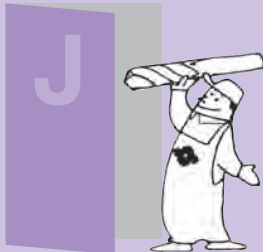


Drills

J1 to J164

J



Drill Selection Guide	J2
Application Range of Main Drills	J6
Drill Coating	J7

Solid Carbide Drills	For High Efficiency	MDW-GS / MDW-HGS	J8
	For Stainless Steel	MDM	J32
	For Spot Facing	MDF Flat Bottom Drills	J46
	For Thin Sheets	WGS	J58
	For Cast Iron	HX	J60
	For High-efficiency Steel and Cast Iron	HY	J67
	For Heat-Resistant Alloy	SGS	J69
	Deep Hole Drilling	XHGS / PHT	J71
	For Non-Ferrous Metals	XHV / PHV	J78
	For CFRP	NHGS	J79
	For Aluminum Alloy	SDC Diamond (SUMIDIA) Coated Drills	J89
	For Small Diameter Deep Holes	DAL / DDL (SUMIDIA)	J90
	For Very Small Holes	MLDH-L Type / MLDH-P Micro Long Drills ...	J91
Indexable Tip Drills	Indexable Drill Head	MDUS Micro Drills / MDSS (MDUP Type) Mini Drills ...	J94
		SMD Replaceable Tip Drills	J96
		SMD: MTL / MEL / MTL-C / NAL	J98
		SMDH: SMD Drill Bodies	J105
Indexable Insert Drills	General-Purpose For Deep Drilling/Pocketing	SMD: MFS	J113
		WDX Indexable Insert Drills	J122
Indexable Insert Reamers	High Efficiency Reamers	Plunge Drill: PDL / Plunge Mill: PCT	J141
		SumiReamer SR	J148

Stock Markings and Symbols

- : USA Standard stocked item
- ★: Worldwide Warehouse Item
- ▲: To be replaced by a new product, made to order, or discontinued (please confirm stock availability).

Blank: Made-to-order item
— mark: Not available

Drilling

J

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

J1

Drill Selection Guide

Drilling

J

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Applications	Part Material	Series	Cat. No.	Dia. (inch / mm)	Image	Stock	Ref. Page
High Efficiency	P M K S N H	Solid Carbide Drills GS	MDW○○○○ GS2	ø.039 - .787", ø1.0 - 20.0mm		●	J8
			MDW○○○○ GS4	ø.039 - .787", ø1.0 - 20.0mm		●	J8
	P M K S N H	Solid Carbide Drills HGS	MDW○○○○ HGS3	ø.059 - .787", ø1.5 - 20.0mm		●	J8
			MDW○○○○ HGS5	ø.059 - .787", ø1.5 - 20.0mm		●	J8
			MDW○○○○ HGS8	ø.059 - .787", ø1.5 - 20.0mm		●	J8
	P K	Solid Carbide Drills HY	MDW○○○○ HY3	ø.197 - .629", ø5.0 - 16.0mm		★	J67
			MDW○○○○ HY5	ø.197 - .629", ø5.0 - 16.0mm		★	J67
			MDW○○○○ HY8	ø.197 - .629", ø5.0 - 16.0mm		★	J67
Spot Facing	P M K N H	Flat Bottom Drills MDF	MDF ○○○○S2D	ø.012 - .787", ø0.3 - 20.0mm		★	J46
			MDF ○○○○L2D	ø.118 - .787", ø3.0 - 20.0mm		★	J46
			MDF ○○○○H3D	ø.118 - .629", ø3.0 - 16.0mm		★	J46
			MDF ○○○○H5D	ø.118 - .629", ø3.0 - 16.0mm		★	J46
Deep Hole	P M K	Deep Hole Drills XHGS	MDW○○○○ XHGS10	ø.083 - .630", ø2.1 - 16.0mm		★	J71
			MDW○○○○ XHGS12	ø.098 - .630", ø2.5 - 16.0mm		★	J71
			MDW○○○○ XHGS15	ø.083 - .630", ø2.1 - 16.0mm		★	J71
			MDW○○○○ XHGS20	ø.083 - .551", ø2.1 - 14.0mm		★	J71
			MDW○○○○ XHGS25	ø.083 - .472", ø2.1 - 12.0mm		★	J71
			MDW○○○○ XHGS30	ø.083 - .393", ø2.1 - 10.0mm		★	J71
	P M K	Guide Drill for Long Drills PHT	MDW○○○○ PHT	ø.083 - .630", ø2.1 - 16.0mm		★	J71
		Deep Hole Drills XHV	MDW○○○○ XHV12	ø.125 - .750", ø3.2 - 19.05mm		●	J78
			MDW○○○○ XHV20	ø.125 - .531", ø3.2 - 13.49mm		●	J78
	P M K	Guide Drill for Long Drills PHV	MDW○○○○ PHV	ø.118 - .750", ø3.0 - 19.05mm		●	J78
Thin Sheet	P M K	Solid Carbide Drills WGS	MDW○○○○ WGS2	ø.268 - .630", ø6.8 - 16.0mm			J58
Stainless Steel	M S K	Solid Carbide Drills for Stainless MDM	MDM ○○○○S○○H03	ø.118 - .629", ø3.0 - 16.0mm		★	J32
			MDM ○○○○S○○H05	ø.118 - .629", ø3.0 - 16.0mm		★	J32
Cast Iron	K	Solid Carbide Drills for Cast Iron HX	MDW○○○○ HX3	ø.118 - .787", ø3.0 - 20.0mm		★	J60
			MDW○○○○ HX5	ø.118 - .787", ø3.0 - 20.0mm		★	J60
			MDW○○○○ HX8	ø.118 - .709", ø3.0 - 18.0mm		★	J60
Non-ferrous Metal	N	Solid Carbide Drills for Aluminum NHGS	MDW○○○○ NHGS3	ø.118 - .629", ø3.0 - 16.0mm		★	J79
			MDW○○○○ NHGS5	ø.118 - .629", ø3.0 - 16.0mm		★	J79
			MDW○○○○ NHGS10	ø.118 - .629", ø3.0 - 16.0mm		★	J79
	N	Diamond (SUMIDIA) Drills DAL	DAL ○○○○H	ø.197 - .472", ø5.0 - 12.0mm			J90
Heat-Resistant Alloy	S	Drills for Heat-Resistant Alloys SGS	DDL ○○○○H	ø.197 - .472", ø5.0 - 12.0mm			J90
			MDW○○○○ SGS3	ø.118 - .472", ø3.0 - 12.0mm		★	J69
CFRP	CFRP	Diamond Coated (SUMIDIA) Drills SDC	MDS○○○○○ SDC3	ø.079 - .393", ø2.1 - 10.0mm		★	J89

Drill Selection Guide

Series	Drilling Depth (L/D)	Coating	Coolant Supply	P		Tempered Steel	H		M	S		K		N			Ref. Page
				Carbon Steel Alloy Steel up to 35HRC			Hardened Steel	Stainless Steel	Titanium Alloy	Heat-resistant Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite		
				C 0.28% or less	C 0.29%	SKD SKS										45HRC or less	
GS	2D 4D	DEX Coating	External	○	●	●	○	○	○	○	○	○	●	○	○		J8
HGS	3D 5D 8D	DEX Coating	Internal	●	●	●	○	○	●	●	○	○	●	○	○		J8
HY	3D 5D 8D	DEX Coating	Internal	●	●							●	●				J67
MDF	2D 3D 5D	PVD Coat	External S2D	●	●	●	○		○	○	○	○	○	○			J46
			External L2D	●	●	●	○		○		○	○	○				
			Internal	●	●	●	○		○		○	○	○				
XHGS	10D 12D 15D 20D 25D 30D	DEX Coating	Internal	○	●	●	○		○			○	●				J71
PHT	Pilot 3D	DEX Coating	Internal	○	●	●	○		○			○	●				J71
XHV	12D 20D	DEX Coating	Internal	○	●	●	○		○			○	●				J78
PHV	Pilot 3D	DEX Coating	Internal	○	●	●	○		○			○	●				J78
WGS	2D	DEX Coating	External	○	●	●	○		○			○	○				J58
MDM	3D 5D	NX Coat	Internal	○	○				●	●	○	○	○				J32
HX	3D 5D 8D	DEX Coating	Internal									●	●				J60
NHGS	3D 5D 10D	Aurora DLC Coat	Internal											●	●		J79
DAL	3D	—	External											●		○	J90
DDL	3D	—	External											●		○	J90
SGS	3D	PVD Coat	External						○	○	●						J69
SDC	3D	SUMIDIA Coat	Dry											○		●	J89

Drilling

J

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Drill Selection Guide

Drilling

C

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Applications/ Specifications	Work Material	Series	Cat. No.	Dia. (inch / mm)	Image	Stock	Ref. Page
Small Diameter Deep Hole	P K M N S H	Micro Long Drills	MLDH○○○○L5	ø.031 - .079", ø0.8 - 2.0mm		metric	J91
		MLDH	MLDH○○○○L12	ø.031 - .079", ø0.8 - 2.0mm		★	
			MLDH○○○○L20	ø.031 - .079", ø0.8 - 2.0mm			
			MLDH○○○○L30	ø.031 - .079", ø0.8 - 2.0mm			
		Guide Drill for MLDH	MLDH○○○○P	ø.031 - .079", ø0.8 - 2.0mm		★	
Very Small Diameter	P K M N S H	MINI-Drills	MDSS○○○○	ø.0079 - .039", ø0.2 - 1.0mm		metric	J94
		Micro Drills	MDUS○○○○-30C	ø.0012 - .0075", ø0.03 - 0.19mm		★	
			MDUP○○○○-30C	ø.0012 - .0071", ø0.03 - 0.18mm		★	
		Micro Multi Pointing Drill	MDUP○○○○-30C	ø.0012 - .0071", ø0.03 - 0.18mm		★	
Replaceable Tip High Efficiency	P K M H	Replaceable Tip Drills	SMDH○○○○S	ø.469 - 1.213", ø12.0 - 30.8mm		inch	J97
			SMDH○○○○M	ø.469 - 1.673", ø12.0 - 42.5mm		●	
			SMDH○○○○L	ø.469 - 1.673", ø12.0 - 42.5mm		metric	
			SMDH○○○○D	ø.469 - 1.673", ø12.0 - 42.5mm		★	
			SMDH○○○○-12D	ø.531 - 1.016", ø13.5 - 25.8mm			
Replaceable Tip Low Resistance	P K M N S H	Replaceable Tip Drills	SMDH○○○○S	ø.469 - 1.213", ø12.0 - 30.8mm		inch	J97
			SMDH○○○○M	ø.469 - 1.213", ø12.0 - 30.8mm		●	
			SMDH○○○○L	ø.469 - 1.213", ø12.0 - 30.8mm		metric	
			SMDH○○○○D	ø.469 - 1.213", ø13.5 - 30.8mm		★	
			SMDH○○○○-12D	ø.531 - 1.016", ø13.5 - 25.8mm			
Replaceable Tip DLC Coated	N	Replaceable Tip Drills	SMDH○○○○M	ø.469 - 1.250", ø12.0 - 31.8mm		inch	J97
			SMDH○○○○L	ø.469 - 1.250", ø12.0 - 31.8mm		metric	
			SMDH○○○○D	ø.469 - 1.250", ø12.0 - 31.8mm		★	
Replaceable Tip For Spot Facing	P M H N K	Replaceable Tip Drills	SMDH○○○○S	ø.472 - 1.213", ø12.0 - 30.8mm		inch	J113
Indexable Insert	P K M N S H	Indexable Insert Drills	WDX○○○○D2S○○	ø.512 - 2.68", ø13.0 - 68.0mm		inch	J112
			WDX○○○○D3S○○	ø.512 - 2.68", ø13.0 - 68.0mm		●	
			WDX○○○○D4S○○	ø.512 - 2.48", ø13.0 - 63.0mm		metric	
			WDX○○○○D5S○○	ø.512 - 2.17", ø13.0 to 55.0mm		★	
	P K M N S H	Plunge Drills	PDL○○○○D2S○○	ø.629 - 1.57", ø16.0 - 40.0mm		metric	J141
			PDL○○○○D3S○○	ø.629 - 1.57", ø16.0 - 40.0mm		★	
	P K M N S H	Plunge Mills	PCT○○○○D3S○○	ø.629 - 1.57", ø16.0 - 40.0mm		metric	J141
			PCT○○○○D5S○○	ø.629 - 1.57", ø16.0 - 40.0mm		★	
Indexable Insert Reamer	P K M N S H	SumiReamer	SRG○○.0H7-○○○-○○○12R1	ø.469 - 5.51", ø11.9 - 140.6mm		metric	J148
			SRL○○.0H7-○○○-○○○12R1	ø.469 - 5.51", ø11.9 - 140.6mm		★	

Drill Selection Guide

Series	Drilling Depth (L/D)	Coating	Coolant Supply	P		H	M	S	K		N			Ref. Page		
				Carbon Steel Alloy Steel up to 35HRC		Tempered Steel	Hardened Steel	Stainless Steel	Titanium Alloy	Heat-resistant Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy		Copper Alloy	Composite
				C 0.28% or less	C 0.29%	SKD SKS	45HRC or less	46HRC or more	SUS	Ti	Inconel	FC	FCD		Al	Cu
MLDH	5D 12D 20D 30D		Internal												J91	
MLDH-P			Internal												J91	
MDSS			External												J94	
MDUS			External												J94	
MDUP			External												J94	
SMD -MTL Tip SMD -MTL-C Tip	1.5D 3D 5D 8D 12D		Internal												J97	
SMD -MEL Tip	1.5D 3D 5D 8D 12D		Internal												J97	
SMD -NAL Tip	3D 5D 8D		Internal												J97	
SMD -MFS Tip	1.5D 3D 5D 8D 12D		Internal												J113	
WDX	2D 3D 4D 5D	  	Internal												J112	
PDL	2D 3D	  	Internal												J141	
PCT	3D 5D	  	Internal												J141	
SR		 	Internal												J148	

Drilling

J

Solid

Indexable
Head Type

Indexable
Insert Type

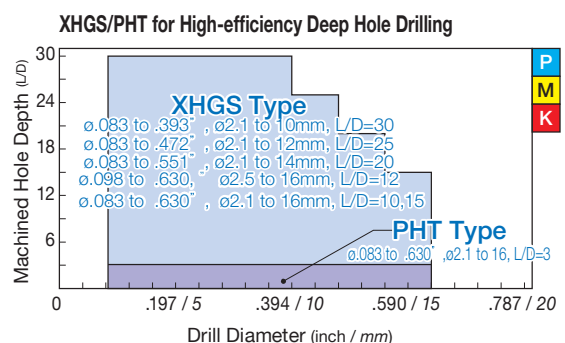
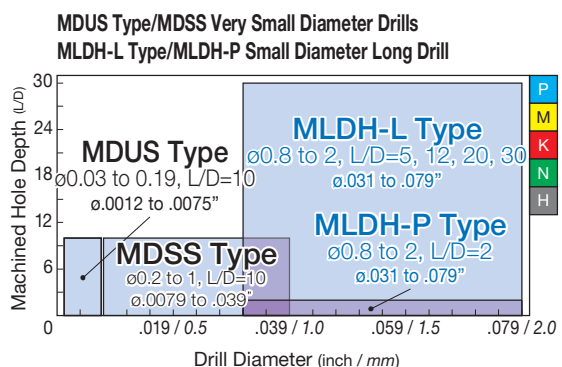
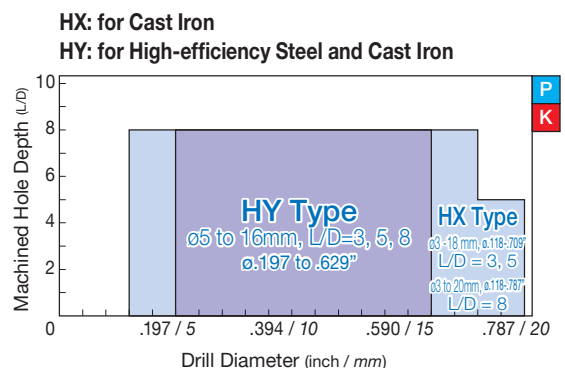
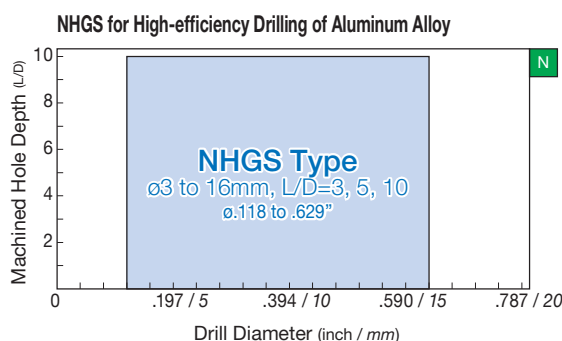
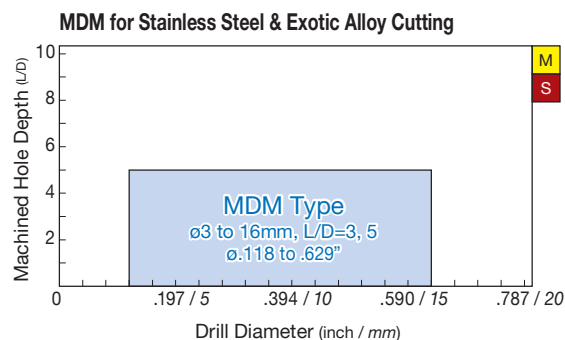
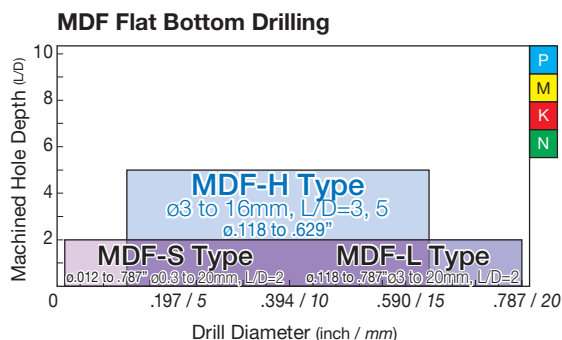
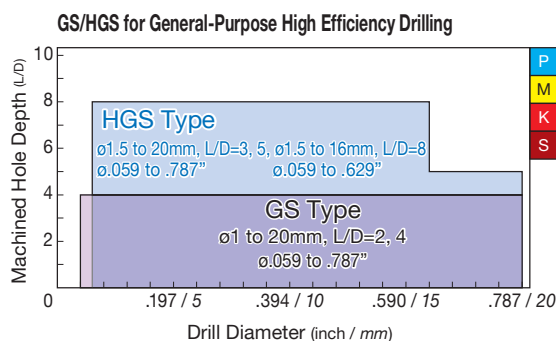
Reamers

Brazed

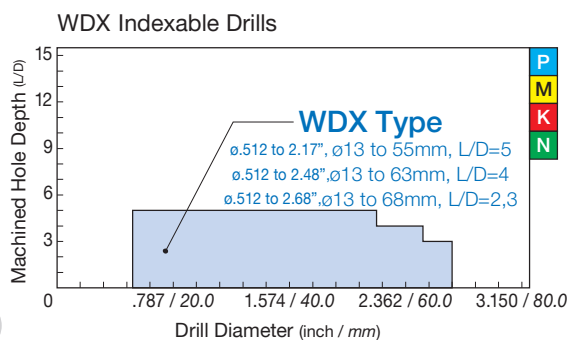
Others

Application Range of Sumitomo Drills

Coolant: External supply / Internal supply



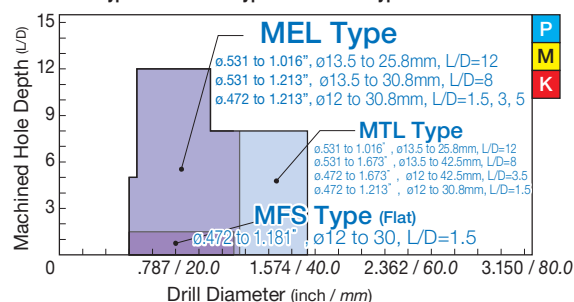
Indexable Insert Type Drill



Indexable Tip Drills

SMD Replaceable Tip Drills

MTL Type Head / MEL Type Head / MFS Type Head



Drill Coating



DEX Coating

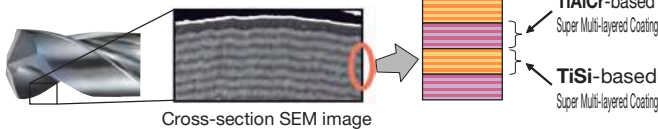


General Features

Sumitomo's next-generation drill coating utilizes nano-coating technology to provide more than double the tool life of conventional coatings.

Features

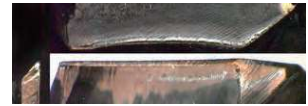
- Coating Design
World's first combined super multi-layered coating made from alternating layers of two super multi-layered substrates.



- Silicon and chrome improve wear, thermal and adhesion resistance.
- Super multi-layered structure offers improved chipping resistance.

DEX Coating Application Examples

GS Type MultiDrill with DEX Coating (after machining 100 holes)



Competitor's product A (after machining 70 holes)



Tool: MDW0800GS4
Part Material: Carbon Steel (200HB)
Cutting Conditions: $v_c=230$ SFM, $f=0.0098$ IPR, $H=1.260''$, external coolant supply (water soluble)



DLC Coating (AURORA)



DL1300 DL1500

General Features

DLC Coating - AURORA is a high-hardness, low-friction coefficient layer of DLC (Diamond-like Carbon) which dramatically improves adhesion resistance in drilling of aluminum alloy and non-ferrous metals, and works in combination with various drill designs to achieve stable long tool life.

Features

- Thin, ultra-smooth DLC coating with a low coefficient of friction
Helps prevent adhesion to the cutting edge and requires significantly less cutting force during drilling of aluminum alloy and non-ferrous metals.
- High adhesion strength withstands stringent cutting conditions
The world's first coating for cutting non-ferrous materials, with a special coating technique that significantly improves adhesion strength.
- A spectrum of colors
Glossy colors are achieved by the special coating technique.

DLC Coating - AURORA Application Examples

AURORA Coating Super MultiDrill NHGS Type (after drilling 100 holes)



Competitor's Product B (after drilling 20 holes)



Tool: MDW0800NHGS5
Part Material: Aluminum Alloy
Cutting Conditions: $v_c=650$ SFM, $f=.0394$ IPR, $H=1.260''$, internal coolant supply



Diamond Coating - SUMIDIA®

General Features

Our original polycrystalline diamond coating technology achieves over 10 times the wear resistance of uncoated carbide. Excellent diamond film adhesion is achieved with a combination of a dedicated diamond coating alloy and a proprietary coating pre-treatment technique.

Diamond Coating - SUMIDIA® Application Examples

SUMIDIA Coat



No. of Workpieces: 600 holes

Able to continue



Competitor's Diamond Coating



No. of Workpieces: 50 holes

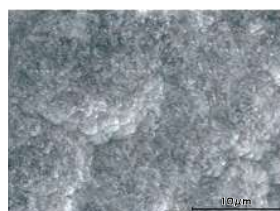
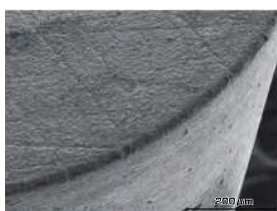
Coating peels and burrs are formed



Tool: Diamond Coating SUMIDIA® Drill $\phi 6.35$ mm
Part Material: CFRP
Cutting Conditions: $v_c=430$ SFM, $f=0.003$ IPR, $H=.590''$, through hole, dry

Features

- Micro-grain diamond coating that provides the combination of high strength and high wear resistance on smooth surfaces that is required for CFRP drilling



J

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others



Features & Benefits

- Long tool life
New cutting edge design and special DEX Coating provide long tool life for a wide variety of materials.
- Steady chip evacuation
J Flute® shape significantly improves chip control and evacuation.
- Stable drilling performance
Unique thinning design promotes stabilized drilling.
- Environmentally friendly
Also compatible with the MQL (Minimum Quantity Lubrication) system. MQL systems are designed to apply a very fine amount of high quality lubricating oil to metal cutting/machining operations.

Product Range

MDW	Cat. No.	Diameter Range (inch / mm)	Hole Depth (L/D)
GS: Global Standard	MDW□□□□GS2	ø.0394" to ø.7874"	up to 2
	MDW□□□□GS4	1.00mm to 20.00mm	up to 4
HGS: Global Standard with Coolant through Holes	MDW□□□□HGS3	ø.0591" to ø.7874"	up to 3
	MDW□□□□HGS5	1.50mm to 20.00mm	up to 5
	MDW□□□□HGS8	ø.0591" to ø.6299"	up to 8

Diverse shank options for standard collet holders, and high end Shrink-fit/Hydraulic holders

HGS Metric Size Example						
Product Code	Series	Diameter Four digits (5mm)	Style	Depth	DIN shank option Add "S"	Shank Size
MDW0500HGS3	MDW	0 5 0 0	HGS	3	—	5mm (.1968")
MDW0500HGS3S	MDW	0 5 0 0	HGS	3	S	6mm (.2362")

*Metric Sizes have four digit diameter callouts.

Two metric shank diameters available depending on your application, and tool holding. "S" = DIN shank

HGS Inch Size Example						
Product Code	Series	Diameter five digits (0.5000")	Style	Depth	DIN shank option Add "S"	Shank Size
MDW05000HGS3	MDW	0 5 0 0 0	HGS	3	—	33/64ths (.5156")
MDW05000HGS3S	MDW	0 5 0 0 0	HGS	3	S	14mm (.5516")

*Inch Sizes have five digit diameter callouts.

Fractional shank, and DIN shank available depending on your application, and tool holding. "S" = DIN shank



**J Flute® is a registered trademark.

Wide chip pocket for smooth chip evacuation.

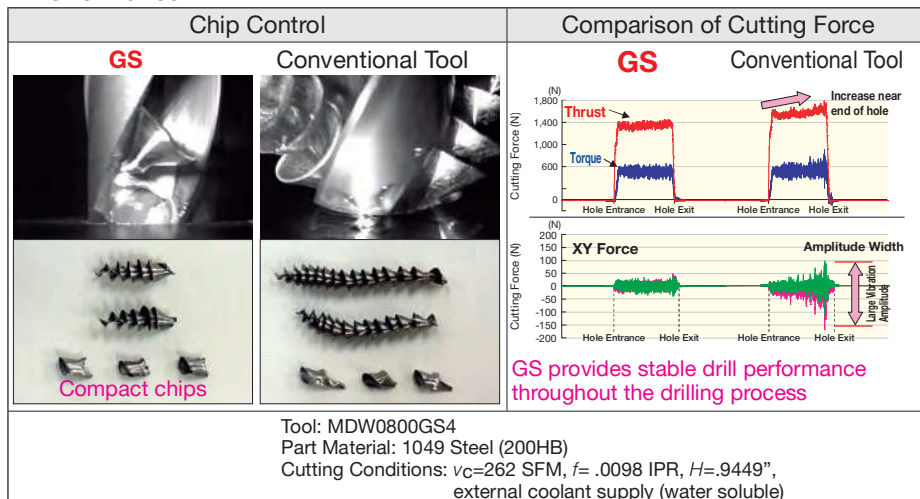


HGS



GS

Performance



Double margin (HGS) (excluding 0.0591" to 0.0945" sizes)

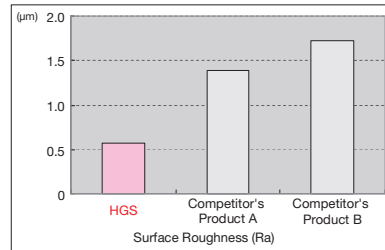
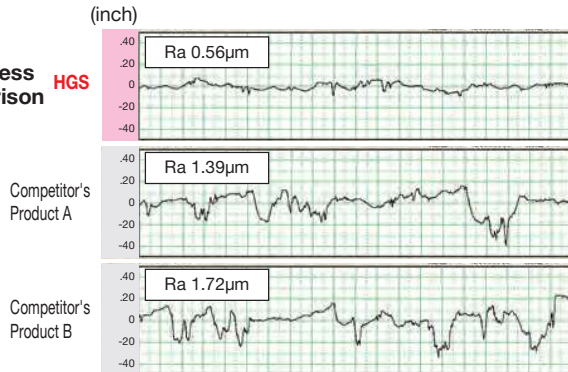
The HGS uses a double margin for greater stability and hole precision in deep drilling



Made with DEX Coat, the world's first compound super multi-layered coating

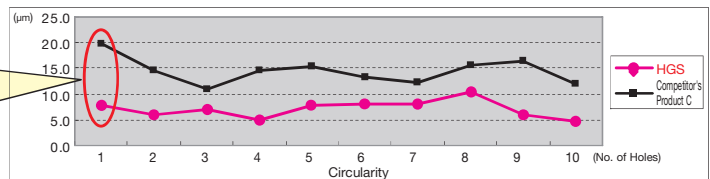
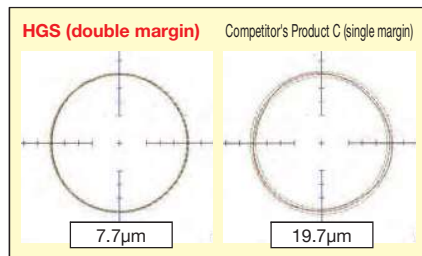
The HGS uses a double margin

Surface Roughness Comparison



Part Material: Alloy Structural Steel (120HB)
Tool: MDW0800HGS5
Cutting Conditions: $v_c=262\text{sfm}$, $f=.0098\text{inch/rev}$, $H=1.4961\text{inch}$
Internal coolant supply: Water soluble

Circularity Comparison



Part Material: 1049 Steel (200HB)
Tool: MDW0800HGS8
Cutting Conditions: $v_c=262\text{sfm}$, $f=.0098\text{inch/rev}$
 $H=2.5197\text{inch}$, internal coolant supply (water soluble)

4-point guide design thanks to double margin reduces runout for improved stability.
Good surface roughness and circularity.

Application Examples for GS Drills

Medium Carbon Steel (250HB) for Automotive	Prehardened Mold Steel Machine Components	Structural Steel Machine Components																											
Tool: MDW0970GS4 Cutting Conditions: $v_c=262\text{sfm}$, $f=.0098\text{inch/rev}$ $H=.9843\text{inch}$, external coolant supply (water soluble) Achieved 1.5 times the tool life! Reduced wear on peripheral cutting edge <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>GS</td> <td>1400</td> <td>Wear</td> </tr> <tr> <td>Competitor's Product D</td> <td>900</td> <td>Fracture</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	GS	1400	Wear	Competitor's Product D	900	Fracture	Tool: MDW0980GS2 Cutting Conditions: $v_c=230\text{sfm}$, $f=.0059\text{inch/rev}$ $H=.2756\text{inch}$, external coolant supply (water soluble) 1.3 times longer tool life than conventional tools. Good circularity and cylindricity. <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>GS</td> <td>2600</td> <td>Wear</td> </tr> <tr> <td>Conventional Tool</td> <td>2000</td> <td>Wear</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	GS	2600	Wear	Conventional Tool	2000	Wear	Tool: MDW 050GS4 Cutting Conditions: $v_c=492\text{sfm}$, $f=.0118\text{inch/rev}$ $H=.4724\text{inch}$, external coolant supply (water soluble) Achieved 1.5 times the tool life! Good chip control <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>GS</td> <td>1800</td> <td>Wear</td> </tr> <tr> <td>Competitor's Product E</td> <td>1200</td> <td>Adhesion</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	GS	1800	Wear	Competitor's Product E	1200	Adhesion
Product	No. of Holes	Failure Mode																											
GS	1400	Wear																											
Competitor's Product D	900	Fracture																											
Product	No. of Holes	Failure Mode																											
GS	2600	Wear																											
Conventional Tool	2000	Wear																											
Product	No. of Holes	Failure Mode																											
GS	1800	Wear																											
Competitor's Product E	1200	Adhesion																											

Application Examples for HGS Drills

Structural Alloy Steel for Automotive	Alloy Bearing Steel Automotive Components	Low Carbon Steel Machine Components																											
Tool: MDW 0600HGS8 Cutting Conditions: $v_c=262\text{sfm}$, $f=.0098\text{inch/rev}$ $H=1.8898\text{inch}$, internal coolant supply (oil-based) Achieved 1.3 times the tool life! <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>HGS</td> <td>650</td> <td>Wear</td> </tr> <tr> <td>Competitor's Product F</td> <td>500</td> <td>Fracture</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	HGS	650	Wear	Competitor's Product F	500	Fracture	Tool: MDW0570HGS5 Cutting Conditions: $v_c=262\text{sfm}$, $f=.0039\text{inch/rev}$ $H=1.378\text{inch}$, internal coolant supply (water soluble) Achieved 2.5 times the tool life! <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>HGS</td> <td>1500</td> <td>Wear</td> </tr> <tr> <td>Competitor's Product G</td> <td>600</td> <td>Wear</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	HGS	1500	Wear	Competitor's Product G	600	Wear	Tool: MDW0860HGS3 Cutting Conditions: $v_c=171\text{sfm}$, $f=.0079\text{inch/rev}$ $H=.9843\text{inch}$, internal coolant supply (water soluble) Achieved 1.8 times the tool life! <table border="1"> <thead> <tr> <th>Product</th> <th>No. of Holes</th> <th>Failure Mode</th> </tr> </thead> <tbody> <tr> <td>HGS</td> <td>1500</td> <td>Wear</td> </tr> <tr> <td>Competitor's Product H</td> <td>800</td> <td>Wear</td> </tr> </tbody> </table>	Product	No. of Holes	Failure Mode	HGS	1500	Wear	Competitor's Product H	800	Wear
Product	No. of Holes	Failure Mode																											
HGS	650	Wear																											
Competitor's Product F	500	Fracture																											
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Competitor's Product H	800	Wear																											

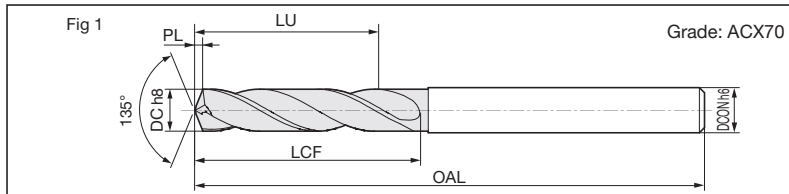
Super MultiDrills GS (External Coolant Supply)

Carbon Steel Alloy Steel up to 0.28% Carbon Steel Alloy Steel from 0.29% Tempered Steel Hardened Steel up to 45HRC Hardened Steel from 46HRC Stainless Steel Ti Alloy Heat-resistant Steel Cast Iron Ductile Cast Iron Aluminum Alloy Copper Alloy

DEX Coating

2D

4D



Cut tap recommendations based on 60-75% full thread. Form tap recommendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter $\phi 1.00$ to 3.50mm (0.0394" to 0.1378") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

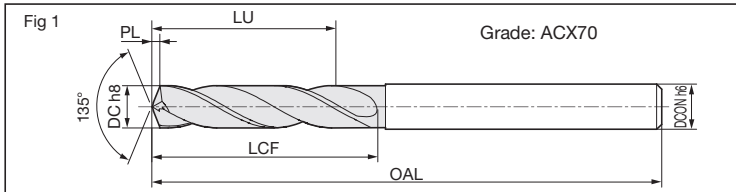
Dia.DC		Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.						Fraction	mm	in.	mm	in.	mm	in.	mm	in.	mm	
1.00	0.0394				2	★ MDW0100GS2	4.70	0.1850	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★ MDW0100GS4	10.70	0.4213	12.20	0.4803	49.20	1.9370					1
1.10	0.0433				2	★ MDW0110GS2	4.60	0.1811	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★ MDW0110GS4	10.60	0.4173	12.20	0.4803	49.20	1.9370					1
1.20	0.0472				2	★ MDW0120GS2	4.40	0.1732	6.20	0.2441	45.20	1.7795	0.20	0.0079	3.00	0.1181	1
					4	★ MDW0120GS4	10.40	0.4094	12.20	0.4803	49.20	1.9370					1
1.30	0.0512				2	★ MDW0130GS2	4.40	0.1732	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★ MDW0130GS4	10.40	0.4094	12.30	0.4843	49.30	1.9409					1
1.40	0.0551				2	★ MDW0140GS2	4.20	0.1654	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★ MDW0140GS4	10.20	0.4016	12.30	0.4843	49.30	1.9409					1
1.50	0.0591				2	★ MDW0150GS2	4.10	0.1614	6.30	0.2480	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★ MDW0150GS4	10.10	0.3976	12.30	0.4843	49.30	1.9409					1
1.60	0.0630				2	★ MDW0160GS2	5.90	0.2323	8.30	0.3268	45.30	1.7835	0.30	0.0118	3.00	0.1181	1
					4	★ MDW0160GS4	12.90	0.5079	15.30	0.6024	49.30	1.9409					1
1.70	0.0669				2	★ MDW0170GS2	5.90	0.2323	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★ MDW0170GS4	12.90	0.5079	15.40	0.6063	49.40	1.9449					1
1.80	0.0709				2	★ MDW0180GS2	5.70	0.2244	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★ MDW0180GS4	12.70	0.5000	15.40	0.6063	49.40	1.9449					1
1.90	0.0748				2	★ MDW0190GS2	5.60	0.2205	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	★ MDW0190GS4	12.60	0.4961	15.40	0.6063	49.40	1.9449					1
2.00	0.0787			2-56 2-64	2	● MDW0200GS2	5.40	0.2126	8.40	0.3307	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	● MDW0200GS4	12.40	0.4882	15.40	0.6063	49.40	1.9449					1
2.10	0.0827		3-56		2	● MDW0210GS2	7.30	0.2874	10.40	0.4094	45.40	1.7874	0.40	0.0157	3.00	0.1181	1
					4	● MDW0210GS4	14.30	0.5630	17.40	0.6850	49.40	1.9449					1
2.20	0.0866				2	● MDW0220GS2	7.20	0.2835	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	● MDW0220GS4	14.20	0.5591	17.50	0.6890	49.50	1.9488					1
2.30	0.0906		4-40	3-48	2	● MDW0230GS2	7.10	0.2795	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	● MDW0230GS4	14.10	0.5551	17.50	0.6890	49.50	1.9488					1
2.38	0.0937	3/32	4-48		2	● MDW00937GS2	6.93	0.2729	10.50	0.4134	45.49	1.7910	0.49	0.0194	3.18	0.1250	1
					4	● MDW00937GS4	13.92	0.5479	17.49	0.6884	49.50	1.9490					1
2.40	0.0945				2	● MDW0240GS2	6.90	0.2717	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	● MDW0240GS4	13.90	0.5472	17.50	0.6890	49.50	1.9488					1
2.50	0.0984		M3x.5		2	● MDW0250GS2	6.80	0.2677	10.50	0.4134	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	● MDW0250GS4	13.80	0.5433	17.50	0.6890	49.50	1.9488					1
2.60	0.1024			4-48	2	● MDW0260GS2	9.60	0.3780	13.50	0.5315	45.50	1.7913	0.50	0.0197	3.00	0.1181	1
					4	● MDW0260GS4	15.60	0.6142	19.50	0.7677	49.50	1.9488					1
2.70	0.1063		5-44 M3x.35		2	● MDW0270GS2	9.60	0.3780	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	● MDW0270GS4	15.60	0.6142	19.60	0.7717	49.60	1.9528					1
2.80	0.1102				2	● MDW0280GS2	9.40	0.3701	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	● MDW0280GS4	15.40	0.6063	19.60	0.7717	49.60	1.9528					1
2.82	0.1110	#34	6-32		2	● MDW01110GS2	9.36	0.3685	13.59	0.5350	45.59	1.7950	0.58	0.0230	3.18	0.1250	1
2.87	0.1130	#33			2	● MDW01130GS2	9.29	0.3659	13.60	0.5354	45.59	1.7950	0.59	0.0234	3.18	0.1250	1
2.90	0.1142			5-40	2	● MDW0290GS2	9.30	0.3661	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	● MDW0290GS4	15.30	0.6024	19.60	0.7717	49.60	1.9528					1
2.95	0.1160	#32	6-40,M3.5x6	5-44	2	● MDW01160GS2	9.19	0.3620	13.61	0.5360	45.62	1.7960	0.61	0.0240	3.18	0.1250	1
3.00	0.1181				2	● MDW0300GS2	9.10	0.3583	13.60	0.5354	45.60	1.7953	0.60	0.0236	3.00	0.1181	1
					4	● MDW0300GS4	15.10	0.5945	19.60	0.7717	49.60	1.9528					1
3.05	0.1200	#31			2	● MDW01200GS2	9.07	0.3569	13.64	0.5369	45.64	1.7970	0.63	0.0249	3.18	0.1250	1
3.10	0.1220				2	● MDW0310GS2	15.00	0.5906	19.60	0.7717	54.60	2.1496	0.60	0.0236	4.00	0.1575	1
					4	● MDW0310GS4	20.00	0.7874	24.60	0.9685	60.60	2.3858					1
3.18	0.1250	1/8		6-32	2	● MDW01250GS2	8.90	0.3504	13.66	0.5379	45.67	1.7980	0.66	0.0259	3.18	0.1250	1
3.20	0.1260				2	● MDW0320GS2	14.90	0.5866	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	● MDW0320GS4	19.90	0.7835	24.70	0.9724	60.70	2.3898					1
3.26	0.1285	#30		M3.5x6,6-40	2	● MDW01285GS2	14.78	0.5819	19.67	0.7746	54.69	2.1530	0.68	0.0266	3.97	0.1562	1
3.30	0.1299				2	● MDW0330GS2	14.80	0.5827	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	● MDW0330GS4	19.80	0.7795	24.70	0.9724	60.70	2.3898					1
3.40	0.1339		M4x.7		2	● MDW0340GS2	14.60	0.5748	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	● MDW0340GS4	19.60	0.7717	24.70	0.9724	60.70	2.3898					1
3.45	0.1360	#29			2	● MDW01360GS2	14.53	0.5722	19.72	0.7762	54.71	2.1540	0.72	0.0282	3.97	0.1562	1
3.50	0.1378		8-32		2	● MDW0350GS2	14.50	0.5709	19.70	0.7756	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	● MDW0350GS4	19.50	0.7677	24.70	0.9724	60.70	2.3898					1

Super MultiDrills GS (External Coolant Supply)

DEX
Coating

2D

4D



Cut tap recommendations
based on 60-75% full thread.
Form tap recommendations
based on 55-70% full thread.

Tap Size values should be
adjusted according to
application.

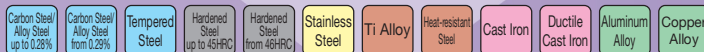
Diameter $\phi 3.57$ to 5.16mm ($0.1405"$ to $0.2031"$) Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.			
3.57	0.1405	#28	8-36		2	●	MDW01405GS2	16.39	0.6454	21.74	0.8561	54.74	2.1550	0.74	0.0291	3.97	0.1562	1
3.57	0.1406	#28 9/64	8-36		2	●	MDW01406GS2	16.39	0.6452	21.74	0.8561	54.74	2.1550	0.74	0.0291	3.97	0.1562	1
					4	●	MDW01406GS4	22.38	0.8812	27.74	1.0921	60.73	2.3910					1
3.60	0.1417				2	●	MDW0360GS2	16.30	0.6417	21.70	0.8543	54.70	2.1535	0.70	0.0276	4.00	0.1575	1
					4	●	MDW0360GS4	22.30	0.8780	27.70	1.0906	60.70	2.3898					1
3.66	0.1440	#27		M4x.7	2	●	MDW01440GS2	16.28	0.6408	21.76	0.8568	54.76	2.1560	0.76	0.0298	3.97	0.1562	1
3.70	0.1457		M4.5x.7		2	●	MDW0370GS2	16.30	0.6417	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	MDW0370GS4	22.30	0.8780	27.80	1.0945	60.80	2.3937					1
3.73	0.1470				2	●	MDW01470GS2	16.18	0.6369	21.78	0.8574	54.76	2.1560	0.77	0.0304	3.97	0.1562	1
3.80	0.1495				2	●	MDW01495GS2	16.10	0.6338	21.79	0.8580	54.79	2.1570	0.79	0.0310	3.97	0.1562	1
3.80	0.1496		8-32		2	●	MDW0380GS2	16.10	0.6339	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	MDW0380GS4	22.10	0.8701	27.80	1.0945	60.80	2.3937					1
3.86	0.1520	#24	M4.5x.75	8-36	2	●	MDW01520GS2	16.01	0.6305	21.81	0.8585	54.79	2.1570	0.80	0.0315	3.97	0.1562	1
3.90	0.1535				2	●	MDW0390GS2	16.00	0.6299	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	MDW0390GS4	22.00	0.8661	27.80	1.0945	60.80	2.3937					1
3.91	0.1540	#23	10-24		2	●	MDW01540GS2	15.95	0.6279	21.82	0.8589	54.81	2.1580	0.81	0.0319	3.97	0.1562	1
3.97	0.1562	5/32			2	●	MDW01562GS2	15.88	0.6251	21.83	0.8594	54.81	2.1580	0.82	0.0324	3.97	0.1562	1
3.99	0.1570	#22			2	●	MDW01570GS2	17.86	0.7030	23.84	0.9385	61.82	2.4340	0.83	0.0325	4.76	0.1875	1
4.00	0.1575				2	●	MDW0400GS2	15.80	0.6220	21.80	0.8583	54.80	2.1575	0.80	0.0315	4.00	0.1575	1
					4	●	MDW0400GS4	21.80	0.8583	27.80	1.0945	60.80	2.3937					1
4.04	0.1590	#21			2	●	MDW01590GS2	17.79	0.7004	23.85	0.9389	61.85	2.4350	0.84	0.0329	4.76	0.1875	1
4.09	0.1610	#20			2	●	MDW01610GS2	17.72	0.6978	23.86	0.9393	61.85	2.4350	0.85	0.0333	4.76	0.1875	1
4.10	0.1614		10-32		2	●	MDW0410GS2	17.70	0.6969	23.80	0.9370	61.80	2.4331	0.80	0.0315	5.00	0.1969	1
					4	●	MDW0410GS4	25.70	1.0118	31.80	1.2520	66.80	2.6299					1
4.20	0.1654				2	●	MDW0420GS2	17.60	0.6929	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	MDW0420GS4	25.60	1.0079	31.90	1.2559	66.90	2.6339					1
4.22	0.1660	#19		M4.5x.75	2	●	MDW01660GS2	17.56	0.6914	23.89	0.9404	61.87	2.4360	0.87	0.0344	4.76	0.1875	1
4.30	0.1693		M5x.8		2	●	MDW0430GS2	17.50	0.6890	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	MDW0430GS4	25.50	1.0039	31.90	1.2559	66.90	2.6339					1
4.31	0.1695	#18			2	●	MDW01695GS2	17.45	0.6869	23.90	0.9411	61.90	2.4370	0.89	0.0351	4.76	0.1875	1
4.37	0.1719	11/64		10-24	2	●	MDW01719GS2	17.37	0.6838	23.92	0.9416	61.90	2.4370	0.90	0.0356	4.76	0.1875	1
4.39	0.1730	#17			2	●	MDW01730GS2	17.33	0.6823	23.92	0.9418	61.90	2.4370	0.91	0.0358	4.76	0.1875	1
4.40	0.1732				2	●	MDW0440GS2	17.30	0.6811	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	MDW0440GS4	25.30	0.9961	31.90	1.2559	66.90	2.6339					1
4.50	0.1770	#16			2	●	MDW01770GS2	17.20	0.6772	23.94	0.9427	61.93	2.4380	0.93	0.0367	4.76	0.1875	1
4.50	0.1772		10-32		2	●	MDW0450GS2	17.20	0.6772	23.90	0.9409	61.90	2.4370	0.90	0.0354	5.00	0.1969	1
					4	●	MDW0450GS4	25.20	0.9921	31.90	1.2559	66.90	2.6339					1
4.57	0.1800	#15	12-24,M5x.5		2	●	MDW01800GS2	19.08	0.7513	25.94	1.0213	61.95	2.4390	0.95	0.0373	4.76	0.1875	1
4.60	0.1811				2	●	MDW0460GS2	19.10	0.7520	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	MDW0460GS4	32.10	1.2638	39.00	1.5354	77.00	3.0315					1
4.62	0.1820	#14		M5x.8	2	●	MDW01820GS2	19.02	0.7487	25.95	1.0217	61.95	2.4390	0.96	0.0377	4.76	0.1875	1
4.70	0.1850		12-28		2	●	MDW01850GS2	18.92	0.7448	25.97	1.0223	61.98	2.4400	0.97	0.0383	4.76	0.1875	1
					2	●	MDW0470GS2	19.00	0.7480	26.00	1.0236	62.00	2.4409					1
4.76	0.1875	3/16		M5x.5	4	●	MDW0470GS4	32.00	1.2598	39.00	1.5354	77.00	3.0315	1.00	0.0394	5.00	0.1969	1
					2	●	MDW01875GS2	18.84	0.7416	25.98	1.0228	61.98	2.4400					1
4.80	0.1890				2	●	MDW01890GS2	18.79	0.7396	25.99	1.0231	65.99	2.5980	0.99	0.0391	5.95	0.2344	1
					2	●	MDW0480GS2	18.80	0.7402	26.00	1.0236	62.00	2.4409					1
4.85	0.1910	#11			4	●	MDW0480GS4	31.80	1.2520	39.00	1.5354	77.00	3.0315	1.01	0.0396	5.95	0.2344	1
					2	●	MDW01910GS2	18.72	0.7371	26.00	1.0236	66.01	2.5990					1
4.90	0.1929				2	●	MDW0490GS2	18.70	0.7362	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	MDW0490GS4	31.70	1.2480	39.00	1.5354	77.00	3.0315					1
4.91	0.1935	#10			2	●	MDW01935GS2	18.64	0.7339	26.01	1.0241	66.01	2.5990	1.02	0.0401	5.95	0.2344	1
4.98	0.1960	#9			2	●	MDW01960GS2	18.56	0.7306	26.02	1.0246	66.04	2.6000	1.03	0.0406	5.95	0.2344	1
5.00	0.1969		12-24		2	●	MDW0500GS2	18.50	0.7283	26.00	1.0236	62.00	2.4409	1.00	0.0394	5.00	0.1969	1
					4	●	MDW0500GS4	31.50	1.2402	39.00	1.5354	77.00	3.0315					1
5.10	0.2008		12-28		2	●	MDW0510GS2	18.50	0.7283	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	MDW0510GS4	32.50	1.2795	40.10	1.5787	82.10	3.2323					1
5.11	0.2010	#7			2	●	MDW02010GS2	18.39	0.7241	26.05	1.0256	66.07	2.6010	1.06	0.0416	5.95	0.2344	1
					4	●	MDW02010GS4	32.39	1.2751	40.05	1.5766	82.07	3.2310					1
5.16	0.2031	13/64	M6x1		2	●	MDW02031GS2	18.33	0.7215	26.06	1.0261	66.07	2.6010	1.07	0.0421	5.95	0.2344	1
					4	●	MDW02031GS4	32.32	1.2725	40.06	1.5771	82.07	3.2310					1

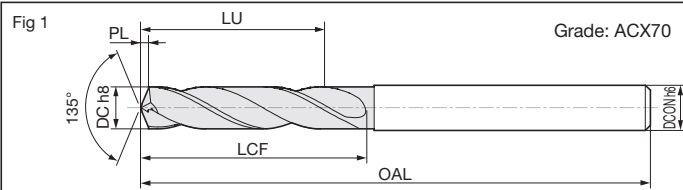
Super MultiDrills GS (External Coolant Supply)



DEX
Coating

2D

4D



Cut tap recommendations
based on 60-75% full thread.
Form tap recommendations
based on 55-70% full thread.

Tap Size values should be
adjusted according to
application.

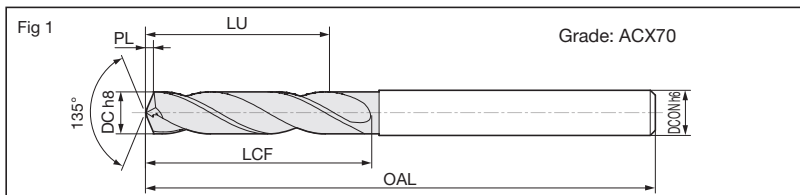
Diameter $\phi 5.18$ to 6.80mm (0.2040" to 0.2677") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
5.18	0.2040	#6			2	●	MDW02040GS2	18.29	0.7202	26.07	1.0262	66.07	2.6010	1.07	0.0422	5.95	0.2344	1
					2	●	MDW0520GS2	18.30	0.7205	26.10	1.0276	66.10	2.6024					
5.20	0.2047				4	●	MDW0520GS4	32.30	1.2717	40.10	1.5787	82.10	3.2323	1.10	0.0433	6.00	0.2362	1
5.22	0.2055	#5			2	●	MDW02055GS2	18.25	0.7184	26.08	1.0266	66.09	2.6020	1.08	0.0426	5.95	0.2344	1
5.30	0.2087				2	●	MDW0530GS2	18.20	0.7165	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	MDW0530GS4	32.20	1.2677	40.10	1.5787	82.10	3.2323					
5.31	0.2090	#4	1/4-20, M6x.75	M5.5x.5	2	●	MDW02090GS2	18.13	0.7138	26.09	1.0273	66.09	2.6020	1.10	0.0433	5.95	0.2344	1
5.40	0.2126				2	●	MDW0540GS2	18.00	0.7087	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	MDW0540GS4	32.00	1.2598	40.10	1.5787	82.10	3.2323					
5.41	0.2130	#3			2	●	MDW02130GS2	18.00	0.7086	26.11	1.0281	66.12	2.6030	1.12	0.0441	5.95	0.2344	1
5.50	0.2165				2	●	MDW0550GS2	17.90	0.7047	26.10	1.0276	66.10	2.6024	1.10	0.0433	6.00	0.2362	1
					4	●	MDW0550GS4	31.90	1.2559	40.10	1.5787	82.10	3.2323					
5.56	0.2188	7/32	1/4-28 M6x.5	M6x1	2	●	MDW02188GS2	19.81	0.7801	28.15	1.1083	66.14	2.6040	1.15	0.0453	5.95	0.2344	1
					4	●	MDW02188GS4	33.81	1.3311	42.15	1.6593	82.14	3.2340					
5.60	0.2205				2	●	MDW0560GS2	19.80	0.7795	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	MDW0560GS4	33.80	1.3307	42.20	1.6614	82.20	3.2362					
5.61	0.2210	#2		M6x.75	2	●	MDW02210GS2	19.74	0.7773	28.16	1.1088	66.17	2.6050	1.16	0.0458	5.95	0.2344	1
5.70	0.2244				2	●	MDW0570GS2	19.70	0.7756	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	MDW0570GS4	33.70	1.3268	42.20	1.6614	82.20	3.2362					
5.79	0.2280	#1			2	●	MDW02280GS2	19.51	0.7682	28.20	1.1102	66.19	2.6060	1.20	0.0472	5.95	0.2344	1
5.80	0.2283			1/4-20	2	●	MDW0580GS2	19.50	0.7677	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	MDW0580GS4	33.50	1.3189	42.20	1.6614	82.20	3.2362					
5.90	0.2323				2	●	MDW0590GS2	19.40	0.7638	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	MDW0590GS4	33.40	1.3150	42.20	1.6614	82.20	3.2362					
5.94	0.2340	A			2	●	MDW02340GS2	19.32	0.7605	28.23	1.1115	66.24	2.6080	1.23	0.0485	5.95	0.2344	1
5.95	0.2344	15/64			2	●	MDW02344GS2	19.30	0.7599	28.23	1.1115	66.24	2.6080	1.23	0.0485	5.95	0.2344	1
6.00	0.2362	15/64		1/4-28	2	●	MDW0600GS2	19.20	0.7559	28.20	1.1102	66.20	2.6063	1.20	0.0472	6.00	0.2362	1
					4	●	MDW0600GS4	33.20	1.3071	42.20	1.6614	82.20	3.2362					
6.05	0.2380	B			2	●	MDW02380GS2	23.17	0.9123	32.24	1.2693	74.24	2.9230	1.25	0.0493	7.14	0.2812	1
6.10	0.2402				2	●	MDW0610GS2	23.20	0.9134	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	MDW0610GS4	34.20	1.3465	43.30	1.7047	84.30	3.3189					
6.15	0.2420	C	M7x1		2	●	MDW02420GS2	23.04	0.9071	32.26	1.2701	74.27	2.9240	1.27	0.0501	7.14	0.2812	1
6.20	0.2441				2	●	MDW0620GS2	23.00	0.9055	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	MDW0620GS4	34.00	1.3386	43.30	1.7047	84.30	3.3189					
6.25	0.2460	D			2	●	MDW02460GS2	22.91	0.9019	32.28	1.2709	74.30	2.9252	1.29	0.0509	7.14	0.2812	1
					4	●	MDW02460GS4	33.93	1.3359	43.30	1.7049	84.30	3.3190					
6.30	0.2480				2	●	MDW0630GS2	22.90	0.9016	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	MDW0630GS4	33.90	1.3346	43.30	1.7047	84.30	3.3189					
6.35	0.2500	1/4	M7x.75		2	●	MDW02500GS2	22.78	0.8968	32.30	1.2718	74.32	2.9260	1.32	0.0518	7.00	0.2812	1
					4	●	MDW02500GS4	33.80	1.3308	43.33	1.7058	84.30	3.3190					
6.40	0.2520				2	●	MDW0640GS2	22.70	0.8937	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	MDW0640GS4	33.70	1.3268	43.30	1.7047	84.30	3.3189					
6.50	0.2559				2	●	MDW0650GS2	22.60	0.8898	32.30	1.2717	74.30	2.9252	1.30	0.0512	7.00	0.2756	1
					4	●	MDW0650GS4	33.60	1.3228	43.30	1.7047	84.30	3.3189					
6.53	0.2570	F	5/16-18	M7x1	2	●	MDW02570GS2	24.55	0.9667	34.35	1.3522	74.35	2.9270	1.35	0.0532	7.14	0.2812	1
					4	●	MDW02570GS4	34.56	1.3607	44.35	1.7462	84.35	3.3210					
6.60	0.2598				2	●	MDW0660GS2	24.50	0.9646	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	MDW0660GS4	34.50	1.3583	44.40	1.7480	84.40	3.3228					
6.60	0.2600				2	●	MDW02600GS2	24.46	0.9628	34.36	1.3528	74.37	2.9280	1.37	0.0538	7.14	0.2812	1
6.63	0.2610	G			2	●	MDW02610GS2	24.42	0.9616	34.37	1.3531	74.37	2.9280	1.37	0.0541	7.14	0.2812	1
					4	●	MDW02610GS4	34.43	1.3556	44.38	1.7471	84.38	3.3220					
6.70	0.2638				2	●	MDW0670GS2	24.40	0.9606	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	MDW0670GS4	34.40	1.3543	44.40	1.7480	84.40	3.3228					
6.75	0.2656	17/64	5/6-18		2	●	MDW02656GS2	24.27	0.9556	34.39	1.3540	74.40	2.9290	1.40	0.0550	7.14	0.2812	1
					4	●	MDW02656GS4	34.28	1.3496	44.40	1.7480	84.40	3.3230					
6.76	0.2660	H	5/6-18		2	●	MDW02660GS2	24.26	0.9551	34.39	1.3541	74.40	2.9290	1.40	0.0551	7.14	0.2812	1
					4	●	MDW02660GS4	34.27	1.3491	44.40	1.7481	84.40	3.3230					
6.80	0.2677				2	●	MDW02677GS2	24.20	0.9529	34.40	1.3544	74.40	2.9290	1.41	0.0554	7.14	0.2812	1
					2	●	MDW0680GS2	24.20	0.9528	34.40	1.3543	74.40	2.9291	1.40	0.0551	7.00	0.2756	1
					4	●	MDW0680GS4	34.20	1.3465	44.40	1.7480	84.40	3.3228					

Super MultiDrills GS (External Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter $\phi 6.90$ to 8.43mm (0.2717" to 0.3320") Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

Dia.DC	Cut Tap	Roll Form	Hole Depth	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	Fig
mm	in.	Fraction	Size	Tap Size	(L/D)	mm	in.	mm	in.	mm	in.
6.90	0.2717		M8x1.25		2	24.10	0.9488	34.40	1.3543	74.40	2.9291
					4	34.10	1.3425	44.40	1.7480	84.40	3.3228
6.91	0.2720	I	5/16-24		2	24.06	0.9473	34.42	1.3553	74.42	2.9300
					4	34.07	1.3413	44.43	1.7493	84.43	3.3240
7.00	0.2756				2	23.94	0.9427	34.44	1.3561	74.45	2.9310
					2	23.90	0.9409	34.40	1.3543	74.40	2.9291
					4	33.90	1.3346	44.40	1.7480	84.40	3.3228
7.04	0.2770	J			2	23.90	0.9409	34.45	1.3564	74.45	2.9310
					4	33.91	1.3349	44.46	1.7504	84.46	3.3250
7.10	0.2795				2	23.90	0.9409	34.50	1.3583	79.50	3.1299
					4	35.90	1.4134	46.50	1.8307	91.50	3.6024
7.14	0.2810	K	M8x1		2	23.77	0.9357	34.47	1.3572	74.47	2.9320
					4	33.77	1.3297	44.48	1.7512	84.48	3.3260
7.14	0.2812	9/32			2	23.76	0.9354	34.47	1.3572	74.47	2.9320
					4	33.77	1.3294	44.48	1.7512	84.48	3.3260
7.20	0.2835				2	23.70	0.9331	34.50	1.3583	79.50	3.1299
					4	35.70	1.4055	46.50	1.8307	91.50	3.6024
7.30	0.2874		M8x.75	5/16-18	2	23.60	0.9291	34.50	1.3583	79.50	3.1299
					4	35.60	1.4016	46.50	1.8307	91.50	3.6024
7.37	0.2900	L			2	23.47	0.9241	34.52	1.3591	79.53	3.1310
					4	35.49	1.3971	46.54	1.8321	91.52	3.6030
7.40	0.2913		M8x1.25		2	23.40	0.9213	34.50	1.3583	79.50	3.1299
					4	35.40	1.3937	46.50	1.8307	91.50	3.6024
7.49	0.2950	M		5/16-24	2	23.31	0.9176	34.55	1.3601	79.55	3.1320
					4	35.32	1.3906	46.56	1.8331	91.54	3.6040
7.50	0.2953		M8x.5		2	23.40	0.9213	34.60	1.3622	79.60	3.1339
					4	35.40	1.3937	46.60	1.8346	91.60	3.6063
7.54	0.2969		M8x1		2	26.24	1.0332	37.55	1.4785	79.55	3.1320
					4	38.26	1.5062	49.57	1.9515	91.57	3.6050
7.60	0.2992				2	26.20	1.0315	37.60	1.4803	79.60	3.1339
					4	38.20	1.5039	49.60	1.9528	91.60	3.6063
7.67	0.3020	N		M8x.75	2	26.07	1.0265	37.58	1.4795	79.58	3.1330
					4	38.09	1.4995	49.59	1.9525	91.59	3.6060
7.70	0.3031				2	26.10	1.0276	37.60	1.4803	79.60	3.1339
					4	38.10	1.5000	49.60	1.9528	91.60	3.6063
7.80	0.3071		M9x1.25		2	25.90	1.0197	37.60	1.4803	79.60	3.1339
					4	37.90	1.4921	49.60	1.9528	91.60	3.6063
7.90	0.3110				2	25.80	1.0157	37.60	1.4803	79.60	3.1339
					4	37.80	1.4882	49.60	1.9528	91.60	3.6063
7.94	0.3125	5/16			2	25.73	1.0130	37.64	1.4817	79.71	3.1380
					4	37.74	1.4860	49.65	1.9547	91.64	3.6080
8.00	0.3150				2	25.70	1.0118	37.70	1.4843	79.70	3.1378
					4	37.70	1.4843	49.70	1.9567	91.70	3.6102
8.03	0.3160	O			2	25.61	1.0084	37.65	1.4824	83.67	3.2940
					4	42.63	1.6784	54.67	2.1524	99.67	3.9240
8.10	0.3189		M9x1		2	25.60	1.0079	37.70	1.4843	83.70	3.2953
					4	42.60	1.6772	54.70	2.1535	99.70	3.9252
8.20	0.3228				2	25.40	1.0000	37.70	1.4843	83.70	3.2953
					4	42.40	1.6693	54.70	2.1535	99.70	3.9252
8.20	0.3230	P			2	25.38	0.9994	37.69	1.4839	83.69	3.2950
					4	42.40	1.6694	54.71	2.1539	99.70	3.9250
8.30	0.3268				2	25.30	0.9961	37.70	1.4843	83.70	3.2953
					4	42.30	1.6654	54.70	2.1535	99.70	3.9252
8.33	0.3281	21/64	M7x1		2	25.22	0.9929	37.72	1.4850	83.72	3.2960
					4	42.24	1.6629	54.74	2.1550	99.72	3.9260
8.40	0.3307				2	25.13	0.9895	37.73	1.4855	83.74	3.2970
					2	25.10	0.9882	37.70	1.4843	83.70	3.2953
					4	42.10	1.6575	54.70	2.1535	99.70	3.9252
8.43	0.3320	Q		M9x1.25	2	25.09	0.9878	37.74	1.4858	83.74	3.2970
					4	42.11	1.6578	54.76	2.1558	99.75	3.9270

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

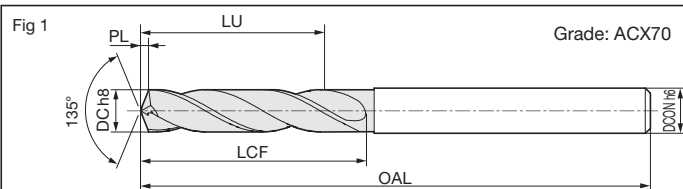
Super MultiDrills GS (External Coolant Supply)



DEX
Coating

2D

4D



Grade: ACX70

Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter $\varnothing 8.50$ to 10.20mm (0.3346" to 0.4016") Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

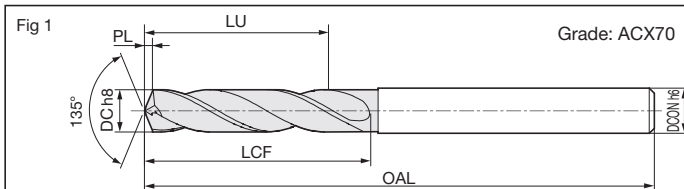
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
8.50	0.3346				2	● MDW0850GS2	25.10	0.9882	37.80	1.4882	83.80	3.2992	1.80	0.0709	9.00	0.3543	1	
					4	● MDW0850GS4	42.10	1.6575	54.80	2.1575	99.80	3.9291					1	
8.60	0.3386		M10x1.5	M9x.75	2	● MDW03386GS2	26.88	1.0582	39.78	1.5661	83.77	3.2980	1.78	0.0701	9.13	0.3594	1	
					4	● MDW0860GS2	26.90	1.0591	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1	
					4	● MDW0860GS4	43.90	1.7283	56.80	2.2362	99.80	3.9291					1	
8.61	0.3390	R			2	● MDW03390GS2	26.87	1.0577	39.78	1.5662	83.79	3.2990	1.78	0.0702	9.13	0.3594	1	
					4	● MDW03390GS4	43.86	1.7267	56.77	2.2352	99.77	3.9280					1	
8.70	0.3425			3/8-16	2	● MDW0870GS2	26.80	1.0551	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1	
					4	● MDW0870GS4	43.80	1.7244	56.80	2.2362	99.80	3.9291					1	
8.73	0.3438	11/32			2	● MDW03438GS2	26.71	1.0515	39.81	1.5672	83.82	3.3000	1.81	0.0712	9.13	0.3594	1	
					4	● MDW03438GS4	43.70	1.7205	56.80	2.2362	99.80	3.9290					1	
8.80	0.3465				2	● MDW0880GS2	26.60	1.0472	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1	
					4	● MDW0880GS4	43.60	1.7165	56.80	2.2362	99.80	3.9291					1	
8.83	0.3475				2	● MDW03475GS2	26.59	1.0468	39.83	1.5680	83.82	3.3000	1.83	0.0720	9.13	0.3594	1	
8.84	0.3480	S			2	● MDW03480GS2	26.57	1.0461	39.83	1.5681	83.82	3.3000	1.83	0.0721	9.13	0.3594	1	
					4	● MDW03480GS4	43.56	1.7151	56.82	2.2371	99.82	3.9300					1	
8.90	0.3504		11/32		2	● MDW0890GS2	26.50	1.0433	39.80	1.5669	83.80	3.2992	1.80	0.0709	9.00	0.3543	1	
					4	● MDW0890GS4	43.50	1.7126	56.80	2.2362	99.80	3.9291					1	
9.00	0.3543				2	● MDW0900GS2	26.40	1.0394	39.90	1.5709	83.90	3.3031	1.90	0.0748	9.00	0.3543	1	
					4	● MDW0900GS4	43.40	1.7087	56.90	2.2402	99.90	3.9331					1	
9.09	0.3580	T			2	● MDW03580GS2	26.24	1.0331	39.88	1.5701	83.87	3.3020	1.88	0.0741	9.13	0.3594	1	
					4	● MDW03580GS4	43.23	1.7021	56.87	2.2391	99.87	3.9320					1	
9.10	0.3583				2	● MDW0910GS2	26.30	1.0354	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1	
					4	● MDW0910GS4	46.30	1.8228	59.90	2.3583	106.90	4.2087					1	
9.13	0.3594	23/64	M10x1	3/8-24	2	● MDW03594GS2	26.20	1.0313	39.89	1.5704	83.90	3.3030	1.89	0.0744	9.13	0.3594	1	
					4	● MDW03594GS4	43.19	1.7003	56.88	2.2394	99.90	3.9330					1	
9.20	0.3622				2	● MDW0920GS2	26.10	1.0276	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1	
					4	● MDW0920GS4	46.10	1.8150	59.90	2.3583	106.90	4.2087					1	
9.30	0.3661				2	● MDW0930GS2	26.00	1.0236	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1	
					4	● MDW0930GS4	46.00	1.8110	59.90	2.3583	106.90	4.2087					1	
9.35	0.3680	U	7/16-14	M10x1.5	2	● MDW03680GS2	25.91	1.0202	39.93	1.5722	88.93	3.5010	1.94	0.0762	9.92	0.3906	1	
					4	● MDW03680GS4	45.90	1.8072	59.92	2.3592	106.93	4.2100					1	
9.40	0.3701				2	● MDW0940GS2	25.80	1.0157	39.90	1.5709	88.90	3.5000	1.90	0.0748	10.00	0.3937	1	
					4	● MDW0940GS4	45.80	1.8031	59.90	2.3583	106.90	4.2087					1	
9.50	0.3740			M10x1.25	2	● MDW0950GS2	25.80	1.0157	40.00	1.5748	89.00	3.5039	2.00	0.0787	10.00	0.3937	1	
					4	● MDW0950GS4	45.80	1.8031	60.00	2.3622	107.00	4.2126					1	
9.53	0.3750	3/8			2	● MDW03750GS2	28.68	1.1292	42.97	1.6917	88.98	3.5030	1.97	0.0777	9.92	0.3906	1	
					4	● MDW03750GS4	47.68	1.8772	61.97	2.4397	106.98	4.2120					1	
9.58	0.3770	V		M10x1	2	● MDW03770GS2	28.62	1.1266	42.98	1.6921	88.98	3.5030	1.98	0.0781	9.92	0.3906	1	
					4	● MDW03770GS4	47.61	1.8746	61.98	2.4401	106.98	4.2120					1	
9.60	0.3780				2	● MDW03780GS2	28.58	1.1253	42.98	1.6923	88.98	3.5030	1.99	0.0783	9.92	0.3906	1	
					2	● MDW0960GS2	28.60	1.1260	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1	
					4	● MDW0960GS4	47.60	1.8740	62.00	2.4409	107.00	4.2126					1	
9.70	0.3819			M10x1.25	2	● MDW0970GS2	28.50	1.1220	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1	
					4	● MDW0970GS4	47.50	1.8701	62.00	2.4409	107.00	4.2126					1	
9.80	0.3858				2	● MDW0980GS2	28.30	1.1142	43.00	1.6929	89.00	3.5039	2.00	0.0787	10.00	0.3937	1	
					4	● MDW0980GS4	47.30	1.8622	62.00	2.4409	107.00	4.2126					1	
9.80	0.3860	W			2	● MDW03860GS2	28.32	1.1149	43.03	1.6939	89.03	3.5050	2.03	0.0799	9.92	0.3906	1	
					4	● MDW03860GS4	47.32	1.8629	62.02	2.4419	107.04	4.2140					1	
9.90	0.3898				2	● MDW0990GS2	28.30	1.1142	43.10	1.6969	89.10	3.5079	2.10	0.0827	10.00	0.3937	1	
					4	● MDW0990GS4	47.30	1.8622	62.10	2.4449	107.10	4.2165					1	
9.92	0.3906	25/64	7/16-20		2	● MDW03906GS2	28.17	1.1090	43.05	1.6949	89.10	3.5080	2.05	0.0809	9.92	0.3906	1	
					4	● MDW03906GS4	47.17	1.8570	62.05	2.4429	107.06	4.2150					1	
10.00	0.3937				2	● MDW1000GS2	28.10	1.1063	43.10	1.6969	89.10	3.5079	2.10	0.0827	10.00	0.3937	1	
					4	● MDW1000GS4	47.10	1.8543	62.10	2.4449	107.10	4.2165					1	
10.08	0.3970	X			2	● MDW03970GS2	27.96	1.1007	43.08	1.6962	95.10	3.7440	2.09	0.0822	11.11	0.4375	1	
					4	● MDW03970GS4	52.95	2.0847	68.08	2.6802	116.08	4.5700					1	
10.10	0.3976		M11x1		2	● MDW1010GS2	28.00	1.1024	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1	
					4	● MDW1010GS4	53.00	2.0866	68.10	2.6811	116.10	4.5709					1	
10.20	0.4016				2	● MDW1020GS2	27.80	1.0945	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1	
					4	● MDW1020GS4	52.80	2.0787	68.10	2.6811	116.10	4.5709					1	

Super MultiDrills GS (External Coolant Supply)

DEX
Coating

2D

4D



Tap tap recommendations
based on 60-75% full thread.
Form tap recommendations
based on 55-70% full thread.

Tap Size values should be
adjusted according to
application.

Diameter $\phi 10.26$ to 12.40mm (0.4040" to 0.4882")

Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
10.26	0.4040	Y	7/16-14		2	●	MDW04040GS2	27.73	1.0917	43.12	1.6977	95.12	3.7450	2.13	0.0837	11.11	0.4375	1
					4	●	MDW04040GS4	52.72	2.0757	68.12	2.6817	116.13	4.5720					1
10.30	0.4055				2	●	MDW1030GS2	27.70	1.0906	43.10	1.6969	95.10	3.7441	2.10	0.0827	11.00	0.4331	1
					4	●	MDW1030GS4	52.70	2.0748	68.10	2.6811	116.10	4.5709					1
10.32	0.4062	13/32		M11x1.5	2	●	MDW04062GS2	27.66	1.0888	43.13	1.6981	95.15	3.7460	2.14	0.0841	11.11	0.4375	1
					4	●	MDW04062GS4	52.65	2.0728	68.13	2.6821	116.13	4.5720					1
10.40	0.4094				2	●	MDW1040GS2	27.60	1.0866	43.20	1.7008	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1040GS4	52.60	2.0709	68.20	2.6850	116.20	4.5748					1
10.49	0.4130	Z	M12x1.75		2	●	MDW04130GS2	27.43	1.0800	43.17	1.6995	95.17	3.7470	2.17	0.0855	11.11	0.4375	1
					4	●	MDW04130GS4	52.43	2.0640	68.16	2.6835	116.18	4.5740					1
10.50	0.4134		7/16-20		2	●	MDW1050GS2	27.50	1.0827	43.20	1.7008	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1050GS4	52.50	2.0669	68.20	2.6850	116.20	4.5748					1
10.60	0.4173			M11x1	2	●	MDW1060GS2	31.30	1.2323	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1060GS4	54.30	2.1378	70.20	2.7638	116.20	4.5748					1
10.70	0.4213				2	●	MDW1070GS2	31.20	1.2283	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1070GS4	54.20	2.1339	70.20	2.7638	116.20	4.5748					1
10.72	0.4219	27/64	M12x1.5	M11x1.75	2	●	MDW04219GS2	31.16	1.2266	47.23	1.8594	95.22	3.7490	2.22	0.0874	11.11	0.4375	1
					4	●	MDW04219GS4	54.14	2.1316	70.22	2.7644	116.23	4.5760					1
10.80	0.4252				2	●	MDW1080GS2	31.00	1.2205	47.20	1.8583	95.20	3.7480	2.20	0.0866	11.00	0.4331	1
					4	●	MDW1080GS4	54.00	2.1260	70.20	2.7638	116.20	4.5748					1
10.90	0.4291		M12x1.25	M12x1.25	2	●	MDW1090GS2	31.00	1.2205	47.30	1.8622	95.30	3.7520	2.30	0.0906	11.00	0.4331	1
					4	●	MDW1090GS4	54.00	2.1260	70.30	2.7677	116.30	4.5787					1
11.00	0.4331				2	●	MDW1100GS2	30.80	1.2126	47.30	1.8622	95.30	3.7520	2.30	0.0906	11.00	0.4331	1
					4	●	MDW1100GS4	53.80	2.1181	70.30	2.7677	116.30	4.5787					1
11.10	0.4370		M12x1.25		2	●	MDW1110GS2	30.70	1.2087	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
					4	●	MDW1110GS4	56.70	2.2323	73.30	2.8858	123.30	4.8543					1
11.11	0.4375	7/16	M12x1		2	●	MDW04375GS2	30.64	1.2064	47.31	1.8626	95.30	3.7520	2.30	0.0906	11.11	0.4375	1
					4	●	MDW04375GS4	53.63	2.1114	70.30	2.7676	116.31	4.5790					1
11.20	0.4409				2	●	MDW1120GS2	30.50	1.2008	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
					4	●	MDW1120GS4	56.50	2.2244	73.30	2.8858	123.30	4.8543					1
11.30	0.4449			M12x1.5	2	●	MDW1130GS2	30.40	1.1969	47.30	1.8622	102.30	4.0276	2.30	0.0906	12.00	0.4724	1
				M12x1.75	4	●	MDW1130GS4	56.40	2.2205	73.30	2.8858	123.30	4.8543					1
11.40	0.4488				2	●	MDW1140GS2	30.30	1.1929	47.40	1.8661	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1140GS4	56.30	2.2165	73.40	2.8898	123.40	4.8583					1
11.50	0.4528			M12x1.25	2	●	MDW1150GS2	30.20	1.1890	47.40	1.8661	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1150GS4	56.20	2.2126	73.40	2.8898	123.40	4.8583					1
11.51	0.4531	29/64			2	●	MDW04531GS2	32.11	1.2642	49.37	1.9438	102.39	4.0310	2.38	0.0938	11.91	0.4688	1
					4	●	MDW04531GS4	58.12	2.2882	75.38	2.9678	123.39	4.8580					1
11.60	0.4567		1/2-20	M12x1	2	●	MDW1160GS2	32.00	1.2598	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1160GS4	58.00	2.2835	75.40	2.9685	123.40	4.8583					1
11.61	0.4570				2	●	MDW04570GS2	31.98	1.2591	49.39	1.9446	102.41	4.0320	2.40	0.0946	11.91	0.4688	1
11.70	0.4606				2	●	MDW1170GS2	31.90	1.2559	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1170GS4	57.90	2.2795	75.40	2.9685	123.40	4.8583					1
11.80	0.4646				2	●	MDW1180GS2	31.70	1.2480	49.40	1.9449	102.40	4.0315	2.40	0.0945	12.00	0.4724	1
					4	●	MDW1180GS4	57.70	2.2717	75.40	2.9685	123.40	4.8583					1
11.90	0.4685			1/2-13	2	●	MDW1190GS2	31.70	1.2480	49.50	1.9488	102.50	4.0354	2.50	0.0984	12.00	0.4724	1
					4	●	MDW1190GS4	57.70	2.2717	75.50	2.9724	123.50	4.8622					1
11.91	0.4688	15/32			2	●	MDW04688GS2	31.60	1.2439	49.46	1.9471	102.46	4.0340	2.47	0.0971	11.91	0.4688	1
					4	●	MDW04688GS4	57.60	2.2679	75.47	2.9711	123.47	4.8610					1
12.00	0.4724				2	●	MDW1200GS2	31.50	1.2402	49.50	1.9488	102.50	4.0354	2.50	0.0984	12.00	0.4724	1
					4	●	MDW1200GS4	57.50	2.2638	75.50	2.9724	123.50	4.8622					1
12.10	0.4764				2	●	MDW1210GS2	31.40	1.2362	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1210GS4	60.40	2.3780	78.50	3.0906	139.50	5.4921					1
12.20	0.4803				2	●	MDW1220GS2	31.20	1.2283	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1220GS4	60.20	2.3701	78.50	3.0906	139.50	5.4921					1
12.30	0.4843				2	●	MDW1230GS2	31.10	1.2244	49.50	1.9488	102.50	4.0354	2.50	0.0984	13.00	0.5118	1
					4	●	MDW1230GS4	60.10	2.3661	78.50	3.0906	139.50	5.4921					1
12.30	0.4844	31/64			2	●	MDW04844GS2	31.08	1.2237	49.54	1.9503	102.54	4.0370	2.55	0.1003	13.10	0.5156	1
					4	●	MDW04844GS4	60.09	2.3657	78.54	3.0923	139.55	5.4940					1
12.40	0.4882				2	●	MDW1240GS2	31.00	1.2205	49.60	1.9528	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	MDW1240GS4	60.00	2.3622	78.60	3.0945	139.60	5.4961					1

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

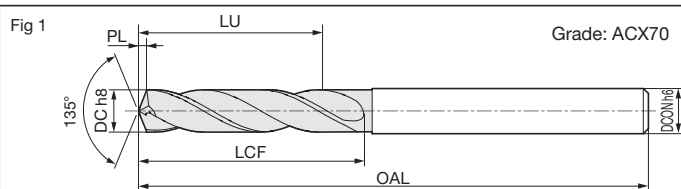
Super MultiDrills GS (External Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 45HRC
Hardened Steel from 46HRC
Stainless Steel
Ti Alloy
Heat-resistant Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy
Copper Alloy

DEX
Coating

2D

4D



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.

Tap Size values should be adjusted according to application.

Diameter $\varnothing 12.50$ to 14.80mm (0.4921" to 0.5827") Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

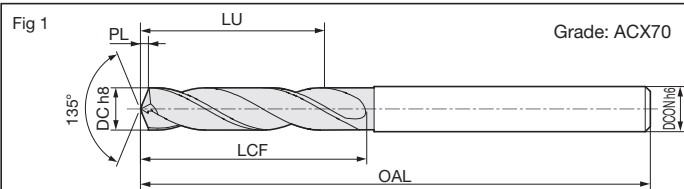
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
12.50	0.4921		9/16-12		2	●	MDW1250GS2	30.90	1.2165	49.60	1.9528	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	MDW1250GS4	59.90	2.3583	78.60	3.0945	139.60	5.4961					1
12.60	0.4961				2	●	MDW1260GS2	32.70	1.2874	51.60	2.0315	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	MDW1260GS4	61.70	2.4291	80.60	3.1732	139.60	5.4961					1
12.70	0.5000	1/2	M14x1.5		2	●	MDW05000GS2	32.58	1.2826	51.63	2.0326	102.64	4.0410	2.63	0.1036	13.10	0.5156	1
					4	●	MDW05000GS4	61.58	2.4246	80.63	3.1746	139.62	5.4970					1
					2	●	MDW1270GS2	32.60	1.2835	51.60	2.0315	102.60	4.0394	2.60	0.1024	13.00	0.5118	1
					4	●	MDW1270GS4	61.60	2.4252	80.60	3.1732	139.60	5.4961					1
12.80	0.5039				2	●	MDW1280GS2	32.50	1.2795	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	MDW1280GS4	61.50	2.4213	80.70	3.1772	139.70	5.5000					1
12.83	0.5050				2	●	MDW05050GS2	32.41	1.2761	51.65	2.0336	102.67	4.0420	2.66	0.1046	13.10	0.5156	1
					4	●	MDW05050GS4	61.42	2.4181	80.66	3.1756	139.65	5.4980					1
12.90	0.5079		M14x1.25		2	●	MDW1290GS2	32.40	1.2756	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	MDW1290GS4	61.40	2.4173	80.70	3.1772	139.70	5.5000					1
13.00	0.5118				2	●	MDW1300GS2	32.20	1.2677	51.70	2.0354	102.70	4.0433	2.70	0.1063	13.00	0.5118	1
					4	●	MDW1300GS4	61.20	2.4094	80.70	3.1772	139.70	5.5000					1
13.10	0.5156	33/64			2	●	MDW05156GS2	32.06	1.2624	51.71	2.0358	102.72	4.0440	2.71	0.1068	13.10	0.5156	1
					4	●	MDW05156GS4	61.07	2.4044	80.72	3.1778	139.70	5.5000					1
13.10	0.5157		9/16-18 M14x1	M14x2	2	●	MDW1310GS2	33.10	1.3031	52.70	2.0748	107.70	4.2402	2.70	0.1063	14.00	0.5512	1
					4	●	MDW1310GS4	67.10	2.6417	86.70	3.4134	149.70	5.8937					1
13.20	0.5197				2	●	MDW1320GS2	32.90	1.2953	52.70	2.0748	107.70	4.2402	2.70	0.1063	14.00	0.5512	1
					4	●	MDW1320GS4	66.90	2.6339	86.70	3.4134	149.70	5.8937					1
13.30	0.5236			M14x1.5	2	●	MDW1330GS2	32.90	1.2953	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	MDW1330GS4	66.90	2.6339	86.80	3.4173	149.80	5.8976					1
13.40	0.5276			9/16-12 M14x1.25	2	●	MDW1340GS2	32.70	1.2874	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	★	MDW1340GS4	66.70	2.6260	86.80	3.4173	149.80	5.8976					1
13.49	0.5312	17/32	5/8-11	M14x1	2	●	MDW05312GS2	32.57	1.2822	52.81	2.0790	107.80	4.2440	2.79	0.1100	13.89	0.5469	1
					4	●	MDW05312GS4	66.55	2.6202	86.79	3.4170	149.78	5.8970					1
13.50	0.5315				2	●	MDW1350GS2	32.60	1.2835	52.80	2.0787	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	MDW1350GS4	66.60	2.6220	86.80	3.4173	149.80	5.8976					1
13.60	0.5354				2	●	MDW1360GS2	34.40	1.3543	54.80	2.1575	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	MDW1360GS4	68.40	2.6929	88.80	3.4961	149.80	5.8976					1
13.70	0.5394		M15x1.5	9/16-18	2	●	MDW1370GS2	34.30	1.3504	54.80	2.1575	107.80	4.2441	2.80	0.1102	14.00	0.5512	1
					4	●	MDW1370GS4	68.30	2.6890	88.80	3.4961	149.80	5.8976					1
13.80	0.5433				2	●	MDW1380GS2	34.20	1.3465	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	●	MDW1380GS4	68.20	2.6850	88.90	3.5000	149.90	5.9016					1
13.89	0.5469	35/64	5/8-11		2	●	MDW05469GS2	34.04	1.3400	54.87	2.1603	107.87	4.2470	2.88	0.1133	13.89	0.5469	1
					4	●	MDW05469GS4	68.05	2.6790	88.88	3.4993	149.89	5.9010					1
13.90	0.5472				2	●	MDW1390GS2	34.10	1.3425	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	★	MDW1390GS4	68.10	2.6811	88.90	3.5000	149.90	5.9016					1
14.00	0.5512				2	●	MDW1400GS2	33.90	1.3346	54.90	2.1614	107.90	4.2480	2.90	0.1142	14.00	0.5512	1
					4	●	MDW1400GS4	67.90	2.6732	88.90	3.5000	149.90	5.9016					1
14.10	0.5551		M15x1		2	●	MDW1410GS2	33.80	1.3307	54.90	2.1614	110.90	4.3661	2.90	0.1142	15.00	0.5906	1
					4	★	MDW1410GS4	70.80	2.7874	91.90	3.6181	155.90	6.1378					1
14.20	0.5591				2	●	MDW1420GS2	33.60	1.3228	54.90	2.1614	110.90	4.3661	2.90	0.1142	15.00	0.5906	1
					4	●	MDW1420GS4	70.60	2.7795	91.90	3.6181	155.90	6.1378					1
14.29	0.5625	9/16	M16x2	M15x1.5	2	●	MDW05625GS2	33.52	1.3198	54.95	2.1635	110.95	4.3680	2.96	0.1165	15.08	0.5937	1
					4	●	MDW05625GS4	70.53	2.7768	91.96	3.6205	155.96	6.1400					1
14.30	0.5630				2	●	MDW1430GS2	33.60	1.3228	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	MDW1430GS4	70.60	2.7795	92.00	3.6220	156.00	6.1417					1
14.40	0.5669				2	●	MDW1440GS2	33.40	1.3150	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	MDW1440GS4	70.40	2.7717	92.00	3.6220	156.00	6.1417					1
14.50	0.5709			M15x1	2	●	MDW1450GS2	33.30	1.3110	55.00	2.1654	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	MDW1450GS4	70.30	2.7677	92.00	3.6220	156.00	6.1417					1
14.60	0.5748				2	●	MDW1460GS2	34.10	1.3425	56.00	2.2047	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	MDW1460GS4	72.10	2.8386	94.00	3.7008	156.00	6.1417					1
14.68	0.5781	37/64	5/8-18 M16x1.5		2	●	MDW05781GS2	34.03	1.3396	56.05	2.2067	111.05	4.3720	3.04	0.1197	15.08	0.5937	1
					4	●	MDW05781GS4	72.02	2.8356	94.05	3.7027	156.03	6.1430					1
14.70	0.5787				2	●	MDW1470GS2	34.00	1.3386	56.00	2.2047	111.00	4.3701	3.00	0.1181	15.00	0.5906	1
					4	●	MDW1470GS4	72.00	2.8346	94.00	3.7008	156.00	6.1417					1
14.80	0.5827				2	●	MDW1480GS2	33.90	1.3346	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	MDW1480GS4	71.90	2.8307	94.10	3.7047	156.10	6.1457					1

Super MultiDrills GS (External Coolant Supply)

DEX
Coating

2D

4D



Cut tap recommendations
based on 60-75% full thread.
Form tap recommendations
based on 55-70% full thread.

Tap Size values should be
adjusted according to
application.

Diameter $\phi 14.90$ to 20.00mm (0.5866" to 0.7874")

Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
14.90	0.5866			5/8-11	2	●	MDW1490GS2	33.80	1.3307	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	MDW1490GS4	71.80	2.8268	94.10	3.7047	156.10	6.1457					1
15.00	0.5906				2	●	MDW1500GS2	33.60	1.3228	56.10	2.2087	111.10	4.3740	3.10	0.1220	15.00	0.5906	1
					4	●	MDW1500GS4	71.60	2.8189	94.10	3.7047	156.10	6.1457					1
15.08	0.5937	19/32	M16x1	M16x2	2	●	MDW05937GS2	33.52	1.3195	56.13	2.2100	111.13	4.3750	3.12	0.1230	15.08	0.5937	1
					4	●	MDW05937GS4	71.51	2.8155	94.13	3.7060	156.13	6.1470					1
15.10	0.5945				2	●	MDW1510GS2	33.50	1.3189	56.10	2.2087	111.10	4.5315	3.10	0.1220	16.00	0.6299	1
					4	●	MDW1510GS4	74.50	2.9331	97.10	3.8228	163.10	6.4213					1
15.20	0.5984				2	●	MDW1520GS2	33.30	1.3110	56.10	2.2087	111.10	4.5315	3.10	0.1220	16.00	0.6299	1
					4	●	MDW1520GS4	74.30	2.9252	97.10	3.8228	163.10	6.4213					1
15.30	0.6024			5/8-18 M16x1.5	2	●	MDW1530GS2	33.30	1.3110	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1530GS4	74.30	2.9252	97.20	3.8268	163.20	6.4252					1
15.40	0.6063				2	●	MDW1540GS2	33.10	1.3031	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1540GS4	74.10	2.9173	97.20	3.8268	163.20	6.4252					1
15.48	0.6094	39/64	11/16-12		2	●	MDW06094GS2	33.00	1.2991	56.22	2.2132	115.21	4.5360	3.21	0.1262	15.88	0.6250	1
					4	●	MDW06094GS4	73.99	2.9131	97.21	3.8272	163.20	6.4250					1
15.50	0.6102				2	●	MDW1550GS2	33.00	1.2992	56.20	2.2126	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	●	MDW1550GS4	74.00	2.9134	97.20	3.8268	163.20	6.4252					1
15.60	0.6142			M16x1	2	●	MDW1560GS2	34.80	1.3701	58.20	2.2913	115.20	4.5354	3.20	0.1260	16.00	0.6299	1
					4	★	MDW1560GS4	75.80	2.9843	99.20	3.9055	163.20	6.4252					1
15.70	0.6181			M18x2.5	2	●	MDW1570GS2	34.80	1.3701	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1570GS4	75.80	2.9843	99.30	3.9094	163.30	6.4291					1
15.80	0.6220				2	●	MDW1580GS2	34.60	1.3622	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1580GS4	75.60	2.9764	99.30	3.9094	163.30	6.4291					1
15.88	0.6250	5/8	11/16-16		2	●	MDW06250GS2	34.47	1.3569	58.28	2.2944	115.29	4.5390	3.29	0.1294	15.88	0.6250	1
					4	●	MDW06250GS4	75.49	2.9719	99.30	3.9094	163.30	6.4290					1
15.90	0.6260				2	●	MDW1590GS2	34.50	1.3583	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1590GS4	75.50	2.9724	99.30	3.9094	163.30	6.4291					1
16.00	0.6299				2	●	MDW1600GS2	34.30	1.3504	58.30	2.2953	115.30	4.5394	3.30	0.1299	16.00	0.6299	1
					4	●	MDW1600GS4	75.30	2.9646	99.30	3.9094	163.30	6.4291					1
16.27	0.6406	41/64			2	●	MDW06406GS2	34.97	1.3768	59.38	2.3377	119.38	4.7000	3.37	0.1327	17.07	0.6719	1
					4	●	MDW06406GS4	76.96	3.0298	101.36	3.9907	170.36	6.7070					1
16.50	0.6496			M17x1	2	★	MDW1650GS2	34.70	1.3661	59.40	2.3386	119.40	4.7008	3.40	0.1339	17.00	0.6693	1
					4	●	MDW1650GS4	76.70	3.0197	101.40	3.9921	170.40	6.7087					1
16.67	0.6562	21/32			2	●	MDW06562GS2	35.45	1.3956	60.45	2.3799	119.46	4.7030	3.45	0.1359	17.07	0.6719	1
					4	●	MDW06562GS4	76.44	3.0096	101.45	3.9939	170.46	6.7110					1
17.00	0.6693				2	★	MDW1700GS2	35.00	1.3780	60.50	2.3819	119.50	4.7047	3.50	0.1378	17.00	0.6693	1
					4	★	MDW1700GS4	76.00	2.9921	101.50	3.9961	170.50	6.7126					1
17.46	0.6875	5/8			2	●	MDW06875GS2	35.41	1.3942	61.61	2.4254	123.62	4.8670	3.62	0.1424	17.86	0.7031	1
					4	●	MDW06875GS4	77.42	3.0482	103.62	4.0794	170.61	6.7170					1
17.50	0.6890			5/8	2	★	MDW1750GS2	35.40	1.3937	61.60	2.4252	123.60	4.8661	3.60	0.1417	18.00	0.7087	1
					4	★	MDW1750GS4	77.40	3.0472	103.60	4.0787	170.60	6.7165					1
17.86	0.7031	45/64			2	●	MDW07031GS2	35.92	1.4140	62.70	2.4686	123.70	4.8700	3.70	0.1456	17.86	0.7031	1
					4	●	MDW07031GS4	78.92	3.1070	105.70	4.1616	170.69	6.7200					1
18.00	0.7087			3/4-10	2	★	MDW1800GS2	35.70	1.4055	62.70	2.4685	123.70	4.8701	3.70	0.1457	18.00	0.7087	1
					4	●	MDW1800GS4	78.70	3.0984	105.70	4.1614	170.70	6.7205					1
18.25	0.7187	23/32			2	●	MDW07187GS2	35.40	1.3938	62.78	2.4718	126.77	4.9910	3.78	0.1488	19.05	0.7500	1
					4	●	MDW07187GS4	80.39	3.1648	107.77	4.2428	182.78	7.1960					1
18.50	0.7283				2	★	MDW1850GS2	35.10	1.3819	62.80	2.4724	126.80	4.9921	3.80	0.1496	19.00	0.7480	1
					4	★	MDW1850GS4	80.10	3.1535	107.80	4.2441	182.80	7.1969					1
18.65	0.7344	47/64			2	●	MDW07344GS2	35.88	1.4125	63.86	2.5141	126.87	4.9950	3.86	0.1521	19.05	0.7500	1
					4	●	MDW07344GS4	81.88	3.2235	109.86	4.3251	182.85	7.1990					1
19.00	0.7480				2	●	MDW1900GS2	35.40	1.3937	63.90	2.5157	126.90	4.9961	3.90	0.1535	19.00	0.7480	1
					4	★	MDW1900GS4	81.40	3.2047	109.90	4.3268	182.90	7.2008					1
19.05	0.7500	3/4			2	●	MDW07500GS2	35.36	1.3923	63.94	2.5173	126.95	4.9980	3.94	0.1553	19.05	0.7500	1
					4	●	MDW07500GS4	81.36	3.2033	109.94	4.3283	182.96	7.2030					1
19.50	0.7677				2	★	MDW1950GS2	35.80	1.4094	65.00	2.5591	131.00	5.1575	4.00	0.1575	20.00	0.7874	1
					4	★	MDW1950GS4	84.80	3.3386	114.00	4.4882	183.00	7.2047					1
19.84	0.7812	25/32			2	●	MDW07812GS2	36.35	1.4310	66.11	2.6028	131.11	5.1620	4.11	0.1618	19.85	0.7813	1
					4	●	MDW07812GS4	88.34	3.4780	118.10	4.6498	183.11	7.2090					1
20.00	0.7874				2	★	MDW2000GS2	36.10	1.4213	66.10	2.6024	131.10	5.1614	4.10	0.1614	20.00	0.7874	1
					4	★	MDW2000GS4	88.10	3.4685	118.10	4.6496	183.10	7.2087					1

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

MDW - GS Cutting Conditions

Drilling

J

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

MDW		Part Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					ø < ø0.196	ø0.197 - ø0.394	ø0.395 >
GS 2D 4D	P	Low Carbon Steel	<190	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
			190 ~ 250	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
		Medium Carbon Steel	250 ~ 300	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
			180 ~ 275	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
		Alloy Steel	275 ~ 350	SFM	100 - 225	140 - 250	190 - 325
				IPR	.003 - .006	.004 - .008	.006 - .010
			200	SFM	110 - 250	160 - 275	210 - 360
				IPR	.004 - .008	.006 - .010	.008 - .012
	M	300 Austenitic Stainless Steel	350	SFM	80 - 210	115 - 220	115 - 250
				IPR	.003 - .006	.004 - .008	.006 - .010
		400 Martensitic Stainless Steel	160 ~ 280	SFM	50 - 115	60 - 160	80 - 210
				IPR	.002 - .006	.003 - .008	.004 - .010
			160 ~ 240	SFM	60 - 120	75 - 180	90 - 225
				IPR	.002 - .006	.003 - .008	.006 - .010
	K	Cast Iron		SFM	115 - 300	195 - 390	250 - 415
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	115 - 185	160 - 300	210 - 375
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	40 - 60	40 - 80	50 - 100
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	40 - 80	40 - 100	50 - 110
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	30 - 60	30 - 60	40 - 80
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	300 - 700	400 - 800	400 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

Super MultiDrills HGS (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 45HRC
Hardened Steel from 46HRC
Stainless Steel
Ti Alloy
Heat-resistant Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy
Copper Alloy



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 1 (diameter $\phi 1.5$ to 2.4mm 0.059" - 0.095", single margin)

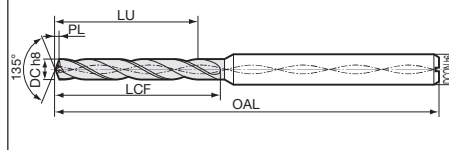
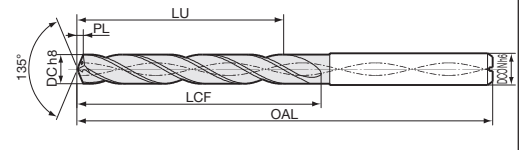


Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098" - 0.787", double margin)

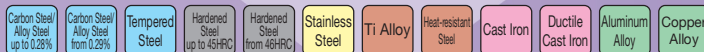


Diameter $\phi 1.50$ to 2.82mm (0.0591" to 0.1110") Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

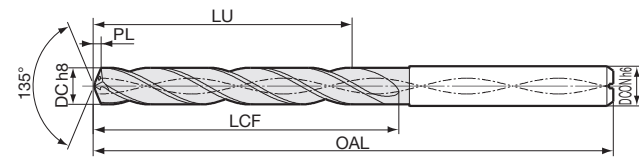
Dia.DC		Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.						Fraction	mm	in.	mm	in.	mm	in.	mm	in.	mm	
1.50	0.0591				3	● MDW0150HGS3	8.10	0.3189	10.30	0.4055	63.30	2.4921	0.30	0.0118	3.00	0.1181	1
					5	● MDW0150HGS5	12.10	0.4764	14.30	0.5630	70.30	2.7677					1
					8	● MDW0150HGS8	16.60	0.6535	18.80	0.7402	76.30	3.0039					1
1.59	0.0625	1/16	M2x.4	M1.7x.35	3	● MDW00625HGS3S	10.44	0.4112	12.82	0.5049	63.32	2.4930	0.33	0.0129	3.00	0.1181	1
					5	● MDW00625HGS5S	16.95	0.6672	19.33	0.7609	70.33	2.7690					1
1.60	0.0630				3	● MDW0160HGS3	10.40	0.4094	12.80	0.5039	63.30	2.4921	0.30	0.0118	3.00	0.1181	1
					5	● MDW0160HGS5	16.90	0.6654	19.30	0.7598	70.30	2.7677					1
					8	★ MDW0160HGS8	21.90	0.8622	24.30	0.9567	76.30	3.0039					1
1.70	0.0669			1-64	3	● MDW0170HGS3	10.40	0.4094	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	● MDW0170HGS5	16.90	0.6654	19.40	0.7638	70.40	2.7717					1
					8	★ MDW0170HGS8	21.90	0.8622	24.40	0.9606	76.40	3.0079					1
1.80	0.0709				3	● MDW0180HGS3	10.20	0.4016	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	● MDW0180HGS5	16.70	0.6575	19.40	0.7638	70.40	2.7717					1
					8	★ MDW0180HGS8	21.70	0.8543	24.40	0.9606	76.40	3.0079					1
1.85	0.0730	#49	2-56	M2x.4	3	● MDW00730HGS3S	10.10	0.3976	12.88	0.5071	63.32	2.4930	0.38	0.0151	3.00	0.1181	1
					5	● MDW00730HGS5S	16.60	0.6536	19.38	0.7631	70.38	2.7710					1
1.90	0.0748				3	● MDW0190HGS3	10.10	0.3976	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	● MDW0190HGS5	16.60	0.6535	19.40	0.7638	70.40	2.7717					1
					8	● MDW0190HGS8	21.60	0.8504	24.40	0.9606	76.40	3.0079					1
2.00	0.0787			2-56 2-64	3	● MDW0200HGS3	9.90	0.3898	12.90	0.5079	63.40	2.4961	0.40	0.0157	3.00	0.1181	1
					5	● MDW0200HGS5	16.40	0.6457	19.40	0.7638	70.40	2.7717					1
					8	● MDW0200HGS8	21.40	0.8425	24.40	0.9606	76.40	3.0079					1
2.06	0.0810	#46	3-48 M2.5x.45	2-64	3	● MDW00810HGS3S	12.35	0.4863	15.44	0.6078	68.43	2.6940	0.43	0.0168	3.00	0.1181	1
					5	● MDW00810HGS5S	21.34	0.8403	24.43	0.9618	78.44	3.0880					1
2.10	0.0827		3-56		3	● MDW0210HGS3	12.30	0.4843	15.40	0.6063	68.40	2.6929	0.40	0.0157	3.00	0.1181	1
					5	● MDW0210HGS5	21.30	0.8386	24.40	0.9606	78.40	3.0866					1
					8	★ MDW0210HGS8	24.80	0.9764	27.90	1.0984	81.40	3.2047					1
2.20	0.0866				3	● MDW0220HGS3	12.20	0.4803	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	● MDW0220HGS5	21.20	0.8346	24.50	0.9646	78.50	3.0906					1
					8	★ MDW0220HGS8	24.70	0.9724	28.00	1.1024	81.50	3.2087					1
2.30	0.0906		4-40	3-48	3	● MDW0230HGS3	12.10	0.4764	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	● MDW0230HGS5	21.10	0.8307	24.50	0.9646	78.50	3.0906					1
					8	★ MDW0230HGS8	24.60	0.9685	28.00	1.1024	81.50	3.2087					1
2.38	0.0937	3/32	4-48		3	● MDW00937HGS3	11.94	0.4699	15.50	0.6104	68.50	2.6970	0.49	0.0194	3.18	0.1250	1
					5	● MDW00937HGS5	20.93	0.8239	24.50	0.9644	78.49	3.0900					1
					8	● MDW00937HGS8	24.43	0.9619	28.00	1.1024	81.48	3.2080					1
2.40	0.0945				3	● MDW00937HGS3S	11.94	0.4699	15.50	0.6104	68.50	2.6970	0.49	0.0194	3.00	0.1181	1
					5	● MDW00937HGS5S	20.93	0.8239	24.50	0.9644	78.49	3.0900					1
					8	● MDW00937HGS8	24.43	0.9619	28.00	1.1024	81.48	3.2080					1
2.40	0.0945				3	● MDW0240HGS3	11.90	0.4685	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	● MDW0240HGS5	20.90	0.8228	24.50	0.9646	78.50	3.0906					1
					8	★ MDW0240HGS8	24.40	0.9606	28.00	1.1024	81.50	3.2087					1
2.50	0.0984		M3x.5		3	● MDW0250HGS3	11.80	0.4646	15.50	0.6102	68.50	2.6969	0.50	0.0197	3.00	0.1181	2
					5	● MDW0250HGS5	20.80	0.8189	24.50	0.9646	78.50	3.0906					2
					8	● MDW0250HGS8	24.30	0.9567	28.00	1.1024	81.50	3.2087					2
2.57	0.1010			4-40	3	● MDW01010HGS3S	14.18	0.5584	18.03	0.7099	68.53	2.6980	0.53	0.0209	3.00	0.1181	2
					5	● MDW01010HGS5S	24.67	0.9714	28.52	1.1229	78.54	3.0920					2
2.60	0.1024		5-40	4-48	3	● MDW0260HGS3	14.10	0.5551	18.00	0.7087	68.50	2.6969	0.50	0.0197	3.00	0.1181	2
					5	● MDW0260HGS5	24.60	0.9685	28.50	1.1220	78.50	3.0906					2
					8	★ MDW0260HGS8	29.60	1.1654	33.50	1.3189	81.50	3.2087					2
2.70	0.1063		5-44 M3x.35		3	● MDW0270HGS3	14.10	0.5551	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	● MDW0270HGS5	24.60	0.9685	28.60	1.1260	78.60	3.0945					2
					8	★ MDW0270HGS8	29.60	1.1654	33.60	1.3228	81.60	3.2126					2
2.78	0.1094	7/64		M3x.5	3	● MDW01094HGS3	13.91	0.5476	18.08	0.7117	68.58	2.7000	0.58	0.0227	3.00	0.1181	2
					5	● MDW01094HGS5S	24.40	0.9606	28.57	1.1247	78.59	3.0940					2
					8	● MDW01094HGS8	29.40	1.1575	33.60	1.3228	81.60	3.2126					2
2.80	0.1102				3	● MDW0280HGS3	13.90	0.5472	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2
					5	● MDW0280HGS5	24.40	0.9606	28.60	1.1260	78.60	3.0945					2
					8	★ MDW0280HGS8	29.40	1.1575	33.60	1.3228	81.60	3.2126					2
2.82	0.1110	#34	6-32	M3x.5	3	● MDW01110HGS3S	13.86	0.5455	18.08	0.7120	68.58	2.7000	0.58	0.0230	3.00	0.1181	2
					5	● MDW01110HGS5S	24.35	0.9585	28.58	1.1250	78.59	3.0940					2

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098"-0.787", double margin)



Diameter $\phi 2.90$ to 3.70mm (0.1142" to 0.1457") Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig	
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
2.90	0.1142			5-44	3	●	MDW0290HGS3	13.80	0.5433	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2	
					5	●	MDW0290HGS5	24.30	0.9567	28.60	1.1260	78.60	3.0945					2	
					8	★	MDW0290HGS8	29.30	1.1535	33.60	1.3228	81.60	3.2126					2	
2.95	0.1160	#32	M3.5x6	3	●	MDW01160HGS3S	13.69	0.5390	18.11	0.7130	68.61	2.7010	0.61	0.0240	3.00	0.1181	2		
				5	●	MDW01160HGS5S	24.18	0.9520	28.60	1.1260	78.61	3.0950					2		
3.00	0.1181			3	●	MDW0300HGS3	13.60	0.5354	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	2		
				3	●	MDW0300HGS3S	13.60	0.5354	18.10	0.7126	68.60	2.7008			6.00	0.2362	2		
				5	●	MDW0300HGS5	24.10	0.9488	28.60	1.1260	78.60	3.0945			3.00	0.1181	2		
				5	●	MDW0300HGS5S	24.10	0.9488	28.60	1.1260	78.60	3.0945			6.00	0.2362	2		
				8	●	MDW0300HGS8	29.10	1.1457	33.60	1.3228	81.60	3.2126			3.00	0.1181	2		
				3	●	MDW0310HGS3	16.00	0.6299	20.60	0.8110	72.60	2.8583			4.00	0.1575	2		
3.10	0.1220			3	●	MDW0310HGS3S	16.00	0.6299	20.60	0.8110	72.60	2.8583	0.60	0.0236	6.00	0.2362	2		
				5	●	MDW0310HGS5	28.00	1.1024	32.60	1.2835	86.60	3.4094			4.00	0.1575	2		
				5	●	MDW0310HGS5S	28.00	1.1024	32.60	1.2835	86.60	3.4094			6.00	0.2362	2		
				8	★	MDW0310HGS8	34.50	1.3583	39.10	1.5394	92.60	3.6457			4.00	0.1575	2		
				3	●	MDW01250HGS3	13.40	0.5274	18.16	0.7149	68.66	2.7030			0.66	0.0259	3.18	0.1250	2
5	●	MDW01250HGS5	23.89	0.9404	28.65	1.1279	78.66	3.0970	6.00	0.2362	2								
8	●	MDW01250HGS8	28.89	1.1374	33.65	1.3249	81.66	3.2150	4.00	0.1575	2								
3.18	0.1250	1/8	6-32	3	●	MDW01250HGS3S	15.89	0.6254	20.65	0.8129	72.67	2.8610	0.66	0.0259	4.00	0.1575	2		
				5	●	MDW01250HGS5S	27.90	1.0984	32.66	1.2859	86.66	3.4120					2		
				3	●	MDW0320HGS3	15.90	0.6260	20.70	0.8150	72.70	2.8622					4.00	0.1575	2
				3	●	MDW0320HGS3S	15.90	0.6260	20.70	0.8150	72.70	2.8622					6.00	0.2362	2
3.20	0.1260		6-40	5	●	MDW0320HGS5	27.90	1.0984	32.70	1.2874	86.70	3.4134	0.70	0.0276	4.00	0.1575	2		
				5	●	MDW0320HGS5S	27.90	1.0984	32.70	1.2874	86.70	3.4134			6.00	0.2362	2		
				8	★	MDW0320HGS8	34.40	1.3543	39.20	1.5433	92.70	3.6496			4.00	0.1575	2		
				3	●	MDW01285HGS3S	15.77	0.6209	20.67	0.8136	72.67	2.8610			0.68	0.0266	4.00	0.1575	2
				5	●	MDW01285HGS5S	27.79	1.0939	32.68	1.2866	86.66	3.4120					6.00	0.2362	2
3.30	0.1299			3	●	MDW0330HGS3	15.80	0.6220	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2		
				3	●	MDW0330HGS3S	15.80	0.6220	20.70	0.8150	72.70	2.8622			6.00	0.2362	2		
				5	●	MDW0330HGS5	27.80	1.0945	32.70	1.2874	86.70	3.4134			4.00	0.1575	2		
				5	●	MDW0330HGS5S	27.80	1.0945	32.70	1.2874	86.70	3.4134			6.00	0.2362	2		
				8	●	MDW0330HGS8	34.30	1.3504	39.20	1.5433	92.70	3.6496			4.00	0.1575	2		
3.40	0.1339		M4x.7	3	●	MDW0340HGS3	15.60	0.6142	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2		
				3	●	MDW0340HGS3S	15.60	0.6142	20.70	0.8150	72.70	2.8622			6.00	0.2362	2		
				5	●	MDW0340HGS5	27.60	1.0866	32.70	1.2874	86.70	3.4134			4.00	0.1575	2		
				5	●	MDW0340HGS5S	27.60	1.0866	32.70	1.2874	86.70	3.4134			6.00	0.2362	2		
				8	★	MDW0340HGS8	34.10	1.3425	39.20	1.5433	92.70	3.6496			4.00	0.1575	2		
3.45	0.1360	#29	8-32	3	●	MDW01360HGS3S	15.52	0.6112	20.71	0.8152	72.72	2.8630	0.72	0.0282	4.00	0.1575	2		
				5	●	MDW01360HGS5S	27.54	1.0842	32.72	1.2882	86.72	3.4140			6.00	0.2362	2		
3.50	0.1378			3	●	MDW0350HGS3	15.50	0.6102	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	2		
				3	●	MDW0350HGS3S	15.50	0.6102	20.70	0.8150	72.70	2.8622			6.00	0.2362	2		
				5	●	MDW0350HGS5	27.50	1.0827	32.70	1.2874	86.70	3.4134			4.00	0.1575	2		
				5	●	MDW0350HGS5S	27.50	1.0827	32.70	1.2874	86.70	3.4134			6.00	0.2362	2		
				8	●	MDW0350HGS8	34.00	1.3386	39.20	1.5433	92.70	3.6496			4.00	0.1575	2		
3.57	0.1405	#28	8-36	3	●	MDW01405HGS3S	17.89	0.7044	23.24	0.9151	72.75	2.8640	0.74	0.0291	4.00	0.1575	2		
				5	●	MDW01405HGS5S	31.38	1.2354	36.73	1.4461	86.74	3.4150			6.00	0.2362	2		
3.57	0.1406	M4x.7	M4x .5	3	●	MDW01406HGS3	17.89	0.7042	23.24	0.9151	72.75	2.8640	0.74	0.0291	3.97	0.1562	2		
				5	●	MDW01406HGS5	31.37	1.2352	36.73	1.4461	86.74	3.4150			4.00	0.1575	2		
				8	●	MDW01406HGS8	39.38	1.5502	44.73	1.7611	92.74	3.6510			6.00	0.2362	2		
				3	●	MDW0360HGS3	17.80	0.7008	23.20	0.9134	72.70	2.8622			4.00	0.1575	2		
				5	●	MDW0360HGS3S	17.80	0.7008	23.20	0.9134	72.70	2.8622			6.00	0.2362	2		
3.60	0.1417			5	●	MDW0360HGS5	31.30	1.2323	36.70	1.4449	86.70	3.4134	0.70	0.0276	4.00	0.1575	2		
				5	●	MDW0360HGS5S	31.30	1.2323	36.70	1.4449	86.70	3.4134			6.00	0.2362	2		
				8	★	MDW0360HGS8	39.30	1.5472	44.70	1.7598	92.70	3.6496			4.00	0.1575	2		
				3	●	MDW01440HGS3S	17.77	0.6998	23.26	0.9158	72.75	2.8640			0.76	0.0298	4.00	0.1575	2
				5	●	MDW01440HGS5S	31.26	1.2308	36.75	1.4468	86.77	3.4160					6.00	0.2362	2
3.70	0.1457		M4.5x.7	3	●	MDW0370HGS3	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2		
				3	●	MDW0370HGS3S	17.80	0.7008	23.30	0.9173	72.80	2.8661			6.00	0.2362	2		
				5	●	MDW0370HGS5	31.30	1.2323	36.80	1.4488	86.80	3.4173			4.00	0.1575	2		
				5	●	MDW0370HGS5S	31.30	1.2323	36.80	1.4488	86.80	3.4173			6.00	0.2362	2		
				8	★	MDW0370HGS8	39.30	1.5472	44.80	1.7638	92.80	3.6535			4.00	0.1575	2		

Super MultiDrills HGS (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28% Carbon Steel Alloy Steel from 0.29% Tempered Steel Hardened Steel up to 45HRC Hardened Steel from 46HRC Stainless Steel Ti Alloy Heat-resistant Steel Cast Iron Ductile Cast Iron Aluminum Alloy Copper Alloy



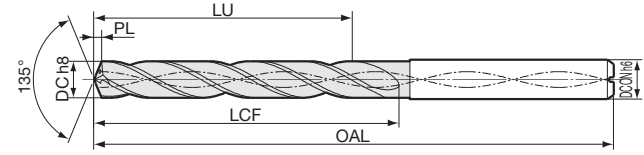
3D

5D

8D

Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter ø3.80 to 4.57mm (0.1496" to 0.1800")

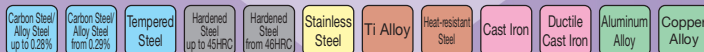
Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

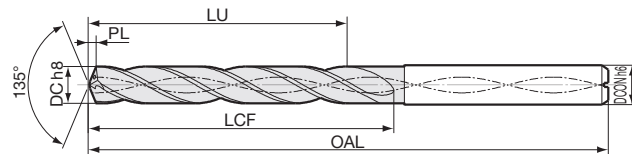
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
3.80	0.1496			8-32	3	●	MDW0380HGS3	17.60	0.6929	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					3	●	MDW0380HGS3S	17.60	0.6929	23.30	0.9173	72.80	2.8661			6.00	0.2362	2
					5	●	MDW0380HGS5	31.10	1.2244	36.80	1.4488	86.80	3.4173			4.00	0.1575	2
					5	●	MDW0380HGS5S	31.10	1.2244	36.80	1.4488	86.80	3.4173			6.00	0.2362	2
					8	●	MDW0380HGS8	39.10	1.5394	44.80	1.7638	92.80	3.6535			4.00	0.1575	2
3.86	0.1520	#24	10-24	8-32	3	●	MDW01520HGS3S	17.51	0.6895	23.30	0.9175	72.80	2.8660	0.80	0.0315	4.00	0.1575	2
					5	●	MDW01520HGS5S	31.00	1.2205	36.79	1.4485	86.79	3.4170			4.00	0.1575	2
3.90	0.1535				3	●	MDW0390HGS3	17.50	0.6890	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					3	●	MDW0390HGS3S	17.50	0.6890	23.30	0.9173	72.80	2.8661			6.00	0.2362	2
					5	●	MDW0390HGS5	31.00	1.2205	36.80	1.4488	86.80	3.4173			4.00	0.1575	2
					5	●	MDW0390HGS5S	31.00	1.2205	36.80	1.4488	86.80	3.4173			6.00	0.2362	2
					8	★	MDW0390HGS8	39.00	1.5354	44.80	1.7638	92.80	3.6535			4.00	0.1575	2
3.91	0.1540	#23			3	●	MDW01540HGS3S	17.45	0.6869	23.31	0.9179	72.82	2.8670	0.81	0.0319	4.00	0.1575	2
					5	●	MDW01540HGS5S	30.93	1.2179	36.80	1.4489	86.82	3.4180			4.00	0.1575	2
3.97	0.1562	5/32			3	●	MDW01562HGS3	17.38	0.6841	23.33	0.9184	72.82	2.8670	0.82	0.0324	3.97	0.1562	2
					5	●	MDW01562HGS5	30.86	1.2151	36.81	1.4494	86.82	3.4180			4.00	0.1575	2
					8	●	MDW01562HGS8	38.86	1.5301	44.82	1.7644	92.81	3.6540			4.00	0.1575	2
					3	●	MDW01562HGS3S	17.38	0.6841	23.33	0.9184	72.82	2.8670			4.00	0.1575	2
					5	●	MDW01562HGS5S	30.86	1.2151	36.81	1.4494	86.82	3.4180			4.00	0.1575	2
4.00	0.1575				3	●	MDW0400HGS3	17.30	0.6811	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	2
					3	●	MDW0400HGS3S	17.30	0.6811	23.30	0.9173	72.80	2.8661			6.00	0.2362	2
					5	●	MDW0400HGS5	30.80	1.2126	36.80	1.4488	86.80	3.4173			4.00	0.1575	2
					5	●	MDW0400HGS5S	30.80	1.2126	36.80	1.4488	86.80	3.4173			6.00	0.2362	2
					8	●	MDW0400HGS8	38.80	1.5276	44.80	1.7638	92.80	3.6535			4.00	0.1575	2
4.04	0.1590	#21	10-32		3	●	MDW01590HGS3	19.77	0.7784	25.83	1.0169	80.85	3.1830	0.84	0.0329	4.76	0.1875	2
					5	●	MDW01590HGS5	34.78	1.3694	40.84	1.6079	98.83	3.8910			6.00	0.2362	2
					8	●	MDW01590HGS8	44.28	1.7434	50.34	1.9819	105.84	4.1670			5.00	0.1969	2
					3	●	MDW01590HGS3S	19.77	0.7784	25.83	1.0169	80.85	3.1830			6.00	0.2362	2
					5	●	MDW01590HGS5S	34.78	1.3694	40.84	1.6079	98.83	3.8910			5.00	0.1969	2
4.10	0.1614				3	●	MDW0410HGS3	19.70	0.7756	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					3	●	MDW0410HGS3S	19.70	0.7756	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	MDW0410HGS5	34.70	1.3661	40.80	1.6063	98.80	3.8898			5.00	0.1969	2
					5	●	MDW0410HGS5S	34.70	1.3661	40.80	1.6063	98.80	3.8898			6.00	0.2362	2
					8	●	MDW0410HGS8	44.20	1.7402	50.30	1.9803	105.80	4.1654			5.00	0.1969	2
4.20	0.1654				3	●	MDW0420HGS3	19.60	0.7717	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					3	●	MDW0420HGS3S	19.60	0.7717	25.90	1.0197	80.90	3.1850			6.00	0.2362	2
					5	●	MDW0420HGS5	34.60	1.3622	40.90	1.6102	98.90	3.8937			5.00	0.1969	2
					5	●	MDW0420HGS5S	34.60	1.3622	40.90	1.6102	98.90	3.8937			6.00	0.2362	2
					8	●	MDW0420HGS8	44.10	1.7362	50.40	1.9843	105.90	4.1693			5.00	0.1969	2
4.22	0.1660	#19	M5x.8		3	●	MDW01660HGS3S	19.54	0.7694	25.87	1.0184	80.87	3.1840	0.87	0.0344	6.00	0.2362	2
					5	●	MDW01660HGS5S	34.55	1.3604	40.88	1.6094	98.88	3.8930			5.00	0.1969	2
4.30	0.1693				3	●	MDW0430HGS3	19.50	0.7677	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					3	●	MDW0430HGS3S	19.50	0.7677	25.90	1.0197	80.90	3.1850			6.00	0.2362	2
					5	●	MDW0430HGS5	34.50	1.3583	40.90	1.6102	98.90	3.8937			5.00	0.1969	2
					5	●	MDW0430HGS5S	34.50	1.3583	40.90	1.6102	98.90	3.8937			6.00	0.2362	2
					8	★	MDW0430HGS8	44.00	1.7323	50.40	1.9843	105.90	4.1693			5.00	0.1969	2
4.37	0.1719	11/64		10-24	3	●	MDW01719HGS3	19.35	0.7618	25.90	1.0196	80.90	3.1850	0.90	0.0356	4.76	0.1875	2
					5	●	MDW01719HGS5	34.36	1.3528	40.91	1.6106	98.91	3.8940			6.00	0.2362	2
					8	●	MDW01719HGS8	43.86	1.7268	50.41	1.9846	105.89	4.1690			5.00	0.1969	2
					3	●	MDW01719HGS3S	19.35	0.7618	25.90	1.0196	80.90	3.1850			6.00	0.2362	2
					5	●	MDW01719HGS5S	34.36	1.3528	40.91	1.6106	98.91	3.8940			5.00	0.1969	2
4.40	0.1732				3	●	MDW0440HGS3	19.30	0.7598	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					3	●	MDW0440HGS3S	19.30	0.7598	25.90	1.0197	80.90	3.1850			6.00	0.2362	2
					5	●	MDW0440HGS5	34.30	1.3504	40.90	1.6102	98.90	3.8937			5.00	0.1969	2
					5	●	MDW0440HGS5S	34.30	1.3504	40.90	1.6102	98.90	3.8937			6.00	0.2362	2
					8	★	MDW0440HGS8	43.80	1.7244	50.40	1.9843	105.90	4.1693			5.00	0.1969	2
4.50	0.1772		12-24	10-32	3	●	MDW0450HGS3	19.20	0.7559	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	●	MDW0450HGS5	34.20	1.3465	40.90	1.6102	98.90	3.8937			6.00	0.2362	2
					8	●	MDW0450HGS8	43.70	1.7205	50.40	1.9843	105.90	4.1693			5.00	0.1969	2
4.57	0.1800	#15			3	●	MDW01800HGS3S	21.60	0.8503	28.46	1.1203	80.95	3.1870	0.95	0.0373	6.00	0.2362	2
					5	●	MDW01800HGS5S	38.08	1.4993	44.94	1.7693	98.96	3.8960			5.00	0.1969	2

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



Diameter ø4.60 to 5.50mm (0.1811" to 0.2165")

Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

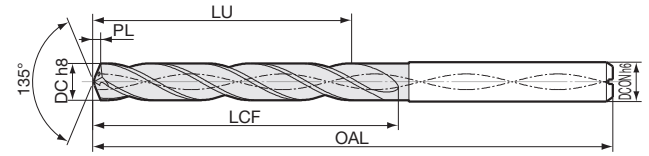
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
4.60	0.1811				3	●	MDW0460HGS3	21.60	0.8504	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					3	●	MDW0460HGS3S	21.60	0.8504	28.50	1.1220	81.00	3.1890			6.00	0.2362	2
					5	●	MDW0460HGS5	38.10	1.5000	45.00	1.7717	99.00	3.8976			5.00	0.1969	2
					5	●	MDW0460HGS5S	38.10	1.5000	45.00	1.7717	99.00	3.8976			6.00	0.2362	2
					8	★	MDW0460HGS8	49.10	1.9331	56.00	2.2047	106.00	4.1732			5.00	0.1969	2
4.62	0.1819		12-28	M5x.8	3	●	MDW01819HGS3	21.54	0.8479	28.47	1.1207	80.95	3.1870	0.96	0.0377	4.76	0.1875	2
					5	●	MDW01819HGS5	38.02	1.4969	44.95	1.7697	98.96	3.8960					2
4.70	0.1850	#13			3	●	MDW0470HGS3	21.50	0.8465	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					3	●	MDW0470HGS3S	21.50	0.8465	28.50	1.1220	81.00	3.1890			6.00	0.2362	2
					5	●	MDW0470HGS5	38.00	1.4961	45.00	1.7717	99.00	3.8976			5.00	0.1969	2
					5	●	MDW0470HGS5S	38.00	1.4961	45.00	1.7717	99.00	3.8976			6.00	0.2362	2
					8	★	MDW0470HGS8	49.00	1.9291	56.00	2.2047	106.00	4.1732			5.00	0.1969	2
4.76	0.1875	3/16		M5x.5	3	●	MDW01875HGS3	21.35	0.8406	28.49	1.1218	80.98	3.1880	0.99	0.0388	4.76	0.1875	2
					5	●	MDW01875HGS5	37.84	1.4896	44.98	1.7708	98.98	3.8970					2
					8	●	MDW01875HGS8	48.83	1.9226	55.98	2.2038	105.99	4.1730					2
					3	●	MDW01875HGS3S	21.35	0.8406	28.49	1.1218	80.98	3.1880			6.00	0.2362	2
					5	●	MDW01875HGS5S	37.84	1.4896	44.98	1.7708	98.98	3.8970					2
4.80	0.1890	#12			3	●	MDW0480HGS3	21.30	0.8386	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					3	●	MDW0480HGS3S	21.30	0.8386	28.50	1.1220	81.00	3.1890			6.00	0.2362	2
					5	●	MDW0480HGS5	37.80	1.4882	45.00	1.7717	99.00	3.8976			5.00	0.1969	2
					5	●	MDW0480HGS5S	37.80	1.4882	45.00	1.7717	99.00	3.8976			6.00	0.2362	2
					8	★	MDW0480HGS8	48.80	1.9213	56.00	2.2047	106.00	4.1732			5.00	0.1969	2
4.90	0.1929				3	●	MDW0490HGS3	21.20	0.8346	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					3	●	MDW0490HGS3S	21.20	0.8346	28.50	1.1220	81.00	3.1890			6.00	0.2362	2
					5	●	MDW0490HGS5	37.70	1.4843	45.00	1.7717	99.00	3.8976			5.00	0.1969	2
					5	●	MDW0490HGS5S	37.70	1.4843	45.00	1.7717	99.00	3.8976			6.00	0.2362	2
					8	★	MDW0490HGS8	48.70	1.9173	56.00	2.2047	106.00	4.1732			5.00	0.1969	2
5.00	0.1969		12-24		3	●	MDW0500HGS3	21.00	0.8268	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	2
					3	●	MDW0500HGS3S	21.00	0.8268	28.50	1.1220	81.00	3.1890			6.00	0.2362	2
					5	●	MDW0500HGS5	37.50	1.4764	45.00	1.7717	99.00	3.8976			5.00	0.1969	2
					5	●	MDW0500HGS5S	37.50	1.4764	45.00	1.7717	99.00	3.8976			6.00	0.2362	2
					8	●	MDW0500HGS8	48.50	1.9094	56.00	2.2047	106.00	4.1732			5.00	0.1969	2
5.10	0.2008		12-28		3	●	MDW0510HGS3	21.00	0.8268	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0510HGS5	37.50	1.4764	45.10	1.7756	101.10	3.9803					2
					8	★	MDW0510HGS8	54.00	2.1260	61.60	2.4252	119.10	4.6890					2
5.11	0.2010	#7			3	●	MDW02010HGS3	20.91	0.8231	28.56	1.1246	83.06	3.2700	1.06	0.0416	5.95	0.2344	2
					8	●	MDW02010HGS8	53.90	2.1221	61.56	2.4236	119.05	4.6870					2
					3	●	MDW02010HGS3S	20.91	0.8231	28.56	1.1246	83.06	3.2700			6.00	0.2362	2
5.16	0.2031	13/64	M6x1		3	●	MDW02031HGS3	20.84	0.8205	28.58	1.1251	83.06	3.2700	1.07	0.0421	5.95	0.2344	2
					5	●	MDW02031HGS5	37.33	1.4695	45.06	1.7741	101.07	3.9790					2
					8	●	MDW02031HGS8	53.84	2.1195	61.57	2.4241	119.08	4.6880					2
					3	●	MDW02031HGS3S	20.84	0.8205	28.58	1.1251	83.06	3.2700			6.00	0.2362	2
					5	●	MDW02031HGS5S	37.33	1.4695	45.06	1.7741	101.07	3.9790					2
5.20	0.2047	1/4-20			3	●	MDW0520HGS3	20.80	0.8189	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0520HGS5	37.30	1.4685	45.10	1.7756	101.10	3.9803					2
					8	●	MDW0520HGS8	53.80	2.1181	61.60	2.4252	119.10	4.6890					2
5.30	0.2087				3	●	MDW0530HGS3	20.70	0.8150	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0530HGS5	37.20	1.4646	45.10	1.7756	101.10	3.9803					2
					8	★	MDW0530HGS8	53.70	2.1142	61.60	2.4252	119.10	4.6890					2
5.31	0.2090	#4	M6x.75	M5.5x.5	3	●	MDW02090HGS3S	20.65	0.8128	28.61	1.1263	83.11	3.2720	1.10	0.0433	6.00	0.2362	2
					5	●	MDW02090HGS5S	37.13	1.4618	45.09	1.7753	101.09	3.9800					2
5.40	0.2126				3	●	MDW0540HGS3	20.50	0.8071	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0540HGS5	37.00	1.4567	45.10	1.7756	101.10	3.9803					2
					8	★	MDW0540HGS8	53.50	2.1063	61.60	2.4252	119.10	4.6890					2
5.41	0.2130	#3			3	●	MDW02130HGS3	20.51	0.8076	28.63	1.1271	83.11	3.2720	1.12	0.0441	5.95	0.2344	2
					5	●	MDW02130HGS5	37.00	1.4566	45.11	1.7761	101.12	3.9810					2
					8	●	MDW02130HGS8	53.51	2.1066	61.62	2.4261	119.13	4.6900					2
					3	●	MDW02130HGS3S	20.51	0.8076	28.63	1.1271	83.11	3.2720			6.00	0.2362	2
					5	●	MDW02130HGS5S	37.00	1.4566	45.11	1.7761	101.12	3.9810					2
5.50	0.2165	1/4-28			3	●	MDW0550HGS3	20.40	0.8031	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDW0550HGS5	36.90	1.4528	45.10	1.7756	101.10	3.9803					2
					8	●	MDW0550HGS8	53.40	2.1024	61.60	2.4252	119.10	4.6890					2

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



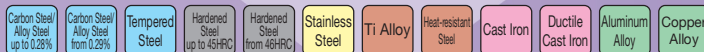
Diameter ø5.56 to 6.50mm (0.2188" to 0.2559") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

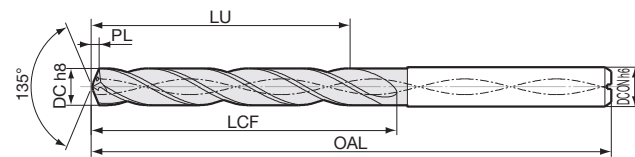
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig		
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.			
5.56	0.2188	7/32	M6x.5	M6x1	3	●	MDW02188HGS3	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	5.95	0.2344	2		
					5	●	MDW02188HGS5	40.82	1.6071	49.16	1.9353	101.14	3.9820					2		
					8	●	MDW02188HGS8	58.80	2.3151	67.14	2.6433	119.15	4.6910					2		
					3	●	MDW02188HGS3S	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	6.00	0.2362	2		
					5	●	MDW02188HGS5S	40.82	1.6071	49.16	1.9353	101.14	3.9820					2		
5.60	0.2205				3	●	MDW0560HGS3	22.80	0.8976	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2		
					5	●	MDW0560HGS5	40.80	1.6063	49.20	1.9370	101.20	3.9843					2		
					8	★	MDW0560HGS8	58.80	2.3150	67.20	2.6457	119.20	4.6929					2		
5.61	0.2210	#2		M6x.75	3	●	MDW02210HGS3	22.74	0.8953	31.16	1.2268	83.16	3.2740	1.16	0.0458	5.95	0.2344	2		
					5	●	MDW02210HGS5	40.75	1.6043	49.17	1.9358	101.17	3.9830					2		
					8	●	MDW02210HGS8	58.73	2.3123	67.15	2.6438	119.15	4.6910					2		
					3	●	MDW02210HGS3S	22.74	0.8953	31.16	1.2268	83.16	3.2740	1.16	0.0458	6.00	0.2362	2		
					5	●	MDW02210HGS5S	40.75	1.6043	49.17	1.9358	101.17	3.9830					2		
5.70	0.2244				3	●	MDW0570HGS3	22.70	0.8937	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2		
					5	●	MDW0570HGS5	40.70	1.6024	49.20	1.9370	101.20	3.9843					2		
					8	★	MDW0570HGS8	58.70	2.3110	67.20	2.6457	119.20	4.6929					2		
5.80	0.2283			1/4-20	3	●	MDW0580HGS3	22.50	0.8858	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2		
					5	●	MDW0580HGS5	40.50	1.5945	49.20	1.9370	101.20	3.9843					2		
					8	★	MDW0580HGS8	58.50	2.3031	67.20	2.6457	119.20	4.6929					2		
5.90	0.2323				3	●	MDW0590HGS3	22.40	0.8819	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2		
					5	●	MDW0590HGS5	40.40	1.5906	49.20	1.9370	101.20	3.9843					2		
					8	★	MDW0590HGS8	58.40	2.2992	67.20	2.6457	119.20	4.6929					2		
5.95	0.2344	15/64		1/4-28	3	●	MDW02344HGS3	22.30	0.8779	31.23	1.2295	83.24	3.2770	1.23	0.0485	5.95	0.2344	2		
					5	●	MDW02344HGS5	40.31	1.5869	49.24	1.9385	101.24	3.9860					2		
					8	●	MDW02344HGS8	58.29	2.2949	67.22	2.6465	119.23	4.6940					2		
					3	●	MDW02344HGS3S	22.30	0.8779	31.23	1.2295	83.24	3.2770	1.23	0.0485	6.00	0.2362	2		
					5	●	MDW02344HGS5S	40.31	1.5869	49.24	1.9385	101.24	3.9860					2		
6.00	0.2362				3	●	MDW0600HGS3	22.20	0.8740	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	2		
					5	●	MDW0600HGS5	40.20	1.5827	49.20	1.9370	101.20	3.9843					2		
					8	●	MDW0600HGS8	58.20	2.2913	67.20	2.6457	119.20	4.6929					2		
6.10	0.2402				3	●	MDW0610HGS3	24.70	0.9724	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2		
					3	●	MDW0610HGS3S	24.70	0.9724	33.80	1.3307	89.30	3.5157			8.00	0.3150	2		
					5	●	MDW0610HGS5	44.20	1.7402	53.30	2.0984	110.30	4.3425			7.00	0.2756	2		
					5	●	MDW0610HGS5S	44.20	1.7402	53.30	2.0984	110.30	4.3425			8.00	0.3150	2		
					8	★	MDW0610HGS8	63.70	2.5079	72.80	2.8661	131.30	5.1693			7.00	0.2756	2		
6.15	0.2420	C	M7x1		3	●	MDW02420HGS3	24.56	0.9671	33.78	1.3301	89.28	3.5150	1.27	0.0501	7.14	0.2812	2		
					3	●	MDW02420HGS3S	24.56	0.9671	33.78	1.3301	89.28	3.5150			8.00	0.3150	2		
6.20	0.2441				3	●	MDW0620HGS3	24.50	0.9646	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2		
					3	●	MDW0620HGS3S	24.50	0.9646	33.80	1.3307	89.30	3.5157			8.00	0.3150	2		
					5	●	MDW0620HGS5	44.00	1.7323	53.30	2.0984	110.30	4.3425			7.00	0.2756	2		
					5	●	MDW0620HGS5S	44.00	1.7323	53.30	2.0984	110.30	4.3425			8.00	0.3150	2		
					8	★	MDW0620HGS8	63.50	2.5000	72.80	2.8661	131.30	5.1693			7.00	0.2756	2		
6.30	0.2480				3	●	MDW0630HGS3	24.40	0.9606	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2		
					3	●	MDW0630HGS3S	24.40	0.9606	33.80	1.3307	89.30	3.5157			8.00	0.3150	2		
					5	●	MDW0630HGS5	43.90	1.7283	53.30	2.0984	110.30	4.3425			7.00	0.2756	2		
					5	●	MDW0630HGS5S	43.90	1.7283	53.30	2.0984	110.30	4.3425			8.00	0.3150	2		
					8	★	MDW0630HGS8	63.40	2.4961	72.80	2.8661	131.30	5.1693			7.00	0.2756	2		
6.35	0.2500	1/4 E	M7x.75		3	●	MDW02500HGS3	24.30	0.9568	33.83	1.3318	89.31	3.5160	1.32	0.0518	7.14	0.2812	2		
					5	●	MDW02500HGS5	43.78	1.7238	53.31	2.0988	110.31	4.3430			8.00	0.3150	2		
					8	●	MDW02500HGS8	63.29	2.4918	72.82	2.8668	131.32	5.1700					2		
					3	●	MDW02500HGS3S	24.30	0.9568	33.83	1.3318	89.31	3.5160			1.32	0.0518	8.00	0.3150	2
					5	●	MDW02500HGS5S	43.78	1.7238	53.31	2.0988	110.31	4.3430							2
6.40	0.2520				3	●	MDW0640HGS3	24.20	0.9528	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2		
					3	●	MDW0640HGS3S	24.20	0.9528	33.80	1.3307	89.30	3.5157			8.00	0.3150	2		
					5	●	MDW0640HGS5	43.70	1.7205	53.30	2.0984	110.30	4.3425			7.00	0.2756	2		
					5	●	MDW0640HGS5S	43.70	1.7205	53.30	2.0984	110.30	4.3425			8.00	0.3150	2		
					8	★	MDW0640HGS8	63.20	2.4882	72.80	2.8661	131.30	5.1693			7.00	0.2756	2		
6.50	0.2559				3	●	MDW0650HGS3	24.10	0.9488	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	2		
					3	●	MDW0650HGS3S	24.10	0.9488	33.80	1.3307	89.30	3.5157			8.00	0.3150	2		
					5	●	MDW0650HGS5	43.60	1.7165	53.30	2.0984	110.30	4.3425			7.00	0.2756	2		
					5	●	MDW0650HGS5S	43.60	1.7165	53.30	2.0984	110.30	4.3425			8.00	0.3150	2		
					8	●	MDW0650HGS8	63.10	2.4843	72.80	2.8661	131.30	5.1693			7.00	0.2756	2		

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm $0.098''$ - $0.787''$, double margin)



Diameter $\phi 6.53$ to 7.20mm ($0.2570''$ to $0.2835''$) Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig		
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.			
6.53	0.2570	F	5/16-18	M7x1	3	●	MDW02570HGS3	26.56	1.0457	36.35	1.4312	89.36	3.5180	1.35	0.0532	7.14	0.2812	2		
					5	●	MDW02570HGS5	47.57	1.8727	57.36	2.2582	110.36	4.3450					2		
					8	●	MDW02570HGS8	68.55	2.6987	78.34	3.0842	131.39	5.1730					2		
					3	●	MDW02570HGS3S	26.56	1.0457	36.35	1.4312	89.36	3.5180	1.35	0.0532	8.00	0.3150	2		
					5	●	MDW02570HGS5S	47.57	1.8727	57.36	2.2582	110.36	4.3450					2		
6.53	0.2571				5	●	MDW0653HGS5	46.20	1.8191	56.00	2.2047	109.00	4.2913	1.35	0.0532	7.00	0.2756	2		
					5	●	MDW0653HGS5S	46.20	1.8191	56.00	2.2047	109.00	4.2913			8.00	0.3150	2		
6.60	0.2598				3	●	MDW0660HGS3	26.50	1.0433	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2		
					3	●	MDW0660HGS3S	26.50	1.0433	36.40	1.4331	89.40	3.5197			8.00	0.3150	2		
					5	●	MDW0660HGS5	47.50	1.8701	57.40	2.2598	110.40	4.3465			7.00	0.2756	2		
					5	●	MDW0660HGS5S	47.50	1.8701	57.40	2.2598	110.40	4.3465			8.00	0.3150	2		
					8	★	MDW0660HGS8	68.50	2.6969	78.40	3.0866	131.40	5.1732			7.00	0.2756	2		
6.70	0.2638				3	●	MDW0670HGS3	26.40	1.0394	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2		
					3	●	MDW0670HGS3S	26.40	1.0394	36.40	1.4331	89.40	3.5197			8.00	0.3150	2		
					5	●	MDW0670HGS5	47.40	1.8661	57.40	2.2598	110.40	4.3465			7.00	0.2756	2		
					5	●	MDW0670HGS5S	47.40	1.8661	57.40	2.2598	110.40	4.3465			8.00	0.3150	2		
					8	★	MDW0670HGS8	68.40	2.6929	78.40	3.0866	131.40	5.1732			7.00	0.2756	2		
6.75	0.2656	17/64			3	●	MDW02656HGS3	26.28	1.0346	36.40	1.4330	89.41	3.5200	1.40	0.0550	7.14	0.2812	2		
					5	●	MDW02656HGS5	47.28	1.8616	57.40	2.2600	110.39	4.3460			8.00	0.3150	2		
					8	●	MDW02656HGS8	68.27	2.6876	78.38	3.0860	131.39	5.1730			7.00	0.2756	2		
					3	●	MDW02656HGS3S	26.28	1.0346	36.40	1.4330	89.41	3.5200			1.40	0.0550	8.00	0.3150	2
					5	●	MDW02656HGS5S	47.28	1.8616	57.40	2.2600	110.39	4.3460							2
6.76	0.2660	H			3	●	MDW02660HGS3	26.27	1.0341	36.40	1.4331	89.41	3.5200	1.40	0.0551	7.14	0.2812	2		
					5	●	MDW02660HGS5	47.27	1.8611	57.41	2.2601	110.39	4.3460			8.00	0.3150	2		
					8	●	MDW02660HGS8	68.25	2.6871	78.39	3.0861	131.42	5.1740			7.00	0.2756	2		
					3	●	MDW02660HGS3S	26.27	1.0341	36.40	1.4331	89.41	3.5200			1.40	0.0551	8.00	0.3150	2
					5	●	MDW02660HGS5S	47.27	1.8611	57.41	2.2601	110.39	4.3460							2
6.80	0.2677				3	●	MDW0680HGS3	26.20	1.0315	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2		
					3	●	MDW0680HGS3S	26.20	1.0315	36.40	1.4331	89.40	3.5197			8.00	0.3150	2		
					5	●	MDW0680HGS5	47.20	1.8583	57.40	2.2598	110.40	4.3465			7.00	0.2756	2		
					5	●	MDW0680HGS5S	47.20	1.8583	57.40	2.2598	110.40	4.3465			8.00	0.3150	2		
					8	●	MDW0680HGS8	68.20	2.6850	78.40	3.0866	131.40	5.1732			7.00	0.2756	2		
6.90	0.2717		M8x1.25		3	●	MDW0690HGS3	26.10	1.0276	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2		
					3	●	MDW0690HGS3S	26.10	1.0276	36.40	1.4331	89.40	3.5197			8.00	0.3150	2		
					5	●	MDW0690HGS5	47.10	1.8543	57.40	2.2598	110.40	4.3465			7.00	0.2756	2		
					5	●	MDW0690HGS5S	47.10	1.8543	57.40	2.2598	110.40	4.3465			8.00	0.3150	2		
					8	★	MDW0690HGS8	68.10	2.6811	78.40	3.0866	131.40	5.1732			7.00	0.2756	2		
6.91	0.2720	I	5/16-24		3	●	MDW02720HGS3	26.07	1.0263	36.43	1.4343	89.43	3.5210	1.43	0.0563	7.14	0.2812	2		
					5	●	MDW02720HGS5	47.07	1.8533	57.44	2.2613	110.44	4.3480			8.00	0.3150	2		
					8	●	MDW02720HGS8	68.05	2.6793	78.42	3.0873	131.45	5.1750			7.00	0.2756	2		
					3	●	MDW02720HGS3S	26.07	1.0263	36.43	1.4343	89.43	3.5210			1.43	0.0563	8.00	0.3150	2
5	●	MDW02720HGS5S	47.07	1.8533	57.44	2.2613	110.44	4.3480	2											
7.00	0.2756				3	●	MDW0700HGS3	25.90	1.0197	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	2		
					5	●	MDW0700HGS5	46.90	1.8465	57.40	2.2598	110.40	4.3465			8.00	0.3150	2		
					8	●	MDW0700HGS8	67.90	2.6732	78.40	3.0866	131.40	5.1732			7.00	0.2756	2		
7.04	0.2770				3	●	MDW02770HGS3	25.91	1.0199	36.46	1.4354	89.46	3.5220	1.46	0.0574	7.14	0.2812	2		
					5	●	MDW02770HGS5	46.91	1.8469	57.46	2.2624	110.46	4.3490			8.00	0.3150	2		
					8	●	MDW02770HGS8	67.89	2.6729	78.45	3.0884	131.47	5.1760			7.00	0.2756	2		
					3	●	MDW02770HGS3S	28.39	1.1179	38.95	1.5334	95.45	3.7580			1.46	0.0574	8.00	0.3150	2
5	●	MDW02770HGS5S	50.90	2.0039	61.45	2.4194	119.46	4.7030	2											
7.10	0.2795				3	●	MDW0710HGS3	28.40	1.1181	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2		
					5	●	MDW0710HGS5	50.90	2.0039	61.50	2.4213	119.50	4.7047			8.00	0.3150	2		
					8	★	MDW0710HGS8	73.40	2.8898	84.00	3.3071	143.50	5.6496			7.00	0.2756	2		
7.14	0.2812	9/32	M8x1		3	●	MDW02812HGS3	25.77	1.0144	36.48	1.4362	89.48	3.5230	1.48	0.0582	7.14	0.2812	2		
					5	●	MDW02812HGS5	46.77	1.8414	57.49	2.2632	110.49	4.3500			8.00	0.3150	2		
					8	●	MDW02812HGS8	67.75	2.6674	78.47	3.0892	131.47	5.1760			7.00	0.2756	2		
					3	●	MDW02812HGS3S	28.25	1.1124	38.97	1.5342	95.48	3.7590			1.48	0.0582	8.00	0.3150	2
5	●	MDW02812HGS5S	50.76	1.9984	61.47	2.4202	119.48	4.7040	2											
7.20	0.2835				3	●	MDW0720HGS3	28.20	1.1102	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2		
					5	●	MDW0720HGS5	50.70	1.9961	61.50	2.4213	119.50	4.7047			8.00	0.3150	2		
					8	★	MDW0720HGS8	73.20	2.8819	84.00	3.3071	143.50	5.6496			7.00	0.2756	2		

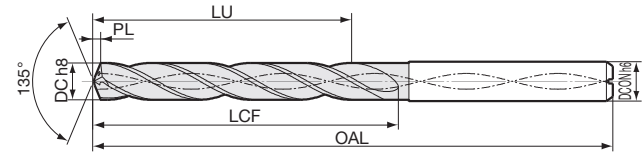
Super MultiDrills HGS (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28% Carbon Steel Alloy Steel from 0.29% Tempered Steel Hardened Steel up to 45HRC Hardened Steel from 46HRC Stainless Steel Ti Alloy Heat-resistant Steel Cast Iron Ductile Cast Iron Aluminum Alloy Copper Alloy



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098" - 0.787", double margin)



Diameter $\phi 7.30$ to 8.30mm (0.2874" to 0.3268") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig			
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.				
7.30	0.2874		M8x.75	5/16-28	3	●	MDW0730HGS3	28.10	1.1063	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2			
					5	●	MDW0730HGS5	50.60	1.9921	61.50	2.4213	119.50	4.7047					2			
					8	★	MDW0730HGS8	73.10	2.8780	84.00	3.3071	143.50	5.6496					2			
7.37	0.2900	L	5/16-18 M8x1.25	3	●	MDW02900HGS3S	27.97	1.1011	39.02	1.5361	95.53	3.7610	1.53	0.0601	8.00	0.3150	2				
				5	●	MDW02900HGS5S	50.47	1.9871	61.52	2.4221	119.53	4.7060					2				
7.40	0.2913		M8x1.25	3	●	MDW0740HGS3	27.90	1.0984	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	2				
				5	●	MDW0740HGS5	50.40	1.9843	61.50	2.4213	119.50	4.7047					2				
				8	★	MDW0740HGS8	72.90	2.8701	84.00	3.3071	143.50	5.6496					2				
7.49	0.2950	M	5/16-24	3	●	MDW02950HGS3S	27.80	1.0946	39.04	1.5371	95.55	3.7620	1.55	0.0611	8.00	0.3150	2				
				5	●	MDW02950HGS5S	50.31	1.9806	61.55	2.4231	119.56	4.7070					2				
7.50	0.2953		M8x.5	3	●	MDW0750HGS3	27.90	1.0984	39.10	1.5394	95.60	3.7638	1.60	0.0630	8.00	0.3150	2				
				5	●	MDW0750HGS5	50.40	1.9843	61.60	2.4252	119.60	4.7087					2				
				8	●	MDW0750HGS8	72.90	2.8701	84.10	3.3110	143.60	5.6535					2				
7.54	0.2969	19/64	M8x1	3	●	MDW02969HGS3	30.26	1.1912	41.57	1.6365	95.55	3.7620	1.56	0.0615	7.94	0.3125	2				
				5	●	MDW02969HGS5	54.26	2.1362	65.57	2.5815	119.56	4.7070					2				
				8	●	MDW02969HGS8	78.26	3.0812	89.57	3.5265	143.56	5.6520					2				
				3	●	MDW02969HGS3S	30.26	1.1912	41.57	1.6365	95.55	3.7620					2				
				5	●	MDW02969HGS5S	54.26	2.1362	65.57	2.5815	119.56	4.7070					2				
7.60	0.2992			3	●	MDW0760HGS3	30.20	1.1890	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2				
				5	●	MDW0760HGS5	54.20	2.1339	65.60	2.5827	119.60	4.7087					2				
				8	★	MDW0760HGS8	78.20	3.0787	89.60	3.5276	143.60	5.6535					2				
7.67	0.3020	N	M8x.75	3	●	MDW03020HGS3S	30.09	1.1845	41.59	1.6375	95.58	3.7630	1.59	0.0625	8.00	0.3150	2				
				5	●	MDW03020HGS5S	54.09	2.1295	65.60	2.5825	119.58	4.7080					2				
7.70	0.3031			3	●	MDW0770HGS3	30.10	1.1850	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2				
				5	●	MDW0770HGS5	54.10	2.1299	65.60	2.5827	119.60	4.7087					2				
				8	★	MDW0770HGS8	78.10	3.0748	89.60	3.5276	143.60	5.6535					2				
7.80	0.3071		M9x1.25	3	●	MDW0780HGS3	29.90	1.1772	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2				
				5	●	MDW0780HGS5	53.90	2.1220	65.60	2.5827	119.60	4.7087					2				
				8	★	MDW0780HGS8	77.90	3.0669	89.60	3.5276	143.60	5.6535					2				
7.90	0.3110			3	●	MDW0790HGS3	29.80	1.1732	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	2				
				5	●	MDW0790HGS5	53.80	2.1181	65.60	2.5827	119.60	4.7087					2				
				8	★	MDW0790HGS8	77.80	3.0630	89.60	3.5276	143.60	5.6535					2				
7.94	0.3125	5/16		3	●	MDW03125HGS3	29.74	1.1710	41.65	1.6397	95.66	3.7660	1.64	0.0647	7.94	0.3125	2				
				5	●	MDW03125HGS5	53.75	2.1160	65.65	2.5847	119.63	4.7100					2				
				8	●	MDW03125HGS8	77.75	3.0610	89.65	3.5297	143.64	5.6550					2				
				3	●	MDW03125HGS3S	29.74	1.1710	41.65	1.6397	95.66	3.7660					2				
8.00	0.3150		3/8-16	5	●	MDW03125HGS5S	53.75	2.1160	65.65	2.5847	119.63	4.7100	1.64	0.0647	8.00	0.3150	2				
				5	●	MDW03125HGS5S	53.75	2.1160	65.65	2.5847	119.63	4.7100					2				
8.00	0.3150		3/8-16	3	●	MDW0800HGS3	29.70	1.1693	41.70	1.6417	95.70	3.7677	1.70	0.0669	8.00	0.3150	2				
				5	●	MDW0800HGS5	53.70	2.1142	65.70	2.5866	119.70	4.7126					2				
				8	●	MDW0800HGS8	77.70	3.0591	89.70	3.5315	143.70	5.6575					2				
8.10	0.3189		M9x1	3	●	MDW0810HGS3	32.10	1.2638	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2				
				3	●	MDW0810HGS3S	32.10	1.2638	44.20	1.7402	101.70	4.0039					2				
				5	●	MDW0810HGS5	57.60	2.2677	69.70	2.7441	128.70	5.0669					2				
				5	●	MDW0810HGS5S	57.60	2.2677	69.70	2.7441	128.70	5.0669					2				
8.20	0.3228			8	★	MDW0810HGS8	83.10	3.2717	95.20	3.7480	155.70	6.1299	1.70	0.0669	9.00	0.3543	2				
				3	●	MDW0820HGS3	31.90	1.2559	44.20	1.7402	101.70	4.0039					2				
8.20	0.3228			3	●	MDW0820HGS3S	31.90	1.2559	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2				
				5	●	MDW0820HGS5	57.40	2.2598	69.70	2.7441	128.70	5.0669					2				
				5	●	MDW0820HGS5S	57.40	2.2598	69.70	2.7441	128.70	5.0669					2				
				8	★	MDW0820HGS8	82.90	3.2638	95.20	3.7480	155.70	6.1299					2				
				8	★	MDW0820HGS8	82.90	3.2638	95.20	3.7480	155.70	6.1299					2				
8.20	0.3230	P		3	●	MDW03230HGS3	31.89	1.2554	44.19	1.7399	101.70	4.0040	1.70	0.0669	9.13	0.3594	2				
				5	●	MDW03230HGS5	57.39	2.2594	69.70	2.7439	128.70	5.0670					2				
				8	●	MDW03230HGS8	82.89	3.2634	95.20	3.7479	155.70	6.1300					2				
				3	●	MDW03230HGS3S	31.89	1.2554	44.19	1.7399	101.70	4.0040					1.70	0.0669	10.00	0.3937	2
				5	●	MDW03230HGS5S	57.39	2.2594	69.70	2.7439	128.70	5.0670									2
8.30	0.3268			3	●	MDW0830HGS3	31.80	1.2520	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	2				
				3	●	MDW0830HGS3S	31.80	1.2520	44.20	1.7402	101.70	4.0039					2				
				5	●	MDW0830HGS5	57.30	2.2559	69.70	2.7441	128.70	5.0669					2				
				5	●	MDW0830HGS5S	57.30	2.2559	69.70	2.7441	128.70	5.0669					2				
				8	★	MDW0830HGS8	82.80	3.2598	95.20	3.7480	155.70	6.1299					2				
				8	★	MDW0830HGS8	82.80	3.2598	95.20	3.7480	155.70	6.1299					2				

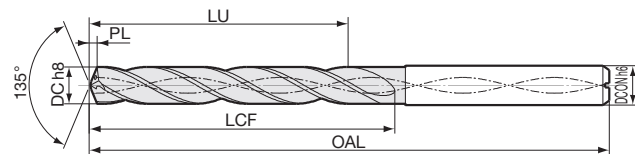
(Internal Coolant Supply)



8D

Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\varnothing 2.5$ to 20.0mm $0.098''$ - $0.787''$, double margin)



Diameter $\varnothing 8.33$ to 9.30mm ($0.3281''$ to $0.3661''$)

- USA stocked item

★ Worldwide Warehouse Item

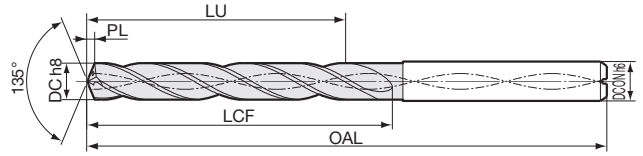
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig	
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
8.33	0.3281	21/64	M7x1		3	●	MDW03281HGS3	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	9.13	0.3594	2	
					5	●	MDW03281HGS5	57.22	2.2529	69.72	2.7450	128.73	5.0680					2	
					8	●	MDW03281HGS8	82.73	3.2569	95.22	3.7490	155.73	6.1310					2	
					3	●	MDW03281HGS3S	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	10.00	0.3937	2	
5	●	MDW03281HGS5S	57.22	2.2529	69.72	2.7450	128.73	5.0680	2										
8.40	0.3307				3	●	MDW0840HGS3	31.60	1.2441	44.20	1.7402	101.70	4.0039	1.70	0.0669		9.00	0.3543	2
					3	●	MDW0840HGS3S	31.60	1.2441	44.20	1.7402	101.70	4.0039				10.00	0.3937	2
					5	●	MDW0840HGS5	57.10	2.2480	69.70	2.7441	128.70	5.0669				9.00	0.3543	2
					5	●	MDW0840HGS5S	57.10	2.2480	69.70	2.7441	128.70	5.0669				10.00	0.3937	2
8	★	MDW0840HGS8	82.60	3.2520	95.20	3.7480	155.70	6.1299	9.00	0.3543	2								
8.43	0.3320	Q		M9x1.25	3	●	MDW03320HGS3	31.59	1.2438	44.24	1.7418	101.75	4.0060	1.75	0.0688	9.13	0.3594	2	
					5	●	MDW03320HGS5	57.09	2.2478	69.74	2.7458	128.75	5.0690					2	
					8	●	MDW03320HGS8	82.60	3.2518	95.24	3.7498	155.75	6.1320					2	
					3	●	MDW03320HGS3S	31.59	1.2438	44.24	1.7418	101.75	4.0060	1.75	0.0688	10.00	0.3937	2	
5	●	MDW03320HGS5S	57.09	2.2478	69.74	2.7458	128.75	5.0690	2										
8.50	0.3346		3/8-24		3	●	MDW0850HGS3	31.60	1.2441	44.30	1.7441	101.80	4.0079	1.80	0.0709		9.00	0.3543	2
					5	●	MDW0850HGS5	57.10	2.2480	69.80	2.7480	128.80	5.0709				9.00	0.3543	2
					5	●	MDW0850HGS5S	57.10	2.2480	69.80	2.7480	128.80	5.0709				10.00	0.3937	2
					8	●	MDW0850HGS8	82.60	3.2520	95.30	3.7520	155.80	6.1339				9.00	0.3543	2
8.60	0.3386		M10x1.5	M9x.75	3	●	MDW0860HGS3	33.90	1.3346	46.80	1.8425	101.80	4.0079	1.80	0.0709		9.00	0.3543	2
					3	●	MDW0860HGS3S	33.90	1.3346	46.80	1.8425	101.80	4.0079				10.00	0.3937	2
					5	●	MDW0860HGS5	60.90	2.3976	73.80	2.9055	128.80	5.0709				9.00	0.3543	2
					5	●	MDW0860HGS5S	60.90	2.3976	73.80	2.9055	128.80	5.0709				10.00	0.3937	2
8	★	MDW0860HGS8	87.90	3.4606	100.80	3.9685	155.80	6.1339	9.00	0.3543	2								
8.70	0.3425				3	●	MDW0870HGS3	33.80	1.3307	46.80	1.8425	101.80	4.0079	1.80	0.0709		9.00	0.3543	2
					3	●	MDW0870HGS3S	33.80	1.3307	46.80	1.8425	101.80	4.0079				10.00	0.3937	2
					5	●	MDW0870HGS5	60.80	2.3937	73.80	2.9055	128.80	5.0709				9.00	0.3543	2
					5	●	MDW0870HGS5S	60.80	2.3937	73.80	2.9055	128.80	5.0709				10.00	0.3937	2
8	★	MDW0870HGS8	87.80	3.4567	100.80	3.9685	155.80	6.1339	9.00	0.3543	2								
8.73	0.3438	11/32			3	●	MDW03438HGS3	33.72	1.3275	46.82	1.8432	101.80	4.0080	1.81	0.0712	9.13	0.3594	2	
					5	●	MDW03438HGS5	60.72	2.3905	73.82	2.9062	128.80	5.0710					2	
					8	●	MDW03438HGS8	87.72	3.4535	100.82	3.9692	155.80	6.1340					2	
					3	●	MDW03438HGS3S	33.72	1.3275	46.82	1.8432	101.80	4.0080	1.81	0.0712	10.00	0.3937	2	
5	●	MDW03438HGS5S	60.72	2.3905	73.82	2.9062	128.80	5.0710	2										
8.80	0.3465			3/8-16	3	●	MDW0880HGS3	33.60	1.3228	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	2	
					5	●	MDW0880HGS5	60.60	2.3858	73.80	2.9055	128.80	5.0709					2	
					8	★	MDW0880HGS8	87.60	3.4488	100.80	3.9685	155.80	6.1339					2	
8.90	0.3504		M10x1.25		3	●	MDW0890HGS3	33.50	1.3189	46.80	1.8425	101.80	4.0079	1.80	0.0709		9.00	0.3543	2
					3	●	MDW0890HGS3S	33.50	1.3189	46.80	1.8425	101.80	4.0079				10.00	0.3937	2
					5	●	MDW0890HGS5	60.50	2.3819	73.80	2.9055	128.80	5.0709				9.00	0.3543	2
					5	●	MDW0890HGS5S	60.50	2.3819	73.80	2.9055	128.80	5.0709				10.00	0.3937	2
8	★	MDW0890HGS8	87.50	3.4449	100.80	3.9685	155.80	6.1339	9.00	0.3543	2								
9.00	0.3543		3/8-24		3	●	MDW0900HGS3	33.40	1.3150	46.90	1.8465	101.90	4.0118	1.90	0.0748		9.00	0.3543	2
					3	●	MDW0900HGS3S	33.40	1.3150	46.90	1.8465	101.90	4.0118				10.00	0.3937	2
					5	●	MDW0900HGS5	60.40	2.3780	73.90	2.9094	128.90	5.0748				9.00	0.3543	2
					5	●	MDW0900HGS5S	60.40	2.3780	73.90	2.9094	128.90	5.0748				10.00	0.3937	2
8	●	MDW0900HGS8	87.40	3.4409	100.90	3.9724	155.90	6.1378	9.00	0.3543	2								
9.10	0.3583				3	●	MDW0910HGS3	35.80	1.4094	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2	
					5	●	MDW0910HGS5	64.30	2.5315	77.90	3.0669	137.90	5.4291					2	
					8	★	MDW0910HGS8	92.80	3.6535	106.40	4.1890	167.90	6.6102					2	
9.13	0.3594	23/64	M10x1		3	●	MDW03594HGS3	33.21	1.3073	46.90	1.8464	101.88	4.0110	1.89	0.0744	9.13	0.3594	2	
					5	●	MDW03594HGS5	60.21	2.3703	73.90	2.9094	128.88	5.0740					2	
					8	●	MDW03594HGS8	87.21	3.4333	100.90	3.9724	155.88	6.1370					2	
					3	●	MDW03594HGS3S	35.69	1.4053	49.39	1.9444	107.90	4.2480	1.89	0.0744	10.00	0.3937	2	
5	●	MDW03594HGS5S	64.19	2.5273	77.89	3.0664	137.90	5.4290	2										
9.20	0.3622				3	●	MDW0920HGS3	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2	
					5	●	MDW0920HGS5	64.10	2.5236	77.90	3.0669	137.90	5.4291					2	
					8	★	MDW0920HGS8	92.60	3.6457	106.40	4.1890	167.90	6.6102					2	
9.30	0.3661				3	●	MDW0930HGS3	35.50	1.3976	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2	
					5	●	MDW0930HGS5	64.00	2.5197	77.90	3.0669	137.90	5.4291					2	
					8	★	MDW0930HGS8	92.50	3.6417	106.40	4.1890	167.90	6.6102					2	

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter ø2.5 to 20.0mm 0.098"-0.787", double margin)



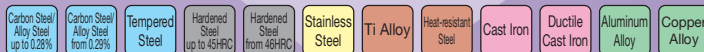
Diameter ø9.35 to 10.32mm (0.3680" to 0.4062") Dimensions (mm/inch)

• USA stocked item

★ Worldwide Warehouse Item

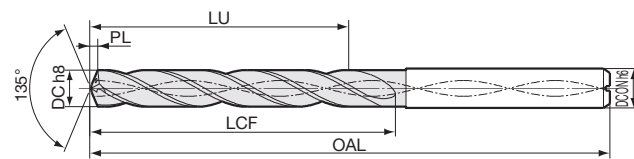
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig				
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.					
9.35	0.3680	U	7/16-14	M10x1.5	3	●	MDW03680HGS3	35.41	1.3942	49.43	1.9462	107.92	4.2490	1.94	0.0762	9.92	0.3906	2				
					5	●	MDW03680HGS5	63.91	2.5162	77.93	3.0682	137.95	5.4310					2				
					8	●	MDW03680HGS8	92.41	3.6382	106.43	4.1902	167.94	6.6120	2								
					3	●	MDW03680HGS3S	35.41	1.3942	49.43	1.9462	107.92	4.2490	1.94	0.0762	10.00	0.3937	2				
9.40	0.3701				5	●	MDW03680HGS5S	63.91	2.5162	77.93	3.0682	137.95	5.4310	1.90	0.0748	10.00	0.3937	2				
					8	★	MDW0940HGS8	92.30	3.6339	106.40	4.1890	167.90	6.6102					2				
					3	●	MDW0940HGS3	35.30	1.3898	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	2				
					5	●	MDW0940HGS5	63.80	2.5118	77.90	3.0669	137.90	5.4291					2				
9.50	0.3740			M10x1.25	8	★	MDW0940HGS8	92.30	3.6339	106.40	4.1890	167.90	6.6102	2.00	0.0787	10.00	0.3937	2				
					3	●	MDW0950HGS3	35.30	1.3898	49.50	1.9488	108.00	4.2520					2				
					5	●	MDW0950HGS5	63.80	2.5118	78.00	3.0709	138.00	5.4331	2.00	0.0787	10.00	0.3937	2				
					8	●	MDW0950HGS8	92.30	3.6339	106.50	4.1929	168.00	6.6142					2				
9.53	0.3750	3/8			3	●	MDW03750HGS3	37.70	1.4842	51.99	2.0467	107.98	4.2510	1.97	0.0777	9.92	0.3906	2				
					5	●	MDW03750HGS5	67.70	2.6652	81.98	3.2277	137.97	5.4320					2				
					8	●	MDW03750HGS8	97.69	3.8462	111.98	4.4087	167.97	6.6130	1.97	0.0777	10.00	0.3937	2				
					3	●	MDW03750HGS3S	37.70	1.4842	51.99	2.0467	107.98	4.2510					2				
9.58	0.3770	V	7/16-14		5	●	MDW03750HGS5S	67.70	2.6652	81.98	3.2277	137.97	5.4320	1.98	0.0781	10.00	0.3937	2				
					8	●	MDW03770HGS8	97.63	3.8425	112.00	4.4094	168.00	6.6142					2				
					3	●	MDW0960HGS3	37.60	1.4803	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	2				
					5	●	MDW0960HGS5	67.60	2.6614	82.00	3.2283	138.00	5.4331					2				
9.60	0.3780				8	●	MDW0960HGS8	97.60	3.8425	112.00	4.4094	168.00	6.6142	2.00	0.0787	10.00	0.3937	2				
					3	●	MDW0970HGS3	37.50	1.4764	52.00	2.0472	108.00	4.2520					2				
					5	●	MDW0970HGS5	67.50	2.6575	82.00	3.2283	138.00	5.4331	2.00	0.0787	10.00	0.3937	2				
					8	★	MDW0970HGS8	97.50	3.8386	112.00	4.4094	168.00	6.6142					2				
9.80	0.3858				3	●	MDW0980HGS3	37.30	1.4685	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	2				
					5	●	MDW0980HGS5	67.30	2.6496	82.00	3.2283	138.00	5.4331					2				
					8	★	MDW0980HGS8	97.30	3.8307	112.00	4.4094	168.00	6.6142	2.00	0.0787	10.00	0.3937	2				
					3	●	MDW0990HGS3	37.30	1.4685	52.10	2.0512	108.10	4.2559					2				
9.90	0.3898				5	●	MDW0990HGS5	67.30	2.6496	82.10	3.2323	138.10	5.4370	2.10	0.0827	10.00	0.3937	2				
					8	★	MDW0990HGS8	97.30	3.8307	112.10	4.4134	168.10	6.6181					2				
					3	●	MDW03906HGS3	37.19	1.4640	52.07	2.0499	108.05	4.2540	2.05	0.0809	9.92	0.3906	2				
					5	●	MDW03906HGS5	67.18	2.6450	82.06	3.2309	138.05	5.4350					2				
9.92	0.3906	25/64	7/16-20		8	●	MDW03906HGS8	97.18	3.8260	112.06	4.4119	168.05	6.6160	2.05	0.0809	10.00	0.3937	2				
					3	●	MDW03906HGS3S	37.19	1.4640	52.07	2.0499	108.05	4.2540					2				
					5	●	MDW03906HGS5S	67.18	2.6450	82.06	3.2309	138.05	5.4350	2.10	0.0827	10.00	0.3937	2				
					3	●	MDW1000HGS3	37.10	1.4606	52.10	2.0512	108.10	4.2559					2				
10.00	0.3937				5	●	MDW1000HGS5	67.10	2.6417	82.10	3.2323	138.10	5.4370	2.10	0.0827	10.00	0.3937	2				
					8	●	MDW1000HGS8	97.10	3.8228	112.10	4.4134	168.10	6.6181					2				
					3	●	MDW1010HGS3	39.50	1.5551	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2				
					3	●	MDW1010HGS3S	39.50	1.5551	54.60	2.1496	118.10	4.6496					2				
10.10	0.3976			M11x1	5	●	MDW1010HGS5	71.00	2.7953	86.10	3.3898	151.10	5.9488	2.10	0.0827	11.00	0.4331	2				
					5	●	MDW1010HGS5S	71.00	2.7953	86.10	3.3898	151.10	5.9488					2				
					8	★	MDW1010HGS8	102.50	4.0354	117.60	4.6299	184.10	7.2480	2.10	0.0827	11.00	0.4331	2				
					3	●	MDW1020HGS3	39.30	1.5472	54.60	2.1496	118.10	4.6496					2				
10.20	0.4016				3	●	MDW1020HGS3S	39.30	1.5472	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2				
					5	●	MDW1020HGS5	70.80	2.7874	86.10	3.3898	151.10	5.9488					2				
					5	●	MDW1020HGS5S	70.80	2.7874	86.10	3.3898	151.10	5.9488	2.10	0.0827	11.00	0.4331	2				
					8	★	MDW1020HGS8	102.30	4.0276	117.60	4.6299	184.10	7.2480					2				
10.25	0.4035				3	●	MDW04035HGS3S	39.25	1.5454	54.63	2.1506	118.11	4.6500	2.12	0.0836	12.00	0.4724	2				
					5	●	MDW04035HGS5S	70.75	2.7854	86.12	3.3906	151.13	5.9500					2				
10.30	0.4055				3	●	MDW1030HGS3	39.20	1.5433	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	2				
					3	●	MDW1030HGS3S	39.20	1.5433	54.60	2.1496	118.10	4.6496					2				
					5	●	MDW1030HGS5	70.70	2.7835	86.10	3.3898	151.10	5.9488					2				
					5	●	MDW1030HGS5S	70.70	2.7835	86.10	3.3898	151.10	5.9488					2				
					8	●	MDW1030HGS8	102.20	4.0236	117.60	4.6299	184.10	7.2480					2				
10.32	0.4062	13/32		M11x1.5	3	●	MDW04062HGS3	39.16	1.5418	54.64	2.1511	118.14	4.6510	2.14	0.0841	11.11	0.4375	2				
					5	●	MDW04062HGS5	70.66	2.7818	86.13	3.3911	151.13	5.9500					2				
					8	●	MDW04062HGS8	102.15	4.0218	117.63	4.6311	184.12	7.2490					2				
					3	●	MDW04062HGS3S	39.16	1.5418	54.64	2.1511	118.14	4.6510					2.14	0.0841	12.00	0.4724	2
					5	●	MDW04062HGS5S	70.66	2.7818	86.13	3.3911	151.13	5.9500									2

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098"-0.787", double margin)



Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Diameter $\phi 10.40$ to 11.50mm (0.4094" to 0.4528") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

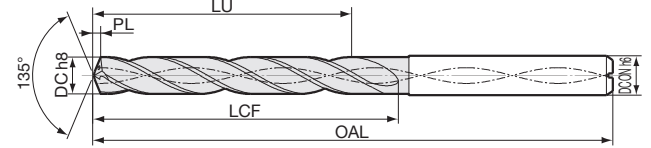
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig		
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.					
10.40	0.4094				3	●	MDW1040HGS3	39.10	1.5394	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	2		
					3	●	MDW1040HGS3S	39.10	1.5394	54.70	2.1535	118.20	4.6535			12.00	0.4724	2		
					5	●	MDW1040HGS5	70.60	2.7795	86.20	3.3937	151.20	5.9528			11.00	0.4331	2		
					5	●	MDW1040HGS5S	70.60	2.7795	86.20	3.3937	151.20	5.9528			12.00	0.4724	2		
					8	★	MDW1040HGS8	102.10	4.0197	117.70	4.6339	184.20	7.2520			11.00	0.4331	2		
10.49	0.4130	Z	M12x1.65		3	●	MDW04130HGS3S	38.94	1.5330	54.67	2.1525	118.16	4.6520	2.17	0.0855	12.00	0.4724	2		
					5	●	MDW04130HGS5S	70.43	2.7730	86.17	3.3925	151.18	5.9520							2
10.50	0.4134			7/16-20	3	●	MDW1050HGS3	39.00	1.5354	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	2		
					3	●	MDW1050HGS3S	39.00	1.5354	54.70	2.1535	118.20	4.6535			12.00	0.4724	2		
					5	●	MDW1050HGS5	70.50	2.7756	86.20	3.3937	151.20	5.9528			11.00	0.4331	2		
					5	●	MDW1050HGS5S	70.50	2.7756	86.20	3.3937	151.20	5.9528			12.00	0.4724	2		
					8	●	MDW1050HGS8	102.00	4.0157	117.70	4.6339	184.20	7.2520			11.00	0.4331	2		
10.60	0.4173			M11x1	3	●	MDW1060HGS3	41.30	1.6260	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2		
					3	●	MDW1060HGS3S	41.30	1.6260	57.20	2.2520	118.20	4.6535			12.00	0.4724	2		
					5	●	MDW1060HGS5	74.30	2.9252	90.20	3.5512	151.20	5.9528			11.00	0.4331	2		
					5	●	MDW1060HGS5S	74.30	2.9252	90.20	3.5512	151.20	5.9528			12.00	0.4724	2		
					8	★	MDW1060HGS8	107.30	4.2244	123.20	4.8504	184.20	7.2520			11.00	0.4331	2		
10.70	0.4213				3	●	MDW1070HGS3	41.20	1.6220	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2		
					3	●	MDW1070HGS3S	41.20	1.6220	57.20	2.2520	118.20	4.6535			12.00	0.4724	2		
					5	●	MDW1070HGS5	74.20	2.9213	90.20	3.5512	151.20	5.9528			11.00	0.4331	2		
					5	●	MDW1070HGS5S	74.20	2.9213	90.20	3.5512	151.20	5.9528			12.00	0.4724	2		
					8	★	MDW1070HGS8	107.20	4.2205	123.20	4.8504	184.20	7.2520			11.00	0.4331	2		
10.72	0.4219	27/64	M12x1.5 1/2-13	M11x.75	3	●	MDW04219HGS3	41.14	1.6196	57.21	2.2524	118.21	4.6540	2.22	0.0874	11.11	0.4375	2		
					5	●	MDW04219HGS5	74.16	2.9196	90.23	3.5524	151.23	5.9540							2
					8	●	MDW04219HGS8	107.15	4.2186	123.23	4.8514	184.23	7.2530							2
					3	●	MDW04219HGS3S	41.14	1.6196	57.21	2.2524	118.21	4.6540			2.22	0.0874	12.00	0.4724	2
5	●	MDW04219HGS5S	74.16	2.9196	90.23	3.5524	151.23	5.9540					2							
10.80	0.4252				3	●	MDW1080HGS3	41.00	1.6142	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	2		
					3	●	MDW1080HGS3S	41.00	1.6142	57.20	2.2520	118.20	4.6535			12.00	0.4724	2		
					5	●	MDW1080HGS5	74.00	2.9134	90.20	3.5512	151.20	5.9528			11.00	0.4331	2		
					5	●	MDW1080HGS5S	74.00	2.9134	90.20	3.5512	151.20	5.9528			12.00	0.4724	2		
					8	★	MDW1080HGS8	107.00	4.2126	123.20	4.8504	184.20	7.2520			11.00	0.4331	2		
10.90	0.4291		M12x1.25		3	●	MDW1090HGS3	41.00	1.6142	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	2		
					3	●	MDW1090HGS3S	41.00	1.6142	57.30	2.2559	118.30	4.6575			12.00	0.4724	2		
					5	●	MDW1090HGS5	74.00	2.9134	90.30	3.5551	151.30	5.9567			11.00	0.4331	2		
					5	●	MDW1090HGS5S	74.00	2.9134	90.30	3.5551	151.30	5.9567			12.00	0.4724	2		
					8	★	MDW1090HGS8	107.00	4.2126	123.30	4.8543	184.30	7.2559			11.00	0.4331	2		
11.00	0.4331				3	●	MDW1100HGS3	40.80	1.6063	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	2		
					5	●	MDW1100HGS5	73.80	2.9055	90.30	3.5551	151.30	5.9567							2
					8	●	MDW1100HGS8	106.80	4.2047	123.30	4.8543	184.30	7.2559							2
11.10	0.4370				3	●	MDW1110HGS3	43.20	1.7008	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2		
					5	●	MDW1110HGS5	77.70	3.0591	94.30	3.7126	160.30	6.3110							2
					8	★	MDW1110HGS8	112.20	4.4173	128.80	5.0709	196.30	7.7283							2
11.11	0.4375	7/16	M12x1		3	●	MDW04375HGS3	40.62	1.5994	57.29	2.2556	118.31	4.6580	2.30	0.0906	11.11	0.4375	2		
					5	●	MDW04375HGS5	73.64	2.8994	90.31	3.5556	151.31	5.9570							2
					8	●	MDW04375HGS8	106.64	4.1984	123.31	4.8546	184.30	7.2560							2
					3	●	MDW04375HGS3S	43.14	1.6984	59.81	2.3546	124.31	4.8940			2.30	0.0906	12.00	0.4724	2
5	●	MDW04375HGS5S	77.63	3.0564	94.30	3.7126	160.30	6.3110					2							
11.20	0.4409				3	●	MDW1120HGS3	43.00	1.6929	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2		
					5	●	MDW1120HGS5	77.50	3.0512	94.30	3.7126	160.30	6.3110							2
					8	★	MDW1120HGS8	112.00	4.4094	128.80	5.0709	196.30	7.7283							2
11.30	0.4449		M12x1.5 M12x1.75		3	●	MDW1130HGS3	42.90	1.6890	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	2		
					5	●	MDW1130HGS5	77.40	3.0472	94.30	3.7126	160.30	6.3110							2
					8	★	MDW1130HGS8	111.90	4.4055	128.80	5.0709	196.30	7.7283							2
11.40	0.4488				3	●	MDW1140HGS3	42.80	1.6850	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	2		
					5	●	MDW1140HGS5	77.30	3.0433	94.40	3.7165	160.40	6.3150							2
					8	★	MDW1140HGS8	111.80	4.4016	128.90	5.0748	196.40	7.7323							2
11.50	0.4528		M12x1.25		3	●	MDW1150HGS3	42.70	1.6811	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	2		
					5	●	MDW1150HGS5	77.20	3.0394	94.40	3.7165	160.40	6.3150							2
					8	●	MDW1150HGS8	111.70	4.3976	128.90	5.0748	196.40	7.7323							2

Super MultiDrills HGS (Internal Coolant Supply)



50

Fig. 2 (diameter $\varnothing 2.5$ to 20.0mm 0.098"-0.787", double margin)



★ Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

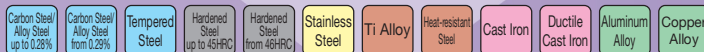
Indexable
Insert Type

Reamers

Brazed

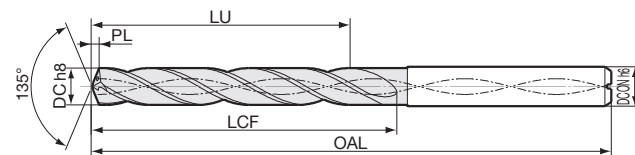
Others

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098"-0.787", double margin)



Diameter $\phi 12.80$ to 14.20mm (0.5039" to 0.5591") Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig				
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.					
12.80	0.5039		9/16-18		3	●	MDW1280HGS3	48.50	1.9094	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2				
					3	●	MDW1280HGS3S	48.40	1.9055	67.60	2.6614	130.60	5.1417					2				
					5	●	MDW1280HGS5	87.50	3.4449	106.70	4.2008	169.70	6.6811					2				
					5	●	MDW1280HGS5S	87.40	3.4409	106.60	4.1969	169.60	6.6772					2				
12.83	0.5051				5	●	MDW1283HGS5	84.76	3.3368	104.00	4.0945	167.00	6.5748	2.66	0.1046	13.00	0.5118	2				
					5	●	MDW1283HGS5S	84.76	3.3368	104.00	4.0945	167.00	6.5748					2				
12.90	0.5079		M14x1.25		3	●	MDW1290HGS3	48.40	1.9055	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2				
					3	●	MDW1290HGS3S	48.40	1.9055	67.70	2.6654	130.70	5.1457					2				
					5	●	MDW1290HGS5	87.40	3.4409	106.70	4.2008	169.70	6.6811					2				
					5	●	MDW1290HGS5S	87.40	3.4409	106.70	4.2008	169.70	6.6811					2				
13.00	0.5118				3	●	MDW1300HGS3	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	2				
					3	●	MDW1300HGS3S	48.20	1.8976	67.70	2.6654	130.70	5.1457					2				
					5	●	MDW1300HGS5	87.20	3.4331	106.70	4.2008	169.70	6.6811					2				
					5	●	MDW1300HGS5S	87.20	3.4331	106.70	4.2008	169.70	6.6811					2				
					8	●	MDW1300HGS8	126.20	4.9685	145.70	5.7362	208.70	8.2165	2.70	0.1063	13.00	0.5118	2				
					3	●	MDW05156HGS3	48.07	1.8924	67.71	2.6658	130.71	5.1460					2.71	0.1068	13.10	0.5156	2
					5	●	MDW05156HGS5	87.06	3.4274	106.70	4.2008	169.72	6.6820									2
					8	●	MDW05156HGS8	126.07	4.9634	145.71	5.7368	208.71	8.2170									2
					3	●	MDW05156HGS3S	50.56	1.9904	70.20	2.7638	136.70	5.3820	2.71	0.1068	14.00	0.5512	2				
					5	●	MDW05156HGS5S	91.07	3.5854	110.71	4.3588	178.71	7.0360					2				
					3	●	MDW1310HGS3	50.60	1.9921	70.20	2.7638	136.70	5.3819					2.70	0.1063	14.00	0.5512	2
					5	●	MDW1310HGS5	91.10	3.5866	110.70	4.3583	178.70	7.0354									2
	0.5197				3	●	MDW1320HGS3	50.40	1.9843	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	2				
					5	●	MDW1320HGS5	90.90	3.5787	110.70	4.3583	178.70	7.0354					2				
13.30	0.5236			M14x1.5	3	●	MDW1330HGS3	50.40	1.9843	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2				
					5	●	MDW1330HGS5	90.90	3.5787	110.80	4.3622	178.80	7.0394					2				
13.40	0.5276			9/16-12 M14x1.25	3	●	MDW1340HGS3	50.20	1.9764	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2				
					5	●	MDW1340HGS5	90.70	3.5709	110.80	4.3622	178.80	7.0394					2				
					3	●	MDW05312HGS3	50.04	1.9702	70.28	2.7670	136.80	5.3860	2.79	0.1100	13.89	0.5469	2				
					5	●	MDW05312HGS5	90.56	3.5652	110.79	4.3620	178.79	7.0390					2				
					8	●	MDW05312HGS8	131.04	5.1592	151.28	5.9560	220.80	8.6930					2				
					3	●	MDW05312HGS3S	50.04	1.9702	70.28	2.7670	136.80	5.3860					2.79	0.1100	14.00	0.5512	2
5	●	MDW05312HGS5S	90.56	3.5652	110.79	4.3620	178.79	7.0390	2													
	0.5315				3	●	MDW1350HGS3	50.10	1.9724	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	2				
					5	●	MDW1350HGS5	90.60	3.5669	110.80	4.3622	178.80	7.0394					2				
					8	●	MDW1350HGS8	131.10	5.1614	151.30	5.9567	220.80	8.6929					2				
					3	●	MDW1360HGS3	52.40	2.0630	72.80	2.8661	136.80	5.3858					2.80	0.1102	14.00	0.5512	2
5	●	MDW1360HGS5	94.40	3.7165	114.80	4.5197	178.80	7.0394	2													
	0.5394		M15x1.5	9/16-18	3	●	MDW1370HGS3	52.30	2.0591	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	2				
					5	●	MDW1370HGS5	94.30	3.7126	114.80	4.5197	178.80	7.0394					2				
13.80	0.5433				3	●	MDW1380HGS3	52.20	2.0551	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2				
					5	●	MDW1380HGS5	94.20	3.7087	114.90	4.5236	178.90	7.0433					2				
	0.5469	35/64			3	●	MDW05469HGS3	52.04	2.0490	72.88	2.8693	136.88	5.3890	2.88	0.1133	13.89	0.5469	2				
					5	●	MDW05469HGS5	94.03	3.7020	114.87	4.5223	178.87	7.0420					2				
					8	●	MDW05469HGS8	136.04	5.3560	156.88	6.1763	220.88	8.6960					2				
					3	●	MDW05469HGS3S	52.04	2.0490	72.88	2.8693	136.88	5.3890					2.88	0.1133	14.00	0.5512	2
5	●	MDW05469HGS5S	94.03	3.7020	114.87	4.5223	178.87	7.0420	2													
13.90	0.5472				3	●	MDW1390HGS3	52.10	2.0512	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2				
					5	●	MDW1390HGS5	94.10	3.7047	114.90	4.5236	178.90	7.0433					2				
	0.5512				3	●	MDW1400HGS3	51.90	2.0433	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	2				
					5	●	MDW1400HGS5	93.90	3.6969	114.90	4.5236	178.90	7.0433					2				
					8	●	MDW1400HGS8	135.90	5.3504	156.90	6.1772	220.90	8.6969					2				
					3	●	MDW1410HGS3	54.30	2.1378	75.40	2.9685	142.90	5.6260					2.90	0.1142	15.00	0.5906	2
3	●	MDW1410HGS3S	54.30	2.1378	75.40	2.9685	142.90	5.6260	2													
5	●	MDW1410HGS5	97.80	3.8504	118.90	4.6811	187.90	7.3976	2													
					5	●	MDW1410HGS5S	97.80	3.8504	118.90	4.6811	187.90	7.3976	2.90	0.1142	15.00	0.5906	2				
					3	●	MDW1420HGS3	54.10	2.1299	75.40	2.9685	142.90	5.6260					2				
					3	●	MDW1420HGS3S	54.10	2.1299	75.40	2.9685	142.90	5.6260					2				
					5	●	MDW1420HGS5	97.60	3.8425	118.90	4.6811	187.90	7.3976					2				
14.20	0.5591				5	●	MDW1420HGS5S	97.60	3.8425	118.90	4.6811	187.90	7.3976	2.90	0.1142	15.00	0.5906	2				
					3	●	MDW1420HGS3	54.10	2.1299	75.40	2.9685	142.90	5.6260					2				
					3	●	MDW1420HGS3S	54.10	2.1299	75.40	2.9685	142.90	5.6260					2				
					5	●	MDW1420HGS5	97.60	3.8425	118.90	4.6811	187.90	7.3976					2				

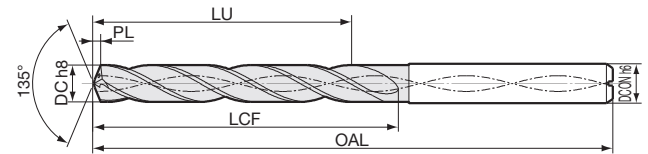
Super MultiDrills HGS (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28% Carbon Steel Alloy Steel from 0.29% Tempered Steel Hardened Steel up to 45HRC Hardened Steel from 46HRC Stainless Steel Ti Alloy Heat-resistant Steel Cast Iron Ductile Cast Iron Aluminum Alloy Copper Alloy



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098" - 0.787", double margin)



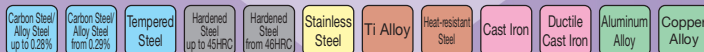
Diameter $\phi 14.29$ to 15.48mm (0.5625" to 0.6094") Dimensions (mm/inch)

● USA stocked item

★ Worldwide Warehouse Item

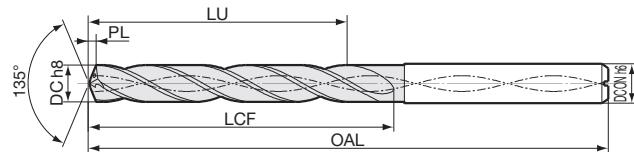
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig				
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.					
14.29	0.5625	9/16	M16x2	M15x1.5	3	●	MDW05625HGS3	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	15.08	0.5937	2				
					5	●	MDW05625HGS5	97.53	3.8398	118.96	4.6835	187.96	7.4000					2				
					8	●	MDW05625HGS8	141.04	5.5528	162.47	6.3965	232.97	9.1720					2				
					3	●	MDW05625HGS3S	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	16.00	0.6299	2				
					5	●	MDW05625HGS5S	97.53	3.8398	118.96	4.6835	187.96	7.4000					2				
					3	●	MDW1430HGS3	54.10	2.1299	75.50	2.9724	143.00	5.6299					3.00	0.1181	15.00	0.5906	2
					3	●	MDW1430HGS3S	54.10	2.1299	75.50	2.9724	143.00	5.6299							16.00	0.6299	2
	0.5630				5	●	MDW1430HGS5	97.60	3.8425	119.00	4.6850	188.00	7.4016	3.00	0.1181	15.00	0.5906	2				
					5	●	MDW1430HGS5S	97.60	3.8425	119.00	4.6850	188.00	7.4016			16.00	0.6299	2				
					3	●	MDW1440HGS3	53.90	2.1220	75.50	2.9724	143.00	5.6299			3.00	0.1181	15.00	0.5906	2		
3	●	MDW1440HGS3S	53.90	2.1220	75.50	2.9724	143.00	5.6299	16.00	0.6299	2											
5	●	MDW1440HGS5	97.40	3.8346	119.00	4.6850	188.00	7.4016	15.00	0.5906	2											
	0.5709		5/8-18	M15x1	3	●	MDW1450HGS3	53.80	2.1181	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	2				
					3	●	MDW1450HGS3S	53.80	2.1181	75.50	2.9724	143.00	5.6299			16.00	0.6299	2				
					5	●	MDW1450HGS5	97.30	3.8307	119.00	4.6850	188.00	7.4016			15.00	0.5906	2				
					5	●	MDW1450HGS5S	97.30	3.8307	119.00	4.6850	188.00	7.4016			16.00	0.6299	2				
					8	●	MDW1450HGS8	140.80	5.5433	162.50	6.3976	233.00	9.1732			15.00	0.5906	2				
	0.5748				3	●	MDW1460HGS3	56.10	2.2087	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	2				
					5	●	MDW1460HGS5	101.10	3.9803	123.00	4.8425	188.00	7.4016			15.00	0.5906	2				
					5	●	MDW1460HGS5S	101.10	3.9803	123.00	4.8425	188.00	7.4016			16.00	0.6299	2				
	0.5781	37/64	M16x1.5		3	●	MDW05781HGS3	56.02	2.2056	78.05	3.0727	143.05	5.6320	3.04	0.1197	15.08	0.5937	2				
					5	●	MDW05781HGS5	101.01	3.9766	123.03	4.8437	188.04	7.4030			15.00	0.5906	2				
					8	●	MDW05781HGS8	146.01	5.7486	168.04	6.6157	233.05	9.1750			16.00	0.6299	2				
					3	●	MDW05781HGS3S	56.02	2.2056	78.05	3.0727	143.05	5.6320			3.04	0.1197	16.00	0.6299	2		
					5	●	MDW05781HGS5S	101.01	3.9766	123.03	4.8437	188.04	7.4030					15.00	0.5906	2		
	0.5787				3	●	MDW1470HGS3	56.00	2.2047	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	2				
					3	●	MDW1470HGS3S	56.00	2.2047	78.00	3.0709	143.00	5.6299			16.00	0.6299	2				
					5	●	MDW1470HGS5	101.00	3.9764	123.00	4.8425	188.00	7.4016			15.00	0.5906	2				
					5	●	MDW1470HGS5S	101.00	3.9764	123.00	4.8425	188.00	7.4016			16.00	0.6299	2				
	0.5827				3	●	MDW1480HGS3	55.90	2.2008	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2				
					3	●	MDW1480HGS3S	55.90	2.2008	78.10	3.0748	143.10	5.6339			16.00	0.6299	2				
					5	●	MDW1480HGS5	100.90	3.9724	123.10	4.8465	188.10	7.4055			15.00	0.5906	2				
					5	●	MDW1480HGS5S	100.90	3.9724	123.10	4.8465	188.10	7.4055			16.00	0.6299	2				
	0.5866		5/8-11		3	●	MDW1490HGS3	55.80	2.1969	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2				
					3	●	MDW1490HGS3S	55.80	2.1969	78.10	3.0748	143.10	5.6339			16.00	0.6299	2				
					5	●	MDW1490HGS5	100.80	3.9685	123.10	4.8465	188.10	7.4055			15.00	0.5906	2				
	0.5906				3	●	MDW1500HGS3	55.60	2.1890	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	2				
					3	●	MDW1500HGS3S	55.60	2.1890	78.10	3.0748	143.10	5.6339			16.00	0.6299	2				
					5	●	MDW1500HGS5	100.60	3.9606	123.10	4.8465	188.10	7.4055			15.00	0.5906	2				
					5	●	MDW1500HGS5S	100.60	3.9606	123.10	4.8465	188.10	7.4055			16.00	0.6299	2				
					8	●	MDW1500HGS8	145.60	5.7323	168.10	6.6181	233.10	9.1772			15.00	0.5906	2				
	0.5937	19/32	M16x1	M16x2	3	●	MDW05937HGS3	55.51	2.1855	78.13	3.0760	143.13	5.6350	3.12	0.1230	15.08	0.5937	2				
					5	●	MDW05937HGS5	100.50	3.9565	123.11	4.8470	188.11	7.4060			16.00	0.6299	2				
					8	●	MDW05937HGS8	145.50	5.7285	168.12	6.6190	233.12	9.1780			15.00	0.5906	2				
					3	●	MDW05937HGS3S	58.00	2.2835	80.62	3.1740	149.12	5.8710	3.12	0.1230	16.00	0.6299	2				
					5	●	MDW05937HGS5S	104.51	4.1145	127.13	5.0050	197.13	7.7610			16.00	0.6299	2				
	0.5945				3	●	MDW1510HGS3	58.00	2.2835	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	2				
					5	●	MDW1510HGS5	104.50	4.1142	127.10	5.0039	197.10	7.7598			16.00	0.6299	2				
	0.5984				3	●	MDW1520HGS3	57.80	2.2756	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	2				
					5	●	MDW1520HGS5	104.30	4.1063	127.10	5.0039	197.10	7.7598			16.00	0.6299	2				
	0.6024			5/8-18 M16x1.5	3	●	MDW1530HGS3	57.80	2.2756	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2				
					5	●	MDW1530HGS5	104.30	4.1063	127.20	5.0079	197.20	7.7638			16.00	0.6299	2				
	0.6063				3	●	MDW1540HGS3	57.60	2.2677	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2				
					5	●	MDW1540HGS5	104.10	4.0984	127.20	5.0079	197.20	7.7638			16.00	0.6299	2				
	0.6094	39/64	11/16-12		3	●	MDW06094HGS3	57.48	2.2631	80.70	3.1772	149.20	5.8740	3.21	0.1262	15.88	0.6250	2				
					5	●	MDW06094HGS5	103.99	4.0941	127.21	5.0082	197.21	7.7640			16.00	0.6299	2				
					8	●	MDW06094HGS8	150.50	5.9251	173.72	6.8392	245.21	9.6540			16.00	0.6299	2				
					3	●	MDW06094HGS3S	57.48	2.2631	80.70	3.1772	149.20	5.8740			3.21	0.1262	16.00	0.6299	2		
					5	●	MDW06094HGS5S	103.99	4.0941	127.21	5.0082	197.21	7.7640					16.00	0.6299	2		

Super MultiDrills HGS (Internal Coolant Supply)



Cut tap recommendations based on 60-75% full thread.
Form tap recommendations based on 55-70% full thread.
Tap Size values should be adjusted according to application.

Fig. 2 (diameter $\phi 2.5$ to 20.0mm 0.098" - 0.787", double margin)



Diameter $\phi 15.50$ to 20.00mm (0.6102" to 0.7874") Dimensions (mm/inch)

● USA stocked item ★ Worldwide Warehouse Item

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig	
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
15.50	0.6102				3	●	MDW1550HGS3	57.50	2.2638	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	2	
					5	●	MDW1550HGS5	104.00	4.0945	127.20	5.0079	197.20	7.7638					2	
					8	●	MDW1550HGS8	150.50	5.9252	173.70	6.8386	245.20	9.6535					2	
15.60	0.6142			M16x1	3	★	MDW1560HGS3	59.80	2.3543	83.20	3.2756	149.20	5.8740	3.20	0.1260	16.00	0.6299	2	
					5	●	MDW1560HGS5	107.80	4.2441	131.20	5.1654	197.20	7.7638					2	
15.70	0.6181		M18x2.5		3	●	MDW1570HGS3	59.80	2.3543	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2	
					5	★	MDW1570HGS5	107.80	4.2441	131.30	5.1693	197.30	7.7677					2	
15.80	0.6220				3	●	MDW1580HGS3	59.60	2.3465	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2	
					5	●	MDW1580HGS5	107.60	4.2362	131.30	5.1693	197.30	7.7677					2	
15.88	0.6250	5/8			3	●	MDW06250HGS3	59.48	2.3419	83.30	3.2794	149.28	5.8770	3.29	0.1294	15.88	0.6250	2	
					5	●	MDW06250HGS5	107.46	4.2309	131.28	5.1684	197.28	7.7670					2	
					8	●	MDW06250HGS8	155.47	6.1209	179.28	7.0584	245.29	9.6570					2	
					3	●	MDW06250HGS3S	59.48	2.3419	83.30	3.2794	149.28	5.8770	3.29	0.1294	16.00	0.6299	2	
					5	●	MDW06250HGS5S	107.46	4.2309	131.28	5.1684	197.28	7.7670					2	
15.90	0.6260				3	●	MDW1590HGS3	59.50	2.3425	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2	
					5	●	MDW1590HGS5	107.50	4.2323	131.30	5.1693	197.30	7.7677					2	
16.00	0.6299				3	●	MDW1600HGS3	59.30	2.3346	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	2	
					5	●	MDW1600HGS5	107.30	4.2244	131.30	5.1693	197.30	7.7677					2	
					8	●	MDW1600HGS8	155.30	6.1142	179.30	7.0591	245.30	9.6575					2	
16.27	0.6406	41/64	M18x2	M17x1.5	3	●	MDW06406HGS3	61.46	2.4198	85.87	3.3807	155.37	6.1170	3.37	0.1327	17.07	0.6719	2	
					5	●	MDW06406HGS5	110.97	4.3688	135.37	5.3297	206.38	8.1250					2	
16.50	0.6496		3/4-10	M17x1	3	●	MDW1650HGS3	61.20	2.4094	85.90	3.3819	155.40	6.1181	3.40	0.1339	17.00	0.6693	2	
					5	●	MDW1650HGS5	110.70	4.3583	135.40	5.3307	206.40	8.1260					2	
16.67	0.6562	21/32	M18x1.5		3	●	MDW06562HGS3	63.44	2.4976	88.44	3.4819	155.45	6.1200	3.45	0.1359	17.07	0.6719	2	
					5	●	MDW06562HGS5	114.44	4.5056	139.44	5.4899	206.45	8.1280					2	
16.90	0.6654				3	●	MDW1690HGS3	63.20	2.4882	88.50	3.4843	155.50	6.1220	3.50	0.1378	17.00	0.6693	2	
						3	●	MDW1690HGS3S	63.20	2.4882	88.50	3.4843	155.50			6.1220	18.00	0.7087	2
						5	●	MDW1690HGS5S	114.50	4.4961	139.50	5.4913	206.44			8.1275	18.00	0.7087	2
17.00	0.6693				3	●	MDW1700HGS3	63.00	2.4803	88.50	3.4843	155.50	6.1220	3.50	0.1378	17.00	0.6693	2	
					5	●	MDW1700HGS5	114.00	4.4882	139.50	5.4921	206.50	8.1299					2	
17.07	0.6719	43/64			3	●	MDW06719HGS3S	65.44	2.5764	91.04	3.5842	161.54	6.3600	3.54	0.1392	18.00	0.7087	2	
					5	●	MDW06719HGS5S	117.94	4.6434	143.54	5.6512	217.53	8.5640					2	
17.30	0.6811				3	●	MDW1730HGS3	65.20	2.5669	91.10	3.5866	161.60	6.3622	3.60	0.1417	18.00	0.7087	2	
					5	●	MDW1730HGS5	117.70	4.6339	143.60	5.6535	217.60	8.5669					2	
17.46	0.6875	11/16			3	●	MDW06875HGS3	64.93	2.5562	91.12	3.5874	161.62	6.3630	3.62	0.1424	17.86	0.7031	2	
					5	●	MDW06875HGS5	117.43	4.6232	143.62	5.6544	217.63	8.5680					2	
17.50	0.6890			M18x1	3	●	MDW1750HGS3	64.90	2.5551	91.10	3.5866	161.60	6.3622	3.60	0.1417	18.00	0.7087	2	
					5	★	MDW1750HGS5	117.40	4.6220	143.60	5.6535	217.60	8.5669					2	
17.80	0.7008				5	●	MDW1780HGS5	121.00	4.7638	147.70	5.8150	217.70	8.5709	3.70	0.1457	18.00	0.7087	2	
17.86	0.7031	45/64		3/4-10	3	●	MDW07031HGS3	66.90	2.6340	93.69	3.6886	161.70	6.3660	3.70	0.1456	17.86	0.7031	2	
					5	●	MDW07031HGS5S	120.90	4.7600	147.69	5.8146	217.70	8.5710					2	
18.00	0.7087			3/4-10	3	★	MDW1800HGS3	66.70	2.6260	93.70	3.6890	161.70	6.3661	3.70	0.1457	18.00	0.7087	2	
					5	★	MDW1800HGS5	120.70	4.7520	147.70	5.8150	217.70	8.5709					2	
18.25	0.7187	23/32			3	●	MDW07187HGS3	68.91	2.7128	96.29	3.7908	167.79	6.6060	3.78	0.1488	19.05	0.7500	2	
					5	●	MDW07187HGS5S	124.40	4.8978	151.79	5.9758	224.79	8.8500			20.00	0.7874	2	
18.50	0.7283				3	★	MDW1850HGS3	68.60	2.7008	96.30	3.7913	167.80	6.6063	3.80	0.1496	19.00	0.7480	2	
					5	★	MDW1850HGS5	124.10	4.8858	151.80	5.9764	224.80	8.8504					2	
18.65	0.7344	47/64	M20.1.5		3	●	MDW07344HGS3	70.88	2.7905	98.86	3.8921	167.87	6.6090	3.86	0.1521	20.00	0.7873	2	
					5	●	MDW07344HGS5S	127.88	5.0345	155.86	6.1361	224.87	8.8530					2	
19.00	0.7480				3	●	MDW1900HGS3	70.40	2.7717	98.90	3.8937	167.90	6.6102	3.90	0.1535	19.00	0.7480	2	
					5	★	MDW1900HGS5	127.40	5.0157	155.90	6.1378	224.90	8.8543					2	
19.05	0.7500	3/4			3	●	MDW07500HGS3	70.37	2.7703	98.94	3.8953	167.94	6.6120	3.94	0.1553	19.05	0.7500	2	
19.25	0.7579				3	●	MDW1925HGS3	68.93	2.7136	97.50	3.8386	170.00	6.6929	3.90	0.1535	20.00	0.7874	2	
19.50	0.7677		7/8-9		3	★	MDW1950HGS3	72.30	2.8465	101.50	3.9961	174.00	6.8504	4.00	0.1575	20.00	0.7874	2	
					5	★	MDW1950HGS5	130.80	5.1496	160.00	6.2992	234.00	9.2126					2	
19.84	0.7812	25/32	M22x2.5		3	●	MDW07812HGS3	74.35	2.9270	104.11	4.0988	174.12	6.8550	4.11	0.1618	19.85	0.7813	2	
					5	●	MDW07812HGS5S	134.34	5.2890	164.10	6.4608	234.11	9.2170			20.00	0.7874	2	
20.00	0.7874				3	★	MDW2000HGS3	74.10	2.9173	104.10	4.0984	174.10	6.8543	4.10	0.1614	20.00	0.7874	2	
					5	★	MDW2000HGS5	134.10	5.2795	164.10	6.4606	234.10	9.2165					2	



MDW - HGS Cutting Conditions

MDW		Part Material	Hardness HB	Speed = SFM Feed = IPR	Drill Diameter (inch)		
					$\phi < \phi 0.196$	$\phi 0.197 - \phi 0.394$	$\phi 0.395 >$
HGS 3D 5D 8D	P	Low Carbon Steel	<190	SFM	300 - 475	400 - 550	450 - 650
				IPR	.004 - .008	.006 - .010	.008 - .014
			190 ~ 250	SFM	225 - 425	265 - 530	425 - 625
				IPR	.004 - .008	.006 - .010	.008 - .014
		Medium Carbon Steel	250 ~ 300	SFM	175 - 375	225 - 495	250 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
			180 ~ 275	SFM	225 - 425	265 - 530	350 - 575
				IPR	.004 - .008	.006 - .010	.008 - .014
			275 ~ 350	SFM	175 - 375	225 - 495	305 - 525
				IPR	.003 - .006	.004 - .008	.006 - .012
		Alloy Steel	200	SFM	190 - 380	225 - 475	275 - 525
				IPR	.003 - .008	.006 - .010	.008 - .014
			350	SFM	125 - 300	155 - 325	155 - 350
				IPR	.003 - .006	.004 - .008	.006 - .010
	M	300 Austenitic Stainless Steel	160 ~ 280	SFM	120 - 225	150 - 325	150 - 325
				IPR	.002 - .006	.004 - .010	.006 - .012
		400 Martensitic Stainless Steel	160 ~ 240	SFM	120 - 250	175 - 350	175 - 350
				IPR	.002 - .006	.004 - .010	.006 - .012
	K	Cast Iron		SFM	150 - 380	250 - 475	275 - 530
				IPR	.006 - .010	.006 - .014	.006 - .014
		Ductile Iron		SFM	150 - 350	225 - 450	250 - 500
				IPR	.006 - .010	.006 - .014	.006 - .014
	H	Hardened Steel	45-60 Rc	SFM	60 - 190	80 - 225	80 - 225
				IPR	.002 - .004	.003 - .006	.004 - .008
	S	Titanium Alloy Ti-6Al-4V		SFM	65 - 130	80 - 130	80 - 160
				IPR	.003 - .004	.003 - .005	.003 - .006
		Exotics - Inconel, Monel		SFM	40 - 85	40 - 100	50 - 120
				IPR	.002 - .003	.003 - .005	.003 - .006
	N	Aluminum alloy		SFM	500 - 800	600 - 1000	600 - 1000
				IPR	.003 - .006	.004 - .008	.006 - .012
		Copper Alloy		SFM	400 - 800	500 - 800	500 - 800
				IPR	.003 - .006	.004 - .008	.006 - .010

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

Bean Jet Cooling®

RX-Thinning & Wide Chip Pocket For Stable & Light Cutting Force

- New Bean Jet Cooling® provides longer tool life in Stainless and Exotic Alloys.
- Optimized for chip evacuation and heat removal.
- Resistant to edge chipping.

Drilling

C

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

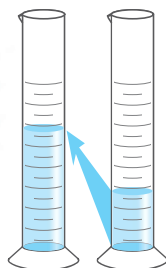
Others

Contours deflect coolant uniformly over the rake face with good conservation of pressure.

*Ideal for drill diameters of $\phi 4.1$ mm and above

- High volume & High Pressure cooling to the cutting edge

More than
double
the volume!



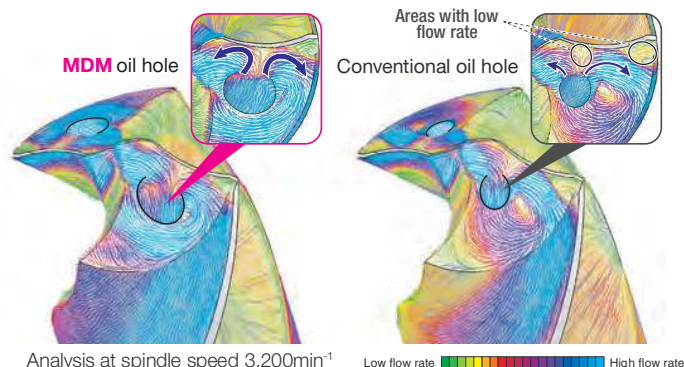
MDM



Conventional



- New technology developed from fluid analysis effectively cools the cutting edge!



- Resistant to edge chipping
- Removing excess heat from rake face dramatically reduces adhesion & breakage.

MDM



Less adhesion
means longer tool life

Competitor



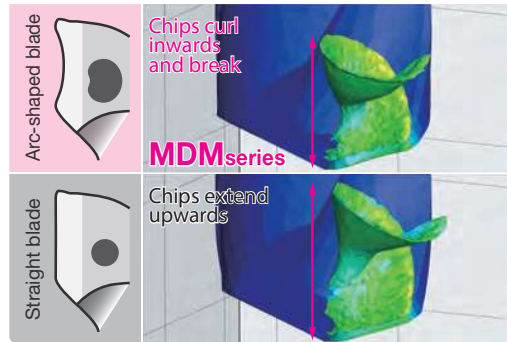
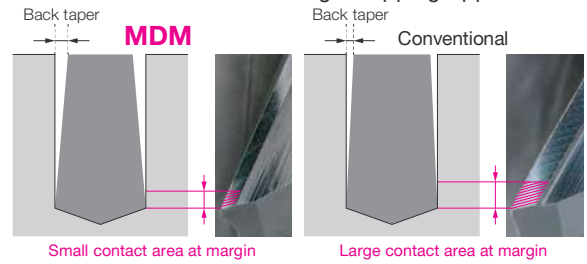
Breakage caused by
adhesion at outer edge

Part Material: 304 Stainless Steel, Machine: BT30 vertical M/C
Tool: MDM0800S08H05 ($\phi 8$ mm $\times$ 5D)
Cutting Conditions: $v_c = 265$ SFM, $f = .0098$ IPR
H= 1.57" (through hole)
Internal Coolant Supply (Water Soluble)
Cutting Distance: 1.57"

Reduces heat generation and work hardening!

Narrow margin and large back taper

The reduced contact area on the margin reduces work hardening and leads to longer tool life in Reaming & Tapping Applications



High Quality Edge Ensures Long Tool Life: The sharp blade design allows low cutting forces with excellent chip control.

MDM

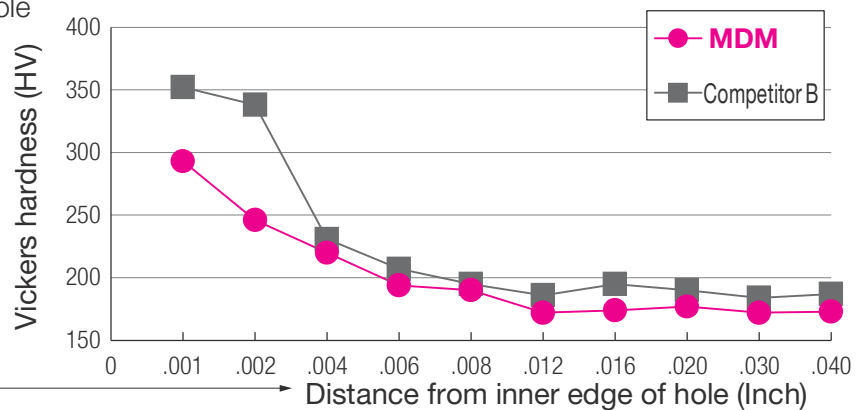
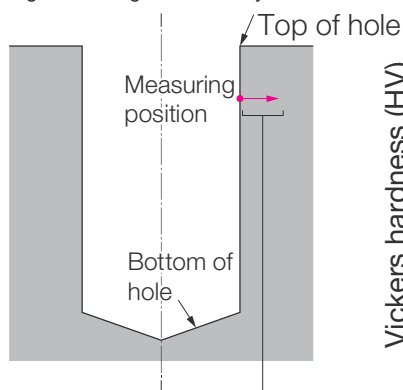
Competitor A



Part Material: 304 Stainless Steel
Machine: BT30 vertical M/C
Tool: MDM0400S04H05 ($\phi 4.0 \text{ mm} \times 5D$)
Cutting Conditions: $v_c = 265 \text{ SFM}$, $f = .0039 \text{ IPR}$
Internal Coolant Supply (Water Soluble)

• Suppresses work hardening on the inner edge of the hole

Reducing the cutting load not only reduces damage to the drill, but also contributes a longer life of reamers and taps used in post processing

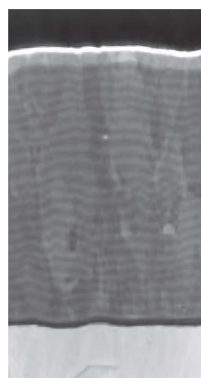


Part Material: 304 Stainless Steel, Machine: BT30 vertical M/C
Tool: MDM0800S08H05 ($\phi 8.0 \text{ mm} \times 5D$)
Cutting Conditions: $v_c = 265 \text{ SFM}$, $f = .0079 \text{ IPR}$ $H = 1.57''$ (through hole)
Internal Coolant Supply (Water Soluble)

Experience exceptional stability when machining stainless steel and exotic alloys!

ACT70 NX COATING

Carbide Substrate & Coating ideal for machining stainless steel and exotic alloy.



**TiAlCrSi Super
Multi-Layer**

Hardness HV: 46GPa

Oxidation starting
temperature: 1,100°C

Highly Adhesive Coating
Layer

- NX coating reduces wear at the margin and resists edge chipping.

MDM



Conventional

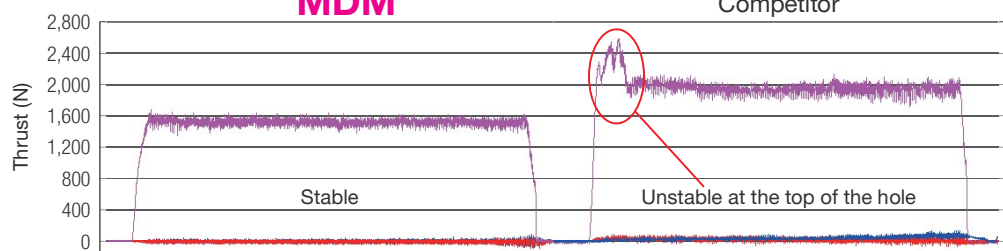


Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 ($\phi 8.0$ mm $\times$ 5D)
Cutting Conditions: $v_c = 265$ SFM,
 $f = .0079$ IPR, $H = 1.57$ " (through hole)
Internal Coolant supply (Water Soluble)

- Reduced thrust enables stable machining from the top of the hole to the bottom

MDM

Competitor

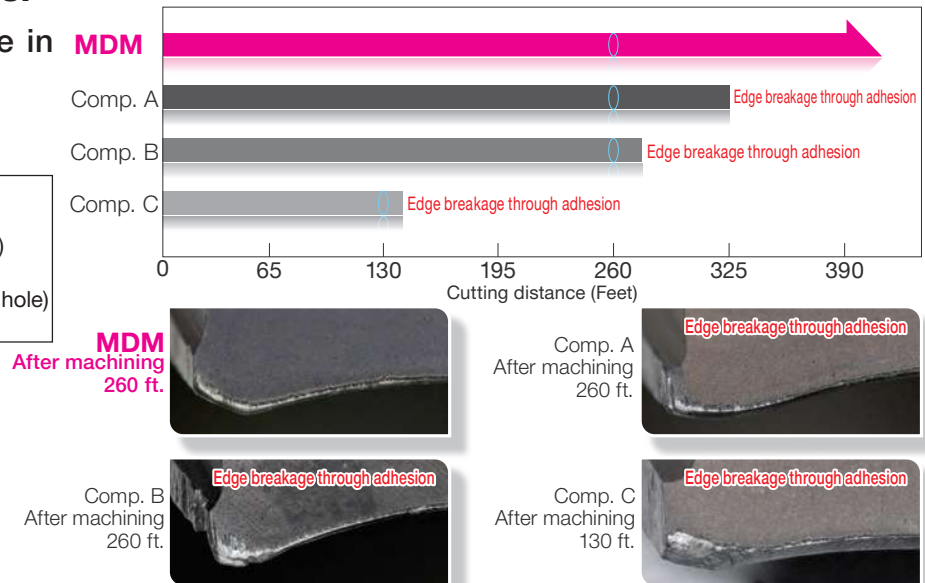


Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 ($\phi 8.0$ mm $\times$ 5D)
Cutting Conditions: $v_c = 265$ SFM,
 $f = .0079$ IPR, $H = 1.57$ " (through hole)
Internal Coolant Supply (Water Soluble)

• Application Examples:

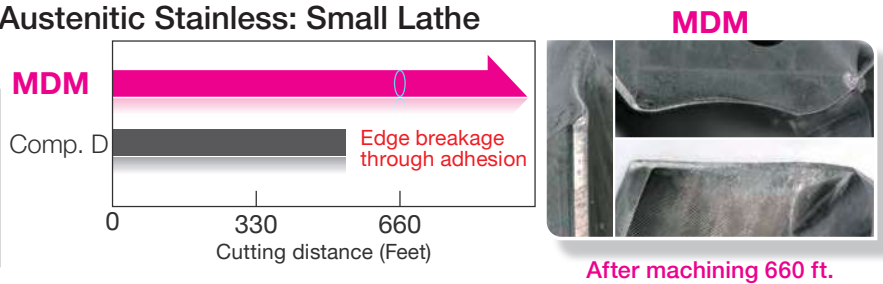
Excellent Wear Resistance in Austenitic Stainless Machining Center

Part Material: 304 Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0800S08H05 ($\phi 8.0 \text{ mm} \times 5D$)
Cutting Conditions: $v_c = 265 \text{ SFM}$,
 $f = .0079 \text{ IPR}$, $H = 1.57''$ (through hole)
Internal Coolant Supply (Water Soluble)



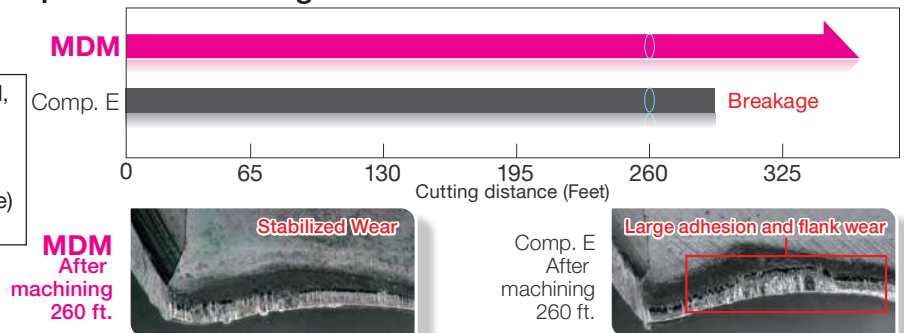
Excellent Wear Resistance in Austenitic Stainless: Small Lathe

Part Material: 304 Stainless Steel,
Machine: CNC Automatic Lathe (Workpiece rotation)
Tool: MDM0540S06H03 ($\phi 5.4 \text{ mm} \times 3D$)
Cutting Conditions: $v_c = 155 \text{ SFM}$,
 $f = .0047 \text{ IPR}$, $H = 1.00''$ (blind hole)
Internal Coolant Supply (Non-Water Soluble)



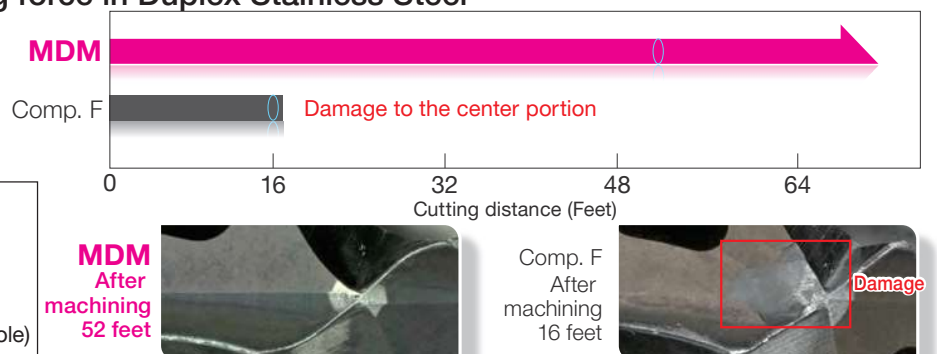
Excellent Wear Stability in Precipitation Hardening Stainless Steel

Part Material: 17-4PH (S17400) Stainless Steel,
Machine: BT30 vertical M/C
Tool: MDM0400S04H05 ($\phi 4 \text{ mm} \times 5D$)
Cutting Conditions: $v_c = 165 \text{ SFM}$,
 $f = .0039 \text{ IPR}$, $H = .55''$ (blind hole)
Internal Coolant Supply (Water Soluble)

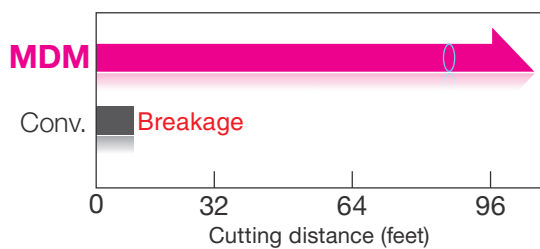


RX thinning reduces cutting force in Duplex Stainless Steel

Part Material: 25% chromium duplex
ferritic-austenitic stainless steel
Machine: BT30 vertical M/C
Tool: MDM 0800S05H05 ($\phi 8 \text{ mm} \times 5D$)
Cutting Conditions: $v_c = 200 \text{ SFM}$,
 $f = .0079 \text{ IPR}$, $H = 1.18''$ (through hole)
Internal Coolant Supply (Water Soluble)



Effective chip formation & high tool life in Titanium Alloy



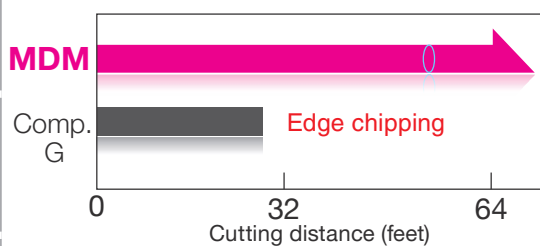
After machining 88 feet



Conventional

Part Material: Ti-6Al-4V Titanium Alloy
 Machine: BT30 vertical M/C
 Tool: MDM0500S05H05 ($\phi 5 \text{ mm} \times 5\text{D}$)
 Cutting Conditions: $v_c = 130 \text{ SFM}$
 $f = .0047 \text{ IPR}$ $H = .74''$ (blind hole)
 Internal Coolant supply (Water Soluble)

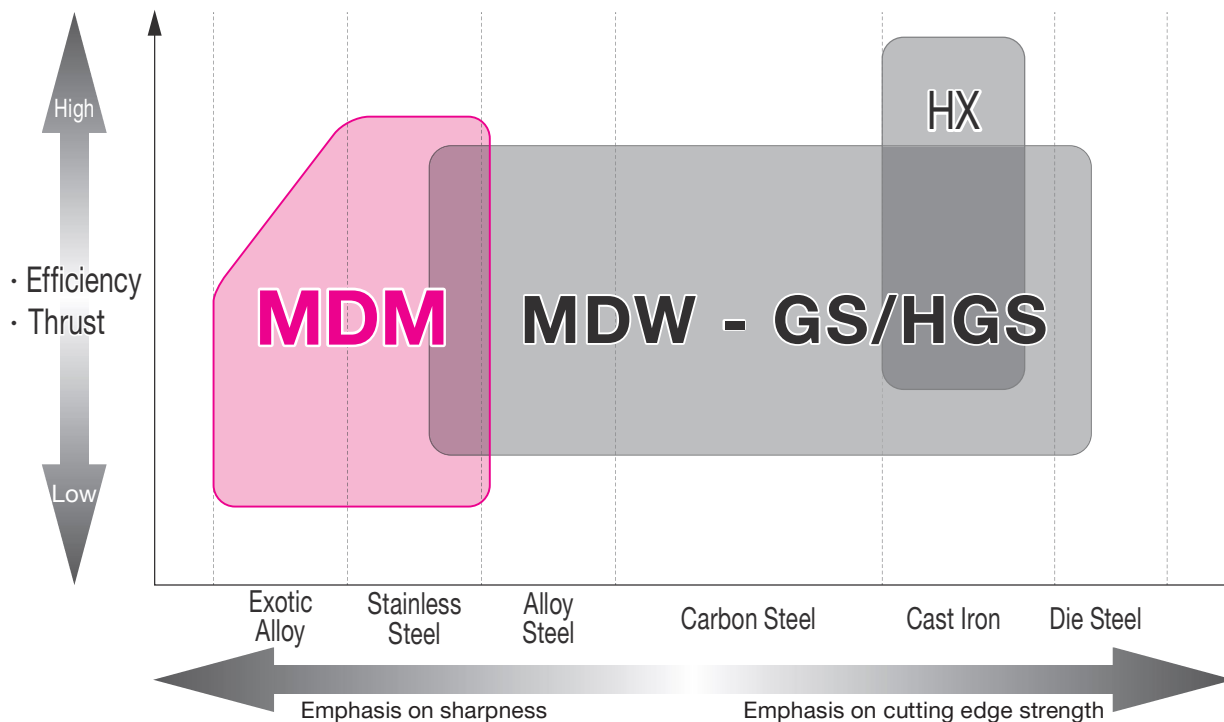
Resistant to edge chipping in Heat-Resistant Cast Steel



After machining 56 feet

Part Material: SCH13X - Heat-Resistant Steel
 Machine: BT30 vertical M/C
 Tool: MDM0880S09H03 ($\phi 8.8 \text{ mm} \times 3\text{D}$)
 Cutting Conditions: $v_c = 165 \text{ SFM}$
 $f = .0043 \text{ IPR}$ $H = .71''$ (blind hole)
 Internal Coolant supply (Water Soluble)

Sumitomo Solid Carbide Drills Comparison



MultiDrill Series MDM Series (Internal Coolant Supply)



● : USA Stocked item
★ : Worldwide Warehouse Item

Fig. 1 (diameter under ø4.1)

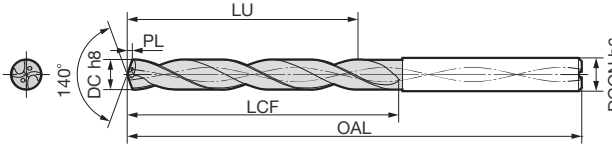
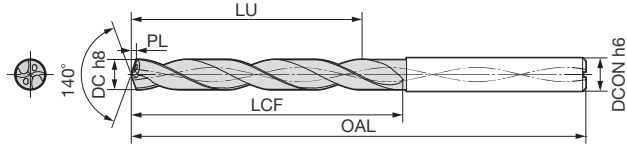


Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter ø3.00 to 4.37mm (0.1181" to 0.1719") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
3.00	0.1181		6-40 / M3.5x.6		3	●	MDM0300S03H03	13.50	0.5315	18.00	0.7087	68.50	2.6969	0.50	0.0197	3.00	0.1181	1
					5	●	MDM0300S03H05	24.00	0.9449	28.50	1.1220	78.50	3.0906					1
3.10	0.1220			6-32	3	●	MDM0310S04H03	15.90	0.6260	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDM0310S04H05	27.90	1.0984	32.60	1.2835	86.60	3.4094					1
3.18	0.1250	1/8		6-32	3	●	MDM01250S04H03	15.80	0.6222	20.57	0.8097	72.57	2.8570	0.58	0.0227	4.00	0.1575	1
					5	●	MDM01250S04H05	27.82	1.0952	32.58	1.2827	86.59	3.4090					1
3.20	0.1260			6-32	3	●	MDM0320S04H03	15.80	0.6220	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDM0320S04H05	27.80	1.0945	32.60	1.2835	86.60	3.4094					1
3.26	0.1285	#30	6-40 / M3.5x.6		3	●	MDM01285S04H03	15.69	0.6177	20.58	0.8104	72.59	2.8580	0.59	0.0234	4.00	0.1575	1
					5	●	MDM01285S04H05	27.70	1.0907	32.60	1.2834	86.59	3.4090					1
3.30	0.1299				3	●	MDM0330S04H03	15.70	0.6181	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDM0330S04H05	27.70	1.0906	32.60	1.2835	86.60	3.4094					1
3.40	0.1339		8-32 / M4x.7		3	●	MDM0340S04H03	15.50	0.6102	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDM0340S04H05	27.50	1.0827	32.60	1.2835	86.60	3.4094					1
3.45	0.1360	#29	8-32 / M4x.7		3	●	MDM01360S04H03	15.44	0.6077	20.62	0.8117	72.62	2.8590	0.63	0.0247	4.00	0.1575	1
					5	●	MDM01360S04H05	27.45	1.0807	32.63	1.2847	86.64	3.4110					1
3.50	0.1378		8-32 / 8-36		3	●	MDM0350S04H03	15.40	0.6063	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDM0350S04H05	27.40	1.0787	32.60	1.2835	86.60	3.4094					1
3.57	0.1406	9/64	8-36 / M4x.5		3	●	MDM01406S04H03	17.79	0.7005	23.15	0.9116	72.64	2.8600	0.65	0.0256	4.00	0.1575	1
					5	●	MDM01406S04H05	31.29	1.2320	36.64	1.4426	86.64	3.4110					1
3.60	0.1417		8-36 / M4x.5		3	●	MDM0360S04H03	17.80	0.7008	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDM0360S04H05	31.30	1.2323	36.70	1.4449	86.70	3.4134					1
3.66	0.1440	#27			3	●	MDM01440S04H03	17.68	0.6962	23.17	0.9122	72.67	2.8610	0.67	0.0262	4.00	0.1575	1
					5	●	MDM01440S04H05	31.17	1.2272	36.66	1.4432	86.66	3.4120					1
3.70	0.1457			M4x.7	3	●	MDM0370S04H03	17.60	0.6929	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDM0370S04H05	31.10	1.2244	36.70	1.4449	86.70	3.4134					1
3.80	0.1496		8-32 / M4x.5		3	●	MDM0380S04H03	17.50	0.6890	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDM0380S04H05	31.00	1.2205	36.70	1.4449	86.70	3.4134					1
3.86	0.1520	#24	M4.5x.75	8-36	3	●	MDM01520S04H03	17.42	0.6857	23.21	0.9137	72.69	2.8620	0.70	0.0277	4.00	0.1575	1
					5	●	MDM01520S04H05	30.90	1.2167	36.70	1.4447	86.69	3.4130					1
3.90	0.1535		10-24 / M4.5x.75	8-36	3	●	MDM0390S04H03	17.40	0.6850	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDM0390S04H05	30.90	1.2165	36.70	1.4449	86.70	3.4134					1
3.91	0.1540	#23	10-24 / M4.5x.75		3	●	MDM01540S04H03	17.35	0.6830	23.22	0.9140	72.72	2.8630	0.71	0.0280	4.00	0.1575	1
					5	●	MDM01540S04H05	30.84	1.2140	36.70	1.4450	86.72	3.4140					1
3.97	0.1562	5/32			3	●	MDM01562S04H03	17.27	0.6801	23.23	0.9144	72.72	2.8630	0.72	0.0284	4.00	0.1575	1
					5	●	MDM01562S04H05	5.36	0.2111	11.31	0.4454	86.72	3.4140					1
4.00	0.1575				3	●	MDM0400S04H03	17.20	0.6772	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDM0400S04H05	30.70	1.2087	36.70	1.4449	86.70	3.4134					1
4.04	0.1590	#21			3	●	MDM01590S06H03	19.67	0.7744	25.73	1.0129	80.75	3.1790	0.73	0.0289	6.00	0.2362	1
					5	●	MDM01590S06H05	34.68	1.3654	40.74	1.6039	98.73	3.8870					1
4.10	0.1614		10-32		3	★	MDM0410S05H03	19.60	0.7717	25.70	1.0118	80.70	3.1772	0.75	0.0294	5.00	0.1969	2
					5	★	MDM0410S05H05	34.60	1.3622	40.70	1.6024	98.70	3.8858					2
					3	●	MDM0410S06H03	19.60	0.7717	25.70	1.0118	80.70	3.1772			6.00	0.2362	2
					5	●	MDM0410S06H05	34.60	1.3622	40.70	1.6024	98.70	3.8858					2
4.20	0.1654		10-32	M4.5x.75	3	★	MDM0420S05H03	19.50	0.7677	25.80	1.0157	80.80	3.1811	0.76	0.0301	5.00	0.1969	2
					5	★	MDM0420S05H05	34.50	1.3583	40.80	1.6063	98.80	3.8898					2
					3	●	MDM0420S06H03	19.50	0.7677	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	MDM0420S06H05	34.50	1.3583	40.80	1.6063	98.80	3.8898					2
4.22	0.1660	#19		M4.5x.75	3	●	MDM01660S06H03	19.44	0.7652	25.76	1.0142	80.77	3.1800	0.77	0.0302	6.00	0.2362	2
					5	●	MDM01660S06H05	34.45	1.3562	40.77	1.6052	98.76	3.8880					2
4.30	0.1693		M5x.8		3	★	MDM0430S05H03	19.30	0.7598	25.80	1.0157	80.80	3.1811	0.78	0.0308	5.00	0.1969	2
					5	★	MDM0430S05H05	34.30	1.3504	40.80	1.6063	98.80	3.8898					2
					3	●	MDM0430S06H03	19.33	0.7598	25.80	1.0157	80.80	3.1811			6.00	0.2362	2
					5	●	MDM0430S06H05	34.30	1.3504	40.80	1.6063	98.80	3.8898					2
4.37	0.1719	11/64	M5x.8	10-24	3	●	MDM01719S06H03	19.24	0.7575	25.79	1.0153	80.80	3.1810	0.80	0.0313	6.00	0.2362	2
					5	●	MDM01719S06H05	34.25	1.3485	40.80	1.6063	98.81	3.8900					2

Grade: ACT70

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

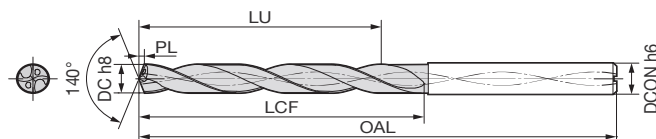
Brazed

Others



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**

Diameter ø4.40 to 5.95mm (0.1732" to 0.2344") Dimensions (mm/inch)

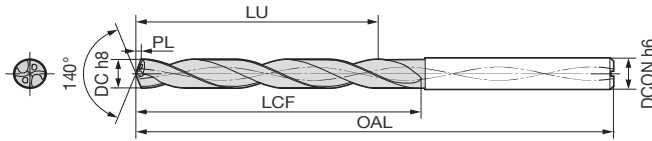
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
4.40	0.1732			10-24	3	★	MDM0440S05H03	19.20	0.7559	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					5	★	MDM0440S05H05	34.20	1.3465	40.80	1.6063	98.80	3.8898					2
					3	●	MDM0440S06H03	19.20	0.7559	25.80	1.0157	80.80	3.1811					2
					5	●	MDM0440S06H05	34.20	1.3465	40.80	1.6063	98.80	3.8898					2
4.50	0.1772		12-24	10-32	3	★	MDM0450S05H03	19.10	0.7520	25.80	1.0157	80.80	3.1811	0.82	0.0322	5.00	0.1969	2
					5	★	MDM0450S05H05	34.10	1.3425	40.80	1.6063	98.80	3.8898					2
					3	●	MDM0450S06H03	19.10	0.7520	25.80	1.0157	80.80	3.1811					2
					5	●	MDM0450S06H05	34.10	1.3425	40.80	1.6063	98.80	3.8898					2
4.57	0.1800	#15	12-24/ M5x.5		3	●	MDM01800S06H03	21.48	0.8458	28.34	1.1158	80.82	3.1820	0.83	0.0328	6.00	0.2362	2
5	●	MDM01800S06H05	37.97	1.4948	44.83	1.7648	98.83	3.8910	2									
4.60	0.1811		12-24 / M5x.5		3	●	MDM0460S05H03	21.40	0.8425	28.30	1.1142	80.80	3.1811	0.80	0.0315	5.00	0.1969	2
					5	★	MDM0460S05H05	37.90	1.4921	44.80	1.7638	98.80	3.8898					2
					3	●	MDM0460S06H03	21.40	0.8425	28.30	1.1142	80.80	3.1811					2
					5	●	MDM0460S06H05	37.90	1.4921	44.80	1.7638	98.80	3.8898					2
4.70	0.1850		12-28	M5x.8	3	★	MDM0470S05H03	21.30	0.8386	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	MDM0470S05H05	37.80	1.4882	44.90	1.7677	98.90	3.8937					2
					3	●	MDM0470S06H03	21.30	0.8386	28.40	1.1181	80.90	3.1850					2
					5	●	MDM0470S06H05	37.80	1.4882	44.90	1.7677	98.90	3.8937					2
4.76	0.1875	3/16			3	●	MDM01875S06H03	21.23	0.8359	28.37	1.1171	80.87	3.1840	0.87	0.0341	6.00	0.2362	2
5	●	MDM01875S06H05	37.72	1.4849	44.86	1.7661	98.86	3.8920	2									
4.80	0.1890			M5x.5	3	★	MDM0480S05H03	21.20	0.8346	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	MDM0480S05H05	37.70	1.4843	44.90	1.7677	98.90	3.8937					2
					3	●	MDM0480S06H03	21.20	0.8346	28.40	1.1181	80.90	3.1850					2
					5	●	MDM0480S06H05	37.70	1.4843	44.90	1.7677	98.90	3.8937					2
4.90	0.1929				3	★	MDM0490S05H03	21.00	0.8268	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	MDM0490S05H05	37.50	1.4764	44.90	1.7677	98.90	3.8937					2
					3	●	MDM0490S06H03	21.00	0.8268	28.40	1.1181	80.90	3.1850					2
					5	●	MDM0490S06H05	37.50	1.4764	44.90	1.7677	98.90	3.8937					2
5.00	0.1969			12-24	3	★	MDM0500S05H03	20.90	0.8228	28.40	1.1181	80.90	3.1850	0.90	0.0354	5.00	0.1969	2
					5	★	MDM0500S05H05	37.40	1.4724	44.90	1.7677	98.90	3.8937					2
					3	●	MDM0500S06H03	20.90	0.8228	28.40	1.1181	80.90	3.1850					2
					5	●	MDM0500S06H05	37.40	1.4724	44.90	1.7677	98.90	3.8937					2
5.10	0.2008			12-28	3	●	MDM0510S06H03	20.80	0.8189	28.40	1.1181	82.90	3.2638	0.90	0.0354	6.00	0.2362	2
5	●	MDM0510S06H05	37.30	1.4685	44.90	1.7677	100.90	3.9724	2									
5.11	0.2010	#7	1/4-20 / M6x1		3	●	MDM02010S06H03	20.78	0.8181	28.44	1.1196	82.93	3.2650	0.93	0.0366	6.00	0.2362	2
5	●	MDM02010S06H05	37.26	1.4671	44.92	1.7686	100.94	3.9740	2									
5.16	0.2031	13/64	1/4-20 / M6x1		3	●	MDM02031S06H03	20.71	0.8154	28.45	1.1200	82.93	3.2650	0.94	0.0370	6.00	0.2362	2
5	●	MDM02031S06H05	37.20	1.4644	44.93	1.7690	100.94	3.9740	2									
5.20	0.2047		1/4-20		3	●	MDM0520S06H03	20.60	0.8110	28.40	1.1181	82.90	3.2638	0.90	0.0354	6.00	0.2362	2
5	●	MDM0520S06H05	37.10	1.4606	44.90	1.7677	100.90	3.9724	2									
5.30	0.2087		1/4-20 / M6x.75		3	●	MDM0530S06H03	20.50	0.8071	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
5	●	MDM0530S06H05	37.00	1.4567	45.00	1.7717	101.00	3.9764	2									
5.31	0.2090	#4	1/4-20 / M6x.75	M5.5x.5	3	●	MDM02090S06H03	20.51	0.8075	28.47	1.1210	82.96	3.2660	0.97	0.0380	6.00	0.2362	2
5	●	MDM02090S06H05	37.00	1.4565	44.96	1.7700	100.97	3.9750	2									
5.40	0.2126				3	●	MDM0540S06H03	20.40	0.8031	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
5	●	MDM0540S06H05	36.90	1.4528	45.00	1.7717	101.00	3.9764	2									
5.41	0.2130	#3			3	●	MDM02130S06H03	20.38	0.8023	28.49	1.1218	82.98	3.2670	0.99	0.0388	6.00	0.2362	2
5	●	MDM02130S06H05	36.86	1.4513	44.98	1.7708	100.99	3.9760	2									
5.50	0.2165		1/4-28		3	●	MDM0550S06H03	20.30	0.7992	28.50	1.1220	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
5	●	MDM0550S06H05	36.80	1.4488	45.00	1.7717	101.00	3.9764	2									
5.56	0.2188	7/32	1/4-28/ M6x.5	M6x1	3	●	MDM02188S06H03	22.67	0.8926	31.01	1.2208	83.01	3.2680	1.01	0.0398	6.00	0.2362	2
5	●	MDM02188S06H05	40.68	1.6016	49.02	1.9298	101.02	3.9770	2									
5.60	0.2205		1/4-28	M6x1	3	●	MDM0560S06H03	22.60	0.8898	31.00	1.2205	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
5	●	MDM0560S06H05	40.60	1.5984	49.00	1.9291	101.00	3.9764	2									
5.61	0.2210	#2			3	●	MDM02210S06H03	22.60	0.8897	31.02	1.2212	83.03	3.2690	1.02	0.0402	6.00	0.2362	2
5	●	MDM02210S06H05	40.61	1.5987	49.03	1.9302	101.02	3.9770	2									
5.70	0.2244			M6x.75	3	●	MDM0570S06H03	22.50	0.8858	31.00	1.2205	83.00	3.2677	1.00	0.0394	6.00	0.2362	2
5	●	MDM0570S06H05	40.50	1.5945	49.00	1.9291	101.00	3.9764	2									
5.80	0.2283			1/4-20	3	●	MDM0580S06H03	22.40	0.8819	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
5	●	MDM0580S06H05	40.40	1.5906	49.10	1.9331	101.10	3.9803	2									
5.90	0.2323			1/4-20	3	●	MDM0590S06H03	22.20	0.8740	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
5	●	MDM0590S06H05	40.20	1.5827	49.10	1.9331	101.10	3.9803	2									
5.95	0.2344	15/64			3	●	MDM02344S06H03	22.15	0.8721	31.08	1.2237	83.08	3.2710	1.08	0.0427	6.00	0.2362	2
5	●	MDM02344S06H05	40.16	1.5811	49.09	1.9327	101.09	3.9800	2									



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter ø6.00 to 7.50mm (0.2362" to 0.2953") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
6.00	0.2362			1/4-28	3	●	MDM0600S06H03	22.10	0.8701	31.10	1.2244	83.10	3.2717	1.10	0.0433	6.00	0.2362	2
					5	●	MDM0600S06H05	40.10	1.5787	49.10	1.9331	101.10	3.9803					2
6.10	0.2402		M7x1		3	★	MDM0610S07H03	24.50	0.9646	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
					5	★	MDM0610S07H05	44.00	1.7323	53.10	2.0906	110.10	4.3346					2
					3	●	MDM0610S08H03	24.50	0.9646	33.60	1.3228	89.10	3.5079					2
					5	●	MDM0610S08H05	44.00	1.7323	53.10	2.0906	110.10	4.3346					2
6.15	0.2420	C	M7x1		3	●	MDM02420S08H03	24.41	0.9610	33.63	1.3240	89.13	3.5090	1.12	0.0440	8.00	0.3150	2
					3	★	MDM0620S07H03	24.30	0.9567	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
6.20	0.2441				5	★	MDM0620S07H05	43.80	1.7244	53.10	2.0906	110.10	4.3346					2
					3	●	MDM0620S08H03	24.30	0.9567	33.60	1.3228	89.10	3.5079					2
					5	●	MDM0620S08H05	43.80	1.7244	53.10	2.0906	110.10	4.3346					2
6.30	0.2480				3	★	MDM0630S07H03	24.20	0.9528	33.60	1.3228	89.10	3.5079	1.10	0.0433	7.00	0.2756	2
					5	★	MDM0630S07H05	43.70	1.7205	53.10	2.0906	110.10	4.3346					2
					3	●	MDM0630S08H03	24.20	0.9528	33.60	1.3228	89.10	3.5079					2
					5	●	MDM0630S08H05	43.70	1.7205	53.10	2.0906	110.10	4.3346					2
6.35	0.2500	1/4			3	●	MDM02500S08H03	24.14	0.9505	33.67	1.3255	89.15	3.5100	1.16	0.0455	8.00	0.3150	2
					5	●	MDM02500S08H05	43.62	1.7175	53.15	2.0925	110.16	4.3370					2
6.40	0.2520				3	★	MDM0640S07H03	24.10	0.9488	33.70	1.3268	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	MDM0640S07H05	43.60	1.7165	53.20	2.0945	110.20	4.3386					2
					3	●	MDM0640S08H03	24.10	0.9488	33.70	1.3268	89.20	3.5118					2
					5	●	MDM0640S08H05	43.60	1.7165	53.20	2.0945	110.20	4.3386					2
6.50	0.2559				3	★	MDM0650S07H03	23.90	0.9409	33.70	1.3268	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	MDM0650S07H05	43.40	1.7087	53.20	2.0945	110.20	4.3386					2
					3	●	MDM0650S08H03	23.90	0.9409	33.70	1.3268	89.20	3.5118					2
					5	●	MDM0650S08H05	43.40	1.7087	53.20	2.0945	110.20	4.3386					2
6.53	0.2570	F		M7x1	3	●	MDM02570S08H03	26.40	1.0393	36.19	1.4248	89.18	3.5110	1.19	0.0468	8.00	0.3150	2
					5	●	MDM02570S08H05	47.40	1.8663	57.20	2.2518	110.19	4.3380					2
6.60	0.2598	5/16-18	M7x1		3	★	MDM0660S07H03	26.30	1.0354	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	MDM0660S07H05	47.30	1.8622	57.20	2.2520	110.20	4.3386					2
					3	●	MDM0660S08H03	26.30	1.0354	36.20	1.4252	89.20	3.5118					2
					5	●	MDM0660S08H05	47.30	1.8622	57.20	2.2520	110.20	4.3386					2
6.70	0.2638				3	★	MDM0670S07H03	26.20	1.0315	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	MDM0670S07H05	47.20	1.8583	57.20	2.2520	110.20	4.3386					2
					3	●	MDM0670S08H03	26.20	1.0315	36.20	1.4252	89.20	3.5118					2
					5	●	MDM0670S08H05	47.20	1.8583	57.20	2.2520	110.20	4.3386					2
6.75	0.2656	17/64	5/6-18		3	●	MDM02656S08H03	26.11	1.0279	36.23	1.4263	89.23	3.5130	1.23	0.0483	8.00	0.3150	2
					5	●	MDM02656S08H05	47.11	1.8549	57.23	2.2533	110.24	4.3400					2
6.76	0.2660	H	5/6-18		3	●	MDM02660S08H03	26.10	1.0274	36.23	1.4264	89.23	3.5130	1.23	0.0484	8.00	0.3150	2
					5	●	MDM02660S08H05	47.10	1.8544	57.24	2.2534	110.24	4.3400					2
6.80	0.2677				3	★	MDM0680S07H03	26.00	1.0236	36.20	1.4252	89.20	3.5118	1.20	0.0472	7.00	0.2756	2
					5	★	MDM0680S07H05	47.00	1.8504	57.20	2.2520	110.20	4.3386					2
					3	●	MDM0680S08H03	26.00	1.0236	36.20	1.4252	89.20	3.5118					2
					5	●	MDM0680S08H05	47.00	1.8504	57.20	2.2520	110.20	4.3386					2
6.90	0.2717		M8x1.25		3	★	MDM0690S07H03	25.90	1.0197	36.30	1.4291	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	★	MDM0690S07H05	46.90	1.8465	57.30	2.2559	110.30	4.3425					2
					3	●	MDM0690S08H03	25.90	1.0197	36.30	1.4291	89.30	3.5157					2
					5	●	MDM0690S08H05	46.90	1.8465	57.30	2.2559	110.30	4.3425					2
6.91	0.2720	I	M8x1.25		3	●	MDM02720S08H03	25.90	1.0195	36.26	1.4275	89.26	3.5140	1.26	0.0495	8.00	0.3150	2
					5	●	MDM02720S08H05	46.90	1.8465	57.26	2.2545	110.26	4.3410					2
7.00	0.2756	5/16-24			3	★	MDM0700S07H03	25.80	1.0157	36.30	1.4291	89.30	3.5157	1.30	0.0512	7.00	0.2756	2
					5	★	MDM0700S07H05	46.80	1.8425	57.30	2.2559	110.30	4.3425					2
					3	●	MDM0700S08H03	25.80	1.0157	36.30	1.4291	89.30	3.5157					2
					5	●	MDM0700S08H05	46.80	1.8425	57.30	2.2559	110.30	4.3425					2
7.04	0.2770	J	5/16-24		3	●	MDM02770S08H03	28.22	1.1109	38.77	1.5264	95.28	3.7510	1.28	0.0504	8.00	0.3150	2
					5	●	MDM02770S08H05	50.72	1.9969	61.27	2.4124	119.28	4.6960					2
7.10	0.2795		M8x1		3	●	MDM0710S08H03	28.10	1.1063	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	MDM0710S08H05	50.60	1.9921	61.30	2.4134	119.30	4.6969					2
7.14	0.2812	9/32	M8x1		3	●	MDM02812S08H03	28.08	1.1054	38.79	1.5272	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	MDM02812S08H05	50.58	1.9914	61.30	2.4132	119.30	4.6970					2
7.20	0.2835				3	●	MDM0720S08H03	28.00	1.1024	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	MDM0720S08H05	50.50	1.9882	61.30	2.4134	119.30	4.6969					2
7.30	0.2874		M8x.75	5/16-18	3	●	MDM0730S08H03	27.90	1.0984	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	MDM0730S08H05	50.40	1.9843	61.30	2.4134	119.30	4.6969					2
7.40	0.2913				3	●	MDM0740S08H03	27.70	1.0906	38.80	1.5276	95.30	3.7520	1.30	0.0512	8.00	0.3150	2
					5	●	MDM0740S08H05	50.20	1.9764	61.30	2.4134	119.30	4.6969					2
7.49	0.2950	M		5/16-24 / M8x1.25	3	●	MDM02950S08H03	27.61	1.0872	38.85	1.5297	95.35	3.7540	1.36	0.0537	8.00	0.3150	2
					5	●	MDM02950S08H05	50.12	1.9732	61.36	2.4157	119.35	4.6990					2
7.50	0.2953			5/16-24 / M8x1.25	3	●	MDM0750S08H03	27.60	1.0866	38.90	1.5315	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0750S08H05	50.10	1.9724	61.40	2.4173	119.40	4.7008					2

MultiDrill Series

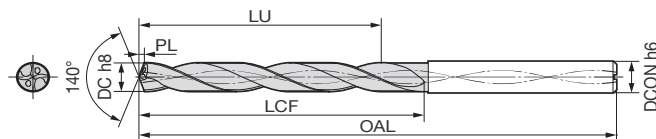
MDM Series (Internal Coolant Supply)



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter $\phi 4.1$ or larger) **Bean Jet Cooling**



Diameter $\phi 7.54$ to 9.20mm (0.2969" to 0.3622") Dimensions (mm/inch)

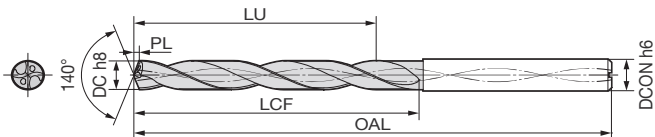
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
7.54	0.2969	19/64		M8x1	3	●	MDM02969S08H03	30.07	1.1837	41.38	1.6290	95.38	3.7550	1.37	0.0540	8.00	0.3150	2
					5	●	MDM02969S08H05	54.07	2.1287	65.38	2.5740	119.38	4.7000					2
7.60	0.2992			M8x1	3	●	MDM0760S08H03	30.00	1.1811	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0760S08H05	54.00	2.1260	65.40	2.5748	119.40	4.7008					2
7.67	0.3020	N		M8x.75	3	●	MDM03020S08H03	29.90	1.1770	41.40	1.6300	95.40	3.7560	1.40	0.0550	8.00	0.3150	2
					5	●	MDM03020S08H05	53.90	2.1220	65.41	2.5750	119.41	4.7010					2
7.70	0.3031			M8x.75	3	●	MDM0770S08H03	29.90	1.1772	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0770S08H05	53.90	2.1220	65.40	2.5748	119.40	4.7008					2
7.80	0.3071				3	●	MDM0780S08H03	29.70	1.1693	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0780S08H05	53.70	2.1142	65.40	2.5748	119.40	4.7008					2
7.90	0.3110				3	●	MDM0790S08H03	29.60	1.1654	41.40	1.6299	95.40	3.7559	1.40	0.0551	8.00	0.3150	2
					5	●	MDM0790S08H05	53.60	2.1102	65.40	2.5748	119.40	4.7008					2
7.94	0.3125	5/16			3	●	MDM03125S08H03	29.55	1.1632	41.45	1.6319	95.45	3.7580	1.45	0.0569	8.00	0.3150	2
					5	●	MDM03125S08H05	53.55	2.1082	65.45	2.5769	119.46	4.7030					2
8.00	0.3150				3	●	MDM0800S08H03	29.50	1.1614	41.50	1.6339	95.50	3.7598	1.50	0.0591	8.00	0.3150	2
					5	●	MDM0800S08H05	53.50	2.1063	65.50	2.5787	119.50	4.7047					2
8.10	0.3189		3/8-16		3	★	MDM0810S09H03	31.80	1.2520	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0810S09H05	57.30	2.2559	69.50	2.7362	128.50	5.0591			10.00	0.3937	2
					3	●	MDM0810S10H03	31.80	1.2520	44.00	1.7323	101.50	3.9961					2
					5	●	MDM0810S10H05	57.30	2.2559	69.50	2.7362	128.50	5.0591					2
8.20	0.3228		3/8-16		3	★	MDM0820S09H03	31.70	1.2480	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0820S09H05	57.20	2.2520	69.50	2.7362	128.50	5.0591			10.00	0.3937	2
					3	●	MDM0820S10H03	31.70	1.2480	44.00	1.7323	101.50	3.9961					2
					5	●	MDM0820S10H05	57.20	2.2520	69.50	2.7362	128.50	5.0591					2
8.20	0.3230	P	3/8-16		3	●	MDM03230S10H03	31.68	1.2473	43.99	1.7318	101.50	3.9960	1.49	0.0588	10.00	0.3937	2
					5	●	MDM03230S10H05	57.18	2.2513	69.49	2.7358	128.50	5.0590					2
8.30	0.3268				3	★	MDM0830S09H03	31.60	1.2441	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0830S09H05	57.10	2.2480	69.50	2.7362	128.50	5.0591			10.00	0.3937	2
					3	●	MDM0830S10H03	31.60	1.2441	44.00	1.7323	101.50	3.9961					2
					5	●	MDM0830S10H05	57.10	2.2480	69.50	2.7362	128.50	5.0591					2
8.33	0.3281	21/64			3	●	MDM03281S10H03	31.51	1.2406	44.01	1.7327	101.52	3.9970	1.52	0.0597	10.00	0.3937	2
					5	●	MDM03281S10H05	57.01	2.2446	69.51	2.7367	128.52	5.0600					2
8.40	0.3307				3	★	MDM0840S09H03	31.40	1.2362	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0840S09H05	56.90	2.2402	69.50	2.7362	128.50	5.0591			10.00	0.3937	2
					3	●	MDM0840S10H03	31.40	1.2362	44.00	1.7323	101.50	3.9961					2
					5	●	MDM0840S10H05	56.90	2.2402	69.50	2.7362	128.50	5.0591					2
8.43	0.3320	Q			3	●	MDM03320S10H03	31.38	1.2354	44.03	1.7334	101.52	3.9970	1.53	0.0604	10.00	0.3937	2
					5	●	MDM03320S10H05	56.88	2.2394	69.53	2.7374	128.52	5.0600					2
8.50	0.3346				3	★	MDM0850S09H03	31.30	1.2323	44.00	1.7323	101.50	3.9961	1.50	0.0591	9.00	0.3543	2
					5	★	MDM0850S09H05	56.80	2.2362	69.50	2.7362	128.50	5.0591			10.00	0.3937	2
					3	●	MDM0850S10H03	31.30	1.2323	44.00	1.7323	101.50	3.9961					2
					5	●	MDM0850S10H05	56.80	2.2362	69.50	2.7362	128.50	5.0591					2
8.60	0.3386		3/8-24 / M10x1.5		3	★	MDM0860S09H03	33.70	1.3268	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0860S09H05	60.70	2.3898	73.60	2.8976	128.60	5.0630			10.00	0.3937	2
					3	●	MDM0860S10H03	33.70	1.3268	46.60	1.8346	101.60	4.0000					2
					5	●	MDM0860S10H05	60.70	2.3898	73.60	2.8976	128.60	5.0630					2
8.70	0.3425		M10x1.5		3	★	MDM0870S09H03	33.50	1.3189	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0870S09H05	60.50	2.3819	73.60	2.8976	128.60	5.0630			10.00	0.3937	2
					3	●	MDM0870S10H03	33.50	1.3189	46.60	1.8346	101.60	4.0000					2
					5	●	MDM0870S10H05	60.50	2.3819	73.60	2.8976	128.60	5.0630					2
8.73	0.3438	11/32	M10x1.5		3	●	MDM03438S10H03	33.50	1.3189	46.60	1.8346	101.60	4.0000	1.59	0.0626	10.00	0.3937	2
					5	●	MDM03438S10H05	60.50	2.3819	73.60	2.8976	128.60	5.0630					2
8.80	0.3465			3/8-16	3	★	MDM0880S09H03	33.40	1.3150	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0880S09H05	60.40	2.3780	73.60	2.8976	128.60	5.0630			10.00	0.3937	2
					3	●	MDM0880S10H03	33.40	1.3150	46.60	1.8346	101.60	4.0000					2
					5	●	MDM0880S10H05	60.40	2.3780	73.60	2.8976	128.60	5.0630					2
8.90	0.3504		M10x1.25		3	★	MDM0890S09H03	33.30	1.3110	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0890S09H05	60.30	2.3740	73.60	2.8976	128.60	5.0630			10.00	0.3937	2
					3	●	MDM0890S10H03	33.30	1.3110	46.60	1.8346	101.60	4.0000					2
					5	●	MDM0890S10H05	60.30	2.3740	73.60	2.8976	128.60	5.0630					2
9.00	0.3543				3	★	MDM0900S09H03	33.10	1.3031	46.60	1.8346	101.60	4.0000	1.60	0.0630	9.00	0.3543	2
					5	★	MDM0900S09H05	60.10	2.3661	73.60	2.8976	128.60	5.0630			10.00	0.3937	2
					3	●	MDM0900S10H03	33.10	1.3031	46.60	1.8346	101.60	4.0000					2
					5	●	MDM0900S10H05	60.10	2.3661	73.60	2.8976	128.60	5.0630					2
9.10	0.3583		M10x1	3/8-24	3	●	MDM0910S10H03	35.50	1.3976	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0910S10H05	64.00	2.5197	77.70	3.0591	137.70	5.4213					2
9.13	0.3594	23/64	M10x1		3	●	MDM03594S10H03	35.47	1.3963	49.16	1.9354	107.67	4.2390	1.66	0.0654	10.00	0.3937	2
					5	●	MDM03594S10H05	63.96	2.5183	77.66	3.0574	137.67	5.4200					2
9.20	0.3622				3	●	MDM0920S10H03	35.40	1.3937	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0920S10H05	63.90	2.5157	77.70	3.0591	137.70	5.4213					2

Grade: ACT70



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**

Diameter ø9.30 to 11.00mm (0.3661" to 0.4331") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
9.30	0.3661				3	●	MDM0930S10H03	35.20	1.3858	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0930S10H05	63.70	2.5079	77.70	3.0591	137.70	5.4213					2
9.35	0.3680	U	7/16-14	M10x1.5	3	●	MDM03680S10H03	35.18	1.3850	49.20	1.9370	107.70	4.2400	1.70	0.0670	10.00	0.3937	2
					5	●	MDM03680S10H05	63.68	2.5070	77.70	3.0590	137.69	5.4210					2
9.40	0.3701		7/16-14	M10x1.5	3	●	MDM0940S10H03	35.10	1.3819	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0940S10H05	63.60	2.5039	77.70	3.0591	137.70	5.4213					2
9.50	0.3740		7/16-14	M10x1.25	3	●	MDM0950S10H03	35.00	1.3780	49.20	1.9370	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	●	MDM0950S10H05	63.50	2.5000	77.70	3.0591	137.70	5.4213					2
9.53	0.3750	3/8	7/16-14		3	●	MDM03750S10H03	37.46	1.4747	51.74	2.0372	107.72	4.2410	1.73	0.0682	10.00	0.3937	2
					5	●	MDM03750S10H05	67.45	2.6557	81.74	3.2182	137.74	5.4230					2
9.58	0.3770	V	7/16-14	M10x1	3	●	MDM03770S10H03	37.39	1.4721	51.76	2.0376	107.75	4.2420	1.74	0.0686	10.00	0.3937	2
					5	●	MDM03770S10H05	67.39	2.6531	81.75	3.2186	137.74	5.4230					2
9.60	0.3780			M10x1	3	●	MDM0960S10H03	37.30	1.4685	51.70	2.0354	107.70	4.2402	1.70	0.0669	10.00	0.3937	2
					5	★	MDM0960S10H05	67.30	2.6496	81.70	3.2165	137.70	5.4213					2
9.70	0.3819			M10x.75	3	●	MDM0970S10H03	37.20	1.4646	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	MDM0970S10H05	67.20	2.6457	81.80	3.2205	137.80	5.4252					2
9.80	0.3858				3	●	MDM0980S10H03	37.10	1.4606	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	MDM0980S10H05	67.10	2.6417	81.80	3.2205	137.80	5.4252					2
9.90	0.3898				3	●	MDM0990S10H03	37.00	1.4567	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	MDM0990S10H05	67.00	2.6378	81.80	3.2205	137.80	5.4252					2
9.92	0.3906	25/64	7/16-20		3	●	MDM03906S10H03	36.94	1.4542	51.82	2.0401	107.80	4.2440	1.81	0.0711	10.00	0.3937	2
					5	●	MDM03906S10H05	66.93	2.6352	81.82	3.2211	137.80	5.4250					2
10.00	0.3937		7/16-20		3	●	MDM1000S10H03	36.80	1.4488	51.80	2.0394	107.80	4.2441	1.80	0.0709	10.00	0.3937	2
					5	●	MDM1000S10H05	66.80	2.6299	81.80	3.2205	137.80	5.4252					2
10.10	0.3976				3	★	MDM1010S11H03	39.20	1.5433	54.30	2.1378	117.80	4.6378	1.80	0.0709	11.00	0.4331	2
					5	★	MDM1010S11H05	70.70	2.7835	85.80	3.3780	150.80	5.9370					2
					3	●	MDM1010S12H03	39.20	1.5433	54.30	2.1378	117.80	4.6378			12.00	0.4724	2
					5	●	MDM1010S12H05	70.70	2.7835	85.80	3.3780	150.80	5.9370					2
10.20	0.4016				3	★	MDM1020S11H03	39.10	1.5394	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1020S11H05	70.60	2.7795	85.90	3.3819	150.90	5.9409					2
					3	●	MDM1020S12H03	39.10	1.5394	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1020S12H05	70.60	2.7795	85.90	3.3819	150.90	5.9409					2
10.30	0.4055			7/16-14	3	★	MDM1030S11H03	38.90	1.5315	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1030S11H05	70.40	2.7717	85.90	3.3819	150.90	5.9409					2
					3	●	MDM1030S12H03	38.90	1.5315	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1030S12H05	70.40	2.7717	85.90	3.3819	150.90	5.9409					2
10.32	0.4062	13/32	7/16-14		3	●	MDM04062S12H03	38.90	1.5316	54.38	2.1409	117.88	4.6410	1.88	0.0739	12.00	0.4724	2
					5	●	MDM04062S12H05	70.40	2.7716	85.87	3.3809	150.88	5.9400					2
10.40	0.4094			M12x1.75	3	★	MDM1040S11H03	38.80	1.5276	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1040S11H05	70.30	2.7677	85.90	3.3819	150.90	5.9409					2
					3	●	MDM1040S12H03	38.80	1.5276	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1040S12H05	70.30	2.7677	85.90	3.3819	150.90	5.9409					2
10.49	0.4130	Z	M12x1.75		3	●	MDM04130S12H03	38.68	1.5227	54.41	2.1422	117.91	4.6420	1.91	0.0752	12.00	0.4724	2
					5	●	MDM04130S12H05	70.17	2.7627	85.91	3.3822	150.90	5.9410					2
10.50	0.4134			M12x1.75	3	★	MDM1050S11H03	38.70	1.5236	54.40	2.1417	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1050S11H05	70.20	2.7638	85.90	3.3819	150.90	5.9409					2
					3	●	MDM1050S12H03	38.70	1.5236	54.40	2.1417	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1050S12H05	70.20	2.7638	85.90	3.3819	150.90	5.9409					2
10.60	0.4173			7/20	3	★	MDM1060S11H03	41.00	1.6142	56.90	2.2402	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1060S11H05	74.00	2.9134	89.90	3.5394	150.90	5.9409					2
					3	●	MDM1060S12H03	41.00	1.6142	56.90	2.2402	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1060S12H05	74.00	2.9134	89.90	3.5394	150.90	5.9409					2
10.70	0.4213			M12x1.5	3	★	MDM1070S11H03	40.90	1.6102	56.90	2.2402	117.90	4.6417	1.90	0.0748	11.00	0.4331	2
					5	★	MDM1070S11H05	73.90	2.9094	89.90	3.5394	150.90	5.9409					2
					3	●	MDM1070S12H03	40.90	1.6102	56.90	2.2402	117.90	4.6417			12.00	0.4724	2
					5	●	MDM1070S12H05	73.90	2.9094	89.90	3.5394	150.90	5.9409					2
10.72	0.4219	27/64	M12x1.5		3	●	MDM04219S12H03	40.87	1.6090	56.94	2.2418	117.96	4.6440	1.95	0.0768	12.00	0.4724	2
					5	●	MDM04219S12H05	73.89	2.9090	89.96	3.5418	150.95	5.9430					2
10.80	0.4252				3	★	MDM1080S11H03	40.80	1.6063	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	MDM1080S11H05	73.80	2.9055	90.00	3.5433	151.00	5.9449					2
					3	●	MDM1080S12H03	40.80	1.6063	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	MDM1080S12H05	73.80	2.9055	90.00	3.5433	151.00	5.9449					2
10.90	0.4291			1/2-13 / M12x1.25	3	★	MDM1090S11H03	40.60	1.5984	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	MDM1090S11H05	73.60	2.8976	90.00	3.5433	151.00	5.9449					2
					3	●	MDM1090S12H03	40.60	1.5984	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	MDM1090S12H05	73.60	2.8976	90.00	3.5433	151.00	5.9449					2
11.00	0.4331			1/2-13	3	★	MDM1100S11H03	40.50	1.5945	57.00	2.2441	118.00	4.6457	2.00	0.0787	11.00	0.4331	2
					5	★	MDM1100S11H05	73.50	2.8937	90.00	3.5433	151.00	5.9449					2
					3	●	MDM1100S12H03	40.50	1.5945	57.00	2.2441	118.00	4.6457			12.00	0.4724	2
					5	●	MDM1100S12H05	73.50	2.8937	90.00	3.5433	151.00	5.9449					2

Grade: ACT70

Drilling

Solid

Indexable
Head TypeIndexable
Insert Type

Reamers

Brazed

Others

MultiDrill Series

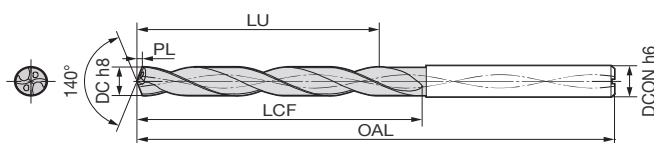
MDM Series (Internal Coolant Supply)



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter ø4.1 or larger) **Bean Jet Cooling**



Diameter ø11.10 to 13.00mm (0.4370" to 0.5118") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
11.10	0.4370		1/2-13 / M12x1		3	●	MDM1110S12H03	42.90	1.6890	59.50	2.3425	124.00	4.8819	2.00	0.0787	12.00	0.4724	2
					5	●	MDM1110S12H05	77.40	3.0472	94.00	3.7008	160.00	6.2992					2
11.11	0.4375	7/16	M12x1		3	●	MDM04375S12H03	42.86	1.6874	59.53	2.3436	124.03	4.8830	2.02	0.0796	12.00	0.4724	2
					5	●	MDM04375S12H05	77.35	3.0454	94.02	3.7016	160.02	6.3000					2
11.20	0.4409		M12x1		3	●	MDM1120S12H03	42.70	1.6811	59.50	2.3425	124.00	4.8819	2.00	0.0787	12.00	0.4724	2
					5	●	MDM1120S12H05	77.20	3.0394	94.00	3.7008	160.00	6.2992					2
11.30	0.4449			M12x1.75	3	★	MDM1130S12H03	42.60	1.6772	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1130S12H05	77.10	3.0354	94.10	3.7047	160.10	6.3031					2
11.40	0.4488			M12x1.5	3	●	MDM1140S12H03	42.50	1.6732	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1140S12H05	77.00	3.0315	94.10	3.7047	160.10	6.3031					2
11.50	0.4528			M12x1.25	3	●	MDM1150S12H03	42.30	1.6654	59.60	2.3465	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1150S12H05	76.80	3.0236	94.10	3.7047	160.10	6.3031					2
11.51	0.4531	29/64	1/2-20		3	●	MDM04531S12H03	44.83	1.7649	62.09	2.4445	124.10	4.8860	2.10	0.0825	12.00	0.4724	2
					5	●	MDM04531S12H05	80.85	3.1829	98.11	3.8625	160.10	6.3030					2
11.60	0.4567		1/2-20		3	●	MDM1160S12H03	44.70	1.7598	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1160S12H05	80.70	3.1772	98.10	3.8622	160.10	6.3031					2
11.70	0.4606				3	●	MDM1170S12H03	44.60	1.7559	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1170S12H05	80.60	3.1732	98.10	3.8622	160.10	6.3031					2
11.80	0.4646				3	●	MDM1180S12H03	44.40	1.7480	62.10	2.4449	124.10	4.8858	2.10	0.0827	12.00	0.4724	2
					5	●	MDM1180S12H05	80.40	3.1654	98.10	3.8622	160.10	6.3031					2
11.90	0.4685			1/2-13	3	●	MDM1190S12H03	44.30	1.7441	62.20	2.4488	124.20	4.8898	2.20	0.0866	12.00	0.4724	2
					5	●	MDM1190S12H05	80.30	3.1614	98.20	3.8661	160.20	6.3071					2
11.91	0.4688	15/32	1/2-13		3	●	MDM04688S12H03	44.30	1.7441	62.16	2.4473	124.16	4.8880	2.17	0.0853	12.00	0.4724	2
					5	●	MDM04688S12H05	80.32	3.1621	98.18	3.8653	160.17	6.3060					2
12.00	0.4724				3	●	MDM1200S12H03	44.20	1.7402	62.20	2.4488	124.20	4.8898	2.20	0.0866	12.00	0.4724	2
					5	●	MDM1200S12H05	80.20	3.1575	98.20	3.8661	160.20	6.3071					2
12.10	0.4764				3	★	MDM1210S13H03	46.60	1.8346	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	MDM1210S13H05	84.10	3.3110	102.20	4.0236	169.20	6.6614			14.00	0.5512	2
					3	●	MDM1210S14H03	46.60	1.8346	64.70	2.5472	130.20	5.1260					2
					5	●	MDM1210S14H05	84.10	3.3110	102.20	4.0236	169.20	6.6614					2
12.20	0.4803			1/2-20	3	★	MDM1220S13H03	46.40	1.8268	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	MDM1220S13H05	83.90	3.3031	102.20	4.0236	169.20	6.6614			14.00	0.5512	2
					3	●	MDM1220S14H03	46.40	1.8268	64.70	2.5472	130.20	5.1260					2
					5	●	MDM1220S14H05	83.90	3.3031	102.20	4.0236	169.20	6.6614					2
12.30	0.4843		9/16-12 / M14x2		3	★	MDM1230S13H03	46.30	1.8228	64.70	2.5472	130.20	5.1260	2.20	0.0866	13.00	0.5118	2
					5	★	MDM1230S13H05	83.80	3.2992	102.20	4.0236	169.20	6.6614			14.00	0.5512	2
					3	●	MDM1230S14H03	46.30	1.8228	64.70	2.5472	130.20	5.1260					2
					5	●	MDM1230S14H05	83.80	3.2992	102.20	4.0236	169.20	6.6614					2
12.30	0.4844	31/64	9/16-12 / M14x2		3	●	MDM04844S14H03	46.29	1.8226	64.75	2.5492	130.25	5.1280	2.24	0.0882	14.00	0.5512	2
					5	●	MDM04844S14H05	83.78	3.2986	102.24	4.0252	169.24	6.6630					2
12.40	0.4882		9/16-12		3	★	MDM1240S13H03	46.20	1.8189	64.80	2.5512	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1240S13H05	83.70	3.2953	102.30	4.0276	169.30	6.6654			14.00	0.5512	2
					3	●	MDM1240S14H03	46.20	1.8189	64.80	2.5512	130.30	5.1299					2
					5	●	MDM1240S14H05	83.70	3.2953	102.30	4.0276	169.30	6.6654					2
12.50	0.4921		9/16-12		3	★	MDM1250S13H03	46.00	1.8110	64.80	2.5512	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1250S13H05	83.50	3.2874	102.30	4.0276	169.30	6.6654			14.00	0.5512	2
					3	●	MDM1250S14H03	46.00	1.8110	64.80	2.5512	130.30	5.1299					2
					5	●	MDM1250S14H05	83.50	3.2874	102.30	4.0276	169.30	6.6654					2
12.60	0.4961				3	★	MDM1260S13H03	48.40	1.9055	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1260S13H05	87.40	3.4409	106.30	4.1850	169.30	6.6654			14.00	0.5512	2
					3	●	MDM1260S14H03	48.40	1.9055	67.30	2.6496	130.30	5.1299					2
					5	●	MDM1260S14H05	87.40	3.4409	106.30	4.1850	169.30	6.6654					2
12.70	0.5000	1/2	M14x1.5		3	★	MDM1270S13H03	48.30	1.9016	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1270S13H05	87.30	3.4370	106.30	4.1850	169.30	6.6654					2
12.70	0.5000	1/2	M14x1.5		3	●	MDM05000S14H03	48.26	1.9000	67.31	2.6500	130.30	5.1300	2.31	0.0910	14.00	0.5512	2
					5	●	MDM05000S14H05	87.25	3.4350	106.30	4.1850	169.32	6.6660					2
12.80	0.5039				3	★	MDM1280S13H03	48.10	1.8937	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1280S13H05	87.10	3.4291	106.30	4.1850	169.30	6.6654			14.00	0.5512	2
					3	●	MDM1280S14H03	48.10	1.8937	67.30	2.6496	130.30	5.1299					2
					5	●	MDM1280S14H05	87.10	3.4291	106.30	4.1850	169.30	6.6654					2
12.90	0.5079				3	★	MDM1290S13H03	48.00	1.8898	67.30	2.6496	130.30	5.1299	2.30	0.0906	13.00	0.5118	2
					5	★	MDM1290S13H05	87.00	3.4252	106.30	4.1850	169.30	6.6654			14.00	0.5512	2
					3	●	MDM1290S14H03	48.00	1.8898	67.30	2.6496	130.30	5.1299					2
					5	●	MDM1290S14H05	87.00	3.4252	106.30	4.1850	169.30	6.6654					2
13.00	0.5118		9/16-18		3	★	MDM1300S13H03	47.90	1.8858	67.40	2.6535	130.40	5.1339	2.40	0.0945	13.00	0.5118	2
					5	★	MDM1300S13H05	86.90	3.4213	106.40	4.1890	169.40	6.6693			14.00	0.5512	2
					3	●	MDM1300S14H03	47.90	1.8858	67.40	2.6535	130.40	5.1339					2
					5	●	MDM1300S14H05	86.90	3.4213	106.40	4.1890	169.40	6.6693					2

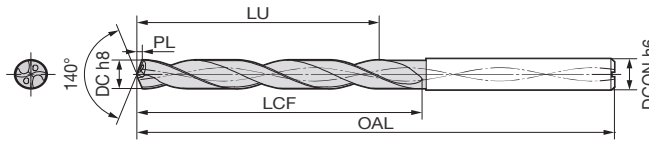
Grade: ACT70



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter $\phi 4.1$ or larger) **Bean Jet Cooling**



Diameter $\phi 13.10$ to 15.00mm (0.5156" to 0.5906") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
13.10	0.5156	33/64			3	●	MDM05156S14H03	50.23	1.9774	69.87	2.7508	136.37	5.3690	2.38	0.0938	14.00	0.5512	2
					5	●	MDM05156S14H05	90.74	3.5724	110.38	4.3458	178.38	7.0230					2
13.10	0.5157		9/16-18	M14x2	3	●	MDM1310S14H03	50.20	1.9764	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	MDM1310S14H05	90.70	3.5709	110.40	4.3465	178.40	7.0236					2
13.20	0.5197				3	●	MDM1320S14H03	50.10	1.9724	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	MDM1320S14H05	90.60	3.5669	110.40	4.3465	178.40	7.0236					2
13.30	0.5236				3	●	MDM1330S14H03	50.00	1.9685	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	MDM1330S14H05	90.50	3.5630	110.40	4.3465	178.40	7.0236					2
13.40	0.5276			9/16-12 / M14x1.5	3	●	MDM1340S14H03	49.80	1.9606	69.90	2.7520	136.40	5.3701	2.40	0.0945	14.00	0.5512	2
					5	●	MDM1340S14H05	90.30	3.5551	110.40	4.3465	178.40	7.0236					2
13.49	0.5312	17/32			3	●	MDM05312S14H03	49.71	1.9569	69.94	2.7537	136.45	5.3720	2.46	0.0967	14.00	0.5512	2
					5	●	MDM05312S14H05	90.22	3.5519	110.46	4.3487	178.46	7.0260					2
13.50	0.5315				3	●	MDM1350S14H03	49.70	1.9567	70.00	2.7559	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	MDM1350S14H05	90.20	3.5512	110.50	4.3504	178.50	7.0276					2
13.60	0.5354				3	★	MDM1360S14H03	52.10	2.0512	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	★	MDM1360S14H05	94.10	3.7047	114.50	4.5079	178.50	7.0276					2
13.70	0.5394		5/8-11	9/16-18	3	●	MDM1370S14H03	51.90	2.0433	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	MDM1370S14H05	93.90	3.6969	114.50	4.5079	178.50	7.0276					2
13.80	0.5433		5/8-11		3	★	MDM1380S14H03	51.80	2.0394	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	MDM1380S14H05	93.80	3.6929	114.50	4.5079	178.50	7.0276					2
13.89	0.5469	35/64	5/8-11		3	●	MDM05469S14H03	51.69	2.0352	72.53	2.8555	136.53	5.3750	2.53	0.0995	14.00	0.5512	2
					5	●	MDM05469S14H05	93.68	3.6882	114.52	4.5085	178.54	7.0290					2
13.90	0.5472		5/8-11		3	●	MDM1390S14H03	51.70	2.0354	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	MDM1390S14H05	93.70	3.6890	114.50	4.5079	178.50	7.0276					2
14.00	0.5512		5/8-11		3	●	MDM1400S14H03	51.50	2.0276	72.50	2.8543	136.50	5.3740	2.50	0.0984	14.00	0.5512	2
					5	●	MDM1400S14H05	93.50	3.6811	114.50	4.5079	178.50	7.0276					2
14.10	0.5551				3	★	MDM1410S15H03	53.90	2.1220	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	MDM1410S15H05	97.40	3.8346	118.60	4.6693	187.60	7.3858			16.00	0.6299	2
					3	●	MDM1410S16H03	53.90	2.1220	75.10	2.9567	142.60	5.6142					2
					5	●	MDM1410S16H05	97.40	3.8346	118.60	4.6693	187.60	7.3858					2
14.20	0.5591		M16x2		3	★	MDM1420S15H03	53.80	2.1181	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	MDM1420S15H05	97.30	3.8307	118.60	4.6693	187.60	7.3858			16.00	0.6299	2
					3	●	MDM1420S16H03	53.80	2.1181	75.10	2.9567	142.60	5.6142					2
					5	●	MDM1420S16H05	97.30	3.8307	118.60	4.6693	187.60	7.3858					2
14.29	0.5625	9/16	M16x2		3	●	MDM05625S16H03	53.66	2.1127	75.09	2.9564	142.60	5.6140	2.60	0.1024	16.00	0.6299	2
					5	●	MDM05625S16H05	97.17	3.8257	118.60	4.6694	187.60	7.3860					2
14.30	0.5630		M16x2		3	★	MDM1430S15H03	53.70	2.1142	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	MDM1430S15H05	97.20	3.8268	118.60	4.6693	187.60	7.3858			16.00	0.6299	2
					3	●	MDM1430S16H03	53.70	2.1142	75.10	2.9567	142.60	5.6142					2
					5	●	MDM1430S16H05	97.20	3.8268	118.60	4.6693	187.60	7.3858					2
14.40	0.5669				3	★	MDM1440S15H03	53.50	2.1063	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	MDM1440S15H05	97.00	3.8189	118.60	4.6693	187.60	7.3858			16.00	0.6299	2
					3	●	MDM1440S16H03	53.50	2.1063	75.10	2.9567	142.60	5.6142					2
					5	●	MDM1440S16H05	97.00	3.8189	118.60	4.6693	187.60	7.3858					2
14.50	0.5709				3	★	MDM1450S15H03	53.40	2.1024	75.10	2.9567	142.60	5.6142	2.60	0.1024	15.00	0.5906	2
					5	★	MDM1450S15H05	96.90	3.8150	118.60	4.6693	187.60	7.3858			16.00	0.6299	2
					3	●	MDM1450S16H03	53.40	2.1024	75.10	2.9567	142.60	5.6142					2
					5	●	MDM1450S16H05	96.90	3.8150	118.60	4.6693	187.60	7.3858					2
14.60	0.5748		5/8-18 / M16x1.5		3	★	MDM1460S15H03	55.80	2.1969	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	MDM1460S15H05	100.80	3.9685	122.70	4.8307	187.70	7.3898			16.00	0.6299	2
					3	●	MDM1460S16H03	55.80	2.1969	77.70	3.0591	142.70	5.6181					2
					5	●	MDM1460S16H05	100.80	3.9685	122.70	4.8307	187.70	7.3898					2
14.68	0.5781	37/64	5/8-18 / M16x1.5		3	●	MDM05781S16H03	55.65	2.1911	77.68	3.0582	142.67	5.6170	2.67	0.1052	16.00	0.6299	2
					5	●	MDM05781S16H05	100.64	3.9621	122.66	4.8292	187.68	7.3890					2
14.70	0.5787		5/8-18 / M16x1.5		3	★	MDM1470S15H03	55.60	2.1890	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	MDM1470S15H05	100.60	3.9606	122.70	4.8307	187.70	7.3898			16.00	0.6299	2
					3	●	MDM1470S16H03	55.60	2.1890	77.70	3.0591	142.70	5.6181					2
					5	●	MDM1470S16H05	100.60	3.9606	122.70	4.8307	187.70	7.3898					2
14.80	0.5827				3	★	MDM1480S15H03	55.50	2.1850	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	MDM1480S15H05	100.50	3.9567	122.70	4.8307	187.70	7.3898			16.00	0.6299	2
					3	●	MDM1480S16H03	55.50	2.1850	77.70	3.0591	142.70	5.6181					2
					5	●	MDM1480S16H05	100.50	3.9567	122.70	4.8307	187.70	7.3898					2
14.90	0.5866			5/8-11	3	★	MDM1490S15H03	55.40	2.1811	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	MDM1490S15H05	100.40	3.9528	122.70	4.8307	187.70	7.3898			16.00	0.6299	2
					3	●	MDM1490S16H03	55.40	2.1811	77.70	3.0591	142.70	5.6181					2
					5	●	MDM1490S16H05	100.40	3.9528	122.70	4.8307	187.70	7.3898					2
15.00	0.5906			5/8-11	3	★	MDM1500S15H03	55.20	2.1732	77.70	3.0591	142.70	5.6181	2.70	0.1063	15.00	0.5906	2
					5	★	MDM1500S15H05	100.20	3.9449	122.70	4.8307	187.70	7.3898			16.00	0.6299	2
					3	●	MDM1500S16H03	55.20	2.1732	77.70	3.0591	142.70	5.6181					2
					5	●	MDM1500S16H05	100.20	3.9449	122.70	4.8307	187.70	7.3898					2

Grade: ACT70

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

MultiDrill Series

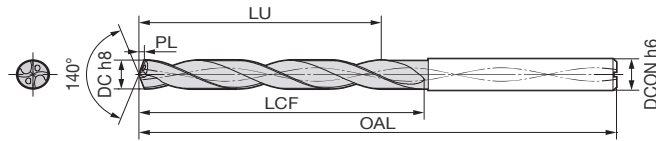
MDM Series (Internal Coolant Supply)



● : USA Stocked item

★ : Worldwide Warehouse Item

Fig. 2 (diameter $\phi 4.1$ or larger) **Bean Jet Cooling**



Diameter $\phi 15.08$ to 16.00 mm (0.5937" to 0.6299") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
15.08	0.5937	19/32		M16x2	3	●	MDM05937S16H03	57.62	2.2685	80.24	3.1590	148.74	5.8560	2.74	0.1080	16.00	0.6299	2
					5	●	MDM05937S16H05	104.13	4.0995	126.75	4.9900	196.75	7.7460					2
15.10	0.5945			M16x2	3	●	MDM1510S16H03	57.60	2.2677	80.20	3.1575	148.70	5.8543	2.70	0.1063	16.00	0.6299	2
					5	●	MDM1510S16H05	104.10	4.0984	126.70	4.9882	196.70	7.7441					2
15.20	0.5984			5/8-18	3	●	MDM1520S16H03	57.50	2.2638	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	MDM1520S16H05	104.00	4.0945	126.80	4.9921	196.80	7.7480					2
15.30	0.6024			5/8-18	3	●	MDM1530S16H03	57.30	2.2559	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	MDM1530S16H05	103.80	4.0866	126.80	4.9921	196.80	7.7480					2
15.40	0.6063			M16x1.5	3	●	MDM1540S16H03	57.20	2.2520	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	MDM1540S16H05	103.70	4.0827	126.80	4.9921	196.80	7.7480					2
15.48	0.6094	39/64			3	●	MDM06094S16H03	57.09	2.2478	80.31	3.1619	148.82	5.8590	2.82	0.1109	16.00	0.6299	2
					5	●	MDM06094S16H05	103.60	4.0788	126.82	4.9929	196.82	7.7490					2
15.50	0.6102				3	●	MDM1550S16H03	57.10	2.2480	80.30	3.1614	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	MDM1550S16H05	103.60	4.0787	126.80	4.9921	196.80	7.7480					2
15.60	0.6142				3	●	MDM1560S16H03	59.40	2.3386	82.80	3.2598	148.80	5.8583	2.80	0.1102	16.00	0.6299	2
					5	●	MDM1560S16H05	107.40	4.2283	130.80	5.1496	196.80	7.7480					2
15.70	0.6181		M18x2.5		3	●	MDM1570S16H03	59.30	2.3346	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	MDM1570S16H05	107.30	4.2244	130.90	5.1535	196.90	7.7520					2
15.80	0.6220		M18x2.5		3	●	MDM1580S16H03	59.20	2.3307	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	MDM1580S16H05	107.20	4.2205	130.90	5.1535	196.90	7.7520					2
15.88	0.6250	5/8	M18x2.5		3	●	MDM06250S16H03	59.09	2.3262	82.90	3.2637	148.89	5.8620	2.89	0.1137	16.00	0.6299	2
					5	●	MDM06250S16H05	107.07	4.2152	130.88	5.1527	196.90	7.7520					2
15.90	0.6260		M18x2.5		3	●	MDM1590S16H03	59.00	2.3228	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	MDM1590S16H05	107.00	4.2126	130.90	5.1535	196.90	7.7520					2
16.00	0.6299				3	●	MDM1600S16H03	58.90	2.3189	82.90	3.2638	148.90	5.8622	2.90	0.1142	16.00	0.6299	2
					5	●	MDM1600S16H05	106.90	4.2087	130.90	5.1535	196.90	7.7520					2

Grade: ACT70

International Standards

Material	Hardness	US Standards ANSI	Japanese Industrial Standards JIS	International Standard ISO 15510	European Standards EN
Ferritic/ Martensitic Stainless Steel	≤ 200 HB	405	SUS405	X6CrAl13	1.4002
		410	SUS410	X12Cr13	1.4006
		—	SUS410S	X6Cr13	1.4000
		430	SUS430	X6Cr17	1.4016
		434	SUS434	X6CrMo17-1	1.4113
	> 200 HB	420	SUS420J1	X20Cr13	1.4021
Stainless steel with deposition hardened structure	≤ 340 HB	17-4PH (S17400)	SUS630	X5CrNiCuNb16-4	1.4542
		15-5PH (S15500)	—	—	—
		17-7PH (S17700)	SUS631	X7CrNiAl17-7	1.4568
		—	—	—	—
Duplex stainless steel	≤ 310 HB	329	SUS329J1	X6CrNiMo26-4-2	—
		—	SUS329J3L	X2CrNiMoN22-5-3	1.4462
		—	SUS329J4L	X2CrNiMoN25-7-3	—
		—	—	—	—

Material	Hardness	US Standards ANSI	Japanese Industrial Standards JIS	International Standard ISO 15510	European Standards EN
Austenitic Stainless Steel	≤ 200 HB	304	SUS304	X5CrNi18-10	1.4301
		305	SUS305	X6CrNi18-12	1.4303
		303	SUS303	X10CrNiS18-9	1.4305
		304L	SUS304L	X2CrNi18-9	1.4307
		316	SUS316	X5CrNiMo17-12-2	1.4401
		316L	SUS316L	X2CrNiMo17-12-2	1.4404
		317L	SUS317L	X2CrNiMo19-14-4	1.4438
		321	SUS321	X6CrNiTi18-10	1.4541
		347	SUS347	X6CrNiNb18-10	1.4550
		—	SUS316Ti	X6CrNiMoTi17-12-2	1.4571
		309S	SUS309S	X6CrNi23-13	1.4950
		310S	SUS310S	X6CrNi25-20	1.4951
	> 200 HB	304N	SUS304N1	X5CrNiN19-9	1.4315
		301	SUS301	X5CrNi17-7	1.4319
		—	SUS301L	X2CrNiN18-7	1.4318
		—	—	—	—

MDM Recommended Cutting Conditions - Inch

1. The recommended cutting conditions below are for cases where an internal supply of a water soluble coolant is used.
2. If using non-water soluble coolant, reduce the cutting speed by 20-30% and ensure that sufficient coolant is supplied.
3. When mounting the drill in the collet, make sure that runout around the cutting edge is no greater than 0.02mm. Make sure the flute does not enter the collet.
4. If the workpiece the tool is entering is abnormally shaped (tilted, interrupted etc.), reduce the feed rate to about half when inserting the drill in the workpiece.
*If stable machining is still not possible, pre-machining of the flat surface with the MDF Flat MultiDrill is recommended.
5. When performing intermittent through drilling, reduce the feed rate to about half the feed rate used prior to this process.

Dia. DC (in. mm)	Material	Ferritic/ Martensitic Stainless Steel	Austenitic Stainless Steel	Precipitation Hardening Stainless Steel PH & 15-5 PH		Duplex Stainless Steel (244, 2304, & 2507)		Titanium Alloy (γ-TiAl, & Ti-6Al-4V)	Ni-Based Heat-Resistant Alloy (Inconel 718)
		≤ 200HB	> 200HB	<200 HB	> 200HB	<340 HB	<310 HB	260 to 340 HB	38 to 45 HRc
Inch	0.1181 ø3	SFM 265 - 330 IPR .0023 - .0047	200 - 265 .0023 - .0047	265 - 330 .0023 - .0047	200 - 265 .0023 - .0047	165 - 200 .0023 - .0047	165 - 200 .0023 - .0047	100 - 170 .0023 - .0047	65 - 100 .002 - .0031
	0.1575 ø4	SFM 265 - 330 IPR .0031 - .0066	200 - 265 .0031 - .0066	265 - 330 .0031 - .0066	200 - 265 .0031 - .0066	165 - 200 .0031 - .0066	165 - 200 .0031 - .0066	100 - 170 .0031 - .0066	65 - 100 .0023 - .004
	0.1968 ø5	SFM 265 - 330 IPR .0031 - .0078	200 - 265 .0031 - .0078	265 - 330 .0031 - .0078	200 - 265 .0031 - .0078	180 - 200 .0031 - .0078	180 - 200 .0031 - .0078	135 - 170 .0031 - .0078	75 - 115 .0027 - .0047
	0.2362 ø6	SFM 265 - 330 IPR .0039 - .0078	200 - 265 .0039 - .0078	265 - 330 .0039 - .0078	200 - 265 .0039 - .0078	180 - 200 .0039 - .0078	180 - 200 .0039 - .0078	135 - 170 .0039 - .0078	75 - 115 .0031 - .0059
	0.2755 ø7	SFM 265 - 330 IPR .0047 - .009	200 - 265 .0047 - .009	265 - 330 .0047 - .009	200 - 265 .0047 - .009	180 - 220 .0047 - .009	180 - 220 .0047 - .009	135 - 170 .0047 - .009	85 - 125 .0031 - .0059
	0.3149 ø8	SFM 265 - 330 IPR .0047 - .0098	220 - 265 .0047 - .0098	265 - 330 .0047 - .0098	220 - 265 .0047 - .0098	180 - 220 .0047 - .0098	180 - 220 .0047 - .0098	150 - 185 .0047 - .0098	85 - 125 .0039 - .007
	0.3543 ø9	SFM 265 - 330 IPR .0066 - .0098	220 - 265 .0066 - .0098	265 - 330 .0066 - .0098	220 - 265 .0066 - .0098	190 - 220 .0066 - .0098	190 - 220 .0066 - .0098	150 - 185 .0066 - .0098	100 - 135 .0047 - .007
	0.3937 ø10	SFM 265 - 330 IPR .007 - .011	220 - 265 .007 - .011	265 - 330 .007 - .011	220 - 265 .007 - .011	190 - 220 .007 - .011	190 - 220 .007 - .011	150 - 185 .007 - .011	100 - 135 .0047 - .0078
	0.4331 ø11	SFM 265 - 330 IPR .0078 - .0118	220 - 265 .0078 - .0118	265 - 330 .0078 - .0118	220 - 265 .0078 - .0118	190 - 220 .0078 - .0118	190 - 220 .0078 - .0118	150 - 185 .0078 - .0118	100 - 135 .0059 - .0078
	0.4724 ø12	SFM 265 - 330 IPR .0078 - .0118	220 - 280 .0078 - .0118	265 - 330 .0078 - .0118	220 - 280 .0078 - .0118	190 - 230 .0078 - .0118	190 - 230 .0078 - .0118	150 - 200 .0078 - .0118	100 - 135 .0059 - .0078
	0.5118 ø13	SFM 265 - 330 IPR .0078 - .0118	220 - 280 .0078 - .0118	265 - 330 .0078 - .0118	220 - 280 .0078 - .0118	190 - 230 .0078 - .0118	190 - 230 .0078 - .0118	150 - 200 .0078 - .0118	110 - 150 .0059 - .0078
	0.5512 ø14	SFM 265 - 330 IPR .0078 - .0118	220 - 280 .0078 - .0118	265 - 330 .0078 - .0118	220 - 280 .0078 - .0118	190 - 230 .0078 - .0118	190 - 230 .0078 - .0118	150 - 200 .0078 - .0118	110 - 150 .0059 - .0078
	0.5905 ø15	SFM 265 - 330 IPR .0078 - .0118	220 - 280 .0078 - .0118	265 - 330 .0078 - .0118	220 - 280 .0078 - .0118	190 - 230 .0078 - .0118	190 - 230 .0078 - .0118	150 - 200 .0078 - .0118	110 - 150 .0059 - .0078
	0.6299 ø16	SFM 265 - 330 IPR .0078 - .0118	220 - 280 .0078 - .0118	265 - 330 .0078 - .0118	220 - 280 .0078 - .0118	190 - 230 .0078 - .0118	190 - 230 .0078 - .0118	150 - 200 .0078 - .0118	110 - 150 .0059 - .0078

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

Flat Bottom Drills MDF Series

Drilling

C

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others



General Features

The flat MDF multidrill is a solid carbide drill that can be used for a variety of applications, including high-efficiency spot facing and drilling in inclined and curved surfaces.

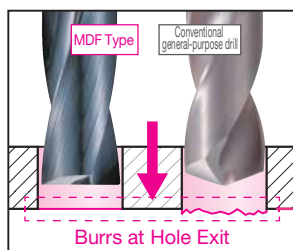


Features and Applications

- NEW Inch sizes added for MDF□□□□H3D (see pages J54-J57)
- Suited to various types of drilling thanks to a point angle of 180°
Can be used for high-efficiency spot facing, drilling in non-horizontal surfaces such as inclined and cylindrical surfaces, and interrupted drilling. Also reduces burrs at the hole exit.
- Improves machining stability
Achieves high rigidity by employing RS THINNING, which provides a thick web at the bottom.
- Excellent chip evacuation
Achieves excellent chip evacuation due to the wide chip pocket and high-quality rake face shape.
- Excellent cutting edge strength
Achieves excellent cutting edge strength through optimized cutting edge design.
- Long types available
Overhang lengths up to L/D=10 are now available.
- Types with oil hole available
Coolant can now be supplied internally. This enables deeper drilling.



Reduction of Burrs at Hole Exit



Part Material: Alloy Steel
Tool: MDF 0500S2D (ø5.0mm 2D)
Cutting Conditions: $V_c=213$ SFM, $f=0.0047''$,
 $H=0.393''$, 150 holes, Wet
Machine: Vertical machining center (BT40)

Reduces exit burrs by **half**
compared with general-purpose drills

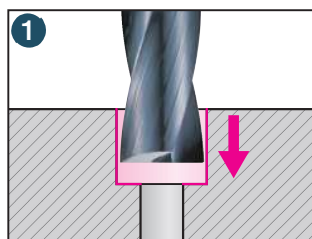


Flat MultiDrill MDF Type

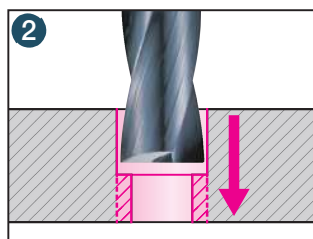


Conventional general-purpose drill

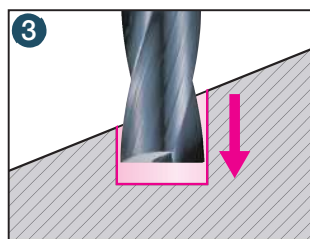
Machining Applications



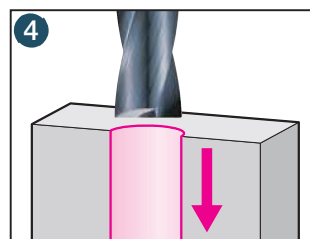
High-efficiency spot facing



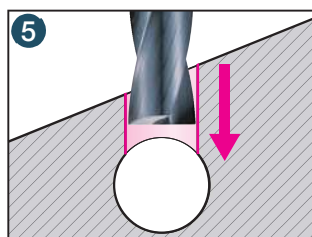
Hole expansion drilling



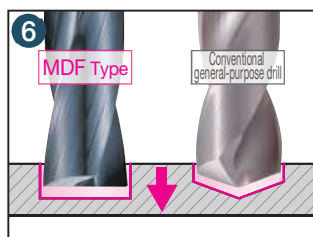
Drilling in non-horizontal surface
(inclined surface, cylindrical surface, etc.)



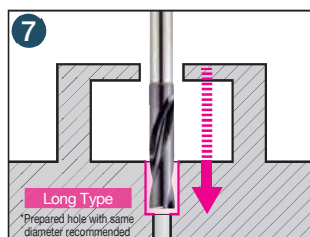
Interrupted drilling



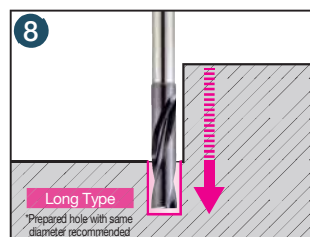
Cross drilling



Pre-tap hole drilling in thin sheets



Spot facing in deep positions



Avoids interference with work material

Flat Bottom Drills MDF Series

Long shanked (L2D) styles are available for flat base drilling, hole expansion and burr control in long overhang conditions.

- For drilling with long overhang and to avoid interference with the workpiece

*A prepared hole with the same diameter or centering hole with a larger diameter than the tool is needed for drilling with the long type.

DC < 6mm, stepped shank



DC ≥ 6mm, relief shank



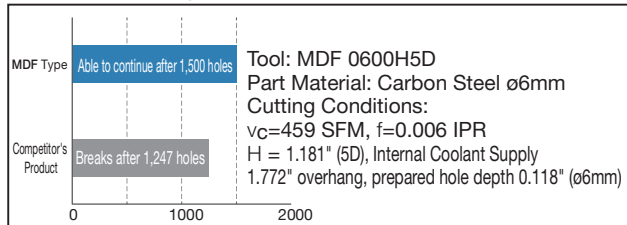
H-type with oil hole (3D/5D) for 2-5D deep hole applications

- Inch sizes now available
- Internal coolant supply enables deep flat hole drilling.

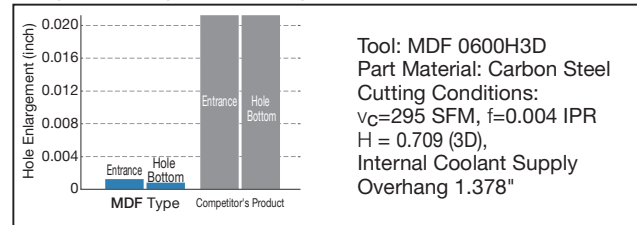
*A prepared hole with the same diameter or centering hole with a larger diameter than the tool is needed for drilling with an L/D=5 oil hole.



Deep Spot Facing



Long Overhang Spot Facing



Drilling on slanted surfaces



Prevents burrs and conical remnants on tool withdrawal



■ Distinguishing flat drills, general-purpose drills and endmills

Tool	Flat Drill MDF Type	General-Purpose Drill GS/HGS Type	Endmill for Spot Facing GSXMILL Slot
Shape of hole base			
Drilling in flat surfaces	Approx. 1/2 the feed of a general-purpose drill	Best	Only for low feed 1D or smaller ≤1/5 the feed of a general-purpose drill
Drilling non-flat surfaces	Ideal (2D or smaller recommended)	Impossible	Only for low feed 1D or smaller ≤1/2 the feed of a flat drill
Traverse Cutting	Impossible	Impossible	Best

■ Product Range

Coolant Supply	Cat. No.	Diameter Range (Inch / mm)	Hole Depth (L/D)
External	MDF□□□□S2D	ø.0118 to .7874" ø.3 to 20.0	up to 2D
	MDF□□□□L2D	ø.1181 to .7874" ø.3.0 to 20.0	up to 2D
Internal	MDF□□□□H3D	ø.1181 to .6299" ø.3.0 to 16.0	up to 3D
	MDF□□□□H5D	ø.1181 to .6299" ø.3.0 to 16.0	up to 5D

Drilling

J

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

Flat Bottom Drills

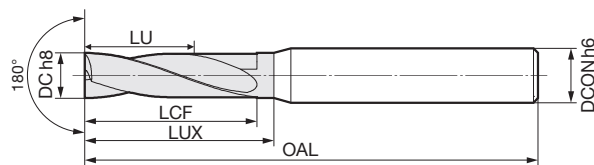
MDF Series (External Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28%
Carbon Steel/ Alloy Steel from 0.28%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Ti Alloy
Heat-resistant Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø0.3 to 5.2mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
0.3*	2	★	MDF0030S2D*	0.9	1.0	1.3	40	3.0	1
0.4*		★	MDF0040S2D*	1.2	1.4	1.8			1
0.5		★	MDF0050S2D	1.5	2.0	2.2			1
0.6		★	MDF0060S2D	1.8	2.4	2.6			1
0.7		★	MDF0070S2D	2.1	2.8	3.1			1
0.8		★	MDF0080S2D	2.4	3.2	3.5			1
0.9		★	MDF0090S2D	2.7	3.6	4.0			1
1.0	2	★	MDF0100S2D	3.0	4.0	4.4	45	3.0	1
1.1		★	MDF0110S2D	3.3	4.4	4.8			1
1.2		★	MDF0120S2D	3.6	4.8	5.3			1
1.3		★	MDF0130S2D	3.9	5.2	5.7			1
1.4		★	MDF0140S2D	4.2	5.6	6.2			1
1.5		★	MDF0150S2D	4.5	6.0	6.6			1
1.6		★	MDF0160S2D	4.8	6.4	7.0			1
1.7	2	★	MDF0170S2D	5.1	6.8	7.5	50	6.0	1
1.8		★	MDF0180S2D	5.4	7.2	7.9			1
1.9		★	MDF0190S2D	5.7	7.6	8.4			1
2.0		★	MDF0200S2D	6.0	8.0	8.8			1
2.1		★	MDF0210S2D	6.3	8.4	9.2			1
2.2		★	MDF0220S2D	6.6	8.8	9.7			1
2.3		★	MDF0230S2D	6.9	9.2	10.1			1
2.4	2	★	MDF0240S2D	7.2	9.6	10.6	60	6.0	1
2.5		★	MDF0250S2D	7.5	10.0	11.0			1
2.6		★	MDF0260S2D	7.8	10.4	11.4			1
2.7		★	MDF0270S2D	8.1	10.8	11.9			1
2.76		★	MDF0276S2D	6.9	11.0	12.0			1
2.78		★	MDF0278S2D	6.9	11.1	12.1			1
2.8		★	MDF0280S2D	8.4	11.2	12.3			1
2.9	2	★	MDF0290S2D	8.7	11.6	12.8	60	6.0	1
3.0		★	MDF0300S2D	9.0	12.0	13.2			1
3.1		★	MDF0310S2D	9.3	12.4	13.6			1
3.2		★	MDF0320S2D	9.6	12.8	14.1			1
3.3		★	MDF0330S2D	9.9	13.2	14.5			1
3.4		★	MDF0340S2D	10.2	13.6	15.0			1
3.5		★	MDF0350S2D	10.5	14.0	15.4			1
3.6	2	★	MDF0360S2D	10.8	14.4	15.8	60	6.0	1
3.66		★	MDF0366S2D	9.1	14.6	15.3			1
3.68		★	MDF0368S2D	9.2	14.7	15.4			1
3.7		★	MDF0370S2D	11.1	14.8	16.3			1
3.8		★	MDF0380S2D	11.4	15.2	16.7			1
3.9		★	MDF0390S2D	11.7	15.6	17.2			1
4.0		★	MDF0400S2D	12.0	16.0	17.6			1
4.1	2	★	MDF0410S2D	12.3	16.4	18.0	60	6.0	1
4.2		★	MDF0420S2D	12.6	16.8	18.5			1
4.3		★	MDF0430S2D	12.9	17.2	18.9			1
4.4		★	MDF0440S2D	13.2	17.6	19.4			1
4.5		★	MDF0450S2D	13.5	18.0	19.8			1
4.6		★	MDF0460S2D	13.8	18.4	20.2			1
4.62		★	MDF0462S2D	11.5	18.4	20.9			1
4.64	2	★	MDF0464S2D	11.6	18.5	21.0	60	6.0	1
4.7		★	MDF0470S2D	14.1	18.8	20.7			1
4.8		★	MDF0480S2D	14.4	19.2	21.1			1
4.9		★	MDF0490S2D	14.7	19.6	21.6			1
5.0		★	MDF0500S2D	15.0	20.0	22.0			1
5.1		★	MDF0510S2D	15.3	20.4	22.4			1
5.2		★	MDF0520S2D	15.6	20.8	22.9			1

*RS thinning is used for ø0.5mm and larger sizes.

Grade: ACF75

Diameter ø5.3 to 9.6mm

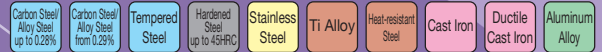
Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
5.3	2	★	MDF0530S2D	15.9	21.2	23.3	60	6.0	1
5.4		★	MDF0540S2D	16.2	21.6	23.8			1
5.5		★	MDF0550S2D	16.5	22.0	24.2			1
5.52		★	MDF0552S2D	13.8	22.0	26.1			1
5.54		★	MDF0554S2D	13.8	22.1	26.2			1
5.6		★	MDF0560S2D	16.8	22.4	24.6			1
5.7		★	MDF0570S2D	17.1	22.8	25.1			1
5.8	2	★	MDF0580S2D	17.4	23.2	25.5	70	8.0	1
5.9		★	MDF0590S2D	17.7	23.6	26.0			1
6.0		★	MDF0600S2D	18.0	24.0	26.4			1
6.1		★	MDF0610S2D	18.3	24.4	26.8			1
6.2		★	MDF0620S2D	18.6	24.8	27.3			1
6.3		★	MDF0630S2D	18.9	25.2	27.7			1
6.4		★	MDF0640S2D	19.2	25.6	28.2			1
6.5	2	★	MDF0650S2D	19.5	26.0	28.6	70	8.0	1
6.6		★	MDF0660S2D	19.8	26.4	29.0			1
6.7		★	MDF0670S2D	20.1	26.8	29.5			1
6.8		★	MDF0680S2D	20.4	27.2	29.9			1
6.9		★	MDF0690S2D	20.7	27.6	30.4			1
7.0		★	MDF0700S2D	21.0	28.0	30.8			1
7.1		★	MDF0710S2D	21.3	28.4	31.2			1
7.2	2	★	MDF0720S2D	21.6	28.8	31.7	70	8.0	1
7.3		★	MDF0730S2D	21.9	29.2	32.1			1
7.36		★	MDF0736S2D	18.4	29.4	34.7			1
7.38		★	MDF0738S2D	18.4	29.5	34.8			1
7.4		★	MDF0740S2D	22.2	29.6	32.6			1
7.5		★	MDF0750S2D	22.5	30.0	33.0			1
7.52		★	MDF0752S2D	18.8	30.0	35.7			1
7.54	2	★	MDF0754S2D	18.8	30.1	35.8	80	10.0	1
7.6		★	MDF0760S2D	22.8	30.4	33.4			1
7.7		★	MDF0770S2D	23.1	30.8	33.9			1
7.8		★	MDF0780S2D	23.4	31.2	34.3			1
7.9		★	MDF0790S2D	23.7	31.6	34.8			1
8.0		★	MDF0800S2D	24.0	32.0	35.2			1
8.1	2	★	MDF0810S2D	24.3	32.4	35.6	80	10.0	1
8.2		★	MDF0820S2D	24.6	32.8	36.1			1
8.3		★	MDF0830S2D	24.9	33.2	36.5			1
8.4		★	MDF0840S2D	25.2	33.6	37.0			1
8.5		★	MDF0850S2D	25.5	34.0	37.4			1
8.6		★	MDF0860S2D	25.8	34.4	37.8			1
8.7		★	MDF0870S2D	26.1	34.8	38.3			1
8.8	2	★	MDF0880S2D	26.4	35.2	38.7	80	10.0	1
8.9		★	MDF0890S2D	26.7	35.6	39.2			1
9.0		★	MDF0900S2D	27.0	36.0	39.6			1
9.1		★	MDF0910S2D	27.3	36.4	40.0			1
9.2		★	MDF0920S2D	27.6	36.8	40.5			1
9.24		★	MDF0924S2D	23.1	36.9	43.6			1
9.26		★	MDF0926S2D	23.1	37.0	43.7			1
9.3	2	★	MDF0930S2D	27.9	37.2	40.9	80	10.0	1
9.36		★	MDF0936S2D	23.4	37.4	44.3			1
9.38		★	MDF0938S2D	23.4	37.5	44.4			1
9.4		★	MDF0940S2D	28.2	37.6	41.4			1
9.5		★	MDF0950S2D	28.5	38.0	41.8			1
9.52		★	MDF0952S2D	23.8	38.0	45.3			1
9.54		★	MDF0954S2D	23.8	38.1	45.4			1
9.6	2	★	MDF0960S2D	28.8	38.4	42.2	80	10.0	1

Grade: ACF75

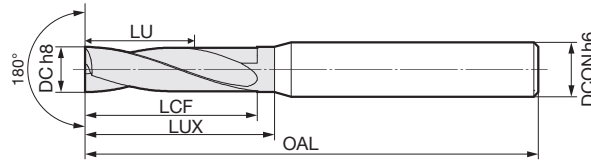
Flat Bottom Drills

MDF Series (External Coolant Supply)



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø9.7 to 13.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
9.7	2	★	MDF0970S2D	29.1	38.8	42.7	80	10.0	1
9.8	2	★	MDF0980S2D	29.4	39.2	43.1	80	10.0	1
9.9	2	★	MDF0990S2D	29.7	39.6	43.6	80	10.0	1
10.0	2	★	MDF1000S2D	30.0	40.0	44.0	80	10.0	1
10.1	2	★	MDF1010S2D	30.3	40.4	44.4	90	12.0	1
10.2	2	★	MDF1020S2D	30.6	40.8	44.9	90	12.0	1
10.3	2	★	MDF1030S2D	30.9	41.2	45.3	90	12.0	1
10.4	2	★	MDF1040S2D	31.2	41.6	45.8	90	12.0	1
10.5	2	★	MDF1050S2D	31.5	42.0	46.2	90	12.0	1
10.6	2	★	MDF1060S2D	31.8	42.4	46.6	90	12.0	1
10.7	2	★	MDF1070S2D	32.1	42.8	47.1	90	12.0	1
10.8	2	★	MDF1080S2D	32.4	43.2	47.5	90	12.0	1
10.9	2	★	MDF1090S2D	32.7	43.6	48.0	90	12.0	1
11.0	2	★	MDF1100S2D	33.0	44.0	48.4	90	12.0	1
11.1	2	★	MDF1110S2D	33.3	44.4	48.8	90	12.0	1
11.2	2	★	MDF1120S2D	33.6	44.8	49.3	90	12.0	1
11.22	2	★	MDF1122S2D	28.0	44.8	53.1	90	12.0	1
11.24	2	★	MDF1124S2D	28.1	44.9	53.2	90	12.0	1
11.3	2	★	MDF1130S2D	33.9	45.2	49.7	90	12.0	1
11.36	2	★	MDF1136S2D	28.4	45.4	53.9	90	12.0	1
11.38	2	★	MDF1138S2D	28.4	45.5	54.0	90	12.0	1
11.4	2	★	MDF1140S2D	34.2	45.6	50.2	90	12.0	1
11.5	2	★	MDF1150S2D	34.5	46.0	50.6	90	12.0	1
11.6	2	★	MDF1160S2D	34.8	46.4	51.0	90	12.0	1
11.7	2	★	MDF1170S2D	35.1	46.8	51.5	90	12.0	1
11.8	2	★	MDF1180S2D	35.4	47.2	51.9	90	12.0	1
11.9	2	★	MDF1190S2D	35.7	47.6	52.4	90	12.0	1
12.0	2	★	MDF1200S2D	36.0	48.0	52.8	90	12.0	1
12.1	2	★	MDF1210S2D	30.2	48.4	52.2	100	14.0	1
12.2	2	★	MDF1220S2D	30.5	48.8	52.7	100	14.0	1
12.3	2	★	MDF1230S2D	30.7	49.2	53.1	100	14.0	1
12.4	2	★	MDF1240S2D	31.0	49.6	53.5	100	14.0	1
12.5	2	★	MDF1250S2D	37.5	50.0	54.0	100	14.0	1
12.6	2	★	MDF1260S2D	31.5	50.4	55.0	100	14.0	1
12.7	2	★	MDF1270S2D	31.7	50.8	55.4	100	14.0	1
12.8	2	★	MDF1280S2D	32.0	51.2	55.9	100	14.0	1
12.9	2	★	MDF1290S2D	32.2	51.6	56.3	100	14.0	1
13.0	2	★	MDF1300S2D	39.0	52.0	56.8	100	14.0	1

Grade: ACF75

Diameter ø13.10 to 20.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
13.1	2	★	MDF1310S2D	32.7	52.4	57.8	110	14.0	1
13.2	2	★	MDF1320S2D	33.0	52.8	58.2	110	14.0	1
13.3	2	★	MDF1330S2D	33.2	53.2	58.7	110	14.0	1
13.4	2	★	MDF1340S2D	33.5	53.6	59.1	110	14.0	1
13.5	2	★	MDF1350S2D	40.5	54.0	59.6	110	14.0	1
13.6	2	★	MDF1360S2D	34.0	54.4	60.6	110	14.0	1
13.7	2	★	MDF1370S2D	34.2	54.8	61.0	110	14.0	1
13.8	2	★	MDF1380S2D	34.5	55.2	61.5	110	14.0	1
13.9	2	★	MDF1390S2D	34.7	55.6	61.9	110	14.0	1
14.0	2	★	MDF1400S2D	42.0	56.0	62.4	110	14.0	1
14.1	2	★	MDF1410S2D	35.2	56.4	63.4	110	14.0	1
14.2	2	★	MDF1420S2D	35.5	56.8	63.8	110	14.0	1
14.3	2	★	MDF1430S2D	35.7	57.2	64.3	110	14.0	1
14.4	2	★	MDF1440S2D	36.0	57.6	64.7	110	14.0	1
14.5	2	★	MDF1450S2D	43.5	58.0	65.2	110	14.0	1
14.6	2	★	MDF1460S2D	36.5	58.4	66.1	110	14.0	1
14.7	2	★	MDF1470S2D	36.7	58.8	66.6	110	14.0	1
14.8	2	★	MDF1480S2D	37.0	59.2	67.0	110	14.0	1
14.9	2	★	MDF1490S2D	37.2	59.6	67.5	110	14.0	1
15.0	2	★	MDF1500S2D	45.0	60.0	68.0	110	14.0	1
15.1	2	★	MDF1510S2D	37.7	60.4	68.9	115	16.0	1
15.2	2	★	MDF1520S2D	38.0	60.8	69.4	115	16.0	1
15.3	2	★	MDF1530S2D	38.2	61.2	69.8	115	16.0	1
15.4	2	★	MDF1540S2D	38.5	61.6	70.3	115	16.0	1
15.5	2	★	MDF1550S2D	46.5	62.0	70.8	115	16.0	1
15.6	2	★	MDF1560S2D	39.0	62.4	71.7	115	16.0	1
15.7	2	★	MDF1570S2D	39.2	62.8	72.2	115	16.0	1
15.8	2	★	MDF1580S2D	39.5	63.2	72.6	115	16.0	1
15.9	2	★	MDF1590S2D	39.7	63.6	73.1	115	16.0	1
16.0	2	★	MDF1600S2D	48.0	64.0	73.6	115	16.0	1
16.5	2	★	MDF1650S2D	49.5	66.0	72.4	125	18.0	1
17.0	2	★	MDF1700S2D	51.0	68.0	75.2	125	18.0	1
17.5	2	★	MDF1750S2D	52.5	70.0	78.0	130	18.0	1
18.0	2	★	MDF1800S2D	54.0	72.0	80.8	130	18.0	1
18.5	2	★	MDF1850S2D	55.5	74.0	83.6	140	20.0	1
19.0	2	★	MDF1900S2D	57.0	76.0	86.4	140	20.0	1
19.5	2	★	MDF1950S2D	58.5	78.0	89.2	140	20.0	1
20.0	2	★	MDF2000S2D	60.0	80.0	92.0	140	20.0	1

Grade: ACF75

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

★: Worldwide Warehouse Item

Flat Bottom Drills

MDF Series (External Coolant Supply)

Recommended Cutting Conditions

1. The recommended hole depth is 2 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling in flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling in an inclined surface.

4. Set the feed rate at 70% or lower when the inclination angle is 30° or less.
5. Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
6. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c : Cutting Speed (SFM), f : Feed Rate (IPR))

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 50HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø0.5	v_c	115 - 190	115 - 150	60 - 95	60 - 95	115 - 190	75 - 150	225 - 380
	f	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0002	.0001 - .0003	.0001 - .0003
ø1.0	v_c	170 - 250	130 - 210	75 - 150	75 - 115	170 - 250	115 - 190	300 - 450
	f	.0004 - .0024	.0004 - .0024	.0001 - .0004	.0002 - .0004	.0004 - .0020	.0002 - .0006	.0004 - .0012
ø2.0	v_c	190 - 270	150 - 230	75 - 150	75 - 150	190 - 270	170 - 250	340 - 500
	f	.0008 - .0024	.0008 - .0024	.0004 - .0010	.0004 - .0008	.0079 - .0024	.0006 - .0018	.0012 - .0028
ø4.0	v_c	230 - 340	190 - 300	75 - 150	75 - 150	230 - 340	210 - 290	340 - 500
	f	.0024 - .0039	.00020 - .0039	0.0004 - .0012	.0004 - .0012	.0024 - .0047	.0016 - .0031	.0024 - .0039
ø6.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0024	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0047 - .0086	.0047 - .0086	.0031 - .0039	.0031 - .0047	.0047 - .0086	.0047 - .0071	.0047 - .0086
ø12.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0059 - .0098	.0059 - .0098	.0047 - .0070	.0024 - .0039	.0059 - .0098	.0059 - .0079	.0059 - .0098
ø16.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0067 - .0106	.0059 - .0098	.0079 - .0118
ø20.0	v_c	230 - 340	190 - 300	75 - 150	75 - 190	230 - 340	230 - 300	340 - 500
	f	.0098 - .0138	.0098 - .0138	.0063 - .0086	.0059 - .0098	.0098 - .0138	.0079 - .0118	.0098 - .0138

Min. - Max.

Drilling

Solid

Indexable Head Type

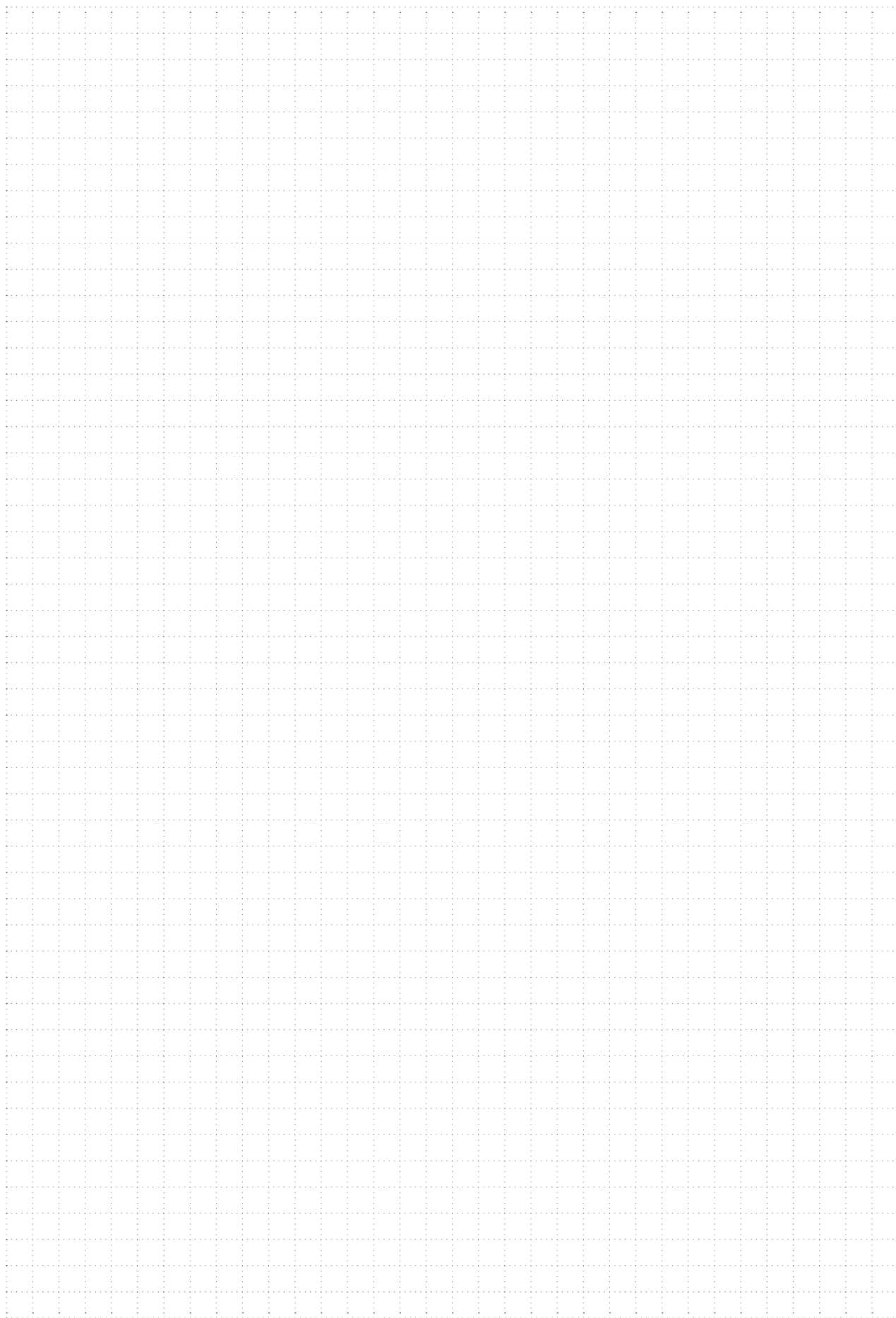
Indexable Insert Type

Reamers

Brazed

Others

MEMO



Flat Bottom Drills

MDF-L - Long Style (External Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy



*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (DC ≤ DCON)

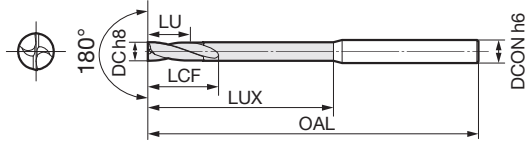
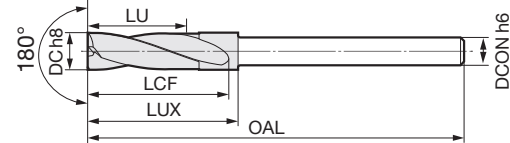


Fig. 2 (DC > DCON)



Diameter ø3.0 to 8.5mm

Dimensions (mm)

Diameter ø8.6 to 20.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig	Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Neck Length LUX	Overall Length OAL	Shank Dia. DCON	Fig
3.0		★	MDF0300L2D	9.0	13.5	30.0			1	8.6		★	MDF0860L2D	25.8	38.7	41.7			2
3.1		★	MDF0310L2D	9.3	14.0	31.0			1	8.7		★	MDF0870L2D	26.1	39.2	42.2			2
3.2		★	MDF0320L2D	9.6	14.4	32.0			1	8.8	2	★	MDF0880L2D	26.4	39.6	42.6	140		2
3.3		★	MDF0330L2D	9.9	14.9	33.0			1	8.9		★	MDF0890L2D	26.7	40.1	43.1			2
3.4		★	MDF0340L2D	10.2	15.3	34.0			1	9.0		★	MDF0900L2D	27.0	40.5	43.5			2
3.5		★	MDF0350L2D	10.5	15.8	35.0			1	9.1		★	MDF0910L2D	27.3	41.0	44.0			2
3.6		★	MDF0360L2D	10.8	16.2	36.0			1	9.2		★	MDF0920L2D	27.6	41.4	44.4			2
3.7		★	MDF0370L2D	11.1	16.7	37.0			1	9.3		★	MDF0930L2D	27.9	41.9	44.9			2
3.8		★	MDF0380L2D	11.4	17.1	38.0			1	9.4		★	MDF0940L2D	28.2	42.3	45.3			2
3.9		★	MDF0390L2D	11.7	17.6	39.0			1	9.5		★	MDF0950L2D	28.5	42.8	45.8			2
4.0	2	★	MDF0400L2D	12.0	18.0	40.0	100		1	9.6	2	★	MDF0960L2D	28.8	43.2	46.2	150		2
4.1		★	MDF0410L2D	12.3	18.5	41.0			1	9.7		★	MDF0970L2D	29.1	43.7	46.7			2
4.2		★	MDF0420L2D	12.6	18.9	42.0			1	9.8		★	MDF0980L2D	29.4	44.1	47.1			2
4.3		★	MDF0430L2D	12.9	19.4	43.0			1	9.9		★	MDF0990L2D	29.7	44.6	47.6			2
4.4		★	MDF0440L2D	13.2	19.8	44.0			1	10.0		★	MDF1000L2D-S8	30.0	45.0	48.0			2
4.5		★	MDF0450L2D	13.5	20.3	45.0		6.0	1	10.0	2	★	MDF1000L2D	30.0	45.0	100.0	150		1
4.6		★	MDF0460L2D	13.8	20.7	46.0			1	10.1		★	MDF1010L2D	30.3	45.5	48.5			2
4.7		★	MDF0470L2D	14.1	21.2	47.0			1	10.2		★	MDF1020L2D	30.6	45.9	48.9			2
4.8		★	MDF0480L2D	14.4	21.6	48.0			1	10.3		★	MDF1030L2D	30.9	46.4	49.4			2
4.9		★	MDF0490L2D	14.7	22.1	49.0			1	10.4		★	MDF1040L2D	31.2	46.8	49.8			2
5.0		★	MDF0500L2D	15.0	22.5	50.0			1	10.5		★	MDF1050L2D	31.5	47.3	50.3			2
5.1		★	MDF0510L2D	15.3	23.0	51.0			1	10.6	2	★	MDF1060L2D	31.8	47.7	50.7	160		2
5.2		★	MDF0520L2D	15.6	23.4	52.0			1	10.7		★	MDF1070L2D	32.1	48.2	51.2			2
5.3		★	MDF0530L2D	15.9	23.9	53.0			1	10.8		★	MDF1080L2D	32.4	48.6	51.6			2
5.4		★	MDF0540L2D	16.2	24.3	54.0			1	10.9		★	MDF1090L2D	32.7	49.1	52.1			2
5.5	2	★	MDF0550L2D	16.5	24.8	55.0	110		1	11.0		★	MDF1100L2D	33.0	49.5	52.5			2
5.6		★	MDF0560L2D	16.8	25.2	56.0			1	11.1		★	MDF1110L2D	33.3	50.0	53.0			2
5.7		★	MDF0570L2D	17.1	25.7	57.0			1	11.2		★	MDF1120L2D	33.6	50.4	53.4			2
5.8		★	MDF0580L2D	17.4	26.1	58.0			1	11.3		★	MDF1130L2D	33.9	50.9	53.9			2
5.9		★	MDF0590L2D	17.7	26.6	59.0			1	11.4		★	MDF1140L2D	34.2	51.3	54.3			2
6.0	2	★	MDF0600L2D-S5	18.0	27.0	30.0	110	5.0	1	11.5		★	MDF1150L2D	34.5	51.8	54.8			2
6.0	2	★	MDF0600L2D	18.0	27.0	60.0	110		1	11.6		★	MDF1160L2D	34.8	52.2	55.2			2
6.1		★	MDF0610L2D	18.3	27.5	30.5			2	11.7		★	MDF1170L2D	35.1	52.7	55.7			2
6.2		★	MDF0620L2D	18.6	27.9	30.9			2	11.8		★	MDF1180L2D	35.4	53.1	56.1			2
6.3		★	MDF0630L2D	18.9	28.4	31.4			2	11.9		★	MDF1190L2D	35.7	53.6	56.6			2
6.4		★	MDF0640L2D	19.2	28.8	31.8			2	12.0		★	MDF1200L2D-S10	36.0	54.0	57.0			2
6.5		★	MDF0650L2D	19.5	29.3	32.3			2	12.0	2	★	MDF1200L2D	36.0	54.0	120.0	170		1
6.6	2	★	MDF0660L2D	19.8	29.7	32.7	120		2	12.5		★	MDF1250L2D	37.5	56.3	59.3			2
6.7		★	MDF0670L2D	20.1	30.2	33.2			2	13.0	2	★	MDF1300L2D	39.0	58.5	61.5	180	12.0	2
6.8		★	MDF0680L2D	20.4	30.6	33.6			2	13.5		★	MDF1350L2D	40.5	60.8	63.8			2
6.9		★	MDF0690L2D	20.7	31.1	34.1			2	14.0		★	MDF1400L2D-S12	42.0	63.0	66.0	190		2
7.0		★	MDF0700L2D	21.0	31.5	34.5		6.0	2	14.0	2	★	MDF1400L2D	42.0	63.0	140.0	190		2
7.1		★	MDF0710L2D	21.3	32.0	35.0			2	14.5		★	MDF1450L2D	43.5	65.3	68.3			2
7.2		★	MDF0720L2D	21.6	32.4	35.4			2	15.0		★	MDF1500L2D	45.0	67.5	70.5	200	14.0	2
7.3		★	MDF0730L2D	21.9	32.9	35.9			2	15.5		★	MDF1550L2D	46.5	69.8	72.8			2
7.4		★	MDF0740L2D	22.2	33.3	36.3			2	16.0		★	MDF1600L2D-S14	48.0	72.0	75.0	210		2
7.5		★	MDF0750L2D	22.5	33.8	36.8			2	16.0	2	★	MDF1600L2D	48.0	72.0	160.0	210		1
7.6	2	★	MDF0760L2D	22.8	34.2	37.2	130		2	16.5		★	MDF1650L2D	49.5	74.3	77.3			2
7.7		★	MDF0770L2D	23.1	34.7	37.7			2	17.0		★	MDF1700L2D	51.0	76.5	79.5	220	16.0	2
7.8		★	MDF0780L2D	23.4	35.1	38.1			2	17.5		★	MDF1750L2D	52.5	78.8	81.8			2
7.9		★	MDF0790L2D	23.7	35.6	38.6			2	18.0		★	MDF1800L2D-S16	54.0	81.0	84.0	230		2
8.0		★	MDF0800L2D-S6	24.0	36.0	39.0			2	18.0	2	★	MDF1800L2D	54.0	81.0	180.0	230		1
8.0	2	★	MDF0800L2D	24.0	36.0	80.0	130		1	18.5		★	MDF1850L2D	55.5	83.3	86.3			2
8.1		★	MDF0810L2D	24.3	36.5	39.5			2	19.0		★	MDF1900L2D	57.0	85.5	88.5	240	18.0	2
8.2		★	MDF0820L2D	24.6	36.9	39.9			2	19.5		★	MDF1950L2D	58.5	87.8	90.8			2
8.3	2	★	MDF0830L2D	24.9	37.4	40.4	140		2	20.0		★	MDF2000L2D-S18	60.0	90.0	93.0	250		2
8.4		★	MDF0840L2D	25.2	37.8	40.8			2	20.0	2	★	MDF2000L2D	60.0	90.0	200.0	250	20.0	1
8.5		★	MDF0850L2D	25.5	38.3	41.3			2										

Grade: ACF75

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with this tool.

Recommended Cutting Conditions

1. A prepared hole with the same diameter is needed for drilling with this tool.
2. A prepared hole with the same diameter is recommended for the cutting conditions.
3. The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
4. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c: Cutting Speed (SFM), f: Feed Rate (IPR))

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 50HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
ø4.0	v _c	200 - 330	165 - 300	65 - 135	65 - 135	230 - 330	215 - 280	300 - 500
	f	.0024 - .0039	0.05 - 0.10	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0032	.0024 - .0039
ø6.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0020 - .0059	.0020 - .0059	.0016 - .0032	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
ø8.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0032	.0039 - .0079	.0039 - .0059	.0039 - .0079
ø10.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0059 - .0098	.0059 - .0098	.0031 - .0047	.0024 - .0039	.0059 - .0098	.0047 - .0071	.0059 - .0098
ø12.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0079 - .0118	.0079 - .0118	.0047 - .0071	.0032 - .0047	.0067 - .0106	.0059 - .0098	.0079 - .0118
ø16.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0079 - .0118	.0079 - .0118	.0098 - .0138
ø20.0	v _c	200 - 330	165 - 300	65 - 135	65 - 165	230 - 330	215 - 280	300 - 500
	f	.0098 - .0138	.0098 - .0138	.0063 - .0087	.0059 - .0098	.0118 - .0157	.0098 - .0138	.01378 - .0177

Min. - Max.

Flat Bottom Drills

MDF-H (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.22%
Carbon Steel Alloy Steel from 0.22%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy



*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

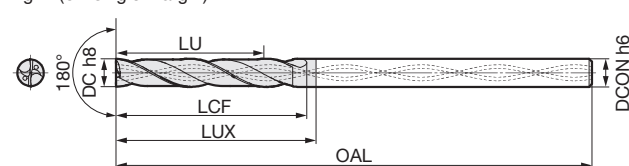
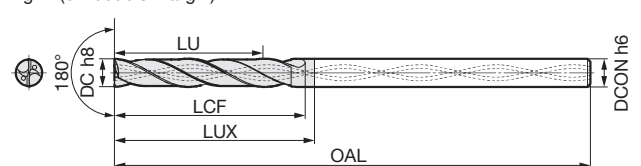


Fig. 2 (5D double margin)



Diameter $\phi 0.1181''$ (3.00mm) to $\phi 0.2244''$ (5.7mm)

Dimensions (inch / mm)

Diameter DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Neck Length LUX		Overall Length OAL		Shank Diameter DCON		Fig
inch	mm	Fraction						inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
0.1181	3.00		6-40 / M3.5x.6		3 5	★ ★	MDF0300H3D MDF0300H5D	0.4724 0.7087	12.00 18.00	0.5315 0.7913	13.50 20.10	0.6496 0.9094	16.50 23.10	2.6772 3.0709	68.00 78.00	0.1181	3.00	1 2
0.1220	3.10			6-32	3 5	★ ★	MDF0310H3D MDF0310H5D	0.4882 0.7323	12.40 18.60	0.5512 0.8189	14.00 20.80	0.6693 0.9370	17.00 23.80	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1250	3.18	1/8		6-32	3 5	● ★	MDF01250H3D MDF0320H3D	0.5000 0.5039	12.70 12.80	0.5625 0.5669	14.29 14.40	0.6806 0.6850	17.29 17.40	2.8350 2.8346	72.01 72.00	0.1575	4.00	1 1
0.1260	3.20			6-32	3 5	★ ★	MDF0320H5D MDF0330H3D	0.7559 0.5197	19.20 13.20	0.8425 0.5866	21.40 14.90	0.9606 0.7047	24.40 17.90	3.3858 2.8346	86.00 72.00	0.1575	4.00	1 2
0.1299	3.30				3 5	★ ★	MDF0330H5D MDF0330H3D	0.7795 0.5354	19.80 13.60	0.8701 0.6024	22.10 15.30	0.9882 0.7205	25.10 18.30	3.3858 2.8346	86.00 72.00	0.1575	4.00	1 2
0.1339	3.40		8-32 / M4x.7		3 5	★ ★	MDF0340H3D MDF0340H5D	0.5354 0.8031	13.60 20.40	0.6024 0.8976	15.30 22.80	0.7205 1.0157	18.30 25.80	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1378	3.50		8-32 / 8-36		3 5	★ ★	MDF0350H3D MDF0350H5D	0.5512 0.8268	14.00 21.00	0.6220 0.9252	15.80 23.50	0.7402 1.0433	18.80 26.50	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1406	3.57	9/64	8-36 /M4x.5		3	●	MDF01406H3D	0.5625	14.29	0.6328	16.07	0.7509	19.07	2.835	72.01	0.1575	4.00	1
0.1417	3.60		8-36 / M4x.5		3 5	★ ★	MDF0360H3D MDF0360H5D	0.5669 0.8504	14.40 21.60	0.6378 0.9488	16.20 24.10	0.7559 1.0669	19.20 27.10	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1457	3.70			M4x.7	3 5	★ ★	MDF0370H3D MDF0370H5D	0.5827 0.8740	14.80 22.20	0.6575 0.9764	16.70 24.80	0.7756 1.0945	19.70 27.80	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1496	3.80		M4.5x.75	8-32 / M4x.5	3 5	★ ★	MDF0380H3D MDF0380H5D	0.5984 0.8976	15.20 22.80	0.6732 1.0039	17.10 25.50	0.7913 1.1220	20.10 28.50	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1535	3.90		0-24 / M4.5x.75	8-36	3 5	★ ★	MDF0390H3D MDF0390H5D	0.6142 0.9213	15.60 23.40	0.6929 1.0276	17.60 26.10	0.8110 1.1457	20.60 29.10	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1563	3.97	5/32			3	●	MDF01562H3D	0.6250	15.88	0.7031	17.86	0.8212	20.86	2.835	72.01	0.1575	4.00	1
0.1575	4.00				3 5	★ ★	MDF0400H3D MDF0400H5D	0.6299 0.9449	16.00 24.00	0.7087 1.0551	18.00 26.80	0.8268 1.1732	21.00 29.80	2.8346 3.3858	72.00 86.00	0.1575	4.00	1 2
0.1614	4.10		10-32		3 5	★ ★	MDF0410H3D MDF0410H5D	0.6457 0.9685	16.40 24.60	0.7283 1.0827	18.50 27.50	0.8465 1.2008	21.50 30.50	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1654	4.20		10-32	M4x5x.75	3 5	★ ★	MDF0420H3D MDF0420H5D	0.6614 0.9921	16.80 25.20	0.7441 1.1063	18.90 28.10	0.8622 1.2244	21.90 31.10	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1693	4.30		M5x.8		3 5	★ ★	MDF0430H3D MDF0430H5D	0.6772 1.0157	17.20 25.80	0.7638 1.1339	19.40 28.80	0.8819 1.2520	22.40 31.80	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1732	4.40			10-24	3 5	★ ★	MDF0440H3D MDF0440H5D	0.6929 1.0394	17.60 26.40	0.7795 1.1614	19.80 29.50	0.8976 1.2795	22.80 32.50	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1772	4.50		12-24	10-32	3 5	★ ★	MDF0450H3D MDF0450H5D	0.7087 1.0630	18.00 27.00	0.7992 1.1890	20.30 30.20	0.9173 1.3071	23.30 33.20	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1811	4.60		12-24 / M5x.5		3 5	★ ★	MDF0460H3D MDF0460H5D	0.7244 1.0866	18.40 27.60	0.8150 1.2126	20.70 30.80	0.9331 1.3307	23.70 33.80	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 1
0.1850	4.70		12-28	M5x.8	3 5	★ ★	MDF0470H3D MDF0470H5D	0.7402 1.1102	18.80 28.20	0.8346 1.2402	21.20 31.50	0.9528 1.3583	24.20 34.50	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 1
0.1875	4.76	3/16			3	●	MDF01875H3D	0.7500	19.05	0.8438	21.43	0.9619	24.43	3.1000	78.74	0.1969	6.00	1
0.1890	4.80			M5x.5	3 5	★ ★	MDF0480H3D MDF0480H5D	0.7559 1.1339	19.20 28.80	0.8504 1.2677	21.60 32.20	0.9685 1.3858	24.60 35.20	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 1
0.1929	4.90				3 5	★ ★	MDF0490H3D MDF0490H5D	0.7717 1.1575	19.60 29.40	0.8701 1.2913	22.10 32.80	0.9882 1.4094	25.10 35.80	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.1969	5.00			12-24	3 5	★ ★	MDF0500H3D MDF0500H5D	0.7874 1.1811	20.00 30.00	0.8858 1.3189	22.50 33.50	1.0039 1.4370	25.50 36.50	3.1496 3.8583	80.00 98.00	0.1969	5.00	1 2
0.2008	5.10		M6x1	12-28	3 5	★ ★	MDF0510H3D MDF0510H5D	0.8031 1.2047	20.40 30.60	0.9055 1.3465	23.00 34.20	1.0236 1.4646	26.00 37.20	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2047	5.20		1/4-20		3 5	★ ★	MDF0520H3D MDF0520H5D	0.8189 1.2283	20.80 31.20	0.9213 1.3701	23.40 34.80	1.0394 1.4882	26.40 37.80	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2087	5.30		1/4-20 / M6x.75		3 5	★ ★	MDF0530H3D MDF0530H5D	0.8346 1.2520	21.20 31.80	0.9409 1.3976	23.90 35.50	1.0591 1.5157	26.90 38.50	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2126	5.40				3 5	★ ★	MDF0540H3D MDF0540H5D	0.8504 1.2756	21.60 32.40	0.9567 1.4252	24.30 36.20	1.0748 1.5433	27.30 39.20	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2165	5.50		1/4-28		3 5	★ ★	MDF0550H3D MDF0550H5D	0.8661 1.2992	22.00 33.00	0.9764 1.4528	24.80 36.90	1.0945 1.5709	27.80 39.90	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2188	5.56	7/32	1/4-28	M6x1	3	●	MDF02188H3D	0.8750	22.23	0.9844	25.00	1.1025	28.00	3.228	81.99	0.2362	6.00	1
0.2205	5.60		1/4-28	M6x1	3 5	★ ★	MDF0560H3D MDF0560H5D	0.8819 1.3228	22.40 33.60	0.9921 1.4764	25.20 37.50	1.1102 1.5945	28.20 40.50	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 2
0.2244	5.70			M6x.75	3 5	★ ★	MDF0570H3D MDF0570H5D	0.8976 1.3465	22.80 34.20	1.0118 1.5039	25.70 38.20	1.1299 1.6220	28.70 41.20	3.2283 3.9370	82.00 100.00	0.2362	6.00	1 1

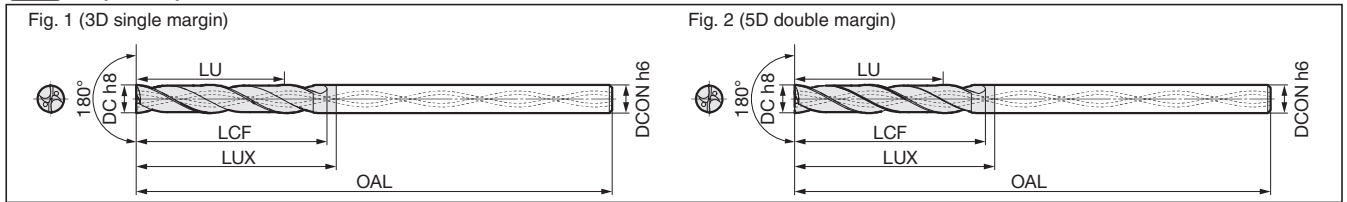
Flat Bottom Drills

MDF-H (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 43HRC
Stainless Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy

PVD Coat
3D 5D

*Refer to N74 for the tolerance of h6 and h8



Diameter $\varnothing 0.2283"$ (5.8mm) to $\varnothing 0.3386"$ (8.6mm)

Diameter DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Neck Length LUX		Overall Length OAL		Shank Diameter DCON		Fig
inch	mm	Fraction						inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
0.2283	5.80			1/4-20	3	★	MDF0580H3D	0.9134	23.20	1.0276	26.10	1.1457	29.10	3.2283	82.00	0.2362	6.00	1
					5	★	MDF0580H5D	1.3701	34.80	1.5315	38.90	1.6496	41.90	3.9370	100.00			2
0.2323	5.90			1/4-20	3	★	MDF0590H3D	0.9291	23.60	1.0472	26.60	1.1654	29.60	3.2283	82.00	0.2362	6.00	1
					5	★	MDF0590H5D	1.3937	35.40	1.5551	39.50	1.6732	42.50	3.9370	100.00			2
0.2362	6.00			1/4-28	3	★	MDF0600H3D	0.9449	24.00	1.0630	27.00	1.1811	30.00	3.2283	82.00	0.2362	6.00	1
					5	★	MDF0600H5D	1.4173	36.00	1.5827	40.20	1.7008	43.20	3.9370	100.00			2
0.2402	6.10		M7x1		3	★	MDF0610H3D	0.9606	24.40	1.0827	27.50	1.2008	30.50	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0610H5D	1.4409	36.60	1.6102	40.90	1.7283	43.90	4.2913	109.00			2
0.2441	6.20				3	★	MDF0620H3D	0.9764	24.80	1.0984	27.90	1.2165	30.90	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0620H5D	1.4646	37.20	1.6339	41.50	1.7520	44.50	4.2913	109.00			2
0.2480	6.30				3	★	MDF0630H3D	0.9921	25.20	1.1181	28.40	1.2362	31.40	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0630H5D	1.4882	37.80	1.6614	42.20	1.7795	45.20	4.2913	109.00			2
0.2500	6.35	1/4			3	★	MDF02500H3D	1.0000	25.40	1.1250	28.58	1.2431	31.58	3.465	88.01	0.2756	8.00	1
0.2520	6.40				3	★	MDF0640H3D	1.0079	25.60	1.1339	28.80	1.2520	31.80	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0640H5D	1.5118	38.40	1.6890	42.90	1.8071	45.90	4.2913	109.00			2
0.2559	6.50				3	★	MDF0650H3D	1.0236	26.00	1.1535	29.30	1.2717	32.30	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0650H5D	1.5354	39.00	1.7165	43.60	1.8346	46.60	4.2913	109.00			2
0.2598	6.60		5/16-18	M7x1	3	★	MDF0660H3D	1.0394	26.40	1.1693	29.70	1.2874	32.70	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0660H5D	1.5591	39.60	1.7402	44.20	1.8583	47.20	4.2913	109.00			2
0.2638	6.70		5/16-18		3	★	MDF0670H3D	1.0551	26.80	1.1890	30.20	1.3071	33.20	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0670H5D	1.5827	40.20	1.7677	44.90	1.8858	47.90	4.2913	109.00			2
0.2677	6.80				3	★	MDF0680H3D	1.0709	27.20	1.2047	30.60	1.3228	33.60	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0680H5D	1.6063	40.80	1.7953	45.60	1.9134	48.60	4.2913	109.00			2
0.2717	6.90		M8x1.25		3	★	MDF0690H3D	1.0866	27.60	1.2244	31.10	1.3425	34.10	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0690H5D	1.6299	41.40	1.8189	46.20	1.9370	49.20	4.2913	109.00			2
0.2756	7.00		5/16-24		3	★	MDF0700H3D	1.1024	28.00	1.2402	31.50	1.3583	34.50	3.4646	88.00	0.2756	7.00	1
					5	★	MDF0700H5D	1.6535	42.00	1.8465	46.90	1.9646	49.90	4.2913	109.00			2
0.2795	7.10		M8x1		3	★	MDF0710H3D	1.1181	28.40	1.2598	32.00	1.3780	35.00	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0710H5D	1.6772	42.60	1.8740	47.60	1.9921	50.60	4.6457	118.00			2
0.2813	7.14	9/32	M8x1		3	★	MDF02812H3D	1.1250	28.58	1.2656	32.15	1.3837	35.15	3.701	94.01	0.3150	8.00	1
0.2835	7.20				3	★	MDF0720H3D	1.1339	28.80	1.2756	32.40	1.3937	35.40	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0720H5D	1.7008	43.20	1.8976	48.20	2.0157	51.20	4.6457	118.00			2
0.2874	7.30		M8x.75	5/16-18	3	★	MDF0730H3D	1.1496	29.20	1.2953	32.90	1.4134	35.90	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0730H5D	1.7244	43.80	1.9252	48.90	2.0433	51.90	4.6457	118.00			2
0.2913	7.40		M8x.75	5/16-18	3	★	MDF0740H3D	1.1654	29.60	1.3110	33.30	1.4291	36.30	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0740H5D	1.7480	44.40	1.9528	49.60	2.0709	52.60	4.6457	118.00			2
0.2953	7.50		5/16-24 / M8x1.25		3	★	MDF0750H3D	1.1811	30.00	1.3307	33.80	1.4488	36.80	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0750H5D	1.7717	45.00	1.9803	50.30	2.0984	53.30	4.6457	118.00			2
0.2992	7.60		M8x1		3	★	MDF0760H3D	1.1969	30.40	1.3465	34.20	1.4646	37.20	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0760H5D	1.7953	45.60	2.0039	50.90	2.1220	53.90	4.6457	118.00			2
0.3031	7.70		M8x.75		3	★	MDF0770H3D	1.2126	30.80	1.3661	34.70	1.4843	37.70	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0770H5D	1.8189	46.20	2.0315	51.60	2.1496	54.60	4.6457	118.00			2
0.3071	7.80				3	★	MDF0780H3D	1.2283	31.20	1.3819	35.10	1.5000	38.10	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0780H5D	1.8425	46.80	2.0591	52.30	2.1772	55.30	4.6457	118.00			2
0.3110	7.90				3	★	MDF0790H3D	1.2441	31.60	1.4016	35.60	1.5197	38.60	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0790H5D	1.8661	47.40	2.0827	52.90	2.2008	55.90	4.6457	118.00			2
0.3125	7.94	5/16			3	★	MDF03125H3D	1.2500	31.75	1.4063	35.72	1.5244	38.72	3.701	94.01	0.3150	8.00	1
0.3150	8.00				3	★	MDF0800H3D	1.2598	32.00	1.4173	36.00	1.5354	39.00	3.7008	94.00	0.3150	8.00	1
					5	★	MDF0800H5D	1.8898	48.00	2.1102	53.60	2.2283	56.60	4.6457	118.00			2
0.3189	8.10		3/8-16		3	★	MDF0810H3D	1.2756	32.40	1.4370	36.50	1.5551	39.50	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0810H5D	1.9134	48.60	2.1378	54.30	2.2559	57.30	5.0000	127.00			2
0.3228	8.20		3/8-16		3	★	MDF0820H3D	1.2913	32.80	1.4528	36.90	1.5709	39.90	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0820H5D	1.9370	49.20	2.1614	54.90	2.2795	57.90	5.0000	127.00			2
0.3268	8.30				3	★	MDF0830H3D	1.3071	33.20	1.4724	37.40	1.5906	40.40	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0830H5D	1.9606	49.80	2.1890	55.60	2.3071	58.60	5.0000	127.00			2
0.3307	8.40				3	★	MDF0840H3D	1.3228	33.60	1.4882	37.80	1.6063	40.80	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0840H5D	1.9843	50.40	2.2165	56.30	2.3346	59.30	5.0000	127.00			2
0.3346	8.50		3/8-24		3	★	MDF0850H3D	1.3386	34.00	1.5079	38.30	1.6260	41.30	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0850H5D	2.0079	51.00	2.2441	57.00	2.3622	60.00	5.0000	127.00			2
0.3386	8.60		3/8-24 / M10x1.5		3	★	MDF0860H3D	1.3543	34.40	1.5236	38.70	1.6417	41.70	3.9370	100.00	0.3543	9.00	1
					5	★	MDF0860H5D	2.0315	51.60	2.2677	57.60	2.3858	60.60	5.0000	127.00			2

Grade: ACF75

*A prepared hole with the same diameter or centring hole with a larger diameter than the tool is needed for drilling with the 5D tool.

●: USA Stocked Item ★: Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Flat Bottom Drills

MDF-H (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.23%
Carbon Steel Alloy Steel from 0.23%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy

PVD Coat 3D 5D

*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (3D single margin)

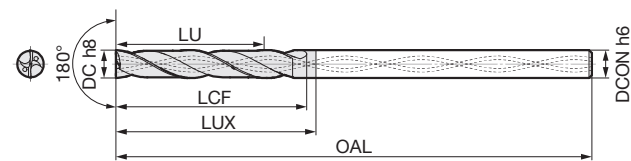
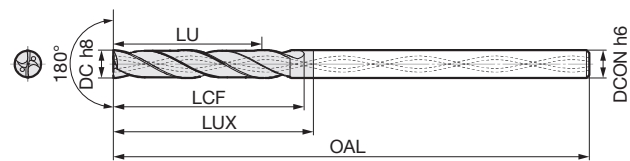


Fig. 2 (5D double margin)



Diameter $\phi 0.3386"$ (8.6mm) to $\phi 0.4488"$ (11.4mm)

Diameter		Cut Tap	Roll Form	Hole Depth	Stock	Cat. No.	Effective Length		Flute Length		Neck Length		Overall Length		Shank Diameter		Fig
							LU		LCF		LUX		OAL		DCON		
inch	mm	Fraction	Size	Tap Size	(L/D)		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
0.3386	8.60				3	★ MDF0860H3D	1.3543	34.40	1.5236	38.70	1.6417	41.70	3.9370	100.00	0.3543	9.00	1
					5	★ MDF0860H5D	2.0315	51.60	2.2677	57.60	2.3858	60.60	5.0000	127.00			2
0.3425	8.70		M10x1.5		3	★ MDF0870H3D	1.3701	34.80	1.5433	39.20	1.6614	42.20	3.9370	100.00	0.3543	9.00	1
					5	★ MDF0870H5D	2.0551	52.20	2.2953	58.30	2.4134	61.30	5.0000	127.00			2
0.3438	8.73	11/32			3	● MDF03438H3D	1.3750	34.93	1.5469	39.29	1.6650	42.29	3.937	100.00	0.3543	10.00	1
					3	★ MDF0880H3D	1.3858	35.20	1.5591	39.60	1.6772	42.60	3.9370	100.00			1
0.3465	8.80				5	★ MDF0880H5D	2.0787	52.80	2.3228	59.00	2.4409	62.00	5.0000	127.00	0.3543	9.00	2
0.3504	8.90		M10x1.25		3	★ MDF0890H3D	1.4016	35.60	1.5787	40.10	1.6969	43.10	3.9370	100.00			1
					5	★ MDF0890H5D	2.1024	53.40	2.3465	59.60	2.4646	62.60	5.0000	127.00	0.3543	9.00	2
0.3543	9.00				3	★ MDF0900H3D	1.4173	36.00	1.5945	40.50	1.7126	43.50	3.9370	100.00			1
					5	★ MDF0900H5D	2.1260	54.00	2.3740	60.30	2.4921	63.30	5.0000	127.00	0.3543	9.00	2
0.3583	9.10		M10x1.25	3/8-24	3	★ MDF0910H3D	1.4331	36.40	1.6142	41.00	1.7323	44.00	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0910H5D	2.1496	54.60	2.4016	61.00	2.5197	64.00	5.3543	136.00			2
0.3622	9.20				3	★ MDF0920H3D	1.4488	36.80	1.6299	41.40	1.7480	44.40	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0920H5D	2.1732	55.20	2.4252	61.60	2.5433	64.60	5.3543	136.00			2
0.3661	9.30		3/8-24	M10x1.5	3	★ MDF0930H3D	1.4646	37.20	1.6496	41.90	1.7677	44.90	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0930H5D	2.1969	55.80	2.4528	62.30	2.5709	65.30	5.3543	136.00			2
0.3701	9.40		7/16-14	M10x1.5	3	★ MDF0940H3D	1.4803	37.60	1.6654	42.30	1.7835	45.30	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0940H5D	2.2205	56.40	2.4803	63.00	2.5984	66.00	5.3543	136.00			2
0.3740	9.50		7/16-14	M10x1.25	3	★ MDF0950H3D	1.4961	38.00	1.6850	42.80	1.8031	45.80	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0950H5D	2.2441	57.00	2.5079	63.70	2.6260	66.70	5.3543	136.00			2
0.3750	9.53	3/8	7/16-14		3	● MDF03750H3D	1.5000	38.10	1.6875	42.86	1.8056	45.86	4.173	105.99	0.3937	10.00	1
0.3780	9.60			M10x1	3	★ MDF0960H3D	1.5118	38.40	1.7008	43.20	1.8189	46.20	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0960H5D	2.2677	57.60	2.5315	64.30	2.6496	67.30	5.3543	136.00			2
0.3819	9.70			M10x.75	3	★ MDF0970H3D	1.5276	38.80	1.7205	43.70	1.8386	46.70	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0970H5D	2.2913	58.20	2.5591	65.00	2.6772	68.00	5.3543	136.00			2
0.3858	9.80				3	★ MDF0980H3D	1.5433	39.20	1.7362	44.10	1.8543	47.10	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0980H5D	2.3150	58.80	2.5866	65.70	2.7047	68.70	5.3543	136.00			2
0.3898	9.90				3	★ MDF0990H3D	1.5591	39.60	1.7559	44.60	1.8740	47.60	4.1732	106.00	0.3937	10.00	1
					5	★ MDF0990H5D	2.3386	59.40	2.6102	66.30	2.7283	69.30	5.3543	136.00			2
0.3937	10.00		7/16-20		3	★ MDF1000H3D	1.5748	40.00	1.7717	45.00	1.8898	48.00	4.1732	106.00	0.3937	10.00	1
					5	★ MDF1000H5D	2.3622	60.00	2.6378	67.00	2.7559	70.00	5.3543	136.00			2
0.3976	10.10				3	★ MDF1010H3D	1.5906	40.40	1.7913	45.50	1.9094	48.50	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1010H5D	2.3858	60.60	2.6654	67.70	2.7835	70.70	5.8661	149.00			2
0.4016	10.20				3	★ MDF1020H3D	1.6063	40.80	1.8071	45.90	1.9252	48.90	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1020H5D	2.4094	61.20	2.6890	68.30	2.8071	71.30	5.8661	149.00			2
0.4055	10.30			7/16-24	3	★ MDF1030H3D	1.6220	41.20	1.8268	46.40	1.9449	49.40	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1030H5D	2.4331	61.80	2.7165	69.00	2.8346	72.00	5.8661	149.00			2
0.4063	10.32	13/32			3	● MDF04062H3D	1.6250	41.28	1.8281	46.43	1.9462	49.43	4.567	116.00	0.4331	10.00	2
0.4094	10.40		M12x1.75		3	★ MDF1040H3D	1.6378	41.60	1.8425	46.80	1.9606	49.80	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1040H5D	2.4567	62.40	2.7441	69.70	2.8622	72.70	5.8661	149.00			2
0.4134	10.50		M12x1.75		3	★ MDF1050H3D	1.6535	42.00	1.8622	47.30	1.9803	50.30	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1050H5D	2.4803	63.00	2.7717	70.40	2.8898	73.40	5.8661	149.00			2
0.4173	10.60			7/16-20	3	★ MDF1060H3D	1.6693	42.40	1.8780	47.70	1.9961	50.70	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1060H5D	2.5039	63.60	2.7953	71.00	2.9134	74.00	5.8661	149.00			2
0.4213	10.70		M12x1.5		3	★ MDF1070H3D	1.6850	42.80	1.8976	48.20	2.0157	51.20	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1070H5D	2.5276	64.20	2.8228	71.70	2.9409	74.70	5.8661	149.00			2
0.4252	10.80				3	★ MDF1080H3D	1.7008	43.20	1.9134	48.60	2.0315	51.60	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1080H5D	2.5512	64.80	2.8504	72.40	2.9685	75.40	5.8661	149.00			2
0.4291	10.90		1/2-13 / M12x1.25		3	★ MDF1090H3D	1.7165	43.60	1.9331	49.10	2.0512	52.10	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1090H5D	2.5748	65.40	2.8740	73.00	2.9921	76.00	5.8661	149.00			2
0.4331	11.00		1/2-13		3	★ MDF1100H3D	1.7323	44.00	1.9488	49.50	2.0669	52.50	4.5669	116.00	0.4331	11.00	1
					5	★ MDF1100H5D	2.5984	66.00	2.9016	73.70	3.0197	76.70	5.8661	149.00			2
0.4370	11.10		1/2-13 / M12x1		3	★ MDF1110H3D	1.7480	44.40	1.9685	50.00	2.0866	53.00	4.8031	122.00	0.4724	12.00	1
					5	★ MDF1110H5D	2.6220	66.60	2.9291	74.40	3.0472	77.40	6.2205	158.00			2
0.4375	11.11	7/16	M12x1		3	● MDF04375H3D	1.7500	44.45	1.9688	50.01	2.0869	53.01	4.803	122.00	0.4724	12.00	1
0.4409	11.20		M12x1		3	★ MDF1120H3D	1.7638	44.80	1.9843	50.40	2.1024	53.40	4.8031	122.00	0.4724	12.00	1
					5	★ MDF1120H5D	2.6457	67.20	2.9528	75.00	3.0709	78.00	6.2205	158.00			2
0.4449	11.30			M12x1.75	3	★ MDF1130H3D	1.7795	45.20	2.0039	50.90	2.1220	53.90	4.8031	122.00	0.4724	12.00	1
					5	★ MDF1130H5D	2.6693	67.80	2.9803	75.70	3.0984	78.70	6.2205	158.00			2
0.4488	11.40			M12x1.5	3	★ MDF1140H3D	1.7953	45.60	2.0197	51.30	2.1378	54.30	4.8031	122.00	0.4724	12.00	1
					5	★ MDF1140H5D	2.6929	68.40	3.0079	76.40	3.1260	79.40	6.2205	158.00			2

Grade: ACF75

*A prepared hole with the same diameter or centering hole with a larger diameter than the tool is needed for drilling with the 5D tool.

●: USA Stocked Item ★: Worldwide Warehouse Item

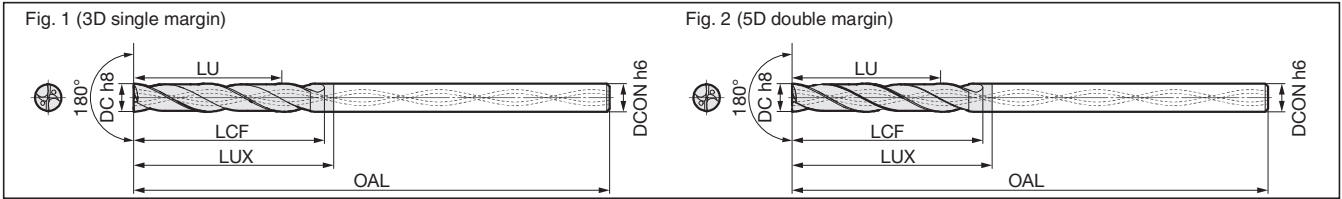
Flat Bottom Drills

MDF-H (Internal Coolant Supply)

Carbon Steel/ Alloy Steel up to 0.28%
Carbon Steel/ Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 40HRC
Stainless Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy

PVD Coat
3D 5D

*Refer to N74 for the tolerance of h6 and h8



Diameter $\phi 0.4528"$ (11.5mm) to $\phi 0.6299"$ (16.0mm)

Dimensions (inch/ mm)

Diameter DC	Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Neck Length LUX		Overall Length OAL		Shank Diameter DCON		Fig
						inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
0.4528	11.50	1/2-20	M12x1.25	3	★ MDF1150H3D	1.8110	46.00	2.0394	51.80	2.1575	54.80	4.8031	122.00	0.4724	12.00	1
				5	★ MDF1150H5D	2.7165	69.00	3.0354	77.10	3.1535	80.10	6.2205	158.00			2
0.4567	11.60	1/2-20	M12x1	3	★ MDF1160H3D	1.8268	46.40	2.0551	52.20	2.1732	55.20	4.8031	122.00	0.4724	12.00	1
				5	★ MDF1160H5D	2.7402	69.60	3.0591	77.70	3.1772	80.70	6.2205	158.00			2
0.4606	11.70			3	★ MDF1170H3D	1.8425	46.80	2.0748	52.70	2.1929	55.70	4.8031	122.00	0.4724	12.00	1
				5	★ MDF1170H5D	2.7638	70.20	3.0866	78.40	3.2047	81.40	6.2205	158.00			2
0.4646	11.80			5	★ MDF1180H3D	1.8583	47.20	2.0906	53.10	2.2087	56.10	4.8031	122.00	0.4724	12.00	1
				3	★ MDF1180H5D	2.7874	70.80	3.1142	79.10	3.2323	82.10	6.2205	158.00			2
0.4685	11.90		1/2-13	5	★ MDF1190H3D	1.8740	47.60	2.1102	53.60	2.2283	56.60	4.8031	122.00	0.4724	12.00	1
				3	★ MDF1190H5D	2.8110	71.40	3.1378	79.70	3.2559	82.70	6.2205	158.00			2
0.4688	11.91	15/32	1/2-13	3	● MDF04688H3D	1.8750	47.63	2.1094	53.58	2.2275	56.58	4.803	122.00	0.4724	12.00	1
0.4724	12.00			3	★ MDF1200H3D	1.8898	48.00	2.1260	54.00	2.2441	57.00	4.8031	122.00	0.4724	12.00	1
				5	★ MDF1200H5D	2.8346	72.00	3.1654	80.40	3.2835	83.40	6.2205	158.00			2
0.4921	12.50	9/16-12		3	★ MDF1250H3D	1.9685	50.00	2.2165	56.30	2.3346	59.30	5.0394	128.00	0.5118	13.00	1
				5	★ MDF1250H5D	2.9528	75.00	3.2992	83.80	3.4173	86.80	6.5748	167.00			2
0.5000	12.70	1/2	M14x1.5	3	★ MDF05000H3D	2.0000	50.80	2.2500	57.15	2.3681	60.15	5.039	127.99	0.5118	14.00	1
0.5118	13.00	9/16-18		3	★ MDF1300H3D	2.0472	52.00	2.3031	58.50	2.4213	61.50	5.0394	128.00	0.5118	13.00	1
				6	★ MDF1300H5D	3.0709	78.00	3.4291	87.10	3.5472	90.10	6.5748	167.00			2
0.5315	13.50			3	★ MDF1350H3D	2.1260	54.00	2.3937	60.80	2.5118	63.80	5.2756	134.00	0.5512	14.00	1
				5	★ MDF1350H5D	3.1890	81.00	3.5630	90.50	3.6811	93.50	6.9291	176.00			2
0.5512	14.00			3	★ MDF1400H3D	2.2047	56.00	2.4803	63.00	2.5984	66.00	5.2756	134.00	0.5512	14.00	1
				5	★ MDF1400H5D	3.3071	84.00	3.6929	93.80	3.8110	96.80	6.9291	176.00			2
0.5625	14.29	9/16	M16x2	3	● MDF05625H3D	2.2500	57.15	2.5313	64.29	2.6494	67.29	5.512	140.00	0.5906	16.00	1
0.5709	14.50			3	★ MDF1450H3D	2.2835	58.00	2.5709	65.30	2.6890	68.30	5.5118	140.00	0.5906	15.00	1
				5	★ MDF1450H5D	3.4252	87.00	3.8268	97.20	3.9449	100.20	7.2835	185.00			2
0.5906	15.00		5/8-11	3	★ MDF1500H3D	2.3622	60.00	2.6575	67.50	2.7756	70.50	5.5118	140.00	0.5906	15.00	1
				5	★ MDF1500H5D	3.5433	90.00	3.9567	100.50	4.0748	103.50	7.2835	185.00			2
0.6102	15.50			3	★ MDF1550H3D	2.4409	62.00	2.7480	69.80	2.8661	72.80	5.7480	146.00	0.6299	16.00	1
				5	★ MDF1550H5D	3.6614	93.00	4.0906	103.90	4.2087	106.90	7.6378	194.00			2
0.6299	16.00			3	★ MDF1600H3D	2.5197	64.00	2.8346	72.00	2.9528	75.00	5.7480	146.00	0.6299	16.00	1
				5	★ MDF1600H5D	3.7795	96.00	4.2205	107.20	4.3386	110.20	7.6378	194.00			2

Grade: ACF75

●: USA Stocked Item ★: Worldwide Warehouse Item

Recommended Cutting Conditions for 3D

- The recommended hole depth is 3 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
- The recommended cutting conditions are those for drilling in flat horizontal surfaces.
- Adjust the feed rate according to the inclination angle when drilling in an inclined surface.
- Set the feed rate at 70% or lower when the inclination angle is 30° or less.

- Set the feed rate at 50% or lower when the inclination angle is larger than 30°.
- This product is a drilling tool. Do not use it for traverse cutting or helical milling.
- A prepared hole with the same diameter is recommended for machining of stainless steel.

(v_c : Cutting Speed (SFM), f : Feed Rate (IPR))

Dia. DC (Inch/mm)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to HRC50)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
$\phi 4$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 1.575$	f	.0024 - .0039	.0020 - .0039	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0031	.0024 - .0039
$\phi 6$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
$\phi 2.362$	f	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
$\phi 8$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
$\phi 3.150$	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0031	.0039 - .0079	.0039 - .0059	.0039 - .0079
$\phi 10$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
$\phi 3.937$	f	.0047 - .0087	.0047 - .0087	.0031 - .0047	.0024 - .0039	.0047 - .0087	.0047 - .0071	.0059 - 0098
$\phi 12$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
$\phi 4.724$	f	.0059 - 0098	.0059 - 0098	.0047 - .0071	.0031 - .0047	.0059 - 0098	.0059 - .0079	.0079 - .0118
$\phi 16$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	230 - 300	300 - 500
$\phi 6.299$	f	.0059 - 0098	.0059 - 0098	.0047 - .0071	.0039 - .0079	.0067 - .0106	.0059 - 0098	.0098 - .0157

Min. - Max.

Recommended Cutting Conditions for 5D

- A prepared hole with the same diameter is needed for machining with this tool.
- A prepared hole with the same diameter is recommended for the cutting conditions.

- The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces.
- This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(v_c : Cutting Speed (SFM), f : Feed Rate (IPR))

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to HRC50)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450	Aluminum Alloy
$\phi 4$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 1.575$	f	.0024 - .0039	.0020 - .0039	.0004 - .0012	.0004 - .0012	.0024 - .0039	.0016 - .0031	.0024 - .0039
$\phi 6$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 2.362$	f	.0020 - .0059	.0020 - .0059	.0016 - .0031	.0012 - .0020	.0020 - .0059	.0024 - .0047	.0020 - .0059
$\phi 8$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 3.150$	f	.0039 - .0079	.0039 - .0079	.0024 - .0039	.0016 - .0031	.0039 - .0079	.0039 - .0059	.0039 - .0079
$\phi 10$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 3.937$	f	.0059 - 0098	.0059 - 0098	.0031 - .0047	.0024 - .0039	.0059 - 0098	.0047 - .0071	.0059 - 0098
$\phi 12$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 4.724$	f	.0079 - .0118	.0079 - .0118	.0047 - .0071	.0031 - .0047	.0067 - .0106	.0059 - 0098	.0079 - .0118
$\phi 16$	v_c	230 - 330	200 - 300	100 - 130	80 - 115	230 - 330	215 - 280	300 - 500
$\phi 6.299$	f	.0079 - .0118	.0079 - .0118	.0055 - .0079	.0039 - .0079	.0079 - .0118	.0079 - .0118	.0098 - .0138

Min. - Max.

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

J57

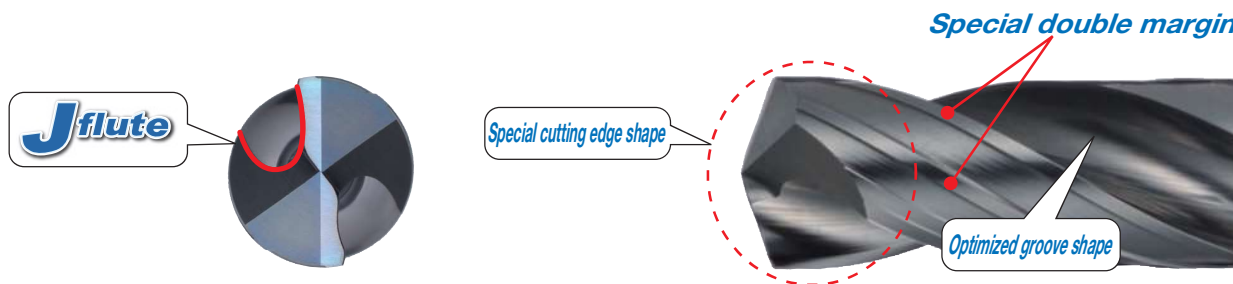


■ General Features

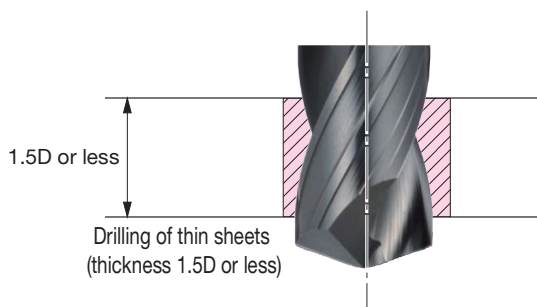
The J flutes of the Super MultiDrill WGS have been tuned for improved chip breaking capabilities during drilling of thin sheets. Excellent sharpness prevents work hardening from drilling. The special double margin structure also achieves stable hole diameter accuracy.

■ Features and Applications

J flutes (groove shape) have been tuned to create an optimized shape for drilling of thin sheets.



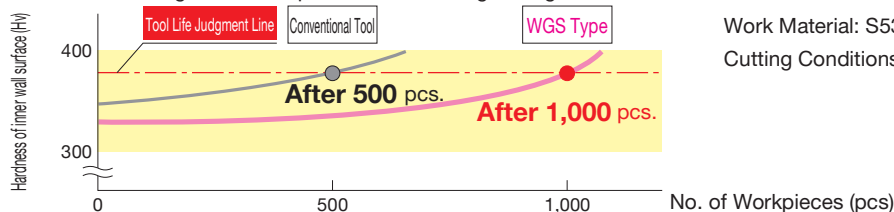
■ Target Workpieces



- [Ideal for Common Automotive Components]
- Bearing hub (inner and outer rings)
 - Knuckle
 - Differential ring
 - Components such as bolt holes in automobile flange parts

■ Cutting Performance

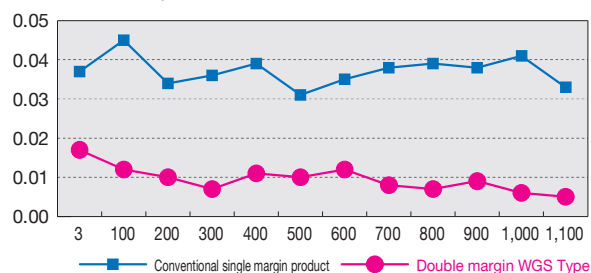
- Reduces hardening of the workpiece surface during drilling



Work Material: S53C

Cutting Conditions: $v_c=230$ SFM, $f=0.008$ IPR
 $H=0.512''$

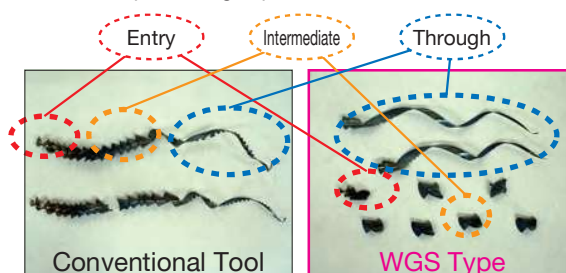
- Stable hole expansion tolerance



Work Material: S50C

Cutting Conditions: $v_c=262$ SFM, $f=0.01$ IPR
 $H=0.630''$

- Better chip breaking capabilities



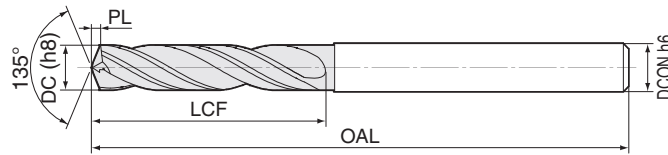
Work Material: SUJ2

Cutting Conditions: $v_c=262$ SFM, $f=0.01$ IPR
 $H=.512''$



*Refer to N74 for the tolerance of h6 and h8

Fig 1



This product is a made-to-order item. Please specify the hole diameter (including tolerance) when ordering.

Body

Dimensions (mm)

Dia. DC	Cat. No.	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.8 to 7.0	MDW 0680 to 0700WGS2	34	74	1.4	7.0	1
7.1 to 7.5	MDW 0710 to 0750WGS2	35		1.5		1
7.6 to 8.0	MDW 0760 to 0800WGS2	38	80	1.6	8.0	1
8.1 to 8.5	MDW 0810 to 0850WGS2	38		1.7		1
8.6 to 9.0	MDW 0860 to 0900WGS2	40	84	1.8	9.0	1
9.1 to 9.5	MDW 0910 to 0950WGS2	40		1.9		1
9.6 to 10.0	MDW 0960 to 1000WGS2	43	89	2.0	10.0	1
10.1 to 10.5	MDW 1010 to 1050WGS2	43		2.1		1
10.6 to 11.0	MDW 1060 to 1100WGS2	47	95	2.2	11.0	1
11.1 to 11.5	MDW 1110 to 1150WGS2	47		2.3		1
11.6 to 12.0	MDW 1160 to 1200WGS2	49	102	2.4	12.0	1
12.1 to 12.5	MDW 1210 to 1250WGS2	50		2.6		1
12.6 to 13.0	MDW 1260 to 1300WGS2	52	103	2.7	13.0	1
13.1 to 13.5	MDW 1310 to 1350WGS2	53		2.8		1
13.6 to 14.0	MDW 1360 to 1400WGS2	55	108	2.9	14.0	1
14.1 to 14.5	MDW 1410 to 1450WGS2	55		3.0		1
14.6 to 15.0	MDW 1460 to 1500WGS2	56	111	3.1	15.0	1
15.1 to 15.5	MDW 1510 to 1550WGS2	56		3.2		1
15.6 to 16.0	MDW 1560 to 1600WGS2	58	115	3.3	16.0	1

Grade: ACX70

Recommended Cutting Conditions

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

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 300HB)	Stainless Steel (up to 200HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450
ø10.0	v_c	50 - 130	15 - 60	50 - 80	50 - 70
	f	0.20 - 0.35	0.10 - 0.20	0.20 - 0.35	0.20 - 0.35
ø16.0	v_c	60 - 140	20 - 60	60 - 100	50 - 80
	f	0.25 - 0.35	0.10 - 0.20	0.25 - 0.35	0.25 - 0.35

* The recommended cutting conditions are also affected by factors such as machine rigidity and the workpiece clamping.

Please adjust the cutting conditions according to your work environment.

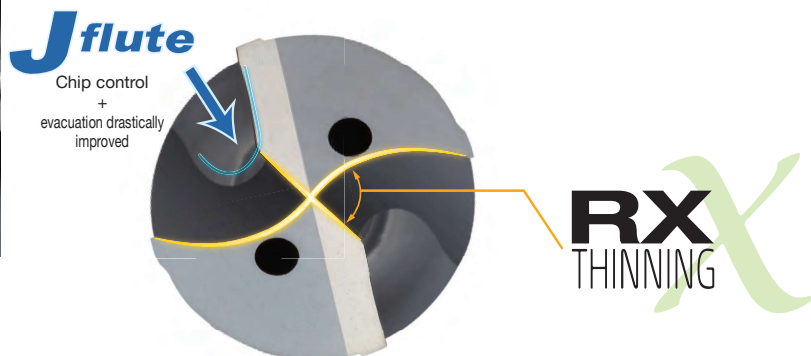
* If work hardening occurs during drilling, it is recommended to use a lower speed than the recommended cutting conditions.

Min. - Max.



General Features

Strong MultiDrill HX Type is a special drill for cast iron that combines reduced cutting resistance and improved drill strength to achieve stable and high efficiency drilling of cast iron.



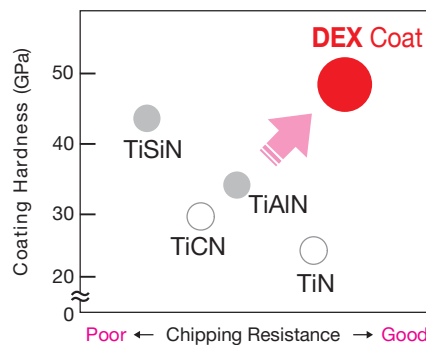
Features and Applications

High-Efficiency Drilling of Cast Iron

Thick web and a special double margin design ensure stable behavior even in high-efficiency drilling. Furthermore, RX THINNING drastically reduces cutting force and ensures more stable and efficient drilling. Enables high-efficiency drilling at speeds of over $v_f=39.4$ IPM. (for $\phi 10$ mm sizes)

Long Tool Life

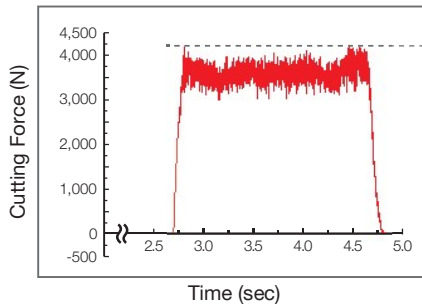
DEX Coat for drills utilizes nano-coating technology that provides more than double the tool life of conventional coatings. The drill guide function is enhanced through optimization of the margin position to prevent breakage due to hole bending.



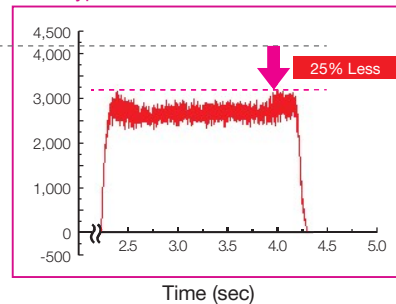
Low Resistance Wide chip pocket reduces thrust resistance.



Conventional tool

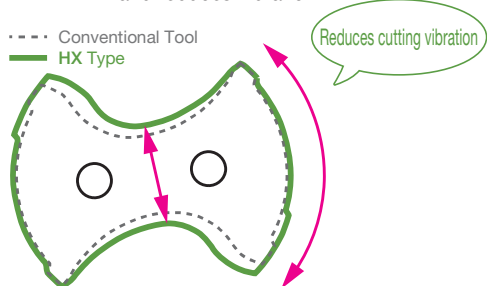


HX Type

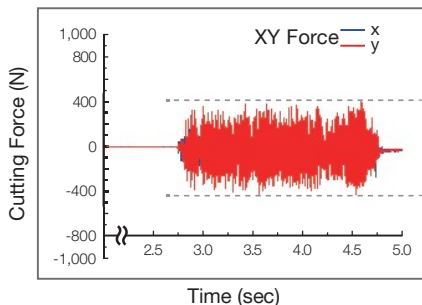


Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 ($\phi 12.5$ mm 5D)
Cutting Conditions : $v_c=328$ SFM, $f=0.024$ IPR, $H=1.979$ ", internal coolant supply (water soluble)

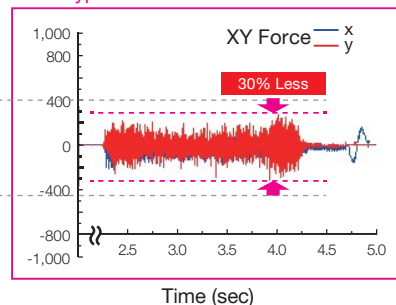
High Rigidity Combination of large web thickness and wide land reduces vibration.



Conventional tool



HX Type



Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 ($\phi 12.5$ mm 5D)
Cutting Conditions : $v_c=328$ SFM, $f=0.024$ IPR, $H=1.979$ ", internal coolant supply (water soluble)

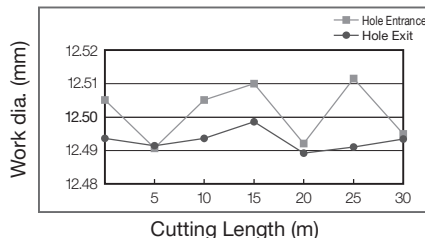
Product Range

Coolant Supply	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)	Number of items
Internal	MDW□□□□HX3	ø3.0 to ø20.0	up to 3	108 items in stock
	MDW□□□□HX5	ø3.0 to ø20.0	up to 5	108 items in stock
	MDW□□□□HX8	ø3.0 to ø18.0	up to 8	32 items in stock

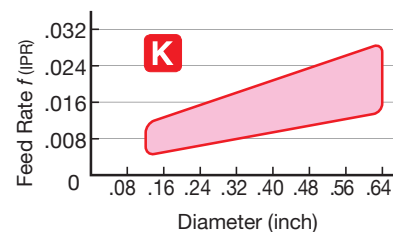
High Precision Improved margin point provides improved drilling precision.



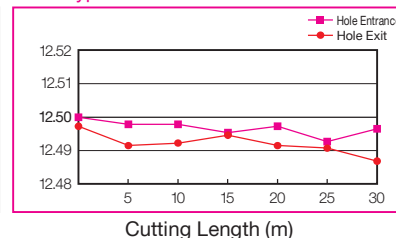
Conventional tool



Drilling of gray cast iron



HX Type



Part Material : Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : $v_c=328$ SFM, $f=0.024$ IPR, $H=1.979$ ", internal coolant supply (water soluble)

Longer Tool Life High-feed cutting reduces margin wear and extends tool life.
→ Maintains replacement frequency (cutting time) and enables high efficiency drilling.

Conventional tool



Cutting Conditions: $f=0.012$ IPR, cutting length: 98 ft. (cutting time 39 minutes)

HX



Cutting Conditions: $f=0.012$ IPR, cutting length: 98 ft. (cutting time 39 minutes)

HX



Cutting Conditions: $f=0.024$ IPR, cutting length: 197 ft. (cutting time 39 minutes)

Part Material: Grey Cast Iron, Tool: Conventional tool, MDW 1250HX5 (ø12.5mm 5D)
Cutting Conditions : $v_c=328$ SFM, $f=0.024$ IPR, $H=1.979$ ", internal coolant supply (water soluble)

Application Examples

Machine Component Grey Cast Iron

Tool: MDW 1850HX5 (ø18.5mm 5D)
Drilling Distance: 164 ft.
Cutting Conditions: $v_c=230$ SFM, $f=0.035$ IPR,
 $H=88.6$ ft. (stop), internal coolant supply (water soluble)

Reduced cutting edge wear in ultra-high-speed drilling.

Cutting Edge Rake Face Condition after Preset Tool Life
Competitor's High-Efficiency Drill



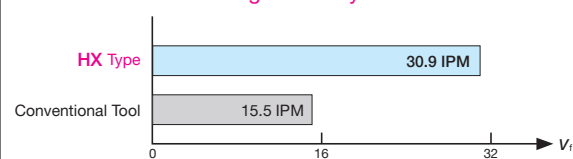
HX Type



Facility Component Ductile Cast Iron

Tool: MDW 0850HX5 (ø8.5mm 5D)
Drilling Distance: 164 ft.
Cutting Conditions: $v_c=230$ SFM, $f=0.012$ IPR $v_f=30.9$ IPM,
 $H=88.6$ ft. (stop), internal coolant supply (water soluble)

Double the drilling efficiency of conventional tools.



Engine Component Ductile Cast Iron

Tool: MDW 1200HX3 (ø12.0mm 3D)
Drilling Distance: 164 ft.
Cutting Conditions: Conventional Tool: $v_c=179$ SFM, $f=0.0087$ IPR, $v_f=11.48$ IPM
HX Type: $v_c=164$ SFM, $f=0.0157$ IPR, $v_f=20.88$ IPM
 $H=91.9$ ft. (stop), internal coolant supply (water soluble)

Stable cutting performance with 1.8 times the drilling efficiency of conventional tools.

Cutting Edge Wear Comparison after Fixed Tool Life

Conventional tool ($f=0.0087$ IPR)

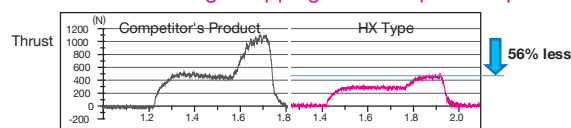
HX Type ($f=0.0157$ IPR)



Machine Components (Sintered Material)

Tool: MDW 0570HX3
Cutting Conditions: $v_c=230$ SFM, $f=0.035$ IPR $H=88.6$ ft. (stop),
internal coolant supply (water soluble)

Less resistance and edge chipping than competitor's products!



Competitor's Product
Hole Entrance

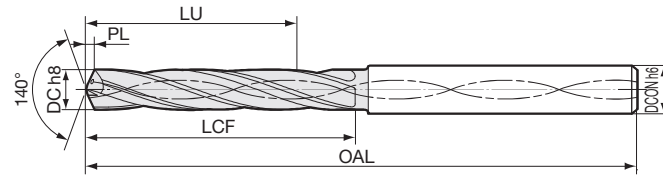


No edge chipping



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø3.0 to 4.7mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.0	3	★	MDW0300HX3	13.5	18.0	68.5	0.5	3.0	1
	5	★	MDW0300HX5	24.0	28.5	78.5			1
	8	★	MDW0300HX8	29.0	33.5	81.5			1
3.1	3	★	MDW0310HX3	16.0	20.6	72.6	0.6	4.0	1
	5	★	MDW0310HX5	28.0	32.6	86.6			1
	8	★	MDW0310HX8	34.5	39.1	92.6			1
3.2	3	★	MDW0320HX3	15.8	20.6	72.6	0.6	4.0	1
	5	★	MDW0320HX5	27.8	32.6	86.6			1
	8	★	MDW0320HX8	34.3	39.1	92.6			1
3.3	3	★	MDW0330HX3	15.7	20.6	72.6	0.6	4.0	1
	5	★	MDW0330HX5	27.7	32.6	86.6			1
	8	★	MDW0330HX8	34.2	39.1	92.6			1
3.4	3	★	MDW0340HX3	15.5	20.6	72.6	0.6	4.0	1
	5	★	MDW0340HX5	27.5	32.6	86.6			1
	8	★	MDW0340HX8	34.0	39.1	92.6			1
3.5	3	★	MDW0350HX3	15.4	20.6	72.6	0.6	4.0	1
	5	★	MDW0350HX5	27.4	32.6	86.6			1
	8	★	MDW0350HX8	33.9	39.1	92.6			1
3.6	3	★	MDW0360HX3	17.8	23.2	72.7	0.7	4.0	1
	5	★	MDW0360HX5	31.3	36.7	86.7			1
	8	★	MDW0360HX8	39.3	44.7	92.7			1
3.7	3	★	MDW0370HX3	17.7	23.2	72.7	0.7	4.0	1
	5	★	MDW0370HX5	31.2	36.7	86.7			1
	8	★	MDW0370HX8	39.2	44.7	92.7			1
3.8	3	★	MDW0380HX3	17.5	23.2	72.7	0.7	4.0	1
	5	★	MDW0380HX5	31.0	36.7	86.7			1
	8	★	MDW0380HX8	39.0	44.7	92.7			1
3.9	3	★	MDW0390HX3	17.4	23.2	72.7	0.7	4.0	1
	5	★	MDW0390HX5	30.9	36.7	86.7			1
	8	★	MDW0390HX8	38.9	44.7	92.7			1
4.0	3	★	MDW0400HX3	17.2	23.2	72.7	0.7	4.0	1
	5	★	MDW0400HX5	30.7	36.7	86.7			1
	8	★	MDW0400HX8	38.7	44.7	92.7			1
4.1	3	★	MDW0410HX3	19.6	25.7	80.7	0.7	5.0	1
	5	★	MDW0410HX5	34.6	40.7	98.7			1
	8	★	MDW0410HX8	44.1	50.2	105.7			1
4.2	3	★	MDW0420HX3	19.5	25.8	80.8	0.8	5.0	1
	5	★	MDW0420HX5	34.5	40.8	98.8			1
	8	★	MDW0420HX8	44.0	50.3	105.8			1
4.3	3	★	MDW0430HX3	19.4	25.8	80.8	0.8	5.0	1
	5	★	MDW0430HX5	34.4	40.8	98.8			1
	8	★	MDW0430HX8	43.9	50.3	105.8			1
4.4	3	★	MDW0440HX3	19.2	25.8	80.8	0.8	5.0	1
	5	★	MDW0440HX5	34.2	40.8	98.8			1
	8	★	MDW0440HX8	43.7	50.3	105.8			1
4.5	3	★	MDW0450HX3	19.1	25.8	80.8	0.8	5.0	1
	5	★	MDW0450HX5	34.1	40.8	98.8			1
	8	★	MDW0450HX8	43.6	50.3	105.8			1
4.6	3	★	MDW0460HX3	21.4	28.3	80.8	0.8	5.0	1
	5	★	MDW0460HX5	37.9	44.8	98.8			1
	8	★	MDW0460HX8	48.9	55.8	105.8			1
4.7	3	★	MDW0470HX3	21.4	28.4	80.9	0.9	5.0	1
	5	★	MDW0470HX5	37.9	44.9	98.9			1
	8	★	MDW0470HX8	48.9	55.9	105.9			1

Grade: ACX70

Diameter ø4.8 to 6.5mm

Dimensions (mm)

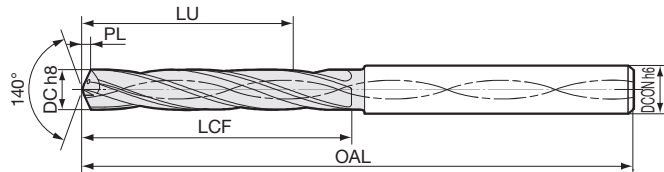
Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
4.8	3	★	MDW0480HX3	21.2	28.4	80.9	0.9	5.0	1
	5	★	MDW0480HX5	37.7	44.9	98.9			1
	8	★	MDW0480HX8	48.7	55.9	105.9			1
4.9	3	★	MDW0490HX3	21.1	28.4	80.9	0.9	5.0	1
	5	★	MDW0490HX5	37.6	44.9	98.9			1
	8	★	MDW0490HX8	48.6	55.9	105.9			1
5.0	3	★	MDW0500HX3	20.9	28.4	80.9	0.9	5.0	1
	5	★	MDW0500HX5	37.4	44.9	98.9			1
	8	★	MDW0500HX8	48.4	55.9	105.9			1
5.1	3	★	MDW0510HX3	20.8	28.4	82.9	0.9	6.0	1
	5	★	MDW0510HX5	37.3	44.9	100.9			1
	8	★	MDW0510HX8	53.8	61.4	118.9			1
5.2	3	★	MDW0520HX3	20.6	28.4	82.9	0.9	6.0	1
	5	★	MDW0520HX5	37.1	44.9	100.9			1
	8	★	MDW0520HX8	53.6	61.4	118.9			1
5.3	3	★	MDW0530HX3	20.6	28.5	83.0	1.0	6.0	1
	5	★	MDW0530HX5	37.1	45.0	101.0			1
	8	★	MDW0530HX8	53.6	61.5	119.0			1
5.4	3	★	MDW0540HX3	20.4	28.5	83.0	1.0	6.0	1
	5	★	MDW0540HX5	36.9	45.0	101.0			1
	8	★	MDW0540HX8	53.4	61.5	119.0			1
5.5	3	★	MDW0550HX3	20.3	28.5	83.0	1.0	6.0	1
	5	★	MDW0550HX5	36.8	45.0	101.0			1
	8	★	MDW0550HX8	53.3	61.5	119.0			1
5.6	3	★	MDW0560HX3	22.6	31.0	83.0	1.0	6.0	1
	5	★	MDW0560HX5	40.6	49.0	101.0			1
	8	★	MDW0560HX8	58.6	67.0	119.0			1
5.7	3	★	MDW0570HX3	22.5	31.0	83.0	1.0	6.0	1
	5	★	MDW0570HX5	40.5	49.0	101.0			1
	8	★	MDW0570HX8	58.5	67.0	119.0			1
5.8	3	★	MDW0580HX3	22.4	31.1	83.1	1.1	6.0	1
	5	★	MDW0580HX5	40.4	49.1	101.1			1
	8	★	MDW0580HX8	58.4	67.1	119.1			1
5.9	3	★	MDW0590HX3	22.3	31.1	83.1	1.1	6.0	1
	5	★	MDW0590HX5	40.3	49.1	101.1			1
	8	★	MDW0590HX8	58.3	67.1	119.1			1
6.0	3	★	MDW0600HX3	22.1	31.1	83.1	1.1	6.0	1
	5	★	MDW0600HX5	40.1	49.1	101.1			1
	8	★	MDW0600HX8	58.1	67.1	119.1			1
6.1	3	★	MDW0610HX3	24.5	33.6	89.1	1.1	7.0	1
	5	★	MDW0610HX5	44.0	53.1	110.1			1
	8	★	MDW0610HX8	63.5	72.6	131.1			1
6.2	3	★	MDW0620HX3	24.3	33.6	89.1	1.1	7.0	1
	5	★	MDW0620HX5	43.8	53.1	110.1			1
	8	★	MDW0620HX8	63.3	72.6	131.1			1
6.3	3	★	MDW0630HX3	24.2	33.6	89.1	1.1	7.0	1
	5	★	MDW0630HX5	43.7	53.1	110.1			1
	8	★	MDW0630HX8	63.2	72.6	131.1			1
6.4	3	★	MDW0640HX3	24.1	33.7	89.2	1.2	7.0	1
	5	★	MDW0640HX5	43.6	53.2	110.2			1
	8	★	MDW0640HX8	63.1	72.7	131.2			1
6.5	3	★	MDW0650HX3	24.0	33.7	89.2	1.2	7.0	1
	5	★	MDW0650HX5	43.5	53.2	110.2			1
	8	★	MDW0650HX8	63.0	72.7	131.2			1

Grade: ACX70



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø6.6 to 8.3mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.6	3	★	MDW0660HX3	26.3	36.2	89.2			1
	5	★	MDW0660HX5	47.3	57.2	110.2	1.2	7.0	1
	8	★	MDW0660HX8	68.3	78.2	131.2			1
6.7	3	★	MDW0670HX3	26.2	36.2	89.2			1
	5	★	MDW0670HX5	47.2	57.2	110.2	1.2	7.0	1
	8	★	MDW0670HX8	68.2	78.2	131.2			1
6.8	3	★	MDW0680HX3	26.0	36.2	89.2			1
	5	★	MDW0680HX5	47.0	57.2	110.2	1.2	7.0	1
	8	★	MDW0680HX8	68.0	78.2	131.2			1
6.9	3	★	MDW0690HX3	26.0	36.3	89.3			1
	5	★	MDW0690HX5	47.0	57.3	110.3	1.3	7.0	1
	8	★	MDW0690HX8	68.0	78.3	131.3			1
7.0	3	★	MDW0700HX3	25.8	36.3	89.3			1
	5	★	MDW0700HX5	46.8	57.3	110.3	1.3	7.0	1
	8	★	MDW0700HX8	67.8	78.3	131.3			1
7.1	3	★	MDW0710HX3	28.2	38.8	95.3			1
	5	★	MDW0710HX5	50.7	61.3	119.3	1.3	8.0	1
	8	★	MDW0710HX8	73.2	83.8	143.3			1
7.2	3	★	MDW0720HX3	28.0	38.8	95.3			1
	5	★	MDW0720HX5	50.5	61.3	119.3	1.3	8.0	1
	8	★	MDW0720HX8	73.0	83.8	143.3			1
7.3	3	★	MDW0730HX3	27.9	38.8	95.3			1
	5	★	MDW0730HX5	50.4	61.3	119.3	1.3	8.0	1
	8	★	MDW0730HX8	72.9	83.8	143.3			1
7.4	3	★	MDW0740HX3	27.7	38.8	95.3			1
	5	★	MDW0740HX5	50.2	61.3	119.3	1.3	8.0	1
	8	★	MDW0740HX8	72.7	83.8	143.3			1
7.5	3	★	MDW0750HX3	27.7	38.9	95.4			1
	5	★	MDW0750HX5	50.2	61.4	119.4	1.4	8.0	1
	8	★	MDW0750HX8	72.7	83.9	143.4			1
7.6	3	★	MDW0760HX3	30.0	41.4	95.4			1
	5	★	MDW0760HX5	54.0	65.4	119.4	1.4	8.0	1
	8	★	MDW0760HX8	78.0	89.4	143.4			1
7.7	3	★	MDW0770HX3	29.9	41.4	95.4			1
	5	★	MDW0770HX5	53.9	65.4	119.4	1.4	8.0	1
	8	★	MDW0770HX8	77.9	89.4	143.4			1
7.8	3	★	MDW0780HX3	29.7	41.4	95.4			1
	5	★	MDW0780HX5	53.7	65.4	119.4	1.4	8.0	1
	8	★	MDW0780HX8	77.7	89.4	143.4			1
7.9	3	★	MDW0790HX3	29.6	41.4	95.4			1
	5	★	MDW0790HX5	53.6	65.4	119.4	1.4	8.0	1
	8	★	MDW0790HX8	77.6	89.4	143.4			1
8.0	3	★	MDW0800HX3	29.5	41.5	95.5			1
	5	★	MDW0800HX5	53.5	65.5	119.5	1.5	8.0	1
	8	★	MDW0800HX8	77.5	89.5	143.5			1
8.1	3	★	MDW0810HX3	31.9	44.0	101.5			1
	5	★	MDW0810HX5	57.4	69.5	128.5	1.5	9.0	1
	8	★	MDW0810HX8	82.9	95.0	155.5			1
8.2	3	★	MDW0820HX3	31.7	44.0	101.5			1
	5	★	MDW0820HX5	57.2	69.5	128.5	1.5	9.0	1
	8	★	MDW0820HX8	82.7	95.0	155.5			1
8.3	3	★	MDW0830HX3	31.6	44.0	101.5			1
	5	★	MDW0830HX5	57.1	69.5	128.5	1.5	9.0	1
	8	★	MDW0830HX8	82.6	95.0	155.5			1

Grade: ACX70

Diameter ø8.4 to 10.1mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
8.4	3	★	MDW0840HX3	31.4	44.0	101.5			1
	5	★	MDW0840HX5	56.9	69.5	128.5	1.5	9.0	1
	8	★	MDW0840HX8	82.4	95.0	155.5			1
8.5	3	★	MDW0850HX3	31.3	44.0	101.5			1
	5	★	MDW0850HX5	56.8	69.5	128.5	1.5	9.0	1
	8	★	MDW0850HX8	82.3	95.0	155.5			1
8.6	3	★	MDW0860HX3	33.7	46.6	101.6			1
	5	★	MDW0860HX5	60.7	73.6	128.6	1.6	9.0	1
	8	★	MDW0860HX8	87.7	100.6	155.6			1
8.7	3	★	MDW0870HX3	33.6	46.6	101.6			1
	5	★	MDW0870HX5	60.6	73.6	128.6	1.6	9.0	1
	8	★	MDW0870HX8	87.6	100.6	155.6			1
8.8	3	★	MDW0880HX3	33.4	46.6	101.6			1
	5	★	MDW0880HX5	60.4	73.6	128.6	1.6	9.0	1
	8	★	MDW0880HX8	87.4	100.6	155.6			1
8.9	3	★	MDW0890HX3	33.3	46.6	101.6			1
	5	★	MDW0890HX5	60.3	73.6	128.6	1.6	9.0	1
	8	★	MDW0890HX8	87.3	100.6	155.6			1
9.0	3	★	MDW0900HX3	33.1	46.6	101.6			1
	5	★	MDW0900HX5	60.1	73.6	128.6	1.6	9.0	1
	8	★	MDW0900HX8	87.1	100.6	155.6			1
9.1	3	★	MDW0910HX3	35.6	49.2	107.7			1
	5	★	MDW0910HX5	64.1	77.7	137.7	1.7	10.0	1
	8	★	MDW0910HX8	92.6	106.2	167.7			1
9.2	3	★	MDW0920HX3	35.4	49.2	107.7			1
	5	★	MDW0920HX5	63.9	77.7	137.7	1.7	10.0	1
	8	★	MDW0920HX8	92.4	106.2	167.7			1
9.3	3	★	MDW0930HX3	35.3	49.2	107.7			1
	5	★	MDW0930HX5	63.8	77.7	137.7	1.7	10.0	1
	8	★	MDW0930HX8	92.3	106.2	167.7			1
9.4	3	★	MDW0940HX3	35.1	49.2	107.7			1
	5	★	MDW0940HX5	63.6	77.7	137.7	1.7	10.0	1
	8	★	MDW0940HX8	92.1	106.2	167.7			1
9.5	3	★	MDW0950HX3	35.0	49.2	107.7			1
	5	★	MDW0950HX5	63.5	77.7	137.7	1.7	10.0	1
	8	★	MDW0950HX8	92.0	106.2	167.7			1
9.6	3	★	MDW0960HX3	37.3	51.7	107.8			1
	5	★	MDW0960HX5	67.3	81.7	137.8	1.7	10.0	1
	8	★	MDW0960HX8	97.3	111.7	167.8			1
9.7	3	★	MDW0970HX3	37.3	51.8	107.8			1
	5	★	MDW0970HX5	67.3	81.8	137.8	1.8	10.0	1
	8	★	MDW0970HX8	97.3	111.8	167.8			1
9.8	3	★	MDW0980HX3	37.1	51.8	107.8			1
	5	★	MDW0980HX5	67.1	81.8	137.8	1.8	10.0	1
	8	★	MDW0980HX8	97.1	111.8	167.8			1
9.9	3	★	MDW0990HX3	37.0	51.8	107.8			1
	5	★	MDW0990HX5	67.0	81.8	137.8	1.8	10.0	1
	8	★	MDW0990HX8	97.0	111.8	167.8			1
10.0	3	★	MDW1000HX3	36.8	51.8	107.8			1
	5	★	MDW1000HX5	66.8	81.8	137.8	1.8	10.0	1
	8	★	MDW1000HX8	96.8	111.8	167.8			1
10.1	3	★	MDW1010HX3	39.2	54.3	117.8			1
	5	★	MDW1010HX5	70.7	85.8	150.8	1.8	11.0	1
	8	★	MDW1010HX8	102.2	117.3	183.8			1

Grade: ACX70

★: Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

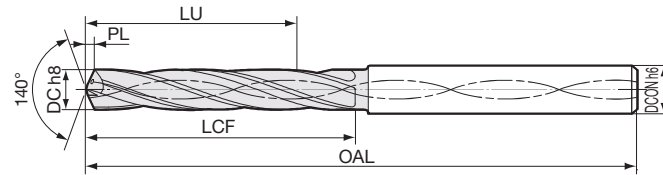
Brazed

Others



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø10.2 to 11.9mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
10.2	3	★	MDW1020HX3	39.1	54.4	117.9	1.9	11.0	1
	5	★	MDW1020HX5	70.6	85.9	150.9			1
	8	★	MDW1020HX8	102.1	117.4	183.9			1
10.3	3	★	MDW1030HX3	39.0	54.4	117.9	1.9	11.0	1
	5	★	MDW1030HX5	70.5	85.9	150.9			1
	8	★	MDW1030HX8	102.0	117.4	183.9			1
10.4	3	★	MDW1040HX3	38.8	54.4	117.9	1.9	11.0	1
	5	★	MDW1040HX5	70.3	85.9	150.9			1
	8	★	MDW1040HX8	101.8	117.4	183.9			1
10.5	3	★	MDW1050HX3	38.7	54.4	117.9	1.9	11.0	1
	5	★	MDW1050HX5	70.2	85.9	150.9			1
	8	★	MDW1050HX8	101.7	117.4	183.9			1
10.6	3	★	MDW1060HX3	41.0	56.9	117.9	1.9	11.0	1
	5	★	MDW1060HX5	74.0	89.9	150.9			1
	8	★	MDW1060HX8	107.0	122.9	183.9			1
10.7	3	★	MDW1070HX3	40.9	56.9	117.9	1.9	11.0	1
	5	★	MDW1070HX5	73.9	89.9	150.9			1
	8	★	MDW1070HX8	106.9	122.9	183.9			1
10.8	3	★	MDW1080HX3	40.8	57.0	118.0	2.0	11.0	1
	5	★	MDW1080HX5	73.8	90.0	151.0			1
	8	★	MDW1080HX8	106.8	123.0	184.0			1
10.9	3	★	MDW1090HX3	40.7	57.0	118.0	2.0	11.0	1
	5	★	MDW1090HX5	73.7	90.0	151.0			1
	8	★	MDW1090HX8	106.7	123.0	184.0			1
11.0	3	★	MDW1100HX3	40.5	57.0	118.0	2.0	11.0	1
	5	★	MDW1100HX5	73.5	90.0	151.0			1
	8	★	MDW1100HX8	106.5	123.0	184.0			1
11.1	3	★	MDW1110HX3	42.9	59.5	124.0	2.0	12.0	1
	5	★	MDW1110HX5	77.4	94.0	160.0			1
	8	★	MDW1110HX8	111.9	128.5	196.0			1
11.2	3	★	MDW1120HX3	42.7	59.5	124.0	2.0	12.0	1
	5	★	MDW1120HX5	77.2	94.0	160.0			1
	8	★	MDW1120HX8	111.7	128.5	196.0			1
11.3	3	★	MDW1130HX3	42.7	59.6	124.1	2.1	12.0	1
	5	★	MDW1130HX5	77.2	94.1	160.1			1
	8	★	MDW1130HX8	111.7	128.6	196.1			1
11.4	3	★	MDW1140HX3	42.5	59.6	124.1	2.1	12.0	1
	5	★	MDW1140HX5	77.0	94.1	160.1			1
	8	★	MDW1140HX8	111.5	128.6	196.1			1
11.5	3	★	MDW1150HX3	42.4	59.6	124.1	2.1	12.0	1
	5	★	MDW1150HX5	76.9	94.1	160.1			1
	8	★	MDW1150HX8	111.4	128.6	196.1			1
11.6	3	★	MDW1160HX3	44.7	62.1	124.1	2.1	12.0	1
	5	★	MDW1160HX5	80.7	98.1	160.1			1
	8	★	MDW1160HX8	116.7	134.1	196.1			1
11.7	3	★	MDW1170HX3	44.6	62.1	124.1	2.1	12.0	1
	5	★	MDW1170HX5	80.6	98.1	160.1			1
	8	★	MDW1170HX8	116.6	134.1	196.1			1
11.8	3	★	MDW1180HX3	44.4	62.1	124.1	2.1	12.0	1
	5	★	MDW1180HX5	80.4	98.1	160.1			1
	8	★	MDW1180HX8	116.4	134.1	196.1			1
11.9	3	★	MDW1190HX3	44.4	62.2	124.2	2.2	12.0	1
	5	★	MDW1190HX5	80.4	98.2	160.2			1
	8	★	MDW1190HX8	116.4	134.2	196.2			1

Grade: ACX70

Diameter ø12.0 to 13.7mm

Dimensions (mm)

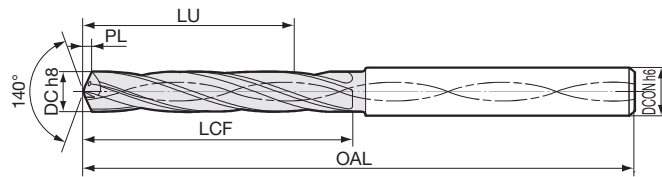
Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
12.0	3	★	MDW1200HX3	44.2	62.2	124.2	2.2	12.0	1
	5	★	MDW1200HX5	80.2	98.2	160.2			1
	8	★	MDW1200HX8	116.2	134.2	196.2			1
12.1	3	★	MDW1210HX3	46.6	64.7	130.2	2.2	13.0	1
	5	★	MDW1210HX5	84.1	102.2	169.2			1
	8	★	MDW1210HX8	121.6	139.7	208.2			1
12.2	3	★	MDW1220HX3	46.4	64.7	130.2	2.2	13.0	1
	5	★	MDW1220HX5	83.9	102.2	169.2			1
	8	★	MDW1220HX8	121.4	139.7	208.2			1
12.3	3	★	MDW1230HX3	46.3	64.7	130.2	2.2	13.0	1
	5	★	MDW1230HX5	83.8	102.2	169.2			1
	8	★	MDW1230HX8	121.3	139.7	208.2			1
12.4	3	★	MDW1240HX3	46.2	64.8	130.3	2.3	13.0	1
	5	★	MDW1240HX5	83.7	102.3	169.3			1
	8	★	MDW1240HX8	121.2	139.8	208.3			1
12.5	3	★	MDW1250HX3	46.1	64.8	130.3	2.3	13.0	1
	5	★	MDW1250HX5	83.6	102.3	169.3			1
	8	★	MDW1250HX8	121.1	139.8	208.3			1
12.6	3	★	MDW1260HX3	48.4	67.3	130.3	2.3	13.0	1
	5	★	MDW1260HX5	87.4	106.3	169.3			1
	8	★	MDW1260HX8	126.4	145.3	208.3			1
12.7	3	★	MDW1270HX3	48.3	67.3	130.3	2.3	13.0	1
	5	★	MDW1270HX5	87.3	106.3	169.3			1
	8	★	MDW1270HX8	126.3	145.3	208.3			1
12.8	3	★	MDW1280HX3	48.1	67.3	130.3	2.3	13.0	1
	5	★	MDW1280HX5	87.1	106.3	169.3			1
	8	★	MDW1280HX8	126.1	145.3	208.3			1
12.9	3	★	MDW1290HX3	48.0	67.3	130.3	2.3	13.0	1
	5	★	MDW1290HX5	87.0	106.3	169.3			1
	8	★	MDW1290HX8	126.0	145.3	208.3			1
13.0	3	★	MDW1300HX3	47.9	67.4	130.4	2.4	13.0	1
	5	★	MDW1300HX5	86.9	106.4	169.4			1
	8	★	MDW1300HX8	125.9	145.4	208.4			1
13.1	3	★	MDW1310HX3	50.3	69.9	136.4	2.4	14.0	1
	5	★	MDW1310HX5	90.8	110.4	178.4			1
	8	★	MDW1310HX8	131.3	150.9	220.4			1
13.2	3	★	MDW1320HX3	50.1	69.9	136.4	2.4	14.0	1
	5	★	MDW1320HX5	90.6	110.4	178.4			1
	8	★	MDW1320HX8	131.1	150.9	220.4			1
13.3	3	★	MDW1330HX3	50.0	69.9	136.4	2.4	14.0	1
	5	★	MDW1330HX5	90.5	110.4	178.4			1
	8	★	MDW1330HX8	131.0	150.9	220.4			1
13.4	3	★	MDW1340HX3	49.8	69.9	136.4	2.4	14.0	1
	5	★	MDW1340HX5	90.3	110.4	178.4			1
	8	★	MDW1340HX8	130.8	150.9	220.4			1
13.5	3	★	MDW1350HX3	49.8	70.0	136.5	2.5	14.0	1
	5	★	MDW1350HX5	90.3	110.5	178.5			1
	8	★	MDW1350HX8	130.8	151.0	220.5			1
13.6	3	★	MDW1360HX3	52.1	72.5	136.5	2.5	14.0	1
	5	★	MDW1360HX5	94.1	114.5	178.5			1
	8	★	MDW1360HX8	136.1	156.5	220.5			1
13.7	3	★	MDW1370HX3	52.0	72.5	136.5	2.5	14.0	1
	5	★	MDW1370HX5	94.0	114.5	178.5			1
	8	★	MDW1370HX8	136.0	156.5	220.5			1

Grade: ACX70



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø13.8 to 15.5mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
13.8	3		MDW1380HX3	51.8	72.5	136.5			1
	5		MDW1380HX5	93.8	114.5	178.5	2.5	14.0	1
	8		MDW1380HX8	135.8	156.5	220.5			1
13.9	3		MDW1390HX3	51.7	72.5	136.5			1
	5		MDW1390HX5	93.7	114.5	178.5	2.5	14.0	1
	8		MDW1390HX8	135.7	156.5	220.5			1
14.0	3	★	MDW1400HX3	51.5	72.5	136.5			1
	5	★	MDW1400HX5	93.5	114.5	178.5	2.5	14.0	1
	8		MDW1400HX8	135.5	156.5	220.5			1
14.1	3		MDW1410HX3	54.0	75.1	142.6			1
	5		MDW1410HX5	97.5	118.6	187.6	2.6	15.0	1
	8		MDW1410HX8	141.0	162.1	232.6			1
14.2	3		MDW1420HX3	53.8	75.1	142.6			1
	5		MDW1420HX5	97.3	118.6	187.6	2.6	15.0	1
	8		MDW1420HX8	140.8	162.1	232.6			1
14.3	3		MDW1430HX3	53.7	75.1	142.6			1
	5		MDW1430HX5	97.2	118.6	187.6	2.6	15.0	1
	8		MDW1430HX8	140.7	162.1	232.6			1
14.4	3		MDW1440HX3	53.5	75.1	142.6			1
	5		MDW1440HX5	97.0	118.6	187.6	2.6	15.0	1
	8		MDW1440HX8	140.5	162.1	232.6			1
14.5	3	★	MDW1450HX3	53.4	75.1	142.6			1
	5	★	MDW1450HX5	96.9	118.6	187.6	2.6	15.0	1
	8		MDW1450HX8	140.4	162.1	232.6			1
14.6	3		MDW1460HX3	55.8	77.7	142.7			1
	5		MDW1460HX5	100.8	122.7	187.7	2.7	15.0	1
	8		MDW1460HX8	145.8	167.7	232.7			1
14.7	3		MDW1470HX3	55.7	77.7	142.7			1
	5		MDW1470HX5	100.7	122.7	187.7	2.7	15.0	1
	8		MDW1470HX8	145.7	167.7	232.7			1
14.8	3		MDW1480HX3	55.5	77.7	142.7			1
	5		MDW1480HX5	100.5	122.7	187.7	2.7	15.0	1
	8		MDW1480HX8	145.5	167.7	232.7			1
14.9	3		MDW1490HX3	55.4	77.7	142.7			1
	5		MDW1490HX5	100.4	122.7	187.7	2.7	15.0	1
	8		MDW1490HX8	145.4	167.7	232.7			1
15.0	3	★	MDW1500HX3	55.2	77.7	142.7			1
	5	★	MDW1500HX5	100.2	122.7	187.7	2.7	15.0	1
	8		MDW1500HX8	145.2	167.7	232.7			1
15.1	3		MDW1510HX3	57.6	80.3	148.7			1
	5		MDW1510HX5	104.1	126.7	196.7	2.7	16.0	1
	8		MDW1510HX8	150.6	173.2	244.7			1
15.2	3		MDW1520HX3	57.5	80.3	148.8			1
	5		MDW1520HX5	104.0	126.8	196.8	2.8	16.0	1
	8		MDW1520HX8	150.5	173.3	244.8			1
15.3	3		MDW1530HX3	57.4	80.3	148.8			1
	5		MDW1530HX5	103.9	126.8	196.8	2.8	16.0	1
	8		MDW1530HX8	150.4	173.3	244.8			1
15.4	3		MDW1540HX3	57.2	80.3	148.8			1
	5		MDW1540HX5	103.7	126.8	196.8	2.8	16.0	1
	8		MDW1540HX8	150.2	173.3	244.8			1
15.5	3	★	MDW1550HX3	57.1	80.3	148.8			1
	5	★	MDW1550HX5	103.6	126.8	196.8	2.8	16.0	1
	8		MDW1550HX8	150.1	173.3	244.8			1

Grade: ACX70

Diameter ø15.6 to 17.3mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
15.6	3		MDW1560HX3	59.4	82.8	148.8			1
	5		MDW1560HX5	107.4	130.8	196.8	2.8	16.0	1
	8		MDW1560HX8	155.4	178.8	244.8			1
15.7	3		MDW1570HX3	59.4	82.9	148.9			1
	5		MDW1570HX5	107.4	130.9	196.9	2.9	16.0	1
	8		MDW1570HX8	155.4	178.9	244.9			1
15.8	3		MDW1580HX3	59.2	82.9	148.9			1
	5		MDW1580HX5	107.2	130.9	196.9	2.9	16.0	1
	8		MDW1580HX8	155.2	178.9	244.9			1
15.9	3		MDW1590HX3	59.1	82.9	148.9			1
	5		MDW1590HX5	107.1	130.9	196.9	2.9	16.0	1
	8		MDW1590HX8	155.1	178.9	244.9			1
16.0	3	★	MDW1600HX3	58.9	82.9	148.9			1
	5	★	MDW1600HX5	106.9	130.9	196.9	2.9	16.0	1
	8		MDW1600HX8	154.9	178.9	244.9			1
16.1	3		MDW1610HX3	61.3	85.4	154.9			1
	5		MDW1610HX5	110.8	134.9	205.9	2.9	17.0	1
	8		MDW1610HX8	160.3	184.4	256.9			1
16.2	3		MDW1620HX3	61.1	85.4	154.9			1
	5		MDW1620HX5	110.6	134.9	205.9	2.9	17.0	1
	8		MDW1620HX8	160.1	184.4	256.9			1
16.3	3		MDW1630HX3	61.1	85.5	155.0			1
	5		MDW1630HX5	110.6	135.0	206.0	3.0	17.0	1
	8		MDW1630HX8	160.1	184.5	257.0			1
16.4	3		MDW1640HX3	60.9	85.5	155.0			1
	5		MDW1640HX5	110.4	135.0	206.0	3.0	17.0	1
	8		MDW1640HX8	159.9	184.5	257.0			1
16.5	3	★	MDW1650HX3	60.8	85.5	155.0			1
	5	★	MDW1650HX5	110.3	135.0	206.0	3.0	17.0	1
	8		MDW1650HX8	159.8	184.5	257.0			1
16.6	3		MDW1660HX3	63.1	88.0	155.0			1
	5		MDW1660HX5	114.1	139.0	206.0	3.0	17.0	1
	8		MDW1660HX8	165.1	190.0	257.0			1
16.7	3		MDW1670HX3	63.0	88.0	155.0			1
	5		MDW1670HX5	114.0	139.0	206.0	3.0	17.0	1
	8		MDW1670HX8	165.0	190.0	257.0			1
16.8	3		MDW1680HX3	62.9	88.1	155.1			1
	5		MDW1680HX5	113.9	139.1	206.1	3.1	17.0	1
	8		MDW1680HX8	164.9	190.1	257.1			1
16.9	3		MDW1690HX3	62.8	88.1	155.1			1
	5		MDW1690HX5	113.8	139.1	206.1	3.1	17.0	1
	8		MDW1690HX8	164.8	190.1	257.1			1
17.0	3	★	MDW1700HX3	62.6	88.1	155.1			1
	5	★	MDW1700HX5	113.6	139.1	206.1	3.1	17.0	1
	8		MDW1700HX8	164.6	190.1	257.1			1
17.1	3	★	MDW1710HX3	65.0	90.6	161.1			1
	5	★	MDW1710HX5	117.5	143.1	217.1	3.1	18.0	1
	8	★	MDW1710HX8	170.0	195.6	269.1			1
17.2	3		MDW1720HX3	64.8	90.6	161.1			1
	5		MDW1720HX5	117.3	143.1	217.1	3.1	18.0	1
	8		MDW1720HX8	169.8	195.6	269.1			1
17.3	3		MDW1730HX3	64.7	90.6	161.1			1
	5		MDW1730HX5	117.2	143.1	217.1	3.1	18.0	1
	8		MDW1730HX8	169.7	195.6	269.1			1

Grade: ACX70

★ : Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

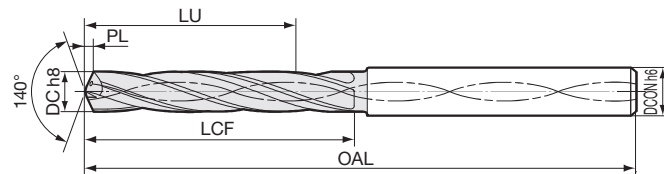
Brazed

Others



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter $\phi 17.4$ to 18.3mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
17.4	3		MDW1740HX3	64.6	90.7	161.2	3.2	18.0	1
	5		MDW1740HX5	117.1	143.2	217.2			
	8		MDW1740HX8	169.6	195.7	269.2			
17.5	3	★	MDW1750HX3	64.5	90.7	161.2	3.2	18.0	1
	5	★	MDW1750HX5	117.0	143.2	217.2			
	8		MDW1750HX8	169.5	195.7	269.2			
17.6	3		MDW1760HX3	66.8	93.2	161.2	3.2	18.0	1
	5		MDW1760HX5	120.8	147.2	217.2			
	8		MDW1760HX8	174.8	201.2	269.2			
17.7	3		MDW1770HX3	66.7	93.2	161.2	3.2	18.0	1
	5		MDW1770HX5	120.7	147.2	217.2			
	8		MDW1770HX8	174.7	201.2	269.2			
17.8	3		MDW1780HX3	66.5	93.2	161.2	3.2	18.0	1
	5		MDW1780HX5	120.5	147.2	217.2			
	8		MDW1780HX8	174.5	201.2	269.2			
17.9	3		MDW1790HX3	66.5	93.3	161.3	3.3	18.0	1
	5		MDW1790HX5	120.5	147.3	217.3			
	8		MDW1790HX8	174.5	201.3	269.3			
18.0	3	★	MDW1800HX3	66.3	93.3	161.3	3.3	18.0	1
	5	★	MDW1800HX5	120.3	147.3	217.3			
	8		MDW1800HX8	174.3	201.3	269.3			
18.1	3		MDW1810HX3	68.7	95.8	167.3	3.3	19.0	1
	5		MDW1810HX5	124.2	151.3	224.3			
18.2	3		MDW1820HX3	68.5	95.8	167.3	3.3	19.0	1
	5		MDW1820HX5	124.0	151.3	224.3			
18.3	3		MDW1830HX3	68.4	95.8	167.3	3.3	19.0	1
	5		MDW1830HX5	123.9	151.3	224.3			

Grade: ACX70

Diameter $\phi 18.4$ to 20.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
18.4	3		MDW1840HX3	68.2	95.8	167.3	3.3	19.0	1
	5		MDW1840HX5	123.7	151.3	224.3			
18.5	3	★	MDW1850HX3	68.2	95.9	167.4	3.4	19.0	1
	5	★	MDW1850HX5	123.7	151.4	224.4			
18.6	3		MDW1860HX3	70.5	98.4	167.4	3.4	19.0	1
	5		MDW1860HX5	127.5	155.4	224.4			
18.7	3		MDW1870HX3	70.4	98.4	167.4	3.4	19.0	1
	5		MDW1870HX5	127.4	155.4	224.4			
18.8	3		MDW1880HX3	70.2	98.4	167.4	3.4	19.0	1
	5		MDW1880HX5	127.2	155.4	224.4			
18.9	3		MDW1890HX3	70.1	98.4	167.4	3.4	19.0	1
	5		MDW1890HX5	127.1	155.4	224.4			
19.0	3	★	MDW1900HX3	70.0	98.5	167.5	3.5	19.0	1
	5	★	MDW1900HX5	127.0	155.5	224.5			
19.1	3		MDW1910HX3	72.4	101.0	173.5	3.5	20.0	1
	5		MDW1910HX5	130.9	159.5	233.5			
19.2	3		MDW1920HX3	72.2	101.0	173.5	3.5	20.0	1
	5		MDW1920HX5	130.7	159.5	233.5			
19.3	3		MDW1930HX3	72.1	101.0	173.5	3.5	20.0	1
	5		MDW1930HX5	130.6	159.5	233.5			
19.4	3		MDW1940HX3	71.9	101.0	173.5	3.5	20.0	1
	5		MDW1940HX5	130.4	159.5	233.5			
19.5	3	★	MDW1950HX3	71.8	101.0	173.5	3.5	20.0	1
	5	★	MDW1950HX5	130.3	159.5	233.5			
19.6	3		MDW1960HX3	74.2	103.6	173.6	3.6	20.0	1
	5		MDW1960HX5	134.2	163.6	233.6			
19.7	3		MDW1970HX3	74.1	103.6	173.6	3.6	20.0	1
	5		MDW1970HX5	134.1	163.6	233.6			
19.8	3		MDW1980HX3	73.9	103.6	173.6	3.6	20.0	1
	5		MDW1980HX5	133.9	163.6	233.6			
19.9	3		MDW1990HX3	73.8	103.6	173.6	3.6	20.0	1
	5		MDW1990HX5	133.8	163.6	233.6			
20.0	3	★	MDW2000HX3	73.6	103.6	173.6	3.6	20.0	1
	5	★	MDW2000HX5	133.6	163.6	233.6			

Grade: ACX70

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

Dia. DC (mm)	Cutting Conditions	Gray Cast Iron FC250	Ductile Cast Iron FCD450
$\phi 3.0$	v_c	50 - 90	40 - 80
	f	0.10 - 0.30	0.12 - 0.24
$\phi 5.0$	v_c	50 - 90	40 - 80
	f	0.15 - 0.35	0.15 - 0.30
$\phi 10.0$	v_c	60 - 100	50 - 90
	f	0.20 - 0.50	0.20 - 0.40
$\phi 20.0$	v_c	70 - 120	60 - 100
	f	0.25 - 0.70	0.25 - 0.60

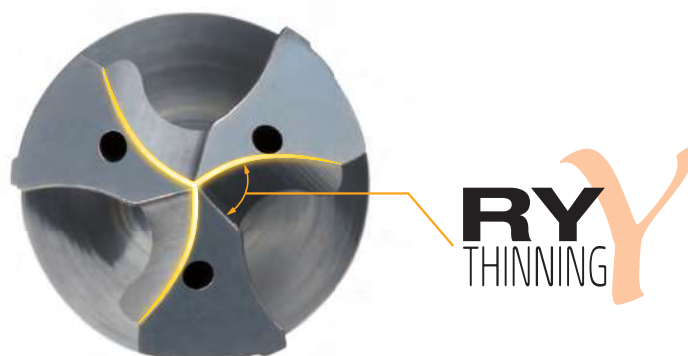
Min. - Max.

★: Worldwide Warehouse Item



General Features

Strong MultiDrill HY Type is a 3-flute drill that achieves stability and high efficiency in machining of steel and cast iron, reducing the load on each flute and extending the tool life.



Features and Applications

High-Efficiency Drilling of Steel and Cast Iron

Thick web and 3-point margin design ensures stable hole diameter accuracy in high-efficiency drilling.

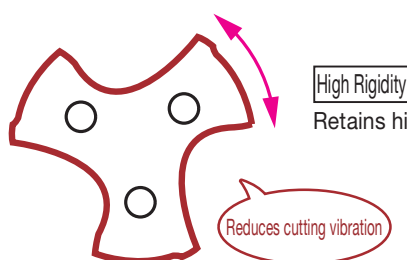
RY THINNING also reduces cutting force in high-efficiency drilling.

Applicable to cutting conditions exceeding $v_f=31.5$ IPM in steel drilling and $v_f=39.4$ IPM in cast iron drilling. (for $\phi 10$ mm sizes)

Long Tool Life

DEX Coat for drills utilizes nano-coating technology to provide more than double the tool life of conventional coatings.

3-point margin design gives excellent guide performance for vibration control and long, stable tool life.



High Rigidity

Retains high rigidity with a wide land.

Reduces cutting vibration

J flute

Evacuation

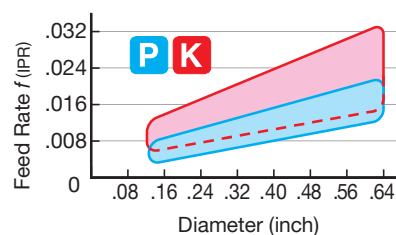
Drastically improved chip control and evacuation

Improves chip evacuation

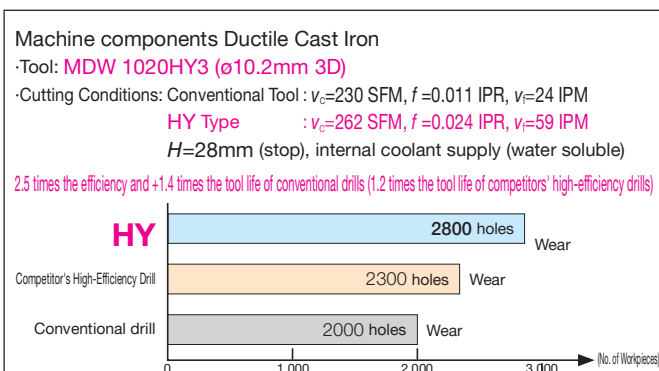
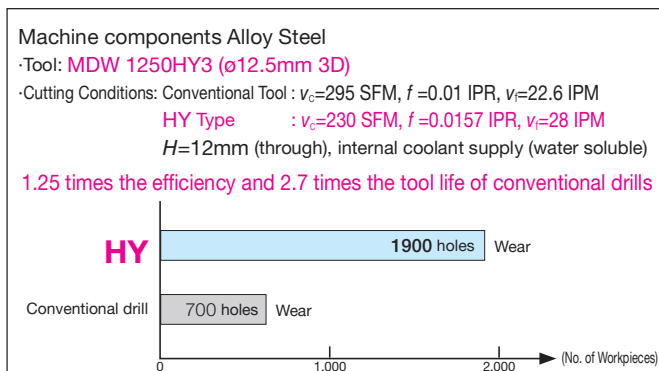
Product Range

Coolant Supply	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)	Number of items
Internal	MDW□□□□HY3	$\phi 5.0$ to $\phi 16.0$	up to 3	23 items in stock
	MDW□□□□HY5		up to 5	23 items in stock
	MDW□□□□HY8		up to 8	6 items in stock

Drilling of general steel and gray cast iron



Application Examples



Strong MultiDrills HY Series (Internal Coolant Supply)

Carbon Steel
Alloy Steel
up to 0.28%

Carbon Steel
Alloy Steel
from 0.28%

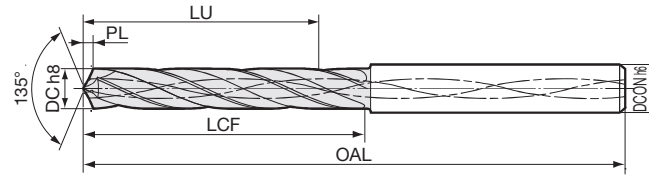
Cast Iron

Ductile
Cast Iron



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter ø5.0 to 9.5mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
5.0	3	★	MDW0500HY3	21.0	28.5	81.0	1.0	5.0	1
	5	★	MDW0500HY5	37.5	45.0	99.0			
	8	★	MDW0500HY8	48.5	56.0	106.0			
5.1	3	★	MDW0510HY3	21.0	28.6	83.1	1.1	6.0	1
	5	★	MDW0510HY5	37.5	45.1	101.1			
	8	★	MDW0510HY8	54.0	61.6	119.1			
6.0	3	★	MDW0600HY3	22.2	31.2	83.2	1.2	6.0	1
	5	★	MDW0600HY5	40.2	49.2	101.2			
	8	★	MDW0600HY8	58.2	67.2	119.2			
6.5	3	★	MDW0650HY3	24.1	33.8	89.3	1.3	7.0	1
	5	★	MDW0650HY5	43.6	53.3	110.3			
	8	★	MDW0650HY8	63.1	72.8	131.3			
6.8	3	★	MDW0680HY3	26.2	36.4	89.4	1.4	7.0	1
	5	★	MDW0680HY5	47.2	57.4	110.4			
	8	★	MDW0680HY8	68.2	78.4	131.4			
7.0	3	★	MDW0700HY3	25.9	36.4	89.4	1.4	7.0	1
	5	★	MDW0700HY5	46.9	57.4	110.4			
	8	★	MDW0700HY8	67.9	78.4	131.4			
8.0	3	★	MDW0800HY3	29.7	41.7	95.7	1.7	8.0	1
	5	★	MDW0800HY5	53.7	65.7	119.7			
	8	★	MDW0800HY8	77.7	89.7	143.7			
8.5	3	★	MDW0850HY3	31.6	44.3	101.8	1.8	9.0	1
	5	★	MDW0850HY5	57.1	69.8	128.8			
	8	★	MDW0850HY8	82.6	95.3	155.8			
8.6	3	★	MDW0860HY3	33.9	46.8	101.8	1.8	9.0	1
	5	★	MDW0860HY5	60.9	73.8	128.8			
	8	★	MDW0860HY8	87.9	100.8	155.8			
8.8	3	★	MDW0880HY3	33.6	46.8	101.8	1.8	9.0	1
	5	★	MDW0880HY5	60.6	73.8	128.8			
	8	★	MDW0880HY8	87.6	100.8	155.8			
9.0	3	★	MDW0900HY3	33.4	46.9	101.9	1.9	9.0	1
	5	★	MDW0900HY5	60.4	73.9	128.9			
	8	★	MDW0900HY8	87.4	100.9	155.9			
9.5	3	★	MDW0950HY3	35.3	49.5	108.0	2.0	10.0	1
	5	★	MDW0950HY5	63.8	78.0	138.0			
	8	★	MDW0950HY8	92.3	106.5	168.0			

Grade: ACX70

Diameter ø10.0 to 16.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
10.0	3	★	MDW1000HY3	37.1	52.1	108.1	2.1	10.0	1
	5	★	MDW1000HY5	67.1	82.1	138.1			
	8	★	MDW1000HY8	97.1	112.1	168.1			
10.2	3	★	MDW1020HY3	39.3	54.6	118.1	2.1	11.0	1
	5	★	MDW1020HY5	70.8	86.1	151.1			
	8	★	MDW1020HY8	102.3	117.6	184.1			
10.3	3	★	MDW1030HY3	39.2	54.6	118.1	2.1	11.0	1
	5	★	MDW1030HY5	70.7	86.1	151.1			
	8	★	MDW1030HY8	102.2	117.6	184.1			
11.0	3	★	MDW1100HY3	40.8	57.3	118.3	2.3	11.0	1
	5	★	MDW1100HY5	73.8	90.3	151.3			
	8	★	MDW1100HY8	106.8	123.3	184.3			
11.4	3	★	MDW1140HY3	42.8	59.9	124.4	2.4	12.0	1
	5	★	MDW1140HY5	77.3	94.4	160.4			
	8	★	MDW1140HY8	111.8	128.9	196.4			
11.5	3	★	MDW1150HY3	42.7	59.9	124.4	2.4	12.0	1
	5	★	MDW1150HY5	77.2	94.4	160.4			
	8	★	MDW1150HY8	111.7	128.9	196.4			
12.0	3	★	MDW1200HY3	44.5	62.5	124.5	2.5	12.0	1
	5	★	MDW1200HY5	80.5	98.5	160.5			
	8	★	MDW1200HY8	116.5	134.5	196.5			
12.5	3	★	MDW1250HY3	46.4	65.1	130.6	2.6	13.0	1
	5	★	MDW1250HY5	83.9	102.6	169.6			
	8	★	MDW1250HY8	121.4	140.1	208.6			
13.0	3	★	MDW1300HY3	48.2	67.7	130.7	2.7	13.0	1
	5	★	MDW1300HY5	87.2	106.7	169.7			
	8	★	MDW1300HY8	126.2	145.7	208.7			
14.0	3	★	MDW1400HY3	51.9	72.9	136.9	2.9	14.0	1
	5	★	MDW1400HY5	93.9	114.9	178.9			
	8	★	MDW1400HY8	135.9	156.9	220.9			
16.0	3	★	MDW1600HY3	59.3	83.3	149.3	3.3	16.0	1
	5	★	MDW1600HY5	107.3	131.3	197.3			
	8	★	MDW1600HY8	155.3	179.3	245.3			

Grade: ACX70

Recommended Cutting Conditions

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

Dia. DC (mm)	Cutting Conditions	Mild Steel/General Steel (up to 300HB)	Gray Cast Iron FC250	Ductile Cast Iron FCD450
ø5.0	v_c	50 - 120	50 - 90	40 - 80
	f	0.15 - 0.25	0.20 - 0.45	0.18 - 0.30
ø10.0	v_c	70 - 150	60 - 100	50 - 90
	f	0.20 - 0.40	0.30 - 0.60	0.30 - 0.50
ø16.0	v_c	80 - 160	70 - 120	60 - 100
	f	0.35 - 0.55	0.40 - 0.80	0.40 - 0.70

Min. - Max.

★: Worldwide Warehouse Item



■ General Features

SGS type drills for heat-resistant alloys employ a sharp cutting edge to reduce heat during drilling (reduces cutting force) and provide a long, stable tool life.

■ Features and Applications

Long tool life

- Combination of optimised cutting edge design and dedicated grade significantly reduces wear.
- Minute honing (edge treatment) amount and special thinning shape reduce cutting force. This reduces cutting edge breakage.
- Perfect for drilling Ni-based heat-resistant alloys (Inconel/Waspaloy/Hastelloy).

■ Product Range

Cat. No.	Diameter Range (mm)	Hole Depth (L/D)
MDW□□□□SGS3	ø3.0 to 12.0	up to 3

■ Performance

Comparison of Cutting Force (Thrust)		Tool Life Comparison		
Low Resistance (Reduced Load on Cutting Edge) The graph plots Thrust (N) on the y-axis (0 to 2,000) against Time [s] on the x-axis (0 to 24). The SGS Type (red line) shows a sharp initial peak of approximately 1,800 N, followed by a rapid drop to a steady state of about 800 N, which is maintained until 20 seconds. Competitor's Product A (grey line) shows a lower initial peak of about 1,000 N, followed by a drop to a steady state of about 900 N, which is maintained until 18 seconds. Competitor's Product B (black line) shows a high initial peak of about 1,800 N, followed by a drop to a steady state of about 1,500 N, which is maintained until 20 seconds. A red double-headed arrow indicates the difference in steady-state thrust between SGS Type and Competitor's Product A.		Long Tool Life (No Fracturing or Breakage)		
Tool	SGS Type	Competitor's Product A	Competitor's Product B	
No. of Workpieces	Able to Continue after 50 Holes	Breakage after 30 Holes	Breakage after 5 Holes	
Photo				
Tool Diameter : ø6.0mm Part Material : Inconel 718 Cutting Conditions : $v_c=33$ SFM, $f=0.003$ IPR, $H=0.315''$ (through), external coolant supply		Tool Diameter : ø6.0mm Part Material : Inconel 718 Cutting Conditions : $v_c=33$ SFM, $f=0.003$ IPR, $H=0.630''$ (stop hole), external coolant supply		

■ Application Examples

Comparison of Cutting Edge Wear after 30 Holes	
Significantly Reduced Flank Wear SGS Conventional Tool SGS	
Tool : MDW 0600SGS3 Part Material : Inconel 718 (aeronautic components) Cutting Conditions : $v_c=33$ SFM, $f=0.0023$ IPR, $H=0.118''$ (through), external coolant supply	

Drill for Heat-Resistant Alloys

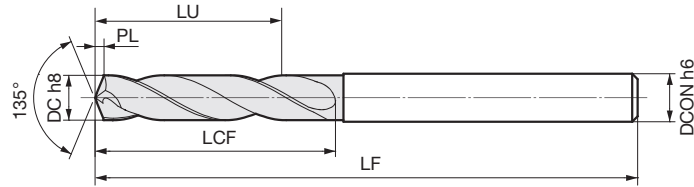
SGS Type (External Coolant Supply)

Stainless Steel Ti Alloy Heat-resistant Steel



*Refer to N74 for the tolerance of h6 and h8

Fig 1



Diameter $\phi 3.0$ to 12.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.0	3	★	MDW0300SGS3	13.6	18.1	49.6	0.6	3.0	1
3.5	3	★	MDW0350SGS3	15.5	20.7	60.7	0.7	4.0	1
4.0	3	★	MDW0400SGS3	17.3	23.3	60.8	0.8	5.0	1
4.5	3	★	MDW0450SGS3	19.2	25.9	76.9	0.9	6.0	1
5.0	3	★	MDW0500SGS3	21.0	28.5	77.0	1.0	7.0	1
5.5	3	★	MDW0550SGS3	20.4	28.6	82.1	1.1	8.0	1
6.0	3	★	MDW0600SGS3	22.2	31.2	82.2	1.2	9.0	1
6.5	3	★	MDW0650SGS3	24.1	33.8	84.3	1.3	10.0	1
7.0	3	★	MDW0700SGS3	25.9	36.4	84.4	1.4	11.0	1
7.5	3	★	MDW0750SGS3	27.9	39.1	91.6	1.6	12.0	1
8.0	3	★	MDW0800SGS3	29.7	41.7	91.7	1.7		1
8.5	3	★	MDW0850SGS3	31.6	44.3	99.8	1.8		1
9.0	3	★	MDW0900SGS3	33.4	46.9	99.9	1.9		1
9.5	3	★	MDW0950SGS3	35.3	49.5	107.0	2.0		1
10.0	3	★	MDW1000SGS3	37.1	52.1	107.1	2.1		1
10.5	3	★	MDW1050SGS3	39.0	54.7	116.2	2.2		1
11.0	3	★	MDW1100SGS3	40.8	57.3	116.3	2.3		1
11.5	3	★	MDW1150SGS3	42.7	59.9	123.4	2.4		1
12.0	3	★	MDW1200SGS3	44.5	62.5	123.5	2.5		1

Grade: ACW528

Recommended Cutting Conditions

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

Dia. DC (mm)	Cutting Conditions	Titanium Alloy Ti	Heat-Resistant Alloy Inconel
$\phi 6.0$	v_c	10 - 30	10 - 30
	f	0.05 - 0.10	0.05 - 0.10
$\phi 10.0$	v_c	10 - 30	10 - 30
	f	0.07 - 0.12	0.07 - 0.12
$\phi 12.0$	v_c	10 - 30	15 - 30
	f	0.07 - 0.12	0.07 - 0.12

Min. - Max.



■ General Features

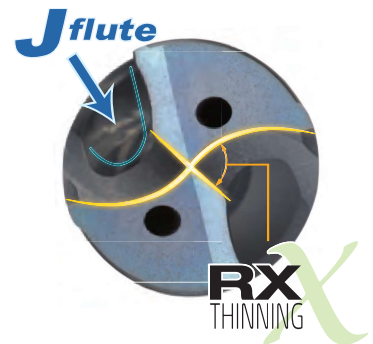
Super MultiDrill XHGS, a next-generation drill specialized for deep hole drilling, features high drill strength and stable chip control to further enhance efficiency of deep hole drilling.

■ Features

- Deep hole drilling
 - New groove shape (J flute) achieves improved chip control during deep hole drilling
 - High-efficiency drilling at over $v_f=39.37$ IPM at depths 20 times the drill diameter (diameter $\phi 5$, equivalent to S48C)
 - Special web thinning shape (RX thinning) reduces cutting force during high-efficiency machining
- Long tool life
 - Special DEX Coat provides long tool life on a wide variety of work materials
 - Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring long, stable tool life
- Eco-Friendly
 - Compatible with the MQL (Minimum Quantity Lubrication) system
 - Compatible with dual-fluid mist (simultaneous spray of oil and water)

■ Product Range

Applications	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)
Deep Hole Drilling	MDW□□□□XHGS10	$\phi 2.1$ to 16.0	up to 10
	MDW□□□□XHGS12	$\phi 2.5$ to 16.0	up to 12
	MDW□□□□XHGS15	$\phi 2.1$ to 16.0	up to 15
	MDW□□□□XHGS20	$\phi 2.1$ to 14.0	up to 20
	MDW□□□□XHGS25	$\phi 2.1$ to 12.0	up to 25
	MDW□□□□XHGS30	$\phi 2.1$ to 10.0	up to 30
For Guide Holes	MDW□□□□PHT	$\phi 2.1$ to 16.0	up to 2



■ Application Examples

● Automotive components (Medium Carbon Steel)

Tool : $\phi 5.0 \times 115$ mm (PHT), $\phi 5.0 \times 170$ mm (XHGS Type)
 Machine : Horizontal single-spindle NC machine
 Coolant : MQL (air pressure 0.5MPa, volume approx. 4cc/h)
 Cutting Conditions : $v_c=262$ SFM, $f=0.011$ IPR, $H=3.346^{\circ}$ per hole (3 holes per unit)
 Tool life : **500 units (371 ft.)**

● Automotive components (Ductile Cast Iron)

Tool : $\phi 5.0 \times 105$ mm (PHT), $\phi 5.0 \times 155$ mm (XHGS Type)
 Machine : Horizontal single-spindle NC machine
 Coolant : MQL (air pressure 0.4MPa, volume approx. 4cc/h)
 Cutting Conditions : $v_c=165$ SFM, $f=0.007$ IPR, $H=2.362^{\circ}$ per hole (5 holes per unit)
 Tool life : **400 units (394 ft.)**

● Automotive components (Structural Carbon Steel)

Tool : $\phi 6.0 \times 170$ mm (PHT), $\phi 6.0 \times 230$ mm (XHGS Type)
 Machine : Horizontal single-spindle NC machine
 Coolant : MQL (air pressure 0.5MPa, volume approx. 40cc/h)
 Cutting Conditions : $v_c=262$ SFM, $f=0.0078$ IPR, $H=4.33^{\circ}$ per hole (4 holes per unit)
 Tool life : **150 units (371 ft.)**

● Machine components (1045 Steel)

Tool : $\phi 6.0 \times 90$ mm (PHT), $\phi 6.0 \times 145$ mm (XHGS Type)
 Machine : Horizontal single-spindle NC machine
 Coolant : MQL (air pressure 0.5MPa, volume approx. 60cc/h)
 Cutting Conditions : $v_c=262$ SFM, $f=0.0078$ IPR, $H=2.44^{\circ}$ per hole (3 holes per unit)
 Tool life : **550 units (341 ft.)**

Deep Hole Drilling XHGS / PHT

Drilling

J

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

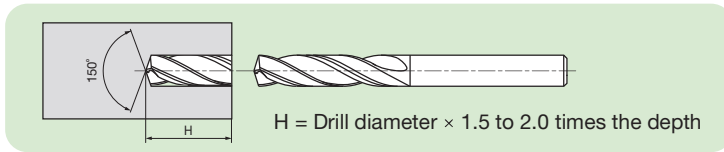
Brazed

Others

■ Recommended Drilling Method

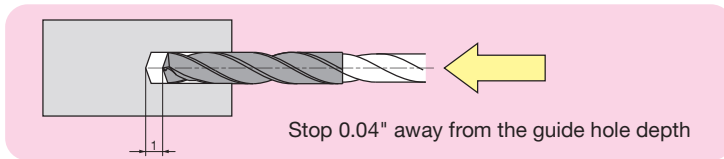
(1) Make a guide hole using the PHT

- Select the same nominal diameter for the PHT type dedicated guide hole drill as the XHGS type deep hole drill.
(The guide drill diameter is designed to be 0.02 mm to 0.05 mm larger than the long drill diameter.)



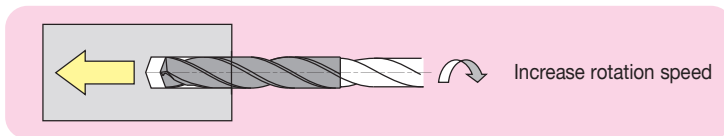
(2) Feed the XHGS deep hole drill through the guide hole at low rotation speed

- Spindle Speed: 500 RPM
- Feed Rate: 39 to 78 IPM



* If the drill is inserted into the guide hole at the set cutting speed, peripheral run-out may cause damage to the drill's peripheral edges.

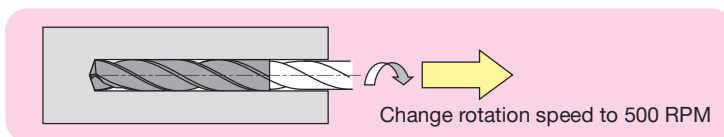
(3) Increase rotation speed until the set cutting speed is reached, then start normal drilling operation



* On some NC machines, the feed command may be activated before the set spindle speed is reached, so it is recommended to enter a dwell sequence before the feed command.

(4) After drilling, rotation speed is reduced and the drill is retracted from the work material

- Spindle speed: 500 RPM Feed rate: 39 to 78 IPM



* Retracting a drill from the work material at a high rotation speed is dangerous as doing so may result in breakage due to runout.

(5) Other notes

- A flat base should be prepared first if the entry side is a non-flat surface (slanted surface, cylindrical surface, etc.).



Spot facing using an endmill or flat MultiDrill MDF type (see page J44)



Concave ended endmills cannot be used.

- If the exit side is a non-flat surface, reduce the feed rate to $f=0.002$ IPR immediately before the breakthrough point to prevent the drill from breaking or burrs from forming.

■ Coolant

(1) Internal coolant supply

- Use coolant equivalent to JIS A1-1 (emulsion).
- Pump pressure Steel: 1.5 to 2.0 MPa (higher pressure results in a stronger cooling effect, which affects chips and wear)
Cast iron and aluminum alloy: 4.0 to 6.0 MPa (prioritize cooling performance)

(2) Internal MQL

- Air pressure : 0.5 MPa or greater
- Evacuation volume: It is recommended to set the maximum evacuation volume for your equipment.
*Consult the manufacturer if you intend to machine aluminum alloy.

(3) Internal dual-fluid mist

- Air pressure : 0.5 MPa or greater
- Evacuation volume: It is recommended to use the optimal setting for your equipment.

Deep Hole Drilling XHGS / PHT (Internal Coolant Supply)

Carbon Steel
Alloy Steel
up to 0.28%

Carbon Steel
Alloy Steel
from 0.28%

Tempered
Steel

Hardened
Steel
up to 45HRC

Stainless
Steel

Cast Iron

Ductile
Cast Iron



*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

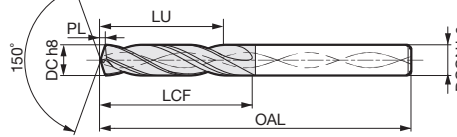
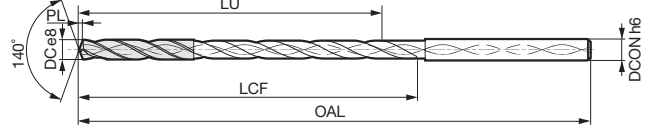


Fig. 2 (XHGS Type)



Diameter $\phi 2.1$ to 2.8mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
2.1	3	★	MDW0210PHT	12.2	15.3	68.3	0.3	3.0	1
	10	★	MDW0210XHGS10	35.3	38.4	88.4	0.4		2
	15	★	MDW0210XHGS15	45.3	48.4	98.4			2
	20	★	MDW0210XHGS20	58.3	61.4	111.4			2
	25	★	MDW0210XHGS25	70.3	73.4	123.4			2
	30	★	MDW0210XHGS30	83.3	86.4	136.4			2
2.2	3	★	MDW0220PHT	12.0	15.3	68.3	0.3	3.0	1
	10	★	MDW0220XHGS10	35.1	38.4	88.4	0.4		2
	15	★	MDW0220XHGS15	45.1	48.4	98.4			2
	20	★	MDW0220XHGS20	58.1	61.4	111.4			2
	25	★	MDW0220XHGS25	70.1	73.4	123.4			2
	30	★	MDW0220XHGS30	83.1	86.4	136.4			2
2.3	3	★	MDW0230PHT	11.9	15.3	68.3	0.3	3.0	1
	10	★	MDW0230XHGS10	35.0	38.4	88.4	0.4		2
	15	★	MDW0230XHGS15	45.0	48.4	98.4			2
	20	★	MDW0230XHGS20	58.0	61.4	111.4			2
	25	★	MDW0230XHGS25	70.0	73.4	123.4			2
	30	★	MDW0230XHGS30	83.0	86.4	136.4			2
2.4	3	★	MDW0240PHT	11.7	15.3	68.3	0.3	3.0	1
	10	★	MDW0240XHGS10	34.8	38.4	88.4	0.4		2
	15	★	MDW0240XHGS15	44.8	48.4	98.4			2
	20	★	MDW0240XHGS20	57.8	61.4	111.4			2
	25	★	MDW0240XHGS25	69.8	73.4	123.4			2
	30	★	MDW0240XHGS30	82.8	86.4	136.4			2
2.5	3	★	MDW0250PHT	11.6	15.3	68.3	0.3	3.0	1
	10	★	MDW0250XHGS10	34.8	38.5	88.5	0.5		2
	12	★	MDW0250XHGS12	37.8	41.5	91.5			2
	15	★	MDW0250XHGS15	44.8	48.5	98.5			2
	20	★	MDW0250XHGS20	57.8	61.5	111.5			2
	25	★	MDW0250XHGS25	69.8	73.5	123.5			2
30	★	MDW0250XHGS30	82.8	86.5	136.5	2			
2.6	3	★	MDW0260PHT	13.9	17.8	68.3	0.3	3.0	1
	10	★	MDW0260XHGS10	41.6	45.5	93.5	0.5		2
	12	★	MDW0260XHGS12	47.6	51.5	99.5			2
	15	★	MDW0260XHGS15	56.6	60.5	108.5			2
	20	★	MDW0260XHGS20	71.6	75.5	123.5			2
	25	★	MDW0260XHGS25	86.6	90.5	138.5			2
30	★	MDW0260XHGS30	101.6	105.5	153.5	2			
2.7	3	★	MDW0270PHT	13.9	17.9	68.4	0.4	3.0	1
	10	★	MDW0270XHGS10	41.5	45.5	93.5	0.5		2
	12	★	MDW0270XHGS12	47.5	51.5	99.5			2
	15	★	MDW0270XHGS15	56.5	60.5	108.5			2
	20	★	MDW0270XHGS20	71.5	75.5	123.5			2
	25	★	MDW0270XHGS25	86.5	90.5	138.5			2
30	★	MDW0270XHGS30	101.5	105.5	153.5	2			
2.8	3	★	MDW0280PHT	13.7	17.9	68.4	0.4	3.0	1
	10	★	MDW0280XHGS10	41.3	45.5	93.5	0.5		2
	12	★	MDW0280XHGS12	47.3	51.5	99.5			2
	15	★	MDW0280XHGS15	56.3	60.5	108.5			2
	20	★	MDW0280XHGS20	71.3	75.5	123.5			2
	25	★	MDW0280XHGS25	86.3	90.5	138.5			2
30	★	MDW0280XHGS30	101.3	105.5	153.5	2			

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter $\phi 2.9$ to 3.6mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
2.9	3	★	MDW0290PHT	13.6	17.9	68.4	0.4	3.0	1
	10	★	MDW0290XHGS10	41.2	45.5	93.5	0.5		2
	12		MDW0290XHGS12	47.2	51.5	99.5			2
	15	★	MDW0290XHGS15	56.2	60.5	108.5			2
	20	★	MDW0290XHGS20	71.2	75.5	123.5			2
	25	★	MDW0290XHGS25	86.2	90.5	138.5			2
	30	★	MDW0290XHGS30	101.2	105.5	153.5		2	
3.0	3	★	MDW0300PHT	13.4	17.9	68.4	0.4	3.0	1
	10	★	MDW0300XHGS10	41.0	45.5	93.5	0.5		2
	12	★	MDW0300XHGS12	47.0	51.5	99.5			2
	15	★	MDW0300XHGS15	56.0	60.5	108.5			2
	20	★	MDW0300XHGS20	71.0	75.5	123.5			2
	25	★	MDW0300XHGS25	86.0	90.5	138.5			2
	30	★	MDW0300XHGS30	101.0	105.5	153.5		2	
3.1	3	★	MDW0310PHT	15.8	20.4	72.4	0.4	4.0	1
	10	★	MDW0310XHGS10	49.0	53.6	103.6	0.6		2
	12		MDW0310XHGS12	54.0	58.6	108.6			2
	15	★	MDW0310XHGS15	64.0	68.6	118.6			2
	20	★	MDW0310XHGS20	82.0	86.6	136.6			2
	25	★	MDW0310XHGS25	99.0	103.6	153.6			2
	30	★	MDW0310XHGS30	117.0	121.6	171.6		2	
3.2	3	★	MDW0320PHT	15.6	20.4	72.4	0.4	4.0	1
	10	★	MDW0320XHGS10	48.8	53.6	103.6	0.6		2
	12		MDW0320XHGS12	53.8	58.6	108.6			2
	15	★	MDW0320XHGS15	63.8	68.6	118.6			2
	20	★	MDW0320XHGS20	81.8	86.6	136.6			2
	25	★	MDW0320XHGS25	98.8	103.6	153.6			2
	30	★	MDW0320XHGS30	116.8	121.6	171.6		2	
3.3	3	★	MDW0330PHT	15.5	20.4	72.4	0.4	4.0	1
	10	★	MDW0330XHGS10	48.7	53.6	103.6	0.6		2
	12		MDW0330XHGS12	53.7	58.6	108.6			2
	15	★	MDW0330XHGS15	63.7	68.6	118.6			2
	20	★	MDW0330XHGS20	81.7	86.6	136.6			2
	25	★	MDW0330XHGS25	98.7	103.6	153.6			2
	30	★	MDW0330XHGS30	116.7	121.6	171.6		2	
3.4	3	★	MDW0340PHT	15.4	20.5	72.5	0.5	4.0	1
	10	★	MDW0340XHGS10	48.5	53.6	103.6	0.6		2
	12		MDW0340XHGS12	53.5	58.6	108.6			2
	15	★	MDW0340XHGS15	63.5	68.6	118.6			2
	20	★	MDW0340XHGS20	81.5	86.6	136.6			2
	25	★	MDW0340XHGS25	98.5	103.6	153.6			2
	30	★	MDW0340XHGS30	116.5	121.6	171.6		2	
3.5	3	★	MDW0350PHT	15.3	20.5	72.5	0.5	4.0	1
	10	★	MDW0350XHGS10	48.4	53.6	103.6	0.6		2
	12		MDW0350XHGS12	53.4	58.6	108.6			2
	15	★	MDW0350XHGS15	63.4	68.6	118.6			2
	20	★	MDW0350XHGS20	81.4	86.6	136.6			2
	25	★	MDW0350XHGS25	98.4	103.6	153.6			2
	30	★	MDW0350XHGS30	116.4	121.6	171.6		2	
3.6	3	★	MDW0360PHT	17.6	23.0	72.5	0.5	4.0	1
	10	★	MDW0360XHGS10	55.3	60.7	108.7	0.7		2
	12		MDW0360XHGS12	63.3	68.7	116.7			2
	15	★	MDW0360XHGS15	75.3	80.7	128.7			2
	20	★	MDW0360XHGS20	95.3	100.7	148.7			2
	25	★	MDW0360XHGS25	115.3	120.7	168.7			2
	30	★	MDW0360XHGS30	135.3	140.7	188.7		2	

Deep Hole Drilling XHGS / PHT (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28% Carbon Steel Alloy Steel from 0.29% Tempered Steel Hardened Steel up to 45HRC Stainless Steel Cast Iron Ductile Cast Iron



10D 12D 15D 20D 25D 30D Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

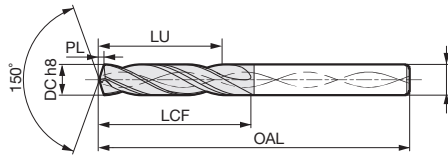
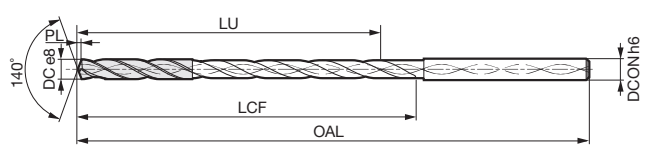


Fig. 2 (XHGS Type)



Diameter $\phi 3.7$ to 4.4mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
3.7	3	★	MDW0370PHT	17.5	23.0	72.5	0.5	4.0	1
	10	★	MDW0370XHGS10	55.2	60.7	108.7	0.7		2
	12		MDW0370XHGS12	63.2	68.7	116.7			2
	15	★	MDW0370XHGS15	75.2	80.7	128.7			2
	20	★	MDW0370XHGS20	95.2	100.7	148.7			2
	25	★	MDW0370XHGS25	115.2	120.7	168.7			2
	30	★	MDW0370XHGS30	135.2	140.7	188.7		2	
3.8	3	★	MDW0380PHT	17.3	23.0	72.5	0.5	4.0	1
	10	★	MDW0380XHGS10	55.0	60.7	108.7	0.7		2
	12		MDW0380XHGS12	63.0	68.7	116.7			2
	15	★	MDW0380XHGS15	75.0	80.7	128.7			2
	20	★	MDW0380XHGS20	95.0	100.7	148.7			2
	25	★	MDW0380XHGS25	115.0	120.7	168.7			2
	30	★	MDW0380XHGS30	135.0	140.7	188.7		2	
3.9	3	★	MDW0390PHT	17.2	23.0	72.5	0.5	4.0	1
	10	★	MDW0390XHGS10	54.9	60.7	108.7	0.7		2
	12		MDW0390XHGS12	62.9	68.7	116.7			2
	15	★	MDW0390XHGS15	74.9	80.7	128.7			2
	20	★	MDW0390XHGS20	94.9	100.7	148.7			2
	25	★	MDW0390XHGS25	114.9	120.7	168.7			2
	30	★	MDW0390XHGS30	134.9	140.7	188.7		2	
4.0	3	★	MDW0400PHT	17.0	23.0	72.5	0.5	4.0	1
	10	★	MDW0400XHGS10	54.7	60.7	108.7	0.7		2
	12		MDW0400XHGS12	62.7	68.7	116.7			2
	15	★	MDW0400XHGS15	74.7	80.7	128.7			2
	20	★	MDW0400XHGS20	94.7	100.7	148.7			2
	25	★	MDW0400XHGS25	114.7	120.7	168.7			2
	30	★	MDW0400XHGS30	134.7	140.7	188.7		2	
4.1	3	★	MDW0410PHT	19.4	25.5	80.5	0.5	5.0	1
	10	★	MDW0410XHGS10	62.6	68.7	120.7	0.7		2
	12		MDW0410XHGS12	69.6	75.7	127.7			2
	15	★	MDW0410XHGS15	82.6	88.7	140.7			2
	20	★	MDW0410XHGS20	105.6	111.7	163.7			2
	25	★	MDW0410XHGS25	127.6	133.7	185.7			2
	30	★	MDW0410XHGS30	150.6	156.7	208.7		2	
4.2	3	★	MDW0420PHT	19.3	25.6	80.6	0.6	5.0	1
	10	★	MDW0420XHGS10	62.5	68.8	120.8	0.8		2
	12		MDW0420XHGS12	69.5	75.8	127.8			2
	15	★	MDW0420XHGS15	82.5	88.8	140.8			2
	20	★	MDW0420XHGS20	105.5	111.8	163.8			2
	25	★	MDW0420XHGS25	127.5	133.8	185.8			2
	30	★	MDW0420XHGS30	150.5	156.8	208.8		2	
4.3	3	★	MDW0430PHT	19.2	25.6	80.6	0.6	5.0	1
	10	★	MDW0430XHGS10	62.4	68.8	120.8	0.8		2
	12		MDW0430XHGS12	69.4	75.8	127.8			2
	15	★	MDW0430XHGS15	82.4	88.8	140.8			2
	20	★	MDW0430XHGS20	105.4	111.8	163.8			2
	25	★	MDW0430XHGS25	127.4	133.8	185.8			2
	30	★	MDW0430XHGS30	150.4	156.8	208.8		2	
4.4	3	★	MDW0440PHT	19.0	25.6	80.6	0.6	5.0	1
	10	★	MDW0440XHGS10	62.2	68.8	120.8	0.8		2
	12		MDW0440XHGS12	69.2	75.8	127.8			2
	15	★	MDW0440XHGS15	82.2	88.8	140.8			2
	20	★	MDW0440XHGS20	105.2	111.8	163.8			2
	25	★	MDW0440XHGS25	127.2	133.8	185.8			2
	30	★	MDW0440XHGS30	150.2	156.8	208.8		2	

Part Number Suffix PHT: For Guide Hole

Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

Diameter $\phi 4.5$ to 5.2mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
4.5	3	★	MDW0450PHT	18.9	25.6	80.6	0.6	5.0	1
	10	★	MDW0450XHGS10	62.1	68.8	120.8	0.8		2
	12	★	MDW0450XHGS12	69.1	75.8	127.8			2
	15	★	MDW0450XHGS15	82.1	88.8	140.8			2
	20	★	MDW0450XHGS20	105.1	111.8	163.8			2
	25	★	MDW0450XHGS25	127.1	133.8	185.8			2
30	★	MDW0450XHGS30	150.1	156.8	208.8		2		
4.6	3	★	MDW0460PHT	21.2	28.1	80.6	0.6	5.0	1
	10	★	MDW0460XHGS10	68.9	75.8	125.8	0.8		2
	12		MDW0460XHGS12	78.9	85.8	135.8			2
	15	★	MDW0460XHGS15	93.9	100.8	150.8			2
	20	★	MDW0460XHGS20	118.9	125.8	175.8			2
	25	★	MDW0460XHGS25	143.9	150.8	200.8			2
30	★	MDW0460XHGS30	168.9	175.8	225.8		2		
4.7	3	★	MDW0470PHT	21.1	28.1	80.6	0.6	5.0	1
	10	★	MDW0470XHGS10	68.9	75.9	125.9	0.9		2
	12		MDW0470XHGS12	78.9	85.9	135.9			2
	15	★	MDW0470XHGS15	93.9	100.9	150.9			2
	20	★	MDW0470XHGS20	118.9	125.9	175.9			2
	25	★	MDW0470XHGS25	143.9	150.9	200.9			2
30	★	MDW0470XHGS30	168.9	175.9	225.9		2		
4.8	3	★	MDW0480PHT	20.9	28.1	80.6	0.6	5.0	1
	10	★	MDW0480XHGS10	68.7	75.9	125.9	0.9		2
	12		MDW0480XHGS12	78.7	85.9	135.9			2
	15	★	MDW0480XHGS15	93.7	100.9	150.9			2
	20	★	MDW0480XHGS20	118.7	125.9	175.9			2
	25	★	MDW0480XHGS25	143.7	150.9	200.9			2
30	★	MDW0480XHGS30	168.7	175.9	225.9		2		
4.9	3	★	MDW0490PHT	20.9	28.2	80.7	0.7	5.0	1
	10	★	MDW0490XHGS10	68.6	75.9	125.9	0.9		2
	12		MDW0490XHGS12	78.6	85.9	135.9			2
	15	★	MDW0490XHGS15	93.6	100.9	150.9			2
	20	★	MDW0490XHGS20	118.6	125.9	175.9			2
	25	★	MDW0490XHGS25	143.6	150.9	200.9			2
30	★	MDW0490XHGS30	168.6	175.9	225.9		2		
5.0	3	★	MDW0500PHT	20.7	28.2	80.7	0.7	5.0	1
	10	★	MDW0500XHGS10	68.4	75.9	125.9	0.9		2
	12	★	MDW0500XHGS12	78.4	85.9	135.9			2
	15	★	MDW0500XHGS15	93.4	100.9	150.9			2
	20	★	MDW0500XHGS20	118.4	125.9	175.9			2
	25	★	MDW0500XHGS25	143.4	150.9	200.9			2
30	★	MDW0500XHGS30	168.4	175.9	225.9		2		
5.1	3	★	MDW0510PHT	20.6	28.2	82.7	0.7	6.0	1
	10	★	MDW0510XHGS10	76.3	83.9	137.9	0.9		2
	12		MDW0510XHGS12	85.3	92.9	146.9			2
	15	★	MDW0510XHGS15	101.3	108.9	162.9			2
	20	★	MDW0510XHGS20	131.3	138.9	192.9			2
	25	★	MDW0510XHGS25	156.3	163.9	217.9			2
30	★	MDW0510XHGS30	184.3	191.9	245.9		2		
5.2	3	★	MDW0520PHT	20.4	28.2	82.7	0.7	6.0	1
	10	★	MDW0520XHGS10	76.1	83.9	137.9	0.9		2
	12		MDW0520XHGS12	85.1	92.9	146.9			2
	15	★	MDW0520XHGS15	101.1	108.9	162.9			2
	20	★	MDW0520XHGS20	131.1	138.9	192.9			2
	25	★	MDW0520XHGS25	156.1	163.9	217.9			2
30	★	MDW0520XHGS30	184.1	191.9	245.9		2		

Part Number Suffix PHT: For Guide Hole

Grade: ACX70 (XHGS) / ACX20 (PHT)

Deep Hole Drilling XHGS / PHT (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Cast Iron
Ductile Cast Iron

DEX Coating Coolant Hole 10D 12D 15D 20D 25D 30D Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

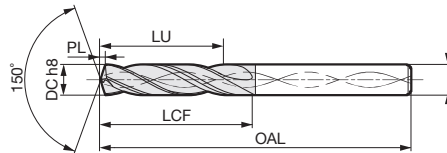
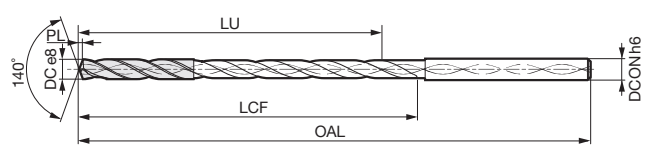


Fig. 2 (XHGS Type)



Diameter $\phi 5.3$ to 5.9mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
5.3	3	★	MDW0530PHT	20.3	28.2	82.7	0.7	6.0	1
	10	★	MDW0530XHGS10	76.1	84.0	138.0	1.0		2
	12		MDW0530XHGS12	85.1	93.0	147.0			2
	15	★	MDW0530XHGS15	101.1	109.0	163.0			2
	20	★	MDW0530XHGS20	131.1	139.0	193.0			2
	25	★	MDW0530XHGS25	156.1	164.0	218.0			2
	30	★	MDW0530XHGS30	184.1	192.0	246.0		2	
5.4	3	★	MDW0540PHT	20.1	28.2	82.7	0.7	6.0	1
	10	★	MDW0540XHGS10	75.9	84.0	138.0	1.0		2
	12		MDW0540XHGS12	84.9	93.0	147.0			2
	15	★	MDW0540XHGS15	100.9	109.0	163.0			2
	20	★	MDW0540XHGS20	130.9	139.0	193.0			2
	25	★	MDW0540XHGS25	155.9	164.0	218.0			2
	30	★	MDW0540XHGS30	183.9	192.0	246.0		2	
5.5	3	★	MDW0550PHT	20.0	28.2	82.7	0.7	6.0	1
	10	★	MDW0550XHGS10	75.8	84.0	138.0	1.0		2
	12	★	MDW0550XHGS12	84.8	93.0	147.0			2
	15	★	MDW0550XHGS15	100.8	109.0	163.0			2
	20	★	MDW0550XHGS20	130.8	139.0	193.0			2
	25	★	MDW0550XHGS25	155.8	164.0	218.0			2
	30	★	MDW0550XHGS30	183.8	192.0	246.0		2	
5.6	3	★	MDW0560PHT	22.4	30.8	82.8	0.8	6.0	1
	10	★	MDW0560XHGS10	82.6	91.0	143.0	1.0		2
	12		MDW0560XHGS12	94.6	103.0	155.0			2
	15	★	MDW0560XHGS15	112.6	121.0	173.0			2
	20	★	MDW0560XHGS20	142.6	151.0	203.0			2
	25	★	MDW0560XHGS25	172.6	181.0	233.0			2
	30	★	MDW0560XHGS30	202.6	211.0	263.0		2	
5.7	3	★	MDW0570PHT	22.3	30.8	82.8	0.8	6.0	1
	10	★	MDW0570XHGS10	82.5	91.0	143.0	1.0		2
	12		MDW0570XHGS12	94.5	103.0	155.0			2
	15	★	MDW0570XHGS15	112.5	121.0	173.0			2
	20	★	MDW0570XHGS20	142.5	151.0	203.0			2
	25	★	MDW0570XHGS25	172.5	181.0	233.0			2
	30	★	MDW0570XHGS30	202.5	211.0	263.0		2	
5.8	3	★	MDW0580PHT	22.1	30.8	82.8	0.8	6.0	1
	10	★	MDW0580XHGS10	82.4	91.1	143.1	1.1		2
	12		MDW0580XHGS12	94.4	103.1	155.1			2
	15	★	MDW0580XHGS15	112.4	121.1	173.1			2
	20	★	MDW0580XHGS20	142.4	151.1	203.1			2
	25	★	MDW0580XHGS25	172.4	181.1	233.1			2
	30	★	MDW0580XHGS30	202.4	211.1	263.1		2	
5.9	3	★	MDW0590PHT	22.0	30.8	82.8	0.8	6.0	1
	10	★	MDW0590XHGS10	82.3	91.1	143.1	1.1		2
	12		MDW0590XHGS12	94.3	103.1	155.1			2
	15	★	MDW0590XHGS15	112.3	121.1	173.1			2
	20	★	MDW0590XHGS20	142.3	151.1	203.1			2
	25	★	MDW0590XHGS25	172.3	181.1	233.1			2
	30	★	MDW0590XHGS30	202.3	211.1	263.1		2	

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter $\phi 6.0$ to 6.6mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.0	3	★	MDW0600PHT	21.8	30.8	82.8	0.8	6.0	1
	10	★	MDW0600XHGS10	82.1	91.1	143.1	1.1		2
	12	★	MDW0600XHGS12	94.1	103.1	155.1			2
	15	★	MDW0600XHGS15	112.1	121.1	173.1			2
	20	★	MDW0600XHGS20	142.1	151.1	203.1			2
	25	★	MDW0600XHGS25	172.1	181.1	233.1			2
	30	★	MDW0600XHGS30	202.1	211.1	263.1		2	
6.1	3	★	MDW0610PHT	24.2	33.3	88.8	0.8	7.0	1
	10	★	MDW0610XHGS10	90.0	99.1	154.1	1.1		2
	12		MDW0610XHGS12	101.0	110.1	165.1			2
	15	★	MDW0610XHGS15	120.0	129.1	184.1			2
	20	★	MDW0610XHGS20	153.0	162.1	217.1			2
	25	★	MDW0610XHGS25	185.0	194.1	249.1			2
	30	★	MDW0610XHGS30	218.0	227.1	282.1		2	
6.2	3	★	MDW0620PHT	24.0	33.3	88.8	0.8	7.0	1
	10	★	MDW0620XHGS10	89.8	99.1	154.1	1.1		2
	12		MDW0620XHGS12	100.8	110.1	165.1			2
	15	★	MDW0620XHGS15	119.8	129.1	184.1			2
	20	★	MDW0620XHGS20	152.8	162.1	217.1			2
	25	★	MDW0620XHGS25	184.8	194.1	249.1			2
	30	★	MDW0620XHGS30	217.8	227.1	282.1		2	
6.3	3	★	MDW0630PHT	23.9	33.3	88.8	0.8	7.0	1
	10	★	MDW0630XHGS10	89.7	99.1	154.1	1.1		2
	12		MDW0630XHGS12	100.7	110.1	165.1			2
	15	★	MDW0630XHGS15	119.7	129.1	184.1			2
	20	★	MDW0630XHGS20	152.7	162.1	217.1			2
	25	★	MDW0630XHGS25	184.7	194.1	249.1			2
	30	★	MDW0630XHGS30	217.7	227.1	282.1		2	
6.4	3	★	MDW0640PHT	23.8	33.4	88.9	0.9	7.0	1
	10	★	MDW0640XHGS10	89.6	99.2	154.2	1.2		2
	12		MDW0640XHGS12	100.6	110.2	165.2			2
	15	★	MDW0640XHGS15	119.6	129.2	184.2			2
	20	★	MDW0640XHGS20	152.6	162.2	217.2			2
	25	★	MDW0640XHGS25	184.6	194.2	249.2			2
	30	★	MDW0640XHGS30	217.6	227.2	282.2		2	
6.5	3	★	MDW0650PHT	23.7	33.4	88.9	0.9	7.0	1
	10	★	MDW0650XHGS10	89.5	99.2	154.2	1.2		2
	12		MDW0650XHGS12	100.5	110.2	165.2			2
	15	★	MDW0650XHGS15	119.5	129.2	184.2			2
	20	★	MDW0650XHGS20	152.5	162.2	217.2			2
	25	★	MDW0650XHGS25	184.5	194.2	249.2			2
	30	★	MDW0650XHGS30	217.5	227.2	282.2		2	
6.6	3	★	MDW0660PHT	26.0	35.9	88.9	0.9	7.0	1
	10	★	MDW0660XHGS10	96.3	106.2	159.2	1.2		2
	12		MDW0660XHGS12	110.3	120.2	173.2			2
	15	★	MDW0660XHGS15	131.3	141.2	194.2			2
	20	★	MDW0660XHGS20	166.3	176.2	229.2			2
	25	★	MDW0660XHGS25	201.3	211.2	264.2			2
	30	★	MDW0660XHGS30	236.3	246.2	299.2		2	

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

★: Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

J75

Deep Hole Drilling XHGS / PHT (Internal Coolant Supply)

Carbon Steel
Alloy Steel
up to 0.28%

Carbon Steel
Alloy Steel
from 0.29%

Tempered
Steel

Hardened
Steel
up to 45HRC

Stainless
Steel

Cast Iron

Ductile
Cast Iron



*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

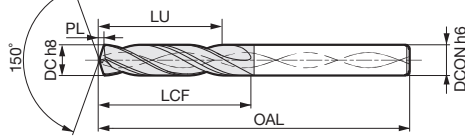
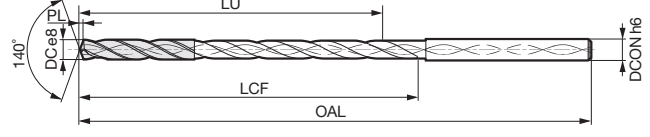


Fig. 2 (XHGS Type)



Diameter ø6.7 to 7.3mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
6.7	3	★	MDW0670PHT	25.9	35.9	88.9	0.9	7.0	1
	10	★	MDW0670XHGS10	96.2	106.2	159.2	1.2		2
	12		MDW0670XHGS12	110.2	120.2	173.2			2
	15	★	MDW0670XHGS15	131.2	141.2	194.2			2
	20	★	MDW0670XHGS20	166.2	176.2	229.2			2
	25	★	MDW0670XHGS25	201.2	211.2	264.2			2
	30	★	MDW0670XHGS30	236.2	246.2	299.2		2	
6.8	3	★	MDW0680PHT	25.7	35.9	88.9	0.9	7.0	1
	10	★	MDW0680XHGS10	96.0	106.2	159.2	1.2		2
	12		MDW0680XHGS12	110.0	120.2	173.2			2
	15	★	MDW0680XHGS15	131.0	141.2	194.2			2
	20	★	MDW0680XHGS20	166.0	176.2	229.2			2
	25	★	MDW0680XHGS25	201.0	211.2	264.2			2
	30	★	MDW0680XHGS30	236.0	246.2	299.2		2	
6.9	3	★	MDW0690PHT	25.6	35.9	88.9	0.9	7.0	1
	10	★	MDW0690XHGS10	96.0	106.3	159.3	1.3		2
	12		MDW0690XHGS12	110.0	120.3	173.3			2
	15	★	MDW0690XHGS15	131.0	141.3	194.3			2
	20	★	MDW0690XHGS20	166.0	176.3	229.3			2
	25	★	MDW0690XHGS25	201.0	211.3	264.3			2
	30	★	MDW0690XHGS30	236.0	246.3	299.3		2	
7.0	3	★	MDW0700PHT	25.4	35.9	88.9	0.9	7.0	1
	10	★	MDW0700XHGS10	95.8	106.3	159.3	1.3		2
	12	★	MDW0700XHGS12	109.8	120.3	173.3			2
	15	★	MDW0700XHGS15	130.8	141.3	194.3			2
	20	★	MDW0700XHGS20	165.8	176.3	229.3			2
	25	★	MDW0700XHGS25	200.8	211.3	264.3			2
	30	★	MDW0700XHGS30	235.8	246.3	299.3		2	
7.1	3	★	MDW0710PHT	27.9	38.5	95.0	1.0	8.0	1
	10	★	MDW0710XHGS10	103.7	114.3	170.3	1.3		2
	12		MDW0710XHGS12	116.7	127.3	183.3			2
	15	★	MDW0710XHGS15	138.7	149.3	205.3			2
	20	★	MDW0710XHGS20	176.7	187.3	243.3			2
	25	★	MDW0710XHGS25	213.7	224.3	280.3			2
	30	★	MDW0710XHGS30	251.7	262.3	318.3		2	
7.2	3	★	MDW0720PHT	27.7	38.5	95.0	1.0	8.0	1
	10	★	MDW0720XHGS10	103.5	114.3	170.3	1.3		2
	12		MDW0720XHGS12	116.5	127.3	183.3			2
	15	★	MDW0720XHGS15	138.5	149.3	205.3			2
	20	★	MDW0720XHGS20	176.5	187.3	243.3			2
	25	★	MDW0720XHGS25	213.5	224.3	280.3			2
	30	★	MDW0720XHGS30	251.5	262.3	318.3		2	
7.3	3	★	MDW0730PHT	27.6	38.5	95.0	1.0	8.0	1
	10	★	MDW0730XHGS10	103.4	114.3	170.3	1.3		2
	12		MDW0730XHGS12	116.4	127.3	183.3			2
	15	★	MDW0730XHGS15	138.4	149.3	205.3			2
	20	★	MDW0730XHGS20	176.4	187.3	243.3			2
	25	★	MDW0730XHGS25	213.4	224.3	280.3			2
	30	★	MDW0730XHGS30	251.4	262.3	318.3		2	

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Diameter ø7.4 to 8.0mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
7.4	3	★	MDW0740PHT	27.4	38.5	95.0	1.0	8.0	1
	10	★	MDW0740XHGS10	103.2	114.3	170.3	1.3		2
	12	★	MDW0740XHGS12	116.2	127.3	183.3			2
	15	★	MDW0740XHGS15	138.2	149.3	205.3			2
	20	★	MDW0740XHGS20	176.2	187.3	243.3			2
	25	★	MDW0740XHGS25	213.2	224.3	280.3			2
	30	★	MDW0740XHGS30	251.2	262.3	318.3		2	
7.5	3	★	MDW0750PHT	27.3	38.5	95.0	1.0	8.0	1
	10	★	MDW0750XHGS10	103.2	114.4	170.4	1.4		2
	12	★	MDW0750XHGS12	116.2	127.4	183.4			2
	15	★	MDW0750XHGS15	138.2	149.4	205.4			2
	20	★	MDW0750XHGS20	176.2	187.4	243.4			2
	25	★	MDW0750XHGS25	213.2	224.4	280.4			2
	30	★	MDW0750XHGS30	251.2	262.4	318.4		2	
7.6	3	★	MDW0760PHT	29.6	41.0	95.0	1.0	8.0	1
	10	★	MDW0760XHGS10	110.0	121.4	175.4	1.4		2
	12	★	MDW0760XHGS12	126.0	137.4	191.4			2
	15	★	MDW0760XHGS15	150.0	161.4	215.4			2
	20	★	MDW0760XHGS20	190.0	201.4	255.4			2
	25	★	MDW0760XHGS25	230.0	241.4	295.4			2
	30	★	MDW0760XHGS30	270.0	281.4	335.4		2	
7.7	3	★	MDW0770PHT	29.5	41.0	95.0	1.0	8.0	1
	10	★	MDW0770XHGS10	109.9	121.4	175.4	1.4		2
	12	★	MDW0770XHGS12	125.9	137.4	191.4			2
	15	★	MDW0770XHGS15	149.9	161.4	215.4			2
	20	★	MDW0770XHGS20	189.9	201.4	255.4			2
	25	★	MDW0770XHGS25	229.9	241.4	295.4			2
	30	★	MDW0770XHGS30	269.9	281.4	335.4		2	
7.8	3	★	MDW0780PHT	29.3	41.0	95.0	1.0	8.0	1
	10	★	MDW0780XHGS10	109.7	121.4	175.4	1.4		2
	12	★	MDW0780XHGS12	125.7	137.4	191.4			2
	15	★	MDW0780XHGS15	149.7	161.4	215.4			2
	20	★	MDW0780XHGS20	189.7	201.4	255.4			2
	25	★	MDW0780XHGS25	229.7	241.4	295.4			2
	30	★	MDW0780XHGS30	269.7	281.4	335.4		2	
7.9	3	★	MDW0790PHT	29.3	41.1	95.1	1.1	8.0	1
	10	★	MDW0790XHGS10	109.6	121.4	175.4	1.4		2
	12	★	MDW0790XHGS12	125.6	137.4	191.4			2
	15	★	MDW0790XHGS15	149.6	161.4	215.4			2
	20	★	MDW0790XHGS20	189.6	201.4	255.4			2
	25	★	MDW0790XHGS25	229.6	241.4	295.4			2
	30	★	MDW0790XHGS30	269.6	281.4	335.4		2	
8.0	3	★	MDW0800PHT	29.1	41.1	95.1	1.1	8.0	1
	10	★	MDW0800XHGS10	109.5	121.5	175.5	1.5		2
	12	★	MDW0800XHGS12	125.5	137.5	191.5			2
	15	★	MDW0800XHGS15	149.5	161.5	215.5			2
	20	★	MDW0800XHGS20	189.5	201.5	255.5			2
	25	★	MDW0800XHGS25	229.5	241.5	295.5			2
	30	★	MDW0800XHGS30	269.5	281.5	335.5		2	

Part Number Suffix PHT: For Guide Hole
Grade: ACX70 (XHGS) / ACX20 (PHT)

Deep Hole Drilling XHGS / PHT (Internal Coolant Supply)

Carbon Steel
Alloy Steel
up to 0.28%

Carbon Steel
Alloy Steel
from 0.28%

Tempered
Steel

Hardened
Steel
up to 45HRC

Stainless
Steel

Cast Iron

Ductile
Cast Iron



10D 12D 15D 20D 25D 30D Pilot 3D

*Refer to N74 for the tolerance of h6, h8 and e8

Fig. 1 (PHT Type)

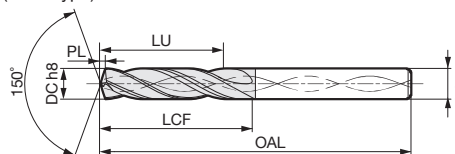
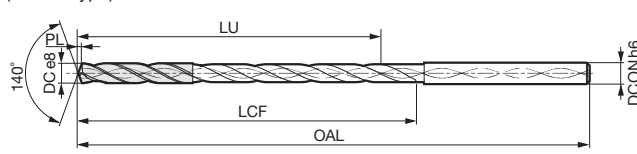


Fig. 2 (XHGS Type)



Diameter ø8.5 to 11.5mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
8.5	3	★	MDW0850PHT	30.9	43.6	101.1	1.1	9.0	1
	10	★	MDW0850XHGS10	116.8	129.5	186.5	1.5		2
	12	★	MDW0850XHGS12	131.8	144.5	201.5			2
	15	★	MDW0850XHGS15	156.8	169.5	226.5			2
	20	★	MDW0850XHGS20	199.8	212.5	269.5			2
	25	★	MDW0850XHGS25	241.8	254.5	311.5			2
	30	★	MDW0850XHGS30	284.8	297.5	354.5			2
9.0	3	★	MDW0900PHT	32.7	46.2	101.2	1.2	9.0	1
	10	★	MDW0900XHGS10	123.1	136.6	191.6	1.6		2
	12	★	MDW0900XHGS12	141.1	154.6	209.6			2
	15	★	MDW0900XHGS15	168.1	181.6	236.6			2
	20	★	MDW0900XHGS20	213.1	226.6	281.6			2
	25	★	MDW0900XHGS25	258.1	271.6	326.6			2
	30	★	MDW0900XHGS30	303.1	316.6	371.6			2
9.5	3	★	MDW0950PHT	34.6	48.8	107.3	1.3	10.0	1
	10	★	MDW0950XHGS10	130.5	144.7	202.7	1.7		2
	12	★	MDW0950XHGS12	147.5	161.7	219.7			2
	15	★	MDW0950XHGS15	175.5	189.7	247.7			2
	20	★	MDW0950XHGS20	223.5	237.7	295.7			2
	25	★	MDW0950XHGS25	270.5	284.7	342.7			2
	30	★	MDW0950XHGS30	318.5	332.7	390.7			2
10.0	3	★	MDW1000PHT	36.3	51.3	107.3	1.3	10.0	1
	10	★	MDW1000XHGS10	136.8	151.8	207.8	1.8		2
	12	★	MDW1000XHGS12	156.8	171.8	227.8			2
	15	★	MDW1000XHGS15	186.8	201.8	257.8			2
	20	★	MDW1000XHGS20	236.8	251.8	307.8			2
	25	★	MDW1000XHGS25	286.8	301.8	357.8			2
	30	★	MDW1000XHGS30	336.8	351.8	407.8			2
10.5	3	★	MDW1050PHT	38.2	53.9	117.4	1.4	11.0	1
	10	★	MDW1050XHGS10	144.2	159.9	222.9	1.9		2
	12	★	MDW1050XHGS12	163.2	178.9	241.9			2
	15	★	MDW1050XHGS15	194.2	209.9	272.9			2
	20	★	MDW1050XHGS20	247.2	262.9	325.9			2
	25	★	MDW1050XHGS25	299.2	314.9	377.9			2
11.0	3	★	MDW1100PHT	40.0	56.5	117.5		1.5	11.0
	10	★	MDW1100XHGS10	150.5	167.0	228.0	2.0	2	
	12	★	MDW1100XHGS12	172.5	189.0	250.0		2	
	15	★	MDW1100XHGS15	205.5	222.0	283.0		2	
	20	★	MDW1100XHGS20	260.5	277.0	338.0		2	
	25	★	MDW1100XHGS25	315.5	332.0	393.0		2	
11.5	3	★	MDW1150PHT	41.8	59.0	123.5		1.5	12.0
	10	★	MDW1150XHGS10	157.9	175.1	239.1	2.1	2	
	12	★	MDW1150XHGS12	178.9	196.1	260.1		2	
	15	★	MDW1150XHGS15	212.9	230.1	294.1		2	
	20	★	MDW1150XHGS20	270.9	288.1	352.1		2	
	25	★	MDW1150XHGS25	327.9	345.1	409.1		2	

Part Number Suffix PHT: For Guide Hole Grade: ACX70 (XHGS) / ACX20 (PHT)

Recommended Cutting Conditions

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

Dia. DC (mm)	Cutting Conditions	Mild Steel (up to 200HB)	General Steel (up to 250HB)	Alloy Steel (up to 300HB)	Hardened Steel (up to 40HRC)	Gray Cast Iron Ductile Cast Iron
ø3.0	v_c	50 - 80	60 - 100	40 - 70	30 - 50	40 - 70
	f	0.12 - 0.20	0.12 - 0.20	0.10 - 0.16	0.06 - 0.12	0.15 - 0.23
ø5.0	v_c	50 - 80	60 - 100	50 - 70	30 - 55	50 - 70
	f	0.15 - 0.25	0.15 - 0.30	0.12 - 0.20	0.08 - 0.14	0.17 - 0.35
ø10.0	v_c	50 - 90	60 - 110	50 - 80	30 - 60	50 - 80
	f	0.20 - 0.30	0.20 - 0.32	0.15 - 0.25	0.10 - 0.20	0.25 - 0.35
ø16.0	v_c	60 - 100	60 - 120	50 - 80	40 - 70	50 - 80
	f	0.25 - 0.35	0.25 - 0.35	0.15 - 0.27	0.12 - 0.23	0.25 - 0.35

Note: Use lower speed when using MQL coolant, and higher speed when using internal coolant supply or dual-liquid mist.

Min. - Max.

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Deep Hole Drilling XHV / PHV (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.29%
Tempered Steel
Hardened Steel up to 45HRC
Stainless Steel
Cast Iron
Ductile Cast Iron

DEX
Coating

Coolant Hole

12D

20D

Pilot
3D

Fig. 1 (PHV Type)

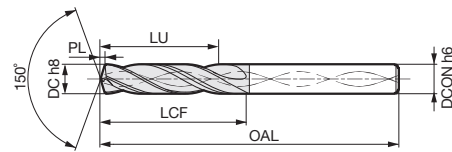
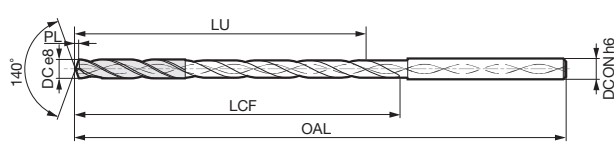


Fig. 2 (XHV Type)



Diameter $\phi 0.125"$ to $0.332"$

Dimensions (inch)

Dia. DC	Fraction	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Shank Dia. DCON	Fig
0.125	1/8	3	• MDW01250PHV	0.516	0.703	2.672	0.157	2	1
		12	• MDW1250XHV12	1.772	1.890	3.780			2
		20	• MDW1250XHV20	2.834	2.952	4.842			2
0.141	9/64	3	• MDW01406PHV	0.680	0.891	2.828	0.157	2	1
		12	• MDW1406XHV12	2.126	2.244	4.134			2
		20	• MDW1406XHV20	3.464	3.582	5.472			2
0.156	5/32	3	• MDW01563PHV	0.657	0.891	2.828	0.157	2	1
		12	• MDW1563XHV12	2.362	2.480	4.370			2
		20	• MDW1563XHV20	3.464	3.582	5.472			2
0.172	13/64	3	• MDW01719PHV	0.726	1.078	3.156	0.236	2	1
		12	• MDW1719XHV12	2.520	2.638	4.607			2
		20	• MDW1719XHV20	4.331	4.449	6.418			2
0.188	3/16	3	• MDW01875PHV	0.796	1.078	3.156	0.236	2	1
		12	• MDW1875XHV12	3.071	3.189	5.158			2
		20	• MDW1875XHV25	4.527	4.645	6.614			2
0.203	13/64	3	• MDW02031PHV	0.774	1.078	3.234	0.236	2	1
		12	• MDW2031XHV12	3.071	3.189	5.158			2
		20	• MDW2031XHV25	4.527	4.645	6.614			2
0.213	#3	3	• MDW02131PHV	0.759	1.078	3.234	0.236	2	1
		12	• MDW2131XHV12	3.071	3.189	5.158			2
		20	• MDW2131XHV20	5.433	5.551	7.520			2
0.219	7/32	3	• MDW02187PHV	0.750	1.078	3.234	0.236	2	1
		12	• MDW2187XHV12	3.346	3.465	5.433			2
		20	• MDW2187XHV20	5.433	5.551	7.520			2
0.250	1/4	3	• MDW02500PHV	0.906	1.281	3.469	0.315	2	1
		12	• MDW2500XHV12	3.937	4.055	6.102			2
		20	• MDW2500XHV20	5.748	5.866	7.913			2
0.257	#F	3	• MDW02570PHV	0.990	1.375	3.469	0.315	2	1
		12	• MDW2570XHV12	3.937	4.055	6.102			2
		20	• MDW2570XHV20	5.748	5.866	7.913			2
0.266	17/64	3	• MDW02656PHV	0.976	1.375	3.469	0.315	2	1
		12	• MDW2656XHV12	3.937	4.055	6.102			2
		20	• MDW2656XHV20	5.748	5.866	7.913			2
0.281	9/32	3	• MDW02813PHV	1.063	1.484	3.703	0.315	2	1
		12	• MDW2813XHV12	4.331	4.449	6.496			2
		20	• MDW2813XHV20	6.929	7.047	9.094			2
0.297	19/64	3	• MDW02969PHV	1.029	1.484	3.703	0.315	2	1
		12	• MDW2969XHV12	4.331	4.449	6.496			2
		20	• MDW2969XHV20	6.929	7.047	9.094			2
0.313	5/16	3	• MDW03125PHV	1.109	1.578	3.703	0.315	2	1
		12	• MDW3125XHV12	4.331	4.449	6.496			2
		20	• MDW3125XHV20	6.929	7.047	9.094			2
0.328	21/64	3	• MDW03281PHV	1.180	1.672	3.938	0.394	1	1
		12	• MDW3281XHV12	1.174	1.672	3.938			2
		20	• MDW3281XHV20	5.433	5.551	7.677			2
0.332	#Q	3	• MDW03320PHV	1.174	1.672	3.938	0.394	2	1
		12	• MDW3320XHV12	5.433	5.551	7.677			2
		20	• MDW3320XHV20	8.661	8.779	10.905			2

Part Number Suffix PHV: For Guide Hole

Diameter $\phi 0.344"$ to $0.750"$

Dimensions (inch)

Dia. DC	Fraction	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Shank Dia. DCON	Fig
0.344	11/32"	3	• MDW03438PHV	1.250	1.766	3.938	0.394	2	1
		12	• MDW3438XHV12	5.433	5.551	7.677			2
		20	• MDW3438XHV20	8.661	8.779	10.905			2
0.359	23/64"	3	• MDW03594PHV	1.228	1.766	3.938	0.394	2	1
		12	• MDW3594XHV12	5.433	5.551	7.677			2
		20	• MDW3594XHV20	8.661	8.779	10.905			2
0.375	3/8"	3	• MDW03750PHV	1.313	1.875	4.172	0.394	2	1
		12	• MDW3750XHV12	5.433	5.551	7.677			2
		20	• MDW3750XHV20	8.661	8.779	10.905			2
0.391	25/64"	3	• MDW03906PHV	1.383	1.969	4.172	0.394	2	1
		12	• MDW3906XHV12	5.433	5.551	7.677			2
		20	• MDW3906XHV20	8.661	8.779	10.905			2
0.406	13/32	3	• MDW04063PHV	1.438	2.047	4.563	0.472	2	1
		12	• MDW4063XHV12	6.220	6.339	8.543			2
		20	• MDW4063XHV20	10.394	10.508	12.713			2
0.422	27/64	3	• MDW04219PHV	1.539	2.172	4.563	0.472	2	1
		12	• MDW4219XHV12	6.220	6.339	8.543			2
		20	• MDW4219XHV20	10.394	10.508	12.713			2
0.437	7/16	3	• MDW04375PHV	1.517	2.172	4.563	0.472	2	1
		12	• MDW4375XHV12	6.220	6.339	8.543			2
		20	• MDW4375XHV20	10.394	10.508	12.713			2
0.453	29/64	3	• MDW04531PHV	1.602	2.281	4.813	0.472	2	1
		12	• MDW4531XHV12	6.220	6.339	8.543			2
		20	• MDW4531XHV20	10.394	10.508	12.713			2
0.469	15/32	3	• MDW04688PHV	1.656	2.359	4.813	0.472	2	1
		12	• MDW4688XHV12	6.220	6.339	8.543			2
		20	• MDW4688XHV20	10.394	10.508	12.713			2
0.484	31/64	3	• MDW04844PHV	1.743	2.469	5.032	0.551	2	1
		12	• MDW4844XHV12	7.165	7.283	9.566			2
		20	• MDW4844XHV20	12.126	12.238	14.521			2
0.500	1/2	3	• MDW05000PHV	1.812	2.562	5.032	0.551	2	1
		12	• MDW5000XHV12	7.165	7.283	9.566			2
		20	• MDW5000XHV20	12.126	12.238	14.521			2
0.531	17/32	3	• MDW05312PHV	1.860	2.656	5.281	0.551	2	1
		12	• MDW5312XHV12	7.165	7.283	9.566			2
		20	• MDW5312XHV20	12.126	12.238	14.521			2
0.562	9/16	3	• MDW05625PHV	2.016	2.859	5.516	0.630	2	1
		12	• MDW5625XHV12	8.189	8.307	10.669			2
		20	• MDW5625XHV20	12.126	12.238	14.521			2
0.625	5/8	3	• MDW06250PHV	2.219	3.156	5.750	0.630	2	1
		12	• MDW6250XHV12	8.189	8.307	10.669			2
		20	• MDW6250XHV20	12.126	12.238	14.521			2
0.750	3/4	3	• MDW07500PHV	2.625	3.750	6.453	0.787	2	1
		12	• MDW7500XHV12	10.157	10.268	12.709			2

•: USA Stocked Item

Tolerance of Diameters		
ϕD	Tolerance	
.1181 < ϕD ≤ .2362	-.00080	-.00145
.2362 < ϕD ≤ .3937	-.00080	-.00165
.3937 < ϕD ≤ .7087	-.00080	-.00185

Recommended Cutting Conditions

Vc= SFM / m/min

f= IPR / mm/rev

	General Steel (>300HB)	Hardened Steel (>45HRC)	Stainless Steel (>200HB)	Gray Cast Iron	Ductile Iron
~ $\phi 0.125$ in	Vc 165~330 / 50~100 f 0.003~0.006 / 0.08~0.15	Vc 65~130 / 20~40 f 0.002~0.003 / 0.06~0.05	Vc 100~165 / 30~50 f 0.002~0.005 / 0.06~0.12	Vc 165~295 / 50~90 f 0.006~0.010 / 0.15~0.25	Vc 130~260 / 40~80 f 0.005~0.008 / 0.12~0.20
$\phi 0.125 \sim \phi 0.203$ in	Vc 260~395 / 80~120 f 0.006~0.010 / 0.15~0.25	Vc 65~130 / 20~40 f 0.003~0.004 / 0.08~0.10	Vc 100~195 / 30~60 f 0.003~0.006 / 0.08~0.15	Vc 165~295 / 50~90 f 0.006~0.012 / 0.15~0.30	Vc 130~260 / 40~80 f 0.0



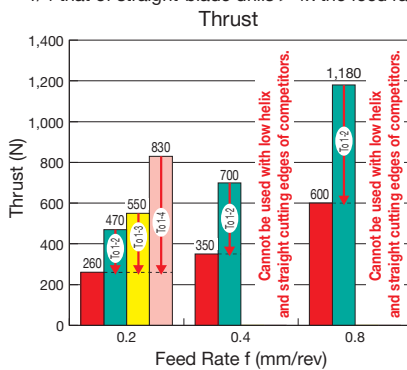
Product Range (Stocked Sizes)

Coolant Supply	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)
Internal	MDW□□□□NHGS3	ø3.0 to 16.0	up to 3
	MDW□□□□NHGS5		up to 5
	MDW□□□□NHGS10	ø3.0 to 13.0	up to 10

Performance

Cutting force

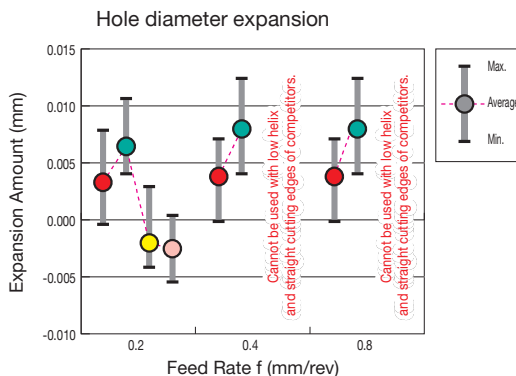
- Low cutting force, achieving 2 to 4 times the feed rate
The cutting force of the NHGS is
1/2 that of competitors' 30° helix drills > double the feed rate!
1/3 that of competitors' light helix drills > 3x the feed rate!
1/4 that of straight-blade drills > 4x the feed rate!



Tool: MDW 0800NHGS5 (DL1300) Part Material: Aluminum Alloy Die Casting
Cutting Speed: $v_c=656$ SFM Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa) Coolant: Emulsion (dilute to around 25x)

Machined hole accuracy (hole expansion)

- Stable hole accuracy with hole expansion within 0.01mm
Achieves minimal expansion and stable machining from low to high feed rates



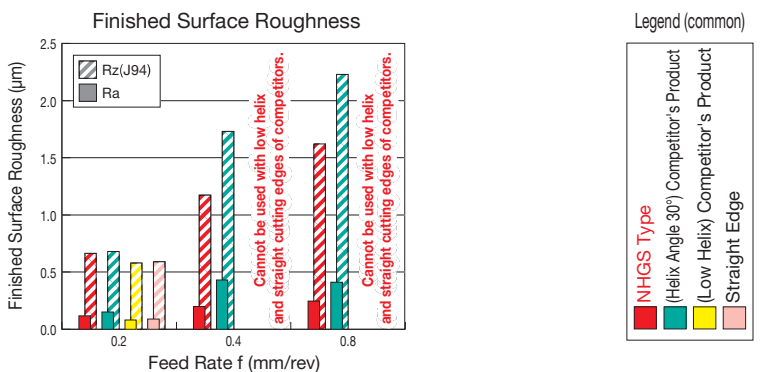
Tool: MDW 0800NHGS5 (DL1300) Part Material: Aluminum Alloy Die Casting
Cutting Speed: $v_c=656$ SFM Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa) Coolant: Emulsion (dilute to around 25x)

Features

- High-efficiency drilling
DLC Coating (AURORA Coat) and low resistance WL (Wide L) thinning drastically reduce cutting force.
- Stable drilling performance
Special cutting edge design and WW (Wide W) margin improve hole quality.
- Long tool life
DLC Coating (AURORA Coat) coupled with the cutting edge shape achieves a long and stable tool life.
- Deep hole drilling
Drills for deep hole drilling can be made to order.
(Production range: Drill diameters: ø3.0 to ø16.0mm
Overall length: Available on inquiry)

Machined surface quality

- Achieves good surface roughness over a wide range of feed rates
Good surface roughness from low to high feed rates:
 $Ra=0.11$ to 0.25
 Rz (J94)= 0.66 to 1.62



Tool: MDW 0800NHGS5 (DL1300) Part Material: Aluminum Alloy Die Casting
Cutting Speed: $v_c=656$ SFM Machine: Vertical machining center (BT30)
Coolant: Internal supply (1.5MPa) Coolant: Emulsion (dilute to around 25x)

Machined hole accuracy (hole position accuracy)

- Pre-cast hole accuracy within $\pm 1/10$ to $\pm 1/5$ of axial offset

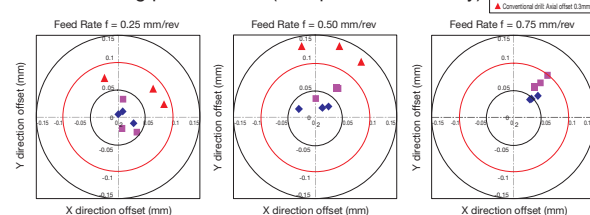
Pre-cast hole accuracy (hole position accuracy)

Feed Rate	0.25mm/rev	0.50mm/rev	0.75mm/rev
0.3mm	± 0.03 mm	± 0.04 mm	± 0.06 mm
0.5mm	± 0.05 mm	± 0.07 mm	± 0.10 mm
Conventional drill: 0.3mm	± 0.09 mm	± 0.19 mm	

Test method

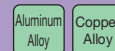
An axial offset of 0.3mm to 0.5mm is set for a virtual pre-cast hole (ø6.8) and a hole is drilled with an ø8.5 drill before measuring the deviation from the target position.

Pre-cast drilling performance (hole position accuracy)



Tool: MDW 0850NHGS5 (DL1300) Part Material: Aluminum Alloy
Cutting Speed: $v_c=656$ SFM (n=7, 489 RPM) Machine: Vertical machining center (BT30)
Coolant: Internal supply

DLC Coating Drills NHGS Series (Internal Coolant Supply)



*Refer to N74 for the tolerance of h6

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

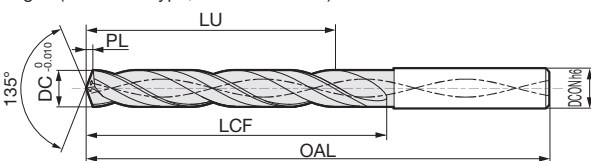
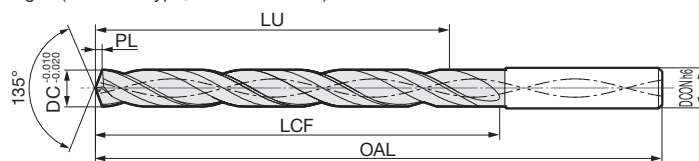


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter ø1.59 to 4.20mm (0.0625" to 0.1654") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
1.59	0.0625	1/16			5	●	MDW00625NHGS5S	16.95	0.6672	19.33	0.7609	70.33	2.7690	0.33	0.0129	3.00	0.1181	1
2.57	0.1010				5	●	MDW01010NHGS5S	24.67	0.9714	28.52	1.1229	78.54	3.0920	0.53	0.0209	3.00	0.1181	1
3.00	0.1181				3	●	MDW0300NHGS3	13.60	0.5354	18.10	0.7126	68.60	2.7008	0.60	0.0236	3.00	0.1181	1
					5	●	MDW0300NHGS5	24.10	0.9488	28.60	1.1260	78.60	3.0945					1
					10	●	MDW0300NHGS10	38.10	1.5000	42.60	1.6772	92.60	3.6457					2
3.05	0.1200	#31			5	●	MDW01200NHGS5S	28.06	1.1049	32.64	1.2849	86.64	3.4110	0.63	0.0249	4.00	0.1575	1
3.10	0.1220				3	●	MDW0310NHGS3	16.00	0.6299	20.60	0.8110	72.60	2.8583	0.60	0.0236	4.00	0.1575	1
					5	●	MDW0310NHGS5	28.00	1.1024	32.60	1.2835	86.60	3.4094					1
					10	●	MDW0310NHGS10	45.00	1.7717	49.60	1.9528	106.60	4.1969					2
3.18	0.1250	1/8		6-32	3	●	MDW01250NHGS3S	15.89	0.6254	20.65	0.8129	72.67	2.8610	0.66	0.0259	4.00	0.1575	1
					5	●	MDW01250NHGS5S	27.90	1.0984	32.66	1.2859	86.66	3.4120					1
3.20	0.1260				3	●	MDW0320NHGS3	15.90	0.6260	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDW0320NHGS5	27.90	1.0984	32.70	1.2874	86.70	3.4134					1
					10	●	MDW0320NHGS10	44.90	1.7677	49.70	1.9567	106.70	4.2008					2
3.30	0.1299				3	●	MDW0330NHGS3	15.70	0.6181	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDW0330NHGS5	27.70	1.0906	32.70	1.2874	86.70	3.4134					1
					10	●	MDW0330NHGS10	44.70	1.7598	49.70	1.9567	106.70	4.2008					2
3.40	0.1339		M4x.7		3	●	MDW0340NHGS3	15.60	0.6142	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDW0340NHGS5	27.60	1.0866	32.70	1.2874	86.70	3.4134					1
					10	●	MDW0340NHGS10	44.60	1.7559	49.70	1.9567	106.70	4.2008					2
3.50	0.1378		8-32		3	●	MDW0350NHGS3	15.50	0.6102	20.70	0.8150	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	●	MDW0350NHGS5	27.50	1.0827	32.70	1.2874	86.70	3.4134					1
					10	●	MDW0350NHGS10	44.50	1.7520	49.70	1.9567	106.70	4.2008					2
3.60	0.1417				3	●	MDW0360NHGS3	17.80	0.7008	23.20	0.9134	72.70	2.8622	0.70	0.0276	4.00	0.1575	1
					5	★	MDW0360NHGS5	31.30	1.2323	36.70	1.4449	86.70	3.4134					1
					10	●	MDW0360NHGS10	51.30	2.0197	56.70	2.2323	106.70	4.2008					2
3.65	0.1437				3	●	MDW0365NHGS3	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	★	MDW0365NHGS5	31.30	1.2323	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0365NHGS10	51.30	2.0197	56.80	2.2362	106.80	4.2047					2
3.66	0.1441	#27		M4x.7	3	●	MDW0366NHGS3	17.80	0.7008	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	MDW0366NHGS5	31.30	1.2323	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0366NHGS10	51.30	2.0197	56.80	2.2362	106.80	4.2047					2
3.70	0.1457		M4.5x.7		3	●	MDW0370NHGS3	17.70	0.6969	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	MDW0370NHGS5	31.20	1.2283	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0370NHGS10	51.20	2.0157	56.80	2.2362	106.80	4.2047					2
3.80	0.1496			8-32	3	●	MDW0380NHGS3	17.60	0.6929	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	MDW0380NHGS5	31.10	1.2244	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0380NHGS10	51.10	2.0118	56.80	2.2362	106.80	4.2047					2
3.80	0.1495	#25			5	●	MDW01495NHGS5S	31.08	1.2238	36.78	1.4480	86.79	3.4170	0.79	0.0310	4.00	0.1575	1
3.90	0.1535				3	●	MDW0390NHGS3	17.50	0.6890	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	MDW0390NHGS5	31.00	1.2205	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0390NHGS10	51.00	2.0079	56.80	2.2362	106.80	4.2047					2
3.97	0.1562	5/32			3	●	MDW01562NHGS3S	17.38	0.6841	23.33	0.9184	72.82	2.8670	0.82	0.0324	4.00	0.1575	1
					5	●	MDW01562NHGS5S	30.86	1.2151	36.81	1.4494	86.82	3.4180					1
4.00	0.1575				3	●	MDW0400NHGS3	17.30	0.6811	23.30	0.9173	72.80	2.8661	0.80	0.0315	4.00	0.1575	1
					5	●	MDW0400NHGS5	30.80	1.2126	36.80	1.4488	86.80	3.4173					1
					10	●	MDW0400NHGS10	50.80	2.0000	56.80	2.2362	106.80	4.2047					2
4.10	0.1614		10-32		3	●	MDW0410NHGS3	19.70	0.7756	25.80	1.0157	80.80	3.1811	0.80	0.0315	5.00	0.1969	1
					5	●	MDW0410NHGS5	34.70	1.3661	40.80	1.6063	98.80	3.8898					1
					10	●	MDW0410NHGS10	57.70	2.2717	63.80	2.5118	121.80	4.7953					2
4.20	0.1654				3	●	MDW0420NHGS3	19.60	0.7717	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	●	MDW0420NHGS5	34.60	1.3622	40.90	1.6102	98.90	3.8937					1
					10	●	MDW0420NHGS10	57.60	2.2677	63.90	2.5157	121.90	4.7992					2

Grade: DL1300

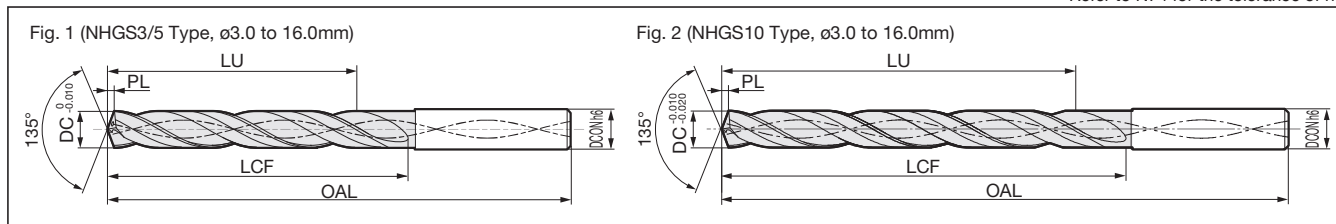
● : USA Stock Item

DLC Coating Drills NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



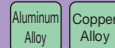
*Refer to N74 for the tolerance of h6



Diameter $\phi 4.30$ to 5.80mm (0.1693" to 0.2283") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
4.30	0.1693		M5x.8		3		MDW0430NHGS3	19.40	0.7638	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	●	MDW0430NHGS5	34.40	1.3543	40.90	1.6102	98.90	3.8937					1
					10		MDW0430NHGS10	57.40	2.2598	63.90	2.5157	121.90	4.7992					2
4.40	0.1732				3		MDW0440NHGS3	19.30	0.7598	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	★	MDW0440NHGS5	34.30	1.3504	40.90	1.6102	98.90	3.8937					1
					10		MDW0440NHGS10	57.30	2.2559	63.90	2.5157	121.90	4.7992					2
4.50	0.1772	#16		10-32	3	●	MDW0450NHGS3	19.20	0.7559	25.90	1.0197	80.90	3.1850	0.90	0.0354	5.00	0.1969	1
					5	★	MDW0450NHGS5	34.20	1.3465	40.90	1.6102	98.90	3.8937					1
					10	●	MDW0450NHGS10	57.20	2.2520	63.90	2.5157	121.90	4.7992					2
4.60	0.1811				3	●	MDW0460NHGS3	21.60	0.8504	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	★	MDW0460NHGS5	38.10	1.5000	45.00	1.7717	99.00	3.8976					1
					10		MDW0460NHGS10	64.10	2.5236	71.00	2.7953	122.00	4.8031					2
4.70	0.1850	#13	12-28		3		MDW0470NHGS3	21.40	0.8425	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0470NHGS5	37.90	1.4921	45.00	1.7717	99.00	3.8976					1
					10		MDW0470NHGS10	63.90	2.5157	71.00	2.7953	122.00	4.8031					2
4.76	0.1875	3/16		M5x.8	3	●	MDW01875NHGS3S	21.35	0.8406	28.49	1.1218	80.98	3.1880	0.99	0.0388	6.00	0.2362	1
					5	●	MDW01875NHGS5S	37.84	1.4896	44.98	1.7708	98.98	3.8970					1
4.80	0.1890	#12			3		MDW0480NHGS3	21.30	0.8386	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0480NHGS5	37.80	1.4882	45.00	1.7717	99.00	3.8976					1
					10		MDW0480NHGS10	63.80	2.5118	71.00	2.7953	122.00	4.8031					2
4.90	0.1929				3		MDW0490NHGS3	21.20	0.8346	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	★	MDW0490NHGS5	37.70	1.4843	45.00	1.7717	99.00	3.8976					1
					10	●	MDW0490NHGS10	63.70	2.5079	71.00	2.7953	122.00	4.8031					2
5.00	0.1969			12-24	3	●	MDW0500NHGS3	21.00	0.8268	28.50	1.1220	81.00	3.1890	1.00	0.0394	5.00	0.1969	1
					5	●	MDW0500NHGS5	37.50	1.4764	45.00	1.7717	99.00	3.8976					1
					10	●	MDW0500NHGS10	63.50	2.5000	71.00	2.7953	122.00	4.8031					2
5.10	0.2008			12-28	3		MDW0510NHGS3	20.90	0.8228	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0510NHGS5	37.40	1.4724	45.10	1.7756	101.10	3.9803					1
					10	●	MDW0510NHGS10	70.40	2.7717	78.10	3.0748	137.10	5.3976					2
5.11	0.2010	#7			5	●	MDW02010NHGS5S	37.39	1.4721	45.05	1.7736	101.07	3.9790	1.06	0.0416	6.00	0.2362	1
5.20	0.2047				3	●	MDW0520NHGS3	20.80	0.8189	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0520NHGS5	37.30	1.4685	45.10	1.7756	101.10	3.9803					1
					10		MDW0520NHGS10	70.30	2.7677	78.10	3.0748	137.10	5.3976					2
5.30	0.2087				3	●	MDW0530NHGS3	20.60	0.8110	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	★	MDW0530NHGS5	37.10	1.4606	45.10	1.7756	101.10	3.9803					1
					10		MDW0530NHGS10	70.10	2.7598	78.10	3.0748	137.10	5.3976					2
5.40	0.2126				3		MDW0540NHGS3	20.50	0.8071	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0540NHGS5	37.00	1.4567	45.10	1.7756	101.10	3.9803					1
					10		MDW0540NHGS10	70.00	2.7559	78.10	3.0748	137.10	5.3976					2
5.50	0.2165				3	★	MDW0550NHGS3	20.40	0.8031	28.60	1.1260	83.10	3.2717	1.10	0.0433	6.00	0.2362	1
					5	●	MDW0550NHGS5	36.90	1.4528	45.10	1.7756	101.10	3.9803					1
					10	●	MDW0550NHGS10	69.90	2.7520	78.10	3.0748	137.10	5.3976					2
5.56	0.2188	7/32	1/4-28 M6x.5	M6x1	3	●	MDW02188NHGS3S	22.81	0.8981	31.15	1.2263	83.16	3.2740	1.15	0.0453	6.00	0.2362	1
					5	●	MDW02188NHGS5S	40.82	1.6071	49.16	1.9353	101.14	3.9820					1
5.60	0.2205				3		MDW0560NHGS3	22.80	0.8976	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	★	MDW0560NHGS5	40.80	1.6063	49.20	1.9370	101.20	3.9843					1
					10		MDW0560NHGS10	76.80	3.0236	85.20	3.3543	137.20	5.4016					2
5.70	0.2244				3		MDW0570NHGS3	22.60	0.8898	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0570NHGS5	40.60	1.5984	49.20	1.9370	101.20	3.9843					1
					10		MDW0570NHGS10	76.60	3.0157	85.20	3.3543	137.20	5.4016					2
5.80	0.2283			1/4-20	3		MDW0580NHGS3	22.50	0.8858	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0580NHGS5	40.50	1.5945	49.20	1.9370	101.20	3.9843					1
					10		MDW0580NHGS10	76.50	3.0118	85.20	3.3543	137.20	5.4016					2

DLC Coating Drilling NHGS Series (Internal Coolant Supply)



*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

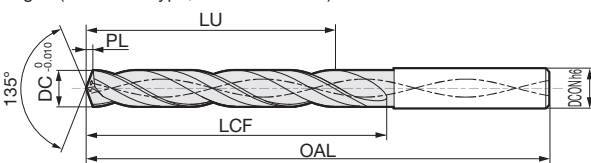
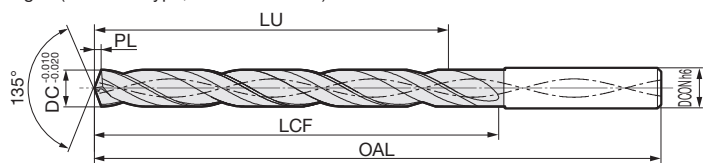


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter ø5.90 to 7.35mm (0.2323" to 0.2894") Dimensions (mm/inch)

Dia. DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
5.90	0.2323			1/4-20	3	★	MDW0590NHGS3	22.40	0.8819	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0590NHGS5	40.40	1.5906	49.20	1.9370	101.20	3.9843					1
					10	●	MDW0590NHGS10	76.40	3.0079	85.20	3.3543	137.20	5.4016					2
6.00	0.2362			1/4/28	3	●	MDW0600NHGS3	22.20	0.8740	31.20	1.2283	83.20	3.2756	1.20	0.0472	6.00	0.2362	1
					5	●	MDW0600NHGS5	40.20	1.5827	49.20	1.9370	101.20	3.9843					1
					10	●	MDW0600NHGS10	76.20	3.0000	85.20	3.3543	137.20	5.4016					2
6.10	0.2402		M7x1		3	★	MDW0610NHGS3	24.60	0.9685	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	★	MDW0610NHGS5	44.10	1.7362	53.30	2.0984	110.30	4.3425					1
					10	★	MDW0610NHGS10	83.10	3.2717	92.30	3.6339	152.30	5.9961					2
6.20	0.2441				3	●	MDW0620NHGS3	24.50	0.9646	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	MDW0620NHGS5	44.00	1.7323	53.30	2.0984	110.30	4.3425					1
					10	●	MDW0620NHGS10	83.00	3.2677	92.30	3.6339	152.30	5.9961					2
6.30	0.2480				3	●	MDW0630NHGS3	24.40	0.9606	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	MDW0630NHGS5	43.90	1.7283	53.30	2.0984	110.30	4.3425					1
					10	●	MDW0630NHGS10	82.90	3.2638	92.30	3.6339	152.30	5.9961					2
6.35	0.2500	1/4			3	●	MDW02500NHGS3S	24.30	0.9568	33.83	1.3318	89.31	3.5160	1.32	0.0518	8.00	0.3150	1
					5	●	MDW02500NHGS5S	43.78	1.7238	53.31	2.0988	110.31	4.3430					1
					10	●	MDW02500NHGS10S	83.10	3.2717	92.30	3.6339	152.30	5.9961					2
6.40	0.2520				3	●	MDW0640NHGS3	24.20	0.9528	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	●	MDW0640NHGS5	43.70	1.7205	53.30	2.0984	110.30	4.3425					1
					10	●	MDW0640NHGS10	82.70	3.2559	92.30	3.6339	152.30	5.9961					2
6.50	0.2559				3	●	MDW0650NHGS3	24.10	0.9488	33.80	1.3307	89.30	3.5157	1.30	0.0512	7.00	0.2756	1
					5	★	MDW0650NHGS5	43.60	1.7165	53.30	2.0984	110.30	4.3425					1
					10	●	MDW0650NHGS10	82.60	3.2520	92.30	3.6339	152.30	5.9961					2
6.60	0.2598		5/16-18	M7x1	3	●	MDW0660NHGS3	26.50	1.0433	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	MDW0660NHGS5	47.50	1.8701	57.40	2.2598	110.40	4.3465					1
					10	●	MDW0660NHGS10	89.50	3.5236	99.40	3.9134	152.40	6.0000					2
6.70	0.2638				3	●	MDW0670NHGS3	26.30	1.0354	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	MDW0670NHGS5	47.30	1.8622	57.40	2.2598	110.40	4.3465					1
					10	●	MDW0670NHGS10	89.30	3.5157	99.40	3.9134	152.40	6.0000					2
6.80	0.2677				3	●	MDW0680NHGS3	26.20	1.0315	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	MDW0680NHGS5	47.20	1.8583	57.40	2.2598	110.40	4.3465					1
					10	●	MDW0680NHGS10	89.20	3.5118	99.40	3.9134	152.40	6.0000					2
6.90	0.2717		M8x1.25		3	●	MDW0690NHGS3	26.10	1.0276	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	●	MDW0690NHGS5	47.10	1.8543	57.40	2.2598	110.40	4.3465					1
					10	●	MDW0690NHGS10	89.10	3.5079	99.40	3.9134	152.40	6.0000					2
7.00	0.2756		5/16-24		3	★	MDW0700NHGS3	25.90	1.0197	36.40	1.4331	89.40	3.5197	1.40	0.0551	7.00	0.2756	1
					5	★	MDW0700NHGS5	46.90	1.8465	57.40	2.2598	110.40	4.3465					1
					10	●	MDW0700NHGS10	88.90	3.5000	99.40	3.9134	152.40	6.0000					2
7.10	0.2795		M8x1		3	●	MDW0710NHGS3	28.30	1.1142	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	MDW0710NHGS5	50.80	2.0000	61.50	2.4213	119.50	4.7047					1
					10	●	MDW0710NHGS10	95.80	3.7717	106.50	4.1929	167.50	6.5945					2
7.14	0.2812	9/32	M8x1		3	●	MDW02812NHGS3S	28.25	1.1124	38.97	1.5342	95.48	3.7590	1.48	0.0582	8.00	0.3150	1
					5	●	MDW02812NHGS5S	50.76	1.9984	61.47	2.4202	119.48	4.7040					1
					10	●	MDW02812NHGS10S	95.70	3.7677	106.50	4.1929	167.50	6.5945					2
7.20	0.2835				3	●	MDW0720NHGS3	28.20	1.1102	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	MDW0720NHGS5	50.70	1.9961	61.50	2.4213	119.50	4.7047					1
					10	●	MDW0720NHGS10	95.70	3.7677	106.50	4.1929	167.50	6.5945					2
7.30	0.2874		M8x.75	5/16-18	3	●	MDW0730NHGS3	28.10	1.1063	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	MDW0730NHGS5	50.60	1.9921	61.50	2.4213	119.50	4.7047					1
					10	●	MDW0730NHGS10	95.60	3.7638	106.50	4.1929	167.50	6.5945					2
7.35	0.2894				3	●	MDW0735NHGS3	28.00	1.1024	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
					5	●	MDW0735NHGS5	50.50	1.9882	61.50	2.4213	119.50	4.7047					1
					10	●	MDW0735NHGS10	95.50	3.7598	106.50	4.1929	167.50	6.5945					2

Grade: DL1300

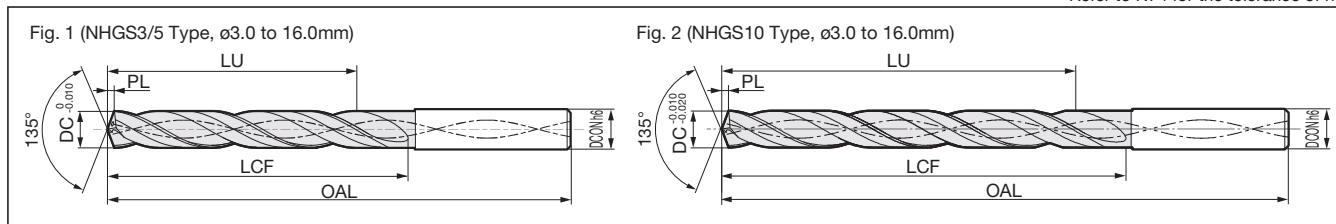
● : USA Stock Item

DLC Coating Drilling NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



*Refer to N74 for the tolerance of h6



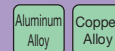
Diameter $\phi 7.40$ to 8.90mm (0.2913" to 0.3504") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
7.40	0.2913					3	● MDW0740NHGS3	27.90	1.0984	39.00	1.5354	95.50	3.7598	1.50	0.0591	8.00	0.3150	1
						5	● MDW0740NHGS5	50.40	1.9843	61.50	2.4213	119.50	4.7047					1
						10	● MDW0740NHGS10	95.40	3.7559	106.50	4.1929	167.50	6.5945					2
7.50	0.2953			5/16-24 / M8x1.25		3	● MDW0750NHGS3	27.80	1.0945	39.10	1.5394	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
						5	● MDW0750NHGS5	50.30	1.9803	61.60	2.4252	119.60	4.7087					1
						10	● MDW0750NHGS10	95.30	3.7520	106.60	4.1969	167.60	6.5984					2
7.60	0.2992			M8x1		3	● MDW0760NHGS3	30.20	1.1890	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
						5	● MDW0760NHGS5	54.20	2.1339	65.60	2.5827	119.60	4.7087					1
						10	● MDW0760NHGS10	102.20	4.0236	113.60	4.4724	167.60	6.5984					2
7.70	0.3031			M8x.75		3	● MDW0770NHGS3	30.00	1.1811	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
						5	● MDW0770NHGS5	54.00	2.1260	65.60	2.5827	119.60	4.7087					1
						10	● MDW0770NHGS10	102.00	4.0157	113.60	4.4724	167.60	6.5984					2
7.80	0.3071					3	● MDW0780NHGS3	29.90	1.1772	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
						5	● MDW0780NHGS5	53.90	2.1220	65.60	2.5827	119.60	4.7087					1
						10	● MDW0780NHGS10	101.90	4.0118	113.60	4.4724	167.60	6.5984					2
7.90	0.3110					3	● MDW0790NHGS3	29.80	1.1732	41.60	1.6378	95.60	3.7638	1.60	0.0630	8.00	0.3150	1
						5	● MDW0790NHGS5	53.80	2.1181	65.60	2.5827	119.60	4.7087					1
						10	● MDW0790NHGS10	101.80	4.0079	113.60	4.4724	167.60	6.5984					2
7.94	0.3125	5/16				3	● MDW03125NHGS3S	29.74	1.1710	41.65	1.6397	95.66	3.7660	1.64	0.0647	8.00	0.3150	1
						5	● MDW03125NHGS5S	53.75	2.1160	65.65	2.5847	119.63	4.7100					1
						10	● MDW0800NHGS3	29.70	1.1693	41.70	1.6417	95.70	3.7677	1.70	0.0669	8.00	0.3150	1
8.00	0.3150					5	● MDW0800NHGS5	53.70	2.1142	65.70	2.5866	119.70	4.7126					1
						10	● MDW0800NHGS10	101.70	4.0039	113.70	4.4764	167.70	6.6024					2
8.10	0.3189	3/8-16				3	● MDW0810NHGS3	32.00	1.2598	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
						5	● MDW0810NHGS5	57.50	2.2638	69.70	2.7441	128.70	5.0669					1
						10	● MDW0810NHGS10	108.50	4.2717	120.70	4.7520	182.70	7.1929					2
8.20	0.3228	3/8-16				3	● MDW0820NHGS3	31.90	1.2559	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
						5	● MDW0820NHGS5	57.40	2.2598	69.70	2.7441	128.70	5.0669					1
						10	● MDW0820NHGS10	108.40	4.2677	120.70	4.7520	182.70	7.1929					2
8.30	0.3268					3	● MDW0830NHGS3	31.80	1.2520	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
						5	● MDW0830NHGS5	57.30	2.2559	69.70	2.7441	128.70	5.0669					1
						10	● MDW0830NHGS10	108.30	4.2638	120.70	4.7520	182.70	7.1929					2
8.33	0.3281	21/64				3	● MDW03281NHGS3S	31.72	1.2489	44.22	1.7410	101.73	4.0050	1.73	0.0680	10.00	0.3937	1
						5	● MDW03281NHGS5S	57.22	2.2529	69.72	2.7450	128.73	5.0680					1
						10	● MDW0840NHGS3	31.60	1.2441	44.20	1.7402	101.70	4.0039	1.70	0.0669	9.00	0.3543	1
8.40	0.3307					5	● MDW0840NHGS5	57.10	2.2480	69.70	2.7441	128.70	5.0669					1
						10	● MDW0840NHGS10	108.10	4.2559	120.70	4.7520	182.70	7.1929					2
8.50	0.3346					3	● MDW0850NHGS3	31.50	1.2402	44.30	1.7441	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
						5	★ MDW0850NHGS5	57.00	2.2441	69.80	2.7480	128.80	5.0709					1
						10	● MDW0850NHGS10	108.00	4.2520	120.80	4.7559	182.80	7.1969					2
8.60	0.3386	3/8-24 / M10x1.5				3	● MDW0860NHGS3	33.90	1.3346	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
						5	● MDW0860NHGS5	60.90	2.3976	73.80	2.9055	128.80	5.0709					1
						10	● MDW0860NHGS10	114.90	4.5236	127.80	5.0315	182.80	7.1969					2
8.70	0.3425	M10x1.5				3	● MDW0870NHGS3	33.80	1.3307	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
						5	● MDW0870NHGS5	60.80	2.3937	73.80	2.9055	128.80	5.0709					1
						10	● MDW0870NHGS10	114.80	4.5197	127.80	5.0315	182.80	7.1969					2
8.80	0.3465			3/8-16		3	● MDW0880NHGS3	33.60	1.3228	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
						5	● MDW0880NHGS5	60.60	2.3858	73.80	2.9055	128.80	5.0709					1
						10	● MDW0880NHGS10	114.60	4.5118	127.80	5.0315	182.80	7.1969					2
8.90	0.3504			M10x1.25		3	● MDW0890NHGS3	33.50	1.3189	46.80	1.8425	101.80	4.0079	1.80	0.0709	9.00	0.3543	1
						5	● MDW0890NHGS5	60.50	2.3819	73.80	2.9055	128.80	5.0709					1
						10	● MDW0890NHGS10	114.50	4.5079	127.80	5.0315	182.80	7.1969					2

Grade: DL1300

● : USA Stock Item

DLC Coating Drilling NHGS Series (Internal Coolant Supply)



*Refer to N74 for the tolerance of h6

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

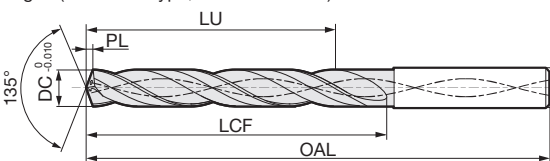
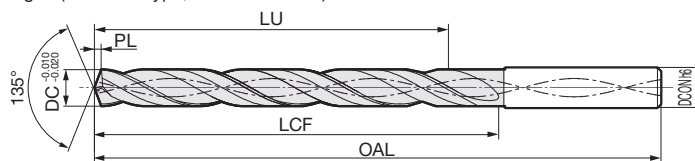


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter ø9.00 to 10.40mm (0.3543" to 0.4094") Dimensions (mm/inch)

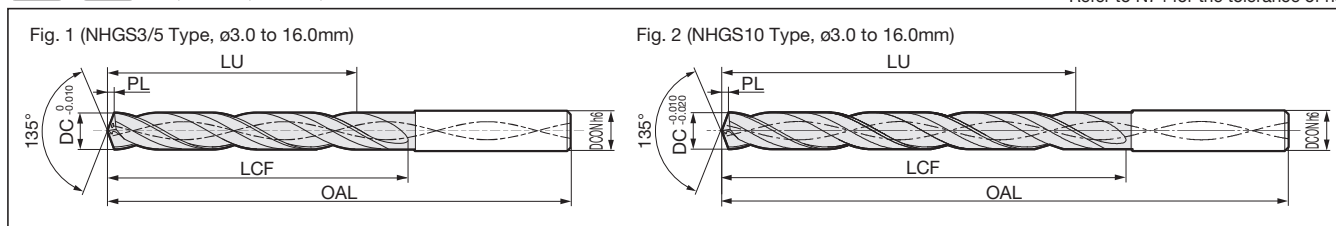
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
9.00	0.3543				3	●	MDW0900NHGS3	33.40	1.3150	46.90	1.8465	101.90	4.0118	1.90	0.0748	9.00	0.3543	1
					5	●	MDW0900NHGS5	60.40	2.3780	73.90	2.9094	128.90	5.0748					1
					10	●	MDW0900NHGS10	114.40	4.5039	127.90	5.0354	182.90	7.2008					2
9.10	0.3583		M10x1	3/8-24	3		MDW0910NHGS3	35.70	1.4055	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0910NHGS5	64.20	2.5276	77.90	3.0669	137.90	5.4291					1
					10		MDW0910NHGS10	121.20	4.7717	134.90	5.3110	197.90	7.7913					2
9.13	0.3594	23/64	M10x1	3	●	MDW03594NHGS3S	35.69	1.4053	49.39	1.9444	107.90	4.2480	1.89	0.0744	10.00	0.3937	1	
				5	●	MDW03594NHGS5S	64.19	2.5273	77.89	3.0664	137.90	5.4290					1	
9.20	0.3622				3		MDW0920NHGS3	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0920NHGS5	64.10	2.5236	77.90	3.0669	137.90	5.4291					1
					10		MDW0920NHGS10	121.10	4.7677	134.90	5.3110	197.90	7.7913					2
9.21	0.3626				3	●	MDW0921NHGS3	35.60	1.4016	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0921NHGS5	64.10	2.5236	77.90	3.0669	137.90	5.4291					1
					10		MDW0921NHGS10	121.10	4.7677	134.90	5.3110	197.90	7.7913					2
9.30	0.3661				3		MDW0930NHGS3	35.50	1.3976	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0930NHGS5	64.00	2.5197	77.90	3.0669	137.90	5.4291					1
					10		MDW0930NHGS10	121.00	4.7638	134.90	5.3110	197.90	7.7913					2
9.40	0.3701		7/16-14	M10x1.5	3	●	MDW0940NHGS3	35.30	1.3898	49.40	1.9449	107.90	4.2480	1.90	0.0748	10.00	0.3937	1
					5	●	MDW0940NHGS5	63.80	2.5118	77.90	3.0669	137.90	5.4291					1
					10		MDW0940NHGS10	120.80	4.7559	134.90	5.3110	197.90	7.7913					2
9.50	0.3740		7/16-14	M10x1.5	3	●	MDW0950NHGS3	35.20	1.3858	49.50	1.9488	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0950NHGS5	63.70	2.5079	78.00	3.0709	138.00	5.4331					1
					10	★	MDW0950NHGS10	120.70	4.7520	135.00	5.3150	198.00	7.7953					2
9.53	0.3750	3/8	7/16-14		3	●	MDW03750NHGS3S	37.70	1.4842	51.99	2.0467	107.98	4.2510	1.97	0.0777	10.00	0.3937	1
					5	●	MDW03750NHGS5S	67.70	2.6652	81.98	3.2277	137.97	5.4320					1
9.60	0.3780			M10x1	3		MDW0960NHGS3	37.60	1.4803	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0960NHGS5	67.60	2.6614	82.00	3.2283	138.00	5.4331					1
					10		MDW0960NHGS10	127.60	5.0236	142.00	5.5906	198.00	7.7953					2
9.70	0.3819			M10x.75	3		MDW0970NHGS3	37.50	1.4764	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0970NHGS5	67.50	2.6575	82.00	3.2283	138.00	5.4331					1
					10		MDW0970NHGS10	127.50	5.0197	142.00	5.5906	198.00	7.7953					2
9.80	0.3858				3		MDW0980NHGS3	37.30	1.4685	52.00	2.0472	108.00	4.2520	2.00	0.0787	10.00	0.3937	1
					5	●	MDW0980NHGS5	67.30	2.6496	82.00	3.2283	138.00	5.4331					1
					10	●	MDW0980NHGS10	127.30	5.0118	142.00	5.5906	198.00	7.7953					2
9.90	0.3898				3		MDW0990NHGS3	37.20	1.4646	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	1
					5	●	MDW0990NHGS5	67.20	2.6457	82.10	3.2323	138.10	5.4370					1
					10		MDW0990NHGS10	127.20	5.0079	142.10	5.5945	198.10	7.7992					2
10.00	0.3937		7/16-20		3	★	MDW1000NHGS3	37.10	1.4606	52.10	2.0512	108.10	4.2559	2.10	0.0827	10.00	0.3937	1
					5	★	MDW1000NHGS5	67.10	2.6417	82.10	3.2323	138.10	5.4370					1
					10	★	MDW1000NHGS10	127.10	5.0039	142.10	5.5945	198.10	7.7992					2
10.10	0.3976				3	★	MDW1010NHGS3	39.40	1.5512	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5		MDW1010NHGS5	70.90	2.7913	86.10	3.3898	151.10	5.9488					1
					10		MDW1010NHGS10	133.90	5.2717	149.10	5.8701	217.10	8.5472					2
10.20	0.4016				3		MDW1020NHGS3	39.30	1.5472	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5		MDW1020NHGS5	70.80	2.7874	86.10	3.3898	151.10	5.9488					1
					10		MDW1020NHGS10	133.80	5.2677	149.10	5.8701	217.10	8.5472					2
10.30	0.4055		7/16-14		3	●	MDW1030NHGS3	39.20	1.5433	54.60	2.1496	118.10	4.6496	2.10	0.0827	11.00	0.4331	1
					5	●	MDW1030NHGS5	70.70	2.7835	86.10	3.3898	151.10	5.9488					1
					10		MDW1030NHGS10	133.70	5.2638	149.10	5.8701	217.10	8.5472					2
10.32	0.4062	13/32	7/16-14	3	●	MDW04062NHGS3S	39.16	1.5418	54.64	2.1511	118.14	4.6510	2.14	0.0841	12.00	0.4724	1	
				5	●	MDW04062NHGS5S	70.66	2.7818	86.13	3.3911	151.13	5.9500					1	
10.40	0.4094		M12x1.75		3		MDW1040NHGS3	39.10	1.5394	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5	★	MDW1040NHGS5	70.60	2.7795	86.20	3.3937	151.20	5.9528					1
					10		MDW1040NHGS10	133.60	5.2598	149.20	5.8740	217.20	8.5512					2

DLC Coating Drilling NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



*Refer to N74 for the tolerance of h6



Diameter $\phi 10.50$ to 11.91mm (0.4134" to 0.4688") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
10.50	0.4134		M12x1.75		3	●	MDW1050NHGS3	38.90	1.5315	54.70	2.1535	118.20	4.6535	2.20	0.0866	11.00	0.4331	1
					5	●	MDW1050NHGS5	70.40	2.7717	86.20	3.3937	151.20	5.9528					1
					10	●	MDW1050NHGS10	133.40	5.2520	149.20	5.8740	217.20	8.5512					2
10.60	0.4173		7/20	3	●	MDW1060NHGS3	41.30	1.6260	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1	
				5	●	MDW1060NHGS5	74.30	2.9252	90.20	3.5512	151.20	5.9528					1	
				10		MDW1060NHGS10	140.30	5.5236	156.20	6.1496	217.20	8.5512					2	
10.70	0.4213		M12x1.5	3		MDW1070NHGS3	41.20	1.6220	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1	
				5		MDW1070NHGS5	74.20	2.9213	90.20	3.5512	151.20	5.9528					1	
				10		MDW1070NHGS10	140.20	5.5197	156.20	6.1496	217.20	8.5512					2	
10.80	0.4252			3		MDW1080NHGS3	41.00	1.6142	57.20	2.2520	118.20	4.6535	2.20	0.0866	11.00	0.4331	1	
				5		MDW1080NHGS5	74.00	2.9134	90.20	3.5512	151.20	5.9528					1	
				10		MDW1080NHGS10	140.00	5.5118	156.20	6.1496	217.20	8.5512					2	
10.90	0.4291		1/2-13	3		MDW1090NHGS3	40.90	1.6102	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	1	
				5		MDW1090NHGS5	73.90	2.9094	90.30	3.5551	151.30	5.9567					1	
				10		MDW1090NHGS10	139.90	5.5079	156.30	6.1535	217.30	8.5551					2	
11.00	0.4331		1/2-13	3	★	MDW1100NHGS3	40.80	1.6063	57.30	2.2559	118.30	4.6575	2.30	0.0906	11.00	0.4331	1	
				5	●	MDW1100NHGS5	73.80	2.9055	90.30	3.5551	151.30	5.9567					1	
				10	●	MDW1100NHGS10	139.80	5.5039	156.30	6.1535	217.30	8.5551					2	
11.08	0.4362			3	●	MDW1108NHGS3	43.20	1.7008	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1	
				5	●	MDW1108NHGS5	77.70	3.0591	94.30	3.7126	160.30	6.3110					1	
				10		MDW1108NHGS10	146.70	5.7756	163.30	6.4291	232.30	9.1457					2	
11.10	0.4370		1/2-13 / M12x1	3	●	MDW1110NHGS3	43.10	1.6969	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1	
				5	●	MDW1110NHGS5	77.60	3.0551	94.30	3.7126	160.30	6.3110					1	
				10		MDW1110NHGS10	146.60	5.7717	163.30	6.4291	232.30	9.1457					2	
11.11	0.4375	7/16	M12x1	3	●	MDW04375NHGS3S	43.14	1.6984	59.81	2.3546	124.31	4.8940	2.30	0.0906	12.00	0.4724	1	
				5	●	MDW04375NHGS5S	77.63	3.0564	94.30	3.7126	160.30	6.3110					1	
				10								2						
11.20	0.4409		M12x1	3	●	MDW1120NHGS3	43.00	1.6929	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1	
				5	★	MDW1120NHGS5	77.50	3.0512	94.30	3.7126	160.30	6.3110					1	
				10		MDW1120NHGS10	146.50	5.7677	163.30	6.4291	232.30	9.1457					2	
11.30	0.4449		M12x1.75	3		MDW1130NHGS3	42.90	1.6890	59.80	2.3543	124.30	4.8937	2.30	0.0906	12.00	0.4724	1	
				5		MDW1130NHGS5	77.40	3.0472	94.30	3.7126	160.30	6.3110					1	
				10		MDW1130NHGS10	146.40	5.7638	163.30	6.4291	232.30	9.1457					2	
11.40	0.4488		M12x1.5	3	●	MDW1140NHGS3	42.80	1.6850	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	1	
				5	●	MDW1140NHGS5	77.30	3.0433	94.40	3.7165	160.40	6.3150					1	
				10		MDW1140NHGS10	146.30	5.7598	163.40	6.4331	232.40	9.1496					2	
11.50	0.4528		M12x1.25	3	●	MDW1150NHGS3	42.60	1.6772	59.90	2.3583	124.40	4.8976	2.40	0.0945	12.00	0.4724	1	
				5	●	MDW1150NHGS5	77.10	3.0354	94.40	3.7165	160.40	6.3150					1	
				10	●	MDW1150NHGS10	146.10	5.7520	163.40	6.4331	232.40	9.1496					2	
11.51	0.4531	29/64	1/2-20	3	●	MDW04531NHGS3S	45.12	1.7762	62.38	2.4558	124.38	4.8970	2.38	0.0938	12.00	0.4724	1	
				5	●	MDW04531NHGS5S	81.13	3.1942	98.39	3.8738	160.38	6.3140					1	
11.60	0.4567		1/2-20	3		MDW1160NHGS3	45.00	1.7717	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1	
				5		MDW1160NHGS5	81.00	3.1890	98.40	3.8740	160.40	6.3150					1	
				10		MDW1160NHGS10	153.00	6.0236	170.40	6.7087	232.40	9.1496					2	
11.70	0.4606			3		MDW1170NHGS3	44.90	1.7677	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1	
				5		MDW1170NHGS5	80.90	3.1850	98.40	3.8740	160.40	6.3150					1	
				10		MDW1170NHGS10	152.90	6.0197	170.40	6.7087	232.40	9.1496					2	
11.80	0.4646			3		MDW1180NHGS3	44.70	1.7598	62.40	2.4567	124.40	4.8976	2.40	0.0945	12.00	0.4724	1	
				5		MDW1180NHGS5	80.70	3.1772	98.40	3.8740	160.40	6.3150					1	
				10		MDW1180NHGS10	152.70	6.0118	170.40	6.7087	232.40	9.1496					2	
11.90	0.4685		1/2-13	3		MDW1190NHGS3	44.60	1.7559	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	1	
				5		MDW1190NHGS5	80.60	3.1732	98.50	3.8780	160.50	6.3189					1	
				10		MDW1190NHGS10	152.60	6.0079	170.50	6.7126	232.50	9.1535					2	
11.91	0.4688	15/32	1/2-13	3	●	MDW04688NHGS3S	44.60	1.7559	62.46	2.4591	124.46	4.9000	2.47	0.0971	12.00	0.4724	1	
				5	●	MDW04688NHGS5S	80.62	3.1739	98.48	3.8771	160.48	6.3180					1	

DLC Coating Drilling NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

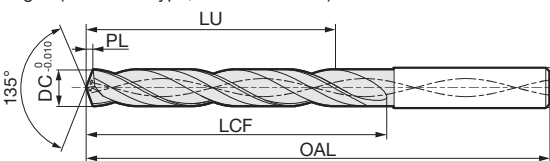
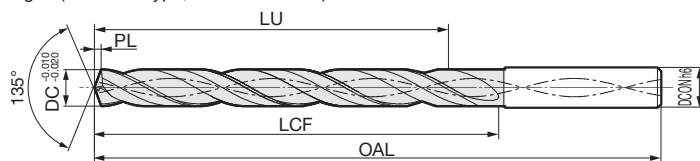


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter ø12.00 to 13.50mm (0.4724" to 0.5315") Dimensions (mm/inch)

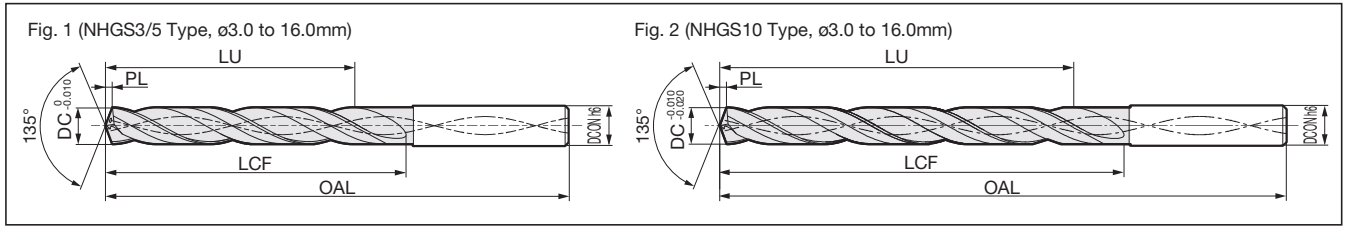
Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
12.00	0.4724				3	●	MDW1200NHGS3	44.50	1.7520	62.50	2.4606	124.50	4.9016	2.50	0.0984	12.00	0.4724	1
					5	★	MDW1200NHGS5	80.50	3.1693	98.50	3.8780	160.50	6.3189					1
					10	●	MDW1200NHGS10	152.50	6.0039	170.50	6.7126	232.50	9.1535					2
12.10	0.4764				3	●	MDW1210NHGS3	46.90	1.8465	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5	●	MDW1210NHGS5	84.40	3.3228	102.50	4.0354	169.50	6.6732					1
					10		MDW1210NHGS10	159.40	6.2756	177.50	6.9882	247.50	9.7441					2
12.20	0.4803			1/2-20	3		MDW1220NHGS3	46.70	1.8386	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5		MDW1220NHGS5	84.20	3.3150	102.50	4.0354	169.50	6.6732					1
					10		MDW1220NHGS10	159.20	6.2677	177.50	6.9882	247.50	9.7441					2
12.30	0.4843	31/64	9/16-12 M14x2		3	●	MDW1230NHGS3	46.60	1.8346	65.00	2.5591	130.50	5.1378	2.50	0.0984	13.00	0.5118	1
					5	●	MDW1230NHGS5	84.10	3.3110	102.50	4.0354	169.50	6.6732					1
					10		MDW1230NHGS10	159.10	6.2638	177.50	6.9882	247.50	9.7441					2
12.40	0.4882		9/16-12		3		MDW1240NHGS3	46.50	1.8307	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1240NHGS5	84.00	3.3071	102.60	4.0394	169.60	6.6772					1
					10		MDW1240NHGS10	159.00	6.2598	177.60	6.9921	247.60	9.7480					2
12.50	0.4921		9/16-12		3	●	MDW1250NHGS3	46.30	1.8228	65.10	2.5630	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5	●	MDW1250NHGS5	83.80	3.2992	102.60	4.0394	169.60	6.6772					1
					10	●	MDW1250NHGS10	158.80	6.2520	177.60	6.9921	247.60	9.7480					2
12.60	0.4961				3		MDW1260NHGS3	48.70	1.9173	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1260NHGS5	87.70	3.4528	106.60	4.1969	169.60	6.6772					1
					10		MDW1260NHGS10	165.70	6.5236	184.60	7.2677	247.60	9.7480					2
12.70	0.5000	1/2	M14x1.5		3		MDW1270NHGS3	48.60	1.9134	67.60	2.6614	130.60	5.1417	2.60	0.1024	13.00	0.5118	1
					5		MDW1270NHGS5	87.60	3.4488	106.60	4.1969	169.60	6.6772					1
					10		MDW1270NHGS10	165.60	6.5197	184.60	7.2677	247.60	9.7480					2
12.70	0.5000	1/2	M14x1.5		3	●	MDW05000NHGS3S	48.58	1.9126	67.63	2.6626	130.63	5.1430	2.63	0.1036	14.00	0.5512	1
					5	●	MDW05000NHGS5S	87.57	3.4476	106.62	4.1976	169.62	6.6780					1
12.80	0.5039				3		MDW1280NHGS3	48.50	1.9094	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5		MDW1280NHGS5	87.50	3.4449	106.70	4.2008	169.70	6.6811					1
					10		MDW1280NHGS10	165.50	6.5157	184.70	7.2717	247.70	9.7520					2
12.90	0.5079				3		MDW1290NHGS3	48.30	1.9016	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5		MDW1290NHGS5	87.30	3.4370	106.70	4.2008	169.70	6.6811					1
					10		MDW1290NHGS10	165.30	6.5079	184.70	7.2717	247.70	9.7520					2
12.96	0.5102				3	●	MDW1296NHGS3	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5	●	MDW1296NHGS5	87.20	3.4331	106.70	4.2008	169.70	6.6811					1
					10		MDW1296NHGS10	165.20	6.5039	184.70	7.2717	247.70	9.7520					2
13.00	0.5118		9/16-18		3	●	MDW1300NHGS3	48.20	1.8976	67.70	2.6654	130.70	5.1457	2.70	0.1063	13.00	0.5118	1
					5	●	MDW1300NHGS5	87.20	3.4331	106.70	4.2008	169.70	6.6811					1
					10	●	MDW1300NHGS10	165.20	6.5039	184.70	7.2717	247.70	9.7520					2
13.10	0.5157	33/64	9/16-18	M14x2	3		MDW1310NHGS3	50.60	1.9921	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	1
					5		MDW1310NHGS5	91.10	3.5866	110.70	4.3583	178.70	7.0354					1
					10		MDW1310NHGS10	172.10	6.7756	191.70	7.5472	262.70	10.3425					2
13.20	0.5197				3		MDW1320NHGS3	50.40	1.9843	70.20	2.7638	136.70	5.3819	2.70	0.1063	14.00	0.5512	1
					5		MDW1320NHGS5	90.90	3.5787	110.70	4.3583	178.70	7.0354					1
					10		MDW1320NHGS10	171.90	6.7677	191.70	7.5472	262.70	10.3425					2
13.30	0.5236				3		MDW1330NHGS3	50.30	1.9803	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1330NHGS5	90.80	3.5748	110.80	4.3622	178.80	7.0394					1
					10		MDW1330NHGS10	171.80	6.7638	191.80	7.5512	262.80	10.3465					2
13.40	0.5276			9/16-12/ M14x1.5	3		MDW1340NHGS3	50.20	1.9764	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1340NHGS5	90.70	3.5709	110.80	4.3622	178.80	7.0394					1
					10		MDW1340NHGS10	171.70	6.7598	191.80	7.5512	262.80	10.3465					2
13.50	0.5315				3	●	MDW1350NHGS3	50.00	1.9685	70.30	2.7677	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5	●	MDW1350NHGS5	90.50	3.5630	110.80	4.3622	178.80	7.0394					1
					10		MDW1350NHGS10	171.50	6.7520	191.80	7.5512	262.80	10.3465					2

DLC Coating Drilling NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



*Refer to N74 for the tolerance of h6



Diameter $\phi 13.60$ to 15.10 mm (0.5354" to 0.5945") Dimensions (mm/inch)

Dia.DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
13.60	0.5354				3		MDW1360NHGS3	52.40	2.0630	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1360NHGS5	94.40	3.7165	114.80	4.5197	178.80	7.0394					1
					10		MDW1360NHGS10	178.40	7.0236	198.80	7.8268	262.80	10.3465					2
13.70	0.5394		5/8-11	9/16-18	3		MDW1370NHGS3	52.30	2.0591	72.80	2.8661	136.80	5.3858	2.80	0.1102	14.00	0.5512	1
					5		MDW1370NHGS5	94.30	3.7126	114.80	4.5197	178.80	7.0394					1
					10		MDW1370NHGS10	178.30	7.0197	198.80	7.8268	262.80	10.3465					2
13.80	0.5433		5/8-11		3		MDW1380NHGS3	52.20	2.0551	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5		MDW1380NHGS5	94.20	3.7087	114.90	4.5236	178.90	7.0433					1
					10		MDW1380NHGS10	178.20	7.0157	198.90	7.8307	262.90	10.3504					2
13.90	0.5472		5/8-11		3		MDW1390NHGS3	52.00	2.0472	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5		MDW1390NHGS5	94.00	3.7008	114.90	4.5236	178.90	7.0433					1
					10		MDW1390NHGS10	178.00	7.0079	198.90	7.8307	262.90	10.3504					2
14.00	0.5512		5/8-11		3	●	MDW1400NHGS3	51.90	2.0433	72.90	2.8701	136.90	5.3898	2.90	0.1142	14.00	0.5512	1
					5	●	MDW1400NHGS5	93.90	3.6969	114.90	4.5236	178.90	7.0433					1
					10		MDW1400NHGS10	177.90	7.0039	198.90	7.8307	262.90	10.3504					2
14.10	0.5551				3	●	MDW1410NHGS3	54.30	2.1378	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	1
					5	●	MDW1410NHGS5	97.80	3.8504	118.90	4.6811	187.90	7.3976					1
					10		MDW1410NHGS10	184.80	7.2756	205.90	8.1063	277.90	10.9409					2
14.20	0.5591		M16x2		3		MDW1420NHGS3	54.10	2.1299	75.40	2.9685	142.90	5.6260	2.90	0.1142	15.00	0.5906	1
					5		MDW1420NHGS5	97.60	3.8425	118.90	4.6811	187.90	7.3976					1
					10		MDW1420NHGS10	184.60	7.2677	205.90	8.1063	277.90	10.9409					2
14.29	0.5625	9/16	M16x2		3	●	MDW05625NHGS3S	54.02	2.1268	75.45	2.9705	142.95	5.6280	2.96	0.1165	16.00	0.6299	1
					5	●	MDW05625NHGS5S	97.53	3.8398	118.96	4.6835	187.96	7.4000					1
14.30	0.5630		M16x2		3		MDW1430NHGS3	54.00	2.1260	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		MDW1430NHGS5	97.50	3.8386	119.00	4.6850	188.00	7.4016					1
					10		MDW1430NHGS10	184.50	7.2638	206.00	8.1102	278.00	10.9449					2
14.40	0.5669				3		MDW1440NHGS3	53.90	2.1220	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		MDW1440NHGS5	97.40	3.8346	119.00	4.6850	188.00	7.4016					1
					10		MDW1440NHGS10	184.40	7.2598	206.00	8.1102	278.00	10.9449					2
14.50	0.5709				3	●	MDW1450NHGS3	53.80	2.1181	75.50	2.9724	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5	●	MDW1450NHGS5	97.30	3.8307	119.00	4.6850	188.00	7.4016					1
					10		MDW1450NHGS10	184.30	7.2559	206.00	8.1102	278.00	10.9449					2
14.60	0.5748		5/8-18 M16x1.5		3		MDW1460NHGS3	56.10	2.2087	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		MDW1460NHGS5	101.10	3.9803	123.00	4.8425	188.00	7.4016					1
					10		MDW1460NHGS10	191.10	7.5236	213.00	8.3858	278.00	10.9449					2
14.70	0.5787		5/8-18 M16x1.5		3		MDW1470NHGS3	56.00	2.2047	78.00	3.0709	143.00	5.6299	3.00	0.1181	15.00	0.5906	1
					5		MDW1470NHGS5	101.00	3.9764	123.00	4.8425	188.00	7.4016					1
					10		MDW1470NHGS10	191.00	7.5197	213.00	8.3858	278.00	10.9449					2
14.80	0.5827				3		MDW1480NHGS3	55.90	2.2008	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5		MDW1480NHGS5	100.90	3.9724	123.10	4.8465	188.10	7.4055					1
					10		MDW1480NHGS10	190.90	7.5157	213.10	8.3898	278.10	10.9488					2
14.90	0.5866		5/8-11		3	●	MDW1490NHGS3	55.70	2.1929	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	MDW1490NHGS5	100.70	3.9646	123.10	4.8465	188.10	7.4055					1
					10		MDW1490NHGS10	190.70	7.5079	213.10	8.3898	278.10	10.9488					2
14.96	0.5890				3	●	MDW1496NHGS3	55.70	2.1929	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	MDW1496NHGS5	100.70	3.9646	123.10	4.8465	188.10	7.4055					1
					10		MDW1496NHGS10	190.70	7.5079	213.10	8.3898	278.10	10.9488					2
15.00	0.5906		5/8-11		3	●	MDW1500NHGS3	55.60	2.1890	78.10	3.0748	143.10	5.6339	3.10	0.1220	15.00	0.5906	1
					5	●	MDW1500NHGS5	100.60	3.9606	123.10	4.8465	188.10	7.4055					1
					10		MDW1500NHGS10	190.60	7.5039	213.10	8.3898	278.10	10.9488					2
15.10	0.5945		M16x2		3		MDW1510NHGS3	58.00	2.2835	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	1
					5		MDW1510NHGS5	104.50	4.1142	127.10	5.0039	197.10	7.7598					1
					10		MDW1510NHGS10	197.50	7.7756	220.10	8.6654	293.10	11.5394					2

Grade: DL1300

● : USA Stock Item

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others

DLC Coating Drills NHGS Series (Internal Coolant Supply)

Aluminum Alloy
Copper Alloy



3D 5D 10D

*Refer to N74 for the tolerance of h6

Fig. 1 (NHGS3/5 Type, ø3.0 to 16.0mm)

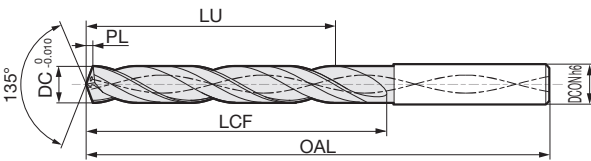
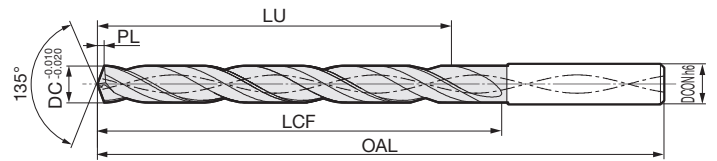


Fig. 2 (NHGS10 Type, ø3.0 to 16.0mm)



Diameter ø15.20 to 16.00mm (0.5984" to 0.6299") Dimensions (mm/inch)

Dia. DC			Cut Tap Size	Roll Form Tap Size	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU		Flute Length LCF		Overall Length OAL		Tip PL		Shank Dia DCON		Fig
mm	in.	Fraction						mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
15.20	0.5984			5/8-18	3		MDW1520NHGS3	57.80	2.2756	80.60	3.1732	149.10	5.8701	3.10	0.1220	16.00	0.6299	1
						5	MDW1520NHGS5	104.30	4.1063	127.10	5.0039	197.10	7.7598					1
						10	MDW1520NHGS10	197.30	7.7677	220.10	8.6654	293.10	11.5394					2
15.30	0.6024			5/8-18	3		MDW1530NHGS3	57.70	2.2717	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	1
						5	MDW1530NHGS5	104.20	4.1024	127.20	5.0079	197.20	7.7638					1
						10	MDW1530NHGS10	197.20	7.7638	220.20	8.6693	293.20	11.5433					2
15.40	0.6063			M16x1.5	3		MDW1540NHGS3	57.60	2.2677	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	1
						5	MDW1540NHGS5	104.10	4.0984	127.20	5.0079	197.20	7.7638					1
						10	MDW1540NHGS10	197.10	7.7598	220.20	8.6693	293.20	11.5433					2
15.50	0.6102				3	●	MDW1550NHGS3	57.50	2.2638	80.70	3.1772	149.20	5.8740	3.20	0.1260	16.00	0.6299	1
						5	MDW1550NHGS5	104.00	4.0945	127.20	5.0079	197.20	7.7638					1
						10	MDW1550NHGS10	197.00	7.7559	220.20	8.6693	293.20	11.5433					2
15.60	0.6142				3		MDW1560NHGS3	59.80	2.3543	83.20	3.2756	149.20	5.8740	3.20	0.1260	16.00	0.6299	1
						5	MDW1560NHGS5	107.80	4.2441	131.20	5.1654	197.20	7.7638					1
						10	MDW1560NHGS10	203.80	8.0236	227.20	8.9449	293.20	11.5433					2
15.70	0.6181		M18x2.5		3		MDW1570NHGS3	59.70	2.3504	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	1
						5	MDW1570NHGS5	107.70	4.2402	131.30	5.1693	197.30	7.7677					1
						10	MDW1570NHGS10	203.70	8.0197	227.30	8.9488	293.30	11.5472					2
15.80	0.6220		M18x2.5		3		MDW1580NHGS3	59.60	2.3465	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	1
						5	MDW1580NHGS5	107.60	4.2362	131.30	5.1693	197.30	7.7677					1
						10	MDW1580NHGS10	203.60	8.0157	227.30	8.9488	293.30	11.5472					2
15.88	0.6250		M18x2.5		3	●	MDW06250NHGS3S	59.48	2.3419	83.30	3.2794	149.28	5.8770	3.29	0.1294	16.00	0.6299	1
						5	MDW06250NHGS5S	107.46	4.2309	131.28	5.1684	197.28	7.7670					1
						10												2
15.90	0.6260		M18x2.5		3		MDW1590NHGS3	59.40	2.3386	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	1
						5	MDW1590NHGS5	107.40	4.2283	131.30	5.1693	197.30	7.7677					1
						10	MDW1590NHGS10	203.40	8.0079	227.30	8.9488	293.30	11.5472					2
16.00	0.6299				3	●	MDW1600NHGS3	59.30	2.3346	83.30	3.2795	149.30	5.8780	3.30	0.1299	16.00	0.6299	1
						5	MDW1600NHGS5	107.30	4.2244	131.30	5.1693	197.30	7.7677					1
						10	MDW1600NHGS10	203.30	8.0039	227.30	8.9488	293.30	11.5472					2

Grade: DL1300

● : USA Stock Item

Recommended Cutting Conditions (v_c : Cutting Speed (SFM), f : Feed Rate (IPR))

Dia. DC	Cutting Conditions	Aluminum alloy castings/ aluminum alloy die castings	Wrought Aluminum Alloy
Up to 0.2188" / 6 mm	v_c	260 - 720	260 - 720
	f	0.008" - 0.024"	0.008" - 0.016"
Up to 0.375" / 10 mm	v_c	330 - 900	330 - 820
	f	0.016" - 0.032"	0.008" - 0.020"
Up to 0.625" / 16 mm	v_c	400 - 900	400 - 820
	f	0.016" - 0.040"	0.012" - 0.024"

Min. - Max.

Contact Sumitomo Engineering Department for further questions.

Diamond Coating (SUMIDIA) Drills for CFRP SDC Series (External Coolant Supply)



General Features

Diamond Coating SDC (SUMIDIA) drills for carbon fiber reinforced polymers (CFRP) employ Sumitomo's proprietary multi-step point angle. Combined with a diamond coating, this technology improves machined surface quality and extends tool life.

Product Range

Cat. No.	Diameter Range (mm)	Point Angle	Hole Depth (L/D)
MDS□□□□SDC3	ø2.0 to ø4.0	90°	up to 3
	ø4.851 to ø10.0	130°	

Features and Applications

- Excellent Drilled-Hole Quality
 - Sharp cutting edge shape reduces delamination of fiber layers and minimizes burrs.
 - Continuously changing point angle, disperses the load placed on the cutting edge and preventing breakage.
- Long Tool Life
 - Utilizing a high-strength diamond coating with excellent adhesion, delivering high quality and long tool life.

Performance

Comparison of Machined Surface Quality				
Excellent machined surface quality Prevents delamination and burrs				
	SDC	Competitor's Product A	Competitor's Product B	Competitor's Product C
Entrance				
Exit				
Tool: SUMIDIA COAT Drill SDC ø6.35 Part Material: CFRP Cutting Conditions: $n = 6,000$ SFM, $f = 0.004$ IPR $H = 91.86''$ (through), dry				

Tool Life Comparison	
Effects of Diamond Coating	
SDC (After Drilling 600 Holes)	Competitor's Product (After Drilling 50 Holes)
No delamination Minimal flank wear	Large delamination from cutting edge to flank
Stable diamond layer adhesion prevents delamination. Excellent wear resistance enables high-quality drilling with long tool life.	
SDC Type	Competitor A's Diamond Coated Drill
Tool: SUMIDIA COAT Drill ø6.35 Part Material: CFRP Cutting Conditions: $n = 6,000$ SFM, $f = 0.003$ IPR, $H = 49.2''$ (through), dry	



*Refer to N74 for the tolerance of h6 and h8

Fig. 1 (Diameter ø2.0 to 4.0mm)

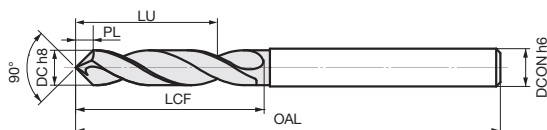
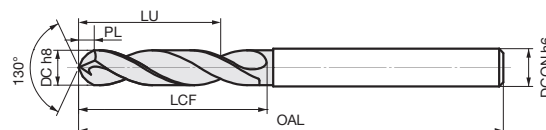


Fig. 2 (Diameter ø4.851 to 10.0mm)



Diameter ø2.0 to 10.0mm

Dimensions (mm)								
Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON
2.0	3	★	MDS02000SDC3	10.50	13.5	50.0	1.0	2.0
2.489	3	★	MDS02489SDC3	12.47	16.2	50.2	1.2	2.489
3.0	3	★	MDS03000SDC3	14.5	19.0	50.5	1.5	3.0
3.300	3	★	MDS03300SDC3	16.8	21.7	61.7	1.7	3.300
4.0	3	★	MDS04000SDC3	18.5	24.5	62.0	2.0	4.0
4.851	3	★	MDS04851SDC3	21.3	28.6	77.1	1.1	4.851
5.0	3	★	MDS05000SDC3	21.2	28.7	77.2	1.2	5.0
5.6	3	★	MDS05600SDC3	22.9	31.3	82.3	1.3	5.6
6.0	3	★	MDS06000SDC3	22.4	31.4	82.4	1.4	6.0
6.375	3	★	MDS06375SDC3	24.4	34.0	84.5	1.5	6.375
7.0	3	★	MDS07000SDC3	26.1	36.6	84.6	1.6	7.0
7.938	3	★	MDS07938SDC3	30.0	41.9	91.9	1.9	7.938
8.0	3	★	MDS08000SDC3	29.9	41.9	91.9	1.9	8.0
9.0	3	★	MDS09000SDC3	33.6	47.1	100.1	2.1	9.0
9.550	3	★	MDS09550SDC3	37.9	52.2	107.2	2.2	9.550
10.0	3	★	MDS10000SDC3	37.3	52.3	107.3	2.3	10.0

Grade: DCX20

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

Dia. DC (mm)	Conditions	CFRP Only (Dry Machining)	Stacked Sheets of CFRP and Aluminum Alloys (Dry Machining)
ø6.0	v_c	80 - 150	40 - 80
	f	0.05 - 0.10	0.03 - 0.10
ø12.0	v_c	80 - 120	40 - 80
	f	0.05 - 0.10	0.03 - 0.10

Min. - Max.

★: Worldwide Warehouse Item

Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others



For General to High Precision Drilling of Aluminum Alloys

- High precision DAL is able to produce holes of IT Class of 7 to 8.
- General DDL is able to produce holes of IT class 11 to 12, mainly for pre-tap hole drilling.

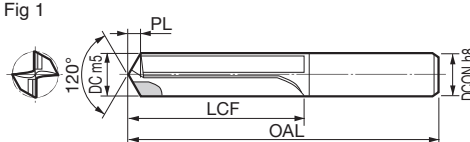
This product is a made-to-order item.

DAL

*Refer to N74 for the tolerance of m5, h8 Dimensions (mm)

Grade		SUMIDIA					
Process	High-speed/Light	N					
	General-purpose						
	Roughing						
Cat. No.		DA2200	Dia. (Shank Dia.) DC(DCON)	Flute Length LCF	Overall Length OAL	Tip PL	Fig
DAL 0500H to 0600H			$\phi 5 \leq DC \leq \phi 6$	31.6	81.6	1.6	1
DAL 0601H to 0700H			$\phi 6 < DC \leq \phi 7$	36.9	91.9	1.9	1
DAL 0701H to 0800H			$\phi 7 < DC \leq \phi 8$	37.2	92.2	2.2	1
DAL 0801H to 0900H			$\phi 8 < DC \leq \phi 9$	42.5	102.5	2.5	1
DAL 0901H to 1000H			$\phi 9 < DC \leq \phi 10$	42.8	102.8	2.8	1
DAL 1001H to 1100H			$\phi 10 < DC \leq \phi 11$	53.1	113.1	3.1	1
DAL 1101H to 1200H			$\phi 11 < DC \leq \phi 12$	53.4	113.4	3.4	1

Fig 1



Ordering numbers should be handled according to this example: $\phi 6.05\text{mm}$ drill → DAL0605H.

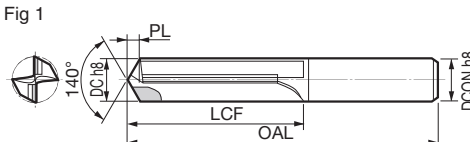
This product is a made-to-order item.

DDL

*Refer to N74 for the tolerance of h8 Dimensions (mm)

Grade		SUMIDIA					
Process	High-speed/Light	N					
	General-purpose						
	Roughing						
Cat. No.		DA2200	Dia. (Shank Dia.) DC(DCON)	Flute Length LCF	Overall Length OAL	Tip PL	Fig
DDL 050V to 060V			$\phi 5 \leq DC \leq \phi 6$	31.5	81.0	1.0	1
DDL 061V to 070V			$\phi 6 < DC \leq \phi 7$	36.2	91.2	1.2	1
DDL 071V to 080V			$\phi 7 < DC \leq \phi 8$	36.4	91.4	1.4	1
DDL 081V to 090V			$\phi 8 < DC \leq \phi 9$	41.6	101.6	1.6	1
DDL 091V to 100V			$\phi 9 < DC \leq \phi 10$	41.7	101.7	1.7	1
DDL 101V to 110V			$\phi 10 < DC \leq \phi 11$	51.9	111.9	1.9	1
DDL 111V to 120V			$\phi 11 < DC \leq \phi 12$	52.1	112.1	2.1	1

Fig 1



Ordering numbers should be handled according to this example: $\phi 10.5\text{mm}$ drill → DDL105V.

Recommended Cutting Conditions

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

Dia. DC (mm)	Conditions	DAL	DDL	Depth of Cut	Oil
$\phi 8.0$	v_c	80 - 150	150 - 250	L/D=Below 3	Emulsion
	f	0.05 - 0.15	0.1 - 0.25		
$\phi 12.0$	v_c	80 - 150	150 - 250		
	f	0.08 - 0.2	0.15 - 0.3		

Min. - Max.

Important Notes

- When using DAL type for high precision machining, select a high rigidity machine and high precision holder.
- Supply coolant generously at the entrance of the hole.

Micro Long Drills MLDH-L / MLDH-P



General Features

Micro Long Drills are oil-hole drills for high efficiency drilling that were developed for drilling deep, small-diameter holes. These next-generation drills for small diameter deep holes feature improved strength - addressing a frequent problem with small diameter drills.

Features and Applications

- Deep hole drilling
New groove shape ensures good drill rigidity and chip evacuation.
High-efficiency drilling to depths of over 20 times the drill diameter at over $v_t=500\text{mm/min}$ (drill diameter $\phi 1.3$, Stainless Steel). Optimal thinning and edge balance for stable chip control.
- Long tool life
Special coating provides long tool life with a wide variety of work materials.
Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring long, stable tool life.

Product Range

Applications	Cat. No.	Diameter Range (mm)	Hole Depth (L/D)
Deep Hole Drilling	MLDH□□□□L5	$\phi 0.8$ to 2.0	up to 5
	MLDH□□□□L12	$\phi 0.8$ to 2.0	up to 12
	MLDH□□□□L20	$\phi 0.8$ to 2.0	up to 20
	MLDH□□□□L30	$\phi 0.8$ to 2.0	up to 30
For Guide Holes	MLDH□□□□P	$\phi 0.8$ to 2.0	up to 2

Recommended Cutting Conditions - METRIC

MLDH-P / MLDH-L5

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

Dia. DC (mm)	Cutting Conditions	Mild Steel up to 200HB	General Steel up to 250HB	Alloy Steel up to 300HB	Stainless Steel up to 200HB	Cast Iron FC/FCD	Aluminum Alloy	Heat-resistant Steel
$\phi 1.0$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	0.02 - 0.04	0.03 - 0.06	0.005 - 0.02
$\phi 1.5$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.02 - 0.10	0.04 - 0.12	0.05 - 0.15	0.01 - 0.05
$\phi 2.0$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.06 - 0.12	0.06 - 0.12	0.06 - 0.12	0.04 - 0.10	0.06 - 0.12	0.08 - 0.15	0.01 - 0.05

Min. - Max.

MLDH-L12 / MLDH-L20 / MLDH-L30

Dia. DC (mm)	Cutting Conditions	Mild Steel up to 200HB	General Steel up to 250HB	Alloy Steel up to 300HB	Stainless Steel up to 200HB	Cast Iron FC/FCD	Aluminum Alloy	Heat-resistant Steel
$\phi 1.0$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	0.01 - 0.03	0.02 - 0.04	0.03 - 0.06	0.005 - 0.02
$\phi 1.5$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.03 - 0.07	0.03 - 0.07	0.03 - 0.07	0.02 - 0.07	0.04 - 0.10	0.05 - 0.12	0.01 - 0.03
$\phi 2.0$	v_c	40 - 60	40 - 60	40 - 60	20 - 40	40 - 60	50 - 70	5 - 15
	f	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.05 - 0.12	0.01 - 0.03

Min. - Max.

Application Examples

Automotive component molds - Stainless Steel

Tool : MLDH 1400L20 (guide: MLDH1400P)
Machine : Vertical machining center (HSKA63)
Coolant : Internal coolant supply (emulsion type, pump source pressure: 4MPa)
Cutting Conditions : $v_c=197\text{ SFM}$, $f=0.001\text{ IPR}$, $H=0.827''$
Tool Life : 600 holes (37.4 ft.)



Tooling components - Tool Steel

Tool : MLDH 1900L20 (guide: MLDH1900P)
Machine : Vertical machining center (HSKA63)
Coolant : Internal coolant supply (emulsion type, pump source pressure: 4MPa)
Cutting Conditions : $v_c=195\text{ SFM}$, $f=0.004\text{ IPR}$, $H=1.063''$
Tool life : 600 units



Drilling

Solid

Indexable Head Type

Indexable Insert Type

Reamers

Brazed

Others

Micro Long Drills

MLDH-L / MLDH-P (Internal Coolant Supply)

Carbon Steel Alloy Steel up to 0.28%
Carbon Steel Alloy Steel from 0.28%
Tempered Steel
Hardened Steel up to 42HRC
Stainless Steel
Ti Alloy
Heat-resistant Steel
Cast Iron
Ductile Cast Iron
Aluminum Alloy



Fig. 1 (MLDH-P Type)

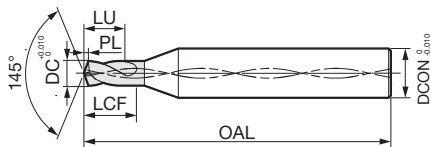
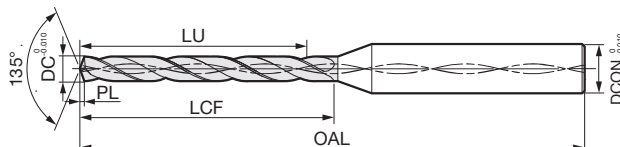


Fig. 2 (MLDH-L Type)



Diameter $\phi 0.80$ to 0.90mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.80	2	★	MLDH0800P	2.0	3.2	45	0.1	3.0	1
	5	★	MLDH0800L5	6.8	8	50.0	0.2		2
	12	★	MLDH0800L12	12.8	14	55			2
	20	★	MLDH0800L20	17.8	19	60			2
	30	★	MLDH0800L30	26.8	28	70			2
0.81	2	★	MLDH0810P	2.0	3.2	45	0.1	3.0	1
	5	★	MLDH0810L5	7.8	9	50.0	0.2		2
	12	★	MLDH0810L12	12.8	14	55			2
	20	★	MLDH0810L20	17.8	19	60			2
	30	★	MLDH0810L30	26.8	28	70			2
0.82	2	★	MLDH0820P	2.1	3.3	45	0.1	3.0	1
	5	★	MLDH0820L5	7.8	9	50.0	0.2		2
	12	★	MLDH0820L12	12.8	14	55			2
	20	★	MLDH0820L20	18.8	20	60			2
	30	★	MLDH0820L30	26.8	28	70			2
0.83	2	★	MLDH0830P	2.1	3.3	45	0.1	3.0	1
	5	★	MLDH0830L5	7.8	9	50.0	0.2		2
	12	★	MLDH0830L12	12.8	14	55			2
	20	★	MLDH0830L20	18.8	20	60			2
	30	★	MLDH0830L30	26.8	28	70			2
0.84	2	★	MLDH0840P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0840L5	7.7	9	50.0	0.2		2
	12	★	MLDH0840L12	12.7	14	55			2
	20	★	MLDH0840L20	18.7	20	60			2
	30	★	MLDH0840L30	27.7	29	70			2
0.85	2	★	MLDH0850P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0850L5	7.7	9	50.0	0.2		2
	12	★	MLDH0850L12	12.7	14	55			2
	20	★	MLDH0850L20	18.7	20	60			2
	30	★	MLDH0850L30	27.7	29	70			2
0.86	2	★	MLDH0860P	2.1	3.4	45	0.1	3.0	1
	5	★	MLDH0860L5	7.7	9	50.0	0.2		2
	12	★	MLDH0860L12	13.7	15	55			2
	20	★	MLDH0860L20	19.7	21	65			2
	30	★	MLDH0860L30	27.7	29	70			2
0.87	2	★	MLDH0870P	2.2	3.5	45	0.1	3.0	1
	5	★	MLDH0870L5	7.7	9	50.0	0.2		2
	12	★	MLDH0870L12	13.7	15	55			2
	20	★	MLDH0870L20	19.7	21	65			2
	30	★	MLDH0870L30	28.7	30	70			2
0.88	2	★	MLDH0880P	2.2	3.5	45	0.1	3.0	1
	5	★	MLDH0880L5	7.7	9	50.0	0.2		2
	12	★	MLDH0880L12	13.7	15	55			2
	20	★	MLDH0880L20	19.7	21	65			2
	30	★	MLDH0880L30	28.7	30	70			2
0.89	2	★	MLDH0890P	2.3	3.6	45	0.1	3.0	1
	5	★	MLDH0890L5	7.7	9	50.0	0.2		2
	12	★	MLDH0890L12	13.7	15	55			2
	20	★	MLDH0890L20	19.7	21	65			2
	30	★	MLDH0890L30	28.7	30	70			2
0.90	2	★	MLDH0900P	2.3	3.6	45	0.1	3.0	1
	5	★	MLDH0900L5	7.7	10	50.0	0.2		2
	12	★	MLDH0900L12	13.7	15	55			2
	20	★	MLDH0900L20	20.7	22	65			2
	30	★	MLDH0900L30	29.7	31	75			2

Part Number Suffix P: For Guide Hole

Grade: ACV70

Diameter $\phi 0.91$ to 1.05mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.91	2	★	MLDH0910P	2.2	3.6	45	0.1	3.0	1
	5	★	MLDH0910L5	8.6	10	50.0	0.2		2
	12	★	MLDH0910L12	13.6	15	55			2
	20	★	MLDH0910L20	20.6	22	65			2
	30	★	MLDH0910L30	29.6	31	75			2
0.92	2	★	MLDH0920P	2.3	3.7	45	0.1	3.0	1
	5	★	MLDH0920L5	8.6	10	50.0	0.2		2
	12	★	MLDH0920L12	14.6	16	60			2
	20	★	MLDH0920L20	20.6	22	65			2
	30	★	MLDH0920L30	29.6	31	75			2
0.93	2	★	MLDH0930P	2.3	3.7	45	0.1	3.0	1
	5	★	MLDH0930L5	8.6	10	50.0	0.2		2
	12	★	MLDH0930L12	14.6	16	60			2
	20	★	MLDH0930L20	20.6	22	65			2
	30	★	MLDH0930L30	30.6	32	75			2
0.94	2	★	MLDH0940P	2.4	3.8	45	0.1	3.0	1
	5	★	MLDH0940L5	8.6	10	50.0	0.2		2
	12	★	MLDH0940L12	14.6	16	60			2
	20	★	MLDH0940L20	21.6	23	65			2
	30	★	MLDH0940L30	30.6	32	75			2
0.95	2	★	MLDH0950P	2.4	3.8	45	0.2	3.0	1
	5	★	MLDH0950L5	8.6	10	50.0			2
	12	★	MLDH0950L12	14.6	16	60			2
	20	★	MLDH0950L20	21.6	23	65			2
	30	★	MLDH0950L30	30.6	32	75			2
0.96	2	★	MLDH0960P	2.4	3.8	45	0.2	3.0	1
	5	★	MLDH0960L5	8.6	10	50.0			2
	12	★	MLDH0960L12	14.6	16	60			2
	20	★	MLDH0960L20	21.6	23	65			2
	30	★	MLDH0960L30	31.6	33	75			2
0.97	2	★	MLDH0970P	2.4	3.9	45	0.2	3.0	1
	5	★	MLDH0970L5	8.5	10	50.0			2
	12	★	MLDH0970L12	14.5	16	60			2
	20	★	MLDH0970L20	21.5	23	65			2
	30	★	MLDH0970L30	31.5	33	75			2
0.98	2	★	MLDH0980P	2.4	3.9	45	0.2	3.0	1
	5	★	MLDH0980L5	8.5	10	50.0			2
	12	★	MLDH0980L12	15.5	17	60			2
	20	★	MLDH0980L20	22.5	24	65			2
	30	★	MLDH0980L30	31.5	33	75			2
0.99	2	★	MLDH0990P	2.5	4	45	0.2	3.0	1
	5	★	MLDH0990L5	8.5	10	50.0			2
	12	★	MLDH0990L12	15.5	17	60			2
	20	★	MLDH0990L20	22.5	24	65			2
	30	★	MLDH0990L30	32.5	34	75			2
1.00	2	★	MLDH1000P	2.5	4	45	0.2	3.0	1
	5	★	MLDH1000L5	8.5	10	50.0			2
	12	★	MLDH1000L12	15.5	17	60			2
	20	★	MLDH1000L20	22.5	24	65			2
	30	★	MLDH1000L30	32.5	34	75			2
1.05	2	★	MLDH1050P	2.6	4.2	45	0.2	3.0	1
	5	★	MLDH1050L5	10.4	12	55.0			2
	12	★	MLDH1050L12	16.4	18	60			2
	20	★	MLDH1050L20	23.4	25	65			2
	30	★	MLDH1050L30	34.4	36	80			2

Part Number Suffix P: For Guide Hole

Grade: ACV70

Made-to-order items: Inquire about production of drills in tool diameters and lengths that are not listed in the dimensions above, or not in stock.

★: Worldwide Warehouse Item

Micro Long Drills

MLDH-L / MLDH-P (Internal Coolant Supply)

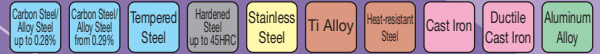


Fig. 1 (MLDH-P Type)

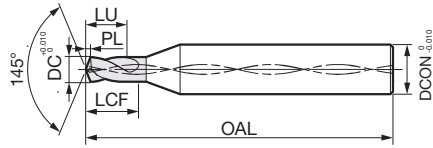
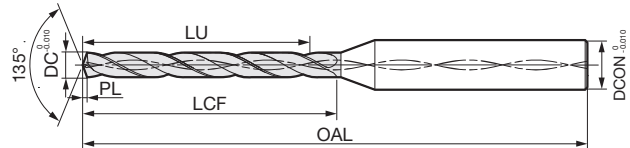


Fig. 2 (MLDH-L Type)

Diameter $\phi 1.10$ to 1.60mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
1.10	2	★	MLDH1100P	2.8	4.4	45	0.2	3.0	1
	5	★	MLDH1100L5	10.4	12	55.0			2
	12	★	MLDH1100L12	17.4	19	60			2
	20	★	MLDH1100L20	24.4	26	70			2
	30	★	MLDH1100L30	35.4	37	80			2
1.15	2	★	MLDH1150P	2.9	4.5	45	0.2	3.0	1
	5	★	MLDH1150L5	10.3	12	55.0			2
	12	★	MLDH1150L12	18.3	20	60			2
	20	★	MLDH1150L20	26.3	28	70			2
	30	★	MLDH1150L30	37.3	39	80			2
1.20	2	★	MLDH1200P	3.0	4.8	45	0.2	3.0	1
	5	★	MLDH1200L5	10.2	12	55.0			2
	12	★	MLDH1200L12	18.2	20	60			2
	20	★	MLDH1200L20	27.2	29	70			2
	30	★	MLDH1200L30	39.2	41	85			2
1.25	2	★	MLDH1250P	3.1	8	45	0.2	3.0	1
	5	★	MLDH1250L5	12.1	14	55.0			2
	12	★	MLDH1250L12	19.1	21	65			2
	20	★	MLDH1250L20	28.1	30	70			2
	30	★	MLDH1250L30	41.1	43	85			2
1.30	2	★	MLDH1300P	3.3	5.2	45	0.2	3.0	1
	5	★	MLDH1300L5	12.1	14	55.0			2
	12	★	MLDH1300L12	20.1	22	65			2
	20	★	MLDH1300L20	29.1	31	75			2
	30	★	MLDH1300L30	42.1	44	85			2
1.35	2	★	MLDH1350P	3.4	5.4	45	0.2	3.0	1
	5	★	MLDH1350L5	12.0	14	55.0			2
	12	★	MLDH1350L12	21.0	23	65			2
	20	★	MLDH1350L20	30.0	32	75			2
	30	★	MLDH1350L30	44.0	46	90			2
1.40	2	★	MLDH1400P	3.5	5.6	45	0.2	3.0	1
	5	★	MLDH1400L5	11.9	14	55.0			2
	12	★	MLDH1400L12	21.9	24	65			2
	20	★	MLDH1400L20	31.9	34	75			2
	30	★	MLDH1400L30	45.9	48	90			2
1.45	2	★	MLDH1450P	3.6	5.8	45	0.2	3.0	1
	5	★	MLDH1450L5	13.8	16	55.0			2
	12	★	MLDH1450L12	22.8	25	65			2
	20	★	MLDH1450L20	32.8	35	75			2
	30	★	MLDH1450L30	46.8	49	90			2
1.50	2	★	MLDH1500P	3.8	6	45	0.2	3.0	1
	5	★	MLDH1500L5	13.8	16	55.0			2
	12	★	MLDH1500L12	23.8	26	65			2
	20	★	MLDH1500L20	33.8	36	75			2
	30	★	MLDH1500L30	48.8	51	90			2
1.55	2	★	MLDH1550P	3.9	6.2	45	0.2	3.0	1
	5	★	MLDH1550L5	13.7	16	55.0			2
	12	★	MLDH1550L12	23.7	26	65			2
	20	★	MLDH1550L20	34.7	37	80			2
	30	★	MLDH1550L30	50.7	53	95			2
1.60	2	★	MLDH1600P	4.0	6.4	45	0.3	3.0	1
	5	★	MLDH1600L5	13.6	16	55.0			2
	12	★	MLDH1600L12	24.6	27	70			2
	20	★	MLDH1600L20	35.6	38	80			2
	30	★	MLDH1600L30	51.6	54	95			2

Part Number Suffix P: For Guide Hole
Grade: ACV70

Diameter $\phi 1.65$ to 2.00mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
1.65	2	★	MLDH1650P	4.1	6.6	50	0.3	3.0	1
	5	★	MLDH1650L5	15.5	18	60.0			2
	12	★	MLDH1650L12	25.5	28	70			2
	20	★	MLDH1650L20	37.5	40	80			2
	30	★	MLDH1650L30	53.5	56	95			2
1.70	2	★	MLDH1700P	4.3	6.8	50	0.3	3.0	1
	5	★	MLDH1700L5	15.5	18	60.0			2
	12	★	MLDH1700L12	26.5	29	70			2
	20	★	MLDH1700L20	38.5	41	80			2
	30	★	MLDH1700L30	55.5	58	100			2
1.75	2	★	MLDH1750P	4.4	7	50	0.3	3.0	1
	5	★	MLDH1750L5	15.4	18	60.0			2
	12	★	MLDH1750L12	27.4	30	70			2
	20	★	MLDH1750L20	39.4	42	85			2
	30	★	MLDH1750L30	57.4	60	100			2
1.80	2	★	MLDH1800P	4.5	7.2	50	0.3	3.0	1
	5	★	MLDH1800L5	15.3	18	60.0			2
	12	★	MLDH1800L12	28.3	31	70			2
	20	★	MLDH1800L20	40.3	43	85			2
	30	★	MLDH1800L30	58.3	61	100			2
1.85	2	★	MLDH1850P	4.6	7.4	50	0.3	3.0	1
	5	★	MLDH1850L5	17.2	20	60.0			2
	12	★	MLDH1850L12	28.2	31	70			2
	20	★	MLDH1850L20	41.2	44	85			2
	30	★	MLDH1850L30	59.2	62	103			2
1.90	2	★	MLDH1900P	4.8	7.6	50	0.3	3.0	1
	5	★	MLDH1900L5	17.2	20	60.0			2
	12	★	MLDH1900L12	29.2	32	75			2
	20	★	MLDH1900L20	43.2	46	85			2
	30	★	MLDH1900L30	60.2	63	103			2
1.95	2	★	MLDH1950P	4.9	7.8	50	0.3	3.0	1
	5	★	MLDH1950L5	17.1	20	60.0			2
	12	★	MLDH1950L12	30.1	33	75			2
	20	★	MLDH1950L20	44.1	47	85			2
	30	★	MLDH1950L30	61.1	64	103			2
2.00	2	★	MLDH2000P	5.0	8	50	0.3	3.0	1
	5	★	MLDH2000L5	17.0	20	60.0			2
	12	★	MLDH2000L12	31.0	34	75			2
	20	★	MLDH2000L20	45.0	48	90			2
	30	★	MLDH2000L30	63.0	66	103			2

Part Number Suffix P: For Guide Hole
Grade: ACV70

★: Worldwide Warehouse Item

Drilling

Solid

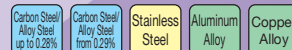
Indexable
Head TypeIndexable
Insert Type

Reamers

Brazed

Others

Micro & Mini Drills MDUS / MDSS



For Steel, Stainless Steel and Other Metals

■ Micro Drill: MDUS $\phi 0.03$ to $\phi 0.19$ mm

- High-precision shank (Shank tolerance h3, circularity $0.3\mu\text{m}$ or less, cylindricity $0.5\mu\text{m}$ or less)
- New ultra-thin TiAlN coating gives improved wear resistance
- Perfect for drilling steel, stainless steel, or copper
- Available from $\phi 0.03$ mm to $\phi 0.19$ mm in 0.005 mm increments

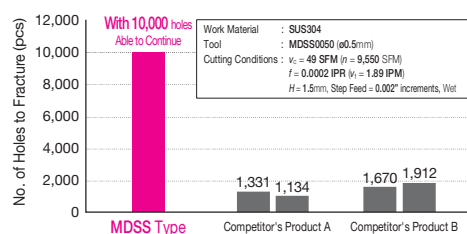
■ Application Examples

Part Material	: 304 Stainless Steel
Tool	: MDUS 0030-30C ($\phi 0.03$ mm)
Cutting Conditions	: $n = 15,000$ RPM, $v_f = 0.118$ " IPM Step Feed = 0.0001 "

Part Material	: 316 Stainless Steel
Tool	: MDUS 0100-30C ($\phi 0.04$ ")
Cutting Conditions	: $n = 20,000$ RPM, $v_f = 0.787$ IPM Step Feed = 0.0004 "

■ Solid Carbide MINI Drill: MDSS $\phi 0.20$ to $\phi 1.00$ mm

- The combination of a hard, tough carbide substrate and a high-rigidity design (web thickness, flute width ratio, helix angle) greatly improves fracture resistance
- PVD coating designed for small drills significantly extends tool life
- Can be used for a wide range of work materials including carbon steel, alloy steel, die steel, and stainless steel
- Shanks standardised to $\phi 3$ mm diameter and overall length of 38mm for greater ease of use



MDSS Recommended Cutting Conditions (Wet) <Inquire about cutting conditions for the MDUS type>

Work Material	Alloy Steel, Pre-hardened Steel SCM, NAK			Die Steel, Tempered Steel (30 to 40HRC)			Stainless Steel SUS		
Cutting Conditions	Spindle Speed min ⁻¹	Feed Rate mm/min	Step Feed (mm)	Spindle Speed min ⁻¹	Feed Rate mm/min	Step Feed (mm)	Spindle Speed min ⁻¹	Feed Rate mm/min	Step Feed (mm)
Dia. DC (mm)									
$\phi 0.2$	26,500	50	0.1D	21,200	40	0.1D	10,600	20	0.1D
$\phi 0.3$	26,500	80		21,200	60		10,600	30	
$\phi 0.4$	25,900	100		19,900	80		9,500	40	
$\phi 0.5$	25,500	150		19,100	110		9,500	50	
$\phi 1.0$	15,900	240	0.2D to 0.5D	12,700	190	0.2D to 0.5D	5,600	80	

1. The conditions on the left are recommended under wet conditions, using water-soluble coolant.
2. If cutting noise and vibration are present, please adjust the cutting conditions accordingly.
3. If the machine cannot achieve the standard spindle speed, please use the maximum spindle speed available.
In this case, lower the feed rate by the same ratio.

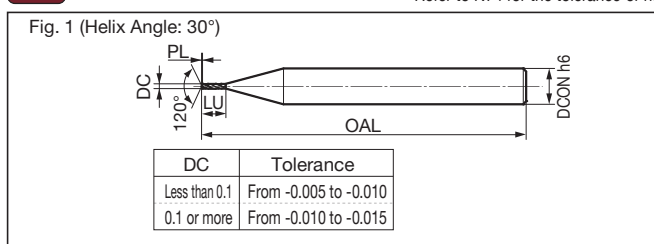
* Step feed is recommended for drilling of holes deeper than 3xD (D=drill diameter).

■ Micro Pointing Drill MDUP $\phi 0.03$ to $\phi 0.18$ mm

- For drilling guide holes for MDUS drills



*Refer to N74 for the tolerance of h6

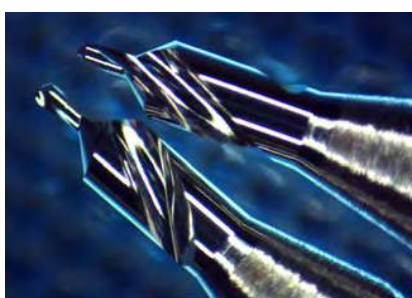


Micro Multi Pointing Drill MDUP Diameter $\phi 0.03$ to 0.18 mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Effective Length LU	Overall Length OAL	Tip PL	Shank Dia. DCON	Fig
0.03	★	MDUP0030-30C	0.02	38.2	0.01	3.0	1
0.04	★	MDUP0040-30C	0.04	38.2	0.01	3.0	1
0.05	★	MDUP0050-30C	0.05	38.2	0.01	3.0	1
0.08	★	MDUP0080-30C	0.06	38.2	0.02	3.0	1
0.10	★	MDUP0100-30C	0.10	38.2	0.03	3.0	1
0.12	★	MDUP0120-30C	0.08	38.2	0.03	3.0	1
0.15	★	MDUP0150-30C	0.08	38.2	0.04	3.0	1
0.18	★	MDUP0180-30C	0.17	38.2	0.05	3.0	1

Grade: KP011

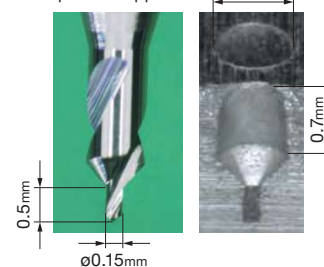
For Ceramics and Non-metals



■ Made-to-order Fine Drills $\phi 0.02$ mm up

- Dedicated cutting edge designs are available for various work materials including non-metals, ceramics, and resins
- Customized designs are also available for improved efficiency, such as integration of processes by using a stepped drill
- Various drill diameters (from $\phi 0.02$) and LxDs are available to order (Contact us for possible profiles)

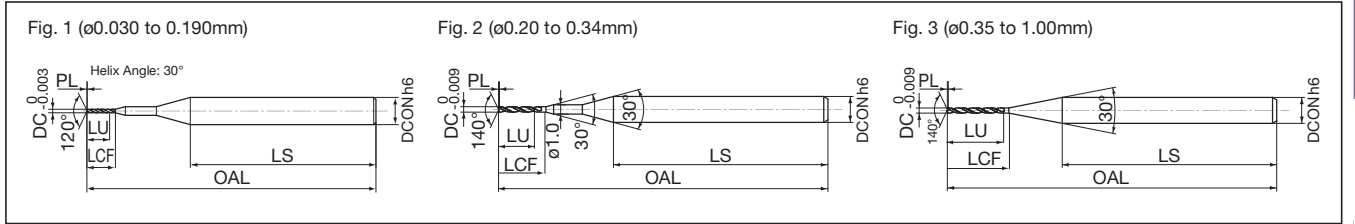
Example of Proposed Stepped Drill $\phi 0.5$ mm



Micro & Mini Drills MDUS / MDSS (External Coolant Supply/Small Diameter)



*Refer to N74 for the tolerance of h6



Diameter ø0.030 to 0.49mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank LS	Shank Dia. DCON	Fig
0.030	10	★	MDUS0030-30C	0.26	0.30					1
0.035			MDUS0035-30C	0.35	0.40					1
0.040	10	★	MDUS0040-30C	0.34	0.39	38.0	0.01	28	3.0	1
0.045			MDUS0045-30C	0.46	0.52					1
0.050		★	MDUS0050-30C	0.45	0.51					1
0.055			MDUS0055-30C	0.55	0.63					1
0.060			MDUS0060-30C	0.54	0.61					1
0.065			MDUS0065-30C	0.64	0.73					1
0.070	10		MDUS0070-30C	0.63	0.72	38.0	0.02	28	3.0	1
0.075			MDUS0075-30C	0.73	0.83					1
0.080		★	MDUS0080-30C	0.72	0.82					1
0.085			MDUS0085-30C	0.92	1.05					1
0.090			MDUS0090-30C	0.91	1.03					1
0.095			MDUS0095-30C	0.91	1.03					1
0.100	10	★	MDUS0100-30C	0.90	1.02	38.0	0.03	28	3.0	1
0.110			MDUS0110-30C	1.09	1.24					1
0.120		★	MDUS0120-30C	1.08	1.23					1
0.130			MDUS0130-30C	1.37	1.56					1
0.140	10		MDUS0140-30C	1.36	1.55	38.0	0.04	28	3.0	1
0.150		★	MDUS0150-30C	1.35	1.53					1
0.160			MDUS0160-30C	1.64	1.86					1
0.170	10		MDUS0170-30C	1.63	1.85	38.0	0.05	28	3.0	1
0.180		★	MDUS0180-30C	1.62	1.84					1
0.190			MDUS0190-30C	1.71	1.94					1
0.20		★	MDSS0020	2.25	2.5					2
0.21		★	MDSS0021	2.24	2.5					2
0.22	10	★	MDSS0022	2.23	2.5	38	0.04	28	3.0	2
0.23		★	MDSS0023	2.21	2.5					2
0.24		★	MDSS0024	2.20	2.5					2
0.25		★	MDSS0025	2.19	2.5					2
0.26		★	MDSS0026	2.18	2.5					2
0.27	10	★	MDSS0027	2.16	2.5	38	0.05	28	3.0	2
0.28		★	MDSS0028	2.15	2.5					2
0.29		★	MDSS0029	2.14	2.5					2
0.30		★	MDSS0030	2.6	3.0					2
0.31		★	MDSS0031	2.6	3.0					2
0.32	10	★	MDSS0032	2.6	3.0	38	0.06	28	3.0	2
0.33		★	MDSS0033	2.6	3.0					2
0.34		★	MDSS0034	2.6	3.0					2
0.35		★	MDSS0035	3.6	4.0					3
0.36		★	MDSS0036	3.6	4.0					3
0.37	10	★	MDSS0037	3.5	4.0	38	0.07	28	3.0	3
0.38		★	MDSS0038	3.5	4.0					3
0.39		★	MDSS0039	3.5	4.0					3
0.40		★	MDSS0040	4.5	5.0					3
0.41		★	MDSS0041	4.5	5.0					3
0.42		★	MDSS0042	4.5	5.0					3
0.43	10	★	MDSS0043	4.5	5.0	38	0.08	28	3.0	3
0.44		★	MDSS0044	4.5	5.0					3
0.45		★	MDSS0045	4.4	5.0					3
0.46		★	MDSS0046	4.4	5.0					3
0.47	10	★	MDSS0047	4.4	5.0	38	0.09	28	3.0	3
0.48		★	MDSS0048	4.4	5.0					3
0.49		★	MDSS0049	4.4	5.0					3

Grade: ACF40B (MDUS, KP011/MDSS)

Diameter ø0.50 to 1.00mm

Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Stock	Cat. No.	Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank LS	Shank Dia. DCON	Fig
0.50		★	MDSS0050	5.4	6.0					3
0.51	10	★	MDSS0051	5.4	6.0	38	0.09	27	3.0	3
0.52		★	MDSS0052	5.4	6.0					3
0.53		★	MDSS0053	5.3	6.0					3
0.54		★	MDSS0054	5.3	6.0					3
0.55	10	★	MDSS0055	5.3	6.0	38	0.10	27	3.0	3
0.56		★	MDSS0056	5.3	6.0					3
0.57		★	MDSS0057	5.3	6.0					3
0.58		★	MDSS0058	5.3	6.0			27		3
0.59		★	MDSS0059	5.3	6.0					3
0.60	10	★	MDSS0060	6.3	7.0	38	0.11		3.0	3
0.61		★	MDSS0061	6.2	7.0			26		3
0.62		★	MDSS0062	6.2	7.0					3
0.63		★	MDSS0063	6.2	7.0					3
0.64		★	MDSS0064	6.2	7.0					3
0.65		★	MDSS0065	6.2	7.0					3
0.66	10	★	MDSS0066	6.2	7.0	38	0.12	26	3.0	3
0.67		★	MDSS0067	6.2	7.0					3
0.68		★	MDSS0068	6.2	7.0			26		3
0.69		★	MDSS0069	6.1	7.0					3
0.70		★	MDSS0070	8.1	9.0					3
0.71	10	★	MDSS0071	8.1	9.0	38	0.13	24	3.0	3
0.72		★	MDSS0072	8.1	9.0					3
0.73		★	MDSS0073	8.1	9.0					3
0.74		★	MDSS0074	8.1	9.0					3
0.75		★	MDSS0075	8.1	9.0					3
0.76	10	★	MDSS0076	8.1	9.0	38	0.14	24	3.0	3
0.77		★	MDSS0077	8.0	9.0					3
0.78		★	MDSS0078	8.0	9.0					3
0.79		★	MDSS0079	8.0	9.0					3
0.80		★	MDSS0080	9.0	10.0					3
0.81	10	★	MDSS0081	9.0	10.0	38	0.15	23	3.0	3
0.82		★	MDSS0082	9.0	10.0					3
0.83		★	MDSS0083	9.0	10.0					3
0.84		★	MDSS0084	9.0	10.0					3
0.85		★	MDSS0085	8.9	10.0					3
0.86		★	MDSS0086	8.9	10.0					3
0.87	10	★	MDSS0087	8.9	10.0	38	0.16	23	3.0	3
0.88		★	MDSS0088	8.9	10.0					3
0.89		★	MDSS0089	8.9	10.0			22		3
0.90		★	MDSS0090	9.9	11.0					3
0.91		★	MDSS0091	9.9	11.0					3
0.92	10	★	MDSS0092	9.9	11.0	38	0.17	22	3.0	3
0.93		★	MDSS0093	9.8	11.0					3
0.94		★	MDSS0094	9.8	11.0					3
0.95		★	MDSS0095	9.8	11.0					3
0.96		★	MDSS0096	9.8	11.0					3
0.97	10	★	MDSS0097	9.8	11.0	38	0.18	22	3.0	3
0.98		★	MDSS0098	9.8	11.0					3
0.99		★	MDSS0099	9.8	11.0					3
1.00		★	MDSS0100	10.8	12.0			21		3

Grade: ACF40B (MDUS, KP011/MDSS Type)

★ : Worldwide Warehouse Item

Drilling

Solid

Indexable
Head Type

Indexable
Insert Type

Reamers

Brazed

Others