



# DRV Magic Drill

High Efficiency Indexable Drill



Economical Inserts with 4 Cutting Edges and Excellent Chip Evacuation

2xD to 6xD drilling lineup with 4 chipbreakers for various machining applications

High speed and highly efficient machining with the combination of a CVD outer insert and PVD inner insert

Excellent hole accuracy with a highly rigid design for better chatter resistance



Chamfering Attachment



Expanded Lineup from  $\varnothing 0.562"$ ~ $\varnothing 1.250"$  and  $\varnothing 12\text{mm}$ ~ $\varnothing 39\text{mm}$

# DRV Magic Drill

## High Efficiency Indexable Drill



Economical Inserts with 4 Cutting Edges

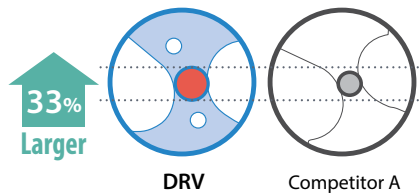
Excellent Chip Evacuation with 6D Maximum Deep-Hole Drilling

High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts

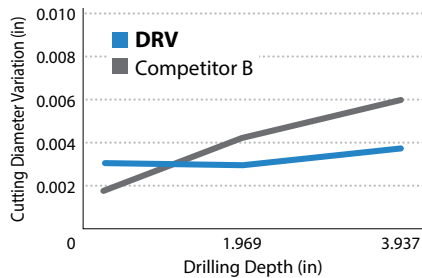
### 1 Excellent Drilling Precision with Less Variation in Cutting Diameter

#### Optimal Web Thickness and Low Cutting Force Design Reduces Chattering

Web Thickness Comparison  
(Internal Evaluation)

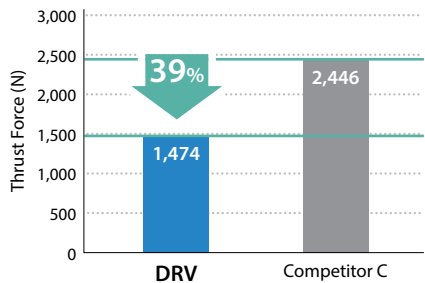


Cutting Diameter Variation Comparison  
(Internal Evaluation)



Cutting Conditions : Vc = 490 sfm, f = 0.0024 ipr  
Cutting Dia. Ø0.812" (5D), Wet, Workpiece : 1049

Cutting Force Comparison  
(Internal Evaluation)



Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr  
Cutting Dia. Ø0.812" (3D), Wet, Workpiece : 1049

### 2 Unique Insert Design to Control Chip Flow

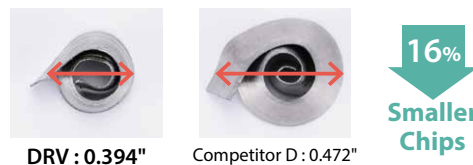
#### Outer Edge Insert

Unique Insert Pattern to Differentiate between Outside and Inside Inserts



#### Smooth Chip Evacuation with Compact Chips

Chip Shape Comparison of Outer Insert Cutting Edge  
(Internal Evaluation)



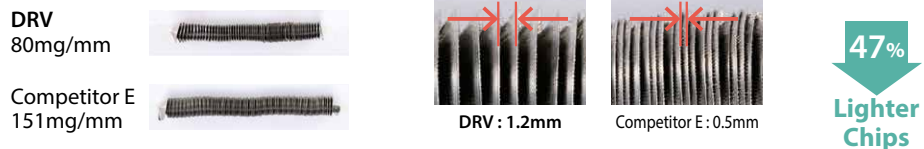
Cutting Conditions : Vc = 490 sfm, f = 0.0024 ipr, Cutting Dia. Ø0.812 (3D), Wet Workpiece : 1049

#### Inner Edge Insert



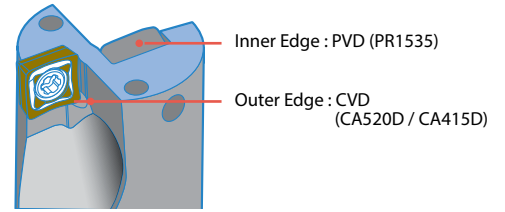
#### Excellent Chip Evacuation with 6xD Maximum Deep-Hole Drilling

Weight per Unit of Length for Chips Generated by the Inner Insert  
(Internal Evaluation)



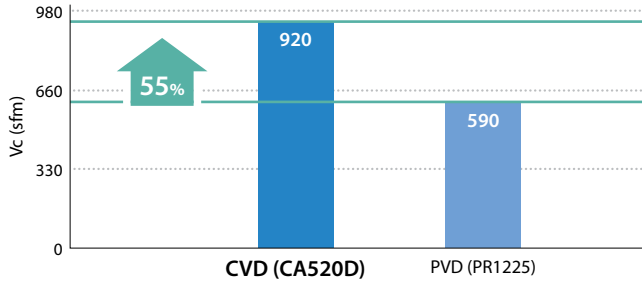
Cutting Conditions : Vc = 820 sfm, f = 0.0031 ipr, Cutting Dia. Ø0.812 (5D), Wet, Workpiece : 304

# 3 New Insert Grades Developed for Drilling



## High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts

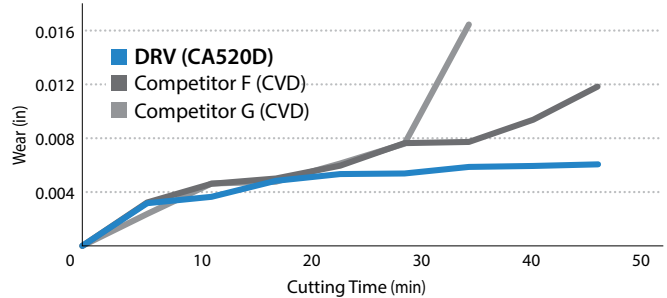
Recommended Cutting Conditions (Maximum Values)



Cutting Dia.  $\varnothing$ 0.812" (3D) Workpiece : 1049

See Page **19** for Insert Grade Selection Guide

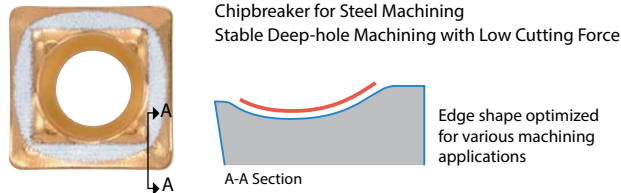
Wear Resistance Comparison (Internal Evaluation)



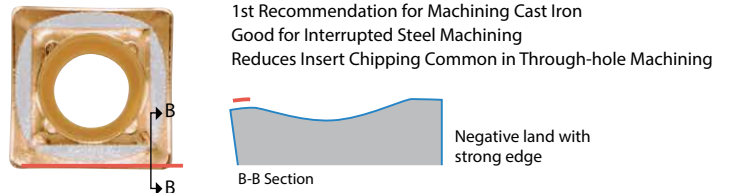
Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr, Cutting Dia.  $\varnothing$ 0.812" (3D) , Wet Workpiece : 4140H

# 4 Economical 4-Edge Inserts 4 Types of Chipbreakers for Various Machining Applications

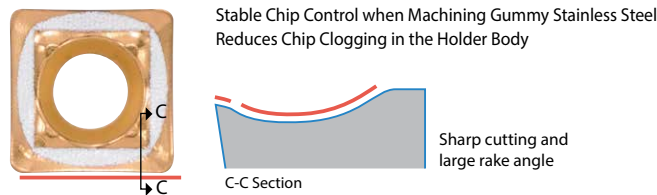
## GM Chipbreaker - General Purpose



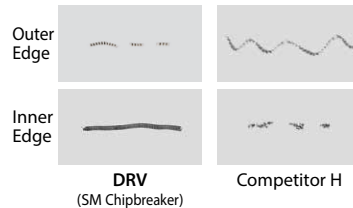
## GH Chipbreaker - Tough Edge



## SM Chipbreaker - For Stainless Steel Machining

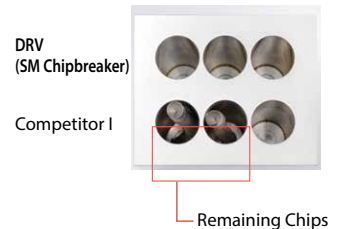


## Chip Control Comparison (Internal Evaluation)



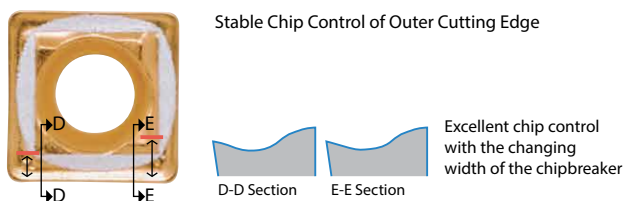
Cutting Conditions : Vc = 330 sfm, f = 0.0039 ipr  
Cutting Dia.  $\varnothing$ 0.812" (3D), Drilling Depth 2.436"  
Wet, Workpiece : 304

## Comparison of Remaining Chips (Internal Evaluation)

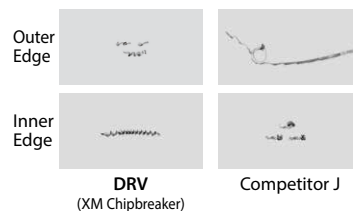


Cutting Conditions : Vc = 490 sfm, f = 0.0031 ipr  
Cutting Dia.  $\varnothing$ 0.984" (5D), Drilling Depth 3.858"  
Wet, Workpiece : 304

## XM Chipbreaker - For Machining Soft Steel and SS Material



## Chip Control Comparison (Internal Evaluation)



Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr  
Cutting Dia.  $\varnothing$ 0.625" (3D), Drilling Depth 1.875"  
Wet, Workpiece : A36

Chipbreaker Selection Chart **P4**

# 5

## Expanded Lineup



Drilling and chamfering is both possible with the DRV chamfering attachment

→ See page 15~16 for more details

Productivity



Expanded holder lineup of:

- Ø0.562", and Ø1.062"~Ø1.250" diameters
- Ø12mm, Ø13mm, and Ø33mm~Ø39mm diameters

GH chipbreaker with tough edge and XM chipbreaker for soft steel

→ See page 5~10 for more details

### Drill Diameter Range and Future Expansion

Metric Sizes

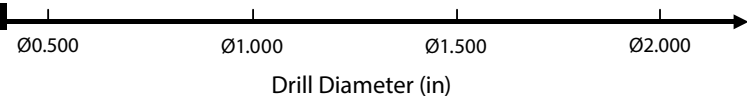
**DRV**

Ø12mm~Ø39mm  
2D~6D

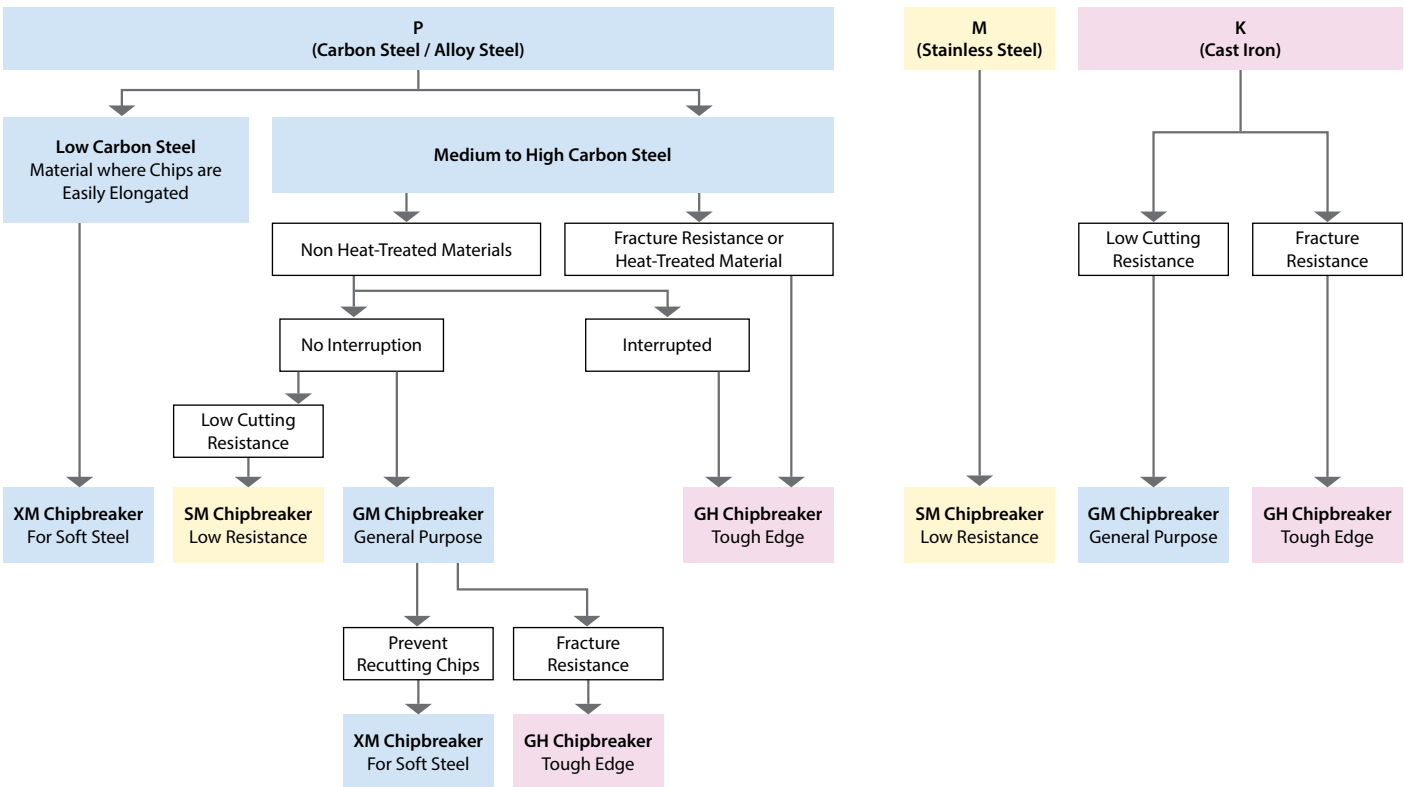
Inch Sizes

**DRV Available**  
Ø0.562"~Ø1.250"  
2D~6D

**DRV Future Expansion**



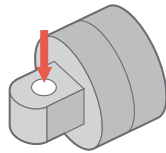
### Chipbreaker Selection Chart



Case Studies

**Housing - Structural Steel**

Vc = 410 sfm (n = 1,660 rpm)  
 f = 0.003 ipr (Vf = 5.236 ipm)  
 Drilling Depth 1.772"  
 Wet (External Coolant)  
 S100-DRV0938-4-07  
 SCMT070310GM-I PR1535  
 SCMT070305GM-E PR1225



Cutting Time

**DRV**  
 (Ø0.938" 4xD)

**16 sec**

**50%  
 or More**  
 Cutting Time

Competitor K  
 (Ø0.938" 4xD)

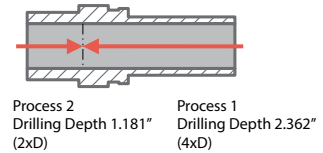
**35 sec**

Chattering and recutting chips occurred in low rigidity workpiece of Competitor K. Speed was reduced to Vc = 200 sfm. DRV provided good chip control for stable machining at Vc = 410 sfm.

(User Evaluation)

**Nipple - Stainless Steel**

Vc = 760 sfm (n = 3,330 rpm)  
 f = 0.005 ipr (Vf = 17.047 ipm)  
 Drilling Depth 2.362" (4xD)  
 1.181" (2xD)  
 Wet (Internal Coolant)  
 S100-DRV0875-4-06 (4xD)  
 S100-DRV0875-2-06 (2xD)  
 SCMT060210-GM-I PR1535  
 SCMT060205-GM-E PR1225



Cutting Time

**DRV**  
 (Ø0.875" 4xD/2xD)

**12 sec**

**40%**  
 Cutting Time

Competitor L  
 (Ø0.875" 4xD/2xD)

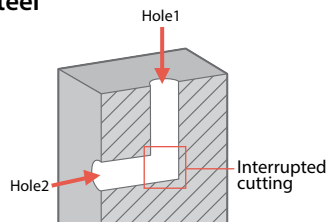
**20 sec**

Chattering and deflection occurred with Competitor L. DRV showed stable machining and a shorter cutting time even when the cutting conditions were increased by 1.6 times or more.

(User Evaluation)

**Valve Body - Stainless Steel**

Vc = 720 sfm (n = 3,200 rpm)  
 f = 0.002 ipr (Vf = 6.300 ipm)  
 Drilling Depth 1.969"  
 (Blind hole / Through hole)  
 Wet (Internal Coolant)  
 S100-DRV0875-5-06  
 SCMT060205-GM-E PR1225  
 SCMT060210-GM-I PR1535



Cutting Time

**DRV**  
 (Ø0.875" 5xD)

**14 sec**

**30%  
 or More**  
 Cutting Time

Competitor M  
 (Ø0.875" 5xD)

**22 sec**

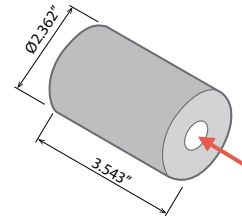
Competitor M : Chattering occurred in the continuous part and then vibration was bigger in the crossed-hole.

DRV : There was no chattering even when increasing cutting speed and there was low vibration in the crossed-hole. The DRV achieved 1.5 times machining efficiency.

(User Evaluation)

**Piston - 4140**

Vc = 820 sfm (n = 3,185 rpm)  
 f = 0.0035 ipr (Vf = 11.417 ipm)  
 Drilling Depth 2.756"  
 (Blind Hole)  
 Wet (Internal Coolant)  
 S100-DRV1000-4-07  
 SCMT070305-GM-E CA520D  
 SCMT070310-GM-I PR1535



Cutting Time

**DRV**  
 (Ø1.000" 4xD)

**14 sec**

**25%**  
 Cutting Time

Competitor N  
 (Ø1.000" 4xD)

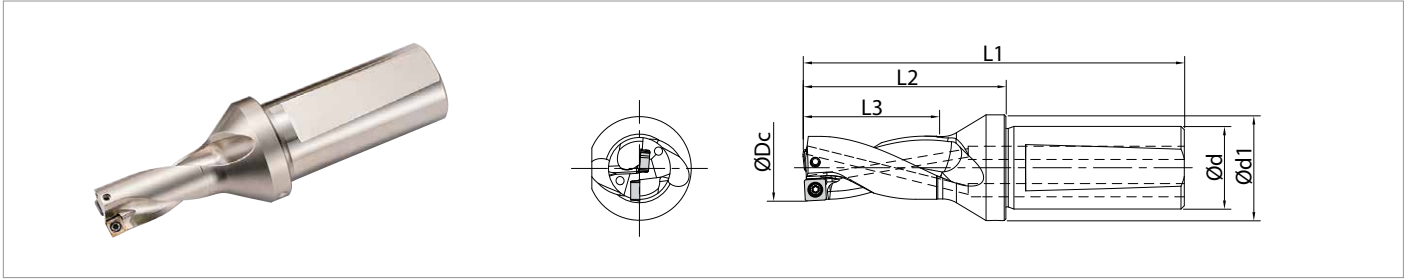
**19 sec**

Competitor N : Loud chattering noise occurred.

DRV : Maintained stable machining. No chattering even at 1.5 times faster cutting speed.

(User Evaluation)

# DRV Toolholders - Inch Sizes



## Toolholder Dimension 2D

(Drilling Depth : 2 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (in)							Max. Radial Offset (in)	Spare Parts		Applicable Insert See <a href="#">Page 16</a>
			ØDc	L1	L2	L3	Ød	Ød1	Clamp Screw		Wrench		
<span style="color: red; font-weight: bold;">NEW</span> S075- DRV0562-2-04	●	2	0.562	3.661	1.969	1.125	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I	
S075- DRV0625-2-05	●	2	0.625	3.866	2.173	1.250	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I	
DRV0656-2-05	●		0.656	3.929	2.236	1.312			+0.012				
S100- DRV0688-2-05	●	2	0.688	4.425	2.299	1.376	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I	
S100- DRV0750-2-06	●	0.750	4.469	2.343	1.500	1.000	1.260	+0.024					
DRV0812-2-06	●	0.812	4.594	2.469	1.624			+0.018					
DRV0875-2-06	●	2	0.875	4.720	2.594	1.750	1.000	1.260	+0.010	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I	
S100- DRV0938-2-07	●	0.938	4.827	2.701	1.876	+0.028							
DRV0984-2-07	●	0.984	4.917	2.791	1.968	+0.024							
DRV1000-2-07	●	2	1.000	4.949	2.823	2.000	1.250	1.614	+0.020	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I	
<span style="color: red; font-weight: bold;">NEW</span> S125- DRV1062-2-09	●	1.062	5.341	3.018	2.124	+0.041							
<span style="color: red; font-weight: bold;">NEW</span> DRV1125-2-09	●	1.125	5.467	3.144	2.250	+0.033							
<span style="color: red; font-weight: bold;">NEW</span> DRV1188-2-09	●	1.188	5.593	3.270	2.376	+0.026							
<span style="color: red; font-weight: bold;">NEW</span> S150- DRV1250-2-09	●	2	1.250	6.256	3.539	2.500	1.500	1.929	+0.020	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I	

● : U.S. Stock

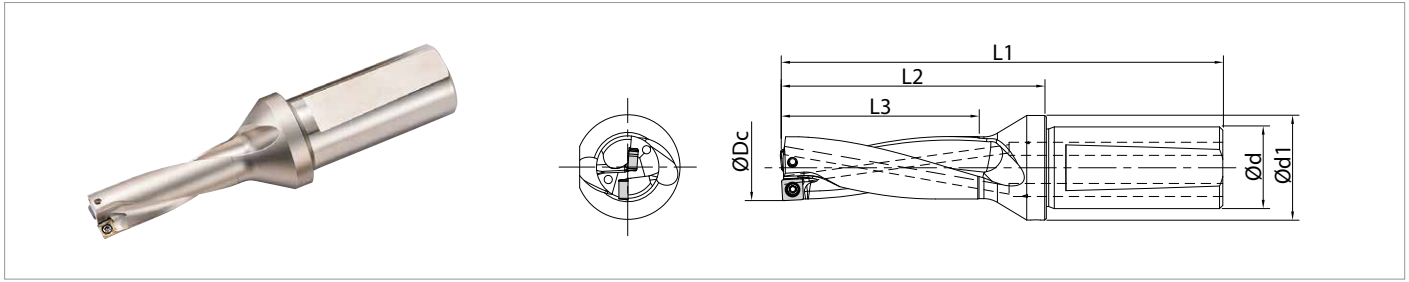
### ■ Estimated Cutting Tolerance (2D)

ØDc	Estimated Cutting Tolerance (in)
Ø0.562" - Ø1.250"	+0.012 0

The above values are estimates.  
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [P20~P23](#)  
Adjustable Sleeve ASL [P25](#)

# DRV Toolholders - Inch Sizes



## Toolholder Dimension

3D

(Drilling Depth : 3 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See <a href="#">Page 16</a>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<b>NEW</b> S075- DRV0562-3-04	●	2	0.562	4.224	2.531	1.687	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-3-05	●	2	0.625	4.492	2.799	1.875	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-3-05	●		0.656	4.587	2.894	1.968			+0.012			
S100- DRV0688-3-05	●	2	0.688	5.114	2.988	2.064	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-3-06	●	0.750	5.220	3.094	2.250	1.000	1.260	+0.024				
DRV0812-3-06	●	0.812	5.406	3.280	2.436			+0.018				
DRV0875-3-06	●	2	0.875	5.594	3.469	2.625	1.000	1.260	+0.010	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
S100- DRV0938-3-07	●	0.938	5.764	3.638	2.814	+0.028						
DRV0984-3-07	●	0.984	5.902	3.776	2.952	+0.024						
DRV1000-3-07	●	2	1.000	5.949	3.823	3.000	1.250	1.614	+0.020	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
<b>NEW</b> S125- DRV1062-3-09	●	1.062	6.402	4.080	3.186	+0.041						
<b>NEW</b> DRV1125-3-09	●	1.125	6.592	4.269	3.375	+0.033						
<b>NEW</b> DRV1188-3-09	●	1.188	6.781	4.458	3.564	+0.026						
<b>NEW</b> S150- DRV1250-3-09	●	2	1.250	7.508	4.791	3.750	1.500	1.929	+0.020	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I

● : U.S. Stock

### ■ Estimated Cutting Tolerance (3D)

ØDc	Estimated Cutting Tolerance (in)
Ø0.562" - Ø1.250"	+0.012 0

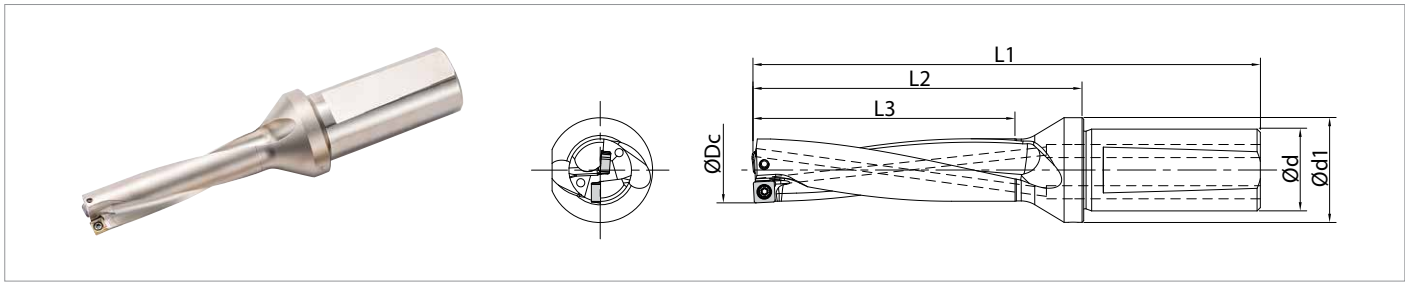
The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [P20~P23](#)

Adjustable Sleeve ASL [P25](#)

# DRV Toolholders - Inch Sizes



## Toolholder Dimension 4D

(Drilling Depth : 4 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See <a href="#">Page 16</a>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<span style="color: red; font-weight: bold;">NEW</span> S075- DRV0562-4-04	●	2	0.562	4.787	3.094	2.250	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-4-05	●	2	0.625	5.118	3.425	2.500	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-4-05	●		0.656	5.240	3.551	2.624			+0.012			
S100- DRV0688-4-05	●	0.688	5.803	3.677	2.752	1.000	1.260	+0.010	SB-2555TRP			
S100- DRV0750-4-06	●	0.750	5.969	3.843	3.000	1.000	1.260	+0.024				
DRV0812-4-06	●	0.812	6.217	4.091	3.248			+0.018				
DRV0875-4-06	●	0.875	6.469	4.343	3.500			+0.010				
S100- DRV0938-4-07	●	2	0.938	6.701	4.575	3.752	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-4-07	●		0.984	6.886	4.760	3.936			+0.024			
DRV1000-4-07	●		1.000	6.949	4.823	4.000			+0.020			
<span style="color: red; font-weight: bold;">NEW</span> S125- DRV1062-4-09	●	2	1.062	7.465	5.142	4.248	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
<span style="color: red; font-weight: bold;">NEW</span> DRV1125-4-09	●		1.125	7.717	5.394	4.500			+0.033			
<span style="color: red; font-weight: bold;">NEW</span> DRV1188-4-09	●		1.188	7.969	5.646	4.752			+0.026			
<span style="color: red; font-weight: bold;">NEW</span> S150- DRV1250-4-09	●	2	1.250	8.756	6.039	5.000	1.500	1.929	+0.020			

● : U.S. Stock

### ■ Estimated Cutting Tolerance (4D)

ØDc	Estimated Cutting Tolerance (in)
Ø0.562" - Ø1.250"	+0.014 0

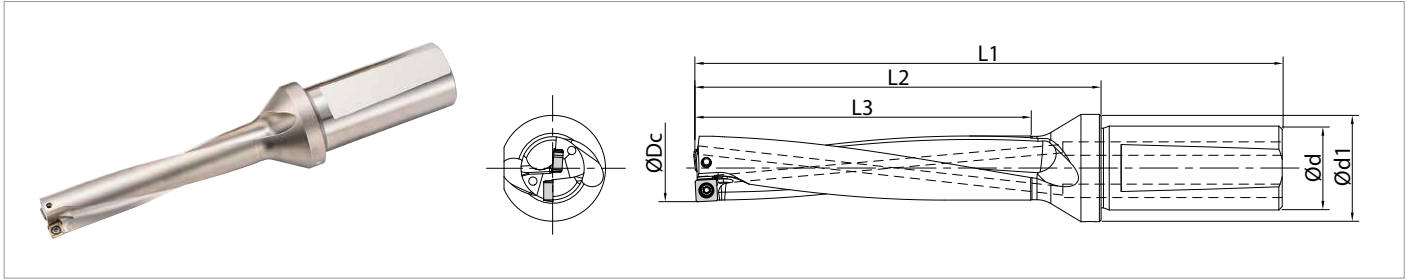
The above values are estimates.  
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [P20~P23](#)

Adjustable Sleeve ASL [P25](#)



# DRV Toolholders - Inch Sizes



## Toolholder Dimension **5D**

(Drilling Depth : 5 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See <a href="#">Page 16</a>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<b>NEW</b> S075- DRV0562-5-04	●	2	0.562	5.346	3.654	2.812	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-5-05	●	2	0.625	5.744	4.051	3.125	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-5-05	●		0.656	5.898	4.205	3.280			+0.012			
S100- DRV0688-5-05	●		0.688	6.492	4.366	3.440	1.000	1.260	+0.010			
S100- DRV0750-5-06	●	2	0.750	6.720	4.594	3.750	1.000	1.260	+0.024	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
DRV0812-5-06	●		0.812	7.028	4.902	4.060			+0.018			
DRV0875-5-06	●		0.875	7.343	5.217	4.375			+0.010			
S100- DRV0938-5-07	●	2	0.938	7.638	5.512	4.690	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-5-07	●		0.984	7.870	5.744	4.920			+0.024			
DRV1000-5-07	●		1.000	7.949	5.823	5.000			+0.020			
<b>NEW</b> S125- DRV1062-5-09	●	2	1.062	8.526	6.204	5.310	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
<b>NEW</b> DRV1125-5-09	●		1.125	8.842	6.519	5.625			+0.033			
<b>NEW</b> DRV1188-5-09	●		1.188	9.157	6.834	5.940			+0.026			
<b>NEW</b> S150- DRV1250-5-09	●		1.250	10.008	7.291	6.250	1.500	1.929	+0.020			

● : U.S. Stock

### ■ Estimated Cutting Tolerance (5D)

ØDc	Estimated Cutting Tolerance (in)
Ø0.562" - Ø1.250"	+0.014 0

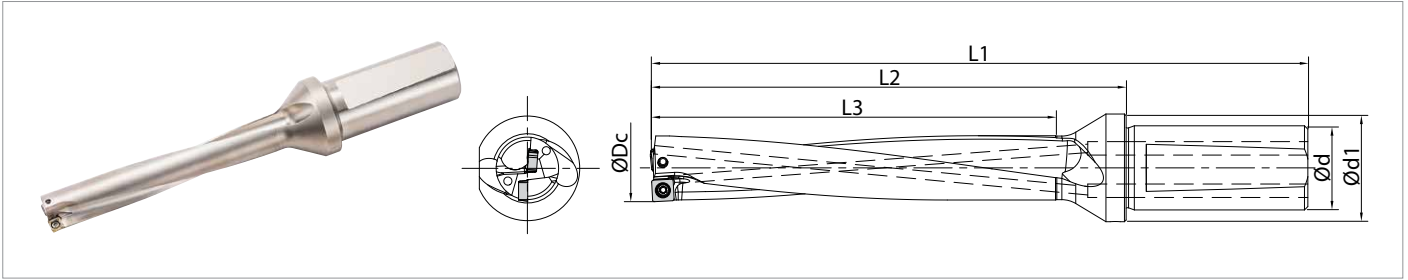
The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [P20~P23](#)

Adjustable Sleeve ASL [P25](#)

# DRV Toolholders - Inch Sizes



## Toolholder Dimension **6D**

(Drilling Depth : 6 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See <b>Page 16</b>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<b>NEW</b> S075- DRV0562-6-04	●	2	0.562	5.909	4.217	3.375	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-6-05	●	2	0.625	6.370	4.677	3.750	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-6-05	●		0.656	6.555	4.862	3.936			+0.012			
S100- DRV0688-6-05	●	2	0.688	7.181	5.055	4.128	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-6-06	●	0.750	7.469	5.343	4.500	1.000	1.260	+0.024				
DRV0812-6-06	●	0.812	7.843	5.717	4.872			+0.018				
DRV0875-6-06	●	0.875	8.220	6.094	5.250			+0.010				
S100- DRV0938-6-07	●	2	0.938	8.579	6.453	5.628	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-6-07	●		0.984	8.854	6.728	5.904			+0.024			
DRV1000-6-07	●		1.000	8.949	6.823	6.000			+0.020			
<b>NEW</b> S125- DRV1062-6-09	●	2	1.062	9.589	7.266	6.372	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
<b>NEW</b> DRV1125-6-09	●		1.125	9.967	7.644	6.750			+0.033			
<b>NEW</b> DRV1188-6-09	●		1.188	10.344	8.022	7.128			+0.026			
<b>NEW</b> S150- DRV1250-6-09	●	2	1.250	11.256	8.539	7.500	1.500	1.929	+0.020			

● : U.S. Stock

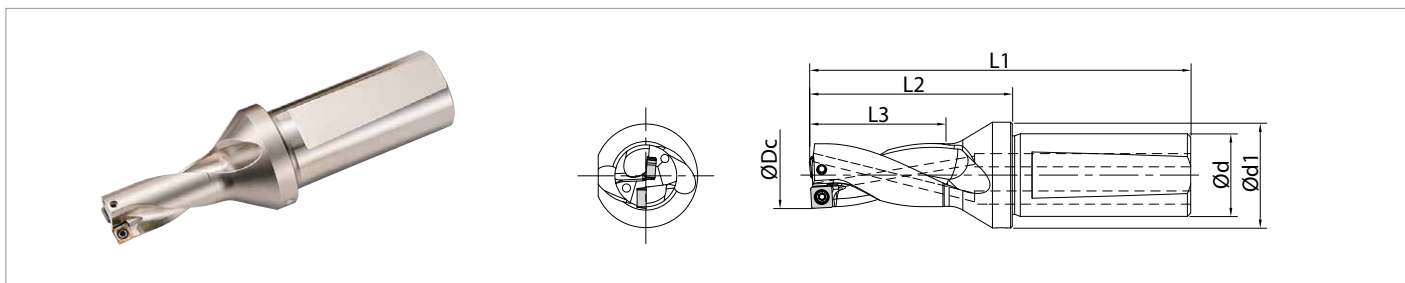
### ■ Estimated Cutting Tolerance (6D)

ØDc	Estimated Cutting Tolerance (in)
Ø0.562" - Ø1.250"	+0.018 0

The above values are estimates.  
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**  
Adjustable Sleeve ASL **P25**

# DRV Toolholders - Metric Sizes



## Toolholder Dimension

2D

(Drilling Depth : 2 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See <a href="#">Page 16</a>
			ØDc	L1	L2	L3	ød	ød1		Clamp Screw	Wrench	
<b>NEW</b> S20- DRV120M-2-03	○	2	12	82	39	24	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030204-□□-I
	○		12.5	83	40	25			+0.20			
	○		13	84	41	26			+0.15			
	○		13.5	85	42	27			+0.10			
S20- DRV140M-2-04	○	2	14	92	49	28	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
	○		14.5	93	50	29			+0.35			
	○		15	94	51	30			+0.30			
	○		15.5	95	52	31			+0.25			
S25- DRV160M-2-05	○	2	16	110	56	32	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
	○		16.5	111	57	33			+0.35			
	○		17	112	58	34			+0.30			
	○		17.5	113	59	35			+0.25			
	○		18	114	60	36			+0.20			
S25- DRV185M-2-05	○	2	18.5	115	61	37	25	32	+0.15	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
	○		19	113	59	38			+0.65			
	○		19.5	114	60	39			+0.60			
	○		20	115	61	40			+0.55			
	○		20.5	116	62	41			+0.50			
	○		21	117	63	42			+0.45			
S25- DRV215M-2-06	○	2	21.5	118	64	43	25	32	+0.35	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
	○		22	119	65	44			+0.30			
	○		22.5	120	66	45			+0.90			
	○		23	121	67	46			+0.80			
	○		23.5	122	68	47			+0.75			
	○		24	123	69	48			+0.70			
	○		24.5	124	70	49			+0.65			
S25- DRV250M-2-07	○	2	25	125	71	50	25	32	+0.60	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
	○		25.5	126	72	51			+0.50			
	○		26	127	73	52			+0.45			
	○		27	136	77	54			+1.05			
	○		28	138	79	56			+0.95			
	○		29	140	81	58			+0.85			
	○		30	142	83	60			+0.75			
S32- DRV270M-2-09	○	2	31	144	85	62	32	41	+0.60	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		32	146	87	64			+0.50			
	○		33	161	92	66			+1.25			
	○		34	163	94	68			+1.15			
	○		35	165	96	70			+1.00			
<b>NEW</b> S40- DRV350M-2-11	○	2	36	167	98	72	40	49	+0.90	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		37	169	100	74			+0.80			
	○		38	171	102	76			+0.65			
	○		39	173	104	78			+0.55			
	○		39	173	104	78			+0.55			

### Estimated Cutting Tolerance (2D)

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

ØDc	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.30 0

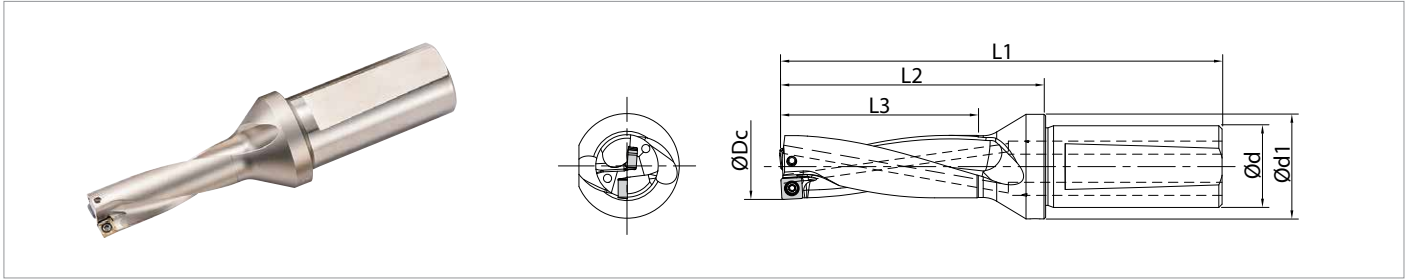
The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**

Adjustable Sleeve SHE **P25**

# DRV Toolholders - Metric Sizes



## Toolholder Dimension

3D

(Drilling Depth : 3 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page 16
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
NEW S20- DRV120M-3-03	○	2	12	94	51	36	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
	○		12.5	96	53	37.5			+0.20			
	○		13	97	54	39			+0.15			
	○		13.5	99	56	40.5			+0.10			
S20- DRV140M-3-04	○	2	14	106	63	42	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
	○		14.5	108	65	43.5			+0.35			
	○		15	109	66	45			+0.30			
	○		15.5	111	68	46.5			+0.25			
S25- DRV160M-3-05	○	2	16	126	72	48	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
	○		16.5	127	73	49.5			+0.35			
	○		17	129	75	51			+0.30			
	○		17.5	130	76	52.5			+0.25			
	○		18	132	78	54			+0.20			
	○		18.5	133	79	55.5			+0.15			
S25- DRV190M-3-06	○	2	19	132	78	57	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
	○		19.5	134	80	58.5			+0.60			
	○		20	135	81	60			+0.55			
	○		20.5	137	83	61.5			+0.50			
	○		21	138	84	63			+0.45			
	○		21.5	140	86	64.5			+0.35			
S25- DRV225M-3-07	○	2	22.5	142	88	67.5	25	32	+0.90	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
	○		23	144	90	69			+0.80			
	○		23.5	145	91	70.5			+0.75			
	○		24	147	93	72			+0.70			
	○		24.5	148	94	73.5			+0.65			
	○		25	150	96	75			+0.60			
	○		25.5	151	97	76.5			+0.50			
	○		26	153	99	78			+0.45			
S32- DRV265M-3-09	○	2	26.5	161	102	79.5	32	41	+1.15	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
	○		27	163	104	81			+1.05			
	○		27.5	164	105	82.5			+1.00			
	○		28	166	107	84			+0.95			
	○		28.5	167	108	85.5			+0.90			
	○		29	169	110	87			+0.85			
	○		29.5	170	111	88.5			+0.80			
	○		30	172	113	90			+0.75			
	○		30.5	173	114	91.5			+0.65			
	○		31	175	116	93			+0.60			
	○		31.5	176	117	94.5			+0.55			
	○		32	178	119	96			+0.50			
NEW S40- DRV330M-3-11	○	2	33	194	125	99	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		34	197	128	102			+1.15			
	○		35	200	131	105			+1.00			
	○		36	203	134	108			+0.90			
	○		37	206	137	111			+0.80			
	○		38	209	140	114			+0.65			
	○		39	212	143	117			+0.55			

### Estimated Cutting Tolerance (3D)

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

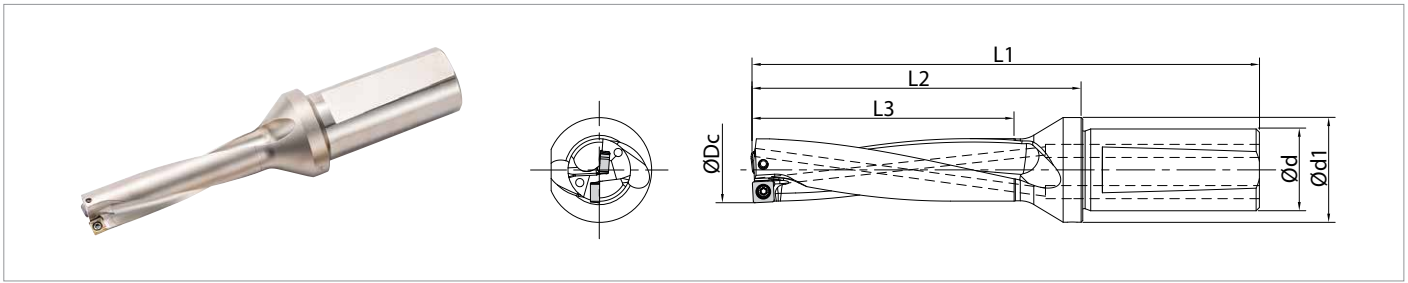
ØDc	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.30 0

The above values are estimates.  
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**

Adjustable Sleeve SHE **P25**

# DRV Toolholders - Metric Sizes



## Toolholder Dimension

4D

(Drilling Depth : 4 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See <b>Page 16</b>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<b>NEW</b> S20- DRV120M-4-03	○	2	12	106	63	48	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
	○		12.5	108	65	50			+0.20			
	○		13	110	67	52			+0.15			
	○		13.5	112	69	54			+0.10			
S20- DRV140M-4-04	○	2	14	120	77	56	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
	○		14.5	122	79	58			+0.35			
	○		15	124	81	60			+0.30			
	○		15.5	126	83	62			+0.25			
S25- DRV160M-4-05	○	2	16	142	88	64	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
	○		16.5	144	90	66			+0.35			
	○		17	146	92	68			+0.30			
	○		17.5	148	94	70			+0.25			
	○		18	150	96	72			+0.20			
S25- DRV185M-4-05	○	2	18.5	152	98	74	25	32	+0.15	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
	○		19	151	97	76			+0.65			
	○		19.5	153	99	78			+0.60			
	○		20	155	101	80			+0.55			
	○		20.5	157	103	82			+0.50			
	○		21	159	105	84			+0.45			
S25- DRV225M-4-07	○	2	21.5	161	107	86	25	32	+0.35	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
	○		22	163	109	88			+0.30			
	○		22.5	165	111	90			+0.90			
	○		23	167	113	92			+0.80			
	○		23.5	169	115	94			+0.75			
	○		24	171	117	96			+0.70			
	○		24.5	173	119	98			+0.65			
S32- DRV270M-4-09	○	2	25	175	121	100	32	41	+0.60	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
	○		25.5	177	123	102			+0.50			
	○		26	179	125	104			+0.45			
	○		27	190	131	108			+1.05			
	○		28	194	135	112			+0.95			
	○		29	198	139	116			+0.85			
<b>NEW</b> S40- DRV330M-4-11	○	2	30	202	143	120	40	49	+0.75	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		31	206	147	124			+0.60			
	○		32	210	151	128			+0.50			
	○		33	227	158	132			+1.25			
	○		34	231	162	136			+1.15			
	○		35	235	166	140			+1.00			
○	36	239	170	144	+0.90							
○	37	243	174	148	+0.80							
○	38	247	178	152	+0.65							
○	39	251	182	156	+0.55							

### ■ Estimated Cutting Tolerance (4D)

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

ØDc	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.35 0

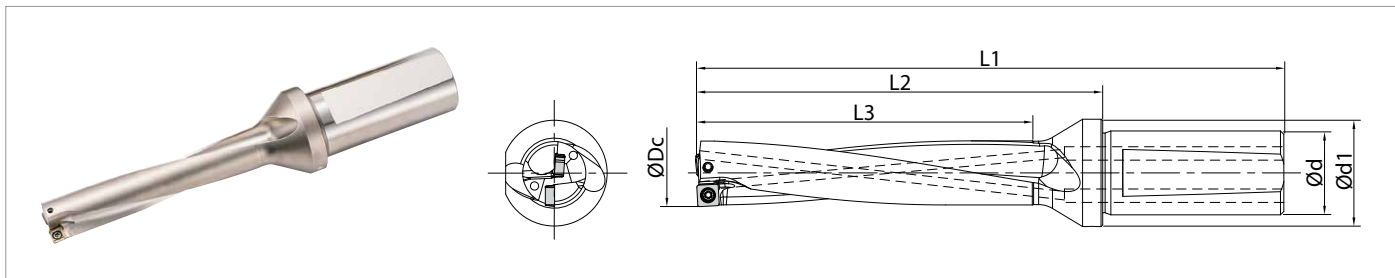
The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**

Adjustable Sleeve SHE **P25**

# DRV Toolholders - Metric Sizes



## Toolholder Dimension

5D

(Drilling Depth : 5 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See <b>Page 16</b>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
NEW S20- DRV120M-5-03	○	2	12	118	75	60	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
	○		13	123	80	65			+0.15			
S20- DRV140M-5-04	○	2	14	134	91	70	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
	○		15	139	96	75			+0.30			
S25- DRV160M-5-05	○	2	16	158	104	80	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
	○		17	163	109	85			+0.30			
	○		18	168	114	90			+0.20			
S25- DRV190M-5-06	○	2	19	170	116	95	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
	○		20	175	121	100			+0.55			
	○		21	180	126	105			+0.45			
	○		22	185	131	110			+0.30			
S25- DRV230M-5-07	○	2	23	190	136	115	25	32	+0.80	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
	○		24	195	141	120			+0.70			
	○		25	200	146	125			+0.60			
	○		26	205	151	130			+0.45			
S32- DRV270M-5-09	○	2	27	217	158	135	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
	○		28	222	163	140			+0.95			
	○		29	227	168	145			+0.85			
	○		30	232	173	150			+0.75			
	○		31	237	178	155			+0.60			
	○		32	242	183	160			+0.50			
NEW S40- DRV330M-5-11	○	2	33	260	191	165	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		34	265	196	170			+1.15			
	○		35	270	201	175			+1.00			
	○		36	275	206	180			+0.90			
	○		37	280	211	185			+0.80			
	○		38	285	216	190			+0.65			
	○		39	290	221	195			+0.55			

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

### ■ Estimated Cutting Tolerance (5D)

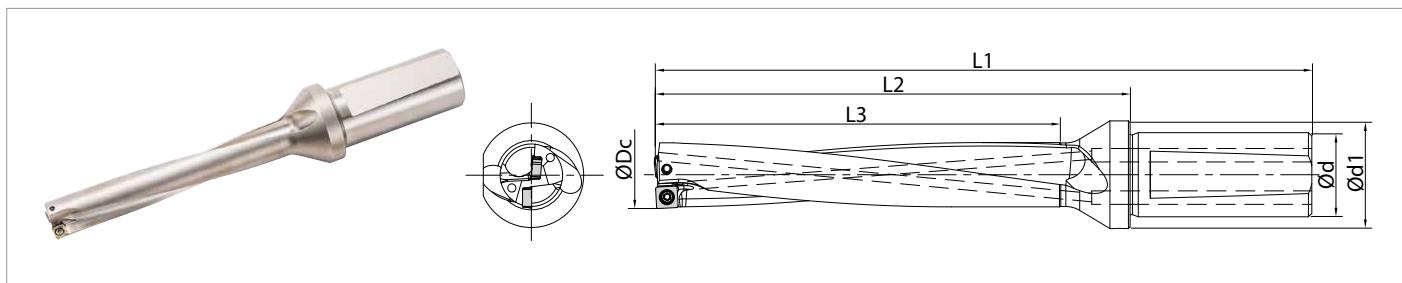
ØDc	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.35 0

The above values are estimates.  
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**

Adjustable Sleeve SHE **P25**

# DRV Toolholders - Metric Sizes



## Toolholder Dimension **6D**

(Drilling Depth : 6 × ØDc)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See <b>Page 16</b>
			ØDc	L1	L2	L3	Ød	Ød1		Clamp Screw	Wrench	
<b>NEW</b> S20- DRV120M-6-03	○	2	12	130	87	72	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
	○		13	136	93	78			+0.15			
S20- DRV140M-6-04	○	2	14	148	105	84	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
	○		15	154	111	90			+0.30			
S25- DRV160M-6-05	○	2	16	174	120	96	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
	○		17	180	126	102			+0.30			
	○		18	186	132	108			+0.20			
S25- DRV190M-6-06	○	2	19	189	135	114	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
	○		20	195	141	120			+0.55			
	○		21	201	147	126			+0.45			
	○		22	207	153	132			+0.30			
S25- DRV230M-6-07	○	2	23	213	159	138	25	32	+0.80	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
	○		24	219	165	144			+0.70			
	○		25	225	171	150			+0.60			
	○		26	231	177	156			+0.45			
S32- DRV270M-6-09	○	2	27	244	185	162	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
	○		28	250	191	168			+0.95			
	○		29	256	197	174			+0.85			
	○		30	262	203	180			+0.75			
	○		31	268	209	186			+0.60			
	○		32	274	215	192			+0.50			
<b>NEW</b> S40- DRV330M-6-11	○	2	33	293	224	198	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	○		34	299	230	204			+1.15			
	○		35	305	236	210			+1.00			
	○		36	311	242	216			+0.90			
	○		37	317	248	222			+0.80			
	○		38	323	254	228			+0.65			
	○		39	329	260	234			+0.55			

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

### ■ Estimated Cutting Tolerance (6D)

ØDc	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.45 0


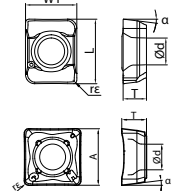

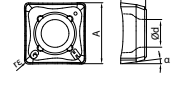

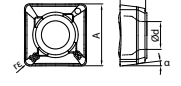

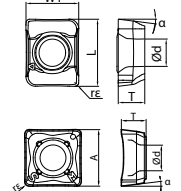

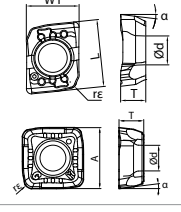

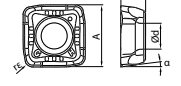

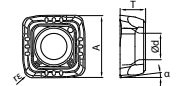

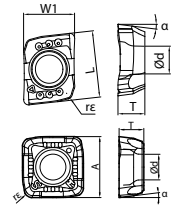
The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions **P20~P23**

Adjustable Sleeve SHE **P25**

# Applicable Inserts

Usage Classification			P	Carbon Steel / Alloy Steel	☆	★		★							
★ : 1st Recommendation (High Speed and Highly Efficient Machining) ☆ : 2nd Recommendation (Stable Machining Oriented)			P	Tool Steel	☆	★		★							
			M	Stainless Steel	☆	★		★							
			K	Cast Iron	☆		★	★							
Insert	Insert Pocket	Part Number	Dimensions (in)				Angle	MEGACOAT			CVD Coated Carbide	MEGACOAT NANO			
			A W1/L	T	Ød	rε	α	PR1225	CA520D	CA415D	PR1535				
 General Purpose		LCMT 030203-GM-E	0.173/0.218	0.079	0.091	0.012	7°	●	●	●					
		SCMT 040205-GM-E	0.189	0.087	0.094	0.020	7°	●	●	●					
		050205-GM-E	0.207	0.102	0.094	0.020	7°	●	●	●					
		060205-GM-E	0.252	0.110	0.114	0.020	7°	●	●	●					
		070305-GM-E	0.301	0.126	0.138	0.020	7°	●	●	●					
		090405-GM-E	0.358	0.161	0.157	0.020	7°	●	●	●					
		110406-GM-E	0.433	0.177	0.181	0.024	7°	●	●	●					
 Tough Edge		SCMT 040205-GH-E	0.189	0.087	0.094	0.020	7°	●	●	●					
		050205-GH-E	0.207	0.102	0.094	0.020	7°	●	●	●					
		060205-GH-E	0.252	0.110	0.114	0.020	7°	●	●	●					
		070305-GH-E	0.301	0.126	0.138	0.020	7°	●	●	●					
		090405-GH-E	0.358	0.161	0.157	0.020	7°	●	●	●					
		 Soft Steel		SCMT 040205-XM-E	0.189	0.087	0.094	0.020	7°	●	●				
				050205-XM-E	0.207	0.102	0.094	0.020	7°	●	●				
060205-XM-E	0.252			0.110	0.114	0.020	7°	●	●						
070305-XM-E	0.301			0.126	0.138	0.020	7°	●	●						
 Stainless Steel		LCMT 030203-SM-E	0.173/0.218	0.079	0.091	0.012	7°	●	●						
		SCMT 040205-SM-E	0.189	0.087	0.094	0.020	7°	●	●						
		050205-SM-E	0.207	0.102	0.094	0.020	7°	●	●						
		060205-SM-E	0.252	0.110	0.114	0.020	7°	●	●						
		070305-SM-E	0.301	0.126	0.138	0.020	7°	●	●						
		090405-SM-E	0.358	0.161	0.157	0.020	7°	●	●						
		110406-SM-E	0.433	0.177	0.181	0.024	7°	●	●						
 General Purpose		LCMT 030205-GM-I	0.164/0.221	0.079	0.091	0.020	7°				●				
		SCMT 040209-GM-I	0.197	0.087	0.094	0.035	7°				●				
		050210-GM-I	0.224	0.102	0.094	0.039	7°				●				
		060210-GM-I	0.272	0.110	0.114	0.039	7°				●				
		070310-GM-I	0.323	0.126	0.138	0.039	7°				●				
		090410-GM-I	0.386	0.161	0.157	0.039	7°				●				
		110410-GM-I	0.469	0.177	0.181	0.039	7°				●				
		 Tough Edge		SCMT 040209-GH-I	0.197	0.087	0.094	0.035	7°				●		
				050210-GH-I	0.224	0.102	0.094	0.039	7°				●		
				060210-GH-I	0.272	0.110	0.114	0.039	7°				●		
				070310-GH-I	0.323	0.126	0.138	0.039	7°				●		
				090410-GH-I	0.386	0.161	0.157	0.039	7°				●		
				 Soft Steel		SCMT 040209-XM-I	0.197	0.087	0.094	0.035	7°				●
						050210-XM-I	0.224	0.102	0.094	0.039	7°				●
060210-XM-I	0.272	0.110	0.114			0.039	7°				●				
070310-XM-I	0.323	0.126	0.138			0.039	7°				●				
090410-XM-I	0.386	0.161	0.157			0.039	7°				●				
 Stainless Steel		LCMT 030205-SM-I	0.164/0.221	0.079	0.091	0.020	7°				●				
		SCMT 040209-SM-I	0.197	0.087	0.094	0.035	7°				●				
		050210-SM-I	0.224	0.102	0.094	0.039	7°				●				
		060210-SM-I	0.272	0.110	0.114	0.039	7°				●				
		070310-SM-I	0.323	0.126	0.138	0.039	7°				●				
		090410-SM-I	0.386	0.161	0.157	0.039	7°				●				
		110410-SM-I	0.469	0.177	0.181	0.039	7°				●				

-E: Outer Edge Insert

-I: Inner Edge Insert

\*LCMT03... is a 2-edge insert

● : U.S. Stock

Recommended Cutting Conditions [P20~P23](#)

Inserts are sold in 10 piece boxes



NEW

# DRV Chamfering Attachment

Free-positioning according to the drilling depth  
Versatile chamfering with reduced chattering

1

## Double Inserts Provide Highly Efficient Machining

2 inserts allow for increased feed rates and a low cutting force design reduces chattering

2

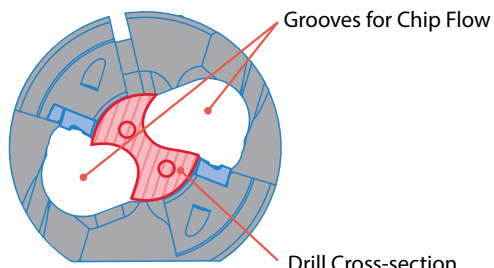
## Excellent Chip Evacuation

Chip flow grooves are designed to follow the flutes of the drill body delivering excellent chip evacuation

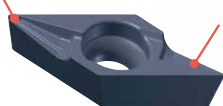
3

## High Chattering Resistance

Molded chipbreaker on 2-edge chamfering insert reduces cutting force while the special insert design prevents fracturing on the edge

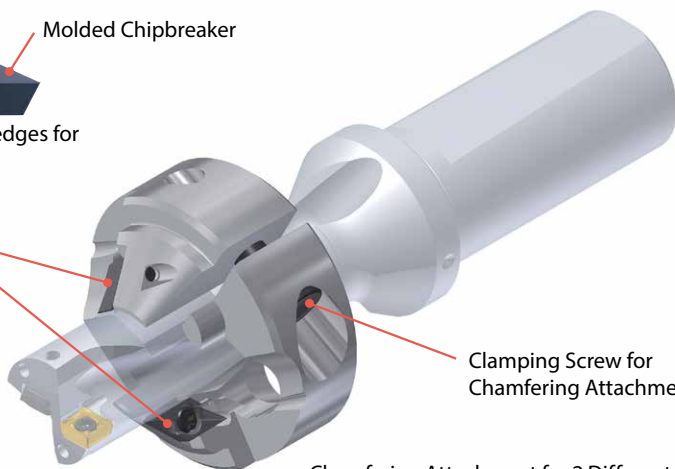


Unique Insert Design



Unique insert with 2 cutting edges for chamfering attachment

Two Inserts



Chamfering Attachment for 2 Different Size Drills

### Chattering Resistance Comparison (Internal Evaluation)

Provided good surface finish on the chamfer without chattering

DRV-CH20  
(Cutting Dia. Ø20mm)



DRV-CH20  
Smooth Surface Without Chattering

Competitor O  
(Cutting Dia. Ø20mm)



Competitor O  
Chattering Occurred on the Chamfer

Cutting Conditions

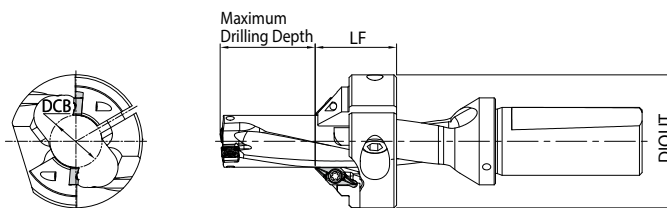
Vc = 330 sfm  
f = 0.006 ipr

Vc = 390 sfm  
f = 0.004 ipr

Vc = 390 sfm  
f = 0.005 ipr

Workpiece : 1045  
Machine : Machining Center BT-50  
Ø20mm / 3D, H = 30 mm, C2.0

# Chamfering Attachment

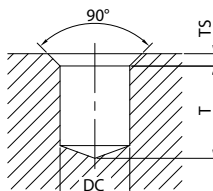


## Chamfer Attachment Dimensions

Part Number	Stock	Applicable Drill Bodies		Dimensions (mm)			Applicable Inserts	Spare Parts			
		Inch Size Bodies	Metric Size Bodies	DIOUT	DCB	LF		Insert Screw	Wrench	Insert Screw	Wrench
DRV-CH17	○	S075-DRV0656-...-05	S25-DRV165M-...-05 S25-DRV170M-...-05	47	16.2	30	CH0503-45	SB-3080TR	FT-10	HH6X18	LW-5
DRV-CH18	○	S100-DRV0688-...-05	S25-DRV175M-...-05 S25-DRV180M-...-05	47	17.2	30					
DRV-CH19	○	-	S25-DRV185M-...-05 S25-DRV190M-...-06	49	18.2	30					
DRV-CH20	○	S100-DRV0766-...-06	S25-DRV195M-...-06 S25-DRV200M-...-06	49	19.2	30					
DRV-CH21	○	S100-DRV0812-...-06	S25-DRV205M-...-06 S25-DRV210M-...-06	49	20.2	30					
DRV-CH22	○	-	S25-DRV215M-...-06 S25-DRV220M-...-06	49	21.2	30					
DRV-CH23	○	-	S25-DRV225M-...-07 S25-DRV230M-...-07	51	22.2	30					
DRV-CH24	○	S100-DRV0938-...-07	S25-DRV235M-...-07 S25-DRV240M-...-07	51	23.2	30					
DRV-CH25	○	S100-DRV0984-...-07	S25-DRV245M-...-07 S25-DRV250M-...-07	53	24.2	30					
DRV-CH26	○	-	S25-DRV255M-...-07 S25-DRV260M-...-07	53	25.2	30					
DRV-CH27	○	S125-DRV1062-...-09	S25-DRV265M-...-09 S32-DRV270M-...-09	64	26	35					

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


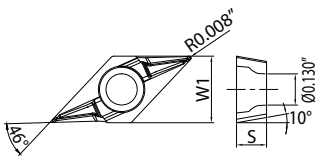
## Maximum Drilling Depth / Chamfering Depths



## Chamfer Attachment Dimensions

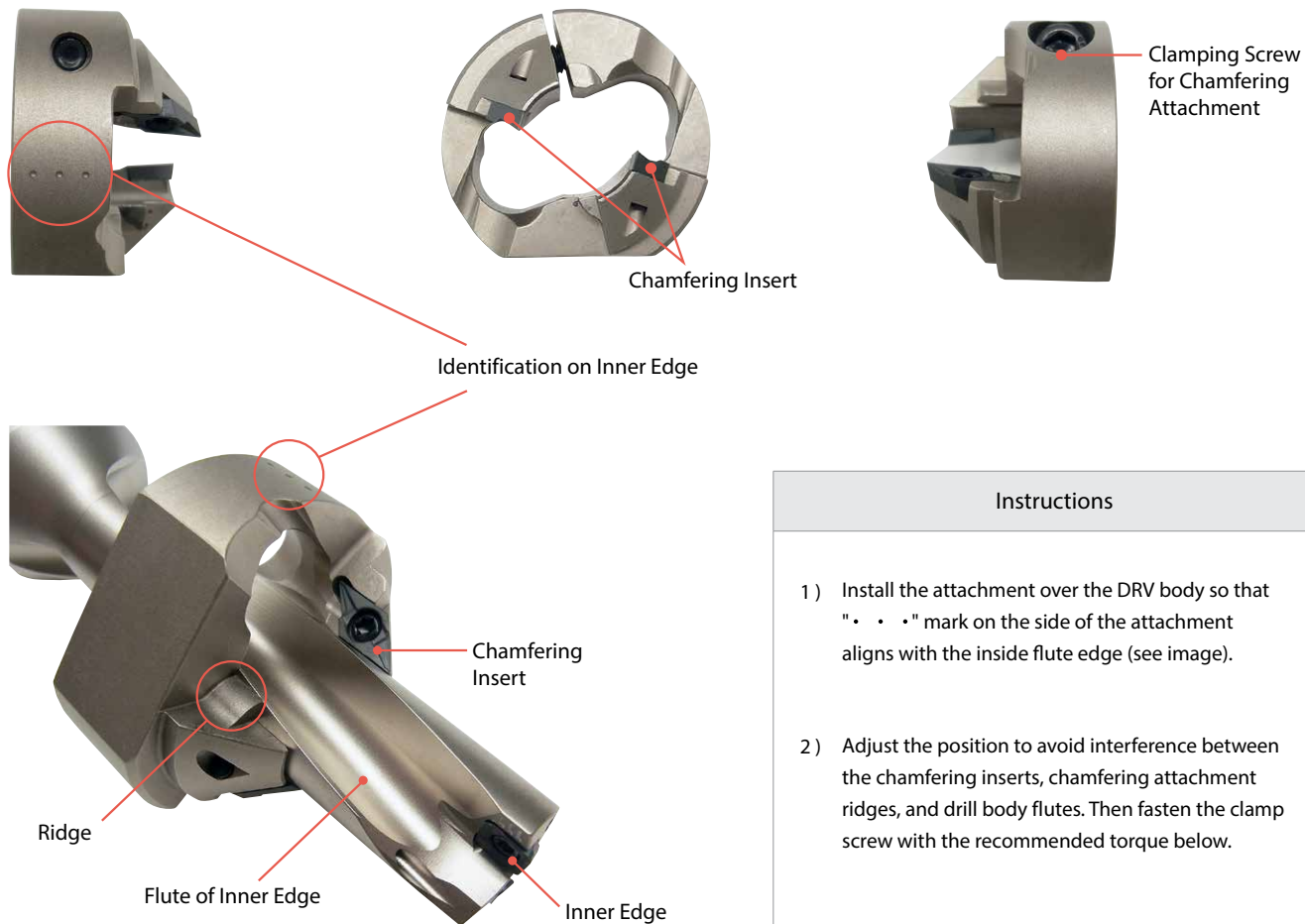
Drilling Diameter (ØDc)	Maximum Drilling Depth T (mm)						Max Chamfering Depth Ts (mm)	Applicable Chamfering Attachment
	2D Drill	3D Drill	4D Drill	5D Drill	6D Drill			
mm							2.5	
Ø16.5	0.5	17	33.5	-	-			DRV-CH17
Ø17.0	1.5	18.5	35.5	52.5	69.5			DRV-CH18
Ø17.5	2.5	20	37.5	-	-			DRV-CH19
Ø18.0	3.5	21.5	39.5	57.5	75.5			DRV-CH20
Ø18.5	4.5	23	41.5	-	-			DRV-CH21
Ø19.0	5.5	24.5	43.5	62.5	81.5			DRV-CH22
Ø19.5	6.5	26	45.5	-	-			DRV-CH23
Ø20.0	7.5	27.5	47.5	67.5	87.5			DRV-CH24
Ø20.5	8.5	29	49.5	-	-			DRV-CH25
Ø21.0	9.5	30.5	51.5	72.5	93.5			DRV-CH26
Ø21.5	10.5	32	53.5	-	-			DRV-CH27
Ø22.0	11.5	33.5	55.5	77.5	99.5			
Ø22.5	12.5	35	57.5	-	-			
Ø23.0	13.5	36.5	59.5	82.5	105.5			
Ø23.5	14.5	38	61.5	-	-			
Ø24.0	15.5	39.5	63.5	87.5	111.5			
Ø24.5	16.5	41	65.5	-	-			
Ø25.0	17.5	42.5	67.5	92.5	117.5			
Ø25.5	18.5	44	69.5	-	-			
Ø26.0	19.5	45.5	71.5	97.5	123.5			
Ø26.5	-	47	-	-	-			
Ø27.0	16.5	43.5	75.5	97.5	124.5			

## Applicable Chamfering Inserts

Shape		Part Number	Dimensions (mm)		MEGACOAT NANO	Applicable Chamfering Attachment
			W1	S	PR1535	
		CH0503-45	7.05	3.18	○	DRV-CH○○

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

## How to Install Chamfering Attachment



### Instructions

- 1) Install the attachment over the DRV body so that ". . ." mark on the side of the attachment aligns with the inside flute edge (see image).
- 2) Adjust the position to avoid interference between the chamfering inserts, chamfering attachment ridges, and drill body flutes. Then fasten the clamp screw with the recommended torque below.

## Recommended Torque








Chamfering Attachment Part Number	Torque (Nm)	Clamping Screw	Wrench
DRV-CH17 ~ DRV-CH26	10	HH6X18	LW-5
DRV-CH27	14	HH8X20	LW-6

DRV 2D/3D Recommended Cutting Conditions (with Coolant)

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. ØDc (in)	Metric Drill Dia. ØDc (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide					CVD Coated Carbide							2D~3D				
	PR1225					CA520D				CA415D			GM	GH	XM	SM	
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH							
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	-	-	~	0.0016 ~ 0.0024	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 ~ 0.0035	0.0016 ~ 0.0028	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 ~ 0.0039	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 ~ 0.0055	0.0024 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0024 ~ 0.0055	0.0024 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	-	-	-	0.0024 ~ 0.0039	
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0055	-	-	0.0016 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	0.0016 ~ 0.0039	0.0016 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	0.0024 ~ 0.0047	0.0024 ~ 0.0047	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055	
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0079	-	-	0.0024 ~ 0.0055	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0047	-	-	-	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-	
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	~	-	-	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	-	-	
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	-	★ 460-660	-	0.500	12.0 - 13.5	-	-	-	0.0016 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	-	-	-	0.0016 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0024 ~ 0.0047	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	-	-	-	0.0024 ~ 0.0055	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	-	0.0024 ~ 0.0055	
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0031 ~ 0.0055	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0071	0.0031 ~ 0.0071	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-
	-	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0031 ~ 0.0047	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0047	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0063	0.0031 ~ 0.0063	-	-
	-	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	-	-
	-	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	-	-
-	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0071	-	-	-	

\* Internal Coolant is Recommended

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended










**DRV 5D Recommended Cutting Conditions (with Coolant)**

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. ØDc (in)	Metric Drill Dia. ØDc (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide					CVD Coated Carbide							5D				
	PR1225					CA520D				CA415D			GM	GH	XM	SM	
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH							
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	-	-	-	0.0012 ~ 0.0020	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 ~ 0.0028	0.0016 ~ 0.0024	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 ~ 0.0031	0.0016 ~ 0.0024	
	-	-	-	-	-	-	-	-	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 ~ 0.0039	0.0016 ~ 0.0028	
	-	-	-	-	-	-	-	-	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	-	-	-	0.0016 ~ 0.0039	
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	-	-	0.0016 ~ 0.0028	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0028	0.0016 ~ 0.0028	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039	0.0020 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039	0.0020 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	-	-	0.0020 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	-	-	-	
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	-	-	-	
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0024	-	-	-	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	-	-	
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	★ 460-660	-	-	0.500	12.0 - 13.5	-	-	-	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	-	-	-	0.0016 ~ 0.0031	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0016 ~ 0.0039	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	-	-	-	0.0024 ~ 0.0047	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	-	0.0024 ~ 0.0047	
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0016 ~ 0.0039	-	-	-	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	-	-	
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0016 ~ 0.0031	-	-	-	
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-	
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-	
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-	

• Internal Coolant is Recommended

**Cutting Conditions by Application**








Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

DRV 6D Recommended Cutting Conditions (with Coolant)

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. ØDc (in)	Metric Drill Dia. ØDc (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide					CVD Coated Carbide							6D				
	PR1225					CA520D				CA415D							
	GM	GH	XM	SM		GM	GH	XM	SM	GM			GH	GM	GH	XM	SM
Low Carbon Steel	-	-	★ 390-660	☆ 390-660	-	-	★ 490-920	☆ 490-920	-	-		0.500	12.0 - 13.5	-	-	-	0.0012 ~ 0.0020
												0.562 - 0.578	14.0 - 15.5	-	-	0.0016 ~ 0.0024	0.0016 ~ 0.0024
												0.625 - 0.688	16.0 - 18.5	-	-	0.0016 ~ 0.0024	0.0016 ~ 0.0024
												0.750 - 0.875	19.0 - 22.0	-	-	0.0016 ~ 0.0028	0.0016 ~ 0.0028
												0.922 - 1.000	22.5 - 26.0	-	-	0.0016 ~ 0.0031	0.0016 ~ 0.0028
												1.062 - 1.250	26.5 - 32.0	-	-	0.0016 ~ 0.0031	0.0016 ~ 0.0028
Carbon Steel	★ 330-590	☆ 330-590	☆ 330-590	☆ 330-590	★ 490-920	☆ 490-920	☆ 490-920	☆ 490-920	-	-		0.500	12.0 - 13.5	0.0012 ~ 0.0020	-	-	0.0012 ~ 0.0020
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024	0.0016 ~ 0.0024
												0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	0.0020 ~ 0.0028	0.0020 ~ 0.0028
												0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
												1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
												1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0039	-	-	0.0020 ~ 0.0031
Alloy Steel	★ 330-525	☆ 330-525	☆ 330-525	-	★ 460-720	☆ 460-720	☆ 460-720	-	-	-		0.500	12.0 - 13.5	0.0012 ~ 0.0020	-	-	-
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-
												0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0031	0.0020 ~ 0.0031	-	-
												0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
												1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
												1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0039	-	-	-
Tool Steel	☆ 260-490	★ 260-490	-	-	☆ 425-690	★ 425-690	-	-	-	-		0.500	12.0 - 13.5	0.0012 ~ 0.0020	-	-	-
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0020	0.0016 ~ 0.0020	-	-
												0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-
												0.750 - 1.000	19.0 - 26.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	-	-
												1.062 - 1.250	26.5 - 32.0	0.0020 ~ 0.0031	0.0020 ~ 0.0031	-	-
												1.312 - 1.500	33.0 - 39.0	0.0020 ~ 0.0031	-	-	-
Stainless Steel (Austenitic)	-	-	-	★ 230-460	-	-	-	-	★ 460-660	-		0.500	12.0 - 13.5	-	-	-	0.0012 ~ 0.0020
												0.562 - 0.578	14.0 - 15.5	-	-	-	0.0016 ~ 0.0024
												0.625 - 0.688	16.0 - 18.5	-	-	-	0.0016 ~ 0.0035
												0.750 - 1.000	19.0 - 26.0	-	-	-	0.0024 ~ 0.0039
												1.062 - 1.250	26.5 - 32.0	-	-	-	0.0024 ~ 0.0039
												1.312 - 1.500	33.0 - 39.0	-	-	-	0.0024 ~ 0.0039
Gray Cast Iron	☆ 330-490	★ 330-490	-	-	-	-	-	-	-	☆ 490-720	★ 490-720	0.500	12.0 - 13.5	0.0016 ~ 0.0031	-	-	-
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
												0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
												0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
												1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
												1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	-	-	-
Nodular Cast Iron	☆ 260-390	★ 260-390	-	-	-	-	-	-	-	☆ 390-590	★ 390-590	0.500	12.0 - 13.5	0.0012 ~ 0.0020	-	-	-
												0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-
												0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0031	0.0024 ~ 0.0031	-	-
												0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
												1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
												1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0039	-	-	-

• Internal Coolant is Recommended

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

## Insert Grade Selection Guide

Select CVD for the outer edge when performing high speed and high efficiency drilling and for abrasion resistance and long tool life.

Select PVD MEGACOAT for the outer edge for stable machining and a better surface finish.

PVD MEGACOAT is recommended for the outer edge if chattering occurs, machining with lathe, or if cutting conditions cannot be increased to the recommended speed for CVD.

### 1st Recommendation

(High Speed and High Efficiency Machining)

Outer Edge : CVD (CA520D / CA415D)

Inner Edge : PVD (PR1535)



### Stable Machining Oriented

(1st Recommendation for Lathe Machining)

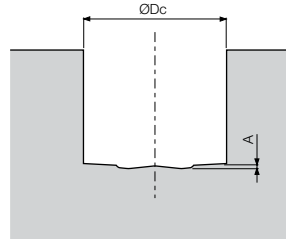
Outer Edge : PVD (PR1225)

Inner Edge : PVD (PR1535)



## Shape of the Hole Bottom

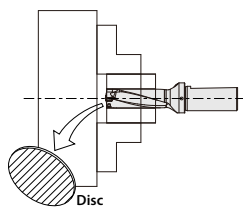
DRV Inch Diameters (in)			DRV Metric Diameters (mm)							
Insert Size	ØDc	A	Insert Size	ØDc	A	Insert Size	ØDc	A		
03	0.500	0.028	03	12.0	0.7	07	22.5	1.2		
04	0.562	0.039		12.5			23.0			
05	0.625	0.043		13.0			23.5			
	0.656		13.5	24.0						
06	0.688	0.047	14.0	24.5						
	0.750		0.051	14.5	25.0					
	0.812			15.0	25.5					
07	0.875	0.051	15.5	26.0						
	0.938		1.0	16.0	26.5					
	0.984			16.5	27.0					
1.000	17.0	27.5								
09	1.062	0.047	05	17.5	1.1	09	28.0	1.3		
	1.125			0.051			18.0		28.5	
	1.188			0.055			18.5		29.0	
11	1.250	0.059	06	19.0	1.2		29.5		1.4	
	1.312			0.059			19.5			30.0
	1.375			0.063			20.0			30.5
11	1.438	0.063	06	20.5	1.3	31.0	1.5			
	1.500			21.0		31.5				
	21.5			32.0						
	22.0			33.0						
	34.0			35.0						
11						36.0	1.6			
						37.0				
						38.0				
						39.0		1.7		



Common for 2D, 3D, 4D, 5D, 6D Drills

\*Above is estimated values. (varies within ±0.004" (1mm) depending on workpiece material and cutting conditions)

## Machining Caution

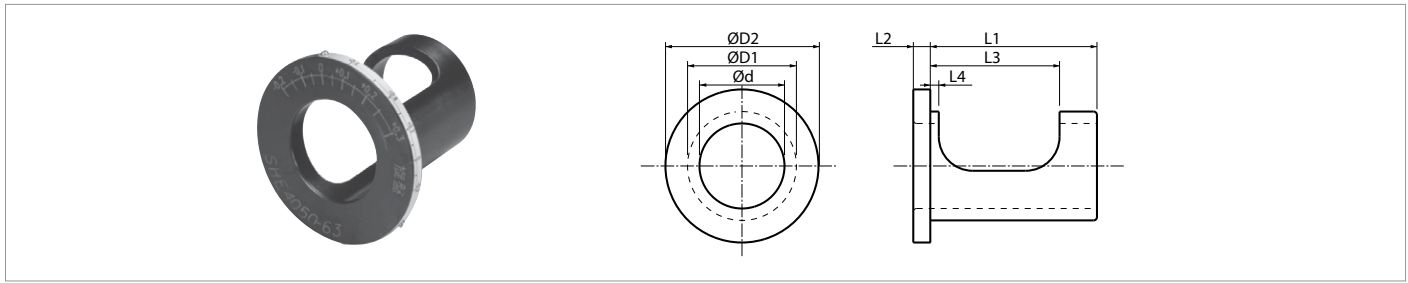


In case of through-hole machining, a disc may be generated and ejected outward when exiting the hole.

Be sure to install guards to protect against dangers if using a machine without the covers (including general-purpose lathes, etc.).



# Adjustable Sleeve (Cutting Diameter & Center Height Adjustment)

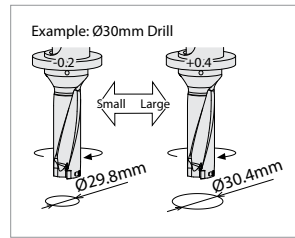


## Sleeve Dimensions (Use ASL for Inch Size Drills and SHE for Metric Size Drills)

Part Number	Stock	Unit	Dimension							Diameter Adjustment Range	Center Height Adjustment Range
			Ød	ØD1	ØD2	L1	L2	L3	L4		
ASL 75100-175	●	inch	0.750	1.000	1.614	1.750	0.157	1.417	0.118	+0.016 ~ -0.008	+0.008 ~ -0.006
100125-212	●		1.000	1.250	1.929	2.125	0.236	1.496	0.098	+0.016 ~ -0.008	+0.008 ~ -0.006
125150-238	●		1.250	1.500	2.283	2.375	0.236	1.693	0.098	+0.016 ~ -0.008	+0.008 ~ -0.006
SHE 2025-43	○	mm	20	25	41	43	4	36	3.0	+0.4 ~ -0.2	+0.2 ~ -0.15
2532-48	○		25	32	49	48	6	38	2.5	+0.4 ~ -0.2	+0.2 ~ -0.15
3240-53	○		32	40	58	53	6	43	2.5	+0.4 ~ -0.2	+0.2 ~ -0.15
4050-63	○		40	50	74	63	6	49	3.0	+0.4 ~ -0.2	+0.3 ~ -0.2

- Diameter adjustment range refers to the cutting diameter.
  - ASL and SHE sleeves can also be used with the DRX and DRZ Magic Drills
- : U.S. Stock ○ : World Express (Shipping: 7-10 Business Days)

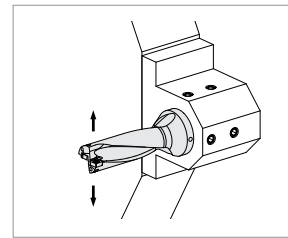
### 1 Diameter Adjustment ~ For Machining Center ~



#### • Diameter Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.016 ~ -0.008	Ø20	+0.4 ~ -0.2
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.6 ~ -0.2

### 2 Center Height Adjustment ~ For Lathe Operations ~



#### • Center Height Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.008 ~ -0.006	Ø20	+0.2 ~ -0.15
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.3 ~ -0.2

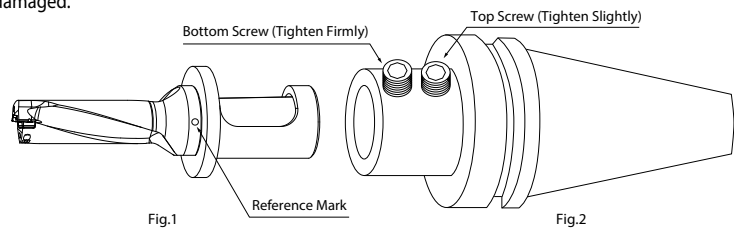
## How to Use the Adjustable Sleeve

### 1 Hole Diameter Adjustment when Drilling

1. Align the scale at the flange periphery of the sleeve to the center of the coolant plug of the drill. (Fig.1)
  2. When making the hole diameter bigger, rotate the sleeve in the (+) direction and to make it smaller, rotate the sleeve in the (-) direction.
  3. When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.
  4. Using the bottom screw of the side-lock arbor, firmly tighten the drill directly through the sleeve's window.
- The upper screw should be tightened slightly so that the sleeve will not be damaged.

#### (Caution)

- Not for use with collet chuck type arbor.
- Check the actual cutting diameter after adjusting.



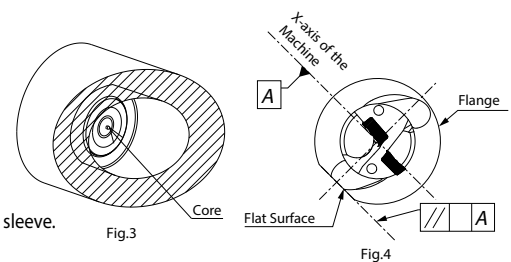
### 2 Center-Height Adjustment for Lathes

Most of the problems encountered with a turning lathe are center-height deviations. The center height is appropriate if a core of about 0.5mm (0.020") diameter remains at the center of the hole. Center-height adjustment is necessary when no core remains or if the core diameter is more than 1mm (0.039").

1. Align the drill with the outer insert face parallel to the X-axis of the tool turret. (Fig.4)
2. Align the scale (for the lathe) on the flange face of the sleeve to the center of the reference mark.
3. When no core remains, rotate the sleeve in the (+) direction to make the core larger, and when the core diameter is more than 1mm, rotate the sleeve in the (-) direction to make the core smaller.
4. When rotating the sleeve, insert the wrench supplied with the drill into the hole of the flange and then rotate the sleeve.
5. After Completing the adjustment, tighten the drill directly through the window on the sleeve.

#### (Caution)

Depending on amount of the center height adjustment, the hole diameter may change. It is recommended that the hole diameter is checked after the center height adjustment.



# Lathe Installation

1. The top face of the outer insert should be parallel to the X-axis to allow for offset cutting.  
(Cutting diameter can be changed by moving in the X-axis.)
2. It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator. (Fig.1)  
(It is also possible to use it by setting it in 180° reverse position)  
If the lathe has two turrets, when installing the drill into the lower turret, the outer insert should be set to face the operator.  
(It is also possible to use it by setting at 180° reverse position)

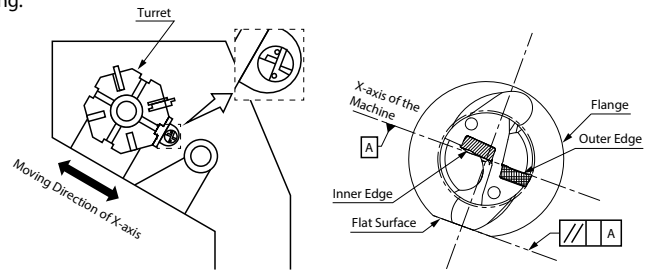


Fig.1 Installed into the Lathe

## Cutting Diameter Adjustment

### 1 Cutting Diameter Adjustment

1. Cutting diameter is adjusted by moving X-axis.  
The moving direction of the X-axis depends on the position of the toolholder.
2. For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig.2, Fig.3)  
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.  
(This movement of the axis is called an "Offset")  
Be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (0.008"). Otherwise, the toolholder will interfere with the drilled hole. (Fig.4)  
Ex.) When using  $\varnothing 20\text{mm}$  drill, the hole diameter must not be smaller than 19.8mm (0.780")

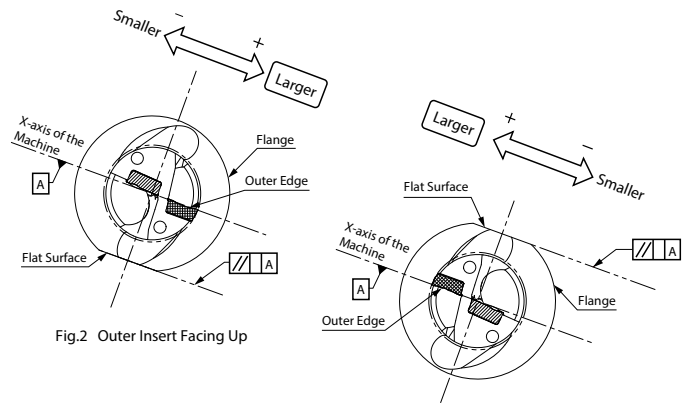


Fig.2 Outer Insert Facing Up

Fig.3 Outer Insert Facing Down

### 2 Offset Limit of the Cutting Diameter

- For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimensions table.  
(The figure in the Toolholder Dimensions table shows how much it is possible to offset the drill in the radial direction.)  
Ex.) When using  $\varnothing 20\text{mm}$  ( $\varnothing 0.787\text{"}$ ) drill, for example, it is possible to make a hole up to  $\varnothing 21.1\text{mm}$  ( $0.831\text{"}$ ) since "Max. Offset (Radial)" is  $+0.55\text{mm}$  ( $+0.022\text{"}$ ).

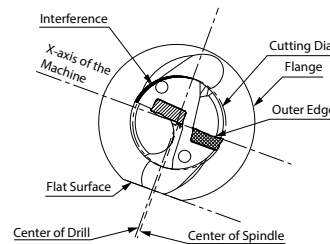


Fig.4 Excessive Offset (For Smaller Hole Diameter)

## Center Height Adjustment

### 1 Center Height of the Inner Insert

- When installing inner insert as shown in Fig.1, it will be set around 0.05mm (0.002") below the Center of Spindle. (Fig.5)  
This is the normal position of the center height.  
However, in case that the turret of the lathe is out of alignment with the Center of Spindle, sometimes the inner insert may be above or below center.  
For stable machining, it is essential to check the Center Height of the inner insert carefully

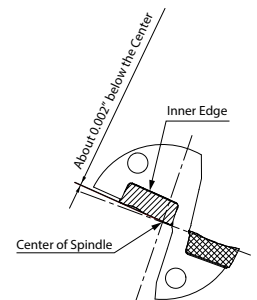


Fig.5 Front View of the Drill

### 2 How to Check the Center Height

- For checking the center height of the inner insert, see the core which remains at the center of the bottom of the drilled hole.  
If the center height is in the normal position, a core of about 0.5mm (0.020") in diameter, will remain after machining. (Fig.6)  
Adjustment of center height is required if no core is present or a large core diameter of 1mm (0.039") or more remains.  
\* The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

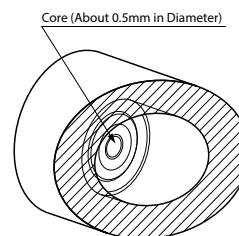


Fig.6 Center Core

**3 Center Height Adjustment**

**1. When there is no remaining core and the inner insert is chipping**

This occurs when the inner insert is set above center. (Fig.7)

How to Adjust
<p>A. Install the drill rotated by 180°                      Most problems will be solved by this method (Fig.8)</p>
<p>B. If the core diameter becomes too large after the above adjustment, install the drill by rotating 90° counter-clockwise as shown in Fig.9 (outer edge is positioned lower) and adjust the center height by moving the tool in the X-axis direction.                      (However, this will make it impossible to adjust the cutting diameter)                      Caution: When installing the drill in the opposite direction (outer insert is positioned above), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.                      The best solution is to readjust the center position of the turret itself.</p>

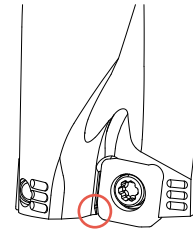


Fig.7 Insert breakage near the center of the drill

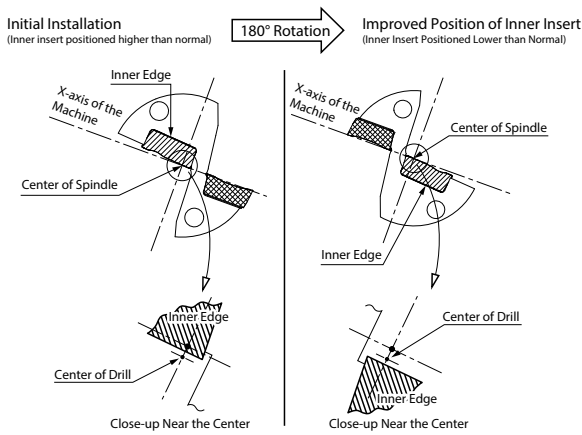


Fig.8

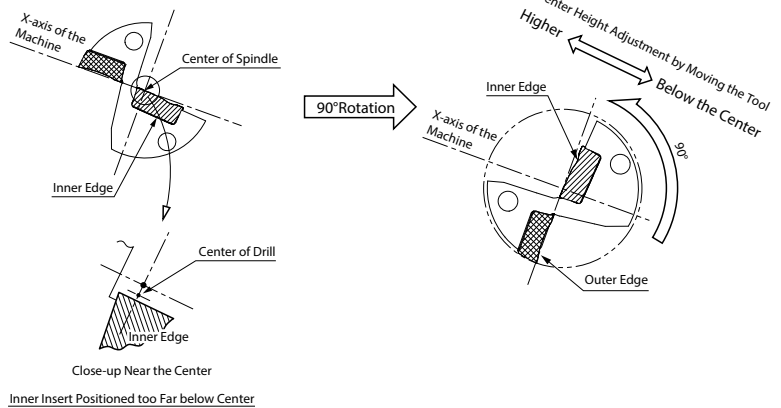


Fig.9

**2. Core with Excessively Large Diameter More than 1mm (0.039")**

This occurs when the inner insert is below center  
 This condition causes poor chip evacuation and an adjustment is required.

How to Adjust
<p>Install the drill rotated 90° as shown in Fig.10. (outer insert is positioned on the upper side) and adjust the center height by moving tool in the X-axis direction.                      (However, this will make it impossible to adjust the cutting diameter)                      Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.                      The best solution is to readjust the center position of the turret itself.</p>

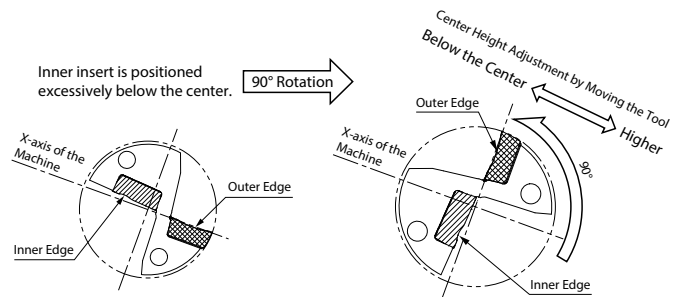
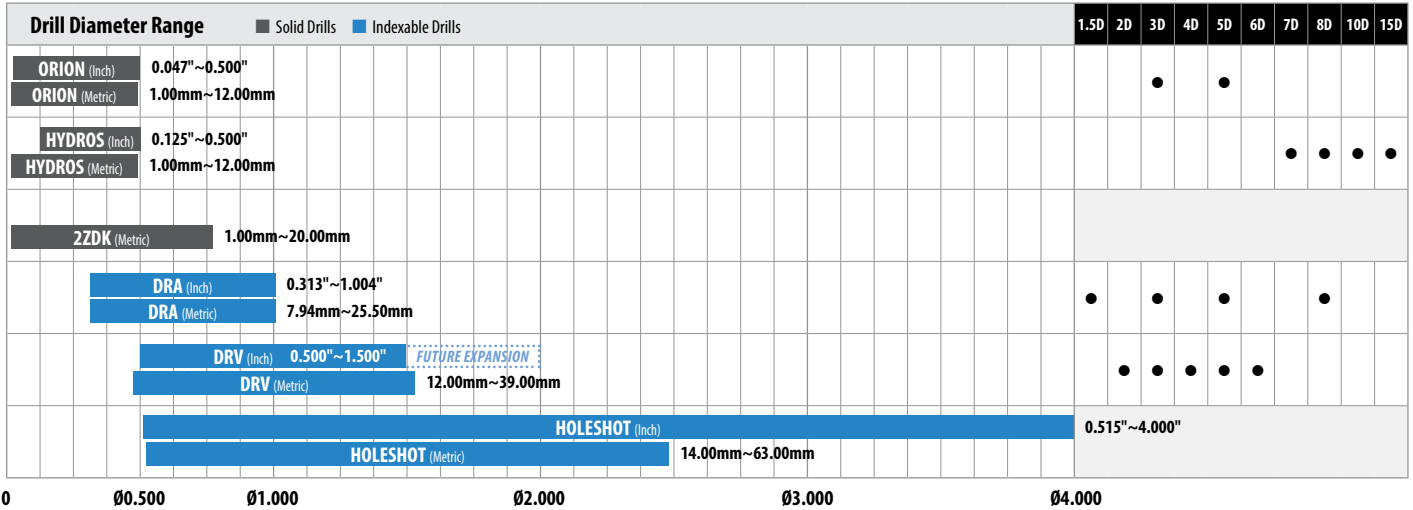


Fig.10

# Explore Kyocera's Broad Range of Drilling Solutions



**KYOCERA Precision Tools, Inc.**  
 102 Industrial Park Road  
 Hendersonville, NC 28792  
 Customer Service | 800.823.7284 - Option 1  
 Technical Support | 800.823.7284 - Option 2



Official Website | [www.kyoceraprecisiontools.com](http://www.kyoceraprecisiontools.com)  
 Distributor Website | [mykpti.kyocera.com](http://mykpti.kyocera.com)  
 Email | [cuttingtools@kyocera.com](mailto:cuttingtools@kyocera.com)