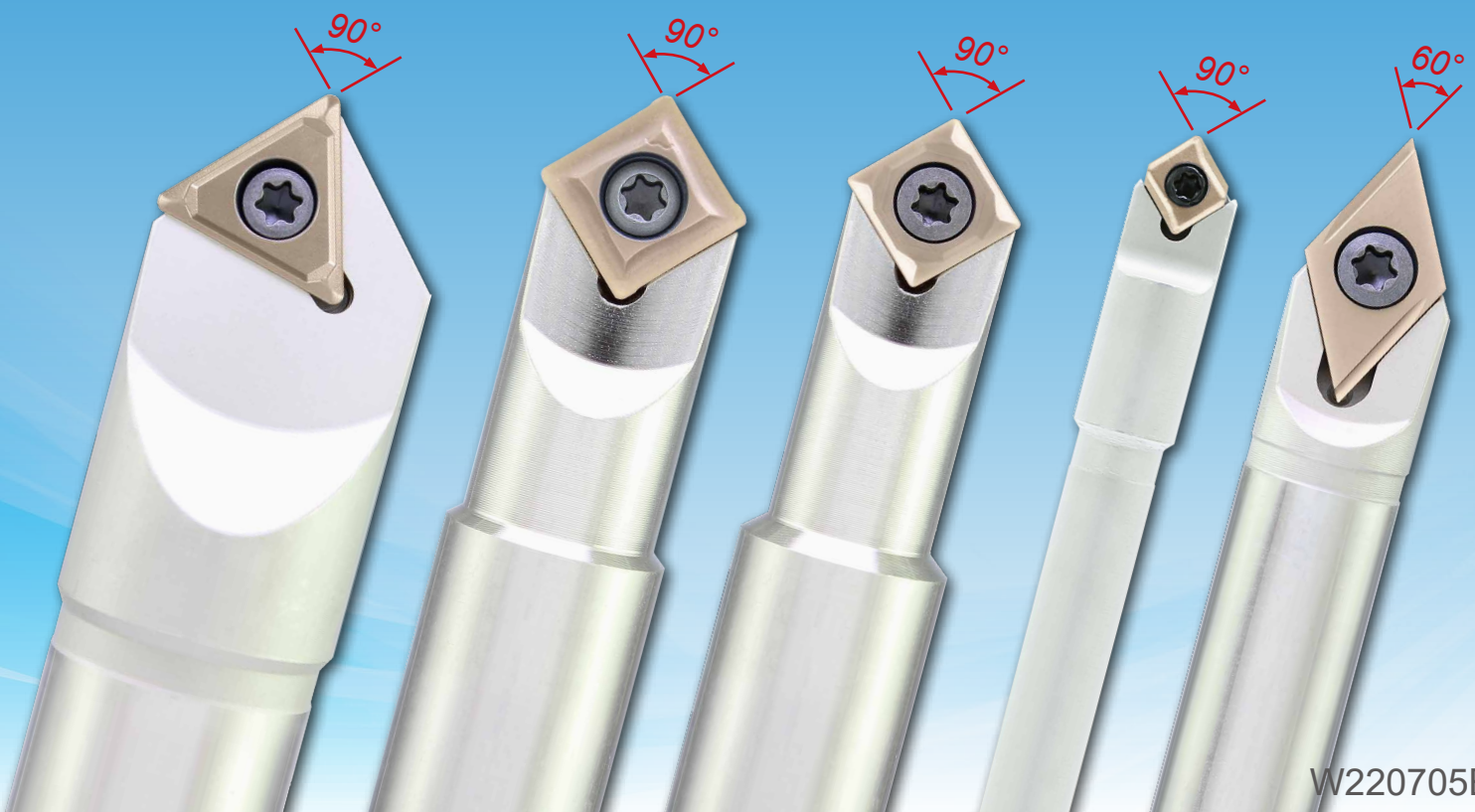


DTS *Indexable Multiple Functions Drills*

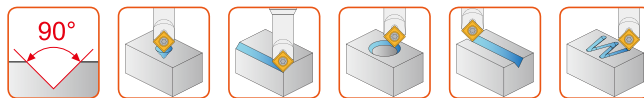
刃先交換式多機能ドリル

- Five functions in one tool.
- 60° and 90° tip angle designs for various applications.
- 5種類の加工に適しています
- 60°及び90°の先端設計は様々な加工に適しています

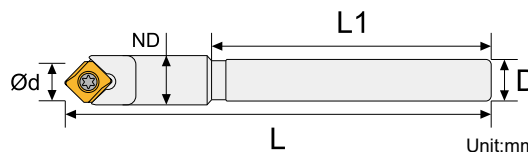


DTS 90 - 90° Multiple Functions Drills 刃先交換式多機能ドリル

Holder Specifications ホルダー仕様

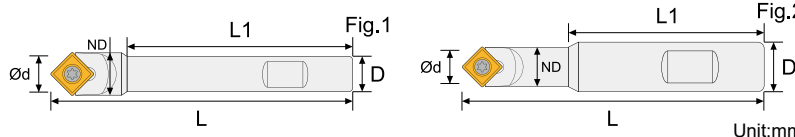


DTS 90 - SDM05T1 (for small lathe 小型旋盤用)

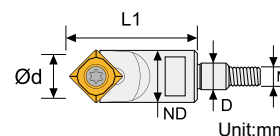


Order No. 注文型番	D	L	ND	L1	Spotting Ød	Engraving Ød	Insert	Screw	Wrench
IDTS0604009005	6	40	7	20	1 ~ 5	0.8 ~ 1.5	SDMX05T1	ITS1801	ITK06
IDTS0606009005	6	60	7	40					

DTS 90 - SCGX09T3, SCMX09T3

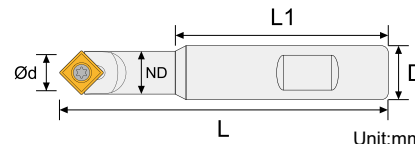


Order No. 注文型番	D	L	ND	L1	Fig	Spotting Ød	Engraving Ød	Insert	Screw	Wrench
IDTS1010009009	10	100	12.2	71	1	2 ~ 11	0.8 ~ 2.5	SCGX09T3 SCMX09T3	ITS3520	ITK15
IDTS1210009009	12	100	12.2	71						
IDTS1610009009	16	100	12.2	71	2					
IDTS1613009009	16	130	12.2	101						



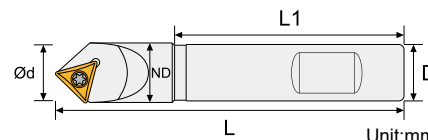
Order No. 注文型番	L1	ND	D	M	Spotting Ød	Engraving Ød	Insert	Screw	Wrench
IDTSM603009009	30	12.4	6.5	M6	2 ~ 11	0.8 ~ 2.5	SCMX09T3	ITS3520	ITK15

DTS 90 - SDM05T3



Order No. 注文型番	D	L	ND	L1	Spotting Ød	Engraving Ød	Insert	Screw	Wrench
IDTS1610009011	16	100	14.1	71	3 ~ 14	1.6 ~ 4.0	SDMX11T3	ITS3521	ITK15



DTS 90 - TCMX16T3



Order No. 注文型番	D	L	ND	L1	Spotting Ød	Engraving Ød	Insert	Screw	Wrench
IDTS2012009016	20	120	21.2	78	3 ~ 20	1.6 ~ 4.0	TCMX16T3	ITS3521	ITK15

DTS 90 - 90° Multiple Functions Drills 刃先交換式多機能ドリル

Insert Designation チップ型番

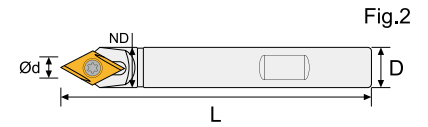
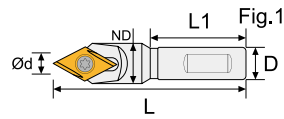
Insert	Order No. 注文型番	Designation 型番	r	Spotting Ød	Engraving Ød	P	M	K	N	S	H
	ISCX09T304AG10	SCGX09T304-AG-CX10	0.4	2 ~ 11	0.8 ~ 2.5				●		
	ISCX09T304FG12HX	SCGX09T304-FG-CX12HX	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	○	●	●
	ISCMX09T304SM32HX	SCMX09T304-SM-CX32HX	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	○	●	○
	ISDMX05T104FG12HX	SDMX05T104-FG-CX12HX	0.4	1 ~ 5	0.8 ~ 1.5	●	●	●	○	●	●
	ISDMX05T104FG32HX	SDMX05T104-FG-CX32HX	0.4	1 ~ 5	0.8 ~ 1.5	●	●	●	○	●	○
	ISDMX11T308SG33TX	SDMX11T308-SG-CX33TX	0.8	3 ~ 14	1.6 ~ 4.0	●	●	●		●	●
	ITCMX16T308SM32HX	TCMX16T308-SM-CX32HX	0.8	3 ~ 20	1.6 ~ 4.0	●	●	●	○	●	●

DTS 60 - 60° Multiple Functions Drills 刃先交換式多機能ドリル

Holder Specifications ホルダー仕様



DTS 60 - DCEX11T3



Unit:mm

Order No. 注文型番	D	L	ND	L1	Fig	Insert	Screw	Wrench
IDTS1006006011	10	60	12	30	1	DCEX11T3	ITS3520	ITK15
IDTS1210006011	12	100	12	-	2			

Insert Designation チップ型番

Insert	Order No. 注文型番	Designation 型番	r	Engraving ϕd	P	M	K	N	S	H
	IDCEX11T301XF32HX	DCEX11T301-XF-CX32HX	0.1	0.2 ~ 1	●	●	●	●	●	
	IDCEX11T302XF32HX	DCEX11T302-XF-CX32HX	0.2	0.4 ~ 2	●	●	●	●	●	
	IDCEX11T304XF32HX	DCEX11T304-XF-CX32HX	0.4	0.8 ~ 3	●	●	●	●	●	
	IDCEX11T301XR32HX	DCEX11T301-XR-CX32HX	0.1	0.8 ~ 3	●	●	●		●	●
	IDCEX11T302XR32HX	DCEX11T302-XR-CX32HX	0.2	0.8 ~ 3	●	●	●		●	●
	IDCEX11T304XR32HX	DCEX11T304-XR-CX32HX	0.4	0.8 ~ 3	●	●	●		●	●
	IDCEX11T308XR32HX	DCEX11T308-XR-CX32HX	0.8	0.8 ~ 3	●	●	●		●	●

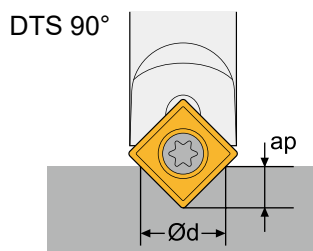
DTS 90 - Cutting Conditions 切削条件

How to calculate $\varnothing d$, RPM and Feed 计算方法 $\varnothing d$, RPM & Feed

Formula :

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

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



$$\varnothing d \approx (0.4r + a_p + 0.05) \times 2$$

EX : Working Material : Cast iron Insert : SCGX09T304 Application : 90° Spotting a_p : 2.5mm

$$\varnothing d = (0.4r + a_p + 0.05) \times 2 = (0.4 \times 0.4 + 2.5 + 0.05) \times 2 = 5.42 \text{ mm}$$

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

$$\text{RPM} = (V_c \times 1000) / (\varnothing d \times \pi) = (85 \times 1000) / (5.42 \times \pi) \approx 5000$$

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

Recommended Cutting Conditions 推奨切削条件

DTS 90° Spotting

Material	Vc (m/min)		Fr (mm/rev)	
	$\varnothing d = 2 \sim 4.9 \text{ mm}$	$\varnothing d \geq 5 \text{ mm}$	$\varnothing d = 2 \sim 4.9 \text{ mm}$	$\varnothing d \geq 5 \text{ mm}$
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
Stainless steel	30 ~ 60	45 ~ 120	0.02 ~ 0.04	0.04 ~ 0.06
Cast iron	40 ~ 80	60 ~ 130	0.04 ~ 0.08	0.06 ~ 0.10
Hardened steel	20 ~ 40	30 ~ 60	0.02 ~ 0.04	0.04 ~ 0.08

DTS 90° Chamfering / Countersinking

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

DTS 90° Grooving / Engraving

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

Cutting Example テストケース



Holder : DTS1610009009
 Insert : SCMX09T304SM-CX32HX
 Working Material : Cast Iron
 Application : Spotting
 $V_c = 85 \text{ m/min}$, $S = 4800 \text{ rpm}$
 $F = 360 \text{ mm/min}$, $a_p = 2.5 \text{ mm}$
 Dry

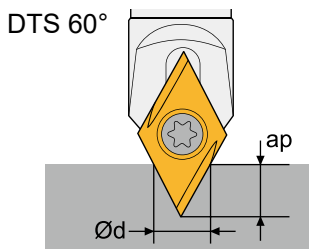
DTS 60 - Cutting Conditions 切削条件

How to calculate Ød ,RPM and Feed 计算方法 Ød ,RPM & Feed

Formula :

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

$$Feed = RPM \times fr$$



$$\varnothing d \approx (0.577 \times (ap + r) + 0.05) \times 2$$

Recommended Cutting Conditions 推奨切削条件

DTS 60° Chamfering / Countersinking

Material	Vc (m/min)	fr (mm/rev)
Carbon steel	12 ~ 180	0.05 ~ 0.15
Alloy steel	12 ~ 180	0.05 ~ 0.15
Stainless steel	12 ~ 180	0.05 ~ 0.15
Cast iron	12 ~ 180	0.05 ~ 0.15
Aluminum	12 ~ 180	0.10 ~ 0.20
Hardened steel	12 ~ 180	0.03 ~ 0.10

DTS 60° Grooving / Engraving

Material	Vc (m/min)	fr (mm/rev)
Carbon steel	10 ~ 170	0.005 ~ 0.05
Alloy steel	10 ~ 170	0.005 ~ 0.03
Stainless steel	10 ~ 170	0.005 ~ 0.05
Cast iron	10 ~ 170	0.005 ~ 0.03
Aluminum	10 ~ 170	0.005 ~ 0.08
Hardened steel	10 ~ 170	0.005 ~ 0.02

DTS 60° Cutting Depth of Passes

No. of Passes	ap of one pass (mm)					
	Aluminum	Cast iron	Carbon steel	Alloy steel	Stainless steel	Hardened steel
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

※ Max ap is 2mm