

DTS Series Indexable Spotting Drills

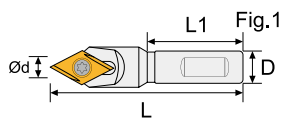
- *Multiple-function in one tool.*
- *Many cutting edges insert for better cost efficiency.*
- *Working size up to 20mm.*

P	M	K	N	S	H
●	●	●		○	○

Radius protection design



■ DTS 60° Series

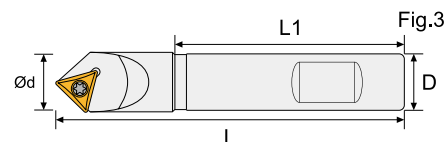
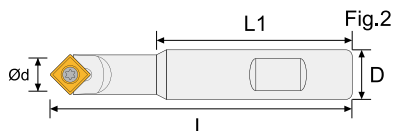
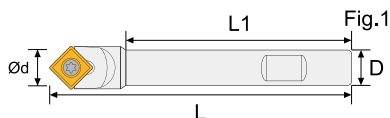


Order No.	D	L	L1	Degree	Fig	Insert	Screw	Wrench
IDTS1006006011	10	60	30	60°	1	DCEX11T3 or DCEW11T3	TS3520	TK15
IDTS1210006011	12	100	-	60°	2			

Insert	Order No.	Designation	r	Working Ød		Working Materials						Figure
				Spotting	Engraving	P	M	K	N	S	H	
	IDCEX11T301XF32HS	DCEX11T301-XF CX32HS	0.1	0.2 ~ 6.8	0.2 ~ 1	●	●	●	※	○	○	
	IDCEX11T302XF32HS	DCEX11T302-XF CX32HS	0.2	0.4 ~ 6.8	0.4 ~ 2	●	●	●	※	○	○	
	IDCEX11T304XF32HS	DCEX11T304-XF CX32HS	0.4	0.8 ~ 6.8	0.8 ~ 3	●	●	●	※	○	○	
	IDCEW11T30432HS	DCEW11T304 CX32HS	0.4	0.8 ~ 6.8	0.8 ~ 3	●	●	●	※	○	○	
	IDCEW11T30832HS	DCEW11T308 CX32HS	0.8	0.8 ~ 6.8	0.8 ~ 3	●	●	●	※	○	○	

※ To choose CX03(uncoating) for **N** material machining.

■ DTS 90° Series



Order No.	D	L	L1	Degree	Fig	Insert	Screw	Wrench
IDTS1010009009	10	100	71	90°	1	SCMX09T3	TS3520	TK15
IDTS1210009009	12	100	71	90°	2			
IDTS1610009009	16	100	71	90°				
IDTS1613009009	16	130	101	90°				
IDTS2012009016	20	120	78	90°	3	TCMX16T3	TS3521	

Insert	Order No.	Designation	r	Working Ød		Working Materials						Figure
				Spotting	Engraving	P	M	K	N	S	H	
	ISCMX09T304SP32HS	SCMX09T304-SP CX32HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	※	○	○	
	ITCMX16T308MP32HS	TCMX16T308-MP CX32HS	0.8	3 ~ 20	1.6 ~ 4.0	●	●	●	※	○	○	

※ To choose CX03(uncoating) for **N** material machining.

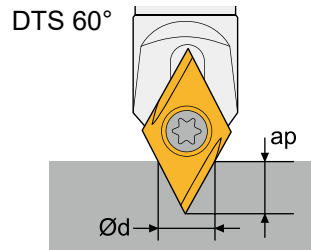
DTS Series Cutting Conditions

How to calculate $\varnothing d$, RPM and Feed

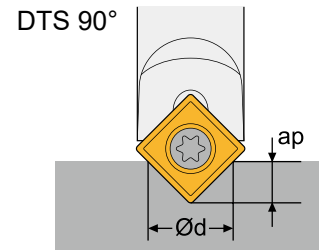
Formula :

$$RPM = \frac{V_c \times 1000}{\varnothing d \times \pi}$$

$$Feed = RPM \times Fr$$



$$\varnothing d \approx 0.57 \times (ap + 0.5 \times r) \times 2$$



$$\varnothing d \approx (ap + 0.3) \times 2$$

EX :

Working Material = Cast iron

Application = 90° Spotting

ap = 2.5mm

$$\varnothing d = (ap + 0.3) \times 2 = (2.5 + 0.3) \times 2 = 5.6 \text{ mm}$$

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

$$RPM = (V_c \times 1000) / (\varnothing d \times \pi) = (85 \times 1000) / (5.6 \times \pi) \approx 4800$$

$$Feed = RPM \times Fr = 4800 \times 0.075 = 360 \text{ mm/min}$$

Recommended Cutting Conditions

for 60° Spotting

	Material	VC (m/min)	Fr (mm/rev)
P	Carbon steel	11 ~ 33	0.01 ~ 0.05
	Alloy steel	11 ~ 33	0.01 ~ 0.03
M	Stainless steel	11 ~ 33	0.01 ~ 0.05
K	Cast iron	11 ~ 33	0.01 ~ 0.03
N	Aluminum	11 ~ 33	0.02 ~ 0.06
H	Hardened steel	11 ~ 33	0.01 ~ 0.02

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

※ Total below 2mm ap, each cycle 0.1 ~ 0.8mm ap

DTS Series Cutting Conditions

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

Working Demonstration



Cutting parameter

Tools	DTS 90° with SCM09T304-SP CX32HS
Material	Cast Iron
Coolant	Dry
Application	Spotting
Vc	85 m/min
S	4800 rpm
Feed	360 mm/min
ap	2.5 mm

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