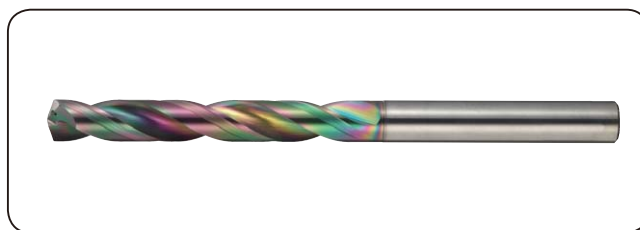


# NHGS Type



## Internal Coolant Supply (NHGS Type)

Carbon Steel	Alloy Steel	Tempered Steel	Hardened Steel	Stainless Steel	Ti Alloy	Heat-resistant steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy	Copper alloy	Composite CFRP
Up to 0.28%	From 0.28%		Up to 6HRC	From 49HRC			○	○	◎	◎	



### ● Diameter ø3.0 to ø8.0mm

### ■ Characteristics

#### ● High efficiency drilling

AURORA COAT (DLC Coat) and low cutting resistance WL (Wide L) thinning drastically reduces cutting resistance.

#### ● Stable Drilling Performance

Special cutting edge design and WW (Wide W) margin improves hole quality.

#### ● Longer tool life

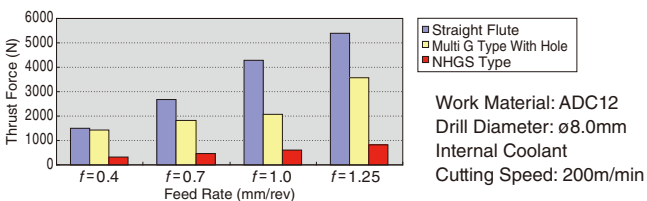
With AURORA COAT coupled with the cutting edge design, long and stable tool life can be achieved.

#### ● Deep hole drilling possible

Drills for deep hole drilling can be custom-made.  
(Production range: Drill diameters: ø3.0 to ø16.0mm  
Total length: Available on inquiry)

### ■ Comparison of Cutting Resistance (Thrust Force)

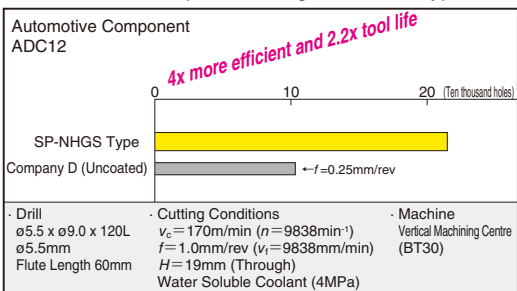
Drastic reduction in cutting resistance



### ■ Application Examples

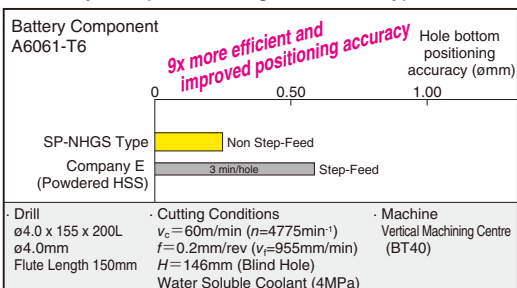
#### High Feed Drilling of Aluminium Alloy

##### ● Automotive Component using SP-NHGS Type



#### Deep Hole Drilling of Aluminium Alloy

##### ● Battery Component using SP-NHGS Type



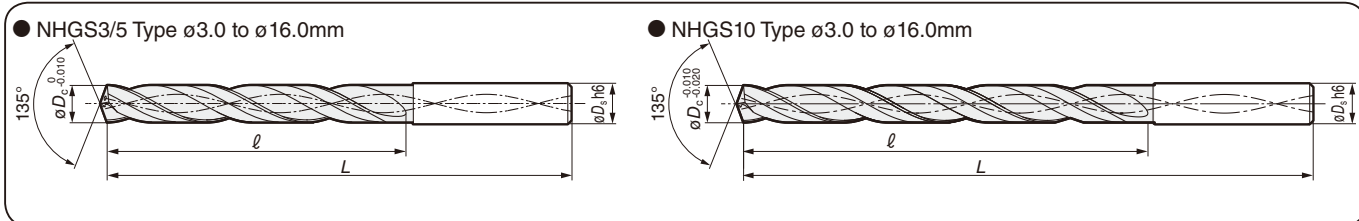
Diameter øD <sub>c</sub> (mm)	Shank øD <sub>s</sub> (mm)	Cat. No.	3D Type		5D Type		10D Type	
			Stock [3]	Dimensions (mm) L ℓ	Stock [5]	Dimensions (mm) L ℓ	Stock [10]	Dimensions (mm) L ℓ
3.0	3.0	MDW 0300NHGS	●	68 17.5	●	78 28	●	92 42
3.1		MDW 0310NHGS	●		●		●	
3.2		0320NHGS	●		●		●	
3.3	4.0	0330NHGS	●	72 20	●	86 32	●	106 49
3.4		0340NHGS	●		●		●	
3.5		0350NHGS	●		●		●	
3.6		MDW 0360NHGS	●		●		●	
3.65		0365NHGS	●		●		●	
3.66		0366NHGS	●		●		●	
3.7	4.0	0370NHGS	●	72 22.5	●	86 36	●	106 56
3.8		0380NHGS	●		●		●	
3.9		0390NHGS	●		●		●	
4.0		0400NHGS	●		●		●	
4.1		MDW 0410NHGS	●		●		●	
4.2		0420NHGS	●		●		●	
4.3	5.0	0430NHGS	●	80 25	●	98 40	●	124 63
4.4		0440NHGS	●		●		●	
4.5		0450NHGS	●		●		●	
4.6		MDW 0460NHGS	●		●		●	
4.7		0470NHGS	●		●		●	
4.8	5.0	0480NHGS	●	80 27.5	●	98 44	●	124 70
4.9		0490NHGS	●		●		●	
5.0		0500NHGS	●		●		●	
5.1		MDW 0510NHGS	●		●		●	
5.2		0520NHGS	●		●		●	
5.3	6.0	0530NHGS	●	82 27.5	●	100 44	●	136 77
5.4		0540NHGS	●		●		●	
5.5		0550NHGS	●		●		●	
5.6		MDW 0560NHGS	●		●		●	
5.7		0570NHGS	●		●		●	
5.8	6.0	0580NHGS	●	82 30	●	100 48	●	136 84
5.9		0590NHGS	●		●		●	
6.0		0600NHGS	●		●		●	
6.1		MDW 0610NHGS	●		●		●	
6.2		0620NHGS	●		●		●	
6.3	7.0	0630NHGS	●	88 32.5	●	109 52	●	151 91
6.4		0640NHGS	●		●		●	
6.5		0650NHGS	●		●		●	
6.6		MDW 0660NHGS	●		●		●	
6.7		0670NHGS	●		●		●	
6.8	7.0	0680NHGS	●	88 35	●	109 56	●	151 98
6.9		0690NHGS	●		●		●	
7.0		0700NHGS	●		●		●	
7.1		MDW 0710NHGS	●		●		●	
7.2		0720NHGS	●		●		●	
7.3	8.0	0730NHGS	●	94 37.5	●	118 60	●	166 105
7.35		0735NHGS	●		●		●	
7.4		0740NHGS	●		●		●	
7.5		0750NHGS	●		●		●	
7.6		MDW 0760NHGS	●		●		●	
7.7		0770NHGS	●		●		●	
7.8	8.0	0780NHGS	●	94 40	●	118 64	●	166 112
7.9		0790NHGS	●		●		●	
8.0		0800NHGS	●		●		●	

Grade: DL1300

# NHGS Type

## Internal Coolant Supply (NHGS Type)

Carbon Steel, Alloy Steel Up to 0.28% From 0.28%	Tempered Steel	Hardened Steel Up to 45HRC From 49HRC	Stainless steel	Ti Alloy	Heat-treated steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper alloy	Composite CFRP
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### ● Diameter $\phi 8.1$ to $\phi 13.0$ mm

Diameter $\phi D_c$ (mm)	Shank $\phi D_s$ (mm)	Cat. No.	3D Type			5D Type			10D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
		3, 5, 10	[3]	L	$\ell$	[5]	L	$\ell$	[10]	L	$\ell$
8.1	9.0	MDW 0810NHGS	●			●					
8.2		0820NHGS				●					
8.3		0830NHGS		100	42.5		127	68		181	119
8.4		0840NHGS									
8.5		0850NHGS	●				●			●	
8.6	9.0	MDW 0860NHGS	●			●					
8.7		0870NHGS				●					
8.8		0880NHGS	●	100	45		127	72		181	126
8.9		0890NHGS									
9.0		0900NHGS	●				●			●	
9.1	10.0	MDW 0910NHGS				●					
9.2		0920NHGS				●					
9.21		0921NHGS	●	106	47.5		136	76		196	133
9.3		0930NHGS									
9.4		0940NHGS	●				●				
9.5	0950NHGS	●				●			●		
9.6	10.0	MDW 0960NHGS				●					
9.7		0970NHGS				●					
9.8		0980NHGS	●	106	50		136	80		196	140
9.9		0990NHGS									
10.0		1000NHGS	●				●			●	
10.1	11.0	MDW 1010NHGS	●								
10.2		1020NHGS									
10.3		1030NHGS	●	116	52.5		149	84		215	147
10.4		1040NHGS									
10.5		1050NHGS	●				●			●	
10.6	11.0	MDW 1060NHGS	●			●					
10.7		1070NHGS									
10.8		1080NHGS	●	116	55		149	88		215	154
10.9		1090NHGS									
11.0		1100NHGS	●				●			●	
11.08	12.0	MDW 1108NHGS	●			●					
11.1		1110NHGS	●								
11.2		1120NHGS	●	122	57.5		158	92		230	161
11.3		1130NHGS									
11.4		1140NHGS	●				●				
11.5	1150NHGS	●				●			●		
11.6	12.0	MDW 1160NHGS									
11.7		1170NHGS									
11.8		1180NHGS	●	122	60		158	96		230	168
11.9		1190NHGS									
12.0		1200NHGS	●				●			●	
12.1	13.0	MDW 1210NHGS	●			●					
12.2		1220NHGS									
12.3		1230NHGS	●	128	62.5		167	100		245	175
12.4		1240NHGS									
12.5		1250NHGS	●				●			●	
12.6	13.0	MDW 1260NHGS									
12.7		1270NHGS									
12.8		1280NHGS									
12.9		1290NHGS		128	65		167	104		245	182
12.96		1296NHGS	●				●				
13.0	1300NHGS	●				●			●		

### ● Diameter $\phi 13.1$ to $\phi 16.0$ mm

Diameter $\phi D_c$ (mm)	Shank $\phi D_s$ (mm)	Cat. No.	3D Type			5D Type			10D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
		3, 5, 10	[3]	L	$\ell$	[5]	L	$\ell$	[10]	L	$\ell$
13.1	14.0	MDW 1310NHGS									
13.2		1320NHGS									
13.3		1330NHGS		134	68		176	108		260	189
13.4		1340NHGS									
13.5		1350NHGS	●				●				
13.6	14.0	MDW 1360NHGS									
13.7		1370NHGS									
13.8		1380NHGS		134	70		176	112		260	196
13.9		1390NHGS									
14.0		1400NHGS	●				●				
14.1	15.0	MDW 1410NHGS	●			●					
14.2		1420NHGS									
14.3		1430NHGS		140	72.5		185	116		275	203
14.4		1440NHGS									
14.5		1450NHGS	●				●				
14.6	15.0	MDW 1460NHGS									
14.7		1470NHGS									
14.8		1480NHGS									
14.9		1490NHGS	●	140	75		185	120		275	210
14.96		1496NHGS	●				●				
15.0	1500NHGS	●				●			●		
15.1	16.0	MDW 1510NHGS									
15.2		1520NHGS									
15.3		1530NHGS		146	77.5		194	124		290	217
15.4		1540NHGS									
15.5		1550NHGS	●				●				
15.6	16.0	MDW 1560NHGS									
15.7		1570NHGS									
15.8		1580NHGS		146	80		194	128		290	224
15.9		1590NHGS									
16.0		1600NHGS	●				●				

Grade: DL1300

Please indicate 3, 5 or 10 in the  when ordering.  
(Example: MDW0850NHGS10)

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

Drill Diameter $\phi D_c$ (mm)	Cutting Conditions	Aluminium Casting/ Die Cast Aluminium		Wrought Aluminium Alloy	
		$v_c$	$f$	$v_c$	$f$
Up to $\phi 6.0$	$v_c$	80 - 140 - 200		80 - 120 - 200	
	$f$	0.2 - 0.4 - 0.6		0.2 - 0.3 - 0.4	
Up to $\phi 10.0$	$v_c$	100 - 180 - 250		100 - 150 - 250	
	$f$	0.4 - 0.6 - 0.8		0.2 - 0.35 - 0.5	
Up to $\phi 16.0$	$v_c$	120 - 200 - 250		120 - 180 - 250	
	$f$	0.4 - 0.7 - 1.0		0.3 - 0.45 - 0.6	

Min. - Optimum - Max.

Drilling

Solid  
Special  
Indexable  
Reamer  
Brazed  
Others