



# 4 IN 1

2025.08

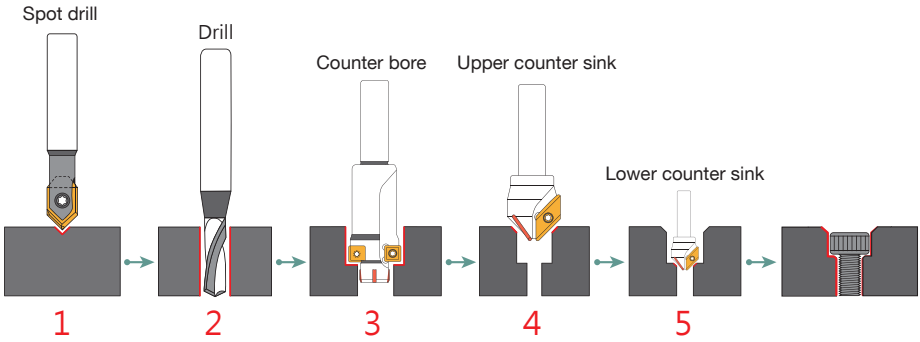
# COUNTER BORE

- Machining time saver



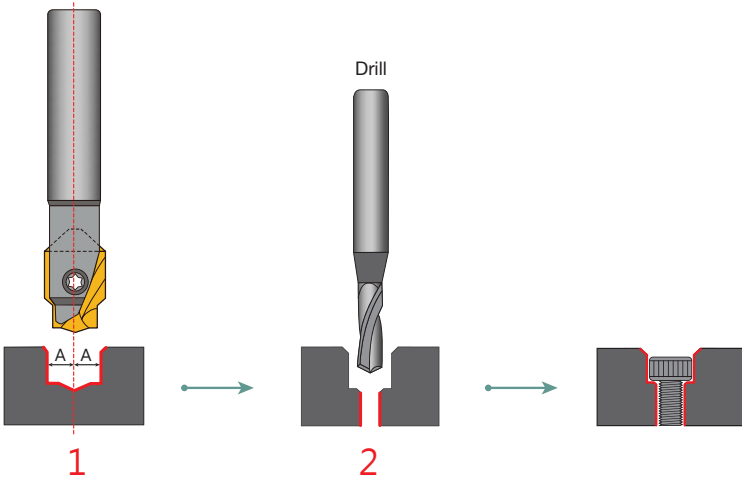
SINCE 1977

# Traditional Procedure: 5 Steps



# Innovative solution: 2 Steps

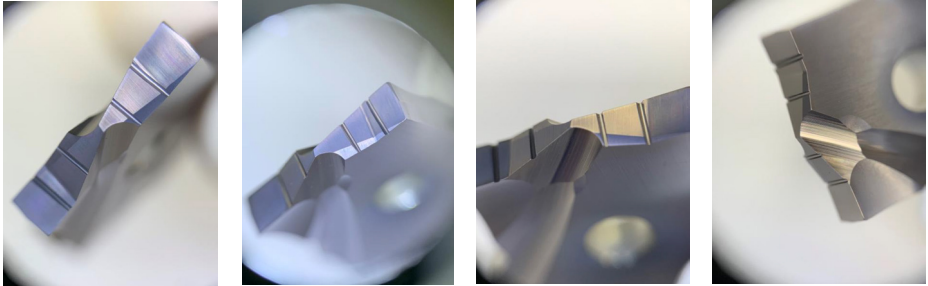
Get the job making counterbore within 2 seconds.



- Finish 4 operations in one.



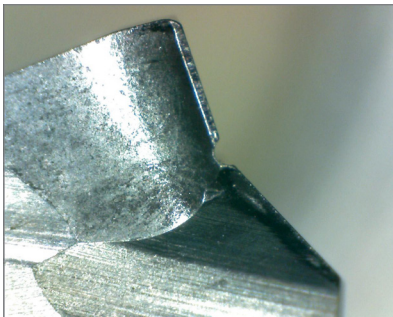
## 4 in 1 insert Geometric Angle design:



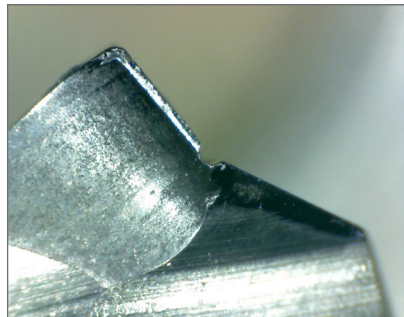
### Chipbreaker with a unique edge on bottom :

- S-Curve spot design reduces thrust force and improve spot accuracy .
- Bottom chipbreaker with a large rake angle on spot to break the chip easily, solve chip stuck problem on inside of hole .
- Opposite cutting edge with two relief angle reduces surface friction when make conterbore .
- 142 ° spot save toollife on drilll .

### Wear conclusion:

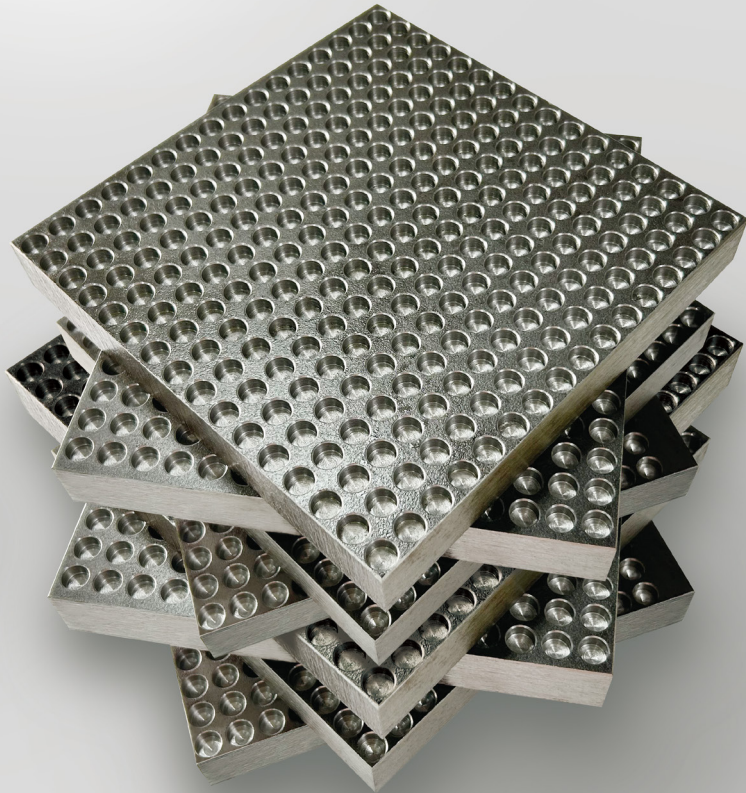


Material: S50C  
Vc: 50m/min  
Fz: 0.07mm/ tooth  
Machine 310 holes



Material: S50C  
Vc: 50m/min  
Fz: 0.07mm/ tooth  
Machine 1000 holes





Machining in M4 screw holes

**Testing information:**

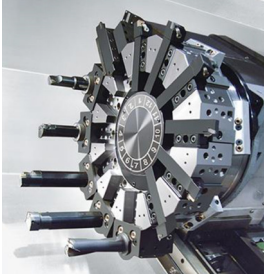
**Material:** Steel S45C/ Vc: 50m/min/ Fz: 0.07mm/ tooth

**Toolholder:** 14 -1004-80/ **Insert:** 26 -1004ST-M, B100

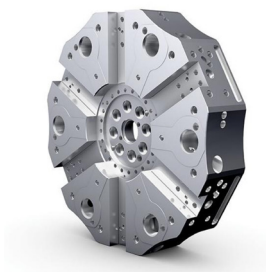
**Toollife of one insert can machine 2100 holes**

# Application :

Machinery part :



Tool turret



Tool turret



Modular vises



Robot Hollow Joints



Force Torque Sensors



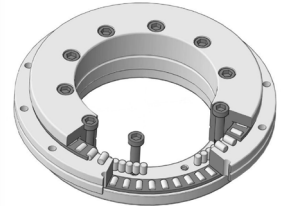
Robotic Tool Changers



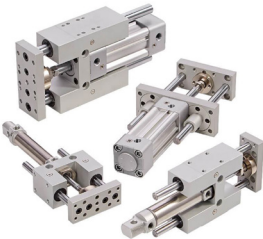
Shaft Supporter Four Holes



Ball-Screw-Support-Unit-Series



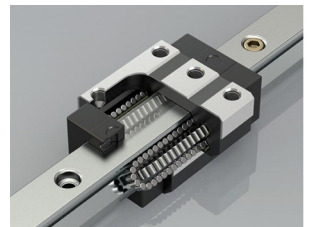
Rotary table bearing



Pneumatic Hydraulic



Mounting Bracket



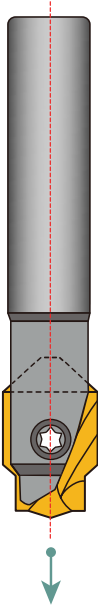
linear guide rail

4 in 1  
Counter Bore

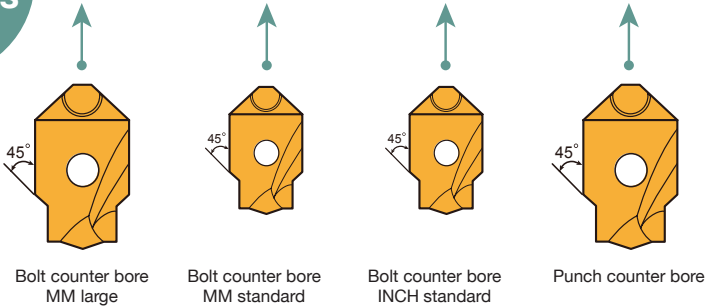


# Product Design

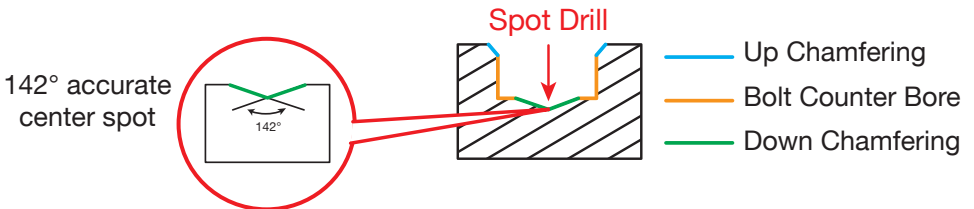
- The same shank fits max. 16 different inserts.



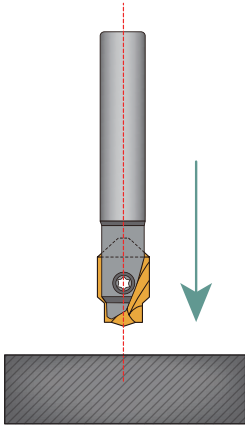
4 main functions



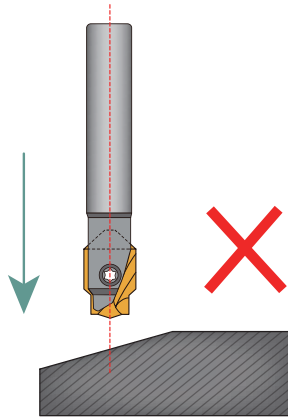
\* Screws M3~M12



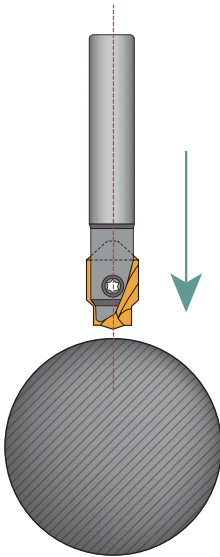
# Recommendations and constraints :



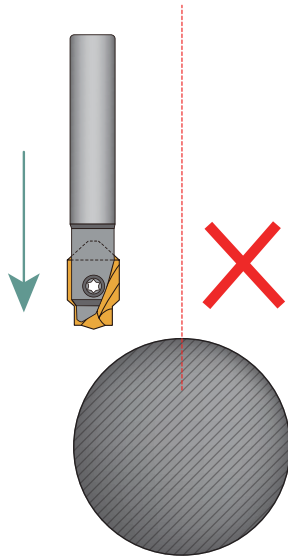
Suitable for vertical machining on flat surface.



It's not recommended to use 4 in 1 tool on inclined surface.



It can be used for round workpiece as long as it's center vertical alignment.

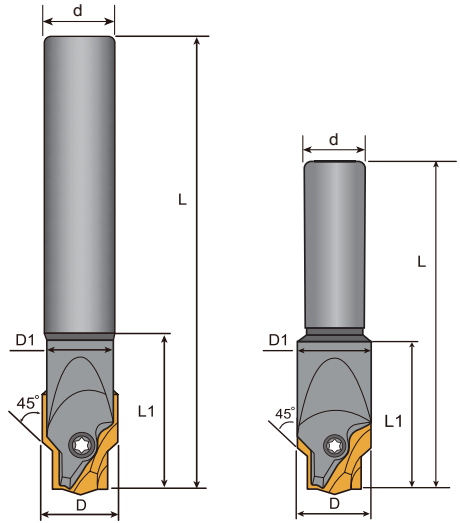


4 in 1 tool is not recommended to be used for curved surface or round workpiece when it's central misalignment.



# 4 in 1 Counter Bore Shank

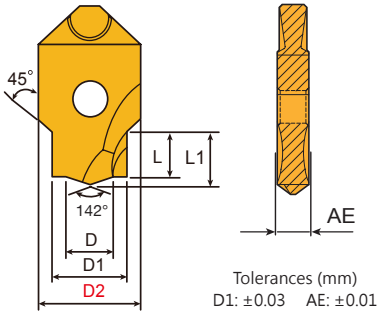
14




Order Code	Counterbore Screw size	Ejector Pin	Dimensions (mm)					KG	Screw	Key
	MM	MM	D	D1	d	L	L1			
14-0803-70	3.0	-	8	7.8	8	70	20	0.08	C02506	T08P
14-0803-90						90		0.09		
14-1004-80	4.0	5.0	10	9.8	10	80	25	0.11	C03007	T09P
14-1004-100						100		0.12		
14-1206-80	5.0 6.0	6.0	12	11.5	12	80		0.12	C03008	T09P
14-1206-110						110		0.15		
14-1208-70	8.0	8.0 10.0	16	15.8	12	70	33	0.19	C03509	T10P
14-1608-100						100		30		
14-1608-130					130					
14-1210-70	10	13.0	20	19.7	12	70	35	0.19	C04011	T15P
14-2010-100						100		0.30		
14-2010-140					140					

# 4 in 1 Counter Bore Inserts

MM / tandard size dimensions - DIN974




 Inserts 6 PCS / Box  
Only for insert : D26 - 2010

 Inserts 10 PCS / Box

Dimensions (mm)							Counterbore Screw size
D	D1	D2	L	L1	AE	MM	
4	6.5	8	3	3.6	2	M3.0	
5	8	10	4	4.8	2.5	M4.0	
6	10	12	5	5.95	3	M5.0	
7	11		6	7.1		M6.0	
9.5	15	16	8	9.55		M8.0	
11.5	18	20	10	11.9	3.5	M10	

\* For other sizes, customization is acceptable.

Inserts	Order Code	Grades										Corresponding shank		
		Carbide					Cement			Uncoated				
		B100	C125	C350	F20	F30	CE25	CE100	CE60	K10	CE			
	D26-0803-E													14-0803-70 14-0803-90
	D26-0803-ME	⊙												
	D26-0803T-M	⊙												
	D26-1004-E													14-1004-80 14-1004-100
	D26-1004-ME	⊙												
	D26-1004T-M	⊙												
	D26-1205-E													14-1206-80 14-1206-110
	D26-1205-ME	⊙												
	D26-1205T-M	⊙												
	D26-1206-E													
	D26-1206-ME	⊙												
	D26-1206T-M	⊙												
	D26-1608-E													14-1208-70 14-1608-100 14-1608-130
	D26-1608-ME	⊙												
	D26-1608T-M	⊙												
	D26-2010-E													14-1210-70 14-2010-100 14-2010-140
	D26-2010-ME	⊙												
	D26-2010T-M	⊙												

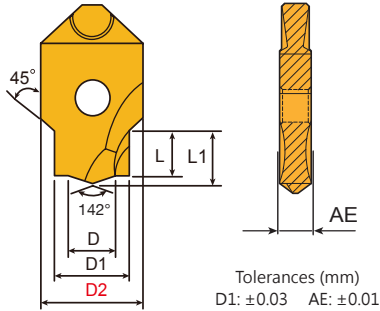
-  Cast Iron/ Stainless Steel / Super alloy  Aluminum  Steel/ Cast Iron/ Hardness steel
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: D26-0803-E, F20




4 in 1  
Counter Bore

# 4 in 1 Counter Bore Inserts

## MM / tandard size dimensions - JIS




 Inserts 6 PCS / Box  
Only for insert : J26 - 2010

 Inserts 10 PCS / Box

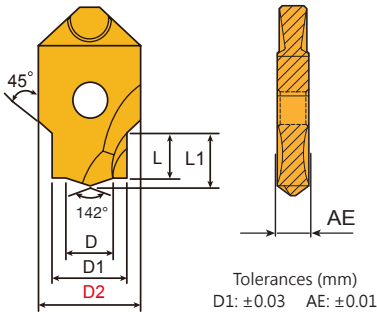
Dimensions (mm)							Counterbore Screw size
D	D1	D2	L	L1	AE		MM
4	6.5	8	3	3.6	2		M3.0
5	8	10	4	4.8	2.5		M4.0
6	9.5	12	5	5.95	3		M5.0
7	11		6	7.1		M6.0	
9.5	14	16	8	9.55		M8.0	
11.5	17.5	20	10	11.9	3.5		M10


\* For other sizes, customization is acceptable.

Inserts	Order Code	Grades										Corresponding shank		
		Carbide					Cermet			Uncoated				
		B100	C125	C350	F20	F30	CE25	CE100	CE60	K10	CE			
	J26-0803-E													14-0803-70 14-0803-90
	J26-0803-ME	⊙												
	J26-0803T-M	⊙	■											
	J26-1004-E													14-1004-80 14-1004-100
	J26-1004-ME	⊙												
	J26-1004T-M	⊙	■											
	J26-1205-E													14-1206-80 14-1206-110
	J26-1205-ME	⊙												
	J26-1205T-M	⊙	■											
	J26-1206-E													
	J26-1206-ME	⊙												
	J26-1206T-M	⊙	■											
	J26-1608-E													14-1208-70 14-1608-100 14-1608-130
	J26-1608-ME	⊙												
	J26-1608T-M	⊙	■											
J26-2010-E													14-1210-70 14-2010-100 14-2010-140	
J26-2010-ME	⊙													
J26-2010T-M	⊙	■												

- ⊙ Cast Iron / Stainless Steel / Super alloy ■ Aluminum ■ Steel/ Cast Iron/ Hardness steel
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: J26-0803-E, F20

# 4 in 1 Ejector Pin Counter Bore Inserts




 Inserts 6 PCS / Box  
 Only for insert : 27-2013T

 Inserts 10 PCS / Box

Dimensions (mm)						Ejector Pin Screw Size
D	D1	D2	L	L1	AE	MM
5.5	9	10	5	5.85	2.5	5.0
6.5	10	12		6.05		6.0
8.5	12	16		6.40	3.0	8.0
10.5	14			6.75		10
13.5	17	20		7.25	3.5	13

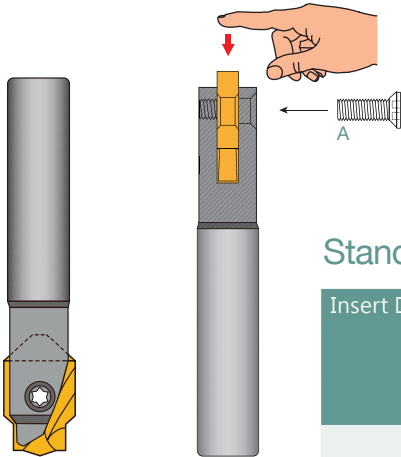
\* For other sizes, customization is acceptable.

Inserts	Order Code	Grades										Corresponding shank
		Carbide					Cermet			Uncoated		
		B100	C125	C350	F20	F30	CE25	CE100	CE60	K10	CE	
	27-1005T-M											14-1004-80 14-1004-100
	27-1206T-M											14-1206-80 14-1206-110
	27-1608T-M											14-1208-70 14-1608-100
	27-1610T-M											14-1608-130
	27-2013T-M											14-1210-70 14-2010-100 14-2010-140

-  Steel/ Cast Iron/ Hardness steel
- Prices and stocks are based on present conditions
- Please specify model numbers the and grade of inserts, ie.: 27-1005T-M, B100



# How to Fit Insert - Screw A



## Screwing the Inserts

- Step 1:
- Slot the insert into the shank and push it against on the bottom
  - Fully tighten the screw A

## Standard spare parts

Insert Dimension D2 (mm)	Screw A	Key
		
8	C02506	T08P
10	C03007	T09P
12	C03008	
16	C03509	T10P
20	C04011	T15P

## Solving chips entanglement issue:

1. Can using peck drilling (Setting the Program on "Q" at 1mm-3mm below).
  2. Reversing the spindle after hole machining (See below for Program settings).
- These 2 ways can be resolve the chips entanglement issue, help the tool keep a good toolife.

### Spindle Reversal

#### Operation Instructions :

G83 X\_Y\_Z\_Q\_R\_F\_;

M04



Spindle ON  
Counterclockwise

G04



Pause time

X2.0;



Pause time

Video for reference



M03 ;



Spindle ON Clockwise

# Cutting Data And Screw Size

Screw size	Steel ( P )			Stainless steel ( M )			Non-ferrous metals ( N )		
Unit	Cutting Speed Vc 50 / Fn 0.07			Cutting Speed Vc 15 / Fn 0.05			Cutting Speed Vc 100/ Fn 0.20		
	S (rev/min)	F (mm/min)	One pocket (sec)	S (rev/min)	F (mm/min)	One pocket (sec)	S (rev/min)	F (mm/min)	One pocket (sec)
M3 (D6.5)	2450	172	1.1	735	37	4.9	4900	980	0.2
M4 (D8.0)	1990	140	1.8	600	30	8	4000	800	0.3
M5 (D10)	1600	112	2.7	480	24	10	3200	640	0.5
M6 (D11)	1450	102	3.6	435	22	16.5	2900	580	0.7
M8 (D15)	1065	75	6.4	320	16	30	2150	430	1.2
M10 (D18)	890	63	9.7	265	13	46.5	1770	354	1.7

## Recommended Cutting Data And Insert Grade

The effective no. of teeth is calculated with 1 flute.

Material group	 Cutting Speed Vc (m/min)	fn (mm/rev)				Grades		
		142°				E	ME	M
		(D2) 8	(D2) 10	(D2) 12	(D2) 16-20			
1-2	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	-	-	B100
3	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	-	-	B100
4-5-6	45-60	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	-	-	B100
7	25-30	0.04 0.06	0.04 0.06	0.05 0.07	0.05 0.07	-	-	B100
8-9	35-45	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	-	B100	-
10-11	35-40	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	-	B100	-
12-13	70-90	0.12 0.15	0.12 0.15	0.13 0.16	0.13 0.16	-	B100	-
14-15	60-80	0.11 0.14	0.11 0.14	0.12 0.15	0.12 0.15	-	B100	-
16-18	100	0.14 0.19	0.14 0.19	0.15 0.20	0.15 0.20	F20	-	-

• While applying it as a spot drill the RPM and FEED can be increased 50%.



# INDEXABLE COUNTER BORE

**PATENTED**



Video

## Features

Available in materials



Cost  
**300~500%**  
SAVING

Applicable  
type is  
available  
max. 300mm

Applicable  
Machines  
Milling / Drilling  
/ Radial drilling


Efficiency  
**300%**  
UP

Durability  
**300%**  
UP

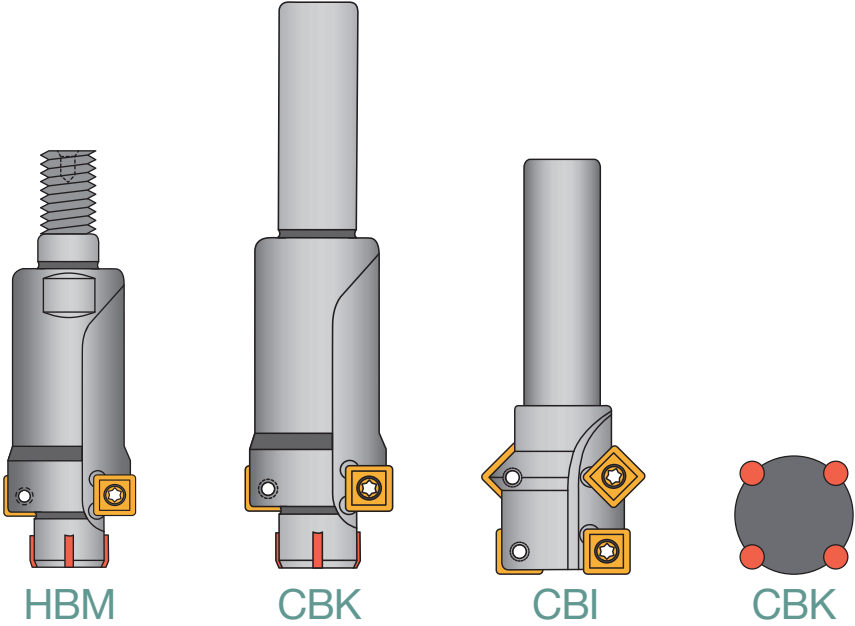
# Product Design



Counter bore tools application for bolts, nuts & screws

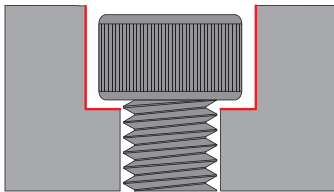
 Patent No. ZL 01 2 23413.3

 PCT Priority

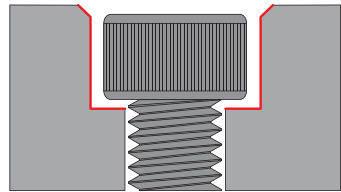


Better cutter tool life  
with patented carbide strip

## Screw ranges M8~M36



Counterbore



Counterbore + Chamfer

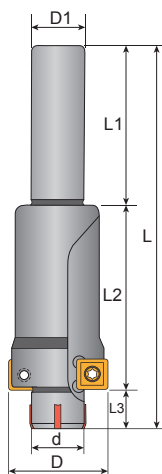
Counterbore



# PRODUCT SPECIFICATIONS

## Counterbore Toolholders

CBK

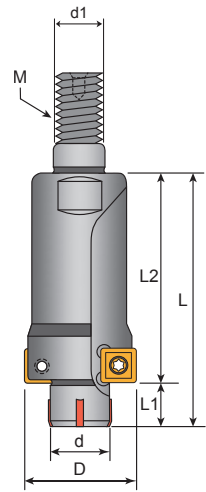


DIN 373

Order code	Dimensions (mm)							Z	 KG	MAX RPM	Inserts SDET	Screw	Key
	D	d	D1	L	L1	L2	L3						
CBK-08	14	8.4	10	70	30	32	8	2	0.09	25000	060208	C025045	T08P
CBK-08S	15	8.9											
CBK-10	18	10.9											
CBK-10S	20	13.4	12	80	35	37	8	2	0.16	22000	09T308	C04007	T15P
CBK-12	22												
CBK-12S	24								14.9				
CBK-14	24	14.9	12	90	38	44	8	2	0.20	17000	C04008	T15P	
CBK-14S	25	15.4											
CBK-16	26	17.4											
CBK-16S	27												

\* Use on drilling machine.

# Counterbore Combi Cutters



**HBM**

DIN 373

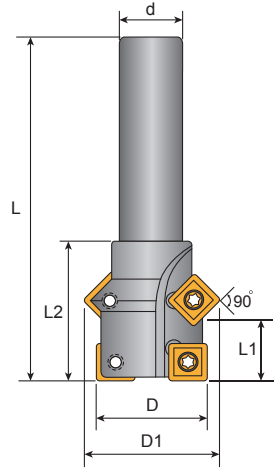
Order code	Dimensions (mm)							Z	KG	MAX RPM	Inserts SDET	Screw	Key
	D	d	L	L1	L2	M	d1						
HBM-16	26	17.4	48	8	40	16	22	2	0.23	17000	09T308	C04008	T15P
HBM-18	29	19.4	53		45								
HBM-20	33	21.9	56		48								
HBM-22	36	23.4	60	10	50	16	22	3	0.33	15000	09T308	C04008	T15P
HBM-24	40	25.9	62		52								
HBM-30	50	32.9			0.40								
HBM-36	58	38.8		0.47									
									0.56	12000			
									0.65	10000			

\* Use on drilling machine.

Counterbore



# Counterbore + Chamfer Toolholders



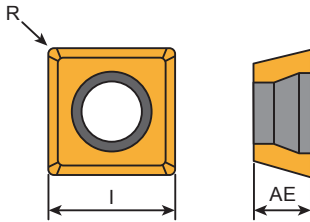
CBI

DIN 373

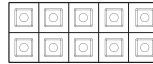
Order Code	Dimensions (mm)						Z	Zc	⊖ KG	MAX RPM	Inserts SDET	Screw	Key
	D	d	D1	L	L1	L2							
CBI-08	15	10	20.0	65	9	23	4	2	0.09	25000	060208	C025045	T08P
CBI-10	18		22.0						11				
CBI-12	20	23.8	13										
CBI-14	24	12	31.4	70	15	30			0.12	22000			
CBI-16	26		33.4		16.5	33			0.17				
CBI-18	29	16	35.4	80	19.5	36			0.20	17000			
CBI-20	33		37.4		21	0.25			16000				
CBI-22	36	20	40.4	90	23.5	40			0.27	15000			
CBI-24	40		44.4		25	43			0.41				
CBI-30	50	25	53.4	100	34	50			0.45	14000			
CBI-36	58		61.4	110	38	60			0.71				
									6	3			09T308

\* Use on CNC machine.

# SDET Inserts



Tolerances (mm)  
 I AE  
 ±0,03 ±0,025



Inserts 10 PCS / Box

Code	Dimensions (mm)		
	I	AE	R
060208	6.0	2.3	0.3
09T308	9.0	3.97	0.5

Inserts	Order Code	Grades												
		Carbide					Metal cermet			Uncoated				
		B100	C200	C250	F20	F30	CE25	CE60		K10	CE			
	SDET060208N-ME													
	SDET09T308TN-M													
	SDET09T308TN-ME													

- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on presen conditions
- Please specify model numbers the and grade of inserts, ie.: SDET060208N-ME,B100

Counterbore

## Recommended Cutting Data and Grade

- Recommended Cutting Speed, Vc(m/min), fz(mm/ tooth)

Material group	Cutting Speed Vc (m/min)	fz (mm/tooth)		Insert Grade Selection	
		M8 - M12	M14 - M36	M	ME
1-2	40-70	0.05 0.08	0.06 0.10	B100	B100
3	35-60	0.05 0.08	0.06 0.10	B100	B100
4-5-6	30-55	0.04 0.06	0.05 0.08	B100	B100
7	20-30	0.03 0.05	0.04 0.06	B100	B100
12-13	40-70	0.06 0.08	0.08 0.10	F30	F30
14-15	35-65	0.06 0.08	0.08 0.10	F30	F30





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