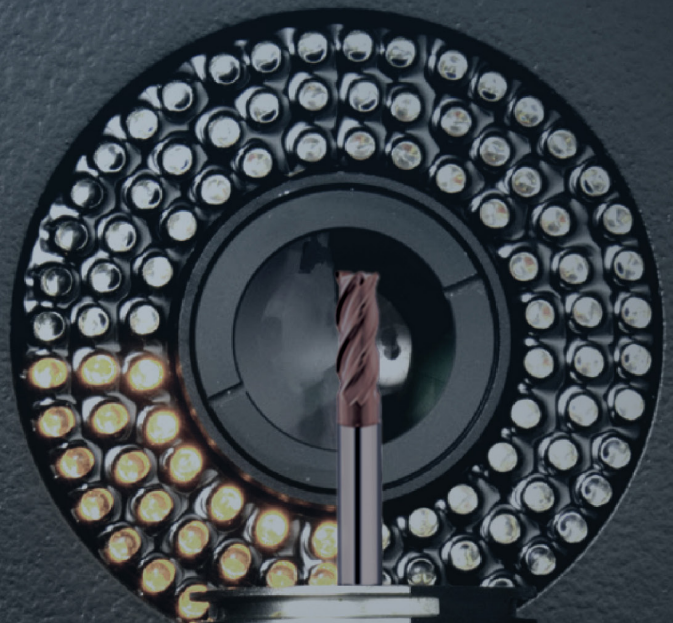


# JABIL CUTTING TOOLS

**Made for Professionals  
by Professionals**

As demand for quality precision tools pave the way for more advanced innovations, Jabil Cutting Tools offer specialized carbide cutting tools for the discerning professional. We offer quality at a competitive price supported by best-in-class service, capabilities, expertise and scale.



E=J'S

Founded in Taiwan in September 2010

Monthly Capacity: 400,000 units

R&D and Mass Production in Taichung, Taiwan

CNC Cutters for Mold steel, Stainless steel, Aluminum, Titanium, Plastics & Composites.

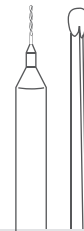
Our tools are used in the most discriminating industrial manufacturing operations from healthcare, precision toolmakers, mobile devices, semiconductor, to defense and aerospace



## MINIATURE CUTTER



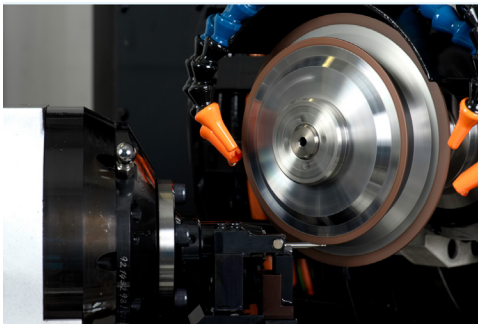
0.2  
Diameter



Comparison  
with a match stick

## MANUFACTURING

59 high precision German cutter grinding machines



## INSPECTION

Highly automated measuring and inspection machines



## DIVERSITY IN DIAMETER

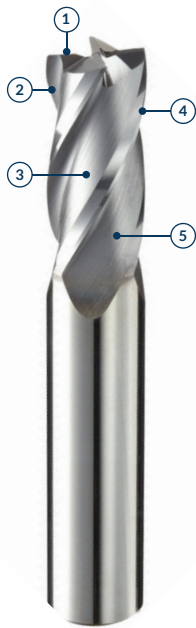
- Min. Flute dia. 0.2mm
- Max Shank dia. 32mm



## COATING

In-house Coating capability Extending cutter lifespan and performance





## 1 Sharp Concavity Angle

Boosting the performance of helix interpolation milling

## 2 Variable Helix Angle

Suppress vibration and chatter

## 3 Polished Flute

Excellent chip removal

## 4 Polished Edge

Excellent surface quality  
Excellent chip removal  
Lower cutting resistance

## 5 Unique Flute Geometry

Excellent chip removal  
Excellent stability

### APPLICATION



## M series Mold/die steel

P 04-42

End Mill



## S series Stainless steel

P 43-72

End Mill



## A series Aluminum

P 73-77

End Mill



## C series Composite

P 78-85

End Mill



## O Series

P 86-153

Form Cutter

	ITEM	Flutes	Helix	Mill Dia.		Page
				(Min)	(Max)	
	Carbide End Mills - Square Type 2 Flutes - Miniature	2	30-35	0.2	0.9	7
	Carbide End Mills - Square Type 2 Flutes	2	30-35	1	20	8
	Carbide End Mills - Square Type 4 Flutes	4	35	1	20	9
	Carbide End Mills - Square 2 Flutes - Decimal Diameter	2	35	1.1	5.9	10~11
	Carbide End Mills - Square 4 Flutes - Decimal Diameter	4	35	6.1	7.9	12
	Carbide End Mills - Square Type 2 Flutes - Long Shank	2	35	2	20	13
	Carbide End Mills - Square Type 4 Flutes - Long Shank	4	35	2	20	13
	Carbide End Mills - Square Type 2 Flutes - Long Shank & Long Cutting Length	2	35	2	20	14
	Carbide End Mills - Square Type 4 Flutes - Long Shank & Long Cutting Length	4	35	2	20	14
	Carbide End Mills - Square Type 2 Flutes - Long Neck	2	35	1	4	15~16
	Carbide End Mills - Square Type 2 Flutes - Taper Series	2	35	1	6	17~18
	Carbide End Mills - Square Type 3 Flutes - AR Trench	3	45	3	20	19
	Carbide End Mills - Square Type 4 Flutes - AR Trench	4	45	1	20	19
	Carbide End Mills - Square Type 4 Flutes - R Trench	2	45	1	20	20
	Carbide End Mills - Ball Nose Type 2 Flutes - Miniature	2	30	0.2	0.9	20

	ITEM	Flutes	Helix	Mill Dia.		Page
				(Min)	(Max)	
	Carbide End Mills - Ball Nose Type 2 Flutes	2	30	1	20	21
	Carbide End Mills - Ball Nose Type 4 Flutes	4	30	2	16	22
	Carbide End Mills - Ball Nose Type 2 Flutes - Long Shank	2	30	1	20	23
	Carbide End Mills - Ball Nose Type 4 Flutes - Long Shank	4	30	2	16	24
	Carbide End Mills - Ball Nose Type 2 Flutes - Extra Long Shank	2	30	2	20	24
	Carbide End Mills - Ball Nose Type 2 Flutes - Long Neck	2	30	0.2	8	25~26
	Carbide End Mills - Ball Nose Type 2 Flutes - Taper Series	2	30	2.24	6.64	26
	Carbide End Mills - Corner Radius Type 2 Flutes	2	35	1	12	27
	Carbide End Mills - Corner Radius Type 4 Flutes	4	35	1	12	28~29
	Carbide End Mills - Corner Radius Type 4 Flutes - Short Cutting Length	4	35	3	12	30
	Carbide End Mills - Square Type 2 Flutes - Miniature (High Hardness)	2	35	0.2	0.9	31
	Carbide End Mills - Square Type 2 Flutes (High Hardness)	2	35	1	12	32
	Carbide End Mills - Square Type 4 Flutes (High Hardness)	4	35	1	12	33
	Carbide End Mills - Square Type 2 Flutes - Long Neck (High Hardness)	2	35	0.5	4	34~35
	Carbide End Mills - Square Type 6/8 Flutes (High Hardness)	6-8	45	6	25	36



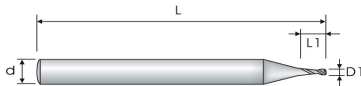
ITEM	Flutes	Helix	Mill Dia.		Page
			(Min)	(Max)	
Carbide End Mills - Ball Nose Type 2 Flutes - Miniature (High Hardness)	2	30	0.2	0.9	36
Carbide End Mills - Ball Nose Type 2 Flutes (High Hardness)	2	30	1	12	37
Carbide End Mills - Ball Nose Type 4 Flutes (High Hardness)	4	30	2	12	38
Carbide End Mills - Ball Nose Type 2 Flutes - Long Shank (High Hardness)	2	30	1	12	38
Carbide End Mills - Ball Nose Type 2 Flutes - Long Neck (High Hardness)	2	30	0.4	4.8	39
Carbide End Mills - Corner Radius Type 2 Flutes (High Hardness)	2	35	1	12	40
Carbide End Mills - Corner Radius Type 4 Flutes (High Hardness)	4	35	1	12	41
Carbide End Mills - Corner Radius Type 4 Flutes - Long Neck (High Hardness)	4	35	2	12	42

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Miniature



Mill Dia. (D1) Up to	Tolerance (mm)
0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSC-0020-004B21	0.2	0.4	0.4	38	3	2	35°
MSC-0025-005B21	0.25	0.5	0.5	38	3	2	35°
MSC-0030-006B21	0.3	0.6	0.6	38	3	2	35°
MSC-0035-007B21	0.35	0.7	0.7	38	3	2	35°
MSC-0040-008B21	0.4	0.8	0.8	38	3	2	35°
MSC-0040-020C22	0.4	0.6	2	45	4	2	30°
MSC-0040-040C22	0.4	0.6	4	45	4	2	30°
MSC-0050-010B21	0.5	1	1	38	3	2	35°
MSC-0060-012B21	0.6	1.2	1.2	38	3	2	35°
MSC-0060-020C22	0.6	0.9	2	45	4	2	30°
MSC-0070-014B21	0.7	1.4	1.4	38	3	2	35°
MSC-0080-016B21	0.8	1.6	1.6	38	3	2	35°
MSC-0080-040C22	0.8	1.2	4	45	4	2	30°
MSC-0090-018B21	0.9	1.8	1.8	38	3	2	35°
MSC-0020-004C21	0.2	0.4	0.4	50	4	2	35°
MSC-0030-006C21	0.3	0.6	0.6	50	4	2	35°
MSC-0040-008C21	0.4	0.8	0.8	50	4	2	35°
MSC-0050-010C21	0.5	1	1	50	4	2	35°
MSC-0060-012C21	0.6	1.2	1.2	50	4	2	35°
MSC-0070-014C21	0.7	1.4	1.4	50	4	2	35°
MSC-0080-016C21	0.8	1.6	1.6	50	4	2	35°
MSC-0080-012C22	0.8	1.2	4	50	4	2	30°
MSC-0090-018C21	0.9	1.8	1.8	50	4	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

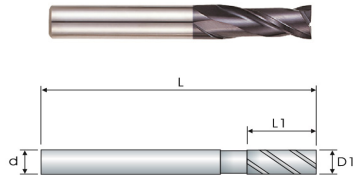
Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
HB225~325	HRC~50	HRC~55	HRC~60						
●	●				○		○	○	○



# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes



Mill Dia.(D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSC-0100-030C21	1	3	3	50	4	2	35°
MSC-0150-030C21	1.5	3	3	50	4	2	35°
MSC-0200-060C21	2	6	6	50	4	2	35°
MSC-0250-060C21	2.5	6	6	50	4	2	35°
MSC-0300-090C21	3	9	9	50	4	2	35°
MSC-0350-090C21	3.5	9	9	50	4	2	35°
MSC-0400-120C21	4	12	12	50	4	2	35°
MSC-0200-060E21	2	6	6	50	6	2	35°
MSC-0250-060E21	2.5	6	6	50	6	2	35°
MSC-0300-090E21	3	9	9	50	6	2	35°
MSC-0350-090E21	3.5	9	9	50	6	2	35°
MSC-0400-120E21	4	12	12	50	6	2	35°
MSC-0450-120E21	4.5	12	12	50	6	2	35°
MSC-0500-150E21	5	15	15	50	6	2	35°
MSC-0550-150E21	5.5	15	15	50	6	2	35°
MSC-0600-180E21	6	18	18	50	6	2	35°
MSC-0650-200G21	6.5	20	20	60	8	2	35°
MSC-0700-200G21	7	20	20	60	8	2	35°
MSC-0750-200G21	7.5	20	20	60	8	2	35°
MSC-0800-240G21	8	24	24	60	8	2	35°
MSC-0800-200G22	8	20	20	60	8	2	30°
MSC-0850-240H21	8.5	24	24	75	10	2	35°
MSC-0900-270H21	9	27	27	75	10	2	35°
MSC-0950-270H21	9.5	27	27	75	10	2	35°
MSC-1000-300H21	10	30	30	75	10	2	35°
MSC-1050-300I21	10.5	30	30	75	12	2	35°
MSC-1100-300I21	11	30	30	75	12	2	35°
MSC-1150-300I21	11.5	30	30	75	12	2	35°
MSC-1200-300I21	12	30	30	75	12	2	35°
MSC-1500-400J21	15	40	40	100	16	2	35°
MSC-1600-400J21	16	40	40	100	16	2	35°
MSC-2000-450K21	20	45	45	100	20	2	35°

### End Mill For General Steels And Metals

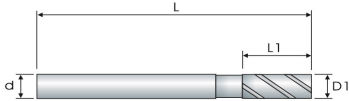
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 4 Flutes



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSC-0100-030C41	1	3	3	50	4	4	35°
MSC-0150-030C41	1.5	3	3	50	4	4	35°
MSC-0200-060C41	2	6	6	50	4	4	35°
MSC-0250-060C41	2.5	6	6	50	4	4	35°
MSC-0300-090C41	3	9	9	50	4	4	35°
MSC-0350-090C41	3.5	9	9	50	4	4	35°
MSC-0400-120C41	4	12	12	50	4	4	35°
MSC-0200-060E41	2	6	6	50	6	4	35°
MSC-0250-060E41	2.5	6	6	50	6	4	35°
MSC-0300-090E41	3	9	9	50	6	4	35°
MSC-0350-090E41	3.5	9	9	50	6	4	35°
MSC-0400-120E41	4	12	12	50	6	4	35°
MSC-0450-120E41	4.5	12	12	50	6	4	35°
MSC-0500-150E41	5	15	15	50	6	4	35°
MSC-0550-150E41	5.5	15	15	50	6	4	35°
MSC-0600-180E41	6	18	18	50	6	4	35°
MSC-0650-180G41	6.5	18	18	60	8	4	35°
MSC-0700-200G41	7	20	20	60	8	4	35°
MSC-0750-200G41	7.5	20	20	60	8	4	35°
MSC-0800-240G41	8	24	24	60	8	4	35°
MSC-0850-240H41	8.5	24	24	75	10	4	35°
MSC-0900-270H41	9	27	27	75	10	4	35°
MSC-0950-270H41	9.5	27	27	75	10	4	35°
MSC-1000-300H41	10	30	30	75	10	4	35°
MSC-1050-300I41	10.5	30	30	75	12	4	35°
MSC-1100-330I41	11	33	33	75	12	4	35°
MSC-1150-330I41	11.5	33	33	75	12	4	35°
MSC-1200-360I41	12	36	36	75	12	4	35°
MSC-1600-450J41	16	45	45	100	16	4	35°
MSC-2000-450K41	20	45	45	100	20	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

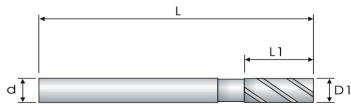
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Decimal Diameter



Mill Dia. (D1)	Tolerance [mm]
Up to 6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSC-0110-030C21	1.1	3	50	4	2	35°
MSC-0120-030C21	1.2	3	50	4	2	35°
MSC-0130-040C21	1.3	4	50	4	2	35°
MSC-0140-040C21	1.4	4	50	4	2	35°
MSC-0160-040C21	1.6	4	50	4	2	35°
MSC-0170-050C21	1.7	5	50	4	2	35°
MSC-0180-050C21	1.8	5	50	4	2	35°
MSC-0190-050C21	1.9	5	50	4	2	35°
MSC-0210-060C21	2.1	6	50	4	2	35°
MSC-0220-060C21	2.2	6	50	4	2	35°
MSC-0230-060C21	2.3	6	50	4	2	35°
MSC-0240-060C21	2.4	6	50	4	2	35°
MSC-0260-070C21	2.6	7	50	4	2	35°
MSC-0270-070C21	2.7	7	50	4	2	35°
MSC-0280-070C21	2.8	7	50	4	2	35°
MSC-0290-080C21	2.9	8	50	4	2	35°
MSC-0310-080C21	3.1	8	50	4	2	35°
MSC-0320-080C21	3.2	8	50	4	2	35°
MSC-0330-090C21	3.3	9	50	4	2	35°
MSC-0340-090C21	3.4	9	50	4	2	35°
MSC-0360-090C21	3.6	9	50	4	2	35°
MSC-0370-100C21	3.7	10	50	4	2	35°
MSC-0380-100C21	3.8	10	50	4	2	35°
MSC-0390-100C21	3.9	10	50	4	2	35°
MSC-0410-120E21	4.1	12	50	6	2	35°
MSC-0420-120E21	4.2	12	50	6	2	35°
MSC-0430-120E21	4.3	12	50	6	2	35°
MSC-0440-130E21	4.4	13	50	6	2	35°
MSC-0460-130E21	4.6	13	50	6	2	35°
MSC-0470-130E21	4.7	13	50	6	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

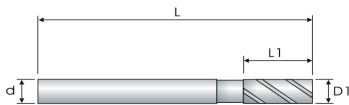
# CARBIDE END MILLS

## M SERIES

(CONTINUATION)

### Square Type 2 Flutes

Decimal Diameter



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSC-0480-130E21	4.8	13	50	6	2	35°
MSC-0490-130E21	4.9	13	50	6	2	35°
MSC-0510-130E21	5.1	13	50	6	2	35°
MSC-0520-130E21	5.2	13	50	6	2	35°
MSC-0540-130E21	5.3	13	50	6	2	35°
MSC-0540-130E21	5.4	13	50	6	2	35°
MSC-0560-140E21	5.6	14	50	6	2	35°
MSC-0570-140E21	5.7	14	50	6	2	35°
MSC-0580-140E21	5.8	14	50	6	2	35°
MSC-0590-140E21	5.9	14	50	6	2	35°
MSC-0610-150G21	6.1	15	60	8	2	35°
MSC-0620-150G21	6.2	15	60	8	2	35°
MSC-0630-150G21	6.3	15	60	8	2	35°
MSC-0640-150G21	6.4	15	60	8	2	35°
MSC-0660-160G21	6.6	16	60	8	2	35°
MSC-0670-160G21	6.7	16	60	8	2	35°
MSC-0680-160G21	6.8	16	60	8	2	35°
MSC-0690-180G21	6.9	16	60	8	2	35°
MSC-0710-180G21	7.1	18	60	8	2	35°
MSC-0720-180G21	7.2	18	60	8	2	35°
MSC-0730-180G21	7.3	18	60	8	2	35°
MSC-0740-180G21	7.4	18	60	8	2	35°
MSC-0760-180G21	7.6	18	60	8	2	35°
MSC-0770-180G21	7.7	18	60	8	2	35°
MSC-0780-180G21	7.8	18	60	8	2	35°
MSC-0790-180G21	7.9	18	60	8	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

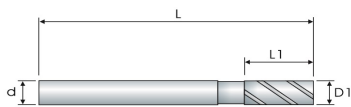
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 4 Flutes

Decimal Diameter



Mill Dia. (D1)	Tolerance (mm)
Up to 6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSC-0610-150G41	6.1	15	60	8	4	35°
MSC-0620-150G41	6.2	15	60	8	4	35°
MSC-0630-150G41	6.3	15	60	8	4	35°
MSC-0640-150G41	6.4	15	60	8	4	35°
MSC-0660-160G41	6.6	16	60	8	4	35°
MSC-0670-160G41	6.7	16	60	8	4	35°
MSC-0680-160G41	6.8	16	60	8	4	35°
MSC-0690-180G41	6.9	18	60	8	4	35°
MSC-0710-180G41	7.1	18	60	8	4	35°
MSC-0720-180G41	7.2	18	60	8	4	35°
MSC-0730-180G41	7.3	18	60	8	4	35°
MSC-0740-180G41	7.4	18	60	8	4	35°
MSC-0760-180G41	7.6	18	60	8	4	35°
MSC-0770-180G41	7.7	18	60	8	4	35°
MSC-0780-180G41	7.8	18	60	8	4	35°
MSC-0790-180G41	7.9	18	60	8	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

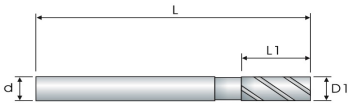
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Long Shank



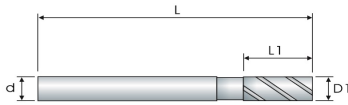
Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSL-0200-060E21	2	6	60	6	2	35°
MSL-0300-090E21	3	9	60	6	2	35°
MSL-0400-120E21	4	12	60	6	2	35°
MSL-0500-150E21	5	15	75	6	2	35°
MSL-0600-180E21	6	18	75	6	2	35°
MSL-0800-240G21	8	24	100	8	2	35°
MSL-1000-300H21	10	30	100	10	2	35°
MSL-1200-300I21	12	30	100	12	2	35°
MSL-1600-450J21	16	45	150	16	2	35°
MSL-2000-500K21	20	50	150	20	2	35°

### Square Type 4 Flutes

Long Shank



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSL-0200-060E41	2	6	60	6	4	35°
MSL-0300-090E41	3	9	60	6	4	35°
MSL-0400-120E41	4	12	60	6	4	35°
MSL-0500-150E41	5	15	75	6	4	35°
MSL-0600-180E41	6	18	75	6	4	35°
MSL-0800-240G41	8	24	100	8	4	35°
MSL-1000-300H41	10	30	100	10	4	35°
MSL-1200-300I41	12	30	100	12	4	35°
MSL-1600-450J41	16	45	150	16	4	35°
MSL-2000-450K41	20	45	150	20	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

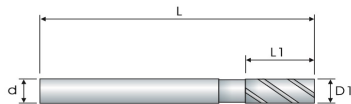
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Long Shank & Long Cutting Length



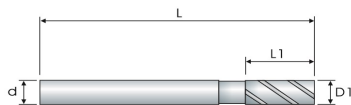
Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSL-0200-100E21	2	10	60	6	2	35°
MSL-0300-150E21	3	15	60	6	2	35°
MSL-0400-200E21	4	20	60	6	2	35°
MSL-0500-250E21	5	25	75	6	2	35°
MSL-0600-300E21	6	30	75	6	2	35°
MSL-0800-400G21	8	40	100	8	2	35°
MSL-1000-500H21	10	50	100	10	2	35°
MSL-1000-450H21	12	45	100	12	2	35°
MSL-1600-700J21	16	70	150	16	2	35°
MSL-2000-750K21	20	75	150	20	2	35°

### Square Type 4 Flutes

Long Shank & Long Cutting Length



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSL-0200-100E41	2	10	60	6	4	35°
MSL-0300-150E41	3	15	60	6	4	35°
MSL-0400-200E41	4	20	60	6	4	35°
MSL-0500-250E41	5	25	75	6	4	35°
MSL-0600-300E41	6	30	75	6	4	35°
MSL-0800-400G41	8	40	100	8	4	35°
MSL-1000-500H41	10	50	100	10	4	35°
MSL-1200-500I41	12	50	100	12	4	35°
MSL-1600-700J41	16	70	150	16	4	35°
MSL-2000-750K41	20	75	150	20	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

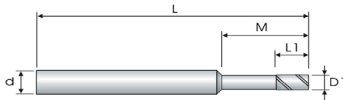
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Long Neck



Mill Dia. [D1] Up to	Tolerance [mm]
4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSL-0100-060C21	1	1.5	6	50	4	2	35°
MSL-0100-080C21	1	1.5	8	50	4	2	35°
MSL-0100-100C21	1	1.5	10	50	4	2	35°
MSL-0100-120C21	1	1.5	12	50	4	2	35°
MSL-0120-060C21	1.2	2	6	50	4	2	35°
MSL-0120-080C21	1.2	2	8	50	4	2	35°
MSL-0120-100C21	1.2	2	10	50	4	2	35°
MSL-0120-120C21	1.2	2	12	50	4	2	35°
MSL-0150-060C21	1.5	2.5	6	50	4	2	35°
MSL-0150-080C21	1.5	2.5	8	50	4	2	35°
MSL-0150-100C21	1.5	2.5	10	50	4	2	35°
MSL-0150-120C21	1.5	2.5	12	50	4	2	35°
MSL-0150-160C21	1.5	2.5	16	60	4	2	35°
MSL-0180-080C21	1.8	3	8	50	4	2	35°
MSL-0180-160C21	1.8	3	16	60	4	2	35°
MSL-0200-060C21	2	3	6	50	4	2	35°
MSL-0200-080C21	2	3	8	50	4	2	35°
MSL-0200-100C21	2	3	10	50	4	2	35°
MSL-0200-120C21	2	3	12	50	4	2	35°
MSL-0200-160C21	2	3	16	60	4	2	35°
MSL-0200-200C21	2	3	20	60	4	2	35°
MSL-0250-120C21	2.5	3.5	12	50	4	2	35°
MSL-0250-200C21	2.5	3.5	20	60	4	2	35°
MSL-0300-100E21	3	4.5	10	50	6	2	35°
MSL-0300-120E21	3	4.5	12	50	6	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○



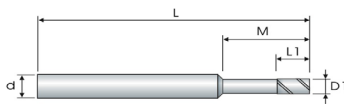
# CARBIDE END MILLS

## M SERIES

(CONTINUATION)

### Square Type 2 Flutes

Long Neck



Mill Dia.(D1) Up to	Tolerance (mm)
4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSL-0300-160E21	3	4.5	16	60	6	2	35°
MSL-0300-200E21	3	4.5	20	60	6	2	35°
MSL-0300-140E22	3	4	14	50	6	2	35°
MSL-0300-200E22	3	4	20	45	6	2	35°
MSL-0300-080E22	3	4	8	45	6	2	35°
MSL-0400-160E21	4	6	16	60	6	2	35°
MSL-0400-200E21	4	6	20	60	6	2	35°
MSL-0400-250E21	4	6	25	60	6	2	35°
MSL-0400-300E21	4	6	30	75	6	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

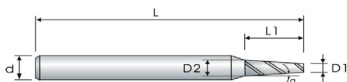
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Taper Series



■ Shank Dia. Tolerance: h6

Part number	D1	CA	L1	D2	L	d	F	Helix°
	Mill Dia.	Taper Angle	Flute Length	Mill Dia. 2	Overall Length	Shank Dia.	No. of Flute	
MSC-0100-107C21	1	0.5	4	1.07	50	4	2	35°
MSC-0100-114C21	1	1	4	1.14	50	4	2	35°
MSC-0100-121C21	1	1.5	4	1.21	50	4	2	35°
MSC-0100-128C21	1	2	4	1.28	50	4	2	35°
MSC-0100-142C21	1	3	4	1.42	50	4	2	35°
MSC-0100-170C21	1	5	4	1.7	50	4	2	35°
MSC-0150-159C21	1.5	0.5	5	1.59	50	4	2	35°
MSC-0150-167C21	1.5	1	5	1.67	50	4	2	35°
MSC-0150-176C21	1.5	1.5	5	1.76	50	4	2	35°
MSC-0150-185C21	1.5	2	5	1.85	50	4	2	35°
MSC-0150-203C21	1.5	3	5	2.03	50	4	2	35°
MSC-0150-237C21	1.5	5	5	2.37	50	4	2	35°
MSC-0200-210C21	2	0.5	6	2.1	50	4	2	35°
MSC-0200-221C21	2	1	6	2.21	50	4	2	35°
MSC-0200-231C21	2	1.5	6	2.31	50	4	2	35°
MSC-0200-242C21	2	2	6	2.42	50	4	2	35°
MSC-0200-263C21	2	3	6	2.63	50	4	2	35°
MSC-0200-305C21	2	5	6	3.05	50	4	2	35°
MSC-0250-264C21	2.5	0.5	8	2.64	50	4	2	35°
MSC-0250-278C21	2.5	1	8	2.78	50	4	2	35°
MSC-0250-292C21	2.5	1.5	8	2.92	50	4	2	35°
MSC-0250-306C21	2.5	2	8	3.06	50	4	2	35°
MSC-0250-334C21	2.5	3	8	3.34	50	4	2	35°
MSC-0250-390C21	2.5	5	8	3.9	50	4	2	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

(CONTINUATION)

### Square Type 2 Flutes

Taper Series



■ Shank Dia. Tolerance: h6

Part number	D1	CA	L1	D2	L	d	F	Helix°
	Mill Dia.	Taper Angle	Flute Length	Mill Dia. 2	Overall Length	Shank Dia.	No. of Flute	
MSC-0300-317E21	3	0.5	10	3.17	50	6	2	35°
MSC-0300-335E21	3	1	10	3.35	50	6	2	35°
MSC-0300-352E21	3	1.5	10	3.52	50	6	2	35°
MSC-0300-370E21	3	2	10	3.7	50	6	2	35°
MSC-0300-405E21	3	3	10	4.05	50	6	2	35°
MSC-0300-475E21	3	5	10	4.75	50	6	2	35°
MSC-0400-426E21	4	0.5	15	4.26	50	6	2	35°
MSC-0400-452E21	4	1	15	4.52	50	6	2	35°
MSC-0400-479E21	4	1.5	15	4.79	50	6	2	35°
MSC-0400-505E21	4	2	15	5.05	50	6	2	35°
MSC-0400-557E21	4	3	15	5.57	50	6	2	35°
MSC-0400-662G21	4	5	15	6.62	60	8	2	35°
MSC-0500-553G21	5	0.5	20	5.53	60	8	2	35°
MSC-0500-580G21	5	1	20	5.8	60	8	2	35°
MSC-0500-605G21	5	1.5	20	6.05	60	8	2	35°
MSC-0500-640G21	5	2	20	6.4	60	8	2	35°
MSC-0500-710G21	5	3	20	7.1	60	8	2	35°
MSC-0500-850H21	5	5	20	8.5	75	10	2	35°
MSC-0600-635G21	6	0.5	20	6.35	60	8	2	35°
MSC-0600-670G21	6	1	20	6.7	60	8	2	35°
MSC-0600-705G21	6	1.5	20	7.05	60	8	2	35°
MSC-0600-740G21	6	2	20	7.4	60	8	2	35°
MSC-0600-810H21	6	3	20	8.1	75	10	2	35°
MSC-0600-950H21	6	5	20	9.5	75	10	2	35°

#### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 3 Flutes

AR Trench



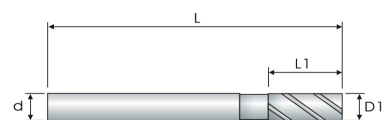
Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSA-0100-030C31	1	3	50	4	3	45°
MSA-0200-060C31	2	6	50	4	3	45°
MSA-0300-090C31	3	9	50	4	3	45°
MSA-0400-120C31	4	12	50	4	3	45°
MSA-0500-150E31	5	15	50	6	3	45°
MSA-0600-180E31	6	18	50	6	3	45°
MSA-0800-240G31	8	24	60	8	3	45°
MSA-1000-300H31	10	30	75	10	3	45°
MSA-1200-360I31	12	36	75	12	3	45°
MSA-1600-450J31	16	45	100	16	3	45°
MSA-2000-450K31	20	45	100	20	3	45°

### Square Type 4 Flutes

AR Trench



Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSA-0100-030C41	1	3	50	4	4	45°
MSA-0200-060C41	2	6	50	4	4	45°
MSA-0300-090C41	3	9	50	4	4	45°
MSA-0400-120C41	4	12	50	4	4	45°
MSA-0500-150E41	5	15	50	6	4	45°
MSA-0600-180E41	6	18	50	6	4	45°
MSA-0800-240G41	8	24	60	8	4	45°
MSA-1000-300H41	10	30	75	10	4	45°
MSA-1200-360I41	12	36	75	12	4	45°
MSA-1600-450J41	16	45	100	16	4	45°
MSA-2000-450K41	20	45	100	20	4	45°

### End Mill For General Steels And Metals

● Excellent ○ Good

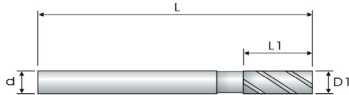
Carbon Steels	Alloy Steels	Hardened Steels		High hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				●		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 4 Flutes

R Trench



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSR-0100-025C41	1	2.5	50	4	4	45°
MSR-0200-050C41	2	5	50	4	4	45°
MSR-0300-075C41	3	7.5	50	4	4	45°
MSR-0400-100C41	4	10	50	4	4	45°
MSR-0500-125E41	5	12.5	50	6	4	45°
MSR-0600-150E41	6	15	50	6	4	45°
MSR-0800-200G41	8	20	60	8	4	45°
MSR-1000-250H41	10	25	75	10	4	45°
MSR-1200-300I41	12	30	75	12	4	45°
MSR-1600-400J41	16	40	100	16	4	45°
MSR-2000-500K41	20	50	100	20	4	45°

### Ball Nose Type 2 Flutes

Miniature



Mill Dia. (D1) Up to	Tolerance (mm)
0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

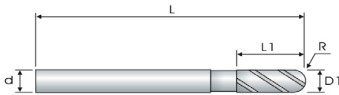
Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBC-0020-004C21	0.1R	0.2	0.4	50	4	2	30°
MBC-0030-006C21	0.15R	0.3	0.6	50	4	2	30°
MBC-0040-008C21	0.2R	0.4	0.8	50	4	2	30°
MBC-0050-010C21	0.25R	0.5	1	50	4	2	30°
MBC-0060-012C21	0.3R	0.6	1.2	50	4	2	30°
MBC-0070-014C21	0.35R	0.7	1.4	50	4	2	30°
MBC-0080-016C21	0.4R	0.8	1.6	50	4	2	30°
MBC-0090-018C21	0.45R	0.9	1.8	50	4	2	30°

### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBC-0100-020C21	0.5R	1	2	50	4	2	30°
MBC-0120-024C21	0.6R	1.2	2.4	50	4	2	30°
MBC-0140-028C21	0.7R	1.4	2.8	50	4	2	30°
MBC-0150-030C21	0.75R	1.5	3	50	4	2	30°
MBC-0200-040C21	1R	2	4	50	4	2	30°
MBC-0250-050C21	1.25R	2.5	5	50	4	2	30°
MBC-0300-060C21	1.5R	3	6	50	4	2	30°
MBC-0350-070C21	1.75R	3.5	7	50	4	2	30°
MBC-0400-080C21	2R	4	8	50	4	2	30°
MBC-0200-040E21	1R	2	4	50	6	2	30°
MBC-0250-050E21	1.25R	2.5	5	50	6	2	30°
MBC-0300-060E21	1.5R	3	6	50	6	2	30°
MBC-0350-070E21	1.75R	3.5	7	50	6	2	30°
MBC-0400-080E21	2R	4	8	50	6	2	30°
MBC-0500-100E21	2.5R	5	10	50	6	2	30°
MBC-0600-120E21	3R	6	12	50	6	2	30°
MBC-0700-140G21	3.5R	7	14	60	8	2	30°
MBC-0800-160G21	4R	8	16	60	8	2	30°
MBC-1000-200H21	5R	10	20	75	10	2	30°
MBC-1200-240I21	6R	12	24	75	12	2	30°
MBC-1600-320J21	8R	16	32	100	16	2	30°
MBC-2000-400K21	10R	20	40	100	20	2	30°

### End Mill For General Steels And Metals

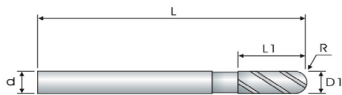
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Ball Nose Type 4 Flutes



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
16	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBC-0200-040C41	1R	2	4	50	4	4	30°
MBC-0250-050C41	1.25R	2.5	5	50	4	4	30°
MBC-0300-060C41	1.5R	3	6	50	4	4	30°
MBC-0350-070C41	1.75R	3.5	7	50	4	4	30°
MBC-0400-080C41	2R	4	8	50	4	4	30°
MBC-0500-100E41	2.5R	5	10	50	6	4	30°
MBC-0600-120E41	3R	6	12	50	6	4	30°
MBC-0800-160G41	4R	8	16	60	8	4	30°
MBC-1000-200H41	5R	10	20	75	10	4	30°
MBC-1200-240I41	6R	12	24	75	12	4	30°
MBC-1600-320J41	8R	16	32	100	16	4	30°

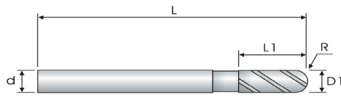
### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

Long Shank



Mill Dia.(D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBL-0100-020C21	0.5R	1	2	75	4	2	30°
MBL-0150-030C21	0.75R	1.5	3	75	4	2	30°
MBL-0200-040C21	1R	2	4	75	4	2	30°
MBL-0250-050C21	1.25R	2.5	5	75	4	2	30°
MBL-0300-060C21	1.5R	3	6	75	4	2	30°
MBL-0350-070C21	1.75R	3.5	7	75	4	2	30°
MBL-0400-080C21	2R	4	8	75	4	2	30°
MBL-0200-040E21	1R	2	4	75	6	2	30°
MBL-0250-050E21	1.25R	2.5	5	75	6	2	30°
MBL-0300-060E21	1.5R	3	6	75	6	2	30°
MBL-0350-070E21	1.75R	3.5	7	75	6	2	30°
MBL-0400-080E21	2R	4	8	75	6	2	30°
MBL-0500-100E21	2.5R	5	10	75	6	2	30°
MBL-0600-120E21	3R	6	12	75	6	2	30°
MBL-0800-160G21	4R	8	16	100	8	2	30°
MBL-1000-200H21	5R	10	20	100	10	2	30°
MBL-1200-240I21	6R	12	24	100	12	2	30°
MBL-1600-320J21	8R	16	32	150	16	2	30°
MBL-2000-400K21	10R	20	40	150	20	2	30°

### End Mill For General Steels And Metals

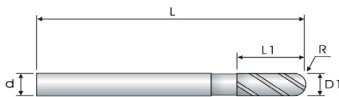
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○



### Ball Nose Type 4 Flutes

Long Shank



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
16	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBL-0200-040C41	1R	2	4	75	4	4	30°
MBL-0250-050C41	1.25R	2.5	5	75	4	4	30°
MBL-0300-060C41	1.5R	3	6	75	4	4	30°
MBL-0350-070C41	1.75R	3.5	7	75	4	4	30°
MBL-0400-080C41	2R	4	8	75	4	4	30°
MBL-0600-120E41	3R	6	12	75	6	4	30°
MBL-0800-160G41	4R	8	16	100	8	4	30°
MBL-1000-200H41	5R	10	20	100	10	4	30°
MBL-1200-240I41	6R	12	24	100	12	4	30°
MBL-1600-320J41	8R	16	32	150	16	4	30°

### Ball Nose Type 2 Flutes

Extra Long Shank



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBE-0200-040E21	1R	2	4	100	6	2	30°
MBE-0300-060E21	1.5R	3	6	100	6	2	30°
MBE-0350-070E21	1.75R	3.5	7	100	6	2	30°
MBE-0400-080E21	2R	4	8	100	6	2	30°
MBE-0500-100E21	2.5R	5	10	100	6	2	30°
MBE-0600-120R11	3R	6	12	100	6	2	30°
MBE-0800-160G21	4R	8	16	150	8	2	30°
MBE-1000-200H21	5R	10	20	150	10	2	30°
MBE-1200-240I21	6R	12	24	150	12	2	30°
MBE-1600-320J21	8R	16	32	200	16	2	30°
MBE-2000-400K21	10R	20	40	200	20	2	30°

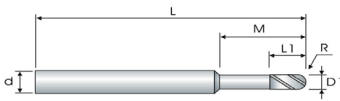
### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

Long Neck



Mill Dia.[D1] Up to	Tolerance [mm]
4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	M	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MBC-0020-010C22	0.1R	0.2	0.3	1	45	4	2	30°
MBC-0040-010C22	0.2R	0.4	0.4	1	45	4	2	30°
MBC-0060-020C22	0.3R	0.6	0.5	2	45	4	2	30°
MBC-0060-040C22	0.3R	0.6	0.5	4	45	4	2	30°
MBC-0060-060C22	0.3R	0.6	0.5	6	45	4	2	30°
MBC-0100-040C22	0.5R	1	2	4	45	4	2	30°
MBC-0100-060C21	0.5R	1	1.5	6	50	4	2	30°
MBC-0100-060C22	0.5R	1	2	6	45	4	2	30°
MBC-0100-080C22	0.5R	1	2	8	45	4	2	30°
MBC-0100-100C21	0.5R	1	1.5	10	50	4	2	30°
MBC-0150-040C22	0.75R	1.5	1.5	4	45	4	2	30°
MBC-0150-060C22	0.75R	1.5	1.5	6	45	4	2	30°
MBC-0150-080C22	0.75R	1.5	2	8	45	4	2	30°
MBC-0150-080C21	0.75R	1.5	2.5	8	50	4	2	30°
MBC-0150-160C21	0.75R	1.5	2.5	16	60	4	2	30°
MBC-0250-120C21	1.25R	2.5	3.5	12	50	4	2	30°
MBC-0250-200C21	1.25R	2.5	3.5	20	60	4	2	30°
MBC-0300-120E21	1.5R	3	4.5	12	60	6	2	30°
MBC-0300-150E22	1.5R	3	3	15	50	6	2	30°
MBC-0300-200E21	1.5R	3	4.5	20	60	6	2	30°
MBC-0200-060C22	1R	2	3	6	45	4	2	30°
MBC-0200-080R12	1R	2	2	8	50	4	2	30°
MBC-0200-080C21	1R	2	3	8	50	4	2	30°
MBC-0200-080R22	1R	2	3	8	45	4	2	30°
MBC-0200-080E22	1R	2	3	8	60	6	2	30°
MBC-0200-120R12	1R	2	2	12	50	4	2	30°
MBC-0200-120R22	1R	2	3	12	45	4	2	30°
MBC-0200-160C21	1R	2	3	16	60	4	2	30°
MBC-0200-200C21	1R	2	3	20	60	4	2	30°
MBC-0400-160E22	2R	4	4	16	50	6	2	30°

### End Mill For General Steels And Metals

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

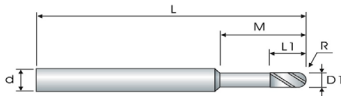
# CARBIDE END MILLS

## M SERIES

(CONTINUATION)

### Ball Nose Type 2 Flutes

Long Neck



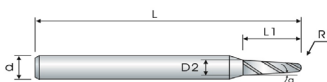
Mill Dia.(D1)	Tolerance [mm]
Up to 4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	M	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MBC-0400-200E22	2R	4	4	20	50	6	2	30°
MBC-0400-200E21	2R	4	6	20	60	6	2	30°
MBC-0400-300E21	2R	4	6	30	75	6	2	30°
MBC-0600-300E22	3R	6	12	30	70	6	2	30°
MBC-0600-240E22	3R	6	12	24	50	6	2	30°
MBC-0800-560G22	4R	8	16	56	100	8	2	30°
MBC-0800-240G22	4R	8	16	24	60	8	2	30°

### Ball Nose Type 2 Flutes

Taper Series



■ Shank Dia. Tolerance: h6

Part number	R	CA	L1	D2	L	d	F	Helix°
	Ball Radius	Taper Angle	Flute Length	Mill Dia. 2	Overall Length	Shank Dia.	No. of Flute	
MBC-0224-080C21	1R	1	8	2.24	50	4	2	30°
MBC-0275-080C21	1R	3	8	2.75	50	4	2	30°
MBC-0323-080C21	1R	5	8	3.23	50	4	2	30°
MBC-0281-100C21	1.25R	1	10	2.81	50	4	2	30°
MBC-0342-100C21	1.25R	3	10	3.42	50	4	2	30°
MBC-0404-100E21	1.25R	5	10	4.04	50	6	2	30°
MBC-0337-120C21	1.5R	1	12	3.37	50	4	2	30°
MBC-0410-120E21	1.5R	3	12	4.1	50	6	2	30°
MBC-0485-120E21	1.5R	5	12	4.85	50	6	2	30°
MBC-0449-160E21	2R	1	16	4.49	60	6	2	30°
MBC-0547-160E21	2R	3	16	5.47	60	6	2	30°
MBC-0664-160G21	2R	5	16	6.64	60	8	2	30°

### End Mill For General Steels And Metals

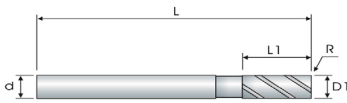
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Corner Radius Type 2 Flutes



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MC2-0100-025C21	1	0.2R	2.5	50	4	2	35°
MC2-0150-040C21	1.5	0.2R	4	50	4	2	35°
MC2-0200-050R11	2	0.2R	5	50	4	2	35°
MC2-0200-050R21	2	0.3R	5	50	4	2	35°
MC2-0200-050R31	2	0.5R	5	50	4	2	35°
MC2-0250-065R11	2.5	0.2R	6.5	50	4	2	35°
MC2-0250-065R21	2.5	0.5R	6.5	50	4	2	35°
MC2-0300-075R11	3	0.2R	7.5	50	4	2	35°
MC2-0300-075R21	3	0.3R	7.5	50	4	2	35°
MC2-0300-075R31	3	0.5R	7.5	50	4	2	35°
MC2-0400-100R11	4	0.2R	10	50	4	2	35°
MC2-0400-100R21	4	0.3R	10	50	4	2	35°
MC2-0400-100R31	4	0.5R	10	50	4	2	35°
MC2-0400-100R41	4	1R	10	50	4	2	35°
MC2-0500-125R11	5	0.5R	12.5	50	6	2	35°
MC2-0500-125R21	5	1R	12.5	50	6	2	35°
MC2-0600-150R11	6	0.5R	15	50	6	2	35°
MC2-0600-150R21	6	1R	15	50	6	2	35°
MC2-0800-200R11	8	0.5R	20	60	8	2	35°
MC2-0800-200R21	8	1R	20	60	8	2	35°
MC2-0800-200R31	8	1.5R	20	60	8	2	35°
MC2-0800-200R41	8	2R	20	60	8	2	35°
MC2-1000-250R11	10	0.5R	25	75	10	2	35°
MC2-1000-250R21	10	1R	25	75	10	2	35°
MC2-1000-250R31	10	1.5R	25	75	10	2	35°
MC2-1000-250R41	10	2.0R	25	75	10	2	35°
MC2-1200-300R11	12	0.5R	30	75	12	2	35°
MC2-1200-300R21	12	1R	30	75	12	2	35°
MC2-1200-300R31	12	1.5R	30	75	12	2	35°
MC2-1200-300R41	12	2R	30	75	12	2	35°

### End Mill For General Steels And Metals

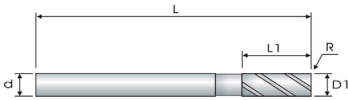
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Corner Radius Type 4 Flutes



Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	M	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MC4-0100-025C41	1	0.2R	2.5	2.5	50	4	4	35°
MC4-0150-040C41	1.5	0.2R	4	4	50	4	4	35°
MC4-0200-050R11	2	0.2R	5	5	50	4	4	35°
MCC-0200-050R21	2	0.5R	5	5	50	4	4	35°
MC4-0250-065R11	2.5	0.2R	6.5	6.5	50	4	4	35°
MC4-0250-065R21	2.5	0.5R	6.5	6.5	50	4	4	35°
MC4-0300-075R11	3	0.3R	7.5	7.5	50	4	4	35°
MC4-0300-075R21	3	0.5R	7.5	7.5	50	4	4	35°
MC4-0400-100R11	4	0.2R	10	10	50	4	4	35°
MC4-0400-100R21	4	0.3R	10	10	50	4	4	35°
MC4-0400-100R31	4	0.5R	10	10	50	4	4	35°
MC4-0400-100R41	4	1R	10	10	50	4	4	35°
MC4-0500-125R11	5	0.3R	12.5	12.5	50	6	4	35°
MC4-0500-125R21	5	0.5R	12.5	12.5	50	6	4	35°
MC4-0500-125R31	5	1R	12.5	12.5	50	6	4	35°
MC4-0600-150R11	6	0.2R	15	15	50	6	4	35°
MC4-0600-150R21	6	0.3R	15	15	50	6	4	35°
MC4-0600-150R31	6	0.5R	15	15	50	6	4	35°
MC4-0600-150R41	6	1R	15	15	50	6	4	35°
MC4-0800-200R11	8	0.5R	20	20	60	8	4	35°
MC4-0800-200R21	8	1R	20	20	60	8	4	35°
MC4-0800-200R31	8	1.5R	20	20	60	8	4	35°
MC4-0800-200R31	8	2R	20	20	60	8	4	35°
MC4-1000-250R11	10	0.5R	25	25	75	10	4	35°
MC4-1000-250R21	10	1R	25	25	75	10	4	35°
MC4-1000-250R31	10	1.5R	25	25	75	10	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

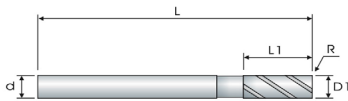
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

(CONTINUATION)

### Corner Radius Type 4 Flutes



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	M	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MC4-1000-250R41	10	2R	25	25	75	10	4	35°
MC4-1200-300R11	12	0.5R	30	30	75	12	4	35°
MC4-1200-300R21	12	1R	30	30	75	12	4	35°
MC4-1200-300R31	12	1.5R	30	30	75	12	4	35°
MC4-1200-300R41	12	2R	30	30	75	12	4	35°
MC4-1200-300R51	12	3R	30	30	75	12	4	35°
MC4-0600-250E42	6	1R	13	25	50	6	4	35°
MC4-0800-400G42	8	0.5R	20	40	75	8	4	35°
MC4-0800-200G42	8	0.15R	20	-	63	8	4	

### End Mill For General Steels And Metals

● Excellent ○ Good

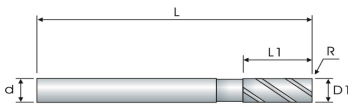
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Corner Radius Type 4 Flutes

Short Cutting Length



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MCC-0300-030R11	3	0.3R	3	75	6	4	35°
MCC-0300-030R21	3	0.5R	3	75	6	4	35°
MCC-0400-040R11	4	0.5R	4	75	6	4	35°
MCC-0400-040R21	4	1R	4	75	6	4	35°
MCC-0500-050R11	5	0.5R	5	75	6	4	35°
MCC-0500-050R21	5	1R	5	75	6	4	35°
MCC-0600-060R11	6	0.5R	6	75	6	4	35°
MCC-0600-060R21	6	1R	6	75	6	4	35°
MCC-0800-080R11	8	0.5R	8	100	8	4	35°
MCC-0800-080R21	8	1R	8	100	8	4	35°
MCC-0800-080R31	8	1.5R	8	100	8	4	35°
MCC-1000-100R11	10	0.5R	10	100	10	4	35°
MCC-1000-100R21	10	1R	10	100	10	4	35°
MCC-1000-100R31	10	1.5R	10	100	10	4	35°
MCC-1000-100R41	10	2R	10	100	10	4	35°
MCC-1200-120R11	12	0.5R	12	100	12	4	35°
MCC-1200-120R21	12	1R	12	100	12	4	35°
MCC-1200-120R31	12	1.5R	12	100	12	4	35°
MCC-1200-120R41	12	2R	12	100	12	4	35°

### End Mill For General Steels And Metals

● Excellent ○ Good

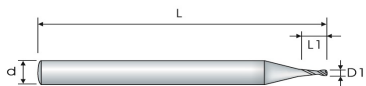
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Miniature (High Hardness)



Mill Dia.(D1) Up to	Tolerance (mm)
0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSH-0020-004B21	0.2	0.4	38	3	2	35°
MSH-0025-005B21	0.25	0.5	38	3	2	35°
MSH-0030-006B21	0.3	0.6	38	3	2	35°
MSH-0035-007B21	0.35	0.7	38	3	2	35°
MSH-0040-008B21	0.4	0.8	38	3	2	35°
MSH-0050-010B21	0.5	1	38	3	2	35°
MSH-0060-012B21	0.6	1.2	38	3	2	35°
MSH-0070-014B21	0.7	1.4	38	3	2	35°
MSH-0080-016B21	0.8	1.6	38	3	2	35°
MSH-0090-018B21	0.9	1.8	38	3	2	35°
MSH-0020-004C21	0.2	0.4	50	4	2	35°
MSH-0030-006C21	0.3	0.6	50	4	2	35°
MSH-0040-008C21	0.4	0.8	50	4	2	35°
MSH-0050-010C21	0.5	1	50	4	2	35°
MSH-0060-012C21	0.6	1.2	50	4	2	35°
MSH-0070-014C21	0.7	1.4	50	4	2	35°
MSH-0080-016C21	0.8	1.6	50	4	2	35°
MSH-0090-018C21	0.9	1.8	50	4	2	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

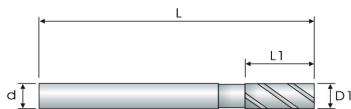
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						



# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes (High Hardness)



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSH-0100-025C21	1	2.5	50	4	2	35°
MSH-0150-030C21	1.5	3	50	4	2	35°
MSH-0200-050C21	2	5	50	4	2	35°
MSH-0250-060C21	2.5	6	50	4	2	35°
MSH-0300-075C21	3	7.5	50	4	2	35°
MSH-0350-080C21	3.5	8	50	4	2	35°
MSH-0400-100C21	4	10	50	4	2	35°
MSH-0300-075E21	3	7.5	50	6	2	35°
MSH-0350-080E21	3.5	8	50	6	2	35°
MSH-0400-100E21	4	10	50	6	2	35°
MSH-0450-110E21	4.5	11	50	6	2	35°
MSH-0500-130E21	5	13	50	6	2	35°
MSH-0550-130E21	5.5	13	50	6	2	35°
MSH-0600-160E21	6	16	50	6	2	35°
MSH-0650-160G21	6.5	16	60	8	2	35°
MSH-0700-200G21	7	20	60	8	2	35°
MSH-0750-200G21	7.5	20	60	8	2	35°
MSH-0800-200G21	8	20	60	8	2	35°
MSH-0900-250H21	9	25	75	10	2	35°
MSH-1000-250H21	10	25	75	10	2	35°
MSH-1100-250I21	11	25	75	12	2	35°
MSH-1200-300I21	12	30	75	12	2	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

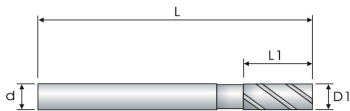
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Square Type 4 Flutes

(High Hardness)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSH-0100-025C41	1	2.5	50	4	4	35°
MSH-0150-030C41	1.5	3	50	4	4	35°
MSH-0200-050C41	2	5	50	4	4	35°
MSH-0250-060C41	2.5	6	50	4	4	35°
MSH-0300-075C41	3	7.5	50	4	4	35°
MSH-0350-080C41	3.5	8	50	4	4	35°
MSH-0400-100C41	4	10	50	4	4	35°
MSH-0300-075E41	3	7.5	50	6	4	35°
MSH-0350-080E41	3.5	8	50	6	4	35°
MSH-0400-100E41	4	10	50	6	4	35°
MSH-0450-110E41	4.5	11	50	6	4	35°
MSH-0500-130E41	5	13	50	6	4	35°
MSH-0550-130E41	5.5	13	50	6	4	35°
MSH-0600-160E41	6	16	50	6	4	35°
MSH-0650-160G41	6.5	16	60	8	4	35°
MSH-0700-200G41	7	20	60	8	4	35°
MSH-0750-200G41	7.5	20	60	8	4	35°
MSH-0800-200G41	8	20	60	8	4	35°
MSH-0900-250H41	9	25	75	10	4	35°
MSH-1000-250H41	10	25	75	10	4	35°
MSH-1100-250I41	11	25	75	12	4	35°
MSH-1200-300I41	12	30	75	12	4	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

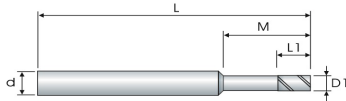
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Square Type 2 Flutes

Long Neck (High Hardness)



Mill Dia.(D1) Up to	Tolerance (mm)
4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSH-0050-020C21	0.5	0.75	2	50	4	2	35°
MSH-0050-040C21	0.5	0.75	4	50	4	2	35°
MSH-0050-060C21	0.5	0.75	6	50	4	2	35°
MSH-0060-020C21	0.6	0.9	2	50	4	2	35°
MSH-0060-040C21	0.6	0.9	4	50	4	2	35°
MSH-0060-060C21	0.6	0.9	6	50	4	2	35°
MSH-0070-040C21	0.7	1.1	4	50	4	2	35°
MSH-0070-060C21	0.7	1.1	6	50	4	2	35°
MSH-0080-040C21	0.8	1.2	4	50	4	2	35°
MSH-0080-060C21	0.8	1.2	6	50	4	2	35°
MSH-0080-080C21	0.8	1.2	8	50	4	2	35°
MSH-0100-060C21	1	1.5	6	50	4	2	35°
MSH-0100-080C21	1	1.5	8	50	4	2	35°
MSH-0100-100C21	1	1.5	10	50	4	2	35°
MSH-0100-120C21	1	1.5	12	50	4	2	35°
MSH-0100-160C21	1	1.5	16	60	4	2	35°
MSH-0150-060C21	1.5	2.3	6	50	4	2	35°
MSH-0150-080C21	1.5	2.3	8	50	4	2	35°
MSH-0150-100C21	1.5	2.3	10	50	4	2	35°
MSH-0150-120C21	1.5	2.3	12	50	4	2	35°
MSH-0150-160C21	1.5	2.3	16	60	4	2	35°
MSH-0150-200C21	1.5	2.3	20	60	4	2	35°
MSH-0200-060C21	2	3	6	50	4	2	35°
MSH-0200-080C21	2	3	8	50	4	2	35°
MSH-0200-100C21	2	3	10	50	4	2	35°

### End Mill For General Steels And Metals(High Hardness)

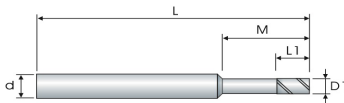
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
			●	●						

(CONTINUATION)

### Square Type 2 Flutes

Long Neck (High Hardness)



Mill Dia. [D1]	Tolerance [mm]
Up to 4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MSH-0200-120C21	2	3	12	50	4	2	35°
MSH-0200-160C21	2	3	16	60	4	2	35°
MSH-0200-200C21	2	3	20	60	4	2	35°
MSH-0250-080C21	2.5	4	8	50	4	2	35°
MSH-0250-100C21	2.5	4	10	50	4	2	35°
MSH-0250-120C21	2.5	4	12	50	4	2	35°
MSH-0250-160C21	2.5	4	16	60	4	2	35°
MSH-0250-200C21	2.5	4	20	60	4	2	35°
MSH-0300-080E21	3	4.5	8	50	6	2	35°
MSH-0300-100E21	3	4.5	10	50	6	2	35°
MSH-0300-120E21	3	4.5	12	50	6	2	35°
MSH-0300-160E21	3	4.5	16	60	6	2	35°
MSH-0300-200E21	3	4.5	20	60	6	2	35°
MSH-0300-250E21	3	4.5	25	60	6	2	35°
MSH-0400-120E21	4	6	12	50	6	2	35°
MSH-0400-160E21	4	6	16	60	6	2	35°
MSH-0400-200E21	4	6	20	60	6	2	35°
MSH-0400-250E21	4	6	25	60	6	2	35°
MSH-0400-300E21	4	6	30	75	6	2	35°
MSH-0400-350E21	4	6	35	75	6	2	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Square Type 6/8 Flutes

(High Hardness)



Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03
25	+0/-0.04

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MSC-0600-150E61	6	15	50	6	6	45°
MSC-0800-200G61	8	20	60	8	6	45°
MSC-1000-250H61	10	25	75	10	6	45°
MSC-1200-300I61	12	30	75	12	6	45°
MSC-1600-450J61	16	45	100	16	6	45°
MSC-2000-450K81	20	45	100	20	8	45°
MSC-2500-450N81	25	45	100	25	8	45°

### Ball Nose Type 2 Flutes

Miniature (High Hardness)



Mill Dia. (D1) Up to	Tolerance [mm]
0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBH-0020-004C21	0.1R	0.2	0.4	50	4	2	30°
MBH-0030-006C21	0.15R	0.3	0.6	50	4	2	30°
MBH-0040-008C21	0.2R	0.4	0.8	50	4	2	30°
MBH-0050-010C21	0.25R	0.5	1	50	4	2	30°
MBH-0060-012C21	0.3R	0.6	1.2	50	4	2	30°
MBH-0070-014C21	0.35R	0.7	1.4	50	4	2	30°
MBH-0080-016C21	0.4R	0.8	1.6	50	4	2	30°
MBH-0090-018C21	0.45R	0.9	1.8	50	4	2	30°

### End Mill For General Steels And Metals (High Hardness)

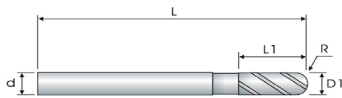
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Ball Nose Type 2 Flutes (High Hardness)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBC-0100-015C21	0.5R	1	1.5	50	4	2	30°
MBC-0120-020C21	0.6R	1.2	2	50	4	2	30°
MBC-0140-020C21	0.7R	1.4	2	50	4	2	30°
MBC-0150-025C21	0.75R	1.5	2.5	50	4	2	30°
MBC-0200-030C21	1R	2	3	50	4	2	30°
MBC-0250-040C21	1.25R	2.5	4	50	4	2	30°
MBC-0300-050C21	1.5R	3	5	50	4	2	30°
MBC-0350-055C21	1.75R	3.5	5.5	50	4	2	30°
MBC-0400-060C21	2R	4	6	50	4	2	30°
MBC-0100-015E21	0.5R	1	1.5	50	6	2	30°
MBC-0120-020E21	0.6R	1.2	2	50	6	2	30°
MBC-0140-020E21	0.7R	1.4	2	50	6	2	30°
MBC-0150-025E21	0.75R	1.5	2.5	50	6	2	30°
MBC-0200-030E21	1R	2	3	50	6	2	30°
MBC-0250-040E21	1.25R	2.5	4	50	6	2	30°
MBC-0300-050E21	1.5R	3	5	50	6	2	30°
MBC-0400-060E21	2R	4	6	50	6	2	30°
MBC-0500-080E21	2.5R	5	8	50	6	2	30°
MBC-0600-090E21	3R	6	9	50	6	2	30°
MBC-0700-110G21	3.5R	7	11	60	8	2	30°
MBC-0800-120G21	4R	8	12	60	8	2	30°
MBC-1000-150H21	5R	10	15	75	10	2	30°
MBC-1200-180I21	6R	12	18	75	12	2	30°

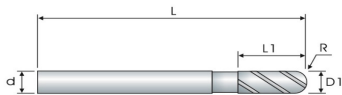
### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

### Ball Nose Type 4 Flutes

(High Hardness)



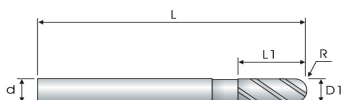
Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBC-0200-030C41	1R	2	3	50	4	4	30°
MBC-0250-040C41	1.25R	2.5	4	50	4	4	30°
MBC-0300-050C41	1.5R	3	5	50	4	4	30°
MBC-0350-055C41	1.75R	3.5	5.5	50	4	4	30°
MBC-0400-060C41	2R	4	6	50	4	4	30°
MBC-0500-080E41	2.5R	5	8	50	6	4	30°
MBC-0600-090E41	3R	6	9	50	6	4	30°
MBC-0800-120G41	4R	8	12	60	8	4	30°
MBC-1000-150H41	5R	10	15	75	10	4	30°
MBC-1200-180I41	6R	12	18	75	12	4	30°

### Ball Nose Type 2 Flutes

Long Shank (High Hardness)



Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MBL-0100-015E21	0.5R	1	1.5	75	6	2	30°
MBL-0200-030E21	1R	2	3	75	6	2	30°
MBL-0300-050E21	1.5R	3	5	75	6	2	30°
MBL-0400-060E21	2R	4	6	75	6	2	30°
MBL-0500-080E21	2.5R	5	8	75	6	2	30°
MBL-0600-090E21	3R	6	9	75	6	2	30°
MBL-0800-120G21	4R	8	12	100	8	2	30°
MBL-1000-150H21	5R	10	15	100	10	2	30°
MBL-1200-180I21	6R	12	18	100	12	2	30°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

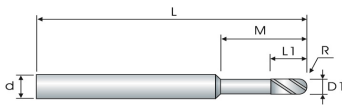
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Ball Nose Type 2 Flutes

Long Neck (High Hardness)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	M	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MBH-0040-040C21	0.2R	0.4	0.3	4	50	4	2	30°
MBH-0050-060C21	0.25R	0.5	0.4	6	50	4	2	30°
MBH-0060-020C21	0.3R	0.6	0.5	2	50	4	2	30°
MBH-0060-040C21	0.3R	0.6	0.5	4	50	4	2	30°
MBH-0060-060C21	0.3R	0.6	0.5	6	50	4	2	30°
MBH-0080-040C21	0.4R	0.8	0.6	4	50	4	2	30°
MBH-0080-080C21	0.4R	0.8	0.6	8	50	4	2	30°
MBH-0100-040C21	0.5R	1	0.8	4	50	4	2	30°
MBH-0100-060C21	0.5R	1	0.8	6	50	4	2	30°
MBH-0100-080C21	0.5R	1	0.8	8	50	4	2	30°
MBH-0100-100C21	0.5R	1	0.8	10	50	4	2	30°
MBH-0150-040C21	0.75R	1.5	1.2	4	50	4	2	30°
MBH-0150-080C21	0.75R	1.5	1.2	8	50	4	2	30°
MBH-0150-160C21	0.75R	1.5	1.2	16	60	4	2	30°
MBH-0200-060C21	1R	2	1.6	6	50	4	2	30°
MBH-0200-080C21	1R	2	1.6	8	50	4	2	30°
MBH-0200-100C21	1R	2	1.6	10	50	4	2	30°
MBH-0200-120C21	1R	2	1.6	12	50	4	2	30°
MBH-0200-160C21	1R	2	1.6	16	60	4	2	30°
MBH-0200-200C21	1R	2	1.6	20	60	4	2	30°
MBH-0300-100E21	1.5R	3	2.4	10	50	6	2	30°
MBH-0300-120E21	1.5R	3	2.4	12	50	6	2	30°
MBH-0300-160E21	1.5R	3	2.4	16	60	6	2	30°
MBH-0300-200E21	1.5R	3	2.4	20	60	6	2	30°
MBH-0400-100E21	2R	4	3.2	10	50	6	2	30°
MBH-0400-120E21	2R	4	3.2	12	50	6	2	30°
MBH-0400-160E21	2R	4	3.2	16	60	6	2	30°
MBH-0400-200E21	2R	4	3.2	20	60	6	2	30°
MBH-0400-300E21	2R	4	3.2	30	75	6	2	30°
MBH-0600-250E21	3R	6	4.8	25	60	6	2	30°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

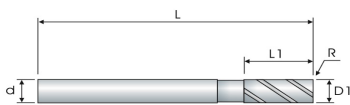


# CARBIDE END MILLS

## M SERIES

### Corner Radius Type 2 Flutes

(High Hardness)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MC2-0100-020C21	1	0.2R	2	50	4	2	35°
MC2-0150-030C21	1.5	0.2R	3	50	4	2	35°
MC2-0200-040R11	2	0.2R	4	50	4	2	35°
MC2-0200-040R21	2	0.3R	4	50	4	2	35°
MC2-0200-040R31	2	0.5R	4	50	4	2	35°
MC2-0250-050R11	2.5	0.2R	5	50	4	2	35°
MC2-0250-050R21	2.5	0.5R	5	50	4	2	35°
MC2-0300-060R11	3	0.3R	6	50	4	2	35°
MC2-0300-060R21	3	0.5R	6	50	4	2	35°
MC2-0400-080R11	4	0.3R	8	50	4	2	35°
MC2-0400-080R21	4	0.5R	8	50	4	2	35°
MC2-0400-080R31	4	1R	8	50	4	2	35°
MC2-0500-100R11	5	0.5R	10	50	6	2	35°
MC2-0500-100R21	5	1R	10	50	6	2	35°
MC2-0600-120R11	6	0.5R	12	50	6	2	35°
MC2-0600-120R21	6	1R	12	50	6	2	35°
MC2-0800-160R11	8	0.5R	16	60	8	2	35°
MC2-0800-160R21	8	1R	16	60	8	2	35°
MC2-0800-160R31	8	1.5R	16	60	8	2	35°
MC2-0800-160R41	8	2R	16	60	8	2	35°
MC2-1000-200R11	10	0.5R	20	75	10	2	35°
MC2-1000-200R21	10	1R	20	75	10	2	35°
MC2-1000-200R31	10	1.5R	20	75	10	2	35°
MC2-1000-200R41	10	2R	20	75	10	2	35°
MC2-1200-240R11	12	0.5R	24	75	12	2	35°
MC2-1200-240R21	12	1R	24	75	12	2	35°
MC2-1200-240R31	12	1.5R	24	75	12	2	35°
MC2-1200-240R41	12	2R	24	75	12	2	35°

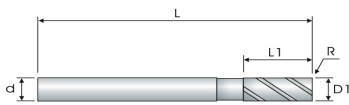
### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
			●	●						

### Corner Radius Type 4 Flutes

(High Hardness)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner Radius	Flute Length	Overall Length	Shank Dia.	No. of Flute	
MC4-0100-020C41	1	0.2R	2	50	4	4	35°
MC4-0150-030R11	1.5	0.2R	3	50	4	4	35°
MC4-0150-030R21	1.5	0.5R	3	50	4	4	35°
MC4-0200-040R11	2	0.2R	4	50	4	4	35°
MC4-0200-040R21	2	0.5R	4	50	4	4	35°
MC4-0300-060R11	3	0.3R	6	50	4	4	35°
MC4-0300-060R21	3	0.5R	6	50	4	4	35°
MC4-0300-060R31	3	1R	6	50	4	4	35°
MC4-0400-080R11	4	0.3R	8	50	4	4	35°
MC4-0400-080R21	4	0.5R	8	50	4	4	35°
MC4-0400-080R31	4	1R	8	50	4	4	35°
MC4-0500-100R11	5	0.3R	10	50	6	4	35°
MC4-0500-100R21	5	0.5R	10	50	6	4	35°
MC4-0500-100R31	5	1R	10	50	6	4	35°
MC4-0600-120R11	6	0.5R	12	50	6	4	35°
MC4-0600-120R21	6	1R	12	50	6	4	35°
MC4-0800-160R11	8	0.5R	16	60	8	4	35°
MC4-0800-160R21	8	1R	16	60	8	4	35°
MC4-0800-160R31	8	1.5R	16	60	8	4	35°
MC4-1000-200R11	10	0.5R	20	75	10	4	35°
MC4-1000-200R21	10	1R	20	75	10	4	35°
MC4-1000-200R31	10	1.5R	20	75	10	4	35°
MC4-1000-200R41	10	2R	20	75	10	4	35°
MC4-1200-240R11	12	0.5R	24	75	12	4	35°
MC4-1200-240R21	12	1R	24	75	12	4	35°
MC4-1200-240R31	12	1.5R	24	75	12	4	35°
MC4-1200-240R41	12	2R	24	75	12	4	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

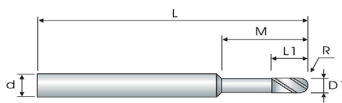
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
			●	●						

# CARBIDE END MILLS

## M SERIES

### Corner Radius Type 4 Flutes

Long Neck (High Hardness)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	M	d	F	F	Helix°
	Mill Dia.	Corner Radius	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
MCL-0200-060E41	2	0.2R	4	6	50	6	4	35°
MCL-0200-080E41	2	0.2R	4	8	50	6	4	35°
MCL-0300-120R11	3	0.2R	6	12	50	6	4	35°
MCL-0300-120R21	3	0.5R	6	12	50	6	4	35°
MCL-0400-160R11	4	0.2R	8	16	60	6	4	35°
MCL-0400-160R21	4	0.5R	8	16	60	6	4	35°
MCL-0600-250R11	6	0.2R	13	25	60	6	4	35°
MCL-0600-250R21	6	0.5R	13	25	60	6	4	35°
MCL-0600-250R31	6	1R	13	25	60	6	4	35°
MCL-0800-320R11	8	0.5R	19	32	75	8	4	35°
MCL-0800-320R21	8	1R	19	32	75	8	4	35°
MCL-1000-400H41	10	1R	22	40	100	10	4	35°
MCL-1200-500I41	12	1R	25	50	100	12	4	35°

### End Mill For General Steels And Metals(High Hardness)

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
			●	●						

	ITEM	Flutes	Helix	Mill Dia.		Page
				(Min)	(Max)	
	Carbide End Mills - Square Type 2 Flutes Miniature (Stainless Steel)	2	35	0.2	0.9	45
	Carbide End Mills Square Type 2 Flutes (Stainless Steel)	2	35	1	20	46
	Carbide End Mills Square Type 4 Flutes (Stainless Steel)	4	35	1	20	47
	Carbide End Mills - Square Type 2 Flutes Decimal Diameter (Stainless Steel)	2	35	1.1	5.9	48~49
	Carbide End Mills - Square Type 4 Flutes Decimal Diameter (Stainless Steel)	4	35	6.1	7.9	50
	Carbide End Mills - Square Type 2 Flutes Long Shank (Stainless Steel)	2	35	2	20	51
	Carbide End Mills - Square Type 4 Flutes Long Shank (Stainless Steel)	4	35	2	20	51
	Carbide End Mills - Square Type 2 Flutes Long Shank & Long Cutting Length (Stainless Steel)	2	35	2	20	52
	Carbide End Mills - Square Type 4 Flutes Long Shank & Long Cutting Length (Stainless Steel)	4	35	2	20	52
	Carbide End Mills - Square Type 2 Flutes Long Neck (Stainless Steel)	2	35	1	4	53
	Carbide End Mills - Square Type 2 Flutes Taper Series (Stainless Steel)	2	35	1	6	54~55
	Carbide End Mills - Square Type 4 Flutes R Trench (Stainless Steel)	4	45	1	20	56
	Carbide End Mills - Ball Nose Type 2 Flutes Miniature (Stainless Steel)	2	30	0.1R	0.45R	57
	Carbide End Mills Ball Nose Type 2 Flutes (Stainless Steel)	2	30	0.5R	10R	58
	Carbide End Mills Ball Nose Type 4 Flutes (Stainless Steel)	4	30	1R	8R	59



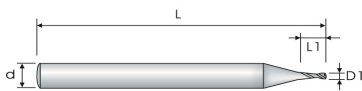
ITEM	Flutes	Helix	Mill Dia.		Page
			(Min)	(Max)	
Carbide End Mills - Ball Nose Type 2 Flutes Long Shank (Stainless Steel)	2	30	0.5R	10R	60
Carbide End Mills - Ball Nose Type 4 Flutes Long Shank (Stainless Steel)	4	30	1R	8R	61
Carbide End Mills - Ball Nose Type 2 Flutes Extra Long Shank (Stainless Steel)	2	30	1R	10R	61
Carbide End Mills - Ball Nose Type 2 Flutes Long Neck (Stainless Steel)	2	30	0.5R	2R	62
Carbide End Mills - Ball Nose Type 2 Flutes Taper Series (Stainless Steel)	2	30	1R	2R	62
Carbide End Mills Corner Radius Type 2 Flutes (Stainless Steel)	2	35	1	12	63
Carbide End Mills Corner Radius Type 4 Flutes (Stainless Steel)	4	35	1	12	64
Carbide End Mills - Corner Radius Type 4 Flutes Short Cutting Length (Stainless Steel)	4	35	3	12	65
Tsunami Square Type 4 Flutes (Stainless Steel)	4	35	2	20	66
Tsunami Corner Radius Type 4 Flutes (Stainless Steel)	4	35	2	12	67-68
Carbide End Mills Square Type 4 Flutes - SUS Series	4	40-42	3	20	69
Carbide End Mills Corner Radius Type 4 Flutes - SUS Series	4	40-42	3	12	70
Carbide End Mills Square Type 4 Flutes - AERO Series	4	51	3	20	71
Carbide End Mills Corner Radius Type 4 Flutes - AERO Series	4	51	3	12	72

# CARBIDE END MILLS

## S SERIES

### Square Type 2 Flutes

Miniature (Stainless Steel)



Mill Dia. [D1]	Tolerance (mm)
Up to 0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0020-004B21	0.2	0.4	38	3	2	35°
SSC-0025-005B21	0.25	0.5	38	3	2	35°
SSC-0030-006B21	0.3	0.6	38	3	2	35°
SSC-0035-007B21	0.35	0.7	38	3	2	35°
SSC-0040-008B21	0.4	0.8	38	3	2	35°
SSC-0050-010B21	0.5	1	38	3	2	35°
SSC-0060-012B21	0.6	1.2	38	3	2	35°
SSC-0070-014B21	0.7	1.4	38	3	2	35°
SSC-0080-016B21	0.8	1.6	38	3	2	35°
SSC-0090-018B21	0.9	1.8	38	3	2	35°
SSC-0020-004C21	0.2	0.4	50	4	2	35°
SSC-0030-006C21	0.3	0.6	50	4	2	35°
SSC-0040-008C21	0.4	0.8	50	4	2	35°
SSC-0050-010C21	0.5	1	50	4	2	35°
SSC-0060-012C21	0.6	1.2	50	4	2	35°
SSC-0070-014C21	0.7	1.4	50	4	2	35°
SSC-0080-016C21	0.8	1.6	50	4	2	35°
SSC-0090-018C21	0.9	1.8	50	4	2	35°

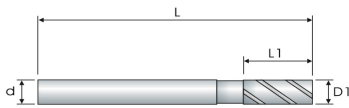
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Square Type 2 Flutes

(Stainless Steel)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0100-030C21	1	3	50	4	2	35°
SSC-0150-030C21	1.5	3	50	4	2	35°
SSC-0200-060C21	2	6	50	4	2	35°
SSC-0250-060C21	2.5	6	50	4	2	35°
SSC-0300-090C21	3	9	50	4	2	35°
SSC-0350-090C21	3.5	9	50	4	2	35°
SSC-0400-120C21	4	12	50	4	2	35°
SSC-0200-060E21	2	6	50	6	2	35°
SSC-0250-060E21	2.5	6	50	6	2	35°
SSC-0300-090E21	3	9	50	6	2	35°
SSC-0350-090E21	3.5	9	50	6	2	35°
SSC-0400-120E21	4	12	50	6	2	35°
SSC-0450-120E21	4.5	12	50	6	2	35°
SSC-0500-150E21	5	15	50	6	2	35°
SSC-0550-150E21	5.5	15	50	6	2	35°
SSC-0600-180E21	6	18	50	6	2	35°
SSC-0650-200G21	6.5	20	60	8	2	35°
SSC-0700-200G21	7	20	60	8	2	35°
SSC-0750-200G21	7.5	20	60	8	2	35°
SSC-0800-240G21	8	24	60	8	2	35°
SSC-0850-240H21	8.5	24	75	10	2	35°
SSC-0900-270H21	9	27	75	10	2	35°
SSC-0950-270H21	9.5	27	75	10	2	35°
SSC-1000-300H21	10	30	75	10	2	35°
SSC-1050-300I21	10.5	30	75	12	2	35°
SSC-1100-300I31	11	30	75	12	2	35°
SSC-1150-300I21	11.5	30	75	12	2	35°
SSC-1200-300I21	12	30	75	12	2	35°
SSC-1500-400J21	15	40	100	16	2	35°
SSC-1600-400J21	16	40	100	16	2	35°
SSC-2000-450K21	20	45	100	20	2	35°

### Carbide End Mill - SUS Series

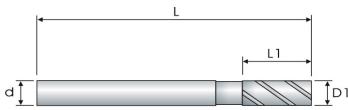
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

# CARBIDE END MILLS

## S SERIES

### Square Type 4 Flutes (Stainless Steel)



Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0100-030C41	1	3	50	4	4	35°
SSC-0150-030C41	1.5	3	50	4	4	35°
SSC-0200-060C41	2	6	50	4	4	35°
SSC-0250-060C41	2.5	6	50	4	4	35°
SSC-0300-090C41	3	9	50	4	4	35°
SSC-0350-090C41	3.5	9	50	4	4	35°
SSC-0400-120C41	4	12	50	4	4	35°
SSC-0450-120E41	4.5	12	50	6	4	35°
SSC-0500-150E41	5	15	50	6	4	35°
SSC-0550-150E41	5.5	15	50	6	4	35°
SSC-0600-180E41	6	18	50	6	4	35°
SSC-0650-180G41	6.5	18	60	8	4	35°
SSC-0700-200G41	7	20	60	8	4	35°
SSC-0750-200G41	7.5	20	60	8	4	35°
SSC-0800-240G41	8	24	60	8	4	35°
SSC-0850-240H41	8.5	24	75	10	4	35°
SSC-0900-270H41	9	27	75	10	4	35°
SSC-0950-270H41	9.5	27	75	10	4	35°
SSC-1000-300H41	10	30	75	10	4	35°
SSC-1050-300I41	10.5	30	75	12	4	35°
SSC-1100-330I41	11	33	75	12	4	35°
SSC-1150-330I41	11.5	33	75	12	4	35°
SSC-1200-360I41	12	36	75	12	4	35°
SSC-1600-450J41	16	45	100	16	4	35°
SSC-2000-450K41	20	45	100	20	4	35°

### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○



# CARBIDE END MILLS

## S SERIES

### Square Type 2 Flutes

Decimal Diameter (Stainless Steel)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0110-030C21	1.1	3	50	4	2	35°
SSC-0120-030C21	1.2	3	50	4	2	35°
SSC-0130-040C21	1.3	4	50	4	2	35°
SSC-0140-040C21	1.4	4	50	4	2	35°
SSC-0160-040C21	1.6	4	50	4	2	35°
SSC-0170-050C21	1.7	5	50	4	2	35°
SSC-0180-050C21	1.8	5	50	4	2	35°
SSC-0190-050C21	1.9	5	50	4	2	35°
SSC-0210-060C21	2.1	6	50	4	2	35°
SSC-0220-060C21	2.2	6	50	4	2	35°
SSC-0230-060C21	2.3	6	50	4	2	35°
SSC-0240-060C21	2.4	6	50	4	2	35°
SSC-0260-070C21	2.6	7	50	4	2	35°
SSC-0270-070C21	2.7	7	50	4	2	35°
SSC-0280-070C21	2.8	7	50	4	2	35°
SSC-0290-080C21	2.9	8	50	4	2	35°
SSC-0310-080C21	3.1	8	50	4	2	35°
SSC-0320-080C21	3.2	8	50	4	2	35°
SSC-0330-090C21	3.3	9	50	4	2	35°
SSC-0340-090C21	3.4	9	50	4	2	35°
SSC-0360-090C21	3.6	9	50	4	2	35°
SSC-0370-100C21	3.7	10	50	4	2	35°
SSC-0380-100C21	3.8	10	50	4	2	35°
SSC-0390-100C21	3.9	10	50	4	2	35°
SSC-0410-120E21	4.1	12	50	6	2	35°
SSC-0420-120E21	4.2	12	50	6	2	35°
SSC-0430-120E21	4.3	12	50	6	2	35°
SSC-0440-130E21	4.4	13	50	6	2	35°
SSC-0460-130E21	4.6	13	50	6	2	35°
SSC-0470-130E21	4.7	13	50	6	2	35°
SSC-0480-130E21	4.8	13	50	6	2	35°
SSC-0490-130E21	4.9	13	50	6	2	35°

### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

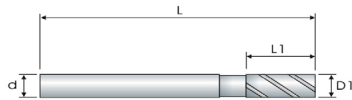
# CARBIDE END MILLS

## S SERIES

(CONTINUATION)

### Square Type 2 Flutes

Decimal Diameter (Stainless Steel)



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0510-130E21	5.1	13	50	6	2	35°
SSC-0520-130E21	5.2	13	50	6	2	35°
SSC-0530-130E21	5.3	13	50	6	2	35°
SSC-0540-130E21	5.4	13	50	6	2	35°
SSC-0560-140E21	5.6	14	50	6	2	35°
SSC-0570-140E21	5.7	14	50	6	2	35°
SSC-0580-140E21	5.8	14	50	6	2	35°
SSC-0590-140E21	5.9	14	50	6	2	35°
SSC-0610-150G21	6.1	15	60	8	2	35°
SSC-0620-150G21	6.2	15	60	8	2	35°
SSC-0630-150G21	6.3	15	60	8	2	35°
SSC-0640-150G21	6.4	15	60	8	2	35°
SSC-0660-160G21	6.6	16	60	8	2	35°
SSC-0670-160G21	6.7	16	60	8	2	35°
SSC-0680-160G21	6.8	16	60	8	2	35°
SSC-0690-160G21	6.9	16	60	8	2	35°
SSC-0710-180G21	7.1	18	60	8	2	35°
SSC-0720-180G21	7.2	18	60	8	2	35°
SSC-0730-180G21	7.3	18	60	8	2	35°
SSC-0740-180G21	7.4	18	60	8	2	35°
SSC-0760-180G21	7.6	18	60	8	2	35°
SSC-0770-180G21	7.7	18	60	8	2	35°
SSC-0780-180G21	7.8	18	60	8	2	35°
SSC-0790-180G21	7.9	18	60	8	2	35°

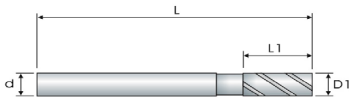
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Square Type 4 Flutes

Decimal Diameter (Stainless Steel)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
8	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0610-150G41	6.1	15	60	8	4	35°
SSC-0620-150G41	6.2	15	60	8	4	35°
SSC-0630-150G41	6.3	15	60	8	4	35°
SSC-0640-150G41	6.4	15	60	8	4	35°
SSC-0660-160G41	6.6	16	60	8	4	35°
SSC-0670-160G41	6.7	16	60	8	4	35°
SSC-0680-160G41	6.8	16	60	8	4	35°
SSC-0690-160G41	6.9	16	60	8	4	35°
SSC-0710-180G41	7.1	18	60	8	4	35°
SSC-0720-180G41	7.2	18	60	8	4	35°
SSC-0730-180G41	7.3	18	60	8	4	35°
SSC-0740-180G41	7.4	18	60	8	4	35°
SSC-0760-180G41	7.6	18	60	8	4	35°
SSC-0770-180G41	7.7	18	60	8	4	35°
SSC-0780-180G41	7.8	18	60	8	4	35°
SSC-0790-180G41	7.9	18	60	8	4	35°

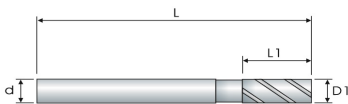
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○		

### Square Type 2 Flutes

Long Shank (Stainless Steel)



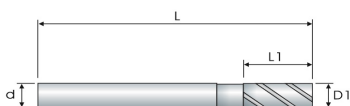
Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSL-0200-060E21	2	6	60	6	2	35°
SSL-0300-090E21	3	9	60	6	2	35°
SSL-0400-120E21	4	12	60	6	2	35°
SSL-0500-150E21	5	15	75	6	2	35°
SSL-0600-180E21	6	18	75	6	2	35°
SSL-0800-240G21	8	24	100	8	2	35°
SSL-1000-300H21	10	30	100	10	2	35°
SSL-1200-360I21	12	36	100	12	2	35°
SSL-1600-450J21	16	45	150	16	2	35°
SSL-2000-500K21	20	50	150	20	2	35°

### Square Type 4 Flutes

Long Shank (Stainless Steel)



Mill Dia. (D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSL-0200-060E41	2	6	60	6	4	35°
SSL-0300-090E41	3	9	60	6	4	35°
SSL-0400-120E41	4	12	60	6	4	35°
SSL-0500-150E41	5	15	75	6	4	35°
SSL-0600-180E41	6	18	75	6	4	35°
SSL-0800-240G41	8	24	100	8	4	35°
SSL-1000-300H41	10	30	100	10	4	35°
SSL-1200-360I41	12	36	100	12	4	35°
SSL-1600-450J41	16	45	150	16	4	35°
SSL-2000-450K41	20	45	150	20	4	35°

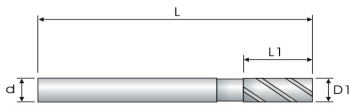
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Square Type 2 Flutes

Long Shank & Long Cutting Length  
(Stainless Steel)



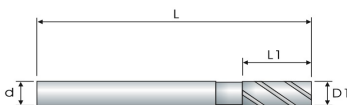
Mill Dia.(D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0200-100E21	2	10	60	6	2	35°
SSC-0300-150E21	3	15	60	6	2	35°
SSC-0400-200E21	4	20	60	6	2	35°
SSC-0500-250E21	5	25	75	6	2	35°
SSC-0600-300E21	6	30	75	6	2	35°
SSC-0800-400G21	8	40	100	8	2	35°
SSC-1000-500H21	10	50	100	10	2	35°
SSC-1200-500I21	12	50	100	12	2	35°
SSC-1600-700J21	16	70	150	16	2	35°
SSC-2000-750K21	20	75	150	20	2	35°

### Square Type 4 Flutes

Long Shank & Long Cutting Length  
(Stainless Steel)



Mill Dia.(D1) Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSL-0200-100E41	2	10	60	6	4	35°
SSL-0300-150E41	3	15	60	6	4	35°
SSL-0400-200E41	4	20	60	6	4	35°
SSL-0500-250E41	5	25	75	6	4	35°
SSL-0600-300E41	6	30	75	6	4	35°
SSL-0800-400G41	8	40	100	8	4	35°
SSL-1000-500H41	10	50	100	10	4	35°
SSL-1200-500I41	12	50	100	12	4	35°
SSL-1600-700J41	16	70	150	16	4	35°
SSL-2000-750K41	20	75	150	20	4	35°

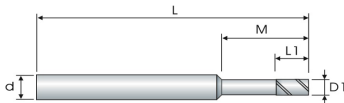
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Square Type 2 Flutes

Long Neck (Stainless Steel)



Mill Dia.[D1]	Tolerance [mm]
Up to 4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F	Helix°
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
SSL-0100-060C21	1	1.5	6	50	4	2	35°
SSL-0100-080C21	1	1.5	8	50	4	2	35°
SSL-0100-100C21	1	1.5	10	50	4	2	35°
SSL-0100-120C21	1	1.5	12	50	4	2	35°
SSL-0120-060C21	1.2	2	6	50	4	2	35°
SSL-0120-080C21	1.2	2	8	50	4	2	35°
SSL-0120-100C21	1.2	2	10	50	4	2	35°
SSL-0120-120C21	1.2	2	12	50	4	2	35°
SSL-0150-060C21	1.5	2.5	6	50	4	2	35°
SSL-0150-080C21	1.5	2.5	8	50	4	2	35°
SSL-0150-100C21	1.5	2.5	10	50	4	2	35°
SSL-0150-120C21	1.5	2.5	12	50	4	2	35°
SSL-0150-160C21	1.5	2.5	16	60	4	2	35°
SSL-0180-080C21	1.8	3	8	50	4	2	35°
SSL-0180-160C21	1.8	3	16	60	4	2	35°
SSL-0200-060C21	2	3	6	50	4	2	35°
SSL-0200-080C21	2	3	8	50	4	2	35°
SSL-0200-100C21	2	3	10	50	4	2	35°
SSL-0200-120C21	2	3	12	50	4	2	35°
SSL-0200-160C21	2	3	16	60	4	2	35°
SSL-0200-200C21	2	3	20	60	4	2	35°
SSL-0250-120C21	2.5	3.5	12	50	4	2	35°
SSL-0250-200C21	2.5	3.5	20	60	4	2	35°
SSL-0300-100E21	3	4.5	10	50	6	2	35°
SSL-0300-120E21	3	4.5	12	50	6	2	35°
SSL-0300-160E21	3	4.5	16	60	6	2	35°
SSL-0300-200E21	3	4.5	20	60	6	2	35°
SSL-0400-160E21	4	6	16	60	6	2	35°
SSL-0400-200E21	4	6	20	60	6	2	35°
SSL-0400-250E21	4	6	25	60	6	2	35°
SSL-0400-300E21	4	6	30	75	6	2	35°

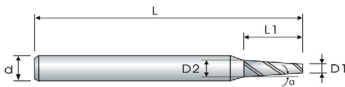
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Square Type 2 Flutes

Taper Series (Stainless Steel)



■ Shank Dia. Tolerance: h6

Part number	D	CA	L1	D2	L	d	F	Helix°
	Mill Dia.	Taper Angle	Flute Length	Mill Dia.2	Overall Length	Shank Dia.	No. of Flute	
SSC-0100-107C21	1	0.5°	4	1.07	50	4	2	35°
SSC-0100-114C21	1	1°	4	1.14	50	4	2	35°
SSC-0100-121C21	1	1.5°	4	1.21	50	4	2	35°
SSC-0100-128C21	1	2°	4	1.28	50	4	2	35°
SSC-0100-142C21	1	3°	4	1.42	50	4	2	35°
SSC-0100-170C21	1	5°	4	1.7	50	4	2	35°
SSC-0150-159C21	1.5	0.5°	5	1.59	50	4	2	35°
SSC-0150-167C21	1.5	1°	5	1.67	50	4	2	35°
SSC-0150-176C21	1.5	1.5°	5	1.76	50	4	2	35°
SSC-0150-185C21	1.5	2°	5	1.85	50	4	2	35°
SSC-0150-203C21	1.5	3°	5	2.03	50	4	2	35°
SSC-0150-237C21	1.5	5°	5	2.37	50	4	2	35°
SSC-0200-210C21	2	0.5°	6	2.1	50	4	2	35°
SSC-0200-221C21	2	1°	6	2.21	50	4	2	35°
SSC-0200-231C21	2	1.5°	6	2.31	50	4	2	35°
SSC-0200-242C21	2	2°	6	2.42	50	4	2	35°
SSC-0200-263C21	2	3°	6	2.63	50	4	2	35°
SSC-0200-305C21	2	5°	6	3.05	50	4	2	35°
SSC-0250-264C21	2.5	0.5°	8	2.64	50	4	2	35°
SSC-0250-278C21	2.5	1°	8	2.78	50	4	2	35°
SSC-0250-292C21	2.5	1.5°	8	2.92	50	4	2	35°
SSC-0250-306C21	2.5	2°	8	3.06	50	4	2	35°
SSC-0250-334C21	2.5	3°	8	3.34	50	4	2	35°
SSC-0250-390C21	2.5	5°	8	3.9	50	4	2	35°

### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

(CONTINUATION)

### Square Type 2 Flutes

Taper Series (Stainless Steel)



■ Shank Dia. Tolerance: h6

Part number	D	CA	L1	D2	L	d	F	Helix°
	Mill Dia.	Taper Angle	Flute Length	Mill Dia.2	Overall Length	Shank Dia.	No. of Flute	
SSC-0300-317E21	3	0.5°	10	3.17	50	6	2	35°
SSC-0300-335E21	3	1°	10	3.35	50	6	2	35°
SSC-0300-352E21	3	1.5°	10	3.52	50	6	2	35°
SSC-0300-370E21	3	2°	10	3.7	50	6	2	35°
SSC-0300-405E21	3	3°	10	4.05	50	6	2	35°
SSC-0300-475E21	3	5°	10	4.75	50	6	2	35°
SSC-0400-426E21	4	0.5°	15	4.26	50	6	2	35°
SSC-0400-452E21	4	1°	15	4.52	50	6	2	35°
SSC-0400-479E21	4	1.5°	15	4.79	50	6	2	35°
SSC-0400-505E21	4	2°	15	5.05	50	6	2	35°
SSC-0400-557E21	4	3°	15	5.57	50	6	2	35°
SSC-0400-662G21	4	5°	15	6.62	60	8	2	35°
SSC-0500-553G21	5	0.5°	20	5.53	60	8	2	35°
SSC-0500-580G21	5	1°	20	5.8	60	8	2	35°
SSC-0500-605G21	5	1.5°	20	6.05	60	8	2	35°
SSC-0500-640G21	5	2°	20	6.4	60	8	2	35°
SSC-0500-710G21	5	3°	20	7.1	60	8	2	35°
SSC-0500-850H21	5	5°	20	8.5	75	10	2	35°
SSC-0600-635G21	6	0.5°	20	6.35	60	8	2	35°
SSC-0600-670G21	6	1°	20	6.7	60	8	2	35°
SSC-0600-705G21	6	1.5°	20	7.05	60	8	2	35°
SSC-0600-740G21	6	2°	20	7.4	60	8	2	35°
SSC-0600-810H21	6	3°	20	8.1	75	10	2	35°
SSC-0600-950H21	6	5°	20	9.5	75	10	2	35°

#### Carbide End Mill - SUS Series

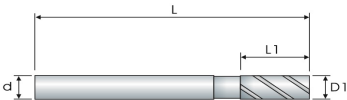
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○



### Square Type 4 Flutes

R Trench (Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSR-0100-025C41	1	2.5	50	4	4	45°
SSR-0200-050C41	2	5	50	4	4	45°
SSR-0300-075C41	3	7.5	50	4	4	45°
SSR-0400-100C41	4	10	50	4	4	45°
SSR-0500-125E41	5	12.5	50	6	4	45°
SSR-0600-150E41	6	15	50	6	4	45°
SSR-0800-200G41	8	20	60	8	4	45°
SSR-1000-250H41	10	25	75	10	4	45°
SSR-1200-300I41	12	30	75	12	4	45°
SSR-1600-400J41	16	40	100	16	4	45°
SSR-2000-500K41	20	50	100	20	4	45°

### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

Miniature (Stainless Steel)



Mill Dia. [D1] Up to	Tolerance [mm]
0.9	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBC-0020-004C21	0.1R	0.2	0.4	50	4	2	30°
SBC-0030-006C21	0.15R	0.3	0.6	50	4	2	30°
SBC-0040-008C21	0.2R	0.4	0.8	50	4	2	30°
SBC-0050-010C21	0.25R	0.5	1	50	4	2	30°
SBC-0060-012C21	0.3R	0.6	1.2	50	4	2	30°
SBC-0070-014C21	0.35R	0.7	1.4	50	4	2	30°
SBC-0080-016C21	0.4R	0.8	1.6	50	4	2	30°
SBC-0090-018C21	0.45R	0.9	1.8	50	4	2	30°

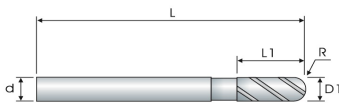
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

(Stainless Steel)



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBC-0100-020C21	0.5R	1	2	50	4	2	30°
SBC-0120-024C21	0.6R	1.2	2.4	50	4	2	30°
SBC-0140-028C21	0.7R	1.4	2.8	50	4	2	30°
SBC-0150-030C21	0.75R	1.5	3	50	4	2	30°
SBC-0200-040C21	1R	2	4	50	4	2	30°
SBC-0250-050C21	1.25R	2.5	5	50	4	2	30°
SBC-0300-060C21	1.5R	3	6	50	4	2	30°
SBC-0350-070C21	1.75R	3.5	7	50	4	2	30°
SBC-0400-080C21	2R	4	8	50	4	2	30°
SBC-0200-040E21	1R	2	4	50	6	2	30°
SBC-0250-050E21	1.25R	2.5	5	50	6	2	30°
SBC-0300-060E21	1.5R	3	6	50	6	2	30°
SBC-0350-070E21	1.75R	3.5	7	50	6	2	30°
SBC-0400-080E21	2R	4	8	50	6	2	30°
SBC-0500-100E21	2.5R	5	10	50	6	2	30°
SBC-0600-120E21	3R	6	12	50	6	2	30°
SBC-0700-140G21	3.5R	7	14	60	8	2	30°
SBC-0800-160G21	4R	8	16	60	8	2	30°
SBC-1000-200H21	5R	10	20	75	10	2	30°
SBC-1200-240I21	6R	12	24	75	12	2	30°
SBC-1600-320J21	8R	16	32	100	16	2	30°
SBC-2000-400K21	10R	20	40	100	20	2	30°

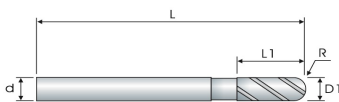
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 4 Flutes

(Stainless Steel)



Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
16	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBC-0200-040C41	1R	2	4	50	4	4	30°
SBC-0250-050C41	1.25R	2.5	5	50	4	4	30°
SBC-0300-060C41	1.5R	3	6	50	4	4	30°
SBC-0350-070C41	1.75R	3.5	7	50	4	4	30°
SBC-0400-080C41	2R	4	8	50	4	4	30°
SBC-0500-100E41	2.5R	5	10	50	6	4	30°
SBC-0600-120E41	3R	6	12	50	6	4	30°
SBC-0800-160G41	4R	8	16	60	8	4	30°
SBC-1000-200H41	5R	10	20	75	10	4	30°
SBC-1200-240I41	6R	12	24	75	12	4	30°
SBC-1600-320J41	8R	16	32	100	16	4	30°

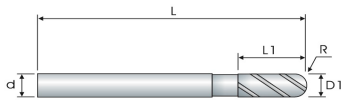
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

Long Shank (Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBL-0100-020C21	0.5R	1	2	75	4	2	30°
SBL-0150-030C21	0.75R	1.5	3	75	4	2	30°
SBL-0200-040C21	1R	2	4	75	4	2	30°
SBL-0250-050C21	1.25R	2.5	5	75	4	2	30°
SBL-0300-060C21	1.5R	3	6	75	4	2	30°
SBL-0350-070C21	1.75R	3.5	7	75	4	2	30°
SBL-0400-080C21	2R	4	8	75	4	2	30°
SBL-0500-100E21	2.5R	5	10	75	6	2	30°
SBL-0600-120E21	3R	6	12	75	6	2	30°
SBL-0800-160G21	4R	8	16	100	8	2	30°
SBL-1000-200H21	5R	10	20	100	10	2	30°
SBL-1200-240I21	6R	12	24	100	12	2	30°
SBL-1600-320J21	8R	16	32	150	16	2	30°
SBL-2000-400K21	10R	20	40	150	20	2	30°

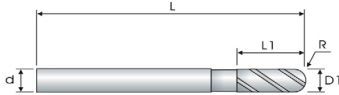
#### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Ball Nose Type 4 Flutes

Long Shank (Stainless Steel)



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
16	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBL-0200-040C41	1R	2	4	75	4	4	30°
SBL-0250-050C41	1.25R	2.5	5	75	4	4	30°
SBL-0300-060C41	1.5R	3	6	75	4	4	30°
SBL-0350-070C41	1.75R	3.5	7	75	4	4	30°
SBL-0400-080C41	2R	4	8	75	4	4	30°
SBL-0600-120E41	3R	6	12	75	6	4	30°
SBL-0800-160G41	4R	8	16	100	8	4	30°
SBL-1000-200H41	5R	10	20	100	10	4	30°
SBL-1200-240I41	6R	12	24	100	12	4	30°
SBL-1600-320J41	8R	16	32	150	16	4	30°

### Ball Nose Type 2 Flutes

Extra Long Shank (Stainless Steel)



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SBE-0200-040E21	1R	2	4	100	6	2	30°
SBE-0300-060E21	1.5R	3	6	100	6	2	30°
SBE-0350-070E21	1.75R	3.5	7	100	6	2	30°
SBE-0400-080E21	2R	4	8	100	6	2	30°
SBE-0500-100E21	2.5R	5	10	100	6	2	30°
SBE-0600-120R11	3R	6	12	100	6	2	30°
SBE-0600-120R21	3R	6	12	150	6	2	30°
SBE-0800-160G21	4R	8	16	150	8	2	30°
SBE-1000-200H21	5R	10	20	150	10	2	30°
SBE-1200-240I21	6R	12	24	150	12	2	30°
SBE-1600-320J21	8R	16	32	200	16	2	30°
SBE-2000-400K21	10R	20	40	200	20	2	30°

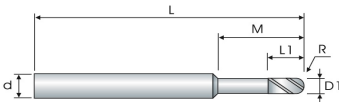
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○

### Ball Nose Type 2 Flutes

Long Neck (Stainless Steel)



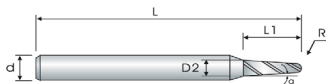
Mill Dia.(D1)	Tolerance [mm]
Up to 4	+0/-0.02

■ Shank Dia. Tolerance: h6

Part number	R	D	L1	M	L	d	F	Helix°
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute	
SBC-0100-060C21	0.5R	1	1.5	6	50	4	2	30°
SBC-0100-100C21	0.5R	1	1.5	10	50	4	2	30°
SBC-0150-080C21	0.75R	1.5	2.5	8	50	4	2	30°
SBC-0150-160C21	0.75R	1.5	2.5	16	60	4	2	30°
SBC-0200-080C21	1R	2	3	8	50	4	2	30°
SBC-0200-160C21	1R	2	3	16	60	4	2	30°
SBC-0200-200C21	1R	2	3	20	60	4	2	30°
SBC-0250-120C21	1.25R	2.5	3.5	12	50	4	2	30°
SBC-0250-200C21	1.25R	2.5	3.5	20	60	4	2	30°
SBC-0300-120E21	1.5R	3	4.5	12	60	6	2	30°
SBC-0300-200E21	1.5R	3	4.5	20	60	6	2	30°
SBC-0400-200E21	2R	4	6	20	60	6	2	30°
SBC-0400-300E21	2R	4	6	30	75	6	2	30°

### Ball Nose Type 2 Flutes

Taper Series (Stainless Steel)



■ Shank Dia. Tolerance: h6

Part number	R	D	L1	M	L	d	F	Helix°
	Ball Radius	Taper Angle	Flute Length	Mill Dia.2	Overall Length	Shank Dia.	No. of Flute	
SBC-0224-080C21	1R	1°	8	2.24	50	4	2	30°
SBC-0275-080C21	1R	3°	8	2.75	50	4	2	30°
SBC-0323-080C21	1R	5°	8	3.23	50	4	2	30°
SBC-0281-100C21	1.25R	1°	10	2.81	50	4	2	30°
SBC-0342-100C21	1.25R	3°	10	3.42	50	4	2	30°
SBC-0404-100E21	1.25R	5°	10	4.04	50	6	2	30°
SBC-0337-120C21	1.5R	1°	12	3.37	50	4	2	30°
SBC-0410-120E21	1.5R	3°	12	4.1	50	6	2	30°
SBC-0485-120E21	1.5R	5°	12	4.85	50	6	2	30°
SBC-0449-160E21	2R	1°	16	4.49	60	6	2	30°
SBC-0547-160E21	2R	3°	16	5.47	60	6	2	30°
SBC-0664-160G21	2R	5°	16	6.64	60	8	2	30°

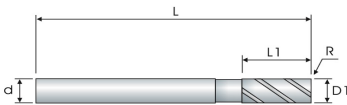
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Corner Radius Type 2 Flutes

(Stainless Steel)



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SC2-0100-025C21	1	0.2R	2.5	50	4	2	35°
SC2-0150-040C21	1.5	0.2R	4	50	4	2	35°
SC2-0200-050R11	2	0.2R	5	50	4	2	35°
SC2-0200-050R21	2	0.3R	5	50	4	2	35°
SC2-0200-050R31	2	0.5R	5	50	4	2	35°
SC2-0250-065R11	2.5	0.2R	6.5	50	4	2	35°
SC2-0250-065R21	2.5	0.5R	6.5	50	4	2	35°
SC2-0300-075R11	3	0.2R	7.5	50	4	2	35°
SC2-0300-075R21	3	0.3R	7.5	50	4	2	35°
SC2-0300-075R31	3	0.5R	7.5	50	4	2	35°
SC2-0400-100R11	4	0.2R	10	50	4	2	35°
SC2-0400-100R21	4	0.3R	10	50	4	2	35°
SC2-0400-100R31	4	0.5R	10	50	4	2	35°
SC2-0400-100R41	4	1R	10	50	4	2	35°
SC2-0500-125R11	5	0.5R	12.5	50	6	2	35°
SC2-0500-125R21	5	1R	12.5	50	6	2	35°
SC2-0600-150R11	6	0.5R	15	50	6	2	35°
SC2-0600-150R21	6	1R	15	50	6	2	35°
SC2-0800-200R11	8	0.5R	20	60	8	2	35°
SC2-0800-200R21	8	1R	20	60	8	2	35°
SC2-0800-200R31	8	1.5R	20	60	8	2	35°
SC2-0800-200R41	8	2R	20	60	8	2	35°
SC2-1000-250R11	10	0.5R	25	75	10	2	35°
SC2-1000-250R21	10	1R	25	75	10	2	35°
SC2-1000-250R31	10	1.5R	25	75	10	2	35°
SC2-1000-250R41	10	2.0R	25	75	10	2	35°
SC2-1200-300R11	12	0.5R	30	75	12	2	35°
SC2-1200-300R21	12	1R	30	75	12	2	35°
SC2-1200-300R31	12	1.5R	30	75	12	2	35°
SCC-1200-300R41	12	2R	30	75	12	2	35°

#### Carbide End Mill - SUS Series

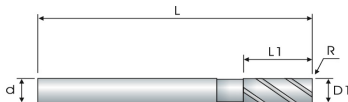
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				○		○	○	○



### Corner Radius Type 4 Flutes

(Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SC4-0100-025C41	1	0.2R	2.5	50	4	4	35°
SC4-0150-040C41	1.5	0.2R	4	50	4	4	35°
SC4-0200-050R11	2	0.2R	5	50	4	4	35°
SC4-0200-050R21	2	0.5R	5	50	4	4	35°
SC4-0250-065R11	2.5	0.2R	6.5	50	4	4	35°
SC4-0250-065R21	2.5	0.5R	6.5	50	4	4	35°
SC4-0300-075R11	3	0.3R	7.5	50	4	4	35°
SC4-0300-075R21	3	0.5R	7.5	50	4	4	35°
SC4-0400-100R11	4	0.2R	10	50	4	4	35°
SC4-0400-100R21	4	0.3R	10	50	4	4	35°
SC4-0400-100R31	4	0.5R	10	50	4	4	35°
SC4-0400-100R41	4	1R	10	50	4	4	35°
SC4-0500-125R11	5	0.3R	12.5	50	6	4	35°
SC4-0500-125R21	5	0.5R	12.5	50	6	4	35°
SC4-0500-125R31	5	1R	12.5	50	6	4	35°
SC4-0600-150R11	6	0.2R	15	50	6	4	35°
SC4-0600-150R21	6	0.3R	15	50	6	4	35°
SC4-0600-150R31	6	0.5R	15	50	6	4	35°
SC4-0600-150R41	6	1R	15	50	6	4	35°
SC4-0800-200R11	8	0.5R	20	60	8	4	35°
SC4-0800-200R21	8	1R	20	60	8	4	35°
SC4-0800-200R31	8	1.5R	20	60	8	4	35°
SC4-1000-250R11	10	0.5R	25	75	10	4	35°
SC4-1000-250R21	10	1R	25	75	10	4	35°
SC4-1000-250R31	10	1.5R	25	75	10	4	35°
SC4-1000-250R41	10	2R	25	75	10	4	35°
SC4-1200-300R11	12	0.5R	30	75	12	4	35°
SC4-1200-300R21	12	1R	30	75	12	4	35°
SC4-1200-300R31	12	1.5R	30	75	12	4	35°
SC4-1200-300R41	12	2R	30	75	12	4	35°
SC4-1200-300R51	12	3R	30	75	12	4	35°

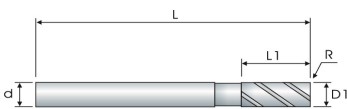
#### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

### Corner Radius Type 4 Flutes

Short Cutting Length (Stainless Steel)



Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SCC-0300-030R11	3	0.3R	3	75	6	4	35°
SCC-0300-030R21	3	0.5R	3	75	6	4	35°
SCC-0400-040R11	4	0.5R	4	75	6	4	35°
SCC-0400-040R21	4	1R	4	75	6	4	35°
SCC-0500-050R11	5	0.5R	5	75	6	4	35°
SCC-0500-050R21	5	1R	5	75	6	4	35°
SCC-0600-060R11	6	0.5R	6	75	6	4	35°
SCC-0600-060R21	6	1R	6	75	6	4	35°
SCC-0800-080R11	8	0.5R	8	100	8	4	35°
SCC-0800-080R21	8	1R	8	100	8	4	35°
SCC-0800-080R31	8	1.5R	8	100	8	4	35°
SCC-1000-100R11	10	0.5R	10	100	10	4	35°
SCC-1000-100R21	10	1R	10	100	10	4	35°
SCC-1000-100R31	10	1.5R	10	100	10	4	35°
SCC-1000-100R41	10	2R	10	100	10	4	35°
SCC-1200-120R11	12	0.5R	12	100	12	4	35°
SCC-1200-120R21	12	1R	12	100	12	4	35°
SCC-1200-120R31	12	1.5R	12	100	12	4	35°
SCC-1200-120R41	12	2R	12	100	12	4	35°

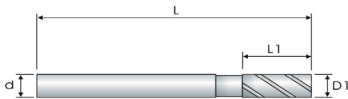
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		○	○	○

## Square Type 4 Flutes

(Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSC-0200-050C41	2	5	50	4	4	35°
SSC-0300-070C41	3	7	50	4	4	35°
SSC-0400-100C41	4	10	50	4	4	35°
SSC-0500-120E41	5	12	50	6	4	35°
SSC-0600-150E41	6	15	50	6	4	35°
SSC-0600-210E41	6	21	75	6	4	35°
SSC-0800-200G41	8	20	60	8	4	35°
SSC-0800-280G41	8	28	75	8	4	35°
SSC-0800-400G41	8	40	100	8	4	35°
SSC-1000-250H41	10	25	75	10	4	35°
SSC-1000-350H41	10	35	100	10	4	35°
SSC-1200-300I41	12	30	75	12	4	35°
SSC-1200-420I41	12	42	100	12	4	35°
SSC-1600-400J41	16	40	100	16	4	35°
SSC-1600-560J41	16	56	150	16	4	35°
SSC-2000-500K41	20	50	100	20	4	35°
SSC-2000-700K41	20	70	150	20	4	35°

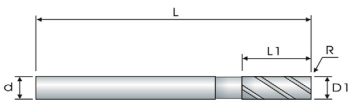
### Carbide End Mill - SUS Series-Tsunami

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		●	●	●

## Corner Radius Type 4 Flutes

(Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SCT-0200-050R11	2	0.2R	5	50	4	4	35°
SCT-0200-050R21	2	0.5R	5	50	4	4	35°
SCT-0300-070R11	3	0.3R	7	50	4	4	35°
SCT-0300-070R21	3	0.5R	7	50	4	4	35°
SCT-0400-100R11	4	0.2R	10	50	4	4	35°
SCT-0400-100R21	4	0.5R	10	50	4	4	35°
SCT-0400-040R11	4	0.5R	4	75	6	4	35°
SCT-0400-100R31	4	1R	10	50	4	4	35°
SCT-0400-040R21	4	1R	4	75	6	4	35°
SCT-0500-050R11	5	0.5R	5	75	6	4	35°
SCT-0500-050R21	5	1R	5	75	6	4	35°
SCT-0600-150R11	6	0.2R	15	50	6	4	35°
SCT-0600-150R21	6	0.5R	15	50	6	4	35°
SCT-0600-060R11	6	0.5R	6	75	6	4	35°
SCT-0600-150R31	6	1R	15	50	6	4	35°
SCT-0600-060R21	6	1R	6	75	6	4	35°
SCT-0800-200R11	8	0.5R	20	60	8	4	35°
SCT-0800-080R11	8	0.5R	8	100	8	4	35°
SCT-0800-200R21	8	1R	20	60	8	4	35°
SCT-0800-080R21	8	1R	8	100	8	4	35°
SCT-0800-200R31	8	1.5R	20	60	8	4	35°
SCT-0800-080R31	8	1.5R	8	100	8	4	35°
SCT-1000-250R11	10	0.5R	25	75	10	4	35°
SCT-1000-100R11	10	0.5R	10	100	10	4	35°
SCT-1000-250R21	10	1R	25	75	10	4	35°
SCT-1000-100R21	10	1R	10	100	10	4	35°

### Carbide End Mill - SUS Series-Tsunami

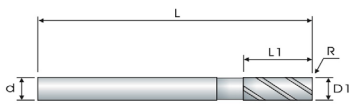
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		●	●	●

(CONTINUATION)

**Corner Radius  
Type 4 Flutes**

(Stainless Steel)



Mill Dia.(D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SCT-1000-250R31	10	1.5R	25	75	10	4	35°
SCT-1000-100R31	10	1.5R	10	100	10	4	35°
SCT-1000-250R41	10	2R	25	75	10	4	35°
SCT-1000-100R41	10	2R	10	100	10	4	35°
SCT-1200-300R11	12	0.5R	30	75	12	4	35°
SCT-1200-120R11	12	0.5R	12	100	12	4	35°
SCT-1200-300R21	12	1R	30	75	12	4	35°
SCT-1200-120R21	12	1R	12	100	12	4	35°
SCT-1200-300R31	12	1.5R	30	75	12	4	35°
SCT-1200-120R31	12	1.5R	12	100	12	4	35°
SCT-1200-300R41	12	2R	30	75	12	4	35°
SCT-1200-120R41	12	2R	12	100	12	4	35°
SCT-1200-300R51	12	3R	30	75	12	4	35°

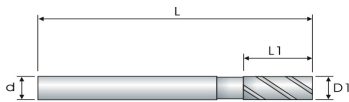
**Carbide End Mill - SUS Series-Tsunami**

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				○		●	●	●

### Square Type 4 Flutes

SUS Series



Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
SSU-0300-090C41	3	9	50	4	4
SSU-0400-120C41	4	12	50	4	4
SSU-0500-150E41	5	15	50	6	4
SSU-0600-180E41	6	18	50	6	4
SSU-0800-240G41	8	24	60	8	4
SSU-1000-300H41	10	30	75	10	4
SSU-1200-360I41	12	36	75	12	4
SSU-1600-450J41	16	45	100	16	4
SSU-2000-500K41	20	50	100	20	4

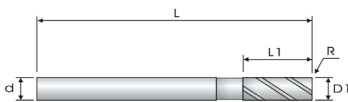
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●				●		●	○	○

### Corner Radius Type 4 Flutes

SUS Series



Mill Dia. (D1) Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D	R	L1	L	d	F
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute
SCU-0300-080R11	3	0.2R	8	50	4	4
SCU-0300-080R21	3	0.5R	8	50	4	4
SCU-0400-100R11	4	0.2R	10	50	4	4
SCU-0400-100R21	4	0.5R	10	50	4	4
SCU-0400-100R31	4	1R	10	50	4	4
SCU-0500-130R11	5	0.2R	13	50	6	4
SCU-0500-130R21	5	0.5R	13	50	6	4
SCU-0500-130R31	5	1R	13	50	6	4
SCU-0600-150R11	6	0.2R	15	50	6	4
SCU-0600-150R21	6	0.5R	15	50	6	4
SCU-0600-150R31	6	1R	15	50	6	4
SCU-0800-200R11	8	0.5R	20	60	8	4
SCU-0800-200R21	8	1R	20	60	8	4
SCU-1000-250R11	10	0.5R	25	75	10	4
SCU-1000-250R21	10	1R	25	75	10	4
SCU-1000-250R31	10	1.5R	25	75	10	4
SCU-1000-250R41	10	2R	25	75	10	4
SCU-1200-320R11	12	0.5R	32	75	12	4
SCU-1200-320R21	12	1R	32	75	12	4
SCU-1200-320R31	12	1.5R	32	75	12	4
SCU-1200-320R41	12	2R	32	75	12	4
SCU-1200-320R51	12	3R	32	75	12	4

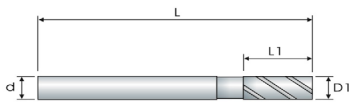
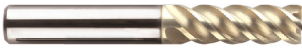
### Carbide End Mill - SUS Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	●				●		●	○	○

### Square Type 4 Flutes

AERO Series



Mill Dia. [D1] Up to	Tolerance [mm]
6	+0/-0.02
12	+0/-0.025
20	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F	Helix°
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SSO-0300-080C41	3	8	50	4	4	51°
SSO-0400-100C41	4	10	50	4	4	51°
SSO-0300-080E41	3	8	50	6	4	51°
SSO-0400-100E41	4	10	50	6	4	51°
SSO-0500-130E41	5	13	50	6	4	51°
SSO-0600-150E41	6	15	50	6	4	51°
SSO-0800-200G41	8	20	60	8	4	51°
SSO-1000-250H41	10	25	75	10	4	51°
SSO-1200-300I41	12	30	75	12	4	51°
SSO-1600-450J41	16	45	100	16	4	51°
SSO-2000-500K41	20	50	100	20	4	51°

### Carbide End Mill - AERO Series

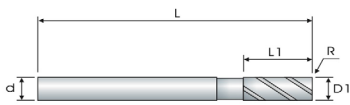
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
○	○	○				●		●	●	●



### Corner Radius Type 4 Flutes

AERO Series



Mill Dia. [D1] Up to	Tolerance (mm)
6	+0/-0.02
12	+0/-0.025

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	L	d	F	Helix°
	Mill Dia.	Corner R	Flute Length	Overall Length	Shank Dia.	No. of Flute	
SCO-0300-080R11	3	0.2R	8	50	4	4	51°
SCO-0300-080R21	3	0.5R	8	50	4	4	51°
SCO-0400-100R11	4	0.5R	10	50	4	4	51°
SCO-0400-100R21	4	1R	10	50	4	4	51°
SCO-0500-130R11	5	0.5R	13	50	6	4	51°
SCO-0500-130R21	5	1R	13	50	6	4	51°
SCO-0600-150R11	6	0.5R	15	50	6	4	51°
SCO-0600-150R21	6	1R	15	50	6	4	51°
SCO-0800-200R11	8	0.5R	20	60	8	4	51°
SCO-0800-200R21	8	1R	20	60	8	4	51°
SCO-1000-250R11	10	0.5R	25	75	10	4	51°
SCO-1000-250R21	10	1R	25	75	10	4	51°
SCO-1200-300R11	12	0.5R	30	75	12	4	51°
SCO-1200-300R21	12	1R	30	75	12	4	51°

### Carbide End Mill - AERO Series

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
○	○	○				●		●	●	●

# CARBIDE END MILLS

## A SERIES



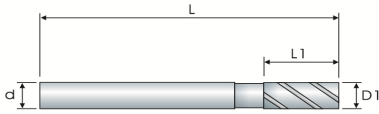
ITEM	Flutes	Helix	Mill Dia.		Page
			(Min)	(Max)	
Carbide End Mills - Square Type 3 Flutes - R Trench & Variable Leading (Aluminum)	3	35	3	16	74
Carbide End Mills - Square Type 2 Flutes (Aluminum)	2	35	3	12	75
Carbide End Mills - Square Type 3 Flutes (Aluminum)	3	35	2	16	76
Carbide End Mills - Square Type 3 Long Flutes (Aluminum)	3	45	3	20	77

# CARBIDE END MILLS

## A SERIES

### Square Type 3 Flutes

R Trench & Variable Leading  
(Aluminum)



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
ASV-0300-090E31	3	9	50	6	3
ASV-0400-120E31	4	12	50	6	3
ASV-0600-180E31	6	18	50	6	3
ASV-0800-240G31	8	24	60	8	3
ASV-1000-300H31	10	30	75	10	3
ASV-1200-320I31	12	32	75	12	3
ASV-1600-450J31	16	45	100	16	3

### Carbide End Mill - SUS Series

● Excellent ○ Good

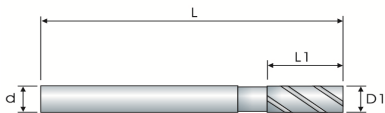
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE END MILLS

## A SERIES

### Square Type 2 Flutes

(Aluminum)



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
ASX-0300-090C21	3	9	50	4	2
ASX-0300-090E21	3	9	50	6	2
ASX-0400-120C21	4	12	50	4	2
ASX-0400-120E21	4	12	50	6	2
ASX-0500-150E21	5	15	50	6	2
ASX-0600-180E21	6	18	50	6	2
ASX-0800-240G21	8	24	60	8	2
ASX-1000-300H21	10	30	75	10	2
ASX-1200-320I21	12	32	75	12	2

### Carbide End Mill - SUS Series

● Excellent ○ Good

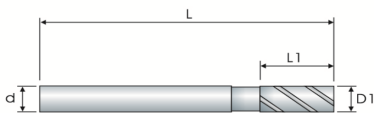
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE END MILLS

## A SERIES

### Square Type 3 Flutes

(Aluminum)



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
ASX-0200-060E31	2	6	50	6	3
ASX-0300-090C31	3	9	50	4	3
ASX-0300-090E31	3	9	50	6	3
ASX-0400-120C31	4	12	50	4	3
ASX-0400-120E31	4	12	50	6	3
ASX-0500-150E31	5	15	50	6	3
ASX-0600-180E31	6	18	50	6	3
ASX-0800-240G31	8	24	60	8	3
ASX-1000-300H31	10	30	75	10	3
ASX-1200-320I31	12	32	75	12	3
ASX-1600-450J31	16	45	100	16	3

### Carbide End Mill - SUS Series

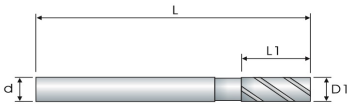
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE END MILLS

## A SERIES

### Square Type 3 Long Flutes (Aluminum)



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
ASX-0300-150E31	3	15	60	6	3
ASX-0400-200E31	4	20	60	6	3
ASX-0500-250E31	5	25	60	6	3
ASX-0600-300E31	6	30	75	6	3
ASX-0800-450G31	8	45	100	8	3
ASX-1000-550H31	10	55	100	10	3
ASX-1200-550I31	12	55	100	12	3
ASX-1600-750J31	16	75	150	16	3
ASX-2000-900K31	20	90	150	20	3

### Carbide End Mill - SUS Series

● Excellent ○ Good

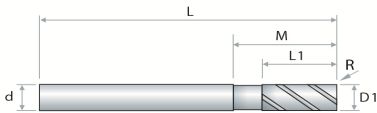
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

ITEM	Flutes	Helix	Mill Dia.		Page
			(Min)	(Max)	
	4	35	3	12	79
	4	35	3	12	80
	4	30	1.5R	6R	80
	2	35	0.2	1.5	81
	4	35	2	2	81
	2	35	1	1.5	82
	4	35	2	2	82
	2	35	0.1R	0.75R	83
	4	35	2	2	83
	2	30	3	12	84
	NA	NA	6	12	85
	4-8	NA	6	12	85
	4-8	NA	6	12	85

# GRAPHITE END MILLS

## C SERIES

### Square Type 4 Flutes



Cutting Dia (D1)	Tolerance (mm)
D1 ≤ 6	+0/-0.03
D1 ≤ 12	+0/-0.035

■ Shank Dia. Tolerance: h6

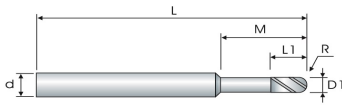
Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CSC-0300-150B41	3	9	15	75	3	4
CSC-0400-200R11	4	15	20	75	4	4
CSC-0400-200R21	4	15	20	100	4	4
CSC-0600-250R11	6	20	25	60	6	4
CSC-0600-250R21	6	20	25	100	6	4
CSC-0600-250R31	6	20	25	150	6	4
CSC-0800-350R11	8	25	35	100	8	4
CSC-0800-350R21	8	25	35	150	8	4
CSC-1000-350R11	10	25	35	100	10	4
CSC-1000-350R21	10	25	35	150	10	4
CSC-1200-350R11	12	25	35	100	12	4
CSC-1200-350R21	12	25	35	150	12	4



# GRAPHITE END MILLS

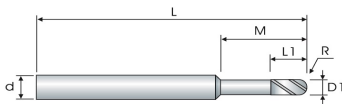
## C SERIES

### Corner Radius Type 4 Flutes



Part number	D1	R	L1	M	L	d	F
	Mill Dia.	Corner R	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CCC-0300-150R11	3	0.2R	9	15	75	3	4
CCC-0300-150R21	3	0.5R	9	15	75	3	4
CCC-0400-200R11	4	0.3R	15	20	75	4	4
CCC-0400-200R21	4	0.5R	15	20	75	4	4
CCC-0400-200R31	4	0.3R	15	20	100	4	4
CCC-0400-200R41	4	0.5R	15	20	100	4	4
CCC-0600-250R11	6	0.3R	20	25	60	6	4
CCC-0600-250R21	6	0.5R	20	25	60	6	4
CCC-0600-250R31	6	0.3R	20	25	100	6	4
CCC-0600-250R41	6	0.5R	20	25	100	6	4
CCC-0600-250R51	6	0.3R	20	25	150	6	4
CCC-0600-250R61	6	0.5R	20	25	150	6	4
CCC-0800-350R11	8	0.5R	25	35	100	8	4
CCC-0800-350R21	8	0.5R	25	35	150	8	4
CCC-1000-350R31	10	1R	25	35	100	10	4
CCC-1000-350R41	10	1R	25	35	150	10	4
CCC-1200-350R11	12	1R	25	35	100	12	4
CCC-1200-350R21	12	1R	25	35	150	12	4

### Ball Nose Type 4 Flutes



Cutting Dia (D1)	Tolerance (mm)
D1 ≤ 8	+0/-0.03
D1 ≤ 12	+0/-0.035

■ Shank Dia. Tolerance: h6

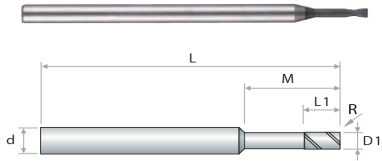
Part number	R	D1	FL	L	SL	SD	F
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CBC-0300-150B41	1.5R	3	9	15	75	3	4
CBC-0400-200R11	2R	4	15	20	75	4	4
CBC-0400-200R21	2R	4	15	20	100	4	4
CBC-0600-250R11	3R	6	20	25	60	6	4
CBC-0600-250R21	3R	6	20	25	100	6	4
CBC-0600-250R31	3R	6	20	25	150	6	4
CBC-0800-350R11	4R	8	25	35	100	8	4
CBC-0800-350R21	4R	8	25	35	150	8	4
CBC-1000-350R11	5R	10	25	35	100	10	4
CBC-1000-350R21	5R	10	25	35	150	10	4
CBC-1200-350R11	6R	12	25	35	100	12	4
CBC-1200-350R21	6R	12	25	35	150	12	4

# GRAPHITE END MILLS

## C SERIES

### Square Type 2 Flutes

Miniature



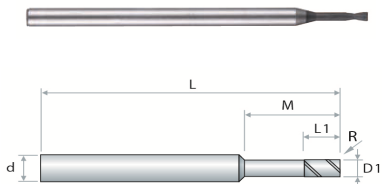
Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CSC-0020-003B21	0.2	0.3	0.3	40	3	2
CSC-0030-005B21	0.3	0.5	0.5	40	3	2
CSC-0040-006B21	0.4	0.6	0.6	40	3	2
CSC-0050-015B21	0.5	1.5	1.5	40	3	2
CSC-0050-040B21	0.5	1.5	4	40	3	2
CSC-0060-018B21	0.6	1.8	1.8	40	3	2
CSC-0060-050B21	0.6	1.8	5	40	3	2
CSC-0080-024B21	0.8	2.4	2.4	40	3	2
CSC-0080-070B21	0.8	2.4	7	40	3	2
CSC-0100-030B21	1	3	3	50	3	2
CSC-0100-060B21	1	3	6	50	3	2
CSC-0100-100B21	1	3	10	50	3	2
CSC-0100-160B21	1	3	16	50	3	2
CSC-0100-200B21	1	3	20	50	3	2
CSC-0150-060B21	1.5	3	6	50	3	2
CSC-0150-100B21	1.5	3	10	50	3	2
CSC-0150-160B21	1.5	3	16	50	3	2
CSC-0150-200B21	1.5	3	20	50	3	2

### Square Type 4 Flutes

Miniature



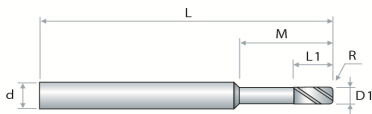
Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CSC-0200-060B41	2	6	6	50	3	4
CSC-0200-100B41	2	6	10	50	3	4
CSC-0200-160B41	2	6	16	50	3	4
CSC-0200-200B41	2	6	20	50	3	4

### Corner Radius Type 2 Flutes

Miniature



Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	M	L	d	F
	Mill Dia.	Corner R	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CBC-0100-030R11	1	0.2R	3	3	50	3	2
CBC-0100-030R21	1	0.2R	3	6	50	3	2
CBC-0100-030R31	1	0.2R	3	10	50	3	2
CBC-0100-030R41	1	0.2R	3	16	50	3	2
CBC-0100-030R51	1	0.2R	3	20	50	3	2
CBC-0150-030R11	1.5	0.2R	3	6	50	3	2
CBC-0150-030R21	1.5	0.2R	3	10	50	3	2
CBC-0150-030R31	1.5	0.2R	3	16	50	3	2
CBC-0150-030R41	1.5	0.2R	3	20	50	3	2

### Corner Radius Type 4 Flutes

Miniature



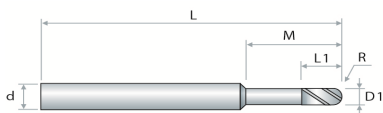
Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	R	L1	M	L	d	F
	Mill Dia.	Corner R	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CBC-0200-060R11	2	0.2	6	6	50	3	4
CBC-0200-060R21	2	0.5	6	6	50	3	4
CBC-0200-100R11	2	0.2	6	10	50	3	4
CBC-0200-100R21	2	0.5	6	10	50	3	4
CBC-0200-160R11	2	0.2	6	16	50	3	4
CBC-0200-160R21	2	0.5	6	16	50	3	4
CBC-0200-200R11	2	0.2	6	20	50	3	4
CBC-0200-200R21	2	0.5	6	20	50	3	4

### Ball Nose Type 2 Flutes

Miniature



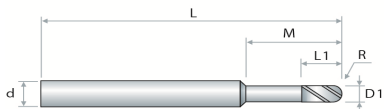
Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	M	L	d	F
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CBC-0020-002A21	0.1R	0.2	0.2	0.2	40	3	2
CBC-0030-003A21	0.15R	0.3	0.3	0.3	40	3	2
CBC-0040-004A21	0.2R	0.4	0.4	0.4	40	3	2
CBC-0050-015A21	0.25R	0.5	0.5	1.5	40	3	2
CBC-0050-040A21	0.25R	0.5	0.5	4	40	3	2
CBC-0060-018A21	0.3R	0.6	0.6	1.8	40	3	2
CBC-0060-050A21	0.3R	0.6	0.6	5	40	3	2
CBC-0080-024A21	0.4R	0.8	0.8	2.4	40	3	2
CBC-0080-070A21	0.4R	0.8	0.8	7	40	3	2
CBC-0100-030A21	0.5R	1	3	3	50	3	2
CBC-0100-060A21	0.5R	1	3	6	50	3	2
CBC-0100-100A21	0.5R	1	3	10	50	3	2
CBC-0100-160A21	0.5R	1	3	16	50	3	2
CBC-0100-200A21	0.5R	1	3	20	50	3	2
CBC-0150-060A21	0.75R	1.5	3	6	50	3	2
CBC-0150-100A21	0.75R	1.5	3	10	50	3	2
CBC-0150-160A21	0.75R	1.5	3	16	50	3	2
CBC-0150-200A21	0.75R	1.5	3	20	50	3	2

### Ball Nose Type 4 Flutes

Miniature

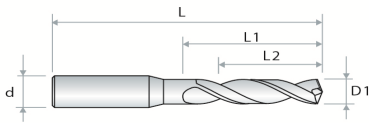


Cutting Dia. (D1)	Tolerance (mm)
D1 ≤ 2	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	R	D1	L1	M	L	d	F
	Ball Radius	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
CBC-0200-060C41	1R	2	6	6	50	3	4
CBC-0200-100C41	1R	2	6	10	50	3	4
CBC-0200-160C41	1R	2	6	16	50	3	4
CBC-0200-200C41	1R	2	6	20	50	3	4

## CFRP Drill

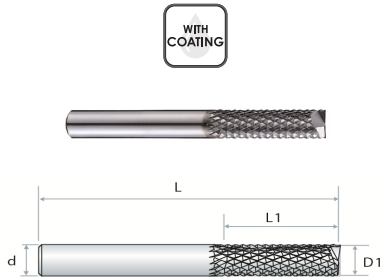


Cutting Dia.(D1)	Tolerance (mm)
$D1 \leq 6$	+0/-0.025
$6 < D1 \leq 12$	+0/-0.03

■ Shank Dia. Tolerance: h6

Part number	D1	Max Drill	L1	L	Shank Dia.	F
	Mill Dia.		Flute Length	Overall Length		No. of Flute
CDC-0300-280E21	3	23	28	66	6	2
CDC-0400-360E21	4	29	36	74	6	2
CDC-0500-440E21	5	35	44	82	6	2
CDC-0600-440E21	6	35	44	82	6	2
CDC-0800-530G21	8	43	53	91	8	2
CDC-1000-610H21	10	49	61	103	10	2
CDC-1100-710I21	11	56	71	118	12	2
CDC-1200-710I21	12	56	71	118	12	2

### CFRP Router

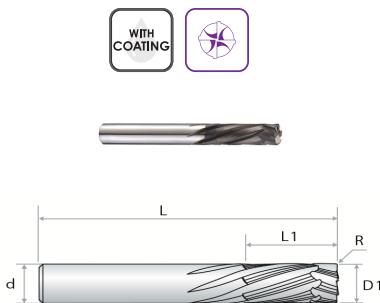


Cutting Dia. (D1)	Tolerance (mm)
$6 \leq D1 \leq 12$	-0.02/-0.08

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d
	Mill Dia.	Flute Length	Overall Length	Shank Dia.
COC-0600-180E01	6	18	60	6
COC-0800-240G01	8	24	75	8
COC-1000-300H01	10	30	75	10
COC-1200-360I01	12	36	100	12

### CFRP End Mill

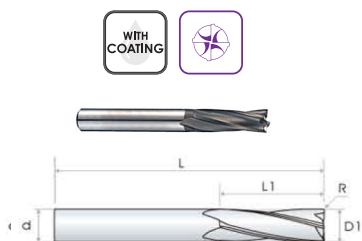


Cutting Dia. (D1)	Tolerance (mm)
$D1 \leq 6$	+0/-0.03
$6 < D1 \leq 12$	+0/-0.035

■ Shank Dia. Tolerance: h6

Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
COC-0600-120E41	6	12	60	6	4
COC-0800-160G61	8	16	75	8	6
COC-1000-200H61	10	20	75	10	6
COC-1200-240I81	12	24	100	12	8

### CFRP End Mill

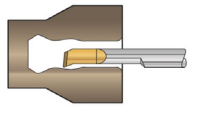


Cutting Dia. (D1)	Tolerance (mm)
$D1 \leq 6$	+0/-0.03
$6 < D1 \leq 12$	+0/-0.035

■ Shank Dia. Tolerance: h6

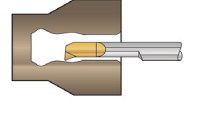
Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
COC-0600-120C41	6	12	60	6	4
COC-0800-160E61	8	16	75	8	6
COC-1000-200E61	10	20	75	10	6
COC-1200-240G81	12	24	100	12	8

	ITEM	Mill Dia.		Page
		(Min)	(Max)	
	Carbide Drill BIT - with Uniform Diameter - Long Flute Type	1.1	13	90~91
	Carbide Drill BIT - with Uniform Diameter	1	7.7	92~93
	Carbide Drill BIT - with Uniform Diameter	7.8	14	94~95
	Carbide Drill BIT - with Stepped Shank	1	6	96~97
	Carbide Drill BIT - with Extended Neck - Long Flute Type	1.5	8.2	98~100
	Carbide Drill BIT - with Extended Neck - Long Flute Type	8.3	12	101~102
	Carbide Drill BIT - with Uniform Diameter - Left Hand	1	3.18	103~104
	Carbide Drill BIT - with Uniform Diameter - Left Hand	3.2	6.5	105
	Carbide Drill BIT - Miniature - 1/8" Shank	0.2	3.175	106~107
	Carbide Position Drill - Helix	2	12	108
	Carbide Position Drill - Flat Tip - Right Hand - Double Heads	3	6	109
	Carbide Position Drill - Pyramid - Tip	4	4	109
	Carbide Center Drill - Double Heads	1	5	110
	Carbide Twist Drill - Internal Coolant Hole - 3xD	3	7.5	111~112
	Carbide Twist Drill - Internal Coolant Hole - 3xD	7.6	12	113~114
	Carbide Twist Drill - Internal Coolant Hole - 5xD	3	7.5	115~116
	Carbide Twist Drill - Internal Coolant Hole - 5xD	7.6	12	117~118
	Carbide Twist Drill - Internal Coolant Hole - 8xD	3	7.5	119~120
	Carbide Twist Drill - Internal Coolant Hole - 8xD	7.6	12	121~122



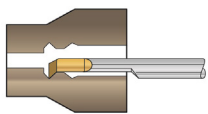
Carbide Miniature Boring - Front Boring for Easy Cutting

1 8 123



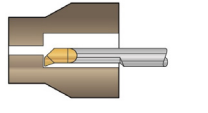
Carbide Miniature Boring - Front Boring for Heavy Cutting

1 8 123



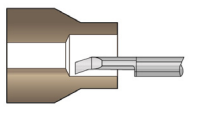
Carbide Miniature Boring - Front Boring 45° Back - Chamfer Angle

1 8 124



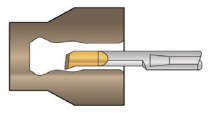
Carbide Miniature Boring - Front Boring 90°

1 8 124



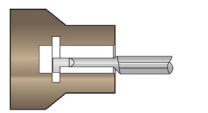
Carbide Miniature Boring - Front Boring for Copper

1 6 125



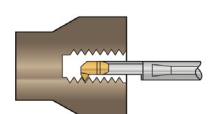
Carbide Miniature Boring - Front Boring 45° Back - Chamfer Angle for Copper

1 6 125



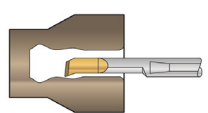
Carbide Miniature Boring - Grooving

1 6 126



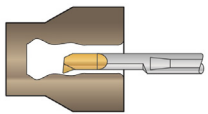
Carbide Front End Fastening - Front Boring - Threading

2.4 6 127



Carbide Front End Fastening - Front Boring - for Easy Cutting

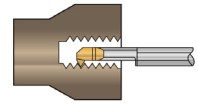
1 8 128



Carbide Front End Fastening - Front Boring - for Heavy Cutting

1 8 128



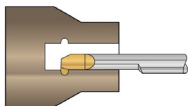


Carbide Miniature Boring - Treading

2.4

6

129

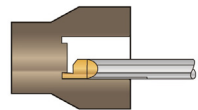


Carbide Miniature Boring - Grooving R Type

4

6

129

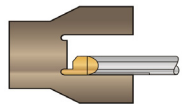


Carbide Miniature Boring - Slotting

4

8

130

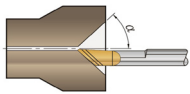


Carbide Miniature Boring - Slotting - R Type

4

6

130

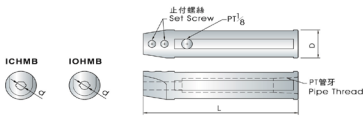


Carbide Chamfer

15

15

131



Miniture Boring Holder - Internal Coolant Hole

3

10

132-133

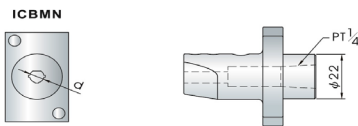


Tool Holder - Internal Coolant Hole for Machining on Back Side

3

8

134



Carbide Reamer - Standard

1

4.6

135-136



Carbide Reamer - Standard

4.7

8.3

137-138



Carbide Reamer - Standard

8.4

13

139-140



Carbide Reamer - Long Shank

3

20

141

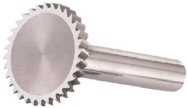


Carbide Threading 60°

1.05

1.5

142

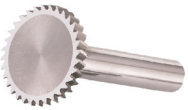


Carbide T Shape Milling - Straight Flute

15

30

143



Carbide Shape Milling - Helix Flute

15

30

144

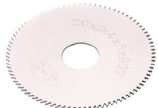


Carbide End Mill - Slim Shank  
(Solid Type. Non-Brazed)

5

25

145



Carbide Circular Saw Blade -  
Small Inner Diameter

15

15

146



Carbide Circular Saw Blade -  
Small Inner Diameter

20

20

147



Carbide Circular Saw Blade -  
Small Inner Diameter

20

20

148



Carbide Circular Saw Blade - S  
mall Inner Diameter

25

25

149



Carbide Circular Saw Blade -  
Small Inner Diameter

30

30

150



Carbide Circular Saw Blade -  
Small Inner Diameter

45

45

151



Carbide Circular Saw Blade -  
for Beryllium Copper

20

25

152



Tool Holder - Saw Blade

5

12.7

153



Tool Holder - Combo

5

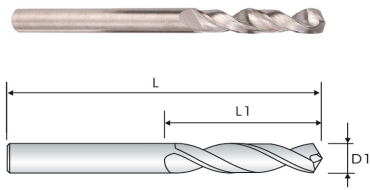
6

153

# CARBIDE DRILL BIT O SERIES

## WITH UNIFORM DIAMETER

Long Flute Type



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0100-120Q11	1.0	12	34	ODX-0360-390Q11	3.6	39	70
ODX-0110-140Q11	1.1	14	36	ODX-0370-390Q11	3.7	39	70
ODX-0120-160Q11	1.2	16	38	ODX-0380-430Q11	3.8	43	75
ODX-0130-160Q11	1.3	16	38	ODX-0390-430Q11	3.9	43	75
ODX-0140-180Q11	1.4	18	40	ODX-0400-430Q11	4.0	43	75
ODX-0150-180Q11	1.5	18	40	ODX-0410-430Q11	4.1	43	75
ODX-0160-200Q11	1.6	20	43	ODX-0420-430Q11	4.2	43	75
ODX-0170-200Q11	1.7	20	43	ODX-0430-470Q11	4.3	47	80
ODX-0180-220Q11	1.8	22	46	ODX-0440-470Q11	4.4	47	80
ODX-0190-220Q11	1.9	22	46	ODX-0450-470Q11	4.5	47	80
ODX-0200-240Q11	2.0	24	49	ODX-0460-470Q11	4.6	47	80
ODX-0210-240Q11	2.1	24	49	ODX-0470-470Q11	4.7	47	80
ODX-0220-270Q11	2.2	27	53	ODX-0480-520Q11	4.8	52	86
ODX-0230-270Q11	2.3	27	53	ODX-0490-520Q11	4.9	52	86
ODX-0240-300Q11	2.4	30	57	ODX-0500-520Q11	5.0	52	86
ODX-0250-300Q11	2.5	30	57	ODX-0510-520Q11	5.1	52	86
ODX-0260-300Q11	2.6	30	57	ODX-0520-520Q11	5.2	52	86
ODX-0270-330Q11	2.7	33	61	ODX-0530-520Q11	5.3	52	86
ODX-0280-330Q11	2.8	33	61	ODX-0540-570Q11	5.4	57	93
ODX-0290-330Q11	2.9	33	61	ODX-0550-570Q11	5.5	57	93
ODX-0300-330Q11	3.0	33	61	ODX-0560-570Q11	5.6	57	93
ODX-0310-360Q11	3.1	36	65	ODX-0570-570Q11	5.7	57	93
ODX-0320-360Q11	3.2	36	65	ODX-0580-570Q11	5.8	57	93
ODX-0330-360Q11	3.3	36	65	ODX-0590-570Q11	5.9	57	93
ODX-0340-390Q11	3.4	39	70	ODX-0600-570Q11	6.0	57	93
ODX-0350-390Q11	3.5	39	70	ODX-0610-630Q11	6.1	63	101

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●		○	

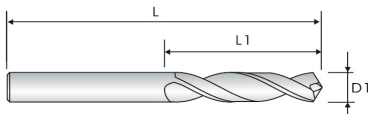
# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH UNIFORM DIAMETER

Long Flute Type



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0620-630Q11	6.2	63	101	ODX-0850-750Q11	8.5	75	117
ODX-0630-630Q11	6.3	63	101	ODX-0860-810Q11	8.6	81	125
ODX-0640-630Q11	6.4	63	101	ODX-0870-810Q11	8.7	81	125
ODX-0650-630Q11	6.5	63	101	ODX-0880-810Q11	8.8	81	125
ODX-0660-630Q11	6.6	63	101	ODX-0890-810Q11	8.9	81	125
ODX-0670-630Q11	6.7	63	101	ODX-0900-810Q11	9.0	81	125
ODX-0680-690Q11	6.8	69	109	ODX-0910-810Q11	9.1	81	125
ODX-0690-690Q11	6.9	69	109	ODX-0920-810Q11	9.2	81	125
ODX-0700-690Q11	7.0	69	109	ODX-0930-810Q11	9.3	81	125
ODX-0710-690Q11	7.1	69	109	ODX-0940-810Q11	9.4	81	125
ODX-0720-690Q11	7.2	69	109	ODX-0950-810Q11	9.5	81	125
ODX-0730-690Q11	7.3	69	109	ODX-0960-870Q11	9.6	87	133
ODX-0740-690Q11	7.4	69	109	ODX-0970-870Q11	9.7	87	133
ODX-0750-690Q11	7.5	69	109	ODX-0980-870Q11	9.8	87	133
ODX-0760-750Q11	7.6	75	117	ODX-0990-870Q11	9.9	87	133
ODX-0770-750Q11	7.7	75	117	ODX-1000-870Q11	10.0	87	133
ODX-0780-750Q11	7.8	75	117	ODX-1020-870Q11	10.2	87	133
ODX-0790-750Q11	7.9	75	117	ODX-1050-870Q11	10.5	87	133
ODX-0800-750Q11	8.0	75	117	ODX-1100-940Q11	11.0	94	142
ODX-0810-750Q11	8.1	75	117	ODX-1150-940Q11	11.5	94	142
ODX-0820-750Q11	8.2	75	117	ODX-1200-101Q11	12.0	101	151
ODX-0830-750Q11	8.3	75	117	ODX-1300-101Q11	13.0	101	151
ODX-0840-750Q11	8.4	75	117				

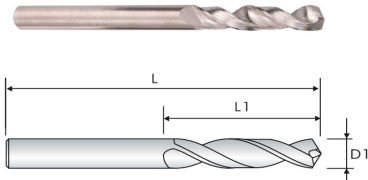
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●		○	

# CARBIDE DRILL BIT O SERIES

## WITH UNIFORM DIAMETER



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0100-060Q11	1.0	6	26	ODX-0350-200Q11	3.5	20	52
ODX-0110-070Q11	1.1	7	28	ODX-0360-200Q11	3.6	20	52
ODX-0120-080Q11	1.2	8	30	ODX-0370-200Q11	3.7	20	52
ODX-0130-080Q11	1.3	8	30	ODX-0380-220Q11	3.8	22	55
ODX-0140-090Q11	1.4	9	32	ODX-0390-220Q11	3.9	22	55
ODX-0150-090Q11	1.5	9	32	ODX-0400-220Q11	4.0	22	55
ODX-0160-100Q11	1.6	10	34	ODX-0410-220Q11	4.1	22	55
ODX-0170-100Q11	1.7	10	34	ODX-0420-220Q11	4.2	22	55
ODX-0180-110Q11	1.8	11	36	ODX-0430-240Q11	4.3	24	58
ODX-0190-110Q11	1.9	11	36	ODX-0440-240Q11	4.4	24	58
ODX-0200-120Q11	2.0	12	38	ODX-0450-240Q11	4.5	24	58
ODX-0210-120Q11	2.1	12	38	ODX-0460-240Q11	4.6	24	58
ODX-0220-130Q11	2.2	13	40	ODX-0470-240Q11	4.7	24	58
ODX-0230-130Q11	2.3	13	40	ODX-0480-260Q11	4.8	26	62
ODX-0240-140Q11	2.4	14	43	ODX-0490-260Q11	4.9	26	62
ODX-0250-140Q11	2.5	14	43	ODX-0500-260Q11	5.0	26	62
ODX-0260-140Q11	2.6	14	43	ODX-0510-260Q11	5.1	26	62
ODX-0270-140Q11	2.7	14	46	ODX-0520-260Q11	5.2	26	65
ODX-0280-160Q11	2.8	16	46	ODX-0530-260Q11	5.3	26	65
ODX-0290-160Q11	2.9	16	46	ODX-0540-280Q11	5.4	28	66
ODX-0300-160Q11	3.0	16	46	ODX-0550-280Q11	5.5	28	66
ODX-0310-180Q11	3.1	18	49	ODX-0560-280Q11	5.6	28	66
ODX-0320-180Q11	3.2	18	49	ODX-0570-280Q11	5.7	28	66
ODX-0330-180Q11	3.3	18	49	ODX-0580-280Q11	5.8	28	66
ODX-0340-200Q11	3.4	20	52	ODX-0590-280Q11	5.9	28	66

### Carbide Drill Bit

● Excellent ○ Good

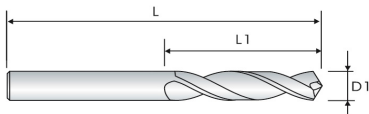
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH UNIFORM DIAMETER



Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length
ODX-0600-280Q11	6.0	28	66
ODX-0610-310Q11	6.1	31	70
ODX-0620-310Q11	6.2	31	70
ODX-0630-310Q11	6.3	31	70
ODX-0640-310Q11	6.4	31	70
ODX-0650-310Q11	6.5	31	70
ODX-0660-310Q11	6.6	31	70
ODX-0670-310Q11	6.7	31	70
ODX-0680-340Q11	6.8	34	74
ODX-0690-340Q11	6.9	34	74
ODX-0700-340Q11	7.0	34	74
ODX-0710-340Q11	7.1	34	74
ODX-0720-340Q11	7.2	34	74
ODX-0730-340Q11	7.3	34	74
ODX-0740-340Q11	7.4	34	74
ODX-0750-340Q11	7.5	34	74
ODX-0760-370Q11	7.6	37	79
ODX-0770-370Q11	7.7	37	79

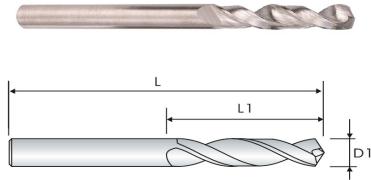
#### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE DRILL BIT O SERIES

## WITH UNIFORM DIAMETER



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0780-370Q11	7.8	37	79	ODX-1030-430Q11	10.3	43	89
ODX-0790-370Q11	7.9	37	79	ODX-1040-430Q11	10.4	43	89
ODX-0800-370Q11	8.0	37	79	ODX-1050-430Q21	10.5	43	89
ODX-0810-370Q11	8.1	37	79	ODX-1060-430Q11	10.6	43	89
ODX-0820-370Q11	8.2	37	79	ODX-1070-430Q11	10.7	43	89
ODX-0830-370Q11	8.3	37	79	ODX-1080-430Q11	10.8	43	89
ODX-0840-370Q11	8.4	37	79	ODX-1090-430Q11	10.9	43	89
ODX-0850-370Q11	8.5	37	79	ODX-1100-430Q11	11.0	43	89
ODX-0860-400Q11	8.6	40	84	ODX-1110-470Q11	11.1	47	95
ODX-0870-400Q11	8.7	40	84	ODX-1120-470Q11	11.2	47	95
ODX-0880-400Q11	8.8	40	84	ODX-1130-470Q11	11.3	47	95
ODX-0890-400Q11	8.9	40	84	ODX-1140-470Q11	11.4	47	95
ODX-0900-400Q11	9.0	40	84	ODX-1150-470Q11	11.5	47	95
ODX-0910-400Q11	9.1	40	84	ODX-1160-470Q11	11.6	47	95
ODX-0920-400Q11	9.2	40	84	ODX-1170-470Q11	11.7	47	95
ODX-0930-400Q11	9.3	40	84	ODX-1180-470Q11	11.8	47	95
ODX-0940-400Q11	9.4	40	84	ODX-1190-470Q11	11.9	47	95
ODX-0950-400Q11	9.5	40	84	ODX-1200-470Q11	12.0	47	95
ODX-0960-430Q11	9.6	43	89	ODX-1210-510Q11	12.1	51	102
ODX-0970-430Q11	9.7	43	89	ODX-1220-510Q11	12.2	51	102
ODX-0980-430Q11	9.8	43	89	ODX-1230-510Q11	12.3	51	102
ODX-0990-430Q11	9.9	43	89	ODX-1240-510Q11	12.4	51	102
ODX-1000-430Q11	10.0	43	89	ODX-1250-510Q11	12.5	51	102
ODX-1010-430Q11	10.1	43	89	ODX-1260-510Q11	12.6	51	102
ODX-1020-430Q11	10.2	43	89	ODX-1270-510Q11	12.7	51	102
ODX-1020-430Q11	10.2	43	89	ODX-1280-510Q11	12.8	51	102

### Carbide Drill Bit

● Excellent ○ Good

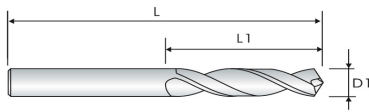
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH UNIFORM DIAMETER



Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length
ODX-1290-510Q11	12.9	51	102
ODX-1300-510Q11	13.0	51	102
ODX-1310-510Q11	13.1	51	102
ODX-1320-510Q11	13.2	51	102
ODX-1330-510Q11	13.3	51	102
ODX-1340-510Q11	13.4	51	102
ODX-1350-510Q11	13.5	51	102
ODX-1360-510Q11	13.6	51	102
ODX-1370-510Q11	13.7	51	102
ODX-1380-510Q11	13.8	51	102
ODX-1390-510Q11	13.9	51	102
ODX-1400-510Q11	14.0	51	102

### Carbide Drill Bit

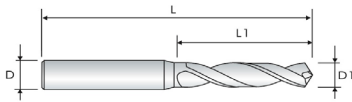
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
		~HB225	HB225~325							
					●		●			



# CARBIDE DRILL BIT O SERIES

## WITH STEPPED SHANK



Part number	D1	L1	L	d
	Mill Dia.	Flute Length	Overall Length	Shank Dia.
ODX-0100-060B11	1.0	6	38	3
ODX-0110-070B11	1.1	7	38	3
ODX-0120-080B11	1.2	8	38	3
ODX-0130-080B11	1.3	8	38	3
ODX-0140-090B11	1.4	9	38	3
ODX-0150-090B11	1.5	9	38	3
ODX-0160-100B11	1.6	10	38	3
ODX-0170-100B11	1.7	10	38	3
ODX-0180-110B11	1.8	11	38	3
ODX-0190-110B11	1.9	11	38	3
ODX-0200-120B11	2.0	12	38	3
ODX-0210-120B11	2.1	12	50	3
ODX-0220-130B11	2.2	13	50	3
ODX-0230-130B11	2.3	13	50	3
ODX-0240-140B11	2.4	14	50	3
ODX-0250-140B11	2.5	14	50	3
ODX-0260-140B11	2.6	14	50	3
ODX-0270-140B11	2.7	14	50	3
ODX-0280-160B11	2.8	16	50	3
ODX-0290-160B11	2.9	16	50	3
ODX-0300-160B11	3.0	16	50	3
ODX-0310-180C11	3.1	18	60	4
ODX-0320-180C11	3.2	18	60	4
ODX-0330-180C11	3.3	18	60	4
ODX-0340-200C11	3.4	20	60	4
ODX-0350-200C11	3.5	20	60	4

### Carbide Drill Bit

● Excellent ○ Good

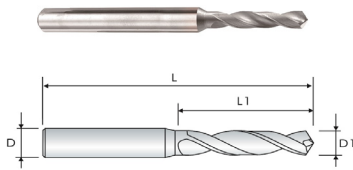
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH STEPPED SHANK



Part number	D1	L1	L	d
	Mill Dia.	Flute Length	Overall Length	Shank Dia.
ODX-0360-200C11	3.6	20	60	4
ODX-0370-200C11	3.7	20	60	4
ODX-0380-220C11	3.8	22	60	4
ODX-0390-220C11	3.9	22	60	4
ODX-0400-220C11	4.0	22	60	4
ODX-0410-220E11	4.1	22	60	6
ODX-0420-220E11	4.2	22	60	6
ODX-0430-240E11	4.3	24	60	6
ODX-0440-240E11	4.4	24	60	6
ODX-0450-240E11	4.5	24	60	6
ODX-0460-240E11	4.6	24	60	6
ODX-0470-240E11	4.7	24	60	6
ODX-0480-260E11	4.8	26	60	6
ODX-0490-260E11	4.9	26	60	6
ODX-0500-260E11	5.0	26	60	6
ODX-0510-260E11	5.1	26	60	6
ODX-0520-260E11	5.2	26	60	6
ODX-0530-260E11	5.3	26	60	6
ODX-0540-280E11	5.4	28	60	6
ODX-0550-280E11	5.5	28	60	6
ODX-0560-280E11	5.6	28	60	6
ODX-0570-280E11	5.7	28	60	6
ODX-0580-280E11	5.8	28	60	6
ODX-0590-280E11	5.9	28	60	6
ODX-0600-280E11	6.0	28	60	6

### Carbide Drill Bit

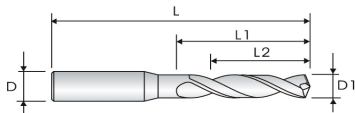
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE DRILL BIT O SERIES

## WITH EXTENDED NECK

Long Flute Type



Part number	D1	L2	L1	L	d
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.
ODL-0150-100C11	1.5	6	10	47	4
ODL-0160-100C11	1.6	6	10	47	4
ODL-0170-100C11	1.7	6	10	47	4
ODL-0180-120C11	1.8	8	12	47	4
ODL-0190-120C11	1.9	8	12	47	4
ODL-0200-150C11	2.0	11	15	55	4
ODL-0210-150C11	2.1	11	15	55	4
ODL-0220-150C11	2.2	11	15	55	4
ODL-0230-150C11	2.3	11	15	55	4
ODL-0240-150C11	2.4	11	15	55	4
ODL-0250-150C11	2.5	11	15	55	4
ODL-0260-180C11	2.6	13	18	55	4
ODL-0270-180C11	2.7	13	18	55	4
ODL-0280-180C11	2.8	13	18	55	4
ODL-0290-180C11	2.9	13	18	55	4
ODL-0300-200C11	3.0	14	20	62	4
ODL-0310-200C11	3.1	14	20	62	4
ODL-0320-200C11	3.2	14	20	62	4
ODL-0330-200C11	3.3	14	20	62	4
ODL-0340-200C11	3.4	14	20	62	4
ODL-0350-200C11	3.5	14	20	62	4
ODL-0360-200E11	3.6	14	20	62	6
ODL-0370-200E11	3.7	14	20	62	6
ODL-0380-200E11	3.8	14	20	62	6
ODL-0390-200E11	3.9	14	20	62	6

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●					●		●	●	

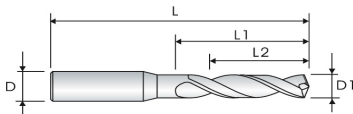
# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH EXTENDED NECK

Long Flute Type



Part number	D1	L2	L1	L	d
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.
ODL-0400-240E11	4.0	17	24	66	6
ODL-0410-240E11	4.1	17	24	66	6
ODL-0420-240E11	4.2	17	24	66	6
ODL-0430-240E11	4.3	17	24	66	6
ODL-0440-240E11	4.4	17	24	66	6
ODL-0450-240E11	4.5	17	24	66	6
ODL-0460-240E11	4.6	17	24	66	6
ODL-0470-280E11	4.7	20	28	66	6
ODL-0480-280E11	4.8	20	28	66	6
ODL-0490-280E11	4.9	20	28	66	6
ODL-0500-280E11	5.0	20	28	66	6
ODL-0510-280E11	5.1	20	28	66	6
ODL-0520-280E11	5.2	20	28	66	6
ODL-0530-280E11	5.3	20	28	66	6
ODL-0540-280E11	5.4	20	28	66	6
ODL-0550-280G11	5.5	20	28	66	8
ODL-0560-280G11	5.6	20	28	66	8
ODL-0570-280G11	5.7	20	28	66	8
ODL-0580-280G11	5.8	20	28	66	8
ODL-0590-280G11	5.9	20	28	66	8
ODL-0600-280G11	6.0	20	28	66	8
ODL-0610-340G11	6.1	24	34	79	8
ODL-0620-340G11	6.2	24	34	79	8
ODL-0630-340G11	6.3	24	34	79	8
ODL-0640-340G11	6.4	24	34	79	8

### Carbide Drill Bit

● Excellent ○ Good

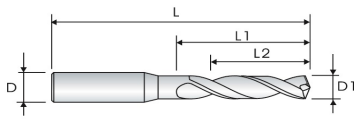
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●					●		●	●	

# CARBIDE DRILL BIT O SERIES

(CONTINUATION)

## WITH EXTENDED NECK

Long Flute Type



Part number	D1	L2	L1	L	d
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.
ODL-0650-340G11	6.5	24	34	79	8
ODL-0660-340G11	6.6	24	34	79	8
ODL-0670-340G11	6.7	24	34	79	8
ODL-0680-340G11	6.8	24	34	79	8
ODL-0690-340G11	6.9	24	34	79	8
ODL-0700-340G11	7.0	24	34	79	8
ODL-0710-410G11	7.1	29	41	79	8
ODL-0720-410G11	7.2	29	41	79	8
ODL-0730-410G11	7.3	29	41	79	8
ODL-0740-410G11	7.4	29	41	79	8
ODL-0750-410G11	7.5	29	41	79	8
ODL-0760-410G11	7.6	29	41	79	8
ODL-0770-410G11	7.7	29	41	79	8
ODL-0780-410G11	7.8	29	41	79	8
ODL-0790-410G11	7.9	29	41	79	8
ODL-0800-410G11	8.0	29	41	79	8
ODL-0810-470H11	8.1	35	47	89	10
ODL-0820-470H11	8.2	35	47	89	10

### Carbide Drill Bit

● Excellent ○ Good

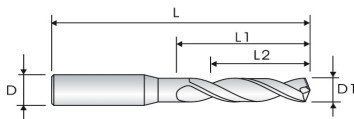
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●					●		●	●	

# CARBIDE DRILL BIT

## O SERIES

### WITH EXTENDED NECK

Long Flute Type



Part number	D1	L2	L1	L	d
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.
ODX-0830-470H11	8.3	35	47	89	10
ODX-0840-470H11	8.4	35	47	89	10
ODX-0850-470H11	8.5	35	47	89	10
ODX-0860-470H11	8.6	35	47	89	10
ODX-0870-470H11	8.7	35	47	89	10
ODX-0880-470H11	8.8	35	47	89	10
ODX-0890-470H11	8.9	35	47	89	10
ODX-0900-470H11	9.0	35	47	89	10
ODX-0910-470H11	9.1	35	47	89	10
ODX-0920-470H11	9.2	35	47	89	10
ODX-0930-470H11	9.3	35	47	89	10
ODX-0940-470H11	9.4	35	47	89	10
ODX-0950-470H11	9.5	35	47	89	10
ODX-0960-470H11	9.6	35	47	89	10
ODX-0970-470H11	9.7	35	47	89	10
ODX-0980-470H11	9.8	35	47	89	10
ODX-0990-470H11	9.9	35	47	89	10
ODX-1000-470H11	10.0	35	47	89	10
ODX-1010-550I11	10.1	40	55	102	12
ODX-1020-550I11	10.2	40	55	102	12
JCTE1252101	10.2	40	55	102	12
JCTE1252201	10.2	40	55	102	12
JCTE1252301	10.2	40	55	102	12
JCTE1252401	10.2	40	55	102	12
JCTE1252501	10.2	40	55	102	12

### Carbide Drill Bit

● Excellent ○ Good

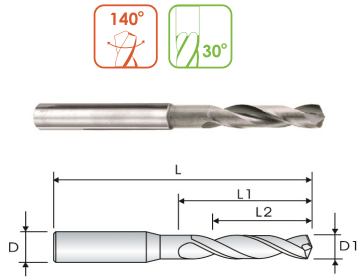
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●					●		●	●	

# CARBIDE DRILL BIT O SERIES

(CONTINUATION)

## WITH EXTENDED NECK

Long Flute Type



Part number	D1	L2	L1	L	d
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.
ODX-1030-550I11	10.3	40	55	102	12
ODX-1040-550I11	10.4	40	55	102	12
ODX-1050-550I11	10.5	40	55	102	12
ODX-1060-550I11	10.6	40	55	102	12
ODX-1070-550I11	10.7	40	55	102	12
ODX-1080-550I11	10.8	40	55	102	12
ODX-1090-550I11	10.9	40	55	102	12
ODX-1100-550I11	11.0	40	55	102	12
ODX-1110-550I11	11.1	40	55	102	12
ODX-1120-550I11	11.2	40	55	102	12
ODX-1130-550I11	11.3	40	55	102	12
ODX-1140-550I11	11.4	40	55	102	12
ODX-1150-550I11	11.5	40	55	102	12
ODX-1160-550I11	11.6	40	55	102	12
ODX-1170-550I11	11.7	40	55	102	12
ODX-1180-550I11	11.8	40	55	102	12
ODX-1190-550I11	11.9	40	55	102	12
ODX-1200-550I11	12.0	40	55	102	12

### Carbide Drill Bit

● Excellent ○ Good

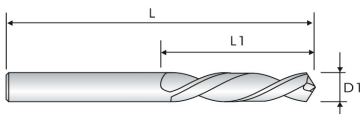
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●					●		●	●	

# CARBIDE DRILL BIT

## O SERIES

### WITH UNIFORM DIAMETER

Left Hand



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0100-080Q11	1.00	8	40	ODX-0184-140Q11	1.84	14	40
ODX-0110-100Q11	1.10	10	40	ODX-0185-140Q11	1.85	14	40
ODX-0120-100Q11	1.20	10	40	ODX-0190-140Q11	1.90	14	40
ODX-0124-120Q11	1.24	12	40	ODX-0195-140Q11	1.95	14	40
ODX-0125-120Q11	1.25	12	40	ODX-0196-120Q11	1.96	12	40
ODX-0126-120Q11	1.26	12	40	ODX-0197-120Q11	1.97	12	40
ODX-0130-120Q11	1.30	12	40	ODX-0198-120Q11	1.98	12	40
ODX-0140-120Q11	1.40	12	40	ODX-0200-160Q11	2.00	16	40
ODX-0141-120Q11	1.41	12	40	ODX-0210-160Q11	2.10	16	40
ODX-0142-120Q11	1.42	12	40	ODX-0220-160Q11	2.20	16	40
ODX-0143-120Q11	1.43	12	40	ODX-0225-160Q11	2.25	16	40
ODX-0144-120Q11	1.44	12	40	ODX-0226-160Q11	2.26	16	40
ODX-0145-120Q11	1.45	12	40	ODX-0227-160Q11	2.27	16	40
ODX-0146-120Q11	1.46	12	40	ODX-0228-160Q11	2.28	16	40
ODX-0150-120Q11	1.50	12	40	ODX-0229-160Q11	2.29	16	40
ODX-0155-120Q11	1.55	12	40	ODX-0230-160Q11	2.30	16	40
ODX-0160-120Q11	1.60	12	40	ODX-0231-160Q11	2.31	16	40
ODX-0165-120Q11	1.65	12	40	ODX-0232-160Q11	2.32	16	40
ODX-0170-120Q11	1.70	12	40	ODX-0233-160Q11	2.33	16	40
ODX-0178-120Q11	1.78	12	40	ODX-0240-160Q11	2.40	16	40
ODX-0179-120Q11	1.79	12	40	ODX-0250-160Q11	2.50	16	40
ODX-0180-140Q11	1.80	14	40	ODX-0255-160Q11	2.55	16	40
ODX-0181-140Q11	1.81	14	40	ODX-0256-160Q11	2.56	16	40
ODX-0182-140Q11	1.82	14	40	ODX-0257-160Q11	2.57	16	40
ODX-0183-140Q11	1.83	14	40	ODX-0258-210Q11	2.58	21	50

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			



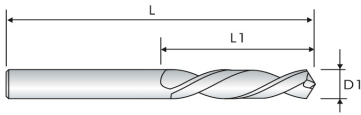
# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### WITH UNIFORM DIAMETER

Left Hand



Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length
ODX-0260-210Q11	2.60	21	50
ODX-0270-210Q11	2.70	21	50
ODX-0274-210Q11	2.74	21	50
ODX-0275-210Q11	2.75	21	50
ODX-0276-210Q11	2.76	21	50
ODX-0277-210Q11	2.77	21	50
ODX-0278-210Q11	2.78	21	50
ODX-0279-210Q11	2.79	21	50
ODX-0280-210Q21	2.80	21	50
ODX-0281-210Q11	2.81	21	50
ODX-0282-210Q11	2.82	21	50
ODX-0290-210Q11	2.90	21	50
ODX-0300-210Q11	3.00	21	50
ODX-0310-210Q11	3.10	21	50
ODX-0315-210Q11	3.15	21	50
ODX-0316-210Q11	3.16	21	50
ODX-0317-210Q11	3.17	21	50
ODX-0318-210Q11	3.18	21	50

#### Carbide Drill Bit

● Excellent ○ Good

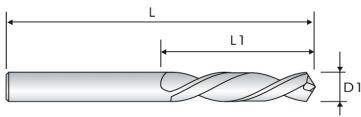
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE DRILL BIT

## O SERIES

### WITH UNIFORM DIAMETER

Left Hand



Part number	D1	L1	L	Part number	D1	L1	L
	Mill Dia.	Flute Length	Overall Length		Mill Dia.	Flute Length	Overall Length
ODX-0320-210Q11	3.20	21	50	ODX-0460-250Q11	4.60	25	50
ODX-0322-210Q11	3.22	21	50	ODX-0465-250Q11	4.65	25	50
ODX-0323-210Q11	3.23	21	50	ODX-0466-250Q11	4.66	25	50
ODX-0324-210Q11	3.24	21	50	ODX-0467-250Q11	4.67	25	50
ODX-0325-210Q11	3.25	21	50	ODX-0468-250Q11	4.68	25	50
ODX-0326-210Q11	3.26	21	50	ODX-0470-250Q11	4.70	25	50
ODX-0327-210Q11	3.27	21	50	ODX-0480-250Q11	4.80	25	50
ODX-0328-210Q11	3.28	21	50	ODX-0490-250Q11	4.90	25	50
ODX-0340-210Q11	3.40	21	50	ODX-0500-250Q11	5.00	25	50
ODX-0345-210Q11	3.45	21	50	ODX-0510-250Q11	5.10	25	50
ODX-0350-210Q11	3.50	21	50	ODX-0520-250Q11	5.20	25	50
ODX-0360-210Q11	3.60	21	50	ODX-0530-250Q11	5.30	25	50
ODX-0365-210Q11	3.65	21	50	ODX-0540-250Q11	5.40	25	50
ODX-0366-210Q11	3.66	21	50	ODX-0550-250Q11	5.50	25	50
ODX-0367-210Q11	3.67	21	50	ODX-0555-250Q11	5.55	25	50
ODX-0368-210Q11	3.68	21	50	ODX-0556-250Q11	5.56	25	50
ODX-0370-210Q11	3.70	21	50	ODX-0557-250Q11	5.57	25	50
ODX-0380-250Q11	3.80	25	50	ODX-0558-250Q11	5.58	25	50
ODX-0381-250Q11	3.81	25	50	ODX-0560-250Q11	5.60	25	50
ODX-0390-250Q11	3.90	25	50	ODX-0570-250Q11	5.70	25	50
ODX-0400-250Q11	4.00	25	50	ODX-0580-250Q11	5.80	25	50
ODX-0410-250Q11	4.10	25	50	ODX-0590-250Q11	5.90	25	50
ODX-0420-250Q11	4.20	25	50	ODX-0600-250Q11	6.00	25	50
ODX-0430-250Q11	4.30	25	50	ODX-0610-250Q11	6.10	25	50
ODX-0440-250Q11	4.40	25	50	ODX-0620-250Q11	6.20	25	50
ODX-0444-250Q11	4.44	25	50	ODX-0630-250Q11	6.30	25	50
ODX-0445-250Q11	4.45	25	50	ODX-0640-250Q11	6.40	25	50
ODX-0446-250Q11	4.46	25	50	ODX-0650-250Q11	6.50	25	50
ODX-0450-250Q11	4.50	25	50				

### Carbide Drill Bit

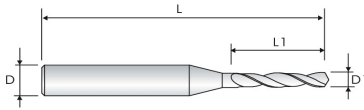
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE DRILL BIT O SERIES

## MINIATURE

1/8" Shank



Part number	D1	L1	L	d
	Mill Dia.	Flute Length	Overall Length	Shank Dia.
ODX-0020-030P11	0.20	3.0	38	3.175
ODX-0025-040P11	0.25	4.0	38	3.175
ODX-0030-050P11	0.30	5.0	38	3.175
ODX-0035-050P11	0.35	5.0	38	3.175
ODX-0040-055P11	0.40	5.5	38	3.175
ODX-0045-050P11	0.45	5.0	38	3.175
ODX-0050-070P11	0.50	7.0	38	3.175
ODX-0055-070P11	0.55	7.0	38	3.175
ODX-0060-070P11	0.60	7.0	38	3.175
ODX-0065-080P11	0.65	8.0	38	3.175
ODX-0070-080P11	0.70	8.0	38	3.175
ODX-0075-080P11	0.75	8.0	38	3.175
ODX-0080-080P11	0.80	8.0	38	3.175
ODX-0085-080P11	0.85	8.0	38	3.175
ODX-0090-100P11	0.90	10.0	38	3.175
ODX-0095-100P11	0.95	10.0	38	3.175
ODX-0100-100P11	1.00	10.0	38	3.175
ODX-0105-120P11	1.05	12.0	38	3.175
ODX-0110-120P11	1.10	12.0	38	3.175
ODX-0115-120P11	1.15	12.0	38	3.175
ODX-0120-120P11	1.20	12.0	38	3.175
ODX-0125-120P11	1.25	12.0	38	3.175
ODX-0130-120P11	1.30	12.0	38	3.175
ODX-0135-120P11	1.35	12.0	38	3.175
ODX-0140-120P11	1.40	12.0	38	3.175
ODX-0145-120P11	1.45	12.0	38	3.175
ODX-0150-120P11	1.50	12.0	38	3.175
ODX-0155-120P11	1.55	12.0	38	3.175
ODX-0160-120P11	1.60	12.0	38	3.175

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

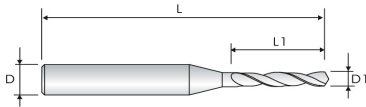
# CARBIDE DRILL BIT

## O SERIES

(CONTINUATION)

### MINIATURE

1/8" Shank



Part number	D1	L1	L	d
	Mill Dia.	Flute Length	Overall Length	Shank Dia.
ODX-0165-120P11	1.65	12	38	3.175
ODX-0170-120P11	1.70	12	38	3.175
ODX-0175-120P11	1.75	12	38	3.175
ODX-0180-120P11	1.80	12	38	3.175
ODX-0185-120P11	1.85	12	38	3.175
ODX-0190-120P11	1.90	12	38	3.175
ODX-0195-120P11	1.95	12	38	3.175
ODX-0200-120P11	2.00	12	38	3.175
ODX-0205-120P11	2.05	12	38	3.175
ODX-0210-120P11	2.10	12	38	3.175
ODX-0215-120P11	2.15	12	38	3.175
ODX-0220-120P11	2.20	12	38	3.175
ODX-0225-120P11	2.25	12	38	3.175
ODX-0230-120P11	2.30	12	38	3.175
ODX-0235-120P11	2.35	12	38	3.175
ODX-0240-120P11	2.40	12	38	3.175
ODX-0245-120P11	2.45	12	38	3.175
ODX-0250-120P11	2.50	12	38	3.175
ODX-0255-120P11	2.55	12	38	3.175
ODX-0260-120P11	2.60	12	38	3.175
ODX-0265-120P11	2.65	12	38	3.175
ODX-0270-120P11	2.70	12	38	3.175
ODX-0275-120P11	2.75	12	38	3.175
ODX-0280-120P11	2.80	12	38	3.175
ODX-0285-120P11	2.85	12	38	3.175
ODX-0290-120P11	2.90	12	38	3.175
ODX-0295-120P11	2.95	12	38	3.175
ODX-0305-120P11	3.05	12	38	3.175
ODX-0315-120P11	3.15	12	38	3.175
ODX-0317-120P11	3.175	12	38	3.175

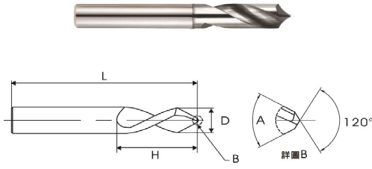
#### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE POSITION DRILL O SERIES

## HELIX



Part number	D1	Point Angle	L1	L
	Mill Dia.		Flute Length	Overall Length
ODC-0200-060R11	2	60°	6	38
ODC-0300-100R11	3	60°	10	38
ODC-0400-120R11	4	60°	12	50
ODC-0500-150R11	5	60°	15	50
ODC-0600-200R11	6	60°	20	50
ODC-0700-200R11	7	60°	20	50
ODC-0800-200R11	8	60°	20	60
ODC-1000-220R11	10	60°	22	75
ODC-1200-250R11	12	60°	25	75
ODC-0200-060R21	2	90°	6	38
ODC-0300-100R21	3	90°	10	38
ODC-0400-120R21	4	90°	12	50
ODC-0500-150R21	5	90°	15	50
ODC-0600-200R21	6	90°	20	50
ODC-0700-200R21	7	90°	20	50
ODC-0800-200R21	8	90°	20	60
ODC-1000-220R21	10	90°	22	75
ODC-1200-250R21	12	90°	25	75
ODC-1600-240Q11	16	90°	34	75
ODC-0300-100R31	3	120°	10	38
ODC-0400-120R31	4	120°	12	50
ODC-0500-150R31	5	120°	15	50
ODC-0600-200R31	6	120°	20	50
ODC-0700-200R31	7	120°	20	50
ODC-0800-200R31	8	120°	20	60
ODC-1000-220R31	10	120°	22	75
ODC-1200-250R31	12	120°	25	75

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
					●		●			

# CARBIDE POSITION DRILL

## O SERIES

### FLAT TIP

Right Hand - Double Heads



Part number	D1	Point Angle	L	d
	Mill Dia.		Flute Length	Overall Length
ODX-0300-060B11	3.00	60°	50	3
ODX-0300-090B11	3.00	90°	50	3
ODX-0400-060C11	4.00	60°	50	4
ODX-0400-090C11	4.00	90°	50	4
ODX-0500-060D11	5.00	60°	50	5
ODX-0500-090D11	5.00	90°	50	5
ODX-0600-060E11	6.00	60°	50	6
ODX-0600-090E11	6.00	90°	50	6

### PYRAMID - TIP



Part number	D1	Point Angle	L1
	Mill Dia.		Overall Length
ODC-0400-060Q11	4	60°	40
ODC-0400-090Q11	4	90°	40
ODC-0400-120Q11	4	120°	40

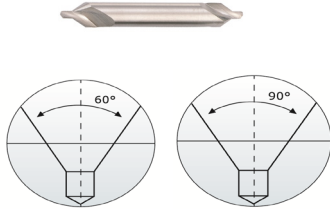
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
					●		●			

# CARBIDE CENTER DRILL O SERIES

## DOUBLE HEADS



Part number	D1	CA	L1	L	d
	Mill Dia.	Taper Angle	Flute Length	Overall Length	Shank Dia.
ODX-0100-060C11	1	60°	2	40	4
ODX-0100-090C11	1	90°	2	40	4
ODX-0150-060C11	1.5	60°	2	40	4
ODX-0150-090C11	1.5	90°	2	40	4
ODX-0150-060E11	1.5	60°	2	50	6
ODX-0150-090E11	1.5	90°	2	50	6
ODX-0200-060C11	2	60°	3	40	4
ODX-0200-090C11	2	90°	3	40	4
ODX-0200-060E11	2	60°	3	50	6
ODX-0200-090E11	2	90°	3	50	6
ODX-0250-060E11	2.5	60°	3	50	6
ODX-0250-090E11	2.5	90°	3	50	6
ODX-0300-060E11	3	60°	4	50	6
ODX-0300-090E11	3	90°	4	50	6
ODX-0300-060G11	3	60°	4	60	8
ODX-0300-090G11	3	90°	4	60	8
ODX-0400-060E11	4	60°	5	50	6
ODX-0400-090E11	4	90°	5	50	6
ODX-0400-060H11	4	60°	5	75	10
ODX-0400-090H11	4	90°	5	75	10
ODX-0500-060I11	5	60°	6.3	75	12
ODX-0500-090I11	5	90°	6.3	75	12

### Carbide Drill Bit

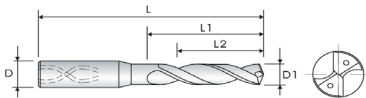
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●				●	●	●		○	

# CARBIDE TWIST DRILL

## O SERIES

### INTERNAL COOLANT HOLE - 3xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0300-200E11	3.0	17	24	62	6	40
ODC-0310-200E11	3.1	17	24	62	6	40
ODC-0320-200E11	3.2	17	24	62	6	40
ODC-0330-200E11	3.3	17	24	62	6	40
ODC-0340-200E11	3.4	17	24	62	6	40
ODC-0350-200E11	3.5	17	24	62	6	40
ODC-0360-200E11	3.6	17	24	62	6	40
ODC-0370-200E11	3.7	17	24	62	6	40
ODC-0380-240E11	3.8	20	28	66	6	40
ODC-0390-240E11	3.9	20	28	66	6	40
ODC-0400-240E11	4.0	20	28	66	6	40
ODC-0410-240E11	4.1	20	28	66	6	40
ODC-0420-240E11	4.2	20	28	66	6	40
ODC-0430-240E11	4.3	20	28	66	6	40
ODC-0440-240E11	4.4	20	28	66	6	40
ODC-0450-240E11	4.5	20	28	66	6	40
ODC-0460-240E11	4.6	20	28	66	6	30
ODC-0470-240E11	4.7	20	28	66	6	30
ODC-0480-280E11	4.8	20	28	66	6	30
ODC-0490-280E11	4.9	20	28	66	6	30
ODC-0500-280E11	5.0	20	28	66	6	30
ODC-0510-280E11	5.1	20	28	66	6	30
ODC-0520-280E11	5.2	20	28	66	6	30
ODC-0530-280E11	5.3	20	28	66	6	30
ODC-0540-280E11	5.4	20	28	66	6	30

#### Carbide Drill Bit

● Excellent ○ Good

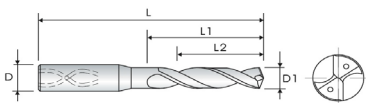
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	



# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE - 3xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0550-280E11	5.5	20	28	66	6	30
ODC-0560-280E11	5.6	20	28	66	6	30
ODC-0570-280E11	5.7	20	28	66	6	30
ODC-0580-280E11	5.8	20	28	66	6	30
ODC-0590-280E11	5.9	20	28	66	6	30
ODC-0600-280E11	6.0	20	28	66	6	30
ODC-0610-340G11	6.1	29	41	79	8	30
ODC-0620-340G11	6.2	29	41	79	8	30
ODC-0630-340G11	6.3	29	41	79	8	30
ODC-0640-340G11	6.4	29	41	79	8	30
ODC-0650-340G11	6.5	29	41	79	8	30
ODC-0660-340G11	6.6	29	41	79	8	30
ODC-0670-340G11	6.7	29	41	79	8	30
ODC-0680-340G11	6.8	29	41	79	8	30
ODC-0690-340G11	6.9	29	41	79	8	30
ODC-0700-340G11	7.0	29	41	79	8	30
ODC-0710-410G11	7.1	29	41	79	8	30
ODC-0720-410G11	7.2	29	41	79	8	30
ODC-0730-410G11	7.3	29	41	79	8	30
ODC-0740-410G11	7.4	29	41	79	8	30
ODC-0750-410G11	7.5	29	41	79	8	30

### Carbide Drill Bit

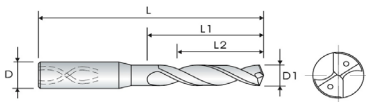
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL

## O SERIES

### INTERNAL COOLANT HOLE - 3xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0760-410G11	7.6	29	41	79	8	30
ODC-0770-410G11	7.7	29	41	79	8	30
ODC-0780-410G11	7.8	29	41	79	8	30
ODC-0790-410G11	7.9	29	41	79	8	30
ODC-0800-410G11	8.0	29	41	79	8	30
ODC-0810-470H11	8.1	35	47	89	10	30
ODC-0820-470H11	8.2	35	47	89	10	30
ODC-0830-470H11	8.3	35	47	89	10	30
ODC-0840-470H11	8.4	35	47	89	10	30
ODC-0850-470H11	8.5	35	47	89	10	30
ODC-0860-470H11	8.6	35	47	89	10	30
ODC-0870-470H11	8.7	35	47	89	10	30
ODC-0880-470H11	8.8	35	47	89	10	30
ODC-0890-470H11	8.9	35	47	89	10	30
ODC-0900-470H11	9.0	35	47	89	10	30
ODC-0910-470H11	9.1	35	47	89	10	30
ODC-0920-470H11	9.2	35	47	89	10	30
ODC-0930-470H11	9.3	35	47	89	10	30
ODC-0940-470H11	9.4	35	47	89	10	30
ODC-0950-470H11	9.5	35	47	89	10	30
ODC-0960-470H11	9.6	35	47	89	10	30
ODC-0970-470H11	9.7	35	47	89	10	30
ODC-0980-470H11	9.8	35	47	89	10	30
ODC-0990-470H11	9.9	35	47	89	10	30
ODC-1000-470H11	10.0	35	47	89	10	30

#### Carbide Drill Bit

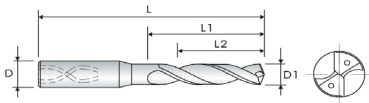
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE - 3xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-1010-550I11	10.1	40	55	102	12	30
ODC-1020-550I11	10.2	40	55	102	12	30
ODC-1030-550I11	10.3	40	55	102	12	30
ODC-1040-550I11	10.4	40	55	102	12	30
ODC-1050-550I11	10.5	40	55	102	12	30
ODC-1060-550I11	10.6	40	55	102	12	30
ODC-1070-550I11	10.7	40	55	102	12	30
ODC-1080-550I11	10.8	40	55	102	12	30
ODC-1090-550I11	10.9	40	55	102	12	30
ODC-1100-550I11	11.0	40	55	102	12	30
ODC-1110-550I11	11.1	40	55	102	12	30
ODC-1120-550I11	11.2	40	55	102	12	30
ODC-1130-550I11	11.3	40	55	102	12	30
ODC-1140-550I11	11.4	40	55	102	12	30
ODC-1150-550I11	11.5	40	55	102	12	30
ODC-1160-550I11	11.6	40	55	102	12	30
ODC-1170-550I11	11.7	40	55	102	12	30
ODC-1180-550I11	11.8	40	55	102	12	30
ODC-1190-550I11	11.9	40	55	102	12	30
ODC-1200-550I11	12.0	40	55	102	12	30

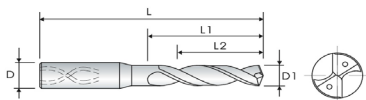
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

## INTERNAL COOLANT HOLE -5xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0300-280E11	3.0	23	28	66	6	40
ODC-0310-280E11	3.1	23	28	66	6	40
ODC-0320-280E11	3.2	23	28	66	6	40
ODC-0330-280E11	3.3	23	28	66	6	40
ODC-0340-280E11	3.4	23	28	66	6	40
ODC-0350-280E11	3.5	23	28	66	6	40
ODC-0360-280E11	3.6	23	28	66	6	40
ODC-0370-280E11	3.7	23	28	66	6	40
ODC-0380-360E11	3.8	29	36	74	6	40
ODC-0390-360E11	3.9	29	36	74	6	40
ODC-0400-360E11	4.0	29	36	74	6	40
ODC-0410-360E11	4.1	29	36	74	6	40
ODC-0420-360E11	4.2	29	36	74	6	40
ODC-0430-360E11	4.3	29	36	74	6	40
ODC-0440-360E11	4.4	29	36	74	6	40
ODC-0450-360E11	4.5	29	36	74	6	40
ODC-0460-360E11	4.6	29	36	74	6	30
ODC-0470-360E11	4.7	29	36	74	6	30
ODC-0480-440E11	4.8	35	44	82	6	30
ODC-0490-440E11	4.9	35	44	82	6	30
ODC-0500-440E11	5.0	35	44	82	6	30
ODC-0510-440E11	5.1	35	44	82	6	30
ODC-0520-440E11	5.2	35	44	82	6	30
ODC-0530-440E11	5.3	35	44	82	6	30
ODC-0540-440E11	5.4	35	44	82	6	30

### Carbide Drill Bit

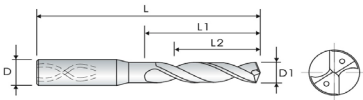
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE -5xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0550-440E11	5.5	35	44	82	6	30
ODC-0560-440E11	5.6	35	44	82	6	30
ODC-0570-440E11	5.7	35	44	82	6	30
ODC-0580-440E11	5.8	35	44	82	6	30
ODC-0590-440E11	5.9	35	44	82	6	30
ODC-0600-440E11	6.0	35	44	82	6	30
ODC-0610-530G11	6.1	43	53	91	8	30
ODC-0620-530G11	6.2	43	53	91	8	30
ODC-0630-530G11	6.3	43	53	91	8	30
ODC-0640-530G11	6.4	43	53	91	8	30
ODC-0650-530G11	6.5	43	53	91	8	30
ODC-0660-530G11	6.6	43	53	91	8	30
ODC-0670-530G11	6.7	43	53	91	8	30
ODC-0680-530G11	6.8	43	53	91	8	30
ODC-0690-530G11	6.9	43	53	91	8	30
ODC-0700-530G11	7.0	43	53	91	8	30
ODC-0710-530G11	7.1	43	53	91	8	30
ODC-0720-530G11	7.2	43	53	91	8	30
ODC-0730-530G11	7.3	43	53	91	8	30
ODC-0740-530G11	7.4	43	53	91	8	30
ODC-0750-530G11	7.5	43	53	91	8	30

### Carbide Drill Bit

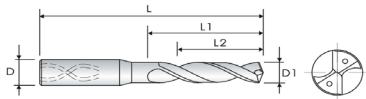
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL

## O SERIES

### INTERNAL COOLANT HOLE - 5xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0760-530G11	7.6	43	53	91	8	30
ODC-0770-530G11	7.7	43	53	91	8	30
ODC-0780-530G11	7.8	43	53	91	8	30
ODC-0790-530G11	7.9	43	53	91	8	30
ODC-0800-530G11	8.0	43	53	91	8	30
ODC-0810-610H11	8.1	49	61	103	10	30
ODC-0820-610H11	8.2	49	61	103	10	30
ODC-0830-610H11	8.3	49	61	103	10	30
ODC-0840-610H11	8.4	49	61	103	10	30
ODC-0850-610H11	8.5	49	61	103	10	30
ODC-0860-610H11	8.6	49	61	103	10	30
ODC-0870-610H11	8.7	49	61	103	10	30
ODC-0880-610H11	8.8	49	61	103	10	30
ODC-0890-610H11	8.9	49	61	103	10	30
ODC-0900-610H11	9.0	49	61	103	10	30
ODC-0910-610H11	9.1	49	61	103	10	30
ODC-0920-610H11	9.2	49	61	103	10	30
ODC-0930-610H11	9.3	49	61	103	10	30
ODC-0940-610H11	9.4	49	61	103	10	30
ODC-0950-610H11	9.5	49	61	103	10	30
ODC-0960-610H11	9.6	49	61	103	10	30
ODC-0970-610H11	9.7	49	61	103	10	30
ODC-0980-610H11	9.8	49	61	103	10	30
ODC-0990-610H11	9.9	49	61	103	10	30
ODC-1000-610H11	10.0	49	61	103	10	30

#### Carbide Drill Bit

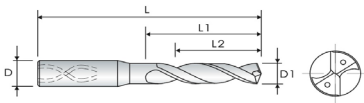
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE - 5xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-1010-710I11	10.1	56	71	118	12	30
ODC-1020-710I11	10.2	56	71	118	12	30
ODC-1030-710I11	10.3	56	71	118	12	30
ODC-1040-710I11	10.4	56	71	118	12	30
ODC-1050-710I11	10.5	56	71	118	12	30
ODC-1060-710I11	10.6	56	71	118	12	30
ODC-1070-710I11	10.7	56	71	118	12	30
ODC-1080-710I11	10.8	56	71	118	12	30
ODC-1090-710I11	10.9	56	71	118	12	30
ODC-1100-710I11	11.0	56	71	118	12	30
ODC-1110-710I11	11.1	56	71	118	12	30
ODC-1120-710I11	11.2	56	71	118	12	30
ODC-1130-710I11	11.3	56	71	118	12	30
ODC-1140-710I11	11.4	56	71	118	12	30
ODC-1150-710I11	11.5	56	71	118	12	30
ODC-1160-710I11	11.6	56	71	118	12	30
ODC-1170-710I11	11.7	56	71	118	12	30
ODC-1180-710I11	11.8	56	71	118	12	30
ODC-1190-710I11	11.9	56	71	118	12	30
ODC-1200-710I11	12.0	56	71	118	12	30

### Carbide Drill Bit

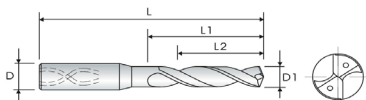
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL

## O SERIES

### INTERNAL COOLANT HOLE - 8xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0300-340E11	3.0	29	34	72	6	40
ODC-0310-340E11	3.1	29	34	72	6	40
ODC-0320-340E11	3.2	29	34	72	6	40
ODC-0330-340E11	3.3	29	34	72	6	40
ODC-0340-340E11	3.4	29	34	72	6	40
ODC-0350-340E11	3.5	29	34	72	6	40
ODC-0360-340E11	3.6	29	34	72	6	40
ODC-0370-340E11	3.7	29	34	72	6	40
ODC-0380-430E11	3.8	36	43	81	6	40
ODC-0390-430E11	3.9	36	43	81	6	40
ODC-0400-430E11	4.0	36	43	81	6	40
ODC-0410-430E11	4.1	36	43	81	6	40
ODC-0420-430E11	4.2	36	43	81	6	40
ODC-0430-430E11	4.3	36	43	81	6	40
ODC-0440-430E11	4.4	36	43	81	6	40
ODC-0450-430E11	4.5	36	43	81	6	40
ODC-0460-430E11	4.6	36	43	81	6	30
ODC-0470-570E11	4.7	48	57	95	6	30
ODC-0480-570E11	4.8	48	57	95	6	30
ODC-0490-570E11	4.9	48	57	95	6	30
ODC-0500-570E11	5.0	48	57	95	6	30
ODC-0510-570E11	5.1	48	57	95	6	30
ODC-0520-570E11	5.2	48	57	95	6	30
ODC-0530-570E11	5.3	48	57	95	6	30
ODC-0540-570E11	5.4	48	57	95	6	30

#### Carbide Drill Bit

● Excellent ○ Good

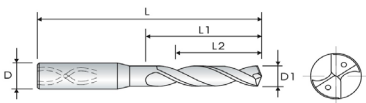
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	



# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE - 8xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0550-570E11	5.5	48	57	95	6	30
ODC-0560-570E11	5.6	48	57	95	6	30
ODC-0570-570E11	5.7	48	57	95	6	30
ODC-0580-570E11	5.8	48	57	95	6	30
ODC-0590-570E11	5.9	48	57	95	6	30
ODC-0600-570E11	6.0	48	57	95	6	30
ODC-0610-760G11	6.1	64	76	114	8	30
ODC-0620-760G11	6.2	64	76	114	8	30
ODC-0630-760G11	6.3	64	76	114	8	30
ODC-0640-760G11	6.4	64	76	114	8	30
ODC-0650-760G11	6.5	64	76	114	8	30
ODC-0660-760G11	6.6	64	76	114	8	30
ODC-0670-760G11	6.7	64	76	114	8	30
ODC-0680-760G11	6.8	64	76	114	8	30
ODC-0690-760G11	6.9	64	76	114	8	30
ODC-0700-760G11	7.0	64	76	114	8	30
ODC-0710-760G11	7.1	64	76	114	8	30
ODC-0720-760G11	7.2	64	76	114	8	30
ODC-0730-760G11	7.3	64	76	114	8	30
ODC-0740-760G11	7.4	64	76	114	8	30
ODC-0750-760G11	7.5	64	76	114	8	30

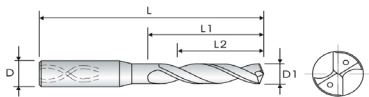
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

## INTERNAL COOLANT HOLE - 8xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-0760-760G11	7.6	64	76	114	8	30
ODC-0770-760G11	7.7	64	76	114	8	30
ODC-0780-760G11	7.8	64	76	114	8	30
ODC-0790-760G11	7.9	64	76	114	8	30
ODC-0800-760G11	8.0	64	76	114	8	30
ODC-0810-950H11	8.1	80	95	142	10	30
ODC-0820-950H11	8.2	80	95	142	10	30
ODC-0830-950H11	8.3	80	95	142	10	30
ODC-0840-950H11	8.4	80	95	142	10	30
ODC-0850-950H11	8.5	80	95	142	10	30
ODC-0860-950H11	8.6	80	95	142	10	30
ODC-0870-950H11	8.7	80	95	142	10	30
ODC-0880-950H11	8.8	80	95	142	10	30
ODC-0890-950H11	8.9	80	95	142	10	30
ODC-0900-950H11	9.0	80	95	142	10	30
ODC-0910-950H11	9.1	80	95	142	10	30
ODC-0920-950H11	9.2	80	95	142	10	30
ODC-0930-950H11	9.3	80	95	142	10	30
ODC-0940-950H11	9.4	80	95	142	10	30
ODC-0950-950H11	9.5	80	95	142	10	30
ODC-0960-950H11	9.6	80	95	142	10	30
ODC-0970-950H11	9.7	80	95	142	10	30
ODC-0980-950H11	9.8	80	95	142	10	30
ODC-0990-950H11	9.9	80	95	142	10	30
ODC-1000-950H11	10.0	80	95	142	10	30

### Carbide Drill Bit

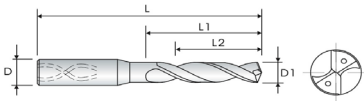
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
	●	●	●					○	○	

# CARBIDE TWIST DRILL O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE - 8xD



Part number	D1	L2	L1	L	d	H
	Mill Dia.	Max. Drill Depth	Flute Length	Overall Length	Shank Dia.	Helix
ODC-1010-114 11	10.1	96	114	162	12	30
ODC-1020-114 11	10.2	96	114	162	12	30
ODC-1030-114 11	10.3	96	114	162	12	30
ODC-1040-114 11	10.4	96	114	162	12	30
ODC-1050-114 11	10.5	96	114	162	12	30
ODC-1060-114 11	10.6	96	114	162	12	30
ODC-1070-114 11	10.7	96	114	162	12	30
ODC-1080-114 11	10.8	96	114	162	12	30
ODC-1090-114 11	10.9	96	114	162	12	30
ODC-1100-114 11	11.0	96	114	162	12	30
ODC-1110-114 11	11.1	96	114	162	12	30
ODC-1120-114 11	11.2	96	114	162	12	30
ODC-1130-114 11	11.3	96	114	162	12	30
ODC-1140-114 11	11.4	96	114	162	12	30
ODC-1150-114 11	11.5	96	114	162	12	30
ODC-1160-114 11	11.6	96	114	162	12	30
ODC-1170-114 11	11.7	96	114	162	12	30
ODC-1180-114 11	11.8	96	114	162	12	30
ODC-1190-114 11	11.9	96	114	162	12	30
ODC-1200-114 11	12.0	96	114	162	12	30

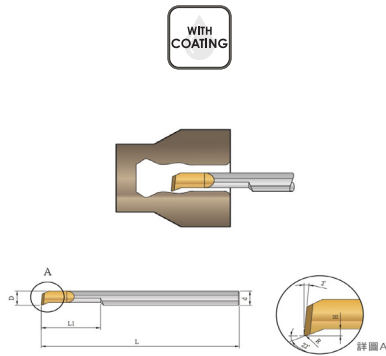
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
	●	●	●					○	○	

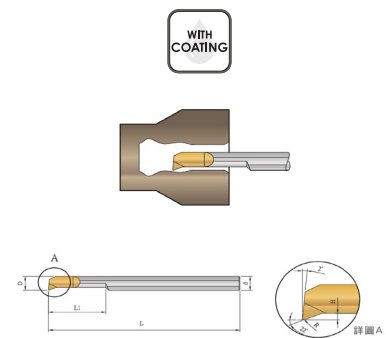
# CARBIDE MINIATURE BORING O SERIES

## FRONT BORING FOR EASY CUTTING



Part number	D1	L1	H	R	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOE-0100-060B11	1.0	6	0.2	0.05	50	3
OOE-0150-060B11	1.5	6	0.3	0.05	50	3
OOE-0200-080B11	2.0	8	0.5	0.05	50	3
OOE-0250-080B11	2.5	8	0.5	0.05	50	3
OOE-0300-100B11	3.0	10	0.7	0.1	50	3
OOE-0350-100C11	3.5	10	0.7	0.1	50	4
OOE-0400-150C11	4.0	15	0.8	0.1	50	4
OOE-0450-150E11	4.5	15	0.8	0.1	50	6
OOE-0500-150E11	5.0	15	1.2	0.1	50	6
OOE-0550-180E11	5.5	18	1.2	0.1	50	6
OOE-0600-180E11	6.0	18	1.4	0.1	50	6
OOE-0700-200G11	7.0	20	1.5	0.2	60	8
OOE-0800-220G11	8.0	22	1.5	0.2	60	8

## FRONT BORING FOR HEAVY CUTTING



Part number	D1	L1	H	R	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOM-0100-060B11	1.0	6	0.2	0.05	50	3
OOM-0150-060B11	1.5	6	0.3	0.05	50	3
OOM-0200-080B11	2.0	8	0.5	0.05	50	3
OOM-0250-080B11	2.5	8	0.5	0.05	50	3
OOM-0300-100B11	3.0	10	0.7	0.1	50	3
OOM-0350-100C11	3.5	10	0.7	0.1	50	4
OOM-0400-150C11	4.0	15	0.8	0.1	50	4
OOM-0450-150E11	4.5	15	0.8	0.1	50	6
OOM-0500-150E11	5.0	15	1.2	0.1	50	6
OOM-0550-180E11	5.5	18	1.2	0.1	50	6
OOM-0600-180E11	6.0	18	1.4	0.1	50	6
OOM-0700-200G11	7.0	20	1.5	0.2	60	8
OOM-0800-220G11	8.0	22	1.5	0.2	60	8

### Carbide Drill Bit

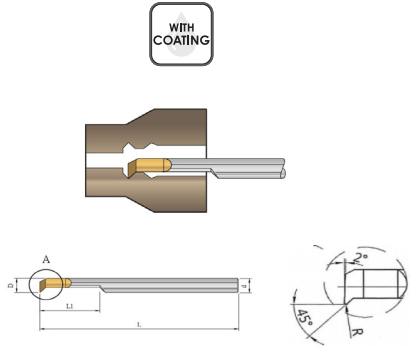
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE MINIATURE BORING O SERIES

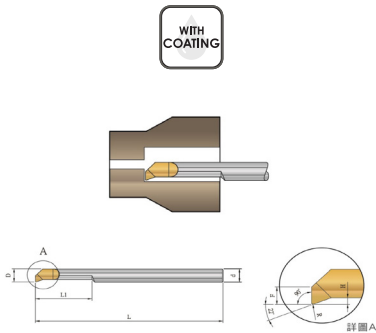
## FRONT BORING 45° BACK

Chamfer Angle



Part number	D1	L1	H	R	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOC-0100-060B11	1.0	6	0.2	0.05	50	3
OOC-0150-060B11	1.5	6	0.3	0.05	50	3
OOC-0200-080B11	2.0	8	0.5	0.05	50	3
OOC-0250-080B11	2.5	8	0.5	0.05	50	3
OOC-0300-100B11	3.0	10	0.7	0.1	50	3
OOC-0350-100C11	3.5	10	0.7	0.1	50	4
OOC-0400-150C11	4.0	15	0.8	0.1	50	4
OOC-0450-150E11	4.5	15	0.8	0.1	50	6
OOC-0500-150E11	5.0	15	1.2	0.1	50	6
OOC-0550-180E11	5.5	18	1.2	0.1	50	6
OOC-0600-180E11	6.0	18	1.4	0.1	50	6
OOC-0700-200G11	7.0	20	1.5	0.2	60	8
OOC-0800-220G11	8.0	22	1.5	0.2	60	8

## FRONT BORING 90°



Part number	D	F	FL	H	R	SL	SD
	Mill Dia.		Flute Length			Overall Length	Shank Dia.
OO9-0100-060B11	1.0	0.50	6	0.2	0.05	50	3
OO9-0150-060B11	1.5	0.75	6	0.3	0.05	50	3
OO9-0200-080B11	2.0	1.00	8	0.5	0.05	50	3
OO9-0250-080B11	2.5	1.25	8	0.5	0.05	50	3
OO9-0300-100B11	3.0	1.50	10	0.7	0.1	50	3
OO9-0350-100C11	3.5	1.75	10	0.7	0.1	50	4
OO9-0400-150C11	4.0	2.00	15	0.8	0.1	50	4
OO9-0450-150E11	4.5	2.25	15	0.8	0.1	50	6
OO9-0500-150E11	5.0	2.50	15	1.2	0.15	50	6
OO9-0550-180E11	5.5	2.75	18	1.2	0.15	50	6
OO9-0600-180E11	6.0	3.00	18	1.4	0.15	50	6
OO9-0700-200G11	7.0	3.50	20	1.5	0.2	60	8
OO9-0800-220G11	8.0	4.00	22	1.5	0.2	60	8

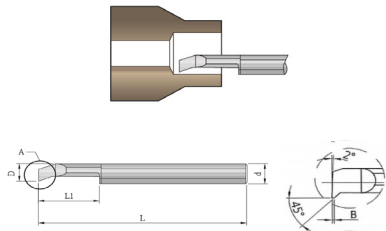
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE MINIATURE BORING O SERIES

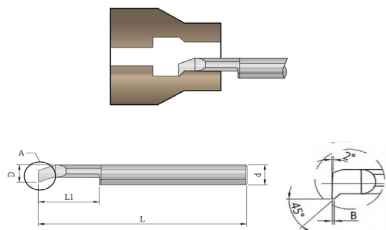
## FRONT BORING FOR COPPER



Part number	D1	L1	H	B	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOX-0100-060B11	1.0	6	0.2	0.2	50	3
OOX-0150-060B11	1.5	6	0.3	0.2	50	3
OOX-0200-080B11	2.0	8	0.5	0.2	50	3
OOX-0250-080B11	2.5	8	0.5	0.2	50	3
OOX-0300-100B11	3.0	10	0.7	0.2	50	3
OOX-0350-100C11	3.5	10	0.7	0.2	50	4
OOX-0400-150C11	4.0	15	0.8	0.2	50	4
OOX-0450-150E11	4.5	15	0.8	0.4	50	6
OOX-0500-150R11	5.0	15	1.2	0.2	50	6
OOX-0500-150R21	5.0	15	1.2	0.4	50	6
OOX-0550-180R11	5.5	18	1.2	0.2	50	6
OOX-0550-180R21	5.5	18	1.2	0.4	50	6
OOX-0600-180E11	6.0	18	1.4	0.4	50	6

## FRONT BORING 45° BACK

Chamfer Angle for Copper



Part number	D1	L1	H	B	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOB-0100-060B11	1.0	6	0.2	0.2	50	3
OOB-0150-060B11	1.5	6	0.3	0.2	50	3
OOB-0200-080B11	2.0	8	0.5	0.2	50	3
OOB-0250-080B11	2.5	8	0.5	0.2	50	3
OOB-0300-100B11	3.0	10	0.7	0.2	50	3
OOB-0350-100C11	3.5	10	0.7	0.2	50	4
OOB-0400-150C11	4.0	15	0.8	0.2	50	4
OOB-0450-150E11	4.5	15	0.8	0.4	50	6
OOB-0500-150E11	5.0	15	1.2	0.4	50	6
OOB-0550-180E11	5.5	18	1.2	0.4	50	6
OOB-0600-180E11	6.0	18	1.4	0.4	50	6

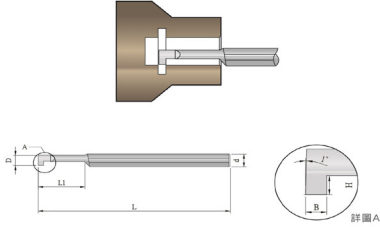
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE MINIATURE BORING O SERIES

## GROOVING



Part number	D1	L1	H	B	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOG-0100-040B11	1.0	4	0.3	0.35	50	3
OOG-0150-060B11	1.5	6	0.3	0.35	50	3
OOG-0185-080B11	1.85	8	0.5	0.5	50	3
OOG-0200-080B11	2.0	8	0.5	0.5	50	3
OOG-0250-080B11	2.5	8	0.5	0.5	50	3
OOG-0300-080B11	3.0	8	0.7	0.5	50	3
OOG-0350-120C11	3.5	12	0.7	0.8	50	4
OOG-0400-120C11	4.0	12	1.0	0.8	50	4
OOG-0450-150E11	4.5	15	1.0	1.0	50	6
OOG-0500-150E11	5.0	15	1.0	1.0	50	6
OOG-0550-150E11	5.5	15	1.0	1.0	50	6
OOG-0600-150E11	6.0	15	1.0	1.0	50	6
OOX-0600-180E11	6.0	18	1.4	0.4	50	6

### Carbide Drill Bit

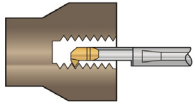
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE FRONT END FASTENING O SERIES

## FRONT BORING FOR COPPER

Treading



Part number	D1	L1	H	R	L	d	P
	Mill Dia.	Flute Length			Overall Length	Shank Dia.	
OOT-0240-080B11	2.4	8	0.7	0.05	38	3	0.8
OOT-0300-150B11	3.0	15	0.85	0.05	38	3	1.0
OOT-0400-150C11	4.0	15	0.85	0.05	38	4	1.0
OOT-0500-150E11	5.0	15	1.1	0.08	38	6	1.5
OOT-0600-150E11	6.0	15	1.1	0.08	38	6	1.5

### Carbide Drill Bit

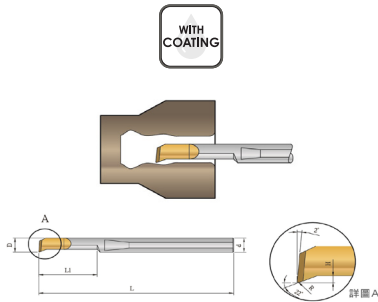
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		



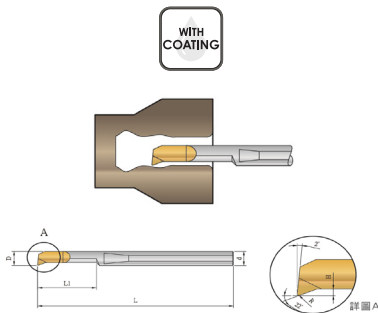
# CARBIDE FRONT END FASTENING O SERIES

## FRONT BORING FOR EASY CUTTING



Part number	D1	L1	H	R	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOF-0100-060B11	1.0	6	0.2	0.05	38	3
OOF-0150-060B11	1.5	6	0.3	0.05	38	3
OOF-0200-080B11	2.0	8	0.5	0.05	38	3
OOF-0250-080B11	2.5	8	0.5	0.05	38	3
OOF-0300-100B11	3.0	10	0.7	0.1	38	3
OOF-0350-100C11	3.5	10	0.7	0.1	38	4
OOF-0400-150C11	4.0	15	0.8	0.1	38	4
OOF-0450-150E11	4.5	15	0.8	0.1	38	6
OOF-0500-150E11	5.0	15	1.2	0.1	38	6
OOF-0550-180E11	5.5	18	1.2	0.1	38	6
OOF-0600-180E11	6.0	18	1.4	0.1	38	6
OOF-0700-200G11	7.0	20	1.5	0.2	45	8
OOF-0800-220G11	8.0	22	1.5	0.2	45	8

## FRONT BORING FOR HEAVY CUTTING



Part number	D1	L1	H	R	L	d
	Mill Dia.	Flute Length			Overall Length	Shank Dia.
OOH-0100-060B11	1.0	6	0.2	0.05	38	3
OOH-0150-060B11	1.5	6	0.3	0.05	38	3
OOH-0200-080B11	2.0	8	0.5	0.05	38	3
OOH-0250-080B11	2.5	8	0.5	0.05	38	3
OOH-0300-100B11	3.0	10	0.7	0.1	38	3
OOH-0350-100C11	3.5	10	0.7	0.1	38	4
OOH-0400-150C11	4.0	15	0.8	0.1	38	4
OOH-0450-150E11	4.5	15	0.8	0.1	38	6
OOH-0500-150E11	5.0	15	1.2	0.1	38	6
OOH-0550-180E11	5.5	18	1.2	0.1	38	6
OOH-0600-180E11	6.0	18	1.4	0.1	38	6
OOH-0700-200G11	7.0	20	1.5	0.2	45	8
OOH-0800-220G11	8.0	22	1.5	0.2	45	8

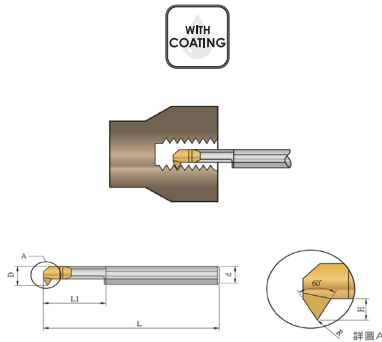
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

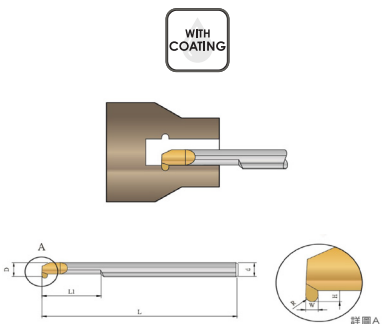
# CARBIDE MINIATURE BORING O SERIES

## TREADING



Part number	D1	L1	H	R	L	d	P
	Mill Dia.	Flute Length			Overall Length	Shank Dia.	
OOR-0240-080B11	2.4	8	0.7	0.05	50	3	0.8
OOR-0300-150B11	3.0	15	0.85	0.05	50	3	1.0
OOR-0400-150C11	4.0	15	0.85	0.05	50	4	1.0
OOR-0500-150E11	5.0	15	1.1	0.08	50	6	1.5
OOR-0600-150E11	6.0	15	1.1	0.08	50	6	1.5

## GROOVING R ITEM



Part number	D1	L1	H	R	W	L	d
	Mill Dia.	Flute Length				Overall Length	Shank Dia.
OOC-0400-100R11	4.0	10	1	0.5	1	50	4
OOC-0400-100R21	4.0	10	1	0.75	1.5	50	4
OOC-0500-150R11	5.0	15	1.2	0.5	1	50	6
OOC-0500-150R21	5.0	15	1.2	0.75	1.5	50	6
OOC-0500-150R31	5.0	15	1.2	1	2	50	6
OOC-0600-150R11	6.0	15	1.6	0.5	1	50	6
OOC-0600-150R21	6.0	15	1.6	0.75	1.5	50	6
OOC-0600-150R31	6.0	15	1.6	1	2	50	6

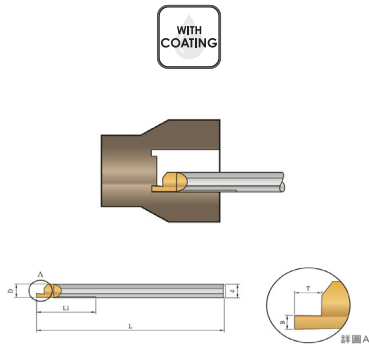
### Carbide Drill Bit

● Excellent ○ Good

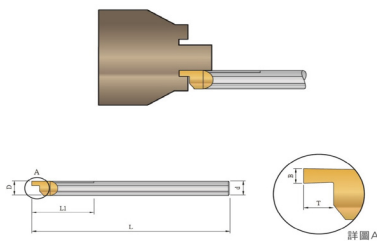
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE MINIATURE BORING O SERIES

## SLOTTING

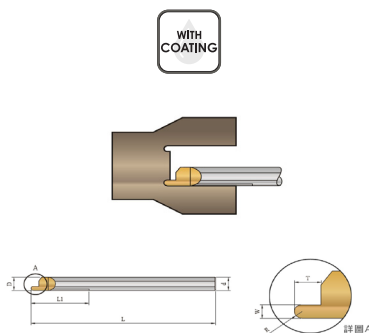


Part number	D1	L1	B	T	L	d
	Mill Dia.				Overall Length	Shank Dia.
OOS-0400-150R11	4.0	15	0.75	1.2	50	4
OOS-0400-150R21	4.0	15	1	1.5	50	4
OOS-0500-220R11	5.0	22	0.75	1.2	50	6
OOS-0500-220R21	5.0	22	1	1.5	50	6
OOS-0500-220R31	5.0	22	1.5	2.5	50	6
OOS-0600-220R11	6.0	22	1	1.5	50	6
OOS-0600-220R21	6.0	22	1.5	2.5	50	6
OOS-0600-220R31	6.0	22	2	3	50	6
OOS-0800-220R11	8.0	22	2.5	3.5	60	8



Part number	D1	L1	B	T	L	d
	Mill Dia.				Overall Length	Shank Dia.
OOS-0400-150R11	4.0	15	0.75	1.2	50	4
OOS-0400-150R21	4.0	15	1	1.5	50	4
OOS-0500-220R11	5.0	22	0.75	1.2	50	6
OOS-0500-220R21	5.0	22	1	1.5	50	6
OOS-0500-220R31	5.0	22	1.5	2.5	50	6
OOS-0600-220R11	6.0	22	1	1.5	50	6
OOS-0600-220R21	6.0	22	1.5	2.5	50	6
OOS-0600-220R31	6.0	22	2	3	50	6
OOS-0800-220R11	8.0	22	2.5	3.5	60	8

## SLOTTING - R ITEM



Part number	D1	L1	R	W	T	L	d
	Mill Dia.	Flute Length				Overall Length	Shank Dia.
OOC-0400-150R11	4.0	15	0.50	1.0	1.2	50	4
OOC-0400-150R21	4.0	15	0.75	1.5	1.5	50	4
OOC-0500-220R11	5.0	22	0.50	1.0	1.2	50	6
OOC-0500-220R21	5.0	22	0.75	1.5	1.5	50	6
OOC-0500-220R31	5.0	22	1.00	2.0	2.5	50	6
OOC-0600-220R11	6.0	22	0.50	1.0	1.2	50	6
OOC-0600-220R21	6.0	22	0.75	1.5	1.5	50	6
OOC-0600-220R31	6.0	22	1.00	2.0	2.5	50	6

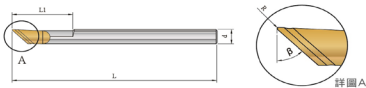
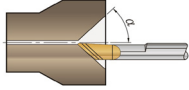
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE CHAMFER O SERIES

## CARBIDE CHAMFER



Part number	L1	R	$\alpha$	$\beta$	SL	SD
					Overall Length	Shank Dia.
OOC-6030-150E11	15.0	0.2	60°	30°	50	6
OOC-4545-150E11	15.0	0.2	45°	45°	50	6
OOC-3060-150E11	15.0	0.2	30°	60°	50	6

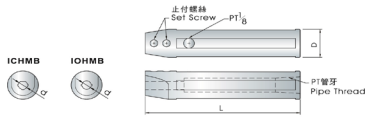
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# MINIATURE BORING HOLDER O SERIES

## INTERNAL COOLANT HOLE



Part number	D1	PT	L	d
			Overall Length	Shank Dia.
OOX-PT18-030J11	3	PT 1/8	100	16
OOX-PT18-040J11	4	PT 1/8	100	16
OOX-PT18-050J11	5	PT 1/8	100	16
OOX-PT18-060J11	6	PT 1/8	100	16
OOX-PT14-030P11	3	PT 1/4	90	19.05
OOX-PT14-040P11	4	PT 1/4	90	19.05
OOX-PT14-050P11	5	PT 1/4	90	19.05
OOX-PT14-060P11	6	PT 1/4	90	19.05
OOX-PT14-080P11	8	PT 1/4	90	19.05
OOX-PT14-030K11	3	PT 1/4	100	20
OOX-PT14-040K11	4	PT 1/4	100	20
OOX-PT14-050K11	5	PT 1/4	100	20
OOX-PT14-060K11	6	PT 1/4	100	20
OOX-PT14-080K11	8	PT 1/4	100	20
OOX-PT38-030L11	3	PT 3/8	100	22
OOX-PT38-040L11	4	PT 3/8	100	22
OOX-PT38-050L11	5	PT 3/8	100	22
OOX-PT38-060L11	6	PT 3/8	100	22
OOX-PT38-080L11	8	PT 3/8	100	22
OOX-PT38-030M11	3	PT 3/8	100	23
OOX-PT38-040M11	4	PT 3/8	100	23
OOX-PT38-050M11	5	PT 3/8	100	23
OOX-PT38-060M11	6	PT 3/8	100	23

### Carbide Drill Bit

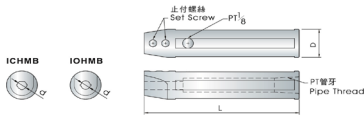
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●						●	○		

# MINIATURE BORING HOLDER O SERIES

(CONTINUATION)

## INTERNAL COOLANT HOLE



Part number	D1	PT	L	d
			Overall Length	Shank Dia.
OOX-PT38-080M11	8	PT 3/8	100	23
OOX-PT38-030N11	3	PT 3/8	100	25
OOX-PT38-040N11	4	PT 3/8	100	25
OOX-PT38-050N11	5	PT 3/8	100	25
OOX-PT38-060N11	6	PT 3/8	100	25
OOX-PT38-080N11	8	PT 3/8	100	25
OOX-PT38-030P11	3	PT 3/8	80	25.4
OOX-PT38-040P11	4	PT 3/8	80	25.4
OOX-PT38-050P11	5	PT 3/8	80	25.4
OOX-PT38-060P11	6	PT 3/8	80	25.4
OOX-PT38-080P11	8	PT 3/8	80	25.4
OOX-PT38-060O11	6	PT 3/8	125	32
OOX-PT38-080O11	8	PT 3/8	125	32

### Carbide Drill Bit

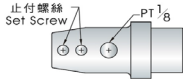
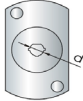
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

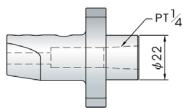
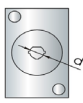
## INTERNAL COOLANT HOLE FOR MACHINING ON BACK SIDE

Part number	D1
OOX-0000-030Q11	3.0
OOX-0000-040Q11	4.0
OOX-0000-050Q11	5.0
OOX-0000-060Q11	6.0
OOX-0000-080Q11	8.0

ICBMB



ICBMN



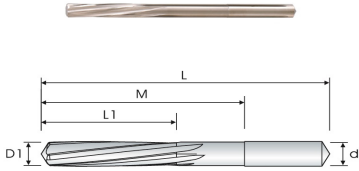
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-0100-140P31	1.0	5.5	14	36	1.0	3
OOX-0110-140P31	1.1	6.5	14	36	1.1	3
OOX-0120-140P31	1.2	7.5	14	36	1.2	3
OOX-0130-140P31	1.3	7.5	14	36	1.3	3
OOX-0140-160P31	1.4	8	16	43	1.4	3
OOX-0150-160P31	1.5	8	16	43	1.5	3
OOX-0160-160P31	1.6	9	16	43	1.6	3
OOX-0170-160P31	1.7	9	16	43	1.7	3
OOX-0180-200P31	1.8	10	20	49	1.8	3
OOX-0190-200P31	1.9	10	20	49	1.9	3
OOX-0200-220P41	2.0	11	22	49	2.0	4
OOX-0210-280P41	2.1	14	28	49	2.1	4
OOX-0220-280P41	2.2	14	28	57	2.2	4
OOX-0230-280P41	2.3	14	28	57	2.3	4
OOX-0240-280P41	2.4	14	28	57	2.4	4
OOX-0250-280P41	2.5	14	28	57	2.5	4
OOX-0260-280P41	2.6	14	28	57	2.6	4
OOX-0270-300P41	2.7	15	30	61	2.7	4
OOX-0280-300P41	2.8	15	30	61	2.8	4
OOX-0290-300P41	2.9	15	30	61	2.9	4
OOX-0300-300P41	3.0	15	30	61	3.0	4
OOX-0310-330P41	3.1	16	33	65	3.1	4
OOX-0320-330P41	3.2	16	33	65	3.2	4
OOX-0330-330P41	3.3	16	33	65	3.3	4
OOX-0340-390P41	3.4	18	39	70	3.4	4

### Carbide Drill Bit

● Excellent ○ Good

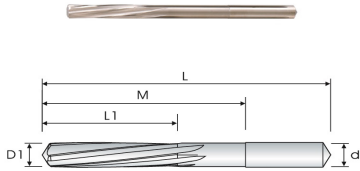
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		



# CARBIDE REAMER O SERIES

(CONTINUATION)

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-0350-390P41	3.5	18	39	70	3.5	4
OOX-0360-390P41	3.6	18	39	70	3.6	4
OOX-0370-390P41	3.7	18	39	70	3.7	4
OOX-0380-390P41	3.8	18	39	70	3.8	4
OOX-0390-440P41	3.9	19	44	75	3.9	4
OOX-0400-440P61	4.0	19	44	75	4.0	6
OOX-0410-440P61	4.1	19	44	75	4.1	6
OOX-0420-440P61	4.2	19	44	75	4.2	6
OOX-0430-490P61	4.3	21	49	80	4.3	6
OOX-0440-490P61	4.4	21	49	80	4.4	6
OOX-0450-490P61	4.5	21	49	80	4.5	6
OOX-0460-490P61	4.6	21	49	80	4.6	6

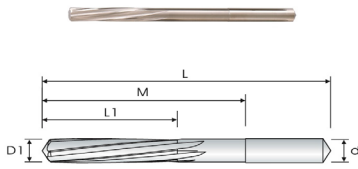
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-0470-490P61	4.7	21	49	80	4.7	6
OOX-0480-550P61	4.8	23	55	86	4.8	6
OOX-0490-550P61	4.9	23	55	86	4.9	6
OOX-0500-550P61	5.0	23	55	86	5.0	6
OOX-0510-550P61	5.1	23	55	86	5.1	6
OOX-0520-550P61	5.2	23	55	86	5.2	6
OOX-0530-610P61	5.3	26	61	86	5.3	6
OOX-0540-610P61	5.4	26	61	93	5.4	6
OOX-0550-610P61	5.5	26	61	93	5.5	6
OOX-0560-610P61	5.6	26	61	93	5.6	6
OOX-0570-610P61	5.7	26	61	93	5.7	6
OOX-0580-610P61	5.8	26	61	93	5.8	6
OOX-0590-610P61	5.9	26	61	93	5.9	6
OOX-0600-610P61	6.0	26	61	93	6.0	6
OOX-0610-700P61	6.1	28	70	101	6.1	6
OOX-0620-700P61	6.2	28	70	101	6.2	6
OOX-0630-700P61	6.3	28	70	101	6.3	6
OOX-0640-700P61	6.4	28	70	101	6.4	6
OOX-0650-700P61	6.5	28	70	101	6.5	6
OOX-0660-700P61	6.6	28	70	101	6.6	6
OOX-0670-700P61	6.7	28	70	101	6.7	6
OOX-0680-770P61	6.8	31	77	109	6.8	6
OOX-0690-770P61	6.9	31	77	109	6.9	6
OOX-0700-770P61	7.0	31	77	109	7.0	6
OOX-0710-770P61	7.1	31	77	109	7.1	6

### Carbide Drill Bit

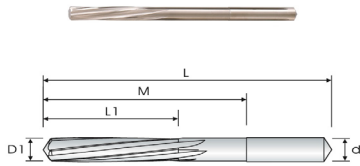
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

(CONTINUATION)

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-0720-770P61	7.2	31	77	109	7.2	6
OOX-0730-770P61	7.3	31	77	109	7.3	6
OOX-0740-770P61	7.4	31	77	109	7.4	6
OOX-0750-770P61	7.5	31	77	109	7.5	6
OOX-0760-770P61	7.6	31	77	109	7.6	6
OOX-0770-800P61	7.7	33	80	117	7.7	6
OOX-0780-800P61	7.8	33	80	117	7.8	6
OOX-0790-800P61	7.9	33	80	117	7.9	6
OOX-0800-800P61	8.0	33	80	117	8.0	6
OOX-0810-800P61	8.1	33	80	117	8.1	6
OOX-0820-800P61	8.2	33	80	117	8.2	6
OOX-0830-800P61	8.3	33	80	117	8.3	6

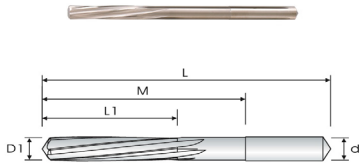
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-0840-800P61	8.4	33	80	117	8.4	6
OOX-0850-800P61	8.5	33	80	117	8.5	6
OOX-0860-800P61	8.6	33	80	117	8.6	6
OOX-0870-900P61	8.7	36	90	125	8.7	6
OOX-0880-900P61	8.8	36	90	125	8.8	6
OOX-0890-900P61	8.9	36	90	125	8.9	6
OOX-0900-900P61	9.0	36	90	125	9.0	6
OOX-0910-900P61	9.1	36	90	125	9.1	6
OOX-0920-900P61	9.2	36	90	125	9.2	6
OOX-0930-900P61	9.3	36	90	125	9.3	6
OOX-0940-900P61	9.4	36	90	125	9.4	6
OOX-0950-900P61	9.5	36	90	125	9.5	6
OOX-0960-900P61	9.6	36	90	125	9.6	6
OOX-0970-950P61	9.7	38	95	133	9.7	6
OOX-0980-950P61	9.8	38	95	133	9.8	6
OOX-0990-950P61	9.9	38	95	133	9.9	6
OOX-1000-950P61	10.0	38	95	133	10.0	6
OOX-1010-950P61	10.1	38	95	133	10.1	6
OOX-1020-950P61	10.2	38	95	133	10.2	6
OOX-1030-950P61	10.3	38	95	133	10.3	6
OOX-1040-950P61	10.4	38	95	133	10.4	6
OOX-1050-950P61	10.5	38	95	133	10.5	6
OOX-1060-950P61	10.6	38	95	133	10.6	6
OOX-1070-105P61	10.7	41	105	142	10.7	6
OOX-1080-105P61	10.8	41	105	142	10.8	6

### Carbide Drill Bit

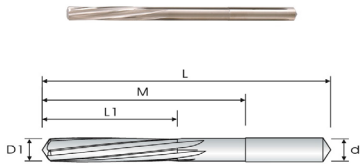
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

(CONTINUATION)

## STANDARD



Part number	D1	L1	M	L	d	F
	Mill Dia.	Flute Length	Length under Shank	Overall Length	Shank Dia.	No. of Flute
OOX-1090-105P61	10.9	41	105	142	10.9	6
OOX-1100-105P61	11.0	41	105	142	11.0	6
OOX-1110-105P61	11.1	41	105	142	11.1	6
OOX-1120-105P61	11.2	41	105	142	11.2	6
OOX-1130-105P61	11.3	41	105	142	11.3	6
OOX-1140-105P61	11.4	41	105	142	11.4	6
OOX-1150-105P61	11.5	41	105	142	11.5	6
OOX-1160-105P61	11.6	41	105	142	11.6	6
OOX-1170-105P61	11.7	41	105	142	11.7	6
OOX-1180-105P61	11.8	41	105	142	11.8	6
OOX-1190-115P61	11.9	44	115	151	11.9	6
OOX-1200-115P61	12.0	44	115	151	12.0	6
OOX-1300-115P61	13.0	44	115	151	13.0	6

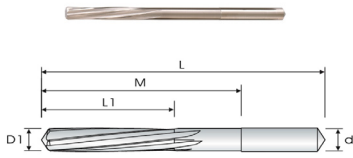
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE REAMER O SERIES

## LONG SHANK



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
OOX-0300-150B41	3	15	100	3	4
OOX-0350-180P41	3.5	18	112	3.5	4
OOX-0400-190C61	4	19	119	4	6
OOX-0450-210P61	4.5	21	126	4.5	6
OOX-0500-230D61	5	23	132	5	6
OOX-0600-260E61	6	26	139	6	6
OOX-0700-310F61	7	31	156	7	6
OOX-0800-330G61	8	33	165	8	6
OOX-0900-360P61	9	36	175	9	6
OOX-1000-380H61	10	38	184	10	6
OOX-1100-410P61	11	41	195	11	6
OOX-1200-440I61	12	44	205	12	6
OOX-1300-440P61	13	44	205	13	6
OOX-1400-470P61	14	47	214	14	6
OOX-1500-500P61	15	50	220	15	6
OOX-1600-520J61	16	52	227	16	6
OOX-1700-540P61	17	54	235	17	6
OOX-1800-560P61	18	56	241	18	6
OOX-1900-580P61	19	58	247	19	6
OOX-2000-600K61	20	60	254	20	6

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●						●	○		

# CARBIDE THREADING O SERIES

## CARBIDE THREADING 60°



Part number	D1	Picrh	L1	L	d	F
	Mill Dia.		Reach Length	Overall Length	Shank Dia.	No. of Flute
OOX-0105-045B11	1.05	0.3	4.5	38	3	M1.4
OOX-0120-045B11	1.2	0.35	4.5	38	3	M1.6
OOX-0130-050B11	1.35	0.35	5.0	38	3	M1.8
OOX-0150-050B11	1.5	0.4	5.0	38	3	M2.0

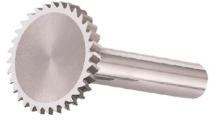
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	○								

# CARBIDE T-SHAPE MILLING O SERIES

## STRAIGHT FLUTE



Part number	Outer Dia.	Cutter Thickness	d
			Shank Dia
OOT-1500-010F11	15	1.0	7
OOT-1500-015F11	15	1.5	7
OOT-1500-020F11	15	2.0	7
OOT-1500-025F11	15	2.5	7
OOT-1500-030F11	15	3.0	7
OOT-2000-010F11	20	1.0	7
OOT-2000-010H11	20	1.0	10
OOT-2000-015F11	20	1.5	7
OOT-2000-015H11	20	1.5	10
OOT-2000-020F11	20	2.0	7
OOT-2000-020H11	20	2.0	10
OOT-2000-025F11	20	2.5	7
OOT-2000-025H11	20	2.5	10
OOT-2000-030F11	20	3.0	7
OOT-2000-030H11	20	3.0	10
OOT-2500-010F11	25	1.0	7
OOT-2500-010H11	25	1.0	10
OOT-2500-015F11	25	1.5	7
OOT-2500-015H11	25	1.5	10
OOT-2500-020F11	25	2.0	7
OOT-2500-020H11	25	2.0	10
OOT-2500-025F11	25	2.5	7
OOT-2500-025H11	25	2.5	10
OOT-2500-030F11	25	3.0	7
OOT-2500-030H11	25	3.0	10
OOT-3000-010F11	30	1.0	7
OOT-3000-010H11	30	1.0	10
OOT-3000-015F11	30	1.5	7
OOT-3000-015H11	30	1.5	10
OOT-3000-020F11	30	2.0	7
OOT-3000-020H11	30	2.0	10
OOT-3000-025F11	30	2.5	7
OOT-3000-025H11	30	2.5	10
OOT-3000-030F11	30	3.0	7
OOT-3000-030H11	30	3.0	10

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		



# CARBIDE SHAPE MILLING O SERIES

## HELIX FLUTE



Part number	Outer Dia.	Cutter Thickness	d
			Shank Dia
OOX-1500-010F11	15	1	7
OOX-1500-015F11	15	1.5	7
OOX-1500-020F11	15	2	7
OOX-1500-025F11	15	2.5	7
OOX-1500-030F11	15	3	7
OOX-2000-010F11	20	1	7
OOX-2000-010H11	20	1	10
OOX-2000-015F11	20	1.5	7
OOX-2000-015H11	20	1.5	10
OOX-2000-020F11	20	2	7
OOX-2000-020H11	20	2	10
OOX-2000-025F11	20	2.5	7
OOX-2000-025H11	20	2.5	10
OOX-2000-030F11	20	3	7
OOX-2000-030H11	20	3	10
OOX-2500-010F11	25	1	7
OOX-2500-010H11	25	1	10
OOX-2500-015F11	25	1.5	7
OOX-2500-015H11	25	1.5	10
OOX-2500-020F11	25	2	7
OOX-2500-020H11	25	2	10
OOX-2500-025F11	25	2.5	7
OOX-2500-025H11	25	2.5	10
OOX-2500-030F11	25	3	7
OOX-2500-030H11	25	3	10
OOX-3000-010F11	30	1	7
OOX-3000-010H11	30	1	10
OOX-3000-015F11	30	1.5	7
OOX-3000-015H11	30	1.5	10
OOX-3000-020F11	30	2	7
OOX-3000-020H11	30	2	10
OOX-3000-025F11	30	2.5	7
OOX-3000-025H11	30	2.5	10
OOX-3000-030F11	30	3	7
OOX-3000-030H11	30	3	10

### Carbide Drill Bit

● Excellent ○ Good

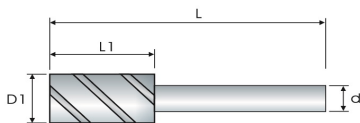
Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●	○								

# CARBIDE END MILL

## O SERIES

### SLIM SHANK

(Solid Type. Non-Brazed)



Part number	D1	L1	L	d	F
	Mill Dia.	Flute Length	Overall Length	Shank Dia.	No. of Flute
OOX-0500-125D21	5	12.5	50	5	2
OOX-0700-140F21	7	14	50	7	2
OOX-0800-150F21	8	15	45	7	2
OOX-1000-150F21	10	15	45	7	2
OOX-1000-150H21	10	15	45	10	2
OOX-1100-150F21	11	15	45	7	2
OOX-1100-150H21	11	15	45	10	2
OOX-1200-150F21	12	15	45	7	2
OOX-1200-150H21	12	15	45	10	2
OOX-1300-150H21	13	15	45	10	2
OOX-1400-150F21	14	15	45	7	2
OOX-1400-150H21	14	15	45	10	2
OOX-1500-150F21	15	15	45	7	2
OOX-1500-150H21	15	15	45	10	2
OOX-1600-150H21	16	15	45	10	2
OOX-1800-150H21	18	15	45	10	2
OOX-2000-150H21	20	15	45	10	2
OOX-0500-125D41	5	12.5	50	5	4
OOX-0700-140F41	7	14	50	7	4
OOX-0800-150F41	8	15	45	7	4
OOX-1000-150F41	10	15	45	7	4
OOX-1000-150H41	10	15	45	10	4
OOX-1100-150F41	11	15	45	7	4
OOX-1100-150H41	11	15	45	10	4
OOX-1200-150F41	12	15	45	7	4
OOX-1200-150H41	12	15	45	10	4
OOX-1300-150F41	13	15	45	7	4
OOX-1300-150H41	13	15	45	10	4
OOX-1400-150F41	14	15	45	7	4
OOX-1400-150H41	14	15	45	10	4
OOX-1500-150F41	15	15	45	7	4
OOX-1500-150H41	15	15	45	10	4
OOX-1600-150H41	16	15	45	10	4
OOX-1800-150H41	18	15	45	10	4
OOX-2000-150H41	20	15	45	10	4
OOX-2500-125H41	25	21	50	10	4

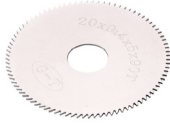
#### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●	●	●					●		

# CARBIDE CIRCULAR SAW BLADE O SERIES

## SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0150-015R11	15	5	0.15	72
OOX-0150-020R11	15	5	0.20	72
OOX-0150-025R11	15	5	0.25	72
OOX-0150-030R11	15	5	0.30	72
OOX-0150-040R11	15	5	0.40	72
OOX-0150-050R11	15	5	0.50	72
OOX-0150-060R11	15	5	0.60	48
OOX-0150-070R11	15	5	0.70	48
OOX-0150-080R11	15	5	0.80	48
OOX-0150-090R11	15	5	0.90	48
OOX-0150-100R11	15	5	1.00	48
OOX-0150-020R21	15	5	0.20	40
OOX-0150-025R21	15	5	0.25	40
OOX-0150-030R21	15	5	0.30	40
OOX-0150-040R21	15	5	0.40	40
OOX-0150-050R21	15	5	0.50	40
OOX-0150-060R21	15	5	0.60	40
OOX-0150-070R21	15	5	0.70	40
OOX-0150-080R21	15	5	0.80	40
OOX-0150-090R21	15	5	0.90	40
OOX-0150-100R21	15	5	1.00	40
OOX-0150-150Q11	15	5	1.50	36
OOX-0150-200Q11	15	5	2.00	36

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		

# CARBIDE CIRCULAR SAW BLADE

## O SERIES

### SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0200-015R11	20	5	0.15	90
OOX-0200-020R11	20	5	0.20	90
OOX-0200-025R11	20	5	0.25	90
OOX-0200-030R11	20	5	0.30	90
OOX-0200-040R11	20	5	0.40	90
OOX-0200-050R11	20	5	0.50	90
OOX-0200-015R21	20	5	0.15	56
OOX-0200-020R21	20	5	0.20	56
OOX-0200-025R21	20	5	0.25	56
OOX-0200-030R21	20	5	0.30	56
OOX-0200-040R21	20	5	0.40	56
OOX-0200-050R21	20	5	0.50	56
OOX-0200-060R11	20	5	0.60	56
OOX-0200-070R11	20	5	0.70	56
OOX-0200-080R11	20	5	0.80	56
OOX-0200-090R11	20	5	0.90	56
OOX-0200-100R11	20	5	1.00	56
OOX-0200-120R11	20	5	1.20	56
OOX-0200-150R11	20	5	1.50	56
OOX-0200-200R11	20	5	2.00	56
OOX-0200-230R11	20	5	2.30	56
OOX-0200-250R11	20	5	2.50	56
OOX-0200-300R11	20	5	3.00	56
OOX-0200-060R21	20	5	0.60	48
OOX-0200-070R21	20	5	0.70	48
OOX-0200-080R21	20	5	0.80	48
OOX-0200-090R21	20	5	0.90	48
OOX-0200-100R21	20	5	1.00	48
OOX-0200-120R21	20	5	1.20	36
OOX-0200-150R21	20	5	1.50	36
OOX-0200-200R21	20	5	2.00	36
OOX-0200-230R21	20	5	2.30	36
OOX-0200-250R21	20	5	2.50	36

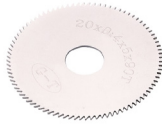
### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		

# CARBIDE CIRCULAR SAW BLADE O SERIES

## SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0060-015R11	20	6	0.15	90
OOX-0060-020R11	20	6	0.20	90
OOX-0060-025R11	20	6	0.25	90
OOX-0060-030R11	20	6	0.30	90
OOX-0060-040R11	20	6	0.40	90
OOX-0060-050R11	20	6	0.50	90
OOX-0060-020R21	20	6	0.20	56
OOX-0060-025R21	20	6	0.25	56
OOX-0060-030R21	20	6	0.30	56
OOX-0060-040R21	20	6	0.40	56
OOX-0060-050R21	20	6	0.50	56
OOX-0060-060R11	20	6	0.60	56
OOX-0060-070R11	20	6	0.70	56
OOX-0060-080R11	20	6	0.80	56
OOX-0060-090R11	20	6	0.90	56
OOX-0060-100R11	20	6	1.00	56
OOX-0060-120R11	20	6	1.20	56
OOX-0060-150R11	20	6	1.50	56
OOX-0060-200R11	20	6	2.00	56
OOX-0060-230R11	20	6	2.30	56
OOX-0060-250R11	20	6	2.50	56
OOX-0060-300R11	20	6	3.00	56
OOX-0060-060R21	20	6	0.60	48
OOX-0060-070R21	20	6	0.70	48
OOX-0060-080R21	20	6	0.80	48
OOX-0060-090R21	20	6	0.90	48
OOX-0060-100R21	20	6	1.00	48
OOX-0060-120R21	20	6	1.20	36
OOX-0060-150R21	20	6	1.50	36
OOX-0060-200R21	20	6	2.00	36
OOX-0060-230R21	20	6	2.30	36
OOX-0060-250R21	20	6	2.50	36

### Carbide Drill Bit

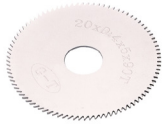
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		

# CARBIDE CIRCULAR SAW BLADE

## O SERIES

### SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0250-015R11	25	6	0.15	120
OOX-0250-020R11	25	6	0.20	120
OOX-0250-025R11	25	6	0.25	120
OOX-0250-030R11	25	6	0.30	120
OOX-0250-040R11	25	6	0.40	120
OOX-0250-050R11	25	6	0.50	120
OOX-0250-015R21	25	6	0.15	72
OOX-0250-020R21	25	6	0.20	72
OOX-0250-025R21	25	6	0.25	72
OOX-0250-030R21	25	6	0.30	72
OOX-0250-040R21	25	6	0.40	72
OOX-0250-050R21	25	6	0.50	72
OOX-0250-060R11	25	6	0.60	72
OOX-0250-070R11	25	6	0.70	72
OOX-0250-080R11	25	6	0.80	72
OOX-0250-090R11	25	6	0.90	72
OOX-0250-100R11	25	6	1.00	72
OOX-0250-120R11	25	6	1.20	72
OOX-0250-150R11	25	6	1.50	72
OOX-0250-200R11	25	6	2.00	72
OOX-0250-230R11	25	6	2.30	72
OOX-0250-250R11	25	6	2.50	72
OOX-0250-280R11	25	6	2.80	72
OOX-0250-300R11	25	6	3.00	72
OOX-0250-060R21	25	6	0.60	56
OOX-0250-070R21	25	6	0.70	56
OOX-0250-080R21	25	6	0.80	56
OOX-0250-090R21	25	6	0.90	56
OOX-0250-100R21	25	6	1.00	56
OOX-0250-120R21	25	6	1.20	48
OOX-0250-150R21	25	6	1.50	48
OOX-0250-200R21	25	6	2.00	48
OOX-0250-230R21	25	6	2.30	48
OOX-0250-250R21	25	6	2.50	48
OOX-0250-280R21	25	6	2.80	48
OOX-0250-300R21	25	6	3.00	48

### Carbide Drill Bit

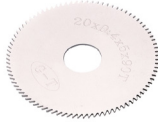
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		

# CARBIDE CIRCULAR SAW BLADE

## O SERIES

### SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0300-020R11	30	6	0.20	120
OOX-0300-025R11	30	6	0.25	120
OOX-0300-030R11	30	6	0.30	120
OOX-0300-040R11	30	6	0.40	120
OOX-0300-050R11	30	6	0.50	120
OOX-0300-060R11	30	6	0.60	120
OOX-0300-070R11	30	6	0.70	120
OOX-0300-080R11	30	6	0.80	120
OOX-0300-090R11	30	6	0.90	120
OOX-0300-100R11	30	6	1.00	120
OOX-0300-120R11	30	6	1.20	120
OOX-0300-150R11	30	6	1.50	90
OOX-0300-200R11	30	6	2.00	90
OOX-0300-250R11	30	6	2.50	90
OOX-0300-300R11	30	6	3.00	90
OOX-0300-350R11	30	6	3.50	90
OOX-0300-400R11	30	6	4.00	90
OOX-0300-020R21	30	6	0.20	64
OOX-0300-025R21	30	6	0.25	64
OOX-0300-030R21	30	6	0.30	64
OOX-0300-040R21	30	6	0.40	64
OOX-0300-050R21	30	6	0.50	64
OOX-0300-060R21	30	6	0.60	64
OOX-0300-070R21	30	6	0.70	64
OOX-0300-080R21	30	6	0.80	64
OOX-0300-090R21	30	6	0.90	64
OOX-0300-100R21	30	6	1.00	64
OOX-0300-100R31	30	6	1.00	56
OOX-0300-120R21	30	6	1.20	56
OOX-0300-150R21	30	6	1.50	56
OOX-0300-200R21	30	6	2.00	56
OOX-0300-230R21	30	6	2.30	56
OOX-0300-250R21	30	6	2.50	56
OOX-0300-300R21	30	6	3.00	56
OOX-0300-350R21	30	6	3.50	56
OOX-0300-400R21	30	6	4.00	56

### Carbide Drill Bit

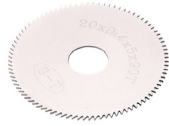
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●							●		

# CARBIDE CIRCULAR SAW BLADE

## O SERIES

### SMALL INNER DIAMETER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0450-020Q11	45	12.7	0.20	90
OOX-0450-025Q11	45	12.7	0.25	90
OOX-0450-030Q11	45	12.7	0.30	90
OOX-0450-040Q11	45	12.7	0.40	90
OOX-0450-050Q11	45	12.7	0.50	90
OOX-0450-060Q11	45	12.7	0.60	90
OOX-0450-070Q11	45	12.7	0.70	90
OOX-0450-080Q11	45	12.7	0.80	90
OOX-0450-090Q11	45	12.7	0.90	90
OOX-0450-100Q11	45	12.7	1.00	90
OOX-0450-150Q11	45	12.7	1.50	90
OOX-0450-200Q11	45	12.7	2.00	90
OOX-0450-250Q11	45	12.7	2.50	72
OOX-0450-300Q11	45	12.7	3.00	72

### Carbide Drill Bit

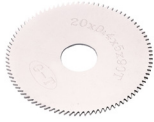
● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRC~50	HRC~55	HRC~60						
●	●							●		



# CARBIDE CIRCULAR SAW BLADE O SERIES

## FOR BERYLLIUM COPPER



Part number	Outer Dia.	Inner Dia.	Thickness	Teeth
OOX-0015-080R11	20	5	0.15	80
OOX-0020-080R11	20	5	0.20	80
OOX-0025-080R11	20	5	0.25	80
OOX-0030-080R11	20	5	0.30	80
OOX-0035-080R11	20	5	0.35	80
OOX-0040-080R11	20	5	0.40	80
OOX-0015-080R21	20	6	0.15	80
OOX-0020-080R21	20	6	0.20	80
OOX-0025-080R21	20	6	0.25	80
OOX-0030-080R21	20	6	0.30	80
OOX-0035-080R21	20	6	0.35	80
OOX-0040-080R21	20	6	0.40	80
OOX-0015-080R31	25	6	0.15	80
OOX-0020-080R31	25	6	0.20	80
OOX-0025-080R31	25	6	0.25	80
OOX-0030-080R31	25	6	0.30	80
OOX-0035-080R31	25	6	0.35	80
OOX-0040-080R31	25	6	0.40	80

### Carbide Drill Bit

● Excellent ○ Good

Carbon Steels	Alloy Steels	Hardened Steels		High Hardened Steels	Copper	Cast iron	Aluminum	Stainless Steels	Titanium	Inconel
~HB225	HB225~325	HRc~50	HRc~55	HRc~60						
●	●							●		

### SAW BLADE



Part number	Inner Dia. of Saw Blade	SD	SL	No. of Washer (Max.)	Dia. of Washer	A	B	C	D	E	F	G
		Shank Dia.	Overall Length									
OOX-0500-047D11	5	5	47	3	6.9	9	6	5.9	5.9	5.3	φ6.9	M5
OOX-0700-051R11	5	7	51	3	9.9	9	6.9	7	7.8	7.2	φ10	M5
OOX-1000-051H11	5	10	51	3	9.9	9	6.9	7	7.8	7.2	φ10	M5
OOX-0700-051R21	6	7	51	3	9.9	11.3	6.5	6.9	7.9	7.1	φ10	M6
OOX-1000-058H11	6	10	58	3	9.9	11.3	7.5	7	8	6.1	φ10	M6
OOX-0600-052E11	8	6	52	3	12.9	13.3	7	7.7	11.9	7.5	φ13	M8
OOX-0700-052F11	8	7	52	3	12.9	13.3	7	7.7	11.9	7.5	φ13	M8
OOX-1000-052H11	8	10	52	3	12.9	13.3	7	7.7	11.9	7.5	φ13	M8
OOX-1000-057H11	12.7	10	57	3	19.9	21.7	7.6	10	16.9	9.1	φ19.6	1/2-20UNF

### COMBO



Part number	Inner Dia. of Saw Blade	d	L	Dia. of Drill Shank	No. of Washer (Max.)
		Shank Dia.	Overall Length		
OOX-0700-051R11	5	7	51	3	3
OOX-0700-051R21	6	7	51	3	3



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