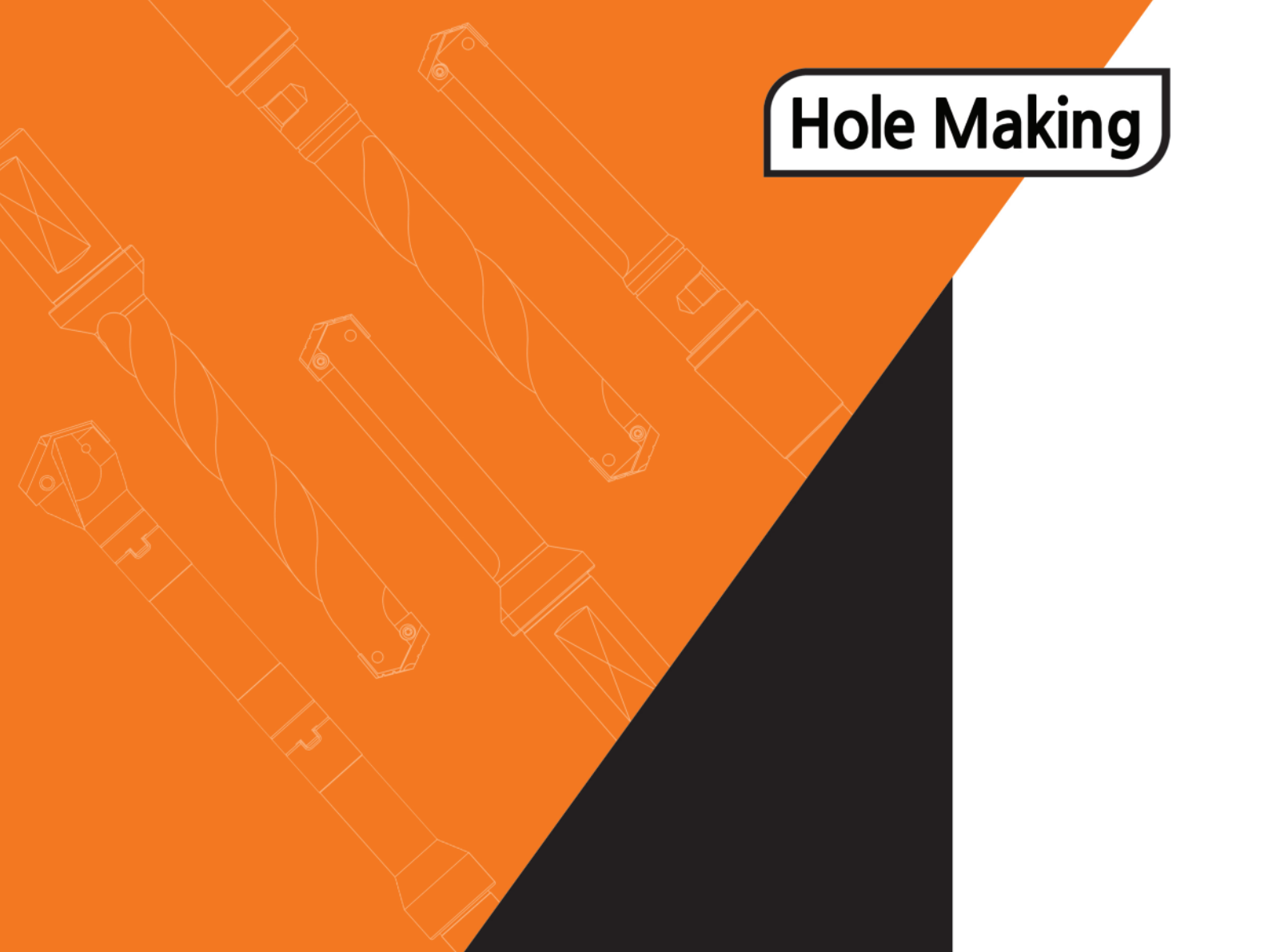




Hole Making

B7 SPADE DRILL

Insert series

B7S, B7K, B7H, B7M drill
B7X, MUE, MUB, modular
Collant oil supplier modular

TV ADVANCE TOOLS
36/5, MAHA FLATS,
TEACHERS COLONY,
PAZHANVANTHANGAL
CHENNAI -600114
9176041355,
tvadvancetools.com

CONTENTS

01~10

Insert series

11

B7S Drill

12

B7K Drill

13

B7H,B7M Drill

14

B7X,MUE,MUB Modular

15~16

MXU Modular

17

Collant Oil Supplier Modular

18~20

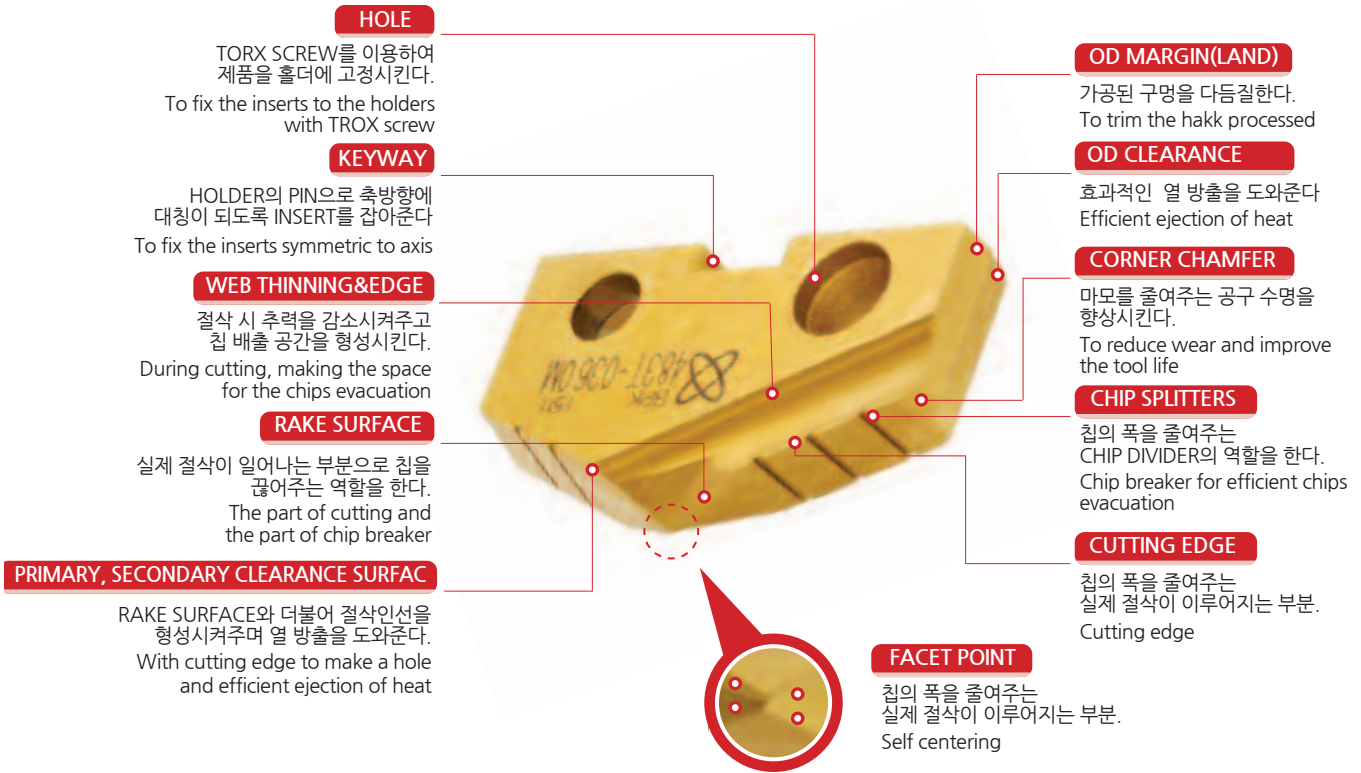
Technical Data

21~25

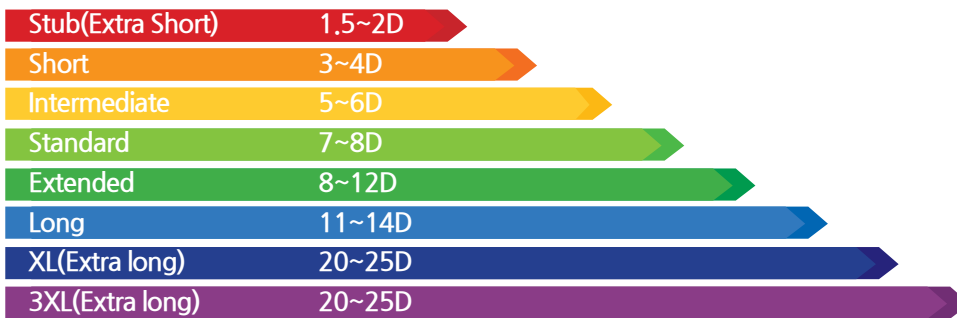
Guideline

인서트 각 부 명칭 및 기능

The name and function of the part of insert



- 인서트형으로 9.5mm~114mm까지 표준형으로 제작되어 있어 사용이 편리합니다.
As indexable type of drill, composed of a various range of diameters from 9.5mm to 114mm, it is very convenient to use.
- 칩 분할 홈이 있어서 칩 처리가 용이하고 파워가 약한 기계에서도 대구경 드릴작업이 가능합니다.
Chip splitters is able to be used for chip evacuation and the weak-powered machine.
- 다양한 드릴홀더를 보유하고 있어 1.5D~3D까지 홀 가공이 용이합니다.
Possible to make a hole 1.5D to 30D with a various range of drills.



- 재고 관리가 용이, 홀더9개(Y,Z,0,1,2,3,4,5~6,7~8)로 9.5mm~114mm까지의 드릴작업이 가능.
Efficient management for the stock levels, Only nine holders can make holes 9.5mm to 114mm

Y	Z	0	1	2	3	4	5,6	7,8
9.5~11.0	11.5~12.5	13.0~17.54	18.0~24.0	25.0~35.0	36.0~47.0	48.0~65.0	64.0~88.0	90.0~114.0

- Solid type drill에 비해 진원도 및 가공치수 정도가 우수하며 수명도 탁월함.
Good performance and great tool life compared with solid type drill.
- 인선에 절삭유 공급이 용이.
Easy to supply the coolant inside of the hole processing
- 모듈라 시스템 드릴은 길이를 자유자재로 조정할수 있습니다.
A variety of length of drills with modular systems.

Insert Series

B7 spade drill

48



3



A



-

460



소재 Material		시리즈 Series			코팅 Coating		가공경 Diameter
04-M4	HSS	Y	ø9.5~ø11.0	4	ø48.0~ø65.0	A	Inch
15-T15	Super HSS	Z	ø11.5~ø12.5	5	ø63.5~ø76.0	C	Decimal
48-M48	Premium HSS	0	ø13.0~ø17.5	6	ø78.0~ø88.0	T	Metric
P2-P25	Carbide	1	ø18.0~ø24.0	7	ø90.0~ø100.0	i	
		2	ø25.0~ø35.0	8	ø102.0~ø114.0		
		3	ø36.0~ø47.0				



TiN

범용 코팅
General purpose coating
공구 수명 향상
Improved tool life over a noncoated insert
알루미늄 작업에 탁월
Excellent choice for Aluminium
Color : Gold / Yellow



TiCN

고속 가공시 발생하는 마모 저항에 탁월한 성능
Excellent choice for wear resistance over low surface speeds
고강도 / 마모방지
High hardness / wear resistance
400℃까지 작업가능
Maximum working temperature 400
경도 HV3500
Hardness HV3500
Color : Blue / Grey



TiAlN

고속 가공시 발생하는 마모 저항에 탁월한 성능
Excellent choice for wear resistance over low surface speeds
산화 저항 우수
Excellent oxidation resistance
800℃까지 작업가능
Maximum working temperature 800
경도 HV3000
Hardness HV3000
Color : Violet / Black



Alpha

작업시 발생하는 열 저항이 Tin, TiCN 보다 우수
First choice for increased heat resistance over TiN, TiCN
타 코팅보다 우수한 공구 수명과 시장 진입의 우수성
Allows for improved tool life and higher penetration rates of the market
TiAlN 코팅보다 20% 이상 공구수명 연장
Over 20% increased tool life over TiAlN
Color : Copper / Bronze

HSS(M4) standard

일반강 및 주철에 사용.
Applied for steels and cast Iron.

Super HSS(T15) standard

니켈합금 및 경도 280Bhn(HRC29)
이상의 재질에 사용
Applied for Alloy Nikel and
280Bhn(HRC29) and harder.

Premium HSS(M48) standard stock

고경도합금 및 경도 재질에
350~500Bhn(HRC37~49)의 사용.
Applied for high temp Alloy and
350~500Bhn(HRC37~49)
and harder
9.5mm to 114.00mm

Carbide(P25) standard stock

일반탄소강, 합금강 및 난삭재에 사용.
Applied for Carbon Steel, Alloy Steel
and Hard to Machine Material
(Titanium and Stainless Steel)
13.00mm to 47.00mm

B7



S



-

115



125



134



A



스페이드 드릴 B7(Spade drill)	드릴종류 Drill type	체결 최소경 Min. fitting diameter	체결 최대경 Max. fitting diameter	드릴 전장 Total length	샹크 종류 Shank type
		B7K(Flange shank / Straight Flute Type)			
		B7S(Flange shank / Sprial Flute Type)			
		B7H(Taper shank / Straight Flute Type)			
		B7M(Taper shank / Sprial Flute Type)			
		B7X(Modular head Type)			

■ 적용가능한 가장 짧은 드릴을 선택.

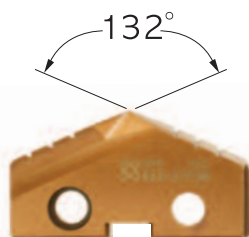
Select the shortest holder possible for the application

■ B7 drill이 경중앙 라인에서 0.08mm(0.03") 이내로 안정적으로 고정되어 있는지 확인(HSS/Carbide)

Ensure the B7 drills are held securely and are with within 0.08(0.03") of lenth in 0.03(HSS/Carbide)

Y Series

9.5mm(.3740")-11mm(.4331")

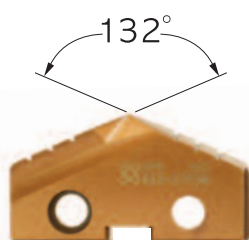


Y Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha	
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)
	9.5	.3740"	15YT-0095M	48YT-0095M	15YC-0095M	48YC-0095M	15YA-0095M	48YA-0095M	15Yi-0095M	48Yi-0095M
3/8"	9.53	.3750"	15YT-03750	48YT-03750	15YC-03750	48YC-03750	15YA-03750	48YA-03750	15Yi-03750	48Yi-03750
	9.80	.3860"	15YT-03860	48YT-03860	15YC-03860	48YC-03860	15YA-03860	48YA-03860	15Yi-03860	48Yi-03860
25/64"	9.92	.3906"	15YT-03906	48YT-03906	15YC-03906	48YC-03906	15YA-03906	48YA-03906	15Yi-03906	48Yi-03906
	10.00	.3937"	15YT-0100M	48YT-0100M	15YC-0100M	48YC-0100M	15YA-0100M	48YA-0100M	15Yi-0100M	48Yi-0100M
	10.20	.4016"	15YT-04016	48YT-04016	15YC-04016	48YC-04016	15YA-04016	48YA-04016	15Yi-04016	48Yi-04016
13/32"	10.32	.4063"	15YT-04063	48YT-04063	15YC-04063	48YC-04063	15YA-04063	48YA-04063	15Yi-04063	48Yi-04063
	10.50	.4134"	15YT-0105M	48YT-0105M	15YC-0105M	48YC-0105M	15YA-0105M	48YA-0105M	15Yi-0105M	48Yi-0105M
27/64"	10.72	.4219"	15YT-04219	48YT-04219	15YC-04219	48YC-04219	15YA-04219	48YA-04219	15Yi-04219	48Yi-04219
	10.08	.4252"	15YT-04252	48YT-04252	15YC-04252	48YC-04252	15YA-04252	48YA-04252	15Yi-04252	48Yi-04252
	11.00	.4331"	15YT-0110M	48YT-0110M	15YC-0110M	48YC-0110M	15YA-0110M	48YA-0110M	15Yi-0110M	48Yi-0110M

Z Series

11.11mm(.4375")-12.70mm(.5000")

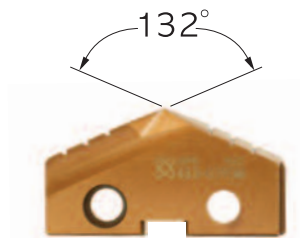


Z Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha	
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)
7/16"	11.11	.4375"	15ZT-04375	48ZT-04375	15ZC-04375	48ZC-04375	15ZA-04375	48ZA-04375	15Zi-04375	48Zi-04375
	11.50	.4528"	15ZT-0115M	48ZT-0115M	15ZC-0115M	48ZC-0115M	15ZA-0115M	48ZA-0115M	15Zi-0115M	48Zi-0115M
29/64"	11.51	.4531"	15ZT-04531	48ZT-04531	15ZC-04531	48ZC-04531	15ZA-04531	48ZA-04531	15Zi-04531	48Zi-04531
15/32"	11.91	.4688"	15ZT-04688	48ZT-04688	15ZC-04688	48ZC-04688	15ZA-04688	48ZA-04688	15Zi-04688	48Zi-04688
	12.00	.4724"	15ZT-0120M	48ZT-0120M	15ZC-0120M	48ZC-0120M	15ZA-0120M	48ZA-0120M	15Zi-0120M	48Zi-0120M
31/64"	12.30	.4844"	15ZT-04844	48ZT-04844	15ZC-04844	48ZC-04844	15ZA-04844	48ZA-04844	15Zi-04844	48Zi-04844
	12.50	.4921"	15ZT-0125M	48ZT-0125M	15ZC-0125M	48ZC-0125M	15ZA-0125M	48ZA-0125M	15Zi-0125M	48Zi-0125M
1/2"	12.70	.5000"	15ZT-05000	48ZT-05000	15ZC-05000	48ZC-05000	15ZA-05000	48ZA-05000	15Zi-05000	48Zi-05000

0 Series

13mm(.5118")-17.5mm(.6890")

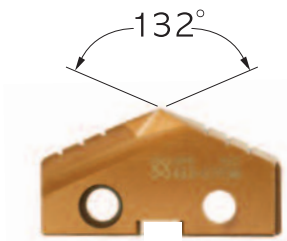


0 Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha		
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Carbide (P25)
	13.00	.5118"	150T-0130M	480T-0130M	150C-0130M	480C-0130M	150A-0130M	480A-0130M	150i-0130M	480i-0130M	P20i-0130M
33/64"	13.10	.5156"	150T-05156	480T-05156	150C-05156	480C-05156	150A-05156	480A-05156	150i-05156	480i-05156	P20i-05156
17/32"	13.49	.5313"	150T-05313	480T-05313	150C-05313	480C-05313	150A-05313	480A-05313	150i-05313	480i-05313	P20i-05313
	13.50	.5315"	150T-0135M	480T-0135M	150C-0135M	480C-0135M	150A-0135M	480A-0135M	150i-0135M	480i-0135M	P20i-0135M
35/64"	13.89	.5469"	150T-05469	480T-05469	150C-05469	480C-05469	150A-05469	480A-05469	150i-05469	480i-05469	P20i-05469
	14.00	.5512"	150T-0140M	480T-0140M	150C-0140M	480C-0140M	150A-0140M	480A-0140M	150i-0140M	480i-0140M	P20i-0140M
9/16"	14.29	.5625"	150T-05625	480T-05625	150C-05625	480C-05625	150A-05625	480A-05625	150i-05625	480i-05625	P20i-05625
	14.50	.5709"	150T-0145M	480T-0145M	150C-0145M	480C-0145M	150A-0145M	480A-0145M	150i-0145M	480i-0145M	P20i-0145M
37/64"	14.68	.5781"	150T-05781	480T-05781	150C-05781	480C-05781	150A-05781	480A-05781	150i-05781	480i-05781	P20i-05781
	15.00	.5906"	150T-0150M	480T-0150M	150C-0150M	480C-0150M	150A-0150M	480A-0150M	150i-0150M	480i-0150M	P20i-0150M
19/32"	15.08	.5938"	150T-05938	480T-05938	150C-05938	480C-05938	150A-05938	480A-05938	150i-05938	480i-05469	P20i-05469
39/64"	15.48	.6094"	150T-06094	480T-06094	150C-06094	480C-06094	150A-06094	480A-06094	150i-06094	480i-06094	P20i-06094
	15.50	.6102"	150T-0155M	480T-0155M	150C-0155M	480C-0155M	150A-0155M	480A-0155M	150i-0155M	480i-0155M	P20i-0155M
5/8"	15.88	.6250"	150T-06250	480T-06250	150C-06250	480C-06250	150A-06250	480A-06250	150i-06250	480i-06250	P20i-06250
	16.00	.6299"	150T-0160M	480T-0160M	150C-0160M	480C-0160M	150A-0160M	480A-0160M	150i-0160M	480i-0160M	P20i-0160M
41/64"	16.27	.6406"	150T-06406	480T-06406	150C-06406	480C-06406	150A-06406	480A-06406	150i-06406	480i-06406	P20i-06406
	16.50	.6496"	150T-0165M	480T-0165M	150C-0165M	480C-0165M	150A-0165M	480A-0165M	150i-0165M	480i-0165M	P20i-0165M
21/32"	16.67	.6563"	150T-06563	480T-06563	150C-06563	480C-06563	150A-06563	480A-06563	150i-06563	480i-06563	P20i-06563
	17.00	.6693"	150T-0170M	480T-0170M	150C-0170M	480C-0170M	150A-0170M	480A-0170M	150i-0170M	480i-0170M	P20i-0170M
11/16"	17.46	.6875"	150T-06875	480T-06875	150C-06875	480C-06875	150A-06875	480A-06875	150i-06875	480i-06875	P20i-06875
43/64"	17.70	.6719"	150T-06719	480T-06719	150C-06719	480C-06719	150A-06719	480A-06719	150i-06719	480i-06719	P20i-06719
	17.50	.6890"	150T-0175M	480T-0175M	150C-0175M	480C-0175M	150A-0175M	480A-0175M	150i-0175M	480i-0175M	P20i-0175M

1 Series

17.86mm(.7031")-24mm(.9449")

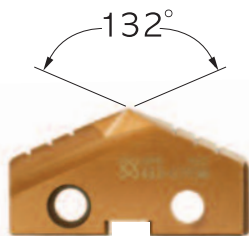


1 Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha		
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Carbide (P25)
45/64"	17.86	.7031"	151T-07031	481T-07031	151C-07031	481C-07031	151A-07031	481A-07031	151i-07031	481i-07031	P21i-07031
	18.00	.7087"	151T-0180M	481T-0180M	151C-0180M	481C-0180M	151A-0180M	481A-0180M	151i-0180M	481i-0180M	P21i-0180M
23/32"	18.26	.7188"	151T-07188	481T-07188	151C-07188	481C-07188	151A-07188	481A-07188	151i-07188	481i-07188	P21i-07188
	18.50	.7283"	151T-0185M	481T-0185M	151C-0185M	481C-0185M	151A-0185M	481A-0185M	151i-0185M	481i-0185M	P21i-0185M
47/64"	18.65	.7344"	151T-07344	481T-07344	151C-07344	481C-07344	151A-07344	481A-07344	151i-07344	481i-07344	P21i-07344
	19.00	.7480"	151T-0190M	481T-0190M	151C-0190M	481C-0190M	151A-0190M	481A-0190M	151i-0190M	481i-0190M	P21i-0190M
3/4"	19.05	.7500"	151T-07500	481T-07500	151C-07500	481C-07500	151A-07500	481A-07500	151i-07500	481i-07500	P21i-07500
49/64"	19.45	.7656"	151T-07656	481T-07656	151C-07656	481C-07656	151A-07656	481A-07656	151i-07656	481i-07656	P21i-07656
	19.50	.7677"	151T-0195M	481T-0195M	151C-0195M	481C-0195M	151A-0195M	481A-0195M	151i-0195M	481i-0195M	P21i-0195M
25/32"	19.84	.7813"	151T-07813	481T-07813	151C-07813	481C-07813	151A-07813	481A-07813	151i-07813	481i-07813	P21i-07813
	20.00	.7874"	151T-0200M	481T-0200M	151C-0200M	481C-0200M	151A-0200M	481A-0200M	151i-0200M	481i-0200M	P21i-0200M
51/64"	20.24	.7969"	151T-07969	481T-07969	151C-07969	481C-07969	151A-07969	481A-07969	151i-07969	481i-07969	P21i-07969
	20.50	.8071"	151T-0205M	481T-0205M	151C-0205M	481C-0205M	151A-0205M	481A-0205M	151i-0205M	481i-0205M	P21i-0205M
13/16"	20.64	.8125"	151T-08125	481T-08125	151C-08125	481C-08125	151A-08125	481A-08125	151i-08125	481i-08125	P21i-08125
	21.00	.8268"	151T-0210M	481T-0210M	151C-0210M	481C-0210M	151A-0210M	481A-0210M	151i-0210M	481i-0210M	P21i-0210M
27/32"	21.43	.8438"	151T-08438	481T-08438	151C-08438	481C-08438	151A-08438	481A-08438	151i-08438	481i-08438	P21i-08438
	21.50	.8465"	151T-0215M	481T-0215M	151C-0215M	481C-0215M	151A-0215M	481A-0215M	151i-0215M	481i-0215M	P21i-0215M
55/64"	21.83	.8594"	151T-08594	481T-08594	151C-08594	481C-08594	151A-08594	481A-08594	151i-08594	481i-08594	P21i-08594
	22.00	.8661"	151T-0220M	481T-0220M	151C-0220M	481C-0220M	151A-0220M	481A-0220M	151i-0220M	481i-0220M	P21i-0220M
7/8"	22.23	.8750"	151T-08750	481T-08750	151C-08750	481C-08750	151A-08750	481A-08750	151i-08750	481i-08750	P21i-08750
	22.50	.8858"	151T-0225M	481T-0225M	151C-0225M	481C-0225M	151A-0225M	481A-0225M	151i-0225M	481i-0225M	P21i-0225M
57/64"	22.62	.8906"	151T-08906	481T-08906	151C-08906	481C-08906	151A-08906	481A-08906	151i-08906	481i-08906	P21i-08906
	23.00	.9055"	151T-0230M	481T-0230M	151C-0230M	481C-0230M	151A-0230M	481A-0230M	151i-0230M	481i-0230M	P21i-0230M
29/32"	23.02	.9063"	151T-09063	481T-09063	151C-09063	481C-09063	151A-09063	481A-0235M	151i-0235M	481i-0235M	P21i-0235M
59/64"	23.42	.9219"	151T-09219	481T-09219	151C-09219	481C-09219	151A-09219	481A-09219	151i-09219	481i-09219	P21i-09219
	23.50	.9252"	151T-0235M	481T-0235M	151C-0235M	481C-0235M	151A-0235M	481A-0235M	151i-0235M	481i-0235M	P21i-0235M
15/16"	23.81	.9375"	151T-09375	481T-09375	151C-09375	481C-09375	151A-09375	481A-09375	151i-09375	481i-09375	P21i-09375
	24.00	.9449"	151T-0240M	481T-0240M	151C-0240M	481C-0240M	151A-0240M	481A-0240M	151i-0240M	481i-0240M	P21i-0240M

2 Series

21.5mm(.0688")-35.0mm(1.3780")

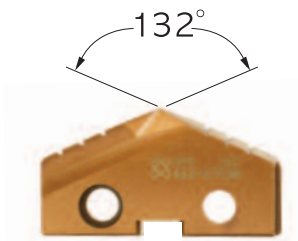


2 Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha		
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Carbide (P25)
31/32"	24.50	.9646"	152T-0245M	482T-0245M	152C-0245M	482C-0245M	152A-0245M	482A-0245M	152i-0245M	482i-0245M	P22i-0245M
	24.61	.9688"	152T-09688	482T-09688	152C-09688	482C-09688	152A-09688	482A-09688	152i-09688	482i-09688	P22i-09688
	24.85	.9783"	152T-02485	482T-02485	152C-02485	482C-02485	152A-02485	482A-02485	152i-02485	482i-02485	P22i-02485
63/64"	25.00	.9843"	152T-0250M	482T-0250M	152C-0250M	482C-0250M	152A-0250M	482A-0250M	152i-0250M	482i-0250M	P22i-0250M
	25.40	1.0000"	152T-10000	482T-10000	152C-10000	482C-10000	152A-10000	482A-10000	152i-10000	482i-10000	P22i-10000
1"	25.50	1.0039"	152T-0255M	482T-0255M	152C-0255M	482C-0255M	152A-0255M	482A-0255M	152i-0255M	482i-0255M	P22i-0255M
	25.80	1.0156"	152T-10156	482T-10156	152C-10156	482C-10156	152A-10156	482A-10156	152i-10156	482i-10156	P22i-10156
1-1/64"	26.00	1.0236"	152T-0260M	482T-0260M	152C-0260M	482C-0260M	152A-0260M	482A-0260M	152i-0260M	482i-0260M	P22i-0260M
	26.19	1.0313"	152T-10313	482T-10313	152C-10313	482C-10313	152A-10313	482A-10313	152i-10313	482i-10313	P22i-10313
1-1/32"	26.50	1.0431"	152T-0265M	482T-0265M	152C-0265M	482C-0265M	152A-0265M	482A-0265M	152i-0265M	482i-0265M	P22i-0265M
	26.59	1.0469"	152T-10469	482T-10469	152C-10469	482C-10469	152A-10469	482A-10469	152i-10469	482i-10469	P22i-10469
1-3/64"	26.99	1.0625"	152T-10625	482T-10625	152C-10625	482C-10625	152A-10625	482A-10625	152i-10625	482i-10625	P22i-10625
	27.00	1.0630"	152T-0270M	482T-0270M	152C-0270M	482C-0270M	152A-0270M	482A-0270M	152i-0270M	482i-0270M	P22i-0270M
1-1/16"	27.50	1.0827"	152T-0275M	482T-0275M	152C-0275M	482C-0275M	152A-0275M	482A-0275M	152i-0275M	482i-0275M	P22i-0275M
	27.78	1.0938"	152T-10938	482T-10938	152C-10938	482C-10938	152A-10938	482A-10938	152i-10938	482i-10938	P22i-10938
1-3/32"	28.00	1.1024"	152T-0280M	482T-0280M	152C-0280M	482C-0280M	152A-0280M	482A-0280M	152i-0280M	482i-0280M	P22i-0280M
	28.18	1.1094"	152T-11094	482T-11094	152C-11094	482C-11094	152A-11094	482A-11094	152i-11094	482i-11094	P22i-11094
1-7/64"	28.50	1.1220"	152T-0285M	482T-0285M	152C-0285M	482C-0285M	152A-0285M	482A-0285M	152i-0285M	482i-0285M	P22i-0285M
	28.58	1.1250"	152T-11250	482T-11250	152C-11250	482C-11250	152A-11250	482A-11250	152i-11250	482i-11250	P22i-11250
1-1/8"	29.00	1.1417"	152T-0290M	482T-0290M	152C-0290M	482C-0290M	152A-0290M	482A-0290M	152i-0290M	482i-0290M	P22i-0290M
	29.37	1.1563"	152T-11563	482T-11563	152C-11563	482C-11563	152A-11563	482A-11563	152i-11563	482i-11563	P22i-11563
1-5/32"	29.50	1.1614"	152T-0295M	482T-0295M	152C-0295M	482C-0295M	152A-0295M	482A-0295M	152i-0295M	482i-0295M	P22i-0295M
	30.00	1.1811"	152T-0300M	482T-0300M	152C-0300M	482C-0300M	152A-0300M	482A-0300M	152i-0300M	482i-0300M	P22i-0300M
1-3/16"	30.16	1.1875"	152T-11875	482T-11875	152C-11875	482C-11875	152A-11875	482A-11875	152i-11875	482i-11875	P22i-11875
	30.50	1.2008"	152T-0305M	482T-0305M	152C-0305M	482C-0305M	152A-0305M	482A-0305M	152i-0305M	482i-0305M	P22i-0305M
1-7/32"	30.96	1.2188"	152T-12188	482T-12188	152C-12188	482C-12188	152A-12188	482A-12188	152i-12188	482i-12188	P22i-12188
	31.00	1.2205"	152T-0310M	482T-0310M	152C-0310M	482C-0310M	152A-0310M	482A-0310M	152i-0310M	482i-0310M	P22i-0310M
1-1/4"	31.50	1.2402"	152T-0315M	482T-0315M	152C-0315M	482C-0315M	152A-0315M	482A-0315M	152i-0315M	482i-0315M	P22i-0315M
	31.75	1.2500"	152T-12500	482T-12500	152C-12500	482C-12500	152A-12500	482A-12500	152i-12500	482i-12500	P22i-12500
1-9/32"	32.00	1.2598"	152T-0320M	482T-0320M	152C-0320M	482C-0320M	152A-0320M	482A-0320M	152i-0320M	482i-0320M	P22i-0320M
	32.50	1.2795"	152T-0325M	482T-0325M	152C-0325M	482C-0325M	152A-0325M	482A-0325M	152i-0325M	482i-0325M	P22i-0325M
1-5/16"	32.54	1.2813"	152T-12813	482T-12813	152C-12813	482C-12813	152A-12813	482A-12813	152i-12813	482i-12813	P22i-12813
	33.00	1.2992"	152T-0330M	482T-0330M	152C-0330M	482C-0330M	152A-0330M	482A-0330M	152i-0330M	482i-0330M	P22i-0330M
1-3/8"	33.34	1.3125"	152T-13125	482T-13125	152C-13125	482C-13125	152A-13125	482A-13125	152i-13125	482i-13125	P22i-13125
	33.50	1.3187"	152T-0335M	482T-0335M	152C-0335M	482C-0335M	152A-0335M	482A-0335M	152i-0335M	482i-0335M	P22i-0335M
1-11/32"	34.00	1.3386"	152T-0340M	482T-0340M	152C-0340M	482C-0340M	152A-0340M	482A-0340M	152i-0340M	482i-0340M	P22i-0340M
	34.13	1.3438"	152T-13438	482T-13438	152C-13438	482C-13438	152A-13438	482A-13438	152i-13438	482i-13438	P22i-13438
1-5/8"	34.50	1.3583"	152T-0345M	482T-0345M	152C-0345M	482C-0345M	152A-0345M	482A-0345M	152i-0345M	482i-0345M	P22i-0345M
	34.93	1.3750"	152T-13750	482T-13750	152C-13750	482C-13750	152A-13750	482A-13750	152i-13750	482i-13750	P22i-13750
1-3/4"	35.00	1.3780"	152T-0350M	482T-0350M	152C-0350M	482C-0350M	152A-0350M	482A-0350M	152i-0350M	482i-0350M	P22i-0350M

3 Series

35.5mm-47.63mm(1.8750")

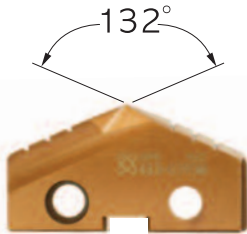


3 Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha		
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Carbide (P25)
1-13/32"	35.50	1.3976"	153T-0355M	483T-0355M	153C-0355M	483C-0355M	153A-0355M	483A-0355M	153i-0355M	483i-0355M	P23i-0355M
	35.72	1.4063"	153T-14063	483T-14063	153C-14063	483C-14063	153A-14063	483A-14063	153i-14063	483i-14063	P23i-14063
	36.00	1.4173"	153T-0360M	483T-0360M	153C-0360M	483C-0360M	153A-0360M	483A-0360M	153i-0360M	483i-0360M	P23i-0360M
1-7/16"	36.50	1.4370"	153T-0365M	483T-0365M	153C-0365M	483C-0365M	153A-0365M	483A-0365M	153i-0365M	483i-0365M	P23i-0365M
	36.51	1.4375"	153T-14375	483T-14375	153C-14375	483C-14375	153A-14375	483A-14375	153i-14375	483i-14375	P23i-14375
	37.00	1.4567"	153T-0370M	483T-0370M	153C-0370M	483C-0370M	153A-0370M	483A-0370M	153i-0370M	483i-0370M	P23i-0370M
1-15/32"	37.31	1.4688"	153T-14688	483T-14688	153C-14688	483C-14688	153A-14688	483A-14688	153i-14688	483i-14688	P23i-14688
	38.00	1.4961"	153T-0380M	483T-0380M	153C-0380M	483C-0380M	153A-0380M	483A-0380M	153i-0380M	483i-0380M	P23i-0380M
	38.10	1.5000"	153T-15000	483T-15000	153C-15000	483C-15000	153A-15000	483A-15000	153i-15000	483i-15000	P23i-15000
1-17/32"	38.89	1.5313"	153T-15313	483T-15313	153C-15313	483C-15313	153A-15313	483A-15313	153i-15313	483i-15313	P23i-15313
	39.00	1.5354"	153T-0390M	483T-0390M	153C-0390M	483C-0390M	153A-0390M	483A-0390M	153i-0390M	483i-0390M	P23i-0390M
	39.69	1.5625"	153T-15625	483T-15625	153C-15625	483C-15625	153A-15625	483A-15625	153i-15625	483i-15625	P23i-15625
1-9/16"	40.00	1.5748"	153T-0400M	483T-0400M	153C-0400M	483C-0400M	153A-0400M	483A-0400M	153i-0400M	483i-0400M	P23i-0400M
	40.48	1.5938"	153T-15938	483T-15938	153C-15938	483C-15938	153A-15938	483A-15938	153i-15938	483i-15938	P23i-15938
	41.00	1.6142"	153T-0410M	483T-0410M	153C-0410M	483C-0410M	153A-0410M	483A-0410M	153i-0410M	483i-0410M	P23i-0410M
1-5/8"	41.28	1.6250"	153T-16250	483T-16250	153C-16250	483C-16250	153A-16250	483A-16250	153i-16250	483i-16250	P23i-16250
	42.00	1.6535"	153T-0420M	483T-0420M	153C-0420M	483C-0420M	153A-0420M	483A-0420M	153i-0420M	483i-0420M	P23i-0420M
	42.07	1.6563"	153T-16563	483T-16563	153C-16563	483C-16563	153A-16563	483A-16563	153i-16563	483i-16563	P23i-16563
1-11/16"	42.86	1.6875"	153T-16875	483T-16875	153C-16875	483C-16875	153A-16875	483A-16875	153i-16875	483i-16875	P23i-16875
	43.00	1.6929"	153T-0430M	483T-0430M	153C-0430M	483C-0430M	153A-0430M	483A-0430M	153i-0430M	483i-0430M	P23i-0430M
	43.66	1.7188"	153T-17188	483T-17188	153C-17188	483C-17188	153A-17188	483A-17188	153i-17188	483i-17188	P23i-17188
1-23/32"	44.00	1.7323"	153T-0440M	483T-0440M	153C-0440M	483C-0440M	153A-0440M	483A-0440M	153i-0440M	483i-0440M	P23i-0440M
	44.45	1.7500"	153T-17500	483T-17500	153C-17500	483C-17500	153A-17500	483A-17500	153i-17500	483i-17500	P23i-17500
	45.00	1.7717"	153T-0450M	483T-0450M	153C-0450M	483C-0450M	153A-0450M	483A-0450M	153i-0450M	483i-0450M	P23i-0450M
1-25/32"	45.24	1.7813"	153T-17813	483T-17813	153C-17813	483C-17813	153A-17813	483A-17813	153i-17813	483i-17813	P23i-17813
	46.00	1.8110"	153T-0460M	483T-0460M	153C-0460M	483C-0460M	153A-0460M	483A-0460M	153i-0460M	483i-0460M	P23i-0460M
	46.04	1.8125"	153T-18125	483T-18125	153C-18125	483C-18125	153A-18125	483A-18125	153i-18125	483i-18125	P23i-18125
1-13/16"	46.83	1.8438"	153T-18438	483T-18438	153C-18438	483C-18438	153A-18438	483A-18438	153i-18438	483i-18438	P23i-18438
	47.00	1.8504"	153T-0470M	483T-0470M	153C-0470M	483C-0470M	153A-0470M	483A-0470M	153i-0470M	483i-0470M	P23i-0470M
	47.63	1.8750"	153T-18750	483T-18750	153C-18750	483C-18750	153A-18750	483A-18750	153i-18750	483i-18750	P23i-18750

4 Series

48mm(1.8898")-65.09mm(2.5625")



4 Series

Diameter			 TiN		 TiCN		 TiAlN		 Alpha	
Inch (inch)	Metric (mm)	Decimal (inch)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)	Super HSS (T-15)	Premium HSS(M48)
1-29/32"	48.00	1.8898"	154T-0480M	484T-0480M	154C-0480M	484C-0480M	154A-0480M	484A-0480M	154i-0480M	484i-0480M
	48.42	1.9063"	154T-19063	484T-19063	154C-19063	484C-19063	154A-19063	484A-19063	154i-19063	484i-19063
	49.00	1.9291"	154T-0490M	484T-0490M	154C-0490M	484C-0490M	154A-0490M	484A-0490M	154i-0490M	484i-0490M
1-15/16"	49.21	1.9375"	154T-19375	484T-19375	154C-19375	484C-19375	154A-19375	484A-19375	154i-19375	484i-19375
	50.00	1.9685"	154T-0500M	484T-0500M	154C-0500M	484C-0500M	154A-0500M	484A-0500M	154i-0500M	484i-0500M
1-31/32"	50.01	1.9688"	154T-19688	484T-19688	154C-19688	484C-19688	154A-19688	484A-19688	154i-19688	484i-19688
	2"	50.80	154T-20000	484T-20000	154C-20000	484C-20000	154A-20000	484A-20000	154i-20000	484i-20000
		21.00	154T-0510M	484T-0510M	154C-0510M	484C-0510M	154A-0510M	484A-0510M	154i-0510M	484i-0510M
2-1/32"	51.19	2.0313"	154T-20313	484T-20313	154C-20313	484C-20313	154A-20313	484A-20313	154i-20313	484i-20313
2-3/64"	52.00	2.0472"	154T-20472	484T-20472	154C-20472	484C-20472	154A-20472	484A-20472	154i-20472	484i-20472
2-1/16"	52.39	2.0625"	154T-20625	484T-20625	154C-20625	484C-20625	154A-20625	484A-20625	154i-20625	484i-20625
	53.00	2.0866"	154T-0530M	484T-0530M	154C-0530M	484C-0530M	154A-0530M	484A-0530M	154i-0530M	484i-0530M
2-3/32"	53.18	2.0938"	154T-20938	484T-20938	154C-20938	484C-20938	154A-20938	484A-20938	154i-20938	484i-20938
2-1/8"	53.98	2.1250"	154T-21250	484T-21250	154C-21250	484C-21250	154A-21250	484A-21250	154i-21250	484i-21250
	54.00	2.1260"	154T-0540M	484T-0540M	154C-0540M	484C-0540M	154A-0540M	484A-0540M	154i-0540M	484i-0540M
2-5/32"	54.79	2.1563"	154T-21563	484T-21563	154C-21563	484C-21563	154A-21563	484A-21563	154i-21563	484i-21563
	55.00	2.1654"	154T-0550M	484T-0550M	154C-0550M	484C-0550M	154A-0550M	484A-0550M	154i-0550M	484i-0550M
2-3/16"	55.56	2.1875"	154T-21875	484T-21875	154C-21875	484C-21875	154A-21875	484A-21875	154i-21875	484i-21875
	56.00	2.2047"	154T-0560M	484T-0560M	154C-0560M	484C-0560M	154A-0560M	484A-0560M	154i-0560M	484i-0560M
2-7/32"	56.36	2.2188"	154T-22188	484T-22188	154C-22188	484C-22188	154A-22188	484A-22188	154i-22188	484i-22188
	57.00	2.2441"	154T-0570M	484T-0570M	154C-0570M	484C-0570M	154A-0570M	484A-0570M	154i-0570M	484i-0570M
2-1/4"	57.15	2.2500"	154T-22500	484T-22500	154C-22500	484C-22500	154A-22500	484A-22500	154i-22500	484i-22500
2-9/32"	57.94	2.2813"	154T-22813	484T-22813	154C-22813	484C-22813	154A-22813	484A-22813	154i-22813	484i-22813
	58.00	2.2835"	154T-0580M	484T-0580M	154C-0580M	484C-0580M	154A-0580M	484A-0580M	154i-0580M	484i-0580M
2-5/16"	58.74	2.3125"	154T-23125	484T-23125	154C-23125	484C-23125	154A-23125	484A-23125	154i-23125	484i-23125
	59.00	2.3228"	154T-0590M	484T-0590M	154C-0590M	484C-0590M	154A-0590M	484A-0590M	154i-0590M	484i-0590M
2-11/32"	59.53	2.3438"	154T-23438	484T-23438	154C-23438	484C-23438	154A-23438	484A-23438	154i-23438	484i-23438
	60.00	2.3662"	154T-0600M	484T-0600M	154C-0600M	484C-0600M	154A-0600M	484A-0600M	154i-0600M	484i-0600M
2-3/8"	60.33	2.3750"	154T-23750	484T-23750	154C-23750	484C-23750	154A-23750	484A-23750	154i-23750	484i-23750
	61.00	2.4016"	154T-0610M	484T-0610M	154C-0610M	484C-0610M	154A-0610M	484A-0610M	154i-0610M	484i-0610M
2-13/32"	61.12	2.1063"	154T-24063	484T-24063	154C-24063	484C-24063	154A-24063	484A-24063	154i-24063	484i-24063
2-7/16"	61.91	2.4375"	154T-24375	484T-24375	154C-24375	484C-24375	154A-24375	484A-24375	154i-24375	484i-24375
	62.00	2.4409"	154T-0620M	484T-0620M	154C-0620M	484C-0620M	154A-0620M	484A-0620M	154i-0620M	484i-0620M
2-15/32"	62.71	2.4688"	154T-24688	484T-24688	154C-24688	484C-24688	154A-24688	484A-24688	154i-24688	484i-24688
	63.00	2.4803"	154T-0630M	484T-0630M	154C-0630M	484C-0630M	154A-0630M	484A-0630M	154i-0630M	484i-0630M
2-1/2"	63.50	2.5000"	154T-0635M	484T-0635M	154C-0635M	484C-0635M	154A-0635M	484A-0635M	154i-0635M	484i-0635M
	64.00	2.5197"	154T-0640M	484T-0640M	154C-0640M	484C-0640M	154A-0640M	484A-0640M	154i-0640M	484i-0640M
2-17/32"	64.29	2.5313"	154T-25313	484T-25313	154C-25313	484C-25313	154A-25313	484A-25313	154i-25313	484i-25313
	65.00	2.5591"	154T-0650M	484T-0650M	154C-0650M	484C-0650M	154A-0650M	484A-0650M	154i-0650M	484i-0650M
2-9/16"	65.09	2.5625"	154T-25625	484T-25625	154C-25625	484C-25625	154A-25625	484A-25625	154i-25625	484i-25625

5,6 Series

63,5mm(2.2500")-76.2mm(3.0000") / 76.99mm(3.0313")-88.9mm(3.5000")



5 Series

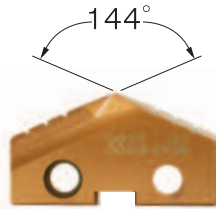
Diameter						
Inch (inch)	Metric (mm)	Decimal (inch)	HSS (M04)	HSS (M04)	HSS (M04)	HSS (M04)
2-1/2"	63.50	2.2500"	045T-0635M	045C-0635M	045A-0635M	045i-0635M
	64.00	2.5197"	045T-0640M	045C-0640M	045A-0640M	045i-0640M
2-17/32"	64.29	2.5313"	045T-25313	045C-25313	045A-25313	045i-25313
2-9/16"	65.09	2.5625"	045T-25625	045C-25625	045A-25625	045i-25625
2-19/32"	65.88	2.5938"	045T-25938	045C-25938	045A-25938	045i-25938
	66.00	2.5984"	045T-0660M	045C-0660M	045A-0660M	045i-0660M
2-5/8"	66.68	2.6250"	045T-26250	045C-26250	045A-26250	045i-26250
2-21/32"	67.47	2.6563"	045T-26563	045C-26563	045A-26563	045i-26563
	68.00	2.6772"	045T-0680M	045C-0680M	045A-0680M	045i-0680M
2-11/16"	68.26	2.6875"	045T-26875	045C-26875	045A-26875	045i-26875
2-23/32"	69.05	2.7188"	045T-27188	045C-27188	045A-27188	045i-27188
2-3/4"	69.85	2.7500"	045T-27500	045C-27500	045A-27500	045i-27500
	70.00	2.7559"	045T-0700M	045C-0700M	045A-0700M	045i-0700M
2-25/32"	70.64	2.7813"	045T-27813	045C-27813	045A-27813	045i-27813
2-13/16"	71.44	2.8125"	045T-28125	045C-28125	045A-28125	045i-28125
	72.00	2.8346"	045T-0720M	045C-0720M	045A-0720M	045i-0720M
2-27/32"	72.23	2.8438"	045T-28438	045C-28438	045A-28438	045i-28438
2-7/8"	73.03	2.8750"	045T-28750	045C-28750	045A-28750	045i-28750
2-29/32"	73.82	2.9063"	045T-29063	045C-29063	045A-29063	045i-29063
	74.00	2.9134"	045T-0740M	045C-0740M	045A-0740M	045i-0740M
2-15/16"	74.61	2.9375"	045T-29375	045C-29375	045A-29375	045i-29375
2-31/32"	75.41	2.9688"	045T-29688	045C-29688	045A-29688	045i-29688
	76.00	2.9921"	045T-0760M	045C-0760M	045A-0760M	045i-0760M
3"	76.20	3.0000"	045T-30000	045C-30000	045A-30000	045i-30000

6 Series

Diameter						
Inch (inch)	Metric (mm)	Decimal (inch)	HSS (M04)	HSS (M04)	HSS (M04)	HSS (M04)
3-1/32"	76.99	3.0313"	046T-30313	046C-30313	046A-30313	046i-30313
3-1/16"	77.79	3.0625"	046T-30625	046C-30625	046A-30625	046i-30625
	78.00	3.0709"	046T-0780M	046C-0780M	046A-0780M	046i-0780M
3-3/32"	78.58	3.0938"	046T-30938	046C-30938	046A-30938	046i-30938
3-1/8"	79.38	3.1250"	046T-31250	046C-31250	046A-31250	046i-31250
	80.00	3.1496"	046T-0800M	046C-0800M	046A-0800M	046i-0800M
3-5/32"	80.17	3.1563"	046T-31563	046C-31563	046A-31563	046i-31563
3-3/16"	80.96	3.1875"	046T-31875	046C-31875	046A-31875	046i-31875
3-7/32"	81.76	3.2188"	046T-32188	046C-32188	046A-32188	046i-32188
	82.00	3.2283"	046T-0820M	046C-0820M	046A-0820M	046i-0820M
3-1/4"	82.55	3.2500"	046T-32500	046C-32500	046A-32500	046i-32500
3-9/32"	83.34	3.2813"	046T-32813	046C-32813	046A-32813	046i-32813
	84.00	3.3071"	046T-0840M	046C-0840M	046A-0840M	046i-0840M
3-5/16"	84.14	3.3125"	046T-33125	046C-33125	046A-33125	046i-33125
3-11/32"	84.93	3.3438"	046T-33438	046C-33438	046A-33438	046i-33438
3-3/8"	85.73	3.3750"	046T-33750	046C-33750	046A-33750	046i-33750
	86.00	3.3858"	046T-0860M	046C-0860M	046A-0860M	046i-0860M
3-13/32"	86.52	3.4063"	046T-34063	046C-34063	046A-34063	046i-34063
3-7/16"	87.31	3.4375"	046T-34375	046C-34375	046A-34375	046i-34375
	88.00	3.4646"	046T-0880M	046C-0880M	046A-0880M	046i-0880M
3-15/32"	88.11	3.4688"	046T-34688	046C-34688	046A-34688	046i-34688
3-1/2"	88.90	3.5000"	046T-35000	046C-35000	046A-35000	046i-35000

7,8 Series

89.69mm(3.5313")-101.60mm(4.0000") / 102mm(4.0157")-114.30mm(4.5000")

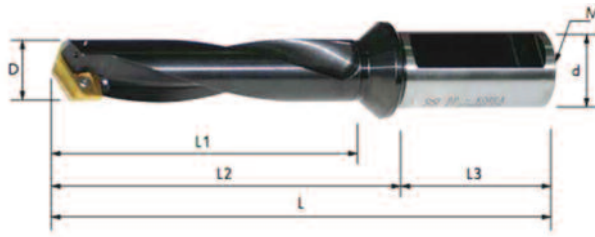


7 Series

Diameter						
Inch (inch)	Metric (mm)	Decimal (inch)	HSS (M04)	HSS (M04)	HSS (M04)	HSS (M04)
3-17/32"	89.69	3.5313"	047T-35313	047C-35313	047A-35313	047i-35313
	90.00	3.5433"	047T-0900M	047C-0900M	047A-0900M	047i-0900M
3-9/16"	90.49	3.5625"	047T-35625	047C-35625	047A-35625	047i-35625
3-19/32"	91.28	3.5938"	047T-35938	047C-35938	047A-35938	047i-35938
	92.00	3.6221"	047T-0920M	047C-0920M	047A-0920M	047i-0920M
3-5/8"	92.08	3.6250"	047T-36250	047C-36250	047A-36250	047i-36250
3-21/32"	92.87	3.6563"	047T-36563	047C-36563	047A-36563	047i-36563
3-11/16"	93.66	3.6875"	047T-36875	047C-36875	047A-36875	047i-36875
	94.00	3.7008"	047T-0940M	047C-0940M	047A-0940M	047i-0940M
3-23/32"	94.46	3.7188"	047T-37188	047C-37188	047A-37188	047i-37188
3-3/4"	95.25	3.7500"	047T-37500	047C-37500	047A-37500	047i-37500
	96.00	3.7795"	047T-0960M	047C-0960M	047A-0960M	047i-0960M
3-25/32"	96.04	3.7813"	047T-37813	047C-37813	047A-37813	047i-37813
3-13/16"	96.84	3.8125"	047T-38125	047C-38125	047A-38125	047i-38125
3-27/32"	97.63	3.8438"	047T-38438	047C-38438	047A-38438	047i-38438
	98.00	3.8583"	047T-0980M	047C-0980M	047A-0980M	047i-0980M
3-7/8"	98.43	3.8750"	047T-38750	047C-38750	047A-38750	047i-38750
3-29/32"	99.22	3.9063"	047T-39063	047C-39063	047A-39063	047i-39063
	100.00	3.9370"	047T-1000M	047C-1000M	047A-1000M	047i-1000M
3-15/16"	100.01	3.9375"	047T-39375	047C-39375	047A-39375	047i-39375
3-31/32"	100.81	3.9688"	047T-39688	047C-39688	047A-39688	047i-39688
4"	101.60	4.0000"	047T-40000	047C-40000	047A-40000	047i-40000

8 Series

Diameter						
Inch (inch)	Metric (mm)	Decimal (inch)	HSS (M04)	HSS (M04)	HSS (M04)	HSS (M04)
4-1/64"	102.00	4.0157"	048T-40157	048C-40157	048A-40157	048i-40157
4-1/16"	103.19	4.0625"	048T-40625	048C-40625	048A-40625	048i-40625
4-3/32"	103.98	4.0938"	048T-40938	048C-40938	048A-40938	048i-40938
	104.00	4.0945"	048T-1040M	048C-1040M	048A-1040M	048i-1040M
4-1/8"	104.78	4.1250"	048T-41250	048C-41250	048A-41250	048i-41250
	106.00	4.1732"	048T-1060M	048C-1060M	048A-1060M	048i-1060M
4-3/16"	106.36	4.1875"	048T-41875	048C-41875	048A-41875	048i-41875
4-1/4"	107.95	4.2500"	048T-42500	048C-42500	048A-42500	048i-42500
	108.00	4.2520"	048T-1082M	048C-1082M	048A-1082M	048i-1082M
4-5/16"	109.54	4.3125"	048T-43125	048C-43125	048A-43125	048i-43125
	110.00	4.3307"	048T-1100M	048C-1100M	048A-1100M	048i-1100M
4-3/8"	111.13	4.3750"	048T-43750	048C-43750	048A-43750	048i-43750
	112.00	4.4094"	048T-1120M	048C-1120M	048A-1120M	048i-1120M
4-7/16"	112.71	4.4375"	048T-44375	048C-44375	048A-44375	048i-44375
	114.00	4.4482"	048T-1140M	048C-1140M	048A-1140M	048i-1140M
4-1/2"	114.30	4.5000"	048T-45000	048C-45000	048A-45000	048i-45000



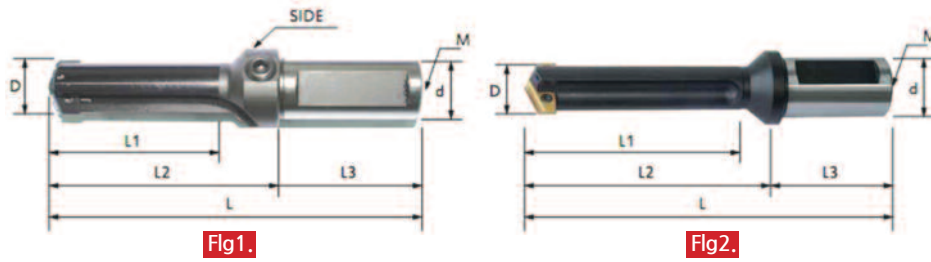
Stub(Extra short)	1.5~2	D
short	3~4	D
Intermediate	5~6	D
Standard	7~8	D
Extended	8~12	D
Long	11~14	D
XL(Extra long)	20~25	D
3XL(Extra long)	25~30	D

B7S (Flange shank / Straight flute type)

	Order No.	Length	Dimension					Shank			Screw	Wrench	
			Serise	D	L	L1	L2	d	L3	M			
	B7S-095110134	Standard	Y	9.5~11.0	134	60.3	92.1	20	48	1/8"	BS7-20040	TXL-7	
	B7S-095110185	Extended			192.9	111.1	142.9	20	50	1/8"			
	B7S-115125134	Standard	Z	115~12.5	136	60.3	92.1	20	50	1/8"	BS7-20050		
	B7S-115125185	Extended			192.9	111.1	142.9	20	50	1/8"			
	B7S-130175137	Standard	0	13.0~17.5	144.9	63.5	94.9	20	50	1/8"	BS7-25060	TXL-8	
	B7S-130175188	Extended			195.7	114.3	145.7	20	50	1/8"			
B7S-130175251	Long	259.1			177.8	209.1	20	50	1/8"				
NEW B7S-130175377	XL(extra long)	376.7			295	326.7	20	50	1/8"				
NEW B7S-130175469	3XL(extra long)	468.8			387	418.8	20	50	1/8"				
	B7S-155175137	Standard		15.5~17.5	144.9	63.5	94.9	20	50	1/8"			
	B7S-155175188	Extended			195.7	114.3	145.7	20	50	1/8"			
B7S-155175251	Long	259.1			177.8	209.1	20	50	1/8"				
NEW B7S-155175377	XL(extra long)	376.7			295	326.7	20	50	1/8"				
NEW B7S-155175469	3XL(extra long)	468.8			387	418.8	20	50	1/8"				
	B7S-180240212	Intermediate	1	18.0~24.0	214.4	117.5	158.4	25	56	1/8"	BS7-30070	TXL-9	
	B7S-180240262	Standard			265.2	168.3	209.2	25	56	1/8"			
B7S-180240364	Extended	366.8			269.9	310.8	25	56	1/8"				
NEW B7S-180240554	XL(extra long)	554.1			457	498.1	25	56	1/8"				
NEW B7S-180240662	3XL(extra long)	662.1			569	606.1	25	56	1/8"				
	B7S-220240212	Intermediate		22.0~24.0	214.4	117.5	158.4	25	56	1/8"			
	B7S-220240262	Standard			265.2	168.3	209.2	25	56	1/8"			
B7S-220240364	Extended	366.8			269.9	310.8	25	56	1/8"				
NEW B7S-220240554	XL(extra long)	554.1			457	498.1	25	56	1/8"				
NEW B7S-220240662	3XL(extra long)	662.1			569	606.1	25	56	1/8"				
	B7S-250350241	Intermediate	2	25.0~35.0	243	136.5	183	32	60	1/4"	BS7-40095	TXL-15	
	B7S-250350292	Standard			293.8	187.3	233.8	32	60	1/4"			
B7S-250350393	Extended	395.4			288.9	335.4	32	60	1/4"				
NEW B7S-250350618	XL(extra long)	617.7			511	557.7	32	60	1/4"				
NEW B7S-250350799	3XL(extra long)	798.7			692	738.7	32	60	1/4"				
	B7S-300350241	Intermediate		30.0~35.0	243	136.5	183	32	60	1/4"			
	B7S-300350292	Standard			293.8	187.3	233.8	32	60	1/4"			
B7S-300350393	Extended	395.4			288.9	335.4	32	60	1/4"				
NEW B7S-300350618	XL(extra long)	617.7			511	557.7	32	60	1/4"				
NEW B7S-300350799	3XL(extra long)	798.7			692	738.7	32	60	1/4"				
	B7S-360470292A	Intermediate	3	36.0~47.0	292.3	165.1	222.3	40	70	1/4"	BS7-50150	TXL-20	
	B7S-360470292B	Intermediate			292.3	165.1	222.3	42	70	1/4"			
B7S-360470337A	Standard	336.7			209.6	266.7	40	70	1/4"				
B7S-360470337B	Standard	336.7			209.6	266.7	42	70	1/4"				
NEW B7S-360470476A	Extended	476.4			349	406.4	40	70	1/4"				
NEW B7S-360470686A	XL(extra long)	685.9			558.8	615.9	40	70	1/4"				
	B7S-480650356A	Standard	4	48.0~65.0	355.8	231.8	285.8	40	70	1/4"			
	B7S-480650356B	Standard			355.8	231.8	285.8	42	70	1/4"			
NEW B7S-480650546A	Extended	546.3			422	476.3	40	70	1/4"				
NEW B7S-480650750A	XL(extra long)	749.5			625	679.5	40	70	1/4"				
	B7S-640880302	Short	5,6	64.0~88.0	302.3	171.9	222.3	50	80	1/2"	BS7-60190	TXL-25	
	NEW B7S-640880404	Standard			403.9	273.5	323.9	50	80	1/2"			
NEW B7S-640880594	Extended	594.4			464	514.4	50	80	1/2"				
	B7S-9001140312	Short	7,8	90.0~114.0	311.8	712	231.8	50	80	1/2"			
	NEW B7S-9001140413	Standard			413.4	273	333.4	50	80	1/2"			
NEW B7S-9001140696	Extended	696			556	616	50	80	1/2"				

B7K B7 spade drill

Drill



Stub(Extra short)	1.5~2	D
short	3~4	D
Intermediate	5~6	D
Standard	7~8	D
Extended	8~12	D
Long	11~14	D
XL(Extra long)	20~25	D
3XL(Extra long)	25~30	D

B7K (Flange shank / Straight flute type)

Order No.	Length	Serise	D	Dimension			Shank					Screw	Wrench	
				L	L1	L2	d	L3	M	Fig.	Side			
B7K-095110092	Stub(extra short)	Y	9.5~11.0	98	19.9	50	16	48	1/16"	1	1/8"	BS7-20040	TXL-7	
B7K-095110105	Short			113.5	31.8	254.1	20	50	1/8"	2				
B7K-095110296	XL(extra long)			304.1	222	254.1	20	50	1/8"					
B7K-095110364	3XL(extra long)			372.3	290	322.3	20	50	1/8"					
B7K-115125092	Stub(extra short)	Z	115~12.5	98	19.9	50	16	48	1/16"	1	1/8"	BS7-20050		
B7K-115125105	Short			113.5	31.8	254.1	20	50	1/8"	2				
B7K-115125296	XL(extra long)			304.1	222	254.1	20	50	1/8"					
B7K-115125364	3XL(extra long)			372.3	290	322.3	20	50	1/8"					
B7K-130175092	Stub(extra short)	0	13.0~17.5	100.4	22.2	50.4	20	50	1/8"	1	1/8"	BS7-25060	TXL-8	
B7K-130175108	Short			116.3	34.9	66.3	20	50	1/8"	2				
B7K-130175369	XL(extra long)			376.7	295	326.7	20	50	1/8"					
B7K-130175461	3XL(extra long)			468.8	387	418.8	20	50	1/8"					
B7K-155175092	Stub(extra short)		15.5~17.5	100.4	22.2	50.4	20	50	1/8"	1	1/8"			
B7K-155175108	Short			116.3	34.9	66.3	20	50	1/8"	2				
B7K-155175369	XL(extra long)			376.7	295	326.7	20	50	1/8"					
B7K-155175461	3XL(extra long)			468.8	387	418.8	20	50	1/8"					
B7K-180240133	Stub(extra short)	1	18.0~24.0	135.4	47.6	79.4	25	56	1/8"	1	1/8"	BS7-30070	TXL-9	
B7K-180240164	Short			166.7	66.7	110.7	25	56	1/8"	2				
B7K-180240551	XL(extra long)			554.1	457	498.1	25	56	1/8"					
B7K-180240659	3XL(extra long)			662.1	569	606.1	25	56	1/8"					
B7K-220240145	Stub(extra short)		22.0~24.0	135.4	47.6	79.4	25	56	1/8"	1	1/8"			
B7K-220240164	Short			166.7	66.7	110.7	25	56	1/8"	2				
B7K-220240551	XL(extra long)			554.1	457	498.7	25	56	1/8"					
B7K-220240659	3XL(extra long)			662.1	569	606.1	25	56	1/8"					
B7K-250350150	Stub(extra short)	2	25.0~35.0	152.1	57.2	92.1	32	60	1/4"	1	1/8"	BS7-40095	TXL-15	
B7K-250350190	Short			192.2	85.7	132.2	32	60	1/4"	2				
B7K-250350616	XL(extra long)			617.7	511	557.7	32	60	1/4"					
B7K-250350797	3XL(extra long)			798.7	692	738.7	32	60	1/4"					
B7K-300350150	Stub(extra short)		30.0~35.0	152.1	57.2	92.1	32	60	1/4"	1	1/8"			
B7K-300350190	Short			192.2	85.7	132.2	32	60	1/4"	2				
B7K-300350616	XL(extra long)			617.7	511	557.7	32	60	1/4"					
B7K-300350797	3XL(extra long)			798.7	692	738.7	32	60	1/4"					
B7K-360470248A	Short	3	36.0~47.0	247.8	120.7	177.8	40	70	1/4"	2		BS7-50150	TXL-20	
B7K-360470248B	Short			247.8	120.7	177.8	42	70	1/4"					
B7K-360470476A	Extended			476.4	349.3	406.4	40	70	1/4"					
B7K-360470476B	Extended			476.4	349.3	406.4	42	70	1/4"					
B7K-360470686A	XL(extra long)	4	48.0~65.0	685.9	611.1	616	40	70	1/4"	2				
B7K-480650254A	Short			254.2	130.2	184.2	40	70	1/4"					
B7K-480650254B	Short			254.2	130.2	184.2	42	70	1/4"					
B7K-480650546A	Extended			546.3	422.3	476.3	40	70	1/4"					
B7K-480650546B	Extended	5,6	64.0~88.0	546.3	422.3	476.3	42	70	1/4"	2				
B7K-480650750A	XL(extra long)			749.5	625	679.6	40	70	1/4"					
B7K-640880318	Short			317.5	171.5	237.5	50	80	1/2"		2			
B7K-640880419	Standard			419.1	273	339	50	80	1/2"					
B7K-640880610	Extended	7,8	90.0~114.0	609.6	463.6	529.6	50	80	1/2"					
B7K-9001140352	Short			352.4	171.5	272.4	50	80	1/2"					
B7K-9001140454	Standard			454	273	374	50	80	1/2"					
B7K-9001140737	Extended			736.6	555.6	656.6	50	80	1/2"					

NEW

NEW

NEW

NEW

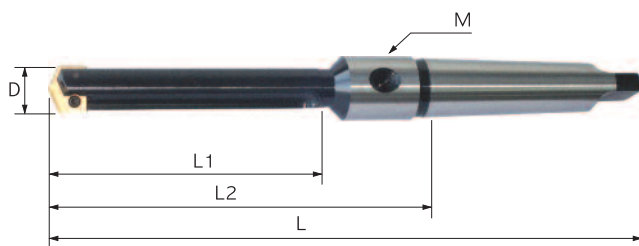
NEW

NEW

B7H&B7M

B7 spade drill

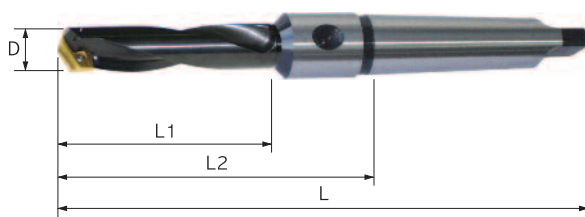
Drill



Stub(Extra short)	1.5~2	D
short	3~4	D
Intermediate	5~6	D
Standard	7~8	D
Extended	8~12	D
Long	11~14	D
XL(Extra long)	20~25	D
3XL(Extra long)	25~30	D

B7H

Order No.	Length	Dimension							COS	Screw	Wrench	
		Serie	D	L	L1	L2	MT	M				
B7H-095110163	Short	Y	9.5~11.0	162.9	31.8	88.0	#2	1/16"	COS-190522	BS7-20040	TXL-7	
B7H-115125163	Short	Z	11.5~12.5	162.9	31.8	88.0	#2	1/16"		BS7-20050		
B7H-130175167	Short	0	13.0~17.5	167.1	35.0	92.4	#2	1/16"		BS7-25060	TXL-8	
B7H-155175167	Short		15.5~17.5	167.1	35.0	92.4	#2	1/16"				
B7H-180240236	Short	1	18.0~24.0	236.1	69.8	142.5	#3	1/8"	COS-254028	BS7-30070	TXL-9	
B7H-220240236	Short		22.0~24.0	236.1	69.8	142.5	#3	1/8"				
B7H-250350277	Short	2	25.0~35.0	277.4	85.7	160.4	#4	1/8"		BS7-40095	TXL-15	
B7H-300350285	Short		30.0~35.0	284.6	85.7	167.6	#4	1/4"				
B7H-360470323	Short	3	36.0~47.0	322.7	120.6	206.4	#4	1/4"	COS-317535	BS7-501500	TXL-20	
B7H-360470553	Extended			552.5	349.3	435.0	#4	1/4"				
B7H-360470676	Long	4	48.0~65.0	676	472.8	555	#4	1/4"	COS-444535			
B7H-480650368	Short			368.3	130.1	219.1	#5	1/4"				
B7H-480650660	Extended	5,6	64.0~88.0	660.4	422.3	511.2	#5	1/4"	COS-571544	BS7-60190	TXL-25	
B7H-640880435	Short			435.0	171.5	287.3	#5	1/2"				
B7H-640880727	Extended	7,8		727.1	463.6	579.4	#5	1/2"				
B7H-9001140445	Short			444.5	171.5	296.8	#5	1/2"				
B7H-9001140829	Extended			828.7	555.6	681.1	#5	1/2"				



Stub(Extra short)	1.5~2	D
short	3~4	D
Intermediate	5~6	D
Standard	7~8	D
Extended	8~12	D
Long	11~14	D
XL(Extra long)	20~25	D
3XL(Extra long)	25~30	D

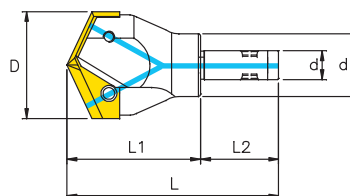
B7M

Order No.	Length	Serie	Dimension						COS	Screw	Wrench
			D	L	L1	L2	MT	M			
B7M-095110191	Standard	Y	9.5~11.0	191.3	60.3	116.7	#2	1/16"	COS-190522	BS7-20040	TXL-7
B7M-095110242	Extended	Z	11.5~12.5	242.1	111.1	167.4	#2	1/16"		BS7-20050	
B7M-115125191	Standard	0	13.0~17.5	191.3	60.3	116.7	#2	1/16"		BS7-25060	TXL-8
B7M-115125242	Extended			242.1	111.1	167.4	#2	1/16"			
B7M-130175196	Standard		15.5~17.5	195.7	63.5	121.0	#2	1/16"	COS-254028	BS7-30070	TXL-9
B7M-130175247	Extended			246.5	114.3	171.8	#2	1/16"			
B7M-130175310	Long	1	18.0~24.0	310.3	177.8	235.3	#2	1/16"		BS7-40095	TXL-15
B7M-155175196	Standard			195.7	63.5	121.0	#2	1/16"			
B7M-155175247	Extended		22.0~24.0	246.5	114.3	171.8	#2	1/16"	COS-317535	BS7-501500	TXL-20
B7M-155175310	Long			310.3	177.8	235.3	#2	1/16"			
B7M-180240287	Intermediate	2	25.0~35.0	286.9	120.7	193.3	#3	1/8"	COS-444535	BS7-60190	TXL-25
B7M-180240338	Standard			337.8	171.5	244.1	#3	1/8"			
B7M-180240439	Extended		30.0~35.0	439.4	273.1	345.7	#3	1/8"			
B7M-220240287	Intermediate			286.9	120.7	193.3	#3	1/8"			
B7M-220240338	Standard	3	36.0~47.0	337.8	171.5	244.1	#3	1/8"	COS-571544		
B7M-220240439	Extended			439.4	273.1	345.7	#3	1/8"			
B7M-250350328	Intermediate	4	48.0~65.0	328.2	136.5	211.2	#4	1/8"			
B7M-250350379	Standard			379.0	187.3	262.0	#4	1/8"			
B7M-250350481	Extended		90.0~114.0	480.6	289.0	363.6	#4	1/8"			
B7M-300350335	Intermediate			335.4	136.5	218.4	#4	1/4"			
B7M-300350386	Standard	5,6	90.0~114.0	386.2	187.3	269.2	#4	1/4"			
B7M-300350488	Extended			487.8	289.0	370.8	#4	1/4"			
B7M-360470368	Intermediate		90.0~114.0	368.4	165.1	250.9	#4	1/4"			
B7M-360470413	Standard			412.8	209.5	295.3	#4	1/4"			
B7M-480650470	Standard	7,8		469.9	231.8	320.7	#4	1/4"			
B7M-640880537	Standard			536.6	273.1	388.9	#5	1/2"			
B7M-9001140546	Standard			546.1	273.1	398.5	#5	1/2"			

B7X&MUE&MUB

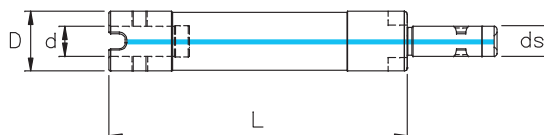
B7 spade drill

Modular



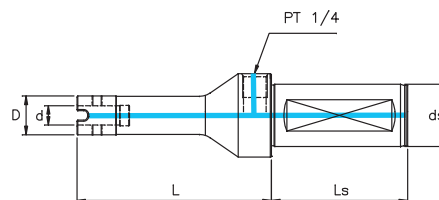
B7X (Modular Head)

Order No.	Dimension				Shank		Screw	Wrench
	D	L	L1	d1	d	L2		
B7X-48065060	48-65	95	60	28	13	35	BS7-50150	TXL-20
B7X-64077080	64-77	120	80	32	16	40		
B7X-76090080	76-90	125	80	40	22	45		
B7X-90010190	90-101	140	90	48	27	50		
B7X-10011490	100-114	140	90	58	32	50	BS7-60190	TXL-25



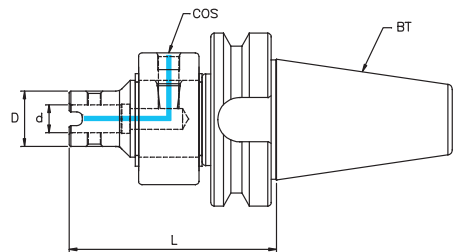
MUE (Modular Extension)

Order No.	Dimension				Joint Screw	Drive Key Ring
	D	d	L	ds		
MUE-2813115	28	13	115	13	JTB-08115	DKR-281310
MUE-2813150	28	13	150	13		
MUE-2813200	28	13	200	13		
MUE-2813300	28	13	300	13		
MUE-3216115	32	16	115	16	JTB-08115	DKR-321610
MUE-3216200	32	16	200	16		
MUE-3216300	32	16	300	16		
MUE-4022113	40	22	113	22	JTB-10145	DKR-402212
MUE-4022200	40	22	200	22		
MUE-4022300	40	22	300	22		
MUE-4827113	48	27	113	27	JTB-12175	DKR-482712
MUE-4827200	48	27	200	27		
MUE-4827300	48	27	300	27		
MUE-5832186	58	32	186	32	JTB-12195	DKR-583214
MUE-5832300	58	32	300	32		



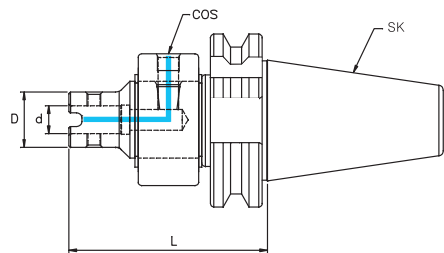
MUB (Modular Flanged)

Order No.	Dimension			Shank		Joint Screw	Drive Key Ring
	D	d	L	ds	Ls		
MUB-2813115	28	13	115	32	60	JTB-08115	DKR-281310
MUB-2813200	28	13	200	32	60		
MUB-2813300	28	13	300	32	60		
MUB-3216125	32	16	125	40	70	JTB-08115	DKR-321610
MUB-3216200	32	16	200	40	70		
MUB-3216300	32	16	300	40	70		
MUB-4022148	40	22	148	40	70	JTB-10145	DKR-402212
MUB-4022200	40	22	200	40	70		
MUB-4022300	40	22	300	40	70		
MUB-4827168	48	27	168	40	70	JTB-12175	DKR-482712
MUB-4827300	48	27	300	40	70		
MUB-5832186	58	32	186	40	70	JTB-12195	DKR-583214
MUB-5832300	58	32	300	40	70		



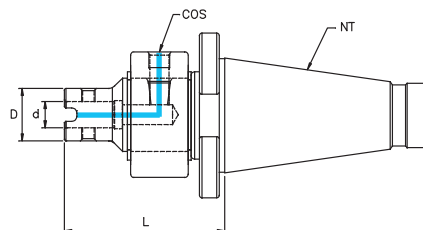
BT-MXU (Modular BT Arbor)

Order No.	Dimension			Joint Screw	Cos
	D	d	L		
BT50-MXU-2813115	28	13	115	JTB-08115	COS-317535
BT50-MXU-3216120	32	16	120		COS-444535
BT50-MXU-4022120	40	22	120	JTB-10145	
BT50-MXU-4827130	48	27	130	JTB-12175	COS-571544
BT50-MXU-5732130	57	32	130	JTB-12195	



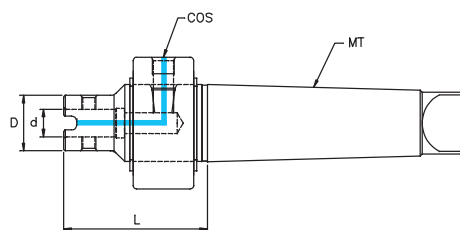
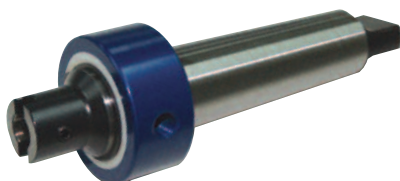
SK-MXU (Modular SK Arbor)

Order No.	Dimension			Joint Screw	Cos
	D	d	L		
SK40-MXU-2813115	28	13	115	JTB-08115	COS-317535
SK40-MXU-3216120	32	16	120		COS-444535
SK40-MXU-4022120	40	22	120	JTB-10145	
SK40-MXU-4827130	48	27	130	JTB-12175	COS-571544
SK40-MXU-5732130	57	32	130	JTB-12195	
SK40-MXU-2813115	28	13	115	JTB-08115	COS-317535
SK40-MXU-3216120	32	16	120		COS-444535
SK40-MXU-4022120	40	22	120	JTB-10145	
SK40-MXU-4827130	48	27	130	JTB-12175	COS-571544
SK40-MXU-5732130	57	32	130	JTB-12195	



NT-MXU (Modular NT Arbor)

Order No.	Dimension			Joint Screw	Cos	M
	D	d	L			
NT50-MXU-2813115	28	13	90	JTB-08115	COS-317535	1"-8UNC
NT50-MXU-3216095	32	16	95		COS-444535	
NT50-MXU-4022095	40	22	95	JTB-10145	COS-571544	
NT50-MXU-4827105	48	27	105	JTB-12175	COS-571544	
NT50-MXU-5732105	57	32	105	JTB-12195	COS-317535	M24
NT50-MXU-2813090M	28	13	90	JTB-08115	COS-444535	
NT50-MXU-3216095M	32	16	95	JTB-10145	COS-571544	
NT50-MXU-4022095M	40	22	95	JTB-12175	COS-317535	
NT50-MXU-4827105M	48	27	105	JTB-12195	COS-444535	
NT50-MXU-5732105M	57	32	105	JTB-12195	COS-571544	



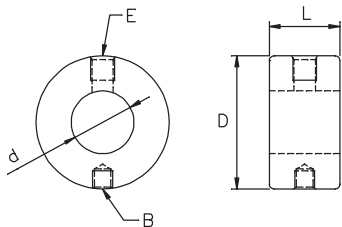
MT-MXU (Modular MT Arbor)

Order No.	Dimension				Joint Screw	Cos
	D	d	L	MT		
MT4-MXU-2813080	28	13	80	#4	JTB-08115	COS-317535
MT5-MXU-2813080	28	13	80	#5		COS-444535
MT6-MXU-2813095	28	13	95	#6		COS-571544
MT4-MXU-3216080	32	16	80	#4	JTB-08115	COS-317535
MT5-MXU-3216080	32	16	80	#5		COS-444535
MT6-MXU-3216095	32	16	95	#6		COS-571544
MT4-MXU-4022080	40	22	80	#4	JTB-10145	COS-317535
MT5-MXU-4022080	40	22	80	#5		COS-444535
MT6-MXU-4022095	40	22	95	#6		COS-571544
MT5-MXU-4827095	48	27	95	#5	JTB-12175	COS-444535
MT6-MXU-4827095	48	27	95	#6		COS-571544
MT5-MXU-5732095	57	32	95	#5	JTB-12195	COS-444535
MT6-MXU-5732095	57	32	95	#6		COS-571544

Collant Oil Supplier

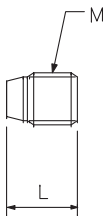
B7 spade drill

Modular



COS

Order No.	Dimension				
	d	D	L	B	E
COS-190522	19.05	44.45	22.23	M8x1.25	1/8"
CSO-254028	25.40	53.97	28.57	M8x1.25	1/8"
COS-317535	31.75	63.50	34.92	M10x1.5	1/4"
COS-444535	44.45	76.20	34.92	M10x1.5	1/4"
COS-571544	57.15	95.27	44.45	M12x1.75	1/2"

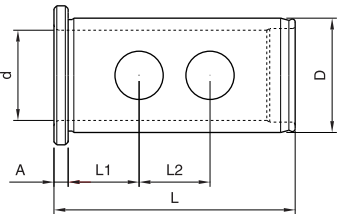


COS

Order No.	Dimension		Wrench
	M	L	
JTB-08115	M8.0	11.5	4
JTB-10145	M10.0	14.5	5
JTB-12175	M12.0	17.5	6
JTB-12195	M12.0	19.5	6

DKR

Order No.	Dimension		
	D	d	L
DKR-281310	28	13	10
DKR-321610	32	16	10
DKR-402212	40	22	12
DKR-482712	48	27	12
DKR-583214	58	32	14



BSL

Order No.	Dimension					
	D	d	L	L1	L2	A
BSL-322065	32	20	65	20	-	5
BSL-322565	32	25	65	20	20	5
BSL-402075	40	20	75	20	-	5
BSL-402575	40	25	75	20	25	5
BSL-403275	40	32	75	20	25	5
BSL-502095	50	20	95	35	-	5
BSL-502595	50	25	95	35	-	5
BSL-503295	50	32	95	35	35	5
BSL-504095	50	40	95	35	35	5

기술자료 (Technical Data)

Drill Inserts (METRIC)-High Speed Steel

Material 피삭재	Hardness	Hss Grade	Speed 절삭속도 (M/min)			Feed(mm/rev)						
			Tin	TiCN	TiALN	ø9.5~ø12.5	ø13~ø17.5	ø18~ø24	ø25~ø35	ø36~ø47	ø48~ø65	ø66~ø114
Free Machining Steel 연강 1118,1215,12L14,etc	100-150	M4	61	85	79	0.18	0.25	0.33	0.41	0.51	0.58	0.71
	150-200	M4	55	79	72	0.18	0.25	0.33	0.41	0.51	0.59	0.71
	200-250	M4	49	73	64	0.15	0.25	0.33	0.41	0.51	0.58	0.71
Low Carbon Steel 저탄소강 1010,1020,1025, 1522,1144,etc	85-125	M4	52	76	67	0.15	0.23	0.30	0.38	0.48	0.58	0.69
	125-175	M4	49	73	64	0.15	0.23	0.30	0.38	0.48	0.58	0.69
	175-225	M4	46	69	59	0.13	0.20	0.25	0.36	0.46	0.53	0.61
	225-275	M4	43	64	55	0.13	0.20	0.25	0.36	0.46	0.53	0.61
Medium Carbon Steel 중탄소강 1030,1040,1050,1527 1140,1151,ect	125-175	M4	49	73	64	0.15	0.23	0.30	0.38	0.48	0.58	0.69
	175-225	M4	46	69	59	0.13	0.20	0.25	0.36	0.46	0.53	0.61
	225-275	M4	43	64	55	0.13	0.20	0.25	0.36	0.46	0.53	0.61
	275-325	T15,M48	40	59	52	0.10	0.18	0.23	0.30	0.41	0.48	0.56
Structural Steel 구조용강 A36,A285,A516,ect	100-150	M4	43	61	55	0.15	0.25	0.30	0.36	0.43	0.53	0.66
	150-250	M4	37	52	47	0.13	0.23	0.25	0.30	0.41	0.48	0.61
	250-350	T15,M48	30	43	40	0.10	0.20	0.23	0.25	0.36	0.43	0.51
Cast Iron/S.G Iron 주철/덕타일 A48-76,GR30/GR45, A536-72,A22-76	120-150	M4	52	76	67	0.18	0.30	0.41	0.51	0.61	0.69	0.76
	150-200	M4	46	69	59	0.15	0.28	0.36	0.46	0.56	0.64	0.71
	200-220	M4	40	59	52	0.15	0.23	0.30	0.41	0.46	0.53	0.61
	220-260	T15,M48	34	50	44	0.13	0.18	0.23	0.30	0.36	0.43	0.51
	260-320	T15,M48	27	41	37	0.10	0.15	0.18	0.23	0.30	0.36	0.41
Alloy Steel 합금강 4140,5140,8640,etc	125-175	M4	46	64	59	0.15	0.20	0.25	0.36	0.43	0.48	0.56
	175-225	M4	43	59	55	0.13	0.20	0.25	0.36	0.43	0.48	0.56
	225-275	M4	40	55	52	0.13	0.18	0.25	0.36	0.43	0.48	0.56
	275-325	T15,M48	37	52	47	0.10	0.15	0.23	0.30	0.38	0.43	0.51
	325-375	T15,M48	34	47	44	0.08	0.15	0.23	0.30	0.38	0.43	0.51
Tool Steel 공구강 H-13,H-21,A-4,O-2,S-3,etc	150-200	T15	24	34	32	0.10	0.15	0.20	0.25	0.30	0.38	0.43
High Temp. Alloy 내열 합금강 Hastelloy B,Inconel 600, etc	200-250	T15,M48	18	27	26	0.10	0.15	0.20	0.25	0.30	0.38	0.43
High Strength Alloy 고경도 합금강 4340,4330V,300M, etc	220-310	M48	8	11	9	0.08	0.15	0.18	0.20	0.25	0.30	-
	225-300	T15,M48	24	34	30	0.13	0.18	0.23	0.25	0.36	0.43	0.51
	300-350	T15,M48	18	26	24	0.10	0.18	0.23	0.25	0.36	0.43	0.51
Aluminium 알루미늄 2014,6061,7075, etc	350-400	M48	15	21	20	0.08	0.15	0.20	0.23	0.30	0.38	0.46
	30	M4	183	259	229	0.20	0.33	0.41	0.51	0.56	0.64	0.64
Stainledd Steel 400 Series 스테인레스강 416,420,etc	180	M4	91	137	122	0.20	0.33	0.41	0.51	0.56	0.67	0.64
	185-275	T15,M48	23	32	29	0.08	0.18	0.20	0.25	0.36	0.41	0.46
Stainledd Steel 300 Series 스테인레스강 304,316,17-4PH,etc	275-350	T15,M48	18	27	24	0.08	0.15	0.18	0.20	0.30	0.30	0.41
	135-185	T15,M48	23	32	29	0.08	0.18	0.20	0.25	0.36	0.41	0.51
	185-275	T15,M48	18	27	24	0.08	0.15	0.18	0.20	0.30	0.36	0.46

인서트의 외경이 드릴 몸통부위 보다 최소0.3mm(0.012")이상 커야 함.
Check that the insert outer diameter is a minimum 0.3mm(0.012")
larger than the holder body diameter.

HSS Grade=M4=HSS M4, T15=Super HSS T15,
M48=Premium HSS M48

상기표의 추천 Speed와 Feed는 이상적인 조건이며 장비의 상태와 작업
여건에 따라 Speed와 Feed는 줄여서 작업을 하십시오.

"The recommendations for speeds, feeds and other parameters
presented in this chart are nominal recommendations and shold
be condidered only as good starting points."

초기 작업시 Speed는 약20%, Feed는 약10%줄여서 작업조건을 설정
하시기를 바랍니다.

When initial operation, speed and feed reductions (20% reduction
in speed and 10% reduction in feed)are recommended.

$$\text{Formulas} = \frac{(\text{RPM}) \times (\pi) \times (\text{DIA})}{1000}$$

$$\text{mm/min} = (\text{RPM}) \times (\text{mm/rev})$$

$$\text{RPM} = \frac{3.1415 \times (\text{M/min})}{(\pi)}$$

RPM = Revolution per minute (rev/min)

M/mm = Surface meter per minute (M/min)

DIA = Diameter of drill (mm)

mm/rev = Feed rate (mm/rev)

Deep Hole Drill in Speed & Feed Adujstment

Holder	Extended	Long	XL	3XL
Speed	0.90	0.85	0.80	0.75
Feed	-	0.95	0.90	0.90

Recommended Speed and Feed Example :

"If recommended speed and feeed is 30M/min and 0.50mm/rev
for a standard length holder, then the speed and feed using a 3XL
holder in the sam application would be 22.5M/min and
0.45mm/rev"

$$\text{ex) } 30 \times 0.75 = 22.5\text{m/min, } 0.50 \times 0.90 = 0.45\text{mm/rev}$$

기술자료 (Technical Data)

Drill Inserts (METRIC)-Carbide

Material 파삭재	Hardness	Speed 절삭속도 (M/min)	Feed(mm/rev)				
		Alpha	ø9.5~ø12.5	ø13~ø17.5	ø18~ø24	ø25~ø35	ø36~ø47
Free Machining Steel 연강 1118,1215,12L14,etc	100-150	128	0.20	0.30	0.38	0.45	0.53
	150-200	110	0.18	0.28	0.35	0.40	0.48
	200-250	104	0.15	0.25	0.33	0.38	0.43
Low Carbon Steel 저탄소강 1010,1020,1025, 1522,1144,etc	85-125	119	0.20	0.25	0.33	0.43	0.48
	125-175	104	0.18	0.25	0.33	0.10	0.45
	175-225	95	0.15	0.23	0.30	0.38	0.43
	225-275	83	0.13	0.23	0.30	0.38	0.43
Medium Carbon Steel 중탄소강 1030,1040,1050,1527 1140,1151,ect	125-175	104	0.18	0.25	0.33	0.43	0.45
	175-225	95	0.15	0.23	0.33	0.38	0.43
	225-275	83	0.15	0.23	0.30	0.38	0.43
	275-325	70	0.13	0.23	0.30	0.35	0.40
Structural Steel 구조용강 A36,A285,A516,ect	100-150	95	0.20	0.28	0.35	0.40	0.45
	150-250	76	0.15	0.25	0.30	0.35	0.40
	250-350	70	0.13	0.23	0.28	0.25	0.35
	120-150	141	0.20	0.30	0.38	0.48	0.58
Cast Iron/S.G Iron 주철/덕타일 A48-76,GR30/GR45, A536-72,A22-76	150-200	122	0.18	0.28	0.33	0.43	0.53
	200-220	110	0.15	0.23	0.30	0.38	0.45
	220-260	95	0.13	0.20	0.28	0.33	0.38
	260-320	83	0.13	0.18	0.25	0.28	0.33
Alloy Steel 합금강 4140,5140,8640,etc	125-175	99	0.18	0.25	0.33	0.40	0.45
	175-225	92	0.15	0.23	0.30	0.38	0.43
	225-275	83	0.15	0.23	0.30	0.38	0.43
	275-325	76	0.13	0.20	0.28	0.35	0.40
	325-375	67	0.10	0.18	0.25	0.33	0.38
Tool Steel 공구강 H-13,H-21,A-4,O-2,S-3,etc	150-200	67	0.10	0.18	0.23	0.28	0.33
	200-250	52	0.10	0.15	0.23	0.28	0.33
High Temp. Alloy 내열 합금강 Hastelloy B,Inconel 600, etc	140-220	32	0.10	0.18	0.23	0.28	0.33
	220-310	26	0.10	0.15	0.15	0.25	0.30
High Strength Alloy 고경도 합금강 4340,4330V,300M, etc	225-300	61	0.15	0.23	0.25	0.30	0.38
	300-350	55	0.13	0.20	0.23	0.28	0.35
	350-400	49	0.10	0.18	0.20	0.25	0.30
Aluminium 알루미늄 2014,6061,7075, etc	30	460	0.25	0.38	0.45	0.50	0.55
	180	305	0.23	0.33	0.40	0.45	0.50
Stainledd Steel 400 Series 스테인레스강 416,420,etc	185-275	64	0.17	0.22	0.29	0.35	0.40
	275-350	49	0.14	0.19	0.27	0.30	0.35
Stainledd Steel 300 Series 스테인레스강 304,316,17-4PH,etc	135-185	64	0.13	0.17	0.22	0.26	0.30
	185-275	49	0.11	0.14	0.20	0.22	0.25

인서트 외경이 드릴 몸통부위 보다 최소0.3mm(0.012")이상 커야 함.
Check that the insert outer diameter is a minimum 0.3mm(0.012")
larger than the holder body diameter.

HSS Grade=M4=HSS M4, T15=Super HSS T15,
M48=Premium HSS M48

상기표의 추천 Speed와 Feed는 이상적인 조건이며 장비의 상태와 작업
여건에 따라 Speed와 Feed는 줄여서 작업을 하십시오.

"The recommendations for speeds, feeds and other parameters
presented in this chart are nominal recommendations and shold
be considered only as good starting points."

초기 작업시 Speed는 약20%, Feed는 약10%줄여서 작업조건을 설정
하시기를 바랍니다.

When initial operation, speed and feed reductions (20% reduction
in speed and 10% reduction in feed)are recommended.

$$\text{Formulas} = \frac{(\text{RPM}) \times (\pi) \times (\text{DIA})}{1000}$$

$$\text{mm/min} = (\text{RPM}) \times (\text{mm/rev})$$

$$\text{RPM} = \frac{3.1415 \times (\text{M/min})}{(\pi)}$$

RPM = Revolution per minute (rev/min)

M/min = Surface meter per minute (M/min)

DIA = Diameter of drill (mm)

mm/rev = Feed rate (mm/rev)

Deep Hole Drill in Speed & Feed Adujstment

Holder	Extended	Long	XL	3XL
Speed	0.90	0.85	0.80	0.75
Feed	-	0.95	0.90	0.90

Recommended Speed and Feed Example :

"If recommended speed and feeed is 30M/min and 0.50mm/rev
for a standard length holder, then the speed and feed using a 3XL
holder in the sam application would be 22.5M/min and
0.45mm/rev"

$$\text{ex) } 30 \times 0.75 = 22.5 \text{m/min, } 0.50 \times 0.90 = 0.45 \text{mm/rev}$$

기술자료 (Technical Data)

Drill Inserts (METRIC)-Collant Recommendations

Material 파삭재	Pressure or Flow Rate	HSS							Carbide				
		ø9.5~ ø12.5	ø13~ ø17.5	ø18~ ø24	ø25~ ø35	ø36~ ø47	ø48~ ø65	ø76~ ø102	ø9.5~ ø12.5	ø13~ ø17.5	ø18~ ø24	ø25~ ø35	ø36~ ø47
Free Machining Steel 연강 1118,1215,12L14,etc	Bar	12~13	7~8	7~10	6~8	5~7	4	5~6	17~20	17	15	15	20
	LPM	9.5~9.8	10.6~11.4	16.7~19.7	26.5~30.3	45.4~53.0	114~125	144~167	12.2	16.3	25.2	41.5	71.9
Low Carbon Steel 저탄소강 1010,1020,1025, 1522,1144,etc	Bar	11~12	5~6	5~7	4~6	4~5	2~3	3~5	18	11	11	12	9
	LPM	9.1~9.5	9.1~9.8	14.0~15.9	22.7~26.5	41.6~45.4	98~114	125~144	11.4	13.3	20.6	36.5	62
Medium Carbon Steel 중탄소강 1030,1040,1050,1527 1140,1151,etc	Bar	11	5~6	5~6	4~5	3~5	2~3	3~5	17	10	10	10	8
	LPM	8.7~9.1	8.7~9.8	13.6~15.5	18.9~22.7	37.9~45.4	98~114	125~144	11.3	12.5	20	33.8	57
Structural Steel 구조용강 A36,A285,A516,ect	Bar	11	5~6	5~6	3~4	3	2	3	16	9	8	7	5
	LPM	8.7~9.1	9.7~9.8	13.2~14.8	18.9~22.7	34.1~37.9	87~98	114~125	10.8	12	17.5	27.8	47.1
Alloy Steel 합금강 4140,5140,8640,etc	Bar	11	5	5~6	3~5	3~4	2	3	17	9	10	8	7
	LPM	8.7~9.1	8.3~9.1	13.2~14.8	18.9~22.7	31.9~41.6	98~106	114~125	11.1	12.3	19.3	30	55.8
Tool Steel 공구강 H-13,H-21,A-4,O-2,S-3,etc	Bar	10~11	4	3	2	2	2	2	15	5	5	3	3
	LPM	8.7~9.1	7.9~8.3	11.0~11.7	15.1~18.9	26.5~30.3	79~87	87~98	10.4	9.1	13.6	19	36.5
High Temp. Alloy 내열 합금강 Hastelloy B,Inconel 600, etc	Bar	10~11	4~5	3~4	2	2	2	3	17	11	12	11	9
	LPM	8.7~9.1	8.3~8.7	11.7~12.1	15.1~18.9	26.5~30.3	87~98	125	11.1	13.5	21.9	35.4	62
High Strength Alloy 고경도 합금강 4340,4330V,300M, etc	Bar	10~11	4	3	2	2	1~2	2	15	5	4	3	3
	LPM	8.7~9.1	7.9~8.3	11.0~11.7	15.1~18.9	26.5~30.3	79~87	87~98	10.4	9.1	12.6	18.8	33.6
Aluminium 알루미늄 2014,6061,7075, etc	Bar	14.5	12.4	15.8	11	8.6	3.5	5.5	24.1	22	21.7	19.6	13.8
	LPM	10	14	23	34	61	125	159	13.4	18.8	29	47.2	77
Stainledd Steet 400 Series 스테인레스강 416,420,etc	Bar	11.8	5.9	5.2	3.8	3.5	2	3.1	22.7	16.5	17.9	17.2	13.1
	LPM	9.5	9.8	14	23	38	98	117	13	16.3	26.3	44.2	75
Stainledd Steet 300 Series 스테인레스강 304,316,17-4PH,etc	Bar	11.8	5.9	5.2	3.8	3.5	2	3.1	22.7	16.5	17.9	17.2	13.1
	LPM	9.5	9.8	14	23	38	98	117	13	16.3	26.3	44.2	75

Holder	Extended	Long	XL	3XL
Pressure & Flow	1.3	1.5	2	3

Coolant Recommendation Example :

If the recommended pressure and flow is 10bar and 25 LPM for a standard length holder, the adjusted pressure and flow would be 30bar and 75LPM respectively for the 3XL holder.

ex) $10 \times 3 = 30\text{bar}$ $25 \times 3 = 75\text{LPM}$

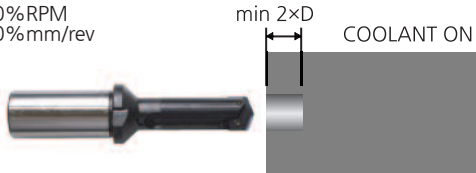
Deep Hole Drilling B7 spade drill Guideline

깊은 홀 가공 방법 (Deep Hole Drilling Guideline)

For use with BPK Inc Drills greater than 9 Depths to Diameter, including Extended, Long, XL, 3XL and Special Length.

STEP1. Pilot Drill

100%RPM
100%mm/rev

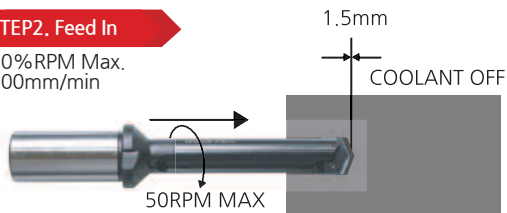


• STEP1. Pilot Drill

- 최소 2D까지 같은 구경의 짧은 드릴로 초기 구멍작업
Establish the pilot hole using the same diameter short drill to a depth of a 2D minimum
- 포인트 앵글을 포함한 것 보다 같거나 더 큰 초기 가공홀 드릴을 이용
Utilize a pilot drill with the same or larger included point angle.

STEP2. Feed In

50%RPM Max.
300mm/min

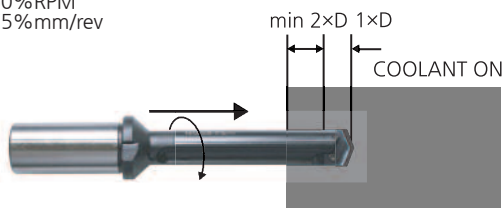


• STEP2. Feed In

- 최대 50RPM과 이송값 300mm/min으로 초기 가공홀에서 더 길이가 긴 드릴을 1.5mm(1/16") 이내로 가공
Feed the longer drill within 1.5mm(1/16") short of the established pilot hole bottom at a maximum of 50RPM and 300mm/min feed rate

STEP3. Deep Hole Transition Drilling

50%RPM
75%mm/rev

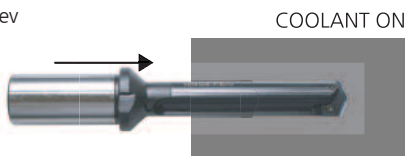


• STEP3. Deep Hole Transition Drilling

- 추천하는 절삭값의 50%와 이송값을 25% 감소 시켜 추가로 1D를 초기 가공홀에서 더 가공
Drill additional 1xD passed bottom of pilot hole at 50% reduction of recommended speed and 25% reduction of recommend feed
- 피삭재 이송을 하기 전 추천 절삭값으로 속도를 끌어올리기 위해 최소 1초 동안 머물러 작업
Minimum of 1 second dwell is required meet full speed before feeding

STEP4. Deep Hole Drilling-Blind

100%RPM
100%mm/rev

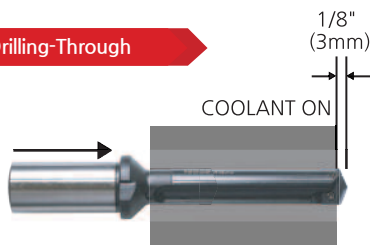


• STEP4. Deep Hole Drilling-Blind

- BPK Inc에서 제공하는 절삭값으로 가공 깊이까지 가공
Drill to full depth at recommended speed and feed for longer drills according to cutting data which belongs to BPK Inc.
- *Peck cycle은 권장하지 않습니다.
No peck cycle recommended

STEP5. Deep Hole Drilling-Through

50%RPM
75%mm/rev

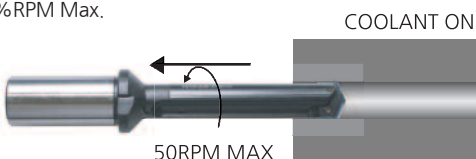


• STEP5. Deep Hole Drilling-Through

- 피삭재를 관통하는 경우에만 적용하세요.
For through holes only
- 관통하기 전에 속도는 50%감소 이송값은 25%까지 감소
Reduce speed by 50% and feed by 25% prior to break out
- 3mm(1/8")이상 드릴을 관통시키지 말 것
Do not break out more than 3mm(1/8") past the full diameter of drill

STEP5. Drill Retract

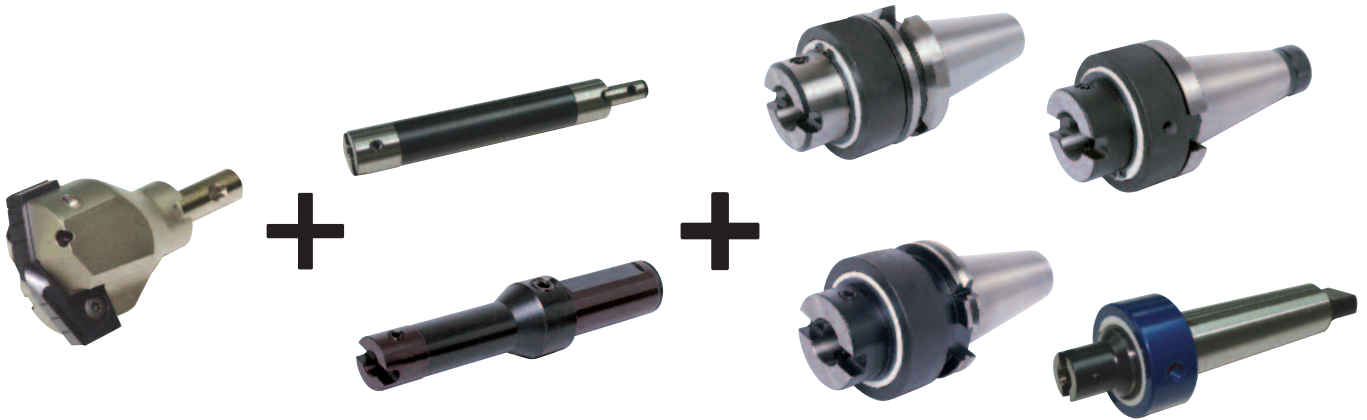
50%RPM Max.



• STEP5. Drill Retract

- 드릴이 가공홀을 돌아오기 전에 최대 50RPM까지 속도를 낮춤
Reduce speed to maximum of 50 RPM before retracting from hole

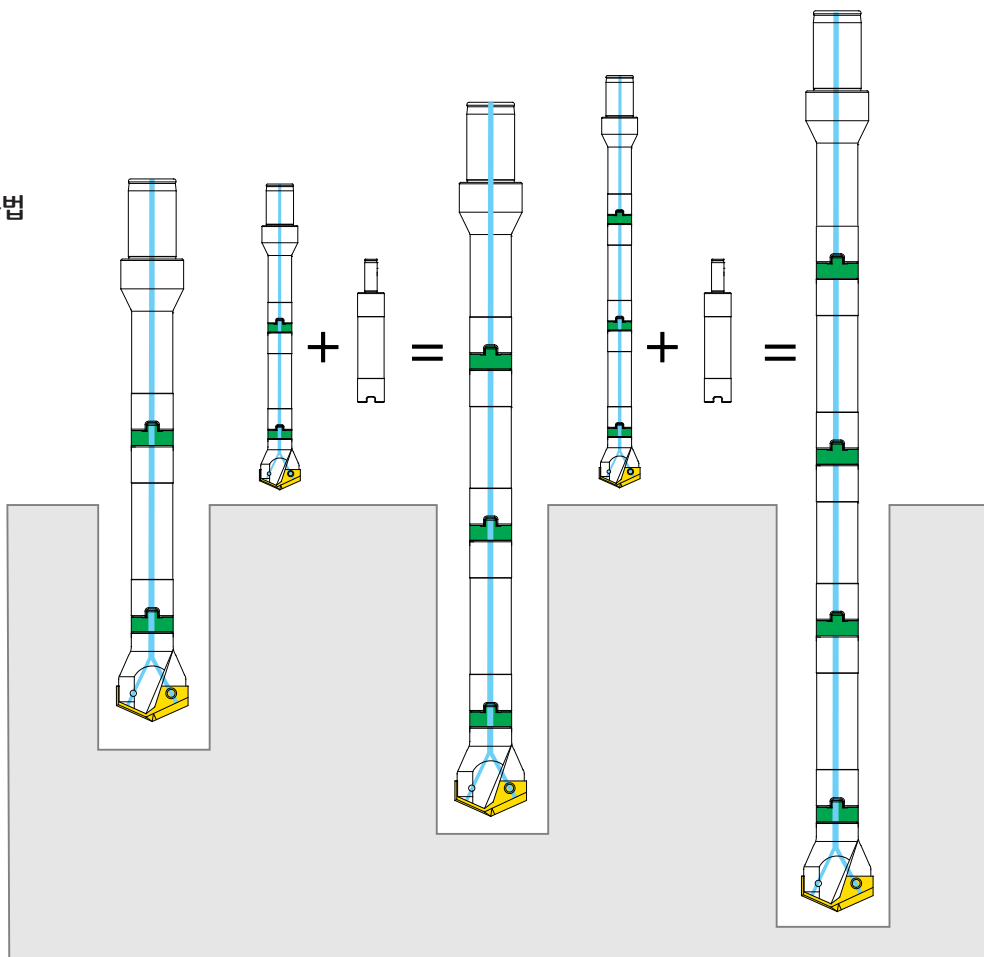
모듈라 헤드 사용법 (B7X Modular Head Guideline)



WARNING

- 확장바를 두개 이상 연결하거나 extension과 reducers 를 연결하지 마시오.
Do not exceed 2extension or extension plus reducers
 - 필요에 의해 2개 이상의 extension 바를 연결해야 하는 경우 첫 번째 extension의 가공 홀 깊이 만큼 가공 후에 연결해서 추가 가공하세요.
When you need to asseble exceed 2 extension, after making first hole with the one extension and then add another extension.
- * 알림사항 : 2번 절차를 수행하는 경우 가공 홀 표면이 고르지 못할 수 있습니다.
Please be noted : if you take the No.2 procedure, surface of the hole would't be even.

추천조립사용법

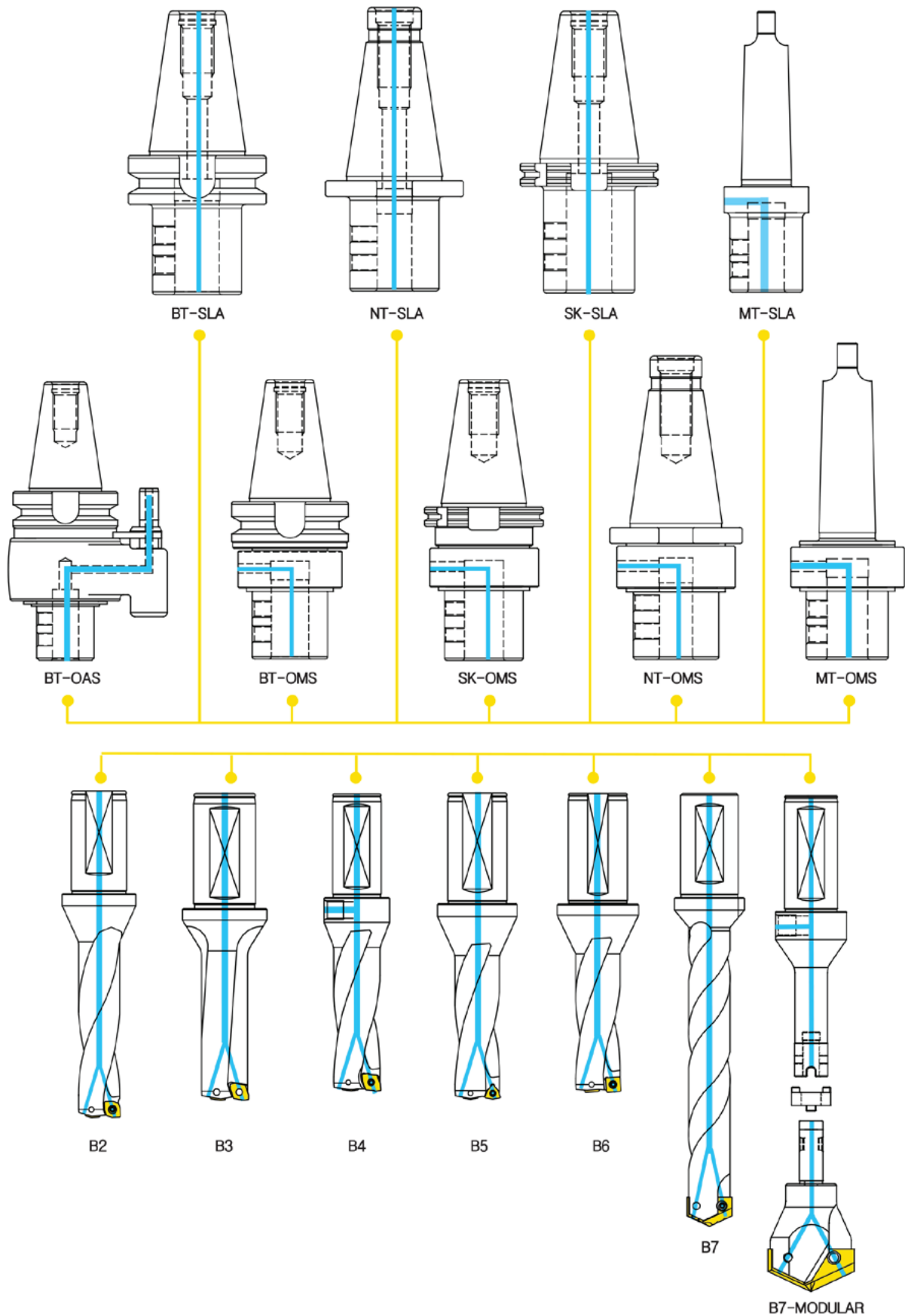


모듈라 헤드 조립법 (B7X Modular Head assemble recommendation)

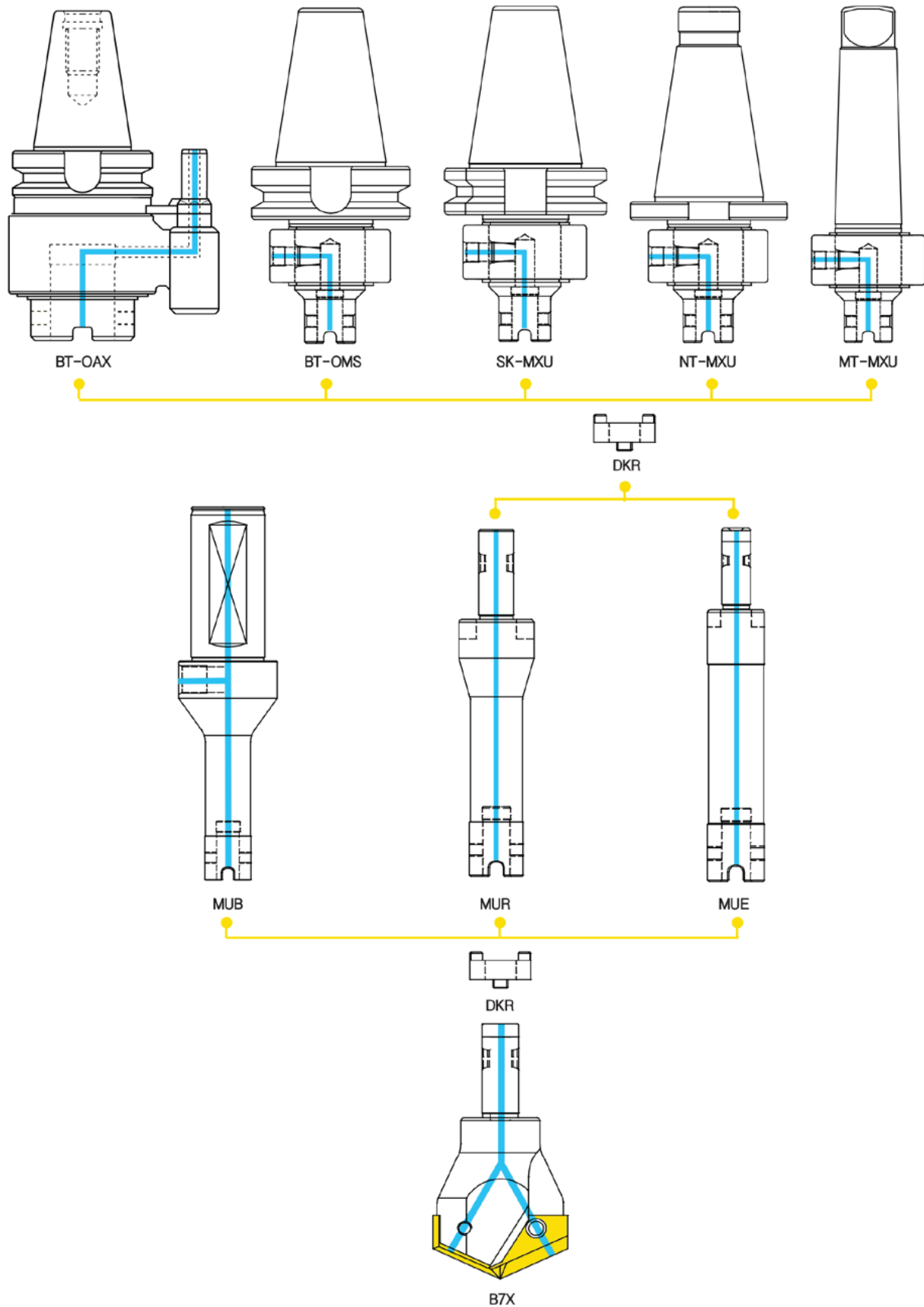


1. 모든 부속품의 표면을 깨끗이 닦으세요.
2. 제공되는 렌치를 이용해 시계방향으로 고정해 주세요.

DRILLING SYSTEM ASSEMBLY GUIDE (SIDE LOCK TYPE)



DRILLING SYSTEM ASSEMBLY GUIDE (MODULAR TYPE)



BPK

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