

Various boring heads **J17**

BBT/BT SHANK **J21**

HSK SHANK **J22**

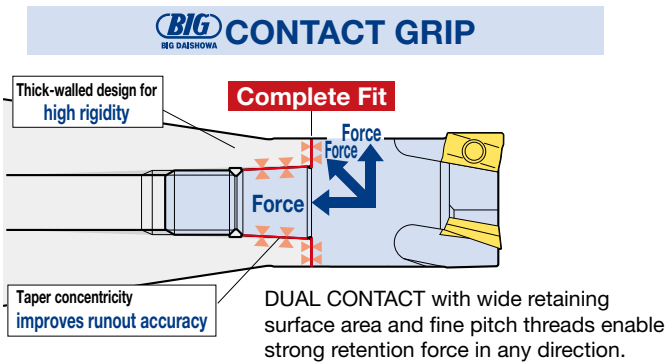
BIG CAPTO SHANK **J22**



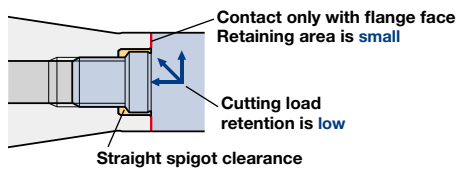
- This threaded coupling system achieves machining capacity close to that of integrated types!
- Taper and flange face are in close contact for a strong connection, thanks to the unique dual contact system.



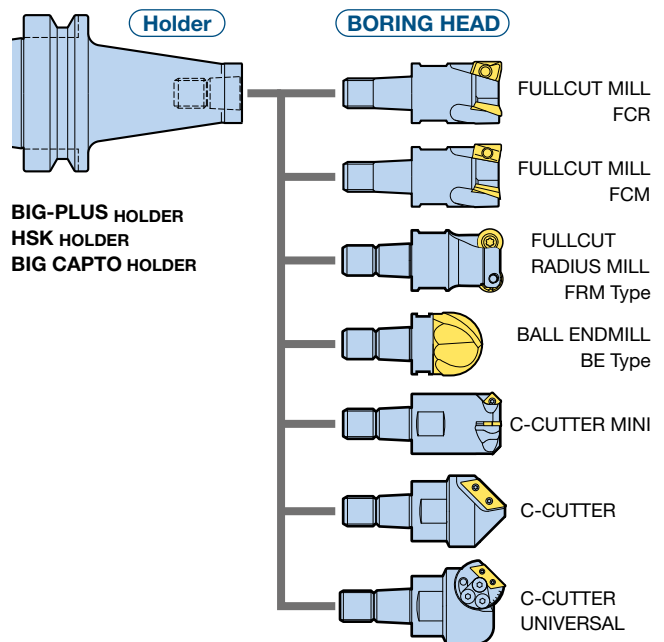
Taper and flange face make close contact for solid connection



Other Manufacturers' Screw Type



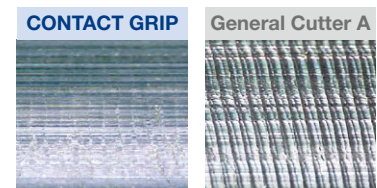
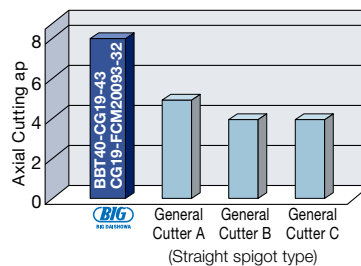
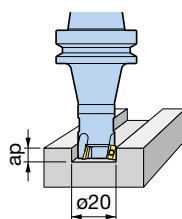
One holder allows selection from multiple heads



Demonstrating the machining capacity difference with CONTACT GRIP

Slotting Comparison with Screw Type from Other Manufacturers

#40 Vertical MC S55C
Cutting speed $V_c = 150\text{m/min}$
Feed rate $f_z = 0.1\text{ mm/tooth}$



Cutting Depth $a_p=4$
Machining Surface Comparison



Performance of replaceable head type tools is greatly affected by connection rigidity and sharpness of the cutting edge. To achieve consistent machining quality, it is essential for both to be available at once.

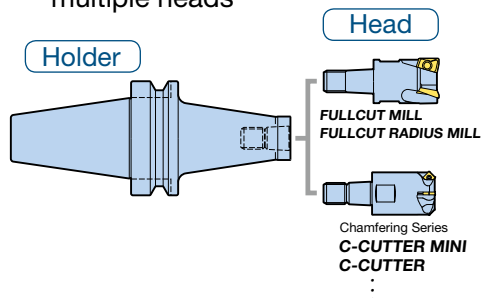
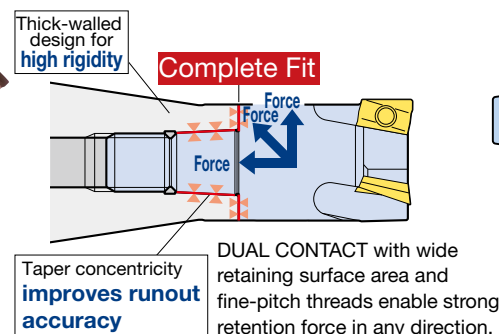
CONTACT GRIP

With the unique DUAL CONTACT “CONTACT GRIP”, this threaded coupling system achieves machining capacity close to that of integrated types!



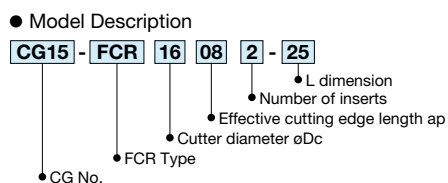
■ Taper and flange face make close contact for solid connection

■ One holder allows selection from multiple heads

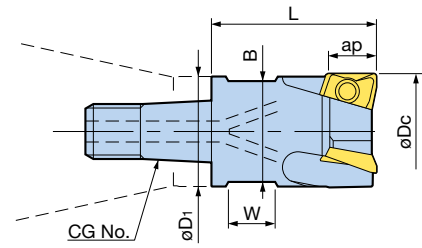


FULLCUT MILL FCR Type

● Realizing both heavy and stable ramping.



Ramping Helical milling Peck-drilling Slotting Shoulder milling



Cutter diameter ϕD_c	Model	CG No.	ϕD_1	Effective cutting edge length a_p	L	Number of inserts	Flat for Wrench		Insert Model	Weight (kg)
							B	W		
16	CG15-FCR16082-25	CG15	15	8	25	2	12	6.2	BRG1608□□	0.03
20	CG19-FCR20082-32	CG19	19	8	32	2	17	8.2	BRG2008□□	0.07
	3									
25	CG24-FCR25082-36	CG24	24	8	36	2	22	10.2	BRG2508□□	0.13
	3									
32	CG31-FCR32102-43	CG31	31	10	43	2	27	12.2	BRG3210□□	0.26
	3									

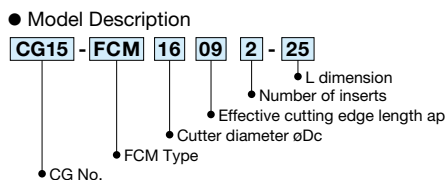
1. Driver-Type Wrench for insert clamping is included. Inserts must be ordered separately.
2. Single-ended wrench for head tightening is not included. Use a commercial product.
3. When used with a body of L=100mm or longer, 2-flute model is recommended for medium/ heavy slotting or ramping.

For inserts and Insert Clamping Screw Sets, **J4**

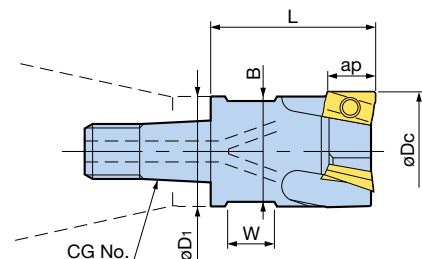
For holders, **J21**

FULLCUT MILL FCM Type

● Low resistance, high efficiency cutter especially for cross-feed machining.



Slotting Shoulder milling



Cutter diameter ϕD_c	Model	CG No.	ϕD_1	Effective cutting edge length a_p	L	Number of inserts	Flat for Wrench		Insert Model	Weight (kg)
							B	W		
16	CG15-FCM16092-25	CG15	15	9	25	2	12	6.2	ARG1609□□	0.03
20	CG19-FCM20092-32	CG19	19	9	32	2	17	8.2	ARG2009□□	0.07
	3									
25	CG24-FCM25092-36	CG24	24	9	36	2	22	10.2	ARG2509□□	0.13
	3									
32	CG31-FCM32112-43	CG31	31	11	43	2	27	12.2	ARG3211□□	0.26
	3									

1. Driver-Type Wrench for insert clamping is included. Inserts must be ordered separately.
2. Single-ended wrench for head tightening is not included. Use a commercial product.
3. When used with a body of L=100mm or longer, 2-flute model is recommended for medium/ heavy slotting or ramping.

For inserts and Insert Clamping Screw Sets, **J14**

For holders, **J21**

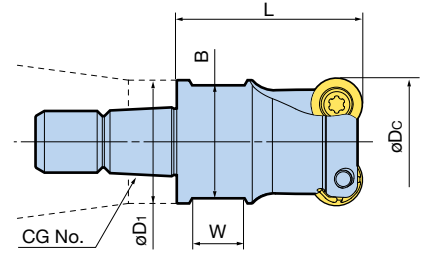
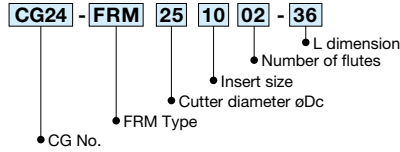
FULLCUT RADIUS MILL FRM Type

● High-rake design radius cutter makes low cutting resistance possible.

Ramping
Helical milling



● Model Description



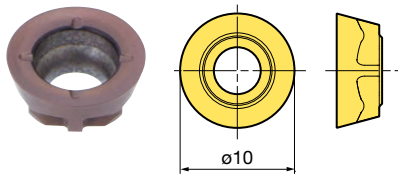
Cutter Diameter ϕD_c	Model	CG No.	ϕD_1	L	Number of Inserts	Flat for Wrench		Insert Model	Weight (kg)
						B	W		
25	CG24-FRM251002-36	CG24	24	36	2	22	10.2	FRM10T3-G	0.11
32	CG31-FRM321003-43	CG31	31	43	3	27	12.2		0.23

1. Driver-Type Wrench for insert clamping is included. Inserts must be ordered separately.
2. Single-ended wrench for head tightening is not included. Use a commercial product.

For holders, **J21**

For FRM Head

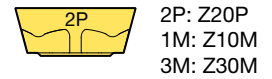
■ Insert



Insert Model	Workpiece Material
FRM10T3-G Z20P	Carbon Steel/Alloy Steel
FRM10T3-G Z10M	Pre-hardened Steel (HRC40 or less)
FRM10T3-G Z30M	Stainless Steel

Inserts sold in packets of 10 pcs

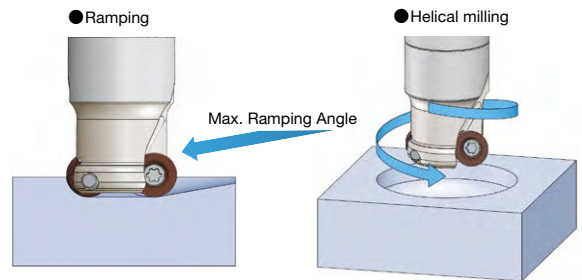
Insert Marking Description



Cutting Conditions

Cutter Diameter	Ramping	Helical milling		
	Max. Ramping Angle	Min. Diameter	Standard Diameter	Max. Diameter
$\phi 25$	10°	$\phi 33$	$\phi 40$	$\phi 49$
$\phi 32$	6°	$\phi 46$	$\phi 54$	$\phi 63$

Helical interpolation leaves an uncut portion on the bottom surface except when cutting the standard diameter.



Workpiece Material	Cutting Speed Vc (m/min)	Feed Rate (mm/t)	Insert Grade
Carbon Steel Alloy Steel	100 - 200	0.2 - 0.5	Z20P
Pre-hardened Steel (HRC40 or less)	80 - 140	0.1 - 0.3	Z10M
Stainless Steel	80 - 180	0.15 - 0.35	Z30M

Caution

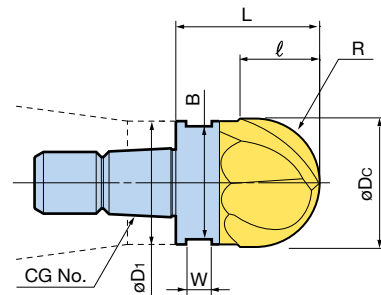
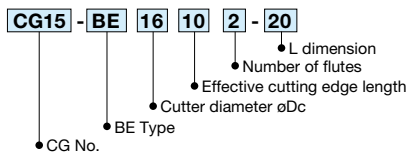
- This table is a guideline for selecting cutting parameters. Adjust them as needed according to the machine and workpiece conditions.
- Be sure to use safety enclosures, as chips may scatter.
- Do not use oil-based cutting fluid, as there is a risk of fire.

BALL ENDMILL BE Type

- High hardness CrN coating with superior wear resistance.



● Model Description

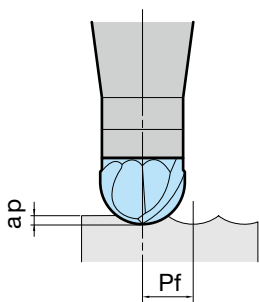


Cutter Diameter øDc	Model	CG No.	R	øD1	Effective cutting edge length l	L	Number of Inserts	Flat for Wrench		Weight (kg)
								B	W	
16	CG15-BE16102-20	CG15	8	15	10	20	2	12	4	0.04
	3						0.04			
20	CG19-BE20122-22	CG19	10	19	12	22	2	17	4	0.06
	3						0.06			
25	CG24-BE25152-28	CG24	12.5	24	15.5	28	2	22	5	0.12
	3						0.13			

1. Single-ended wrench for head tightening is not included. Use a commercial product.

For holders, J21

Cutting Conditions



Ball Radius R (mm)	Carbon Steel Alloy Steel		Pre-hardened Steel		Stainless Steel		Casting		
	Spindle Speed (min ⁻¹)	Feed (mm/min)	Spindle Speed (min ⁻¹)	Feed (mm/min)	Spindle Speed (min ⁻¹)	Feed (mm/min)	Spindle Speed (min ⁻¹)	Feed (mm/min)	
8	5,600	1,800	3,900	950	3,900	950	6,500	2,100	
10	4,500	1,450	3,100	750	3,150	750	5,200	1,700	
12.5	3,600	1,150	2,500	600	2,500	600	4,200	1,350	
Standard Depth of Cut	ap	0.08Dc		0.08Dc		0.08Dc		0.08Dc	
	Pf	0.10Dc		0.10Dc		0.10Dc		0.10Dc	

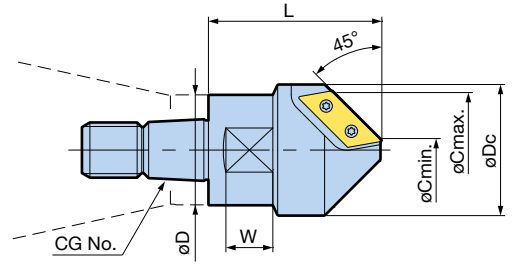
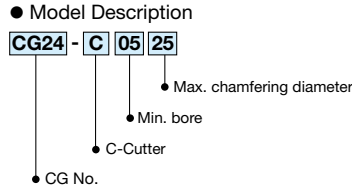
Caution

- This table is a guideline for selecting cutting parameters. Adjust them as needed according to the machine and workpiece conditions.
- Be sure to use safety enclosures, as chips may scatter.
- Do not use oil-based cutting fluid, as there is a risk of fire.

C-Cutter

[45° Type]

- Reduces the number of tools, covering a wide range of chamfering.



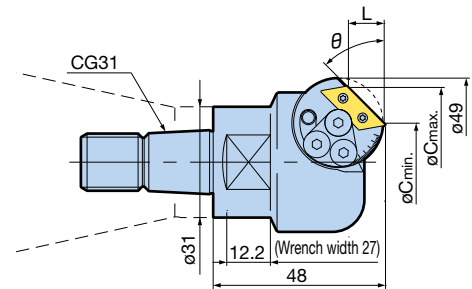
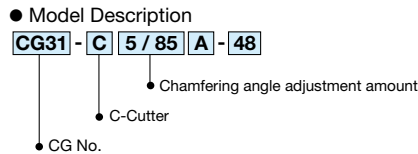
Model	CG No.	øD	Min. hole øCmin.	Max. chamfer diameter øCmax.	øDc	L	Number of inserts	Flat for Wrench		Insert Model	Weight (kg)
								Wrench width	W		
CG24-C0525	CG24	24	5	25	28.5	38	1	22	10.2	CW1206A	0.13
CG31-C1040	CG31	31	10	40	45	52	2	27	12.2	CW1909A	0.39

1. Inserts must be ordered separately.
2. Insert clamping screws and wrench are included.
3. Single-ended wrench for head tightening is not included. Use a commercial product.

For inserts, **J37** For holders, **J21**

[Universal Type]

- Covers chamfering angles from 5° to 85°.



[Chamfering Range]

Model	CG No.	Weight (kg)	Chamfering Range				Chamfering Range				Chamfering Range			
			Chamfering angle θ	Min. hole øCmin.	Max. chamfer diameter øCmax.	L	Chamfering angle θ	Min. hole øCmin.	Max. chamfer diameter øCmax.	L	Chamfering angle θ	Min. hole øCmin.	Max. chamfer diameter øCmax.	L
CG31-C5/85A-48	CG31	0.31	5°	5.5	33.5	1.2	35°	17.4	40.5	8.0	65°	30.7	42.4	12.5
			10°	7.3	34.7	2.4	40°	19.6	41.2	9.0	70°	32.9	42.1	12.6
			15°	9.0	36.2	3.6	45°	21.8	41.8	10.0	75°	34.9	41.7	12.7
			20°	11.2	37.4	4.7	50°	24.0	42.2	10.8	80°	36.9	41.1	11.9
			25°	13.0	38.6	5.9	55°	26.4	42.4	11.4	85°	38.8	40.3	8.6
			30°	15.2	39.6	7.0	60°	28.5	42.5	12.1				

Compatible insert: **CW1206A**

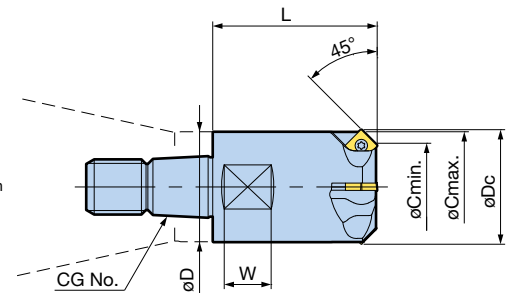
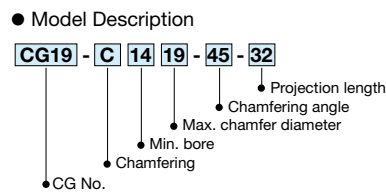
For inserts, **J37**
 For holders, **J21**

Chamfering range and L are reference only. Measure accurate values with a presetter.

Ultra High Feed Chamfer Mill

C-CUTTER MINI (Front Chamfering)

- Ultra-high feed machining enables drastic reduction of machining time.



Model	CG No.	øD	Min. hole øCmin.	Max. chamfer diameter øCmax.	øDc	L	Number of inserts	Flat for Wrench		Insert Model	Weight (kg)
								Wrench width	W		
CG19-C1419-45-32	CG19	19	14	19	19.9	32	4	17	8.2	CM05...	0.07
CG24-C1924-45-36	CG24	24	19	24	24.9	36	4	22	10.2	CM05...	0.14
CG31-C2131-45-43	CG31	31	21	31	31.8	43	4	27	12.2	CM10...	0.25

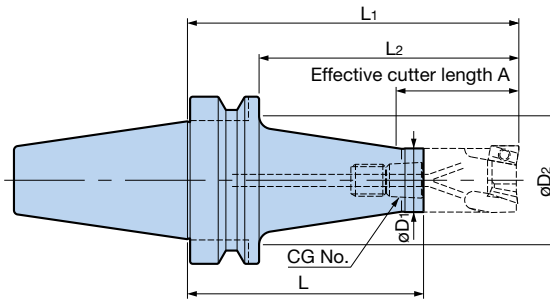
1. A wrench and screws are included. Inserts must be ordered separately.
2. Single-ended wrench for head tightening is not included. Use a commercial product.

For inserts, **J34** For holders, **J21**

BIG-PLUS HOLDER



DUAL CONTACT



● Model Description

- BBT30** - **CG15** - **50**
- L dimension
 - CG No.
 - BIG-PLUS BT No.

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT** spindles.

Model	CG No.	øD ₁	øD ₂	L	L ₁	L ₂	A	Weight (kg)
BBT30-CG15- 50	CG15	15	40	50	75	53	31	0.48
- 80			40	80	105	83	32	0.57
-CG19- 43	CG19	19	40	43	75	53	39	0.47
- 73			42	73	105	83	40	0.59
-CG24- 39	CG24	24	41	39	75	53	45	0.46
- 69			42	69	105	83	45	0.62
-CG31- 32	CG31	31	41	32	75	53	49	0.42
- 62			40	62	105	83	53	0.61
BBT40-CG15- 50	CG15	15	46	50	75	48	30	1.1
- 80			48	80	105	78	32	1.2
-100			49	100	125	98	32	1.3
-CG19- 43	CG19	19	45	43	75	48	36	1.1
- 73			48	73	105	78	40	1.2
- 93			49	93	125	98	40	1.3
-CG24- 39	CG24	24	39	39	75	48	41	1.0
- 69			48	69	105	78	45	1.2
- 89			49	89	125	98	45	1.3
-CG31- 37	CG31	31	43	37	80	53	48	1.0
- 77			57	77	120	93	53	1.4
- 92			57	92	135	108	53	1.5
BBT50-CG15-115	CG15	15	90	115	140	102	30	4.4
-145			80	145	170	132	45	4.4
-CG19-108	CG19	19	90	108	140	102	38	4.4
-153			80	153	185	147	60	4.5
-CG24-114	CG24	24	90	114	150	112	42	4.5
-164			164	200	162	75	4.9	
-CG31-107	CG31	31	95	107	150	112	50	4.7
-157			90	157	200	162	90	5.0

- Single-ended wrench for head tightening is not included. Use a commercial product.
- L₁, L₂, and A above are values with a FULLCUT MILL type head mounted.

For heads, **J17**

APPLICATION EXAMPLES

Ramping

Amazing performance on #40 taper machine.



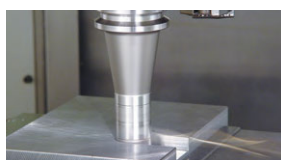
Machine used	BBT40 vertical machining center
Head type	FCR32 (3-inserts)
Holder model	BBT40-CG31-37
Workpiece Material	S50C

Cutting speed Vc (m/min)	150
Feed rate fz (mm/t)	0.1
Axial cutting depth ap (mm)	Max. 10 (3° ramping)

※ The example is dry cutting.

Slotting

Amazing performance on #40 taper machine.



Machine used	BBT40 vertical machining center
Head type	FCM32 (2-inserts)
Holder model	BBT40-CG31-92
Material	S50C

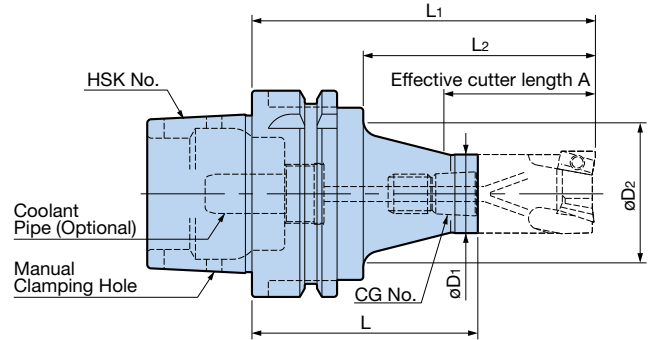
Cutting speed Vc (m/min)	150
Feed rate fz (mm/t)	0.1
Axial cutting depth ap (mm)	11 (Grooving)

※ The example is dry cutting.

HSK Holder



● Model Description
HSK-A63 - **CG15** - **50**
 ● HSK SHANK No. ● CG No. ● L dimension



A Type (DIN69893-1) (ISO12164)

Model	CG No.	øD ₁	øD ₂	L	L ₁	L ₂	A	Weight (kg)
HSK-A63-CG15- 50	CG15	15	36	50	75	41	30	0.8
- 80			45	80	105	71	31	1.0
-100			45	100	125	91	32	1.0
-CG19- 73	CG19	19	45	73	105	71	39	1.0
- 93			45	93	125	91	40	1.0
-CG24- 69			CG24	24	45	69	105	71
- 89	45	89			125	91	45	1.1
-CG31- 77	CG31	31			45	77	120	86
- 92			45	92	135	101	53	1.1

1. Single-ended wrench for head tightening is not included. Use a commercial product.

2. L₁, L₂, and A above are values with a FULLCUT MILL type head mounted.

Coolant pipe is not included. Please order separately. See page C65

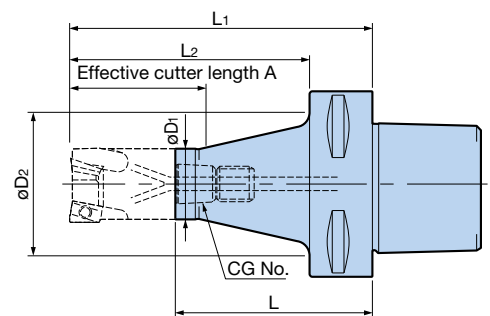
For heads, **J17**

BIG CAPTO Holder



● Model Description
C6 - **CG15** - **50**
 ● Shank No. ● CG No. ● L dimension

CAPTO is a trademark licensed by Sandvik Coromant.



C6

Model	CG No.	øD ₁	øD ₂	L	L ₁	L ₂	A	Weight (kg)
C6-CG15- 50	CG15	15	46	50	75	53	31	0.9
- 80			48	80	105	83	31	1.0
-100			49	100	125	103	32	1.1
-CG19- 43	CG19	19	45	43	75	53	39	0.9
- 73			48	73	105	83	39	1.0
- 93			49	93	125	103	40	1.1
-CG24- 69	CG24	24	49	69	105	83	44	1.0
- 89			49	89	125	103	45	1.1
-CG31- 77			CG31	31	57	77	120	98
- 92	57	92			135	113	53	1.3

1. Single-ended wrench for head tightening is not included. Use a commercial product.

2. L₁, L₂, and A above are values with a FULLCUT MILL type head mounted.

For heads, **J17**