

Modular Drill ——D190



Modular Drill Denomination System-Holder

HS	-	3D	-	125	-	W	16	M	-	HC
1		2		3		4	5	6		7

1-Drilling Holder Series	
HS	Modular Drill

2-Drilling Depth	
3D	3xDc
5D	5xDc
8D	8xDc
...	...

3-Nominal Diameter of Holder	
125	12.5mm
280	28.0mm
320	32.0mm
...	...

4-Shank Type	
W	Weldon shank

5-Shank Diameter	
16	16mm
20	20mm
25	25mm
32	32mm
...	...

6-Connection Type	
M	Screw clamping modular head

7-Tool Condition and Cooling Method	
HC	Internal Coolant Spiral Flute

Modular Drill Denomination System-Insert

D	1	90	-	1250	-	UM	AP271U
1	2	3		4		5	6

1-Tool Group	
D	Drilling

2-Generation	
1	

3-Tool Type	
90	Modular Drill

4-Insert Diameter	
1250	12.50mm

5-Chip Breaker Geometry	
UM	Universal geometry

6-Grade	
AP271U	Machining of steel and cast iron
AP271M	Machining of steel and stainless steel

Introduction to Insert Chip Breaker Geometries and Grades

Illustration	Geometry / Grade	Application Range
	UM AP271U	Suitable for mass and stable machining of steel parts before heat treatment and cast iron materials, balancing tool life and machining efficiency.
	UM AP271M	The cutting edge features superior chipping resistance, specially designed for heavy-duty cutting of hard materials such as stainless steel and quenched & tempered steel, capable of handling fluctuating machining conditions.

Product Introduction

Tool Features

Diameter range: 12.5 mm – 36 mm;

Tool shanks available in 3×Dc, 5×Dc and 8×Dc lengths;

Central locking mechanism;

Modular design enables compatibility with multiple drill diameters on a single shank.

Applications

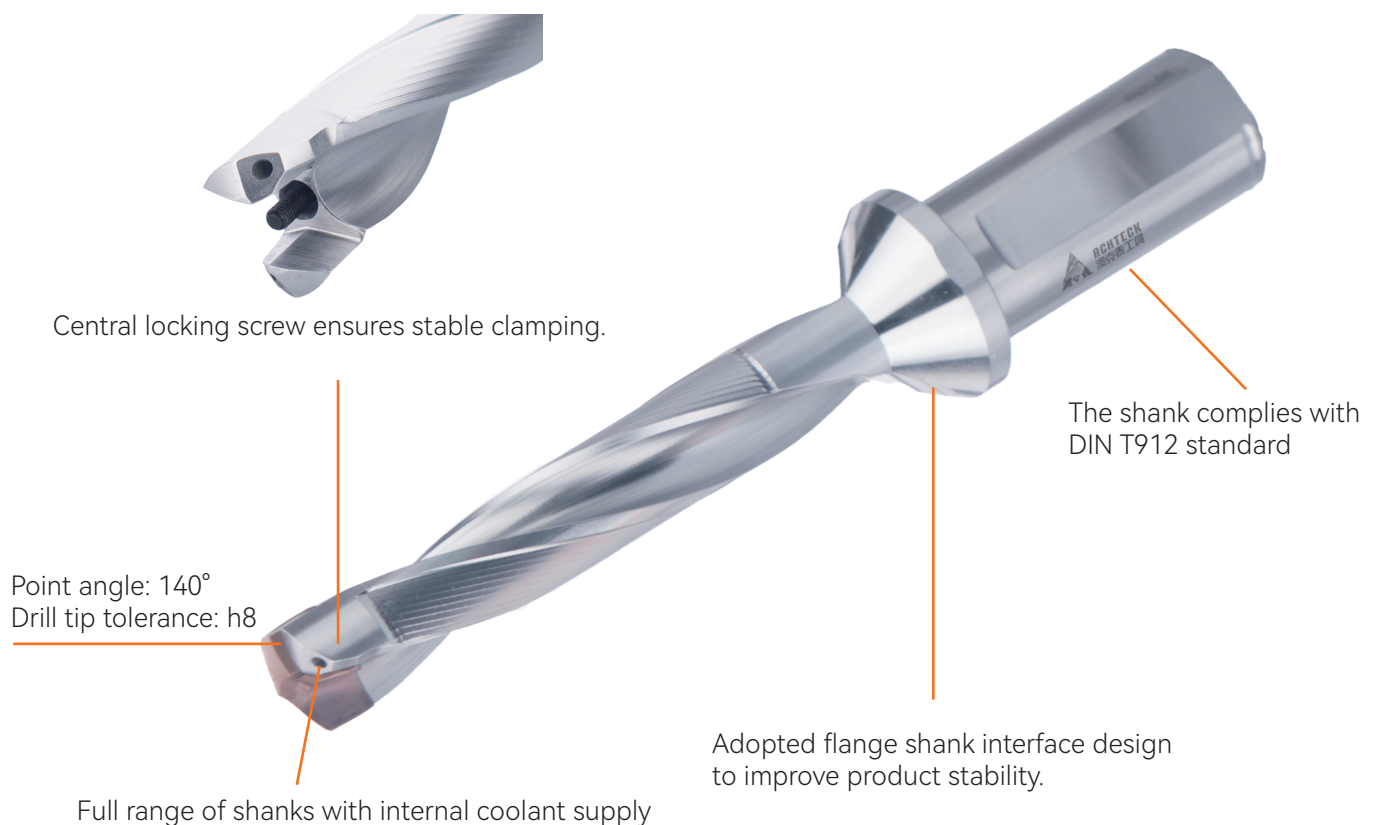
Suitable for P, M, K material groups;

Wind power industry: Large components including tower sections, yaw bearings, wheel hubs, bearing housings and bases;

Construction machinery: Structural parts and connecting holes;

General machinery manufacturing: Mass hole machining of various steel and cast iron workpieces;

Energy equipment: Machining of mounting holes and connecting holes for heavy-duty machinery.



• Why Choose Modular Drills?

Application Scenarios

1. Complex machining conditions leading high tool scrap rate

Problems such as cutting edge chipping between stacked plates, drill deflection when passing through cavities in cross holes, and unilateral tool wear at inclined breakout surfaces cause unstable tool life and uncontrollable machining costs.

2. Low efficiency in deep hole drilling due to poor chip evacuation

For deep holes above $3 \times D_c$ length, insufficient cooling and blocked chips require frequent retraction for chip cleaning, resulting in low machine utilization.

3. Mass production with tight control over per-hole cost

High cost of solid carbide drills squeezes profit margins.

4. Heavy inventory burden from wide size range and large production volume

Workshops need full solid drills for each diameter to handle various hole sizes and workpiece materials, leading to bloated inventory and large capital occupation.

Product Solutions

1. Reliable locking system

The central locking screw with four supporting contact surfaces prevents loosening and shifting under high feed rates and interrupted cutting.

2. Precise internal coolant channels

Coolant channels align accurately with cutting zones. High-pressure coolant delivers cooling, lubrication and chip evacuation simultaneously.

3. Re-grindable drill heads

Drill heads can be reground multiple times to increase service cycles and ensure consistent performance after each grind.

4. Comprehensive product specifications

Diameters range from 12.5 mm to 36 mm, matched with standard $3 \times D_c$, $5 \times D_c$ and $8 \times D_c$ shanks. The universal chip breaker combined with two tool grades satisfies most machining demands.

One single shank fits multiple drill heads within a certain diameter range — simply swap the drill head to change machining size without replacing the shank.

Customer Benefits

1. Improved machining stability

The locking structure maintains positioning accuracy under harsh conditions including stacked plates, cross holes and inclined breakout surfaces. The internal coolant system ensures smooth chip removal for deep holes and drastically reduces downtime caused by tool failure.

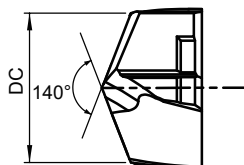
2. Reduced per-hole machining cost

Reusable shanks and re-grindable drill heads continuously lower amortized cost per hole, eliminating the wasteful disposable drill consumption pattern.

3. Lower inventory pressure

One shank works for multiple diameters. A small quantity of shanks paired with assorted drill heads covers the full range of hole sizes, cutting down inventory types and occupied capital.

◆ D190 Insert-UM



Grade	P	M	K	N	S	H
AP271U	●		●			
AP271M	○	●				

●1st choice ○2nd choice

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -1250 -UM	UM	12.5	C
D190 -1260 -UM	UM	12.6	C
D190 -1270 -UM	UM	12.7	C
D190 -1280 -UM	UM	12.8	C
D190 -1290 -UM	UM	12.9	C
D190 -1300 -UM	UM	13.0	C
D190 -1310 -UM	UM	13.1	C
D190 -1320 -UM	UM	13.2	C
D190 -1330 -UM	UM	13.3	C
D190 -1340 -UM	UM	13.4	C
D190 -1350 -UM	UM	13.5	C
D190 -1360 -UM	UM	13.6	B
D190 -1370 -UM	UM	13.7	B
D190 -1380 -UM	UM	13.8	B
D190 -1390 -UM	UM	13.9	B
D190 -1400 -UM	UM	14.0	B
D190 -1410 -UM	UM	14.1	B
D190 -1420 -UM	UM	14.2	B
D190 -1430 -UM	UM	14.3	B
D190 -1440 -UM	UM	14.4	B
D190 -1450 -UM	UM	14.5	B
D190 -1460 -UM	UM	14.6	A
D190 -1470 -UM	UM	14.7	A
D190 -1480 -UM	UM	14.8	A
D190 -1490 -UM	UM	14.9	A
D190 -1500 -UM	UM	15.0	A
D190 -1510 -UM	UM	15.1	A
D190 -1520 -UM	UM	15.2	A
D190 -1530 -UM	UM	15.3	A
D190 -1540 -UM	UM	15.4	A
D190 -1550 -UM	UM	15.5	A
D190 -1560 -UM	UM	15.6	A

D190 Insert-UM

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -1570 -UM	UM	15.7	A
D190 -1580 -UM	UM	15.8	A
D190 -1590 -UM	UM	15.9	A
D190 -1600 -UM	UM	16.0	1
D190 -1610 -UM	UM	16.1	1
D190 -1620 -UM	UM	16.2	1
D190 -1630 -UM	UM	16.3	1
D190 -1640 -UM	UM	16.4	1
D190 -1650 -UM	UM	16.5	1
D190 -1660 -UM	UM	16.6	1
D190 -1670 -UM	UM	16.7	1
D190 -1680 -UM	UM	16.8	1
D190 -1690 -UM	UM	16.9	1
D190 -1700 -UM	UM	17.0	1
D190 -1710 -UM	UM	17.1	1
D190 -1720 -UM	UM	17.2	1
D190 -1730 -UM	UM	17.3	1
D190 -1740 -UM	UM	17.4	1
D190 -1750 -UM	UM	17.5	1
D190 -1760 -UM	UM	17.6	1
D190 -1770 -UM	UM	17.7	1
D190 -1780 -UM	UM	17.8	1
D190 -1790 -UM	UM	17.9	1
D190 -1800 -UM	UM	18.0	1
D190 -1810 -UM	UM	18.1	2
D190 -1820 -UM	UM	18.2	2
D190 -1830 -UM	UM	18.3	2
D190 -1840 -UM	UM	18.4	2
D190 -1850 -UM	UM	18.5	2
D190 -1860 -UM	UM	18.6	2
D190 -1870 -UM	UM	18.7	2
D190 -1880 -UM	UM	18.8	2
D190 -1890 -UM	UM	18.9	2
D190 -1900 -UM	UM	19.0	2
D190 -1910 -UM	UM	19.1	2
D190 -1920 -UM	UM	19.2	2

D190 Insert-UM

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -1930 -UM	UM	19.3	2
D190 -1940 -UM	UM	19.4	2
D190 -1950 -UM	UM	19.5	2
D190 -1960 -UM	UM	19.6	2
D190 -1970 -UM	UM	19.7	2
D190 -1980 -UM	UM	19.8	2
D190 -1990 -UM	UM	19.9	2
D190 -2000 -UM	UM	20.0	3
D190 -2010 -UM	UM	20.1	3
D190 -2020 -UM	UM	20.2	3
D190 -2030 -UM	UM	20.3	3
D190 -2040 -UM	UM	20.4	3
D190 -2050 -UM	UM	20.5	3
D190 -2060 -UM	UM	20.6	3
D190 -2070 -UM	UM	20.7	3
D190 -2080 -UM	UM	20.8	3
D190 -2090 -UM	UM	20.9	3
D190 -2100 -UM	UM	21.0	3
D190 -2110 -UM	UM	21.1	3
D190 -2120 -UM	UM	21.2	3
D190 -2130 -UM	UM	21.3	3
D190 -2140 -UM	UM	21.4	3
D190 -2150 -UM	UM	21.5	3
D190 -2160 -UM	UM	21.6	3
D190 -2170 -UM	UM	21.7	3
D190 -2180 -UM	UM	21.8	3
D190 -2190 -UM	UM	21.9	3
D190 -2200 -UM	UM	22.0	3
D190 -2210 -UM	UM	22.1	4
D190 -2220 -UM	UM	22.2	4
D190 -2230 -UM	UM	22.3	4
D190 -2240 -UM	UM	22.4	4
D190 -2250 -UM	UM	22.5	4
D190 -2260 -UM	UM	22.6	4
D190 -2270 -UM	UM	22.7	4
D190 -2280 -UM	UM	22.8	4

D190 Insert-UM

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -2290 -UM	UM	22.9	4
D190 -2300 -UM	UM	23.0	4
D190 -2310 -UM	UM	23.1	4
D190 -2320 -UM	UM	23.2	4
D190 -2330 -UM	UM	23.3	4
D190 -2340 -UM	UM	23.4	4
D190 -2350 -UM	UM	23.5	4
D190 -2360 -UM	UM	23.6	4
D190 -2370 -UM	UM	23.7	4
D190 -2380 -UM	UM	23.8	4
D190 -2390 -UM	UM	23.9	4
D190 -2400 -UM	UM	24.0	4
D190 -2410 -UM	UM	24.1	5
D190 -2420 -UM	UM	24.2	5
D190 -2430 -UM	UM	24.3	5
D190 -2440 -UM	UM	24.4	5
D190 -2450 -UM	UM	24.5	5
D190 -2460 -UM	UM	24.6	5
D190 -2470 -UM	UM	24.7	5
D190 -2480 -UM	UM	24.8	5
D190 -2490 -UM	UM	24.9	5
D190 -2500 -UM	UM	25.0	5
D190 -2510 -UM	UM	25.1	5
D190 -2520 -UM	UM	25.2	5
D190 -2530 -UM	UM	25.3	5
D190 -2540 -UM	UM	25.4	5
D190 -2550 -UM	UM	25.5	5
D190 -2560 -UM	UM	25.6	5
D190 -2570 -UM	UM	25.7	5
D190 -2580 -UM	UM	25.8	5
D190 -2590 -UM	UM	25.9	5
D190 -2600 -UM	UM	26.0	5
D190 -2610 -UM	UM	26.1	6
D190 -2620 -UM	UM	26.2	6
D190 -2630 -UM	UM	26.3	6
D190 -2640 -UM	UM	26.4	6

D190 Insert-UM

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -2650 -UM	UM	26.5	6
D190 -2660 -UM	UM	26.6	6
D190 -2670 -UM	UM	26.7	6
D190 -2680 -UM	UM	26.8	6
D190 -2690 -UM	UM	26.9	6
D190 -2700 -UM	UM	27.0	6
D190 -2710 -UM	UM	27.1	6
D190 -2720 -UM	UM	27.2	6
D190 -2730 -UM	UM	27.3	6
D190 -2740 -UM	UM	27.4	6
D190 -2750 -UM	UM	27.5	6
D190 -2760 -UM	UM	27.6	6
D190 -2770 -UM	UM	27.7	6
D190 -2780 -UM	UM	27.8	6
D190 -2790 -UM	UM	27.9	6
D190 -2800 -UM	UM	28.0	6
D190 -2810 -UM	UM	28.1	7
D190 -2820 -UM	UM	28.2	7
D190 -2830 -UM	UM	28.3	7
D190 -2840 -UM	UM	28.4	7
D190 -2850 -UM	UM	28.5	7
D190 -2860 -UM	UM	28.6	7
D190 -2870 -UM	UM	28.7	7
D190 -2880 -UM	UM	28.8	7
D190 -2890 -UM	UM	28.9	7
D190 -2900 -UM	UM	29.0	7
D190 -2910 -UM	UM	29.1	7
D190 -2920 -UM	UM	29.2	7
D190 -2930 -UM	UM	29.3	7
D190 -2940 -UM	UM	29.4	7
D190 -2950 -UM	UM	29.5	7
D190 -2960 -UM	UM	29.6	7
D190 -2970 -UM	UM	29.7	7
D190 -2980 -UM	UM	29.8	7
D190 -2990 -UM	UM	29.9	7
D190 -3000 -UM	UM	30.0	7

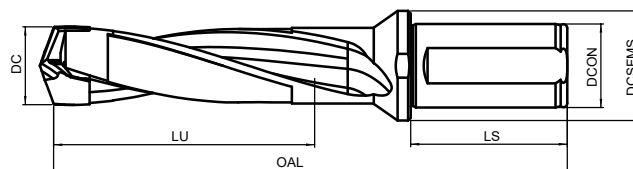
D190 Insert-UM

Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -3010 -UM	UM	30.1	8
D190 -3020 -UM	UM	30.2	8
D190 -3030 -UM	UM	30.3	8
D190 -3040 -UM	UM	30.4	8
D190 -3050 -UM	UM	30.5	8
D190 -3060 -UM	UM	30.6	8
D190 -3070 -UM	UM	30.7	8
D190 -3080 -UM	UM	30.8	8
D190 -3090 -UM	UM	30.9	8
D190 -3100 -UM	UM	31.0	8
D190 -3110 -UM	UM	31.1	8
D190 -3120 -UM	UM	31.2	8
D190 -3130 -UM	UM	31.3	8
D190 -3140 -UM	UM	31.4	8
D190 -3150 -UM	UM	31.5	8
D190 -3160 -UM	UM	31.6	8
D190 -3170 -UM	UM	31.7	8
D190 -3180 -UM	UM	31.8	8
D190 -3190 -UM	UM	31.9	8
D190 -3200 -UM	UM	32.0	8
D190 -3210 -UM	UM	32.1	9
D190 -3220 -UM	UM	32.2	9
D190 -3230 -UM	UM	32.3	9
D190 -3240 -UM	UM	32.4	9
D190 -3250 -UM	UM	32.5	9
D190 -3260 -UM	UM	32.6	9
D190 -3270 -UM	UM	32.7	9
D190 -3280 -UM	UM	32.8	9
D190 -3290 -UM	UM	32.9	9
D190 -3300 -UM	UM	33.0	9
D190 -3310 -UM	UM	33.1	9
D190 -3320 -UM	UM	33.2	9
D190 -3330 -UM	UM	33.3	9
D190 -3340 -UM	UM	33.4	9
D190 -3350 -UM	UM	33.5	9
D190 -3360 -UM	UM	33.6	9

D190 Insert-UM

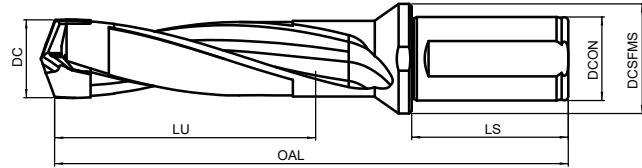
Product code	Chip breaker geometry	DC (mm)	Insert size
D190 -3370 -UM	UM	33.7	9
D190 -3380 -UM	UM	33.8	9
D190 -3390 -UM	UM	33.9	9
D190 -3400 -UM	UM	34.0	9
D190 -3410 -UM	UM	34.1	9
D190 -3420 -UM	UM	34.2	9
D190 -3430 -UM	UM	34.3	9
D190 -3440 -UM	UM	34.4	9
D190 -3450 -UM	UM	34.5	9
D190 -3460 -UM	UM	34.6	9
D190 -3470 -UM	UM	34.7	9
D190 -3480 -UM	UM	34.8	9
D190 -3490 -UM	UM	34.9	9
D190 -3500 -UM	UM	35.0	9
D190 -3510 -UM	UM	35.1	9
D190 -3520 -UM	UM	35.2	9
D190 -3530 -UM	UM	35.3	9
D190 -3540 -UM	UM	35.4	9
D190 -3550 -UM	UM	35.5	9
D190 -3560 -UM	UM	35.6	9
D190 -3570 -UM	UM	35.7	9
D190 -3580 -UM	UM	35.8	9
D190 -3590 -UM	UM	35.9	9
D190 -3600 -UM	UM	36.0	9

HS Series Tool Holders-3D



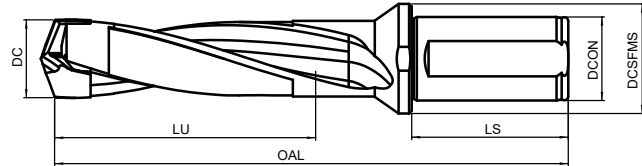
Product code	DC	DC max	LU	OAL	LS	DCON	DCSFMS	Insert size	Insert screw	Wrench
HS-3D-125-W16M-HC	12.5	13	39	111.6	45	16	23	C	CD030140	DT-T6-160
HS-3D-130-W16M-HC	13	13.5	40.5	111.6	45	16	23	C		
HS-3D-136-W16M-HC	13.51	14	42	114.6	45	16	23	B		
HS-3D-140-W16M-HC	14	14.5	43.5	114.6	45	16	23	B		
HS-3D-145-W16M-HC	14.5	14.5	43.5	114.6	45	16	23	B		
HS-3D-146-W20M-HC	14.51	15	45	129.1	50	20	30	A		
HS-3D-150-W20M-HC	15	15.5	45	129.1	50	20	30	A		
HS-3D-155-W20M-HC	15.5	15.874	45	129.1	50	20	30	A	CD035160	DT-H2-B-210
HS-3D-160-W20M-HC	16	16.5	51	136	50	20	30	1		
HS-3D-165-W20M-HC	16.5	17	51	136	50	20	30	1		
HS-3D-170-W20M-HC	17	17.5	54	139.1	50	20	30	1		
HS-3D-175-W20M-HC	17.5	17.99	54	139.1	50	20	30	1		
HS-3D-180-W20M-HC	18	18	54	139.1	50	20	30	1	CD040200	DT-H2-210
HS-3D-181-W25M-HC	18.01	18.5	57	152.7	56	25	35	2		
HS-3D-185-W25M-HC	18.5	19	57	152.7	56	25	35	2		
HS-3D-190-W25M-HC	19	19.5	60	155.8	56	25	35	2		
HS-3D-195-W25M-HC	19.5	19.99	60	155.8	56	25	35	2		
HS-3D-200-W25M-HC	20	20.75	63	158.9	56	25	35	3		
HS-3D-210-W25M-HC	20.75	21.5	66	162	56	25	35	3		
HS-3D-220-W25M-HC	21.5	22	66	162	56	25	35	3		
HS-3D-221-W25M-HC	22.01	22.75	69	162.7	56	25	35	4		
HS-3D-230-W25M-HC	22.75	23.5	72	168.3	56	25	35	4		
HS-3D-240-W25M-HC	23.5	24	72	168.3	56	25	35	4	CD050230	DT-H2.5-240
HS-3D-241-W32M-HC	24.01	24.75	75	183.4	60	32	42	5		
HS-3D-250-W32M-HC	24.75	25.5	78	183.4	60	32	42	5		
HS-3D-260-W32M-HC	25.5	26	78	186.6	60	32	42	5		
HS-3D-261-W32M-HC	26.01	26.75	81	189.9	60	32	42	6		
HS-3D-270-W32M-HC	26.75	27.5	84	192.8	60	32	42	6		
HS-3D-280-W32M-HC	27.5	28	84	192.8	60	32	42	6		
HS-3D-281-W32M-HC	28.01	28.75	87	193.2	60	32	42	7	CD060280	DT-H3-265
HS-3D-290-W32M-HC	28.75	29.5	90	196.76	60	32	42	7		
HS-3D-300-W32M-HC	29.5	30	90	196.76	60	32	42	7		
HS-3D-301-W32M-HC	30.01	30.75	93	199.56	60	32	42	8		
HS-3D-310-W32M-HC	30.75	31.5	96	205.5	60	32	42	8		
HS-3D-320-W32M-HC	31.5	32	96	205.5	60	32	42	8		
HS-3D-321-W40M-HC	32.01	33	102	229.6	70	40	50	9	CD060320	DT-H3-265
HS-3D-330-W40M-HC	33	34	102	229.6	70	40	50	9		
HS-3D-340-W40M-HC	34	35	108	235.8	70	40	50	9		
HS-3D-350-W40M-HC	35	35.99	108	235.8	70	40	50	9		
HS-3D-360-W40M-HC	36	36	108	235.8	70	40	50	9		

HS Series Tool Holders-5D



Product code	DC	DC max	LU	OAL	LS	DCON	DCSFMS	Insert size	Insert screw	Wrench
HS-5D-125-W16M-HC	12.5	13	65	137.6	45	16	23	C	CD030140	DT-T6-160
HS-5D-130-W16M-HC	13	13.5	67.5	137.6	45	16	23	C		
HS-5D-136-W16M-HC	13.51	14	70	142.6	45	16	23	B		
HS-5D-140-W16M-HC	14	14.5	70	142.6	45	16	23	B		
HS-5D-145-W16M-HC	14.5	14.5	70	142.6	45	16	23	B		
HS-5D-146-W20M-HC	14.51	15	75	159.1	50	20	30	A		
HS-5D-150-W20M-HC	15	15.5	75	159.1	50	20	30	A		
HS-5D-155-W20M-HC	15.5	15.874	79	159.1	50	20	30	A	CD035160	DT-H2-B-210
HS-5D-160-W20M-HC	16	16.5	85	170	50	20	30	1		
HS-5D-165-W20M-HC	16.5	17	85	170	50	20	30	1		
HS-5D-170-W20M-HC	17	17.5	90	175.1	50	20	30	1		
HS-5D-175-W20M-HC	17.5	17.99	90	175.1	50	20	30	1		
HS-5D-180-W20M-HC	18	18	90	175.1	50	20	30	1	CD040200	DT-H2-210
HS-5D-181-W25M-HC	18.01	18.5	95	190.7	56	25	35	2		
HS-5D-185-W25M-HC	18.5	19	95	190.7	56	25	35	2		
HS-5D-190-W25M-HC	19	19.5	100	195.8	56	25	35	2		
HS-5D-195-W25M-HC	19.5	19.99	100	195.8	56	25	35	2		
HS-5D-200-W25M-HC	20	20.75	105	200.9	56	25	35	3		
HS-5D-210-W25M-HC	20.75	21.5	110	206	56	25	35	3		
HS-5D-220-W25M-HC	21.5	22	110	206	56	25	35	3	CD040200	DT-H2-260
HS-5D-221-W25M-HC	22.01	22.75	115	208.7	56	25	35	4		
HS-5D-230-W25M-HC	22.75	23.5	120	216.3	56	25	35	4		
HS-5D-240-W25M-HC	23.5	24	120	216.3	56	25	35	4	CD050230	DT-H2.5-240
HS-5D-241-W32M-HC	24.01	24.75	125	233.4	60	32	42	5		
HS-5D-250-W32M-HC	24.75	25.5	130	238.6	60	32	42	5		
HS-5D-260-W32M-HC	25.5	26	130	238.6	60	32	42	5	CD050230	DT-H2.5-295
HS-5D-261-W32M-HC	26.01	26.75	135	243.9	60	32	42	6		
HS-5D-270-W32M-HC	26.75	27.5	140	248.8	60	32	42	6		
HS-5D-280-W32M-HC	27.5	28	140	248.8	60	32	42	6	CD060280	DT-H3-265
HS-5D-281-W32M-HC	28.01	28.75	145	251.2	60	32	42	7		
HS-5D-290-W32M-HC	28.75	29.5	150	256.76	60	32	42	7		
HS-5D-300-W32M-HC	29.5	30	150	256.76	60	32	42	7		
HS-5D-301-W32M-HC	30.01	30.75	155	261.76	60	32	42	8		
HS-5D-310-W32M-HC	30.75	31.5	160	269.5	60	32	42	8	CD060320	DT-H3-330
HS-5D-320-W32M-HC	31.5	32	160	269.5	60	32	42	8		
HS-5D-321-W40M-HC	32.01	33	170	297.6	70	40	50	9		
HS-5D-330-W40M-HC	33	34	170	297.6	70	40	50	9		
HS-5D-340-W40M-HC	34	35	180	307.8	70	40	50	9		
HS-5D-350-W40M-HC	35	35.99	180	307.8	70	40	50	9		
HS-5D-360-W40M-HC	36	36	180	307.8	70	40	50	9		

HS Series Tool Holders-8D



Product code	DC	DC max	LU	OAL	LS	DCON	DCSFMS	Insert size	Insert screw	Wrench
HS-8D-125-W16M-HC	12.5	13	104	176.6	45	16	23	C	CD030140	DT-T6-190
HS-8D-130-W16M-HC	13	13.5	104	176.6	45	16	23	C		
HS-8D-136-W16M-HC	13.51	14	112	184.6	45	16	23	B		
HS-8D-140-W16M-HC	14	14.5	112	184.6	45	16	23	B		
HS-8D-145-W16M-HC	14.5	14.5	112	184.6	45	16	23	B	CD030140	DT-T6-290
HS-8D-146-W20M-HC	14.51	15	120	204.1	50	20	30	A		
HS-8D-150-W20M-HC	15	15.5	120	204.1	50	20	30	A		
HS-8D-155-W20M-HC	15.5	15.874	120	204.1	50	20	30	A		
HS-8D-160-W20M-HC	16	16.5	136	221	50	20	30	1	CD035160	DT-H2-B-260
HS-8D-165-W20M-HC	16.5	17	136	221	50	20	30	1		
HS-8D-170-W20M-HC	17	17.5	144	229.1	50	20	30	1		
HS-8D-175-W20M-HC	17.5	17.99	144	229.1	50	20	30	1		
HS-8D-180-W20M-HC	18	18	144	229.1	50	20	30	1	CD040200	DT-H2-260
HS-8D-181-W25M-HC	18.01	18.5	152	247.7	56	25	35	2		
HS-8D-185-W25M-HC	18.5	19	152	247.7	56	25	35	2		
HS-8D-190-W25M-HC	19	19.5	160	255.8	56	25	35	2		
HS-8D-195-W25M-HC	19.5	19.99	160	255.8	56	25	35	2	CD040200	DT-H2-345
HS-8D-200-W25M-HC	20	20.75	168	263.9	56	25	35	3		
HS-8D-210-W25M-HC	20.75	21.5	176	272	56	25	35	3		
HS-8D-220-W25M-HC	21.5	22	176	272	56	25	35	3		
HS-8D-221-W25M-HC	22.01	22.75	184	277.7	56	25	35	4	CD050230	DT-H2.5-395
HS-8D-230-W25M-HC	22.75	23.5	192	288.3	56	25	35	4		
HS-8D-240-W25M-HC	23.5	24	192	288.3	56	25	35	4		
HS-8D-241-W32M-HC	24.01	24.75	200	308.4	60	32	42	5		
HS-8D-250-W32M-HC	24.75	25.5	208	316.6	60	32	42	5	CD050230	DT-H2.5-395
HS-8D-260-W32M-HC	25.5	26	208	316.6	60	32	42	5		
HS-8D-261-W32M-HC	26.01	26.75	216	324.9	60	32	42	6		
HS-8D-270-W32M-HC	26.75	27.5	224	332.8	60	32	42	6		
HS-8D-280-W32M-HC	27.5	28	224	332.8	60	32	42	6	CD060280	DT-H3-440
HS-8D-281-W32M-HC	28.01	28.75	232	338.2	60	32	42	7		
HS-8D-290-W32M-HC	28.75	29.5	240	349.2	60	32	42	7		
HS-8D-300-W32M-HC	29.5	30	240	349.2	60	32	42	7		
HS-8D-301-W32M-HC	30.01	30.75	248	354.56	60	32	42	8		
HS-8D-310-W32M-HC	30.75	31.5	256	365.5	60	32	42	8		
HS-8D-320-W32M-HC	31.5	32	256	365.5	60	32	42	8		
HS-8D-321-W40M-HC	32.01	33	272	399.6	70	40	50	9		
HS-8D-330-W40M-HC	33	34	272	399.6	70	40	50	9		
HS-8D-340-W40M-HC	34	35	288	415.8	70	40	50	9		
HS-8D-350-W40M-HC	35	35.99	288	415.8	70	40	50	9		
HS-8D-360-W40M-HC	36	36	288	415.8	70	40	50	9		

Cutting Parameters

Materials				Recommended Grade Application Range and Cutting Parameters for D190 Modular Drills										
ISO	Workpiece Materials	Tensile strength (N/mm ²)	Brinell hardness (HB)	Grade						Feed (mm/rev)				
				UM AP271U			UM AP271M							
				P15-35			P10-25							
				-			M15-35							
				K15-35			-							
				-			-							
				-			-							
				Cutting speed(m/min)						Ø12mm ~ Ø16mm	Ø16mm ~ Ø20mm	Ø20mm ~ Ø24mm	Ø24mm ~ Ø32mm	Ø32mm ~ Ø36mm
Min	Med	Max	Min	Med	Max									
P	Non-alloyed steel	<600	<180	80	110	150	90	110	150	0.18-0.35	0.22-0.38	0.25-0.42	0.28-0.48	0.30-0.50
		<950	<280	90	120	160	100	120	160	0.20-0.40	0.24-0.42	0.28-0.45	0.30-0.50	0.32-0.52
	Alloyed steel	700-950	200-280	80	100	140	90	100	140	0.20-0.40	0.24-0.42	0.28-0.45	0.30-0.50	0.32-0.52
		950-1200	280-355	50	70	100	60	80	100	0.15-0.24	0.16-0.26	0.18-0.30	0.20-0.32	0.22-0.34
		1200-1400	355-415	40	70	90	50	80	100	0.15-0.24	0.16-0.26	0.18-0.30	0.20-0.32	0.22-0.34
M	Austenitic stainless steel	680	200				40	80	110	0.12-0.26	0.15-0.28	0.16-0.30	0.18-0.32	0.20-0.34
	Precipitation-hardening stainless steel	1010	300				35	55	75	0.11-0.22	0.13-0.24	0.13-0.28	0.14-0.30	0.15-0.32
	Duplex stainless steel	780	230				25	35	50	0.11-0.20	0.13-0.23	0.13-0.26	0.14-0.28	0.15-0.30
K	Grey cast iron	700	220	90	120	160				0.25-0.45	0.28-0.48	0.32-0.52	0.35-0.56	0.37-0.60
	Nodular cast iron	880	260	80	110	150				0.25-0.42	0.28-0.45	0.32-0.50	0.35-0.54	0.37-0.56
	Malleable cast iron	800	250	70	100	130				0.25-0.40	0.28-0.45	0.32-0.48	0.35-0.52	0.37-0.54
N	Aluminum	260	75											
	Aluminum alloy	447	130											
S	Fe-based alloy	943	280											
	Co-based alloy	1076	320											
	Ni-based alloy	1177	350											
	Titanium alloy	1262	370											
H	Hardened steel		50-60HRC											
	Chilled cast iron		55HRC											