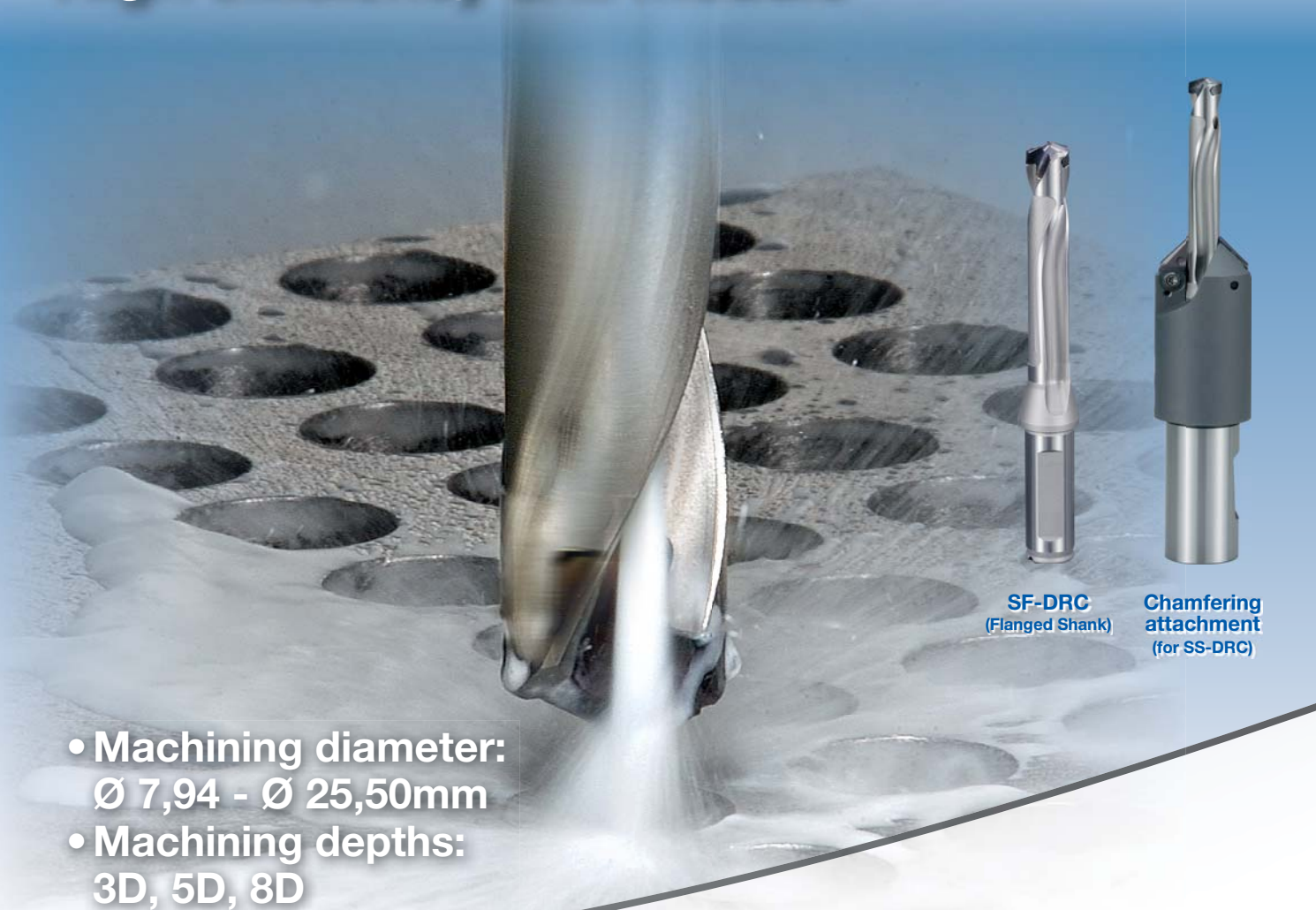


DRC MAGIC DRILL

High efficiency drill module



- Machining diameter:
Ø 7,94 - Ø 25,50mm
- Machining depths:
3D, 5D, 8D

SF-DRC
(Flanged Shank)

Chamfering
attachment
(for SS-DRC)

Module de perçage hautes performances

- Diamètre de perçage:
ø 7,94 - ø 25,50 mm.
- Profondeurs de perçage:
3D, 5D, 8D.

Modulo di foratura ad alta efficienza

- Diametro di lavorazione:
ø 7,94 - ø 25,50 mm.
- Profondità di lavorazione:
3D, 5D, 8D.

Módulo de fresado de alta eficiencia

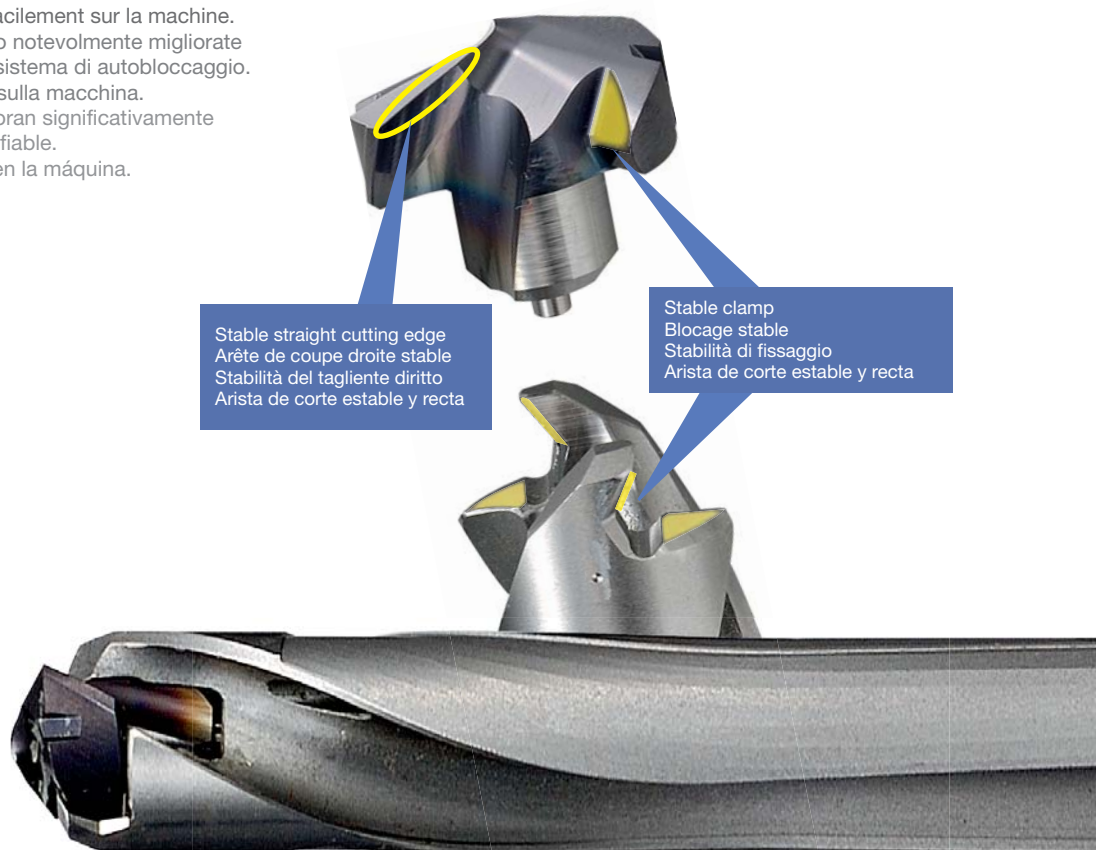
- Diámetro de mecanizado:
ø 7,94 - ø 25,50 mm.
- Profundidades de
mecanizado: 3D, 5D, 8D.

Four unique characteristics of the Magic Drill DRC improve productivity and reduce machining cost with high speed and high feed rate.

Les quatre caractéristiques uniques du foret Magic Drill DRC améliorent la productivité et réduisent les coûts d'usinage en offrant une grande rapidité et une vitesse d'avance élevée.

1. Self-Clamping | Autoserrage | Autobloccaggio | Autosujeción

- The clamping rigidity and durability are significantly improved due to easy and reliable self-clamping system.
- Facile et fiable, le système d'autoserrage améliore considérablement la rigidité et la durabilité du serrage.
- Le changement de plaquette s'effectue facilement sur la machine.
- La rigidità e la durata del bloccaggio sono notevolmente migliorate grazie alla semplicità e all'affidabilità del sistema di autobloccaggio.
- È possibile cambiare facilmente l'inserto sulla macchina.
- La rigidez de la fijación y la duración mejoran significativamente debido al sistema de autosujeción fácil y fiable.
- Es posible cambiar fácilmente el inserto en la máquina.



3. Varied shaped helical angle flute | Goujure avec angle hélicoïdal de forme variable | Scanalatura elicoidale di forma variabile | Estría en ángulo helicoidal de forma variable

- Provides superior drill body stiffness and chip evacuation.
- Assure une rigidité supérieure au corps du foret et améliore l'évacuation des copeaux.
- Garantisce una maggiore rigidità del corpo della punta e una migliore evacuazione dei trucioli.
- Gran firmeza del cuerpo del taladro y buena evacuación de virutas.

4. Direct Cooling | Refroidissement direct | Refrigerante diretto | Refrigeración directa

- The direct coolant to the cutting face prevents chip adhesion and ensures smooth chip evacuation.
- L'écoulement direct du fluide de refroidissement sur la face coupante empêche l'adhésion des copeaux et facilite leur évacuation.
- Il refrigerante diretto sul tagliente evita l'adesione dei trucioli e assicura un'evacuazione degli stessi senza problemi.
- El refrigerante directo en la cara de corte previene la adhesión de virutas y garantiza una evacuación de las virutas sin problemas.



Le quattro esclusive caratteristiche del Magic Drill DRC migliorano la produttività e riducono i costi di lavorazione grazie a un'elevata velocità e un avanzamento rapido.

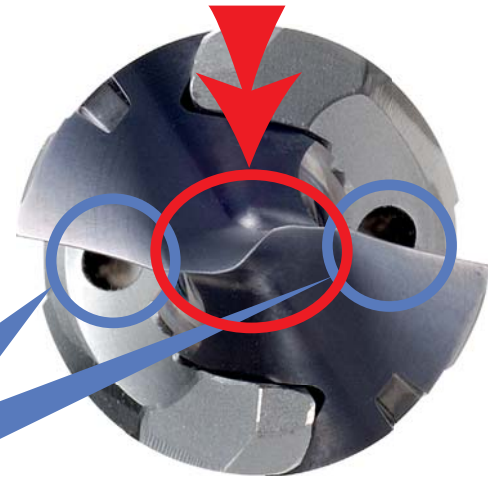
4 características únicas de Magic Drill DRC mejoran la productividad y reducen el coste del mecanizado con una alta velocidad y un avance rápido.

2. Self-Centering | Autocentrage | Centatura automatica | Autocentrado

- The S curve chisel edge enables smooth drilling with lower cutting force, and realizes high quality surface.
- L'arête transversale à rayon en S permet un perçage doux avec un faible effort de coupe et donne une surface de grande qualité.
- Il tagliente trasversale curvo a forma di S consente una foratura senza problemi con una forza di taglio inferiore e produce una superficie di qualità elevata.
- El borde del cincel curvado S en permite el fresado una fuerza de corte inferior, y conseguir una superficie de gran calidad.

Self-Centering
Autocentrage
Centatura automatica
Autocentrado

Coolant hole
Orifice d'arrosage
Foro refrigerante
Agujero para refrigerante



The **chamfering attachment for SS-DRC** has been added to the lineup. (The chamfering attachment is not applicable for SF-DRC).

Le dispositif de **chanfreinage pour SS DRC** a été ajouté à la gamme. (Le dispositif de chanfreinage ne s'applique pas au SF-DRC).

È stato aggiunto alla gamma **l'attacco di smussatura per SS-DRC** (l'attacco di smussatura non è adatto a SF-DRC).

Se ha añadido a la gama el **accesorio para achaflanado para SS-DRC**. (El accesorio para achaflanado no se aplica al SF-DRC).



The **flange shank type (SF-DRC)** has been added to the lineup. It's possible to accommodate various types of machines, such as lathes and machining centers.

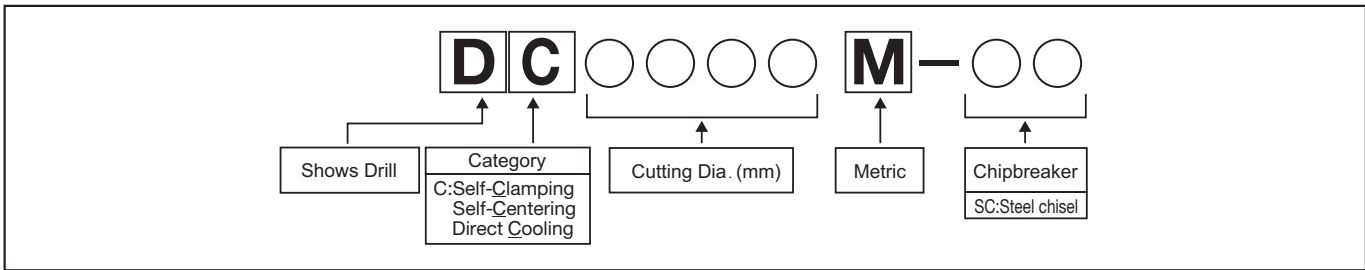
Le **type de queue épaulée (SF-DRC)** a été ajouté à la gamme. Ces systèmes s'adaptent à différents types de machine, tels que les tours et les centres d'usinage.

È stato aggiunto alla **gamma il tipo di stelo flangiato (SF-DRC)** utilizzabile con diversi tipi di macchine, come torni e centri di lavorazione.

Se ha añadido a la **gama el tipo de mango con bridas (SF-DRC)**. Es posible adaptar varios tipos de máquina, como tornos y centros de mecanizado.


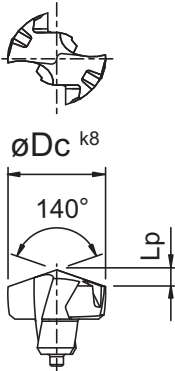


Description identification system (Insert)




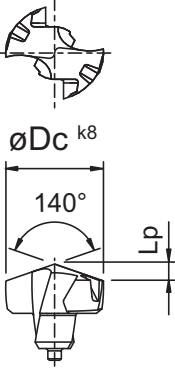
Insert Grades PR0315

PR0315 is tough super micro grain carbide grade with TiAlN coating, with excellent wear resistance and fracture resistance. It enables stable machining of carbon steel, alloy steel and cast iron.

Insert	Description	Dimension (mm)		PVD Coated Carbide	Applicable Toolholder 7~9, 12~14														
		øDc	Lp	PR0315															
  <p>k8 tolerance</p> <table border="1"> <thead> <tr> <th>øDc</th> <th>k8(mm)</th> </tr> </thead> <tbody> <tr> <td>7.94</td> <td>+0.022</td> </tr> <tr> <td>10.00</td> <td>0</td> </tr> <tr> <td>10.10</td> <td>+0.027</td> </tr> <tr> <td>18.00</td> <td>0</td> </tr> <tr> <td>18.10</td> <td>+0.033</td> </tr> <tr> <td>25.50</td> <td>0</td> </tr> </tbody> </table> <p>k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the cutting diameter.</p>	øDc	k8(mm)	7.94	+0.022	10.00	0	10.10	+0.027	18.00	0	18.10	+0.033	25.50	0	DC 0794M-SC	7.94	1.44	●	SS10-DRC080M-O SF12-DRC080M-O
	øDc	k8(mm)																	
	7.94	+0.022																	
	10.00	0																	
	10.10	+0.027																	
	18.00	0																	
	18.10	+0.033																	
	25.50	0																	
	DC 0800M-SC	8.00	1.46	●															
	DC 0810M-SC	8.10	1.47	●															
	DC 0820M-SC	8.20	1.49	●															
	DC 0830M-SC	8.30	1.51	●															
	DC 0840M-SC	8.40	1.53	●															
	DC 0850M-SC	8.50	1.55	●	SS10-DRC085M-O SF12-DRC085M-O														
	DC 0860M-SC	8.60	1.56	●															
	DC 0870M-SC	8.70	1.58	●															
	DC 0880M-SC	8.80	1.60	●															
	DC 0890M-SC	8.90	1.62	●															
	DC 0900M-SC	9.00	1.64	●	SS10-DRC090M-O SF12-DRC090M-O														
	DC 0910M-SC	9.10	1.66	●															
	DC 0920M-SC	9.20	1.67	●															
	DC 0930M-SC	9.30	1.69	●															
	DC 0940M-SC	9.40	1.71	●															
	DC 0950M-SC	9.50	1.73	●	SS10-DRC095M-O SF12-DRC095M-O														
	DC 0960M-SC	9.60	1.75	●															
	DC 0970M-SC	9.70	1.76	●															
	DC 0980M-SC	9.80	1.78	●															
	DC 0990M-SC	9.90	1.80	●															
	DC 1000M-SC	10.00	1.82	●	SS12-DRC100M-O SF16-DRC100M-O														
	DC 1010M-SC	10.10	1.84	●															
	DC 1020M-SC	10.20	1.86	●															
	DC 1030M-SC	10.30	1.87	●															
	DC 1040M-SC	10.40	1.89	●															
	DC 1050M-SC	10.50	1.91	●	SS12-DRC105M-O SF16-DRC105M-O														
	DC 1060M-SC	10.60	1.93	●															
	DC 1070M-SC	10.70	1.95	●															
	DC 1080M-SC	10.80	1.96	●															
	DC 1090M-SC	10.90	1.98	●															
	DC 1100M-SC	11.00	2.00	●	SS12-DRC110M-O SF16-DRC110M-O														
	DC 1110M-SC	11.10	2.02	●															
	DC 1120M-SC	11.20	2.04	●															
	DC 1130M-SC	11.30	2.06	●															
	DC 1140M-SC	11.40	2.07	●															
	DC 1150M-SC	11.50	2.09	●	SS12-DRC115M-O SF16-DRC115M-O														
	DC 1160M-SC	11.60	2.11	●															
	DC 1170M-SC	11.70	2.13	●															
	DC 1180M-SC	11.80	2.15	●															
	DC 1190M-SC	11.90	2.16	●															
DC 1200M-SC	12.00	2.18	●	SS14-DRC120M-O SF16-DRC120M-O															
DC 1210M-SC	12.10	2.20	●																
DC 1220M-SC	12.20	2.22	●																
DC 1230M-SC	12.30	2.24	●																
DC 1240M-SC	12.40	2.26	●																


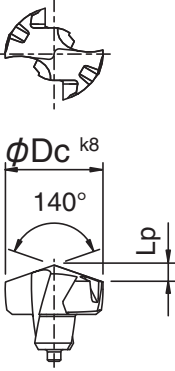
DC inserts are sold in 1 piece boxes

● : Std. Item □ : Check Availability

Insert		Description	Dimension (mm)		PVD Coated Carbide	Applicable Toolholder 7-9, 12-14									
			øDc	Lp	PR0315										
 	<p>k8 tolerance</p> <table border="1"> <thead> <tr> <th>øDc</th> <th>k8(mm)</th> </tr> </thead> <tbody> <tr> <td>7.94 └ 10.00</td> <td>+0.022 0</td> </tr> <tr> <td>10.10 └ 18.00</td> <td>+0.027 0</td> </tr> <tr> <td>18.10 └ 25.50</td> <td>+0.033 0</td> </tr> </tbody> </table> <p>k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the cutting diameter.</p>	øDc	k8(mm)	7.94 └ 10.00	+0.022 0	10.10 └ 18.00	+0.027 0	18.10 └ 25.50	+0.033 0	DC	1250M-SC	12.50	2.27	●	SS14-DRC125M-O SF16-DRC125M-O
		øDc	k8(mm)												
		7.94 └ 10.00	+0.022 0												
		10.10 └ 18.00	+0.027 0												
		18.10 └ 25.50	+0.033 0												
		1260M-SC	12.60	2.29	●										
		1270M-SC	12.70	2.31	●										
		1280M-SC	12.80	2.33	●										
		1290M-SC	12.90	2.35	●										
		DC	1300M-SC	13.00	2.36	●	SS14-DRC130M-O SF16-DRC130M-O								
		1310M-SC	13.10	2.38	●										
		1320M-SC	13.20	2.40	●										
		1330M-SC	13.30	2.42	●										
		1340M-SC	13.40	2.44	●										
		DC	1350M-SC	13.50	2.46	●	SS14-DRC135M-O SF16-DRC135M-O								
		1360M-SC	13.60	2.47	●										
		1370M-SC	13.70	2.49	●										
		1380M-SC	13.80	2.51	●										
		1390M-SC	13.90	2.53	●										
		DC	1400M-SC	14.00	2.55	●	SS16-DRC140M-O SF16-DRC140M-O								
		1410M-SC	14.10	2.56	●										
		1420M-SC	14.20	2.58	●										
		1430M-SC	14.30	2.60	●										
		1440M-SC	14.40	2.62	●										
		DC	1450M-SC	14.50	2.64	●	SS16-DRC145M-O SF16-DRC145M-O								
		1460M-SC	14.60	2.66	●										
		1470M-SC	14.70	2.67	●										
		1480M-SC	14.80	2.69	●										
		1490M-SC	14.90	2.71	●										
		DC	1500M-SC	15.00	2.73	●	SS16-DRC150M-O SF20-DRC150M-O								
		1510M-SC	15.10	2.75	●										
		1520M-SC	15.20	2.76	●										
		1530M-SC	15.30	2.78	●										
		1540M-SC	15.40	2.80	●										
		1550M-SC	15.50	2.82	●										
		1560M-SC	15.60	2.84	●										
		1570M-SC	15.70	2.86	●										
		1580M-SC	15.80	2.87	●										
DC	1600M-SC	16.00	2.91	●	SS18-DRC160M-O SF20-DRC160M-O										
1610M-SC	16.10	2.93	●												
1620M-SC	16.20	2.95	●												
1630M-SC	16.30	2.96	●												
1640M-SC	16.40	2.98	●												
1650M-SC	16.50	3.00	●												
1660M-SC	16.60	3.02	●												
1670M-SC	16.70	3.04	●												
1680M-SC	16.80	3.06	●												
1690M-SC	16.90	3.07	●												
DC	1700M-SC	17.00	3.09	●	SS18-DRC170M-O SF20-DRC170M-O										
1710M-SC	17.10	3.11	●												
1720M-SC	17.20	3.13	●												
1730M-SC	17.30	3.15	●												
1740M-SC	17.40	3.16	●												
1750M-SC	17.50	3.18	●												
1760M-SC	17.60	3.20	●												
1770M-SC	17.70	3.22	●												
1780M-SC	17.80	3.24	●												
1790M-SC	17.90	3.26	●												
DC	1800M-SC	18.00	3.27	●	SS20-DRC180M-O SF25-DRC180M-O										
1810M-SC	18.10	3.29	●												
1820M-SC	18.20	3.31	●												
1830M-SC	18.30	3.33	●												
1840M-SC	18.40	3.35	●												
1850M-SC	18.50	3.36	●												
1860M-SC	18.60	3.38	●												
1870M-SC	18.70	3.40	●												
1880M-SC	18.80	3.42	●												
1890M-SC	18.90	3.44	●												

● : Std. Item □ : Check Availability

DC inserts are sold
in 1 piece boxes

Insert		Description	Dimension (mm)		PVD Coated Carbide	Applicable Toolholder 7~9, 12~14								
			øDc	Lp	PR0315									
  <table border="1" data-bbox="335 952 550 1220"> <thead> <tr> <th>øDc</th> <th>k8(mm)</th> </tr> </thead> <tbody> <tr> <td>7.94 10.00</td> <td>+0.022 0</td> </tr> <tr> <td>10.10 18.00</td> <td>+0.027 0</td> </tr> <tr> <td>18.10 25.50</td> <td>+0.033 0</td> </tr> </tbody> </table> <p data-bbox="335 1220 550 1288">k8 is the dimension tolerance of the insert. It is not the dimension tolerance of the cutting diameter.</p>	øDc	k8(mm)	7.94 10.00	+0.022 0	10.10 18.00	+0.027 0	18.10 25.50	+0.033 0	DC	1900M-SC	19.00	3.46	●	SS20-DRC190M-O SF25-DRC190M-O
	øDc	k8(mm)												
	7.94 10.00	+0.022 0												
	10.10 18.00	+0.027 0												
	18.10 25.50	+0.033 0												
	DC	1910M-SC	19.10	3.47	●									
	DC	1920M-SC	19.20	3.49	●									
	DC	1930M-SC	19.30	3.51	●									
	DC	1940M-SC	19.40	3.53	●									
	DC	1950M-SC	19.50	3.55	●									
	DC	1960M-SC	19.60	3.56	●									
	DC	1970M-SC	19.70	3.58	●									
	DC	1980M-SC	19.80	3.60	●									
	DC	1990M-SC	19.90	3.62	●									
	DC	2000M-SC	20.00	3.64	●	SS25-DRC200M-O SF25-DRC200M-O								
	DC	2010M-SC	20.10	3.66	●									
	DC	2020M-SC	20.20	3.67	●									
	DC	2030M-SC	20.30	3.69	●									
	DC	2040M-SC	20.40	3.71	●									
	DC	2050M-SC	20.50	3.73	●									
	DC	2060M-SC	20.60	3.75	●									
	DC	2070M-SC	20.70	3.77	●									
	DC	2080M-SC	20.80	3.78	●									
	DC	2090M-SC	20.90	3.80	●									
	DC	2099M-SC	20.99	3.82	●									
	DC	2100M-SC	21.00	3.82	●	SS25-DRC210M-O SF25-DRC210M-O								
	DC	2150M-SC	21.50	3.91	●									
	DC	2200M-SC	22.00	4.00	●	SS25-DRC220M-O SF25-DRC220M-O								
DC	2250M-SC	22.50	4.09	●										
DC	2300M-SC	23.00	4.18	●	SS25-DRC230M-O SF25-DRC230M-O									
DC	2350M-SC	23.50	4.27	●										
DC	2400M-SC	24.00	4.37	●	SS25-DRC240M-O SF25-DRC240M-O									
DC	2450M-SC	24.50	4.46	●										
DC	2500M-SC	25.00	4.55	●	SS32-DRC250M-O SF25-DRC250M-O									
DC	2550M-SC	25.50	4.64	●										

Q&A

Q-1 Is re-grinding possible?

A-1 We don't recommend it. Grinding of edge nose chisel is not possible.

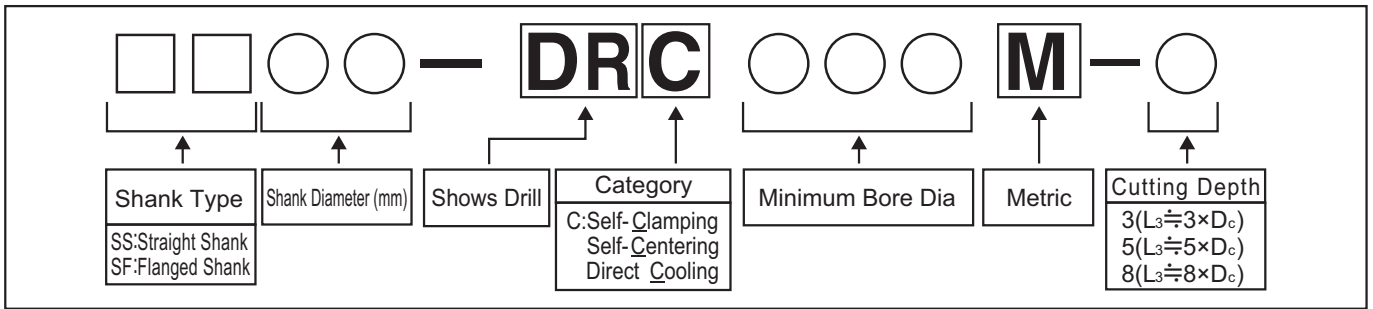
Q-2 How large would the cutting hole be to the insert diameter (øDc)?

A-2 The machining hole with SCM 435, comparing to the insert diameter(øDc), will be about +0.020~+0.040mm.

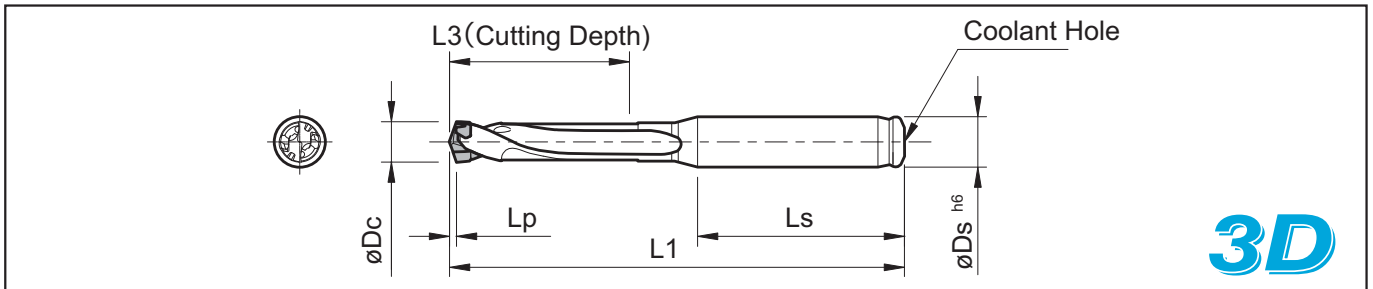
DC inserts are sold
in 1 piece boxes

● : Std. Item

Description Identification System (Toolholder)



SS-DRC (Cutting Depth: 3×D)



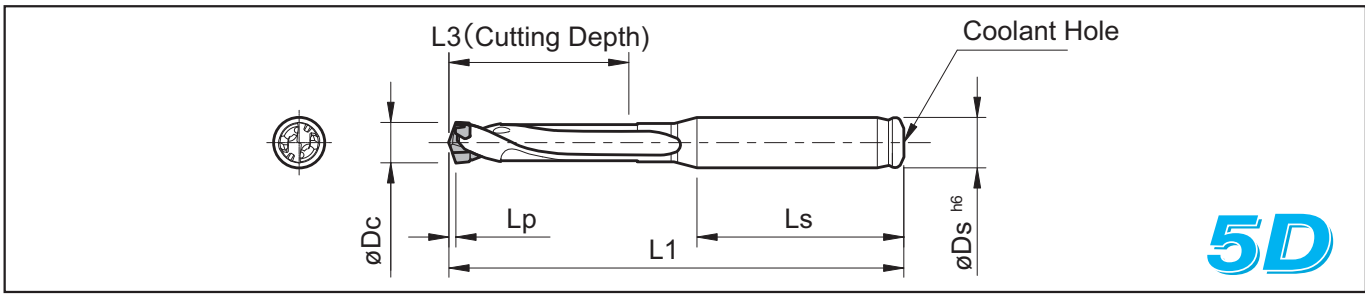
For Lp, indicates distance from drill point to corner edge, see 4~6

Toolholder Dimension

Description	Std.	Dimensions (mm)					Spare Parts Wrench see 15	Applicable Inserts 4~6	Applicable chamfering Holder and Insert description			
		Applicable Insert Dia. øDc		øDs (h6)	L1	L3			Ls	Toolholder	Insert	
min.	max.											
SS10- DRC080M-3	●	7.94	8.49	10	79	25.5	40	WDR C8 (WDR C17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A	
	●	8.50	8.99		81	27.0						DC0850M-SC~DC0890M-SC
	●	9.00	9.49		83	28.5						DC0900M-SC~DC0940M-SC
	●	9.50	9.99		85	30.0						DC0950M-SC~DC0990M-SC
SS12- DRC100M-3	●	10.00	10.49	12	92	31.5	45	WDR C10 (WDR C17)	DC1000M-SC~DC1040M-SC	S32-CH12		
	●	10.50	10.99		94	33.0						DC1050M-SC~DC1090M-SC
	●	11.00	11.49		96	34.5						DC1100M-SC~DC1140M-SC
	●	11.50	11.99		98	36.0						DC1150M-SC~DC1190M-SC
SS14- DRC120M-3	●	12.00	12.49	14	101	37.5	48	WDR C12 (WDR C17)	DC1200M-SC~DC1240M-SC	S32-CH14	CT12T3-45A	
	●	12.50	12.99		103	39.0						DC1250M-SC~DC1290M-SC
	●	13.00	13.49		105	40.5						DC1300M-SC~DC1340M-SC
	●	13.50	13.99		107	42.0						DC1350M-SC~DC1390M-SC
SS16- DRC140M-3	●	14.00	14.49	16	112	43.5	48	WDR C14 (WDR C17)	DC1400M-SC~DC1440M-SC	S32-CH16		
	●	14.50	14.99		114	45.0						DC1450M-SC~DC1490M-SC
	●	15.00	15.99		118	48.0						DC1500M-SC~DC1580M-SC
SS18- DRC160M-3	●	16.00	16.99	18	122	51.0	49	WDR C16 (WDR C17)	DC1600M-SC~DC1690M-SC	S32-CH18		
	●	17.00	17.99		127	54.0						DC1700M-SC~DC1790M-SC
SS20- DRC180M-3	●	18.00	18.99	20	133	57.0	51	WDR C18 (WDR C17)	DC1800M-SC~DC1890M-SC			
	●	19.00	19.99		137	60.0						DC1900M-SC~DC1990M-SC
SS25- DRC200M-3	●	20.00	20.99	25	147	63.0	56	WDR C17	DC2000M-SC~DC2099M-SC			
	●	21.00	21.99		151	66.0						DC2100M-SC~DC2150M-SC
	●	22.00	22.99		156	69.0						DC2200M-SC~DC2250M-SC
	●	23.00	23.99		160	72.0						DC2300M-SC~DC2350M-SC
	●	24.00	24.99		164	75.0						DC2400M-SC~DC2450M-SC
SS32- DRC250M-3	●	25.00	25.50	32	172	78.0	60	WDR C17	DC2500M-SC~DC2550M-SC			

● : Std. Item

SS-DRC (Cutting Depth: 5×D)



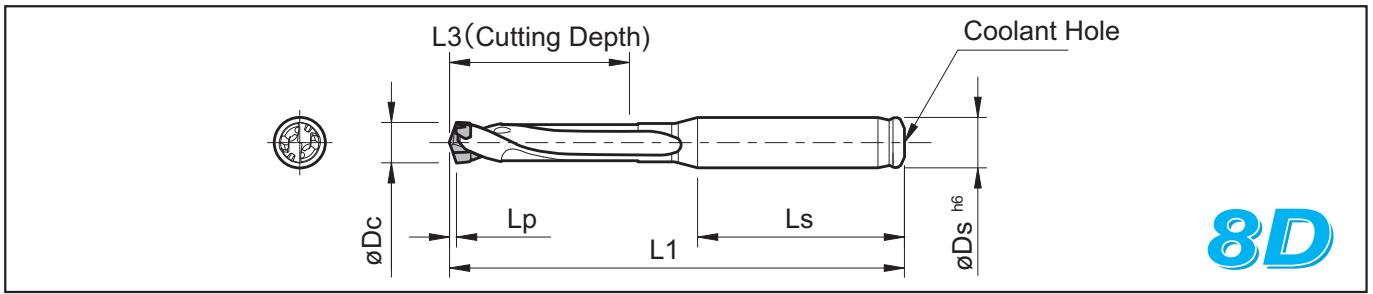
For Lp, indicates distance from drill point to corner edge, see 4~6

● Toolholder Dimension

Description	Std.	Dimensions (mm)						Spare Parts Wrench see 15	Applicable Inserts 4~6	Applicable chamfering Holder and Insert description	
		Applicable Insert Dia. øDc		øDs (h6)	L1	L3	Ls			Toolholder	Insert
		min.	max.								
SS10- DRC080M-5	●	7.94	8.49	10	97	42.5	40	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A
	●	8.50	8.99		100	45.0			DC0850M-SC~DC0890M-SC		
	●	9.00	9.49		103	47.5			DC0900M-SC~DC0940M-SC		
	●	9.50	9.99		107	50.0			DC0950M-SC~DC0990M-SC		
SS12- DRC100M-5	●	10.00	10.49	12	115	52.5	45	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	S32-CH12	
	●	10.50	10.99		118	55.0			DC1050M-SC~DC1090M-SC		
	●	11.00	11.49		121	57.5			DC1100M-SC~DC1140M-SC		
	●	11.50	11.99		124	60.0			DC1150M-SC~DC1190M-SC		
SS14- DRC120M-5	●	12.00	12.49	14	127	62.5	45	WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	S32-CH14	CT12T3-45A
	●	12.50	12.99		130	65.0			DC1250M-SC~DC1290M-SC		
	●	13.00	13.49		133	67.5			DC1300M-SC~DC1340M-SC		
	●	13.50	13.99		137	70.0			DC1350M-SC~DC1390M-SC		
SS16- DRC140M-5	●	14.00	14.49	16	143	72.5	48	WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC	S32-CH16	
	●	14.50	14.99		146	75.0			DC1450M-SC~DC1490M-SC		
	●	15.00	15.99		152	80.0			DC1500M-SC~DC1580M-SC		
SS18- DRC160M-5	●	16.00	16.99	18	158	85.0	49		DC1600M-SC~DC1690M-SC	S32-CH18	
	●	17.00	17.99		165	90.0			DC1700M-SC~DC1790M-SC		
SS20- DRC180M-5	●	18.00	18.99	20	173	95.0	51		DC1800M-SC~DC1890M-SC		
	●	19.00	19.99		179	100.0			DC1900M-SC~DC1990M-SC		
SS25- DRC200M-5	●	20.00	20.99	25	191	105.0	56	WDRC17	DC2000M-SC~DC2099M-SC		
	●	21.00	21.99		198	110.0			DC2100M-SC~DC2150M-SC		
	●	22.00	22.99		204	115.0			DC2200M-SC~DC2250M-SC		
	●	23.00	23.99		210	120.0			DC2300M-SC~DC2350M-SC		
	●	24.00	24.99		216	125.0			DC2400M-SC~DC2450M-SC		
SS32- DRC250M-5	●	25.00	25.50	32	227	130.0	60		DC2500M-SC~DC2550M-SC		

● : Std. Item

SS-DRC (Cutting Depth: 8×D)



• For Lp, indicates distance from drill point to corner edge See 4~6

● Toolholder Dimension

Description	Std.	Dimensions (mm)						Spare Parts	Applicable Inserts 4~6	Applicable chamfering Holder and Insert description	
		Applicable Insert Dia. øDc		øDs (h6)	L1	L3	Ls			Wrench see 15	Toolholder
		min.	max.								
SS10- DRC080M-8	●	7.94	8.49	10	122.5	68	40	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	S20-CH10	CT08T2-45A
	●	8.50	8.99		127.0	72			DC0850M-SC~DC0890M-SC		
	●	9.00	9.49		131.5	76			DC0900M-SC~DC0940M-SC		
	●	9.50	9.99		137.0	80			DC0950M-SC~DC0990M-SC		
SS12- DRC100M-8	●	10.00	10.49	12	146.5	84	45	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	S32-CH12	
	●	10.50	10.99		151.0	88			DC1050M-SC~DC1090M-SC		
	●	11.00	11.49		155.5	92			DC1100M-SC~DC1140M-SC		
	●	11.50	11.99		160.0	96			DC1150M-SC~DC1190M-SC		
SS14- DRC120M-8	●	12.00	12.49	14	164.5	100	45	WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	S32-CH14	CT12T3-45A
	●	12.50	12.99		169.0	104			DC1250M-SC~DC1290M-SC		
	●	13.00	13.49		173.5	108			DC1300M-SC~DC1340M-SC		
	●	13.50	13.99		179.0	112			DC1350M-SC~DC1390M-SC		
SS16- DRC140M-8	●	14.00	14.49	16	186.5	116	48	WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC	S32-CH16	
	●	14.50	14.99		191.0	120			DC1450M-SC~DC1490M-SC		
	●	15.00	15.99		200.0	128			DC1500M-SC~DC1580M-SC		
SS18- DRC160M-8	●	16.00	16.99	18	209.0	136	49		DC1600M-SC~DC1690M-SC	S32-CH18	
	●	17.00	17.99		219.0	144			DC1700M-SC~DC1790M-SC		
SS20- DRC180M-8	●	18.00	18.99	20	230.0	152	51		DC1800M-SC~DC1890M-SC		
	●	19.00	19.99		239.0	160			DC1900M-SC~DC1990M-SC		
SS25- DRC200M-8	●	20.00	20.99	25	254.0	168	56	WDRC17	DC2000M-SC~DC2099M-SC		
	●	21.00	21.99		264.0	176			DC2100M-SC~DC2150M-SC		
	●	22.00	22.99		273.0	184			DC2200M-SC~DC2250M-SC		
	●	23.00	23.99		282.0	192			DC2300M-SC~DC2350M-SC		
	●	24.00	24.99		291.0	200			DC2400M-SC~DC2450M-SC		
SS32- DRC250M-8	●	25.00	25.50	32	305.0	208	60		DC2500M-SC~DC2550M-SC		

● : Std. Item

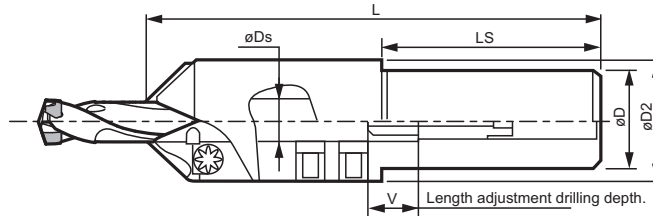
Chamfering attachment

Drilling and chamfering simultaneously

By using the chamfering attachment, the SS-DRC type can drill and chamfer simultaneously.



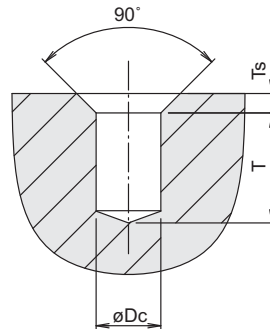
Toolholder



Description	Std.	Applicable Drill Shank Dia. øDs	Dimensions (mm)					Applicable Inserts
			øD	øD2	L	LS	V	
S20-CH10	●	10	20	29	122	52	17	CT08T2-45A
S32-CH12	●	12	32	38	133	62	21	CT12T3-45A
S32-CH14	●	14		40	137		16	
S32-CH16	●	16		42	141		19	
S32-CH18	●	18		47	144		15	

Note) Chamfering attachment is dedicated for Straight Shank SS-DRC type.
It cannot be used for Flanged Shank SF-DRC type.

Drilling and chamfering depths



Cutting Dia (mm)		Cutting Depth (mm)						Chamfering dimension (mm)		Applicable Toolholders
øDc		T (3D Drill)		T (5D Drill)		T (8D Drill)		Ts		
min	max	min	max	min	max	min	max	Ts 100	Ts max	
ø7.94	ø8.49	11	19	21	37	47	63	2.5	5.0	S20-CH10
ø8.50	ø8.99	12	21	24	40	51	67			
ø9.00	ø9.49	12	23	27	43	56	72			
ø9.50	ø9.99	13	25	31	47	61	77			
ø10.00	ø10.49	13	26	28	49	60	81	3.5	7.0	S32-CH12
ø10.50	ø10.99	14	28	31	52	64	85			
ø11.00	ø11.49	14	30	34	55	69	90			
ø11.50	ø11.99	15	32	37	58	73	94			
ø12.00	ø12.49	15	30	41	56	79	94	4.0	8.0	S32-CH14
ø12.50	ø12.99	17	32	44	59	83	96			
ø13.00	ø13.49	19	34	47	62	88	103			
ø13.50	ø13.99	21	36	51	66	93	108			
ø14.00	ø14.49	19	37	50	68	94	112	4.0	8.0	S32-CH16
ø14.50	ø14.99	21	39	53	71	98	116			
ø15.00	ø15.99	25	43	59	77	107	125	4.0	8.0	S32-CH18
ø16.00	ø16.99	30	44	66	80	117	131			
ø17.00	ø17.99	35	49	73	87	127	141			

Ts 100: Max chamfering dimension at the full feed.

Ts max: Max chamfering dimension at a 50% feed reduction.

(Max chamfering dimension of machining possible without step feeding)

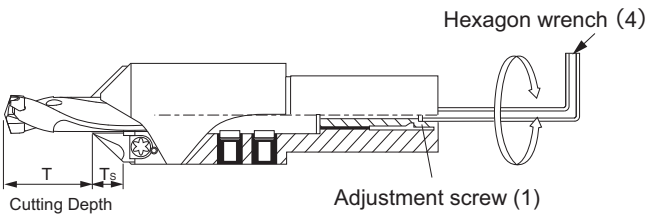
● : Std. Item □ : Check Availability

● Applicable chamfering Inserts

Insert		Description	Dimensions (mm)		PVD Coated Carbide	Applicable Toolholders
			W1	T	PR0315	
		CT08T2-45A	8	2.83	●	S20-CH10
		CT12T3-45A	12	3.98	●	S32-CH12 S32-CH18

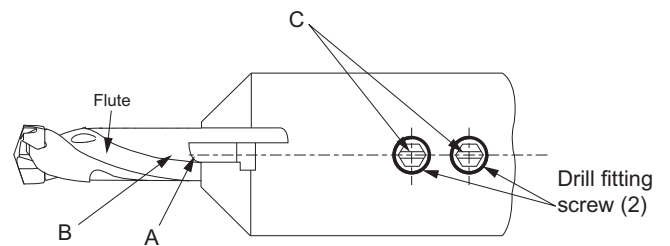
● Method to use DRC chamfering attachment

I. Drilling depth adjustment



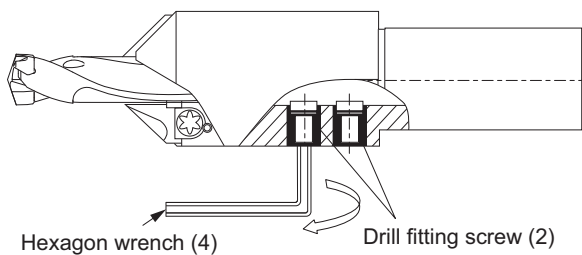
Insert drill into chamfering attachment.
Next, temporarily attach the chamfering insert A.
Turn the adjusting screw (1) with the hexagon wrench (4) to set the drilling depth T.

II. Drill location check



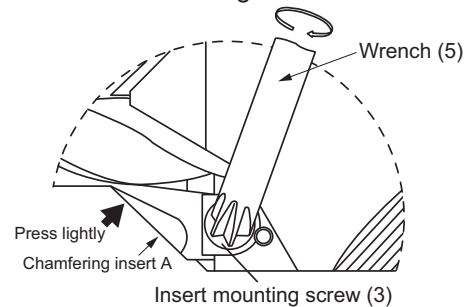
Rotate the drill so that the lower end of the chamfering insert A is aligned with the body clearance B of the drill.
Set it so that slot C and the drill fitting screws (2) are lined up as shown in the figure above.

III. Fix the drill



Tighten the drill fitting screws (2) with the hexagon wrench (4).
(In the case of using a torque wrench, then please refer to the table below)

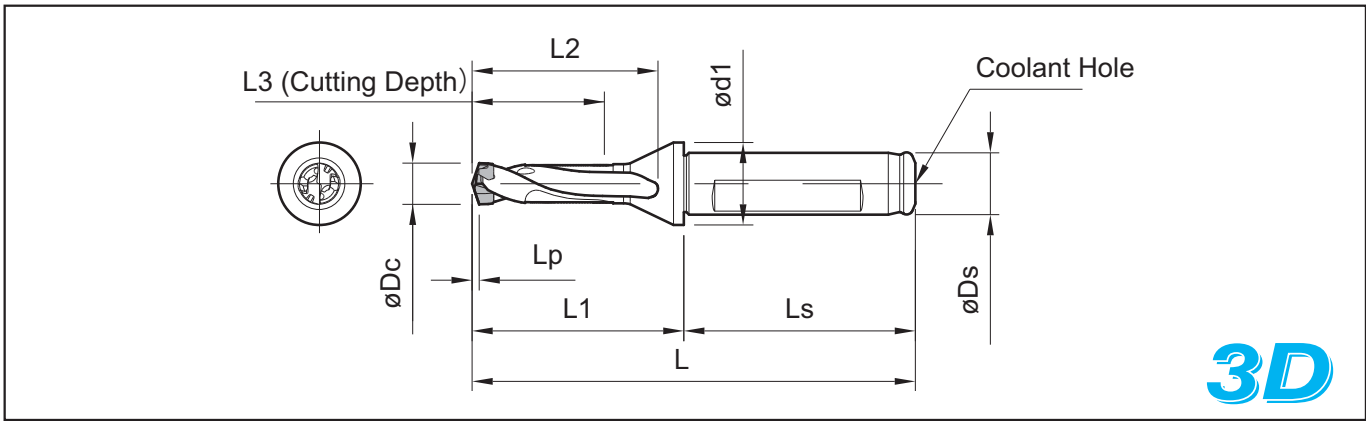
IV. Installation of the chamfering insert



Press the chamfering insert A lightly into the drill and tighten the insert mounting screw (3) with wrench (5).

Chamfering attachment	Tightening Torque [Nm]	Adjusting screw (1)	Drill fitting screw (2)	Insert mounting screw (3)	Hexagon wrench (4)	Wrench (5)
S20-CH10	10	AJ-6×38	FS-10	MT-3	LW-3	DT-9
S32-CH12	15	AJ-8×44-9.5	FS-12	MT-4		LW-4
S32-CH14	20	AJ-10×46	FS-14			
S32-CH16	30		FS-16			
S32-CH18	45		FS-18		LW-5	

SF-DRC (Cutting Depth: 3×D)



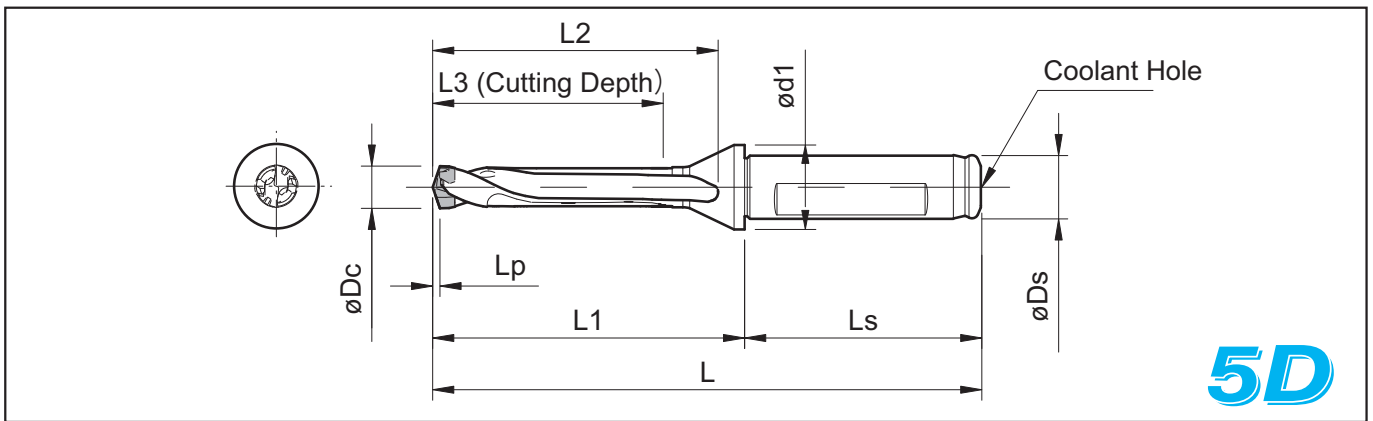
For Lp, indicates distance from drill point to corner edge, see 4~6

● Toolholder Dimension

Description	Std.	Dimensions (mm)									Spare Parts		Applicable Inserts 4~6
		Applicable Insert Dia. øDc		øDs (h6)	L	L1	L2	L3	Ls	ød1	Wrench see 15		
		min.	max.										
SF12- DRC080M-3	●	7.94	8.49	12	86	41	35	26	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	
	●	8.50	8.99		88	43	37	27				DC0850M-SC~DC0890M-SC	
	●	9.00	9.49		90	45	39	29				DC0900M-SC~DC0940M-SC	
	●	9.50	9.99		92	47	41	30				DC0950M-SC~DC0990M-SC	
SF16- DRC100M-3	●	10.00	10.49	16	97	49	43	32	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	
	●	10.50	10.99		99	51	45	33				DC1050M-SC~DC1090M-SC	
	●	11.00	11.49		101	53	47	35				DC1100M-SC~DC1140M-SC	
	●	11.50	11.99		103	55	49	36				DC1150M-SC~DC1190M-SC	
	●	12.00	12.49		106	58	52	38			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	
	●	12.50	12.99		108	60	54	39				DC1250M-SC~DC1290M-SC	
	●	13.00	13.49		110	62	56	41				DC1300M-SC~DC1340M-SC	
	●	13.50	13.99		112	64	58	42				DC1350M-SC~DC1390M-SC	
	●	14.00	14.49		114	66	60	44				WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	●	14.50	14.99		116	68	62	45					DC1450M-SC~DC1490M-SC
SF20- DRC150M-3	●	15.00	15.99	20	122	72	66	48	50	25	WDRC14 (WDRC17)	DC1500M-SC~DC1580M-SC	
	●	16.00	16.99		126	76	70	51				DC1600M-SC~DC1690M-SC	
	●	17.00	17.99		131	81	75	54				DC1700M-SC~DC1790M-SC	
SF25- DRC180M-3	●	18.00	18.99	25	141	85	79	57	56	32	WDRC17	DC1800M-SC~DC1890M-SC	
	●	19.00	19.99		145	89	83	60				DC1900M-SC~DC1990M-SC	
	●	20.00	20.99		149	93	87	63				DC2000M-SC~DC2099M-SC	
	●	21.00	21.99		153	97	91	66				DC2100M-SC~DC2150M-SC	
	●	22.00	22.99		158	102	96	69				DC2200M-SC~DC2250M-SC	
	●	23.00	23.99		162	106	100	72				DC2300M-SC~DC2350M-SC	
	●	24.00	24.99		166	110	104	75				DC2400M-SC~DC2450M-SC	
	●	25.00	25.50		170	114	108	78				DC2500M-SC~DC2550M-SC	

● : Std. Item □ : Check Availability

SF-DRC (Cutting Depth: 5×D)



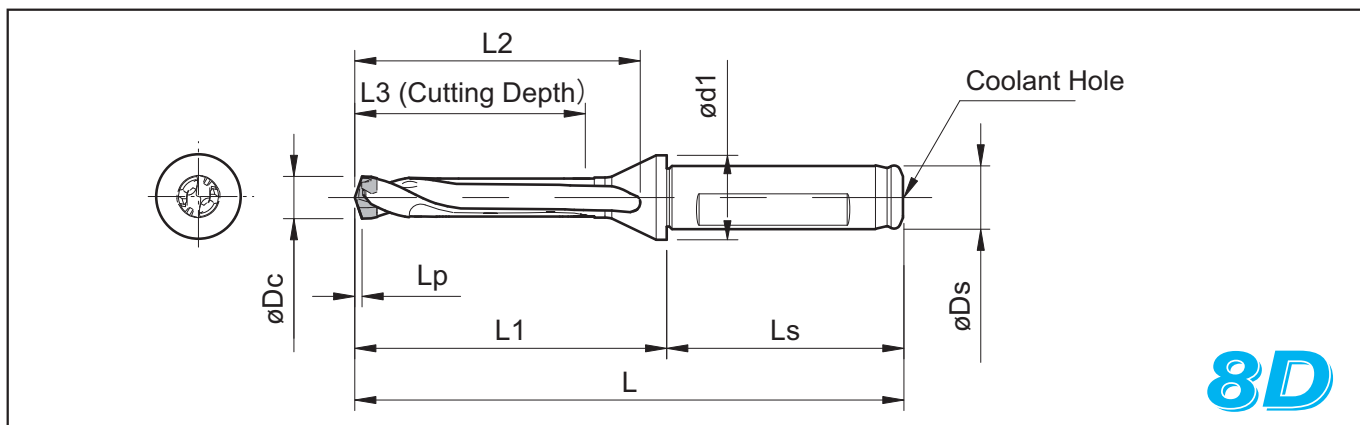
· For Lp, indicates distance from drill point to corner edge, see 4~6

● Toolholder Dimension

Description	Std.	Dimensions (mm)									Spare Parts Wrench see 15	Applicable Inserts 4~6	
		Applicable Insert Dia. øDc		øDs (h6)	L	L1	L2	L3	Ls	ød1			
		min.	max.										
SF12- DRC080M-5	●	7.94	8.49	12	104	59	53	43	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	
	●	8.50	8.99		107	62	56	45				DC0850M-SC~DC0890M-SC	
	●	9.00	9.49		110	65	59	48				DC0900M-SC~DC0940M-SC	
	●	9.50	9.99		114	69	63	50				DC0950M-SC~DC0990M-SC	
SF16- DRC100M-5	●	10.00	10.49	16	120	72	66	53	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	
	●	10.50	10.99		123	75	69	55				DC1050M-SC~DC1090M-SC	
	●	11.00	11.49		126	78	72	58				DC1100M-SC~DC1140M-SC	
	●	11.50	11.99		129	81	75	60				DC1150M-SC~DC1190M-SC	
	●	12.00	12.49		132	84	78	63			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	
	●	12.50	12.99		135	87	81	65				DC1250M-SC~DC1290M-SC	
	●	13.00	13.49		138	90	84	68				DC1300M-SC~DC1340M-SC	
	●	13.50	13.99		142	94	88	70				DC1350M-SC~DC1390M-SC	
	●	14.00	14.49		145	97	91	73				WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	●	14.50	14.99		148	100	94	75					DC1450M-SC~DC1490M-SC
SF20- DRC150M-5	●	15.00	15.99	20	156	106	100	80	50	25	WDRC14 (WDRC17)	DC1500M-SC~DC1580M-SC	
	●	16.00	16.99		162	112	106	85				DC1600M-SC~DC1690M-SC	
	●	17.00	17.99		169	119	113	90				DC1700M-SC~DC1790M-SC	
SF25- DRC180M-5	●	18.00	18.99	25	181	125	119	95	56	32	WDRC17	DC1800M-SC~DC1890M-SC	
	●	19.00	19.99		187	131	125	100				DC1900M-SC~DC1990M-SC	
	●	20.00	20.99		193	137	131	105				DC2000M-SC~DC2099M-SC	
	●	21.00	21.99		200	144	138	110				DC2100M-SC~DC2150M-SC	
	●	22.00	22.99		206	150	144	115				DC2200M-SC~DC2250M-SC	
	●	23.00	23.99		212	156	150	120				DC2300M-SC~DC2350M-SC	
	●	24.00	24.99		218	162	156	125				DC2400M-SC~DC2450M-SC	
	●	25.00	25.50		225	169	163	130				DC2500M-SC~DC2550M-SC	

● : Std. Item

SF-DRC (Cutting Depth: 8×D)




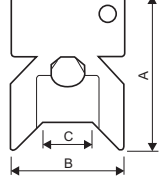


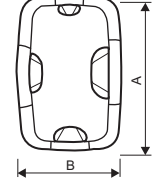
· For Lp, indicates distance from drill point to corner edge, see 4-6

● Toolholder Dimension

Description	Std.	Dimensions (mm)									Spare Parts		Applicable Inserts 4-6
		Applicable Insert Dia. øDc		øDs (h6)	L	L1	L2	L3	Ls	ød1	Wrench see 15		
		min.	max.										
SF12- DRC080M-8	●	7.94	8.49	12	129	84	79	68	45	16	WDRC8 (WDRC17)	DC0794M-SC~DC0840M-SC	
	●	8.50	8.99		134	89	83	72				DC0850M-SC~DC0890M-SC	
	●	9.00	9.49		138	93	88	76				DC0900M-SC~DC0940M-SC	
	●	9.50	9.99		144	99	93	80				DC0950M-SC~DC0990M-SC	
SF16- DRC100M-8	●	10.00	10.49	16	151	103	97	84	48	20	WDRC10 (WDRC17)	DC1000M-SC~DC1040M-SC	
	●	10.50	10.99		156	108	102	88				DC1050M-SC~DC1090M-SC	
	●	11.00	11.49		160	112	107	92				DC1100M-SC~DC1140M-SC	
	●	11.50	11.99		165	117	111	96				DC1150M-SC~DC1190M-SC	
	●	12.00	12.49		169	121	116	100			WDRC12 (WDRC17)	DC1200M-SC~DC1240M-SC	
	●	12.50	12.99		174	126	120	104				DC1250M-SC~DC1290M-SC	
	●	13.00	13.49		178	130	124	108				DC1300M-SC~DC1340M-SC	
	●	13.50	13.99		184	136	130	112				DC1350M-SC~DC1390M-SC	
	●	14.00	14.49		188	140	134	116				WDRC14 (WDRC17)	DC1400M-SC~DC1440M-SC
	●	14.50	14.99		193	145	139	120					DC1450M-SC~DC1490M-SC
SF20- DRC150M-8	●	15.00	15.99	20	204	154	148	128	50	25	WDRC14 (WDRC17)	DC1500M-SC~DC1580M-SC	
	●	16.00	16.99		213	163	157	136				DC1600M-SC~DC1690M-SC	
	●	17.00	17.99		223	173	167	144				DC1700M-SC~DC1790M-SC	
SF25- DRC180M-8	●	18.00	18.99	25	238	182	176	152	56	32	WDRC17	DC1800M-SC~DC1890M-SC	
	●	19.00	19.99		247	191	185	160				DC1900M-SC~DC1990M-SC	
	●	20.00	20.99		256	200	194	168				DC2000M-SC~DC2099M-SC	
	●	21.00	21.99		266	210	204	176				DC2100M-SC~DC2150M-SC	
	●	22.00	22.99		275	219	213	184				DC2200M-SC~DC2250M-SC	
	●	23.00	23.99		284	228	222	192				DC2300M-SC~DC2350M-SC	
	●	24.00	24.99		293	237	231	200				DC2400M-SC~DC2450M-SC	
	●	25.00	25.50		303	247	241	208				DC2500M-SC~DC2550M-SC	

● : Std. Item

Wrench

Shape		Description	Dimensions (mm)			Remarks
			A	B	C	
 	WDR8	43	33	ø10.2	 <p>Description is printed in this area.</p>	
	WDR10			ø12.2		
	WDR12			ø14.2		
	WDR14			ø17.2		
 	WDR17	77	52	-	<ul style="list-style-type: none"> WDR17(Multiple type wrench) has four insert entry points. If using an insert ranging from DC1700M-SC to DC2099M-SC, use the entry point printed as "ø17.00~ø20.99". WDR17 can be used instead of WDR8~14 wrench. 	

● How to attach inserts



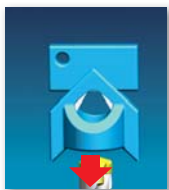
- 1) Fix drill holder on arbor. For insert exchange, fix arbor on the machine or set on toolpresetter.
- 2) Remove dust using air blow.



- 3) Install insert onto holder.
(Use gloves to protect your hand from any danger.)



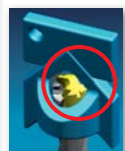
- 4) Turn lightly in a clockwise direction.
(Use gloves to protect your hand from any danger.)



- 5) Align the wrench properly with the insert.



- 6) Make sure the wrench is aligned with the wrench slots on the insert.



(Improper alignment shown)

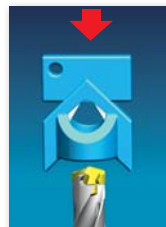


Slot for wrench

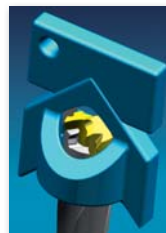


- 7) Turn the wrench in a slow counterclockwise direction.
- 8) Completed.

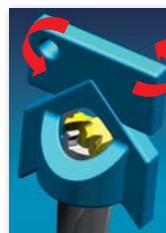
● How to detach inserts



- 1) Remove dust from insert using air blast.
- 2) Align the wrench properly with the insert.



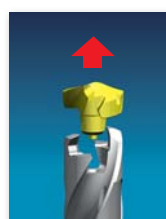
- 3) Make sure the wrench is aligned with the wrench slots on the insert.



- 4) Turn the wrench in a counterclockwise direction.



- 5) Once lock is released, insert can be turned by fingers.
(Use gloves to protect your hand from any danger.)



- 6) Remove insert.
(Use gloves to protect your hand from any danger.)

Recommended Cutting Conditions

Workpiece Material		Hardness (HB)	Cutting conditions		Cutting Dia ϕD_c (mm)								Remarks
			Cutting Speed V_c (m/min)	Spindle Revolution n (min^{-1})	$\phi 8$	$\phi 10$	$\phi 12$	$\phi 14$	$\phi 16$	$\phi 18$	$\phi 20$	$\phi 25$	
Low-carbon Steel	SS400 S10C~S25C	125	120 - 180	n (min^{-1})	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,530 - 2,290	
				f (mm/rev)	0.11 - 0.20	0.13 - 0.24	0.14 - 0.28	0.17 - 0.32	0.19 - 0.35	0.23 - 0.38	0.25 - 0.41	0.30 - 0.50	
Carbon Steel	S30C~S58C (Annealed)	190	100 - 150	n (min^{-1})	3,980 - 5,970	3,180 - 4,780	2,650 - 3,980	2,270 - 3,410	1,990 - 2,990	1,770 - 2,650	1,590 - 2,390	1,270 - 1,910	
				f (mm/rev)	0.13 - 0.24	0.15 - 0.29	0.17 - 0.33	0.19 - 0.36	0.22 - 0.41	0.25 - 0.46	0.28 - 0.48	0.32 - 0.60	
	S30C~S58C (Heat treated)	250	80 - 120	n (min^{-1})	3,180 - 4,780	2,550 - 3,820	2,120 - 3,180	1,820 - 2,730	1,590 - 2,390	1,420 - 2,120	1,270 - 1,910	1,020 - 1,530	
				f (mm/rev)	0.13 - 0.21	0.15 - 0.25	0.18 - 0.31	0.21 - 0.39	0.23 - 0.45	0.25 - 0.53	0.28 - 0.61	0.38 - 0.64	
300	50 - 75	n (min^{-1})	1,990 - 2,990	1,590 - 2,390	1,330 - 1,990	1,140 - 1,710	1,000 - 1,490	880 - 1,330	800 - 1,190	640 - 960			
		f (mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.28	0.21 - 0.32	0.23 - 0.35	0.25 - 0.41	0.28 - 0.41	0.32 - 0.45			
Alloy Steel	SCM, SCr etc. (Annealed)	180	70 - 95	n (min^{-1})	2,790 - 3,780	2,230 - 3,030	1,860 - 2,520	1,590 - 2,160	1,390 - 1,890	1,240 - 1,680	1,110 - 1,510	890 - 1,210	
				f (mm/rev)	0.15 - 0.28	0.16 - 0.35	0.21 - 0.37	0.23 - 0.46	0.25 - 0.46	0.25 - 0.51	0.30 - 0.51	0.35 - 0.60	
	SCM, SCr etc. (Heat treated)	275	70 - 95	n (min^{-1})	2,790 - 3,780	2,230 - 3,030	1,860 - 2,520	1,590 - 2,160	1,390 - 1,890	1,240 - 1,680	1,110 - 1,510	890 - 1,210	
				f (mm/rev)	0.11 - 0.21	0.14 - 0.25	0.19 - 0.30	0.21 - 0.33	0.23 - 0.37	0.28 - 0.43	0.28 - 0.46	0.32 - 0.58	
	300	60 - 90	n (min^{-1})	2,390 - 3,580	1,910 - 2,870	1,590 - 2,390	1,360 - 2,050	1,190 - 1,790	1,060 - 1,590	960 - 1,430	760 - 1,150		
			f (mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.26	0.18 - 0.31	0.21 - 0.33	0.23 - 0.36	0.25 - 0.38	0.30 - 0.50		
350	50 - 75	n (min^{-1})	1,990 - 2,990	1,590 - 2,390	1,330 - 1,990	1,140 - 1,710	1,000 - 1,490	880 - 1,330	800 - 1,190	640 - 960			
		f (mm/rev)	0.11 - 0.20	0.12 - 0.23	0.16 - 0.25	0.17 - 0.29	0.18 - 0.32	0.20 - 0.36	0.23 - 0.38	0.28 - 0.50			
Stainless Steel	SUS304 SUS316	220	60 - 80	n (min^{-1})	2,390 - 3,180	1,910 - 2,550	1,590 - 2,120	1,360 - 1,820	1,190 - 1,590	1,060 - 1,420	960 - 1,270	760 - 1,020	
				f (mm/rev)	0.11 - 0.19	0.12 - 0.23	0.16 - 0.26	0.18 - 0.31	0.21 - 0.33	0.23 - 0.36	0.25 - 0.38	0.28 - 0.42	
SUS630	300	50 - 70	n (min^{-1})	1,990 - 2,790	1,590 - 2,230	1,330 - 1,860	1,140 - 1,590	1,000 - 1,390	880 - 1,240	800 - 1,110	640 - 890		
			f (mm/rev)	0.11 - 0.20	0.12 - 0.23	0.16 - 0.25	0.17 - 0.29	0.18 - 0.32	0.20 - 0.36	0.23 - 0.38	0.25 - 0.40		
Gray Cast Iron	FC150~FC200	180	120 - 170	n (min^{-1})	4,780 - 6,770	3,820 - 5,410	3,180 - 4,510	2,730 - 3,870	2,390 - 3,380	2,120 - 3,010	1,910 - 2,710	1,530 - 2,170	
				f (mm/rev)	0.17 - 0.32	0.20 - 0.37	0.23 - 0.43	0.27 - 0.48	0.30 - 0.55	0.33 - 0.61	0.33 - 0.61	0.40 - 0.74	
FC250~FC350	260	90 - 120	n (min^{-1})	3,580 - 4,780	2,870 - 3,820	2,390 - 3,180	2,050 - 2,730	1,790 - 2,390	1,590 - 2,120	1,430 - 1,910	1,150 - 1,530		
			f (mm/rev)	0.14 - 0.25	0.16 - 0.31	0.19 - 0.35	0.23 - 0.42	0.26 - 0.47	0.28 - 0.53	0.30 - 0.58	0.36 - 0.70		
Nodular Cast Iron	FCD400~FCD500	160	60 - 90	n (min^{-1})	2,390 - 3,580	1,910 - 2,870	1,590 - 2,390	1,360 - 2,050	1,190 - 1,790	1,060 - 1,590	960 - 1,430	760 - 1,150	
				f (mm/rev)	0.14 - 0.25	0.16 - 0.30	0.19 - 0.35	0.22 - 0.40	0.24 - 0.45	0.28 - 0.51	0.28 - 0.56	0.34 - 0.67	
FCD600~FCD800	250	40 - 65	n (min^{-1})	1,590 - 2,590	1,270 - 2,070	1,060 - 1,730	910 - 1,480	800 - 1,290	710 - 1,150	640 - 1,040	510 - 830		
			f (mm/rev)	0.10 - 0.19	0.12 - 0.22	0.14 - 0.25	0.16 - 0.31	0.19 - 0.35	0.23 - 0.51	0.25 - 0.53	0.30 - 0.60		

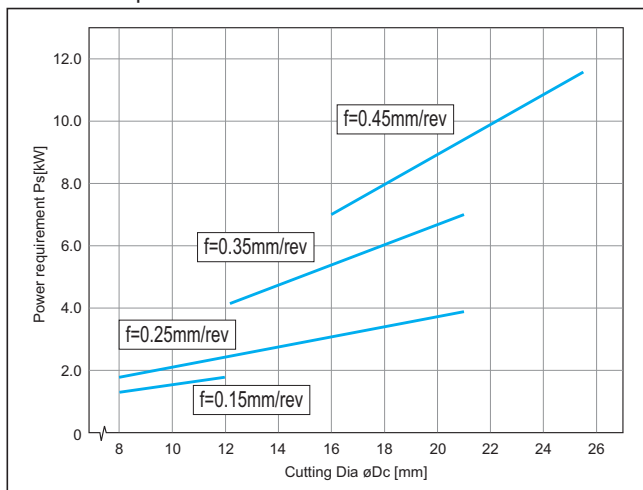
Coolant (See K17)

- Internal coolant is recommended. In case of external coolant, cutting depth must be $3x D$ or less.
- The longer drilling depth gets ($3D \rightarrow 5D \rightarrow 8D$), the lower of the recommended feed rate should be set for f .

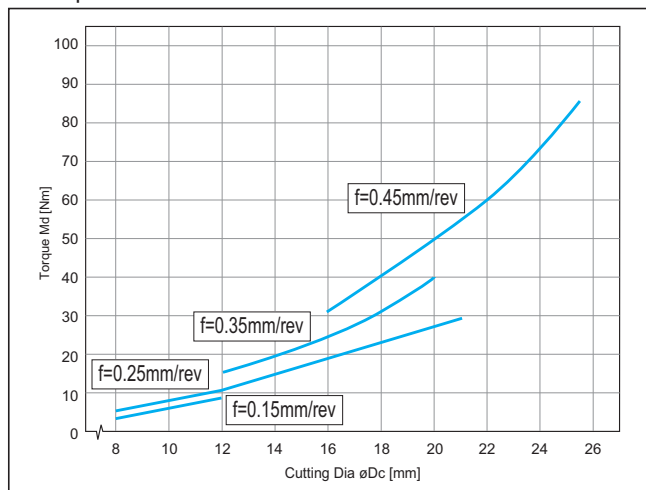
Reference charts

<Cutting conditions> : Workpiece Material Heat treated steel (Hardness 240HB) $V_c=80\text{m/min}$, Wet

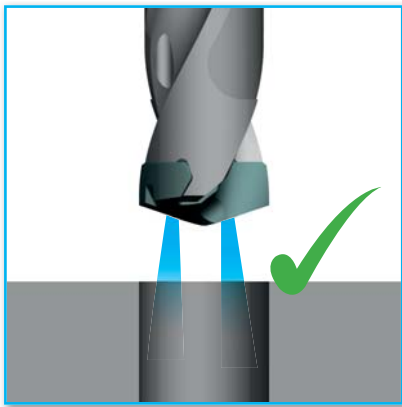
● Power requirement



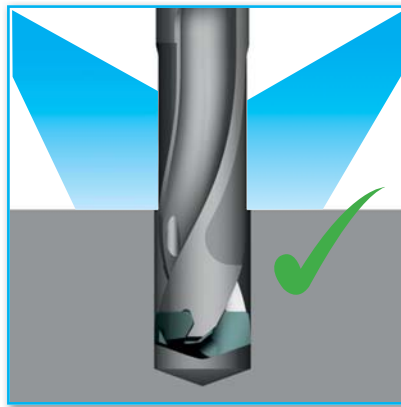
● Torque



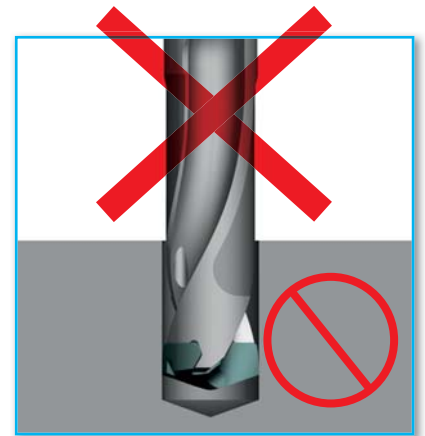
Coolant



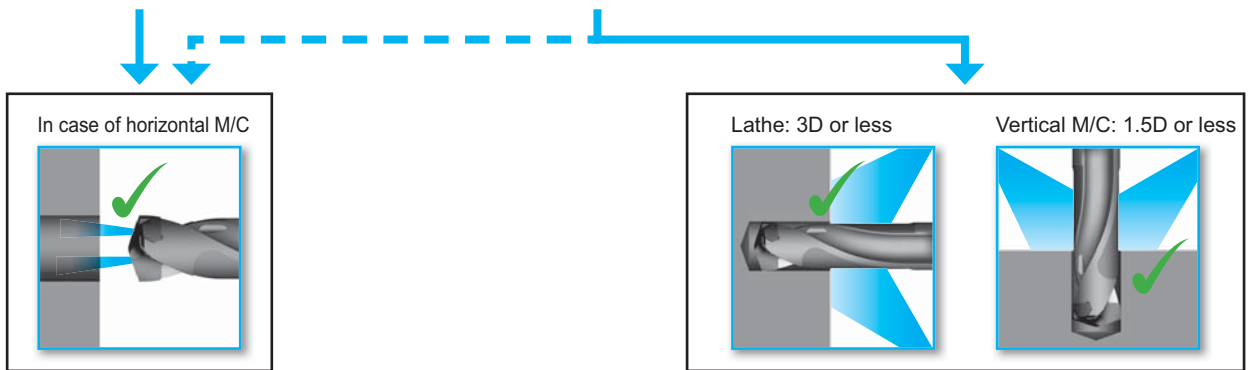
1) Internal coolant is recommended.



2) In case of external coolant



3) Dry cutting is not recommended.

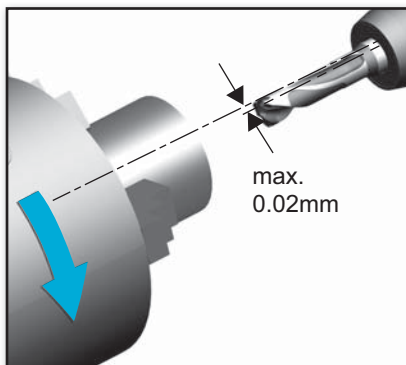


Internal coolant is recommended for horizontal machining center because external coolant may not sufficiently be applied to inside because the tool is revolving.

Precautions for use

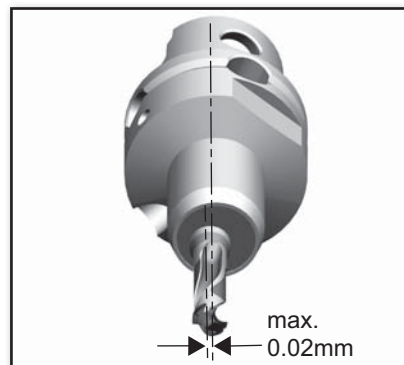
Core Deviation

1) If drill is stationary



This is to be used with a boring sleeve (screw clamp) and colletchuck, please be sure to set deviation amount under 0.02mm between workpiece and drill.

2) If drill is rotating



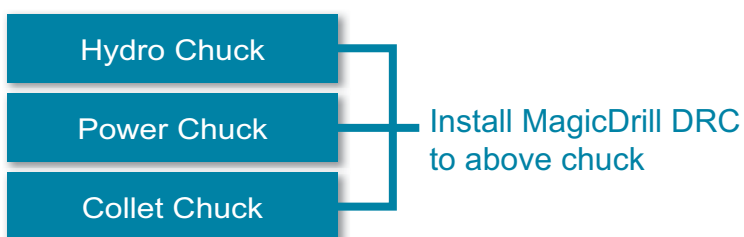
Make sure to use arbor that is not deformed. Center of arbor deviation must be within 0.02mm.

Cautions for installation on Machining Center

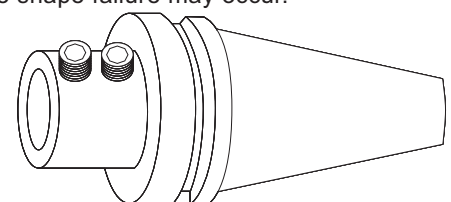
For installation of DRC type MagicDrill,

use Hydro Chuck, Power Chuck, Collet Chuck, etc.

For side lock arbor, tool life is shortened due to drilling center deviation. Hole shape failure may occur.

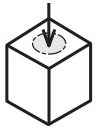


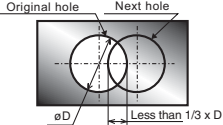


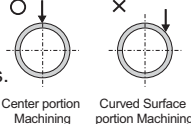


1st Recommendation


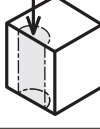



Example of side lock arbor
2nd Recommendation

Applicable workpiece

Application	Shape of Workpiece	Caution for machining
Plain Surface		<ol style="list-style-type: none"> Due to good chip control, step machining is not necessary for Soft Steel like SS400. When machining SUS304, for hole depths of more than 2.5D, utilize the step machining process. In order to have smooth chip removal, we recommend internal coolant.
Stacked Plates		<ol style="list-style-type: none"> Fix stacked plates securely to ensure they do not slip while machining.
Hole Expansion		<ol style="list-style-type: none"> If the overlap amount is less than $1/3 \times D$, machining is possible. 
Concave Surface		<ol style="list-style-type: none"> When machining concave holes set the feed rates at half or less than continuous hole machining.
Pipe Material		<ol style="list-style-type: none"> Hole machining above the centerline of the pipe is possible. Do not machine on curved surface areas. 

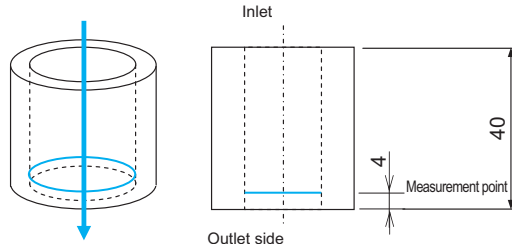
Not Recommended workpieces

Application	Shape of Workpiece
Slant Surface	
Half Cylindrical	
Cored Hole	

Comparison of Cutting Precision

Cutting Condition and Measurement Point <Cutting conditions>

Workpiece Material	C45 (S45C)
Vc (m/min)	100
f (mm/rev)	0.2mm/rev, 0.3mm/rev
Drilling depth H (mm)	Through hole (40mm)
Coolant	Wet (Internal coolant)
Tool	$\phi 14 \times 3D$ type
Machine	M/C

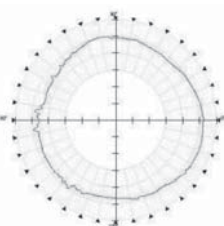
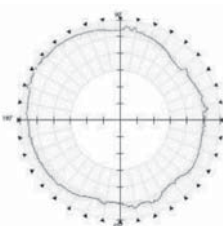
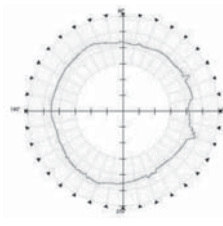
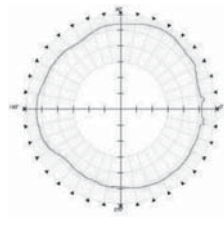
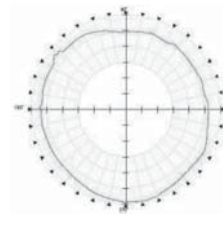


Roundness

1) Roundness (f=0.2mm/rev)

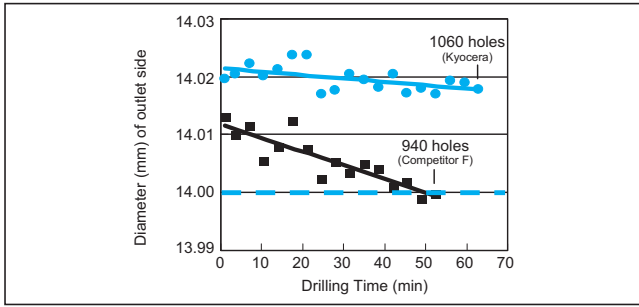
Indexable drill		Carbide solid drill		
Kyocera	Competitor F	Competitor B	Competitor C	Competitor N
				
Roundness: 5.5 μm	Roundness: 22.5 μm	Roundness: 6.4 μm	Roundness: 9.8 μm	Roundness: 5.2 μm

2) Roundness (f=0.3mm/rev)

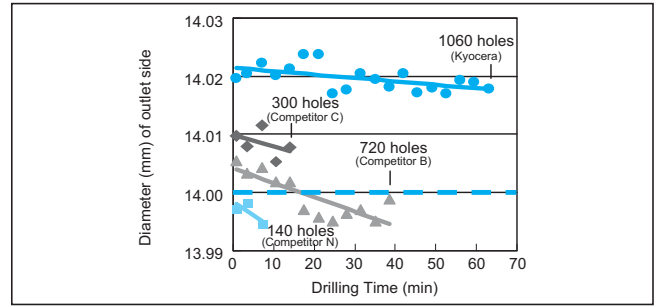
Indexable drill		Carbide solid drill		
Kyocera	Competitor F	Competitor B	Competitor C	Competitor N
				
Roundness: 10.7 μm	Roundness: 15.2 μm	Roundness: 12.0 μm	Roundness: 11.8 μm	Roundness: 12.3 μm

● Drilling Diameter (f = 0.3 mm/rev)

1) Comparison with indexable drill



2) Comparison with carbide solid drill



Q&A

Q-3 During deep hole machining using DRC (8D type), dimension variation of diameters has occurred at entrance and far (outlet) side possibly due to deflection. Is there any countermeasure?

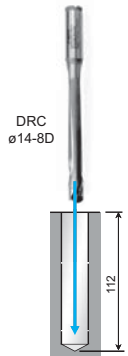
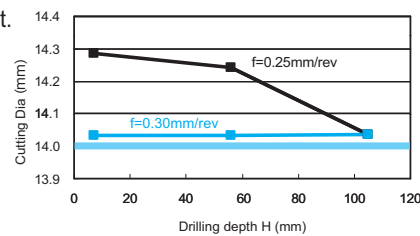
A-3 There are some countermeasures as follows to prevent deflection (to improve bite of drill).

Countermeasures 1

● Increasing the feed rate

Increasing the feed rate may keep the processing diameters constant. (Estimated rate: Current rate + 0.03 to 0.05 mm/rev)

<Cutting conditions>
 C55 (S55C) Vc=80m/min H=112mm
 f=0.25mm/rev → 0.30 mm/rev
 Wet (Internal coolant)
 SS16-DRC140M-8
 DC1400M-SC (PR0315)



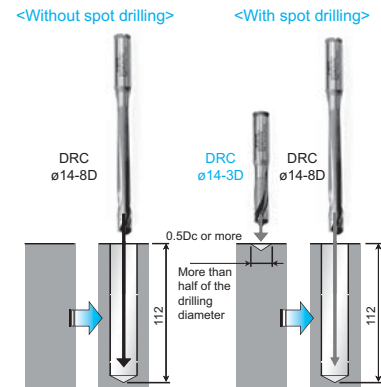
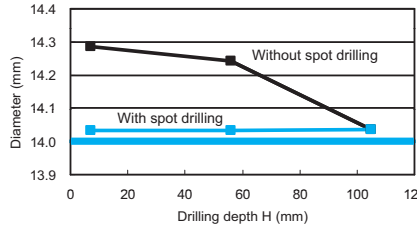
If increasing the feed rate is not possible because rigidity of machine or clamp is weak

Countermeasures 2

● Making a center spot

- 1) Make a center spot using the DRC drill or a commercially available center drill which has a vertex angle of about 140°. (If the center drill can be modified, make its vertex angle larger than 140°.)
- 2) Then drill the hole using the DRC drill (8D type).

<Cutting conditions>
 S55C Vc=80m/min
 f=0.25mm/rev H=112mm
 Wet (Internal coolant)
 SS16-DRC140M-3
 SS16-DRC140M-8
 DC1400M-SC (PR0315)



Case Studies

C50 (S50C)

- Flange
- Vc=97m/min (n=2,490min⁻¹)
- H=32mm
- f=0.3mm/rev (Vf=747mm/min)
- Wet (Internal Coolant)
- DC1250M-SC (PR0315)

SS14-DRC120M-3	3,000holes/insert
Competitor A	1,800holes/drill

Compared to competitor's drill A, MagicDrill DRC type has reduced burr and reduced more than 10% of the power required. Tool life has also improved greatly. (Evaluation by the user)

42CrMo4 (SCM440)

- Housing
- Vc=83m/min (n=2,400min⁻¹)
- H=32mm
- f=0.24mm/rev (Vf=576mm/min)
- Wet (Internal Coolant)
- DC1100M-SC (PR0315)

SS12-DRC110M-3	2,400holes/insert
Competitor B	2,000holes/drill

Compared to competitor's solid drill B, MagicDrill DRC type has greatly reduced preparation time with its easy insert replacement feature. Also, the costs of spare tools for re-grinding has been reduced, and tool life has improved. (Evaluation by the user)



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