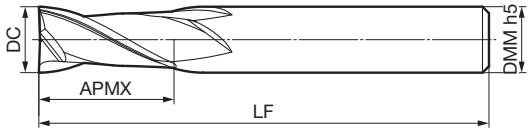


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body (Diameter ø0.3 to 4.3mm)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20030S-2D	●	**0.3**	0.6	1.0	40	4	1	3,800
20040S-2D	●	**0.4**	0.8	1.2	40	4	1	3,800
20050S-2D	●	**0.5**	1.3	1.7	40	4	1	2,430
20060S-2D	●	**0.6**	1.3	1.8	40	4	1	2,940
20070S-2D	●	**0.7**	1.4	1.9	40	4	1	2,940
GSX 20080S-2D	●	**0.8**	1.6	2.1	40	4	1	2,940
20090S-2D	●	**0.9**	1.8	2.3	40	4	1	2,940
20100S-2D	●	**1.0**	2.5	3.5	40	4	1	2,120
20110S-2D	●	**1.1**	2.5	3.5	40	4	1	3,540
20120S-2D	●	**1.2**	2.5	3.5	40	4	1	3,540
GSX 20130S-2D	●	**1.3**	2.6	3.6	40	4	1	3,540
20140S-2D	●	**1.4**	2.8	3.8	40	4	1	3,540
20150S-2D	●	**1.5**	3.8	4.8	40	4	1	2,120
20150S-2D-S3	●	**1.5**	3.8	4.8	38	3	1	2,120
20160S-2D	●	**1.6**	3.8	4.8	40	4	1	3,540
GSX 20170S-2D	●	**1.7**	3.8	4.8	40	4	1	3,540
20180S-2D	●	**1.8**	3.8	4.8	40	4	1	3,540
20190S-2D	●	**1.9**	3.8	4.8	40	4	1	3,540
20200S-2D	●	**2.0**	5.0	6.0	40	4	1	2,120
20200S-2D-S3	●	**2.0**	5.0	6.0	38	3	1	3,250
GSX 20210S-2D	●	**2.1**	6.0	7.0	40	4	1	3,540
20220S-2D	●	**2.2**	6.0	7.0	40	4	1	3,540
20230S-2D	●	**2.3**	6.0	7.0	40	4	1	3,540
20240S-2D	●	**2.4**	6.0	7.0	40	4	1	3,540
20250S-2D	●	**2.5**	6.3	7.3	40	4	1	2,120
GSX 20260S-2D	●	**2.6**	7.0	8.0	40	4	1	4,550
20270S-2D	●	**2.7**	7.0	8.0	40	4	1	4,550
20280S-2D	●	**2.8**	7.0	8.0	40	4	1	4,550
20290S-2D	●	**2.9**	7.0	8.0	40	4	1	4,550
20300S-2D	●	**3.0**	7.5	9.0	45	6	1	2,680
GSX 20300S-2D-S3	●	**3.0**	7.5	—	38	3	2	2,680
20310S-2D	●	**3.1**	7.5	9.0	45	6	1	4,750
20320S-2D	●	**3.2**	7.5	9.0	45	6	1	4,750
20330S-2D	●	**3.3**	7.5	9.0	45	6	1	4,750
20340S-2D	●	**3.4**	7.5	9.0	45	6	1	4,750
GSX 20350S-2D	●	**3.5**	8.8	10.3	45	6	1	4,730
20360S-2D	●	**3.6**	8.8	10.3	45	6	1	4,750
20370S-2D	●	**3.7**	8.8	10.3	45	6	1	4,750
20380S-2D	●	**3.8**	8.8	10.3	45	6	1	4,750
20390S-2D	●	**3.9**	8.8	10.3	45	6	1	4,750
GSX 20400S-2D	●	**4.0**	11.0	14.0	45	6	1	3,070
20400S-2D-S4	●	**4.0**	11.0	—	45	4	2	3,070
20410S-2D	●	**4.1**	11.0	14.0	45	6	1	4,750
20420S-2D	●	**4.2**	11.0	14.0	45	6	1	4,750
20430S-2D	●	**4.3**	11.0	14.0	45	6	1	4,750

Grade: ACF20

The List price is a price only for Japan.

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000S-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

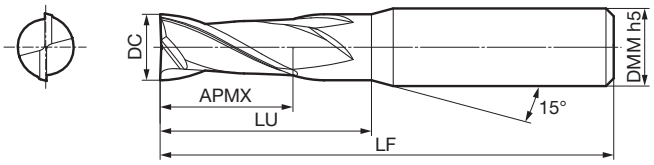
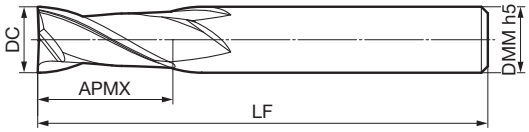


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body (Diameter ø4.4 to 8.8mm)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20440S-2D	●	**4.4**	11.0	14.0	45	6	1	4,750
20450S-2D	●	**4.5**	11.3	12.8	50	6	1	5,580
20460S-2D	●	**4.6**	11.3	12.8	50	6	1	5,570
20470S-2D	●	**4.7**	11.3	12.8	50	6	1	5,570
20480S-2D	●	**4.8**	11.3	12.8	50	6	1	5,570
GSX 20490S-2D	●	**4.9**	11.3	12.8	50	6	1	5,570
20500S-2D	●	**5.0**	13.0	19.6	50	6	1	3,300
20510S-2D	●	**5.1**	13.0	19.6	50	6	1	5,570
20520S-2D	●	**5.2**	13.0	19.6	50	6	1	5,570
20530S-2D	●	**5.3**	13.0	19.6	50	6	1	5,570
GSX 20540S-2D	●	**5.4**	13.0	19.6	50	6	1	5,570
20550S-2D	●	**5.5**	13.0	19.6	50	6	1	5,580
20560S-2D	●	**5.6**	13.0	19.6	50	6	1	5,760
20570S-2D	●	**5.7**	13.0	19.6	50	6	1	5,760
20580S-2D	●	**5.8**	13.0	19.6	50	6	1	5,760
GSX 20590S-2D	●	**5.9**	13.0	19.6	50	6	1	5,760
20600S-2D	●	**6.0**	13.0	—	50	6	2	3,530
20610S-2D	●	**6.1**	13.0	19.6	50	8	1	8,350
20620S-2D	●	**6.2**	13.0	19.6	50	8	1	8,350
20630S-2D	●	**6.3**	13.0	19.6	50	8	1	8,350
GSX 20640S-2D	●	**6.4**	13.0	19.6	50	8	1	8,350
20650S-2D	●	**6.5**	13.0	19.6	60	8	1	5,690
20660S-2D	●	**6.6**	13.2	19.8	60	8	1	8,350
20670S-2D	●	**6.7**	13.4	20.0	60	8	1	8,350
20680S-2D	●	**6.8**	13.6	20.2	60	8	1	8,350
GSX 20690S-2D	●	**6.9**	13.8	20.4	60	8	1	8,350
20700S-2D	●	**7.0**	16.0	21.1	60	8	1	7,950
20710S-2D	●	**7.1**	16.0	21.1	60	8	1	8,480
20720S-2D	●	**7.2**	16.0	21.1	60	8	1	8,480
20730S-2D	●	**7.3**	16.0	21.1	60	8	1	8,480
GSX 20740S-2D	●	**7.4**	16.0	21.1	60	8	1	8,480
20750S-2D	●	**7.5**	16.0	21.1	60	8	1	5,690
20760S-2D	●	**7.6**	16.0	21.1	60	8	1	8,480
20770S-2D	●	**7.7**	16.0	21.1	60	8	1	8,480
20780S-2D	●	**7.8**	16.0	21.1	60	8	1	8,480
GSX 20790S-2D	●	**7.9**	16.0	21.1	60	8	1	8,480
20800S-2D	●	**8.0**	19.0	—	60	8	2	5,810
20810S-2D	●	**8.1**	19.0	24.1	60	10	1	10,100
20820S-2D	●	**8.2**	19.0	24.1	60	10	1	10,100
20830S-2D	●	**8.3**	19.0	24.1	60	10	1	10,100
GSX 20840S-2D	●	**8.4**	19.0	24.1	60	10	1	10,100
20850S-2D	●	**8.5**	19.0	24.1	70	10	1	9,490
20860S-2D	●	**8.6**	19.0	24.1	70	10	1	10,100
20870S-2D	●	**8.7**	19.0	24.1	70	10	1	10,100
20880S-2D	●	**8.8**	19.0	24.1	70	10	1	10,100

Grade: ACF20

The List price is a price only for Japan.

Prices have been revised as of July 1, 2022. ● mark: Standard stocked item

GSX 20000S-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

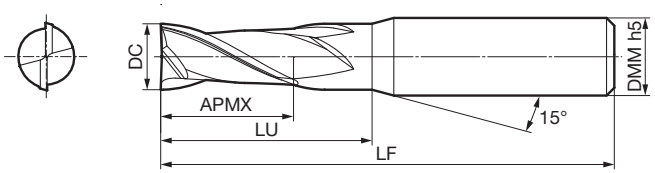
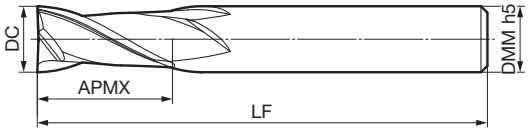


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body (Diameter ø8.9 to 25.0mm)

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20890S-2D	●	**8.9**	19.0	24.1	70	10	1	10,100
20900S-2D	●	**9.0**	19.0	24.1	70	10	1	10,600
20910S-2D	●	**9.1**	19.0	24.1	70	10	1	10,800
20920S-2D	●	**9.2**	19.0	24.1	70	10	1	10,800
20930S-2D	●	**9.3**	19.0	24.1	70	10	1	10,800
GSX 20940S-2D	●	**9.4**	19.0	24.1	70	10	1	10,800
20950S-2D	●	**9.5**	20.0	25.1	70	10	1	9,490
20960S-2D	●	**9.6**	20.0	25.1	70	10	1	11,400
20970S-2D	●	**9.7**	20.0	25.1	70	10	1	11,400
20980S-2D	●	**9.8**	20.0	25.1	70	10	1	11,400
GSX 20990S-2D	●	**9.9**	20.0	25.1	70	10	1	11,400
21000S-2D	●	**10.0**	22.0	—	70	10	2	7,060
21050S-2D	●	**10.5**	22.0	24.5	75	12	1	13,900
21100S-2D	●	**11.0**	22.0	24.5	75	12	1	13,900
21150S-2D	●	**11.5**	23.0	25.5	75	12	1	13,900
GSX 21200S-2D	●	**12.0**	26.0	—	75	12	2	10,000
21250S-2D	●	**12.5**	26.0	29.5	75	16	1	20,200
21300S-2D	●	**13.0**	26.0	29.5	90	16	1	22,200
21400S-2D	●	**14.0**	28.0	31.5	90	16	1	22,300
21500S-2D	●	**15.0**	30.0	33.5	90	16	1	28,200
GSX 21600S-2D	●	**16.0**	32.0	—	90	16	2	29,900
21700S-2D	●	**17.0**	35.0	39.5	100	20	1	43,600
21800S-2D	●	**18.0**	40.0	44.5	100	20	1	46,200
21900S-2D	●	**19.0**	40.0	44.5	100	20	1	48,800
22000S-2D	●	**20.0**	40.0	—	100	20	2	50,400
GSX 22100S-2D	●	**21.0**	42.0	47.0	110	25	1	63,400
22200S-2D	●	**22.0**	44.0	49.0	110	25	1	65,400
22300S-2D	●	**23.0**	46.0	51.0	120	25	1	68,600
22400S-2D	●	**24.0**	48.0	53.0	120	25	1	76,000
22500S-2D	●	**25.0**	50.0	—	120	25	2	81,800

Grade: ACF20

The List price is a price only for Japan.

Identification Table

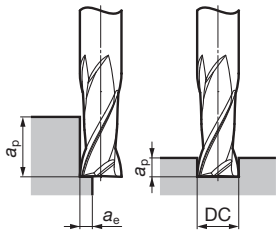
GSX 2 0150 S - 2D - S3

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length	Shank Dia.
			S: Sharp Edged		

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000S-2D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
4.0		5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
6.0		4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
8.0		3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
10.0		2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
12.0		2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
16.0		1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
20.0		1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
25.0		960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut	a_p	2.0DC															
	a_e	0.02DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	180	16,600	180	16,600	180	15,500	130	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	100	4,500	60	5,400	70	4,500	50
4.0		5,400	330	5,400	330	5,400	330	5,000	250	3,400	120	2,500	75	3,000	90	2,500	65
6.0		4,000	400	4,000	400	4,000	400	3,700	300	2,550	150	1,900	100	2,300	110	1,900	80
8.0		3,000	400	3,000	400	3,000	400	2,800	300	1,900	150	1,400	100	1,700	110	1,400	80
10.0		2,400	400	2,400	400	2,400	400	2,200	300	1,500	150	1,100	100	1,300	110	1,100	80
12.0		2,000	400	2,000	400	2,000	400	1,850	300	1,300	150	950	100	1,100	110	950	80
16.0		1,500	330	1,500	330	1,500	330	1,400	250	950	120	700	75	850	85	700	60
20.0		1,200	280	1,200	280	1,200	280	1,100	220	750	110	550	65	650	75	550	55
25.0		960	220	960	220	960	220	880	170	600	85	440	50	520	60	440	45
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 20000C-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

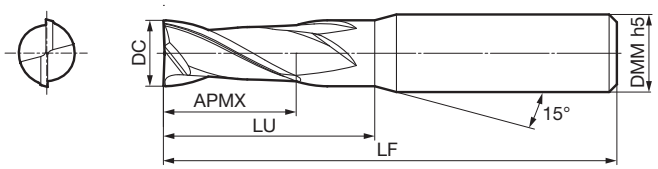
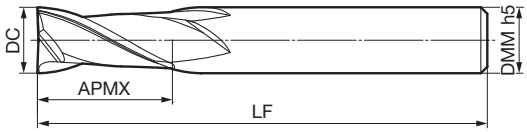


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050C-2D	●	**0.5**	1.0	1.4	40	4	1	2,430
20100C-2D	●	**1.0**	2.0	3.0	40	4	1	2,120
20150C-2D	●	**1.5**	3.0	4.0	40	4	1	2,120
20200C-2D	●	**2.0**	4.0	5.0	40	4	1	2,120
20250C-2D	●	**2.5**	5.0	6.0	40	4	1	2,120
GSX 20300C-2D	●	**3.0**	6.0	7.5	45	6	1	2,680
20350C-2D	●	**3.5**	7.0	8.5	45	6	1	4,730
20400C-2D	●	**4.0**	8.0	9.5	45	6	1	3,070
20450C-2D	●	**4.5**	9.0	10.5	50	6	1	5,580
20500C-2D	●	**5.0**	10.0	12.0	50	6	1	3,300
GSX 20550C-2D	●	**5.5**	11.0	13.0	50	6	1	5,580
20600C-2D	●	**6.0**	12.0	—	50	6	2	3,530
20650C-2D	●	**6.5**	13.0	15.0	60	8	1	5,690
20700C-2D	●	**7.0**	14.0	16.0	60	8	1	7,950
20750C-2D	●	**7.5**	15.0	17.0	60	8	1	5,690
GSX 20800C-2D	●	**8.0**	16.0	—	60	8	2	5,810
20850C-2D	●	**8.5**	17.0	19.0	70	10	1	9,490
20900C-2D	●	**9.0**	18.0	20.0	70	10	1	10,600
20950C-2D	●	**9.5**	19.0	21.0	70	10	1	9,490
21000C-2D	●	**10.0**	20.0	—	70	10	2	7,060
GSX 21050C-2D	●	**10.5**	21.0	23.5	75	12	1	13,900
21100C-2D	●	**11.0**	22.0	24.5	75	12	1	13,900
21150C-2D	●	**11.5**	23.0	25.5	75	12	1	13,900
21200C-2D	●	**12.0**	24.0	—	75	12	2	10,000
21300C-2D	●	**13.0**	26.0	29.5	90	16	1	22,200
GSX 21400C-2D	●	**14.0**	28.0	31.5	90	16	1	22,300
21500C-2D	●	**15.0**	30.0	33.5	90	16	1	28,200
21600C-2D	●	**16.0**	32.0	—	90	16	2	29,900
21700C-2D	●	**17.0**	34.0	38.5	100	20	1	43,600
21800C-2D	●	**18.0**	36.0	40.5	100	20	1	46,200
GSX 21900C-2D	●	**19.0**	38.0	42.5	100	20	1	48,800
22000C-2D	●	**20.0**	40.0	—	100	20	2	50,400
22500C-2D	●	**25.0**	50.0	—	120	25	2	81,800

Grade: ACF20

The List price is a price only for Japan.

Identification Table

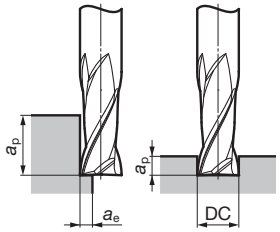
GSX 2 0050 C - 2D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000C-2D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
Dc(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	250	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	70	9,000	50
2.0		11,200	340	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	90	5,300	70
4.0		6,400	460	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	120	3,000	90
6.0		4,600	560	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	140	2,200	100
8.0		3,400	560	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	140	1,600	100
10.0		2,800	560	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	140	1,300	100
12.0		2,300	560	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	140	1,100	100
16.0		1,700	450	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	110	800	85
20.0		1,350	380	1,350	380	1,350	380	1,300	280	900	160	650	90	800	100	650	75
25.0		1,000	300	1,000	300	1,000	300	1,000	220	700	120	500	70	640	80	500	60
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	200	19,600	250	19,600	250	18,300	180	12,700	100	9,000	60	11,000	50	4,500	20
2.0		11,200	270	11,200	340	11,200	340	10,500	240	7,300	130	5,300	80	6,400	65	2,650	25
4.0		6,400	370	6,400	460	6,400	460	6,000	320	4,200	180	3,000	110	3,600	80	1,500	35
6.0		4,600	450	4,600	560	4,600	560	4,300	400	3,000	210	2,200	130	2,700	100	1,100	40
8.0		3,400	450	3,400	560	3,400	560	3,200	400	2,200	210	1,600	130	2,000	100	800	40
10.0		2,800	450	2,800	560	2,800	560	2,600	400	1,800	210	1,300	130	1,600	100	650	40
12.0		2,300	450	2,300	560	2,300	560	2,200	400	1,500	210	1,100	130	1,300	100	500	40
16.0		1,700	360	1,700	450	1,700	450	1,600	320	1,100	180	800	100	1,000	80	400	35
20.0		1,350	300	1,350	380	1,350	380	1,300	280	900	160	650	90	800	70	320	30
25.0		1,000	240	1,000	300	1,000	300	1,000	220	700	120	500	70	640	55	250	25
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 20000S-3D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

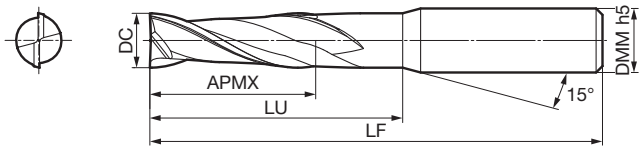
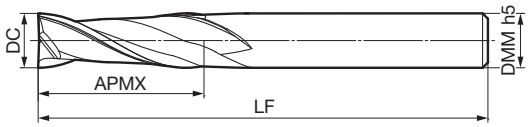


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050S-3D	●	**0.5**	1.5	1.9	40	4	1	2,430
20100S-3D	●	**1.0**	3.0	4.0	40	4	1	2,120
20150S-3D	●	**1.5**	4.5	5.5	40	4	1	2,120
20200S-3D	●	**2.0**	6.0	7.0	40	4	1	2,120
20250S-3D	●	**2.5**	7.5	8.5	40	4	1	2,120
GSX 20260S-3D	●	**2.6**	8.0	9.5	50	4	1	4,680
20270S-3D	●	**2.7**	8.5	10.0	50	4	1	4,680
20280S-3D	●	**2.8**	9.0	10.5	50	4	1	4,680
20290S-3D	●	**2.9**	9.0	10.5	50	4	1	4,680
20300S-3D	●	**3.0**	9.0	10.5	50	6	1	2,680
GSX 20350S-3D	●	**3.5**	12.0	13.5	50	6	1	4,730
20400S-3D	●	**4.0**	12.0	13.5	50	6	1	3,070
20450S-3D	●	**4.5**	15.0	16.5	50	6	1	5,580
20500S-3D	●	**5.0**	15.0	17.0	50	6	1	3,300
20550S-3D	●	**5.5**	18.0	20.0	50	6	1	5,580
GSX 20600S-3D	●	**6.0**	18.0	—	50	6	2	3,530
20650S-3D	●	**6.5**	20.0	22.0	70	8	1	5,690
20700S-3D	●	**7.0**	21.0	23.0	70	8	1	7,950
20750S-3D	●	**7.5**	23.0	25.0	70	8	1	6,070
20800S-3D	●	**8.0**	24.0	—	70	8	2	5,810
GSX 20850S-3D	●	**8.5**	26.0	28.0	75	10	1	9,490
20900S-3D	●	**9.0**	27.0	29.0	75	10	1	10,600
20950S-3D	●	**9.5**	29.0	31.0	75	10	1	9,490
21000S-3D	●	**10.0**	30.0	—	90	10	2	7,060
21050S-3D	●	**10.5**	32.0	34.5	90	12	1	13,900
GSX 21100S-3D	●	**11.0**	33.0	35.5	90	12	1	13,900
21150S-3D	●	**11.5**	35.0	37.5	90	12	1	13,900
21200S-3D	●	**12.0**	36.0	—	90	12	2	10,000
21300S-3D	●	**13.0**	39.0	42.5	100	16	1	24,000
21400S-3D	●	**14.0**	42.0	45.5	110	16	1	26,600
GSX 21500S-3D	●	**15.0**	45.0	48.5	110	16	1	28,200
21600S-3D	●	**16.0**	48.0	—	110	16	2	29,900
21700S-3D	●	**17.0**	51.0	55.5	110	20	1	43,600
21800S-3D	●	**18.0**	54.0	58.5	120	20	1	46,200
21900S-3D	●	**19.0**	57.0	61.5	120	20	1	48,800
GSX 22000S-3D	●	**20.0**	60.0	—	120	20	2	50,400
22400S-3D	●	**24.0**	72.0	77.0	130	25	1	76,000
22500S-3D	●	**25.0**	75.0	—	130	25	2	81,800

Grade: ACF20

The List price is a price only for Japan.

Identification Table

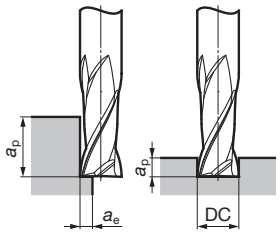
GSX 2 0050 S - 3D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			S: Sharp Edged	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000S-3D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
2.0		8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
4.0		4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
6.0		2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
8.0		2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
10.0		1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
12.0		1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
16.0		1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
20.0		850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
25.0		680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC Above ø3: 0.05DC								0.01DC							

Groove Finishing

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		14,000	140	14,000	140	14,000	140	13,200	100	8,900	50	6,300	30	8,000	35	6,300	25
2.0		8,100	180	8,100	180	8,100	180	7,600	150	5,300	90	3,700	45	4,400	50	3,800	40
4.0		4,400	240	4,400	240	4,400	240	4,000	150	2,900	110	1,900	55	2,200	65	1,900	50
6.0		2,900	260	2,900	260	2,900	260	2,700	180	2,100	130	1,200	65	1,400	75	1,200	60
8.0		2,200	230	2,200	230	2,200	230	2,000	180	1,600	130	900	65	1,100	75	900	60
10.0		1,800	220	1,800	220	1,800	220	1,600	170	1,300	130	750	65	850	75	750	60
12.0		1,500	200	1,500	200	1,500	200	1,300	170	1,000	130	630	65	700	75	600	60
16.0		1,100	170	1,100	170	1,100	170	1,000	150	800	110	450	55	550	65	450	50
20.0		850	160	850	160	850	160	800	130	600	100	350	50	400	55	350	45
25.0		680	130	680	130	680	130	640	100	480	80	280	40	320	45	280	35
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 20000C-3D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing

Fig 1

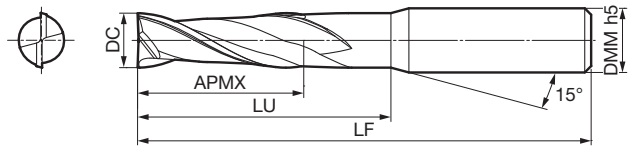
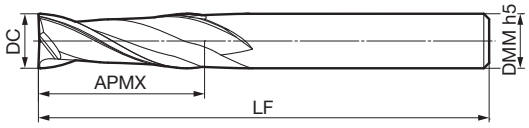


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050C-3D	●	**0.5**	1.5	1.9	40	4	1	2,430
20100C-3D	●	**1.0**	3.0	4.0	40	4	1	2,120
20150C-3D	●	**1.5**	4.5	5.5	40	4	1	2,120
20200C-3D	●	**2.0**	6.0	7.0	40	4	1	2,120
20250C-3D	●	**2.5**	7.5	8.5	40	4	1	2,120
GSX 20300C-3D	●	**3.0**	9.0	10.5	50	6	1	2,680
20350C-3D	●	**3.5**	11.0	12.5	50	6	1	4,730
20400C-3D	●	**4.0**	12.0	13.5	50	6	1	3,070
20450C-3D	●	**4.5**	14.0	15.5	50	6	1	5,580
20500C-3D	●	**5.0**	15.0	17.0	50	6	1	3,300
GSX 20550C-3D	●	**5.5**	17.0	19.0	50	6	1	5,580
20600C-3D	●	**6.0**	18.0	—	50	6	2	3,530
20650C-3D	●	**6.5**	20.0	22.0	70	8	1	5,690
20700C-3D	●	**7.0**	21.0	23.0	70	8	1	7,950
20750C-3D	●	**7.5**	23.0	25.0	70	8	1	6,070
GSX 20800C-3D	●	**8.0**	24.0	—	70	8	2	5,810
20850C-3D	●	**8.5**	26.0	28.0	75	10	1	9,490
20900C-3D	●	**9.0**	27.0	29.0	75	10	1	10,600
20950C-3D	●	**9.5**	29.0	31.0	75	10	1	9,490
21000C-3D	●	**10.0**	30.0	—	90	10	2	7,060
GSX 21050C-3D	●	**10.5**	32.0	34.5	90	12	1	13,900
21100C-3D	●	**11.0**	33.0	35.5	90	12	1	13,900
21150C-3D	●	**11.5**	35.0	37.5	90	12	1	13,900
21200C-3D	●	**12.0**	36.0	—	90	12	2	10,000
21300C-3D	●	**13.0**	39.0	42.5	100	16	1	24,000
GSX 21400C-3D	●	**14.0**	42.0	45.5	110	16	1	26,600
21500C-3D	●	**15.0**	45.0	48.5	110	16	1	28,200
21600C-3D	●	**16.0**	48.0	—	110	16	2	29,900
21700C-3D	●	**17.0**	51.0	55.5	110	20	1	43,600
21800C-3D	●	**18.0**	54.0	58.5	120	20	1	46,200
GSX 21900C-3D	●	**19.0**	57.0	61.5	120	20	1	48,800
22000C-3D	●	**20.0**	60.0	—	120	20	2	50,400
22500C-3D	●	**25.0**	75.0	—	130	25	2	81,800

Grade: ACF20

The List price is a price only for Japan.

Identification Table

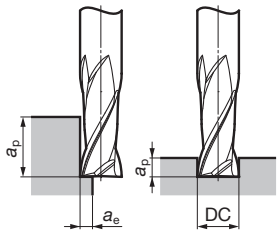
GSX 2 0100 C - 3D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			C: Gash Land	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000C-3D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	190	16,600	190	16,600	190	15,500	140	10,500	70	7,500	45	9,400	50	7,500	35
2.0		9,500	250	9,500	250	9,500	250	9,000	200	6,200	120	4,500	60	5,200	70	4,500	50
4.0		5,200	330	5,200	330	5,200	330	4,800	200	3,400	150	2,250	75	2,600	90	2,250	65
6.0		3,500	360	3,500	360	3,500	360	3,200	250	2,550	170	1,500	90	1,700	100	1,500	80
8.0		2,600	320	2,600	320	2,600	320	2,400	240	1,900	170	1,100	90	1,300	100	1,100	80
10.0		2,100	300	2,100	300	2,100	300	1,900	230	1,500	170	900	90	1,000	100	900	80
12.0		1,750	280	1,750	280	1,750	280	1,600	230	1,250	170	750	90	850	100	750	80
16.0		1,300	240	1,300	240	1,300	240	1,200	200	950	150	550	75	650	85	550	65
20.0		1,050	220	1,050	220	1,050	220	950	180	750	140	450	70	500	75	450	60
25.0		840	180	840	180	840	180	760	140	600	110	360	55	400	60	360	45
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.05DC Above ø3: 0.1DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	70	16,600	80	16,600	80	15,500	50	10,500	50	7,500	35	9,400	30	3,750	10
2.0		9,500	80	9,500	100	9,500	100	9,000	90	6,200	60	4,500	45	5,200	40	2,250	15
4.0		5,200	120	5,200	150	5,200	150	4,800	120	3,400	80	2,200	50	2,600	50	1,250	20
6.0		3,500	140	3,500	170	3,500	170	3,200	130	2,550	100	1,500	50	1,700	60	950	25
8.0		2,600	140	2,600	160	2,600	160	2,400	130	1,900	100	1,100	50	1,300	60	700	25
10.0		2,100	130	2,100	150	2,100	150	1,900	120	1,500	90	900	50	1,000	60	550	25
12.0		1,750	130	1,750	150	1,750	150	1,600	120	1,250	90	750	50	850	60	450	25
16.0		1,300	110	1,300	130	1,300	130	1,200	110	950	80	550	45	650	50	350	20
20.0		1,050	100	1,050	120	1,050	120	950	100	750	70	450	40	500	40	280	15
25.0		840	80	840	96	840	96	760	80	600	56	360	32	400	32	224	12
Standard Depth of Cut	a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 20000S-4D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

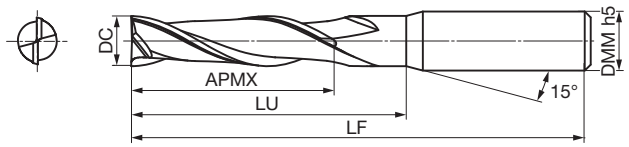
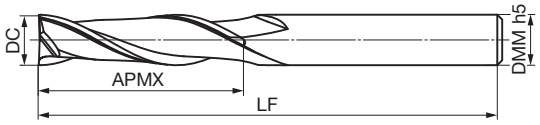


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050S-4D	●	**0.5**	2.0	2.4	40	4	1	3,540
20100S-4D	●	**1.0**	5.0	6.0	40	4	1	3,650
20150S-4D	●	**1.5**	7.0	8.0	40	4	1	3,650
20200S-4D	●	**2.0**	9.0	10.0	40	4	1	3,650
20250S-4D	●	**2.5**	12.0	13.0	50	4	1	3,650
GSX 20300S-4D	●	**3.0**	12.0	13.5	50	6	1	4,540
20350S-4D	●	**3.5**	14.0	15.5	50	6	1	4,750
20400S-4D	●	**4.0**	16.0	17.5	50	6	1	5,070
20450S-4D	●	**4.5**	18.0	19.5	60	6	1	5,690
20500S-4D	●	**5.0**	20.0	22.0	60	6	1	5,350
GSX 20550S-4D	●	**5.5**	22.0	24.0	60	6	1	5,690
20600S-4D	●	**6.0**	24.0	—	60	6	2	5,920
20650S-4D	●	**6.5**	26.0	28.0	70	8	1	6,960
20700S-4D	●	**7.0**	28.0	30.0	80	8	1	8,100
20750S-4D	●	**7.5**	30.0	32.0	80	8	1	8,220
GSX 20800S-4D	●	**8.0**	32.0	—	80	8	2	9,720
20850S-4D	●	**8.5**	34.0	36.0	90	10	1	10,100
20900S-4D	●	**9.0**	36.0	38.0	90	10	1	10,800
20950S-4D	●	**9.5**	38.0	40.0	90	10	1	11,400
21000S-4D	●	**10.0**	40.0	—	90	10	2	12,000
GSX 21050S-4D	●	**10.5**	42.0	44.5	100	12	1	16,400
21100S-4D	●	**11.0**	44.0	46.5	100	12	1	16,400
21150S-4D	●	**11.5**	46.0	48.5	100	12	1	16,400
21200S-4D	●	**12.0**	48.0	—	100	12	2	16,900
21300S-4D	●	**13.0**	52.0	55.5	110	16	1	29,100
GSX 21400S-4D	●	**14.0**	56.0	59.5	110	16	1	29,800
21500S-4D	●	**15.0**	60.0	63.5	120	16	1	31,600
21600S-4D	●	**16.0**	64.0	—	120	16	2	50,500
21700S-4D	●	**17.0**	68.0	72.5	130	20	1	52,800
21800S-4D	●	**18.0**	72.0	76.5	130	20	1	55,400
GSX 21900S-4D	●	**19.0**	76.0	80.5	140	20	1	59,400
22000S-4D	●	**20.0**	80.0	—	140	20	2	82,900
22500S-4D	●	**25.0**	100.0	—	160	25	2	105,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

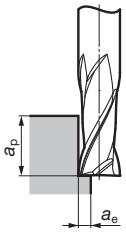
GSX 2 0100 S - 4D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			S: Sharp Edged	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000S-4D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		7,600	110	7,600	110	7,600	110	6,000	80	5,500	40	3,800	25	4,600	35	3,800	20
2.0		3,850	150	3,850	150	3,850	150	2,950	100	2,750	60	1,900	30	2,300	40	1,950	30
4.0		1,900	200	1,900	200	1,900	200	1,450	130	1,350	80	1,000	50	1,150	55	1,000	35
6.0		1,250	250	1,250	250	1,250	250	970	140	860	90	640	60	740	60	640	40
8.0		930	220	930	220	930	220	700	140	670	90	500	60	560	60	490	40
10.0		770	210	770	210	770	210	190	130	560	95	380	60	460	60	380	40
12.0		650	200	650	200	650	200	470	130	420	85	330	60	370	60	320	40
16.0		450	170	450	170	450	170	370	120	340	80	250	45	280	50	250	35
20.0		360	140	360	140	360	140	300	100	260	70	190	35	220	40	190	30
25.0		190	120	190	120	190	120	230	80	200	55	150	30	170	30	150	25
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC Above ø3: 0.05DC								0.01DC							

GSX 20000C-4D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling | Spot Facing

Fig 1

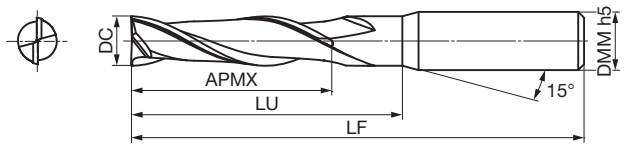
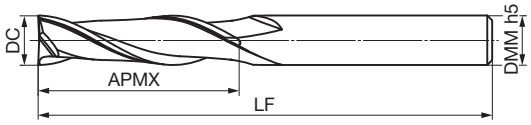


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 20050C-4D	●	**0.5**	2.0	2.4	40	4	1	3,540
20100C-4D	●	**1.0**	4.0	5.0	40	4	1	3,650
20150C-4D	●	**1.5**	6.0	7.0	40	4	1	3,650
20200C-4D	●	**2.0**	8.0	9.0	40	4	1	3,650
20250C-4D	●	**2.5**	10.0	11.0	50	4	1	3,650
GSX 20300C-4D	●	**3.0**	12.0	13.5	50	6	1	4,540
20350C-4D	●	**3.5**	14.0	15.5	50	6	1	4,750
20400C-4D	●	**4.0**	16.0	17.5	50	6	1	5,070
20450C-4D	●	**4.5**	18.0	19.5	60	6	1	5,690
20500C-4D	●	**5.0**	20.0	22.0	60	6	1	5,350
GSX 20550C-4D	●	**5.5**	22.0	24.0	60	6	1	5,690
20600C-4D	●	**6.0**	24.0	—	60	6	2	5,920
20650C-4D	●	**6.5**	26.0	28.0	70	8	1	6,960
20700C-4D	●	**7.0**	28.0	30.0	80	8	1	8,100
20750C-4D	●	**7.5**	30.0	32.0	80	8	1	8,220
GSX 20800C-4D	●	**8.0**	32.0	—	80	8	2	9,720
20850C-4D	●	**8.5**	34.0	36.0	90	10	1	10,100
20900C-4D	●	**9.0**	36.0	38.0	90	10	1	10,800
20950C-4D	●	**9.5**	38.0	40.0	90	10	1	11,400
21000C-4D	●	**10.0**	40.0	—	90	10	2	12,000
GSX 21050C-4D	●	**10.5**	42.0	44.5	100	12	1	16,400
21100C-4D	●	**11.0**	44.0	46.5	100	12	1	16,400
21150C-4D	●	**11.5**	46.0	48.5	100	12	1	16,400
21200C-4D	●	**12.0**	48.0	—	100	12	2	16,900
21300C-4D	●	**13.0**	52.0	55.5	110	16	1	29,100
GSX 21400C-4D	●	**14.0**	56.0	59.5	110	16	1	29,800
21500C-4D	●	**15.0**	60.0	63.5	120	16	1	31,600
21600C-4D	●	**16.0**	64.0	—	120	16	2	50,500
21700C-4D	●	**17.0**	68.0	72.5	130	20	1	52,800
21800C-4D	●	**18.0**	72.0	76.5	130	20	1	55,400
GSX 21900C-4D	●	**19.0**	76.0	80.5	140	20	1	59,400
22000C-4D	●	**20.0**	80.0	—	140	20	2	82,900
22500C-4D	●	**25.0**	100.0	—	160	25	2	105,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

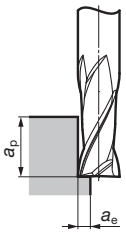
GSX 2 0100 C - 4D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			C: Gash Land	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 20000C-4D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. This series is not recommended for groove milling.
7. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		9,000	130	9,000	130	9,000	130	7,000	95	6,500	50	4,500	30	5,400	40	4,500	25
2.0		4,500	180	4,500	180	4,500	180	3,500	120	3,200	70	2,300	40	2,700	50	2,300	35
4.0		2,250	240	2,250	240	2,250	240	1,750	160	1,600	95	1,200	60	1,350	65	1,200	40
6.0		1,500	300	1,500	300	1,500	300	1,150	170	1,050	110	800	70	900	70	800	50
8.0		1,100	260	1,100	260	1,100	260	850	170	800	110	600	70	660	70	600	50
10.0		900	250	900	250	900	250	700	160	650	110	460	70	540	70	460	50
12.0		750	240	750	240	750	240	580	160	520	110	400	70	450	70	400	50
16.0		550	200	550	200	550	200	440	140	400	95	300	55	330	60	300	45
20.0		450	180	450	180	450	180	350	120	320	85	240	45	270	50	240	40
25.0		360	140	360	140	360	140	280	95	250	65	190	35	210	40	192	30
Standard Depth of Cut	a_p	3.5DC										3.0DC					
	a_e	0.08DC						0.04DC									

GSX 30000C-1.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

3 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

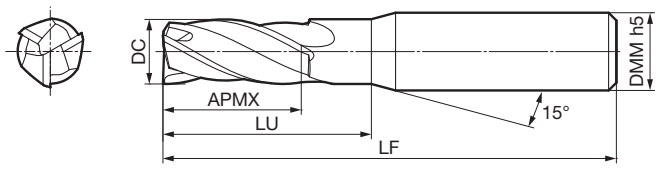
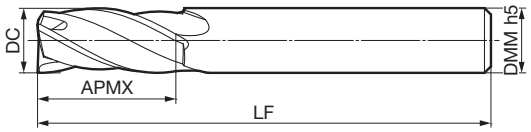


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 30100C-1.5D	●	**1.0**	1.5	2.5	40	4	1	4,320
30150C-1.5D	●	**1.5**	2.3	3.3	40	4	1	4,320
30200C-1.5D	●	**2.0**	3.0	4.0	40	4	1	3,250
30250C-1.5D	●	**2.5**	3.8	4.8	40	4	1	3,250
30300C-1.5D	●	**3.0**	4.5	6.0	45	6	1	3,370
GSX 30400C-1.5D	●	**4.0**	6.0	7.5	45	6	1	3,650
30500C-1.5D	●	**5.0**	7.5	9.5	50	6	1	3,990
30600C-1.5D	●	**6.0**	9.0	—	50	6	2	4,320
30700C-1.5D	●	**7.0**	11.0	13.0	60	8	1	10,100
30800C-1.5D	●	**8.0**	12.0	—	60	8	2	6,720
GSX 30900C-1.5D	●	**9.0**	14.0	16.0	70	10	1	11,400
31000C-1.5D	●	**10.0**	15.0	—	70	10	2	8,880
31200C-1.5D	●	**12.0**	18.0	—	75	12	2	11,200

Grade: ACF20

The List price is a price only for Japan.

Identification Table

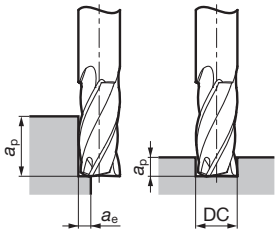
GSX 3 0100 C - 1.5D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 30000C-1.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0	11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0	6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0	4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0	3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0	2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0	2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0	11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0	6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0	4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0	3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0	2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0	2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 30000C-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

3 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

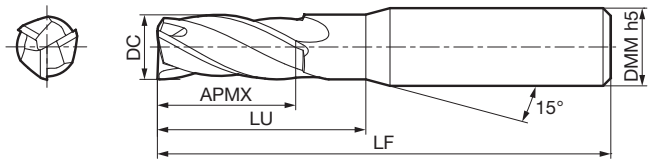
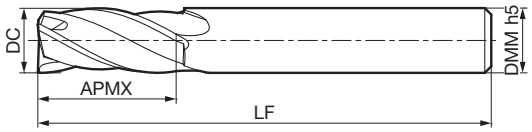


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 30100C-2D	●	**1.0**	2.5	3.5	40	4	1	4,320
30150C-2D	●	**1.5**	3.8	4.8	40	4	1	4,320
30200C-2D	●	**2.0**	5.0	6.0	40	4	1	3,250
30250C-2D	●	**2.5**	6.3	7.3	40	4	1	3,250
30300C-2D	●	**3.0**	7.5	9.0	45	6	1	3,370
GSX 30400C-2D	●	**4.0**	11.0	12.5	45	6	1	3,650
30500C-2D	●	**5.0**	13.0	15.0	50	6	1	3,990
30600C-2D	●	**6.0**	13.0	—	50	6	2	4,320
30700C-2D	●	**7.0**	16.0	18.0	60	8	1	10,100
30800C-2D	●	**8.0**	19.0	—	60	8	2	6,720
GSX 30900C-2D	●	**9.0**	19.0	21.0	70	10	1	11,400
31000C-2D	●	**10.0**	22.0	—	70	10	2	8,880
31200C-2D	●	**12.0**	26.0	—	75	12	2	11,200

Grade: ACF20

The List price is a price only for Japan.

Identification Table

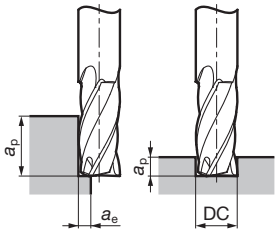
GSX 3 0100 C - 2D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 30000C-2D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0		11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0		6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0		4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0		3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0		2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0		2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0		11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0		6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0		4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0		3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0		2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0		2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 40000C-1.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

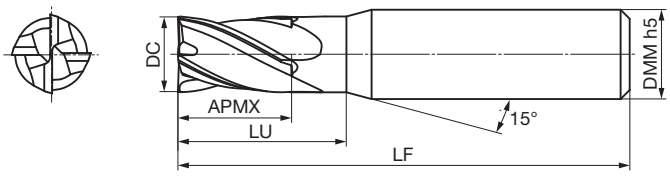
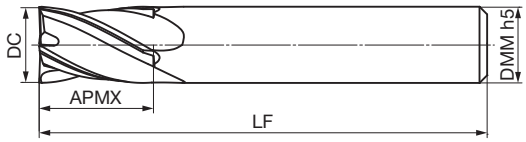


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100C-1.5D	●	**1.0**	1.5	2.5	40	4	1	4,320
40150C-1.5D	●	**1.5**	2.3	3.3	40	4	1	4,320
40200C-1.5D	●	**2.0**	3.0	4.0	40	4	1	3,250
40250C-1.5D	●	**2.5**	3.8	4.8	40	4	1	3,250
40300C-1.5D	●	**3.0**	4.5	6.0	45	6	1	3,370
GSX 40350C-1.5D	●	**3.5**	5.3	6.8	45	6	1	6,720
40400C-1.5D	●	**4.0**	6.0	7.5	45	6	1	3,650
40450C-1.5D	●	**4.5**	6.8	8.3	50	6	1	7,150
40500C-1.5D	●	**5.0**	7.5	9.5	50	6	1	3,990
40550C-1.5D	●	**5.5**	8.3	10.3	50	6	1	7,950
GSX 40600C-1.5D	●	**6.0**	9.0	—	50	6	2	4,320
40650C-1.5D	●	**6.5**	10.0	12.0	60	8	1	6,580
40700C-1.5D	●	**7.0**	11.0	13.0	60	8	1	10,100
40750C-1.5D	●	**7.5**	12.0	14.0	60	8	1	6,580
40800C-1.5D	●	**8.0**	12.0	—	60	8	2	6,720
GSX 40850C-1.5D	●	**8.5**	13.0	15.0	70	10	1	8,220
40900C-1.5D	●	**9.0**	14.0	16.0	70	10	1	11,400
40950C-1.5D	●	**9.5**	15.0	17.0	70	10	1	9,490
41000C-1.5D	●	**10.0**	15.0	—	70	10	2	8,880
41050C-1.5D	●	**10.5**	16.0	18.5	75	12	1	14,600
GSX 41100C-1.5D	●	**11.0**	17.0	19.5	75	12	1	14,600
41150C-1.5D	●	**11.5**	18.0	20.5	75	12	1	14,600
41200C-1.5D	●	**12.0**	18.0	—	75	12	2	11,200
41300C-1.5D	●	**13.0**	20.0	23.5	90	16	1	24,200
41400C-1.5D	●	**14.0**	21.0	24.5	90	16	1	24,200
GSX 41500C-1.5D	●	**15.0**	23.0	26.5	90	16	1	30,600
41600C-1.5D	●	**16.0**	24.0	—	90	16	2	38,000
41700C-1.5D	●	**17.0**	26.0	30.5	100	20	1	46,200
41800C-1.5D	●	**18.0**	27.0	31.5	100	20	1	52,800
41900C-1.5D	●	**19.0**	29.0	33.5	100	20	1	57,500
GSX 42000C-1.5D	●	**20.0**	30.0	—	100	20	2	55,600
42500C-1.5D	●	**25.0**	38.0	—	120	25	2	92,400

Grade: ACF20

The List price is a price only for Japan.

Identification Table

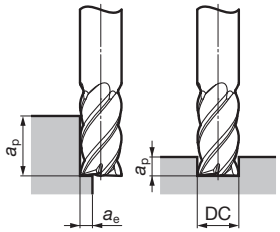
GSX 4 0100 C - 1.5D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000C-1.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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
25.0		1,050	470	1,050	470	1,050	470	1,050	300	720	210	520	120	640	130	520	80
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Side Milling (Using High Speed Machining Centre)

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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	—	—
25.0		3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,150	3,200	850	2,600	600	1,300	300	—	—
Standard Depth of Cut	a_p	1.5DC										1.0DC				—	
	a_e	0.05DC										0.02DC				—	

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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	5,400	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
25.0		1,080	384	1,080	480	1,080	480	1,040	304	720	208	520	120	640	88	256	40
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSX 40000S-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

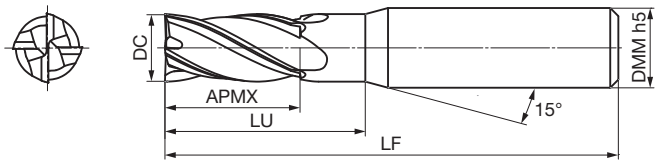
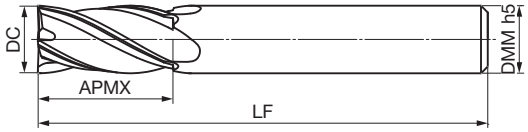


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100S-2D	●	**1.0**	2.5	3.5	40	4	1	4,320
40100S-2D-S3	●	**1.0**	2.5	3.5	38	3	1	4,320
40150S-2D	●	**1.5**	3.8	4.8	40	4	1	4,320
40200S-2D	●	**2.0**	5.0	6.0	40	4	1	3,250
40200S-2D-S3	●	**2.0**	5.0	6.0	38	3	1	3,250
GSX 40250S-2D	●	**2.5**	6.3	7.3	40	4	1	3,250
40300S-2D	●	**3.0**	7.5	9.0	45	6	1	3,370
40300S-2D-S3	●	**3.0**	7.5	—	38	3	2	3,370
40350S-2D	●	**3.5**	8.8	10.0	45	6	1	6,720
40400S-2D	●	**4.0**	11.0	14.0	45	6	1	3,650
GSX 40400S-2D-S4	●	**4.0**	11.0	—	45	4	2	3,650
40450S-2D	●	**4.5**	11.3	12.8	50	6	1	7,150
40500S-2D	●	**5.0**	13.0	19.6	50	6	1	3,990
40550S-2D	●	**5.5**	13.0	19.6	50	6	1	7,950
40600S-2D	●	**6.0**	13.0	—	50	6	2	4,320
GSX 40650S-2D	●	**6.5**	13.0	19.6	60	8	1	6,580
40700S-2D	●	**7.0**	16.0	21.1	60	8	1	10,100
40750S-2D	●	**7.5**	16.0	21.1	60	8	1	6,580
40800S-2D	●	**8.0**	19.0	—	60	8	2	6,720
40850S-2D	●	**8.5**	19.0	24.1	70	10	1	8,220
GSX 40900S-2D	●	**9.0**	19.0	24.1	70	10	1	11,400
40950S-2D	●	**9.5**	19.0	24.1	70	10	1	9,490
41000S-2D	●	**10.0**	22.0	—	70	10	2	8,880
41050S-2D	●	**10.5**	22.0	24.5	75	12	1	14,600
41100S-2D	●	**11.0**	22.0	24.5	75	12	1	14,600
GSX 41150S-2D	●	**11.5**	23.0	25.5	75	12	1	14,600
41200S-2D	●	**12.0**	26.0	—	75	12	2	11,200
41300S-2D	●	**13.0**	26.0	29.5	90	16	1	24,200
41350S-2D	●	**13.5**	27.0	30.5	90	16	1	24,200
41400S-2D	●	**14.0**	28.0	31.5	90	16	1	24,200
GSX 41500S-2D	●	**15.0**	30.0	33.5	90	16	1	30,600
41600S-2D	●	**16.0**	32.0	—	90	16	2	38,000
41700S-2D	●	**17.0**	35.0	39.5	100	20	1	46,200
41800S-2D	●	**18.0**	40.0	44.5	100	20	1	52,800
41900S-2D	●	**19.0**	40.0	44.5	100	20	1	57,500
GSX 42000S-2D	●	**20.0**	40.0	—	100	20	2	55,600
42200S-2D	●	**22.0**	44.0	49.0	110	25	1	79,200
42400S-2D	●	**24.0**	48.0	53.0	120	25	1	79,200
42500S-2D	●	**25.0**	50.0	—	120	25	2	92,400

Grade: ACF20

The List price is a price only for Japan.

Identification Table

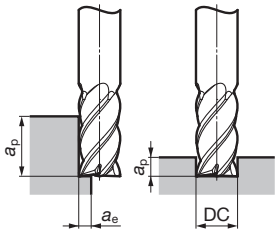
GSX 4 0100 S - 2D - S3

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length	Shank Dia.
			S: Sharp Edged		

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000S-2D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. This series is not recommended for groove milling.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
2.0		11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
4.0		6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
6.0		4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
8.0		3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
10.0		2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
12.0		2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
16.0		1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
20.0		1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
25.0		960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut	a_p	2.0DC															
	a_e	0.03DC										0.01DC					

Groove Finishing

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		22,000	360	22,000	360	22,000	360	19,000	220	13,000	140	9,500	90	11,300	90	9,500	65
2.0		11,500	440	11,500	440	11,500	440	11,000	290	7,500	180	5,400	110	6,500	120	5,400	85
4.0		6,000	560	6,000	560	6,000	560	5,800	370	4,000	230	2,900	150	3,400	160	2,900	100
6.0		4,200	600	4,200	600	4,200	600	4,000	400	2,700	240	2,000	160	2,400	170	2,000	120
8.0		3,000	600	3,000	600	3,000	600	2,800	400	2,000	240	1,450	160	1,800	170	1,450	120
10.0		2,500	600	2,500	600	2,500	600	2,350	400	1,600	240	1,200	160	1,450	170	1,200	120
12.0		2,100	600	2,100	600	2,100	600	2,000	400	1,350	240	1,000	160	1,200	170	1,000	120
16.0		1,500	500	1,500	500	1,500	500	1,450	320	1,000	210	750	130	900	140	750	90
20.0		1,200	460	1,200	460	1,200	460	1,150	290	800	200	600	110	700	120	600	75
25.0		960	370	960	370	960	370	920	230	640	160	480	85	560	95	480	60
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 40000C-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

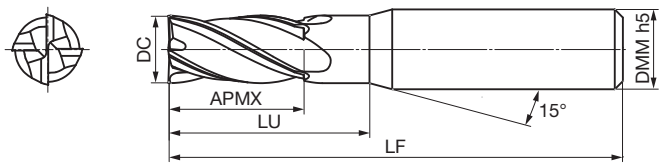
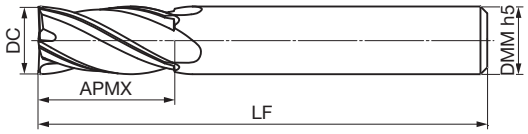


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100C-2D	●	**1.0**	2.0	3.0	40	4	1	4,320
40150C-2D	●	**1.5**	3.0	4.0	40	4	1	4,320
40200C-2D	●	**2.0**	4.0	5.0	40	4	1	3,250
40250C-2D	●	**2.5**	5.0	6.0	40	4	1	3,250
40300C-2D	●	**3.0**	6.0	7.5	45	6	1	3,370
GSX 40350C-2D	●	**3.5**	7.0	8.5	45	6	1	6,720
40400C-2D	●	**4.0**	8.0	9.5	45	6	1	3,650
40450C-2D	●	**4.5**	9.0	10.5	50	6	1	7,150
40500C-2D	●	**5.0**	10.0	12.0	50	6	1	3,990
40550C-2D	●	**5.5**	11.0	13.0	50	6	1	7,950
GSX 40600C-2D	●	**6.0**	12.0	—	50	6	2	4,320
40650C-2D	●	**6.5**	13.0	15.0	60	8	1	6,580
40700C-2D	●	**7.0**	14.0	16.0	60	8	1	10,100
40750C-2D	●	**7.5**	15.0	17.0	60	8	1	6,580
40800C-2D	●	**8.0**	16.0	—	60	8	2	6,720
GSX 40850C-2D	●	**8.5**	17.0	19.0	70	10	1	8,220
40900C-2D	●	**9.0**	18.0	20.0	70	10	1	11,400
40950C-2D	●	**9.5**	19.0	21.0	70	10	1	9,490
41000C-2D	●	**10.0**	20.0	—	70	10	2	8,880
41050C-2D	●	**10.5**	21.0	23.5	75	12	1	14,600
GSX 41100C-2D	●	**11.0**	22.0	24.5	75	12	1	14,600
41150C-2D	●	**11.5**	23.0	25.5	75	12	1	14,600
41200C-2D	●	**12.0**	24.0	—	75	12	2	11,200
41300C-2D	●	**13.0**	26.0	29.5	90	16	1	24,200
41400C-2D	●	**14.0**	28.0	31.5	90	16	1	24,200
GSX 41500C-2D	●	**15.0**	30.0	33.5	90	16	1	30,600
41600C-2D	●	**16.0**	32.0	—	90	16	2	38,000
41700C-2D	●	**17.0**	34.0	39.5	100	20	1	46,200
41800C-2D	●	**18.0**	36.0	40.5	100	20	1	52,800
41900C-2D	●	**19.0**	38.0	42.5	100	20	1	57,500
GSX 42000C-2D	●	**20.0**	40.0	—	100	20	2	55,600
42500C-2D	●	**25.0**	50.0	—	120	25	2	92,400

Grade: ACF20

The List price is a price only for Japan.

Identification Table

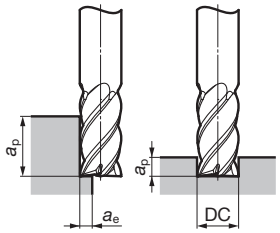
GSX 4 0100 C - 2D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			C: Gash Land	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000C-2D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If chatter 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.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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
25.0		1,000	480	1,000	480	1,000	480	1,000	300	700	200	500	120	640	120	500	80
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Side Milling (Using High Speed Machining Centre)

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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	—	—
25.0		3,800	1,500	3,800	1,500	3,800	1,500	3,800	1,100	3,200	900	2,500	600	1,300	300	—	—
Standard Depth of Cut	a_p	1.5DC										1.0DC					
	a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
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	5,400	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
25.0		1,000	380	1,000	450	1,000	450	1,000	300	700	200	500	120	640	80	250	40
Standard Depth of Cut	a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

GSV 4000-2.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

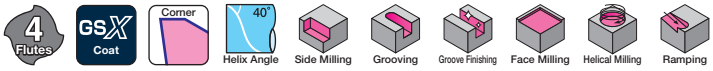


Fig 1

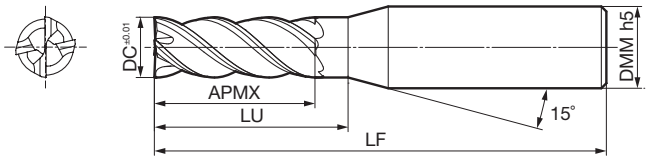
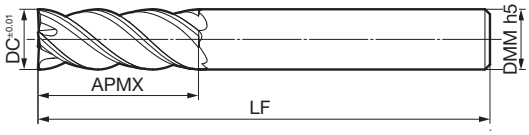


Fig 2



Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSV 4020-2.5D	●	**2.0**	5	6.5	50	4	1	5,690
4030-2.5D	●	**3.0**	8	9.5	50	6	1	6,070
4040-2.5D	●	**4.0**	10	11.5	50	6	1	6,330
4050-2.5D	●	**5.0**	13	14.5	60	6	1	6,700
4060-2.5D	●	**6.0**	15	—	60	6	2	7,210
GSV 4070-2.5D	●	**7.0**	18	20.0	70	8	1	10,100
4080-2.5D	●	**8.0**	20	—	80	8	2	10,100
4090-2.5D	●	**9.0**	23	25.0	90	10	1	12,100
4100-2.5D	●	**10.0**	25	—	90	10	2	12,700
4110-2.5D	●	**11.0**	28	30.5	90	12	1	15,200
GSV 4120-2.5D	●	**12.0**	30	—	90	12	2	16,400
4140-2.5D	●	**14.0**	35	37.5	110	16	1	27,400
4150-2.5D	●	**15.0**	38	41.0	110	16	1	34,200
4160-2.5D	●	**16.0**	40	—	115	16	2	40,900
4180-2.5D	●	**18.0**	45	48.0	120	20	1	54,100
GSV 4200-2.5D	●	**20.0**	50	—	125	20	2	59,400
4250-2.5D	●	**25.0**	63	—	140	25	2	105,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

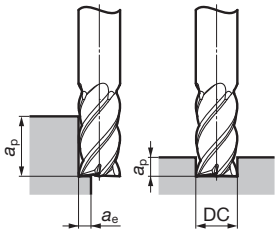
GSV 4 120 - 2.5D

Series Code | Number of Teeth | Dia. | Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSV 4000-2.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0		9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0		6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0		5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0		4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0		3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0		3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0		2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0		2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0		2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0		1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut	a_p	1.5DC									
	a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0		8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0		6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0		4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0		3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0		3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0		2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0		2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0		2,000	620	1,300	380	1,100	330	900	200	430	80
20.0		1,900	600	1,200	360	1,000	320	800	180	380	70
25.0		1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut	a_p	0.8DC				0.16DC		0.4DC		0.16DC	

GSXVL 4000-2.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 40° 43° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping

Fig 1

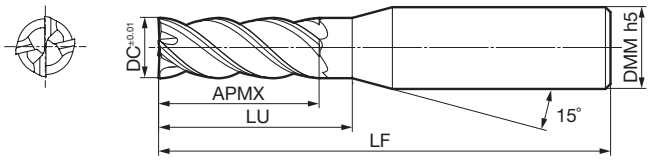
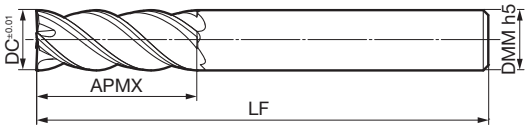


Fig 2



Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSXVL 4020-2.5D	●	**2.0**	5	6.5	50	4	1	7,790
4030-2.5D	●	**3.0**	8	9.5	50	6	1	7,820
4040-2.5D	●	**4.0**	10	11.5	50	6	1	8,230
4050-2.5D	●	**5.0**	13	14.5	60	6	1	8,770
4060-2.5D	●	**6.0**	15	—	60	6	2	9,560
GSXVL 4070-2.5D	●	**7.0**	18	20.0	70	8	1	10,900
4080-2.5D	●	**8.0**	20	—	80	8	2	11,700
4090-2.5D	●	**9.0**	23	25.0	90	10	1	13,800
4100-2.5D	●	**10.0**	25	—	90	10	2	16,100
4110-2.5D	●	**11.0**	28	30.5	90	12	1	18,600
GSXVL 4120-2.5D	●	**12.0**	30	—	90	12	2	20,000
4140-2.5D	●	**14.0**	35	37.5	110	16	1	28,900
4150-2.5D	●	**15.0**	38	41.0	110	16	1	36,500
4160-2.5D	●	**16.0**	40	—	115	16	2	44,800
4180-2.5D	●	**18.0**	45	48.0	120	20	1	58,800
GSXVL 4200-2.5D	●	**20.0**	50	—	125	20	2	64,900
4250-2.5D		**25.0**	63	—	140	25	2	—

Grade: ACF20

The List price is a price only for Japan.

Identification Table

GSXVL 4 020 - 2.5D

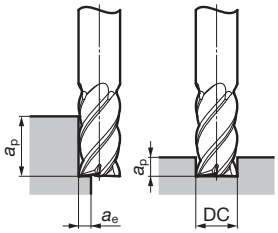
Series Code	Number of Teeth	Dia.	Cutting Edge Length

For the regrinding procedure, please download the details from our website.
https://www.sumitool.com/en/products/cutting-tools/endmills/pdf/gsxvl-regrinding_en.pdf

● mark: Standard stocked item Blank: Made-to-order item

Prices have been revised as of July 1, 2022.

GSXVL 4000-2.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0		9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0		6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0		5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0		4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0		3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0		3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0		2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0		2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0		2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0		1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut	a_p	1.5DC									
	a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0		8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0		6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0		4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0		3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0		3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0		2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0		2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0		2,000	620	1,300	380	1,100	330	900	200	430	80
20.0		1,900	600	1,200	360	1,000	320	800	180	380	70
25.0		1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut	a_p	1.0DC				0.2DC		0.5DC		0.2DC	

GSX 40000S-3D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

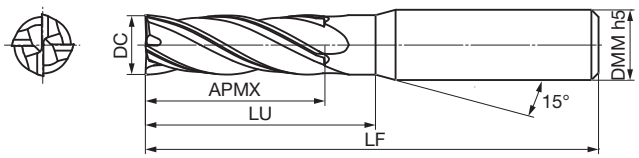
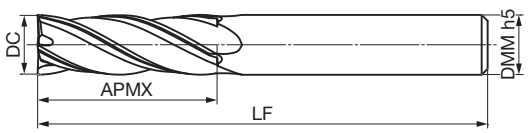


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100S-3D	●	**1.0**	3.0	4.0	40	4	1	4,320
40150S-3D	●	**1.5**	4.5	5.5	40	4	1	4,320
40200S-3D	●	**2.0**	6.0	7.0	40	4	1	3,250
40250S-3D	●	**2.5**	8.0	9.0	40	4	1	3,250
40300S-3D	●	**3.0**	9.0	10.5	50	6	1	3,370
GSX 40350S-3D	●	**3.5**	11.0	12.5	50	6	1	6,720
40400S-3D	●	**4.0**	12.0	13.5	50	6	1	3,650
40450S-3D	●	**4.5**	15.0	16.5	50	6	1	7,150
40500S-3D	●	**5.0**	15.0	17.0	50	6	1	3,990
40550S-3D	●	**5.5**	18.0	20.0	50	6	1	7,950
GSX 40600S-3D	●	**6.0**	18.0	—	50	6	2	4,320
40650S-3D	●	**6.5**	20.0	22.0	70	8	1	6,580
40700S-3D	●	**7.0**	21.0	23.0	70	8	1	10,100
40750S-3D	●	**7.5**	23.0	25.0	70	8	1	6,580
40800S-3D	●	**8.0**	24.0	—	70	8	2	6,720
GSX 40850S-3D	●	**8.5**	26.0	28.0	75	10	1	8,220
40900S-3D	●	**9.0**	27.0	29.0	75	10	1	11,400
40950S-3D	●	**9.5**	29.0	31.0	75	10	1	9,490
41000S-3D	●	**10.0**	30.0	—	90	10	2	8,880
41050S-3D	●	**10.5**	32.0	34.5	90	12	1	14,600
GSX 41100S-3D	●	**11.0**	33.0	35.5	90	12	1	14,600
41150S-3D	●	**11.5**	35.0	37.5	90	12	1	14,600
41200S-3D	●	**12.0**	36.0	—	90	12	2	11,200
41300S-3D	●	**13.0**	39.0	42.5	100	16	1	26,600
41400S-3D	●	**14.0**	42.0	45.5	110	16	1	29,100
GSX 41500S-3D	●	**15.0**	45.0	48.5	110	16	1	30,600
41600S-3D	●	**16.0**	48.0	—	110	16	2	38,000
41700S-3D	●	**17.0**	51.0	55.5	110	20	1	46,200
41800S-3D	●	**18.0**	54.0	58.5	120	20	1	52,800
41900S-3D	●	**19.0**	57.0	61.5	120	20	1	57,500
GSX 42000S-3D	●	**20.0**	60.0	—	120	20	2	55,600
42200S-3D	●	**22.0**	66.0	71.0	130	25	1	79,200
42500S-3D	●	**25.0**	75.0	—	130	25	2	92,400

Grade: ACF20

The List price is a price only for Japan.

Identification Table

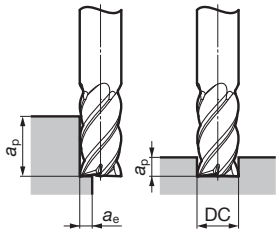
GSX 4 0100 S - 3D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			S: Sharp Edged	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000S-3D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
2.0		9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
4.0		4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
6.0		3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
8.0		2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
10.0		1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
12.0		1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
16.0		1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
20.0		900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
25.0		720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC, Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

Groove Finishing

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		18,500	250	18,500	250	18,500	250	17,000	150	11,500	100	8,000	65	9,400	65	8,000	45
2.0		9,400	250	9,400	250	9,400	250	8,500	200	6,700	130	4,000	65	4,600	90	4,000	60
4.0		4,500	350	4,500	350	4,500	350	4,300	250	3,500	210	2,000	110	2,300	110	2,000	70
6.0		3,100	400	3,100	400	3,100	400	2,800	300	2,400	220	1,300	120	1,500	120	1,300	90
8.0		2,300	380	2,300	380	2,300	380	2,100	300	1,800	220	950	120	1,100	120	900	90
10.0		1,800	350	1,800	350	1,800	350	1,700	300	1,400	220	700	120	900	120	800	90
12.0		1,500	350	1,500	350	1,500	350	1,400	300	1,200	220	650	110	750	120	650	90
16.0		1,100	300	1,100	300	1,100	300	1,000	240	900	190	480	90	550	100	490	70
20.0		900	280	900	280	900	280	850	210	700	170	400	80	440	90	400	60
25.0		720	220	720	220	720	220	680	170	560	130	320	60	352	70	320	50
Standard Depth of Cut	a_p	1.5DC															
	a_e	Below 0.02DC															

GSX 40000C-3D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling

Fig 1

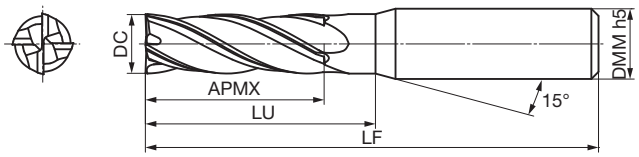
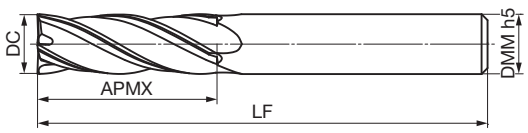


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100C-3D	●	**1.0**	3.0	4.0	40	4	1	4,320
40150C-3D	●	**1.5**	4.5	5.5	40	4	1	4,320
40200C-3D	●	**2.0**	6.0	7.0	40	4	1	3,250
40250C-3D	●	**2.5**	7.5	8.5	40	4	1	3,250
40300C-3D	●	**3.0**	9.0	10.5	50	6	1	3,370
GSX 40350C-3D	●	**3.5**	11.0	12.5	50	6	1	6,720
40400C-3D	●	**4.0**	12.0	13.5	50	6	1	3,650
40450C-3D	●	**4.5**	14.0	15.5	50	6	1	7,150
40500C-3D	●	**5.0**	15.0	17.0	50	6	1	3,990
40550C-3D	●	**5.5**	17.0	19.0	50	6	1	7,950
GSX 40600C-3D	●	**6.0**	18.0	—	50	6	2	4,320
40650C-3D	●	**6.5**	20.0	22.0	70	8	1	6,580
40700C-3D	●	**7.0**	21.0	23.0	70	8	1	10,100
40750C-3D	●	**7.5**	23.0	25.0	70	8	1	6,580
40800C-3D	●	**8.0**	24.0	—	70	8	2	6,720
GSX 40850C-3D	●	**8.5**	26.0	28.0	75	10	1	8,220
40900C-3D	●	**9.0**	27.0	29.0	75	10	1	11,400
40950C-3D	●	**9.5**	29.0	31.0	75	10	1	9,490
41000C-3D	●	**10.0**	30.0	—	90	10	2	8,880
41050C-3D	●	**10.5**	32.0	34.5	90	12	1	14,600
GSX 41100C-3D	●	**11.0**	33.0	35.5	90	12	1	14,600
41150C-3D	●	**11.5**	35.0	37.5	90	12	1	14,600
41200C-3D	●	**12.0**	36.0	—	90	12	2	11,200
41300C-3D	●	**13.0**	39.0	42.5	100	16	1	26,600
41400C-3D	●	**14.0**	42.0	45.5	110	16	1	29,100
GSX 41500C-3D	●	**15.0**	45.0	48.5	110	16	1	30,600
41600C-3D	●	**16.0**	48.0	—	110	16	2	38,000
41700C-3D	●	**17.0**	51.0	55.5	110	20	1	46,200
41800C-3D	●	**18.0**	54.0	58.5	120	20	1	52,800
41900C-3D	●	**19.0**	57.0	61.5	120	20	1	57,500
GSX 42000C-3D	●	**20.0**	60.0	—	120	20	2	55,600
42500C-3D	●	**25.0**	75.0	—	130	25	2	92,400

Grade: ACF20

The List price is a price only for Japan.

Identification Table

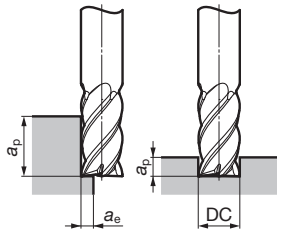
GSX 4 0100 C - 3D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			C: Gash Land	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000C-3D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		21,000	360	21,000	360	21,000	360	19,000	220	13,000	140	9,000	90	10,500	90	9,000	65
2.0		10,500	360	10,500	360	10,500	360	9,600	290	7,500	180	4,500	110	5,200	120	4,500	85
4.0		5,200	500	5,200	500	5,200	500	4,800	370	4,000	280	2,250	150	2,600	160	2,250	100
6.0		3,500	560	3,500	560	3,500	560	3,200	400	2,700	300	1,500	160	1,700	170	1,500	120
8.0		2,600	520	2,600	520	2,600	520	2,400	400	2,000	300	1,100	160	1,300	170	1,100	120
10.0		2,100	500	2,100	500	2,100	500	1,900	400	1,600	300	900	160	1,000	160	900	120
12.0		1,750	500	1,750	500	1,750	500	1,600	400	1,350	300	750	150	850	160	750	120
16.0		1,300	420	1,300	420	1,300	420	1,200	330	1,000	260	550	120	650	140	550	100
20.0		1,050	380	1,050	380	1,050	380	950	290	800	230	450	110	500	120	450	90
25.0		840	300	840	300	840	300	760	230	640	180	360	85	400	95	360	70
Standard Depth of Cut	a_p	2.5DC										2.0DC					
	a_e	Below ø3: 0.05DC, Above ø3 to Below ø8: 0.1DC, Above ø8: 0.15DC								0.02DC							

Groove Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		16,600	140	16,600	140	16,600	140	15,500	100	10,500	100	7,500	70	9,400	60	3,750	20
2.0		9,500	160	9,500	160	9,500	160	9,000	180	6,200	120	4,500	90	5,200	80	2,250	30
4.0		5,200	160	5,200	180	5,200	180	4,800	160	3,400	110	2,200	65	2,600	70	1,250	25
6.0		3,500	160	3,500	200	3,500	200	3,200	160	2,550	120	1,500	65	1,700	70	950	25
8.0		2,600	160	2,600	200	2,600	200	2,400	160	1,900	120	1,100	65	1,300	70	700	25
10.0		2,100	160	2,100	200	2,100	200	1,900	160	1,500	120	900	65	1,000	70	550	25
12.0		1,750	160	1,750	200	1,750	200	1,600	160	1,250	120	750	65	850	70	450	25
16.0		1,300	160	1,300	200	1,300	200	1,200	160	950	120	550	65	650	70	350	25
20.0		1,050	160	1,050	200	1,050	200	950	160	750	120	450	65	500	70	280	55
25.0		840	128	840	160	840	160	760	128	600	96	360	52	400	56	224	44
Standard Depth of Cut	a_p	0.1DC		0.2DC								0.05DC		0.1DC			

GSX 40000S-4D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing

Fig 1

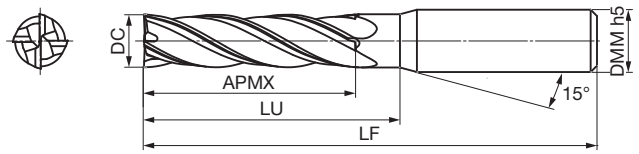
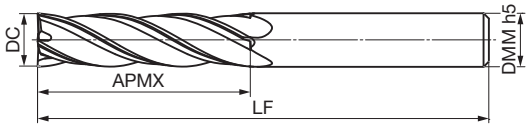


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100S-4D	●	**1.0**	4.0	5.0	40	4	1	6,600
40150S-4D	●	**1.5**	6.0	7.0	40	4	1	6,600
40200S-4D	●	**2.0**	8.0	9.0	40	4	1	4,720
40250S-4D	●	**2.5**	10.0	11.0	50	4	1	4,720
40300S-4D	●	**3.0**	12.0	13.5	50	6	1	4,810
GSX 40350S-4D	●	**3.5**	14.0	15.5	50	6	1	9,600
40400S-4D	●	**4.0**	16.0	17.5	50	6	1	5,140
40450S-4D	●	**4.5**	18.0	19.5	60	6	1	10,400
40500S-4D	●	**5.0**	20.0	22.0	60	6	1	5,510
40550S-4D	●	**5.5**	22.0	24.0	60	6	1	11,200
GSX 40600S-4D	●	**6.0**	24.0	—	60	6	2	6,150
40650S-4D	●	**6.5**	26.0	28.0	70	8	1	7,840
40700S-4D	●	**7.0**	28.0	30.0	80	8	1	13,600
40750S-4D	●	**7.5**	30.0	32.0	80	8	1	8,860
40800S-4D	●	**8.0**	32.0	—	80	8	2	10,500
GSX 40850S-4D	●	**8.5**	34.0	36.0	90	10	1	10,800
40900S-4D	●	**9.0**	36.0	38.0	90	10	1	17,800
40950S-4D	●	**9.5**	39.0	41.0	90	10	1	12,100
41000S-4D	●	**10.0**	40.0	—	90	10	2	13,100
41050S-4D	●	**10.5**	42.0	44.5	100	12	1	16,400
GSX 41100S-4D	●	**11.0**	44.0	46.5	100	12	1	16,400
41150S-4D	●	**11.5**	46.0	48.5	100	12	1	16,400
41200S-4D	●	**12.0**	48.0	—	100	12	2	16,000
41300S-4D	●	**13.0**	52.0	55.5	110	16	1	35,300
41400S-4D	●	**14.0**	56.0	59.5	110	16	1	35,300
GSX 41500S-4D	●	**15.0**	60.0	63.5	120	16	1	44,400
41600S-4D	●	**16.0**	64.0	—	120	16	2	55,200
41700S-4D	●	**17.0**	68.0	72.5	130	20	1	60,700
41800S-4D	●	**18.0**	72.0	76.5	130	20	1	62,000
41900S-4D	●	**19.0**	76.0	80.5	140	20	1	67,300
GSX 42000S-4D	●	**20.0**	80.0	—	140	20	2	89,600
42500S-4D	●	**25.0**	100.0	—	160	25	2	106,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

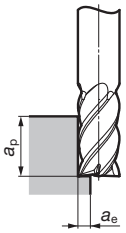
GSX 4 0100 S - 4D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			S: Sharp Edged	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000S-4D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		7,950	120	7,950	120	7,950	120	6,250	70	5,750	50	4,000	35	4,850	35	4,000	35
2.0		4,050	120	4,050	120	4,050	120	3,100	90	2,850	70	2,050	50	2,400	50	2,050	35
4.0		1,950	170	1,950	170	1,950	170	1,650	100	1,400	90	710	35	1,200	45	1,050	30
6.0		1,350	130	1,350	130	1,350	130	1,000	140	930	120	700	55	800	40	700	30
8.0		970	190	970	190	970	190	740	140	720	120	520	55	560	40	490	30
10.0		770	180	770	180	770	180	630	120	570	100	360	50	490	40	410	30
12.0		640	170	640	170	640	170	500	120	460	100	350	55	400	40	350	30
16.0		460	140	460	140	460	140	370	100	360	90	260	50	280	40	270	30
20.0		390	130	390	130	390	130	310	90	280	70	210	45	240	40	210	30
25.0		310	100	310	100	310	100	250	70	220	55	170	35	190	30	170	25
Standard Depth of Cut	a_p	2.5DC								2.0DC							
	a_e	Below ø3: 0.02DC, Above ø3 to Below ø8: 0.05DC, Above ø8: 0.07DC								0.01DC							

GSX 40000C-4D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner | 30° Helix Angle | Side Milling | Groove Finishing | Face Milling

Fig 1

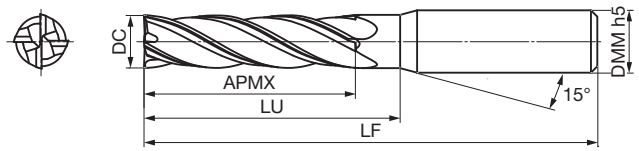
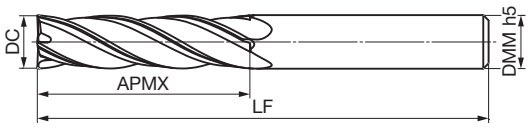


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40100C-4D	●	**1.0**	4.0	5.0	40	4	1	6,600
40150C-4D	●	**1.5**	6.0	7.0	40	4	1	6,600
40200C-4D	●	**2.0**	8.0	9.0	40	4	1	4,720
40250C-4D	●	**2.5**	10.0	11.0	50	4	1	4,720
40300C-4D	●	**3.0**	12.0	13.5	50	6	1	4,810
GSX 40350C-4D	●	**3.5**	14.0	15.5	50	6	1	9,600
40400C-4D	●	**4.0**	16.0	17.5	50	6	1	5,140
40450C-4D	●	**4.5**	18.0	19.5	60	6	1	10,400
40500C-4D	●	**5.0**	20.0	22.0	60	6	1	5,510
40550C-4D	●	**5.5**	22.0	24.0	60	6	1	11,200
GSX 40600C-4D	●	**6.0**	24.0	—	60	6	2	6,150
40650C-4D	●	**6.5**	26.0	28.0	70	8	1	7,840
40700C-4D	●	**7.0**	28.0	30.0	80	8	1	13,600
40750C-4D	●	**7.5**	30.0	32.0	80	8	1	8,860
40800C-4D	●	**8.0**	32.0	—	80	8	2	10,500
GSX 40850C-4D	●	**8.5**	34.0	36.0	90	10	1	10,800
40900C-4D	●	**9.0**	36.0	28.0	90	10	1	17,800
40950C-4D	●	**9.5**	39.0	41.0	90	10	1	12,100
41000C-4D	●	**10.0**	40.0	—	90	10	2	13,100
41050C-4D	●	**10.5**	42.0	44.5	100	12	1	16,400
GSX 41100C-4D	●	**11.0**	44.0	46.5	100	12	1	16,400
41150C-4D	●	**11.5**	46.0	48.5	100	12	1	16,400
41200C-4D	●	**12.0**	48.0	—	100	12	2	16,000
41300C-4D	●	**13.0**	52.0	55.5	110	16	1	35,300
41400C-4D	●	**14.0**	56.0	59.5	110	16	1	35,300
GSX 41500C-4D	●	**15.0**	60.0	63.5	120	16	1	44,400
41600C-4D	●	**16.0**	64.0	—	120	16	2	55,200
41700C-4D	●	**17.0**	68.0	72.5	130	20	1	60,700
41800C-4D	●	**18.0**	72.0	76.5	130	20	1	62,000
41900C-4D	●	**19.0**	76.0	80.5	140	20	1	67,300
GSX 42000C-4D	●	**20.0**	80.0	—	140	20	2	89,600
42500C-4D	●	**25.0**	100.0	—	160	25	2	106,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

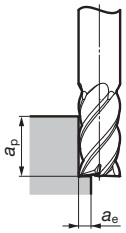
GSX 4 0100 C - 4D

Series Code	Number of Teeth	Dia.	Corner Style C: Gash Land	Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000C-4D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. In some cases, chattering may occur in early stages of milling but will cease after 2m of cutting.
5. If chatter 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.
6. This series is not recommended for groove milling.
7. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0		9,000	140	9,000	140	9,000	140	7,000	80	6,500	60	4,500	40	5,400	40	4,500	40
2.0		4,500	140	4,500	140	4,500	140	3,500	100	3,200	80	2,300	55	2,700	55	2,300	40
4.0		2,250	200	2,250	200	2,250	200	1,750	120	1,600	100	1,200	60	1,350	50	1,200	35
6.0		1,500	250	1,500	250	1,500	250	1,150	160	1,050	140	800	65	900	45	800	35
8.0		1,100	220	1,100	220	1,100	220	850	160	800	130	600	65	660	45	600	35
10.0		900	210	900	210	900	210	700	140	650	120	460	65	540	45	460	35
12.0		750	200	750	200	750	200	580	140	520	110	400	65	450	45	400	35
16.0		550	170	550	170	550	170	440	120	400	95	300	55	330	45	300	35
20.0		450	150	450	150	450	150	350	100	320	80	240	50	270	45	240	35
25.0		360	120	360	120	360	120	280	80	250	60	190	40	210	35	190	30
Standard Depth of Cut	a_p	3.5DC										3.0DC					
	a_e	Below ø3: 0.04DC, Above ø3 to Below ø8: 0.08DC, Above ø8: 0.1DC										0.02DC					

GSX 40000-R-2D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner r | 30° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

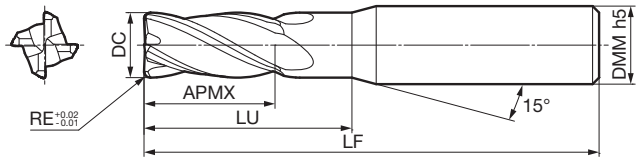
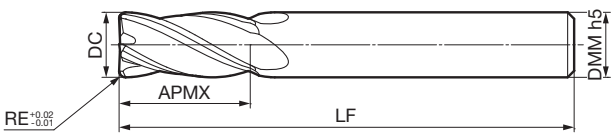


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D	0 -0.03

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Corner Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSX 40300-R02-2D	●	**3.0**	0.2	8.0	9.5	45	6	1	8,210
40300-R05-2D	●	**3.0**	0.5	8.0	9.5	45	6	1	9,120
40400-R02-2D	●	**4.0**	0.2	11.0	14.0	45	6	1	8,690
40400-R05-2D	●	**4.0**	0.5	11.0	14.0	45	6	1	9,740
40400-R10-2D	●	**4.0**	1.0	11.0	14.0	45	6	1	10,400
GSX 40500-R02-2D	●	**5.0**	0.2	13.0	19.6	50	6	1	8,840
40500-R05-2D	●	**5.0**	0.5	13.0	19.6	50	6	1	9,740
40500-R10-2D	●	**5.0**	1.0	13.0	19.6	50	6	1	10,500
40600-R02-2D	●	**6.0**	0.2	13.0	—	50	6	2	9,740
40600-R05-2D	●	**6.0**	0.5	13.0	—	50	6	2	10,000
GSX 40600-R10-2D	●	**6.0**	1.0	13.0	—	50	6	2	10,600
40600-R15-2D	●	**6.0**	1.5	13.0	—	50	6	2	11,100
40800-R02-2D	●	**8.0**	0.2	19.0	—	60	8	2	11,700
40800-R05-2D	●	**8.0**	0.5	19.0	—	60	8	2	12,000
40800-R10-2D	●	**8.0**	1.0	19.0	—	60	8	2	12,900
GSX 40800-R15-2D	●	**8.0**	1.5	19.0	—	60	8	2	13,100
41000-R02-2D	●	**10.0**	0.2	22.0	—	70	10	2	14,000
41000-R05-2D	●	**10.0**	0.5	22.0	—	70	10	2	14,300
41000-R10-2D	●	**10.0**	1.0	22.0	—	70	10	2	15,200
41000-R15-2D	●	**10.0**	1.5	22.0	—	70	10	2	16,000
GSX 41000-R20-2D	●	**10.0**	2.0	22.0	—	70	10	2	16,400
41200-R02-2D	●	**12.0**	0.2	26.0	—	75	12	2	18,200
41200-R05-2D	●	**12.0**	0.5	26.0	—	75	12	2	18,600
41200-R10-2D	●	**12.0**	1.0	26.0	—	75	12	2	20,000
41200-R15-2D	●	**12.0**	1.5	26.0	—	75	12	2	20,600
GSX 41200-R20-2D	●	**12.0**	2.0	26.0	—	75	12	2	21,300

Grade: ACF20

The List price is a price only for Japan.

Identification Table

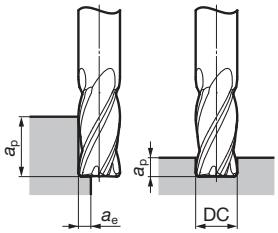
GSX 4 0300 - R 02 - 2D

- GSX: Series Code
- 4: Number of Teeth
- 0300: Dia.
- R: Corner Style R: Radius
- 02: Corner Radius
- 2D: Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSX 40000-R-2D type



Recommended Cutting Conditions

1. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.
2. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.
3. For groove milling of stainless steel, use 60% of the recommended spindle speed and 40% of the recommended feed rate. (*)

Side Milling

Work Material / Cutting Conditions		Structural Steel, Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK,HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		12,800	570	12,000	380	8,300	230	6,000	150	6,000	130	3,700	70
4.0		6,800	730	6,400	490	4,400	300	3,200	200	3,200	170	2,000	90
6.0		4,600	770	4,300	520	3,000	320	2,200	210	2,200	180	1,400	100
8.0		3,400	770	3,200	520	2,200	320	1,600	210	1,600	180	1,000	100
10.0		2,800	780	2,600	520	1,800	320	1,300	210	1,300	180	800	100
12.0		2,300	780	2,200	530	1,500	320	1,100	210	1,100	180	700	100
Standard Depth of Cut	a_p	1.5DC		1.5DC		1.5DC		1.0DC		1.5DC		1.0DC	
	a_e	0.1DC		0.1DC		0.05DC		0.02DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions		Structural Steel, Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK,HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		12,800	570	12,000	380	8,300	230	6,000	150	6,000	130	3,700	70
4.0		6,800	730	6,400	490	4,400	300	3,200	200	3,200	170	2,000	90
6.0		4,600	770	4,300	520	3,000	320	2,200	210	2,200	180	1,400	100
8.0		3,400	770	3,200	520	2,200	320	1,600	210	1,600	180	1,000	100
10.0		2,800	780	2,600	520	1,800	320	1,300	210	1,300	180	800	100
12.0		2,300	780	2,200	530	1,500	320	1,100	210	1,100	180	700	100
Standard Depth of Cut	a_p	0.5DC		0.5DC		0.2DC		0.05DC		0.3DC		0.1DC	

Side Milling (Using High Speed Machining Centre)

Work Material / Cutting Conditions		Structural Steel, Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK,HPM (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel (*) SUS304,SUS316	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		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	1,900	19,900	1,400	15,900	1,100	8,000	490
6.0		16,000	2,700	16,000	2,000	13,300	1,500	10,600	1,200	5,300	510
8.0		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	2,000	8,000	1,500	6,400	1,200	3,200	520
12.0		8,000	2,700	8,000	2,000	6,700	1,500	5,300	1,200	2,700	520
Standard Depth of Cut	a_p	1.5DC		1.5DC		1.5DC		1.0DC		1.5DC	
	a_e	0.05DC		0.05DC		0.05DC		0.02DC		0.05DC	

GSV 4000-R-2.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner r | 40° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

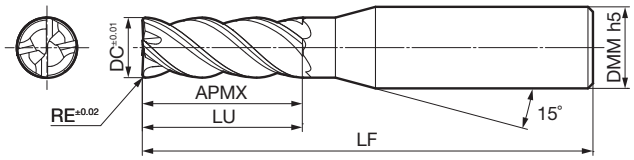
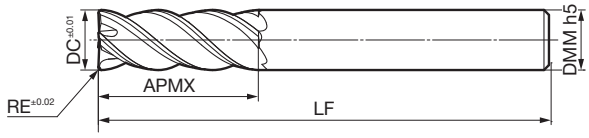


Fig 2



Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Corner Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSV 4030-R02-2.5D	●	**3.0**	0.2	8.0	9.5	50	6	1	9,490
4030-R05-2.5D	●	**3.0**	0.5	8.0	9.5	50	6	1	9,490
4040-R02-2.5D	●	**4.0**	0.2	10.0	11.5	50	6	1	10,400
4040-R05-2.5D	●	**4.0**	0.5	10.0	11.5	50	6	1	10,400
4040-R10-2.5D	●	**4.0**	1.0	10.0	11.5	50	6	1	10,800
GSV 4050-R02-2.5D	●	**5.0**	0.2	13.0	14.5	60	6	1	10,600
4050-R05-2.5D	●	**5.0**	0.5	13.0	14.5	60	6	1	10,600
4050-R10-2.5D	●	**5.0**	1.0	13.0	14.5	60	6	1	11,100
4060-R03-2.5D	●	**6.0**	0.3	15.0	—	60	6	2	10,800
4060-R05-2.5D	●	**6.0**	0.5	15.0	—	60	6	2	10,800
GSV 4060-R10-2.5D	●	**6.0**	1.0	15.0	—	60	6	2	11,400
4060-R15-2.5D	●	**6.0**	1.5	15.0	—	60	6	2	11,400
4080-R03-2.5D	●	**8.0**	0.3	20.0	—	80	8	2	13,300
4080-R05-2.5D	●	**8.0**	0.5	20.0	—	80	8	2	13,300
4080-R10-2.5D	●	**8.0**	1.0	20.0	—	80	8	2	13,900
GSV 4080-R15-2.5D	●	**8.0**	1.5	20.0	—	80	8	2	13,900
4080-R20-2.5D	●	**8.0**	2.0	20.0	—	80	8	2	13,900
4100-R03-2.5D	●	**10.0**	0.3	25.0	—	90	10	2	15,900
4100-R05-2.5D	●	**10.0**	0.5	25.0	—	90	10	2	15,900
4100-R10-2.5D	●	**10.0**	1.0	25.0	—	90	10	2	17,100
GSV 4100-R15-2.5D	●	**10.0**	1.5	25.0	—	90	10	2	17,100
4100-R20-2.5D	●	**10.0**	2.0	25.0	—	90	10	2	17,100
4120-R05-2.5D	●	**12.0**	0.5	30.0	—	90	12	2	20,900
4120-R10-2.5D	●	**12.0**	1.0	30.0	—	90	12	2	21,500
4120-R15-2.5D	●	**12.0**	1.5	30.0	—	90	12	2	21,500
GSV 4120-R20-2.5D	●	**12.0**	2.0	30.0	—	90	12	2	21,500
4120-R30-2.5D	●	**12.0**	3.0	30.0	—	90	12	2	21,500
4160-R10-2.5D	●	**16.0**	1.0	40.0	—	115	16	2	42,200
4160-R15-2.5D	●	**16.0**	1.5	40.0	—	115	16	2	42,200
4160-R20-2.5D	●	**16.0**	2.0	40.0	—	115	16	2	42,200
GSV 4160-R30-2.5D	●	**16.0**	3.0	40.0	—	115	16	2	42,200
4200-R10-2.5D	●	**20.0**	1.0	50.0	—	125	20	2	62,000
4200-R15-2.5D	●	**20.0**	1.5	50.0	—	125	20	2	62,000
4200-R20-2.5D	●	**20.0**	2.0	50.0	—	125	20	2	62,000
4200-R30-2.5D	●	**20.0**	3.0	50.0	—	125	20	2	62,000
GSV 4250-R10-2.5D	●	**25.0**	1.0	63.0	—	140	25	2	119,000
4250-R15-2.5D	●	**25.0**	1.5	63.0	—	140	25	2	119,000
4250-R20-2.5D	●	**25.0**	2.0	63.0	—	140	25	2	119,000
4250-R30-2.5D	●	**25.0**	3.0	63.0	—	140	25	2	119,000

Grade: ACF20

The List price is a price only for Japan.

Identification Table

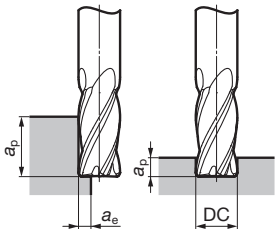
GSV 4 030 - R 02 - 2.5D

- GSV: Series Code
- 4: Number of Teeth
- 030: Dia.
- R: Corner Style R: Radius
- 02: Corner Radius
- 2.5D: Cutting Edge Length

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSV 4000-R-2.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
2.0		13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0		9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0		6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0		5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0		4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0		3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0		3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0		2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0		2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0		2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0		1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut	a_p	1.5DC									
	a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
2.0		13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0		8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0		6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0		4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0		3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0		3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0		2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0		2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0		2,000	620	1,300	380	1,100	330	900	200	430	80
20.0		1,900	600	1,200	360	1,000	320	800	180	380	70
25.0		1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut	a_p	0.8DC				0.16DC		0.4DC		0.16DC	

GSXVL 4000-R-2.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

4 Flutes | GSX Coat | Corner R | Helix Angle 40° 43° | Side Milling | Grooving | Groove Finishing | Face Milling | Helical Milling | Ramping | Profiling

Fig 1

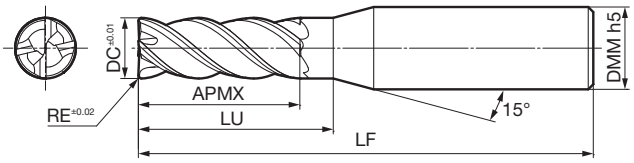
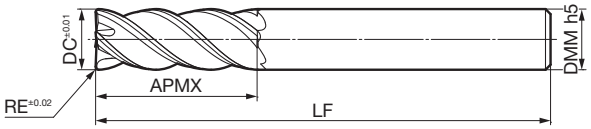


Fig 2



Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Corner Radius RE	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSXVL 4030-R02-2.5D	●	**3.0**	0.2	8.0	9.5	50	6	1	12,500
4030-R05-2.5D	●	**3.0**	0.5	8.0	9.5	50	6	1	12,500
4040-R02-2.5D	●	**4.0**	0.2	10.0	11.5	50	6	1	13,000
4040-R05-2.5D	●	**4.0**	0.5	10.0	11.5	50	6	1	13,000
4040-R10-2.5D	●	**4.0**	1.0	10.0	11.5	50	6	1	13,000
GSXVL 4050-R02-2.5D	●	**5.0**	0.2	13.0	14.5	60	6	1	13,800
4050-R05-2.5D	●	**5.0**	0.5	13.0	14.5	60	6	1	13,800
4050-R10-2.5D	●	**5.0**	1.0	13.0	14.5	60	6	1	13,800
4060-R03-2.5D	●	**6.0**	0.3	15.0	—	60	6	2	13,000
4060-R05-2.5D	●	**6.0**	0.5	15.0	—	60	6	2	13,000
GSXVL 4060-R10-2.5D	●	**6.0**	1.0	15.0	—	60	6	2	13,000
4060-R15-2.5D	●	**6.0**	1.5	15.0	—	60	6	2	13,000
4080-R03-2.5D	●	**8.0**	0.3	20.0	—	80	8	2	15,300
4080-R05-2.5D	●	**8.0**	0.5	20.0	—	80	8	2	15,300
4080-R10-2.5D	●	**8.0**	1.0	20.0	—	80	8	2	15,300
GSXVL 4080-R15-2.5D	●	**8.0**	1.5	20.0	—	80	8	2	15,300
4080-R20-2.5D	●	**8.0**	2.0	20.0	—	80	8	2	15,300
4100-R03-2.5D	●	**10.0**	0.3	25.0	—	90	10	2	19,800
4100-R05-2.5D	●	**10.0**	0.5	25.0	—	90	10	2	19,800
4100-R10-2.5D	●	**10.0**	1.0	25.0	—	90	10	2	19,800
GSXVL 4100-R15-2.5D	●	**10.0**	1.5	25.0	—	90	10	2	19,800
4100-R20-2.5D	●	**10.0**	2.0	25.0	—	90	10	2	19,800
4120-R05-2.5D	●	**12.0**	0.5	30.0	—	90	12	2	23,700
4120-R10-2.5D	●	**12.0**	1.0	30.0	—	90	12	2	23,700
4120-R15-2.5D	●	**12.0**	1.5	30.0	—	90	12	2	23,700
GSXVL 4120-R20-2.5D	●	**12.0**	2.0	30.0	—	90	12	2	23,700
4120-R30-2.5D	●	**12.0**	3.0	30.0	—	90	12	2	23,700
4160-R10-2.5D	●	**16.0**	1.0	40.0	—	115	16	2	47,800
4160-R15-2.5D	●	**16.0**	1.5	40.0	—	115	16	2	47,800
4160-R20-2.5D	●	**16.0**	2.0	40.0	—	115	16	2	47,800
GSXVL 4160-R30-2.5D	●	**16.0**	3.0	40.0	—	115	16	2	47,800
4200-R10-2.5D	●	**20.0**	1.0	50.0	—	125	20	2	68,300
4200-R15-2.5D	●	**20.0**	1.5	50.0	—	125	20	2	68,300
4200-R20-2.5D	●	**20.0**	2.0	50.0	—	125	20	2	68,300
4200-R30-2.5D	●	**20.0**	3.0	50.0	—	125	20	2	68,300
GSXVL 4250-R10-2.5D		**25.0**	1.0	63.0	—	140	25	2	—
4250-R15-2.5D		**25.0**	1.5	63.0	—	140	25	2	—
4250-R20-2.5D		**25.0**	2.0	63.0	—	140	25	2	—
4250-R30-2.5D		**25.0**	3.0	63.0	—	140	25	2	—

Grade: ACF20

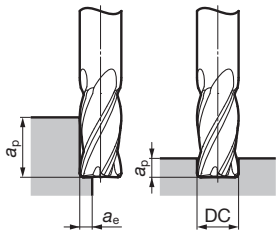
The List price is a price only for Japan.

For the regrinding procedure, please download the details from our website.
https://www.sumitool.com/en/products/cutting-tools/endmills/pdf/gsxvl-regrinding_en.pdf

● mark: Standard stocked item Blank: Made-to-order item

Prices have been revised as of July 1, 2022.

GSXVL 4000-R-2.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	1,000	10,000	800	8,000	700	10,000	580	5,000	200
4.0		9,600	1,200	8,000	1,000	6,000	800	5,500	650	3,000	230
6.0		6,800	1,500	5,600	1,200	4,200	900	3,800	680	2,100	240
8.0		5,200	1,600	4,400	1,300	3,200	950	2,800	650	1,600	250
10.0		4,200	1,500	3,500	1,200	2,600	800	2,300	600	1,300	210
12.0		3,500	1,400	3,000	1,200	2,200	700	1,900	550	1,100	180
14.0		3,000	1,200	2,600	1,100	1,800	600	1,600	500	900	150
16.0		2,700	1,100	2,200	1,000	1,600	600	1,400	480	760	130
18.0		2,400	1,000	2,000	900	1,400	570	1,300	450	680	120
20.0		2,200	900	1,700	800	1,200	550	1,100	400	600	100
25.0		1,700	680	1,400	630	1,000	450	890	310	480	82
Standard Depth of Cut	a_p	1.5DC									
	a_e	0.2DC				0.05DC		0.1DC		0.05DC	

Groove Milling

Work Material / Cutting Conditions		Carbon Steel, Cast Iron SS,SC,FC (150 to 250HB)		Alloy Steel SCM (25 to 35HRC)		Tempered Steel / Hardened Steel NAK,HPM (40 to 50HRC)		Stainless Steel SUS304,SUS316		Titanium Alloy	
DC(mm)		Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
2.0		13,000	750	10,000	550	8,400	500	6,500	300	4,000	140
4.0		8,200	800	6,000	600	5,200	500	4,000	330	2,000	130
6.0		6,100	1,100	4,000	600	3,500	580	2,700	350	1,350	150
8.0		4,600	1,000	3,000	580	2,600	570	2,000	330	1,000	140
10.0		3,600	1,000	2,400	550	2,100	510	1,600	200	800	130
12.0		3,100	920	2,000	500	1,700	450	1,300	280	660	110
14.0		2,600	750	1,700	450	1,500	400	1,100	250	570	100
16.0		2,300	670	1,500	420	1,300	350	1,000	230	500	90
18.0		2,000	620	1,300	380	1,100	330	900	200	430	80
20.0		1,900	600	1,200	360	1,000	320	800	180	380	70
25.0		1,500	470	1,000	300	790	250	640	140	300	55
Standard Depth of Cut	a_p	1.0DC				0.2DC		0.5DC		0.2DC	

GSXB 20000 type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Hardened Steel 55 to 60HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

2 Flutes | GSX Coat | Ballnose R | 30° Helix Angle | Side Milling | Face Milling | R-Grooving | Profiling

Fig 1

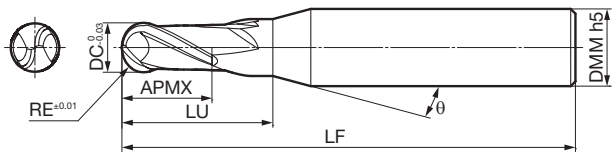
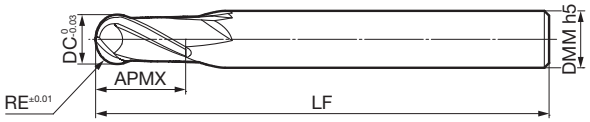


Fig 2



DC	θ
< ø2	10°
ø2 or more	15°

Body

Dimensions (mm)

Cat. No.	Stock	Ballnose Radius RE	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSXB 20020	●	**0.20**	**0.4**	0.6	0.8	50	4	1	5,440
20030	●	**0.30**	**0.6**	0.9	1.2	50	4	1	5,060
20050	●	**0.50**	**1.0**	1.5	2.0	50	4	1	4,530
20075	●	**0.75**	**1.5**	2.5	3.0	50	4	1	5,290
20100	●	**1.00**	**2.0**	3.0	4.0	60	6	1	4,190
GSXB 20125	●	**1.25**	**2.5**	4.0	5.0	60	6	1	5,960
20150	●	**1.50**	**3.0**	4.5	6.0	60	6	1	4,770
20200	●	**2.00**	**4.0**	6.0	8.0	70	6	1	4,590
20250	●	**2.50**	**5.0**	7.5	10.0	80	6	1	5,360
20300	●	**3.00**	**6.0**	9.0	—	80	6	2	5,740
GSXB 20350	●	**3.50**	**7.0**	11.0	20.0	90	8	1	8,480
20400	●	**4.00**	**8.0**	12.0	—	90	8	2	8,480
20500	●	**5.00**	**10.0**	15.0	—	100	10	2	10,900
20600	●	**6.00**	**12.0**	18.0	—	110	12	2	14,100
20700	●	**7.00**	**14.0**	21.0	38.0	110	16	1	35,200
GSXB 20800	●	**8.00**	**16.0**	24.0	—	140	16	2	44,600
20900	●	**9.00**	**18.0**	27.0	50.0	140	20	1	56,200
21000	●	**10.00**	**20.0**	30.0	—	160	20	2	69,700

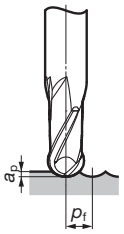
Grade: ACB20

The List price is a price only for Japan.

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSXB 20000 type



Recommended Cutting Conditions

1. If cutting noise and vibration occur, please reduce the cutting conditions accordingly.
2. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Radius Milling

Work Material / Cutting Conditions RE(mm)		Carbon Steel / Alloy Steel (Below 25HRC)		Carbon Steel / Alloy Steel (Below 50HRC)		Cast Iron Special Cast Iron		Stainless Steel Titanium Alloy	
		Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)	Spindle Speed (min $^{-1}$)	Feed Rate (mm/min)
0.20		50,000	2,100	35,000	1,150	50,000	2,100	50,000	1,750
0.30		50,000	2,500	35,000	1,350	50,000	2,500	50,000	2,100
0.50		50,000	3,000	35,000	1,600	50,000	3,000	50,000	2,500
0.75		35,000	3,000	24,000	1,650	35,000	3,200	34,000	2,500
1.00		27,500	3,000	19,000	1,700	35,000	3,900	26,000	2,500
1.25		22,500	3,000	15,500	1,700	28,000	3,900	21,000	2,500
1.50		19,000	3,000	13,000	1,700	24,000	3,900	17,500	2,500
2.00		17,000	3,800	12,000	2,100	20,000	4,100	15,000	2,700
2.50		15,500	4,300	11,000	2,200	18,000	4,600	12,000	2,500
3.00		14,000	4,700	10,500	2,500	16,500	5,300	10,500	2,500
3.50		12,500	4,200	9,000	2,100	14,000	4,500	9,000	2,200
4.00		11,000	3,500	7,900	1,900	12,500	4,000	7,800	1,900
5.00		9,000	2,800	6,300	1,500	10,500	3,300	6,300	1,500
6.00		7,500	2,400	5,200	1,250	8,700	2,800	5,200	1,250
7.00		6,400	2,100	4,500	1,100	7,400	2,400	4,500	1,100
8.00		5,600	1,800	3,900	950	6,500	2,100	3,900	950
9.00		5,000	1,600	3,500	850	5,800	1,900	3,500	850
10.00		4,500	1,450	3,100	750	5,200	1,700	3,150	750
Standard Depth of Cut	a_p	0.02DC		0.02DC		0.02DC		0.02DC	
	p_f	0.05DC		0.05DC		0.05DC		0.05DC	

GSXSLT 30000C-1.5D type

General Steel | Carbon Steel | Alloy Steel | Pre-hardened Steel | Tempered Steel / Die Steel | Hardened Steel 45 to 55HRC | Stainless Steel | Ti Alloy / Heat Resistant Alloy | Cast Iron

3 Flutes | GSX Coat | Corner | 40° Helix Angle | Side Milling | Grooving | Groove Finishing | Face Milling | Spot Facing | Helical Milling | Ramping

Fig 1

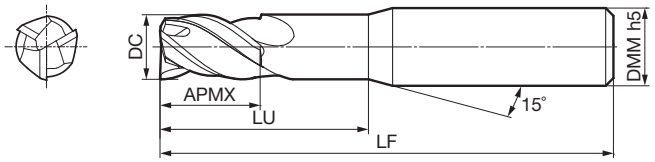
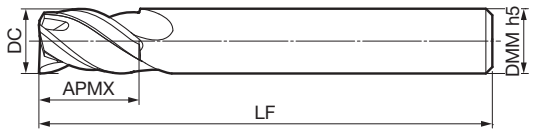


Fig 2



DC	Tolerance
D ≤ 3.0	0 -0.015
3.0 < D ≤ 12	0 -0.020
12.0 < D	0 -0.030

Body

Dimensions (mm)

Cat. No.	Stock	Dia. DC	Cutting Edge Length APMX	Neck Length LU	Overall Length LF	Shank Dia. DMM	Fig	Standard Price (JPY)
GSXSLT 30100C-1.5D	●	**1.0**	1.5	2.5	40	4	1	5,130
30150C-1.5D	●	**1.5**	2.3	3.3	40	4	1	5,130
30200C-1.5D	●	**2.0**	3.0	4.0	40	4	1	4,320
30250C-1.5D	●	**2.5**	3.8	4.8	40	4	1	4,320
30300C-1.5D	●	**3.0**	4.5	6.0	45	6	1	5,230
GSXSLT 30400C-1.5D	●	**4.0**	6.0	7.5	45	6	1	6,040
30500C-1.5D	●	**5.0**	7.5	9.5	50	6	1	6,600
30600C-1.5D	●	**6.0**	9.0	—	50	6	2	7,060
30700C-1.5D	●	**7.0**	11.0	13.0	60	8	1	10,600
30800C-1.5D	●	**8.0**	12.0	—	60	8	2	8,990
GSXSLT 30900C-1.5D	●	**9.0**	14.0	16.0	70	10	1	12,300
31000C-1.5D	●	**10.0**	15.0	—	70	10	2	10,500
31200C-1.5D	●	**12.0**	18.0	—	75	12	2	14,300

Grade: ACF20

The List price is a price only for Japan.

Identification Table

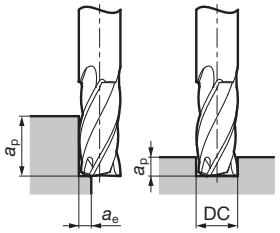
GSXSLT 3 0100 C - 1.5D

Series Code	Number of Teeth	Dia.	Corner Style	Cutting Edge Length
			C: Gash Land	

● mark: Standard stocked item

Prices have been revised as of July 1, 2022.

GSXSLT 30000C-1.5D type



Recommended Cutting Conditions

1. For stable machining performance use rigid, high-precision machines and holders.
2. Use air blow when dry machining.
3. Use wet machining for stainless steel, heat-resistant alloy, and titanium alloy applications.
4. Use step machining of 0.1 DC when drilling stainless steel, heat-resistant alloy, and titanium alloy.
5. If the machine cannot achieve the recommended spindle speed, please use the maximum spindle speed available.

Side Milling

Work Material / Cutting Conditions	Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	300	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	90	9,000	65
2.0	11,200	410	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	120	5,300	90
4.0	6,400	550	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	150	3,000	120
6.0	4,600	670	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,700	180	2,200	130
8.0	3,400	670	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	180	1,600	130
10.0	2,800	670	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	180	1,300	130
12.0	2,300	670	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	180	1,100	130
Standard Depth of Cut a_p	1.5DC										1.0DC					
Standard Depth of Cut a_e	0.05DC										0.02DC					

Groove Milling

Work Material / Cutting Conditions	Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	240	19,600	300	19,600	300	18,300	210	12,700	130	9,000	80	11,000	65	4,500	25
2.0	11,200	320	11,200	410	11,200	410	10,500	280	7,300	170	5,300	100	6,400	85	2,650	35
4.0	6,400	450	6,400	550	6,400	550	6,000	370	4,200	230	3,000	140	3,600	100	1,500	50
6.0	4,600	540	4,600	670	4,600	670	4,300	460	3,000	270	2,200	170	2,650	130	1,150	55
8.0	3,400	540	3,400	670	3,400	670	3,200	460	2,200	270	1,600	170	2,000	130	800	55
10.0	2,800	540	2,800	670	2,800	670	2,600	460	1,800	270	1,300	170	1,600	130	650	55
12.0	2,300	540	2,300	670	2,300	670	2,200	460	1,500	270	1,100	170	1,300	130	500	55
Standard Depth of Cut a_p	0.2DC		0.5DC						0.2DC		0.05DC		0.2DC			

Slot Milling

Work Material / Cutting Conditions	Structural Steel SS		Carbon Steel SC (150 to 250HB)		Cast Iron FC		Alloy Steel SCM (25 to 35HRC)		Tempered Steel, Hardened Steel NAK , HPM (35 to 45HRC)		Hardened Steel (45 to 50HRC)		Stainless Steel SUS304,SUS316		Heat-Resistant Alloy Titanium Alloy	
DC(mm)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)	Spindle Speed (min^{-1})	Feed Rate (mm/min)
1.0	19,600	70	19,600	90	19,600	90	18,300	60	12,700	40	9,000	25	11,000	20	4,500	10
2.0	11,200	90	11,200	120	11,200	120	10,500	80	7,300	50	5,300	30	6,400	25	2,650	15
4.0	6,400	130	6,400	160	6,400	160	6,000	110	4,200	70	3,000	40	3,600	30	1,500	20
6.0	4,600	160	4,600	200	4,600	200	4,300	130	3,000	80	2,200	50	2,650	40	1,150	20
8.0	3,400	160	3,400	200	3,400	200	3,200	130	2,200	80	1,600	50	2,000	40	800	20
10.0	2,800	160	2,800	200	2,800	200	2,600	130	1,800	80	1,300	50	1,600	40	650	20
12.0	2,300	160	2,300	200	2,300	200	2,200	130	1,500	80	1,100	50	1,300	40	500	20

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< SAFETY NOTES >

- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.
- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.
- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

Sumitomo Electric Industries, Ltd.

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https://www.sumitool.com/global

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