

Solid Carbide Drill for Machining Heat Resistant Alloys

DSA Series

Size
Expansion

For Long Tool Life when Machining Heat Resistant Super Alloys

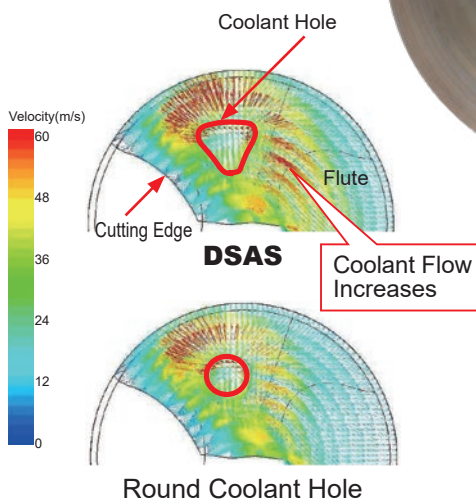


Solid Carbide Drill for Machining Heat Resistant Alloys

DSA Series

TRI-Cooling Technology

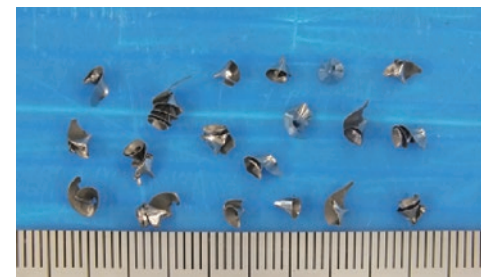
The unique hole geometry increases the coolant flow rate, resulting in high lubricity and cooling effect. (available in sizes over : 5mm)



Comparison of Coolant Flow Rate
(Spindle Speed 4700 min⁻¹)

Straight Cutting Edge with Single-Pass Honing

The optimised honing enables the straight cutting edge geometry to have excellent chip forming properties. In addition the honing provides superior resistance to chipping.



DSAS



Conventional

New Grade for Machining Heat Resistant Alloys DP9020

A new hard grade provides both high wear and fracture resistance, leading to longer tool life.

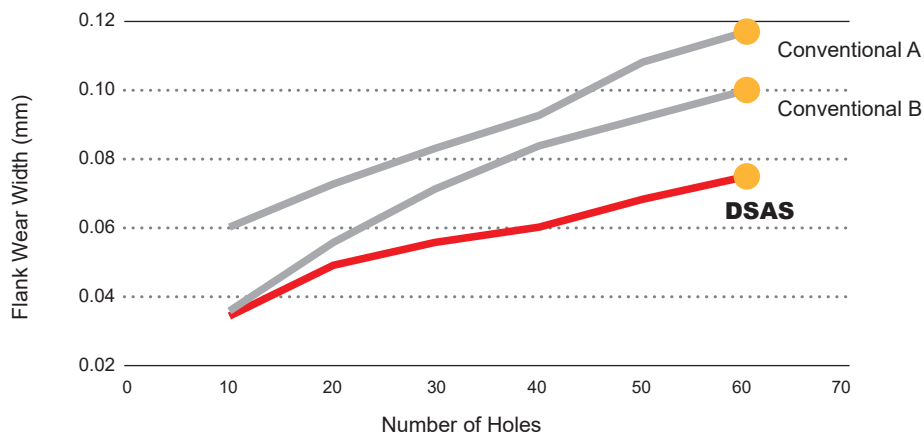
Special Margin

The specially designed, thin margin minimises contact with the surface of the hole. This works in combination with the TRI-Cooling technology to reduce cutting heat and prevent generation of work hardening when machining heat resistant alloys.

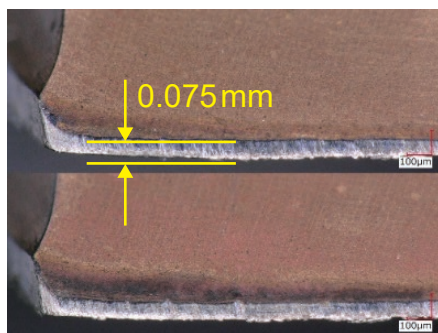


Cutting Performance

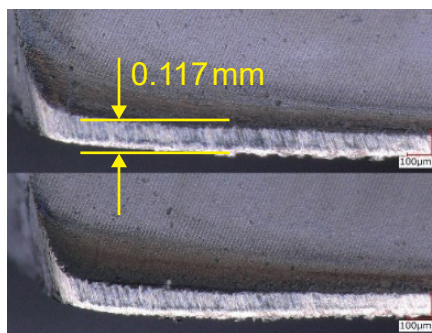
Machining Inconel 718 - Comparison of Flank Wear



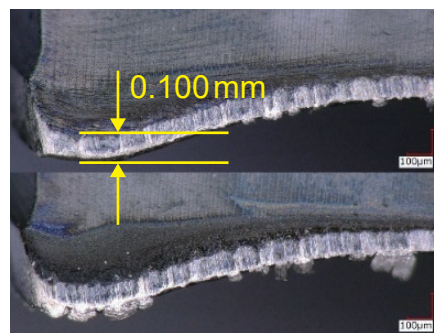
<Cutting Conditions>
 Workpiece Material : Inconel 718
 Tool : DSAS0700X03S080
 Drill Dia. : DC=7 mm
 Hole Depth : 12mm (l= DCx 1.7)
 Cutting Speed : vc= 15 m/min
 Feed per Rev. : fr= 0.1 mm/rev.
 Cutting Mode : Internal Coolant
 (Water-soluble Coolants)
 Machine : Vertical MC



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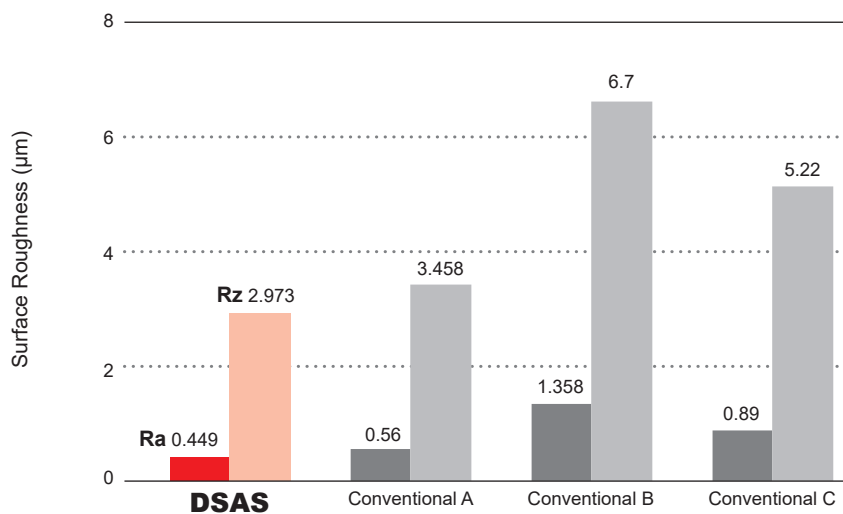


Conventional A



Conventional B

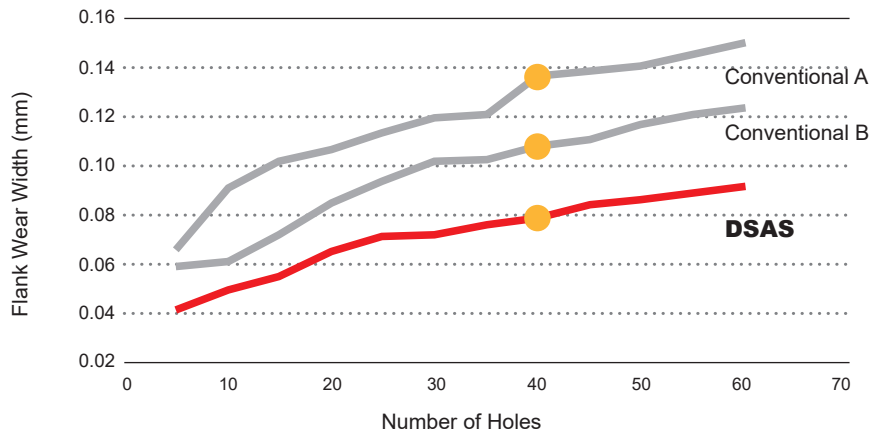
Machining Inconel 718 - Comparison of Surface Roughness



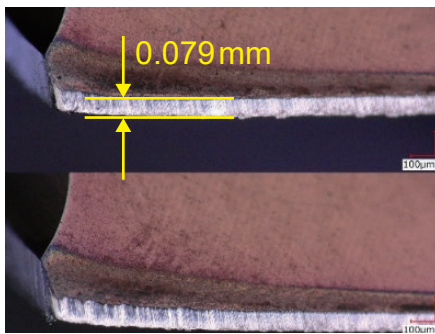
<Cutting Conditions>
 Workpiece Material : Inconel 718
 Tool : DSAS0700X03S080
 Drill Dia. : DC=7 mm
 Hole Depth : 10mm (l= DCx 1.4)
 Cutting Speed : vc=15m/min
 Feed per Rev. : fr= 0.1 mm/rev.
 Cutting Mode : Internal Coolant
 (Water-soluble Coolants)
 Machine : Vertical MC

Cutting Performance

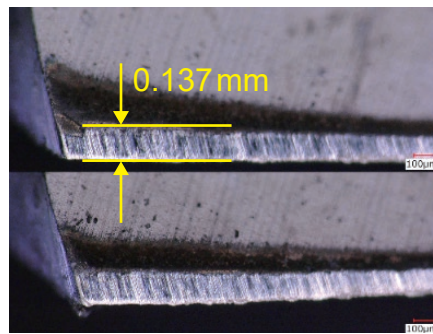
Machining RENE 41 - Comparison of Flank Wear



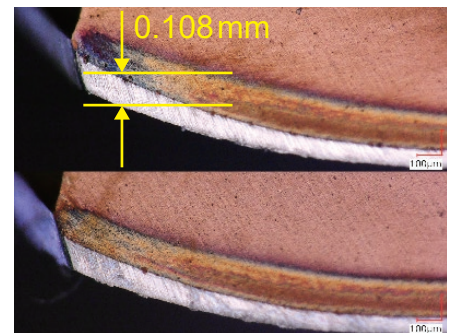
<Cutting Conditions>
 Workpiece Material : RENE 41
 Tool : DSAS0690X03S080
 Drill Dia. : DC=6.9mm
 Hole Depth : 10mm (l= DCx 1.4)
 Cutting Speed : vc=15m/min
 Feed per Rev. : fr=0.1mm/rev.
 Cutting Mode : Internal Coolant
 (Water-soluble Coolants)
 Machine : Vertical MC



DSAS

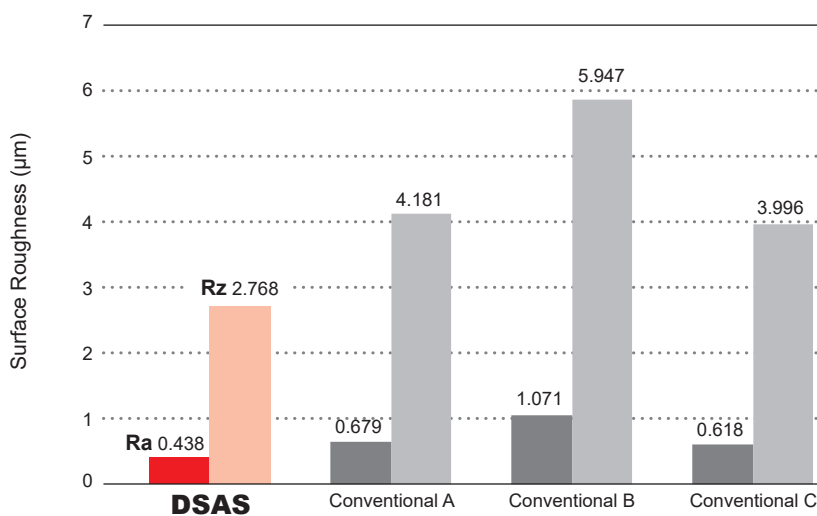


Conventional A



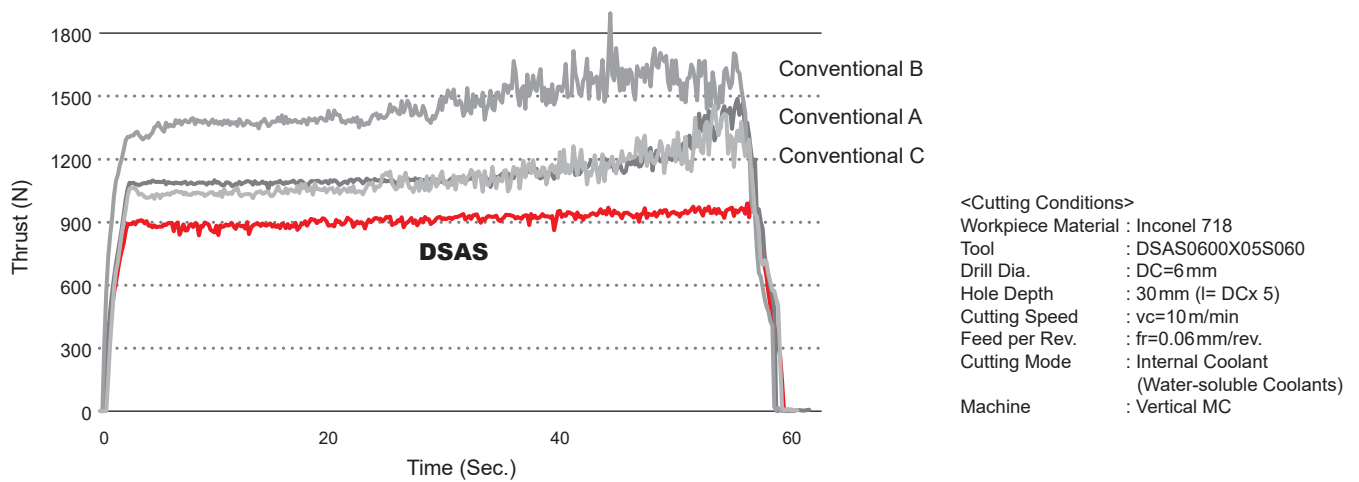
Conventional B

Machining RENE 41 - Comparison of Surface Roughness

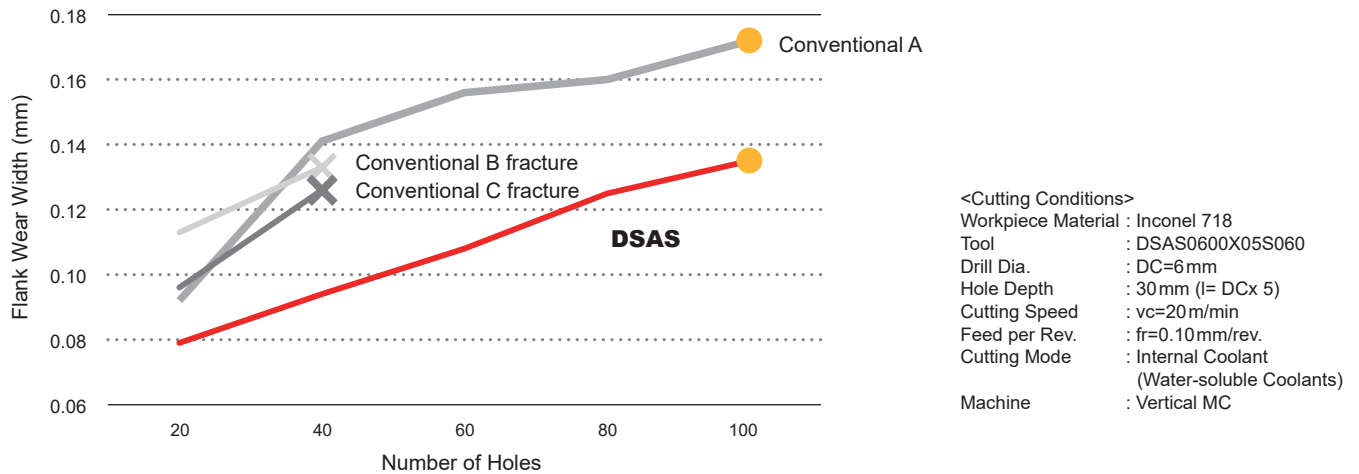


<Cutting Conditions>
 Workpiece Material : RENE 41
 Tool : DSAS0690X03S080
 Drill Dia. : DC=6.9mm
 Hole Depth : 10mm (l= DCx 1.4)
 Cutting Speed : vc=15m/min
 Feed per Rev. : fr=0.1mm/rev.
 Cutting Mode : Internal Coolant
 (Water-soluble Coolants)
 Machine : Vertical MC

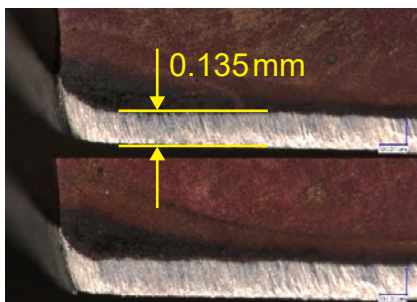
Comparison of Cutting Resistance by Inconel 718 : L/D = 5



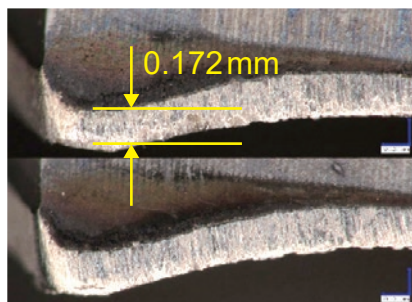
Comparison of Flank Wear Width by Inconel 718 : L/D = 5



After 100 Hole



DSAS



Conventional A

Solid Carbide Drill for Machining Heat Resistant Alloys

DSAS

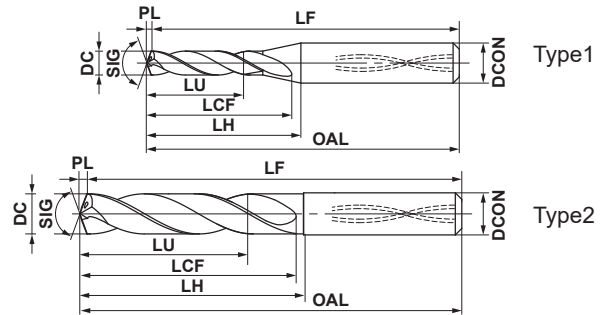


P M K N **S** H

Internal Coolant



DC=3	3<DC≤6	6<DC≤10	10<DC≤15
$\begin{smallmatrix} 0 \\ -0.018 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.018 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.022 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.027 \end{smallmatrix}$
DCON=6	6<DCON≤10	10<DCON≤16	
$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$	



★When looking at the coating the colour can vary depending on the direction of viewing. This does not have any effect on the performance of the drill.

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
3.00	3	●	DSAS0300X03S060	9.5	21.5	23.5	70.5	70	0.5	6	1
3.00	5	●	DSAS0300X05S060	15.5	28.5	31.5	78.5	78	0.5	6	1
3.10	3	●	DSAS0310X03S060	9.9	21.6	23.6	70.6	70	0.6	6	1
3.10	5	●	DSAS0310X05S060	16.1	28.6	31.6	78.6	78	0.6	6	1
3.18	3	●	DSAS0318X03S060	10.1	21.6	23.6	70.6	70	0.6	6	1
3.18	5	●	DSAS0318X05S060	16.5	28.6	31.6	78.6	78	0.6	6	1
3.20	3	●	DSAS0320X03S060	10.2	21.6	23.6	70.6	70	0.6	6	1
3.20	5	●	DSAS0320X05S060	16.6	28.6	31.6	78.6	78	0.6	6	1
3.26	3	●	DSAS0326X03S060	10.4	21.6	23.6	70.6	70	0.6	6	1
3.26	5	●	DSAS0326X05S060	16.9	28.6	31.6	78.6	78	0.6	6	1
3.30	3	●	DSAS0330X03S060	10.5	21.6	23.6	70.6	70	0.6	6	1
3.30	5	●	DSAS0330X05S060	17.1	28.6	31.6	78.6	78	0.6	6	1
3.40	3	●	DSAS0340X03S060	10.8	21.6	23.6	70.6	70	0.6	6	1
3.40	5	●	DSAS0340X05S060	17.6	28.6	31.6	78.6	78	0.6	6	1
3.50	3	●	DSAS0350X03S060	11.1	21.6	23.6	70.6	70	0.6	6	1
3.50	5	●	DSAS0350X05S060	18.1	28.6	31.6	78.6	78	0.6	6	1
3.57	3	●	DSAS0357X03S060	11.4	22.7	23.7	70.7	70	0.7	6	1
3.57	5	●	DSAS0357X05S060	18.6	30.7	31.7	78.7	78	0.7	6	1
3.60	3	●	DSAS0360X03S060	11.5	22.7	23.7	70.7	70	0.7	6	1
3.60	5	●	DSAS0360X05S060	18.7	30.7	31.7	78.7	78	0.7	6	1
3.70	3	●	DSAS0370X03S060	11.8	22.7	23.7	70.7	70	0.7	6	1
3.70	5	●	DSAS0370X05S060	19.2	30.7	31.7	78.7	78	0.7	6	1
3.80	3	●	DSAS0380X03S060	12.1	22.7	23.7	70.7	70	0.7	6	1
3.80	5	●	DSAS0380X05S060	19.7	30.7	31.7	78.7	78	0.7	6	1
3.90	3	●	DSAS0390X03S060	12.4	22.7	23.7	70.7	70	0.7	6	1
3.90	5	●	DSAS0390X05S060	20.2	30.7	31.7	78.7	78	0.7	6	1
3.97	3	●	DSAS0397X03S060	12.6	22.7	23.7	70.7	70	0.7	6	1
3.97	5	●	DSAS0397X05S060	20.5	30.7	31.7	78.7	78	0.7	6	1
4.00	3	●	DSAS0400X03S060	12.7	22.7	23.7	70.7	70	0.7	6	1
4.00	5	●	DSAS0400X05S060	20.7	30.7	31.7	78.7	78	0.7	6	1
4.10	3	●	DSAS0410X03S060	13.0	24.7	26.7	73.7	73	0.7	6	1
4.10	5	●	DSAS0410X05S060	21.2	33.7	35.7	82.7	82	0.7	6	1

Note 1) The coolant hole of ø5mm or less will be round shape.

● = NEW

DC = Cutting Diameter
LU = Usable Length
LCF = Length Chip Flute

LH = Neck Length
OAL = Overall Length
LF = Functional Length

PL = Point Length
DCON = Connection Diameter

● : Inventory maintained in Japan.

(mm)

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
4.20	3	●	DSAS0420X03S060	13.4	24.8	26.8	73.8	73	0.8	6	1
4.20	5	●	DSAS0420X05S060	21.8	33.8	35.8	82.8	82	0.8	6	1
4.30	3	●	DSAS0430X03S060	13.7	24.8	26.8	73.8	73	0.8	6	1
4.30	5	●	DSAS0430X05S060	22.3	33.8	35.8	82.8	82	0.8	6	1
4.37	3	●	DSAS0437X03S060	13.9	24.8	26.8	73.8	73	0.8	6	1
4.37	5	●	DSAS0437X05S060	22.6	33.8	35.8	82.8	82	0.8	6	1
4.40	3	●	DSAS0440X03S060	14.0	24.8	26.8	73.8	73	0.8	6	1
4.40	5	●	DSAS0440X05S060	22.8	33.8	35.8	82.8	82	0.8	6	1
4.50	3	●	DSAS0450X03S060	14.3	24.8	26.8	73.8	73	0.8	6	1
4.50	5	●	DSAS0450X05S060	23.3	33.8	35.8	82.8	82	0.8	6	1
4.60	3	●	DSAS0460X03S060	14.6	25.8	28.8	75.8	75	0.8	6	1
4.60	5	●	DSAS0460X05S060	23.8	35.8	38.8	85.8	85	0.8	6	1
4.70	3	●	DSAS0470X03S060	15.0	25.9	28.9	75.9	75	0.9	6	1
4.70	5	●	DSAS0470X05S060	24.4	35.9	38.9	85.9	85	0.9	6	1
4.76	3	●	DSAS0476X03S060	15.2	25.9	28.9	75.9	75	0.9	6	1
4.76	5	●	DSAS0476X05S060	24.7	35.9	38.9	85.9	85	0.9	6	1
4.80	3	●	DSAS0480X03S060	15.3	25.9	28.9	75.9	75	0.9	6	1
4.80	5	●	DSAS0480X05S060	24.9	35.9	38.9	85.9	85	0.9	6	1
4.86	3	●	DSAS0486X03S060	15.5	25.9	28.9	75.9	75	0.9	6	1
4.86	5	●	DSAS0486X05S060	25.2	35.9	38.9	85.9	85	0.9	6	1
4.90	3	●	DSAS0490X03S060	15.6	25.9	28.9	75.9	75	0.9	6	1
4.90	5	●	DSAS0490X05S060	25.4	35.9	38.9	85.9	85	0.9	6	1
5.00	3	●	DSAS0500X03S060	15.9	28.9	29.9	81.9	81	0.9	6	2
5.00	5	●	DSAS0500X05S060	25.9	39.9	42.9	89.9	89	0.9	6	2
5.10	3	●	DSAS0510X03S060	16.2	28.9	29.9	81.9	81	0.9	6	2
5.10	5	●	DSAS0510X05S060	26.4	39.9	42.9	89.9	89	0.9	6	2
5.16	3	●	DSAS0516X03S060	16.5	29.0	30.0	82.0	81	1.0	6	2
5.16	5	●	DSAS0516X05S060	26.8	40.0	43.0	90.0	89	1.0	6	2
5.20	3	●	DSAS0520X03S060	16.6	29.0	30.0	82.0	81	1.0	6	2
5.20	5	●	DSAS0520X05S060	27.0	40.0	43.0	90.0	89	1.0	6	2
5.30	3	●	DSAS0530X03S060	16.9	29.0	30.0	82.0	81	1.0	6	2
5.30	5	●	DSAS0530X05S060	27.5	40.0	43.0	90.0	89	1.0	6	2
5.40	3	●	DSAS0540X03S060	17.2	29.0	30.0	82.0	81	1.0	6	2
5.40	5	●	DSAS0540X05S060	28.0	40.0	43.0	90.0	89	1.0	6	2
5.50	3	●	DSAS0550X03S060	17.5	29.0	30.0	82.0	81	1.0	6	2
5.50	5	●	DSAS0550X05S060	28.5	40.0	43.0	90.0	89	1.0	6	2
5.56	3	●	DSAS0556X03S060	17.8	31.1	31.1	82.1	81	1.1	6	2
5.56	5	●	DSAS0556X05S060	28.9	43.1	43.1	90.1	89	1.1	6	2
5.60	3	●	DSAS0560X03S060	17.9	31.1	31.1	82.1	81	1.1	6	2
5.60	5	●	DSAS0560X05S060	29.1	43.1	43.1	90.1	89	1.1	6	2
5.70	3	●	DSAS0570X03S060	18.2	31.1	31.1	82.1	81	1.1	6	2
5.70	5	●	DSAS0570X05S060	29.6	43.1	43.1	90.1	89	1.1	6	2
5.80	3	●	DSAS0580X03S060	18.5	31.1	31.1	82.1	81	1.1	6	2
5.80	5	●	DSAS0580X05S060	30.1	43.1	43.1	90.1	89	1.1	6	2
5.90	3	●	DSAS0590X03S060	18.8	31.1	31.1	82.1	81	1.1	6	2
5.90	5	●	DSAS0590X05S060	30.6	43.1	43.1	90.1	89	1.1	6	2
5.95	3	●	DSAS0595X03S060	19.0	31.1	31.1	82.1	81	1.1	6	2
5.95	5	●	DSAS0595X05S060	30.9	43.1	43.1	90.1	89	1.1	6	2
6.00	3	●	DSAS0600X03S060	19.1	31.1	31.1	82.1	81	1.1	6	2
6.00	5	●	DSAS0600X05S060	31.1	43.1	43.1	90.1	89	1.1	6	2
6.10	3	●	DSAS0610X03S080	19.5	34.2	37.2	87.2	86	1.2	8	2
6.10	5	●	DSAS0610X05S080	31.7	47.2	49.2	96.2	95	1.2	8	2
6.20	3	●	DSAS0620X03S080	19.8	34.2	37.2	87.2	86	1.2	8	2
6.20	5	●	DSAS0620X05S080	32.2	47.2	49.2	96.2	95	1.2	8	2
6.30	3	●	DSAS0630X03S080	20.1	34.2	37.2	87.2	86	1.2	8	2
6.30	5	●	DSAS0630X05S080	32.7	47.2	49.2	96.2	95	1.2	8	2
6.35	3	●	DSAS0635X03S080	20.3	34.2	37.2	87.2	86	1.2	8	2
6.35	5	●	DSAS0635X05S080	33.0	47.2	49.2	96.2	95	1.2	8	2

● = NEW

DSAS

(mm)

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
6.40	3	●	DSAS0640X03S080	20.4	34.2	37.2	87.2	86	1.2	8	2
6.40	5	●	DSAS0640X05S080	33.2	47.2	49.2	96.2	95	1.2	8	2
6.50	3	●	DSAS0650X03S080	20.7	34.2	37.2	87.2	86	1.2	8	2
6.50	5	●	DSAS0650X05S080	33.7	47.2	49.2	96.2	95	1.2	8	2
6.60	3	●	DSAS0660X03S080	21.1	36.3	38.3	91.3	90	1.3	8	2
6.60	5	●	DSAS0660X05S080	34.3	50.3	52.3	99.3	98	1.3	8	2
6.70	3	●	DSAS0670X03S080	21.4	36.3	38.3	91.3	90	1.3	8	2
6.70	5	●	DSAS0670X05S080	34.8	50.3	52.3	99.3	98	1.3	8	2
6.75	3	●	DSAS0675X03S080	21.5	36.3	38.3	91.3	90	1.3	8	2
6.75	5	●	DSAS0675X05S080	35.0	50.3	52.3	99.3	98	1.3	8	2
6.80	3	●	DSAS0680X03S080	21.7	36.3	38.3	91.3	90	1.3	8	2
6.80	5	●	DSAS0680X05S080	35.3	50.3	52.3	99.3	98	1.3	8	2
6.90	3	●	DSAS0690X03S080	22.0	36.3	38.3	91.3	90	1.3	8	2
6.90	5	●	DSAS0690X05S080	35.8	50.3	52.3	99.3	98	1.3	8	2
6.95	3	●	DSAS0695X03S080	22.2	36.3	38.3	91.3	90	1.3	8	2
6.95	5	●	DSAS0695X05S080	36.1	50.3	52.3	99.3	98	1.3	8	2
7.00	3	●	DSAS0700X03S080	22.3	36.3	38.3	91.3	90	1.3	8	2
7.00	5	●	DSAS0700X05S080	36.3	50.3	52.3	99.3	98	1.3	8	2
7.10	3	●	DSAS0710X03S080	22.7	39.4	40.4	91.4	90	1.4	8	2
7.10	5	●	DSAS0710X05S080	36.9	54.4	57.4	104.4	103	1.4	8	2
7.14	3	●	DSAS0714X03S080	22.8	39.4	40.4	91.4	90	1.4	8	2
7.14	5	●	DSAS0714X05S080	37.1	54.4	57.4	104.4	103	1.4	8	2
7.20	3	●	DSAS0720X03S080	23.0	39.4	40.4	91.4	90	1.4	8	2
7.20	5	●	DSAS0720X05S080	37.4	54.4	57.4	104.4	103	1.4	8	2
7.30	3	●	DSAS0730X03S080	23.3	39.4	40.4	91.4	90	1.4	8	2
7.30	5	●	DSAS0730X05S080	37.9	54.4	57.4	104.4	103	1.4	8	2
7.40	3	●	DSAS0740X03S080	23.6	39.4	40.4	91.4	90	1.4	8	2
7.40	5	●	DSAS0740X05S080	38.4	54.4	57.4	104.4	103	1.4	8	2
7.50	3	●	DSAS0750X03S080	23.9	39.4	40.4	91.4	90	1.4	8	2
7.50	5	●	DSAS0750X05S080	38.9	54.4	57.4	104.4	103	1.4	8	2
7.54	3	●	DSAS0754X03S080	24.1	41.5	41.5	91.5	90	1.5	8	2
7.54	5	●	DSAS0754X05S080	39.2	57.5	57.5	104.5	103	1.5	8	2
7.60	3	●	DSAS0760X03S080	24.3	41.5	41.5	91.5	90	1.5	8	2
7.60	5	●	DSAS0760X05S080	39.5	57.5	57.5	104.5	103	1.5	8	2
7.70	3	●	DSAS0770X03S080	24.6	41.5	41.5	91.5	90	1.5	8	2
7.70	5	●	DSAS0770X05S080	40.0	57.5	57.5	104.5	103	1.5	8	2
7.80	3	●	DSAS0780X03S080	24.9	41.5	41.5	91.5	90	1.5	8	2
7.80	5	●	DSAS0780X05S080	40.5	57.5	57.5	104.5	103	1.5	8	2
7.90	3	●	DSAS0790X03S080	25.2	41.5	41.5	91.5	90	1.5	8	2
7.90	5	●	DSAS0790X05S080	41.0	57.5	57.5	104.5	103	1.5	8	2
7.94	3	●	DSAS0794X03S080	25.3	41.5	41.5	91.5	90	1.5	8	2
7.94	5	●	DSAS0794X05S080	41.2	57.5	57.5	104.5	103	1.5	8	2
8.00	3	●	DSAS0800X03S080	25.5	41.5	41.5	91.5	90	1.5	8	2
8.00	5	●	DSAS0800X05S080	41.5	57.5	57.5	104.5	103	1.5	8	2
8.10	3	●	DSAS0810X03S100	25.8	44.5	47.5	97.5	96	1.5	10	2
8.10	5	●	DSAS0810X05S100	42.0	61.5	63.5	114.5	113	1.5	10	2
8.20	3	●	DSAS0820X03S100	26.1	44.5	47.5	97.5	96	1.5	10	2
8.20	5	●	DSAS0820X05S100	42.5	61.5	63.5	114.5	113	1.5	10	2
8.30	3	●	DSAS0830X03S100	26.4	44.5	47.5	97.5	96	1.5	10	2
8.30	5	●	DSAS0830X05S100	43.0	61.5	63.5	114.5	113	1.5	10	2
8.33	3	●	DSAS0833X03S100	26.5	44.5	47.5	97.5	96	1.5	10	2
8.33	5	●	DSAS0833X05S100	43.2	61.5	63.5	114.5	113	1.5	10	2
8.40	3	●	DSAS0840X03S100	26.7	44.5	47.5	97.5	96	1.5	10	2
8.40	5	●	DSAS0840X05S100	43.5	61.5	63.5	114.5	113	1.5	10	2

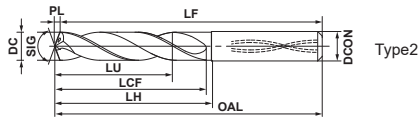
● = NEW

DC = Cutting Diameter
 LU = Usable Length
 LCF = Length Chip Flute

LH = Neck Length
 OAL = Overall Length
 LF = Functional Length

PL = Point Length
 DCON = Connection Diameter

● : Inventory maintained in Japan.



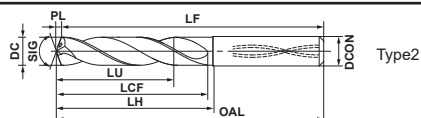
(mm)

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
8.50	3	●	DSAS0850X03S100	27.0	44.5	47.5	97.5	96	1.5	10	2
8.50	5	●	DSAS0850X05S100	44.0	61.5	63.5	114.5	113	1.5	10	2
8.60	3	●	DSAS0860X03S100	27.4	46.6	48.6	102.6	101	1.6	10	2
8.60	5	●	DSAS0860X05S100	44.6	64.6	66.6	117.6	116	1.6	10	2
8.70	3	●	DSAS0870X03S100	27.7	46.6	48.6	102.6	101	1.6	10	2
8.70	5	●	DSAS0870X05S100	45.1	64.6	66.6	117.6	116	1.6	10	2
8.73	3	●	DSAS0873X03S100	27.8	46.6	48.6	102.6	101	1.6	10	2
8.73	5	●	DSAS0873X05S100	45.3	64.6	66.6	117.6	116	1.6	10	2
8.80	3	●	DSAS0880X03S100	28.0	46.6	48.6	102.6	101	1.6	10	2
8.80	5	●	DSAS0880X05S100	45.6	64.6	66.6	117.6	116	1.6	10	2
8.90	3	●	DSAS0890X03S100	28.3	46.6	48.6	102.6	101	1.6	10	2
8.90	5	●	DSAS0890X05S100	46.1	64.6	66.6	117.6	116	1.6	10	2
9.00	3	●	DSAS0900X03S100	28.6	46.6	48.6	102.6	101	1.6	10	2
9.00	5	●	DSAS0900X05S100	46.6	64.6	66.6	117.6	116	1.6	10	2
9.10	3	●	DSAS0910X03S100	29.1	49.8	50.8	102.8	101	1.8	10	2
9.10	5	●	DSAS0910X05S100	47.3	68.8	71.8	122.8	121	1.8	10	2
9.20	3	●	DSAS0920X03S100	29.4	49.8	50.8	102.8	101	1.8	10	2
9.20	5	●	DSAS0920X05S100	47.8	68.8	71.8	122.8	121	1.8	10	2
9.30	3	●	DSAS0930X03S100	29.7	49.8	50.8	102.8	101	1.8	10	2
9.30	5	●	DSAS0930X05S100	48.3	68.8	71.8	122.8	121	1.8	10	2
9.40	3	●	DSAS0940X03S100	30.0	49.8	50.8	102.8	101	1.8	10	2
9.40	5	●	DSAS0940X05S100	48.8	68.8	71.8	122.8	121	1.8	10	2
9.50	3	●	DSAS0950X03S100	30.3	49.8	50.8	102.8	101	1.8	10	2
9.50	5	●	DSAS0950X05S100	49.3	68.8	71.8	122.8	121	1.8	10	2
9.53	3	●	DSAS0953X03S100	30.4	49.8	50.8	102.8	101	1.8	10	2
9.53	5	●	DSAS0953X05S100	49.4	68.8	71.8	122.8	121	1.8	10	2
9.60	3	●	DSAS0960X03S100	30.6	49.8	50.8	102.8	101	1.8	10	2
9.60	5	●	DSAS0960X05S100	49.8	68.8	71.8	122.8	121	1.8	10	2
9.70	3	●	DSAS0970X03S100	30.9	49.8	50.8	102.8	101	1.8	10	2
9.70	5	●	DSAS0970X05S100	50.3	68.8	71.8	122.8	121	1.8	10	2
9.80	3	●	DSAS0980X03S100	31.2	51.8	51.8	102.8	101	1.8	10	2
9.80	5	●	DSAS0980X05S100	50.8	71.8	71.8	122.8	121	1.8	10	2
9.90	3	●	DSAS0990X03S100	31.5	51.9	51.8	102.8	101	1.8	10	2
9.90	5	●	DSAS0990X05S100	51.3	71.8	71.8	122.8	121	1.8	10	2
9.92	3	●	DSAS0992X03S100	31.6	51.8	51.8	102.8	101	1.8	10	2
9.92	5	●	DSAS0992X05S100	51.4	71.8	71.8	122.8	121	1.8	10	2
10.00	3	●	DSAS1000X03S100	31.8	51.8	51.8	102.8	101	1.8	10	2
10.00	5	●	DSAS1000X05S100	51.8	71.8	71.8	122.8	121	1.8	10	2
10.10	3	●	DSAS1010X03S120	32.2	54.9	57.9	112.9	111	1.9	12	2
10.10	5	●	DSAS1010X05S120	52.4	75.9	79.9	135.9	134	1.9	12	2
10.20	3	●	DSAS1020X03S120	32.5	54.9	57.9	112.9	111	1.9	12	2
10.20	5	●	DSAS1020X05S120	52.9	75.9	79.9	135.9	134	1.9	12	2
10.30	3	●	DSAS1030X03S120	32.8	54.9	57.9	112.9	111	1.9	12	2
10.30	5	●	DSAS1030X05S120	53.4	75.9	79.9	135.9	134	1.9	12	2
10.32	3	●	DSAS1032X03S120	32.9	54.9	57.9	112.9	111	1.9	12	2
10.32	5	●	DSAS1032X05S120	53.5	75.9	79.9	135.9	134	1.9	12	2
10.40	3	●	DSAS1040X03S120	33.1	54.9	57.9	112.9	111	1.9	12	2
10.40	5	●	DSAS1040X05S120	53.9	75.9	79.9	135.9	134	1.9	12	2
10.50	3	●	DSAS1050X03S120	33.4	54.9	57.9	112.9	111	1.9	12	2
10.50	5	●	DSAS1050X05S120	54.4	75.9	79.9	135.9	134	1.9	12	2
10.60	3	●	DSAS1060X03S120	33.7	54.9	57.9	112.9	111	1.9	12	2
10.60	5	●	DSAS1060X05S120	54.9	75.9	79.9	135.9	134	1.9	12	2
10.70	3	●	DSAS1070X03S120	34.0	54.9	57.9	112.9	111	1.9	12	2
10.70	5	●	DSAS1070X05S120	55.4	75.9	79.9	135.9	134	1.9	12	2
10.72	3	●	DSAS1072X03S120	34.1	57.0	59.0	118.0	116	2.0	12	2
10.72	5	●	DSAS1072X05S120	55.6	79.0	80.0	142.0	140	2.0	12	2
10.80	3	●	DSAS1080X03S120	34.4	57.0	59.0	118.0	116	2.0	12	2
10.80	5	●	DSAS1080X05S120	56.0	79.0	80.0	142.0	140	2.0	12	2

● = NEW

Solid Carbide Drill for Machining Heat Resistant Alloys

DSAS



(mm)

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
10.90	3	●	DSAS1090X03S120	34.7	57.0	59.0	118.0	116	2.0	12	2
10.90	5	●	DSAS1090X05S120	56.5	79.0	80.0	142.0	140	2.0	12	2
11.00	3	●	DSAS1100X03S120	35.0	57.0	59.0	118.0	116	2.0	12	2
11.00	5	●	DSAS1100X05S120	57.0	79.0	80.0	142.0	140	2.0	12	2
11.10	3	●	DSAS1110X03S120	35.4	60.1	61.1	118.1	116	2.1	12	2
11.10	5	●	DSAS1110X05S120	57.6	83.1	86.1	142.1	140	2.1	12	2
11.11	3	●	DSAS1111X03S120	35.4	60.1	61.1	118.1	116	2.1	12	2
11.11	5	●	DSAS1111X05S120	57.7	83.1	86.1	142.1	140	2.1	12	2
11.20	3	●	DSAS1120X03S120	35.7	60.1	61.1	118.1	116	2.1	12	2
11.20	5	●	DSAS1120X05S120	58.1	83.1	86.1	142.1	140	2.1	12	2
11.30	3	●	DSAS1130X03S120	36.0	60.1	61.1	118.1	116	2.1	12	2
11.30	5	●	DSAS1130X05S120	58.6	83.1	86.1	142.1	140	2.1	12	2
11.40	3	●	DSAS1140X03S120	36.3	60.1	61.1	118.1	116	2.1	12	2
11.40	5	●	DSAS1140X05S120	59.1	83.1	86.1	142.1	140	2.1	12	2
11.50	3	●	DSAS1150X03S120	36.6	60.1	61.1	118.1	116	2.1	12	2
11.50	5	●	DSAS1150X05S120	59.6	83.1	86.1	142.1	140	2.1	12	2
11.51	3	●	DSAS1151X03S120	36.7	62.2	62.2	118.2	116	2.2	12	2
11.51	5	●	DSAS1151X05S120	59.7	86.2	86.2	142.2	140	2.2	12	2
11.60	3	●	DSAS1160X03S120	37.0	62.2	62.2	118.2	116	2.2	12	2
11.60	5	●	DSAS1160X05S120	60.2	86.2	86.2	142.2	140	2.2	12	2
11.70	3	●	DSAS1170X03S120	37.3	62.2	62.2	118.2	116	2.2	12	2
11.70	5	●	DSAS1170X05S120	60.7	86.2	86.2	142.2	140	2.2	12	2
11.80	3	●	DSAS1180X03S120	37.6	62.2	62.2	118.2	116	2.2	12	2
11.80	5	●	DSAS1180X05S120	61.2	86.2	86.2	142.2	140	2.2	12	2
11.90	3	●	DSAS1190X03S120	37.9	62.2	62.2	118.2	116	2.2	12	2
11.90	5	●	DSAS1190X05S120	61.7	86.2	86.2	142.2	140	2.2	12	2
12.00	3	●	DSAS1200X03S120	38.2	62.2	62.2	118.2	116	2.2	12	2
12.00	5	●	DSAS1200X05S120	62.2	86.2	86.2	142.2	140	2.2	12	2
12.30	3	□	DSAS1230X03S140	39.1	65.2	68.2	124.2	122	2.2	14	2
12.30	5	□	DSAS1230X05S140	63.7	90.2	94.2	150.2	148	2.2	14	2
12.40	3	□	DSAS1240X03S140	39.5	65.3	68.3	124.3	122	2.3	14	2
12.40	5	□	DSAS1240X05S140	64.3	90.3	94.3	150.3	148	2.3	14	2
12.50	3	□	DSAS1250X03S140	39.8	65.3	68.3	124.3	122	2.3	14	2
12.50	5	□	DSAS1250X05S140	64.8	90.3	94.3	150.3	148	2.3	14	2
12.70	3	□	DSAS1270X03S140	40.4	67.3	68.3	128.3	126	2.3	14	2
12.70	5	□	DSAS1270X05S140	65.8	93.3	94.3	156.3	154	2.3	14	2
13.00	3	□	DSAS1300X03S140	41.4	67.4	68.4	128.4	126	2.4	14	2
13.00	5	□	DSAS1300X05S140	67.4	93.4	94.4	156.4	154	2.4	14	2
13.10	3	□	DSAS1310X03S140	41.7	70.4	72.4	128.4	126	2.4	14	2
13.10	5	□	DSAS1310X05S140	67.9	97.4	100.4	156.4	154	2.4	14	2
13.50	3	□	DSAS1350X03S140	43.0	70.5	72.5	128.5	126	2.5	14	2
13.50	5	□	DSAS1350X05S140	70.0	97.5	100.5	156.5	154	2.5	14	2
14.00	3	□	DSAS1400X03S140	44.5	72.5	72.5	128.5	126	2.5	14	2
14.00	5	□	DSAS1400X05S140	72.5	100.5	100.5	156.5	154	2.5	14	2
14.50	3	□	DSAS1450X03S160	46.1	75.6	78.6	137.6	135	2.6	16	2
14.50	5	□	DSAS1450X05S160	75.1	104.6	108.6	167.6	165	2.6	16	2
14.60	3	□	DSAS1460X03S160	46.5	77.7	78.7	137.7	135	2.7	16	2
14.60	5	□	DSAS1460X05S160	75.7	107.7	108.7	167.7	165	2.7	16	2
14.70	3	□	DSAS1470X03S160	46.8	77.7	78.7	137.7	135	2.7	16	2
14.70	5	□	DSAS1470X05S160	76.2	107.7	108.7	167.7	165	2.7	16	2
15.00	3	□	DSAS1500X03S160	47.7	77.7	78.7	137.7	135	2.7	16	2
15.00	5	□	DSAS1500X05S160	77.7	107.7	108.7	167.7	165	2.7	16	2

● □ = NEW

● : Inventory maintained in Japan. □ : Non stock, produced to order only.

P

M

K

N

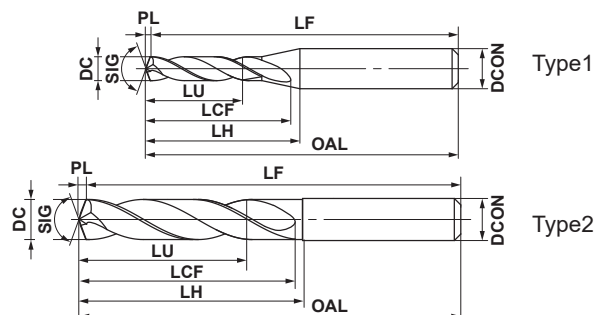
S

H

External Coolant



DC=3	3<DC≤6	6<DC≤10	10<DC≤12
$\begin{smallmatrix} 0 \\ -0.018 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.018 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.022 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.027 \end{smallmatrix}$
DCON=6	6<DCON≤10	DCON=12	
$\begin{smallmatrix} 0 \\ -0.008 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.009 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.011 \end{smallmatrix}$	



★When looking at the coating the colour can vary depending on the direction of viewing. This does not have any effect on the performance of the drill.

(mm)

DC	L/D	DP9020	Order Number	LU	LCF	LH	OAL	LF	PL	DCON	Type
3.0	3	●	DSAE0300X03S060	9.5	21.5	23.5	70.5	70	0.5	6	1
3.4	3	●	DSAE0340X03S060	10.8	21.6	23.6	70.6	70	0.6	6	1
4.0	3	●	DSAE0400X03S060	12.7	22.7	23.7	70.7	70	0.7	6	1
4.3	3	●	DSAE0430X03S060	13.7	24.8	26.8	73.8	73	0.8	6	1
4.5	3	●	DSAE0450X03S060	14.3	24.8	26.8	73.8	73	0.8	6	1
5.0	3	●	DSAE0500X03S060	15.9	28.9	29.9	81.9	81	0.9	6	2
5.1	3	●	DSAE0510X03S060	16.2	28.9	29.9	81.9	81	0.9	6	2
5.4	3	●	DSAE0540X03S060	17.2	29.0	30.0	82.0	81	1.0	6	2
5.5	3	●	DSAE0550X03S060	17.5	29.0	30.0	82.0	81	1.0	6	2
5.6	3	●	DSAE0560X03S060	17.9	31.1	31.1	82.1	81	1.1	6	2
5.9	3	●	DSAE0590X03S060	18.8	31.1	31.1	82.1	81	1.1	6	2
6.0	3	●	DSAE0600X03S060	19.1	31.1	31.1	82.1	81	1.1	6	2
6.1	3	●	DSAE0610X03S080	19.5	34.2	37.2	87.2	86	1.2	8	2
6.2	3	●	DSAE0620X03S080	19.8	34.2	37.2	87.2	86	1.2	8	2
6.4	3	●	DSAE0640X03S080	20.4	34.2	37.2	87.2	86	1.2	8	2
6.8	3	●	DSAE0680X03S080	21.7	36.3	38.3	91.3	90	1.3	8	2
6.9	3	●	DSAE0690X03S080	22.0	36.3	38.3	91.3	90	1.3	8	2
7.0	3	●	DSAE0700X03S080	22.3	36.3	38.3	91.3	90	1.3	8	2
7.1	3	●	DSAE0710X03S080	22.7	39.4	40.4	91.4	90	1.4	8	2
7.8	3	●	DSAE0780X03S080	24.9	41.5	41.5	91.5	90	1.5	8	2
8.0	3	●	DSAE0800X03S080	25.5	41.5	41.5	91.5	90	1.5	8	2
8.1	3	●	DSAE0810X03S100	25.8	44.5	47.5	97.5	96	1.5	10	2
8.2	3	●	DSAE0820X03S100	26.1	44.5	47.5	97.5	96	1.5	10	2
8.4	3	●	DSAE0840X03S100	26.7	44.5	47.5	97.5	96	1.5	10	2
8.5	3	●	DSAE0850X03S100	27.0	44.5	47.5	97.5	96	1.5	10	2
9.0	3	●	DSAE0900X03S100	28.6	46.6	48.6	102.6	101	1.6	10	2
10.0	3	●	DSAE1000X03S100	31.8	51.8	51.8	102.8	101	1.8	10	2
10.5	3	●	DSAE1050X03S120	33.4	54.9	57.9	112.9	111	1.9	12	2
10.7	3	●	DSAE1070X03S120	34.0	56.9	57.9	112.9	111	1.9	12	2
11.0	3	●	DSAE1100X03S120	35.0	57.0	59.0	118.0	116	2.0	12	2
11.5	3	●	DSAE1150X03S120	36.6	60.1	61.1	118.1	116	2.1	12	2
12.0	3	●	DSAE1200X03S120	38.2	62.2	62.2	118.2	116	2.2	12	2

DC = Cutting Diameter
LU = Usable Length
LCF = Length Chip Flute

LH = Neck Length
OAL = Overall Length
LF = Functional Length

PL = Point Length
DCON = Connection Diameter

DSAS/DSAE

Recommended Cutting Conditions

(mm)

Workpiece Material		Heat Resistant Alloys		Titanium Alloys	
		Inconel718 etc.		Ti-6Al-4V etc.	
DC	L/D	Revolution n (min ⁻¹)	Feed fr (Min.—Max.) (mm/rev.)	Revolution n (min ⁻¹)	Feed fr (Min.—Max.) (mm/rev.)
3	≤ 5	1000	0.06 (0.04—0.10)	4200	0.08 (0.06—0.12)
4	≤ 5	790	0.06 (0.04—0.10)	3100	0.10 (0.08—0.16)
5	≤ 5	760	0.08 (0.06—0.12)	2500	0.12 (0.08—0.20)
6	≤ 5	790	0.10 (0.08—0.15)	2100	0.14 (0.10—0.20)
8	≤ 5	590	0.10 (0.08—0.15)	1600	0.18 (0.15—0.25)
10	≤ 5	570	0.10 (0.08—0.15)	1300	0.22 (0.18—0.28)
12	≤ 5	530	0.12 (0.08—0.15)	1100	0.24 (0.20—0.30)
14	≤ 5	450	0.12 (0.08—0.15)	910	0.24 (0.20—0.30)

Note 1) High pressure through spindle coolant is recommended for stable drilling.

Note 2) Emulsion type water-soluble coolant is recommended.

Note 3) When using non water-soluble coolant reduce the cutting speed by 10-20%.

Note 4) When drilling using an external coolant system, peck / step feed drilling is recommended at every DC x 0.5 depth to promote the breaking of chips.

For Your Safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When attaching inserts or spare parts, please use only the correct wrench or driver. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

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(Tools specifications subject to change without notice.)