

2020

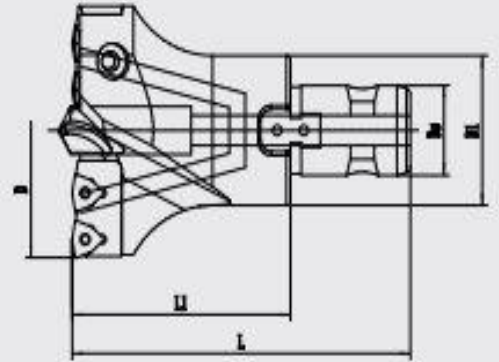
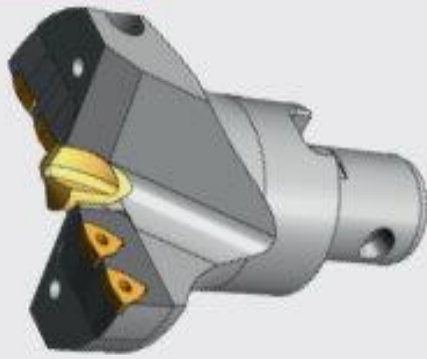
BEIJING KTIA

MDD

Modular large diameter deep hole drill

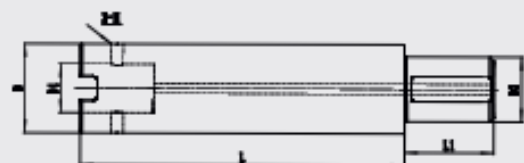
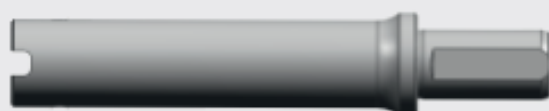


## MDD 可转位大钻头



型号	D	DS	D1	L1	L	外刃	内刃	适配导向钻	刀片	刀刃数
MDD-045050	45-50	16	30	60	95	VMC-045050T	VNC-045050N	HPD-1035T-H	WC03	4
MDD-050055	50-55					VMC-050055T	VNC-050055N	HPD-1035T-H	WC04	4
MDD-055060	55-60					VMC-055060T	VNC-055060N	HPD-1238T-H	WC04	4
MDD-060065	60-65	25	45	82	127	VMC-060065T	VNC-060065N	HPD-1238T-H	WC05	4
MDD-065070	65-70					VMC-065070T	VNC-065070N	HPD-1238T-H	WC05	4
MDD-070075	70-75					VMC-070075T	VNC-070075N	HPD-1238T-H	WC06	4
MDD-075080	75-80					VMC-075080T	VNC-075080N	HPD-1645T-H	WC06	4
MDD-080085	80-85					VMC-080085T	VNC-080085N	HPD-1645T-H	WC06	4
MDD-085090	85-90					VMC-085090T	VNC-085090N	HPD-1645T-H	WC06	4
MDD-090095	90-95					VMC-090095T	VNC-090095N	HPD-1645T-H	WC06	4
MDD-095100	95-100	30	50			VMC-095100T	VNC-095100N	HPD-1645T-H	WC05	6
MDD-100105	100-105	32	58	94	139	VMC-100105T	VNC-100105N	HPD-2045T-H	WC05	6
MDD-105110	105-110					VMC-105110T	VNC-105110N	HPD-2045T-H	WC05	6
MDD-110115	110-115					VMC-110115T	VNC-110115N	HPD-2045T-H	WC06	6
MDD-115120	115-120	40	70	104	154	VMC-115120T	VNC-115120N	HPD-2045T-H	WC06	6
MDD-120125	120-125					VMC-120125T	VNC-120125N	HPD-2556T-H	WC06	6
MDD-125130	125-130					VMC-125130T	VNC-125130N	HPD-2556T-H	WC06	6
MDD-130135	130-135					VMC-130135T	VNC-130135N	HPD-2556T-H	WC06	6
MDD-135140	135-140					VMC-135140T	VNC-135140N	HPD-2556T-H	WC06	8
MDD-140145	140-145					VMC-140145T	VNC-140145N	HPD-2556T-H	WC06	8
MDD-145150	145-150	50	80	116	176	VMC-145150T	VNC-145150N	HPD-2556T-H	WC08	6
MDD-150155	150-155	VMC-150155T	VNC-150155N	HPD-2556T-H	WC08	6				
MDD-155160	155-160	VMC-155160T	VNC-155160N	HPD-2556T-H	WC08	6				
MDD-160165	160-165	VMC-160165T	VNC-160165N	HPD-2556T-H	WC06	10				
MDD-165170	165-170	VMC-165170T	VNC-165170N	HPD-2556T-H	WC06	10				
MDD-170175	170-175	VMC-170175T	VNC-170175N	HPD-2556T-H	WC08	8				
MDD-175180	175-180	VMC-175180T	VNC-175180N	HPD-2556T-H	WC08	8				
MDD-180185	180-185	VMC-180185T	VNC-180185N	HPD-2556T-H	WC08	8				
MDD-185190	185-190	VMC-185190T	VNC-185190N	HPD-2556T-H	WC08	8				
MDD-190195	190-195	VMC-190195T	VNC-190195N	HPD-2556T-H	WC08	8				
MDD-195200	195-200	VMC-195200T	VNC-195200N	HPD-2556T-H	WC08	10				

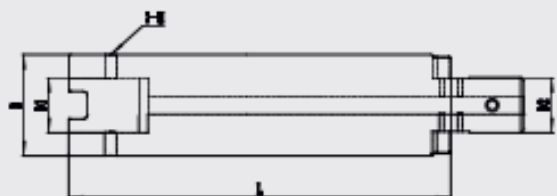
## MDD连接杆



型号	D	D1	D2	L	L1	适用孔径
DXZ-301632100	30	16	32	100	65	φ45-φ55
DXZ-301632150	30	16	32	150	65	
DXZ-301632200	30	16	32	200	65	
DXZ-301632250	30	16	32	250	65	
DXZ-301632300	30	16	32	300	65	
DXZ-301632350	30	16	32	350	65	
DXZ-301632400	30	16	32	400	65	
DXZ-301632450	30	16	32	450	65	
DXZ-452540100	45	25	40	100	75	φ60-φ80
DXZ-452540150	45	25	40	150	75	
DXZ-452540200	45	25	40	200	75	
DXZ-452540250	45	25	40	250	75	
DXZ-452540300	45	25	40	300	75	
DXZ-452540350	45	25	40	350	75	
DXZ-452540400	45	25	40	400	75	
DXZ-452540450	45	25	40	450	75	
DXZ-503040100	50	30	40	100	75	φ85-φ95
DXZ-503040150	50	30	40	150	75	
DXZ-503040200	50	30	40	200	75	
DXZ-503040250	50	30	40	250	75	
DXZ-503040300	50	30	40	300	75	
DXZ-503040350	50	30	40	350	75	
DXZ-503040400	50	30	40	400	75	
DXZ-503040400	50	30	40	450	75	

型号	D	D1	D2	L	L1	适用孔径
DXZ-583240100	58	32	40	100	75	φ100-φ110
DXZ-583240150	58	32	40	150	75	
DXZ-583240200	58	32	40	200	75	
DXZ-583240250	58	32	40	250	75	
DXZ-583240300	58	32	40	300	75	
DXZ-583240350	58	32	40	350	75	
DXZ-583240400	58	32	40	400	75	
DXZ-583240450	58	32	40	450	75	
DXZ-704050100	70	40	50	100	80	φ115-φ135
DXZ-704050150	70	40	50	150	80	
DXZ-704050200	70	40	50	200	80	
DXZ-704050250	70	40	50	250	80	
DXZ-704050300	70	40	50	300	80	
DXZ-704050350	70	40	50	350	80	
DXZ-704050400	70	40	50	400	80	
DXZ-704050400	70	40	50	450	80	
DXZ-805050100	80	50	50	100	80	φ140-φ195
DXZ-805050150	80	50	50	150	80	
DXZ-805050200	80	50	50	200	80	
DXZ-805050250	80	50	50	250	80	
DXZ-805050300	80	50	50	300	80	
DXZ-805050350	80	50	50	350	80	
DXZ-805050400	80	50	50	400	80	
DXZ-805050450	80	50	50	450	80	
DXZ-805050500	80	50	50	500	80	

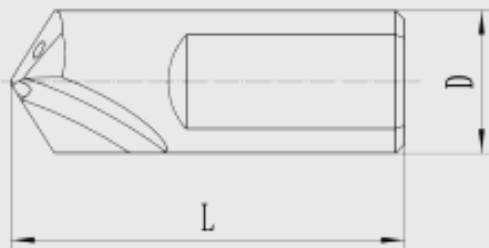
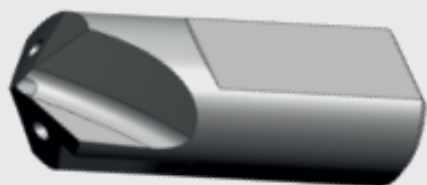
## MDD-延长杆



型号	D	D1	L	适用孔径
YXZ-3016300	30	16	300	φ45-φ55
YXZ-3016400	30	16	400	
YXZ-3016500	30	16	500	
YXZ-4525300	45	25	300	φ60-φ80
YXZ-4525400	45	25	400	
YXZ-4525500	45	25	500	
YXZ-5030300	50	30	300	φ85-φ95
YXZ-5030400	50	30	400	
YXZ-5030500	50	30	500	

型号	D	D1	L	适用孔径
YXZ-5832300	58	32	300	φ100-φ110
YXZ-5832400	58	32	400	
YXZ-5832500	58	32	500	
YXZ-7040300	70	40	300	φ115-φ135
YXZ-7040400	70	40	400	
YXZ-7040500	70	40	500	
YXZ-8050300	80	50	300	φ140-φ195
YXZ-8050400	80	50	400	
YXZ-8050500	80	50	500	

## 高速钢导向钻



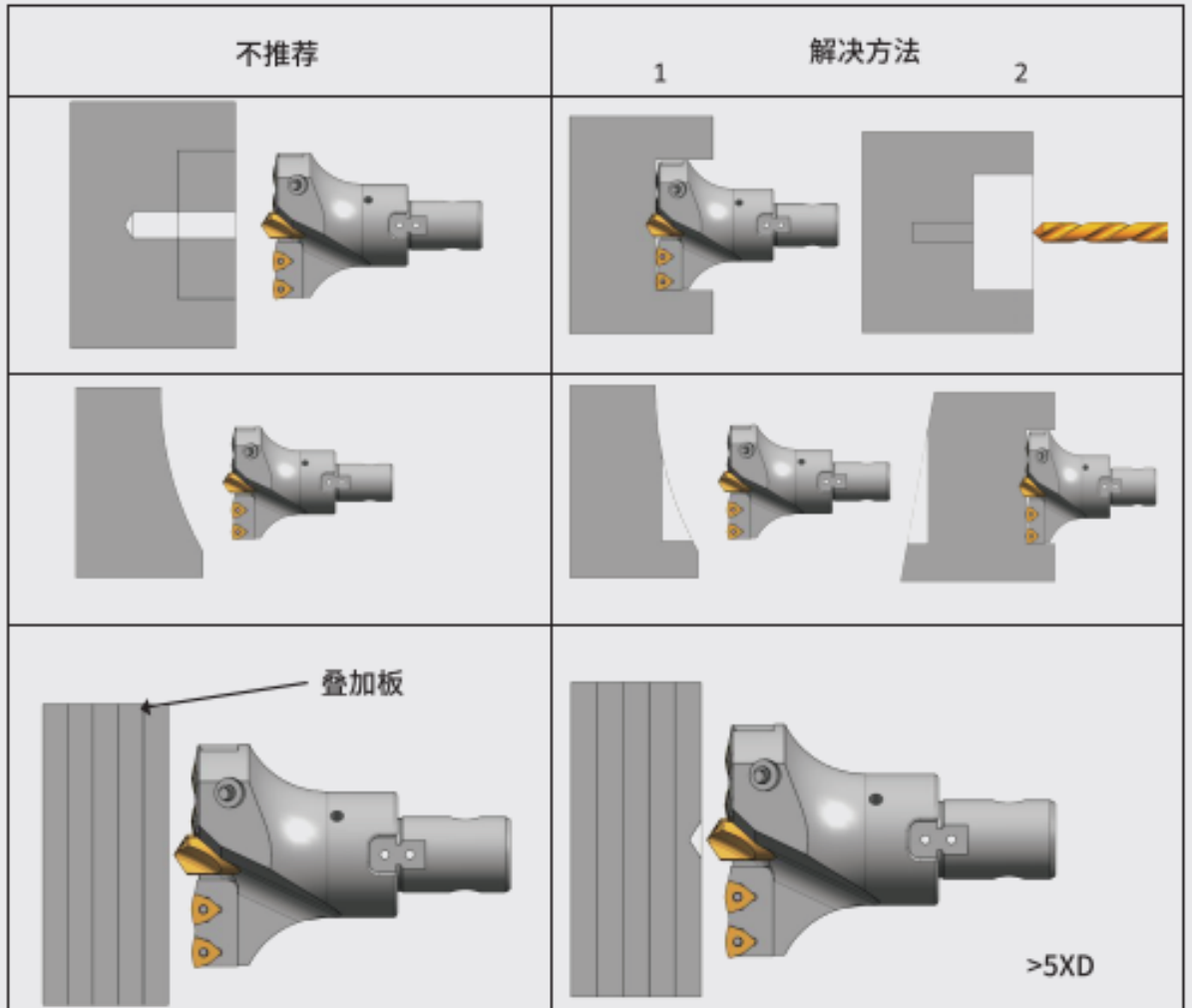
高速钢导向钻型号	D	L
HPD-1035C-H	10	35
HPD-1238C-H	12	38
HPD-1645C-H	16	45
HPD-2045C-H	20	45
HPD-2556C-H	25	56
HPD-3068C-H	30	68

硬质合金导向钻型号	D	L
CPD-1035C-H	10	35
CPD-1238C-H	12	38
CPD-1645C-H	16	45
CPD-2045C-H	20	45
CPD-2556C-H	25	56

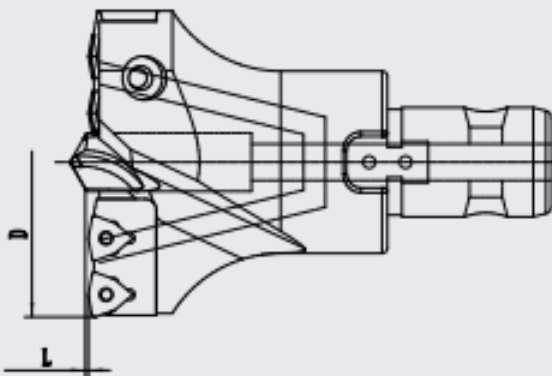
## 导向钻型号命名规则



## MDD使用方法

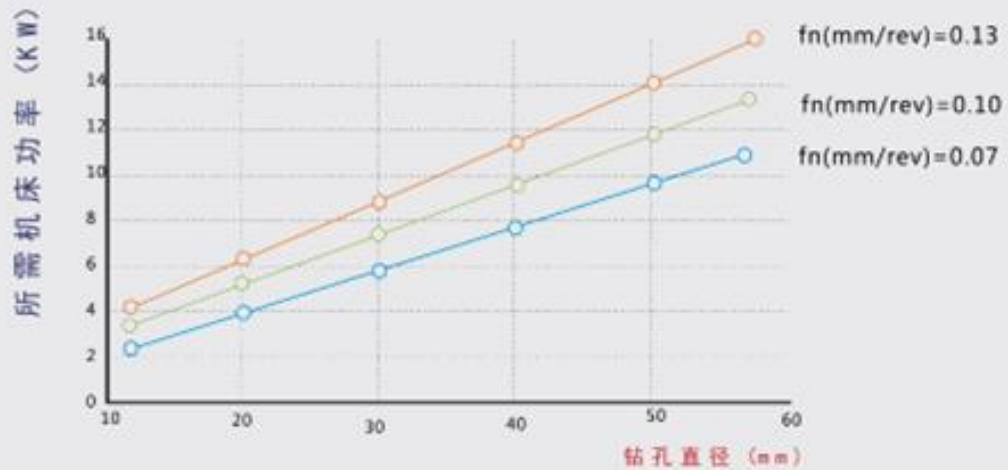
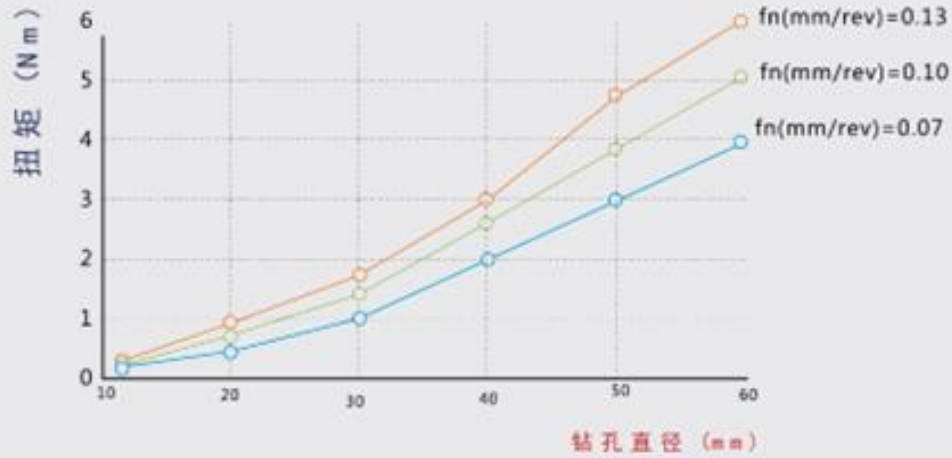


## 导向钻伸出刀片的距离L

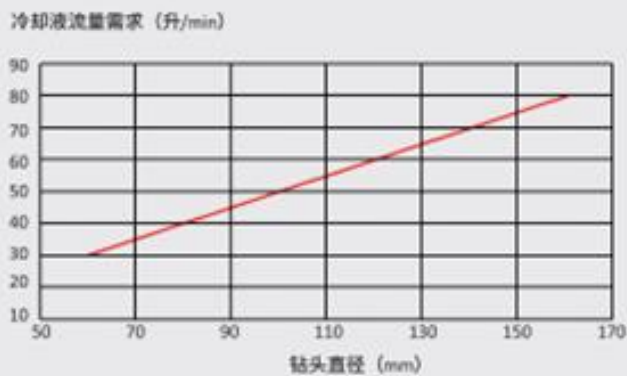


外径	L		
	2-4XD	4-6XD	6-8XD
45-55	1.6	1.8	2.0
55-75	1.8	2.0	2.2
75-100	2.2	2.5	2.8
100-120	2.4	2.8	3.2
120-170	3.2	3.6	4.0
170-180	3.5	3.9	4.3

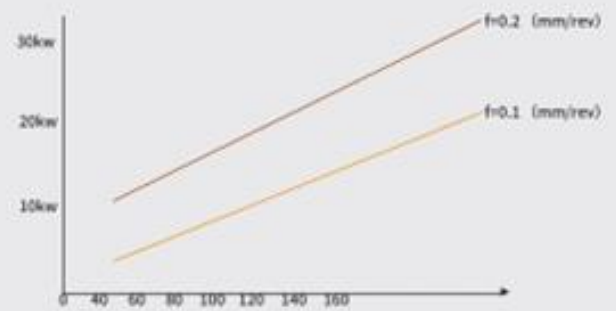
## U钻加工功率要求



## MDD水流量



## MDD加工功率



## MDD可转位大钻头大幅提高加工功率



工艺	工艺过程	转速	进给	加工时间	总用时长
传统工艺	① Φ80麻花钻	80	16	1小时10分钟	150分钟
	②粗镗刀一	200	30	40分钟	
	③粗镗刀二	200	30	40分钟	
新工艺	MDD可转位大钻头Φ103	280	45	18分钟	18分钟

加工Φ105m、孔深550mm,材42Crmo、HB220

在石油、煤矿等机械行业中，大孔加工越来越普遍，应用MDD可转位大钻头可大幅的提高加工效率。MDD可转位大钻头的亮点：

- 一、采用中心导向钻结构，有较好的定心效果，从而保证孔位有良好的直线度。
- 二、内外刀刃采用可替换小刀夹结构。实际使用中，最易损坏的是外刃刀夹。通过替换小刀夹，避免了整支钻头的报废，节省了刀具成本。
- 三、通过调整外刀夹，钻头加工尺寸可以在0-5mm内变动。
- 四、刀头和刀柄采用组合式结构。加工不同孔的深度，只需更换不同长度的刀柄即可。
- 五、钻头有中心出水孔，可以较好的冷却刀片，延长刀片的使用寿命，同时有利于排屑。
- 六、采用可转位硬质合金刀片切削，有较高的转速和进给，孔壁光洁度有大幅提升。
- 七、加工过程中，铁屑均为断屑状态，没有传统麻花钻的细长缠绕的铁屑，安全性大大提高。
- 八、加工中，自动连续进刀，不需要每次退刀回屑，效率大幅提升。

### 钻头速度

$$S = \frac{V_c \times 100}{3.14 \times D_c}$$

$V_c$ =线速度100m/min  
 $D_c$ (mm):钻头  
 $S$ =主轴转速

实例：以钻头直径Φ100为例

$$S = \frac{100 \times 1000}{3.14 \times 100} = 318 \text{ rev/min}$$

### 进给速度

$$V_f = F_r \times S$$

$V_f$ =进给速度  
 $F_r$ =每转进给量  
 $S$ =主轴转速

实例：以钻头直径Φ100为例，  
每转进给量0.15mm/rev  
 $V_f = 0.15 \times 318 = 47.7 \text{ mm/min}$

### 钻头时间

$$T_c = \frac{H}{V_f} \times 60$$

$T_c$ (a):加工时间  
 $H$ =孔的加工深度

实例：以钻头直径Φ100为例，  
孔加工深度为100mm。

$$T_c = \frac{100 \times 60}{47.7} = 126 \text{ (s)}$$

Crafts	Crafts process	Speed	Feed	Process Time	Total Time
Traditional Crafts	① Φ60 twist drill	80	16	1h 10min	150min
	② rough boring tool 1	200	30	40min	
	③ rough boring tool 2	200	30	40min	
New Crafts	MDD indexable drill Φ105	280	45	18min	18min

Machining 106m depth 550mm, material 42Crmo, HB220

In the oil, coal and other machine industries, as oversize hole machining becomes more and more common, the application of MDD indexable drill can greatly improve the machining efficiency.

The bright spot of MDD indexable drill:

- ① Using the structure of center guide drill with better centering effect to make sure hole site a good straightness.
- ② Internal and External cutter edge is applied to the structure of replaceable clamp tool. In practical using, the most vulnerable is external edge clamp. Replacing clamp can avoid the drill scrapped to save the tool cost.
- ③ Adjusting external clamp, the dimension of drill machining can vary within 0-5mm
- ④ Cutter head and shank are modular structure. Only change different length shank during processing the different depth of the hole.
- ⑤ Drill with center water hole can cool insert better, extend insert life and accelerate chip evacuation.
- ⑥ Using indexable carbide insert cutting with high speed and feed, surface finish has greatly improved.
- ⑦ In the process, security is greatly improved as chip is breaker not slender twining of traditional twist drill
- ⑧ In the proc

don't need tool back off t