

SUMIDIA COAT Drills SDC Type



General Features

SUMIDIA Coated SDC type drills for Carbon Fibre Reinforced Plastic (CFRP) employ Sumitomo Electric Hardmetal's proprietary multi-step point angle. Combined with a diamond coating, this technology improves the quality of machined surfaces and extends tool life.

Series

Type	Diameter Range (mm)	Point angle	Hole Depth (1/2)
MDS□□□□□SDC3 Type	ø2.0 to ø4.0	90°	Up to 3
	ø4.851 to ø10.0	130°	

Characteristics · Applications

- Excellent drilled-hole quality
 - Sharp cutting edge shape reduces delamination of fibre layers and burrs.
 - Continuously changing point angle disperses load placed on cutting edge and prevents breakage.
- Long tool life
 - Use of high-strength diamond coating with excellent adhesion delivers high quality and long tool life.

Performance

Comparison of Machined Surface Finish

Excellent Machined Face Quality [Prevents Delamination And Burrs]

	SDC Type	Company A's Drill	Company B's Drill	Company C's Drill
Entrance				
Exit				

Tool: SUMIDIA Coated Drill SDC Type ø6.375, ø6.35, ø6.5
 Work Material: CFRP
 Cutting Conditions: $n=6,000\text{min}^{-1}$ $f=0.1\text{mm/rev}$ $H=28\text{mm}$ (Through) Dry

Tool Life Comparison

Effects of Diamond Coating

SDC Type (After Drilling 600 Holes)	Competitor's Product (After Drilling 50 Holes)
No Delamination Low Flank Wear	More Delamination From Cutting Edge To Flank

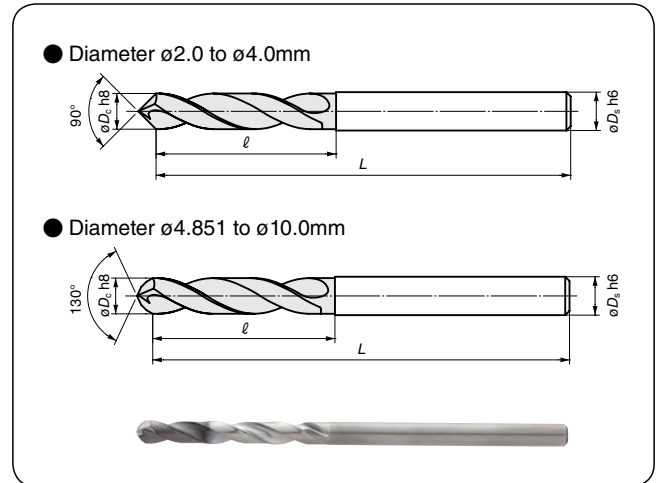
Stable diamond layer adhesion prevents delamination.
 Excellent wear resistance enables high-quality drilling with long tool life.

SDC Type

Tool: SUMIDIA Coated Drill ø6.375, ø6.35, ø6.5
 Work Material: CFRP
 Cutting Conditions: $n=6,000\text{min}^{-1}$ $f=0.075\text{mm/rev}$ $H=15\text{mm}$ (Through) Dry

External Coolant Supply (SDCType)

Carbon Steel, Alloy Steel	Tempered Steel	Hardened Steel	Stainless steel	Ti Alloy	Heat-resistant steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP	SUMIDIA Coat	3D
Up to 0.2%	From 0.25%	Up to 49HRC	From 49HRC									



● Diameter ø2.0 to ø10.0mm

Diameter øD _c (mm)	Shank øD _s (mm)	Cat. No.	3D Type		
			Stock	Dimensions (mm)	
				L	ℓ
2.0		MDS 02000SDC3	●		12.5
2.489	3.0	02489SDC3	●	49	15.0
3.0		03000SDC3	●		17.5
3.3	3.3	MDS 03300SDC3	●		20.0
4.0	4.0	04000SDC3	●	60	22.5
4.851	4.851	MDS 04851SDC3	●		27.5
5.0	5.0	05000SDC3	●	76	30.0
5.6	5.6	MDS 05600SDC3	●		32.5
6.0	6.0	06000SDC3	●	81	35.0
6.375	6.375	MDS 06375SDC3	●		37.5
7.0	7.0	07000SDC3	●	83	40.0
7.938	7.938	MDS 07938SDC3	●		42.5
8.0	8.0	08000SDC3	●	90	45.0
9.0	9.0	MDS 09000SDC3	●		47.5
9.550	9.550	MDS 09550SDC3	●	105	50.0
10.0	10.0	10000SDC3	●		52.5

Grade: DCX20

Recommended Cutting Conditions (v_c: Cutting Speed m/min f: Feed Rate mm/rev)

Drill Diameter øD _c (mm)	Conditions	CFRP Only (Dry Machining)	Stacked Plates of CFRP and Aluminium Alloys (Dry Machining)
		Up to ø6.0	v _c
	f	0.05 - 0.08 - 0.10	0.05 - 0.05 - 0.10
Up to ø12.0	v _c	80 - 100 - 120	40 - 60 - 80
	f	0.05 - 0.08 - 0.10	0.05 - 0.05 - 0.10

Min. - Optimum - Max.