

YOUNG
CUTTINGTOOLS

CENTER SERIES

- CENTER/SPOT DRILL IN MILLING AND TURNING



Features Description

The precise eccentricity only $\pm 0.008\text{mm}$ enhances the tool life of taps and drills, Special carbide inserts with unique geometry improve the strength of insert tip.

Center Drill: $\phi 1.6 - \phi 10 \text{ mm}$

Spot Drill: $\phi 8 - \phi 16 \text{ mm}$



SPOT DRILL - 390 SYSTEM

PATENTED



Video

Features

Available in
materials



Cost
300~500%
SAVING

Applicable
Machines
Milling / Turning /
Drilling

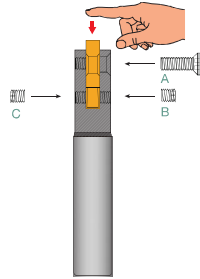
Efficiency
300%
UP

Durability
300%
UP

Design

Center point eccentricity $\pm 0.008\text{mm}$

1. Plug-and-clamp self-centering design



2. Back taper



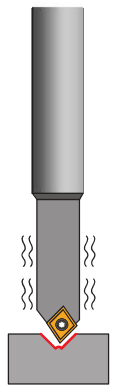
Gives awesome stabilities that conduces to excellent verticality precision.

Product Introduction



Spot Drill

Other brands



Big eccentricity tolerance minimum $\pm 0.3\text{ mm}$

1. To use this kind of chamfer tool for centering processes is likely break drills and taps often.
2. This chamfer tool works with single flute only, it performs low speed.

23 Inserts



A23 Inserts



B23 Inserts

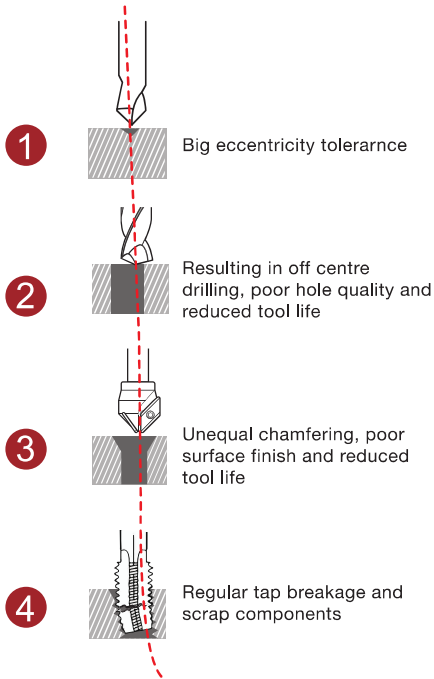


Subtle eccentricity tolerance maximum is $\pm 0.008\text{ mm}$

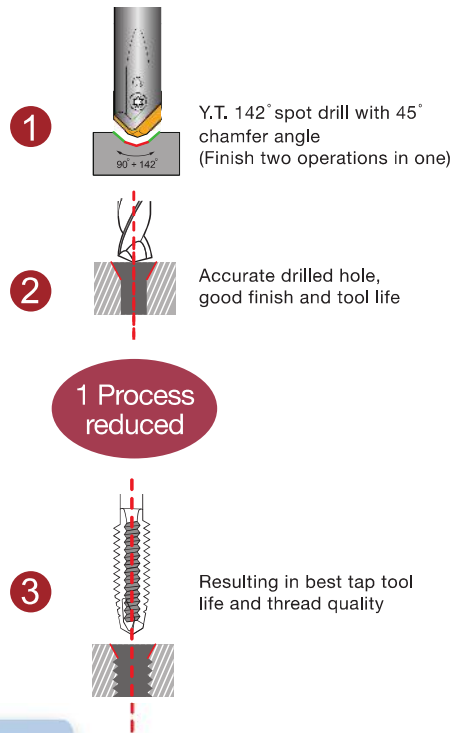
1. Designed with chip breaking teeth both on the front and back side of indexable inserts.
 2. The most popular spot drill which has 45° chamfer angle and suitable in various applications: such as spot positioning, V-shape grooving and engraving.
 3. Can also be used in round-hole and side corner chamfering with 2 effective flutes.
1. Designed with two point angles $90^\circ + 142^\circ$.
 2. It performs 45° chamfering and 142° spot positioning in one step.
- 142° point angle is perfect for all different size of drills.

Operations prior to small / long depth drills and Tapping

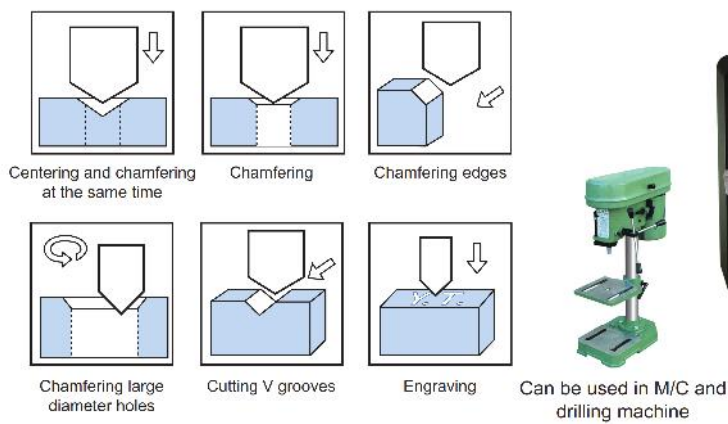
Imprecise spot drills



Y.T. accurate spot drills



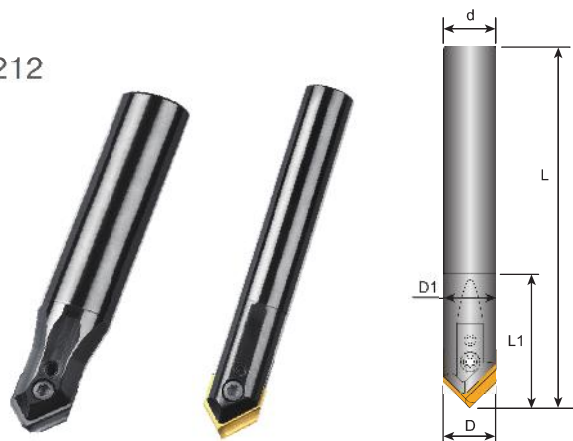
Y.T. 90° Spot Drill With Multipurpose Function



PRODUCT SPECIFICATIONS

Spot Drill Toolholders

- Inserts P. 206 - 207
- Cutting Data P. 208 - 212

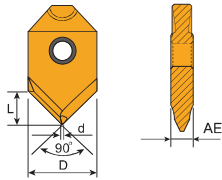


Spot Drill

13

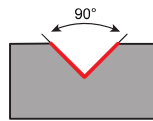
Order Code	Dimensions (mm)						KG	Inserts 23 A23 B23	Screw	Key
	D	D1	d	L	L1	L2				
13-0808-60	8	7.9	8	60	20		0.06	0802	C02506 S025025	T08P L013
13-0808-85				85			0.07			
13-1008-60				60			0.09			
13-1010-65	10	9.9	10	65	20		0.09	1002	C03008 S02503	T09P L013
13-1010-100				100			0.12			
13-1010-150				150			0.12			
13-1210-65	12	11.9	12	65	30		0.12	1203	C03010 S0304	T09P L015
13-1212-80				80			0.12			
13-1212-110				110			0.15			
13-1212-160	16	15.8	16	160	35		0.18	1603	C03512 S0405	T10P L02
13-1612-80				80			0.21			
13-1616-100				100			0.21			
13-1616-130	16	15.8	16	130	35		0.26	1603	C03512 S0405	T10P L02
13-1616-180				180			0.36			

23 Inserts



Tolerances (mm)

AE : + 0.01
- 0.02

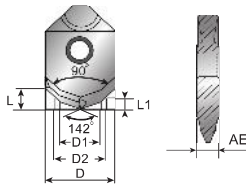


Dimensions (mm)				
D	d	L	AE	angle
8	0.7	4	2.0	90°
10	0.8	5	2.5	
12	0.9	6	3.0	
16	1.0	8	3.0	

Inserts	Order Code	Grades											
		Carbide					Cermet			Uncoated			
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10		CE	
	23-0802-90-E												
	23-1002-90-E												
	23-1203-90-E												
	23-1603-90-E												
	23-0802-90-ME		⊙										
	23-1002-90-ME		⊙										
	23-1203-90-ME		⊙										
	23-1603-90-ME		⊙										

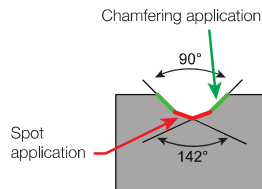
Inserts 10 PCS / Box

A23 Inserts



Tolerances (mm)

AE : + 0.01
- 0.02



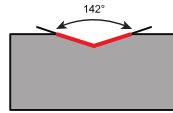
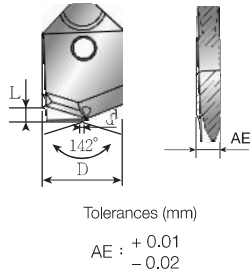
Dimensions (mm)								angle
D	L	D1	D2	L1	AE	M		
8	2.8	3.3	4.2	1.02	2.0	M4 x 0.7	90° 142°	
10	3.5	4.2	5.25	1.25	2.5	M5 x 0.8		
12	4.2	5.0	6.3	1.55	3.0	M6 x 1.0		
16	5.6	6.8	8.4	1.97	3.0	M8 x 1.25		
16	5.1	8.5	10.5	2.46	3.0	M10 x 1.5		

Inserts	Order Code	Grades											
		Carbide					Cermet			Uncoated			
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10		CE	
	A23-0802-M4-ME		⊙										
	A23-1002-M5-ME		⊙										
	A23-1203-M6-ME		⊙										
	A23-1603-M8-ME		⊙										
	A23-1603-M10-ME		⊙										




Inserts 10 PCS / Box

- 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 present conditions
- Please specify model numbers and the grade of inserts, ie.: A23-0802-M4-ME,B350

B23 Inserts




Dimensions (mm)				
D	d	L	AE	angle
8	0.7	1.28	2.0	142°
10	0.8	1.55	2.5	
12	0.9	1.86	3.0	
16	1.0	2.56	3.0	

Inserts	Order Code	Grades										
		Carbide					Cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10		CE
	B23-0802-142-ME		⊙									 Inserts 10 PCS / Box
	B23-1002-142-ME		⊙									
	B23-1203-142-ME		⊙									
	B23-1603-142-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 present conditions
- Please specify model numbers and the grade of inserts, ie.: B23-0802-142-ME,B350

Spot Drill

Recommended Cutting Data And Insert Grades

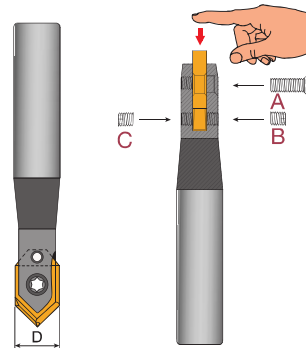
- Recommended spot cutting speed in Vc (m/min), fz (mm/ tooth).
- For spotting  the effective no. of teeth is calculated with 1 flute.

Material group	Cutting Speed Vc(m/min)	fz (mm/tooth)		Grades	
		D: 8~10mm	D: 12~16mm	ME	E
1-2	50-70	0.10 0.13	0.11 0.14	B350/C350	-
3	50-70	0.10 0.13	0.11 0.14	B350/C350	-
4-5-6	45-60	0.08 0.10	0.10 0.12	B350/C350	-
7	25-30	0.06 0.08	0.06 0.08	B350	-
8-9	35-45	0.08 0.10	0.10 0.12	B350	-
10-11	35-40	0.07 0.09	0.09 0.12	B350	-
12-13	70-90	0.12 0.15	0.13 0.16	C350	-
14-15	60-80	0.10 0.14	0.10 0.15	C350	-
16-18	200-300	0.12 0.15	0.13 0.16	-	F20

How to Fit Inserts - Screw A.B.C.

Screwing the Insert

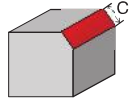
- Step 1: • Put the insert into the slot of shank and press it with the finger
• Fully tighten the screw A first
- Step 2: Half tighten the screw B on one side
- Step 3: Half tighten the screw C on another side
- Step 4: Fully tighten the screw B again (Important)
- Step 5: Fully tighten the screw C again (Important)



Standard spare parts

Insert dimension D (mm)	Screw A	Screw B/C	Key	Key
 8	 C02506	 S025025	 T08P	 L013
10	C03008	S02503	T09P	L013
12	C03010	S0304	T09P	L015
16	C03512	S0405	T10P	L02

Recommended Cutting Data



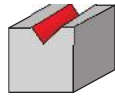
Side Chamfering

- For side chamfering the effective no. of teeth are 2 flutes.

Chamfering Application													
Materials	Steel	Heat Treatment		Stainless Steel		Inconel		Cast Iron		Aluminium			
Using Inserts	C350	C350		B350		B350		C350		F20			
Inserts	C	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)
ø8	1mm	4800	720	2000	240	2400	280	1600	190	3200	640	8000	2000
	2mm	3800	570	1600	190	1900	220	1300	160	2550	510	6300	1500
ø10	1mm	3800	450	1600	160	1900	190	1300	130	2550	400	6300	1260
	2mm	3200	480	1300	150	1600	190	1050	125	2100	420	5300	1250
	3mm	3200	380	1300	130	1600	160	1050	105	2100	340	5300	1050
ø12	1mm	3200	320	1300	100	1600	130	1050	85	2100	250	5300	850
	2mm	2400	360	1000	120	1200	145	800	95	1600	320	4000	960
	3mm	2400	290	1000	100	1200	120	800	80	1600	255	4000	800
	4mm	2400	240	1000	80	1200	100	800	65	1600	190	4000	480
ø16	1mm	2000	160	800	65	1000	80	600	50	1400	140	3500	420

Spot Drill

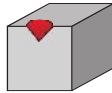
Recommended Cutting Data



Grooving

V Groove Application													
Materials		Steel		Heat Treatment		Stainless Steel		Inconel		Cast Iron		Aluminium	
Using Inserts		C350		C350		B350		B350		C350		F20	
Inserts	Cut Depth	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)
ø8	2mm	4800	380	1200	95	2400	140	1400	85	4000	640	8000	2400
ø10	2mm	3800	300	950	75	1900	115	1100	65	3200	500	6400	1920
	3mm	3800	230	950	55	1900	750	1100	45	3200	380	6400	1500
ø12	2mm	3200	260	800	65	1600	95	900	55	2650	420	5300	1600
	3mm	3200	190	800	50	1600	65	900	35	2650	320	5300	1300
ø16	2mm	2400	190	600	50	1200	70	700	40	2000	320	4000	1200
	3mm	2400	145	600	35	1200	50	700	30	2000	240	4000	960
	4mm	2400	100	600	25	1200	25	700	20	2000	200	4000	800

Recommended Cutting Data

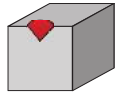


Spotting and Chamfering
in one step

Spot Application													
Materials		Steel		Heat Treatment		Stainless Steel		Inconel		Cast Iron		Aluminium	
Using Insert		C350		C350		B350		B350		C350		F20	
Inserts	Cut Depth	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)
ø8	1mm	2000	300	800	95	1600	160	1000	100	2800	560	6000	1200
	2mm	2000	250	800	80	1600	120	1000	75	2800	490	6000	1050
	3mm	2000	250	800	80	1600	120	1000	75	2800	490	6000	1050
	4mm	2000	200	800	65	1600	80	1000	50	2800	420	6000	900
ø10	1mm	1600	240	650	80	1300	130	800	80	2200	440	4800	960
	2mm	1600	200	650	65	1300	100	800	60	2200	385	4800	840
	3mm	1600	200	650	65	1300	100	800	60	2200	385	4800	840
	4mm	1600	160	650	50	1300	65	800	40	2200	330	4800	720
	5mm	1300	130	500	40	1000	50	650	30	1900	285	4200	630
ø12	1mm	1300	200	550	65	1050	105	650	65	1850	370	4000	800
	2mm	1300	160	550	55	1050	80	650	50	1850	315	4000	700
	3mm	1300	160	550	55	1050	80	650	50	1850	315	4000	700

Spot Drill

Recommended Cutting Data



Spotting and Chamfering
in one step

Spot Application													
Materials		Steel		Heat Treatment		Stainless Steel		Inconel		Cast Iron		Aluminium	
Using Inserts		C350		C350		B350		B350		C350		F20	
Inserts	Cut Depth	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)	S (rev/min)	F (mm/min)
ø12	4mm	1300	130	550	45	1050	50	650	35	1850	280	4000	600
	5mm	1050	105	400	45	800	40	530	30	1600	240	3500	525
	6mm	1050	85	400	30	800	30	530	20	1600	200	3500	430
ø16	1mm	1000	150	400	45	800	80	500	50	1400	280	3000	600
	2mm	1000	125	400	40	800	60	500	40	1400	245	3000	525
	3mm	1000	125	400	40	800	60	500	40	1400	245	3000	525
	4mm	1000	100	400	30	800	40	500	25	1400	210	3000	450
	5mm	800	80	300	25	600	30	400	20	1200	180	2600	390
	6mm	800	65	300	20	600	25	400	16	1200	150	2600	325
	7mm	800	65	300	20	600	25	400	16	1200	150	2600	325
	8mm	800	50	300	15	600	18	400	12	1200	120	2600	260

CENTER DRILL - 390 SYSTEM

Surface Finish Ra < 0.5 μ m



Video



Video

PATENTED

Features

Available in
materials



Cost
300~500%
SAVING

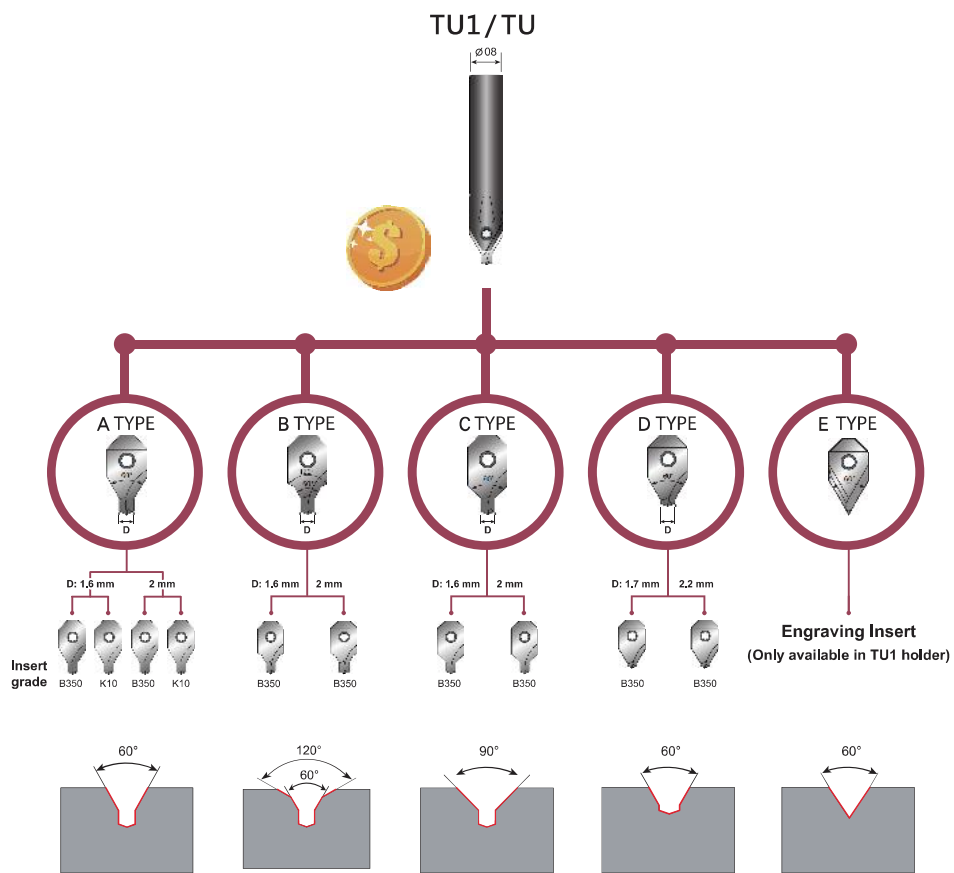
Applicable
Machines
Milling / Turning

Efficiency
300%
UP

Durability
300%
UP

Product Design

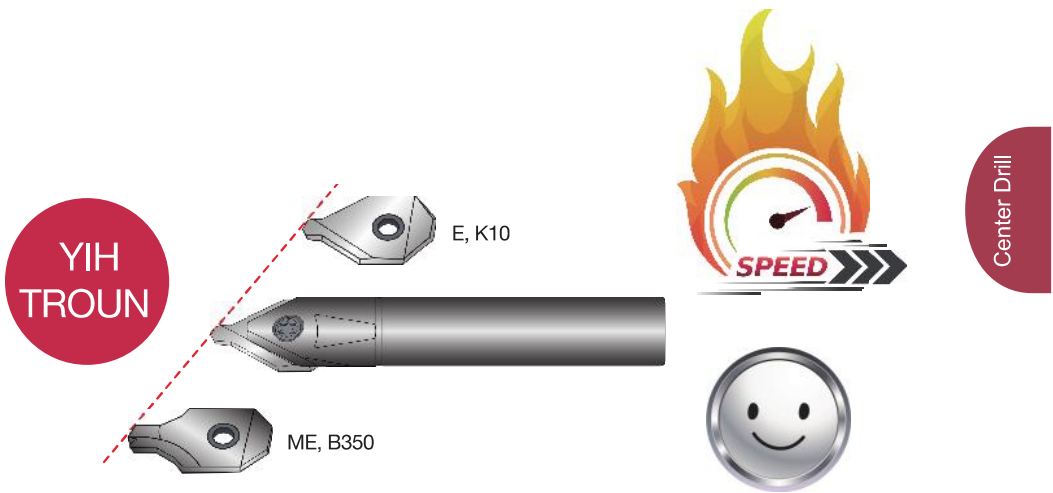
One Shank
fits 11
different
inserts



TECHNICAL GUIDE

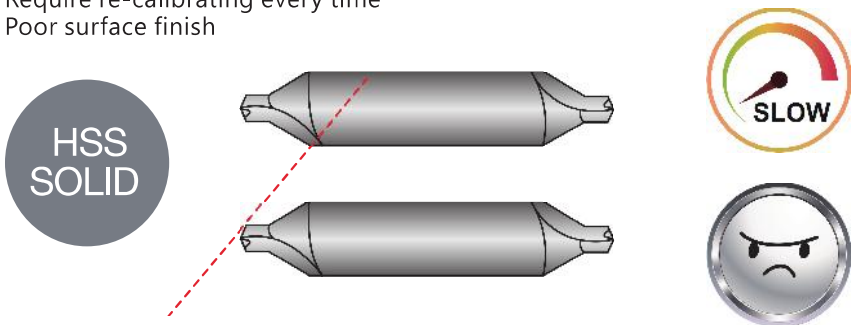
Indexable center drill

- Extremely accuracy in center positioning, minimized eccentricity $\pm 0.008\text{mm}$.
- Perfect surface finish with $Ra\ 0.36\ \mu\text{m}$, which leads to excellent accuracy.
- Re-centering and length calibrating are not required while changing the new insert.
- Y.T. indexable carbide inserts perform 5 times tool life longer than HSS center drills.
- The same shank fit max. 11 different inserts.



Solid center drill

- Imprecise center accuracy
- Poor tool life
- Require re-calibrating every time
- Poor surface finish

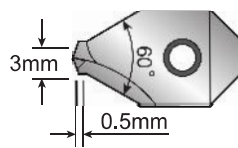


New Design vs. Traditional Type



D-type Center Drill:

Designed with a shorter drill bit, suitable for center spotting with 60° chamfer simultaneously prior to hole drilling. It performs a greater machining durability itself and conduce to improve the tool life of drills and taps from its high accuracy.



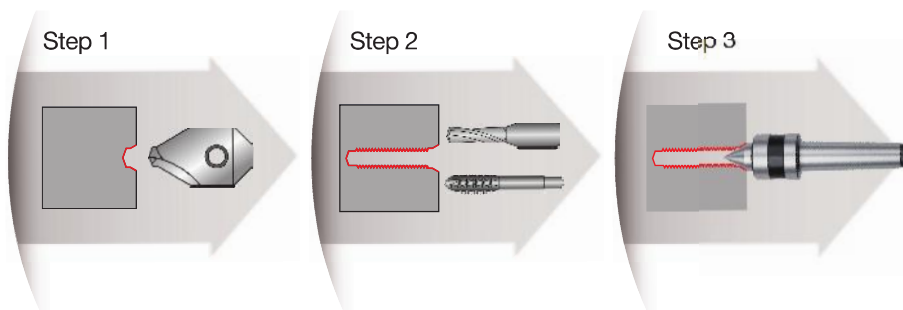
Efficiency
400~600% up



Durability
400~600% up

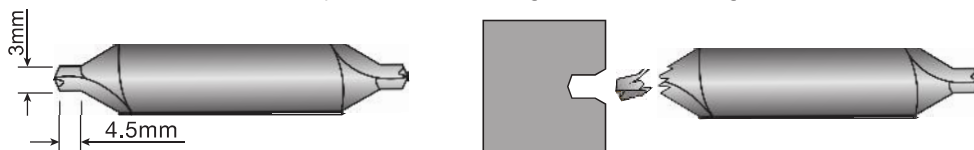


No broken



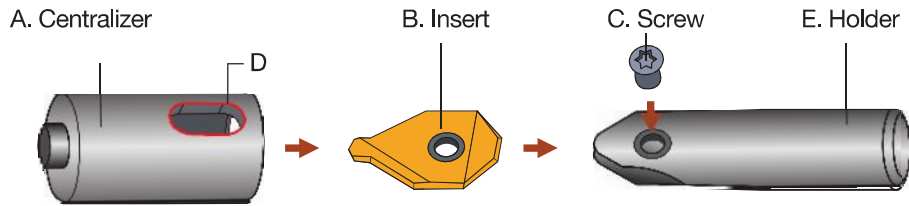
Traditional

Standard center drill: The long pilot length causes pilot broken often and poor tool life in high feed machining.



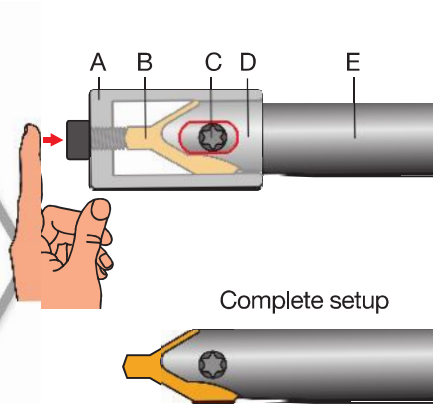
CENTRALIZER-Quick Operation Guide

Apply the centralizer while replacing inserts at the machine



Mounting Steps

- Step 1.** Dismount the worn inserts and put a new one instead into the cavity.
- Step 2.** Put on the centralizer.
- Step 3.** Turn the shank holder, align the screw hole with the opening.
- Step 4.** Slide up the centralizer to push the insert against on the bottom.
- Step 5.** Tighten up the screw.
- Step 6.** Remove the centralizer, carry tool changing and calibrating off in a minute.

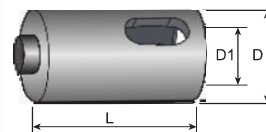


Center Drill

Devices to centralize the inserts



Video



Order Code	D	D1	L
GA-0814	14	8.2	25
GA-1016	16	10.2	30
GA-1218	18	12.2	33
GA-1622	22	16.2	38

Center Drill Toolholders (Milling And Turning)

- Inserts P. 219 - 222
- Cutting Data P. 223
- Centralizer P. 217



TU 1

Order Code	Dimensions (mm)					KG	Inserts A/B/C/ D/E24	Screw	Key
	D	D1	d	L	L1				
TU1-0808-60	8.2	8.2	8	60	20	0.08	0802	C02506	T08P
TU1-0808-80				80		0.09			
TU1-1010-65	10.2	10.2	10	65	25	0.09	1002	C03009	T09P
TU1-1212-65	12.2	12.2	12	65	30	0.11	1203	C03010	
TU1-1616-70	16.2	16.2	16	70	35	0.17	1603	C03512	T10P

Center Drill Toolholders (Turning)

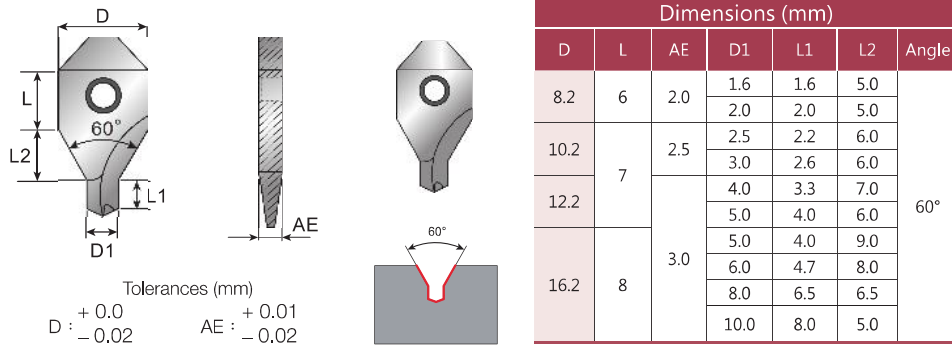
- Inserts P. 219 - 221
- Cutting Data P. 223
- Centralizer P. 217



TU

Order Code	Dimensions (mm)						KG	Inserts A/B/ C/D24	Screw	Key
	D	D1	d	L	L1	h				
TU-0808-85	8.2	8.2	8	85	20	7.5	0.08	0802	C02506	T08P
TU-1010-100	10.2	10.2	10	100	25	9.3	0.11	1002	C03009	T09P
TU-1212-110	12.2	12.2	12	110	30	11.5	0.15	1203	C03010	
TU-1616-130	16.2	16.2	16	130	35	15.5	0.26	1603	C03512	T10P

A24 Inserts

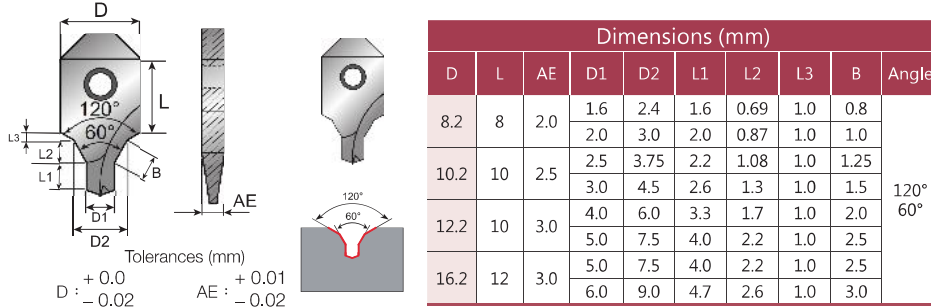


Inserts	Order Code	Grades												
		Carbide					Cermet			Uncoated				
		Cl25	B350	C350	F20	F30	CE25	CE100	CE60	K10	CE			
	A24-080216-60-E													 Inserts 6 PCS / Box Only for insert: A24-16***
	A24-080220-60-E													
	A24-100225-60-E													
	A24-100230-60-E													
	A24-120340-60-E													
	A24-120350-60-E													
	A24-160350-60-E													
	A24-160360-60-E													
	A24-080216-60-ME		⊗											 Inserts 10 PCS / Box
	A24-080220-60-ME		⊗											
	A24-100225-60-ME		⊗											
	A24-100230-60-ME		⊗											
	A24-120340-60-ME		⊗											
	A24-120350-60-ME		⊗											
	A24-160350-60-ME		⊗											
	A24-160360-60-ME		⊗											
	A24-160380-60-ME		⊗											
	A24-1603100-60-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 present conditions
- Please specify model numbers and the grade of inserts, ie.: A24-080216-60-E,K10

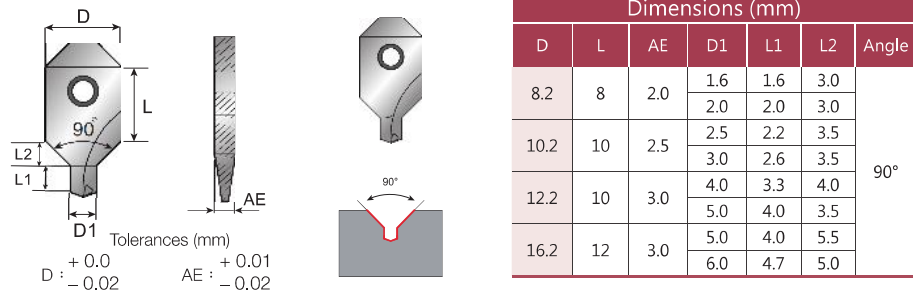
Center Drill

B24 Inserts



Inserts	Order Code	Grades										 Inserts 6 PCS / Box Only for insert: B24-16*** Inserts 10 PCS / Box
		Carbide					Cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10	CE	
	B24-080216-120-ME		⊙									
	B24-080220-120-ME		⊙									
	B24-100225-120-ME		⊙									
	B24-100230-120-ME		⊙									
	B24-120340-120-ME		⊙									
	B24-120350-120-ME		⊙									
	B24-160350-120-ME		⊙									
B24-160360-120-ME		⊙										

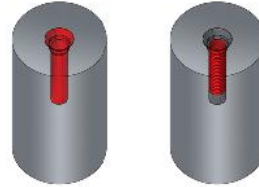
C24 Inserts



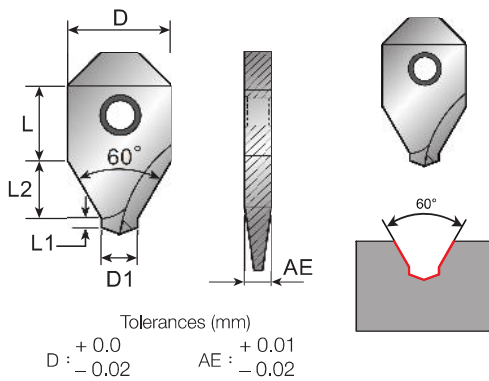
Inserts	Order Code	Grades										 Inserts 6 PCS / Box Only for insert: C24-16*** Inserts 10 PCS / Box
		Carbide					Cermet			Uncoated		
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10	CE	
	C24-080216-90-ME		⊙									
	C24-080220-90-ME		⊙									
	C24-100225-90-ME		⊙									
	C24-100230-90-ME		⊙									
	C24-120340-90-ME		⊙									
	C24-120350-90-ME		⊙									
	C24-160350-90-ME		⊙									
C24-160360-90-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 present conditions
- Please specify model numbers and the grade of inserts, ie.: C24-080216-90-ME,B350

D24 Inserts





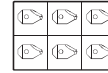
Center drill specially for pre-drilling and pre-tapping



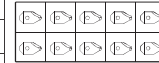
Dimensions (mm)						
D	L	AE	D1	L1	L2	Angle
8.2	6	2.0	1.7	0.6	5.5	60°
			2.2	0.6	5.0	
10.2	7	2.5	2.7	0.6	6.0	
			3.2	0.7	6.0	
			3.7	0.7	5.5	
12.2	7	3.0	4.3	0.8	6.5	
			5.3	1.0	5.5	
16.2	8	3.0	5.3	1.0	9.0	
			6.3	1.1	8.0	

Center Drill

Inserts	Order Code	Grades												
		Carbide					Cermet			Uncoated				
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10	CE			
	D24-080217-60-ME		⊗											
	D24-080222-60-ME		⊗											
	D24-100227-60-ME		⊗											
	D24-100232-60-ME		⊗											
	D24-100237-60-ME		⊗											
	D24-120343-60-ME		⊗											
	D24-120353-60-ME		⊗											
	D24-160353-60-ME		⊗											
	D24-160363-60-ME		⊗											

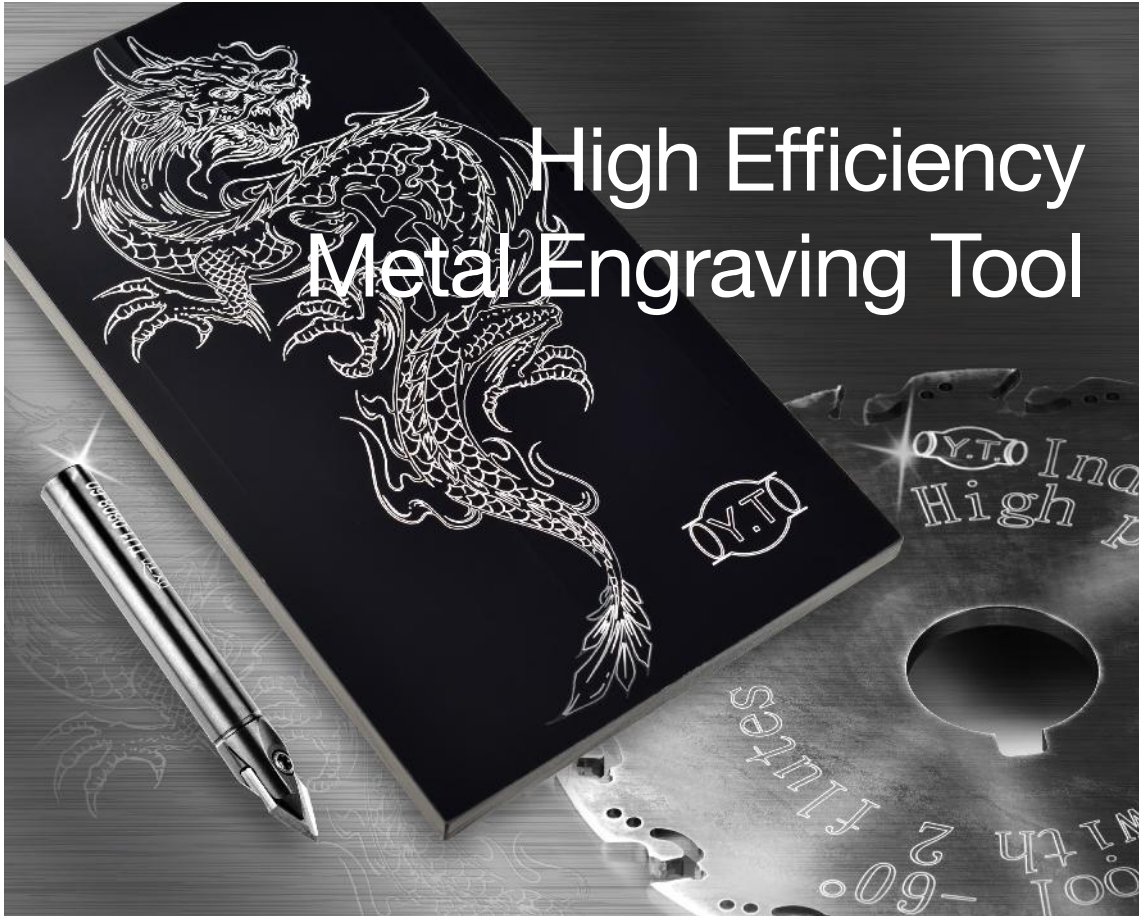


Inserts 6 PCS / Box
 Only for insert: D24-16***



Inserts 10 PCS / Box

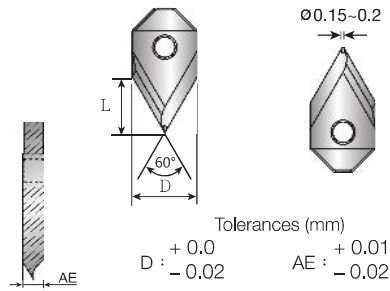
- Steel Stainless Steel Steel/Stainless Steel /Super alloy Cast Iron Aluminum Steel/Cast Iron
- Steel/Stainless Steel/Cast Iron
- Prices and stocks are based on present conditions
- Please specify model numbers and the grade of inserts, ie.: D24-080217-60-ME,B350



High Efficiency Metal Engraving Tool

E24 Inserts

- Toolholder P. 218
- Centralizer P. 217
(Centralizer is necessary)



Dimensions (mm)			
D	L	AE	Angle
8.2	4	2.0	60°


Inserts	Order Code	Grades								Toolholder	Centralizer	
		Carbide					Cermet		Uncoated			
		C125	B100	C350	F20	F30	CE100	CE60	K10			CE
	E24-0802-60-E		★								TU1-0808	GA-0814

★ All Materials

• Recommend cutting data : Vc:100m/min (Aluminum Vc:500m/min)
Fz:0.01-0.03mm/teeth.

Recommended Cutting Data And Insert Grade

- Center Drill recommended cutting speed, Vc (m/min), fz (mm/ tooth).
The effective no. of teeth is calculated with 1 flute.

Material group	 Cutting Speed Vc(m/min)	CNC lathe M/C Vc(m/min)	fz(mm/ tooth)		Grades	
			D1:1.5~2.5mm	D1:3~10mm	ME	E
1-2	15-20	50-120	0.03 0.06	0.05 0.10	B350	-
3	12-18		0.03 0.06	0.05 0.10	B350	-
4-5-6	10-15		0.03 0.06	0.05 0.10	B350	-
7	5-10	22-30	0.03 0.06	0.05 0.08	B350	-
8-9	8-12		0.03 0.06	0.05 0.09	B350	-
10-11	5-10		0.03 0.06	0.03 0.08	B350	-
12-13	20-25	60-80	0.05 0.08	0.06 0.13	B350	-
14-15	15-20		0.05 0.08	0.06 0.13	B350	-
16-18	30-50	300-800	0.05 0.08	0.06 0.13	-	K10

Center Drill

Surface Finishing Test Result

Holder	TU-1010-100	Mitutoyo	SURFTEST SJ-410
Insert	24-100225-60-ME, B100	日期	2017/07/05
S	1600 min ⁻¹	時間	09:20:32
f	0.05 mm/rev	Ra	0.360 μm
Material	ScM440	Rmax	2.056 μm
		Mitutoyo	SURFTEST SJ-410
		日期	2017/07/05
		時間	09:20:32
		Ra	14.16 μin
		Rmax	80.94 μin

TRY ME BOX



**1 shank + 2 inserts +
1 Centralizer gauge**

Available sizes in A24 inserts :
1.6/2.0/2.5/3.0/4.0/5.0/6.0

Order Code	Description	Type	Quantity
CD081620B350	TU1-0808-60	Shank: 8mm-60L	1
	A24-080216-60-ME,B350	Insert: 1,6mm for P M K S H	1
	A24-080220-60-ME,B350	Insert: 2,0mm for P M K S H	1
	GA-0814	Centralizer	1
CD102530B350	TU1-1010-65	Shank: 10mm-65L	1
	A24-100225-60-ME,B350	Insert: 2,5mm for P M K S H	1
	A24-100230-60-ME,B350	Insert: 3,0mm for P M K S H	1
	GA-1016	Centralizer	1
CD124050B350	TU1-1212-65	Shank: 12mm-65L	1
	A24-120340-60-ME,B350	Insert: 4,0mm for P M K S H	1
	A24-120350-60-ME,B350	Insert: 5,0mm for P M K S H	1
	GA-1218	Centralizer	1
CD165060B350	TU1-1616-70	Shank: 16mm-70L	1
	A24-160350-60-ME,B350	Insert: 5,0mm for P M K S H	1
	A24-160360-60-ME,B350	Insert: 6,0mm for P M K S H	1
	GA-1622	Centralizer	1



Convenient Durable Efficiency

1 shank + 2 inserts

Available sizes in inserts 23 and A23 :
08/10/12/16mm
90° / 90° +142°



Order Code	Description	Type	Quantity
SD0823A23B350	13-0808-60	Shank: 8mm-60L	1
	23-0802-90-ME,B350	Insert: 90° for P M S H	1
	A23-0802-M4-ME,B350	Insert: 90° +142° for P M S H	1
SD1023A23B350	13-1010-65	Shank: 10mm-65L	1
	23-1002-90-ME,B350	Insert: 90° for P M S H	1
	A23-1002-M5-ME,B350	Insert: 90° +142° for P M S H	1
SD1223A23B350	13-1212-80	Shank: 12mm-80L	1
	23-1203-90-ME,B350	Insert: 90° for P M S H	1
	A23-1203-M6-ME,B350	Insert: 90° +142° for P M S H	1
SD1623A23B350	13-1616-100	Shank: 16mm-100L	1
	23-1603-90-ME,B350	Insert: 90° for P M S H	1
	A23-1603-M8-ME,B350	Insert: 90° +142° for P M S H	1

COUNTER BORE SERIES





Features Description

Counter Bore : M8-M36
Counter Bore with chamfer: M8-M36
Patented design with carbide strip on the head to improve cutters tool life. The most economical insert with 4 cutting edges.

4 In 1 Counter Bore: M3-M12
Counterbore reduce machining process from 5 steps to 2 steps.

PATENTED

4 IN 1 COUNTER BORE

PATENTED



Video

Patent No.
M473882
M474588
M473881

Patent No.
201310453057.2
201320772697.5

 PCT Priority

Features

Available in
materials



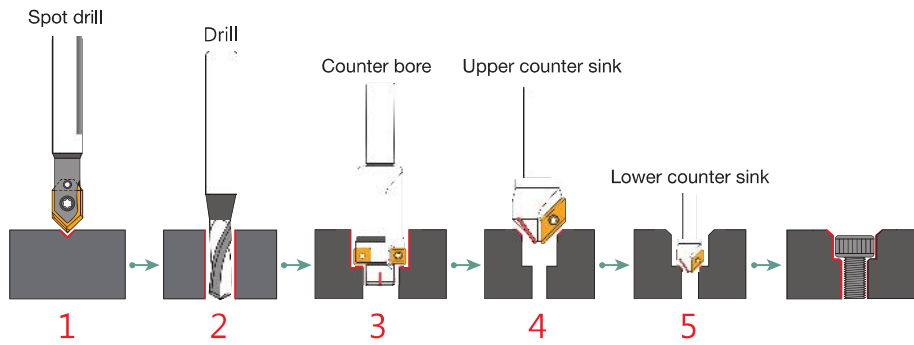
Cost
300~500%
SAVING

Applicable
Machines
Milling / Drilling
/ Radial drilling

Efficiency
300%
UP

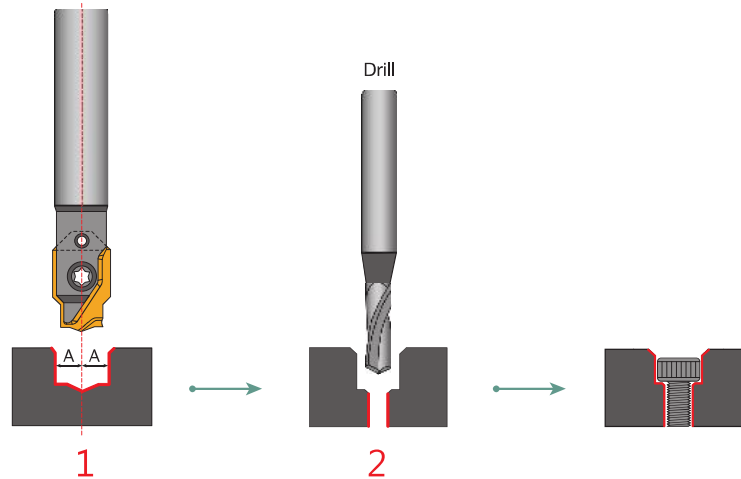
Durability
300%
UP

Traditional Procedure: 5 Steps



Innovative solution: 2 Steps

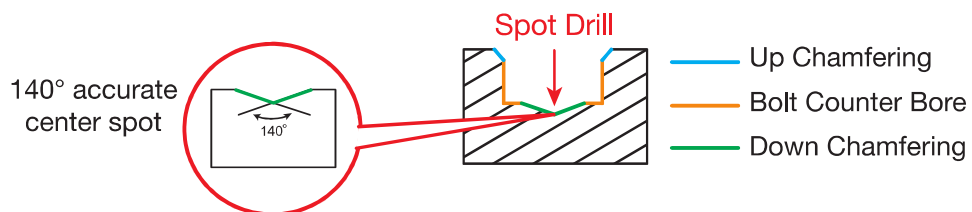
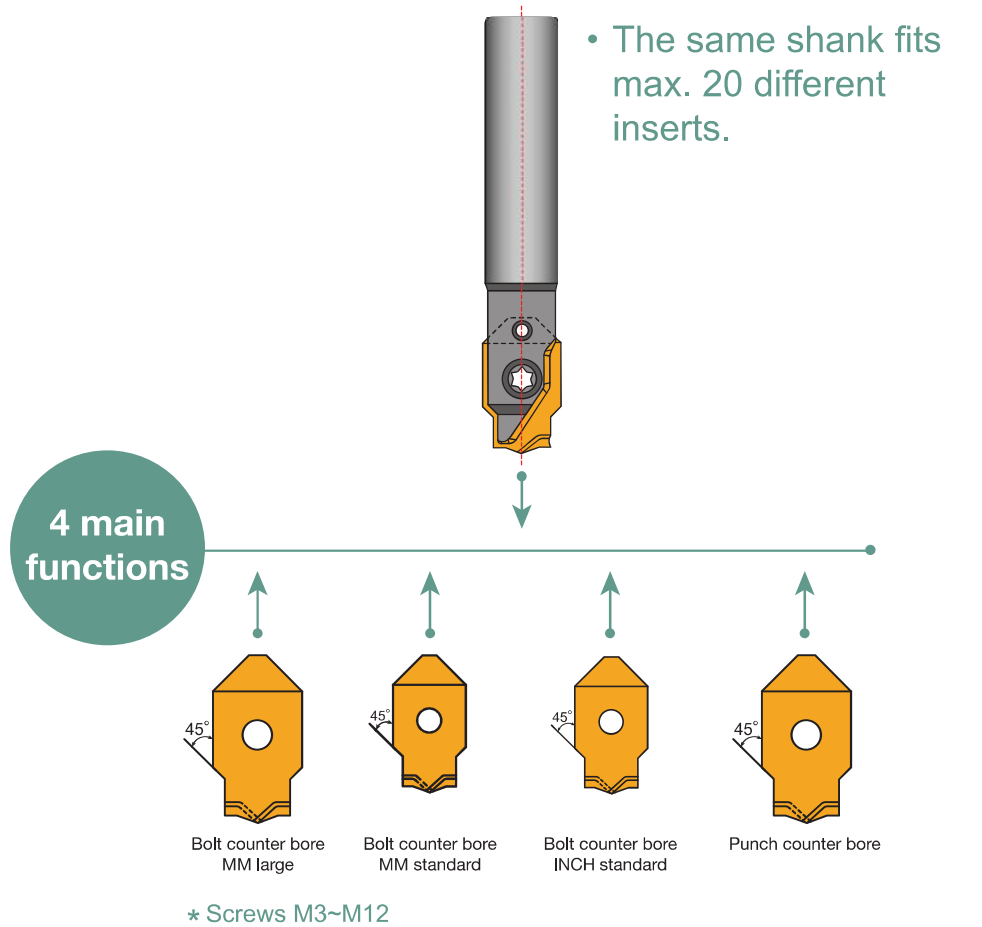
4 in 1 counter bore = 1+3+4+5



- Finish 4 operations in one.
- Extremely accuracy in center positioning, minimized eccentricity $\pm 0.008\text{mm}$.
- Create a counter bore within 3 seconds.

Counterbore

Product Design



Machines And Tools Application

Suitable for various kinds of machines



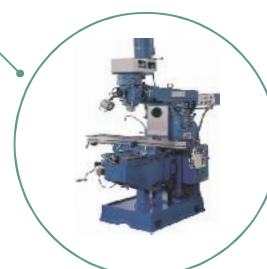
A. Drilling machine



B. CNC Milling machine



C. Radial drilling machine



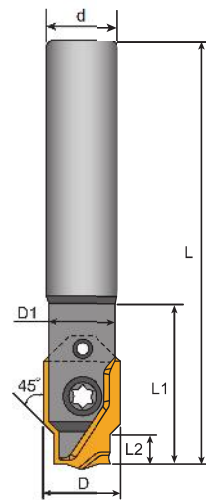
D. Traditional milling machine

Counterbore

4 in 1 Counter Bore Shank

- Inserts P. 233 - 235
- Cutting Data P. 237

14

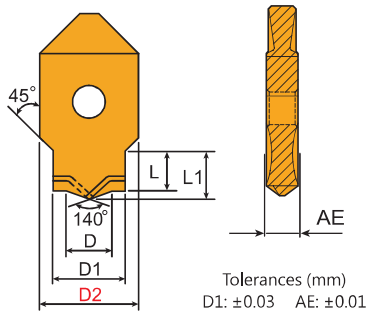


Order Code	Socket Cap Screw Size		Dimensions (mm)						KG	Screw	Key
	MM	INCH	D	D1	d	L	L1	L2			
14-0803-70	3.0	1/8	8	7.4	8	70	15	3.1	0.08	C02506 S025025	T08P L013
14-0803-90	3.5	-				90	20	3.6			
14-1004-80	4.0	3/16	10	9.4	10	80	16	4.2	0.11	C03007 S02503	T09P L013
14-1004-100		-				100	21		0.12		
14-1206-80	5.0	-	12	11.3	12	80	20	5.3	0.12	C03008 S0303	T09P L015
14-1206-110	6.0	1/4				110	25	6.4			
14-1208-80	7.0 8.0	5/16	16	15.4	16	80	22	8.4	0.13	C03510 S0405	T10P L02
14-1608-100		-				100	25	7.4 8.4			
14-1608-130		5/16				130	30				
14-2010-100	10	3/8	20	19.0	20	100	30	10.3	0.30	C04012 S0506	T15P L025
14-2010-140	12					140			35		

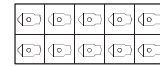
232

4 in 1 Counter Bore Inserts

MM / INCH standard size dimensions- DIN373



Inserts 6 PCS / Box
Only for insert : 26-20***



Inserts 10 PCS / Box

Dimensions (mm)							Socket Cap Screw Size	
D	D1	D2	L	L1	AE	MM	INCH	
3.6	5.8	8	3.1	3.7	2.0	M3.0	1/8	
4.1	6.3		3.6	4.3		M3.5	-	
4.6	7.4	10	4.2	5.0	2.5	M4.0	-	
5.6	9.3	12	5.3	6.2	3.0	M5.0	3/16	
6.7	10.4		6.4	7.4		M6.0	1/4	
7.7	11.5	16	7.4	8.4	3.5	M7.0	-	
8.7	13.5		8.4	9.8		M8.0	5/16	
10.8	16.5	20	10.3	12.0	3.5	M10	3/8	
13.3	19.0		12.3	14.5		M12	-	

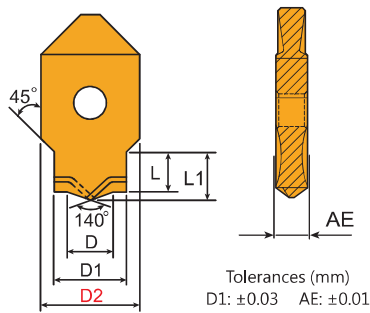
Inserts	Order Code	Grades									Corresponding shank											
		Carbide					Cermets			Uncoated												
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10		CE										
	26-0803-E																					
	26-0803-M		⊙																			14-0803-70 14-0803-90
	26-0835-E																					
	26-0835-M		⊙																			
	26-1004-E																					14-1004-80 14-1004-100
	26-1004-M		⊙																			
	26-1205-E																					
	26-1205-M		⊙																			14-1206-80 14-1206-110
	26-1206-E																					
	26-1206-M		⊙																			
	26-1607-E																					
	26-1607-M		⊙																			14-1208-80 14-1608-100 14-1608-130
	26-1608-E																					
	26-1608-M		⊙																			
	26-2010-E																					
	26-2010-M		⊙																			14-2010-100 14-2010-140
	26-2012-E																					
	26-2012-M		⊙																			

- 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.: 26-0803-E,F20

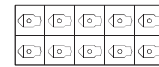
Counterbore

4 in 1 Counter Bore Inserts

MM large size dimensions- DIN373



Inserts 6 PCS / Box
Only for insert : 26-20***



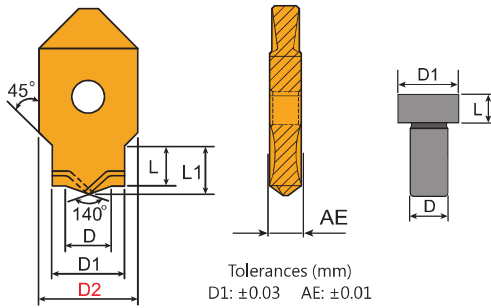
Inserts 10 PCS / Box

Dimensions (mm)						Socket Cap Screw Size
D	D1	D2	L	L1	AE	MM
3.8	6.5	8	3.1	3.7	2.0	M3.5
4.8	8.0	10	4.2	5.0	2.5	M4
5.8	10	12	5.3	6.2	3.0	M5
6.9	11		6.4	7.4		M6
9.3	15	16	8.4	9.8		M8
11.3	18	20	10.3	12	3.5	M10

Inserts	Order Code	Grades									Corresponding shank		
		Carbide					Cemet			Uncoated			
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10		CE	
	26-0803S-E												14-0803-70
	26-0803S-M		⊙										14-0803-90
	26-1004S-E												14-1004-80
	26-1004S-M		⊙										14-1004-100
	26-1205S-E												14-1206-80 14-1206-110
	26-1205S-M		⊙										
	26-1206S-E												
	26-1206S-M		⊙										
	26-1608S-E												14-1208-80
	26-1608S-M		⊙										14-1608-100 14-1608-130
26-2010S-E												14-2010-100	
26-2010S-M		⊙										14-2010-140	

- 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.: 26-0803S-E,F20

4 in 1 Punch Counter Bore Inserts



Inserts 6 PCS / Box
Only for insert : 27-20***



Inserts 10 PCS / Box

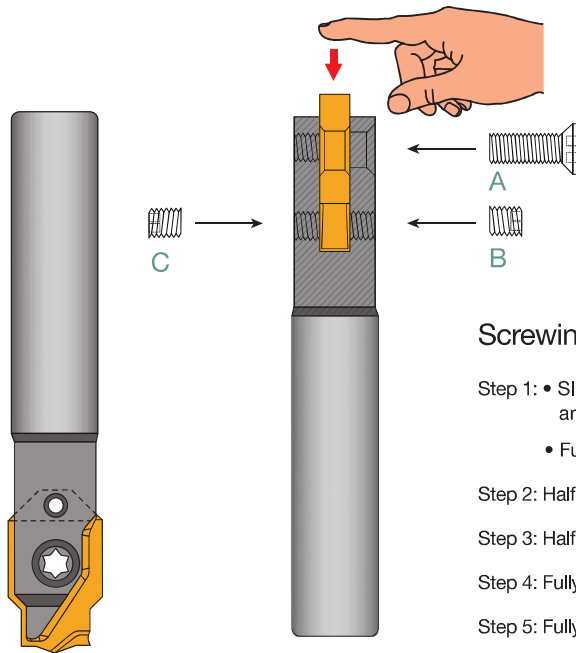
Dimensions (mm)						Socket Cap Screw Size
D	D1	D2	L	L1	AE	MM
5.0	8	10	5	-	2.5	M5.0
5.5						M5.5
6.0	10	12	6	-	3.0	M6.0
6.5						M6.5
7.0	11	12	6	-	3.0	M7.0
7.5						M7.5
8.0	13	16	8	-	3.5	M8.0
9.0						M9.0
10	15	16	8	-	3.5	M10
11						M11
12	17	20	8	-	3.5	M12
14						M14

Inserts	Order Code	Grades										Corresponding shank	
		Carbide					Cermet			Uncoated			
		C125	B350	C350	F20	F30	CE25	CE100	CE60	K10	CE		
	27-1005-M												14-1004-80
	27-10055-M												14-1004-100
	27-1206-M												14-1206-80
	27-12065-M												14-1206-110
	27-1207-M												
	27-12075-M												
	27-1608-M												14-1208-80
	27-1609-M												14-1608-100
	27-1610-M												14-1608-130
	27-2011-M												14-2010-100
	27-2012-M												14-2010-140
	27-2014-M												

- 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 present conditions
- Please specify model numbers and the grade of inserts, ie.: 27-1005-M,C350

Counterbore

How to Fit Insert - Screw A.B.C.



Screwing the Inserts


- Step 1: • Slot the insert into the shank and push it against on the bottom
 • Fully tighten the screw A first
- Step 2: Half tighten the screw B on one side
- Step 3: Half tighten the screw C on other side
- Step 4: Fully tighten the screw B again
- Step 5: Fully tighten the screw C again

Standard spare parts

Insert dimension D2 (mm)	Screw A	Screw B/C	Key	Key
8	C02506	S025025	T08P	L013
10	C03007	S02503	T09P	L015
12	C03008	S0304		L02
16	C03510	S0404	T15P	L025
20	C04012	S0506		L025

Recommended Cutting Data And Insert Grade

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

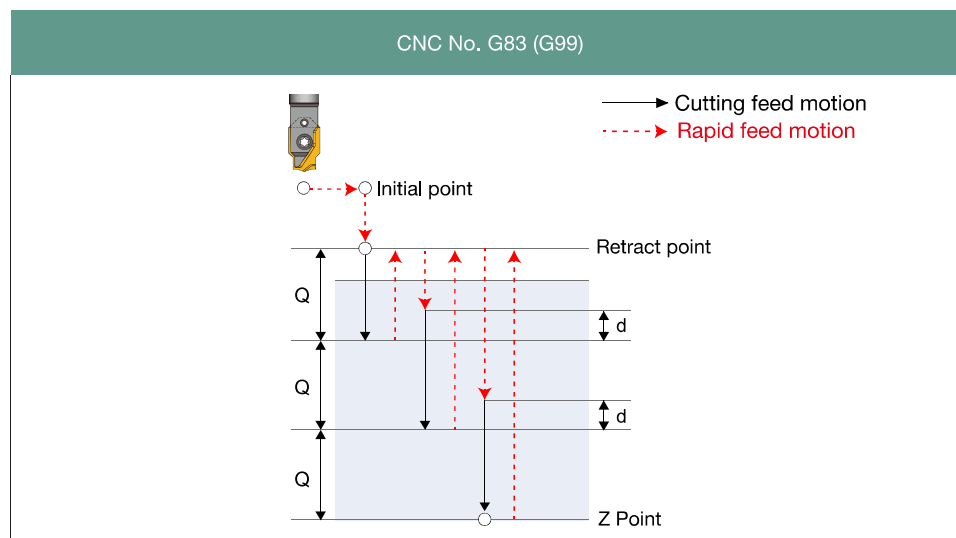
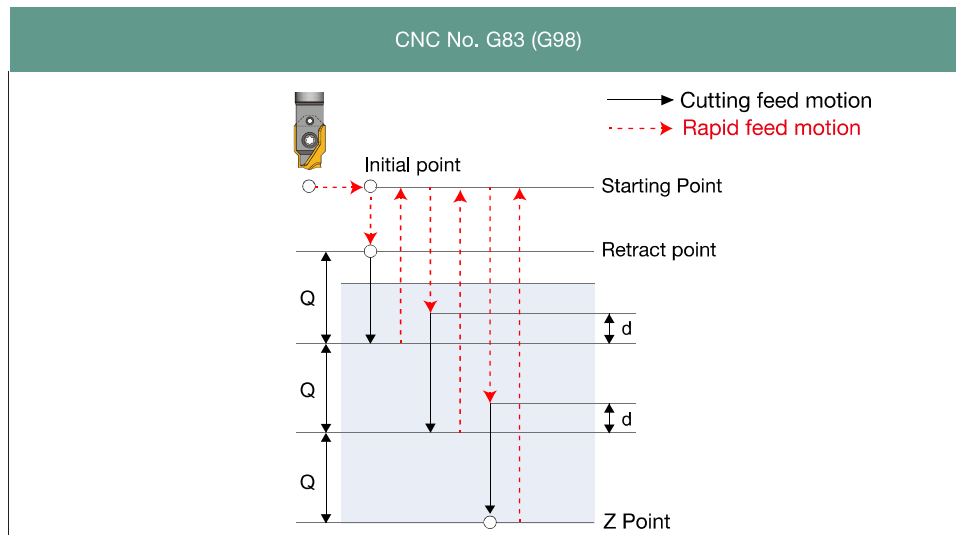
Material group	 Cutting Speed Vc (m/min)	fz (mm/ tooth)				Grades	
		140°				M	E
		(D2) 8	(D2) 10	(D2) 12	(D2) 16-20		
1-2	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350/C350	-
3	50-70	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350/C350	-
4-5-6	45-60	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	B350/C350	-
7	25-30	0.04 0.06	0.04 0.06	0.05 0.07	0.05 0.07	B350	-
8-9	35-45	0.06 0.08	0.06 0.08	0.07 0.09	0.07 0.09	B350	-
10-11	35-40	0.05 0.07	0.05 0.07	0.06 0.08	0.06 0.08	B350	-
12-13	70-90	0.12 0.15	0.12 0.15	0.13 0.16	0.13 0.16	F30	-
14-15	60-80	0.11 0.14	0.11 0.14	0.12 0.15	0.12 0.15	F30	-
16-18	100-150	0.10 0.13	0.10 0.13	0.11 0.14	0.11 0.14	-	F20

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

Counterbore

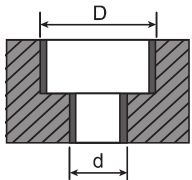
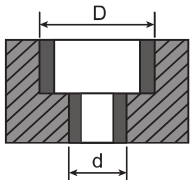
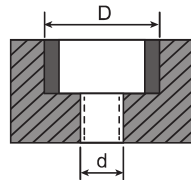
4 In 1 Counter Bore Program Description

Peck drilling (CNC No.G83)



- The G83 peck drilling cycle is for deep hole drilling and with chip breaking. The retracts cycle cleans chips in the hole and cut off long stringers (which happens often while drilling aluminum materials). This cycle takes a Q number which represents a "delta" increment along with the Z-axis.
- Program: G83 X_Y_Z_Q_R_F. It is an error if: The Q number is negative or zero.
- Peck drilling is not necessary in cast iron machining.

Bolt counter bore dimensions (DIN 373 - ISO 4205)

Screw Dimensions	Standard (D x d)	Large (D x d)	Screw (D x d)
Dimension			
M1.0	2.1 x 1.1	2.2 x 1.2	2.2 x 0.75
M1.2	2.4 x 1.3	2.5 x 1.4	2.5 x 0.95
M1.4	2.7 x 1.5	2.8 x 1.6	2.8 x 1.1
M1.5-M1.6	3.2 x 1.7	3.3 x 1.8	3.3 x 1.25
M1.7	3.7 x 1.8	3.8 x 1.9	3.8 x 1.3
M2.0	4.2 x 2.2	4.3 x 2.4	4.3 x 1.6
M2.2	4.6 x 2.4	4.8 x 2.6	4.8 x 2.6
M2.3	5.0 x 2.7	5.2 x 2.9	5.0 x 1.9
M2.5-M2.6	5.4 x 2.8	5.5 x 3.0	5.5 x 2.1
M3.0	5.8 x 3.2	6.0 x 3.4	6.0 x 2.5
M3.5	6.3 x 3.7	6.5 x 3.9	6.5 x 2.9
M4.0	7.4 x 4.3	8.0 x 4.5	8.0 x 3.3
M5.0	9.3 x 5.3	10.0 x 5.5	10.0 x 4.2
M6.0	10.4 x 6.4	11.0 x 6.6	11.0 x 5.0
M8.0	13.5 x 8.4	15.0 x 9.0	15.0 x 6.8
M10	16.5 x 10.5	18.0 x 11	18.0 x 8.5
M12	19.0 x 13	20.0 x 14	20.0 x 10.2
M14	24.0 x 15	24.0 x 16	-
M16	26.0 x 17	26.0 x 18	-

Counterbore

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

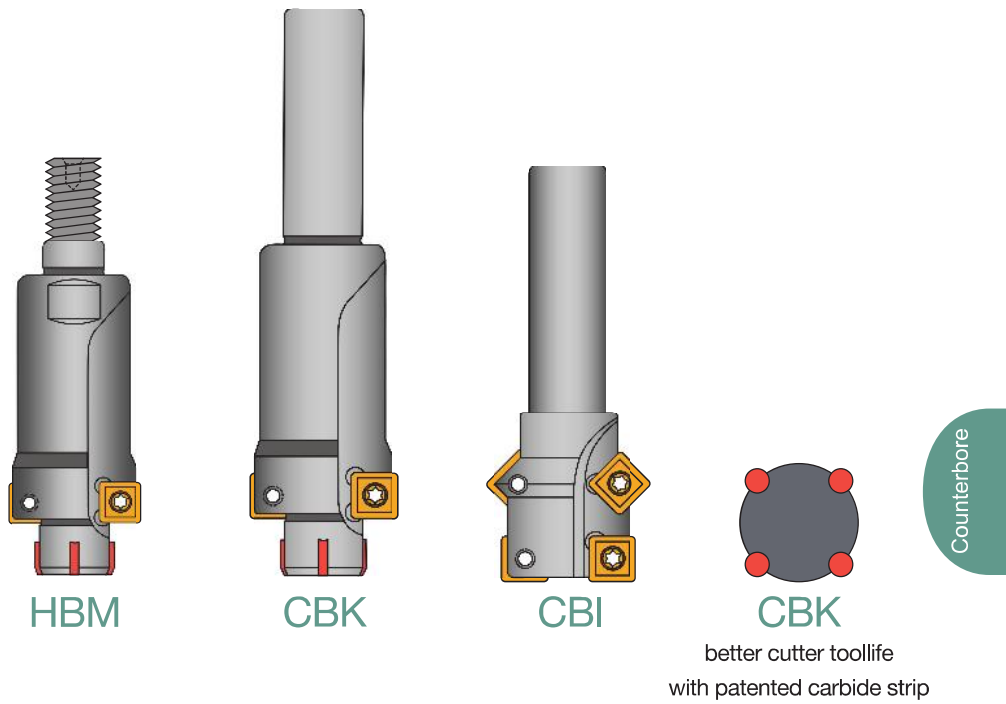
Product Design



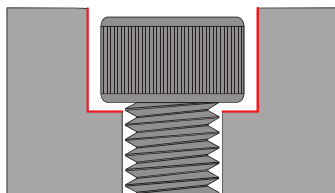
Counter bore tools application for bolts, nuts & screws

 Patent No. ZL 01 2 23413.3

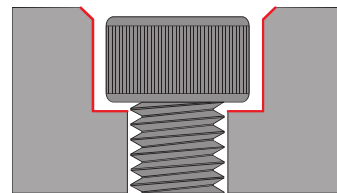
 PCT Priority



Screw ranges M8~M36



counterbore

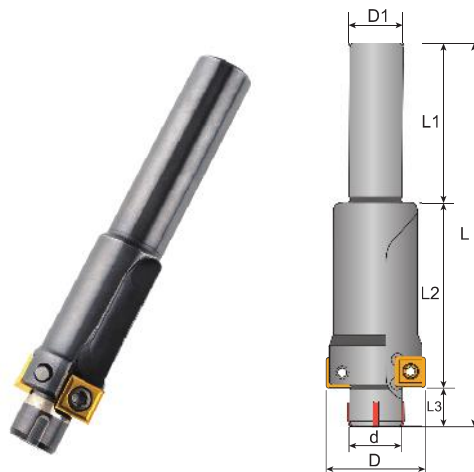


counterbore + chamfer

PRODUCT SPECIFICATIONS

Counterbore Toolholders

- Inserts P. 245
- Cutting Data P. 245



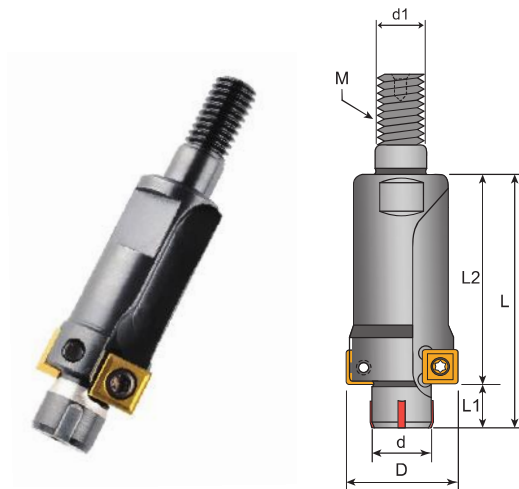
CBK

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	C02506	T15P
CBK-12	22												
CBK-12S	24	14.9	12	90	38	44	8	2	0.20	17000	09T308	C04007	T15P
CBK-14	25	15.4											
CBK-14S	26	17.4											
CBK-16	27												
CBK-16S	27												

Counterbore Combi Cutters

- Toolholder P. 285
- Inserts P. 245
- Cutting Data P. 245



Counterbore

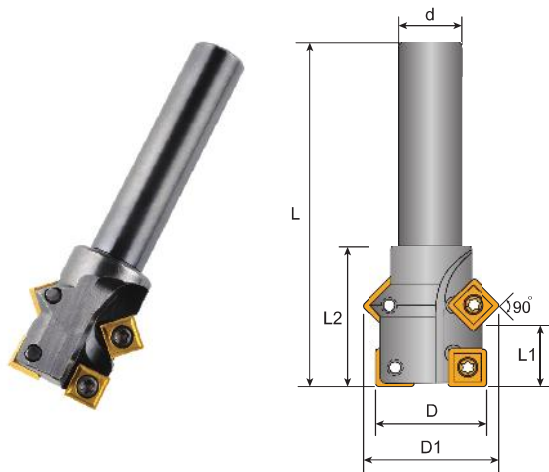
HBM

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	0.40	15000	09T308	C04010	T15P
HBM-24	40	25.9	62		52								
HBM-30	50	32.9	62		52								
HBM-36	58	38.8	62						0.65	10000			

Counterbore + Chamfer Toolholders

- Inserts P. 245
- Cutting Data P. 245

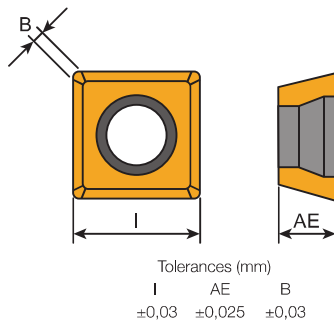


CBI

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				0.09				
CBI-12	20	12	23.8	70	13	30			0.12	22000			
CBI-14	24		31.4		15				0.17				
CBI-16	26	16	33.4	80	16.5	33			0.20	17000			
CBI-18	29		35.4		19.5				0.25	16000			
CBI-20	33	37.4	21	0.27									
CBI-22	36	20	40.4	90	23.5	40			0.41	15000			
CBI-24	40		44.4		25				0.45				
CBI-30	50	25	53.4	100	34	50			0.71	14000			
CBI-36	58		61.4		38		0.94						

SDET/SEHT Inserts



Inserts 10 PCS / Box

Code	Dimensions (mm)		
	I	AE	B
060208	6.0	2.3	0.4
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	⊗								

- 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 present conditions
- Please specify model numbers and the 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	0.06 0.10	0.10 0.15	B100	B100
3	35-60	0.06 0.10	0.08 0.12	B100	B100
4-5-6	30-55	0.06 0.10	0.08 0.10	B100	B100
7	20-30	0.06 0.08	0.06 0.08	B100	B100
12-13	40-70	0.08 0.12	0.10 0.15	F30	F30
14-15	35-65	0.08 0.10	0.10 0.15	F30	F30