



# DRA Magic Drill

High Efficiency Modular Drill



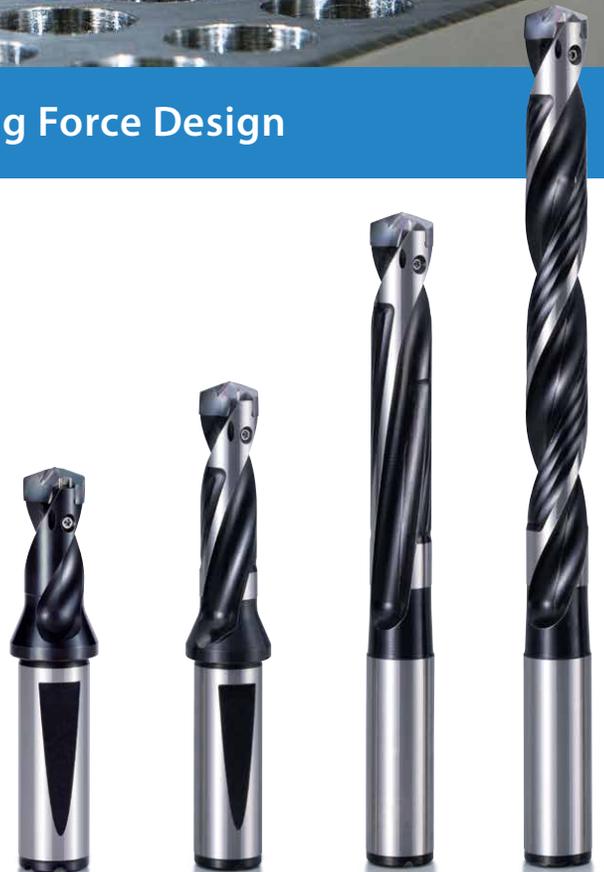
Excellent Hole Accuracy with a Low Cutting Force Design

- Optimal Web Thickness Limits Deflection
- Fine Chip Breaking and Smooth Deep Hole Cutting
- Easy Insert Replacement

NEW



New 1.5xD Sizes



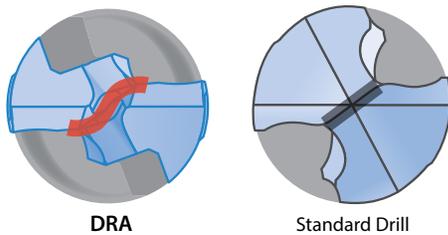
# DRA Magic Drill

Excellent Hole Accuracy with a Low Cutting Force Design  
5 Advantages to Efficiently Solve Common Drilling Difficulties

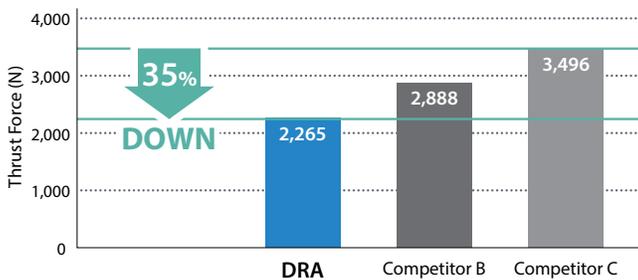
## 1 Low Cutting Force Design Improves Hole Accuracy

The special chisel edge with S-curve reduces thrust force and controls vibration.

Cutting Edge Image



Low Cutting Force Comparison  
(In-house Evaluation)

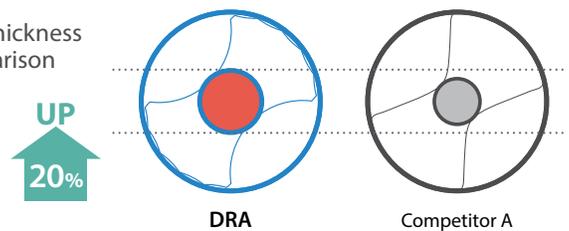


Cutting Conditions :  $V_c = 390$  sfm,  $f = 0.010$  ipr,  
Drilling Diameter  $\varnothing 0.551$ ", Drilling Depth 1.772", Wet

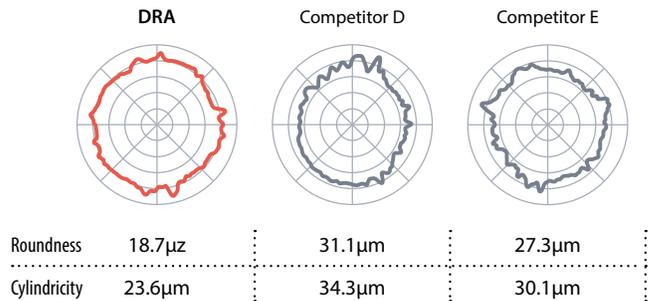
## 2 Optimal Web Thickness Limits Deflection

The hole accuracy is improved by controlling drill deflection with a 20% thicker web compared with Competitor A.

Web Thickness Comparison



Roundness · Cylindricity Comparison  
(In-house Evaluation)



Cutting Conditions :  $V_c = 390$  sfm,  $f = 0.012$  ipr  
Drilling Diameter  $\varnothing 0.551$ ", Measurement Position 2.165", Wet Workpiece : 1049 Steel

## 3 Fine Chip Breaking Even in Deep Hole Drilling Applications

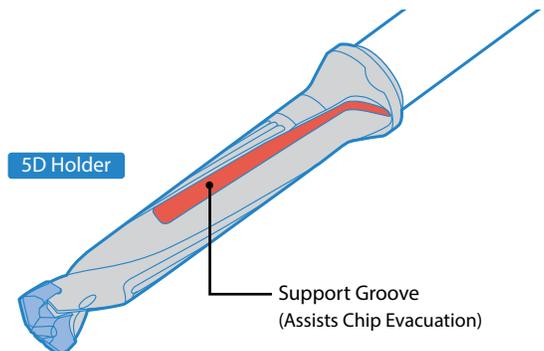
Optimized Chip Thinning for Stable Chip Evacuation

Support Groove with Wider Flute (5D, 8D) Enables Smooth Chip Evacuation

Chip Comparison  
(In-house Evaluation)

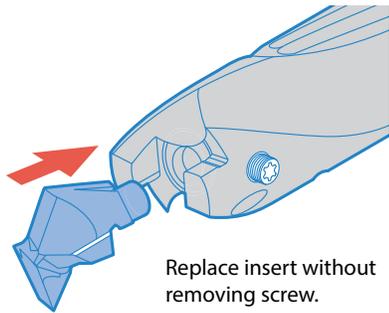


Cutting Conditions :  $V_c = 200$  sfm,  $f = 0.008$  ipr, Drilling Diameter 0.551"  
Drilling Depth 2.756", Wet Workpiece : 304 Stainless Steel

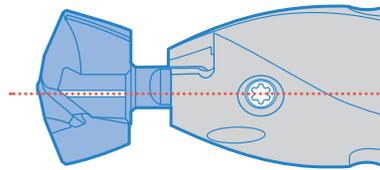


# 4 Easy Insert Replacement

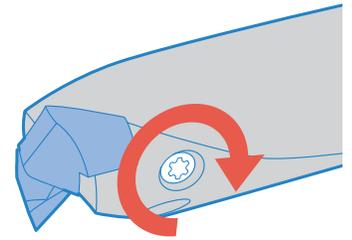
## Replace Insert Without Removing Screw



Replace insert without removing screw.



Install the insert onto toolholder. (Align insert guide line with screw position)



Fix the insert by tightening the screw.

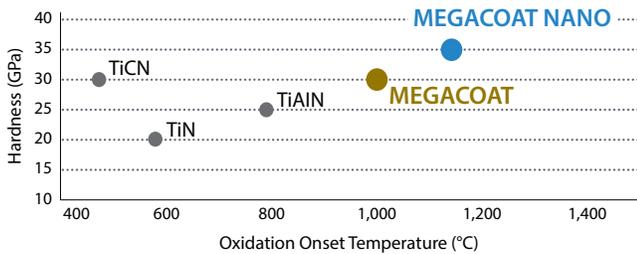
# 5 Long Tool Life and Stable Machining of Various Workpieces

MEGACOAT NANO grade PR1535 is used to machine various materials from steel to stainless steel, with the combination of a tough substrate and a special nano layer coating.

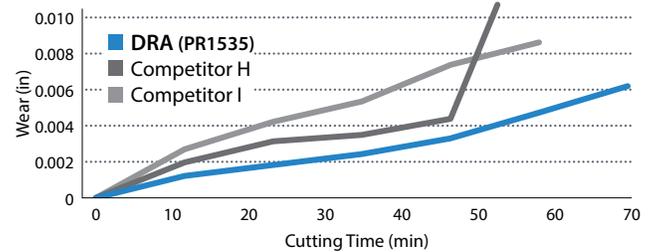
1st Recommendation

Steel PR1535	Cast Iron PR1525
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### Coating Properties



### Wear Resistance Comparison (In-house Evaluation)

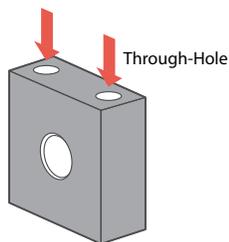


Cutting Conditions:  $V_c = 330$  sfm,  $f = 0.010$  ipr, Cutting Diameter  $\varnothing 0.551$ ", Cutting Depth 1.772", Wet

## Case Studies

### Attachment - Structural Steel

$V_c = 230$  sfm ( $n = 1,240$  rpm)  
 $f = 0.009$  ipr ( $V_f = 11.221$  in/min)  
 Cutting Depth 3.937"  
 Wet (Internal Coolant)  
 With Center Hole Drilling  
 SF0750-DRA180M-8  
 DA1800M-GM PR1535



Cutting Time

**DRA**  $\varnothing 0.709$ "-8D

**45 sec**

**30%**  
Cutting Time

Competitor J  
 $\varnothing 0.709$ "-7D

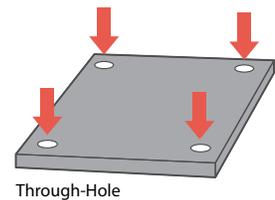
**65 sec**

Competitor J applied a peck cycle to avoid chip clogging.  
 DRA controlled chip evacuation without pecking.

(User Evaluation)

### Plate - Stainless Steel

$V_c = 195$  sfm ( $n = 2,120$  rpm)  
 $f = 0.005$  ipr ( $V_f = 10$  in/min)  
 Cutting Depth 0.591"  
 Wet (Internal Coolant)  
 SS0375-DRA090M-3  
 DA0900M-GM PR1535



No. of Holes

**DRA**  $\varnothing 0.354$ "-3D

**500**

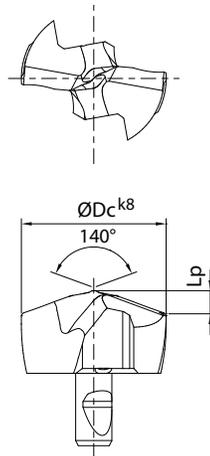
**Tool Life**  
X5

Competitor K  
 $\varnothing 0.354$ "-3D

**100**

DRA extended the tool life by 5 times compared to Competitor K.  
 DRA maintained stable machining and excellent surface finish with less cutting noise.

(User Evaluation)



**k8 Tolerance**

ØDc (in)	k8 (in)	ØDc (mm)	k8 (mm)
0.313 ~ 0.394	+0.0009 0	7.94 ~ 10.00	+0.022 0
0.394 ~ 0.709	+0.0011 0	10.10 ~ 18.00	+0.027 0
0.713 ~ 1.004	+0.0013 0	18.10 ~ 25.50	+0.033 0

k8 is the dimension tolerance of the insert.  
It is not the tolerance of the cutting diameter.

1st Recommendation

<b>Steel</b> PR1535	<b>Cast Iron</b> PR1525
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**Inserts**

Part Number	Dimensions			Grade		Applicable Toolholder
	ØDc		Lp (in)	PR1535	PR1525	
	in	mm				
DA0794M-GM	0.313	7.94	0.053	●	●	SS0375-DRA080M-○ SF0500-DRA080M-○ (SS10-DRA080M-○) (SF12-DRA080M-○)
DA0800M-GM	0.315	8.00	0.053	●	●	
DA0810M-GM	0.319	8.10	0.054	●	●	
DA0818M-GM	0.322	8.18	0.054	●	■	
DA0820M-GM	0.323	8.20	0.055	●	●	
DA0830M-GM	0.327	8.30	0.055	●	●	
DA0840M-GM	0.331	8.40	0.056	●	●	
DA0850M-GM	0.335	8.50	0.057	●	●	SS0375-DRA085M-○ SF0500-DRA085M-○ (SS10-DRA085M-○) (SF12-DRA085M-○)
DA0860M-GM	0.339	8.60	0.057	●	●	
DA0870M-GM	0.343	8.70	0.058	●	●	
DA0880M-GM	0.346	8.80	0.059	●	●	
DA0890M-GM	0.350	8.90	0.060	●	●	
DA0900M-GM	0.354	9.00	0.060	●	●	SS0375-DRA090M-○ SF0500-DRA090M-○ (SS10-DRA090M-○) (SF12-DRA090M-○)
DA0910M-GM	0.358	9.10	0.061	●	●	
DA0920M-GM	0.362	9.20	0.061	●	●	
DA0930M-GM	0.366	9.30	0.062	●	●	
DA0940M-GM	0.370	9.40	0.063	●	●	SS0500-DRA095M-○ SF0500-DRA095M-○ (SS10-DRA095M-○) (SF12-DRA095M-○)
DA0950M-GM	0.374	9.50	0.063	●	●	
DA0953M-GM	0.375	9.53	0.064	●	■	
DA0960M-GM	0.378	9.60	0.064	●	●	
DA0970M-GM	0.382	9.70	0.065	●	●	
DA0980M-GM	0.386	9.80	0.066	●	●	
DA0990M-GM	0.390	9.90	0.066	●	●	SS0500-DRA100M-○ SF0625-DRA100M-○ (SS12-DRA100M-○) (SF16-DRA100M-○)
DA1000M-GM	0.394	10.00	0.067	●	●	
DA1010M-GM	0.398	10.10	0.068	●	●	
DA1020M-GM	0.402	10.20	0.068	●	●	
DA1030M-GM	0.406	10.30	0.069	●	●	
DA1040M-GM	0.409	10.40	0.070	●	●	

Part Number	Dimensions			Grade		Applicable Toolholder
	ØDc		Lp (in)	PR1535	PR1525	
	in	mm				
DA1050M-GM	0.413	10.50	0.071	●	●	SS0500-DRA105M-○ SF0625-DRA105M-○ (SS12-DRA105M-○) (SF16-DRA105M-○)
DA1060M-GM	0.417	10.60	0.071	●	●	
DA1070M-GM	0.421	10.70	0.072	●	●	
DA1072M-GM	0.422	10.72	0.072	●	■	
DA1080M-GM	0.425	10.80	0.073	●	●	
DA1090M-GM	0.429	10.90	0.073	●	●	
DA1100M-GM	0.433	11.00	0.074	●	●	
DA1110M-GM	0.437	11.10	0.074	●	●	
DA1120M-GM	0.441	11.20	0.075	●	●	
DA1130M-GM	0.445	11.30	0.076	●	●	
DA1140M-GM	0.449	11.40	0.076	●	●	SS0500-DRA115M-○ SF0625-DRA115M-○ (SS12-DRA115M-○) (SF16-DRA115M-○)
DA1150M-GM	0.453	11.50	0.077	●	●	
DA1160M-GM	0.457	11.60	0.078	●	●	
DA1170M-GM	0.461	11.70	0.079	●	●	
DA1180M-GM	0.465	11.80	0.079	●	●	
DA1190M-GM	0.469	11.90	0.080	●	●	
DA1200M-GM	0.472	12.00	0.080	●	●	
DA1210M-GM	0.476	12.10	0.081	●	●	
DA1220M-GM	0.480	12.20	0.081	●	●	
DA1230M-GM	0.484	12.30	0.082	●	●	SS0625-DRA125M-○ SF0625-DRA125M-○ (SS14-DRA125M-○) (SF16-DRA125M-○)
DA1240M-GM	0.488	12.40	0.083	●	●	
DA1250M-GM	0.492	12.50	0.083	●	●	
DA1260M-GM	0.496	12.60	0.084	●	●	
DA1270M-GM	0.500	12.70	0.085	●	●	
DA1280M-GM	0.504	12.80	0.086	●	●	SS0625-DRA125M-○ SF0625-DRA125M-○ (SS14-DRA125M-○) (SF16-DRA125M-○)
DA1290M-GM	0.508	12.90	0.086	●	●	

Applicable Toolholders in ( ) are metric

● : U.S. Stock ■ : Quoted Item (Made to Order)

**Inserts Sold in 1 Piece Boxes**

Inserts

Part Number	Dimensions			Grade		Applicable Toolholder
	ØDc		Lp (in)	PR1535	PR1525	
	in	mm				
DA1300M-GM	0.512	13.00	0.087	●	●	SS0625-DRA130M-○ SF0625-DRA130M-○ (SS14-DRA130M-○) (SF16-DRA130M-○)
DA1310M-GM	0.516	13.10	0.087	●	●	
DA1320M-GM	0.520	13.20	0.088	●	●	
DA1330M-GM	0.524	13.30	0.089	●	●	
DA1340M-GM	0.528	13.40	0.089	●	●	
DA1350M-GM	0.531	13.50	0.090	●	●	SS0625-DRA135M-○ SF0625-DRA135M-○ (SS14-DRA135M-○) (SF16-DRA135M-○)
DA1360M-GM	0.535	13.60	0.091	●	●	
DA1370M-GM	0.539	13.70	0.092	●	●	
DA1380M-GM	0.543	13.80	0.092	●	●	
DA1390M-GM	0.547	13.90	0.093	●	●	
DA1400M-GM	0.551	14.00	0.092	●	●	SS0625-DRA140M-○ SF0625-DRA140M-○ (SS16-DRA140M-○) (SF16-DRA140M-○)
DA1410M-GM	0.555	14.10	0.092	●	●	
DA1420M-GM	0.559	14.20	0.093	●	●	
DA1430M-GM	0.563	14.30	0.094	●	●	
DA1440M-GM	0.567	14.40	0.094	●	●	
DA1450M-GM	0.571	14.50	0.095	●	●	SS0625-DRA145M-○ SF0625-DRA145M-○ (SS16-DRA145M-○) (SF16-DRA145M-○)
DA1460M-GM	0.575	14.60	0.096	●	●	
DA1468M-GM	0.578	14.68	0.096	●	■	
DA1470M-GM	0.579	14.70	0.097	●	●	
DA1480M-GM	0.583	14.80	0.097	●	●	
DA1490M-GM	0.590	14.90	0.098	●	●	SS0625-DRA150M-○ SF0750-DRA150M-○ (SS16-DRA150M-○) (SF20-DRA150M-○)
DA1500M-GM	0.591	15.00	0.099	●	●	
DA1510M-GM	0.594	15.10	0.100	●	●	
DA1520M-GM	0.598	15.20	0.101	●	●	
DA1530M-GM	0.602	15.30	0.101	●	●	
DA1540M-GM	0.606	15.40	0.102	●	●	SS0625-DRA150M-○ SF0750-DRA150M-○ (SS16-DRA150M-○) (SF20-DRA150M-○)
DA1550M-GM	0.610	15.50	0.103	●	●	
DA1560M-GM	0.614	15.60	0.103	●	●	
DA1570M-GM	0.618	15.70	0.104	●	●	
DA1580M-GM	0.622	15.80	0.105	●	●	
DA1590M-GM	0.626	15.90	0.106	●	●	SS0750-DRA160M-○ SF0750-DRA160M-○ (SS18-DRA160M-○) (SF20-DRA160M-○)
DA1600M-GM	0.630	16.00	0.106	●	●	
DA1610M-GM	0.634	16.10	0.107	●	●	
DA1620M-GM	0.638	16.20	0.107	●	●	
DA1630M-GM	0.642	16.30	0.108	●	●	
DA1640M-GM	0.646	16.40	0.109	●	●	SS0750-DRA170M-○ SF0750-DRA170M-○ (SS18-DRA170M-○) (SF20-DRA170M-○)
DA1650M-GM	0.650	16.50	0.110	●	●	
DA1660M-GM	0.654	16.60	0.110	●	●	
DA1667M-GM	0.656	16.67	0.111	●	■	
DA1670M-GM	0.657	16.70	0.111	●	●	
DA1680M-GM	0.661	16.80	0.112	●	●	SS0750-DRA170M-○ SF0750-DRA170M-○ (SS18-DRA170M-○) (SF20-DRA170M-○)
DA1690M-GM	0.665	16.90	0.112	●	●	
DA1700M-GM	0.669	17.00	0.113	●	●	
DA1710M-GM	0.673	17.10	0.113	●	●	
DA1720M-GM	0.677	17.20	0.114	●	●	
DA1730M-GM	0.681	17.30	0.115	●	●	SS0750-DRA170M-○ SF0750-DRA170M-○ (SS18-DRA170M-○) (SF20-DRA170M-○)
DA1740M-GM	0.685	17.40	0.116	●	●	

Part Number	Dimensions			Grade		Applicable Toolholder
	ØDc		Lp (in)	PR1535	PR1525	
	in	mm				
DA1746M-GM	0.687	17.46	0.116	●	■	SS0750-DRA170M-○ SF0750-DRA170M-○ (SS18-DRA170M-○) (SF20-DRA170M-○)
DA1750M-GM	0.689	17.50	0.116	●	●	
DA1760M-GM	0.693	17.60	0.117	●	●	
DA1770M-GM	0.697	17.70	0.118	●	●	
DA1780M-GM	0.701	17.80	0.118	●	●	
DA1790M-GM	0.705	17.90	0.119	●	●	SS0750-DRA180M-○ SF0750-DRA180M-○ (SS20-DRA180M-○) (SF25-DRA180M-○)
DA1800M-GM	0.709	18.00	0.120	●	●	
DA1810M-GM	0.713	18.10	0.120	●	●	
DA1820M-GM	0.717	18.20	0.121	●	●	
DA1830M-GM	0.720	18.30	0.122	●	●	
DA1840M-GM	0.724	18.40	0.122	●	●	SS1000-DRA190M-○ SF0750-DRA190M-○ (SS20-DRA190M-○) (SF25-DRA190M-○)
DA1850M-GM	0.728	18.50	0.123	●	●	
DA1860M-GM	0.732	18.60	0.124	●	●	
DA1870M-GM	0.736	18.70	0.125	●	●	
DA1880M-GM	0.740	18.80	0.125	●	●	
DA1890M-GM	0.744	18.90	0.126	●	●	SS1000-DRA190M-○ SF0750-DRA190M-○ (SS20-DRA190M-○) (SF25-DRA190M-○)
DA1900M-GM	0.748	19.00	0.126	●	●	
DA1905M-GM	0.750	19.05	0.127	●	■	
DA1910M-GM	0.752	19.10	0.127	●	●	
DA1920M-GM	0.756	19.20	0.128	●	●	
DA1930M-GM	0.760	19.30	0.129	●	●	SS1000-DRA200M-○ SF1000-DRA200M-○ (SS25-DRA200M-○) (SF25-DRA200M-○)
DA1940M-GM	0.764	19.40	0.129	●	●	
DA1950M-GM	0.768	19.50	0.130	●	●	
DA1960M-GM	0.772	19.60	0.131	●	●	
DA1970M-GM	0.776	19.70	0.132	●	●	
DA1980M-GM	0.780	19.80	0.132	●	●	SS1000-DRA200M-○ SF1000-DRA200M-○ (SS25-DRA200M-○) (SF25-DRA200M-○)
DA1990M-GM	0.783	19.90	0.133	●	●	
DA2000M-GM	0.787	20.00	0.133	●	●	
DA2010M-GM	0.791	20.10	0.134	●	●	
DA2020M-GM	0.795	20.20	0.134	●	●	
DA2030M-GM	0.799	20.30	0.135	●	●	SS1000-DRA200M-○ SF1000-DRA200M-○ (SS25-DRA200M-○) (SF25-DRA200M-○)
DA2040M-GM	0.803	20.40	0.136	●	●	
DA2050M-GM	0.807	20.50	0.136	●	●	
DA2060M-GM	0.811	20.60	0.137	●	●	
DA2064M-GM	0.813	20.64	0.137	●	■	
DA2070M-GM	0.815	20.70	0.138	●	●	SS1000-DRA210M-○ SF1000-DRA210M-○ (SS25-DRA210M-○) (SF25-DRA210M-○)
DA2080M-GM	0.819	20.80	0.139	●	●	
DA2090M-GM	0.823	20.90	0.139	●	●	
DA2100M-GM	0.827	21.00	0.140	●	●	
DA2150M-GM	0.846	21.50	0.143	●	●	
DA2200M-GM	0.866	22.00	0.146	●	●	SS1000-DRA220M-○ SF1000-DRA220M-○ (SS25-DRA220M-○) (SF25-DRA220M-○)
DA2223M-GM	0.875	22.23	0.148	●	■	
DA2250M-GM	0.886	22.50	0.150	●	●	
DA2300M-GM	0.906	23.00	0.153	●	●	
DA2350M-GM	0.925	23.50	0.156	●	●	
DA2381M-GM	0.937	23.81	0.158	●	■	SS1000-DRA230M-○ SF1000-DRA230M-○ (SS25-DRA230M-○) (SF25-DRA230M-○)
DA2400M-GM	0.945	24.00	0.159	●	●	
DA2450M-GM	0.965	24.50	0.163	●	●	
DA2500M-GM	0.984	25.00	0.165	●	●	
DA2540M-GM	1.000	25.40	0.168	●	■	
DA2550M-GM	1.004	25.50	0.169	●	●	SS1000-DRA250M-○ SF1000-DRA250M-○ (SS32-DRA250M-○) (SF25-DRA250M-○)

Applicable Toolholders in ( ) are metric

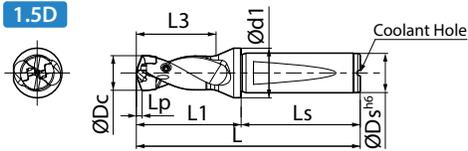
● : U.S. Stock ■ : Quoted Item (Made to Order)

Inserts Sold in 1 Piece Boxes

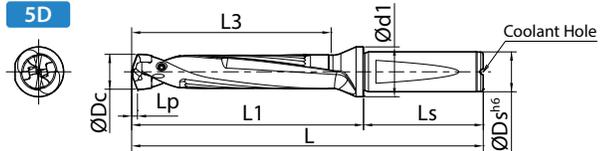
# DRA Toolholders - Inch Sizes (with Flange)



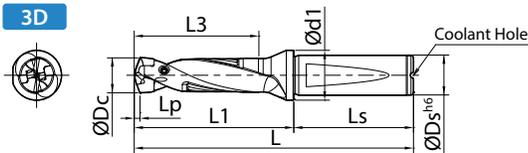
**1.5D**



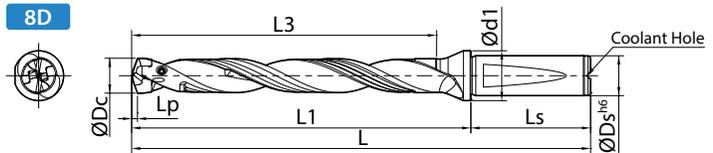
**5D**



**3D**



**8D**



For Lp dimension, reference insert dimension table.

## Toolholder Dimension

**1.5D**

**NEW**

Part Number	Stock	Dimension (in)							Applicable Insert See <a href="#">Page 4-5</a>	Spare Parts			
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench	
		min.	max.										
SF0500-DRA080M-1.5	●	0.313	0.331	0.500	2.805	1.033	0.504	1.772	0.630	DA0794M-GM ~ DA0840M-GM	HS-2524TRP		
SF0500-DRA085M-1.5	●	0.335	0.350		2.854	1.083	0.531						DA0850M-GM ~ DA0890M-GM
SF0500-DRA090M-1.5	●	0.354	0.370		2.904	1.132	0.563						DA0900M-GM ~ DA0940M-GM
SF0500-DRA095M-1.5	●	0.374	0.390		2.953	1.181	0.591						DA0950M-GM ~ DA0990M-GM
SF0625-DRA100M-1.5	●	0.394	0.409	0.625	3.120	1.230	0.622	1.890	0.787	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5	
SF0625-DRA105M-1.5	●	0.413	0.429		3.169	1.280	0.650			DA1050M-GM ~ DA1090M-GM			
SF0625-DRA110M-1.5	●	0.433	0.449		3.258	1.368	0.681			DA1100M-GM ~ DA1140M-GM			
SF0625-DRA115M-1.5	●	0.453	0.469		3.307	1.417	0.709			DA1150M-GM ~ DA1190M-GM			
SF0625-DRA120M-1.5	●	0.472	0.488		3.356	1.467	0.740			DA1200M-GM ~ DA1240M-GM			
SF0625-DRA125M-1.5	●	0.492	0.508		3.406	1.516	0.768			DA1250M-GM ~ DA1290M-GM			
SF0625-DRA130M-1.5	●	0.512	0.528		3.455	1.565	0.799			DA1300M-GM ~ DA1340M-GM			
SF0625-DRA135M-1.5	●	0.531	0.547		3.504	1.614	0.827			DA1350M-GM ~ DA1390M-GM			
SF0625-DRA140M-1.5	●	0.551	0.567	3.553	1.663	0.858	DA1400M-GM ~ DA1440M-GM	HS-3048TRP	FTP-6				
SF0625-DRA145M-1.5	●	0.571	0.590	3.602	1.713	0.886	DA1450M-GM ~ DA1490M-GM						
SF0750-DRA150M-1.5	●	0.591	0.626	0.750	3.819	1.850	0.917	1.969	0.984	DA1500M-GM ~ DA1590M-GM	HS-4067TRP	FTP-7	
SF0750-DRA160M-1.5	●	0.630	0.665		3.957	1.988	0.976			DA1600M-GM ~ DA1690M-GM			
SF0750-DRA170M-1.5	●	0.669	0.705		4.055	2.087	1.035			DA1700M-GM ~ DA1790M-GM			
SF0750-DRA180M-1.5	●	0.709	0.744		4.193	2.224	1.094			DA1800M-GM ~ DA1890M-GM			
SF0750-DRA190M-1.5	●	0.748	0.783	4.291	2.323	1.154	DA1900M-GM ~ DA1990M-GM	2.205	1.260	DA2000M-GM ~ DA2090M-GM	HS-4067TRP	FTP-7	
SF1000-DRA200M-1.5	●	0.787	0.823	4.626	2.421	1.213	DA2100M-GM ~ DA2150M-GM						
SF1000-DRA210M-1.5	●	0.827	0.846	4.724	2.520	1.272	DA2200M-GM ~ DA2250M-GM						
SF1000-DRA220M-1.5	●	0.866	0.886	4.862	2.657	1.331	DA2300M-GM ~ DA2381M-GM						
SF1000-DRA230M-1.5	●	0.906	0.937	4.961	2.756	1.390	DA2400M-GM ~ DA2450M-GM						
SF1000-DRA240M-1.5	●	0.945	0.965	5.059	2.854	1.449	DA2500M-GM ~ DA2550M-GM						
SF1000-DRA250M-1.5	●	0.984	1.004	5.157	2.953	1.508							

● : U.S. Stock

Toolholder Dimension **3D**

Part Number	Stock	Dimension (in) See Diagram on Page 6							Applicable Insert See Page 4-5	Spare Parts								
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench						
		min.	max.															
SF0500-DRA080M-3	●	0.313	0.331	0.500	3.307	1.535	1.004	1.772	0.630	DA0794M-GM ~ DA0840M-GM	HS-2524TRP							
SF0500-DRA085M-3	●	0.335	0.350		3.386	1.614	1.063											
SF0500-DRA090M-3	●	0.354	0.370		3.465	1.693	1.122											
SF0500-DRA095M-3	●	0.374	0.390		3.543	1.772	1.181											
SF0625-DRA100M-3	●	0.394	0.409	0.625	3.740	1.850	1.240	1.890	0.787	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5						
SF0625-DRA105M-3	●	0.413	0.429		3.819	1.929	1.299											
SF0625-DRA110M-3	●	0.433	0.449		3.937	2.047	1.358											
SF0625-DRA115M-3	●	0.453	0.469		4.016	2.126	1.417											
SF0625-DRA120M-3	●	0.472	0.488		4.094	2.205	1.476											
SF0625-DRA125M-3	●	0.492	0.508		4.173	2.283	1.535											
SF0625-DRA130M-3	●	0.512	0.528		4.252	2.362	1.594											
SF0625-DRA135M-3	●	0.531	0.547		4.331	2.441	1.654											
SF0625-DRA140M-3	●	0.551	0.567		4.409	2.520	1.713											
SF0625-DRA145M-3	●	0.571	0.590		4.488	2.598	1.772											
SF0750-DRA150M-3	●	0.591	0.626		0.750	4.764	2.795						1.890	1.969	0.984	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6
SF0750-DRA160M-3	●	0.630	0.665			4.961	2.992						2.008					
SF0750-DRA170M-3	●	0.669	0.705	5.118		3.150	2.126											
SF0750-DRA180M-3	●	0.709	0.744	5.315		3.346	2.244											
SF0750-DRA190M-3	●	0.748	0.783	1.000	5.472	3.504	2.362	2.205	1.260	DA1700M-GM ~ DA1790M-GM	HS-4067TRP	FTP-7						
SF1000-DRA200M-3	●	0.787	0.823		5.866	3.661	2.480											
SF1000-DRA210M-3	●	0.827	0.846		6.024	3.819	2.598											
SF1000-DRA220M-3	●	0.866	0.886		6.220	4.016	2.717											
SF1000-DRA230M-3	●	0.906	0.937		6.378	4.173	2.835											
SF1000-DRA240M-3	●	0.945	0.965		6.535	4.331	2.953											
SF1000-DRA250M-3	●	0.984	1.004		6.693	4.488	3.071											
																DA2000M-GM ~ DA2090M-GM		
										DA2100M-GM ~ DA2150M-GM								
										DA2200M-GM ~ DA2250M-GM								
										DA2300M-GM ~ DA2381M-GM								
										DA2400M-GM ~ DA2450M-GM								
										DA2500M-GM ~ DA2550M-GM								

● : U.S. Stock

Toolholder Dimension **5D**

Part Number	Stock	Dimension (in) See Diagram on Page 6							Applicable Insert See Page 4-5	Spare Parts								
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench						
		min.	max.															
SF0500-DRA080M-5	●	0.313	0.331	0.500	3.976	2.205	1.673	1.772	0.630	DA0794M-GM ~ DA0840M-GM	HS-2524TRP							
SF0500-DRA085M-5	●	0.335	0.350		4.094	2.323	1.772											
SF0500-DRA090M-5	●	0.354	0.370		4.213	2.441	1.870											
SF0500-DRA095M-5	●	0.374	0.390		4.331	2.559	1.969											
SF0625-DRA100M-5	●	0.394	0.409	0.625	4.567	2.677	2.067	1.890	0.787	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5						
SF0625-DRA105M-5	●	0.413	0.429		4.685	2.795	2.165											
SF0625-DRA110M-5	●	0.433	0.449		4.843	2.953	2.264											
SF0625-DRA115M-5	●	0.453	0.469		4.961	3.071	2.362											
SF0625-DRA120M-5	●	0.472	0.488		5.079	3.189	2.461											
SF0625-DRA125M-5	●	0.492	0.508		5.197	3.307	2.559											
SF0625-DRA130M-5	●	0.512	0.528		5.315	3.425	2.657											
SF0625-DRA135M-5	●	0.531	0.547		5.433	3.543	2.756											
SF0625-DRA140M-5	●	0.551	0.567		5.551	3.661	2.854											
SF0625-DRA145M-5	●	0.571	0.590		5.669	3.780	2.953											
SF0750-DRA150M-5	●	0.591	0.626		0.750	6.024	4.055						3.150	1.969	0.984	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6
SF0750-DRA160M-5	●	0.630	0.665			6.299	4.331						3.346					
SF0750-DRA170M-5	●	0.669	0.705	6.535		4.567	3.543											
SF0750-DRA180M-5	●	0.709	0.744	6.811		4.843	3.740											
SF0750-DRA190M-5	●	0.748	0.783	1.000	7.047	5.079	3.937	2.205	1.260	DA1700M-GM ~ DA1790M-GM	HS-4067TRP	FTP-7						
SF1000-DRA200M-5	●	0.787	0.823		7.520	5.315	4.134											
SF1000-DRA210M-5	●	0.827	0.846		7.756	5.551	4.331											
SF1000-DRA220M-5	●	0.866	0.886		8.031	5.827	4.528											
SF1000-DRA230M-5	●	0.906	0.937		8.268	6.063	4.724											
SF1000-DRA240M-5	●	0.945	0.965		8.504	6.299	4.921											
SF1000-DRA250M-5	●	0.984	1.004		8.740	6.535	5.116											
																DA1900M-GM ~ DA1990M-GM		
										DA2000M-GM ~ DA2090M-GM								
										DA2100M-GM ~ DA2150M-GM								
										DA2200M-GM ~ DA2250M-GM								
										DA2300M-GM ~ DA2381M-GM								
										DA2400M-GM ~ DA2450M-GM								
										DA2500M-GM ~ DA2550M-GM								

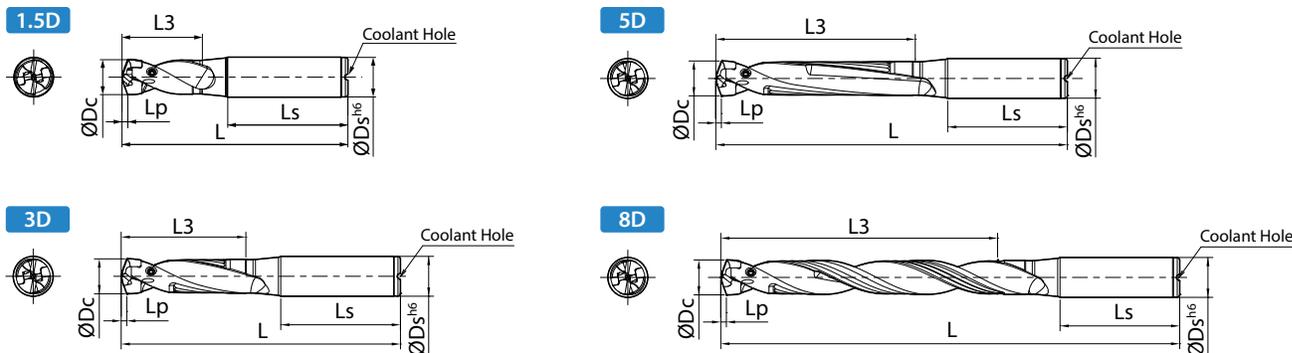
● : U.S. Stock

Toolholder Dimension **8D**

Part Number	Stock	Dimension (in) See Diagram on <b>Page 6</b>							Applicable Insert See <b>Page 4-5</b>	Spare Parts			
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench	
		min.	max.										
SF0500-DRA080M-8	●	0.313	0.331	0.500	4.961	3.189	2.677	1.772	0.630	DA0794M-GM ~ DA0840M-GM	HS-2524TRP		
SF0500-DRA085M-8	●	0.335	0.350		5.157	3.386	2.835						DA0850M-GM ~ DA0890M-GM
SF0500-DRA090M-8	●	0.354	0.370		5.315	3.543	2.992						DA0900M-GM ~ DA0940M-GM
SF0500-DRA095M-8	●	0.374	0.390		5.512	3.740	3.150						DA0950M-GM ~ DA0990M-GM
SF0625-DRA100M-8	●	0.394	0.409	0.625	5.787	3.898	3.307	1.890	0.787	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5	
SF0625-DRA105M-8	●	0.413	0.429		5.984	4.094	3.465			DA1050M-GM ~ DA1090M-GM			
SF0625-DRA110M-8	●	0.433	0.449		6.181	4.291	3.622			DA1100M-GM ~ DA1140M-GM			
SF0625-DRA115M-8	●	0.453	0.469		6.378	4.488	3.780			DA1150M-GM ~ DA1190M-GM			
SF0625-DRA120M-8	●	0.472	0.488		6.535	4.646	3.937			DA1200M-GM ~ DA1240M-GM			
SF0625-DRA125M-8	●	0.492	0.508		6.732	4.843	4.094			DA1250M-GM ~ DA1290M-GM			
SF0625-DRA130M-8	●	0.512	0.528		6.890	5.000	4.252			DA1300M-GM ~ DA1340M-GM			
SF0625-DRA135M-8	●	0.531	0.547		7.087	5.197	4.409			DA1350M-GM ~ DA1390M-GM			
SF0625-DRA140M-8	●	0.551	0.567		7.244	5.354	4.567			DA1400M-GM ~ DA1440M-GM			
SF0625-DRA145M-8	●	0.571	0.590		7.441	5.551	4.724			DA1450M-GM ~ DA1490M-GM			
SF0750-DRA150M-8	●	0.591	0.626	0.750	7.913	5.945	5.039	1.969	0.984	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6	
SF0750-DRA160M-8	●	0.630	0.665		8.307	6.339	5.354			DA1600M-GM ~ DA1690M-GM			
SF0750-DRA170M-8	●	0.669	0.705		8.661	6.693	5.669			DA1700M-GM ~ DA1790M-GM			
SF0750-DRA180M-8	●	0.709	0.744		9.055	7.087	5.984			DA1800M-GM ~ DA1890M-GM			
SF0750-DRA190M-8	●	0.748	0.783		9.409	7.441	6.299		DA1900M-GM ~ DA1990M-GM				
SF1000-DRA200M-8	●	0.787	0.823	1.000	10.000	7.795	6.614	2.205	1.260	DA2000M-GM ~ DA2090M-GM	HS-4067TRP	FTP-7	
SF1000-DRA210M-8	●	0.827	0.846		10.354	8.150	6.929			DA2100M-GM ~ DA2150M-GM			
SF1000-DRA220M-8	●	0.866	0.886		10.748	8.543	7.244			DA2200M-GM ~ DA2250M-GM			
SF1000-DRA230M-8	●	0.906	0.937		11.102	8.898	7.559			DA2300M-GM ~ DA2381M-GM			
SF1000-DRA240M-8	●	0.945	0.965		11.457	9.252	7.874			DA2400M-GM ~ DA2450M-GM			
SF1000-DRA250M-8	●	0.984	1.004		11.811	9.606	8.189			DA2500M-GM ~ DA2550M-GM			

● : U.S. Stock

# DRA Toolholders - Inch Sizes (Straight Shank)



For Lp dimension, reference insert dimension table.

## Toolholder Dimension

1.5D



Part Number	Stock	Dimension (in)					Applicable Insert See <a href="#">Page 4-5</a>	Spare Parts			
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench	
		min.	max.								
SS0375-DRA080M-1.5	●	0.313	0.331	0.375	2.608	0.504	1.575	DA0794M-GM ~ DA0840M-GM	HS-2524TRP	FTP-5	
SS0375-DRA085M-1.5	●	0.335	0.350		2.657	0.531					DA0850M-GM ~ DA0890M-GM
SS0375-DRA090M-1.5	●	0.354	0.370		2.707	0.563					DA0900M-GM ~ DA0940M-GM
SS0500-DRA095M-1.5	●	0.374	0.390	0.500	2.953	0.591	1.772	DA0950M-GM ~ DA0990M-GM	HS-2534TRP		
SS0500-DRA100M-1.5	●	0.394	0.409		3.002	0.622					DA1000M-GM ~ DA1040M-GM
SS0500-DRA105M-1.5	●	0.413	0.429		3.051	0.650					DA1050M-GM ~ DA1090M-GM
SS0500-DRA110M-1.5	●	0.433	0.449	0.625	3.140	0.681	1.890	DA1100M-GM ~ DA1140M-GM	HS-3048TRP		
SS0500-DRA115M-1.5	●	0.453	0.469		3.189	0.709					DA1150M-GM ~ DA1190M-GM
SS0625-DRA120M-1.5	●	0.472	0.488		3.356	0.740					DA1200M-GM ~ DA1240M-GM
SS0625-DRA125M-1.5	●	0.492	0.508	0.750	3.406	0.768	1.969	DA1250M-GM ~ DA1290M-GM	HS-4067TRP		
SS0625-DRA130M-1.5	●	0.512	0.528		3.455	0.799					DA1300M-GM ~ DA1340M-GM
SS0625-DRA135M-1.5	●	0.531	0.547		3.504	0.827					DA1350M-GM ~ DA1390M-GM
SS0625-DRA140M-1.5	●	0.551	0.567	1.000	3.553	0.858	2.205	DA1400M-GM ~ DA1440M-GM	HS-4067TRP		
SS0625-DRA145M-1.5	●	0.571	0.590		3.602	0.886				DA1450M-GM ~ DA1490M-GM	
SS0625-DRA150M-1.5	●	0.591	0.626		3.740	0.917				DA1500M-GM ~ DA1590M-GM	
SS0750-DRA160M-1.5	●	0.630	0.665	0.750	3.957	0.976	1.969	DA1600M-GM ~ DA1690M-GM	HS-3048TRP		
SS0750-DRA170M-1.5	●	0.669	0.705		4.055	1.035				DA1700M-GM ~ DA1790M-GM	
SS0750-DRA180M-1.5	●	0.709	0.744		4.193	1.094				DA1800M-GM ~ DA1890M-GM	
SS1000-DRA190M-1.5	●	0.748	0.783	1.000	4.528	1.154	2.205	DA1900M-GM ~ DA1990M-GM	HS-4067TRP		
SS1000-DRA200M-1.5	●	0.787	0.823		4.626	1.213				DA2000M-GM ~ DA2090M-GM	
SS1000-DRA210M-1.5	●	0.827	0.846		4.724	1.272				DA2100M-GM ~ DA2150M-GM	
SS1000-DRA220M-1.5	●	0.866	0.886	1.000	4.862	1.331	2.205	DA2200M-GM ~ DA2250M-GM	HS-4067TRP		
SS1000-DRA230M-1.5	●	0.906	0.937		4.961	1.390				DA2300M-GM ~ DA2381M-GM	
SS1000-DRA240M-1.5	●	0.945	0.965		5.059	1.449				DA2400M-GM ~ DA2450M-GM	
SS1000-DRA250M-1.5	●	0.984	1.004	5.157	1.508	DA2500M-GM ~ DA2550M-GM					

● : U.S. Stock

Toolholder Dimension **3D**

Part Number	Stock	Dimension (in) See Diagram on <b>Page 9</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts			
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench	
		min.	max.								
SS0375-DRA080M-3	●	0.313	0.331	0.375	3.110	1.004	1.575	DA0794M-GM ~ DA0840M-GM	HS-2524TRP	FTP-5	
SS0375-DRA085M-3	●	0.335	0.350		3.189	1.063					DA0850M-GM ~ DA0890M-GM
SS0375-DRA090M-3	●	0.354	0.370		3.268	1.122					DA0900M-GM ~ DA0940M-GM
SS0500-DRA095M-3	●	0.374	0.390	0.500	3.543	1.181	1.772	DA0950M-GM ~ DA0990M-GM	HS-2534TRP		
SS0500-DRA100M-3	●	0.394	0.409		3.622	1.240					DA1000M-GM ~ DA1040M-GM
SS0500-DRA105M-3	●	0.413	0.429		3.701	1.299					DA1050M-GM ~ DA1090M-GM
SS0500-DRA110M-3	●	0.433	0.449	0.625	3.819	1.358	1.890	DA1100M-GM ~ DA1140M-GM	HS-3048TRP		
SS0500-DRA115M-3	●	0.453	0.469		3.898	1.417					DA1150M-GM ~ DA1190M-GM
SS0625-DRA120M-3	●	0.472	0.488		4.094	1.476					DA1200M-GM ~ DA1240M-GM
SS0625-DRA125M-3	●	0.492	0.508	0.750	4.173	1.535	1.969	DA1250M-GM ~ DA1290M-GM	HS-4067TRP		
SS0625-DRA130M-3	●	0.512	0.528		4.252	1.594				DA1300M-GM ~ DA1340M-GM	
SS0625-DRA135M-3	●	0.531	0.547		4.331	1.654				DA1350M-GM ~ DA1390M-GM	
SS0625-DRA140M-3	●	0.551	0.567	0.823	4.409	1.713	2.205	DA1400M-GM ~ DA1440M-GM	HS-3048TRP		
SS0625-DRA145M-3	●	0.571	0.590		4.488	1.772				DA1450M-GM ~ DA1490M-GM	
SS0625-DRA150M-3	●	0.591	0.626		4.685	1.890				DA1500M-GM ~ DA1590M-GM	
SS0750-DRA160M-3	●	0.630	0.665	0.750	4.961	2.008	1.969	DA1600M-GM ~ DA1690M-GM	HS-4067TRP		
SS0750-DRA170M-3	●	0.669	0.705		5.118	2.126				DA1700M-GM ~ DA1790M-GM	
SS0750-DRA180M-3	●	0.709	0.744		5.315	2.244				DA1800M-GM ~ DA1890M-GM	
SS1000-DRA190M-3	●	0.748	0.783	1.000	5.472	2.362	2.205	DA1900M-GM ~ DA1990M-GM	HS-4067TRP		
SS1000-DRA200M-3	●	0.787	0.823		5.866	2.480				DA2000M-GM ~ DA2090M-GM	
SS1000-DRA210M-3	●	0.827	0.846		6.024	2.598				DA2100M-GM ~ DA2150M-GM	
SS1000-DRA220M-3	●	0.866	0.886	0.625	6.220	2.717	1.890	DA2200M-GM ~ DA2250M-GM	HS-3048TRP		
SS1000-DRA230M-3	●	0.906	0.937		6.378	2.835				DA2300M-GM ~ DA2381M-GM	
SS1000-DRA240M-3	●	0.945	0.965		6.535	2.953				DA2400M-GM ~ DA2450M-GM	
SS1000-DRA250M-3	●	0.984	1.004	0.750	6.693	3.070	1.969	DA2500M-GM ~ DA2550M-GM	FTP-7		

● : U.S. Stock

Toolholder Dimension **5D**

Part Number	Stock	Dimension (in) See Diagram on <b>Page 9</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts			
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench	
		min.	max.								
SS0375-DRA080M-5	●	0.313	0.331	0.375	3.780	1.673	1.575	DA0794M-GM ~ DA0840M-GM	HS-2524TRP	FTP-5	
SS0375-DRA085M-5	●	0.335	0.350		3.898	1.772					DA0850M-GM ~ DA0890M-GM
SS0375-DRA090M-5	●	0.354	0.370		4.016	1.870					DA0900M-GM ~ DA0940M-GM
SS0500-DRA095M-5	●	0.374	0.390	0.500	4.331	1.969	1.772	DA0950M-GM ~ DA0990M-GM	HS-2534TRP		
SS0500-DRA100M-5	●	0.394	0.409		4.449	2.067					DA1000M-GM ~ DA1040M-GM
SS0500-DRA105M-5	●	0.413	0.429		4.567	2.165					DA1050M-GM ~ DA1090M-GM
SS0500-DRA110M-5	●	0.433	0.449	0.625	4.724	2.264	1.890	DA1100M-GM ~ DA1140M-GM	HS-3048TRP		
SS0500-DRA115M-5	●	0.453	0.469		4.843	2.362					DA1150M-GM ~ DA1190M-GM
SS0625-DRA120M-5	●	0.472	0.488		5.079	2.461					DA1200M-GM ~ DA1240M-GM
SS0625-DRA125M-5	●	0.492	0.508	0.750	5.197	2.559	1.969	DA1250M-GM ~ DA1290M-GM	HS-4067TRP		
SS0625-DRA130M-5	●	0.512	0.528		5.315	2.657				DA1300M-GM ~ DA1340M-GM	
SS0625-DRA135M-5	●	0.531	0.547		5.433	2.756				DA1350M-GM ~ DA1390M-GM	
SS0625-DRA140M-5	●	0.551	0.567	0.823	5.551	2.854	2.205	DA1400M-GM ~ DA1440M-GM	HS-3048TRP		
SS0625-DRA145M-5	●	0.571	0.590		5.669	2.953				DA1450M-GM ~ DA1490M-GM	
SS0625-DRA150M-5	●	0.591	0.626		5.945	3.150				DA1500M-GM ~ DA1590M-GM	
SS0750-DRA160M-5	●	0.630	0.665	0.750	6.299	3.346	1.969	DA1600M-GM ~ DA1690M-GM	HS-4067TRP		
SS0750-DRA170M-5	●	0.669	0.705		6.535	3.543				DA1700M-GM ~ DA1790M-GM	
SS0750-DRA180M-5	●	0.709	0.744		6.811	3.740				DA1800M-GM ~ DA1890M-GM	
SS1000-DRA190M-5	●	0.748	0.783	1.000	7.047	3.937	2.205	DA1900M-GM ~ DA1990M-GM	HS-4067TRP		
SS1000-DRA200M-5	●	0.787	0.823		7.520	4.134				DA2000M-GM ~ DA2090M-GM	
SS1000-DRA210M-5	●	0.827	0.846		7.756	4.331				DA2100M-GM ~ DA2150M-GM	
SS1000-DRA220M-5	●	0.866	0.886	0.625	8.031	4.528	1.890	DA2200M-GM ~ DA2250M-GM	HS-3048TRP		
SS1000-DRA230M-5	●	0.906	0.937		8.268	4.724				DA2300M-GM ~ DA2381M-GM	
SS1000-DRA240M-5	●	0.945	0.965		8.504	4.921				DA2400M-GM ~ DA2450M-GM	
SS1000-DRA250M-5	●	0.984	1.004	0.750	8.740	5.116	1.969	DA2500M-GM ~ DA2550M-GM	FTP-7		

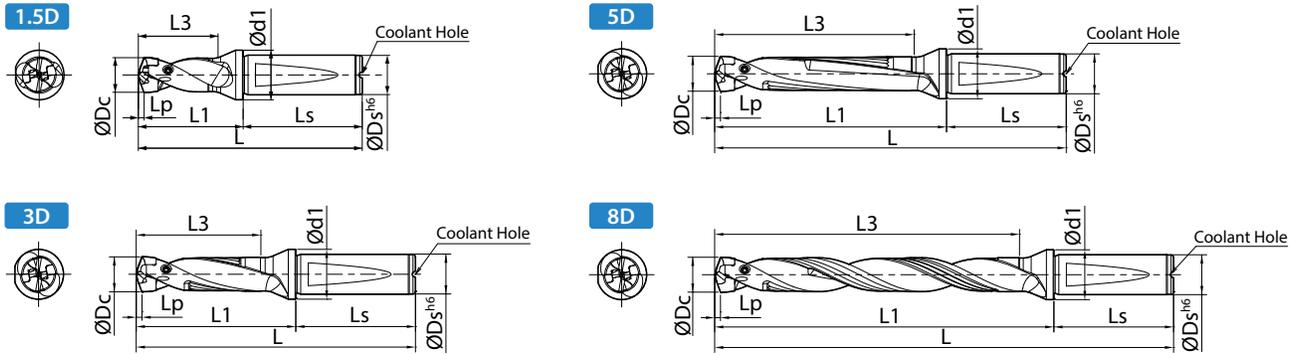
● : U.S. Stock

Toolholder Dimension **8D**

Part Number	Stock	Dimension (in) See Diagram on <b>Page 9</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts			
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench	
		min.	max.								
SS0375-DRA080M-8	●	0.313	0.331	0.375	4.764	2.677	1.575	DA0794M-GM ~ DA0840M-GM	HS-2524TRP	FTP-5	
SS0375-DRA085M-8	●	0.335	0.350		4.961	2.835					DA0850M-GM ~ DA0890M-GM
SS0375-DRA090M-8	●	0.354	0.370		5.118	2.992					DA0900M-GM ~ DA0940M-GM
SS0500-DRA095M-8	●	0.374	0.390	0.500	5.512	3.150	1.772	DA0950M-GM ~ DA0990M-GM			
SS0500-DRA100M-8	●	0.394	0.409		5.669	3.307		DA1000M-GM ~ DA1040M-GM			
SS0500-DRA105M-8	●	0.413	0.429		5.866	3.465		DA1050M-GM ~ DA1090M-GM			
SS0500-DRA110M-8	●	0.433	0.449	0.625	6.063	3.622	1.890	DA1100M-GM ~ DA1140M-GM	HS-2534TRP		
SS0500-DRA115M-8	●	0.453	0.469		6.260	3.780		DA1150M-GM ~ DA1190M-GM			
SS0625-DRA120M-8	●	0.472	0.488		6.535	3.937		DA1200M-GM ~ DA1240M-GM			
SS0625-DRA125M-8	●	0.492	0.508	0.625	6.732	4.094	1.890	DA1250M-GM ~ DA1290M-GM	HS-3048TRP		FTP-6
SS0625-DRA130M-8	●	0.512	0.528		6.890	4.252		DA1300M-GM ~ DA1340M-GM			
SS0625-DRA135M-8	●	0.531	0.547		7.087	4.409		DA1350M-GM ~ DA1390M-GM			
SS0625-DRA140M-8	●	0.551	0.567	0.750	7.244	4.567	1.969	DA1400M-GM ~ DA1440M-GM	HS-3048TRP		
SS0625-DRA145M-8	●	0.571	0.590		7.441	4.724		DA1450M-GM ~ DA1490M-GM			
SS0625-DRA150M-8	●	0.591	0.626		7.835	5.039		DA1500M-GM ~ DA1590M-GM			
SS0750-DRA160M-8	●	0.630	0.665	0.750	8.307	5.354	1.969	DA1600M-GM ~ DA1690M-GM	HS-4067TRP	FTP-7	
SS0750-DRA170M-8	●	0.669	0.705		8.661	5.669		DA1700M-GM ~ DA1790M-GM			
SS0750-DRA180M-8	●	0.709	0.744		9.055	5.984		DA1800M-GM ~ DA1890M-GM			
SS1000-DRA190M-8	●	0.748	0.783	1.000	9.409	6.299	2.205	DA1900M-GM ~ DA1990M-GM	HS-4067TRP		
SS1000-DRA200M-8	●	0.787	0.823		10.000	6.614		DA2000M-GM ~ DA2090M-GM			
SS1000-DRA210M-8	●	0.827	0.846		10.354	6.929		DA2100M-GM ~ DA2150M-GM			
SS1000-DRA220M-8	●	0.866	0.886		10.748	7.244		DA2200M-GM ~ DA2250M-GM			
SS1000-DRA230M-8	●	0.906	0.937		11.102	7.559		DA2300M-GM ~ DA2381M-GM			
SS1000-DRA240M-8	●	0.945	0.965		11.457	7.874		DA2400M-GM ~ DA2450M-GM			
SS1000-DRA250M-8	●	0.984	1.004	11.969	8.189	DA2500M-GM ~ DA2550M-GM					

● : U.S. Stock

# DRA Toolholders - Metric Sizes (with Flange)



For Lp dimension, reference insert dimension table.

## Toolholder Dimension

1.5D

NEW

Part Number	Stock	Dimension (mm)								Applicable Insert See <a href="#">Page 4-5</a>	Spare Parts						
		ØDc		ØDs	L	L1	L3	Ls	Ød1		Clamp Screw	Wrench					
		min.	max.														
SF12-DRA080M-1.5	○	7.94	8.40	12	71.2	26.2	12.8	45	16	DA0794M-GM~DA0840M-GM	HS-2524TRP						
SF12-DRA085M-1.5	○	8.50	8.90		72.5	27.5	13.5										
SF12-DRA090M-1.5	○	9.00	9.40		73.7	28.7	14.3										
SF12-DRA095M-1.5	○	9.50	9.90		75.0	30.0	15.0										
SF16-DRA100M-1.5	○	10.00	10.40	16	79.2	31.2	15.8	48	20	DA1000M-GM~DA1040M-GM	HS-2534TRP	FTP-5					
SF16-DRA105M-1.5	○	10.50	10.90		80.5	32.5	16.5										
SF16-DRA110M-1.5	○	11.00	11.40		82.7	34.7	17.3										
SF16-DRA115M-1.5	○	11.50	11.90		84.0	36.0	18.0										
SF16-DRA120M-1.5	○	12.00	12.40		85.2	37.2	18.8										
SF16-DRA125M-1.5	○	12.50	12.90		86.5	38.5	19.5										
SF16-DRA130M-1.5	○	13.00	13.40		87.7	39.7	20.3										
SF16-DRA135M-1.5	○	13.50	13.90		89.0	41.0	21.0										
SF16-DRA140M-1.5	○	14.00	14.40		90.2	42.2	21.8										
SF16-DRA145M-1.5	○	14.50	14.90		91.5	43.5	22.5										
SF20-DRA150M-1.5	○	15.00	15.90		20	97.0	47.0			24.0			50	25	DA1500M-GM~DA1590M-GM	HS-3048TRP	FTP-6
SF20-DRA160M-1.5	○	16.00	16.90			100.5	50.5			25.5							
SF20-DRA170M-1.5	○	17.00	17.90	103.0		53.0	27.0										
SF25-DRA180M-1.5	○	18.00	18.90	25	112.5	56.5	28.5	56	32	DA1800M-GM~DA1890M-GM	HS-4067TRP	FTP-7					
SF25-DRA190M-1.5	○	19.00	19.90		115.0	59.0	30.0										
SF25-DRA200M-1.5	○	20.00	20.90		117.5	61.5	31.5										
SF25-DRA210M-1.5	○	21.00	21.50		120.0	64.0	33.0										
SF25-DRA220M-1.5	○	22.00	22.50		123.5	67.5	34.5										
SF25-DRA230M-1.5	○	23.00	23.50		126.0	70.0	36.0										
SF25-DRA240M-1.5	○	24.00	24.50		128.5	72.5	37.5										
SF25-DRA250M-1.5	○	25.00	25.50		131.0	75.0	39.0										

○ : World Express (Shipping: 7-10 Business Days)

Toolholder Dimension **3D**

Part Number	Stock	Dimension (mm) See Diagram on <b>Page 12</b>							Applicable Insert See <b>Page 4-5</b>	Spare Parts							
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench					
		min.	max.														
SF12-DRA080M-3	○	7.94	8.40	12	84	39	25.5	45	16	DA0794M-GM ~ DA0840M-GM	HS-2524TRP						
SF12-DRA085M-3	○	8.50	8.90		86	41	27.0										
SF12-DRA090M-3	○	9.00	9.40		88	43	28.5										
SF12-DRA095M-3	○	9.50	9.90	16	90	45	30.0	48	20	DA0950M-GM ~ DA0990M-GM	HS-2534TRP	FTP-5					
SF16-DRA100M-3	○	10.00	10.40		95	47	31.5										
SF16-DRA105M-3	○	10.50	10.90		97	49	33.0										
SF16-DRA110M-3	○	11.00	11.40		100	52	34.5										
SF16-DRA115M-3	○	11.50	11.90		102	54	36.0										
SF16-DRA120M-3	○	12.00	12.40		104	56	37.5										
SF16-DRA125M-3	○	12.50	12.90		106	58	39.0										
SF16-DRA130M-3	○	13.00	13.40		108	60	40.5										
SF16-DRA135M-3	○	13.50	13.90		110	62	42.0										
SF16-DRA140M-3	○	14.00	14.40		112	64	43.5										
SF16-DRA145M-3	○	14.50	14.90		114	66	45.0										
SF20-DRA150M-3	○	15.00	15.90	20	121	71	48.0	50	25	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6					
SF20-DRA160M-3	○	16.00	16.90		126	76	51.0										
SF20-DRA170M-3	○	17.00	17.90		130	80	54.0										
SF25-DRA180M-3	○	18.00	18.90	25	141	85	57.0	56	32	DA1800M-GM ~ DA1890M-GM	HS-4067TRP	FTP-7					
SF25-DRA190M-3	○	19.00	19.90		145	89	60.0										
SF25-DRA200M-3	○	20.00	20.90		149	93	63.0										
SF25-DRA210M-3	○	21.00	21.50		153	97	66.0										
SF25-DRA220M-3	○	22.00	22.50		158	102	69.0										
SF25-DRA230M-3	○	23.00	23.50		162	106	72.0										
SF25-DRA240M-3	○	24.00	24.50		166	110	75.0										
SF25-DRA250M-3	○	25.00	25.50		170	114	78.0										
															DA2500M-GM ~ DA2550M-GM		

○ : World Express (Shipping: 7-10 Business Days)

Toolholder Dimension **5D**

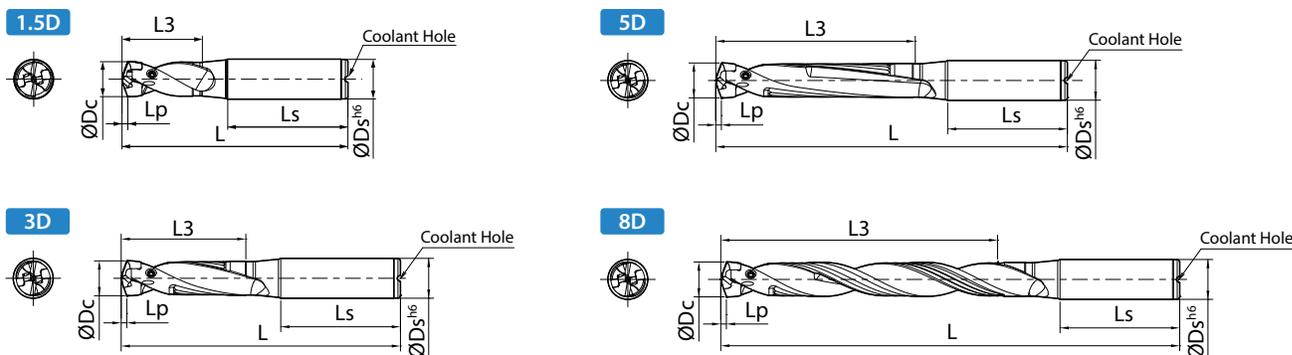
Part Number	Stock	Dimension (mm) See Diagram on <b>Page 12</b>							Applicable Insert See <b>Page 4-5</b>	Spare Parts							
		ØDc		ØDs	L	L1	L3	Ls		Ød1	Clamp Screw	Wrench					
		min.	max.														
SF12-DRA080M-5	○	7.94	8.40	12	101	56	42.5	45	16	DA0794M-GM ~ DA0840M-GM	HS-2524TRP						
SF12-DRA085M-5	○	8.50	8.90		104	59	45.0										
SF12-DRA090M-5	○	9.00	9.40		107	62	47.5										
SF12-DRA095M-5	○	9.50	9.90		110	65	50.0										
SF16-DRA100M-5	○	10.00	10.40	16	116	68	52.5	48	20	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5					
SF16-DRA105M-5	○	10.50	10.90		119	71	55.0										
SF16-DRA110M-5	○	11.00	11.40		123	75	57.5										
SF16-DRA115M-5	○	11.50	11.90		126	78	60.0										
SF16-DRA120M-5	○	12.00	12.40		129	81	62.5										
SF16-DRA125M-5	○	12.50	12.90		132	84	65.0										
SF16-DRA130M-5	○	13.00	13.40		135	87	67.5										
SF16-DRA135M-5	○	13.50	13.90		138	90	70.0										
SF16-DRA140M-5	○	14.00	14.40		141	93	72.5										
SF16-DRA145M-5	○	14.50	14.90		144	96	75.0										
SF20-DRA150M-5	○	15.00	15.90		20	153	103			80.0			50	25	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6
SF20-DRA160M-5	○	16.00	16.90	160		110	85.0										
SF20-DRA170M-5	○	17.00	17.90	166		116	90.0										
SF25-DRA180M-5	○	18.00	18.90	25	179	123	95.0	56	32	DA1800M-GM ~ DA1890M-GM	HS-4067TRP	FTP-7					
SF25-DRA190M-5	○	19.00	19.90		185	129	100.0										
SF25-DRA200M-5	○	20.00	20.90		191	135	105.0										
SF25-DRA210M-5	○	21.00	21.50		197	141	110.0										
SF25-DRA220M-5	○	22.00	22.50		204	148	115.0										
SF25-DRA230M-5	○	23.00	23.50		210	154	120.0										
SF25-DRA240M-5	○	24.00	24.50		216	160	125.0										
SF25-DRA250M-5	○	25.00	25.50		222	166	130.0										
															DA2500M-GM ~ DA2550M-GM		

○ : World Express (Shipping: 7-10 Business Days)

Toolholder Dimension **8D**

Part Number	Stock	Dimension (mm) See Diagram on <b>Page 12</b>								Applicable Insert See <b>Page 4-5</b>	Spare Parts						
		ØDc		ØDs	L	L1	L3	Ls	Ød1		Clamp Screw	Wrench					
		min.	max.														
SF12-DRA080M-8	○	7.94	8.40	12	126	81	68.0	45	16	DA0794M-GM ~ DA0840M-GM	HS-2524TRP						
SF12-DRA085M-8	○	8.50	8.90		131	86	72.0										
SF12-DRA090M-8	○	9.00	9.40		135	90	76.0										
SF12-DRA095M-8	○	9.50	9.90		140	95	80.0										
SF16-DRA100M-8	○	10.00	10.40	16	147	99	84.0	48	20	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5					
SF16-DRA105M-8	○	10.50	10.90		152	104	88.0										
SF16-DRA110M-8	○	11.00	11.40		157	109	92.0										
SF16-DRA115M-8	○	11.50	11.90		162	114	96.0										
SF16-DRA120M-8	○	12.00	12.40		166	118	100.0										
SF16-DRA125M-8	○	12.50	12.90		171	123	104.0										
SF16-DRA130M-8	○	13.00	13.40		175	127	108.0										
SF16-DRA135M-8	○	13.50	13.90		180	132	112.0										
SF16-DRA140M-8	○	14.00	14.40		184	136	116.0										
SF16-DRA145M-8	○	14.50	14.90		189	141	120.0										
SF20-DRA150M-8	○	15.00	15.90		20	201	151			128.0			50	25	DA1500M-GM ~ DA1590M-GM	HS-3048TRP	FTP-6
SF20-DRA160M-8	○	16.00	16.90			211	161			136.0							
SF20-DRA170M-8	○	17.00	17.90	220		170	144.0										
SF25-DRA180M-8	○	18.00	18.90	25	236	180	152.0	56	32	DA1800M-GM ~ DA1890M-GM	HS-4067TRP	FTP-7					
SF25-DRA190M-8	○	19.00	19.90		245	189	160.0										
SF25-DRA200M-8	○	20.00	20.90		254	198	168.0										
SF25-DRA210M-8	○	21.00	21.50		263	207	176.0										
SF25-DRA220M-8	○	22.00	22.50		273	217	184.0										
SF25-DRA230M-8	○	23.00	23.50		282	226	192.0										
SF25-DRA240M-8	○	24.00	24.50		291	235	200.0										
SF25-DRA250M-8	○	25.00	25.50		300	244	208.0										
															DA2500M-GM ~ DA2550M-GM		

○ : World Express (Shipping: 7-10 Business Days)



For Lp dimension, reference insert dimension table.

Toolholder Dimension

1.5D



Part Number	Stock	Dimension (mm)					Applicable Insert See <a href="#">Page 4-5</a>	Spare Parts					
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench			
		min.	max.										
SS10-DRA080M-1.5	○	7.94	8.40	10	66.2	12.8	40	DA0794M-GM~DA0840M-GM	HS-2524TRP	FTP-5			
SS10-DRA085M-1.5	○	8.50	8.90		67.5	13.5					DA0850M-GM~DA0890M-GM		
SS10-DRA090M-1.5	○	9.00	9.40		68.7	14.3						DA0900M-GM~DA0940M-GM	
SS10-DRA095M-1.5	○	9.50	9.90		70.0	15.0							DA0950M-GM~DA0990M-GM
SS12-DRA100M-1.5	○	10.00	10.40	12	76.2	15.8	45	DA1000M-GM~DA1040M-GM	HS-2534TRP				
SS12-DRA105M-1.5	○	10.50	10.90		77.5	16.5					DA1050M-GM~DA1090M-GM		
SS12-DRA110M-1.5	○	11.00	11.40		79.7	17.3						DA1100M-GM~DA1140M-GM	
SS12-DRA115M-1.5	○	11.50	11.90		81.0	18.0							DA1150M-GM~DA1190M-GM
SS14-DRA120M-1.5	○	12.00	12.40	14	82.2	18.8	48	DA1200M-GM~DA1240M-GM	HS-3048TRP				
SS14-DRA125M-1.5	○	12.50	12.90		83.5	19.5					DA1250M-GM~DA1290M-GM		
SS14-DRA130M-1.5	○	13.00	13.40		84.7	20.3						DA1300M-GM~DA1340M-GM	
SS14-DRA135M-1.5	○	13.50	13.90		86.0	21.0							DA1350M-GM~DA1390M-GM
SS16-DRA140M-1.5	○	14.00	14.40	16	90.2	21.8	50	DA1400M-GM~DA1440M-GM	HS-4067TRP				
SS16-DRA145M-1.5	○	14.50	14.90		91.5	22.5				DA1450M-GM~DA1490M-GM			
SS16-DRA150M-1.5	○	15.00	15.90		95.0	24.0					DA1500M-GM~DA1590M-GM		
SS18-DRA160M-1.5	○	16.00	16.90		98.5	25.5						DA1600M-GM~DA1690M-GM	
SS18-DRA170M-1.5	○	17.00	17.90	18	101.0	27.0	56	DA1700M-GM~DA1790M-GM	FTP-6				
SS20-DRA180M-1.5	○	18.00	18.90		20	106.5				28.5	60	DA1800M-GM~DA1890M-GM	
SS20-DRA190M-1.5	○	19.00	19.90	109.0		30.0	DA1900M-GM~DA1990M-GM						
SS25-DRA200M-1.5	○	20.00	20.90	25	117.5	31.5	56	DA2000M-GM~DA2090M-GM	HS-4067TRP				
SS25-DRA210M-1.5	○	21.00	21.50		120.0	33.0				DA2100M-GM~DA2150M-GM			
SS25-DRA220M-1.5	○	22.00	22.50		123.5	34.5					DA2200M-GM~DA2250M-GM		
SS25-DRA230M-1.5	○	23.00	23.50		126.0	36.0						DA2300M-GM~DA2350M-GM	
SS25-DRA240M-1.5	○	24.00	24.50		128.5	37.5							DA2400M-GM~DA2450M-GM
SS32-DRA250M-1.5	○	25.00	25.50		135.0	39.0							

○ : World Express (Shipping: 7-10 Business Days)

Toolholder Dimension **3D**

Part Number	Stock	Dimension (mm) See Diagram on <b>Page 15</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts		
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench
		min.	max.							
SS10-DRA080M-3	○	7.94	8.40	10	79	25.5	DA0794M-GM ~ DA0840M-GM	HS-2524TRP		
SS10-DRA085M-3	○	8.50	8.90		81	27.0				
SS10-DRA090M-3	○	9.00	9.40		83	28.5				
SS10-DRA095M-3	○	9.50	9.90		85	30.0				
SS12-DRA100M-3	○	10.00	10.40	12	92	31.5	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5	
SS12-DRA105M-3	○	10.50	10.90		94	33.0				
SS12-DRA110M-3	○	11.00	11.40		97	34.5				
SS12-DRA115M-3	○	11.50	11.90		99	36.0				
SS14-DRA120M-3	○	12.00	12.40	14	101	37.5	DA1200M-GM ~ DA1240M-GM	HS-2534TRP		
SS14-DRA125M-3	○	12.50	12.90		103	39.0				
SS14-DRA130M-3	○	13.00	13.40		105	40.5				
SS14-DRA135M-3	○	13.50	13.90		107	42.0				
SS16-DRA140M-3	○	14.00	14.40	16	112	43.5	DA1400M-GM ~ DA1440M-GM	HS-3048TRP	FTP-6	
SS16-DRA145M-3	○	14.50	14.90		114	45.0				
SS16-DRA150M-3	○	15.00	15.90		119	48.0				
SS18-DRA160M-3	○	16.00	16.90		18	124				51.0
SS18-DRA170M-3	○	17.00	17.90	128		54.0				
SS20-DRA180M-3	○	18.00	18.90	20	135	57.0	DA1800M-GM ~ DA1890M-GM	HS-4067TRP	FTP-7	
SS20-DRA190M-3	○	19.00	19.90		139	60.0				
SS25-DRA200M-3	○	20.00	20.90	25	149	63.0	DA2000M-GM ~ DA2090M-GM	HS-4067TRP	FTP-7	
SS25-DRA210M-3	○	21.00	21.50		153	66.0	DA2100M-GM ~ DA2150M-GM			
SS25-DRA220M-3	○	22.00	22.50		158	69.0	DA2200M-GM ~ DA2250M-GM			
SS25-DRA230M-3	○	23.00	23.50		162	72.0	DA2300M-GM ~ DA2350M-GM			
SS25-DRA240M-3	○	24.00	24.50		166	75.0	DA2400M-GM ~ DA2450M-GM			
SS32-DRA250M-3	○	25.00	25.50		32	174	78.0			DA2500M-GM ~ DA2550M-GM

○ : World Express (Shipping: 7-10 Business Days)

Toolholder Dimension **5D**

Part Number	Stock	Dimension (mm) See Diagram on <b>Page 15</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts		
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench
		min.	max.							
SS10-DRA080M-5	○	7.94	8.40	10	96	42.5	DA0794M-GM ~ DA0840M-GM	HS-2524TRP		
SS10-DRA085M-5	○	8.50	8.90		99	45.0	DA0850M-GM ~ DA0890M-GM			
SS10-DRA090M-5	○	9.00	9.40		102	47.5	DA0900M-GM ~ DA0940M-GM			
SS10-DRA095M-5	○	9.50	9.90		105	50.0	DA0950M-GM ~ DA0990M-GM			
SS12-DRA100M-5	○	10.00	10.40	12	113	52.5	DA1000M-GM ~ DA1040M-GM	HS-2534TRP	FTP-5	
SS12-DRA105M-5	○	10.50	10.90		116	55.0	DA1050M-GM ~ DA1090M-GM			
SS12-DRA110M-5	○	11.00	11.40		120	57.5	DA1100M-GM ~ DA1140M-GM			
SS12-DRA115M-5	○	11.50	11.90		123	60.0	DA1150M-GM ~ DA1190M-GM			
SS14-DRA120M-5	○	12.00	12.40	14	126	62.5	DA1200M-GM ~ DA1240M-GM	HS-2534TRP		
SS14-DRA125M-5	○	12.50	12.90		129	65.0	DA1250M-GM ~ DA1290M-GM			
SS14-DRA130M-5	○	13.00	13.40		132	67.5	DA1300M-GM ~ DA1340M-GM			
SS14-DRA135M-5	○	13.50	13.90		135	70.0	DA1350M-GM ~ DA1390M-GM			
SS16-DRA140M-5	○	14.00	14.40	16	141	72.5	DA1400M-GM ~ DA1440M-GM	HS-3048TRP	FTP-6	
SS16-DRA145M-5	○	14.50	14.90		144	75.0	DA1450M-GM ~ DA1490M-GM			
SS16-DRA150M-5	○	15.00	15.90		151	80.0	DA1500M-GM ~ DA1590M-GM			
SS18-DRA160M-5	○	16.00	16.90		18	158	85.0			DA1600M-GM ~ DA1690M-GM
SS18-DRA170M-5	○	17.00	17.90	164		90.0	DA1700M-GM ~ DA1790M-GM			
SS20-DRA180M-5	○	18.00	18.90	20	173	95.0	DA1800M-GM ~ DA1890M-GM	HS-4067TRP	FTP-7	
SS20-DRA190M-5	○	19.00	19.90		179	100.0	DA1900M-GM ~ DA1990M-GM			
SS25-DRA200M-5	○	20.00	20.90	25	191	105.0	DA2000M-GM ~ DA2090M-GM	HS-4067TRP	FTP-7	
SS25-DRA210M-5	○	21.00	21.50		197	110.0	DA2100M-GM ~ DA2150M-GM			
SS25-DRA220M-5	○	22.00	22.50		204	115.0	DA2200M-GM ~ DA2250M-GM			
SS25-DRA230M-5	○	23.00	23.50		210	120.0	DA2300M-GM ~ DA2350M-GM			
SS25-DRA240M-5	○	24.00	24.50		216	125.0	DA2400M-GM ~ DA2450M-GM			
SS32-DRA250M-5	○	25.00	25.50		32	226	130.0			DA2500M-GM ~ DA2550M-GM

○ : World Express (Shipping: 7-10 Business Days)

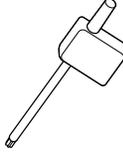
Toolholder Dimension **8D**

Part Number	Stock	Dimension (mm) See Diagram on <b>Page 15</b>					Applicable Insert See <b>Page 4-5</b>	Spare Parts		
		ØDc		ØDs	L	L3		Ls	Clamp Screw	Wrench
		min.	max.							
SS10-DRA080M-8	○	7.94	8.40	10	121	68.0	40	DA0794M-GM ~ DA0840M-GM		
SS10-DRA085M-8	○	8.50	8.90		126	72.0		DA0850M-GM ~ DA0890M-GM		
SS10-DRA090M-8	○	9.00	9.40		130	76.0		DA0900M-GM ~ DA0940M-GM		
SS10-DRA095M-8	○	9.50	9.90		135	80.0		DA0950M-GM ~ DA0990M-GM		
SS12-DRA100M-8	○	10.00	10.40	12	144	84.0	45	DA1000M-GM ~ DA1040M-GM		
SS12-DRA105M-8	○	10.50	10.90		149	88.0		DA1050M-GM ~ DA1090M-GM		
SS12-DRA110M-8	○	11.00	11.40		154	92.0		DA1100M-GM ~ DA1140M-GM		
SS12-DRA115M-8	○	11.50	11.90		159	96.0		DA1150M-GM ~ DA1190M-GM		
SS14-DRA120M-8	○	12.00	12.40	14	163	100.0	45	DA1200M-GM ~ DA1240M-GM		
SS14-DRA125M-8	○	12.50	12.90		168	104.0		DA1250M-GM ~ DA1290M-GM		
SS14-DRA130M-8	○	13.00	13.40		172	108.0		DA1300M-GM ~ DA1340M-GM		
SS14-DRA135M-8	○	13.50	13.90		177	112.0		DA1350M-GM ~ DA1390M-GM		
SS16-DRA140M-8	○	14.00	14.40	16	184	116.0	48	DA1400M-GM ~ DA1440M-GM		
SS16-DRA145M-8	○	14.50	14.90		189	120.0		DA1450M-GM ~ DA1490M-GM		
SS16-DRA150M-8	○	15.00	15.90		199	128.0		DA1500M-GM ~ DA1590M-GM		
SS18-DRA160M-8	○	16.00	16.90		18	209		136.0	48	DA1600M-GM ~ DA1690M-GM
SS18-DRA170M-8	○	17.00	17.90	218		144.0	DA1700M-GM ~ DA1790M-GM			
SS20-DRA180M-8	○	18.00	18.90	20	230	152.0	50	DA1800M-GM ~ DA1890M-GM		
SS20-DRA190M-8	○	19.00	19.90		239	160.0		DA1900M-GM ~ DA1990M-GM		
SS25-DRA200M-8	○	20.00	20.90	25	254	168.0	56	DA2000M-GM ~ DA2090M-GM		
SS25-DRA210M-8	○	21.00	21.50		263	176.0		DA2100M-GM ~ DA2150M-GM		
SS25-DRA220M-8	○	22.00	22.50		273	184.0		DA2200M-GM ~ DA2250M-GM		
SS25-DRA230M-8	○	23.00	23.50		282	192.0		DA2300M-GM ~ DA2350M-GM		
SS25-DRA240M-8	○	24.00	24.50		291	200.0		DA2400M-GM ~ DA2450M-GM		
SS32-DRA250M-8	○	25.00	25.50		32	304		208.0	60	DA2500M-GM ~ DA2550M-GM

○ : World Express (Shipping: 7-10 Business Days)

# Spare Parts

Clamp Screw	Part Number
	HS-2524TRP
	HS-2534TRP
	HS-3048TRP
	HS-4067TRP

Wrench	Part Number	Torque (N · m)
	FTP-5	0.4
	FTP-6	0.5
	FTP-7	0.8

## Recommended Cutting Conditions ★1st Recommendation ☆2nd Recommendation

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. ØDc (in)	Cutting Dia. ØDc (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)				Notes
	PR1535	PR1525			1.5D	3D	5D	8D	
Low Carbon Steel	★ 330-590	☆ 330-590	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094		0.0038 - 0.0075	0.0033 - 0.0066	Coolant See <b>P19</b>
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122		0.0038 - 0.0098	0.0033 - 0.0085	
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142		0.0050 - 0.0114	0.0044 - 0.0099	
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157		0.0050 - 0.0126	0.0044 - 0.0110	
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
Carbon Steel	★ 330-490	☆ 330-490	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094		0.0038 - 0.0075	0.0033 - 0.0066	
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122		0.0038 - 0.0098	0.0033 - 0.0085	
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142		0.0050 - 0.0114	0.0044 - 0.0099	
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157		0.0050 - 0.0126	0.0044 - 0.0110	
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
Alloy Steel	★ 230-390	☆ 230-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094		0.0038 - 0.0075	0.0033 - 0.0066	
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122		0.0038 - 0.0098	0.0033 - 0.0085	
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142		0.0050 - 0.0114	0.0044 - 0.0099	
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157		0.0050 - 0.0126	0.0044 - 0.0110	
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
Tool Steel	★ 160-300	☆ 160-300	0.313 - 0.429	7.94 - 10.90	0.0031 - 0.0067		0.0025 - 0.0054	0.0022 - 0.0047	
			0.433 - 0.547	11.00 - 13.90	0.0031 - 0.0087		0.0025 - 0.0070	0.0022 - 0.0061	
			0.551 - 0.705	14.00 - 17.90	0.0043 - 0.0098		0.0034 - 0.0078	0.0030 - 0.0069	
			0.709 - 0.846	18.00 - 21.50	0.0043 - 0.0110		0.0034 - 0.0088	0.0030 - 0.0077	
			0.866 - 0.965	22.00 - 24.50	0.0055 - 0.0126		0.0044 - 0.0101	0.0039 - 0.0088	
			0.984 - 1.004	25.00 - 25.50	0.0055 - 0.0126		0.0044 - 0.0101	0.0039 - 0.0088	
Stainless Steel※	★ 130-230	☆ 130-230	0.313 - 0.429	7.94 - 10.90	0.0039 - 0.0094		0.0031 - 0.0075	0.0027 - 0.0066	
			0.433 - 0.547	11.00 - 13.90	0.0039 - 0.0094		0.0031 - 0.0075	0.0027 - 0.0066	
			0.551 - 0.705	14.00 - 17.90	0.0047 - 0.0118		0.0038 - 0.0094	0.0033 - 0.0083	
			0.709 - 0.846	18.00 - 21.50	0.0059 - 0.0118		0.0047 - 0.0094	0.0041 - 0.0083	
			0.866 - 0.965	22.00 - 24.50	0.0059 - 0.0118		0.0047 - 0.0094	0.0041 - 0.0083	
			0.984 - 1.004	25.00 - 25.50	0.0059 - 0.0138		0.0047 - 0.0110	0.0041 - 0.0097	
Gray Cast Iron	☆ 300-560	★ 300-560	0.313 - 0.429	7.94 - 10.90	0.0055 - 0.0114		0.0044 - 0.0091	0.0039 - 0.0080	
			0.433 - 0.547	11.00 - 13.90	0.0055 - 0.0146		0.0044 - 0.0117	0.0039 - 0.0102	
			0.551 - 0.705	14.00 - 17.90	0.0075 - 0.0169		0.0060 - 0.0135	0.0053 - 0.0118	
			0.709 - 0.846	18.00 - 21.50	0.0075 - 0.0177		0.0060 - 0.0142	0.0053 - 0.0124	
			0.866 - 0.965	22.00 - 24.50	0.0094 - 0.0177		0.0075 - 0.0142	0.0066 - 0.0124	
			0.984 - 1.004	25.00 - 25.50	0.0094 - 0.0177		0.0075 - 0.0142	0.0066 - 0.0124	
Nodular Cast Iron	☆ 130-390	★ 130-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094		0.0038 - 0.0075	0.0033 - 0.0066	
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122		0.0038 - 0.0098	0.0033 - 0.0085	
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142		0.0050 - 0.0114	0.0044 - 0.0099	
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157		0.0050 - 0.0126	0.0044 - 0.0110	
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177		0.0063 - 0.0142	0.0055 - 0.0124	

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5D.

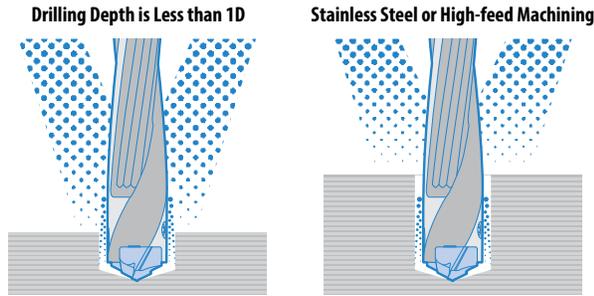
As drilling depth increases (3D → 5D → 8D), feed rates should be reduced.  
Recommended Feed Rate: 3D = 100%, 5D ≤ 80%, 8D ≤ 70%

## Coolant

### 1st Recommendation

#### Internal Coolant

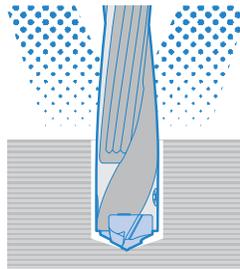
The combination of internal and external coolant is recommended.



### In Case of External Coolant

Lathe Application:  
Max. Drill Depth 3D

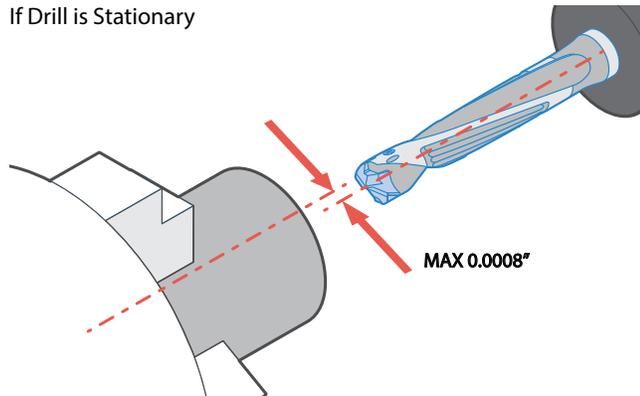
Vertical M/C Application:  
Max. Drill Depth 1.5D



※ Dry cutting is not recommended.

## Core Deviation / Alignment Cautions

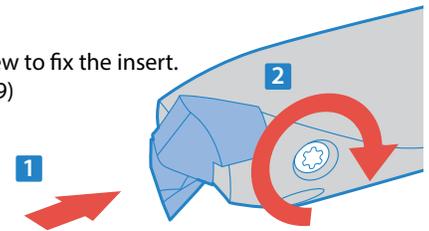
If Drill is Stationary



DRA works with both boring sleeve and collet-chuck. Center line deviation should be less than 0.0008" between workpiece and drill.

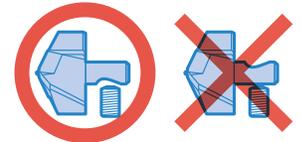
## How to Attach Inserts

- 1 Install insert onto the toolholder in the right direction.
- 2 Tighten clamp screw to fix the insert. (Torque: see page 9)

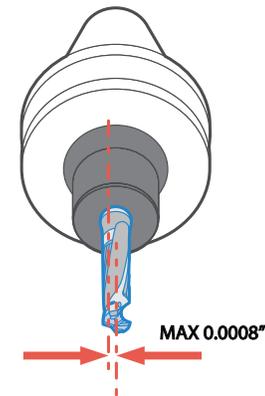


- ※ 1 Remove dust on insert pocket using air blow for every replacement.
- ※ 2 Make sure that the locating surfaces of the insert closely contacts the toolholder.

Be Careful of the Insert Direction



If Drill is Rotating



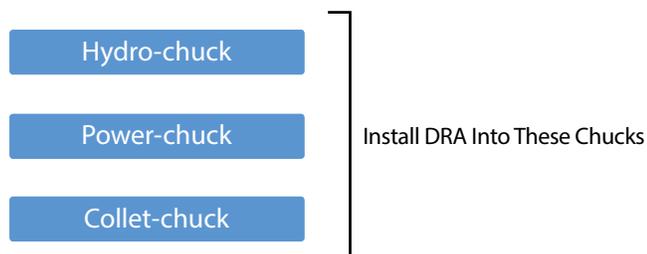
Do not use any arbor whose attachment surface is deformed. Center deviation must be less than 0.0008".

## Machining Center Installation Cautions

### How to Install DRA

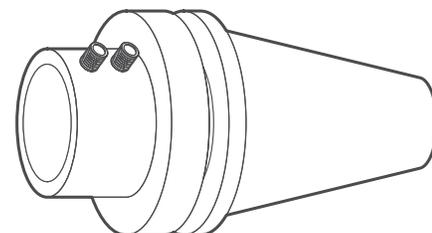
#### 1st Recommendation

Hydro-chuck, Power-chuck, Collet-chuck



#### 2nd Recommendation

Side-lock Arbor



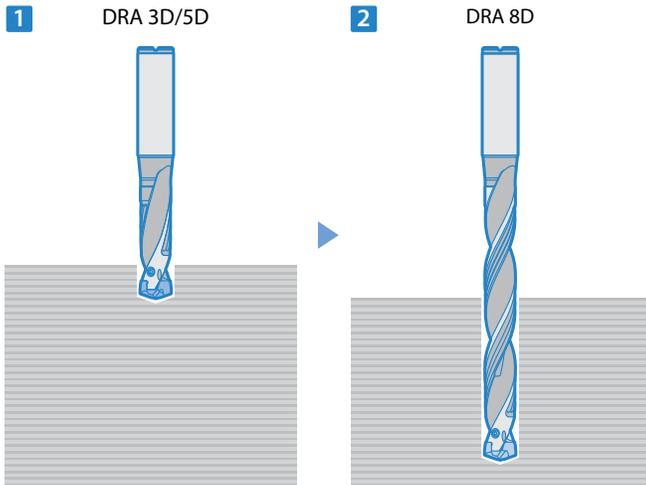
Example of Side Lock Arbor

# Other Cautions

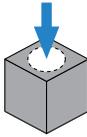
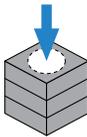
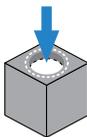
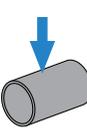
## Cautions for Machining with 8D Holder

### Recommended Machining

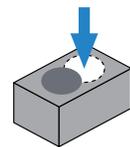
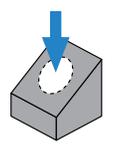
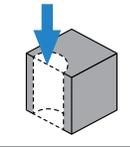
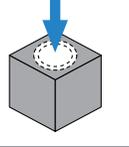
- 1 Make a center spot using DRA 3D/5D  
(Center spot should be at least half of cutting diameter)
- 2 Then drill the hole using DRA (8D type).



## Applicable Workpiece

Application	Workpiece Shape	Machining Caution
Plain Surface		<ol style="list-style-type: none"> <li>1. When machining stainless steel, for hole depths of up to 0.5D, keep feed rate at less than 0.006 ipr.</li> <li>2. Thru coolant is recommended for smooth chip removal. For stainless steel, the combination of thru and external coolant is recommended.</li> </ol>
Stacked Plates		<ol style="list-style-type: none"> <li>1. Fix stacked plates securely to ensure they do not slip while machining.</li> </ol>
Concave Surface		<ol style="list-style-type: none"> <li>1. When machining concave holes, set the feed rate at less than half of recommended feed for continuous hole machining.</li> <li>2. Utilize a pecking cycle if chips are not broken short at the inlet.</li> </ol>
Tubing		<ol style="list-style-type: none"> <li>1. Hole machining on the centerline of the tubing is possible.</li> <li>2. Do not machine on curved surface areas.</li> </ol> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Good</p>  <p>Center Machining</p> </div> <div style="text-align: center;"> <p>Bad</p>  <p>Off Center Machining</p> </div> </div>

## Non-recommended Workpieces

Hole Expansion		Angled Surface	
Half Cylindrical		Existing Hole	



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