



Drilling Tools

Drilling | Chamfering

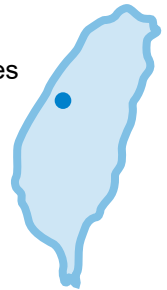


About Us

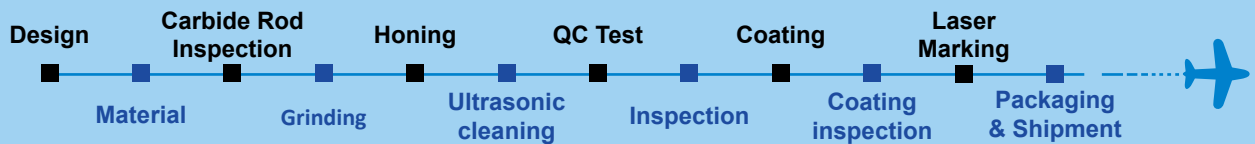
Founded in **1986**, **CITY TOOLS** is a leading solid carbide cutting tool manufacturer located in Taiwan.

ISO900 1:2000 certified, our products are widely used in Aerospace, Medical, Automotive, Electronic industry, Mechanical parts, Molds & Die, Woodworking, Plastic and all kinds of Metal / Non-Metal processing industrial.

In order to improve our production quality, we imported advanced CNC grinding machines from Germany. We use advanced inspection equipment to conduct 100% inspections at every stage of production to ensure quality and provide customers with perfect service.



Manufacturing



Walter Grinding Machine

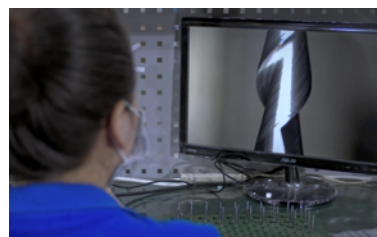
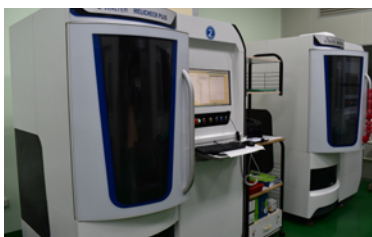
Production | *Ensure accuracy quality tools and Increase productivity*



Quality Management

Full inspection on each tool with precised accuracy

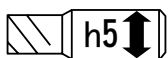
| *100% comprehensive inspection with precised accuracy*



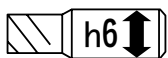
Material CHART

ISO	Group	Material	Tensile Strength N/mm2	Hardness HB
P	G1	Non-alloyed Steel, cast steel, free cutting steel	420 - 848	125 - 300
	G2	<24HRC Low-alloyed Steel, cast steel	600 - 1200	200 - 300
	G3	<30HRC Hi-alloyed Steel, cast steel, tool steel	680-1100	200- 325
M	G4	Stainless Steel, cast steel	600 - 820	180 - 240
K	G5	Gray Cast Iron, Ductile cast iron, Malleable cast iron		130 - 260
N	G6	Aluminium		60 - 130
	G7	Copper		90 - 110
	G8	Plastics, Hard rubber		
	G9	FRP CFRP Composite Material		
	G10	Graphite		
S	G11	High Temp Alloys		200 - 280
	G12	Nickel		320 - 350
	G13	Titanium	400 - 1,050	
H	G14	30-38HRC Hardened Steel		
	G15	38-48HRC Hardened Steel		
	G16	48-56HRC Hardened Steel		
	G17	56-65HRC Hardened Steel		

High Precision Shank Tolerance



The h5 high precision tolerance, optimum concentricity and runout for precision chucks.



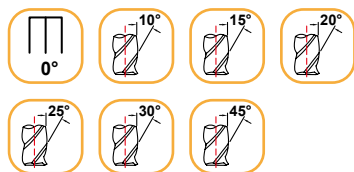
h6 high precision tolerance for HSS series, optimum concentricity and runout for precision chucks.

Icon Guide

Type of Flute



Helix angle



Work piece material hardness



Processing direction



Material Type

icon	Grade	Grain size	Cobalt	Hardness
	Ultra Micro Grain Carbide	0.4um~0.5um	12%	HRA92.7
	Super Micro Grain Carbide	0.6um~0.8um	10%	HRA92.3
	High Speed Steel	---	8%	HRC66~68

Angle & Type of Cutting Edge



Optional DIN Weldon Shank

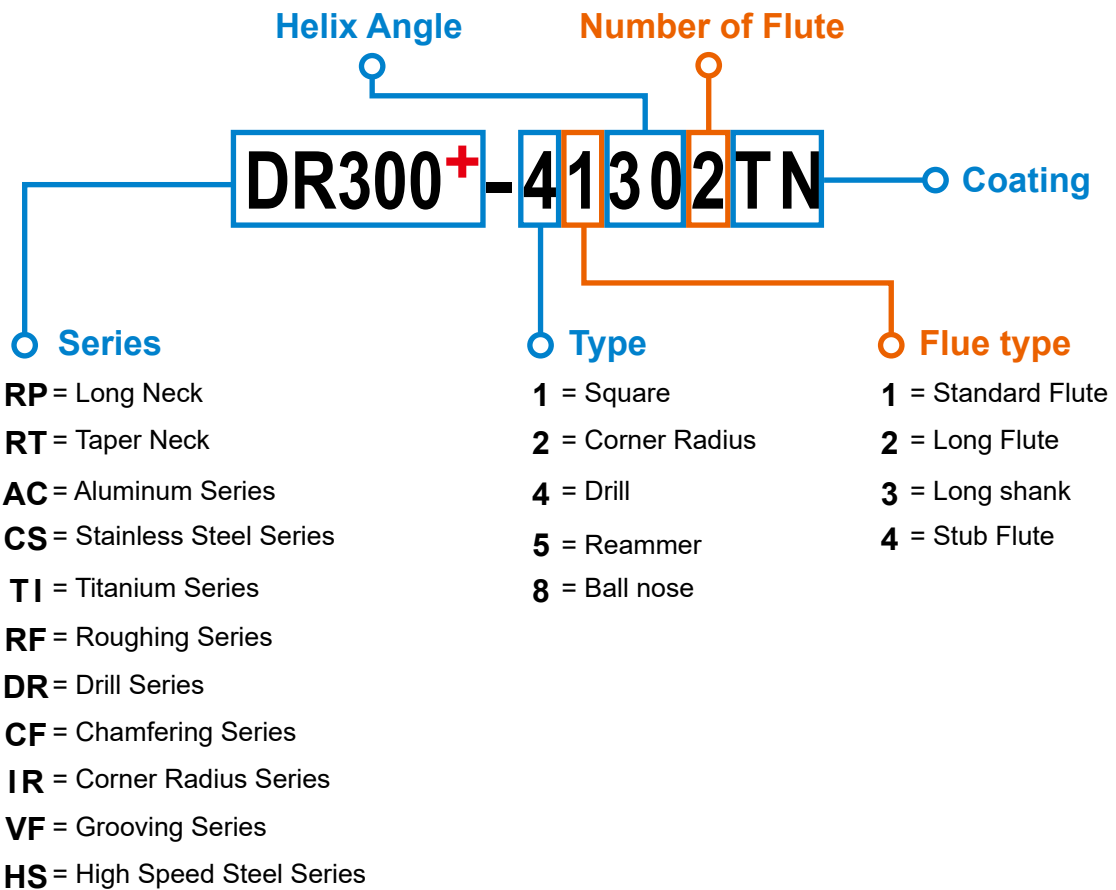


Type of Coating

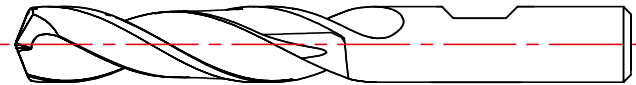


Code	Name	Oxidation Temperature	Surface Hardness(Hv)	Coefficient of Friction	Coating Thickness(μm)
TN	TiAlN	800°C	2600	0.4	0.1~0.4

Coding Principle



Optional Weldon Shank HB, HE Design

Form HA, plain	
Form HB, with drive flat	
Form HE, with whistle notch flat	

Drills Series

Appearance	Code No	Description	Size	Page
Carbide Drills				
	DR300 ⁺ -41302TN	2-Flute / Carbide Drill x 2D	Ø3~Ø13	8-9
	DR300 ⁺ -41302TN	2-Flute / Carbide Drill x 3D	Ø3~Ø13	10-11
	DR300 ⁺ -42302TN	2-Flute / Carbide Drill x 4D	Ø3~Ø13	12-13
	DR300 ⁺ -42302TN	2-Flute / Carbide Drill x 5D	Ø3~Ø13	14-15
	DR300 ⁺ -42302TN	2-Flute / Carbide Drill x 8D	Ø3~Ø13	16-17
Coolant-Fed Carbide Drills				
	DR350 ⁺ -41302TN	2-Flute / Coolant-Fed Carbide Drill x 2D	Ø3~Ø13	20-21
	DR350 ⁺ -41302TN	2-Flute / Coolant-Fed Carbide Drill x 3D	Ø3~Ø13	22-23
	DR350 ⁺ -42302TN	2-Flute / Coolant-Fed Carbide Drill x 4D	Ø3~Ø13	24-25
	DR350 ⁺ -42302TN	2-Flute / Coolant-Fed Carbide Drill x 5D	Ø3~Ø13	26-27
	DR350 ⁺ -42302TN	2-Flute / Coolant-Fed Carbide Drill x 8D	Ø3~Ø13	28-29
Flat Drill				
	DR360 ⁺ -41202TN	2-Flute / Flat Drill Bit Helix 20°	Ø6~Ø16	32-33
	DR365 ⁺ -41202TN	2-Flute / Flat Drill Bit Coolant Hole x 3D	Ø6~Ø16	34-35
Spot Drills				
	DR100 ⁺ -40902TN	2-Flute / SMG Carbide -Spot Drill 90°	Ø4~Ø12	36-37
	DR100 ⁺ -90120TN	2-Flute / SMG Carbide- Spot Drill 90°/120°	Ø3~Ø12	38-39
	DR500 ⁺ -40902TN	2-Flute / SMG Carbide 90° Drill Point End Mill	Ø4~Ø12	40-41
	DR200 ⁺ -40602TN	2-Flute / Countersink Center Drill 60°	Ø1~Ø5	42-43

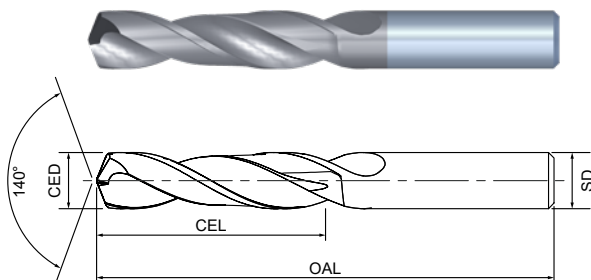
Chamfering Series

Appearance	Code No	Description	Size	Page
Chamfering End Mills				
	VF100 ⁺ -11903TN	3-Flute / Front-Back Chamfer End Mill Short Type	Ø1.5~Ø12	44-45
	VF100 ⁺ -11903TN	3-Flute / Front-Back Chamfer End Mill Long Type	Ø3~Ø6	46-47
	VF100 ⁺ -11904TN	4-Flute / Front-Back Chamfer End Mill Long Type	Ø8	46-47
	VF100 ⁺ -11905TN	5-Flute / Front-Back Chamfer End Mill Long Type	Ø10	46-47
	VF100 ⁺ -11906TN	6-Flute / Front-Back Chamfer End Mill Long Type	Ø12	46-47
	CF400 ⁺ -40903TN	3-Flute / Carbide-Spiral Chamfer End Mill 90°	Ø4~Ø12	48-49
	CF300 ⁺ -40903TN	3-Flute / Carbide-Chamfer End Mill 90°	Ø4~Ø10	50-51
	CF300 ⁺ -40906TN	6-Flute / Carbide-Chamfer End Mill V-90°	Ø4~Ø12	52-53
	CF300 ⁺ -41202TN	2-Flute / Carbide-Chamfer End Mill V120°	Ø4~Ø10	54-55
	CF300 ⁺ -40602TN	2-Flute / Carbide-Chamfer End Mill V-60°	Ø4~Ø10	56-57
	CF300 ⁺ -40902TN	2-Flute / Carbide-Chamfer End Mill V-90°	Ø4~Ø10	58-59
Carbide Hard Cut Drill				
	HCD-Hard Cut Drill	Straight Flute / UMG Carbide Hard Cut Drill V-60°	Ø2~Ø6	60-61
HSS Twist Drills				
	HDR300 ⁺ -41302TN	2-Flute / HSS Twist Drills 118° Tip	Ø0.2~Ø20	62-64

SMG Carbide Drills

DR300⁺ - 41302TN

- ♦ 2-Flute Carbide Drill x 2D
- ♦ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.18

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	3	13	3	56	2
	3.1	13	4	56	
	3.2	14	4	56	
	3.3	14	4	56	
	3.4	14	4	56	
	3.5	15	4	56	
	3.6	15	4	56	
	3.7	15	4	56	
	3.8	16	4	56	
	3.9	16	4	56	
	4	16	4	56	
	4.1	17	4	56	
	4.2	17	5	59	
	4.3	18	5	59	
	4.4	18	5	59	
	4.5	18	5	59	
	4.6	19	5	59	
	4.7	19	5	59	
	4.8	19	5	59	
	4.9	20	5	59	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	5	20	5	59	2
	5.1	20	5	59	
	5.2	21	6	63	
	5.3	21	6	63	
	5.4	21	6	63	
	5.5	22	6	63	
	5.6	22	6	63	
	5.7	22	6	63	
	5.8	23	6	63	
	5.9	23	6	63	
	6	23	6	63	
	6.1	24	6	63	
	6.2	24	7	69	
	6.3	25	7	69	
	6.4	25	7	69	
	6.5	25	7	69	
	6.6	26	7	69	
	6.7	26	7	69	
	6.8	26	7	69	
	6.9	27	7	69	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

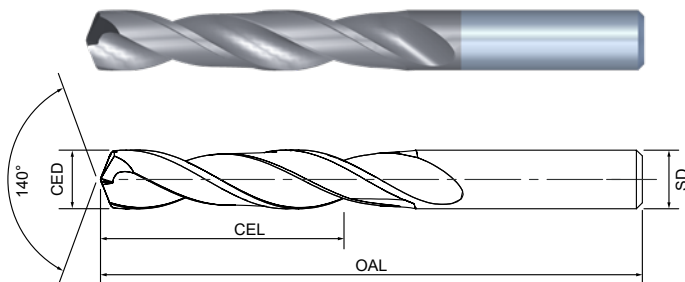
Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	7	27	7	69	2
	7.1	27	7	69	
	7.2	28	8	72	
	7.3	28	8	72	
	7.4	28	8	72	
	7.5	29	8	72	
	7.6	29	8	72	
	7.7	29	8	72	
	7.8	30	8	72	
	7.9	30	8	72	
	8	30	8	72	
	8.1	31	8	72	
	8.2	31	9	79	
	8.3	32	9	79	
	8.4	32	9	79	
	8.5	32	9	79	
	8.6	33	9	79	
	8.7	33	9	79	
	8.8	33	9	79	
	8.9	34	9	79	
	9	34	9	79	
	9.1	34	9	79	
	9.2	35	10	82	
	9.3	35	10	82	
	9.4	35	10	82	
	9.5	36	10	82	
	9.6	36	10	82	
	9.7	36	10	82	
	9.8	37	10	82	
	9.9	37	10	82	
	10	37	10	82	
	10.1	38	10	82	
	10.2	38	11	86	
	10.3	39	11	86	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	10.4	39	11	86	2
	10.5	39	11	86	
	10.6	40	11	86	
	10.7	40	11	86	
	10.8	40	11	86	
	10.9	41	11	86	
	11	41	11	86	
	11.1	41	11	86	
	11.2	42	12	89	
	11.3	42	12	89	
	11.4	42	12	89	
	11.5	43	12	89	
	11.6	43	12	89	
	11.7	43	12	89	
	11.8	44	12	89	
	11.9	44	12	89	
	12	44	12	89	
	12.1	45	12	89	
	12.2	45	13	93	
	12.3	46	13	93	
	12.4	46	13	93	
	12.5	46	13	93	
	12.6	47	13	93	
	12.7	47	13	93	
	12.8	47	13	93	
	12.9	48	13	93	
	13	48	13	93	

SMG Carbide Drills

DR300⁺ - 41302TN

- ◆ 2-Flute Carbide Drill x 3D
- ◆ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.18

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	3	16	3	60	2
	3.1	16	4	60	
	3.2	17	4	60	
	3.3	17	4	60	
	3.4	18	4	60	
	3.5	18	4	60	
	3.6	19	4	60	
	3.7	19	4	60	
	3.8	20	4	60	
	3.9	20	4	60	
	4	20	4	60	
	4.1	21	4	60	
	4.2	21	5	65	
	4.3	22	5	65	
	4.4	22	5	65	
	4.5	23	5	65	
	4.6	23	5	65	
	4.7	24	5	65	
	4.8	24	5	65	
	4.9	25	5	65	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	5	25	5	65	2
	5.1	25	5	65	
	5.2	26	6	69	
	5.3	26	6	69	
	5.4	27	6	69	
	5.5	27	6	69	
	5.6	28	6	69	
	5.7	28	6	69	
	5.8	29	6	69	
	5.9	29	6	69	
	6	29	6	69	
	6.1	30	6	69	
	6.2	30	7	76	
	6.3	31	7	76	
	6.4	31	7	76	
	6.5	32	7	76	
	6.6	32	7	76	
	6.7	33	7	76	
	6.8	33	7	76	
	6.9	34	7	76	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

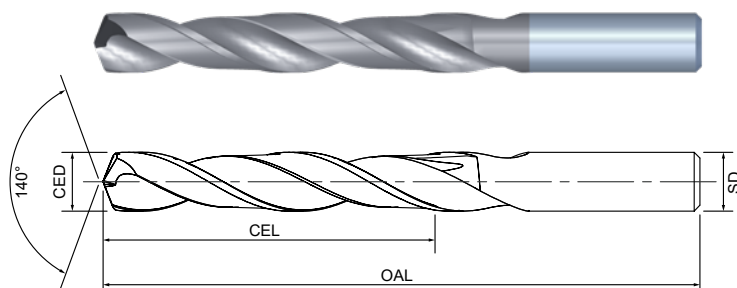
Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	7	34	7	76	2
	7.1	34	7	76	
	7.2	35	8	80	
	7.3	35	8	80	
	7.4	36	8	80	
	7.5	36	8	80	
	7.6	37	8	80	
	7.7	37	8	80	
	7.8	38	8	80	
	7.9	38	8	80	
	8	38	8	80	
	8.1	39	8	80	
	8.2	39	9	85	
	8.3	40	9	85	
	8.4	40	9	85	
	8.5	41	9	85	
	8.6	41	9	85	
	8.7	42	9	85	
	8.8	42	9	85	
	8.9	43	9	85	
	9	43	9	85	
	9.1	43	9	85	
	9.2	44	10	93	
	9.3	44	10	93	
	9.4	45	10	93	
	9.5	45	10	93	
	9.6	46	10	93	
	9.7	46	10	93	
	9.8	47	10	93	
	9.9	47	10	93	
	10	47	10	93	
	10.1	48	10	93	
	10.2	48	11	97	
	10.3	49	11	97	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 41302TN	10.4	49	11	97	2
	10.5	50	11	97	
	10.6	50	11	97	
	10.7	51	11	97	
	10.8	51	11	97	
	10.9	52	11	97	
	11	52	11	97	
	11.1	52	11	97	
	11.2	53	12	102	
	11.3	53	12	102	
	11.4	54	12	102	
	11.5	54	12	102	
	11.6	55	12	102	
	11.7	55	12	102	
	11.8	56	12	102	
	11.9	56	12	102	
	12	56	12	102	
	12.1	57	12	102	
	12.2	57	13	106	
	12.3	58	13	106	
	12.4	58	13	106	
	12.5	59	13	106	
	12.6	59	13	106	
	12.7	60	13	106	
	12.8	60	13	106	
	12.9	61	13	106	
	13	61	13	106	

SMG Carbide Drills

DR300⁺ - 42302TN

- ◆ 2-Flute Carbide Drill x 4D
- ◆ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.18

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	3	19	3	64	2
	3.1	20	4	64	
	3.2	20	4	64	
	3.3	21	4	64	
	3.4	21	4	64	
	3.5	22	4	64	
	3.6	22	4	64	
	3.7	23	4	64	
	3.8	23	4	64	
	3.9	24	4	64	
	4	24	4	64	
	4.1	25	4	64	
	4.2	26	5	69	
	4.3	26	5	69	
	4.4	27	5	69	
	4.5	27	5	69	
	4.6	28	5	69	
	4.7	28	5	69	
	4.8	29	5	69	
	4.9	29	5	69	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	5	30	5	69	2
	5.1	31	5	69	
	5.2	31	6	75	
	5.3	32	6	75	
	5.4	32	6	75	
	5.5	33	6	75	
	5.6	33	6	75	
	5.7	34	6	75	
	5.8	34	6	75	
	5.9	35	6	75	
	6	35	6	75	
	6.1	36	6	75	
	6.2	37	7	82	
	6.3	37	7	82	
	6.4	38	7	82	
	6.5	38	7	82	
	6.6	39	7	82	
	6.7	39	7	82	
	6.8	40	7	82	
	6.9	40	7	82	

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SMG Carbide Drills

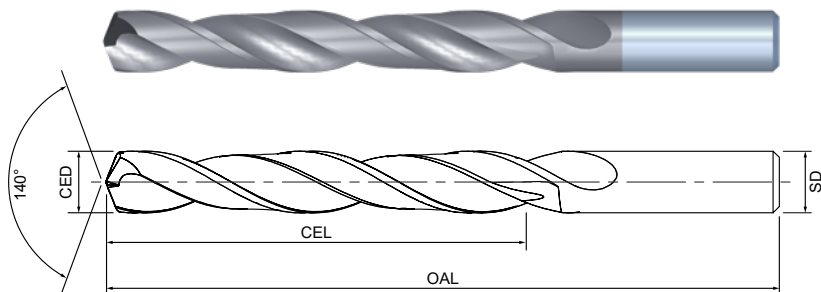
Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	7	41	7	82	2
	7.1	42	7	82	
	7.2	42	8	89	
	7.3	43	8	89	
	7.4	43	8	89	
	7.5	44	8	89	
	7.6	44	8	89	
	7.7	45	8	89	
	7.8	45	8	89	
	7.9	46	8	89	
	8	46	8	89	
	8.1	47	8	89	
	8.2	48	9	95	
	8.3	48	9	95	
	8.4	49	9	95	
	8.5	49	9	95	
	8.6	50	9	95	
	8.7	50	9	95	
	8.8	51	9	95	
	8.9	51	9	95	
	9	52	9	95	
	9.1	53	9	95	
	9.2	53	10	102	
	9.3	54	10	102	
	9.4	54	10	102	
	9.5	55	10	102	
	9.6	55	10	102	
	9.7	56	10	102	
	9.8	56	10	102	
	9.9	57	10	102	
	10	57	10	102	
	10.1	58	10	102	
	10.2	59	11	109	
	10.3	59	11	109	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	10.4	60	11	109	2
	10.5	60	11	109	
	10.6	61	11	109	
	10.7	61	11	109	
	10.8	62	11	109	
	10.9	62	11	109	
	11	63	11	109	
	11.1	64	11	109	
	11.2	64	12	115	
	11.3	65	12	115	
	11.4	65	12	115	
	11.5	66	12	115	
	11.6	66	12	115	
	11.7	67	12	115	
	11.8	67	12	115	
	11.9	68	12	115	
	12	68	12	115	
	12.1	69	12	115	
	12.2	70	13	120	
	12.3	70	13	120	
	12.4	71	13	120	
	12.5	71	13	120	
	12.6	72	13	120	
	12.7	72	13	120	
	12.8	73	13	120	
	12.9	73	13	120	
	13	74	13	120	

SMG Carbide Drills

DR300⁺ - 42302TN

- ♦ 2-Flute Carbide Drill x 5D
- ♦ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.18

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	3	22	3	68	2
	3.1	23	4	68	
	3.2	23	4	68	
	3.3	24	4	68	
	3.4	25	4	68	
	3.5	25	4	68	
	3.6	26	4	68	
	3.7	27	4	68	
	3.8	27	4	68	
	3.9	28	4	68	
	4	28	4	68	
	4.1	29	4	68	
	4.2	30	5	75	
	4.3	30	5	75	
	4.4	31	5	75	
	4.5	32	5	75	
	4.6	32	5	75	
	4.7	33	5	75	
	4.8	34	5	75	
	4.9	34	5	75	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	5	35	5	75	2
	5.1	36	5	75	
	5.2	36	6	80	
	5.3	37	6	80	
	5.4	38	6	80	
	5.5	38	6	80	
	5.6	39	6	80	
	5.7	40	6	80	
	5.8	40	6	80	
	5.9	41	6	80	
	6	41	6	80	
	6.1	42	6	80	
	6.2	43	7	89	
	6.3	43	7	89	
	6.4	44	7	89	
	6.5	45	7	89	
	6.6	45	7	89	
	6.7	46	7	89	
	6.8	47	7	89	
	6.9	47	7	89	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

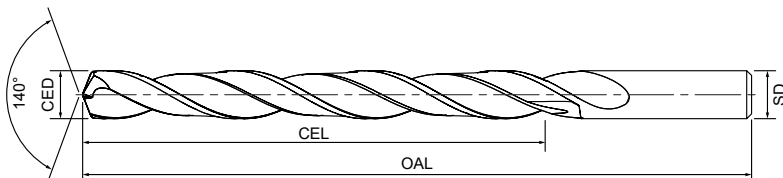
Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	7	48	7	89	2
	7.1	49	7	89	
	7.2	49	8	96	
	7.3	50	8	96	
	7.4	51	8	96	
	7.5	51	8	96	
	7.6	52	8	96	
	7.7	53	8	96	
	7.8	53	8	96	
	7.9	54	8	96	
	8	54	8	96	
	8.1	55	8	96	
	8.2	56	9	102	
	8.3	56	9	102	
	8.4	57	9	102	
	8.5	58	9	102	
	8.6	58	9	102	
	8.7	59	9	102	
	8.8	60	9	102	
	8.9	60	9	102	
	9	61	9	102	
	9.1	62	9	102	
	9.2	62	10	110	
	9.3	63	10	110	
	9.4	64	10	110	
	9.5	64	10	110	
	9.6	65	10	110	
	9.7	66	10	110	
	9.8	66	10	110	
	9.9	67	10	110	
	10	67	10	110	
	10.1	68	10	110	
	10.2	69	11	120	
	10.3	69	11	120	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	10.4	70	11	120	2
	10.5	71	11	120	
	10.6	71	11	120	
	10.7	72	11	120	
	10.8	73	11	120	
	10.9	73	11	120	
	11	74	11	120	
	11.1	75	11	120	
	11.2	75	12	125	
	11.3	76	12	125	
	11.4	77	12	125	
	11.5	77	12	125	
	11.6	78	12	125	
	11.7	79	12	125	
	11.8	79	12	125	
	11.9	80	12	125	
	12	80	12	125	
	12.1	81	12	125	
	12.2	82	13	132	
	12.3	82	13	132	
	12.4	83	13	132	
	12.5	84	13	132	
	12.6	84	13	132	
	12.7	85	13	132	
	12.8	86	13	132	
	12.9	86	13	132	
	13	87	13	132	

SMG Carbide Drills

DR300⁺ - 42302TN

- ♦ 2-Flute Carbide Drill x 8D
- ♦ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.18

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	3	31	3	80	2
	3.1	32	4	80	
	3.2	33	4	80	
	3.3	34	4	80	
	3.4	35	4	80	
	3.5	36	4	80	
	3.6	37	4	80	
	3.7	38	4	80	
	3.8	39	4	80	
	3.9	40	4	80	
	4	40	4	80	
	4.1	41	4	80	
	4.2	42	5	89	
	4.3	43	5	89	
	4.4	44	5	89	
	4.5	45	5	89	
	4.6	46	5	89	
	4.7	47	5	89	
	4.8	48	5	89	
	4.9	49	5	89	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	5	50	5	89	2
	5.1	51	5	89	
	5.2	52	6	101	
	5.3	53	6	101	
	5.4	54	6	101	
	5.5	55	6	101	
	5.6	56	6	101	
	5.7	57	6	101	
	5.8	58	6	101	
	5.9	59	6	101	
	6	59	6	101	
	6.1	60	6	101	
	6.2	61	7	110	
	6.3	62	7	110	
	6.4	63	7	110	
	6.5	64	7	110	
	6.6	65	7	110	
	6.7	66	7	110	
	6.8	67	7	110	
	6.9	68	7	110	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	7	69	7	110	2
	7.1	70	7	110	
	7.2	71	8	120	
	7.3	72	8	120	
	7.4	73	8	120	
	7.5	74	8	120	
	7.6	75	8	120	
	7.7	76	8	120	
	7.8	77	8	120	
	7.9	78	8	120	
	8	78	8	120	
	8.1	79	8	120	
	8.2	80	9	130	
	8.3	81	9	130	
	8.4	82	9	130	
	8.5	83	9	130	
	8.6	84	9	130	
	8.7	85	9	130	
	8.8	86	9	130	
	8.9	87	9	130	
	9	88	9	130	
	9.1	89	9	130	
	9.2	90	10	140	
	9.3	91	10	140	
	9.4	92	10	140	
	9.5	93	10	140	
	9.6	94	10	140	
	9.7	95	10	140	
	9.8	96	10	140	
	9.9	97	10	140	
	10	97	10	140	
	10.1	98	10	140	
	10.2	99	11	153	
	10.3	100	11	153	

Code No.	CED	CEL	SD	OAL	Flute
DR300 ⁺ - 42302TN	10.4	101	11	153	2
	10.5	102	11	153	
	10.6	103	11	153	
	10.7	104	11	153	
	10.8	105	11	153	
	10.9	106	11	153	
	11	107	11	153	
	11.1	108	11	153	
	11.2	109	12	160	
	11.3	110	12	160	
	11.4	111	12	160	
	11.5	112	12	160	
	11.6	113	12	160	
	11.7	114	12	160	
	11.8	115	12	160	
	11.9	116	12	160	
	12	116	12	160	
	12.1	117	12	160	
	12.2	118	13	170	
	12.3	119	13	170	
	12.4	120	13	170	
	12.5	121	13	170	
	12.6	122	13	170	
	12.7	123	13	170	
	12.8	124	13	170	
	12.9	125	13	170	
	13	126	13	170	

Recommended Cutting Condition

DR300⁺ - 41302TN / 42302TN 2D / 3D / 4D / 5D / 8D

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
3	8,500	0.05~0.1	6,800	0.05~0.1	4,250	0.04~0.08	6,800	0.05~0.1
4	6,400	0.07~0.14	5,120	0.07~0.14	3,420	0.07~0.12	5,120	0.07~0.14
5	5,100	0.09~0.16	4,080	0.09~0.16	2,760	0.08~0.15	4,080	0.09~0.16
6	4,250	0.11~0.18	3,400	0.11~0.18	2,280	0.09~0.17	3,400	0.11~0.18
7	3,650	0.13~0.2	3,650	0.13~0.2	1,950	0.11~0.19	3,650	0.13~0.2
8	3,200	0.15~0.22	3,200	0.15~0.22	1,740	0.14~0.20	3,200	0.15~0.22
9	2,830	0.16~0.25	2,830	0.16~0.25	1,500	0.15~0.22	2,830	0.16~0.25
10	2,500	0.18~0.28	2,500	0.18~0.28	1,380	0.18~0.25	2,500	0.18~0.28
11	2,300	0.18~0.3	2,300	0.18~0.3	1,250	0.18~0.29	2,300	0.18~0.3
12	2,100	0.19~0.32	1,680	0.19~0.32	1,140	0.19~0.3	1,680	0.19~0.32
13	1,960	0.19~0.33	1,570	0.19~0.33	980	0.19~0.3	1,570	0.19~0.33

Work Material

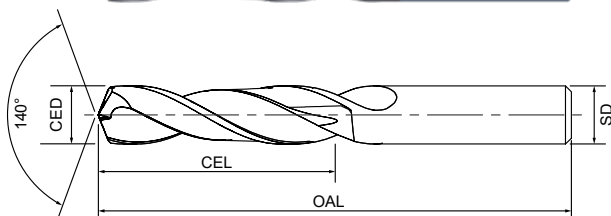
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide Drills

DR350⁺ - 41302TN

- ◆ 2-Flute Coolant-Fed Carbide Drill x 2D
- ◆ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.30

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	3	13	3	56	2
	3.1	13	4	56	
	3.2	14	4	56	
	3.3	14	4	56	
	3.4	14	4	56	
	3.5	15	4	56	
	3.6	15	4	56	
	3.7	15	4	56	
	3.8	16	4	56	
	3.9	16	4	56	
	4	16	4	56	
	4.1	17	4	56	
	4.2	17	5	59	
	4.3	18	5	59	
	4.4	18	5	59	
	4.5	18	5	59	
	4.6	19	5	59	
	4.7	19	5	59	
	4.8	19	5	59	
	4.9	20	5	59	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	5	20	5	59	2
	5.1	20	5	59	
	5.2	21	6	63	
	5.3	21	6	63	
	5.4	21	6	63	
	5.5	22	6	63	
	5.6	22	6	63	
	5.7	22	6	63	
	5.8	23	6	63	
	5.9	23	6	63	
	6	23	6	63	
	6.1	24	6	63	
	6.2	24	7	69	
	6.3	25	7	69	
	6.4	25	7	69	
	6.5	25	7	69	
	6.6	26	7	69	
	6.7	26	7	69	
	6.8	26	7	69	
	6.9	27	7	69	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

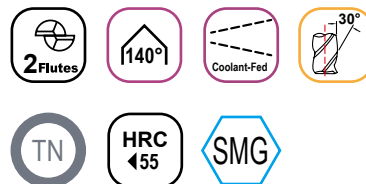
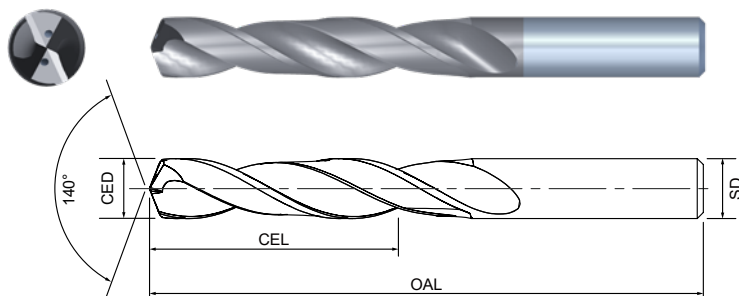
Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	7	27	7	69	2
	7.1	27	7	69	
	7.2	28	8	72	
	7.3	28	8	72	
	7.4	28	8	72	
	7.5	29	8	72	
	7.6	29	8	72	
	7.7	29	8	72	
	7.8	30	8	72	
	7.9	30	8	72	
	8	30	8	72	
	8.1	31	8	72	
	8.2	31	9	79	
	8.3	32	9	79	
	8.4	32	9	79	
	8.5	32	9	79	
	8.6	33	9	79	
	8.7	33	9	79	
	8.8	33	9	79	
	8.9	34	9	79	
	9	34	9	79	
	9.1	34	9	79	
	9.2	35	10	82	
	9.3	35	10	82	
	9.4	35	10	82	
	9.5	36	10	82	
	9.6	36	10	82	
	9.7	36	10	82	
	9.8	37	10	82	
	9.9	37	10	82	
	10	37	10	82	
	10.1	38	10	82	
	10.2	38	11	86	
	10.3	39	11	86	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	10.4	39	11	86	2
	10.5	39	11	86	
	10.6	40	11	86	
	10.7	40	11	86	
	10.8	40	11	86	
	10.9	41	11	86	
	11	41	11	86	
	11.1	41	11	86	
	11.2	42	12	89	
	11.3	42	12	89	
	11.4	42	12	89	
	11.5	43	12	89	
	11.6	43	12	89	
	11.7	43	12	89	
	11.8	44	12	89	
	11.9	44	12	89	
	12	44	12	89	
	12.1	45	12	89	
	12.2	45	13	93	
	12.3	46	13	93	
	12.4	46	13	93	
	12.5	46	13	93	
	12.6	47	13	93	
	12.7	47	13	93	
	12.8	47	13	93	
	12.9	48	13	93	
	13	48	13	93	

SMG Carbide Drills

DR350⁺ - 41302TN

- ◆ 2-Flute Coolant-Fed Carbide Drill x 3D
- ◆ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.30

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	3	16	3	60	2
	3.1	16	4	60	
	3.2	17	4	60	
	3.3	17	4	60	
	3.4	18	4	60	
	3.5	18	4	60	
	3.6	19	4	60	
	3.7	19	4	60	
	3.8	20	4	60	
	3.9	20	4	60	
	4	20	4	60	
	4.1	21	4	60	
	4.2	21	5	65	
	4.3	22	5	65	
	4.4	22	5	65	
	4.5	23	5	65	
	4.6	23	5	65	
	4.7	24	5	65	
	4.8	24	5	65	
	4.9	25	5	65	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	5	25	5	65	2
	5.1	25	5	65	
	5.2	26	6	69	
	5.3	26	6	69	
	5.4	27	6	69	
	5.5	27	6	69	
	5.6	28	6	69	
	5.7	28	6	69	
	5.8	29	6	69	
	5.9	29	6	69	
	6	29	6	69	
	6.1	30	6	69	
	6.2	30	7	76	
	6.3	31	7	76	
	6.4	31	7	76	
	6.5	32	7	76	
	6.6	32	7	76	
	6.7	33	7	76	
	6.8	33	7	76	
	6.9	34	7	76	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

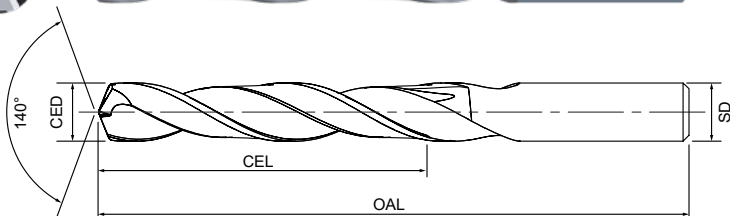
Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	7	34	7	76	2
	7.1	34	7	76	
	7.2	35	8	80	
	7.3	35	8	80	
	7.4	36	8	80	
	7.5	36	8	80	
	7.6	37	8	80	
	7.7	37	8	80	
	7.8	38	8	80	
	7.9	38	8	80	
	8	38	8	80	
	8.1	39	8	80	
	8.2	39	9	85	
	8.3	40	9	85	
	8.4	40	9	85	
	8.5	41	9	85	
	8.6	41	9	85	
	8.7	42	9	85	
	8.8	42	9	85	
	8.9	43	9	85	
	9	43	9	85	
	9.1	43	9	85	
	9.2	44	10	93	
	9.3	44	10	93	
	9.4	45	10	93	
	9.5	45	10	93	
	9.6	46	10	93	
	9.7	46	10	93	
	9.8	47	10	93	
	9.9	47	10	93	
	10	47	10	93	
	10.1	48	10	93	
	10.2	48	11	97	
	10.3	49	11	97	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 41302TN	10.4	49	11	97	2
	10.5	50	11	97	
	10.6	50	11	97	
	10.7	51	11	97	
	10.8	51	11	97	
	10.9	52	11	97	
	11	52	11	97	
	11.1	52	11	97	
	11.2	53	12	102	
	11.3	53	12	102	
	11.4	54	12	102	
	11.5	54	12	102	
	11.6	55	12	102	
	11.7	55	12	102	
	11.8	56	12	102	
	11.9	56	12	102	
	12	56	12	102	
	12.1	57	12	102	
	12.2	57	13	106	
	12.3	58	13	106	
	12.4	58	13	106	
	12.5	59	13	106	
	12.6	59	13	106	
	12.7	60	13	106	
	12.8	60	13	106	
	12.9	61	13	106	
	13	61	13	106	

SMG Carbide Drills

DR350⁺ - 42302TN

- ♦ 2-Flute Coolant-Fed Carbide Drill x 4D
- ♦ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.30

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	3	19	3	64	2
	3.1	20	4	64	
	3.2	20	4	64	
	3.3	21	4	64	
	3.4	21	4	64	
	3.5	22	4	64	
	3.6	22	4	64	
	3.7	23	4	64	
	3.8	23	4	64	
	3.9	24	4	64	
	4	24	4	64	
	4.1	25	4	64	
	4.2	26	5	69	
	4.3	26	5	69	
	4.4	27	5	69	
	4.5	27	5	69	
	4.6	28	5	69	
	4.7	28	5	69	
	4.8	29	5	69	
	4.9	29	5	69	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	5	30	5	69	2
	5.1	31	5	69	
	5.2	31	6	75	
	5.3	32	6	75	
	5.4	32	6	75	
	5.5	33	6	75	
	5.6	33	6	75	
	5.7	34	6	75	
	5.8	34	6	75	
	5.9	35	6	75	
	6	35	6	75	
	6.1	36	6	75	
	6.2	37	7	82	
	6.3	37	7	82	
	6.4	38	7	82	
	6.5	38	7	82	
	6.6	39	7	82	
	6.7	39	7	82	
	6.8	40	7	82	
	6.9	40	7	82	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

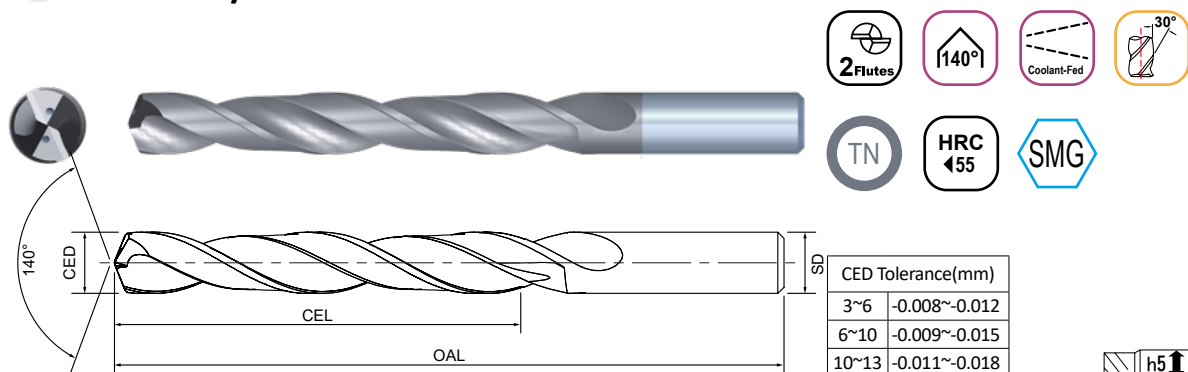
Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	7	41	7	82	2
	7.1	42	7	82	
	7.2	42	8	89	
	7.3	43	8	89	
	7.4	43	8	89	
	7.5	44	8	89	
	7.6	44	8	89	
	7.7	45	8	89	
	7.8	45	8	89	
	7.9	46	8	89	
	8	46	8	89	
	8.1	47	8	89	
	8.2	48	9	95	
	8.3	48	9	95	
	8.4	49	9	95	
	8.5	49	9	95	
	8.6	50	9	95	
	8.7	50	9	95	
	8.8	51	9	95	
	8.9	51	9	95	
	9	52	9	95	
	9.1	53	9	95	
	9.2	53	10	102	
	9.3	54	10	102	
	9.4	54	10	102	
	9.5	55	10	102	
	9.6	55	10	102	
	9.7	56	10	102	
	9.8	56	10	102	
	9.9	57	10	102	
	10	57	10	102	
	10.1	58	10	102	
	10.2	59	11	109	
	10.3	59	11	109	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	10.4	60	11	109	2
	10.5	60	11	109	
	10.6	61	11	109	
	10.7	61	11	109	
	10.8	62	11	109	
	10.9	62	11	109	
	11	63	11	109	
	11.1	64	11	109	
	11.2	64	12	115	
	11.3	65	12	115	
	11.4	65	12	115	
	11.5	66	12	115	
	11.6	66	12	115	
	11.7	67	12	115	
	11.8	67	12	115	
	11.9	68	12	115	
	12	68	12	115	
	12.1	69	12	115	
	12.2	70	13	120	
	12.3	70	13	120	
	12.4	71	13	120	
	12.5	71	13	120	
	12.6	72	13	120	
	12.7	72	13	120	
	12.8	73	13	120	
	12.9	73	13	120	
	13	74	13	120	

SMG Carbide Drills

DR350⁺ - 42302TN

- ◆ 2-Flute Coolant-Fed Carbide Drill x 5D
- ◆ Helix 30° / Drill Point 140°



Milling Parameters | P.30

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	3	22	3	68	2
	3.1	23	4	68	
	3.2	23	4	68	
	3.3	24	4	68	
	3.4	25	4	68	
	3.5	25	4	68	
	3.6	26	4	68	
	3.7	27	4	68	
	3.8	27	4	68	
	3.9	28	4	68	
	4	28	4	68	
	4.1	29	4	68	
	4.2	30	5	75	
	4.3	30	5	75	
	4.4	31	5	75	
	4.5	32	5	75	
	4.6	32	5	75	
	4.7	33	5	75	
	4.8	34	5	75	
	4.9	34	5	75	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	5	35	5	75	2
	5.1	36	5	75	
	5.2	36	6	80	
	5.3	37	6	80	
	5.4	38	6	80	
	5.5	38	6	80	
	5.6	39	6	80	
	5.7	40	6	80	
	5.8	40	6	80	
	5.9	41	6	80	
	6	41	6	80	
	6.1	42	6	80	
	6.2	43	7	89	
	6.3	43	7	89	
	6.4	44	7	89	
	6.5	45	7	89	
	6.6	45	7	89	
	6.7	46	7	89	
	6.8	47	7	89	
	6.9	47	7	89	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

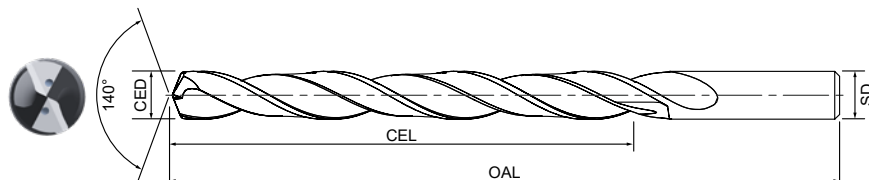
Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	7	48	7	89	2
	7.1	49	7	89	
	7.2	49	8	96	
	7.3	50	8	96	
	7.4	51	8	96	
	7.5	51	8	96	
	7.6	52	8	96	
	7.7	53	8	96	
	7.8	53	8	96	
	7.9	54	8	96	
	8	54	8	96	
	8.1	55	8	96	
	8.2	56	9	102	
	8.3	56	9	102	
	8.4	57	9	102	
	8.5	58	9	102	
	8.6	58	9	102	
	8.7	59	9	102	
	8.8	60	9	102	
	8.9	60	9	102	
	9	61	9	102	
	9.1	62	9	102	
	9.2	62	10	110	
	9.3	63	10	110	
	9.4	64	10	110	
	9.5	64	10	110	
	9.6	65	10	110	
	9.7	66	10	110	
	9.8	66	10	110	
	9.9	67	10	110	
	10	67	10	110	
	10.1	68	10	110	
	10.2	69	11	120	
	10.3	69	11	120	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	10.4	70	11	120	2
	10.5	71	11	120	
	10.6	71	11	120	
	10.7	72	11	120	
	10.8	73	11	120	
	10.9	73	11	120	
	11	74	11	120	
	11.1	75	11	120	
	11.2	75	12	125	
	11.3	76	12	125	
	11.4	77	12	125	
	11.5	77	12	125	
	11.6	78	12	125	
	11.7	79	12	125	
	11.8	79	12	125	
	11.9	80	12	125	
	12	80	12	125	
	12.1	81	12	125	
	12.2	82	13	132	
	12.3	82	13	132	
	12.4	83	13	132	
	12.5	84	13	132	
	12.6	84	13	132	
	12.7	85	13	132	
	12.8	86	13	132	
	12.9	86	13	132	
	13	87	13	132	

SMG Carbide Drills

DR350⁺ - 42302TN

- ♦ 2-Flute Coolant-Fed Carbide Drill x 8D
- ♦ Helix 30° / Drill Point 140°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~13	-0.011~-0.018



Milling Parameters | P.30

(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	3	31	3	80	2
	3.1	32	4	80	
	3.2	33	4	80	
	3.3	34	4	80	
	3.4	35	4	80	
	3.5	36	4	80	
	3.6	37	4	80	
	3.7	38	4	80	
	3.8	39	4	80	
	3.9	40	4	80	
	4	40	4	80	
	4.1	41	4	80	
	4.2	42	5	89	
	4.3	43	5	89	
	4.4	44	5	89	
	4.5	45	5	89	
	4.6	46	5	89	
	4.7	47	5	89	
	4.8	48	5	89	
	4.9	49	5	89	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	5	50	5	89	2
	5.1	51	5	89	
	5.2	52	6	101	
	5.3	53	6	101	
	5.4	54	6	101	
	5.5	55	6	101	
	5.6	56	6	101	
	5.7	57	6	101	
	5.8	58	6	101	
	5.9	59	6	101	
	6	59	6	101	
	6.1	60	6	101	
	6.2	61	7	110	
	6.3	62	7	110	
	6.4	63	7	110	
	6.5	64	7	110	
	6.6	65	7	110	
	6.7	66	7	110	
	6.8	67	7	110	
	6.9	68	7	110	

※ Customized Special sizes, Coating type and Inches are available to order.

SMG Carbide Drills

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	7	69	7	110	2
	7.1	70	7	110	
	7.2	71	8	120	
	7.3	72	8	120	
	7.4	73	8	120	
	7.5	74	8	120	
	7.6	75	8	120	
	7.7	76	8	120	
	7.8	77	8	120	
	7.9	78	8	120	
	8	78	8	120	
	8.1	79	8	120	
	8.2	80	9	130	
	8.3	81	9	130	
	8.4	82	9	130	
	8.5	83	9	130	
	8.6	84	9	130	
	8.7	85	9	130	
	8.8	86	9	130	
	8.9	87	9	130	
	9	88	9	130	
	9.1	89	9	130	
	9.2	90	10	140	
	9.3	91	10	140	
	9.4	92	10	140	
	9.5	93	10	140	
	9.6	94	10	140	
	9.7	95	10	140	
	9.8	96	10	140	
	9.9	97	10	140	
	10	97	10	140	
	10.1	98	10	140	
	10.2	99	11	153	
	10.3	100	11	153	

Code No.	CED	CEL	SD	OAL	Flute
DR350 ⁺ - 42302TN	10.4	101	11	153	2
	10.5	102	11	153	
	10.6	103	11	153	
	10.7	104	11	153	
	10.8	105	11	153	
	10.9	106	11	153	
	11	107	11	153	
	11.1	108	11	153	
	11.2	109	12	160	
	11.3	110	12	160	
	11.4	111	12	160	
	11.5	112	12	160	
	11.6	113	12	160	
	11.7	114	12	160	
	11.8	115	12	160	
	11.9	116	12	160	
	12	116	12	160	
	12.1	117	12	160	
	12.2	118	13	170	
	12.3	119	13	170	
	12.4	120	13	170	
	12.5	121	13	170	
	12.6	122	13	170	
	12.7	123	13	170	
	12.8	124	13	170	
	12.9	125	13	170	
	13	126	13	170	

Recommended Cutting Condition

DR350⁺ - 41302TN / 42302TN 2D / 3D / 4D / 5D / 8D

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
3	10,600	0.05~0.1	8,480	0.05~0.1	5,300	0.04~0.08	8,480	0.05~0.1
4	8,000	0.07~0.14	6,400	0.07~0.14	4,000	0.06~0.12	6,400	0.07~0.14
5	6,400	0.08~0.16	5,120	0.08~0.16	3,200	0.08~0.15	5,120	0.08~0.16
6	5,300	0.1~0.18	4,240	0.1~0.18	2,650	0.09~0.17	4,240	0.1~0.18
7	4900	0.12~0.19	3,700	0.12~0.19	2,400	0.11~0.19	3,700	0.12~0.19
8	4,500	0.14~0.22	3,600	0.14~0.22	2,250	0.14~0.20	3,600	0.14~0.22
9	3800	0.16~0.23	2,800	0.16~0.23	1,770	0.15~0.22	2,800	0.16~0.23
10	3,200	0.18~0.27	2,560	0.18~0.27	1,600	0.18~0.25	2,560	0.18~0.27
11	2900	0.18~0.29	2,300	0.18~0.29	1,450	0.18~0.29	2,300	0.18~0.29
12	2,700	0.19~0.32	2,160	0.19~0.32	1,350	0.19~0.3	2,160	0.19~0.32
13	2450	0.19~0.33	1,960	0.19~0.33	1,230	0.19~0.3	1,960	0.19~0.33

Work Material

P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

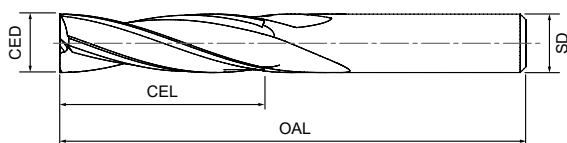
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - Flat Drill

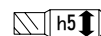
DR360⁺ - 41202TN

◆ 2-Flute

◆ Helix 20° / Flat Drill point



CED Tolerance(mm)	
6~10	-0.009~-0.015
10~16	-0.011~-0.018



(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR360 ⁺ -41202TN	6	21	6	60	2
	8	28	8	70	
	10	35	10	80	
	12	42	12	90	
	16	56	16	115	

Code No.	CED	CEL	SD	OAL	Flute
DR360 ⁺ -41202TN	6	21	6	65	2
	8	28	8	78	
	10	35	10	87	
	12	42	12	100	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC	
Cutting Condition	Speed RPM/ min	Feed mm/ rev	Speed RPM/ min	Feed mm/ rev	Speed RPM/ min	Feed mm/ rev
CED						
6	4,000	0.06~0.1	3,200	0.06~0.1	2,100	0.05~0.08
8	3,000	0.08~0.13	2,450	0.08~0.13	1,600	0.07~0.11
10	2,400	0.1~0.15	1,900	0.1~0.15	1,250	0.9~0.12
12	2,000	0.13~0.18	1,600	0.13~0.18	1,050	0.11~0.15
16	1,500	0.17~0.22	1,200	0.17~0.22	800	0.15~0.20

Work Material	Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ rev
CED		
6	3,200	0.06~0.1
8	2,450	0.08~0.13
10	1,900	0.1~0.15
12	1,600	0.13~0.18
16	1,200	0.17~0.22

Work Material

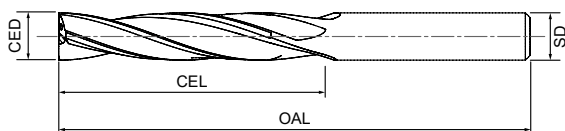
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

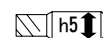
SMG Carbide - Coolant Hole Flat Drill

DR365⁺ - 41202TN

- ♦ 2-Flute / Coolant Hole x 3D
- ♦ Helix 20° / Flat Drill point



CED Tolerance(mm)	
6~10	-0.009~-0.015
10~16	-0.011~-0.018



(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR365 ⁺ -41202TN	6	27	6	80	2
	8	36	8	80	
	10	45	10	100	
	12	54	12	120	
	16	72	16	140	

Code No.	CED	CEL	SD	OAL	Flute
DR365 ⁺ -41202TN	EU 6	26	6	65	2
	EU 8	35	8	78	
	EU 10	43	10	87	
	EU 12	52	12	100	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC	
Cutting Condition	Speed RPM/ min	Feed mm/ rev	Speed RPM/ min	Feed mm/ rev	Speed RPM/ min	Feed mm/ rev
CED						
6	4,000	0.06~0.1	3,200	0.06~0.1	2,100	0.05~0.08
8	3,000	0.08~0.13	2,450	0.08~0.13	1,600	0.07~0.11
10	2,400	0.1~0.15	1,900	0.1~0.15	1,250	0.9~0.12
12	2,000	0.13~0.18	1,600	0.13~0.18	1,050	0.11~0.15
16	1,500	0.17~0.22	1,200	0.17~0.22	800	0.15~0.20

Work Material	Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/ min	Feed mm/ rev
CED		
6	3,200	0.06~0.1
8	2,450	0.08~0.13
10	1,900	0.1~0.15
12	1,600	0.13~0.18
16	1,200	0.17~0.22

Work Material

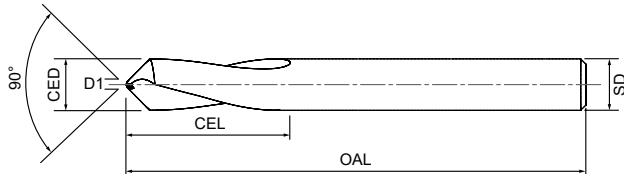
P			K	H		
G1	G2	G3	G5	G14	G15	G16
●	●	●	●	●	●	●

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

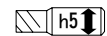
SMG Carbide - Spot Drill

DR100⁺ - 40902TN

- ◆ 2-Flute / Spot Drill 90°
- ◆ Helix 15°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~12	-0.011~-0.018



(unit : mm)

Code No.	CED	CEL	SD	OAL	D1	Flute
DR100 ⁺ -40902TN	4	8	4	50	0.4	2
	6	12	6	70	0.6	
	8	16	8	80	0.8	
	10	20	10	90	1	
	12	24	12	110	1.2	

Code No.	CED	CEL	SD	OAL	D1	Flute
DR100 ⁺ -40902TN	4	12	4	55	0.4	2
	6	16	6	66	0.6	
	8	21	8	79	0.8	
	10	25	10	89	1	
	12	30	12	102	1.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	MildSteel CarbonSteel		AlloyedSteel 25~35HRC		HardenedSteel 35~45HRC		GrayCastIron Malleablecastiron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
4	6,400	0.06~0.12	5,120	0.06~0.12	3,420	0.05~0.1	5,120	0.06~0.12
6	4,250	0.08~0.15	3,400	0.08~0.15	2,280	0.07~0.12	3,400	0.08~0.15
8	3,200	0.12~0.18	3,000	0.12~0.18	1,740	0.1~0.15	3,000	0.12~0.18
10	2,500	0.16~0.23	2,500	0.16~0.23	1,380	0.12~0.18	2,500	0.16~0.23
12	2,100	0.18~0.28	1,700	0.18~0.28	1,140	0.15~0.23	1,700	0.18~0.28

Work Material	Stainless Steel Cast steel	
Cutting Condition	Speed RPM/min	Feed (mm/rev)
CED		
4	3,420	0.05~0.1
6	2,280	0.07~0.12
8	1,740	0.1~0.15
10	1,380	0.12~0.18
12	1,140	0.15~0.23

Work Material

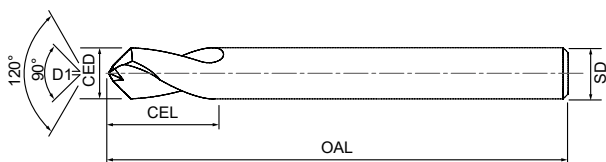
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - 2-Flute Spot Drill

DR100⁺ - 90120TN

- ♦ 2-Flute / Spot Drill 120° / 90°
- ♦ Helix 20°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~12	-0.011~-0.018



(unit : mm)

Code No.	CED	CEL	SD	OAL	D1	Flute
DR100 ⁺ -90120TN	3	6	3	45	1	2
	4	8	4	50	1.5	
	6	12	6	70	2	
	8	16	8	80	2.5	
	10	20	10	90	3	
	12	24	12	110	4	

Code No.	CED	CEL	SD	OAL	D1	Flute
DR100 ⁺ -90120TN	4	12	4	55	1.5	2
	6	16	6	66	2	
	8	21	8	79	2.5	
	10	25	10	89	3	
	12	30	12	102	4	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
3	7,700	0.05~0.1	6,100	0.05~0.1	4,700	0.05~0.08	6,100	0.05~0.1
4	6,400	0.06~0.12	5,120	0.06~0.12	3,420	0.06~0.1	5,120	0.06~0.12
6	4,250	0.08~0.15	3,400	0.08~0.15	2,280	0.07~0.12	3,400	0.08~0.15
8	3,200	0.12~0.18	3,000	0.12~0.18	1,740	0.1~0.15	3,000	0.12~0.18
10	2,500	0.16~0.23	2,500	0.16~0.23	1,380	0.12~0.18	2,500	0.16~0.23
12	2,100	0.18~0.28	1,700	0.18~0.28	1,140	0.15~0.23	1,700	0.18~0.28

Work Material	Stainless Steel Cast steel	
Cutting Condition	Speed RPM/min	Feed (mm/rev)
CED		
3	4,700	0.05~0.08
4	3,420	0.06~0.1
6	2,280	0.07~0.12
8	1,740	0.1~0.15
10	1,380	0.12~0.18
12	1,140	0.15~0.23

Work Material

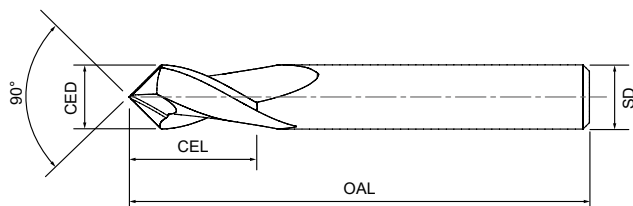
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

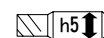
SMG Carbide - Drill Point End Mill

DR500⁺ - 40902TN

- ◆ 2-Flute / Drill Point End Mill 90°
- ◆ Helix 30°



CED Tolerance(mm)	
3~6	-0.008~-0.012
6~10	-0.009~-0.015
10~12	-0.011~-0.018



(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR500 ⁺ -40902TN	4	8	4	50	2
	6	12	6	50	
	8	16	8	60	
	10	20	10	72	
	12	24	12	75	

Code No.	CED	CEL	SD	OAL	Flute
DR500 ⁺ -40902TN	4	12	4	55	2
	6	16	6	66	
	8	21	8	79	
	10	25	10	89	
	12	30	12	102	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
4	6,400	0.06~0.12	5,120	0.06~0.12	3,420	0.05~0.1	5,120	0.06~0.12
6	4,250	0.08~0.15	3,400	0.08~0.15	2,280	0.07~0.12	3,400	0.08~0.15
8	3,200	0.12~0.18	3,000	0.12~0.18	1,740	0.1~0.15	3,000	0.12~0.18
10	2,500	0.16~0.23	2,500	0.16~0.23	1,380	0.12~0.18	2,500	0.16~0.23
12	2,100	0.18~0.28	1,700	0.18~0.28	1,140	0.15~0.23	1,700	0.18~0.28

Work Material	Stainless Steel Cast steel	
Cutting Condition	Speed RPM/min	Feed (mm/rev)
CED		
4	3,420	0.05~0.1
6	2,280	0.07~0.12
8	1,740	0.1~0.15
10	1,380	0.12~0.18
12	1,140	0.15~0.23

Work Material

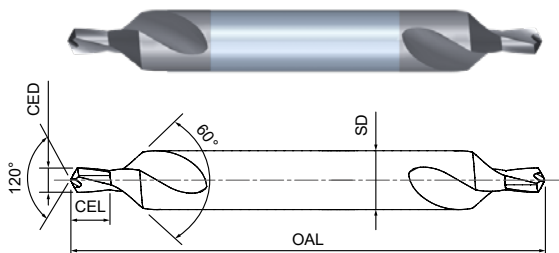
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

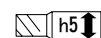
SMG Carbide - Countersink Center Drill

DR200⁺ - 40602TN

- ♦ 2-Flute / 60° Countersink Center Drill
- ♦ Helix 25°



CED Tolerance(mm)	
1~3	-0.006~-0.01
3~5	-0.008~-0.012



(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
DR200 ⁺ -40602TN	1	1.5	3	50	2
	2	3	5	50	
	2.5	3.8	6	50	
	3	4.8	8	60	
	4	6	10	60	
	5	7.5	12	75	

Code No.	CED	CEL	SD	OAL	Flute
DR200 ⁺ -40602TN	3	4.8	8	50	2
	4	6	10	56	
	5	7.5	12	63	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED								
1	21,000	0.03~0.05	16,800	0.03~0.05	12,000	0.02~0.05	16,800	0.03~0.05
2	12,700	0.04~0.07	10,100	0.04~0.07	6,350	0.03~0.06	10,100	0.04~0.07
2.5	10,200	0.04~0.08	8,200	0.04~0.08	5,100	0.03~0.07	8,200	0.04~0.08
3	8,500	0.05~0.1	6,800	0.05~0.1	4,250	0.05~0.08	6,800	0.05~0.1
4	6,400	0.07~0.14	5,120	0.07~0.14	3,200	0.06~0.12	5,120	0.07~0.14
5	5,100	0.08~0.16	4,080	0.08~0.16	2,550	0.07~0.15	4,080	0.08~0.16

Work Material	Stainless Steel Cast steel	
Cutting Condition	Speed RPM/min	Feed (mm/rev)
CED		
1	12,000	0.02~0.05
2	6,350	0.03~0.06
2.5	5,100	0.03~0.07
3	4,250	0.05~0.08
4	3,200	0.06~0.12
5	2,550	0.07~0.15

Work Material

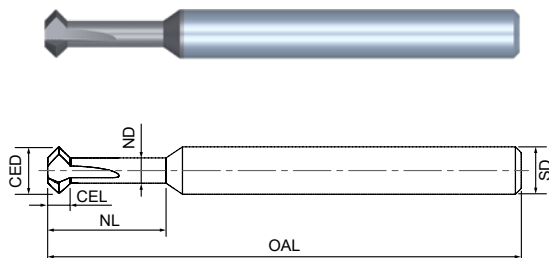
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	●	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
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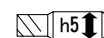
SMG Carbide - Front-Back Chamfer End Mill

VF100⁺ - 11903TN

- ♦ V-Groove / 3-Flute / Short Type
- ♦ 45° Chamfering



CED Tolerance(mm)	
1.5~3	0~-0.014
3~6	0~-0.018



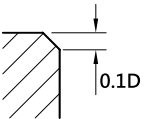
(unit : mm)

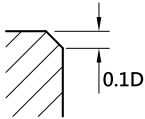
Code No.	CED	CEL	SD	OAL	NL	ND	Flute
VF100 ⁺ -11903TN	1.5	0.63	3	45	4	0.9	3
	2	0.83	3	45	5	1.2	
	2.5	1.03	3	45	6.5	1.5	
	3	1.23	3	45	7.5	1.8	
	3.5	1.5	4	45	8.5	2.1	
	4	1.7	4	53	10	2.4	
	4.5	2.1	5	53	11.5	2.5	
	5	2.3	5	53	12.5	2.8	
	5.5	2.5	6	53	13.5	3.1	
	6	2.9	6	53	15	3.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel, Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	C45° : 0.1D		C45° : 0.1D		C45° : 0.1D		C45° : 0.1D	
1.5	17,000	480	13,600	330	11,900	240	17,000	480
2	12,700	500	10,160	350	8,890	250	12,700	500
2.5	10,100	550	8,080	385	7,070	275	10,100	550
3	8,500	700	6,800	490	5,950	350	8,500	700
3.5	7,200	620	5,040	430	4,410	310	7,200	620
4	6,400	700	5,120	490	4,480	350	6,400	700
4.5	5,600	680	4,480	470	3,920	340	5,600	680
5	5,100	650	4,080	455	3,570	325	5,100	650
5.5	4,600	600	3,680	420	3,220	300	4,600	600
6	4,250	600	3,400	480	2,900	300	4,250	600
Depth of cut								

Work Material	Hardened Steel 35~45HRC	
Cutting Condition	RPM/min	FEED mm/min
CED	C45° : 0.1D	
1.5	11,900	240
2	8,890	250
2.5	7,070	275
3	5,950	350
3.5	4,410	310
4	4,480	350
4.5	3,920	340
5	3,570	325
5.5	3,220	300
6	2,900	300
Depth of cut		

Work Material

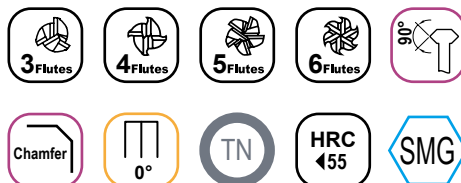
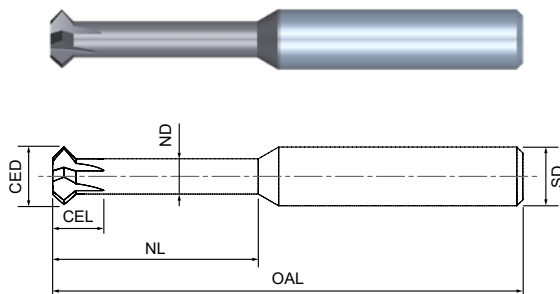
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - Front-Back Chamfer End Mill

VF100⁺ - 11903TN / 11904TN / 11905TN / 11906TN

- ♦ V-Groove / Multi-Flute / Long Type
- ♦ 45° Chamfering



CED Tolerance(mm)	
3~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025

h5
(unit : mm)

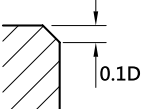
Code No.	CED	CEL	SD	OAL	NL	ND	Flute
VF100 ⁺ -11903TN	3	1.23	3	45	12	1.8	3
	3.4	1.5	4	53	14	2	
	3.5	1.5	4	53	14	2.1	
	4	1.7	4	53	16	2.4	
	4.4	2.1	5	53	18	2.4	
	4.5	2.1	5	53	18	2.5	
	5	2.3	5	53	20	2.8	
	5.5	2.5	6	65	22	3.1	
	6	2.9	6	65	24	3.2	
VF100 ⁺ -11904TN	8	3.4	8	65	28	4.8	4
VF100 ⁺ -11905TN	10	3.8	10	80	35	6.4	5
VF100 ⁺ -11906TN	12	4.4	12	80	42	7.8	6

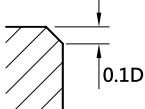
Code No.	CED	CEL	SD	OAL	NL	ND	Flute
VF100 ⁺ -11903TN	3	1.23	4	75	12	1.8	3
	4	1.7	4	75	15	2.4	
	5	2.3	5	75	18	2.8	
	6	2.9	6	100	18	3.2	
VF100 ⁺ -11904TN	8	3.4	8	100	24	4.8	4
VF100 ⁺ -11905TN	10	3.8	10	100	33	6.4	5
VF100 ⁺ -11906TN	12	4.4	12	100	42	7.8	6

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel, Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	C45° : 0.1D		C45° : 0.1D		C45° : 0.1D		C45° : 0.1D	
3	8,500	700	6,800	490	5,950	350	8,500	700
3.4	7,500	700	6,000	490	5,250	350	7,500	700
3.5	7,200	620	5,760	430	5,040	310	7,200	620
4	6,400	700	5,120	490	4,480	350	6,400	700
4.4	5,800	700	4,640	490	4,060	350	5,800	700
4.5	5,600	680	4,480	470	3,920	340	5,600	680
5	5,100	650	4,080	455	3,570	325	5,100	650
5.5	4,600	600	3,680	420	3,220	300	4,600	600
6	4,250	600	3,400	480	2,900	300	4,250	600
8	3,200	530	2,560	424	2,240	265	3,200	530
10	2,500	620	2,000	496	1,750	310	2,500	620
12	2,100	800	1,680	640	1,470	400	2,100	800
Depth of cut								

Work Material	Hardened Steel 35~45HRC	
Cutting Condition	RPM/min	FEED mm/min
CED	C45° : 0.1D	
3	5,950	350
3.4	5,250	350
3.5	5,040	310
4	4,480	350
4.4	4,060	350
4.5	3,920	340
5	3,570	325
5.5	3,220	300
6	2,900	300
8	2,240	265
10	1,750	310
12	1,470	400
Depth of cut		

Work Material

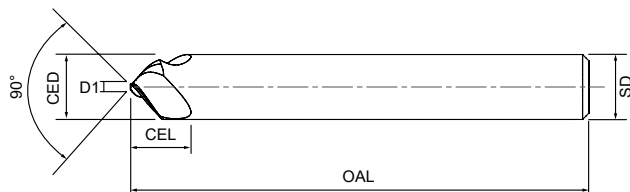
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - 3-Flute Spiral Chamfer Mill

CF400⁺ - 40903TN

- ◆ 3-Flute / 90° Spiral Flute
- ◆ 45° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025



(unit : mm)

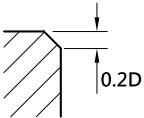
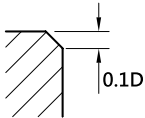
Code No.	CED	CEL	SD	OAL	D1	Flute
CF400 ⁺ -40903TN	4	1.8	4	50	0.4	3
	6	2.7	6	50	0.6	
	8	3.6	8	60	0.8	
	10	4.5	10	72	1	
	12	5.4	12	75	1.2	

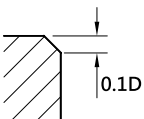
Code No.	CED	CEL	SD	OAL	D1	Flute
CF400 ⁺ -40903TN	4	1.8	4	50	0.4	3
	6	2.7	6	57	0.6	
	8	3.6	8	63	0.8	
	10	4.5	10	72	1	
	12	5.4	12	83	1.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	6,400	280	5,100	200	3,200	105	5,100	200
6	4,250	330	3,400	230	2,100	115	3,400	230
8	3,200	340	2,560	265	1,600	130	2,560	265
10	2,550	275	2,040	270	1,250	120	2,040	270
12	2,100	230	1,680	280	1,050	105	1,680	280
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	3,200	105
6	2,100	115
8	1,600	130
10	1,250	120
12	1,050	105
Depth of cut		

Work Material

P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

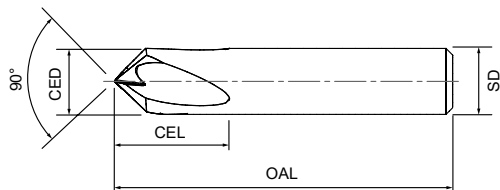
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - 3-Flute Chamfer Mill

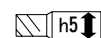
CF300⁺ - 40903TN

◆ 3-Flute / V 90°

◆ 45° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02



(unit : mm)

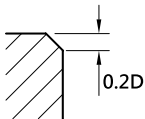
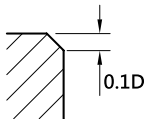
Code No.	CED	CEL	SD	OAL	Flute
CF300 ⁺ -40903TN	4	10	4	45	3
	6	10	6	45	
	8	15	8	52	
	10	15	10	52	

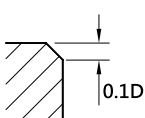
Code No.	CED	CEL	SD	OAL	Flute
CF300 ⁺ -40903TN	4	10	4	50	3
	6	10	6	57	
	8	15	8	63	
	10	15	10	72	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	6,080	250	4,900	180	2,400	95	4,900	180
6	4,100	300	3,200	210	2,000	105	3,200	210
8	3,100	310	2,400	240	2,500	120	2,400	240
10	2,400	250	2,000	245	1,200	110	2,000	245
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	2,400	95
6	2,000	105
8	2,500	120
10	1,200	110
Depth of cut		

Work Material

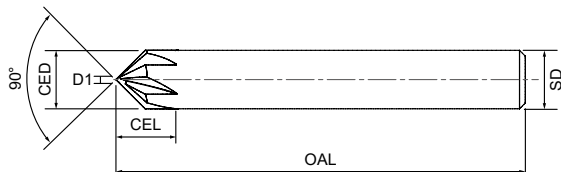
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - 6-Flute Chamfer Mill

CF300⁺ - 40906TN

- ◆ 6-Flute / V 90°
- ◆ 45° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025



(unit : mm)

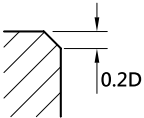
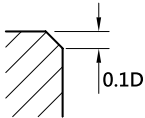
Code No.	CED	CEL	SD	OAL	D1	Flute
CF300 ⁺ -40906TN	4	1.9	4	50	0.2	6
	6	2.5	6	50	0.2	
	8	3.5	8	60	0.2	
	10	4	10	70	0.2	
	12	5	12	75	0.2	

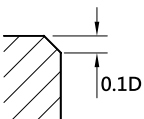
Code No.	CED	CEL	SD	OAL	D1	Flute
CF300 ⁺ -40906TN	4	1.9	4	50	0.2	6
	6	2.5	6	57	0.2	
	8	3.5	8	63	0.2	
	10	4	10	72	0.2	
	12	5	12	83	0.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	6,400	550	5,100	300	3,200	145	5,100	300
6	4,250	600	3,400	315	2,100	155	3,400	315
8	3,200	600	2,560	330	1,600	170	2,560	330
10	2,550	500	2,040	360	1,250	170	2,040	360
12	2,100	400	1,680	375	1,050	180	1,680	375
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	3,200	145
6	2,100	155
8	1,600	170
10	1,250	170
12	1,050	180
Depth of cut		

Work Material

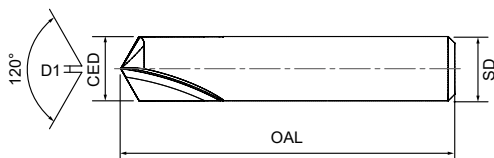
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

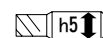
SMG Carbide - 2-Flute Chamfer Mill

CF300⁺ - 41202TN

- ♦ 2-Flute / V 120°
- ♦ 30° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02



(unit : mm)

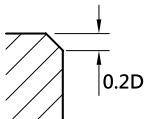
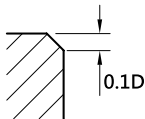
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -41202TN	4	4	45	0.2	2
	6	6	45	0.2	
	8	8	52	0.2	
	10	10	52	0.2	

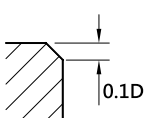
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -41202TN	4	4	50	0.2	2
	6	6	57	0.2	
	8	8	63	0.2	
	10	10	72	0.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	7,680	330	6,120	220	3,840	120	6,120	220
6	5,100	360	4,080	250	2,520	130	4,080	250
8	3,840	370	3,100	280	1,920	140	3,100	280
10	3,060	300	2,500	300	1,500	140	2,500	300
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	3,840	120
6	2,520	130
8	1,920	140
10	1,500	140
Depth of cut		

Work Material

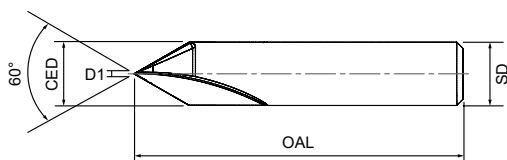
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

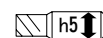
SMG Carbide - 2-Flute Chamfer Mill

CF300⁺ - 40602TN

- ♦ 2-Flute / V 60°
- ♦ 60° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02



(unit : mm)

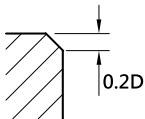
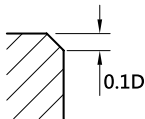
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -40602TN	4	4	45	0.2	2
	6	6	45	0.2	
	8	8	52	0.2	
	10	10	52	0.2	

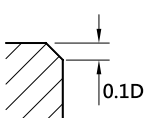
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -40602TN	4	4	50	0.2	2
	6	6	57	0.2	
	8	8	63	0.2	
	10	10	72	0.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	7,680	330	6,120	220	3,840	120	6,120	220
6	5,100	360	4,080	250	2,520	130	4,080	250
8	3,840	370	3,100	280	1,920	140	3,100	280
10	3,060	300	2,500	300	1,500	140	2,500	300
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	3,840	120
6	2,520	130
8	1,920	140
10	1,500	140
Depth of cut		

Work Material

P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

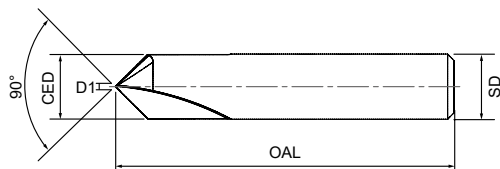
1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

SMG Carbide - 2-Flute Chamfer Mill

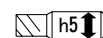
CF300⁺ - 40902TN

◆ 2-Flute / V 90°

◆ 45° Chamfering



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02



(unit : mm)

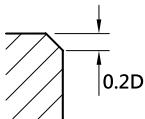
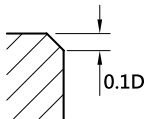
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -40902TN	4	4	45	0.2	2
	6	6	45	0.2	
	8	8	52	0.2	
	10	10	52	0.2	

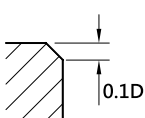
Code No.	CED	SD	OAL	D1	Flute
CF300 ⁺ -40902TN	4	4	50	0.2	2
	6	6	57	0.2	
	8	8	63	0.2	
	10	10	72	0.2	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

Chamfering

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.2D$		$a_p: 0.1D$		$a_p: 0.1D$		$a_p: 0.1D$	
4	7,680	330	6,120	220	3,840	120	6,120	220
6	5,100	360	4,080	250	2,520	130	4,080	250
8	3,840	370	3,100	280	1,920	140	3,100	280
10	3,060	300	2,500	300	1,500	140	2,500	300
Depth of cut								

Work Material	Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min
CED	$a_p: 0.1D$	
4	3,840	120
6	2,520	130
8	1,920	140
10	1,500	140
Depth of cut		

Work Material

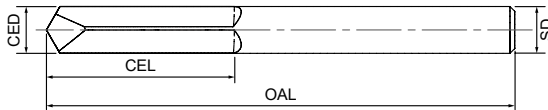
P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

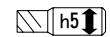
UMG Carbide - Drill for removing broken taps

HCD⁺

- ♦ V 60° Drill Point / Hard Cut Drill
- ♦ For Broken Tap Removal



CED Tolerance(mm)	
2~3	0~-0.014
3~6	0~-0.018

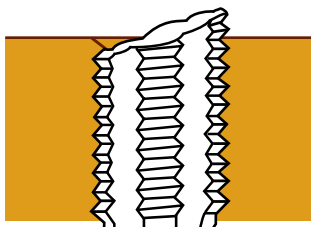


(unit : mm)

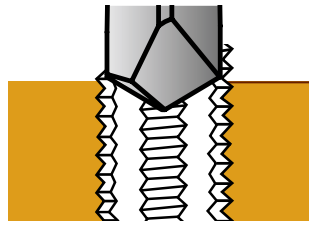
Code No.	CED	CEL	SD	OAL
Hard Cut Drill ⁺	2	10	2	30
	3	14	3	40
	4	18	4	45
	5	20	5	50
	6	28	6	60

※ Customised Special sizes, Coating type and Inches are available to order.

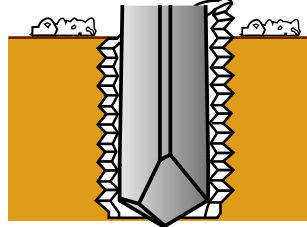
Instruction of removing broken taps/drill bit by hard cut drill.



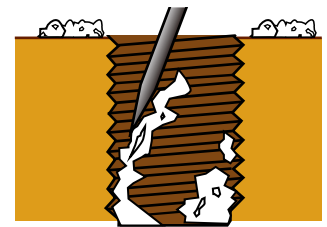
Remove or grind the taps/drill to create a flat surface as possible



Place the HCD drill with the correct size in the centre of the broken tap



Drill the tap remover through the end and applying cutting fluids all the times



Clean and remove the remaining chip by scribe

Recommended Cutting Condition

Drilling

Work Material	Mild Steel Carbon Steel		Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	Manual Feed		Manual Feed		Manual Feed		Manual Feed	
2	3,000	Manual Feed	2,500	Manual Feed	2,000	Manual Feed	1,500	Manual Feed
3	3,000	Manual Feed	2,500	Manual Feed	2,000	Manual Feed	1,500	Manual Feed
4	3,000	Manual Feed	2,500	Manual Feed	2,000	Manual Feed	1,500	Manual Feed
5	3,000	Manual Feed	2,500	Manual Feed	2,000	Manual Feed	1,500	Manual Feed
6	3,000	Manual Feed	2,500	Manual Feed	2,000	Manual Feed	1,500	Manual Feed

Work Material	Gray Cast Iron Malleable cast iron		Stainless Steel Cast steel	
Cutting Condition	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	Manual Feed		Manual Feed	
2	2,500	Manual Feed	1,500	Manual Feed
3	2,500	Manual Feed	1,500	Manual Feed
4	2,500	Manual Feed	1,500	Manual Feed
5	2,500	Manual Feed	1,500	Manual Feed
6	2,500	Manual Feed	1,500	Manual Feed

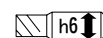
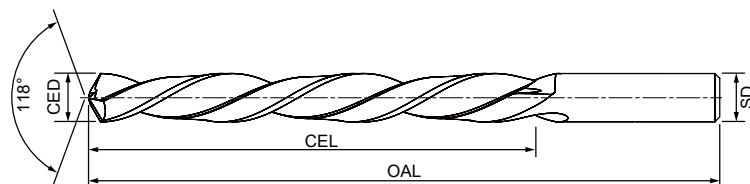
Work Material

P			M	K	H		
G1	G2	G3	G4	G5	G14	G15	G16
●	●	●	○	○	●	●	○

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

HDR300⁺ - 41302TN

- ♦ HSS - Twist Drills / 2-Flute / Straight Shank
- ♦ Helix 30° / Drill Point 118°



(unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
HDR300 ⁺ - 41302TN	0.2	3	0.2	19	2
	0.3	3.5	0.3	20	
	0.4	5.5	0.4	24	
	0.5	7.5	0.5	27	
	0.6	8.5	0.6	30	
	0.7	10	0.7	32	
	0.8	11	0.8	34	
	0.9	13	0.9	36	
	1.0	18	1.0	40	
	1.1	20	1.1	42	
	1.2	20	1.2	42	
	1.3	22	1.3	45	
	1.4	23	1.4	48	
	1.5	23	1.5	48	
	1.6	25	1.6	50	
	1.7	25	1.7	50	
	1.8	28	1.8	52	
	1.9	28	1.9	52	
	2.0	29	2.0	55	
	2.1	29	2.1	55	
	2.2	33	2.2	58	
	2.3	33	2.3	58	
	2.4	35	2.4	61	
	2.5	35	2.5	61	
	2.6	37	2.6	64	
	2.7	37	2.7	64	
	2.8	39	2.8	67	
	2.9	42	2.9	71	

Code No.	CED	CEL	SD	OAL	Flute
HDR300 ⁺ - 41302TN	3.0	42	3.0	71	2
	3.1	42	3.1	71	
	3.2	42	3.2	71	
	3.3	45	3.3	73	
	3.4	45	3.4	73	
	3.5	45	3.5	73	
	3.6	48	3.6	76	
	3.7	48	3.7	76	
	3.8	48	3.8	76	
	3.9	51	3.9	79	
	4.0	54	4.0	83	
	4.1	54	4.1	83	
	4.2	54	4.2	83	
	4.3	54	4.3	83	
	4.4	56	4.4	86	
	4.5	56	4.5	86	
	4.6	56	4.6	86	
	4.7	59	4.7	89	
	4.8	59	4.8	89	
	4.9	62	4.9	92	
	5.0	62	5.0	92	
	5.1	62	5.1	92	
	5.2	64	5.2	95	
	5.3	64	5.3	95	
	5.4	64	5.4	95	
	5.5	64	5.5	95	
	5.6	67	5.6	98	
	5.7	67	5.7	98	

※ Customised Special sizes, Coating type and Inches are available to order.

HSS - Drills

Code No.	CED	CEL	SD	OAL	Flute
HDR300 ⁺ - 41302TN	5.8	67	5.8	98	2
	5.9	67	5.9	98	
	6.0	70	6.0	102	
	6.1	70	6.1	102	
	6.2	70	6.2	102	
	6.3	70	6.3	102	
	6.4	73	6.4	105	
	6.5	73	6.5	105	
	6.6	73	6.6	105	
	6.7	73	6.7	105	
	6.8	73	6.8	105	
	6.9	73	6.9	105	
	7.0	73	7.0	105	
	7.1	75	7.1	108	
	7.2	75	7.2	108	
	7.3	75	7.3	108	
	7.4	78	7.4	111	
	7.5	78	7.5	111	
	7.6	78	7.6	111	
	7.7	81	7.7	114	
	7.8	81	7.8	114	
	7.9	81	7.9	114	
	8.0	81	8.0	114	
	8.1	84	8.1	117	
	8.2	84	8.2	117	
	8.3	84	8.3	117	
	8.4	87	8.4	121	
	8.5	87	8.5	121	
	8.6	87	8.6	121	
	8.7	87	8.7	121	
	8.8	89	8.8	124	
	8.9	89	8.9	124	
	9.0	89	9.0	124	
	9.1	89	9.1	124	
	9.2	92	9.2	127	
	9.3	92	9.3	127	
	9.4	92	9.4	127	
	9.5	92	9.5	127	
	9.6	95	9.6	130	
	9.7	95	9.7	130	
	9.8	95	9.8	130	
	9.9	95	9.9	130	
	10.0	95	10.0	130	
	10.1	98	10.1	133	

Code No.	CED	CEL	SD	OAL	Flute
HDR300 ⁺ - 41302TN	10.2	98	10.2	133	2
	10.3	98	10.3	133	
	10.4	98	10.4	133	
	10.5	100	10.5	137	
	10.6	100	10.6	137	
	10.7	100	10.7	137	
	10.8	103	10.8	140	
	10.9	103	10.9	140	
	11.0	103	11.0	140	
	11.1	103	11.1	140	
	11.2	106	11.2	143	
	11.3	106	11.3	143	
	11.4	106	11.4	143	
	11.5	106	11.5	143	
	11.6	109	11.6	146	
	11.7	109	11.7	146	
	11.8	109	11.8	146	
	11.9	109	11.9	146	
	12.0	111	12.0	149	
	12.1	111	12.1	149	
	12.2	111	12.2	149	
	12.3	111	12.3	149	
	12.4	114	12.4	152	
	12.5	114	12.5	152	
	12.6	114	12.6	152	
	12.7	114	12.7	152	
	12.8	114	12.8	152	
	12.9	114	12.9	152	
	13.0	114	13.0	152	
	13.5	108	13.5	160	
	14.0	108	14.0	160	
	14.5	114	14.5	169	
	15.0	114	15.0	169	
	15.5	120	15.5	178	
	16.0	120	16.0	178	
	16.5	125	16.5	184	
	17.0	125	17.0	184	
	17.5	130	17.5	191	
	18.0	130	18.0	191	
	18.5	135	18.5	198	
	19.0	135	19.0	198	
	19.5	140	19.5	205	
	20.0	140	20.0	205	

Recommended Cutting Condition

HDR300⁺ - 41302TN

Work Material	Mild Steel Low Carbon Steel		Alloyed Steel 20~30HRC		Gray Cast Iron Malleable cast iron	
Cutting Condition	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)	Speed RPM/min	Feed (mm/rev)
CED						
0.2	23,000	0.002~0.004	18,400	0.002~0.003	23,000	0.002~0.004
0.6	8,000	0.006~0.013	6,400	0.005~0.01	8,000	0.006~0.013
1	4,800	0.01~0.02	3,800	0.009~0.17	4,800	0.01~0.02
2	2,900	0.02~0.04	2,300	0.017~0.34	2,900	0.02~0.04
3	2,100	0.036~0.07	1,700	0.03~0.06	2,100	0.036~0.07
4	1,590	0.04~0.08	1,270	0.04~0.08	1,590	0.04~0.08
5	1,300	0.05~0.1	1,000	0.05~0.09	1,300	0.05~0.1
6	1,060	0.06~0.12	835	0.05~0.11	1,060	0.06~0.12
7	910	0.07~0.14	720	0.06~0.12	910	0.07~0.14
8	800	0.08~0.15	640	0.06~0.13	800	0.08~0.15
9	710	0.08~0.17	570	0.07~0.14	710	0.08~0.17
10	640	0.09~0.17	510	0.07~0.15	640	0.09~0.17
11	580	0.09~0.18	465	0.08~0.16	580	0.09~0.18
12	530	0.09~0.19	420	0.08~0.16	530	0.09~0.19
13	490	0.1~0.2	390	0.09~0.17	490	0.1~0.2
14	455	0.11~0.21	365	0.09~0.18	455	0.11~0.21
15	425	0.11~0.22	340	0.09~0.19	425	0.11~0.22
16	400	0.12~0.23	320	0.1~0.2	400	0.12~0.23
17	375	0.12~0.23	300	0.1~0.21	375	0.12~0.23
18	355	0.12~0.24	280	0.11~0.21	355	0.12~0.24
19	335	0.12~0.25	265	0.11~0.22	335	0.12~0.25
20	320	0.13~0.26	250	0.11~0.22	320	0.13~0.26

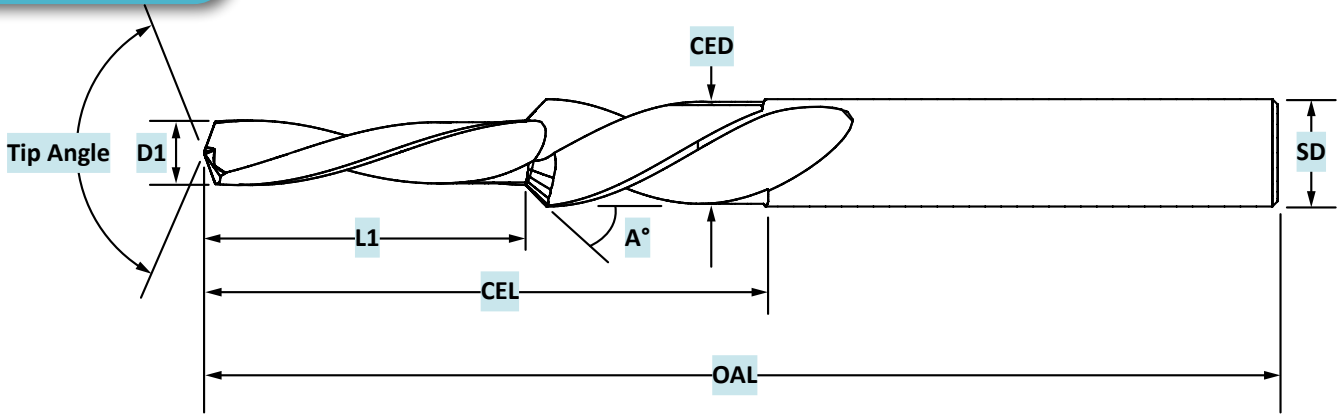
Work Material

P			K
G1	G2	G3	G5
●	●	●	●

1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

Customized Drills

Dimensions



CED : _____ CEL : _____ SD : _____ OAL : _____
 D1 : _____ L1 : _____ A° : _____ Tip Angle: _____

Work Material

HRC:

Helix Angle

Coating

☐ Yes

☐ No

☐ TO
AlTiSiN

☐ TA
AlTiCrN

Coolant-Fed



☐ Yes ☐ No

Material Type



☐



☐



☐

Weldon Shank



☐



☐



☐

Quantity

Build a custom drill for your application !

High performance Step Drills are multi-purpose drills with the tips ground to different diameters into a single tool, reducing time to change out drills during production. Available in solid carbide or coolant-fed, straight or spiral flute along with a range of material specific coatings for your application. Our drills are made to meet your demanding applications. Experience our customized drills in action!



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