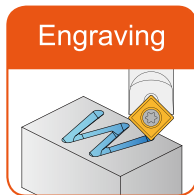
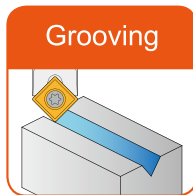
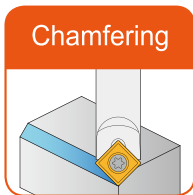
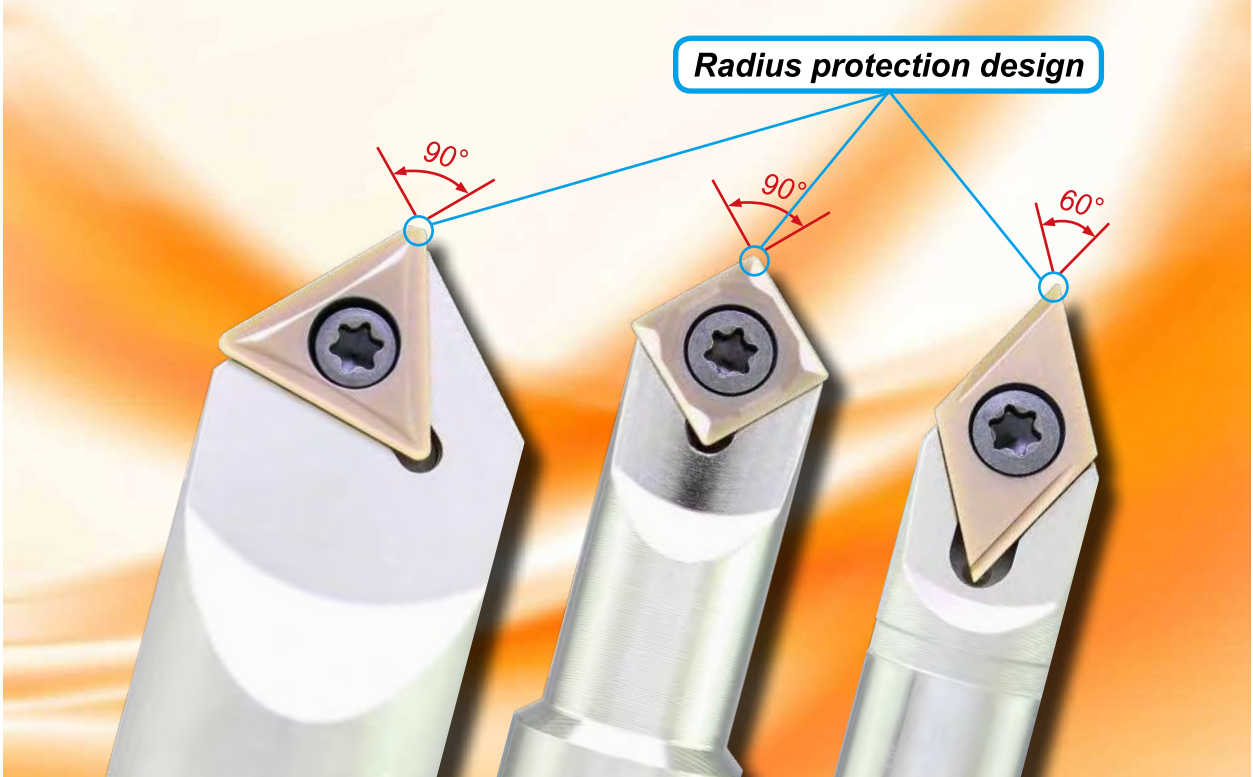


DTS Chamfering & Engraving



- Multiple-function in one tool.
- Many cutting edges insert for better cost efficiency.
- Working size up to 20mm.

DTS6 60° Chamfering & Engraving

Insert Order Code and Specifications

Insert	Order No.	Designation	r	Working Ød	Working Materials						Figure
					Engraving	P	M	K	N	S	
	IDCEX11T301XF32HS	DCEX11T301-XF-CX32HS	0.1	0.2 ~ 1	●	●	●	※	○	○	
	IDCEX11T302XF32HS	DCEX11T302-XF-CX32HS	0.2	0.4 ~ 2	●	●	●	※	○	○	
	IDCEX11T304XF32HS	DCEX11T304-XF-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T304XR32HS	DCEX11T304-XR-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T308XR32HS	DCEX11T308-XR-CX32HS	0.8	0.8 ~ 3	●	●	●	※	○	○	

※ To choose CX10(uncoating) for N material machining.

Recommended Cutting Conditions

for 60° Chamfering / Countersinking

	Material	Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	12 ~ 180	0.05 ~ 0.15
	Alloy Steel	12 ~ 180	0.05 ~ 0.15
M	Stainless Steel	12 ~ 180	0.05 ~ 0.15
K	Cast Iron	12 ~ 180	0.05 ~ 0.15
N	Aluminum	12 ~ 180	0.10 ~ 0.20
H	Hardened Steel	12 ~ 180	0.03 ~ 0.10

for 60° Grooving / Engraving

	Material	Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	10 ~ 170	0.005 ~ 0.05
	Alloy Steel	10 ~ 170	0.005 ~ 0.03
M	Stainless Steel	10 ~ 170	0.005 ~ 0.05
K	Cast Iron	10 ~ 170	0.005 ~ 0.03
N	Aluminum	10 ~ 170	0.005 ~ 0.08
H	Hardened Steel	10 ~ 170	0.005 ~ 0.02

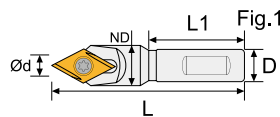
for 60° Depth of Cut and Number of Passes

No. of Passes	Material					
	Aluminum	Cast iron	Carbon steel	Alloy steel	Stainless steel	Hardened steel
	ap (mm)					
1	1.0	0.8	0.8	0.6	0.5	0.2
2	0.8	0.7	0.6	0.5	0.4	0.2
3	0.2	0.3	0.3	0.3	0.3	0.15
4		0.2	0.2	0.3	0.3	0.15
5			0.1	0.2	0.2	0.1
6				0.1	0.2	0.1
7					0.1	0.1

※ Finally ap is equal to the total depth.

MAX ap : 2mm

Holder Order Code and Specifications


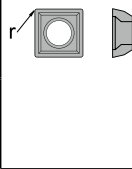



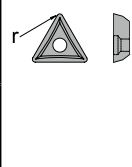




Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1006006011	10	12	60	30	60°	1	DCEX11T3	ITS3520	ITK15	●
IDTS1210006011	12	12	100	-	60°	2				●

● stock ○ by inquiry

DTS9 90° Spotting & Countersinking

■ Insert Order Code and Specifications

Insert	Order No.	Designation	r	Working Ød		Working Materials						Figure
				Spotting	Engraving	P	M	K	N	S	H	
	ISCX09T304AG10	SCGX09T304-AG-CX10	0.4	2 ~ 11	0.8 ~ 2.5				●			
	ISCX09T304FG12HS	SCGX09T304-FG-CX12HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	●	●		
	ISCMX09T304SM32HS	SCMX09T304-SM-CX32HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●		○	○	
	ITCGX16T308AG10	TCGX16T308-AG-CX10	0.8	3 ~ 20	1.6 ~ 4.0				●			
	ITCGX16T308FG12HS	TCGX16T308-FG-CX12HS	0.8	3 ~ 20	1.6 ~ 4.0	●	●	●	●	●		
	ITCMX16T308MP32HS	TCMX16T308-MP-CX32HS	0.8	-	-	●	●	●		○	○	

Holermaking

Spotting & Centering Drills

Recommended Cutting Conditions

for 90° Spotting

Material	Vc (m/min)		Fr (mm/rev)	
	Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm	Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm
P Carbon steel	60 ~ 120	90 ~ 220	0.04 ~ 0.08	0.06 ~ 0.10
Alloy steel	50 ~ 100	75 ~ 180	0.03 ~ 0.06	0.05 ~ 0.08
M Stainless steel	30 ~ 60	45 ~ 120	0.02 ~ 0.04	0.04 ~ 0.06
K Cast iron	40 ~ 80	60 ~ 130	0.04 ~ 0.08	0.06 ~ 0.10
H Hardened steel	20 ~ 40	30 ~ 60	0.02 ~ 0.04	0.04 ~ 0.08

for 90° Chamfering / Countersinking

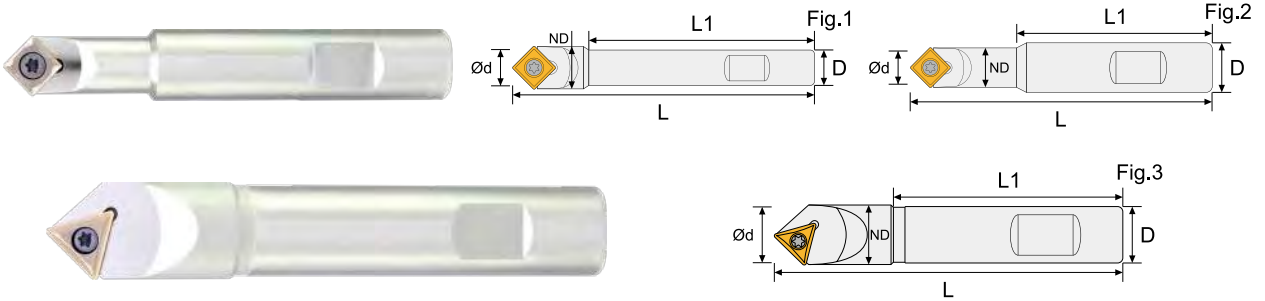
Material	Vc (m/min)	Fr (mm/rev)
P Carbon steel	60 ~ 270	0.15 ~ 0.24
Alloy steel	50 ~ 220	0.12 ~ 0.20
M Stainless steel	35 ~ 120	0.10 ~ 0.20
K Cast iron	60 ~ 220	0.15 ~ 0.25
H Hardened steel	20 ~ 60	0.03 ~ 0.08

for 90° Grooving / Engraving

Material	Vc (m/min)	Fr (mm/rev)
P Carbon steel	40 ~ 140	0.12 ~ 0.18
Alloy steel	35 ~ 120	0.10 ~ 0.14
M Stainless steel	25 ~ 70	0.08 ~ 0.12
K Cast iron	30 ~ 100	0.12 ~ 0.18
H Hardened steel	20 ~ 50	0.02 ~ 0.04

DTS9 90° Chamfering & Engraving

Holder Order Code and Specifications



Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1010009009	10	12.2	100	71	90°	1	SCGX09T3 or SCMX09T3	ITS3520	ITK15	●
IDTS1210009009	12	12.2	100	71	90°	2				●
IDTS1610009009	16	12.2	100	71	90°					●
IDTS1613009009	16	12.2	130	101	90°					●
IDTS2012009016	20	21.2	120	78	90°	3	TCGX16T3 or TCMX16T3	ITS3521	ITK15	●

● stock ○ by inquiry

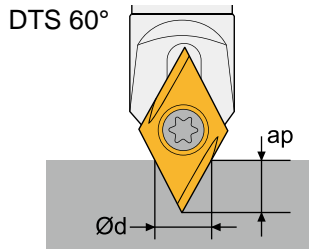
DTS Chamfering & Engraving

How to calculate Ød ,RPM and Feed

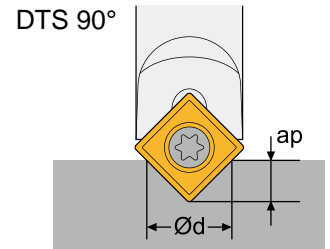
Formula :

$$RPM = \frac{Vc \times 1000}{\text{Ød} \times \pi}$$

$$\text{Feed} = RPM \times Fr$$



$$\text{Ød} \cong (0.577 \times (ap + r) + 0.05) \times 2$$



$$\text{Ød} \cong (0.4r + ap + 0.05) \times 2$$

EX :

Working Material = Cast iron

Use insert = SCGX09T304

Application = 90° Spotting

ap = 2.5mm

$$\text{Ød} = (0.4r + ap + 0.05) \times 2 = (0.4 \times 0.4 + 2.5 + 0.05) \times 2 = 5.42 \text{ mm}$$

Reference conditions table get $Vc \cong 85 \text{ m/min}$ and $Fr \cong 0.075 \text{ mm/rev}$

$$RPM = (Vc \times 1000) / (\text{Ød} \times \pi) = (85 \times 1000) / (5.42 \times \pi) \cong 5000$$

$$\text{Feed} = RPM \times Fr = 5000 \times 0.075 = 375 \text{ mm/min}$$

Working Demonstration



Cutting parameter	
Tools	DTS 90° with SCMX09T304-SP CX32HS
Material	Cast Iron
Coolant	Dry
Application	Spotting
Vc	85 m/min
S	4800 rpm
Feed	360 mm/min
ap	2.5 mm