



The Highest Leader of Cutting Tools

HOLE MAKING



DRILLING 드릴링

Insert (WCMX, SPMX, XOMT, SPMT)
High Speed Drill
Turbo Drill
V-Max Drill (MX Modular System)
Trepanning Drill



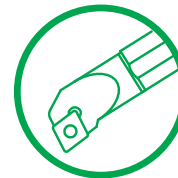
BORING 보링

RBS(Boring Head Set)
RB Extension
(EMS Modular System)



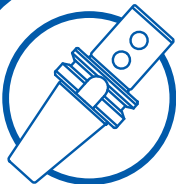
TURNING 터닝

내경보링바
(Internal Boring Bar)



TOOL HOLDER 툴 홀더

Side Lock(Standard)
Side Lock(Weldon-B)
MX Modular
EXT Modular
EMS Modular



ACCESSORIES 부품

Insert
Cartridge
PLD, DVR, DSL
PSB, DRIVER
Screws



TECHNICAL DATA 기술자료

절삭공식
드릴별 가공조건표
소재규격
경도환산표
작업시 주의사항
아바규격 및 사용법
조립도



CONTENTS

Drilling

HIGH SPEED DRILL



KSD P.14



STD-V P.22



HSD-V P.30



MCD P.38

TURBO DRILL



FXD P.44



VLT P.48



TMD P.54

V-MAX DRILL



VMD P.60



MXB P.62



MXR P.62



MXA P.63



MXE P.63

TREPANNING DRILL



TPD P.66

CONTENTS

Boring

RB-BORING



RBS-CP P. 70



RBS-SP P. 70



RBC-CC P. 71



RBC-SC P. 71



RBH P. 71



EXB P. 72



EXR P. 72

Turning

INTERNAL BORING BAR



SCLCR P.75



SCLPR P.75



STFCR P.76



STFPR P.76



SDUCR P.76

CONTENTS

Tool Holder

SIDE LOCK ARBOR (STANDARD)



BT-SLA P. 78



BT-OMS P. 78



BT-OAS P. 79



SK-SLA P. 80



SK-OMS P. 80



NT-SLA P. 81



NT-OMS P. 81



MT-SLA P. 82



MT-OMS P. 82

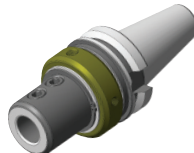
CONTENTS

Tool Holder

SIDE LOCK ARBOR (WELDON-B)



BT-WSA P. 84



BT-CMS P. 84



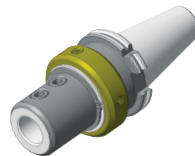
BT-CMB P. 85



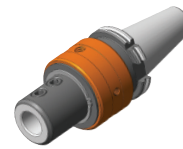
BT-CAW P. 85



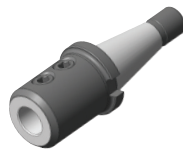
SK-WSA P. 86



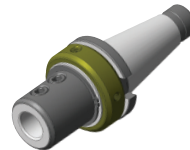
SK-CMS P. 86



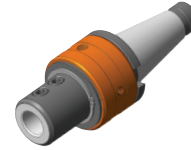
SK-CMB P. 87



NT-WSA P. 88



NT-CMS P. 88



NT-CMB P. 89



MT-WSA P. 90



MT-CMS P. 90

CONTENTS

Tool Holder

MX MODULAR SYSTEM



BT-MAX P. 92



BT-OMX P. 92



BT-OAX P. 93



SK-MXA P. 94



SK-OMX P. 94



NT-MXA P. 95



NT-OMX P. 95



MT-MXA P. 96



MT-OMX P. 96

CONTENTS

Tool Holder

EXT MODULAR SYSTEM



BT-ETA P. 98



BT-OME P. 98



BT-OAE P. 99



SK-ETA P. 100



SK-OME P. 100



NT-ETA P. 101



NT-OME P. 101



MT-ETA P. 102

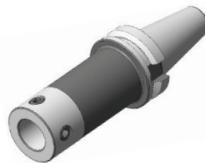


MT-OME P. 102

EMS MODULAR SYSTEM



BT-ETA(standard)
P. 104



BT-ETA(long)
P. 104



SK-ETA(standard)
P. 105



SK-ETA(long)
P. 105



NT-ETA
P. 106



MT-ETA
P. 106

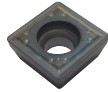
CONTENTS

Accessories

INSERT



WCMX P.108



SPMX P.108



SPMT P.109

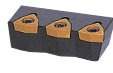


XOMT P.109

CARTRIDGE



HSC, VMC
P.110



HDC, MDC
P.111



STC
P.112



VLC
P.113



TDC
P.113



RBC
P.114

PILOT DRILL



PLD P.115

DRIVE RING



DVR P.115

DRILL SLEEVE



DSL P.115

PULL STUD BOLT



P.116

DRIVERS



P.116

SCREWS



P.117

CONTENTS

Technical Data

절삭 가공 공식 Formula Cutting Operations

P.122

가공조건표 Recommended Cutting Values

KSD 절삭조건표 (KSD Recommended Cutting Values)	P. 123
HSD-V, HSD, SFD 절삭조건표 (HSD-V, HSD, SFD Recommended Cutting Values)	P. 124
STD-V, STD 절삭조건표 (STD-V, STD Recommended Cutting Values)	P. 125
VLT, VSD, TSD 절삭조건표 (VLT, VSD, TSD Recommended Cutting Values)	P. 126
VMD, MXD 절삭조건표 (VMD, MXD Recommended Cutting Values)	P. 127

피삭재 그룹 Workpiece Group

P. 128

경도 환산표 Hardness Comparison Table

P. 129

가공물 재질구분표 Comparison of Work-Piece

P. 130 ~ P. 132

작업시 유의사항 Working Notice

선반 작업시 주의사항 (Directions for the work of the lathe)	P. 133
HIGH SPEED DRILL 사용시 주의사항 (Directions for the use of HIGH SPEED DRILL)	P. 134
TURBO DRILL& MAX DRILL 사용시 주의사항 (Directions for the use TURBO DRILL&MAX DRILL)	P. 135
칩의 모양과 해결책 (The solution according to the chip shape)	P. 136

아버 사용방법 How to use Arbor

아버규격 (Arbor standard)	P. 137
오일 피드 아버의 특징 및 사용법 (Oil feed arbor feature and use)	P. 138
자동 타입 아버 사용법 (Automatic arbor manuals)	P. 139

결합도 Module Combination

P.140 ~ P.144

INSERT

WCMX / SPMX / SPMT / XOMT

DRILLING

▶ WCMX

형상 Shape	형번 Code No.	피삭재 Workpiece					적용 드릴 For Drill			
		P	M	K	S	N	HSD(MCD)	VLT(TMD)	VMD	TPD
	WCMX030204-PB213	◎	○	○	△		φ 16.0 ~ φ 20.0	φ 25	φ 45 ~ φ 55	-
	WCMX040204-PB213	◎	○	○	△		φ 20.5 ~ φ 25.0	φ 26.0 ~ φ 30.0	φ 55 ~ φ 60	-
	WCMX050308-PB213	◎	○	○	△		φ 25.5 ~ φ 30.0	φ 31.0 ~ φ 40.0 φ 60.0 ~ φ 75.0	φ 60 ~ φ 75 φ 100 ~ φ 105	φ 40 ~ φ 55
	WCMX06T308-PB213	◎	○	○	△		φ 31.0 ~ φ 41.0 φ 59.0 ~ φ 80.0	φ 41.0 ~ φ 50.0 φ 75.0 ~ φ 80.0	φ 75 ~ φ 100 φ 105 ~ φ 140	φ 60 ~ φ 110
	WCMX080408-PB213	◎	○	○	△		φ 42.0 ~ φ 58.0	φ 51.0 ~ φ 59.0	φ 140 ~ φ 180	-
	WCMX040204-PB220	○	◎		○		φ 20.5 ~ φ 25.0	φ 26.0 ~ φ 30.0	φ 55 ~ φ 60	-
	WCMX050308-PB220	○	◎		○		φ 25.5 ~ φ 30.0	φ 31.0 ~ φ 40.0 φ 60.0 ~ φ 75.0	φ 60 ~ φ 75 φ 100 ~ φ 105	φ 40 ~ φ 55
	WCMX06T308-PB220	○	◎		○		φ 31.0 ~ φ 41.0 φ 59.0 ~ φ 80.0	φ 41.0 ~ φ 50.0 φ 75.0 ~ φ 80.0	φ 75 ~ φ 100 φ 105 ~ φ 140	φ 60 ~ φ 110
	WCMX080408-PB220	○	◎		○		φ 42.0 ~ φ 58.0	φ 51.0 ~ φ 59.0	φ 140 ~ φ 180	-

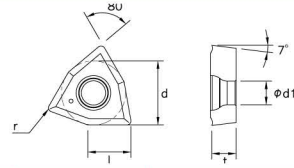
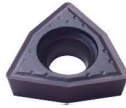
▶ SPMX

형상 Shape	형번 Code No.	피삭재 Workpiece					적용 드릴 For Drill	
		P	M	K	S	N	STD	FXD
	SPMX050204-PB113	◎	○	○	△		φ 13.0 ~ φ 15.0	φ 18.0 ~ φ 19.5
	SPMX060204-PB113	◎	○	○	△		φ 15.5 ~ φ 21.5	φ 20.0 ~ φ 25.0
	SPMX07T308-PB113	◎	○	○	△		φ 22.0 ~ φ 27.5	φ 25.5 ~ φ 30.0
	SPMX090408-PB113	◎	○	○	△		φ 28.0 ~ φ 33.0 φ 50.0 ~ φ 60.0	-
	SPMX110408-PB113	◎	○	○	△		φ 34.0 ~ φ 41.0 φ 60.0 ~ φ 75.0	-
	SPMX140512-PB113	◎	○	○	△		φ 42.0 ~ φ 50.0 φ 75.0 ~ φ 80.0	-
	SPMX050204-PB220	○	◎		○		φ 13.0 ~ φ 15.0	φ 18.0 ~ φ 19.5
	SPMX060204-PB220	○	◎		○		φ 15.5 ~ φ 21.5	φ 20.0 ~ φ 25.0
	SPMX07T308-PB220	○	◎		○		φ 22.0 ~ φ 27.5	φ 25.5 ~ φ 30.0
	SPMX090408-PB220	○	◎		○		φ 28.0 ~ φ 33.0 φ 50.0 ~ φ 60.0	-
	SPMX110408-PB220	○	◎		○		φ 34.0 ~ φ 41.0 φ 60.0 ~ φ 75.0	-
	SPMX140512-PB220	○	◎		○		φ 42.0 ~ φ 50.0 φ 75.0 ~ φ 80.0	-

▶ SPMT/XOMT

형상 Shape	형번 Code No.		피삭재 Workpiece					적용 드릴 For Drill
	외측	내측	P	M	K	S	N	KSD
	SPMT040204-PC214	XOMT040204-PC214	◎	○	○	○		φ 13.0 ~ φ 13.5
	SPMT050204-PC214	XOMT050204-PC214	◎	○	○	○		φ 14.0 ~ φ 16.0
	SPMT060205-PC214	XOMT060204-PC214	◎	○	○	○		φ 16.5 ~ φ 19.5
	SPMT07T208-PC214	XOMT07T205-PC214	◎	○	○	○		φ 20.0 ~ φ 23.5
	SPMT090308-PC214	XOMT090305-PC214	◎	○	○	○		φ 24.0 ~ φ 29.5
	SPMT11T308-PC214	XOMT11T306-PC214	◎	○	○	○		φ 30.0 ~ φ 35.0
	SPMT130410-PC214	XOMT130406-PC214	◎	○	○	○		φ 36.0 ~ φ 42.0
	SPMT15M510-PC214	XOMT15M508-PC214	◎	○	○	○		φ 43.0 ~ φ 50.0
	SPMT180510-PC214	XOMT180508-PC214	◎	○	○	○		φ 51.0 ~ φ 60.0

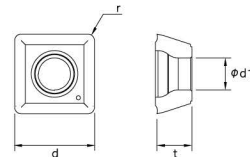
▶ WCMX



Code No.	l	d	t	r	ød1	부품 Parts	
						Screw	Driver
WCMX030204-□□□□□□	3.8	5.56	2.38	0.4	2.55	TSB-22045	TXL-6
WCMX040204-□□□□□□	4.3	6.35	2.38	0.4	2.8	TSB-25055	TXL-8
WCMX050308-□□□□□□	5.4	7.94	3.18	0.8	3.4	TSB-30070	TXL-8
WCMX06T308-□□□□□□	6.5	9.525	3.97	0.8	4.4	TSB-35090	TXL-15
WCMX080408-□□□□□□	8.7	12.7	4.76	0.8	5.5	TSB-40110	TXL-15

- PB213 : 다용도 ● PB213 : Multi-Purpose (steel, cast iron, stainless steel, heat resisting alloy)
- PB220 : 스테인레스 가공용 ● PB220 : For Stainless Steel

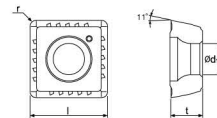
▶ SPMX



Code No.	d	t	r	ød1	부품 Parts	
					Screw	Driver
SPMX050204-□□□□□□	5.00	2.38	0.4	2.25	TSB-20045	TXL-6
SPMX060204-□□□□□□	6.00	2.38	0.4	2.61	TSB-22052	TXL-6
SPMX07T308-□□□□□□	7.94	3.97	0.8	2.85	TSB-25065	TXL-8
SPMX090408-□□□□□□	9.80	4.30	0.8	4.05	TSB-35090	TXL-15
SPMX110408-□□□□□□	11.50	4.80	0.8	4.45	TSB-40100	TXL-15
SPMX140512-□□□□□□	14.30	5.20	1.2	5.75	TSB-50125	TXL-20

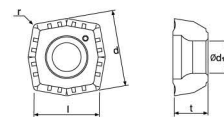
- PB113 : 다용도, 내인용에 최적화 ● PB113 : Multi-Purpose, Optimized for the central insert
- PB220 : 스테인레스 가공용 ● PB220 : For Stainless Steel

▶ SPMT(외인 Periphery Insert)



Code No.	d	t	r	ød1	부품 Parts	
					Screw	Driver
SPMT040204-□□□□□□	4.7	2.4	0.4	2.3	TSB-20045	TXL-6
SPMT050204-□□□□□□	5.1	2.4	0.4	2.3	TSB-20045	TXL-6
SPMT060205-□□□□□□	6.2	2.5	0.5	2.5	TSB-22052	TXL-6
SPMT07T208-□□□□□□	7.5	2.8	0.7	2.8	TSB-25065	TXL-8
SPMT090308-□□□□□□	9.2	3.3	0.8	3.4	TSB-30072	TXL-8
SPMT11T308-□□□□□□	11.0	4.0	0.8	4.0	TSB-35080	TXL-15
SPMT130410-□□□□□□	13.0	4.5	1.0	4.5	TSB-40100	TXL-15
SPMT15M510-□□□□□□	15.2	5.0	1.0	5.5	TSB-40100	TXL-15
SPMT180510-□□□□□□	18.2	5.5	1.0	6.0	TSB-50125	TXL-20

▶ XOMT(내인 Center Insert)



Code No.	l	d	t	r	ød1	부품 Parts	
						Screw	Driver
XOMT040204-□□□□□□	4.3	4.9	2.4	0.4	2.3	TSB-20045	TXL-6
XOMT050204-□□□□□□	4.8	5.4	2.4	0.4	2.3	TSB-20045	TXL-6
XOMT060204-□□□□□□	5.8	6.6	2.5	0.4	2.5	TSB-22052	TXL-6
XOMT07T205-□□□□□□	6.9	7.8	2.8	0.5	2.8	TSB-25065	TXL-8
XOMT090305-□□□□□□	8.4	9.6	3.3	0.5	3.4	TSB-30072	TXL-8
XOMT11T306-□□□□□□	10.0	11.4	4.0	0.6	4.0	TSB-35080	TXL-15
XOMT130406-□□□□□□	11.9	13.6	4.5	0.6	4.5	TSB-40100	TXL-15
XOMT15M508-□□□□□□	13.9	15.9	5.0	0.8	5.5	TSB-40100	TXL-15
XOMT180508-□□□□□□	16.5	18.9	5.5	0.8	6.0	TSB-50125	TXL-20

- PC214 : 다용도, KSD전용 ● PC214 : Multi-Purpose (steel, cast iron, stainless steel, heat resisting alloy), For KSD

Choose From **KoreaTechnics** Drill

ø9.5 13 18 25 30 45 50 60 80 114 180

V-MAX DRILL



VMD
1×D~8×D
<MX Modular>

MP-SPADE DRILL



MPD
1.5×D ~ 30×D

TURBO DRILL



VLT
5×D 6.5×D 8×D



TMD
5×D 8×D



FXD
4×D 6×D 8×D
[ø30~Due to release later]

HIGH SPEED DRILL



KSD
2×D 3×D 4×D 5×D



HSD, MCD
2×D 3×D 4×D



STD
2×D 3×D 4×D

ø9.5 13 18 25 30 45 50 60 80 114 180

High Speed Drill KSD



▶ Standard 'B' Type

KSD - 2854D S32

드릴종류
Drill group

가공직경: $\phi 28.5$
Drilling diameter: $\phi 28.5$

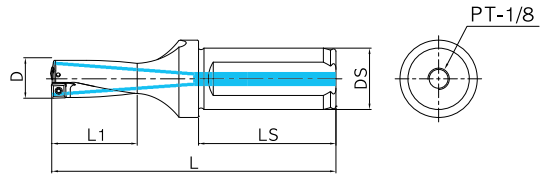
가공깊이: 가공직경의 4배
Drilling depth: Dia $\times 4$

샙크직경 : $\phi 32$
Shank diameter: $\phi 32$

HIGH SPEED DRILL

KSD 2×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	Ls	내측	외측	Screw	T-Driver
KSD-1302D-S20	13.0	29	99	20	50	XOMT040204	SPMT040204	TSB-20045	TXL-6
KSD-1352D-S20	13.5	30	100						
KSD-1402D-S20	14.0	31	101						
KSD-1452D-S20	14.5	32	102						
KSD-1502D-S20	15.0	33	103						
KSD-1552D-S20	15.5	34	104	25	56	XOMT060204	SPMT060205	TSB-22052	
KSD-1602D-S20	16.0	35	105						
KSD-1652D-S25	16.5	36	117						
KSD-1702D-S25	17.0	37	118						
KSD-1752D-S25	17.5	38	119						
KSD-1802D-S25	18.0	39	120						
KSD-1852D-S25	18.5	40	121						
KSD-1902D-S25	19.0	41	122						
KSD-1952D-S25	19.5	42	123						
KSD-2002D-S25	20.0	43	124			25	56	XOMT07T205	SPMT07T208
KSD-2052D-S25	20.5	44	125						
KSD-2102D-S25	21.0	45	126						
KSD-2152D-S25	21.5	46	127						
KSD-2202D-S25	22.0	47	128						
KSD-2252D-S25	22.5	48	129						
KSD-2302D-S25	23.0	49	130						
KSD-2352D-S25	23.5	50	131						

● KSD 드릴 특징 KSD Drill Characteristic

- 내인과 외인의 가공 특성에 맞춘 인서트 사용으로 절삭성능과 칩처리성, 수명이 우수함.
- Excellent cutting performance and chip control due to the optimized chip breaker geometry of both inserts, central & peripheral.

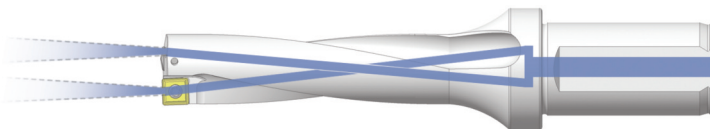


내측 인서트
Central Insert



외측 인서트
Peripheral Insert

- KSD 소구경(ø13~ø23.5) 드릴은 절삭유 방식을 개선하여 칩플루트 공간이 넓어져 칩 처리성이 우수함.
- Small Dia. drills (ø13~ø23.5) are designed with oil holes and the optimized shape of the flute increases the rigidity of the drill while body improves chip evacuation

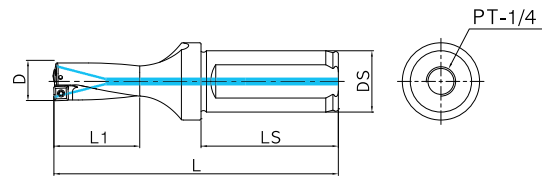


- KSD 직부형 중대구경(ø24~ø60) 드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다. 깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.
- The chip discharging space for KSD middle dia and big dia drill(ø24~ø60) was greatly extended. These drills are stable and surface roughness are excellent in the deep hole drilling also.

HIGH SPEED DRILL

KSD 2×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	Ls	내측	외측	Screw	T-Driver
KSD-2402D-S32	24.0	51	141	32	60	XOMT090305	SPMT090308	TSB-30072	TXL-8
KSD-2452D-S32	24.5	52	142						
KSD-2502D-S32	25.0	53	143						
KSD-2552D-S32	25.5	54	144						
KSD-2602D-S32	26.0	55	145						
KSD-2652D-S32	26.5	56	146						
KSD-2702D-S32	27.0	57	147						
KSD-2752D-S32	27.5	58	148						
KSD-2802D-S32	28.0	59	149						
KSD-2852D-S32	28.5	60	150						
KSD-2902D-S32	29.0	61	151						
KSD-2952D-S32	29.5	62	152						
KSD-3002D-S32	30.0	65	155						
KSD-3102D-S32	31.0	67	157						
KSD-3202D-S32	32.0	69	159						
KSD-3302D-S32	33.0	71	161	40	70	XOMT11T306	SPMT11T308	TSB-35080	TXL-15
KSD-3402D-S32	34.0	73	163						
KSD-3502D-S32	35.0	75	165						
KSD-3602D-S40	36.0	77	182						
KSD-3702D-S40	37.0	79	184						
KSD-3802D-S40	38.0	81	186						
KSD-3902D-S40	39.0	83	188						
KSD-4002D-S40	40.0	85	190						
KSD-4102D-S40	41.0	87	192						
KSD-4202D-S40	42.0	89	194						
KSD-4302D-S40	43.0	91	196						
KSD-4402D-S40	44.0	93	198						
KSD-4502D-S40	45.0	95	200						
KSD-4602D-S40	46.0	97	202						
KSD-4702D-S40	47.0	99	204						
KSD-4802D-S40	48.0	101	206						
KSD-4902D-S40	49.0	103	208						
KSD-5002D-S40	50.0	105	210						
KSD-5102D-S40	51.0	107	212	40	70	XOMT15M508	SPMT15M510	TSB-50125	TXL-20
KSD-5202D-S40	52.0	109	214						
KSD-5302D-S40	53.0	111	216						
KSD-5402D-S40	54.0	113	218						
KSD-5502D-S40	55.0	115	220						
KSD-5602D-S40	56.0	117	222						
KSD-5702D-S40	57.0	119	224						
KSD-5802D-S40	58.0	121	226						
KSD-5902D-S40	59.0	123	228						
KSD-6002D-S40	60.0	125	230						

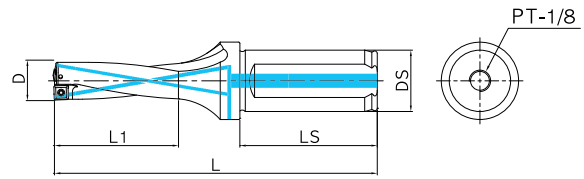
※ 범용선반 작업할 경우, 가공직경 $\phi 40$ 이상이면 VLT나, VMD 사용을 권장합니다.
KSD와 체결되는 툴 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, VMD
The tool holder that locks with KSD is Side Lock Arbor.(p.78~p.90)

HIGH SPEED DRILL

KSD 3×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	LS	내측	외측	Screw	T-Driver
KSD-1303D-S20	13.0	42	112	20	50	XOMT040204	SPMT040204	TSB-20045	TXL-6
KSD-1353D-S20	13.5	44	114						
KSD-1403D-S20	14.0	45	115						
KSD-1453D-S20	14.5	47	117						
KSD-1503D-S20	15.0	48	118						
KSD-1553D-S20	15.5	50	120						
KSD-1603D-S20	16.0	51	121	25	56	XOMT060204	SPMT060205	TSB-22052	
KSD-1653D-S25	16.5	53	134						
KSD-1703D-S25	17.0	54	135						
KSD-1753D-S25	17.5	56	137						
KSD-1803D-S25	18.0	57	138						
KSD-1853D-S25	18.5	59	140						
KSD-1903D-S25	19.0	60	141			XOMT07T205	SPMT07T208	TSB-25065	TXL-8
KSD-1953D-S25	19.5	62	143						
KSD-2003D-S25	20.0	63	144						
KSD-2053D-S25	20.5	65	146						
KSD-2103D-S25	21.0	66	147						
KSD-2153D-S25	21.5	68	149						
KSD-2203D-S25	22.0	69	150						
KSD-2253D-S25	22.5	71	152						
KSD-2303D-S25	23.0	72	153						
KSD-2353D-S25	23.5	74	155						

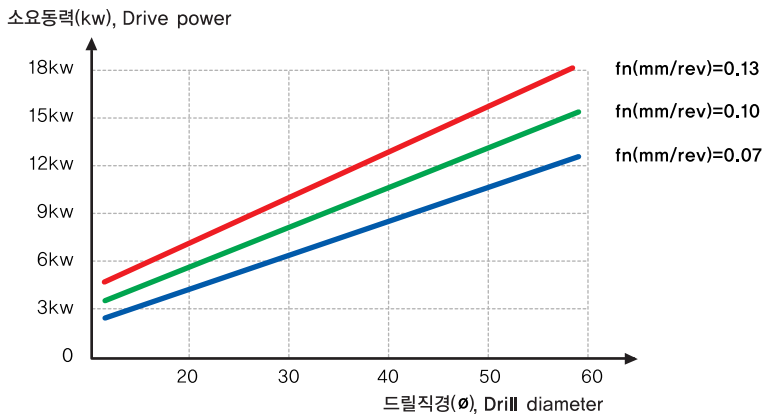
※ 최고의 결과를 위해서는 절삭조건표(123페이지)와 절삭유 적정 압력을 확인해 주세요.(절삭유 적정압력은 5kg/cm² 이상입니다.)
 ※ Please make sure the proper oil pressure and the cutting date(P.123)for the best performance.(The proper pressure is over 5kg/cm²)

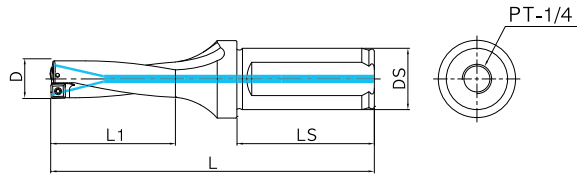
● KSD 드릴 홀 공차 Hole tolerance of KSD drill

Diameter	2×D	3×D	4×D
ø13 ~ ø23.5	-0.10 ~ +0.15	-0.10 ~ +0.18	-0.12 ~ +0.20
ø24 ~ ø42	-0.10 ~ +0.15	-0.12 ~ +0.22	-0.12 ~ +0.25
ø43 ~ ø60	-0.10 ~ +0.20	-0.12 ~ +0.25	-0.15 ~ +0.27

※ 홀 공차는 드릴의 길이, 피삭재, 장비, 가공조건 등에 따라 차이가 생길 수 있습니다.
 ※ The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

● 소요동력 Power Requirements





● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	Ls	내측	외측	Screw	T-Driver
KSD-2403D-S32	24.0	75	165	32	60	XOMT090305	SPMT090308	TSB-30072	TXL-8
KSD-2453D-S32	24.5	77	167						
KSD-2503D-S32	25.0	78	168						
KSD-2553D-S32	25.5	80	170						
KSD-2603D-S32	26.0	81	171						
KSD-2653D-S32	26.5	83	173						
KSD-2703D-S32	27.0	84	174						
KSD-2753D-S32	27.5	86	176						
KSD-2803D-S32	28.0	87	177						
KSD-2853D-S32	28.5	89	179						
KSD-2903D-S32	29.0	90	180						
KSD-2953D-S32	29.5	92	182						
KSD-3003D-S32	30.0	95	185	40	70	XOMT11T306	SPMT11T308	TSB-35080	TXL-15
KSD-3103D-S32	31.0	98	188						
KSD-3203D-S32	32.0	101	191						
KSD-3303D-S32	33.0	104	194						
KSD-3403D-S32	34.0	107	197						
KSD-3503D-S32	35.0	110	200						
KSD-3603D-S40	36.0	113	218						
KSD-3703D-S40	37.0	116	221						
KSD-3803D-S40	38.0	119	224						
KSD-3903D-S40	39.0	122	227						
KSD-4003D-S40	40.0	125	230						
KSD-4103D-S40	41.0	128	233						
KSD-4203D-S40	42.0	131	236						
KSD-4303D-S40	43.0	134	239						
KSD-4403D-S40	44.0	137	242						
KSD-4503D-S40	45.0	140	245						
KSD-4603D-S40	46.0	143	248						
KSD-4703D-S40	47.0	146	251						
KSD-4803D-S40	48.0	149	254						
KSD-4903D-S40	49.0	152	257						
KSD-5003D-S40	50.0	155	260						
KSD-5103D-S40	51.0	158	263						
KSD-5203D-S40	52.0	161	266						
KSD-5303D-S40	53.0	164	269						
KSD-5403D-S40	54.0	167	272						
KSD-5503D-S40	55.0	170	275						
KSD-5603D-S40	56.0	173	278						
KSD-5703D-S40	57.0	176	281						
KSD-5803D-S40	58.0	179	284						
KSD-5903D-S40	59.0	182	287						
KSD-6003D-S40	60.0	185	290						

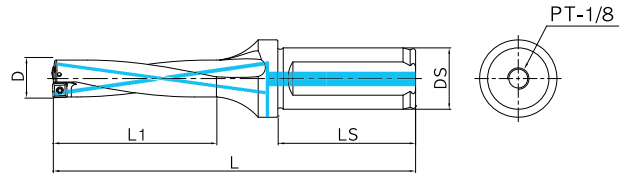
※ 범용선반 작업할 경우, 가공직경 $\phi 40$ 이상이면 VLT나, VMD 사용을 권장합니다.
KSD와 체결되는 툴 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, VMD
The tool holder that locks with KSD is Side Lock Arbor.(p.78~p.90)

HIGH SPEED DRILL

KSD 4xD

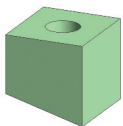
DRILLING



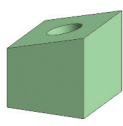
● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	LS	내측	외측	Screw	T-Driver
KSD-1304D-S20	13.0	55	125	20	50	XOMT040204	SPMT040204	TSB-20045	TXL-6
KSD-1354D-S20	13.5	57	127						
KSD-1404D-S20	14.0	59	129						
KSD-1454D-S20	14.5	61	131						
KSD-1504D-S20	15.0	63	133						
KSD-1554D-S20	15.5	65	135						
KSD-1604D-S20	16.0	67	137	25	56	XOMT060204	SPMT060205	TSB-22052	TXL-8
KSD-1654D-S25	16.5	69	150						
KSD-1704D-S25	17.0	71	152						
KSD-1754D-S25	17.5	73	154						
KSD-1804D-S25	18.0	75	156						
KSD-1854D-S25	18.5	77	158						
KSD-1904D-S25	19.0	79	160						
KSD-1954D-S25	19.5	81	162						
KSD-2004D-S25	20.0	83	164						
KSD-2054D-S25	20.5	85	166						
KSD-2104D-S25	21.0	87	168						
KSD-2154D-S25	21.5	89	170						
KSD-2204D-S25	22.0	91	172						
KSD-2254D-S25	22.5	93	174						
KSD-2304D-S25	23.0	95	176						
KSD-2354D-S25	23.5	97	178						

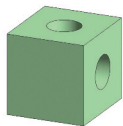
※ 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.
 ※ When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.



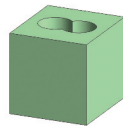
경사면 가공
Inclined Surface



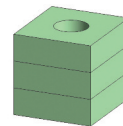
경사면 가공
Inclined Surface



교차홀 가공
Crossing Hole



겹친홀 가공
Chain Drilling



겹판 가공
Stack Drilling

※ KSD용 인서트(SPMT, XOMT)는 109페이지를 참조해주세요.
 ※ Please refer to the page 109 regarding KSD inserts.(SPMT, XOMT)



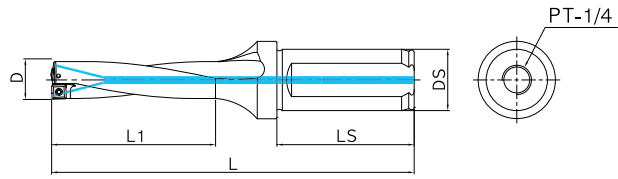
• XOMT
내측 Central Insert



• SPMT
외측 Peripheral Insert

• KSD 드릴 가공 동영상을 보시려면, 오른쪽 QR코드를 스캔하세요.
 • Please scan the QR code if you want to see KSD drill testing sample video.





● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	LS	내측	외측	Screw	T-Driver
KSD-2404D-S32	24.0	99	189	32	60	XOMT090305	SPMT090308	TSB-30072	TXL-8
KSD-2454D-S32	24.5	101	191						
KSD-2504D-S32	25.0	103	193						
KSD-2554D-S32	25.5	105	195						
KSD-2604D-S32	26.0	107	197						
KSD-2654D-S32	26.5	109	199						
KSD-2704D-S32	27.0	111	201						
KSD-2754D-S32	27.5	113	203						
KSD-2804D-S32	28.0	115	205						
KSD-2854D-S32	28.5	117	207						
KSD-2904D-S32	29.0	119	209						
KSD-2954D-S32	29.5	121	211						
KSD-3004D-S32	30.0	125	215						
KSD-3104D-S32	31.0	129	219						
KSD-3204D-S32	32.0	133	223						
KSD-3304D-S32	33.0	137	227						
KSD-3404D-S32	34.0	141	231						
KSD-3504D-S32	35.0	145	235						
KSD-3604D-S40	36.0	149	254	40	70	XOMT130406	SPMT130410	TSB-40100	TXL-15
KSD-3704D-S40	37.0	153	258						
KSD-3804D-S40	38.0	157	262						
KSD-3904D-S40	39.0	161	266						
KSD-4004D-S40	40.0	165	270						
KSD-4104D-S40	41.0	169	274						
KSD-4204D-S40	42.0	173	278						
KSD-4304D-S40	43.0	177	282						
KSD-4404D-S40	44.0	181	286						
KSD-4504D-S40	45.0	185	290						
KSD-4604D-S40	46.0	189	294						
KSD-4704D-S40	47.0	193	298						
KSD-4804D-S40	48.0	197	302						
KSD-4904D-S40	49.0	201	306						
KSD-5004D-S40	50.0	205	310						
KSD-5104D-S40	51.0	209	314						
KSD-5204D-S40	52.0	213	318						
KSD-5304D-S40	53.0	217	322						
KSD-5404D-S40	54.0	221	326						
KSD-5504D-S40	55.0	225	330						
KSD-5604D-S40	56.0	229	334						
KSD-5704D-S40	57.0	233	338						
KSD-5804D-S40	58.0	237	342						
KSD-5904D-S40	59.0	241	346						
KSD-6004D-S40	60.0	245	350						
						XOMT15M508	SPMT15M510		
						XOMT180508	SPMT180510	TSB-50125	TXL-20

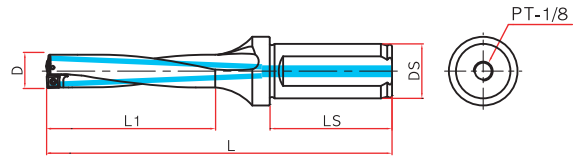
※ 범용선반 작업할 경우, 가공직경 $\phi 40$ 이상이면 VLT나, VMD 사용을 권장합니다.
KSD와 체결되는 톨 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, VMD
The tool holder that locks with KSD is Side Lock Arbor.(P.78~P.90)

HIGH SPEED DRILL

KSD 5XD

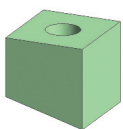
DRILLING



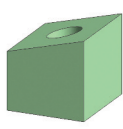
● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	Ls	내측	외측	Screw	T-Driver
KSD-1305D-S20	13.0	68	133	20	50	XOMT040204	SPMT040204	TSB-20045	TXL-6
KSD-1355D-S20	13.5	71	136						
KSD-1405D-S20	14.0	73	138						
KSD-1455D-S20	14.5	76	141						
KSD-1505D-S20	15.0	78	143						
KSD-1555D-S20	15.5	81	146						
KSD-1605D-S20	16.0	83	148	25	56	XOMT060204	SPMT060205	TSB-22052	
KSD-1655D-S25	16.5	86	162						
KSD-1705D-S25	17.0	88	164						
KSD-1755D-S25	17.5	91	167						
KSD-1805D-S25	18.0	93	169						
KSD-1855D-S25	18.5	96	172						
KSD-1905D-S25	19.0	98	174	XOMT07T205	SPMT07T208	TSB-25065	TXL-8		
KSD-1955D-S25	19.5	101	177						
KSD-2005D-S25	20.0	103	179						
KSD-2055D-S25	20.5	106	182						
KSD-2105D-S25	21.0	108	184						
KSD-2155D-S25	21.5	111	187						
KSD-2205D-S25	22.0	113	189						
KSD-2255D-S25	22.5	116	192						
KSD-2305D-S25	23.0	118	194						
KSD-2355D-S25	23.5	121	197						

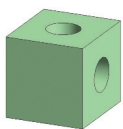
※ 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.
 ※ When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.



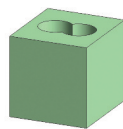
경사면 가공
Inclined Surface



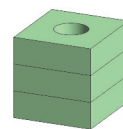
경사면 가공
Inclined Surface



교차홀 가공
Crossing Hole



겹친홀 가공
Chain Drilling



겹판 가공
Stack Drilling

※ KSD용 인서트(SPMT, XOMT)는 카탈로그 109페이지를 참조해주세요.
 ※ Please refer to the [page 109\(Catalogue\)](#) regarding KSD inserts.(SPMT, XOMT)



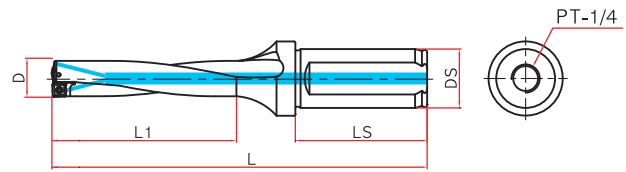
• XOMT
내측 Central Insert



• SPMT
외측 Peripheral Insert

• KSD 드릴 가공 동영상을 보시려면, 오른쪽 QR코드를 스캔하세요.
 • Please scan the QR code if you want to see KSD drill testing sample video.





- Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert		부품 Component	
	D	L1	L	Ds	Ls	내측	외측	Screw	T-Driver
KSD-2405D-S32	24.0	123	208	32	60	XOMT090305	SPMT090308	TSB-30072	TXL-8
KSD-2455D-S32	24.5	126	211						
KSD-2505D-S32	25.0	128	213						
KSD-2555D-S32	25.5	131	216						
KSD-2605D-S32	26.0	133	218						
KSD-2655D-S32	26.5	136	221						
KSD-2705D-S32	27.0	138	223						
KSD-2755D-S32	27.5	141	226						
KSD-2805D-S32	28.0	143	228						
KSD-2855D-S32	28.5	146	231						
KSD-2905D-S32	29.0	148	233						
KSD-2955D-S32	29.5	151	236						
KSD-3005D-S32	30.0	155	240						
KSD-3105D-S32	31.0	160	245						
KSD-3205D-S32	32.0	165	250						
KSD-3305D-S32	33.0	170	255	40	70	XOMT11T306	SPMT11T308	TSB-35080	TXL-15
KSD-3405D-S32	34.0	175	260						
KSD-3505D-S32	35.0	180	265						
KSD-3605D-S40	36.0	185	285						
KSD-3705D-S40	37.0	190	290						
KSD-3805D-S40	38.0	195	295						
KSD-3905D-S40	39.0	200	300						
KSD-4005D-S40	40.0	205	305						
KSD-4105D-S40	41.0	210	310						
KSD-4205D-S40	42.0	215	315						
KSD-4305D-S40	43.0	220	320						
KSD-4405D-S40	44.0	225	325						
KSD-4505D-S40	45.0	230	330						
KSD-4605D-S40	46.0	235	335						
KSD-4705D-S40	47.0	240	340						
KSD-4805D-S40	48.0	245	345						
KSD-4905D-S40	49.0	250	350						
KSD-5005D-S40	50.0	255	355						
KSD-5105D-S40	51.0	260	360	40	70	XOMT15M508	SPMT15M510	TSB-50125	TXL-20
KSD-5205D-S40	52.0	265	365						
KSD-5305D-S40	53.0	270	370						
KSD-5405D-S40	54.0	275	375						
KSD-5505D-S40	55.0	280	380						
KSD-5605D-S40	56.0	285	385						
KSD-5705D-S40	57.0	290	390						
KSD-5805D-S40	58.0	295	395						
KSD-5905D-S40	59.0	300	400						
KSD-6005D-S40	60.0	305	405						

※ 범용선반 작업할 경우, 가공직경 ϕ 40 이상이면 VLT나, VMD 사용을 권장합니다.
KSD와 체결되는 툴 홀더는 '사이드락 아버'입니다.

※ If you are working on the lathe, diameter ϕ 40 or higher, we recommend using the VLT, VMD
The tool holder that locks with KSD is Side Lock Arbor.

Construction System of HIGH SPEED DRILL's Code No.



▶ Standard 'A' Type

HSD-V29530D S32

드릴종류
Drill group

가공직경: $\phi 29.5$
Drilling diameter: $\phi 29.5$

기공깊이:가공직경의 3배
Drilling depth: Dia $\times 3$

생크직경 : $\phi 32$
Shank diameter: $\phi 32$

▶ Adjustment Type

STD-V606520D S40

드릴종류
Drill group

가공직경: $\phi 60 \sim \phi 65$ (조절타입)
Drilling diameter: $\phi 60 \sim \phi 65$ (Adjustable)

기공깊이:가공직경의 2배
Drilling depth: Dia $\times 2$

생크직경 : $\phi 40$
Shank diameter: $\phi 40$

High Speed Drill

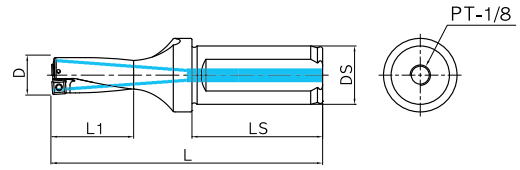
STD-V & HSD-V & MCD



HIGH SPEED DRILL

STD-V 2×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V13020D S20	13.0	29	99	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13520D S20	13.5	30	100					
STD-V14020D S20	14.0	31	101					
STD-V14520D S20	14.5	32	102					
STD-V15020D S20	15.0	33	103					
STD-V15520D S25	15.5	34	115	25	56	SPMX060204	TSB-22052	
STD-V16020D S25	16.0	35	116					
STD-V16520D S25	16.5	36	117					
STD-V17020D S25	17.0	37	118					
STD-V17520D S25	17.5	38	119					
STD-V18020D S25	18.0	39	120					
STD-V18520D S25	18.5	40	121					
STD-V19020D S25	19.0	41	122					
STD-V19520D S25	19.5	42	123					
STD-V20020D S25	20.0	43	124					
STD-V20520D S25	20.5	44	125					
STD-V21020D S25	21.0	45	126					
STD-V21520D S25	21.5	46	127					

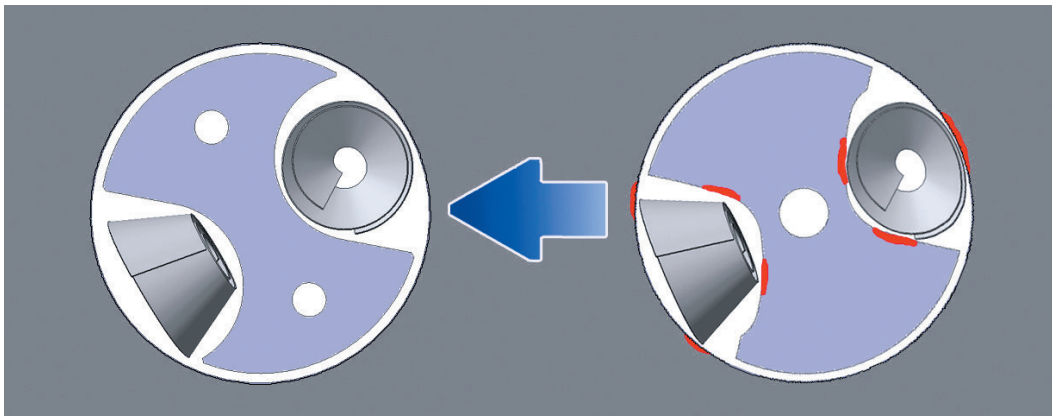
● STD-V 소구경 드릴의 특징

- STD-V 소구경(ø13 ~ ø21.5)드릴은 절삭유 홀을 11자 타입으로 설계변경하여 드릴바디의 강성이 향상되고, 칩 배출 공간을 대폭 확장 시켰습니다.
- 최적의 설계로 절삭성능이 뛰어나고, 표면조도가 매우 우수합니다.

● The characteristic of STD-V small drill

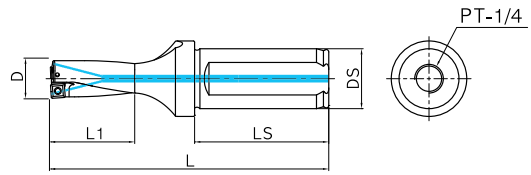
- Small dia drills are designed oil holes to 11 types so the hardness of the drill body is improved and the space of chip break is greatly extended.
- The drilling performance and the surface roughness are excellent by the best design.

- 넓어진 칩 배출 공간 The widen chip discharging space



HIGH SPEED DRILL

STD-V 2xD



DRILLING

● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	LS		Screw	T-Driver
STD-V22020D S32	22.0	47	137	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22520D S32	22.5	48	138					
STD-V23020D S32	23.0	49	139					
STD-V23520D S32	23.5	50	140					
STD-V24020D S32	24.0	51	141					
STD-V24520D S32	24.5	52	142					
STD-V25020D S32	25.0	53	143					
STD-V25520D S32	25.5	54	144					
STD-V26020D S32	26.0	55	145					
STD-V26520D S32	26.5	56	146					
STD-V27020D S32	27.0	57	147					
STD-V27520D S32	27.5	58	148					
STD-V28020D S32	28.0	59	149					
STD-V28520D S32	28.5	60	150					
STD-V29020D S32	29.0	61	151					
STD-V29520D S32	29.5	63	153					
STD-V30020D S32	30.0	65	155					
STD-V31020D S32	31.0	67	157					
STD-V32020D S32	32.0	69	159					
STD-V33020D S32	33.0	71	161					
STD-V34020D S40	34.0	73	178	40	70	SPMX110408	TSB-40100	TXL-15
STD-V35020D S40	35.0	75	180					
STD-V36020D S40	36.0	77	182					
STD-V37020D S40	37.0	79	184					
STD-V38020D S40	38.0	81	186					
STD-V39020D S40	39.0	83	188					
STD-V40020D S40	40.0	85	190					
STD-V41020D S40	41.0	87	192					
STD-V42020D S40	42.0	89	194					
STD-V43020D S40	43.0	91	196					
STD-V44020D S40	44.0	93	198					
STD-V45020D S40	45.0	95	200					
STD-V46020D S40	46.0	97	202					
STD-V47020D S40	47.0	99	204					
STD-V48020D S40	48.0	101	206					
STD-V49020D S40	49.0	103	208					
STD-V50020D S40	50.0	105	210					
STD-V42020D S40	42.0	89	194	40	70	SPMX140512	TSB-50125	TXL-20
STD-V43020D S40	43.0	91	196					
STD-V44020D S40	44.0	93	198					
STD-V45020D S40	45.0	95	200					
STD-V46020D S40	46.0	97	202					
STD-V47020D S40	47.0	99	204					
STD-V48020D S40	48.0	101	206					
STD-V49020D S40	49.0	103	208					
STD-V50020D S40	50.0	105	210					

※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.

STD-V드릴과 체결되는 톨 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.

※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, FXD, VMD

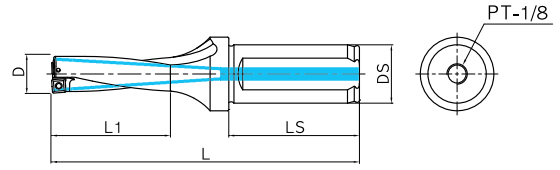
The tool holder that locks with STD-V is Side Lock Arbor.(P.78~P.90)

※ When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.

HIGH SPEED DRILL

STD-V 3×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V13030D S20	13.0	42	112	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13530D S20	13.5	44	114					
STD-V14030D S20	14.0	45	115					
STD-V14530D S20	14.5	47	117					
STD-V15030D S20	15.0	48	118					
STD-V15530D S25	15.5	50	131	25	56	SPMX060204	TSB-22052	
STD-V16030D S25	16.0	51	132					
STD-V16530D S25	16.5	53	134					
STD-V17030D S25	17.0	54	135					
STD-V17530D S25	17.5	56	137					
STD-V18030D S25	18.0	57	138					
STD-V18530D S25	18.5	59	140					
STD-V19030D S25	19.0	60	141					
STD-V19530D S25	19.5	62	143					
STD-V20030D S25	20.0	63	144					
STD-V20530D S25	20.5	65	146					
STD-V21030D S25	21.0	66	147					
STD-V21530D S25	21.5	68	149					

● STD-V 중 · 대구경 드릴의 특징

- STD-V 중 · 대구경(∅22~∅80)드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다. 깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.
- 최적의 결과물을 위해, 절삭조건표(125페이지)와 절삭유 적정 압력을 확인해 주세요. (절삭유 적정압력은, STD-V 2×D,3×D일때 4kg/cm²이상, 4×D일때 5kg/cm²이상)

● The characteristic of STD-V middle and big diameter drills

- The chip discharging space for STD-V middle dia and big dia drill(∅22~∅80)was greatly extended. These drills are stable and surface roughness are excellent in the deep hole drilling also.
- Please make sure the proper oil pressure and the cutting data(page 125)for the best performance. (The proper pressure for STD-V 2×D,3×D is over 4kg/cm², the proper pressure for 4×D is over 5kg/cm²)

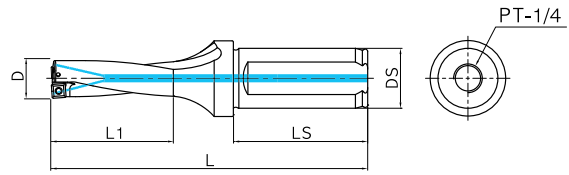
- STD-V 드릴용 인서트(SPMX)는 108페이지를 참조해주세요.
- Please refer to the page 108 regarding STD-V inserts.(SPMX)



- SPMX
내측 + 외측
Peripheral + Central Insert

HIGH SPEED DRILL

STD-V 3×D



DRILLING

● Shank ISO9766, Parallel with clamping flat

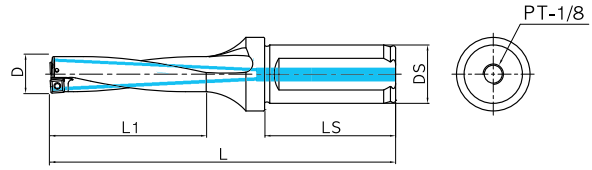
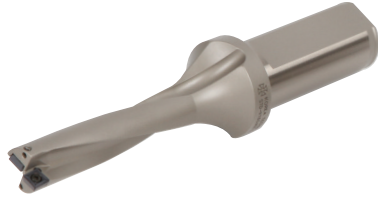
Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V22030D S32	22.0	69	159	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22530D S32	22.5	71	161					
STD-V23030D S32	23.0	72	162					
STD-V23530D S32	23.5	74	164					
STD-V24030D S32	24.0	75	165					
STD-V24530D S32	24.5	77	167					
STD-V25030D S32	25.0	78	168					
STD-V25530D S32	25.5	80	170					
STD-V26030D S32	26.0	81	171					
STD-V26530D S32	26.5	83	173					
STD-V27030D S32	27.0	84	174					
STD-V27530D S32	27.5	86	176					
STD-V28030D S32	28.0	87	177					
STD-V28530D S32	28.5	89	179					
STD-V29030D S32	29.0	90	180					
STD-V29530D S32	29.5	93	183					
STD-V30030D S32	30.0	95	185					
STD-V31030D S32	31.0	98	188					
STD-V32030D S32	32.0	101	191					
STD-V33030D S32	33.0	104	194					
STD-V34030D S40	34.0	107	212	40	70	SPMX110408	TSB-40100	TXL-15
STD-V35030D S40	35.0	110	215					
STD-V36030D S40	36.0	113	218					
STD-V37030D S40	37.0	116	221					
STD-V38030D S40	38.0	119	224					
STD-V39030D S40	39.0	122	227					
STD-V40030D S40	40.0	125	230					
STD-V41030D S40	41.0	128	233					
STD-V42030D S40	42.0	131	236					
STD-V43030D S40	43.0	134	239					
STD-V44030D S40	44.0	137	242					
STD-V45030D S40	45.0	140	245					
STD-V46030D S40	46.0	143	248					
STD-V47030D S40	47.0	146	251					
STD-V48030D S40	48.0	149	254					
STD-V49030D S40	49.0	152	257					
STD-V50030D S40	50.0	155	260					
STD-V42030D S40	42.0	131	236	40	70	SPMX140512	TSB-50125	TXL-20
STD-V43030D S40	43.0	134	239					
STD-V44030D S40	44.0	137	242					
STD-V45030D S40	45.0	140	245					
STD-V46030D S40	46.0	143	248					
STD-V47030D S40	47.0	146	251					
STD-V48030D S40	48.0	149	254					
STD-V49030D S40	49.0	152	257					
STD-V50030D S40	50.0	155	260					

- ※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터플이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다. STD-V드릴과 체결되는 톨 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.
- ※ 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.
- ※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, FXD, VMD The tool holder that locks with STD-V is Side Lock Arbor.(P.78~P.90)
- ※ When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.

HIGH SPEED DRILL

STD-V 4xD

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V13040D S20	13.0	55	125	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13540D S20	13.5	57	127					
STD-V14040D S20	14.0	59	129					
STD-V14540D S20	14.5	61	131					
STD-V15040D S20	15.0	63	133					
STD-V15540D S25	15.5	65	146	25	56	SPMX060204	TSB-22052	
STD-V16040D S25	16.0	67	148					
STD-V16540D S25	16.5	69	150					
STD-V17040D S25	17.0	71	152					
STD-V17540D S25	17.5	73	154					
STD-V18040D S25	18.0	75	156					
STD-V18540D S25	18.5	77	158					
STD-V19040D S25	19.0	79	160					
STD-V19540D S25	19.5	81	162					
STD-V20040D S25	20.0	83	164					
STD-V20540D S25	20.5	85	166					
STD-V21040D S25	21.0	87	168					
STD-V21540D S25	21.5	89	170					

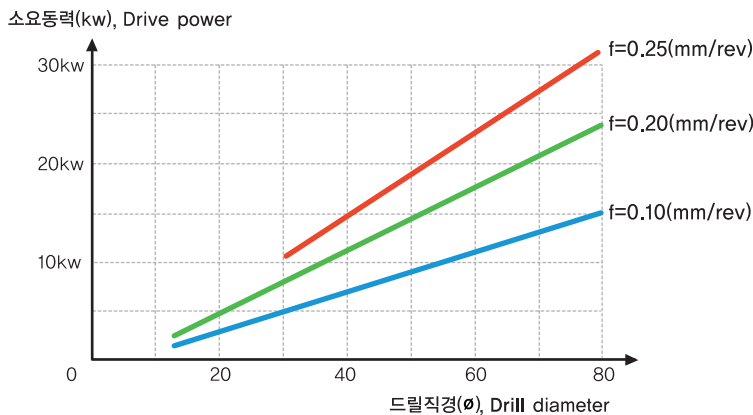
※ 최고의 결과물을 위해서는 절삭조건표(125페이지)와 절삭유 적정 압력을 확인해 주세요.(절삭유 적정압력은 5kg/cm² 이상입니다.)
 ※ Please make sure the proper oil pressure and the cutting date(P.125)for the best performance.(The proper pressure is over 5kg/cm²)

● STD-V 드릴 구멍공차 The hole tolerance of STD-V drill

Diameter	2xD	3xD	4xD
ø13 ~ ø21.5	-0.10 ~ +0.15	-0.10 ~ +0.18	-0.15 ~ +0.20
ø22 ~ ø50	-0.10 ~ +0.15	-0.12 ~ +0.20	-0.15 ~ +0.25
ø50 ~ ø80	-0.15 ~ +0.20	-0.15 ~ +0.25	-0.15 ~ +0.30

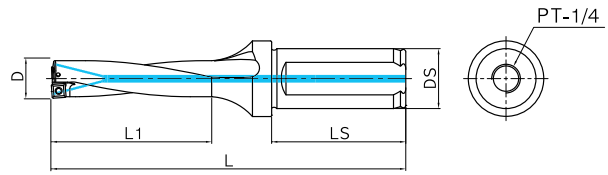
※ 홀 공차는 드릴의 길이, 피삭재, 장비, 가공조건 등에 따라 차이가 생길 수 있습니다.
 ※ The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

● 소요동력 Power Requirements



HIGH SPEED DRILL

STD-V 4xD



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V22040D S32	22.0	91	181	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22540D S32	22.5	93	183					
STD-V23040D S32	23.0	95	185					
STD-V23540D S32	23.5	97	187					
STD-V24040D S32	24.0	99	189					
STD-V24540D S32	24.5	101	191					
STD-V25040D S32	25.0	103	193					
STD-V25540D S32	25.5	105	195					
STD-V26040D S32	26.0	107	197					
STD-V26540D S32	26.5	109	199					
STD-V27040D S32	27.0	111	201					
STD-V27540D S32	27.5	113	203					
STD-V28040D S32	28.0	115	205					
STD-V28540D S32	28.5	117	207					
STD-V29040D S32	29.0	120	210					
STD-V29540D S32	29.5	123	213					
STD-V30040D S32	30.0	125	215					
STD-V31040D S32	31.0	129	219					
STD-V32040D S32	32.0	133	223					
STD-V33040D S32	33.0	137	227					
STD-V34040D S40	34.0	141	246	40	70	SPMX110408	TSB-40100	TXL-15
STD-V35040D S40	35.0	145	250					
STD-V36040D S40	36.0	149	254					
STD-V37040D S40	37.0	153	258					
STD-V38040D S40	38.0	157	262					
STD-V39040D S40	39.0	161	266					
STD-V40040D S40	40.0	165	270					
STD-V41040D S40	41.0	169	274					
STD-V42040D S40	42.0	173	278					
STD-V43040D S40	43.0	177	282					
STD-V44040D S40	44.0	181	286					
STD-V45040D S40	45.0	185	290					
STD-V46040D S40	46.0	189	294					
STD-V47040D S40	47.0	193	298					
STD-V48040D S40	48.0	197	302					
STD-V49040D S40	49.0	201	306					
STD-V50040D S40	50.0	205	310					
STD-V42040D S40	42.0	173	278	40	70	SPMX140512	TSB-50125	TXL-20
STD-V43040D S40	43.0	177	282					
STD-V44040D S40	44.0	181	286					
STD-V45040D S40	45.0	185	290					
STD-V46040D S40	46.0	189	294					
STD-V47040D S40	47.0	193	298					
STD-V48040D S40	48.0	197	302					
STD-V49040D S40	49.0	201	306					
STD-V50040D S40	50.0	205	310					

DRILLING

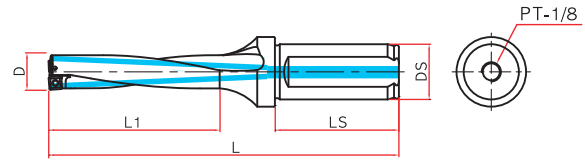


※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
 STD-V드릴과 체결되는 톨 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.
 ※ 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, FXD, VMD
 The tool holder that locks with STD-V is Side Lock Arbor.(P.78~P.90)
 ※ When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.

HIGH SPEED DRILL STD 5XD

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V 13050D-S20	13.0	68	133	20	50	SPMX050204	TSB-20045	TXL-6
STD-V 13550D-S20	13.5	71	136					
STD-V 14050D-S20	14.0	73	138					
STD-V 14550D-S20	14.5	76	141					
STD-V 15050D-S20	15.0	78	143					
STD-V 15550D-S25	15.5	81	157	25	56	SPMX060204	TSB-22052	
STD-V 16050D-S25	16.0	83	159					
STD-V 16550D-S25	16.5	86	162					
STD-V 17050D-S25	17.0	88	164					
STD-V 17550D-S25	17.5	91	167					
STD-V 18050D-S25	18.0	93	169					
STD-V 18550D-S25	18.5	96	172					
STD-V 19050D-S25	19.0	98	174					
STD-V 19550D-S25	19.5	101	177					
STD-V 20050D-S25	20.0	103	179					
STD-V 20550D-S25	20.5	106	182					
STD-V 21050D-S25	21.0	108	184					
STD-V 21550D-S25	21.5	111	187					

※ 최고의 결과물을 위해서는 절삭조건표와 절삭유 적정 압력을 확인해 주세요.(절삭유 적정압력은 5kg/cm² 이상입니다.)

※ Please make sure the proper oil pressure and the cutting date for the best performance.(The proper pressure is over 5kg/cm²)

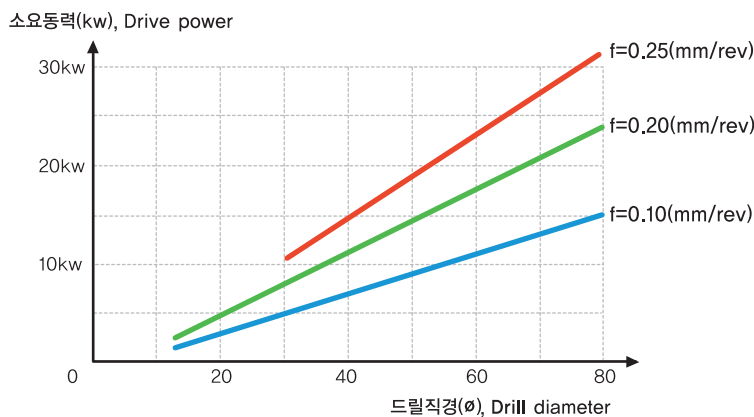
● STD-V 드릴 구멍공차 The hole tolerance of STD-V drill

Diameter	2×D	3×D	4×D	5×D
∅ 13 ~ ∅ 21.5	-0.10 ~ +0.15	-0.10 ~ +0.18	-0.15 ~ +0.20	-0.15 ~ +0.22
∅ 22 ~ ∅ 50	-0.10 ~ +0.15	-0.12 ~ +0.20	-0.15 ~ +0.25	-0.17 ~ +0.28
∅ 50 ~ ∅ 80	-0.15 ~ +0.20	-0.15 ~ +0.25	-0.15 ~ +0.30	-0.18 ~ +0.33

※ 홀 공차는 드릴의 길이, 피삭재, 장비, 가공조건 등에 따라 차이가 생길 수 있습니다.

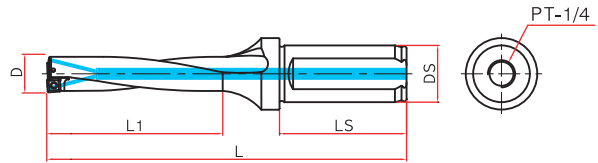
※ The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

● 소요동력 Power Requirements



HIGH SPEED DRILL STD 5XD

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
STD-V22050D-S32	22.0	113	198	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22550D-S32	22.5	116	201					
STD-V23050D-S32	23.0	118	203					
STD-V23550D-S32	23.5	121	206					
STD-V24050D-S32	24.0	123	208					
STD-V24550D-S32	24.5	126	211					
STD-V25050D-S32	25.0	128	213					
STD-V25550D-S32	25.5	131	216					
STD-V26050D-S32	26.0	133	218					
STD-V26550D-S32	26.5	136	221					
STD-V27050D-S32	27.0	138	223					
STD-V27550D-S32	27.5	141	226					
STD-V28050D-S32	28.0	143	228					
STD-V28550D-S32	28.5	146	231					
STD-V29050D-S32	29.0	148	233					
STD-V29550D-S32	29.5	151	236					
STD-V30050D-S32	30.0	155	240	40	70	SPMX090408	TSB-35090	TXL-15
STD-V31050D-S32	31.0	160	245					
STD-V32050D-S32	32.0	165	250					
STD-V33050D-S32	33.0	170	255					
STD-V34050D-S40	34.0	175	275					
STD-V35050D-S40	35.0	180	280					
STD-V36050D-S40	36.0	185	285					
STD-V37050D-S40	37.0	190	290					
STD-V38050D-S40	38.0	195	295					
STD-V39050D-S40	39.0	200	300					
STD-V40050D-S40	40.0	205	305					
STD-V41050D-S40	41.0	210	310					
STD-V42050D-S40	42.0	215	315					
STD-V43050D-S40	43.0	220	320					
STD-V44050D-S40	44.0	225	325					
STD-V45050D-S40	45.0	230	330					
STD-V46050D-S40	46.0	235	335					
STD-V47050D-S40	47.0	240	340					
STD-V48050D-S40	48.0	245	345					
STD-V49050D-S40	49.0	250	350					
STD-V50050D-S40	50.0	255	355					



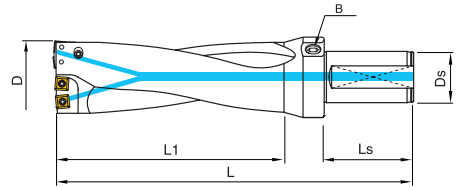
- * 가공경 ø 40 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
STD-V드릴과 체결되는 톨 홀더는 '사이드락 아버'입니다.
- * 불규칙한 면을 가공할 경우에는 이송속도를 30%~50% 줄여 가공하여 주시기 바랍니다.
- * If you are working on the lathe, diameter ø 40 or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with STD-V is Side Lock Arbor.
- * When working on irregular (uneven) surfaces, please reduce the feed rate by 30~50%.

HIGH SPEED DRILL

STD-V BIG DIAMETER DRILL(CARTRIDGE TYPE)

STD-V 대구경 드릴(카트리지 타입)

DRILLING



- Shank ISO9766, Parallel with clamping flat

▶ STD-V 2xD (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					카트리지 Cartridge		인서트 Insert	부품 Component		
	D	L1	L	Ds	Ls	내측 Inner	외측 Outer		Screw	T-Driver	
STD-V505520D S40	50-55	110	220	40	70	STC-V5055N	STC-V5055T	SPMX090408	TSB-35090	TXL-15	
STD-V556020D S40	55-60	120	230			STC-V5560N	STC-V5560T				
STD-V606520D S40	60-65	130	240			STC-V6065N	STC-V6065T	SPMX110408	TSB-40100		
STD-V657020D S40	65-70	140	260			STC-V6570N	STC-V6570T				
STD-V707520D S40	70-75	150	265			STC-V7075N	STC-V7075T	SPMX140512	TSB-50125		TXL-20
STD-V758020D S40	75-80	160	268			STC-V7580N	STC-V7580T				

▶ STD-V 3xD (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					카트리지 Cartridge		인서트 Insert	부품 Component		
	D	L1	L	Ds	Ls	내측 Inner	외측 Outer		Screw	T-Driver	
STD-V505530D S40	50-55	165	275	40	70	STC-V5055N	STC-V5055T	SPMX090408	TSB-35090	TXL-15	
STD-V556030D S40	55-60	180	290			STC-V5560N	STC-V5560T				
STD-V606530D S40	60-65	195	305			STC-V6065N	STC-V6065T	SPMX110408	TSB-40100		
STD-V657030D S40	65-70	210	320			STC-V6570N	STC-V6570T				
STD-V707530D S40	70-75	225	335			STC-V7075N	STC-V7075T	SPMX140512	TSB-50125		TXL-20
STD-V758030D S40	75-80	240	348			STC-V7580N	STC-V7580T				

▶ STD-V 4xD (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					카트리지 Cartridge		인서트 Insert	부품 Component		
	D	L1	L	Ds	Ls	내측 Inner	외측 Outer		Screw	T-Driver	
STD-V505540D S40	50-55	220	330	40	70	STC-V5055N	STC-V5055T	SPMX090408	TSB-35090	TXL-15	
STD-V556040D S40	55-60	240	350			STC-V5560N	STC-V5560T				
STD-V606540D S40	60-65	260	370			STC-V6065N	STC-V6065T	SPMX110408	TSB-40100		
STD-V657040D S40	65-70	280	390			STC-V6570N	STC-V6570T				
STD-V707540D S40	70-75	300	410			STC-V7075N	STC-V7075T	SPMX140512	TSB-50125		TXL-20
STD-V758040D S40	75-80	320	428			STC-V7580N	STC-V7580T				

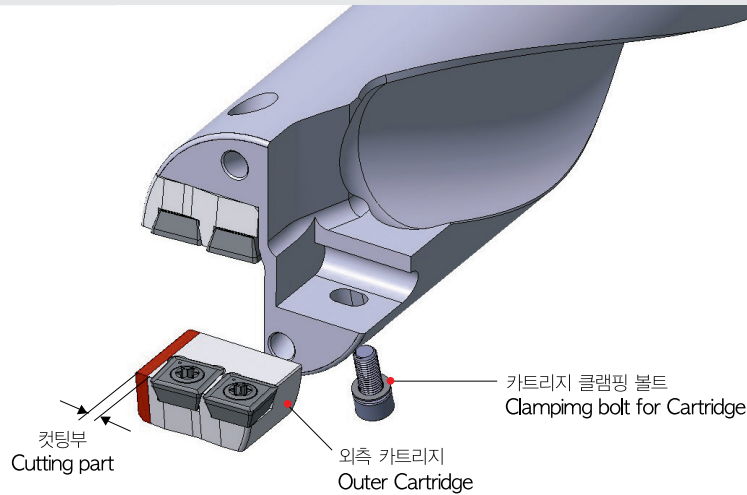
※ 범용선반 작업할 경우, 가공직경 $\phi 40$ 이상이면 VLT나, VMD 사용을 권장합니다.
STD-V드릴과 체결되는 톨 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with STD-V is Side Lock Arbor.(P.78~P.90)

- STD-V 드릴 가공 동영상을 보시려면, 오른쪽 QR코드를 스캔하세요.
- Please scan the QR code if you want to see STD-V drill testing sample video.



STD-V 대구경 드릴(카트리지 타입)셋팅 방법 THE SETTING PROCEDURES FOR THE BIG DIA DRILL(CARTRIDGE TYPE)



- 1) 외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.
Loosen the clamping bolt of the outer cartridge and remove it from the drill body.
- 2) 외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업을한다.
Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
- 3) 컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.
Slick the sharp corner of the cut cartridge.
- 4) 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클램핑 볼트로 단단히 고정한다.
Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.

Example STD-V606530D를 $\phi 61$ 로 셋팅한다면,
기본 직경은 $\phi 65$ 이므로 $\phi 65 - \phi 61 = 4 \rightarrow 4 \div 2 = 2$ (반지름으로 계산), 2.0mm를 컷팅한다.

If you set STD-V606530D to $\phi 61$
The standard drill diameter is $\phi 65$ so $\phi 65 - \phi 61 = 4 \rightarrow 4 \div 2 = 2$ (calculation by semidiameter),
2.0mm is cut off

Notice! STD-V 대구경과 STD 대구경은 셋팅방법이 다르며, 카트리지 호환이 안됩니다.

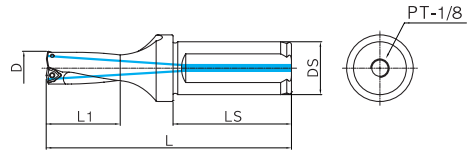
The setting procedures is different from the big dia STD-V drill and STD drill and the car-
tridges is not interchangeable.



HIGH SPEED DRILL

HSD-V 2×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
HSD-V13020D S20	13.0	29	99	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13520D S20	13.5	30	100					
HSD-V14020D S20	14.0	31	101					
HSD-V14520D S20	14.5	32	102					
HSD-V15020D S20	15.0	33	103					
HSD-V15520D S20	15.5	34	104	25	56	WCMX030204	TSB-22045	
HSD-V16020D S25	16.0	35	116					
HSD-V16520D S25	16.5	36	117					
HSD-V17020D S25	17.0	37	118					
HSD-V17520D S25	17.5	38	119					
HSD-V18020D S25	18.0	39	120	121	122	123	124	
HSD-V18520D S25	18.5	40	121					
HSD-V19020D S25	19.0	41	122					
HSD-V19520D S25	19.5	42	123					
HSD-V20020D S25	20.0	43	124					

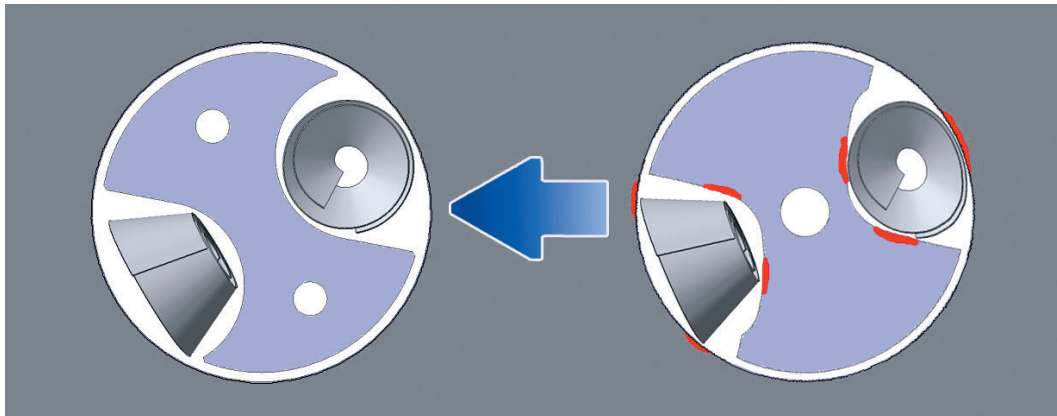
● HSD-V 소구경 드릴의 특징

- HSD-V 소구경(ø13 ~ ø20)드릴은 절삭유 홀을 11자 타입으로 설계변경하여 드릴바디의 강성이 향상되고, 칩 배출 공간을 대폭 확장 시켰습니다.
- 최적의 설계로 절삭성능이 뛰어나고, 표면조도가 매우 우수합니다.

● The characteristic of HSD-V small drill

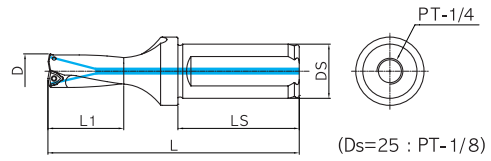
- Small dia drills are designed oil holes to 11 types so the hardness of the drill body is improved and the space of chip break is greatly extended.
- The drilling performance and the surface roughness are excellent by the best design.

• 넓어진 칩 배출 공간 The widen chip discharging space



HIGH SPEED DRILL

HSD-V 2×D



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
HSD-V20520D S25	20.5	44	125	25	56	WCMX040204	TSB-25055	TXL-8
HSD-V21020D S25	21.0	45	126					
HSD-V21520D S25	21.5	46	127					
HSD-V22020D S25	22.0	47	128					
HSD-V22520D S25	22.5	48	129					
HSD-V23020D S25	23.0	49	130					
HSD-V23520D S25	23.5	50	131					
HSD-V24020D S25	24.0	51	132					
HSD-V24520D S25	24.5	52	133					
HSD-V25020D S25	25.0	53	134					
HSD-V25520D S32	25.5	54	144	32	60	WCMX050308	TSB-30070	TXL-8
HSD-V26020D S32	26.0	55	145					
HSD-V26520D S32	26.5	56	146					
HSD-V27020D S32	27.0	57	147					
HSD-V27520D S32	27.5	58	148					
HSD-V28020D S32	28.0	59	149					
HSD-V28520D S32	28.5	60	150					
HSD-V29020D S32	29.0	61	151					
HSD-V29520D S32	29.5	62	152					
HSD-V30020D S32	30.0	63	153					
HSD-V31020D S32	31.0	65	155	40	70	WCMX06T308	TSB-35090	TXL-15
HSD-V32020D S32	32.0	67	157					
HSD-V33020D S32	33.0	69	159					
HSD-V34020D S32	34.0	71	161					
HSD-V35020D S32	35.0	73	163					
HSD-V36020D S32	36.0	75	165					
HSD-V37020D S32	37.0	77	167					
HSD-V38020D S32	38.0	79	169					
HSD-V39020D S32	39.0	81	171					
HSD-V40020D S32	40.0	83	173					
HSD-V41020D S32	41.0	85	175	40	70	WCMX080408	TSB-40110	TXL-15
HSD-V42020D S40	42.0	87	192					
HSD-V43020D S40	43.0	89	194					
HSD-V44020D S40	44.0	91	196					
HSD-V45020D S40	45.0	93	198					
HSD-V46020D S40	46.0	95	200					
HSD-V47020D S40	47.0	97	202					
HSD-V48020D S40	48.0	99	204					
HSD-V49020D S40	49.0	101	206					
HSD-V50020D S40	50.0	103	208					
HSD-V51020D S40	51.0	105	210					
HSD-V52020D S40	52.0	107	212					
HSD-V53020D S40	53.0	109	214					
HSD-V54020D S40	54.0	111	216					
HSD-V55020D S40	55.0	113	218					
HSD-V56020D S40	56.0	115	220					
HSD-V57020D S40	57.0	117	222					
HSD-V58020D S40	58.0	119	224					

※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

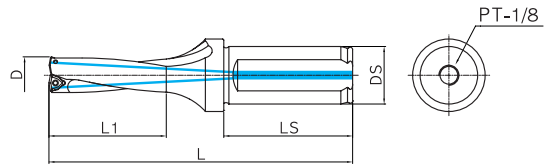
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with HSD-V is Side Lock Arbor.(P.78~P.90)



HIGH SPEED DRILL

HSD-V 3×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

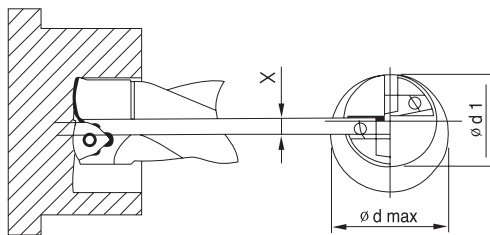
Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
HSD-V13030D S20	13.0	42	112	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13530D S20	13.5	44	114					
HSD-V14030D S20	14.0	45	115					
HSD-V14530D S20	14.5	47	117					
HSD-V15030D S20	15.0	48	118					
HSD-V15530D S20	15.5	50	120	25	56	WCMX030204	TSB-22045	
HSD-V16030D S25	16.0	51	132					
HSD-V16530D S25	16.5	53	134					
HSD-V17030D S25	17.0	54	135					
HSD-V17530D S25	17.5	56	137					
HSD-V18030D S25	18.0	57	138	25	56	WCMX030204	TSB-22045	
HSD-V18530D S25	18.5	59	140					
HSD-V19030D S25	19.0	60	141					
HSD-V19530D S25	19.5	62	143					
HSD-V20030D S25	20.0	63	144					

● HSD-V 중 · 대구경 드릴의 특징

- STD-V 중 · 대구경(∅20.5~∅80)드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다. 깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.
- 최적의 결과물을 위해, 절삭조건표(124페이지)와 절삭유 적정 압력을 확인해 주세요. (절삭유 적정압력은, HSD-V 2×D,3×D일때 3kg/cm²이상, 4×D일때 4kg/cm²이상)

● The characteristic of HSD-V middle and big diameter drills

- The chip discharging space for HSD-V middle dia and big dia drill(∅20.5~∅80)was greatly extended. These drills are stable and surface roughness are excellent in the deep hole drilling also.
- Please make sure the proper oil pressure and the cutting data(P.124)for the best performance. (The proper pressure for HSD-V 2×D,3×D is over 3kg/cm², the proper pressure for 4×D is over 4kg/cm²)

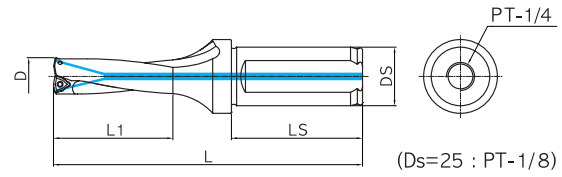


max. D = D + 2 × Adjustment

By offsetting a non-rotating drill in the direction of the outside cutting edge, holes larger than the tool's nominal diameter can be produced

HIGH SPEED DRILL

HSD-V 3×D



DRILLING

● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
HSD-V20530D S25	20.5	65	146	25	56	WCMX040204	TSB-25055	TXL-8
HSD-V21030D S25	21.0	66	147					
HSD-V21530D S25	21.5	68	149					
HSD-V22030D S25	22.0	69	150					
HSD-V22530D S25	22.5	71	152					
HSD-V23030D S25	23.0	72	153					
HSD-V23530D S25	23.5	74	155					
HSD-V24030D S25	24.0	75	156					
HSD-V24530D S25	24.5	77	158					
HSD-V25030D S25	25.0	78	159					
HSD-V25530D S32	25.5	80	170	32	60	WCMX050308	TSB-30070	TXL-8
HSD-V26030D S32	26.0	81	171					
HSD-V26530D S32	26.5	83	173					
HSD-V27030D S32	27.0	84	174					
HSD-V27530D S32	27.5	86	176					
HSD-V28030D S32	28.0	87	177					
HSD-V28530D S32	28.5	89	179					
HSD-V29030D S32	29.0	90	180					
HSD-V29530D S32	29.5	92	182					
HSD-V30030D S32	30.0	93	183					
HSD-V31030D S32	31.0	96	186	40	70	WCMX06T308	TSB-35090	TXL-15
HSD-V32030D S32	32.0	99	189					
HSD-V33030D S32	33.0	102	192					
HSD-V34030D S32	34.0	105	195					
HSD-V35030D S32	35.0	108	198					
HSD-V36030D S32	36.0	111	201					
HSD-V37030D S32	37.0	114	204					
HSD-V38030D S32	38.0	117	207					
HSD-V39030D S32	39.0	120	210					
HSD-V40030D S32	40.0	123	213					
HSD-V41030D S32	41.0	126	216	40	70	WCMX080408	TSB-40110	TXL-15
HSD-V42030D S40	42.0	129	234					
HSD-V43030D S40	43.0	132	237					
HSD-V44030D S40	44.0	135	240					
HSD-V45030D S40	45.0	138	243					
HSD-V46030D S40	46.0	141	246					
HSD-V47030D S40	47.0	144	249					
HSD-V48030D S40	48.0	147	252					
HSD-V49030D S40	49.0	150	255					
HSD-V50030D S40	50.0	153	258					
HSD-V51030D S40	51.0	156	261					
HSD-V52030D S40	52.0	159	264					
HSD-V53030D S40	53.0	162	267					
HSD-V54030D S40	54.0	165	270					
HSD-V55030D S40	55.0	168	273					
HSD-V56030D S40	56.0	171	276					
HSD-V57030D S40	57.0	174	279					
HSD-V58030D S40	58.0	177	282					

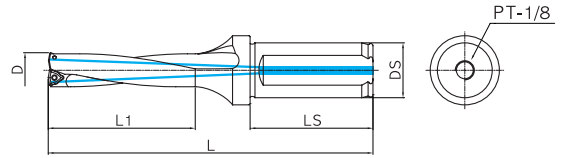
※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
HSD-V드릴과 체결되는 톨 홀더는 '사이드락 아머'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with HSD-V is Side Lock Arbor.(P.78~P.90)

HIGH SPEED DRILL

HSD-V 4×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	LS		Screw	T-Driver
HSD-V13040D S20	13.0	55	125	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13540D S20	13.5	57	127					
HSD-V14040D S20	14.0	59	129					
HSD-V14540D S20	14.5	61	131					
HSD-V15040D S20	15.0	63	133					
HSD-V15540D S20	15.5	65	135	25	56	WCMX030204	TSB-22045	
HSD-V16040D S25	16.0	67	148					
HSD-V16540D S25	16.5	69	150					
HSD-V17040D S25	17.0	71	152					
HSD-V17540D S25	17.5	73	154					
HSD-V18040D S25	18.0	75	156	18.5	77	158	160	
HSD-V18540D S25	18.5	77	158					
HSD-V19040D S25	19.0	79	160					
HSD-V19540D S25	19.5	81	162					
HSD-V20040D S25	20.0	83	164					

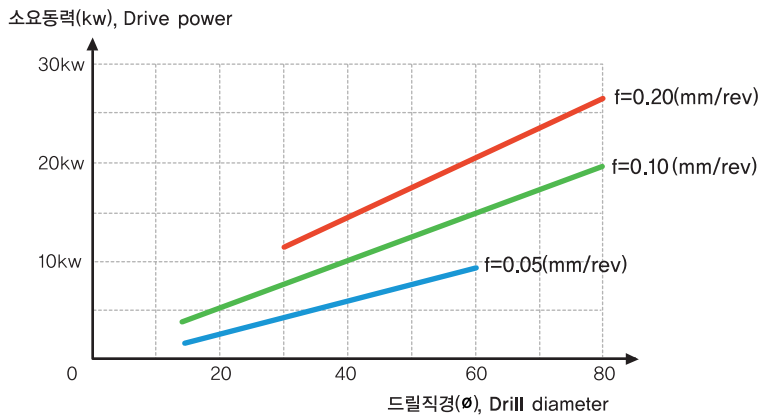
※ 최고의 결과물을 위해서는 절삭조건표(124페이지)와 절삭유 적정 압력을 확인해 주세요.(절삭유 적정압력은 5kg/cm² 이상입니다.)
 ※ Please make sure the proper oil pressure and the cutting date(P.124) for the best performance.(The proper pressure is over 5kg/cm²)

● HSD-V 드릴 구멍공차 The hole tolerance of HSD-V drill

Diameter	2×D	3×D	4×D
ø13 ~ ø21.5	-0.10 ~ +0.15	-0.10 ~ +0.15	-0.15 ~ +0.20
ø22 ~ ø50	-0.10 ~ +0.15	-0.12 ~ +0.20	-0.15 ~ +0.25
ø50 ~ ø80	-0.15 ~ +0.20	-0.15 ~ +0.25	-0.15 ~ +0.30

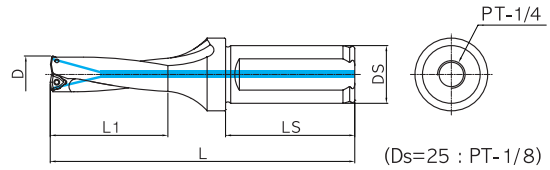
※ 홀 공차는 드릴의 길이, 피삭재, 장비, 가공조건 등에 따라 차이가 생길 수 있습니다.
 ※ The length of drill, kind of workpiece, machine stability, and cutting condition could affect the hole tolerance.

● 소요동력 Power Requirements



HIGH SPEED DRILL

HSD-V 4×D



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	T-Driver
HSD-V20540D S25	20.5	85	166	25	56	WCMX040204	TSB-25055	TXL-8
HSD-V21040D S25	21.0	87	168					
HSD-V21540D S25	21.5	89	170					
HSD-V22040D S25	22.0	91	172					
HSD-V22540D S25	22.5	93	174					
HSD-V23040D S25	23.0	95	176					
HSD-V23540D S25	23.5	97	178					
HSD-V24040D S25	24.0	99	180					
HSD-V24540D S25	24.5	101	182					
HSD-V25040D S25	25.0	103	184					
HSD-V25540D S32	25.5	105	195	32	60	WCMX050308	TSB-30070	
HSD-V26040D S32	26.0	107	197					
HSD-V26540D S32	26.5	109	199					
HSD-V27040D S32	27.0	111	201					
HSD-V27540D S32	27.5	113	203					
HSD-V28040D S32	28.0	115	205					
HSD-V28540D S32	28.5	117	207					
HSD-V29040D S32	29.0	119	209					
HSD-V29540D S32	29.5	121	211					
HSD-V30040D S32	30.0	123	213					
HSD-V31040D S32	31.0	127	217	40	70	WCMX06T308	TSB-35090	TXL-15
HSD-V32040D S32	32.0	131	221					
HSD-V33040D S32	33.0	135	225					
HSD-V34040D S32	34.0	139	229					
HSD-V35040D S32	35.0	143	233					
HSD-V36040D S32	36.0	147	237					
HSD-V37040D S32	37.0	151	241					
HSD-V38040D S32	38.0	155	245					
HSD-V39040D S32	39.0	159	249					
HSD-V40040D S32	40.0	163	253					
HSD-V41040D S32	41.0	167	257	40	70	WCMX080408	TSB-40110	
HSD-V42040D S40	42.0	171	276					
HSD-V43040D S40	43.0	175	280					
HSD-V44040D S40	44.0	179	284					
HSD-V45040D S40	45.0	183	288					
HSD-V46040D S40	46.0	187	292					
HSD-V47040D S40	47.0	191	296					
HSD-V48040D S40	48.0	195	300					
HSD-V49040D S40	49.0	199	304					
HSD-V50040D S40	50.0	203	308					
HSD-V51040D S40	51.0	207	312					
HSD-V52040D S40	52.0	211	316					
HSD-V53040D S40	53.0	215	320					
HSD-V54040D S40	54.0	219	324					
HSD-V55040D S40	55.0	223	328					
HSD-V56040D S40	56.0	227	332					
HSD-V57040D S40	57.0	231	336					
HSD-V58040D S40	58.0	235	340					

※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버'(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with HSD-V is Side Lock Arbor.(P.78~P.90)

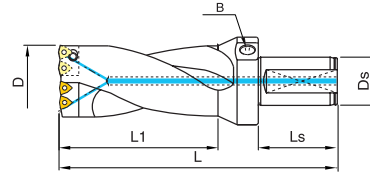


HIGH SPEED DRILL

HSD-V BIG DIAMETER DRILL(CARTRIDGE TYPE)

HSD-V 대구경 드릴(카트리지 타입)

DRILLING



- Shank ISO9766, Parallel with clamping flat

▶ HSD-V 2×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
HSD-V596520D S40	59-65	130	240	40	70	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
HSD-V657020D S40	65-70	140	250						HSC-6570N/T
HSD-V707520D S40	70-75	150	260						HSC-7075N/T
HSD-V758020D S40	75-80	160	270						HSC-7580N/T

▶ HSD-V 3×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
HSD-V596530D S40	59-65	195	305	40	70	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
HSD-V657030D S40	65-70	210	320						HSC-6570N/T
HSD-V707530D S40	70-75	225	335						HSC-7075N/T
HSD-V758030D S40	75-80	240	350						HSC-7580N/T

▶ HSD-V 4×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
HSD-V596540D S40	59-65	260	370	40	70	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
HSD-V657040D S40	65-70	280	390						HSC-6570N/T
HSD-V707540D S40	70-75	300	410						HSC-7075N/T
HSD-V758040D S40	75-80	320	430						HSC-7580N/T

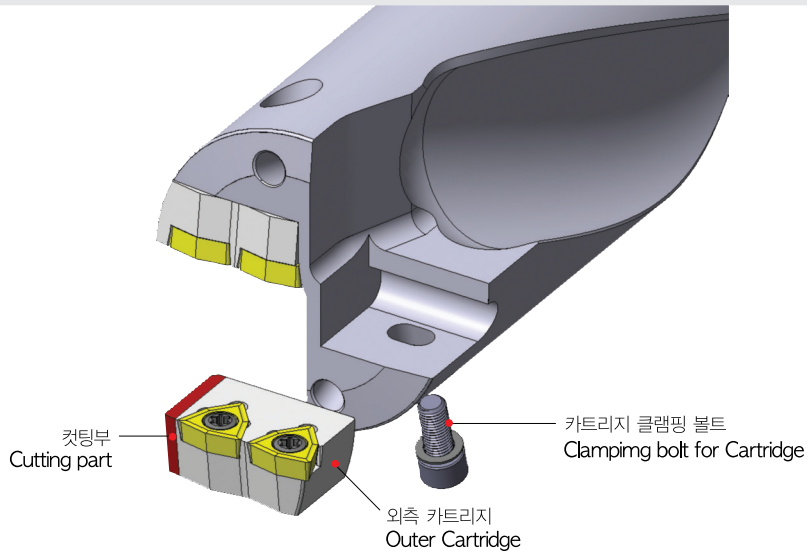
※ 범용선반 작업할 경우, 가공직경 $\phi 40$ 이상이면 VLT나, VMD 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버(78페이지~90페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the VLT, FXD, VMD
The tool holder that locks with HSD-V is Side Lock Arbor.(P.78~P.90)

- HSD-V 드릴 가공 동영상을 보시려면, 오른쪽 QR코드를 스캔하세요.
- Please scan the QR code if you want to see HSD-V drill testing sample video.

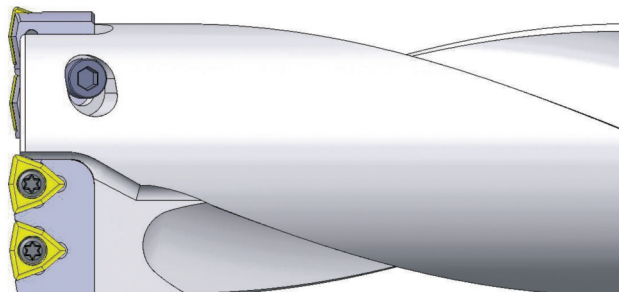


HSD-V 대구경 드릴(카트리지 타입)셋팅 방법 THE SETTING PROCEDURES FOR THE BIG DIA DRILL(CARTRIDGE TYPE)



- 1) 외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.
Loosen the clamping bolt of the outer cartridge and remove it from the drill body.
- 2) 외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업을한다.
Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
- 3) 컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.
Slick the sharp corner of the cut cartridge.
- 4) 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클램핑 볼트로 단단히 고정한다.
Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.

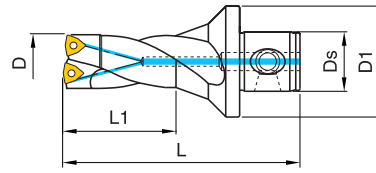
Example HSD-V707530D를 $\phi 72$ 로 셋팅한다면,
기본 직경은 $\phi 75$ 이므로 $\phi 75 - \phi 72 = 3 \rightarrow 3 \div 2 = 1.5$ (반지름으로 계산), 1.5mm를 컷팅한다.
If you set HSD-V707530D to $\phi 72$
The standard drill diameter is $\phi 75$ so $\phi 75 - \phi 72 = 3 \rightarrow 3 \div 2 = 1.5$ (calculation by semidiameter),
1.5mm is cut off



HIGH SPEED DRILL

MCD 2×D

DRILLING



● EXT Modular Shank Type

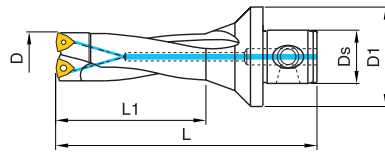
Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	D1	Ds		Screw	Driver
MCD-13020D	13	31	83	40	22	WCMX03T104	TSB-18045	TXL-6
MCD-14020D	14	33	85					
MCD-15020D	15	35	87					
MCD-16020D	16	37	89					
MCD-17020D	17	39	91					
MCD-18020D	18	41	93					
MCD-19020D	19	43	95					
MCD-20020D	20	45	97					
MCD-21020D	21	47	99					
MCD-22020D	22	49	101					
MCD-23020D	23	51	103	50	28	WCMX040204	TSB-25055	TXL-8
MCD-24020D	24	53	105					
MCD-25020D	25	55	107					
MCD-26020D	26	57	117					
MCD-27020D	27	59	119					
MCD-28020D	28	61	121					
MCD-29020D	29	63	123					
MCD-30020D	30	65	125					
MCD-31020D	31	67	127					
MCD-32020D	32	69	129					
MCD-33020D	33	71	131					
MCD-34020D	34	73	133					
MCD-35020D	35	75	135					
MCD-36020D	36	77	137					
MCD-37020D	37	79	139					
MCD-38020D	38	81	141					
MCD-39020D	39	83	143					
MCD-40020D	40	85	145					
MCD-41020D	41	87	147					
MCD-42020D	42	89	159	63	36	WCMX050308	TSB-30070	TXL-15
MCD-43020D	43	91	161					
MCD-44020D	44	93	163					
MCD-45020D	45	95	165					
MCD-46020D	46	97	167					
MCD-47020D	47	99	169					
MCD-48020D	48	101	171					
MCD-49020D	49	103	173					
MCD-50020D	50	105	175					
MCD-51020D	51	107	177					
MCD-52020D	52	109	179					
MCD-53020D	53	111	181					
MCD-54020D	54	113	183					
MCD-55020D	55	115	185					
MCD-56020D	56	117	187					
MCD-57020D	57	119	189					
MCD-58020D	58	121	191					

※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(TMD, VMD) 사용을 권장합니다.
MCD드릴과 체결되는 툴 홀더는 'EXT 모듈러 툴홀더'(98페이지~102페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the TMD, VMD
The tool holder that locks with MCD is EXT Modular Tool holder.(P.98~P.102)

HIGH SPEED DRILL

MCD 2.5×D



● EXT Modular Shank Type

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	D1	Ds		Screw	Driver
MCD-13025D	13	37	89	40	22	WCMX03T104	TSB-18045	TXL-6
MCD-14025D	14	40	92					
MCD-15025D	15	42	94					
MCD-16025D	16	45	97					
MCD-17025D	17	47	99					
MCD-18025D	18	50	102					
MCD-19025D	19	52	104					
MCD-20025D	20	55	107					
MCD-21025D	21	58	109					
MCD-22025D	22	60	112					
MCD-23025D	23	63	115	50	28	WCMX030204	TSB-22045	TXL-8
MCD-24025D	24	65	117					
MCD-25025D	25	68	119					
MCD-26025D	26	70	131					
MCD-27025D	27	73	133					
MCD-28025D	28	75	136					
MCD-29025D	29	78	138					
MCD-30025D	30	80	141					
MCD-31025D	31	83	143					
MCD-32025D	32	85	146					
MCD-33025D	33	88	148					
MCD-34025D	34	90	151					
MCD-35025D	35	93	153					
MCD-36025D	36	95	156					
MCD-37025D	37	98	158					
MCD-38025D	38	100	161					
MCD-39025D	39	103	163					
MCD-40025D	40	105	166					
MCD-41025D	41	108	168					
MCD-42025D	42	110	180	63	36	WCMX050308	TSB-30070	TXL-15
MCD-43025D	43	113	183					
MCD-44025D	44	115	185					
MCD-45025D	45	118	188					
MCD-46025D	46	120	190					
MCD-47025D	47	123	193					
MCD-48025D	48	125	195					
MCD-49025D	49	128	198					
MCD-50025D	50	130	200					
MCD-51025D	51	133	203					
MCD-52025D	52	135	205					
MCD-53025D	53	138	208					
MCD-54025D	54	140	210					
MCD-55025D	55	143	213					
MCD-56025D	56	145	215					
MCD-57025D	57	148	218					
MCD-58025D	58	150	220					

※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(TMD, VMD) 사용을 권장합니다.
MCD드릴과 체결되는 툴 홀더는 'EXT 모듈러 툴홀더'(98페이지~102페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the TMD, VMD
The tool holder that locks with MCD is EXT Modular Tool holder.(P.98~P.102)

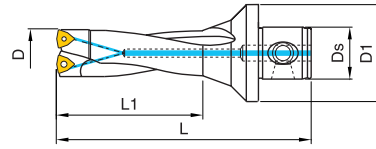
DRILLING



HIGH SPEED DRILL

MCD 3×D

DRILLING



● EXT Modular Shank Type

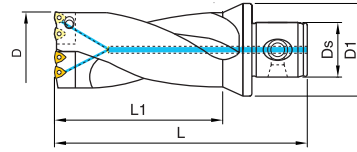
Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component	
	D	L1	L	D1	Ds		Screw	Driver
MCD-13030D	13	44	96	40	22	WCMX03T104	TSB-18045	TXL-6
MCD-14030D	14	47	99					
MCD-15030D	15	50	102					
MCD-16030D	16	53	105					
MCD-17030D	17	56	108					
MCD-18030D	18	59	111					
MCD-19030D	19	62	114					
MCD-20030D	20	65	117					
MCD-21030D	21	68	120					
MCD-22030D	22	71	123					
MCD-23030D	23	74	126	50	28	WCMX040204	TSB-25055	TXL-8
MCD-24030D	24	77	129					
MCD-25030D	25	80	132					
MCD-26030D	26	83	144					
MCD-27030D	27	86	147					
MCD-28030D	28	89	150					
MCD-29030D	29	92	153					
MCD-30030D	30	95	156					
MCD-31030D	31	98	159					
MCD-32030D	32	101	162					
MCD-33030D	33	104	165					
MCD-34030D	34	107	168					
MCD-35030D	35	110	171					
MCD-36030D	36	113	174					
MCD-37030D	37	116	177					
MCD-38030D	38	119	180					
MCD-39030D	39	122	183					
MCD-40030D	40	125	186					
MCD-41030D	41	128	188					
MCD-42030D	42	131	201	63	36	WCMX050308	TSB-30070	TXL-15
MCD-43030D	43	134	204					
MCD-44030D	44	137	207					
MCD-45030D	45	140	210					
MCD-46030D	46	143	213					
MCD-47030D	47	146	216					
MCD-48030D	48	149	219					
MCD-49030D	49	152	222					
MCD-50030D	50	155	225					
MCD-51030D	51	158	228					
MCD-52030D	52	161	231					
MCD-53030D	53	164	234					
MCD-54030D	54	167	237					
MCD-55030D	55	170	240					
MCD-56030D	56	173	243					
MCD-57030D	57	176	246					
MCD-58030D	58	179	249					

※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(TMD, VMD) 사용을 권장합니다.
MCD드릴과 체결되는 툴 홀더는 'EXT 모듈러 툴홀더'(98페이지~102페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the TMD, VMD
The tool holder that locks with MCD is EXT Modular Tool holder.(P.98~P.102)

HIGH SPEED DRILL MCD CARTRIDGE TYPE

DRILLING



● EXT Modular Shank Type

▶ MCD 2×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
MCD-596520D	59-65	130	220	80	45	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
MCD-657020D	65-70	140	230						MDC-080085N/T
MCD-707520D	70-75	150	240						MDC-085090N/T
MCD-758020D	75-80	160	250						MDC-090095N/T

▶ MCD 2.5×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
MCD-596525D	59-65	160	250	80	45	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
MCD-657025D	65-70	175	265						MDC-080085N/T
MCD-707525D	70-75	190	280						MDC-085090N/T
MCD-758025D	75-80	200	290						MDC-090095N/T

▶ MCD 3×D (CARTRIDGE TYPE)

Code No.	치수 Dimension(mm)					인서트 Insert	부품 Component		카트리지 Cartridge
	D	L1	L	Ds	Ls		Screw	T-Driver	
MCD-596530D	59-65	195	285	80	45	WCMX06T308	TSB-35090	TXL-15	HSC-5965N/T
MCD-657030D	65-70	210	300						MDC-080085N/T
MCD-707530D	70-75	225	315						MDC-085090N/T
MCD-758030D	75-80	240	330						MDC-090095N/T

※ 가공경 $\phi 40$ 이상을 범용선반에서 가공할 경우 센터볼이 타입 드릴(TMD, VMD) 사용을 권장합니다.
MCD드릴과 체결되는 툴 홀더는 'EXT 모듈러 툴홀더(98페이지~102페이지)입니다.

※ If you are working on the lathe, diameter $\phi 40$ or higher, we recommend using the TMD, VMD
The tool holder that locks with MCD is EXT Modular Tool holder.(P.98~P.102)

Construction System of TURBO DRILL's Code No.



▶ Standard Type

FXD - 27540D S32

드릴종류
Drill group

가공직경: $\phi 27.5$
Drilling diameter: $\phi 27.5$

기공깊이:가공직경의 4배
Drilling depth: Dia $\times 4$

샙크직경 : $\phi 32$
Shank diameter: $\phi 32$

▶ Adjustment Type

VLT - 758065D S40

드릴종류
Drill group

가공직경: $\phi 75 \sim \phi 80$ (조절타입)
Drilling diameter: $\phi 75 \sim \phi 80$ (Adjustable)

기공깊이:가공직경의 6.5배
Drilling depth: Dia $\times 6.5$

샙크직경 : $\phi 40$
Shank diameter: $\phi 40$

Turbo Drill

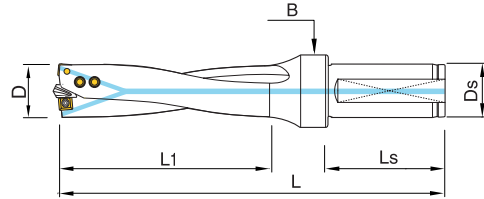
FXD



TURBO DRILL

FXD 4×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

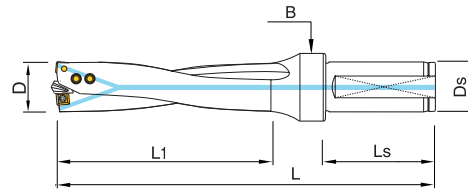
Code No.	치수 Dimension(mm)					B	인서트 Insert	Insert Screw	Torx Screw	센터드릴 Pilot Drill
	D	L1	L	Ds	Ls					
FXD-18040D S25	18.0	75	161	25	56	PT-1/8	SPMX 050204	TSB-20045	TXL-6	PLD-0620 TiN
FXD-18540D S25	18.5	77	163							
FXD-19040D S25	19.0	79	165							
FXD-19540D S25	19.5	81	167							
FXD-20040D S25	20.0	83	169							
FXD-20540D S25	20.5	85	171							
FXD-21040D S25	21.0	87	173							
FXD-21540D S25	21.5	89	175							
FXD-22040D S25	22.0	91	177							
FXD-22540D S25	22.5	93	179							
FXD-23040D S25	23.0	95	181							
FXD-23540D S25	23.5	97	183							
FXD-24040D S25	24.0	99	185							
FXD-24540D S25	24.5	101	187							
FXD-25040D S25	25.0	103	189							
FXD-25540D S32	25.5	105	200	32	60	PT-1/4	SPMX 060204	TSB-22052	TXL-8	PLD-0825 TiN
FXD-26040D S32	26.0	107	202							
FXD-26540D S32	26.5	109	204							
FXD-27040D S32	27.0	111	206							
FXD-27540D S32	27.5	113	208							
FXD-28040D S32	28.0	115	210							
FXD-28540D S32	28.5	117	212							
FXD-29040D S32	29.0	119	214							
FXD-29540D S32	29.5	121	216							
FXD-30040D S32	30.0	123	218							

※ FXD DRILL은 곽판가공이 가능합니다. 관통작업시 이송을 30~50%정도 줄여서 작업해주세요.

※ SPMX 인서트는 108페이지를 참조해주세요

※ FXD DRILL is capable of working laminated boards. Please reduce the feed rate by 30%~50% when performing penetration work.

※ Please refer to the page108 regarding SPMX insert.



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					B	인서트 Insert	Insert Screw	Torx Screw	센터드릴 Pilot Drill					
	D	L1	L	Ds	Ls										
FXD-18060D S25	18.0	112	198	25	56	PT-1/8	SPMX 050204	TSB-20045	TXL-6	PLD-0620 TiN					
FXD-18560D S25	18.5	115	201												
FXD-19060D S25	19.0	118	204												
FXD-19560D S25	19.5	121	207												
FXD-20060D S25	20.0	124	210												
FXD-20560D S25	20.5	127	213												
FXD-21060D S25	21.0	130	216				SPMX 060204	TSB-22052							
FXD-21560D S25	21.5	133	219												
FXD-22060D S25	22.0	136	222												
FXD-22560D S25	22.5	139	225												
FXD-23060D S25	23.0	142	228												
FXD-23560D S25	23.5	145	231												
FXD-24060D S25	24.0	148	234				32	60			PT-1/4	SPMX 07T308	TSB-25065	TXL-8	PLD-0825 TiN
FXD-24560D S25	24.5	151	237												
FXD-25060D S25	25.0	154	240												
FXD-25560D S32	25.5	157	252												
FXD-26060D S32	26.0	160	255												
FXD-26560D S32	26.5	163	258												
FXD-27060D S32	27.0	166	261												
FXD-27560D S32	27.5	169	264												
FXD-28060D S32	28.0	172	267												
FXD-28560D S32	28.5	175	270												
FXD-29060D S32	29.0	178	273												
FXD-29560D S32	29.5	181	276												
FXD-30060D S32	30.0	184	279												

※ FXD DRILL은 고품가공이 가능합니다. 관통작업시 이송을 30~50%정도 줄여서 작업해주세요.

※ SPMX 인서트는 108페이지를 참조해주세요

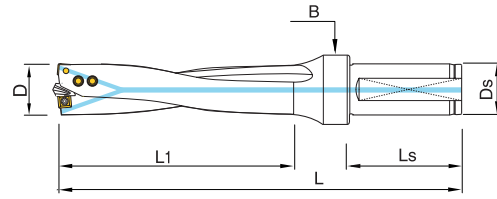
※ FXD DRILL is capable of working laminated boards. Please reduce the feed rate by 30%~50% when performing penetration work.

※ Please refer to the page108 regarding SPMX insert.

TURBO DRILL

FXD 8×D

DRILLING



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					B	인서트 Insert	Insert Screw	Torx Screw	센터드릴 Pilot Drill					
	D	L1	L	Ds	Ls										
FXD-18080D S25	18.0	149	235	25	56	PT-1/8	SPMX 050204	TSB-20045	TXL-6	PLD-0620 TiN					
FXD-18580D S25	18.5	153	239												
FXD-19080D S25	19.0	157	243												
FXD-19580D S25	19.5	161	247												
FXD-20080D S25	20.0	165	251												
FXD-20580D S25	20.5	169	255												
FXD-21080D S25	21.0	173	259												
FXD-21580D S25	21.5	177	263												
FXD-22080D S25	22.0	181	267												
FXD-22580D S25	22.5	185	271												
FXD-23080D S25	23.0	189	275												
FXD-23580D S25	23.5	193	279												
FXD-24080D S25	24.0	197	283												
FXD-24580D S25	24.5	201	287												
FXD-25080D S25	25.0	205	291												
FXD-25580D S32	25.5	209	304				32	60			PT-1/4	SPMX 07T308	TSB-25065	TXL-8	PLD-0825 TiN
FXD-26080D S32	26.0	213	308												
FXD-26580D S32	26.5	217	312												
FXD-27080D S32	27.0	221	316												
FXD-27580D S32	27.5	225	320												
FXD-28080D S32	28.0	229	324												
FXD-28580D S32	28.5	233	328												
FXD-29080D S32	29.0	237	332												
FXD-29580D S32	29.5	241	336												
FXD-30080D S32	30.0	245	340												

* FXD DRILL은 곱판가공이 가능합니다. 관통작업시 이송을 30~50%정도 줄여서 작업해주세요.

* SPMX 인서트는 108페이지를 참조해주세요

* FXD DRILL is capable of working laminated boards. Please reduce the feed rate by 30%~50% when performing penetration work.

* Please refer to the page108 regarding SPMX insert.

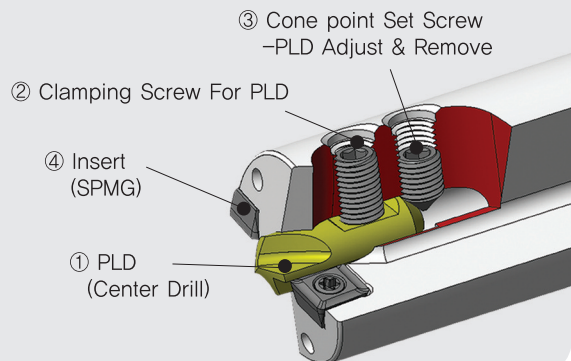
▣ 조립순서

1. ①PLD를 홀에 삽입한다.
2. ④인서트(2pcs.)를 체결한다.
3. ③번 스크류로 PLD높이를 조절한다.
4. ②번 스크류로 강하게 클램핑한다.
5. PLD와③번 스크류 사이에 유격이 발생하지 않도록 꼭 조여준다.

▣ How to set the clamping

1. The ①PLD insert to Hole..
2. Locking the ④Insert.(2pcs.)
3. The PLD Hight control as the ③Screw.
4. Clamping ②Screw tightly
5. Do not make a space between PLD and ③Screw so you must be tight.

▣ FXD Setting View



Turbo Drill

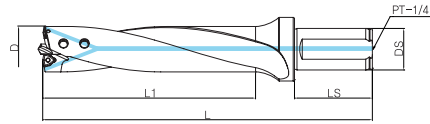
VLT



TURBO DRILL

VLT 5×D

DRILLING

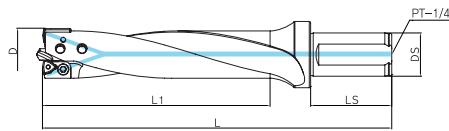


- Shank ISO9766, Parallel with clamping flat

▶ STANDARD TYPE

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component			
	D	L1	L	Ds	Ls			Screw	Driver		
VLT-25050D S32	25	150	240	32	60	PLD-V0630 TiN	WCMX030204	TSB-22045	TXL-6		
VLT-26050D S32	26										
VLT-27050D S32	27										
VLT-28050D S32	28										
VLT-29050D S32	29										
VLT-30050D S32	30										
VLT-31050D S32	31	175	265			32	60	PLD-V0835 TiN	WCMX050308	TSB-30070	TXL-8
VLT-32050D S32	32										
VLT-33050D S32	33										
VLT-34050D S32	34										
VLT-35050D S32	35										
VLT-36050D S32	36										
VLT-37050D S32	37	200	290	32	60	PLD-V0835 TiN	WCMX050308	TSB-30070	TXL-8		
VLT-38050D S32	38										
VLT-39050D S32	39										
VLT-40050D S32	40										

※ ø25~ø40 : 일반형 Standard Type



- Shank ISO9766, Parallel with clamping flat

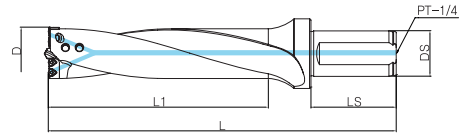
▶ SINGLE INSERT CARTRIDGE TYPE

Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge					
	D	L1	L			Screw	Driver	Inner	Outer				
VLT-414550D S40	41	225	330	PLD-V1035 TiN-H	WCMX 06T308	TSB- 35078	TXL-15	VLC- 410450N	VLC-000410T				
	42								VLC-000420T				
	43								VLC-000430T				
	44								VLC-000440T				
	45								VLC-000450T				
VLT-465050D S40	46	250	355					PLD-V1238 TiN-H	WCMX 080408	TSB- 40110	TXL-15	VLC- 460500N	VLC-000460T
	47												VLC-000470T
	48												VLC-000480T
	49												VLC-000490T
	50												VLC-000500T
VLT-515550D S40	51	275	380	PLD-V1238 TiN-H	WCMX 080408	TSB- 40110	TXL-15					VLC- 510550N	VLC-000510T
	52												VLC-000520T
	53												VLC-000530T
	54												VLC-000540T
	55												VLC-000550T
VLT-565950D S40	56	300	405					PLD-V1238 TiN-H	WCMX 080408	TSB- 40110	TXL-15	VLC- 560590N	VLC-000560T
	57												VLC-000570T
	58												VLC-000580T
	59												VLC-000590T

※ ø41~ø59 : 1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

※ ø41~ø59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm)



- Shank ISO9766, Parallel with clamping flat

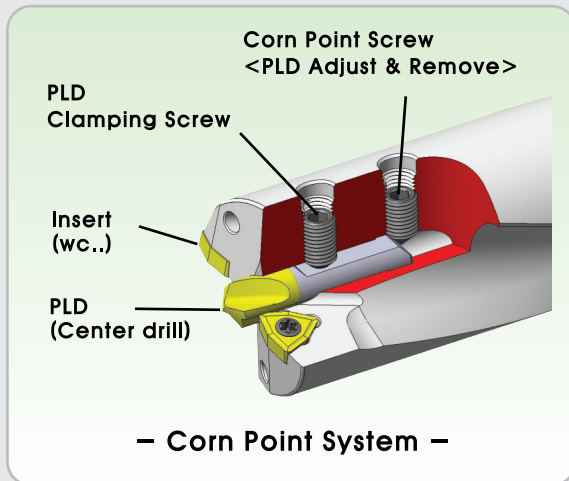
▶ DUAL INSERT CARTRIDGE TYPE

Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge	
	D	L1	L			Screw	Driver	Inner	Outer
VLT-606550D S40	60~65	325	430	PLD-V1238 TiN-H	WCMX 050308	TSB- 30070	TXL-8	VMC-060065N	VMC-060065T
VLT-657050D S40	65~70	350	455					VMC-065070N	VMC-065070T
VLT-707550D S40	70~75	375	480					VMC-070075N	VMC-070075T
VLT-758050D S40	75~80	400	505	PLD-V1645 TiN-H	WCMX 06T308	TSB- 35090	TXL-15	VMC-075080N	VMC-075080T

- ※ $\phi 60 \sim \phi 80$: 외측 카트리지를 커팅하여 직경을 조절합니다.
- ※ $\phi 60 \sim \phi 80$: Cut the outer cartridge and setting.(adjust 5mm)

- VLT 드릴 가공 동영상을 보시려면, 오른쪽 QR코드를 스캔하세요.
- Please scan the QR code if you want to see VLT drill testing sample video.

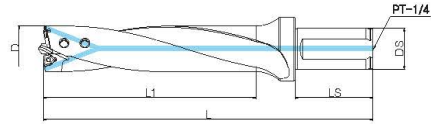


- ▶ **VLT A TYPE** $\phi 25\text{mm} \sim \phi 40\text{mm}$ (Standard Type)
- ▶ **VLT B TYPE** $\phi 41\text{mm} \sim \phi 59\text{mm}$ (Single Insert Cartridge Type)
- ▶ **VLT C TYPE** $\phi 60\text{mm} \sim \phi 80\text{mm}$ (Dual Insert Cartridge Type)

TURBO DRILL

VLT 6.5×D

DRILLING

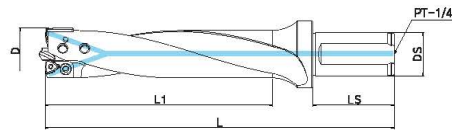


- Shank ISO9766, Parallel with clamping flat

▶ STANDARD TYPE

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls			Screw	Driver
VLT-25065D S32	25	185	275	32	60	PLD-V0630 TiN	WCMX040204	TSB-22045	TXL-6
VLT-26065D S32	26								
VLT-27065D S32	27								
VLT-28065D S32	28								
VLT-29065D S32	29								
VLT-30065D S32	30								
VLT-31065D S32	31	218	308						
VLT-32065D S32	32								
VLT-33065D S32	33								
VLT-34065D S32	34								
VLT-35065D S32	35								
VLT-36065D S32	36	250	340	PLD-V0835 TiN	WCMX050308	TSB-30070	TXL-8		
VLT-37065D S32	37								
VLT-38065D S32	38								
VLT-39065D S32	39								
VLT-40065D S32	40								

※ ø25~ø40 : 일반형 Standard Type



- Shank ISO9766, Parallel with clamping flat

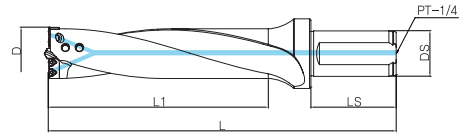
▶ SINGLE INSERT CARTRIDGE TYPE

Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge	
	D	L1	L			Screw	Driver	Inner	Outer
VLT-414565D S40	41	283	388	PLD-V1035 TiN-H	WCMX 06T308	TSB- 35078	TXL-15	VLC- 410450N	VLC-000410T
	42								VLC-000420T
	43								VLC-000430T
	44								VLC-000440T
	45								VLC-000450T
VLT-465065D S40	46	315	420						
	47							VLC-000460T	
	48							VLC-000470T	
	49							VLC-000480T	
	50							VLC-000490T	
VLT-515565D S40	51	348	453	PLD-V1238 TiN-H	WCMX 080408	TSB- 40110	TXL-15	VLC- 510550N	VLC-000510T
	52								VLC-000520T
	53								VLC-000530T
	54								VLC-000540T
	55								VLC-000550T
VLT-565965D S40	56	380	485						
	57							VLC-000560T	
	58							VLC-000570T	
	59							VLC-000580T	

※ ø41~ø59 : 1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

※ ø41~ø59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm)



- Shank ISO9766, Parallel with clamping flat

▶ DUAL INSERT CARTRIDGE TYPE

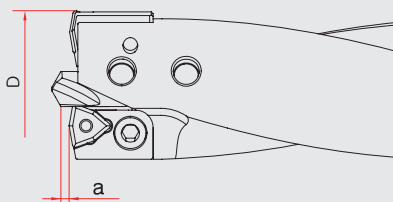
Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge	
	D	L1	L			Screw	Driver	Inner	Outer
VLT-606565D S40	60~65	423	528	PLD-V1238 TiN-H	WCMX 050308	TSB- 30070	TXL-8	VMC-060065N	VMC-060065T
VLT-657065D S40	65~70	455	560					VMC-065070N	VMC-065070T
VLT-707565D S40	70~75	488	593					VMC-070075N	VMC-070075T
VLT-758065D S40	75~80	520	625	PLD-V1645 TiN-H	WCMX 06T308	TSB- 35090	TXL-15	VMC-075080N	VMC-075080T

- ※ $\phi 60 \sim \phi 80$: 외측 카트리지를 커팅하여 직경을 조절합니다.
- ※ $\phi 60 \sim \phi 80$: Cut the outer cartridge and setting.(adjust 5mm)

User Guide

▣ 파일럿드릴(PLD) 셋팅높이 Pilot drill(PLD) setting



Drill dia. (ϕ)	a		
	non-alloy steels	alloy steels	non-ferrous metal
25-30	1.2	1	1.5
31-40	1.5	1.3	1.8
41-50	1.8	1.5	2.2
51-59	2.2	1.8	2.5
60-75	2.5	2	2.8
75-80	3	2.5	3.5

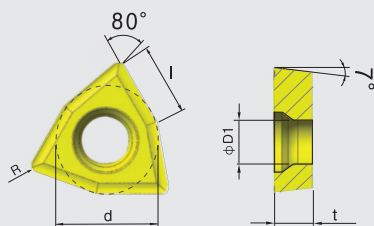
▣ 업그레이드 파일럿드릴(PLD) Upgrade PLD-V type



- 기존 PLD 적용 드릴 : TSD, TMD, VMD(MXD)
- Existing PLD-application drill : TSD, VMD(MXD)

- 업그레이드 PLD적용 드릴(호환성이 좋아짐) : TSD, TMD, VLT, VMD(MXD)
- Upgrade PLD-application drill : TSD, VMD(MXD) and VLT

▣ VLT용 인서트 The insert for VLT-DRILL



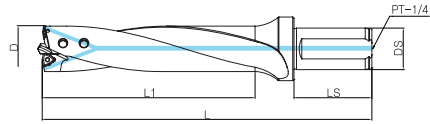
Code No.	치수 Dimension(mm)				
	R	d	D1	t	l
WCMX030204	0.4	5.56	2.5	2.38	3.8
WCMX040204	0.4	6.35	2.8	2.38	4.3
WCMX050308	0.8	7.94	3.4	3.18	5.4
WCMX06T308	0.8	9.525	4.4	3.97	6.5
WCMX080408	0.8	12.7	5.5	4.76	8.7

- 위 규격과 다른 인서트를 사용하면 인서트 스크류가 인서트보다 튀어나오거나, 가공경이 작아질 수 있습니다.
- The standard table above is for the reference of inserts for VLT-DRILL, we also sell different designs of the insert screws separately.

TURBO DRILL

VLT 8×D

DRILLING

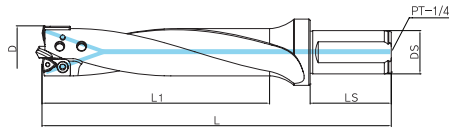


- Shank ISO9766, Parallel with clamping flat

▶ STANDARD TYPE

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component	
	D	L1	L	Ds	Ls			Screw	Driver
VLT-25080D S32	25	220	310	32	60	PLD-V0630 TiN	WCMX040204	TSB-22045	TXL-6
VLT-26080D S32	26								
VLT-27080D S32	27								
VLT-28080D S32	28								
VLT-29080D S32	29								
VLT-30080D S32	30	260	350			PLD-V0835 TiN	WCMX050308	TSB-30070	TXL-8
VLT-31080D S32	31								
VLT-32080D S32	32								
VLT-33080D S32	33								
VLT-34080D S32	34								
VLT-35080D S32	35	300	390						
VLT-36080D S32	36								
VLT-37080D S32	37								
VLT-38080D S32	38								
VLT-39080D S32	39								
VLT-40080D S32	40								

※ ø25~ø40 : 일반형 Standard Type



- Shank ISO9766, Parallel with clamping flat

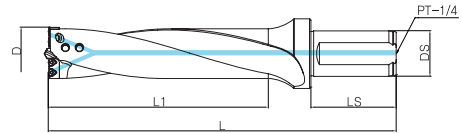
▶ SINGLE INSERT CARTRIDGE TYPE

Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge				
	D	L1	L			Screw	Driver	Inner	Outer			
VLT-414580D S40	41	340	445	PLD-V1035 TiN-H	WCMX 06T308	TSB- 35078	TXL-15	VLC- 410450N	VLC-000410T			
	42								VLC-000420T			
	43								VLC-000430T			
	44								VLC-000440T			
	45								VLC-000450T			
VLT-465080D S40	46	380	485					PLD-V1238 TiN-H	WCMX 080408	TSB- 40110	VLC- 460500N	VLC-000460T
	47											VLC-000470T
	48											VLC-000480T
	49											VLC-000490T
	50											VLC-000500T
VLT-515580D S40	51	420	525	VLC- 510550N	VLC-000510T							
	52					VLC-000520T						
	53					VLC-000530T						
	54					VLC-000540T						
	55					VLC-000550T						
VLT-565980D S40	56	460	565	VLC- 560590N	VLC-000560T							
	57					VLC-000570T						
	58					VLC-000580T						
	59					VLC-000590T						

※ ø41~ø59 : 1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

※ ø41~ø59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm)



● Shank ISO9766, Parallel with clamping flat

▶ DUAL INSERT CARTRIDGE TYPE

Shank	Ds	Ls
S40	40	70

Code No.	치수 Dimension(mm)			센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge	
	D	L1	L			Screw	Driver	Inner	Outer
VLT-606580D S40	60~65	520	625	PLD-V1238 TiN-H	WCMX 050308	TSB- 30070	TXL-8	VMC-060065N	VMC-060065T
VLT-657080D S40	65~70	560	665					VMC-065070N	VMC-065070T
VLT-707580D S40	70~75	600	705					VMC-070075N	VMC-070075T
VLT-758080D S40	75~80	640	745	PLD-V1645 TiN-H	WCMX 06T308	TSB- 35090	TXL-15	VMC-075080N	VMC-075080T

※ ø60~ø80 : 외측 카트리지를 커팅하여 직경을 조절합니다.
 ※ ø60~ø80 : Cut the outer cartridge and setting.(adjust 5mm)

Corn Point System

Anti-Vibration! Anti-Loose!

■ 콘포인트 시스템 특징

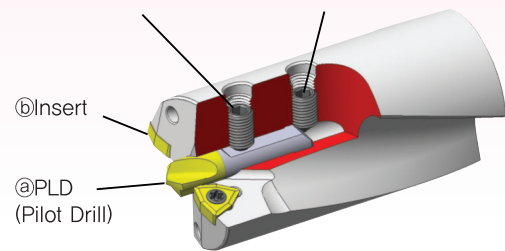
- (1) PLD높이를 빠르고 쉽게 조절할 수 있다
- (2) PLD를 빼 내야 할 경우, 콘포인트볼트를 이용해 쉽게 제거할 수 있다.
- (3) 가공시 진동발생이 발생해도 볼트가 풀림이 않아 PLD가 뒤로 밀리는 현상이 없다.

■ Corn Point System Characteristic

- (1) It is fast and easy to adjust hight, when you insert the PLD on the drill.
- (2) The PLD is broken while you use, you can remove of the corn-point-screw.
- (3) The corn-point-screw treat prevent of unloose when vibration occure, the PLD is not into the drill.

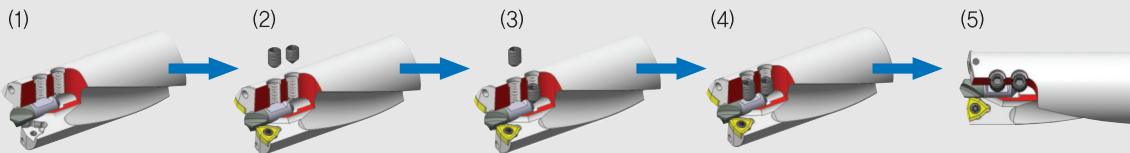
@PLD Clamping Screw ©Corn Point Screw

ⓑInsert
 ⓐPLD
 (Pilot Drill)



[Corn Point System]

■ 조립순서(VLT,FXD) How to use (VLT, FXD)



- (1) 먼저 ⓐPLD를 삽입한다.
- (2) 인서트 (또는 카트리지)를 클램핑한다.
- (3) 콘포인트볼트로 PLD높이를 알맞게 맞춘다.
- (4) PLD 클램핑볼트로 강하게 조여준다.
- (5) 콘포인트 볼트로 다시한번 강하게 조여 유격을 없앤다.

- (1) First, The ⓐPLD insert to Hole.
- (2) Locking the ⓑInsert, (Cartridge+Insert)
- (3) The ⓐPLD hight control as the ©corn-point-screw
- (4) ⓐPLD-Clamping-screw tightly.
- (5) Clamping of ©Corn-point-screw tightly again.

(※Important!)

[Corn Point System]

Prevention from screw loose.

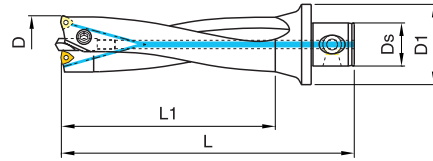


- The corn-point-screw treat prevent of unloose when vibration occure, the PLD is not in to the drill (It can be reused several times)

TURBO DRILL

TMD 5×D

DRILLING

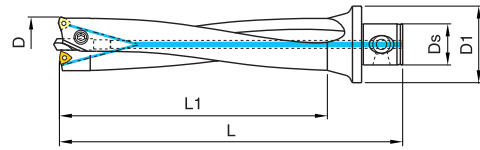


● EXT Modular Shank Type

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component	
	D	L1	L	D1	Ds			Screw	Driver
TMD-25050D	25	150	210	50	28	PLD-V0630 TIN	WCMX030204	TSB-22045	TXL-6
TMD-26050D	26						WCMX040204	TSB-25055	
TMD-27050D	27								
TMD-28050D	28								
TMD-29050D	29								
TMD-30050D	30	175	235			PLD-V0835 TIN	WCMX050308	TSB-30070	TXL-8
TMD-31050D	31								
TMD-32050D	32								
TMD-33050D	33								
TMD-34050D	34								
TMD-35050D	35	200	260	63	36	PLD-V1035 TIN-H	WCMX06T308	TSB-35090	
TMD-36050D	36								
TMD-37050D	37								
TMD-38050D	38								
TMD-39050D	39								
TMD-40050D	40	225	295			PLD-V1238 TIN-H	WCMX080408	TSB-40110	TXL-15
TMD-41050D	41								
TMD-42050D	42								
TMD-43050D	43								
TMD-44050D	44								
TMD-45050D	45	275	345	300	370				
TMD-46050D	46								
TMD-47050D	47								
TMD-48050D	48								
TMD-49050D	49								
TMD-50050D	50	300	370						
TMD-51050D	51								
TMD-52050D	52								
TMD-53050D	53								
TMD-54050D	54								
TMD-55050D	55	300	370						
TMD-56050D	56								
TMD-57050D	57								
TMD-58050D	58								
TMD-59050D	59								

※ TURBO DRILL은 일반 인서트 조립형 드릴의 한계인 직경의 5배 이상의 길이를 떨림없이 고속으로 드릴링 할 수 있으며 직경의 최대 8배까지 부드럽게 작업을 수행합니다.

※ Turbo Drill is capable of high speed drilling without vibrations for up to lengths 5 times greater than the diameter, which is the drilling threshold for general insert assembly drills. It is capable of providing smooth drilling work for up to size 8 times greater than the diameter.



● EXT Modular Shank Type

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component	
	D	L1	L	D1	Ds			Screw	Driver
TMD-25080D	25	220	280	50	28	PLD-V0630 TIN	WCMX030204	TSB-22045	TXL-6
TMD-26080D	26								
TMD-27080D	27								
TMD-28080D	28								
TMD-29080D	29								
TMD-30080D	30	260	320	50	28	PLD-V0835 TIN	WCMX050308	TSB-30070	TXL-8
TMD-31080D	31								
TMD-32080D	32								
TMD-33080D	33								
TMD-34080D	34								
TMD-35080D	35	300	360	63	36	PLD-V1035 TIN-H	WCMX06T308	TSB-35090	TXL-15
TMD-36080D	36								
TMD-37080D	37								
TMD-38080D	38								
TMD-39080D	39								
TMD-40080D	40	340	410	63	36	PLD-V1238 TIN-H	WCMX080408	TSB-40110	TXL-15
TMD-41080D	41								
TMD-42080D	42								
TMD-43080D	43								
TMD-44080D	44								
TMD-45080D	45	420	490	63	36	PLD-V1238 TIN-H	WCMX080408	TSB-40110	TXL-15
TMD-46080D	46								
TMD-47080D	47								
TMD-48080D	48								
TMD-49080D	49								
TMD-50080D	50	460	530	63	36	PLD-V1238 TIN-H	WCMX080408	TSB-40110	TXL-15
TMD-51080D	51								
TMD-52080D	52								
TMD-53080D	53								
TMD-54080D	54								
TMD-55080D	55	460	530	63	36	PLD-V1238 TIN-H	WCMX080408	TSB-40110	TXL-15
TMD-56080D	56								
TMD-57080D	57								
TMD-58080D	58								
TMD-59080D	59								

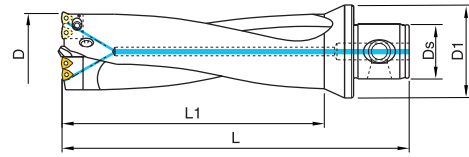
※ TURBO DRILL은 일반 인서트 조립형 드릴의 한계인 직경의 5배 이상의 길이를 떨림없이 고속으로 드릴링 할 수 있으며 직경의 최대 8배까지 부드럽게 작업을 수행합니다.

※ Turbo Drill is capable of high speed drilling without vibrations for up to lengths 5 times greater than the diameter, which is the drilling threshold for general insert assembly drills. It is capable of providing smooth drilling work for up to size 8 times greater than the diameter.

TURBO DRILL

TMD CARTRIDGE TYPE

DRILLING



TMD 5×D CARTRIDGE TYPE

● EXT Modular Shank Type

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge Inner/Outer
	D	L1	L	D1	Ds			Screw	Driver	
TMD-606550D	60~65	325	415	80	45	PLD-V1238 TiN-H	WCMX050308	TSB-30070	TXL-8	MDC-060065N/T
TMD-657050D	65~70	350	440							MDC-065070N/T
TMD-707550D	70~75	375	465							MDC-070075N/T
TMD-758050D	75~80	400	490			PLD-V1645 TiN-H	WCMX06T308	TSB-35090	TXL-15	MDC-075080N/T

※ $\phi 60 \sim \phi 80$ 은 카트리지 타입으로 5mm를 조정할 수 있으며 최대 칩수로 출고됩니다.

※ Cut the outer cartridge and setting. (adjust 5mm)
Please place an order for pilot drills separately when ordering.

TMD 8×D CARTRIDGE TYPE

● EXT Modular Shank Type

Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	인서트 Insert	부품 Component		카트리지 Cartridge Inner/Outer
	D	L1	L	D1	Ds			Screw	Driver	
TMD-606580D	60~65	520	610	80	45	PLD-V1238 TiN-H	WCMX050308	TSB-30070	TXL-8	MDC-060065N/T
TMD-657080D	65~70	560	650							MDC-065070N/T
TMD-707580D	70~75	600	690							MDC-070075N/T
TMD-758080D	75~80	640	730			PLD-V1645 TiN-H	WCMX06T308	TSB-35090	TXL-15	MDC-075080N/T

※ 카트리지, 파이롯드릴은 110~115 페이지를 참조하세요.

※ Please refer to the page 110~115 regarding cartridges and pilot drill.



● **TURBO 드릴(VLT,VSD,TMD)의 특징**
TURBO DRILL(VLT,VSD,TMD)CHARACTERISTIC

- 1) 가공직경의 5배이상의 길이를 떨림없이 고속으로 드릴링 할 수 있습니다.
 Turbo drill is drilled the length over 5 times from the drill diameterter without shanking at high speed.
- 2) 가공직경의 최대 8배까지 부드럽게 작업할 수 있습니다.
 This drill is drilled smoothly yhe max lenglht 8 times from drill diameter.
- 3) 특히, 선반에서의 대구경 가공시 떨림과 인서트 깨짐현상 없이 드릴링됩니다.
 (선반에서 $\phi 40$ 이상 가공시엔 High Speed Drill보다는 Turbo Drill이나 Max Drill을 권장합니다.
 Especially, the big diameter drilling done without insert broken at the lathe.
 (When drilling over $\phi 40$ at the lathe, we recommend Turbo Drill or Max Drill then High Speed Drill.)

● **VLT(VSD)1날 카트리지 타입 가공경 셋팅방법**
THE DIAMETER SETTING PROCEDURES OF THE VLT(VSD)SINGLE INSERT CARTRIDGE TYPE

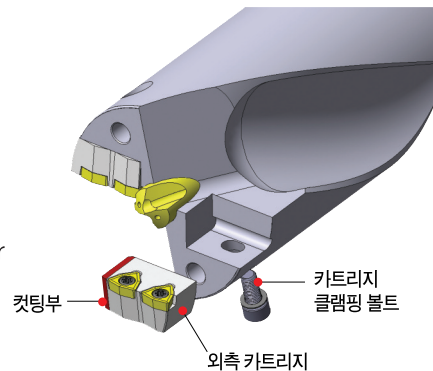
- 1) VLT 1날 카트리지 타입은 개별 카트리지(1mm 단위)로 공급됩니다.
 VLT Single cartridge type is supplied it individual cartridge by 1mm unit.
- 2) 드릴 바디를 확인(셋팅 범위)하시고, 원하시는 외측 개별 카트리지를 바디에 장착하시면 간단히 셋팅 완료됩니다.
 Make sure of the setting range of the drill body and adhere an outer cartridge to the drill body.

Example VLT-465050D를 $\phi 48$ 로 셋팅한다면,
 VLC-000480T(외측 카트리지)를 드릴 바디의 외측 카트리지부에 장착합니다.

If setting VLT-465050D to $\phi 48$ seat
 Adhere VLC-000480T(outer cartridge)to the outer cartridge putting place of the drill body.

● **VLT(VSD, VMD)2날 카트리지 타입 가공경 셋팅방법**
THE DIAMETER SETTING PROCEDURES OF THE VLT(VSD, VMD)DUAL INSERT CARTRIDGE TYPE

- 1) 외측카트리지를 카트리지 클램핑 볼트를 풀어 바디에서 이탈 시킵니다.
 Loosen the clamping bolt of the outer cartridge and remove it from the drill body
- 2) 외측카트리지의 측면 밀착부를 가공하려는 직경을 계산하여 밀링작업을합니다.
 Cut off the inside part, the contacted side of the outer cartrodge by milling after calculating the drilling diameter
- 3) 컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리합니다.
 Slick the sharp corner of the cut cartridge.
- 4) 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클램핑 볼트로 단단히 고정합니다.
 Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.



Example VLT-657080D를 $\phi 66$ 로 셋팅한다면,
 기본직경은 $\phi 70$ 이므로 $\phi 70 - \phi 66 = 4 \rightarrow 4 \div 2 = 2$ (반지름으로 계산) 2mm컷팅합니다.

If setting VLT-657030D to $\phi 66$ seat
 The standard drill diameter is $\phi 70$ so $\phi 70 - \phi 66 = 4 \rightarrow 4 \div 2 = 2$ (calculation by semidiameter)
 2mm is cut off.

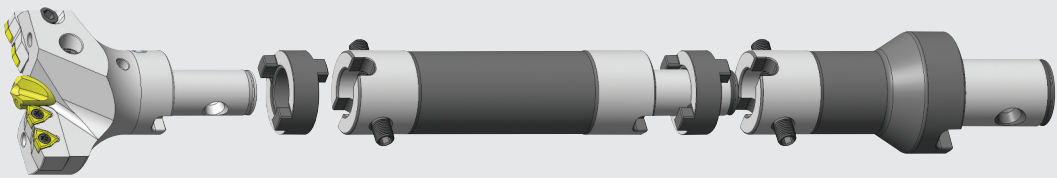
Construction System of MAX DRILL's Code No.

▶ Adjustment Type

VMD - 125130

드릴종류
Drill group

가공직경: $\phi 125 \sim \phi 130$ (조절타입)
Drilling diameter: $\phi 125 \sim \phi 130$ (Adjustable)

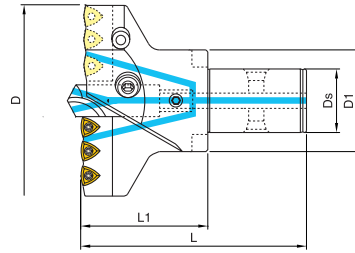
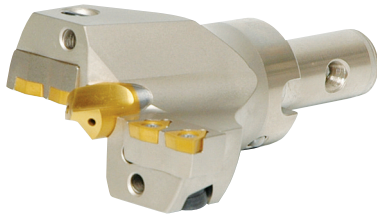


[MX MODULAR SYSTEM으로 체결강성이 뛰어납니다]



V-Max Drill **VMD**





● MX Modular Shank Type

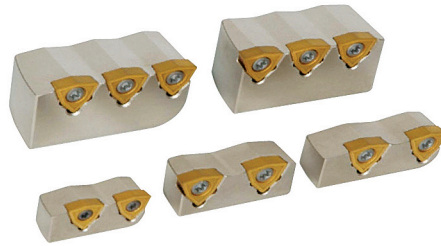
Code No.	치수 Dimension(mm)					센터드릴 Pilot Drill	카트리지 Cartridge	인서트 Insert	부품 Component	
	D	Ds	D1	L1	L				Screw	Driver
VMD-045050	45-50	13	28	50	85	PLD-V1035 TiN-H	VMC-045050N/T	WCMX030204	TSB-22045	TXL-6
VMD-050055	50-55	13	28	50	85		VMC-050055N/T			
VMD-055060	55-60	16	32	60	100	PLD-V1238 TiN-H	VMC-055060N/T	WCMX040204	TSB-25055	TXL-8
VMD-060065	60-65	16	32	60	100		VMC-060065N/T			
VMD-065070	65-70	16	32	60	100	PLD-V1645 TiN-H	VMC-065070N/T	WCMX050308	TSB-30070	TXL-8
VMD-070075	70-75	22	40	70	115		VMC-070075N/T			
VMD-075080	75-80	22	40	70	115	PLD-V1645 TiN-H	VMC-075080N/T	WCMX06T308	TSB-35090	TXL-15
VMD-080085	80-85	22	40	70	115		VMC-080085N/T			
VMD-085090	85-90	27	48	70	120	PLD-2045 TiN-H	VMC-085090N/T	WCMX050308	TSB-30070	TXL-8
VMD-090095	90-95	27	48	70	120		VMC-090095N/T			
VMD-095100	95-100	27	48	70	120	PLD-2045 TiN-H	VMC-095100N/T	WCMX050308	TSB-30070	TXL-8
VMD-100105	100-105	32	58	80	130		VMC-100105N/T			
VMD-105110	105-110	32	58	80	130	PLD-2556 TiN-H	VMC-105110N/T	WCMX06T308	TSB-35090	TXL-15
VMD-110115	110-115	32	58	80	130		VMC-110115N/T			
VMD-115120	115-120	40	70	90	145	PLD-2556 TiN-H	VMC-115120N/T	WCMX06T308	TSB-35090	TXL-15
VMD-120125	120-125	40	70	90	145		VMC-120125N/T			
VMD-125130	125-130	40	70	90	145	PLD-3068 TiN-H	VMC-125130N/T	WCMX080408	TSB-40110	TXL-15
VMD-130135	130-135	40	70	90	145		VMC-130135N/T			
VMD-135140	135-140	40	70	90	145	PLD-3068 TiN-H	VMC-135140N/T	WCMX080408	TSB-40110	TXL-15
VMD-140150	140-150	50	80	100	160		VMC-140150N/T			
VMD-150160	150-160	50	80	100	160	PLD-3068 TiN-H	VMC-150160N/T	WCMX080408	TSB-40110	TXL-15
VMD-160170	160-170	50	80	100	160		VMC-160170N/T			
VMD-170180	170-180	50	80	100	160	PLD-3068 TiN-H	VMC-170180N/T	WCMX080408	TSB-40110	TXL-15

- ※ 바디표면을 특수표면처리하여 내마모성 및 수명이 길어졌습니다.
- ※ MX Modular System으로 원하는 가공깊이 조절가능.
- ※ V-MAX 드릴 헤드는 최대직경으로 공급됩니다.
- ※ WCMX 인서트는 [108페이지](#)를 참조해주세요.

- ※ The drill body treated by forging was much solid and much stronger in impact.
- ※ The connecting strength by the MX modular system is excellent and the drilling depth is freely adjustable by connecting MXB, MXR and MXA.
- ※ Drill head is supplied with Max. diameter
- ※ Please refer to the [page108](#) regarding WCMX insert.

- VMD 드릴 가공 동영상 보시려면, 오른쪽 QR코드를 스캔하세요.
- Please scan the QR code if you want to see VMD drill testing sample video.





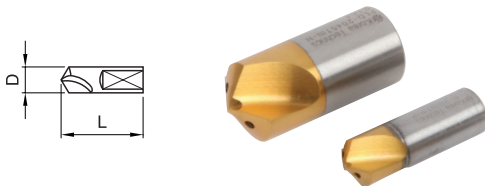
CARTRIDGE

Drilling Range	Inner	Outer	인서트 Insert	No.of Insert	부품 Component	
					Screw	Driver
45-50	VMC-045050N	VMC-045050T	WCMX030204	2	TSB-22045	TXL-6
50-55	VMC-050055N	VMC-050055T				
55-60	VMC-055060N	VMC-055060T	WCMX040204	2	TSB-25055	TXL-8
60-65	VMC-060065N	VMC-060065T				
65-70	VMC-065070N	VMC-065070T	WCMX050308	2	TSB-30070	TXL-8
70-75	VMC-070075N	VMC-070075T				
75-80	VMC-075080N	VMC-075080T	WCMX06T308	2	TSB-35090	TXL-15
80-85	VMC-080085N	VMC-080085T				
85-90	VMC-085090N	VMC-085090T	WCMX06T308	2	TSB-35090	TXL-15
90-95	VMC-090095N	VMC-090095T				
95-100	VMC-095100N	VMC-095100T	WCMX050308	3	TSB-30070	TXL-8
100-105	VMC-100105N	VMC-100105T				
105-110	VMC-105110N	VMC-105110T	WCMX06T308	3	TSB-35090	TXL-15
110-115	VMC-110115N	VMC-110115T				
115-120	VMC-115120N	VMC-115120T	WCMX06T308	3	TSB-35090	TXL-15
120-125	VMC-120125N	VMC-120125T				
125-130	VMC-125130N	VMC-125130T	WCMX080408	3	TSB-40110	TXL-15
130-135	VMC-130135N	VMC-130135T				
135-140	VMC-135140N	VMC-135140T	WCMX080408	3	TSB-40110	TXL-15
140-150	VMC-140150N	VMC-140150T				
150-160	VMC-150160N	VMC-150160T	WCMX080408	3	TSB-40110	TXL-15
160-170	VMC-160170N	VMC-160170T				
170-180	VMC-170180N	VMC-170180T	WCMX080408	3	TSB-40110	TXL-15

※ VMD 카트리지는 바디의 수명을 연장시키고 바깥쪽 카트리지 단면을 밀링 작업으로 직경을(5mm)조절할 수 있습니다.

※ Please place an order shorten the length of outer cartridge if smaller dia. is needed.(ex: $\phi 77$ =by1.5mm cutting MDC-075080T)

PILOT DRILL



Code No.	치수 Dimension(mm)	
	D	L
PLD-V1035 TiN-H	10	35
PLD-V1238 TiN-H	12	38
PLD-V1645 TiN-H	16	45
PLD-2045 TiN-H	20	45
PLD-2556 TiN-H	25	56
PLD-3068 TiN-H	30	68

※ ex:PLD-2556 TiN-H(25TiN coated oil hole)

DRIVE RING

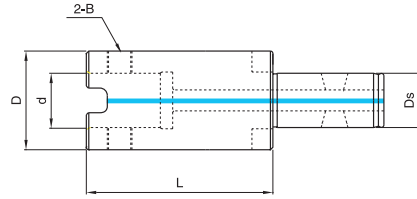


Code No.	치수 Dimension(mm)		
	D	d	S
DVR-281310	28	13	10
DVR-321610	32	16	10
DVR-402212	40	22	12
DVR-482712	48	27	12
DVR-583214	58	32	14
DVR-704014	70	40	14
DVR-805016	80	50	16

V-MAX DRILL

MXB / MXR

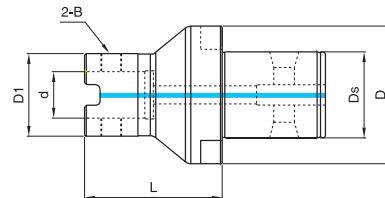
DRILLING



● MX Extension

▶ MXB

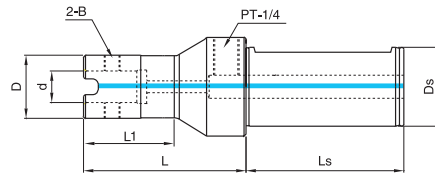
Code No.	치수 Dimension(mm)				B	Drive Ring
	D	d	L	Ds		
MXB-2813115	28	13	115	13	MTB-08115	DVR-281310
MXB-2813150			150			
MXB-2813200			200			
MXB-2813300			300			
MXB-3216115	32	16	115	16	MTB-08115	DVR-321610
MXB-3216200			200			
MXB-3216300			300			
MXB-4022113	40	22	113	22	MTB-10145	DVR-402212
MXB-4022200			200			
MXB-4022300			300			
MXB-4827113	48	27	113	27	MTB-12175	DVR-482712
MXB-4827200			200			
MXB-4827300			300			
MXB-5832186	58	32	186	32	MTB-12195	DVR-583214
MXB-5832300			300			
MXB-7040186	70	40	186	40	MTB-16260	DVR-704014
MXB-7040300			300			
MXB-7040500			500			
MXB-8050204	80	50	204	50	MTB-16260	DVR-805016
MXB-8050300			300			
MXB-8050500			500			



● MX Reducer

▶ MXR

Code No.	치수 Dimension(mm)					B	D1/Drive Ring	D/Drive Ring
	Ds	d	L	D	D1			
MXR-1613100	16	13	100	32	28	MTB-08115	DVR-281310	DVR-321610
MXR-2216100	22	16	100	40	32	MTB-08115	DVR-321610	DVR-402212
MXR-2722100	27	22	100	48	40	MTB-10145	DVR-402212	DVR-482712
MXR-3213100	32	13	100	58	28	MTB-08115	DVR-281310	DVR-583214
MXR-3216100	32	16	100	58	32	MTB-08115	DVR-321610	DVR-583214
MXR-3222100	32	22	100	58	40	MTB-10145	DVR-402212	DVR-583214
MXR-3227100	32	27	100	58	48	MTB-12175	DVR-482712	DVR-583214
MXR-4032100	40	32	100	70	58	MTB-12195	DVR-583214	DVR-704014
MXR-5013080	50	13	80	80	28	MTB-08115	DVR-281310	DVR-805016
MXR-5016080	50	16	80	80	32	MTB-08115	DVR-321610	DVR-805016
MXR-5022080	50	22	80	80	40	MTB-10145	DVR-402212	DVR-805016
MXR-5027080	50	27	80	80	48	MTB-12175	DVR-482712	DVR-805016
MXR-5032080	50	32	80	80	58	MTB-12195	DVR-583214	DVR-805016
MXR-5040150	50	40	150	80	70	MTB-16260	DVR-704014	DVR-805016

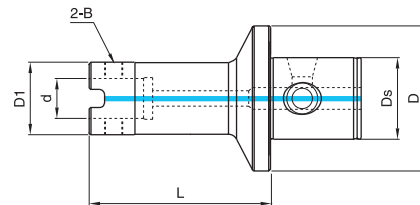


● MX + CYLINDRICAL Adaptor

▶ MXA

Code No.	치수 Dimension(mm)						B	Drive Ring
	Ds	d	L	L1	D	Ls		
MXA-3213115	32	13	115	77	28	70	MTB-08115	DVR-281310
MXA-3213200		13	200	165	28			
MXA-3213300		13	300	265	28			
MXA-4016125	40	16	125	86	32	80	MTB-10145	DVR-321610
MXA-4016200		16	200	161	32			
MXA-4016300		16	300	261	32			
MXA-4022148		22	148	109	40		MTB-12175	DVR-402212
MXA-4022200		22	200	161	40			
MXA-4022300		22	300	261	40			
MXA-4027168	50	27	168	133	48	80	MTB-12195	DVR-482712
MXA-4027300		27	300	265	48			
MXA-4032186		32	186	151	58		MTB-16260	DVR-583214
MXA-4032300		32	300	265	58			
MXA-W5040186	50	40	186	151	70	80	MTB-16260	DVR-704014
MXA-W5040300		40	300	265	70			
MXA-W5050184		50	184	149	80		MTB-16260	DVR-805016
MXA-W5050300		50	300	265	80			

※ MX모듈러 시스템을 사이드락 타입으로 변환시켜주는 어댑터입니다.
 ※ It is a Adaptor that converts the MX modular system to Side lock Type.



● MX + EXT Adaptor

▶ MXE

Code No.	치수 Dimension(mm)					B	D1/Drive Ring
	Ds	d	L	D	D1		
MXE-3613100	36	13	100	63	28	MTB-08115	DVR-281310
MXE-3616100		16			32	MTB-08115	DVR-321610
MXE-3622100		22			40	MTB-10145	DVR-402212
MXE-3627100		27			48	MTB-12175	DVR-482712
MXE-3632100		32			58	MTB-12195	DVR-583214
MXE-4513100	45	13	80	80	28	MTB-08115	DVR-281310
MXE-4516100		16			32	MTB-08115	DVR-321610
MXE-4522100		22			40	MTB-10145	DVR-402212
MXE-4527100		27			48	MTB-12175	DVR-482712
MXE-4532100		32			58	MTB-12195	DVR-583214

※ MX모듈러 시스템을 EXT모듈러 시스템으로 변환시켜주는 어댑터입니다.
 ※ It is a Adaptor that converts the MX modular system to EXT modular system.



새로워진 V-MAX DRILL! IMPROVED V-MAX DRILL!

- 드릴바디를 단조처리하여 더욱 단단하고 충격에 강하다!
The drill body treated by forging was much solidier and much stronger in impact.

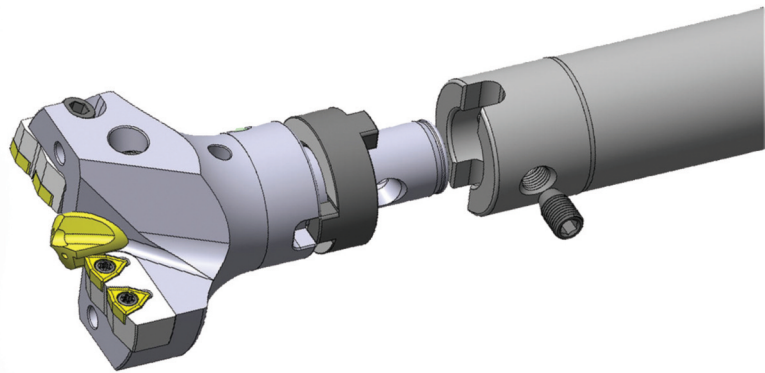
- 바디표면을 특수표면처리하여 내마모성 및 수명이 길어졌다!
The especially treated surface of body make the inner-abrasion much better and the life make much longer

- 더욱 안정된 설계로 제작되어 MXD보다 드릴링이 안정되어 경제성이 뛰어나다!
As this drill was designed more stably, this drill is steady of drilling and is good of economical efficiency.

- 가공직경 $\phi 45 \sim \phi 180$ 이며, 가공깊이는 MX modular system으로 자유롭게 조절할 수 있다!
Drilling diameters are from 45mm to 180mm and the drilling depth is freely adjustable by using the MX modular system

- 카트리지(VMC)타입으로 드릴바디의 수명을 연장시키고 가공직경을 조절할 수 있다!
As this drill is cartridge(VMC)type, the drilling diameters are adjustable.

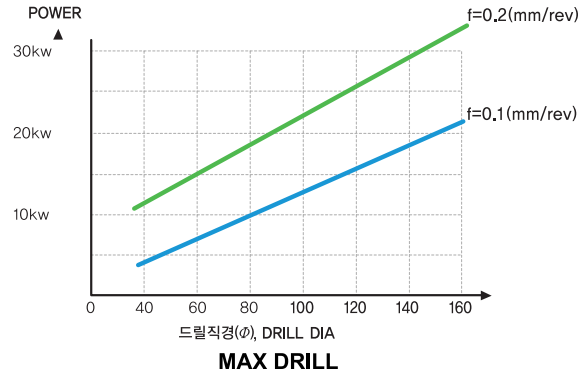
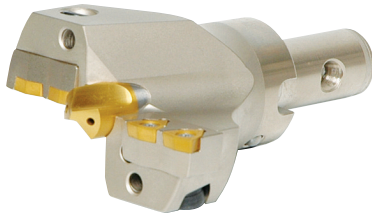
- 안정된 재고관리로 원하시는 제품을 신속히 사용할 수 있다!
We can supply to customers promptly by kepping stable stocks.



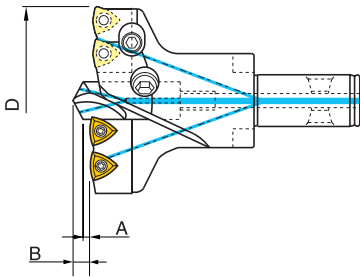
- MX 모듈러 시스템에 의한 체결방식으로 체결강성이 뛰어나며, 가공깊이를 MXB, MXR, MXA등으로 연결하여 가공깊이를 자유롭게 조절할 수 있습니다.

- The connecting strength by the MX modular system is excellent and the drilling depth is freely adjustable by connecting MXB, MXR and MXA.

POWER REQUIRMENTS



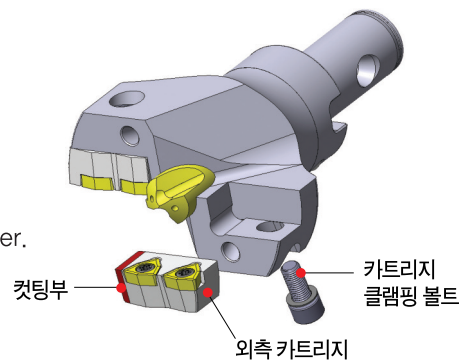
파일럿 드릴(PLD)셋팅 높이 Pilot drill(PLD) setting



드릴경D	2~4×D		4~6×D		6~8×D	
	A	B	A	B	A	B
45-55	1.6	4.0	1.8	4.2	2.0	4.4
55-75	1.8	5.4	2.0	5.6	2.2	5.8
75-100	2.2	6.5	2.5	6.8	2.8	7.1
100-120	2.4	7.7	2.8	8.1	3.2	8.5
120-170	3.2	9.9	3.6	10.3	4.0	10.7
170-180	3.5	12.2	3.9	12.6	4.3	13.0

VMD(MXD)가공직경 조절방법 THE DIAMETER ADJUSTING PROCEDURES OF VMD(MXD)

- 외측카트리지를 카트리지 클램핑 볼트를 풀어 바디에서 이탈 시킵니다.
Loosen the clamping bolt of the outer cartridge and remove it from the drill body.
- 외측카트리지의 측면 밀착부를 가공하려는 직경을 계산하여 밀링작업을합니다.
Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
- 컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리합니다.
Slick the sharp corner of the cut cartridge.
- 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클램핑 볼트로 단단히 고정합니다.
Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.



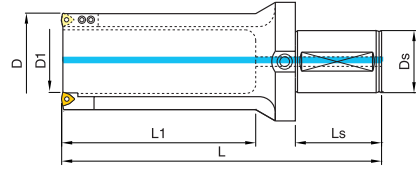
Example VMD-135140를 $\phi 136$ 로 셋팅한다면, 기본직경은 $\phi 140$ 이므로 $\phi 140 - \phi 136 = 4 \rightarrow 4 \div 2 = 2$ (반지름으로 계산) 2mm컷팅합니다.

If setting VMD-135140 to $\phi 136$ seat
The standard drill diameter is $\phi 140$ so $\phi 140 - \phi 136 = 4 \rightarrow 4 \div 2 = 2$ (calculation by semidiameter)
2mm is cut off.

TREPANNING DRILL

TPD 2.5×D

DRILLING



● TPD Cylindrical Shank Type

Code No.	치수 Dimension(mm)						카트리지 Cartridge	인서트 Insert	부품 Component	
	D	D1	L1	L	Ds	Ls			Screw	Driver
TPD-04025D	40	10	100	210	32	70	TDC-W0503N/T	WCMX050308	TSB-30070	TXL-8
TPD-04525D	45	15	100	210	40	80				
TPD-05025D	50	21	120	230						
TPD-05525D	55	26	120	230						
TPD-06025D	60	24.5	150	270						
TPD-06525D	65	30.5	150	270	50	100	TDC-W06T3N/T	WCMX06T308	TSB-35090	TXL-15
TPD-07025D	70	35.5	170	290						
TPD-07525D	75	40.5	170	290						
TPD-08025D	80	45.5	190	310						
TPD-08525D	85	50.5	190	330						
TPD-09025D	90	55	210	350						
TPD-09525D	95	60	210	350						
TPD-10025D	100	66	250	390						
TPD-11025D	110	76	250	390						

※ SPECIAL 주문생산물

※ 트레판드릴은 적은 동력의 기계에서도 보다 효율적으로 드릴링 할 수 있습니다. 기본적으로 직경×2.5(가공길이)를 표준으로 권장하며 길이가 짧으면 적합합니다. 보다 자세한 사항은 폐사로 문의 바랍니다.

※ SPECIAL ORDER PRODUCTS

※ Trepanning Drill is capable of efficient drilling even when using low power equipment. As a general rule, the processing length should be 2.5 times greater than the diameter, and the rate of vibration is lower as the length is shorter. Please contact our company for more detailed information.



Boring

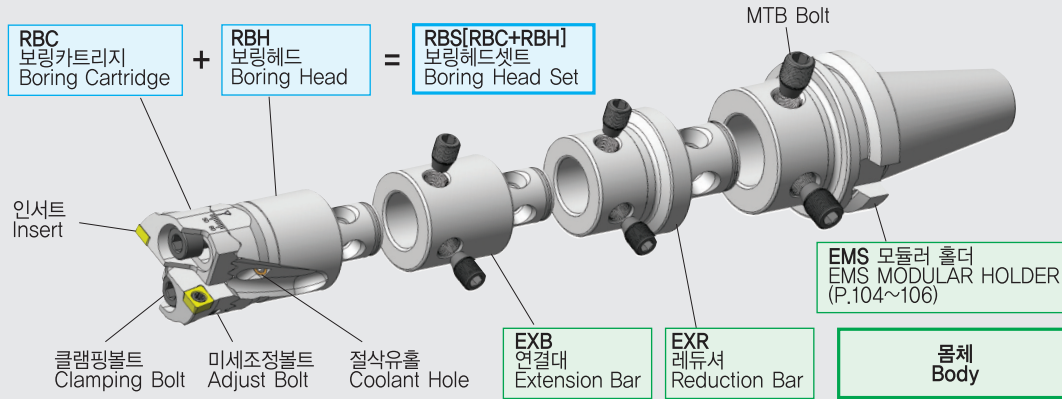
RB BORING TOOL



- 보링경 $\phi 28 \sim \phi 125$
- 보링경 미세조정
- 절삭유 방향조정
- 절삭유 누유방지 시스템
- EMS모듈러 시스템 강력한 체결력

- Boring dia. $\phi 28 \sim \phi 125$
- Boring dia. fine adjustable
- Adjustable coolant nozzle
- Oil leak prevention system
- Top Rigidity, Max Torque Transmission

Construction System of RB Boring Tool's Code No.



RBC-047060CC06 □

보링헤드세트 Boring Head Set
 보링최소경: $\phi 47.0$ Boring diameter Min: $\phi 47.0$
 보링최대경: $\phi 60.0$ Boring diameter Max: $\phi 60.0$
 인서트 Insert
 스페셜타입 Non-standard

RBH-402250

보링헤드 Boring Head
 EMS 그룹: 40 EMS group: 40
 샹크경: $\phi 22.0$ Shank dia: $\phi 22.0$
 헤드길이: 50.0 Head length: 50.0

RBS-047060CP

보링헤드세트 Boring Head Set (RBC+RBH=RBS)
 보링최소경: $\phi 47.0$ Boring diameter Min: $\phi 47.0$
 보링최대경: $\phi 60.0$ Boring diameter Max: $\phi 60.0$
 C: CCMT인서트 S: SPMT인서트 C: CCMT insrt S: SPMT insert
 P: 기본형 standard type
 H: 인서트높이단차 High-low insert
 F: 다른 인서트각도 Non-standard angle

□ 황삭보링헤드세트 조립예

보링카트리지	+	보링헤드	=	보링헤드세트
RBC-036047-CC06	+	RBH-321844	=	RBS-036047CP
RBC-098125-SC12	+	RBH-804576	=	RBS-098125SP

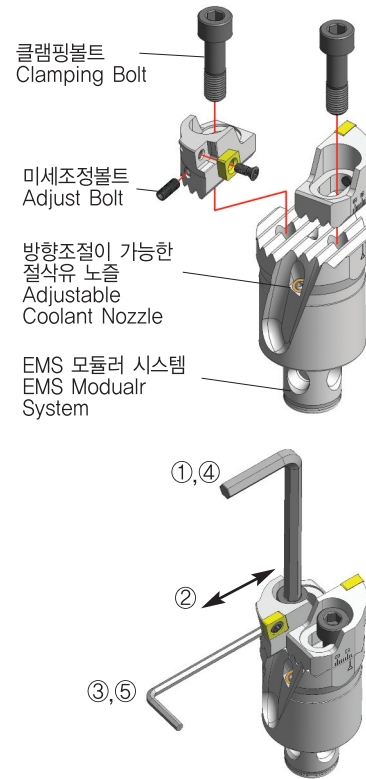


● 황삭보링헤드 셋팅 순서

- ① 카트리지가 움직일 수 있을 정도로 클램핑볼트를 풀어 줍니다.
- ② 헤드의 눈금기준선과 가공하고자 하는 치수에 근접하게 카트리지를 움직여 줍니다. (이때 가공경보다 적게 맞춥니다.)
- ③ 톨프리셋트에 올려 인서트 날끝을 맞춘후, 미세조정볼트를 시계방향으로 돌려 보링경을 맞춥니다.
- ④ 클램핑볼트를 강하게 조여줍니다.
- ⑤ 적절한 힘을 주어 미세조정볼트가 느슨하지 않도록 조여줍니다.

● BORING HEAD SETTING ORDER

- ① Loosen the clamping bolt so that the cartridge is loose.
- ② Move the cartridge near the dotted reference line on the head according to the desired processing measurement. (At this point, make sure that it is less than the processing gauge)
- ③ Increase the projector to adjust the edge of the insert blade, and turn the precision control bolt clockwise to adjust the boring gauge.
- ④ Firmly tighten the clamping bolt.
- ⑤ Tighten the precision control bolt so that it is not loose.

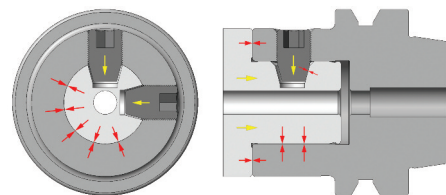


● EMS 모듈러 시스템

- ① 황삭보링툴 헤드 및 바디의 연결은 EMS Modular System으로 체결됩니다.
- ② EMS Modular System은 2면 구속으로 체결강성이 뛰어납니다.
- ③ 연결대, 레듀서 및 스탠다드타입 톨홀더와 롱타입 톨홀더로 보링깊이를 조절할 수 있습니다.

● EMS Modular System

- ① The head and body of the rough boring tool is connected using EMS Modular System.
- ② EMS Modular System has a dual binding mechanism for excellent binding strength.
- ③ Boring depth can be controlled using the Extension, reducer, and standard/long type tool holder.

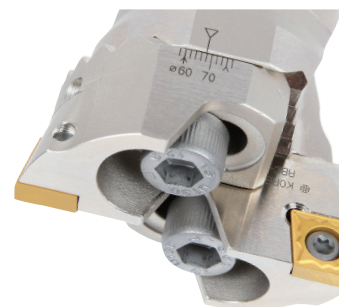


● 눈금 보는 방법

- ① 치수 단위는 Metric이며, 눈금과 눈금 사이는 $\varnothing 2\text{mm}$ 입니다.
- ② 보링최소경과 최대경 눈금에 \wedge 로 표시되어 있습니다.

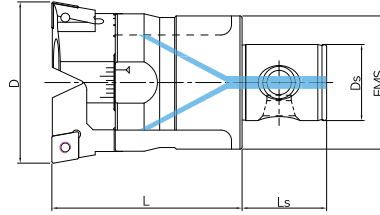
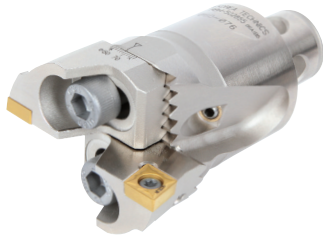
● How to read the dotted lines.

- ① The measurement unit is in metrics, and the distance between each dot is $\varnothing 2\text{mm}$.
- ② The minimum and maximum boring gauge is marked with a \wedge .



RB-BORING

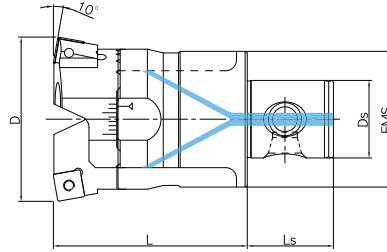
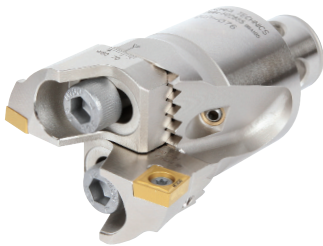
RBS-CP / RBS-SP



● 황삭보링툴 헤드 셋트(카트리지와헤드) Boring Head Set(Cartridge+Head)

▶ RBS-CP

Group	Code No.	보링범위 Boring Range(D)	치수 Dimension(mm)				조립부품 Assembly	
			EMS	DS	L	Ls	Cartridge	Head
EMS25	RBS-028036CP	ø28~ø36	25	14	50	16	RBC-028036-CC06	RBH-251437
EMS32	RBS-036047CP	ø36~ø47	32	18	60	20	RBC-036047-CC06	RBH-321844
EMS40	RBS-047060CP	ø47~ø60	40	22	70	25	RBC-047060-CC09	RBH-402250
EMS50	RBS-060076CP	ø60~ø76	50	28	80	30	RBC-060076-CC12	RBH-502855
EMS63	RBS-076098CP	ø76~ø98	63	36	90	40	RBC-076098-CC12	RBH-633660
EMS80	RBS-098125CP	ø98~ø125	80	45	115	50	RBC-098125-CC12	RBH-804576



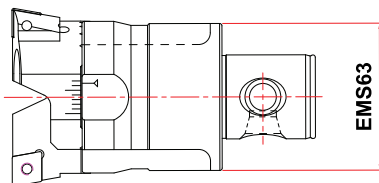
● 황삭보링툴 헤드 셋트(카트리지와헤드) Boring Head Set(Cartridge+Head)

▶ RBS-SP

Group	Code No.	보링범위 Boring Range(D)	치수 Dimension(mm)				조립부품 Assembly	
			EMS	DS	L	Ls	Cartridge	Head
EMS25	RBS-028036SP	ø28~ø36	25	14	50	16	RBC-028036-SC06	RBH-251437
EMS32	RBS-036047SP	ø36~ø47	32	18	60	20	RBC-036047-SC06	RBH-321844
EMS40	RBS-047060SP	ø47~ø60	40	22	70	25	RBC-047060-SC09	RBH-402250
EMS50	RBS-060076SP	ø60~ø76	50	28	80	30	RBC-060076-SC12	RBH-502855
EMS63	RBS-076098SP	ø76~ø98	63	36	90	40	RBC-076098-SC12	RBH-633660
EMS80	RBS-098125SP	ø98~ø125	80	45	115	50	RBC-098125-SC12	RBH-804576

● 툴링 팁! Tooling Tip!

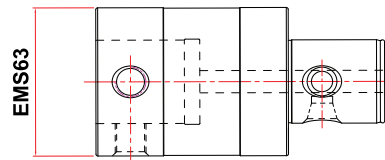
- 황삭보링툴 헤드 및 바디의 연결은 EMS Modular System으로 체결되며, EMS Modular System은 대경사이즈 기준으로 Group이 정해집니다. 헤드와 연결대, 헤드와 모듈러 홀더, 연결대와 모듈러 홀더 툴링시에 같은 Group끼리 연결하시면 됩니다.
- The head and body of the rough boring tool is connected using EMS Modular System, and the EMS Modular System's groups were assigned based on the large gauge size. Connect the head and connecting rod, head and EMS Modular Holder, connecting rod and EMS Modular Holder according to the same groups when tooling.

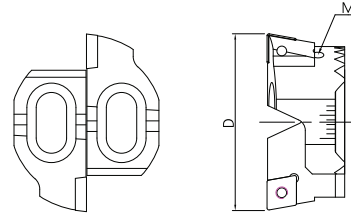
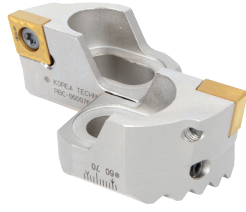


Correct



GROUP:EMS63

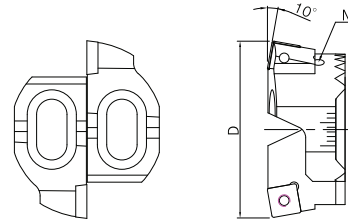
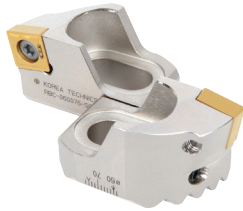




● 황삭 보링틀 카트리지 Boring Cartridge

▶ RBC (CCMT)

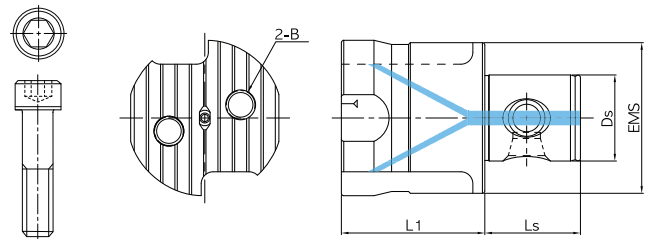
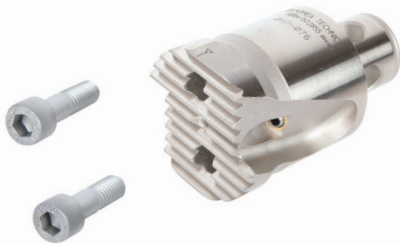
Group	Code No.	보링범위 Boring Range(D)	Insert	부품 Component		
				미세조정볼트 Adjust Bolt(M)	Screw	Driver
EMS25	RBC-028036-CC06	ø28~ø36	CCMT060204	M0306SS	TSB-25055	T-8
EMS32	RBC-036047-CC06	ø36~ø47		M0408SS		
EMS40	RBC-047060-CC09	ø47~ø60	CCMT09T308	M0410SS	TSB-35080	T-15
EMS50	RBC-060076-CC12	ø60~ø76	CCMT120408	M0514SS		
EMS63	RBC-076098-CC12	ø76~ø98		M0515SS	TSB-50125	T-20
EMS80	RBC-098125-CC12	ø98~ø125		M0620SS		



● 황삭 보링틀 카트리지 Boring Cartridge

▶ RBC (SCMT)

Group	Code No.	보링범위 Boring Range(D)	Insert	부품 Component		
				미세조정볼트 Adjust Bolt(M)	Screw	Driver
EMS25	RBC-028036-SC06	ø28~ø36	SCMT060204	M0306SS	TSB-25055	T-8
EMS32	RBC-036047-SC06	ø36~ø47		M0408SS		
EMS40	RBC-047060-SC09	ø47~ø60	SCMT09T308	M0410SS	TSB-35080	T-15
EMS50	RBC-060076-SC12	ø60~ø76	SCMT120408	M0514SS		
EMS63	RBC-076098-SC12	ø76~ø98		M0515SS	TSB-50125	T-20
EMS80	RBC-098125-SC12	ø98~ø125		M0620SS		



● 황삭 보링틀 헤드 Boring Head

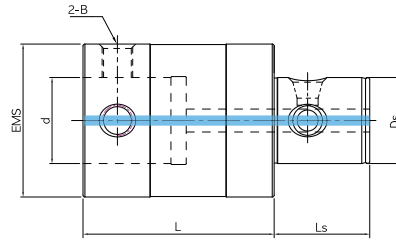
▶ RBH

Group	Code No.	보링범위 Boring Range(D)	치수 Dimension(mm)				부품 Component
			EMS	Ds	L1	Ls	
EMS25	RBH-251437	ø28~ø36	25	14	37.5	16	M0420HC-HT
EMS32	RBH-321844	ø36~ø47	32	18	44.5	20	M0630HC-HT
EMS40	RBH-402250	ø47~ø60	40	22	50	25	M0835HC-HT
EMS50	RBH-502855	ø60~ø76	50	28	55	30	M1040HC-HT
EMS63	RBH-633660	ø76~ø98	63	36	60	40	M1245HC-HT
EMS80	RBH-804576	ø98~ø125	80	45	76.5	50	M1455HC-HT



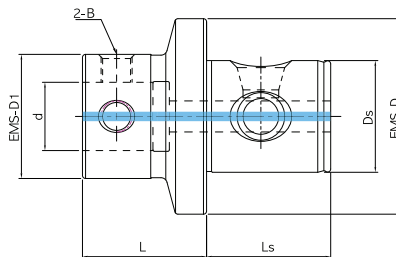
RB-BORING

EXB / EXR



● EMB 연결대 EXB Extension Bar

Group	Code No.	치수 Dimension(mm)					부품 Component	
		EMS	d	L	Ds	Ls	B	
EMS25	EXB-2514030	25	14	30	14	16	MTB-06085	
	50							
EMS32	EXB-3218030	32	18	30	18	20	MTB-08115	
	60							
EMS40	EXB-4022040	40	22	40	22	25	MTB-10145	
	80							
EMS50	EXB-5028050	50	28	50	28	30	MTB-12175	
	90							
EMS63	EXB-6336060	63	36	60	36	40	MTB-16225	
	100							
EMS80	EXB-8045070	80	45	70	45	50	MTB-16260	
	110							



● EXR 레듀서 EXB Reduction Bar

Group	Code No.	치수 Dimension(mm)						부품 Component	
		Ds	d	L	Ls	EMS-D	EMS-D1	B	
EMS32/EMS25	EXR-1814030	18	14	30	20	32	25	MTB-06085	
EMS40/EMS25	EXR-2214030	22	14	30	25	40	25	MTB-08115	
EMS40/EMS32	EXR-2218030		18	30					
EMS50/EMS25	EXR-2814030	28	14	30	28	50	25	MTB-06085	
EMS50/EMS32	EXR-2818030		18	30					
EMS50/EMS40	EXR-2822040	36	22	40	40	63	40	MTB-10145	
EMS63/EMS32	EXR-3618030		18	30					
EMS63/EMS40	EXR-3622040	36	22	40	40	63	40	MTB-10145	
EMS63/EMS50	EXR-3628040		28	40					
EMS80/EMS40	EXR-4522040	45	22	40	50	80	40	MTB-10145	
EMS80/EMS50	EXR-4528040		28	40					
EMS80/EMS63	EXR-4536060	45	36	60	50	80	50	MTB-12175	
EMS80/EMS63	EXR-4536060		36	60					

※ 보링툴 연결대, 레듀서 및 보링헤드와 체결되는 툴홀더는 'EMS 모듈러 툴홀더' (P.104~P.106)입니다.


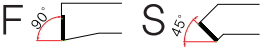
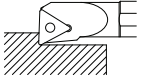


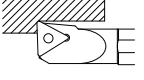




※ The tool holder that locks with EXB, EXR and Boring Head is EMS Modular Tool Holder.(P.104~P.106)



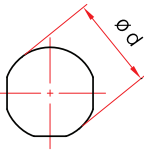
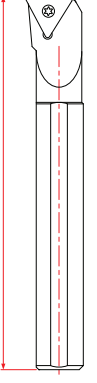

Turning
INTERNAL BORING BAR



Construction System of RB BORING BAR Code No.

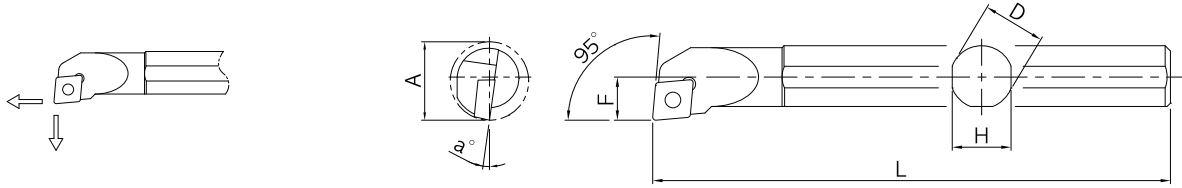
생크타입 Type of shank	클램핑방식 Clamping system	인선 접촉면 형상 Cutting edge shape	승수 Hand of tool
S 스틸생크 Solid steel shank	S 스크류 클램핑 Screw clamping 	F 90° S 45° 	R 우승수 Right hand 
A 스틸생크+오일홀 Solid steel shank + Internal coolant	C 상면 클램핑 Top clamping 	K 75° U 95° 	L 좌승수 Left hand 
C 초경생크 Tungsten carbide shank	P 홀 클램핑 Hole clamping 	L 95° 85° W 80° 	
E 초경생크+오일홀 Tungsten carbide shank + Internal coolant	M 상면과홀 클램핑 Top&hole clamping 	Q 107.5° Y 85° 	

S 12 M - S C L C R - 04

생크직경 Shank diameter	공구 길이 Bar length	인서트 형상 Insert shape	인서트 여유각 Insert clearance angle	인선 길이 Cutting edge length
	F=80 H=100 K=125 M=150 P=170 Q=180 R=200 X=225 S=250 T=300 	C 80° D 55° S □ T 60° V 45° W 30°	B 5° C 7° N 0° P 11°	

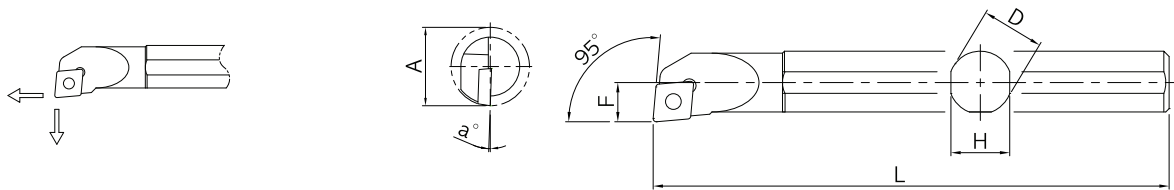


INTERNAL BORING BAR SCLCR / SCLPR



● SCLCR

Code No.	치수 Dimension(mm)						Insert 80°	부품 Component	
	A	D	F	L	H	a		Screw	Driver
S08F-SCLCR-06	11	10	5.5	80	9	13°	CC..0602	TSB-25055	TXL-8
S10K-SCLCR-06	13	10	7	125	9	13°			
S12M-SCLCR-06	16	12	9	150	11	10°			
S16Q-SCLCR-09T3	20	16	11	180	15	12°	CC..09T3	TSB-35080	TXL-15
S20R-SCLCR-09T3	25	20	12.5	200	18	8°			
S25S-SCLCR-09T3	32	25	17	250	23	6°			



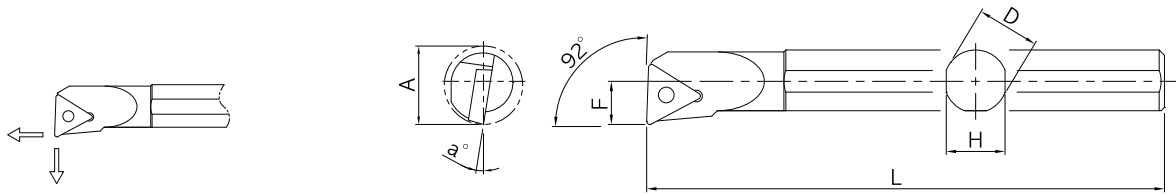
● SCLPR

Code No.	치수 Dimension(mm)						Insert 80°	부품 Component	
	A	D	F	L	H	a		Screw	Driver
S10K-SCLPR-08	12	10	6	125	9	5°	CP..0802	TSB-30070	TXL-8
S12M-SCLPR-08	16	12	8	150	11	2°			
S16Q-SCLPR-0903	20	16	10	180	15	2°	CP..0903	TSB-35080	TXL-15
S20R-SCLPR-0903	25	20	12.5	200	18	0°			



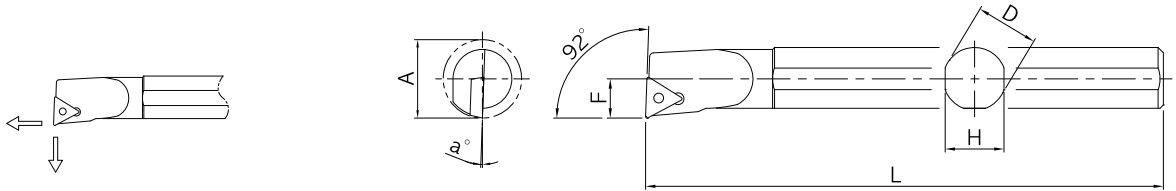
INTERNAL BORING BAR

STFCR / STFPR / SDUCR



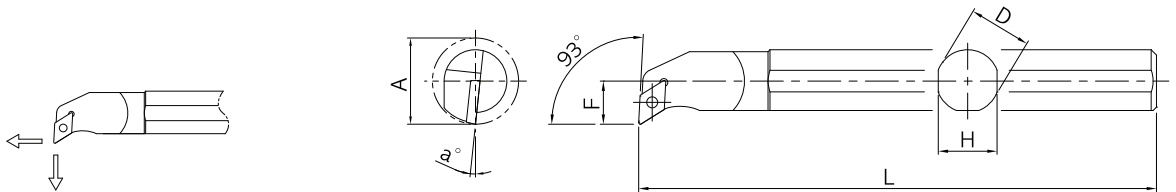
● STFCR

Code No.	치수 Dimension(mm)						Insert △	부품 Component	
	A	D	F	L	H	a		Screw 🔩	Driver 🔧
S10K-STFCR-11	13	10	7	125	9	15°	TC..1102	TSB-25055	TXL-8
S12M-STFCR-11	16	12	9	150	11	10°			
S16Q-STFCR-16T3	20	16	11	180	15	6°	TC..16T3	TSB-35080	TXL-15
S20R-STFCR-16T3	25	20	12.5	200	18	6°			
S25S-STFCR-16T3	32	25	17	250	23	6°			



● STFPR

Code No.	치수 Dimension(mm)						Insert △	부품 Component	
	A	D	F	L	H	a		Screw 🔩	Driver 🔧
S10K-STFPR-11	12	10	6	125	9	5°	TP..1103	TSB-30070	TXL-8
S12M-STFPR-11	16	12	8	150	11	4°			
S16Q-STFPR-11	20	16	10	180	15	2°	TP..1604	TSB-35080	TXL-15
S20R-STFPR-16	25	20	12.5	200	18	0°			
S25S-STFPR-16	32	25	17	250	23	0°			



● SDUCR

Code No.	치수 Dimension(mm)						Insert ◇55°	부품 Component	
	A	D	F	L	H	a		Screw 🔩	Driver 🔧
S10K-SDUCR-07	13	10	7	125	9	8°	DC..0702	TSB-25055	TXL-8
S12M-SDUCR-07	16	12	9	150	11	8°			
S16Q-SDUCR-07	22	16	11	180	15	6°	DC..11T3	TSB-35080	TXL-15
S20R-SDUCR-11T3	25	20	13	200	18	6°			
S25S-SDUCR-11T3	32	25	17	250	23	6°			



Tool Holder

SIDE LOCK ARBOR

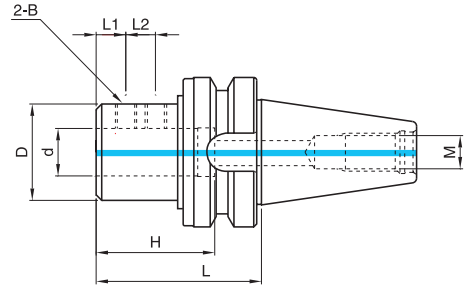
(STANDARD)



- 체결되는 툴 : KSD, STD-V, HSD-V, VLT, FXD, VMD(MXA연결대(Extension) 사용시)
- Connecting tools : KSD, STD-V, HSD-V, VLT, FXD, VMD (If using MXA Extension)

SIDE LOCK ARBOR (STANDARD)

BT-SLA / BT-OMS



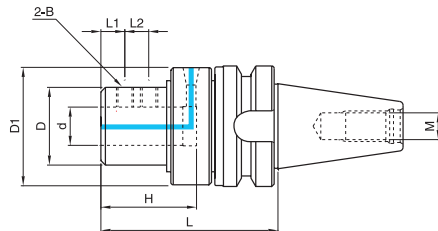
● MAS403 / BT side Lock Type

▶ BT-SLA

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	H	L1	L2	M	B
BT40-SLA-32090	32	90	65	70	20	20	M16	M1616SS
BT40-SLA-40105	40	105	70	80	20	25		M1616SS
BT50-SLA-20105	20	105	50	50	20	-	M24	M1215SS
BT50-SLA-25105	25	105	50	60	20	20		M1215SS
BT50-SLA-32105	32	105	65	70	20	20		M1415SS
BT50-SLA-40105	40	105	80	80	20	25		M1620SS
BT50-SLA-50130	50	130	90	100	35	35		M2020SS

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



기본구성품(Basic Component)



● MAS403 / BT side Lock Oil Feed Type

▶ BT-OMS

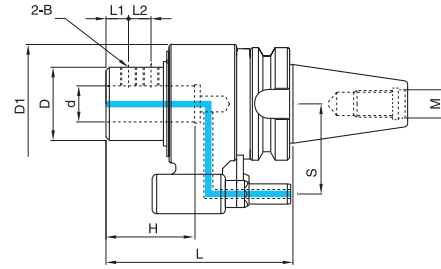
Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
BT40-OMS-20105	20	105	50	78	50	20	-	M16	M1215SS
BT40-OMS-25120	25	120	50	78	60	20	20		M1215SS
BT40-OMS-32125	32	125	65	98	70	20	20		M1415SS
BT50-OMS-20120	20	120	50	78	50	20	-	M24	M1215SS
BT50-OMS-25135	25	135	50	78	60	20	20		M1215SS
BT50-OMS-32135	32	135	65	98	70	20	20		M1415SS
BT50-OMS-40145	40	145	65	98	80	20	25		M1616SS
BT50-OMS-50170	50	170	90	123	90	35	35		M2020SS

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)



SIDE LOCK ARBOR (STANDARD) BT-OAS



● MAS403 / BT side Lock Auto Matic Type

▶ BT-OAS

Code No.	치수 Dimension(mm)								부품 Component
	d	L	H	L1	L2	D	D1	S	B
BT40-OAS-20120	20	120	50	20	-	55	80	65	M1215SS
BT40-OAS-25140	25	140	60	20	20	55	80		M1215SS
BT40-OAS-32140	32	140	70	20	20	65	80		M1415SS
BT50-OAS-20145	20	145	50	20	-	55	100	80	M1215SS
BT50-OAS-25165	25	165	60	20	20	55	100		M1215SS
BT50-OAS-32165	32	165	70	20	20	65	100		M1415SS
BT50-OAS-40175	40	175	80	20	25	65	100		M1616SS

※ 자동 툴체인지(ATC)가 가능한 툴홀더로, 사용 전에 위치결정핀(Position Pin) 높이와 각도를 맞추어 사용합니다. (139페이지)

※ 베어링과 내열, 내마모성이 우수한 씬(Seal)을 장착하여, 고속에서도 누유 없이 장시간 안정적인 운전이 가능합니다. (Max. 3,200RPM)

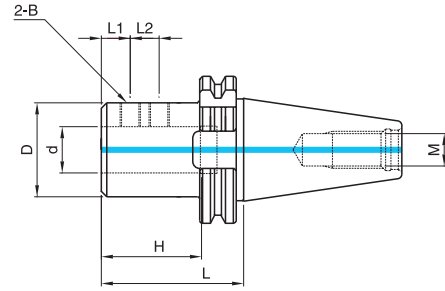
※ It is a tool holder capable of Automatic Tool Change (ATC). Adjust the height and angle of the Position Pin prior to use. (P.139)

※ It has a bearing and seal with outstanding heat-resistant and abrasion resistive properties, making it capable of stable operation for extended durations without leakage even in high speeds. (Max. 3,200RPM)



SIDE LOCK ARBOR (STANDARD)

SK-SLA / SK-OMS



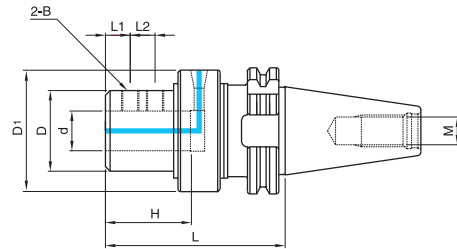
● DIN69871 / SK Side Lock Type

▶ SK-SLA

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	H	L1	L2	M	B
SK50-SLA-32105	32	105	65	70	20	20	M24	M1415SS
SK50-SLA-40105	40	105	65	80	20	25		M1620SS

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



기본구성품(Basic Component)



● DIN69871 / SK Side Lock Oil Feed Type

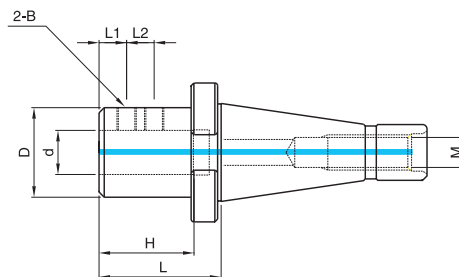
▶ SK-OMS

Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
SK40-OMS-20110	20	110	50	78	50	20	—	M16	M1215SS
SK40-OMS-25125	25	125	50	78	60	20	20		M1215SS
SK40-OMS-32130	32	130	65	98	70	20	20		M1415SS
SK50-OMS-20105	20	105	50	78	50	20	—	M24	M1215SS
SK50-OMS-25120	25	120	50	78	60	20	20		M1215SS
SK50-OMS-32125	32	125	65	98	70	20	20		M1415SS
SK50-OMS-40135	40	135	65	98	80	20	25		M1616SS
SK50-OMS-50165	50	165	90	123	90	35	35		M2020SS

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씰을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)

SIDE LOCK ARBOR(STANDARD) NT-SLA / NT-OMS



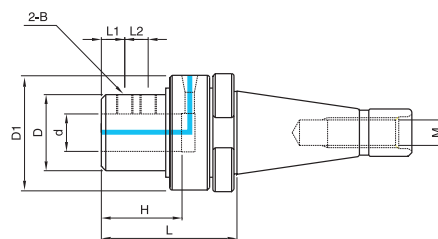
● DIN2080 / NT Side Lock Type

▶ NT-SLA

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	H	L1	L2	M	B
NT50-SLA-40090	40	90	65	80	20	25	1" - 8UNC	M1620SS
NT50-SLA-40090M	40	90	65	80	20	25	M24	

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



기본구성품(Basic Component)



● DIN2080 / NT Side Lock Oil Feed Type

▶ NT-OMS

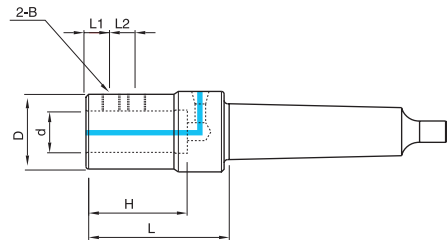
Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
NT40-OMS-20090	20	90	50	78	50	20	-	5/8-11UNC	M1215SS
NT40-OMS-25105	25	105	50	78	60	20	20		M1215SS
NT40-OMS-32110	32	110	65	98	70	20	20		M1415SS
NT50-OMS-20090	20	90	50	78	50	20	-	1" - 8UNC	M1215SS
NT50-OMS-25105	25	105	50	78	60	20	20		M1215SS
NT50-OMS-32105	32	105	65	98	70	20	20		M1415SS
NT50-OMS-40120	40	120	65	98	80	20	25		M1616SS
NT50-OMS-50145	50	145	90	123	90	35	35	M2020SS	
NT40-OMS-20090M	20	90	50	78	50	20	-	M16	M1215SS
NT40-OMS-25105M	25	105	50	78	60	20	20		M1215SS
NT40-OMS-32110M	32	110	65	98	70	20	20		M1415SS
NT50-OMS-20090M	20	90	50	78	50	20	-	M24	M1215SS
NT50-OMS-25105M	25	105	50	78	60	20	20		M1215SS
NT50-OMS-32105M	32	105	65	98	70	20	20		M1415SS
NT50-OMS-40120M	40	120	65	98	80	20	25		M1616SS
NT50-OMS-50145M	50	145	90	123	90	35	35		M2020SS

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씰을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil feed holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)



SIDE LOCK ARBOR (STANDARD) MT-SLA / MT-OMS



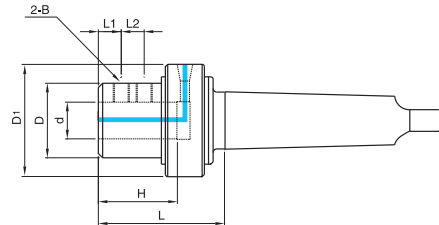
● DIN228B / MT Side Lock Type

▶ MT-SLA

Code No.	치수 Dimension(mm)						부품 Component
	d	L	D	H	L1	L2	B
MT4-SLA-32105	32	105	65	70	20	20	M1415SS
MT4-SLA-40105	40	105	65	80	20	25	M1620SS
MT5-SLA-32105	32	105	65	70	20	20	M1415SS
MT5-SLA-40105	40	105	65	80	20	25	M1620SS
MT5-SLA-50130	50	130	90	90	35	35	M2020SS

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.

※ If a COTTER HOME is present, please make a separate assignment.



기본구성품(Basic Component)



● DIN228B / MT Side Lock Oil Feed Type

▶ MT-OMS

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	D1	H	L1	L2	B
MT4-OMS-20080	20	80	50	78	50	20	-	M1215SS
MT4-OMS-25095	25	95	50	78	60	20	20	M1215SS
MT4-OMS-32100	32	100	65	98	70	20	20	M1415SS
MT5-OMS-20080	20	80	50	78	50	20	-	M1215SS
MT5-OMS-25095	25	95	50	78	60	20	20	M1215SS
MT5-OMS-32100	32	100	65	98	70	20	20	M1415SS
MT5-OMS-40110	40	110	65	98	80	20	25	M1616SS
MT5-OMS-50140	50	140	90	123	90	35	35	M2020SS
MT6-OMS-32105	32	105	65	98	70	20	20	M1415SS
MT6-OMS-40120	40	120	75	98	80	20	25	M1616SS
MT6-OMS-50140	50	140	90	123	90	35	35	M2020SS

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)

Tool Holder **SIDE LOCK ARBOR** **(WELDON-B)**

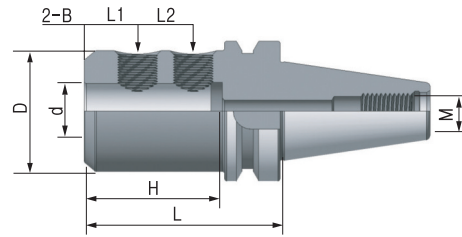
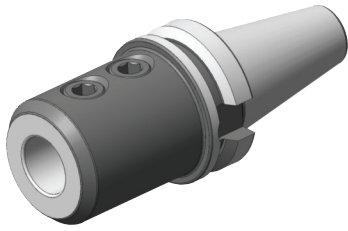


※ CAUTION

Weldon-B 사이드락 아버(Side Lock Arbor)는 드릴 슬리브(Drill Sleeve/P.115) 적용이 불가합니다.
Weldon-B Side Lock Arbor is not compatible with the Drill Sleeve. (P.115)

SIDE LOCK ARBOR (WELDON-B)

BT-WSA / BT-CMS



● MAS / BT Weldon-B Type

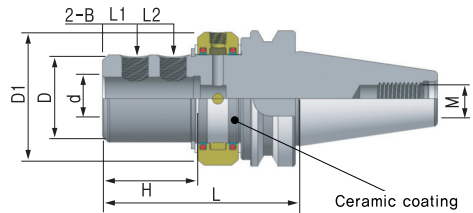
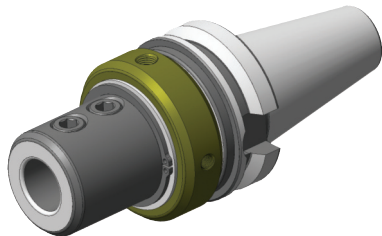
▶ BT-WSA

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	H	L1	L2	M	B
BT40-WSA-20070B	20	70	50	50	25	-	M16	M1617SS-P15
BT40-WSA-25090B	25	90	55	60	24	25		M1817SS-P20
BT40-WSA-32095B	32	95	65	70	24	28		M2017SS-P20
BT50-WSA-20085B	20	85	50	50	25	-	M24	M1617SS-P15
BT50-WSA-25105B	25	105	55	60	24	25		M1817SS-P20
BT50-WSA-32110B	32	110	65	70	24	28		M2017SS-P20
BT50-WSA-40120B	40	120	80	80	30	32		M2020SS-P20
BT50-WSA-50130B	50	130	90	80	35	35		M2420SS-P20

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.

TOOL HOLDER



● MAS / BT Weldon-B Oil Feed Type

▶ BT-CMS



Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
BT40-CMS-20110B	20	110	50	83	50	25	-	M16	M1617SS-P15
BT40-CMS-25130B	25	130	55	88	60	24	25		M1817SS-P20
BT40-CMS-32135B	32	135	65	98	70	24	28		M2017SS-P20
BT50-CMS-20120B	20	120	50	83	50	25	-	M24	M1617SS-P15
BT50-CMS-25140B	25	140	55	88	62	24	25		M1817SS-P20
BT50-CMS-32145B	32	145	65	98	70	24	28		M2017SS-P20
BT50-CMS-40155B	40	155	80	113	80	30	32		M2020SS-P20
BT50-CMS-50170B	50	170	90	123	80	35	35		M2420SS-P20

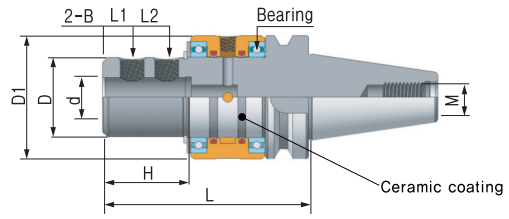
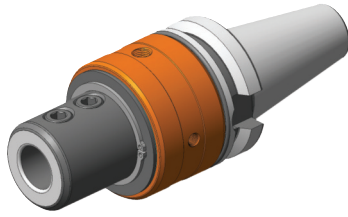
※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 2,000RPM/138페이지참조)

※ 오일캡 실제 색상은 검정(lack Oxid)입니다.

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 2,000RPM/refer to page 138)

※ The actual color of the Oil Cap is black

SIDE LOCK ARBOR (WELDON-B) BT-CMB / BT-CAW

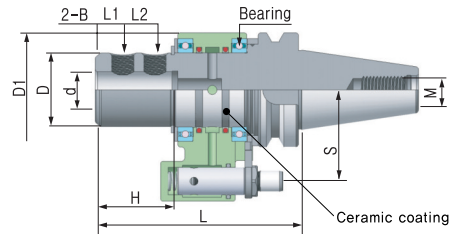
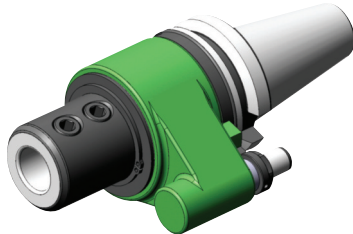


● MAS / BT Weldon-B Oil Feed Bearing Type ▶ BT-CMB

Code No.	치수 Dimension(mm)								부품 Component	
	d	L	D	D1	H	L1	L2	M	B	
BT40-CMB-20135B	20	135	50	82	50	25	-	M16	M1617SS-P15	
BT40-CMB-25155B	25	155	55	90	60	24	25		M1817SS-P20	
BT40-CMB-32165B	32	165	65	100	70	24	28		M2017SS-P20	
BT50-CMB-20145B	20	145	50	82	50	25	-	M24	M1617SS-P15	
BT50-CMB-25165B	25	165	55	90	60	24	25		M1817SS-P20	
BT50-CMB-32170B	32	170	65	100	70	24	28		M2017SS-P20	
★ BT50-CMB-40180B	40	180	65	100	80	30	32		M2020SS-P20	
★ BT50-CMB-50190B	50	190	65	100	80	35	35		M2420SS-P20	

- ※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 4,000RPM/138페이지참조)
- ※ 오일캡 실제 색상은 검정(lack Oxid)입니다. The actual color of the Oil Cap is black
- ※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 4,000RPM/refer to page 138)

- ★ : 결합형(드릴체결부+스핀드부)
- ★ : Couple type (Drill joint + Spindle joint)



● MAS / BT Weldon-B Auto Matic Type ▶ BT-CAW

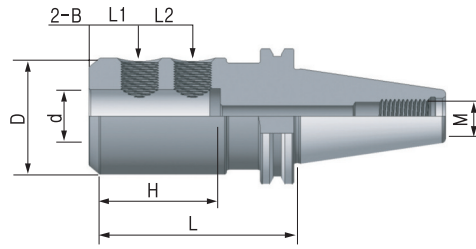
Code No.	치수 Dimension(mm)									부품 Component	
	d	L	D	D1	H	L1	L2	M	S	B	
BT40-CAW-20130B	20	130	50	80	50	25	-	M16	65	M1617SS-P15	
★ BT40-CAW-25150B	25	150	58	80	60	24	25			M1817SS-P20	
★ BT40-CAW-32155B	32	155	65	80	70	24	28			M2017SS-P20	
BT50-CAW-20150B	20	150	50	100	50	25	-	M24	80	M1617SS-P15	
BT50-CAW-25170B	25	170	55	100	60	24	25			M1817SS-P20	
BT50-CAW-32180B	32	180	65	100	70	24	28			M2017SS-P20	
★ BT50-CAW-40190B	40	190	65	100	80	30	32			M2020SS-P20	
★ BT50-CAW-50200B	50	200	65	100	80	35	35			M2420SS-P20	

- ※ 자동 툴체인지(ATC)가 가능한 툴홀더로, 사용 전에 위치결정핀(Position Pin) 높이와 각도를 맞추어 사용합니다. (139페이지)
- ※ 베어링과 내열, 내마모성이 우수한 씬(Seal)을 장착하여, 고속에서도 누유 없이 장시간 안정적인 운전이 가능합니다. (Max. 4,000RPM)
- ※ It is a tool holder capable of Automatic Tool Change (ATC). Adjust the height and angle of the Position Pin prior to use. (P.139)
- ※ It has a bearing and seal with outstanding heat-resistant and abrasion resistive properties, making it capable of stable operation for extended durations without leakage even in high speeds. (Max. 4,000RPM)



SIDE LOCK ARBOR (WELDON-B)

SK-WSA / SK-CMS

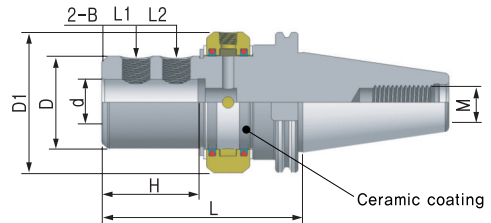
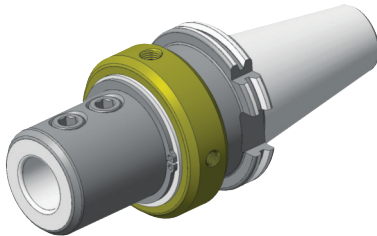


- DIN69871 / SK Weldon-B Type
- ▶ SK-WSA

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	H	L1	L2	M	B
SK40-WSA-20065B	20	65	50	50	25	-	M16	M1617SS-P15
SK40-WSA-25100B	25	100	55	60	24	25		M1817SS-P20
SK40-WSA-32105B	32	105	65	70	24	28		M2017SS-P20
SK50-WSA-20065B	20	65	50	50	25	-	M24	M1617SS-P15
SK50-WSA-25100B	25	100	55	60	24	25		M1817SS-P20
SK50-WSA-32105B	32	105	65	70	24	28		M2017SS-P20
SK50-WSA-40110B	40	110	80	80	30	32		M2020SS-P20
SK50-WSA-50125B	50	125	90	80	35	35		M2420SS-P20

- ※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.
- ※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.

TOOL HOLDER



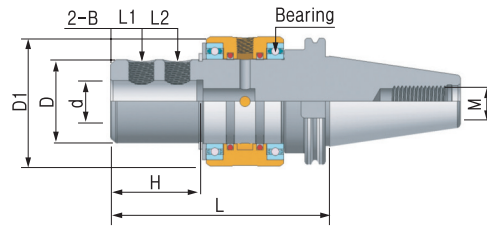
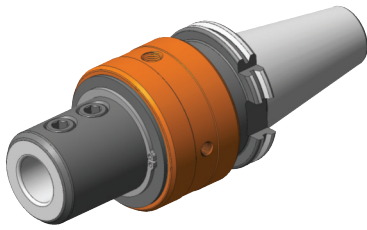
- DIN69871 / SK Weldon-B Oil Feed Type
- ▶ SK-CMS



Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
SK40-CMS-20115B	20	115	50	83	50	25	-	M16	M1617SS-P15
SK40-CMS-25135B	25	135	55	88	60	24	25		M1817SS-P20
SK40-CMS-32140B	32	140	65	98	70	24	28		M2017SS-P20
SK50-CMS-20115B	20	115	50	83	50	25	-	M24	M1617SS-P15
SK50-CMS-25135B	25	135	55	88	62	24	25		M1817SS-P20
SK50-CMS-32140B	32	140	65	98	70	24	28		M2017SS-P20
SK50-CMS-40150B	40	150	80	113	80	30	32		M2020SS-P20
SK50-CMS-50165B	50	165	90	123	80	35	35		M2420SS-P20

- ※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 2,000RPM/138페이지참조)
- ※ 오일캡 실제 색상은 검정(lack Oxid)입니다.
- ※ It is a manual type internal oil holder with a special seal capable of long term operation without leakage. (Max. 2,000RPM/refer to page 138)
- ※ The actual color of the Oil Cap is black

SIDE LOCK ARBOR (WELDON-B) SK-CMB



- DIN69871 / SK Weldon-B Oil Feed Bearing Type
- ▶ SK-CMB



Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
SK40-CMB-20145B	20	145	50	82	50	25	-	M16	M1617SS-P15
SK40-CMB-25165B	25	165	55	90	60	24	25		M1817SS-P20
SK40-CMB-32170B	32	170	65	100	70	24	28		M2017SS-P20
SK50-CMB-20145B	20	145	50	82	50	25	-	M24	M1617SS-P15
SK50-CMB-25165B	25	165	55	90	62	24	25		M1817SS-P20
SK50-CMB-32170B	32	170	65	100	70	24	28		M2017SS-P20
★ SK50-CMB-40180B	40	180	80	100	80	30	32		M2020SS-P20
★ SK50-CMB-50190B	50	190	90	100	80	35	35		M2420SS-P20

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 4,000RPM/138페이지참조)

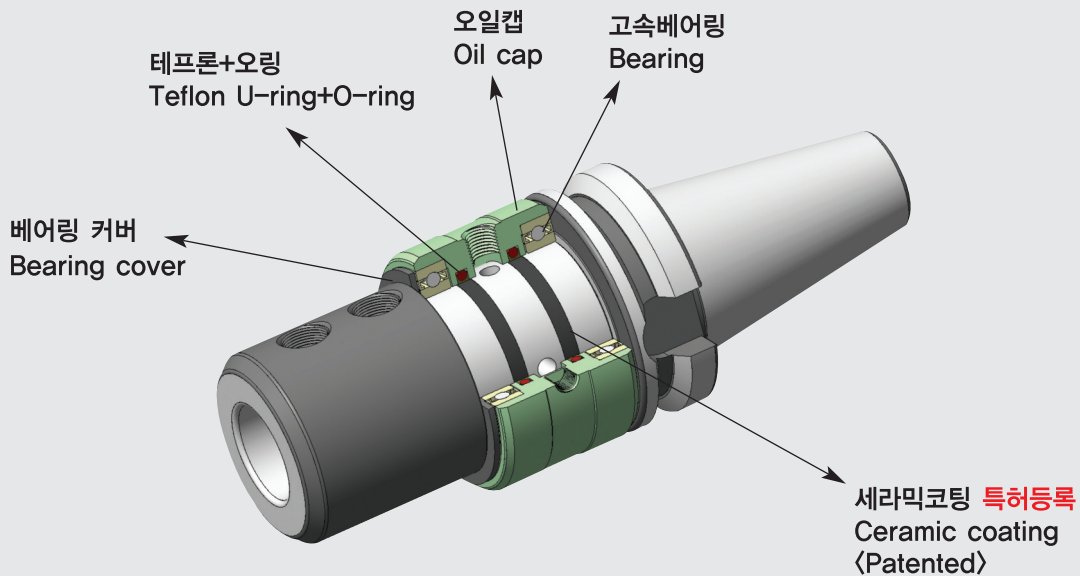
※ 오일캡 실제 색상은 검정(lack Oxid)입니다. The actual color of the Oil Cap is black

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 4,000RPM/refer to page 138)

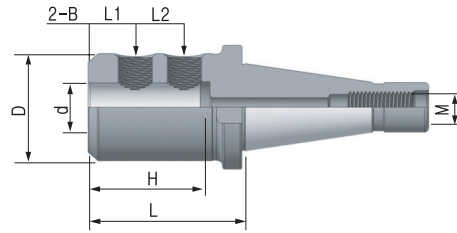
★ : 결합형(드릴체결부+스핀드부)

★ : Couple type (Drill joint + Spindle joint)

CMB ARBOR STRUCTURE



SIDE LOCK ARBOR (WELDON-B) NT-WSA / NT-CMS



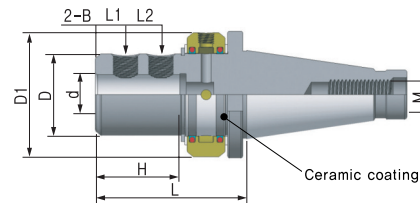
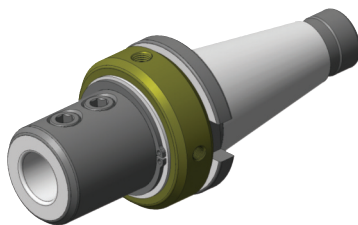
● DIN2080 / NT Weldon-B Type

▶ NT-WSA

Code No.	치수 Dimension(mm)							부품 Component	
	d	L	D	H	L1	L2	M	B	
NT40-WSA-20060B	20	60	50	50	25	-	5/8"-11UNC	M1617SS-P15	
NT40-WSA-25080B	25	80	55	60	24	25		M1817SS-P20	
NT40-WSA-32085B	32	85	65	70	24	28		M2017SS-P20	
NT50-WSA-20065B	20	65	50	50	25	-	1"-8UNC	M1617SS-P15	
NT50-WSA-25085B	25	85	55	60	24	25		M1817SS-P20	
NT50-WSA-32090B	32	90	65	70	24	28		M2017SS-P20	
NT50-WSA-40100B	40	100	80	80	30	32		M2020SS-P20	
NT50-WSA-50110B	50	110	90	80	35	35	M2420SS-P20		
NT40-WSA-20060MB	20	60	50	50	25	-	M16	M1617SS-P15	
NT40-WSA-25080MB	25	80	55	60	24	25		M1817SS-P20	
NT40-WSA-32085MB	32	85	65	70	24	28		M2017SS-P20	
NT50-WSA-20065MB	20	65	50	50	25	-	M24	M1617SS-P15	
NT50-WSA-25085MB	25	85	55	60	24	25		M1817SS-P20	
NT50-WSA-32090MB	32	90	65	70	24	28		M2017SS-P20	
NT50-WSA-40100MB	40	100	80	80	30	32		M2020SS-P20	
NT50-WSA-50110MB	50	110	90	80	35	35		M2420SS-P20	

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



● DIN2080 / NT Weldon-B Oil Feed Type

▶ NT-CMS

기본구성품(Basic Component)

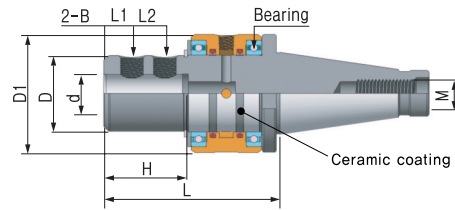
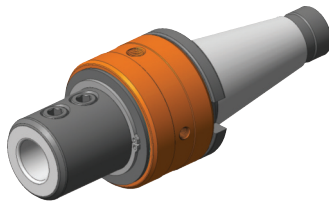


Code No.	치수 Dimension(mm)								부품 Component	
	d	L	D	D1	H	L1	L2	M	B	
NT40-CMS-20095B	20	95	50	83	50	25	-	5/8"-11UNC	M1617SS-P15	
NT40-CMS-25115B	25	115	55	88	60	24	25		M1817SS-P20	
NT40-CMS-32120B	32	120	65	98	70	24	28		M2017SS-P20	
NT50-CMS-20095B	20	95	50	83	50	25	-	1"-8UNC	M1617SS-P15	
NT50-CMS-25115B	25	115	55	88	62	24	25		M1817SS-P20	
NT50-CMS-32120B	32	120	65	98	70	24	28		M2017SS-P20	
NT50-CMS-40130B	40	130	80	113	80	30	32		M2020SS-P20	
NT50-CMS-50140B	50	140	90	123	80	35	35		M2420SS-P20	
NT40-CMS-20095MB	20	95	50	83	50	25	-	M16	M1617SS-P15	
NT40-CMS-25115MB	25	115	55	88	60	24	25		M1817SS-P20	
NT40-CMS-32120MB	32	120	65	98	70	24	28		M2017SS-P20	
NT50-CMS-20095MB	20	95	50	83	50	25	-	M24	M1617SS-P15	
NT50-CMS-25115MB	25	115	55	88	62	24	25		M1817SS-P20	
NT50-CMS-32120MB	32	120	65	98	70	24	28		M2017SS-P20	
NT50-CMS-40130MB	40	130	80	113	80	30	32		M2020SS-P20	
NT50-CMS-50140MB	50	140	90	123	80	35	35		M2420SS-P20	

※ 오일캡 실제 색상은 검정(lack Oxid)입니다. The actual color of the Oil Cap is black



SIDE LOCK ARBOR (WELDON-B) NT-CMB



- DIN2080 / NT Weldon-B Oil Feed Bearing Type
- ▶ NT-CMB



Code No.	치수 Dimension(mm)								부품 Component
	d	L	D	D1	H	L1	L2	M	B
NT40-CMB-20125B	20	125	50	82	50	25	-	5/8"-11UNC	M1617SS-P15
NT40-CMB-25145B	25	145	55	90	60	24	25		M1817SS-P20
NT40-CMB-32150B	32	150	65	100	70	24	28		M2017SS-P20
NT50-CMB-20125B	20	125	50	82	50	25	-	1"-8UNC	M1617SS-P15
NT50-CMB-25145B	25	145	55	90	60	24	25		M1817SS-P20
NT50-CMB-32150B	32	150	65	100	70	24	28		M2017SS-P20
★NT50-CMB-40160B	40	160	65	100	80	30	32		M2020SS-P20
★NT50-CMB-50170B	50	170	65	100	80	35	35		M2420SS-P20
NT40-CMB-20125MB	20	125	50	82	50	25	-	M16	M1617SS-P15
NT40-CMB-25145MB	25	145	55	90	60	24	25		M1817SS-P20
NT40-CMB-32150MB	32	150	65	100	70	24	28		M2017SS-P20
NT50-CMB-20125MB	20	125	50	82	50	25	-	M24	M1617SS-P15
NT50-CMB-25145MB	25	145	55	90	60	24	25		M1817SS-P20
NT50-CMB-32150MB	32	150	65	100	70	24	28		M2017SS-P20
★NT50-CMB-40160MB	40	160	65	100	80	30	32		M2020SS-P20
★NT50-CMB-50170MB	50	170	65	100	80	35	35		M2420SS-P20

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씰을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 4,000RPM/138페이지참조)

※ 오일캡 실제 색상은 검정(lack Oxid)입니다. The actual color of the Oil Cap is black
 ※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 4,000RPM/refer to page 138)

★ : 결합형(드릴체결부+스핀드부)

★ : Couple type (Drill joint + Spindle joint)

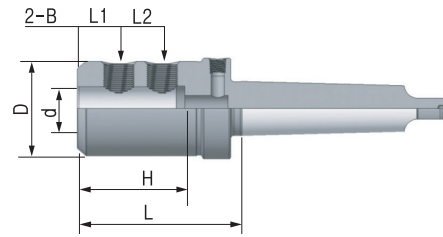
CMB, CAW ARBOR CHARACTERISTIC

- ▣ 테프론과의 마찰부를 세라믹 코팅처리하여 아바 수명이 놀랍게 향상되었습니다.(특허등록)
- ▣ 특수성분 테프론 사용으로 미끄럼성을 높였습니다.
- ▣ 베어링 장착으로 고속 회전(실내경 $\phi 65$ 의 경우 max. 4,000)이 가능합니다.
- ▣ 샹크체결은 DIN규격을 준수하였습니다.
- ▣ Asthe part of arbor body touched with teflon was treated by ceramic coating, The arbor life is much more upgraded
- ▣ The sliding nature of teflon is improved by adding the special ingredient.
- ▣ It is possible to turn with high speed by installing the bearings.(max. 4,000)
- ▣ The shank locking system was followed DIN regulation.



SIDE LOCK ARBOR (WELDON-B)

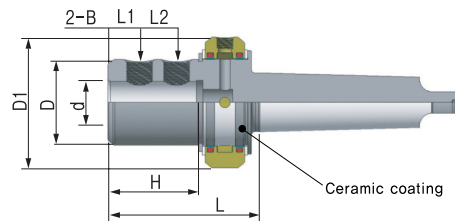
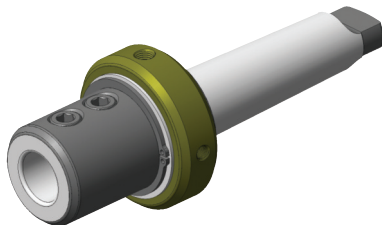
MT-WSA / MT-CMS



● DIN228B / MT Weldon-B Type
▶ MT-WSA

Code No.	치수 Dimension(mm)						부품 Component
	d	L	D	H	L1	L2	B
MT4-WSA-20075B	20	75	50	50	25	-	M1617SS-P15
MT4-WSA-25095B	25	95	55	60	24	25	M1817SS-P20
MT4-WSA-32105B	32	105	65	70	24	28	M2017SS-P20
MT5-WSA-20080B	20	80	50	50	25	-	M1617SS-P15
MT5-WSA-25100B	25	100	55	60	24	25	M1817SS-P20
MT5-WSA-32105B	32	105	65	70	24	28	M2017SS-P20
MT5-WSA-40115B	40	115	80	80	30	32	M2020SS-P20
MT6-WSA-32105B	32	105	65	50	25	-	M2017SS-P20
MT6-WSA-40115B	40	115	80	60	24	25	M2020SS-P20
MT6-WSA-50125B	50	125	90	70	24	28	M2420SS-P20

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.
※ If a COTTER HOME is present, please make a separate assignment.



● DIN228B / MT Weldon-B Oil Feed Type
▶ MT-CMS

Code No.	치수 Dimension(mm)							부품 Component
	d	L	D	D1	H	L1	L2	B
MT4-CMS-20085B	20	85	50	83	50	25	-	M1617SS-P15
MT4-CMS-25110B	25	110	55	88	60	24	25	M1817SS-P20
MT4-CMS-32115B	32	115	65	88	70	24	28	M2017SS-P20
MT5-CMS-25110B	25	110	55	88	60	24	25	M1617SS-P15
MT5-CMS-32115B	32	115	65	98	70	24	28	M1817SS-P20
MT5-CMS-40125B	40	125	80	98	80	30	32	M2017SS-P20
MT6-CMS-32120B	32	120	65	98	50	25	-	M2017SS-P20
MT6-CMS-40130B	40	130	80	98	60	24	25	M2020SS-P20
MT6-CMS-50140B	50	140	90	98	70	24	28	M2420SS-P20

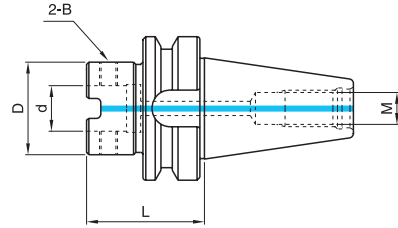
※ 오일캡 실제 색상은 검정(lack Oxid)입니다.
※ The actual color of the Oil Cap is black

Tool Holder
MX MODULAR SYSTEM



MX MODULAR SYSTEM

BT-MXA / BT-OMX



● MAS403 / BT MX Modular Type

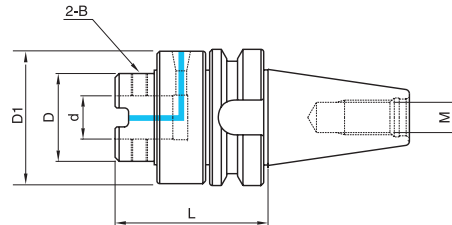
▶ BT-MXA

Code No.	치수 Dimension(mm)				부품 Component
	d	L	D	M	B
BT40-MXA-32060	32	60	58	M16	MTB-12195
BT50-MXA-32070	32	70	58	M24	
BT50-MXA-50080	50	80	80	M24	MTB-16260

※ 스펀들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.

TOOL HOLDER



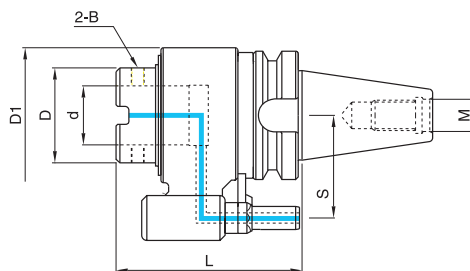
● MAS403 / BT MX Modular Oil Feed Type

▶ BT-OMX

Code No.	치수 Dimension(mm)					부품 Component
	d	L	D	D1	M	B
BT40-OMX-32095	32	95	65	98	M16	MTB-12175
BT50-OMX-32100	32	100	65	98	M24	
BT50-OMX-50110	50	110	80	115	M24	MTB-16225

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)



● MAS403 / BT MX Modular Auto Matic Type

▶ BT-OAX

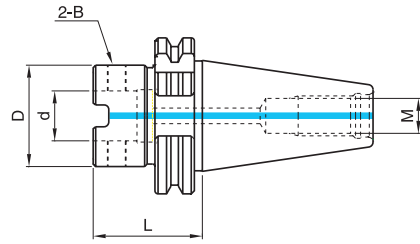
Code No.	치수 Dimension(mm)						부품 Component
	d	L	D	D1	S	M	B
BT40-OAX-32120	32	120	65	80	65	M16	MTB-12175
BT50-OAX-32145	32	145	65	98	80	M24	
BT50-OAX-50150	50	150	80	98	80	M24	MTB-16225

- ※ 자동 툴체인지(ATC)가 가능한 툴홀더로, 사용 전에 위치결정핀(Position Pin) 높이와 각도를 맞추어 사용합니다. (139페이지)
- ※ 베어링과 내열, 내마모성이 우수한 씬(Seal)을 장착하여, 고속에서도 누유 없이 장시간 안정적인 운전이 가능합니다. (Max. 3,200RPM)
- ※ It is a tool holder capable of Automatic Tool Change (ATC). Adjust the height and angle of the Position Pin prior to use. (P.139)
- ※ It has a bearing and seal with outstanding heat-resistant and abrasion resistive properties, making it capable of stable operation for extended durations without leakage even in high speeds. (Max. 3,200RPM)



MX MODULAR SYSTEM

SK-MXA / SK-OMX



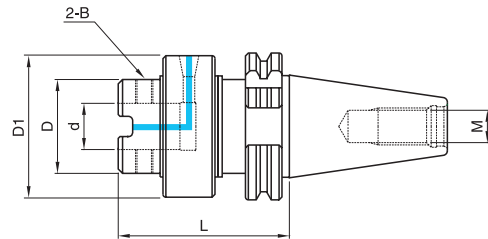
● DIN69871 Form AD / MX Modular Type

▶ SK-MXA

Code No.	치수 Dimension(mm)				부품 Component
	d	L	D	M	B
SK40-MXA-32065	32	60	58	M16	MTB-12195
SK50-MXA-32070	32	70	58	M24	
SK50-MXA-50070	50	70	80	M24	MTB-16260

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



● DIN69871 Form AD / MX Modular Oil Feed Type

▶ SK-OMX

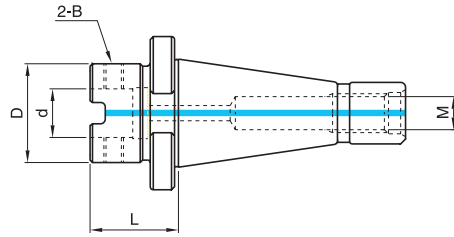
Code No.	치수 Dimension(mm)					부품 Component
	d	L	D	D1	M	B
SK40-OMX-32100	32	100	65	98	M16	MTB-12195
SK50-OMX-32100	32	100	65	98	M24	
SK50-OMX-50110	50	110	80	115	M24	MTB-16260

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)

MX MODULAR SYSTEM

NT-MXA / NT-OMX



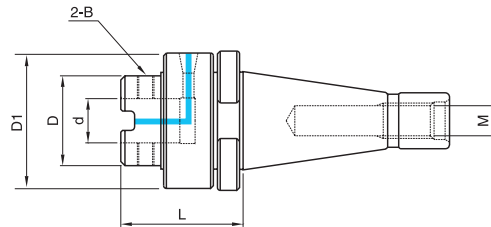
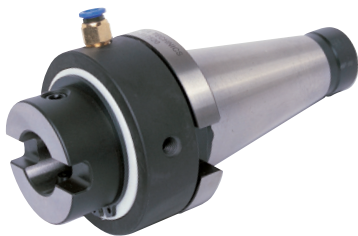
● DIN2080 / MX Modular Type

▶ NT-MXA

Code No.	치수 Dimension(mm)				부품 Component
	d	L	D	M	B
NT40-MXA-32050	32	50	58	5/8"-11UNC	MTB-12195
NT50-MXA-32050	32	50	58	1"-8UNC	
NT50-MXA-50080	50	80	80	1"-8UNC	MTB-16260
NT40-MXA-32050M	32	50	58	M16	MTB-12195
NT50-MXA-32050M	32	50	58	M24	MTB-16260
NT50-MXA-50080M	50	80	80	M24	

※ 스피들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.

※ It can be used efficiently in equipment capable of cutting oil injection inside the spindle.



● DIN2080 / MX Modular Oil Feed Type

▶ NT-OMX

Code No.	치수 Dimension(mm)					부품 Component
	d	L	D	D1	M	B
NT40-OMX-32080	32	80	65	98	5/8"-11UNC	MTB-12195
NT50-OMX-32080	32	80	65	98	1"-8UNC	
NT50-OMX-50085	50	85	80	115	1"-8UNC	MTB-16260
NT40-OMX-32080M	32	80	65	98	M16	MTB-12195
NT50-OMX-32080M	32	80	65	98	M24	MTB-12195
NT50-OMX-50085M	50	85	80	115	M24	

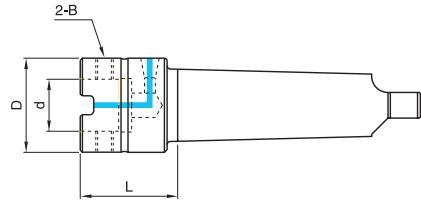
※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)



MX MODULAR SYSTEM

MT-MXA / MT-OMX



● DIN228B / MX Modular Type

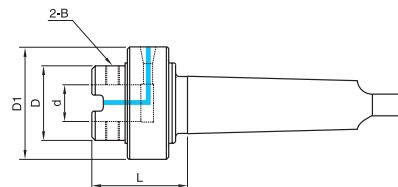
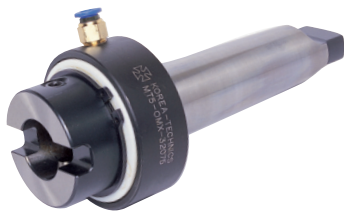
▶ MT-MXA

Code No.	치수 Dimension(mm)			부품 Component
	d	L	D	B
MT4-MXA-32060	32	60	58	MTB-12195
MT5-MXA-32060	32	60	58	
MT5-MXA-50080	50	80	80	MTB-16260
MT6-MXA-32065	32	65	58	MTB-12195
MT6-MXA-50080	50	80	80	MTB-16260

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.

※ If a COTTER HOME is present, please make a separate assignment.

TOOL HOLDER



● DIN228B / MX Modular Oil Feed Type

▶ MT-OMX

Code No.	치수 Dimension(mm)				부품 Component
	d	L	D	D1	B
MT4-OMX-32075	32	75	65	98	MTB-12195
MT5-OMX-32075	32	75	65	98	
MT5-OMX-50085	50	85	80	115	MTB-16260
MT6-OMX-32075	32	75	65	98	MTB-12195
MT6-OMX-50085	50	85	80	115	MTB-16260

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1,800RPM/138페이지참조)

※ If a COTTER HOME is present, please make a separate assignment.

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1,800RPM/refer to page 138)

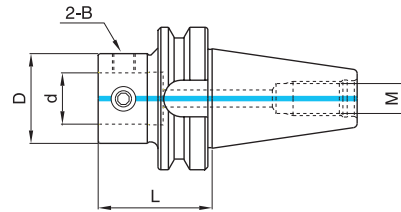
Tool Holder

EXT MODULAR SYSTEM



EXT MODULAR SYSTEM

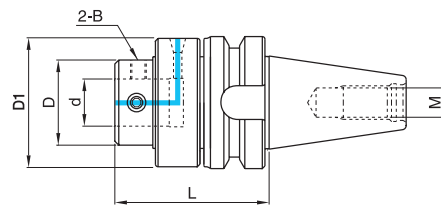
BT-ETA / BT-OME



● MAS403 / BT EXT Standard Holder

▶ BT-ETA

Code No.	치수 Dimension(mm)				부품 Component	
	D	d	L	M	B	
BT30-ETA-22045	40	22	45	M12	MTB-10145	
BT30-ETA-28055	50	28	55		MTB-12175	
BT40-ETA-22055	40	22	55	M16	MTB-10145	
BT40-ETA-28055	50	28	55		MTB-12175	
BT40-ETA-36055	63	36	55		MTB-16225	
BT50-ETA-22065	40	22	65	M24	MTB-10145	
BT50-ETA-28070	50	28	70		MTB-12175	
BT50-ETA-36080	63	36	80		MTB-16225	
BT50-ETA-45080	80	45	80		MTB-16260	
BT50-ETA-55080	100	55	80		MTB-20330	



● MAS403 / BT EXT Modular Oil Feed Type

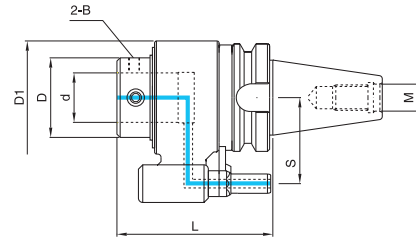
▶ BT-OME

Code No.	치수 Dimension(mm)				부품 Component	
	d	L	D	D1	M	B
BT40-OME-22090	22	90	50	78	M16	MTB-10145
BT40-OME-28095	28	95	50	78		MTB-12175
BT40-OME-36100	36	100	65	98		MTB-16225
BT50-OME-22105	22	105	50	78	M24	MTB-10145
BT50-OME-28105	28	105	50	78		MTB-12175
BT50-OME-36120	36	120	65	98		MTB-16225
BT50-OME-45120	45	120	80	115		MTB-16260

※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1800RPM/refer to page 138)





● MAS403 / BT EXT Modular Auto Matic Type

▶ BT- OAE

Code No.	치수 Dimension(mm)						부품 Component
	d	L	D	D1	S	M	B
BT40-OAE-22110	22	110	55				MTB-10145
BT40-OAE-28115	28	115	55	80	65	M16	MTB-12175
BT40-OAE-36120	36	120	65				MTB-16225
BT50-OAE-22135	22	135	55				MTB-10145
BT50-OAE-28135	28	135	55	100	80	M24	MTB-12175
BT50-OAE-36145	36	145	65				MTB-16225
BT50-OAE-45145	45	145	80				MTB-16260

※ EXT 모듈타입을 사용하면 게이지라인에서의 거리가 짧고 원통 및 단면 구속으로 떨림을 최소화 할 수 있습니다.

※ 자동 툴체인지(ATC)가 가능한 툴홀더로, 사용 전에 위치결정핀(Position Pin) 높이와 각도를 맞추어 사용합니다. (139페이지)

※ 베어링과 내열, 내마모성이 우수한 씬(Seal)을 장착하여, 고속에서도 누유 없이 장시간 안정적인 운전이 가능합니다. (Max. 3,200RPM)

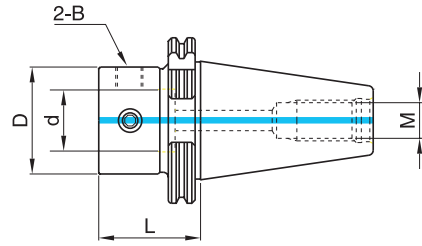
※ It is a tool holder capable of Automatic Tool Change (ATC). Adjust the height and angle of the Position Pin prior to use. (P.139)

※ It has a bearing and seal with outstanding heat-resistant and abrasion resistive properties, making it capable of stable operation for extended durations without leakage even in high speeds. (Max. 3,200RPM)



EXT MODULAR SYSTEM

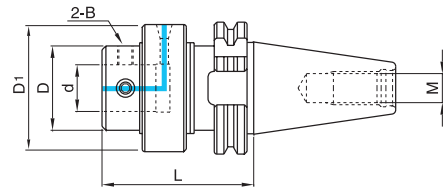
SK-ETA / SK-OME



● DIN69871 / SK EXT Standard Type

▶ SK-ETA

Code No.	치수 Dimension(mm)				부품 Component
	D	d	L	M	B
SK40-ETA-22045	40	22	45	M16	MTB-10145
SK40-ETA-28050	50	28	50		MTB-12175
SK40-ETA-36065	63	36	65		MTB-16225
SK50-ETA-22045	40	22	45	M24	MTB-10145
SK50-ETA-28050	50	28	50		MTB-12175
SK50-ETA-36060	63	36	60		MTB-16225
SK50-ETA-45060	80	45	60		MTB-16260



● DIN69871 / SK EXT Modular Oil Feed Type

▶ SK-OME

Code No.	치수 Dimension(mm)				부품 Component	
	d	L	D	D1	M	B
SK40-OME-22095	22	95	50	78	M16	MTB-10145
SK40-OME-28100	28	100	50	78		MTB-12175
SK40-OME-36105	36	105	65	98		MTB-16225
SK50-OME-22090	22	90	50	78	M24	MTB-10145
SK50-OME-28105	28	105	50	78		MTB-12175
SK50-OME-36105	36	105	65	98		MTB-16225
SK50-OME-45105	45	105	80	115		MTB-16260

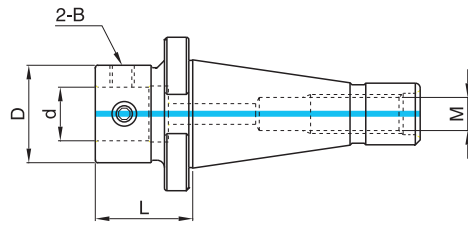
※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1800RPM/refer to page 138)



EXT MODULAR SYSTEM

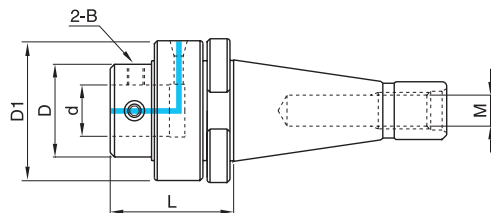
NT-ETA / NT-OME



● DIN2080 / NT EXT Standard Holder Type

▶ NT-ETA

Code No.	치수 Dimension(mm)				부품 Component
	D	d	L	M	B
NT40-ETA-22040	40	22	40	5/8"-11UNC	MTB-10145
NT40-ETA-28045	50	28	45		MTB-12175
NT40-ETA-36065	63	36	65		MTB-16225
NT50-ETA-28055	50	28	55	1"-8UNC	MTB-12175
NT50-ETA-36060	63	36	60		MTB-16225
NT50-ETA-45060	80	45	60		MTB-16260
NT40-ETA-22040M	40	22	40	M16	MTB-10145
NT40-ETA-28045M	50	28	45		MTB-12175
NT40-ETA-36065M	63	36	65		MTB-16225
NT50-ETA-28055M	50	28	55	M24	MTB-12175
NT50-ETA-36060M	63	36	60		MTB-16225
NT50-ETA-45060M	80	45	60		MTB-16260



● DIN2080 / NT EXT Modular Oil Feed Type

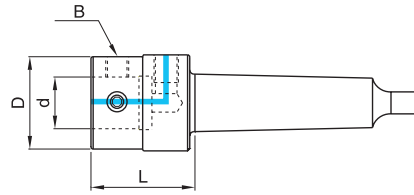
▶ NT-OME

Code No.	치수 Dimension(mm)				부품 Component	
	d	L	D	D1	M	B
NT40-OME-22075	22	75	50	78	5/8"-11UNC	MTB-10145
NT40-OME-28080	28	80	50	78		MTB-12175
NT40-OME-36090	36	90	65	98		MTB-16225
NT50-OME-22080	22	80	50	78	1"-8UNC	MTB-10145
NT50-OME-28080	28	80	50	78		MTB-12175
NT50-OME-36090	36	90	65	98		MTB-16225
NT50-OME-45090	45	90	80	115	MTB-16260	
NT40-OME-22075M	22	75	50	78	M16	MTB-10145
NT40-OME-28080M	28	80	50	78		MTB-12175
NT40-OME-36090M	36	90	65	98		MTB-16225
NT50-OME-22080M	22	80	50	78	M24	MTB-10145
NT50-OME-28080M	28	80	50	78		MTB-12175
NT50-OME-36090M	36	90	65	98		MTB-16225
NT50-OME-45090M	45	90	80	115	MTB-16260	



EXT MODULAR SYSTEM

MT-ETA / MT-OME

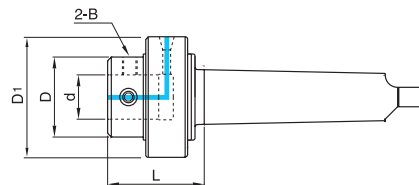
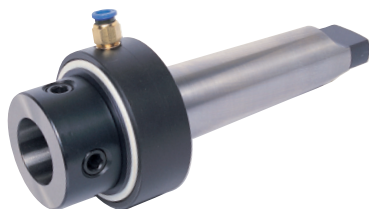


- DIN228B / MT EXT Standard Type
- ▶ MT-ETA

Code No.	치수 Dimension(mm)			부품 Component
	D	d	L	B
MT4-ETA-22045	40	22	45	MTB-10145
MT4-ETA-28060	50	28	60	MTB-12175
MT4-ETA-36065	63	36	65	MTB-16225
MT5-ETA-22045	40	22	45	MTB-10145
MT5-ETA-28060	50	28	60	MTB-12175
MT5-ETA-36065	63	36	65	MTB-16225
MT5-ETA-45075	80	45	75	MTB-16260
MT6-ETA-36065	63	36	65	MTB-16225
MT6-ETA-45075	80	45	75	MTB-16260

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.

※ If a COTTER HOME is present, please make a separate assignment.



- DIN228B / MT EXT Modular Oil Feed Type
- ▶ MT-OME

Code No.	치수 Dimension(mm)				부품 Component
	d	L	D	D1	B
MT4-OME-22065	22	65	50	78	MTB-10145
MT4-OME-28075	28	75	50	78	MTB-12175
MT4-OME-36080	36	80	65	98	MTB-16225
MT5-OME-22065	22	65	50	78	MTB-10145
MT5-OME-28075	28	75	50	78	MTB-12175
MT5-OME-36080	36	80	65	98	MTB-16225
MT5-OME-45085	45	85	80	115	MTB-16260
MT6-OME-22070	22	70	50	78	MTB-10145
MT6-OME-28075	28	75	50	78	MTB-12175
MT6-OME-36085	36	85	65	98	MTB-16225
MT6-OME-45085	45	85	80	115	MTB-16260

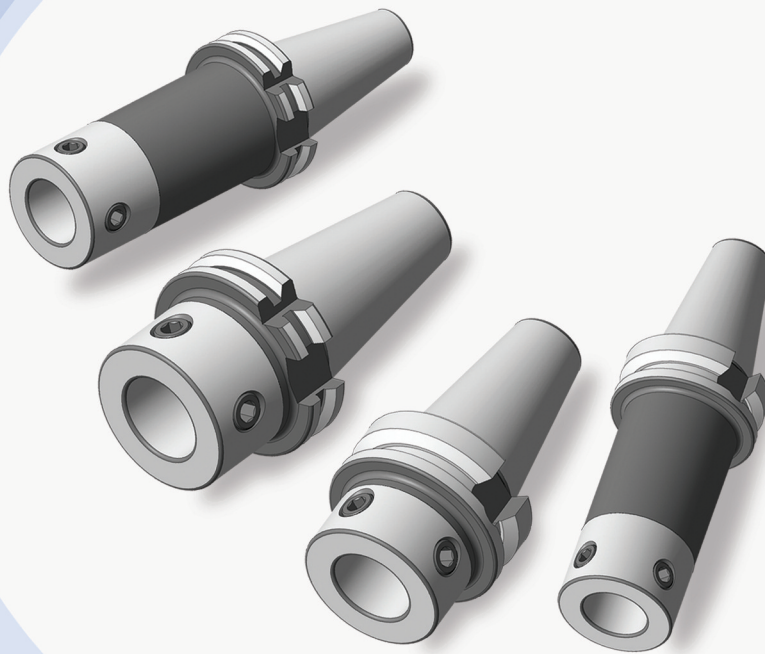
※ 수동 내부 급유형 절삭유 공급 홀더로, 특수 씬을 장착하여 누유없이 장시간 운전이 가능합니다. (Max. 1800RPM/138페이지참조)

※ It is a manual type internal oil hole holder with a special seal capable of long term operation without leakage. (Max. 1800RPM/refer to page 138)



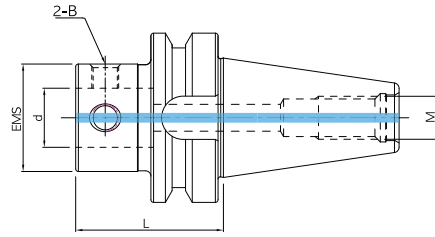
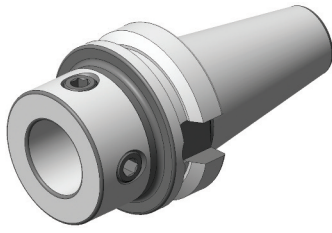
Tool Holder

EMS MODULAR SYSTEM



EMS MODULAR SYSTEM

BT-ETA MODULAR ARBOR

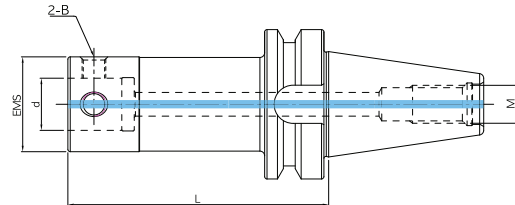
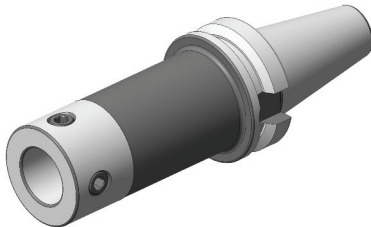


- MAS403 / BT EMS Standard Type Holder
- ▶ BT-ETA (standard)

Group	Code No.	치수 Dimension(mm)				부품 Component	
		EMS	d	L	M	B	
EMS25	BT40-ETA-14050	25	14	50	M16	MTB-06085	
EMS32	BT40-ETA-18055	32	18	55		MTB-08115	
EMS40	BT40-ETA-22055	40	22	55		MTB-10145	
EMS50	BT40-ETA-28055	50	28	55		MTB-12175	
EMS25	BT50-ETA-14060	25	14	60	M24	MTB-06085	
EMS32	BT50-ETA-18065	32	18	65		MTB-08115	
EMS40	BT50-ETA-22065	40	22	65		MTB-10145	
EMS50	BT50-ETA-28070	50	28	70		MTB-12175	
EMS63	BT50-ETA-36080	63	36	80		MTB-16225	
EMS80	BT50-ETA-45080	80	45	80		MTB-16260	

※ EMS모듈러 스탠다드타입 홀더는 보링툴 홀더이며, EXT모듈러 드릴(MCD,TMD)과도 호환이 됩니다.

※ EMS Modular Standard Type Holder is used for boring tools, and it is interchangeable with EXT Modular Drills (MCD, TMD).



- MAS403 / BT EMS Long Type Holder
- ▶ BT-ETA (Long)

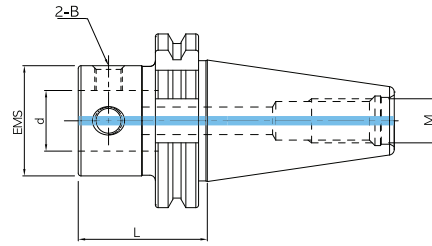
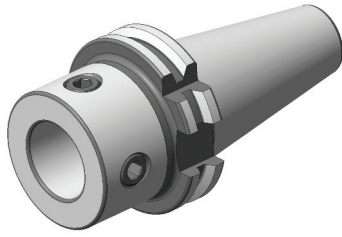
Group	Code No.	치수 Dimension(mm)				부품 Component	
		EMS	d	L	M	B	
EMS25	BT40-ETA-14080	25	14	80	M16	MTB-06085	
EMS32	BT40-ETA-18095	32	18	95		MTB-08115	
EMS40	BT40-ETA-22110	40	22	110		MTB-10145	
EMS50	BT40-ETA-28130	50	28	130		MTB-12175	
EMS25	BT50-ETA-14090	25	14	90	M24	MTB-06085	
EMS32	BT50-ETA-18105	32	18	105		MTB-08115	
EMS40	BT50-ETA-22120	40	22	120		MTB-10145	
EMS50	BT50-ETA-28140	50	28	140		MTB-12175	
EMS63	BT50-ETA-36165	63	36	165		MTB-16225	
EMS80	BT50-ETA-45200	80	45	200		MTB-16260	

※ EMS모듈러 롱타입 홀더는 보링툴 홀더이며, EXT모듈러 드릴(MCD,TMD)용으로는 사용하지 마십시오..

※ EMS Modular Long Type Holder is used for boring tools, and please do not use for EXT Modular Drills (MCD, TMD).



EXT MODULAR SYSTEM SK-ETA MODULAR ARBOR

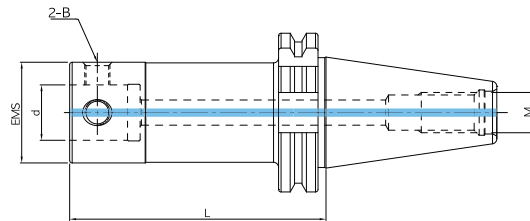
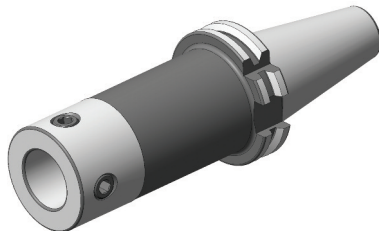


● DIN69871 / SK EMS Standard Type Holder
▶ SK-ETA (Standard)

Group	Code No.	치수 Dimension(mm)				부품 Component	
		EMS	d	L	M	B	
EMS25	SK40-ETA-14040	25	14	40	M16	MTB-06085	
EMS32	SK40-ETA-18045	32	18	45		MTB-08115	
EMS40	SK40-ETA-22045	40	22	45		MTB-10145	
EMS50	SK40-ETA-28050	50	28	50		MTB-12175	
EMS25	SK50-ETA-14040	25	14	40	M24	MTB-06085	
EMS32	SK50-ETA-18045	32	18	45		MTB-08115	
EMS40	SK50-ETA-22045	40	22	45		MTB-10145	
EMS50	SK50-ETA-28050	50	28	50		MTB-12175	
EMS63	SK50-ETA-36060	63	36	60		MTB-16225	
EMS80	SK50-ETA-45060	80	45	60		MTB-16260	

※ EMS모듈러 스탠다드타입 홀더는 보링툴 홀더이며, EXT모듈러 드릴(MCD,TMD)과도 호환이 됩니다.

※ EMS Modular Standard Type Holder is used for boring tools, and it is interchangeable with EXT Modular Drills (MCD, TMD).



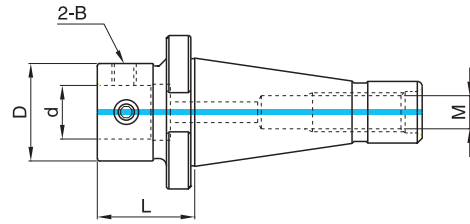
● DIN69871 / SK EMS Long Type Holder
▶ SK-ETA (Long)

Group	Code No.	치수 Dimension(mm)				부품 Component	
		EMS	d	L	M	B	
EMS25	SK40-ETA-14070	25	14	70	M16	MTB-06085	
EMS32	SK40-ETA-18085	32	18	85		MTB-08115	
EMS40	SK40-ETA-22100	40	22	100		MTB-10145	
EMS50	SK40-ETA-28120	50	28	120		MTB-12175	
EMS25	SK50-ETA-14070	25	14	70	M24	MTB-06085	
EMS32	SK50-ETA-18085	32	18	85		MTB-08115	
EMS40	SK50-ETA-22100	40	22	100		MTB-10145	
EMS50	SK50-ETA-28120	50	28	120		MTB-12175	
EMS63	SK50-ETA-36145	63	36	145		MTB-16225	
EMS80	SK50-ETA-45180	80	45	180		MTB-16260	

※ EMS모듈러 롱타입 홀더는 보링툴 홀더이며, EXT모듈러 드릴(MCD,TMD)용으로는 사용하지 마십시오..

※ EMS Modular Long Type Holder is used for boring tools, and please do not use for EXT Modular Drills (MCD, TMD).

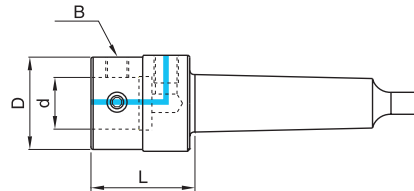




● DIN2080 / NT EMS Standard Type Holder

▶ NT-ETA

Group	Code No.	치수 Dimension(mm)				부품 Component
		EMS	d	L	M	B
EMS40	NT40-ETA-22040	40	22	40	5/8"-11UNC	MTB-10145
EMS50	NT40-ETA-28045	50	28	45		MTB-12175
EMS63	NT40-ETA-36065	63	36	65		MTB-16225
EMS50	NT50-ETA-28055	50	28	55	1"-8UNC	MTB-12175
EMS63	NT50-ETA-36060	63	36	60		MTB-16225
EMS80	NT50-ETA-45060	80	45	60		MTB-16260
EMS40	NT40-ETA-22040M	40	22	40	M16	MTB-10145
EMS50	NT40-ETA-28045M	50	28	45		MTB-12175
EMS63	NT40-ETA-36065M	63	36	65		MTB-16225
EMS50	NT50-ETA-28055M	50	28	55	M24	MTB-12175
EMS63	NT50-ETA-36060M	63	36	60		MTB-16225
EMS80	NT50-ETA-45060M	80	45	60		MTB-16260



● DIN228B / MT EMS Standard Type Holder

▶ MT-ETA

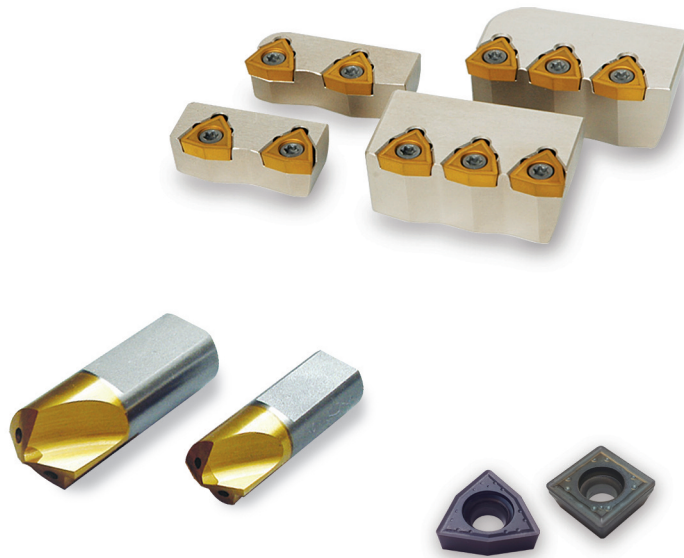
Group	Code No.	치수 Dimension(mm)			부품 Component
		EMS	d	L	B
EMS40	MT4-ETA-22045	40	22	45	MTB-10145
EMS50	MT4-ETA-28060	50	28	60	MTB-12175
EMS63	MT4-ETA-36065	63	36	65	MTB-16225
EMS40	MT5-ETA-22045	40	22	45	MTB-10145
EMS50	MT5-ETA-28060	50	28	60	MTB-12175
EMS63	MT5-ETA-36065	63	36	65	MTB-16225
EMS80	MT5-ETA-45075	80	45	75	MTB-16260
EMS63	MT6-ETA-36065	63	36	65	MTB-16225
EMS80	MT6-ETA-45075	80	45	75	MTB-16260

※ 코터홈이 있는 경우 별도 지정해 주시기 바랍니다.

※ If a COTTER HOME is present, please make a separate assignment.



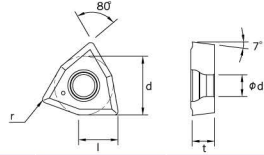
ACCESSORIES



ACCESSORIES

WCMX / SPMX

▶ WCMX

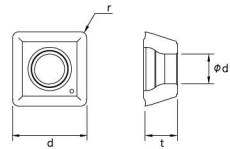


Code No.	l	d	t	r	ød1	부품 Parts	
						Screw	Driver
WCMX030204-□□□□□	3.8	5.56	2.38	0.4	2.55	TSB-22045	TXL-6
WCMX040204-□□□□□	4.3	6.35	2.38	0.4	2.8	TSB-25055	TXL-8
WCMX050308-□□□□□	5.4	7.94	3.18	0.8	3.4	TSB-30070	
WCMX06T308-□□□□□	6.5	9.525	3.97	0.8	4.4	TSB-35090	TXL-15
WCMX080408-□□□□□	8.7	12.7	4.76	0.8	5.5	TSB-40110	

형상 Shape	형번 Code No.	피삭재 Workpiece					적용 드릴 For Drill			
		P	M	K	S	N	HSD(MCD)	VLT(TMD)	VMD	TPD
	WCMX030204-PB213	○	○	○	△	■	ø 16.0 ~ ø 20.0	ø 25	ø 45 ~ ø 55	-
	WCMX040204-PB213	○	○	○	△	■	ø 20.5 ~ ø 25.0	ø 26.0 ~ ø 30.0	ø 55 ~ ø 60	-
	WCMX050308-PB213	○	○	○	△	■	ø 25.5 ~ ø 30.0	ø 31.0 ~ ø 40.0 ø 60.0 ~ ø 75.0	ø 60 ~ ø 75 ø 100 ~ ø 105	ø 40 ~ ø 55
	WCMX06T308-PB213	○	○	○	△	■	ø 31.0 ~ ø 41.0 ø 59.0 ~ ø 80.0	ø 41.0 ~ ø 50.0 ø 75.0 ~ ø 80.0	ø 75 ~ ø 100 ø 105 ~ ø 140	ø 60 ~ ø 110
	WCMX080408-PB213	○	○	○	△	■	ø 42.0 ~ ø 58.0	ø 51.0 ~ ø 59.0	ø 140 ~ ø 180	-
	WCMX040204-PB220	○	○	○	○	■	ø 20.5 ~ ø 25.0	ø 26.0 ~ ø 30.0	ø 55 ~ ø 60	-
	WCMX050308-PB220	○	○	○	○	■	ø 25.5 ~ ø 30.0	ø 31.0 ~ ø 40.0 ø 60.0 ~ ø 75.0	ø 60 ~ ø 75 ø 100 ~ ø 105	ø 40 ~ ø 55
	WCMX06T308-PB220	○	○	○	○	■	ø 31.0 ~ ø 41.0 ø 59.0 ~ ø 80.0	ø 41.0 ~ ø 50.0 ø 75.0 ~ ø 80.0	ø 75 ~ ø 100 ø 105 ~ ø 140	ø 60 ~ ø 110
	WCMX080408-PB220	○	○	○	○	■	ø 42.0 ~ ø 58.0	ø 51.0 ~ ø 59.0	ø 140 ~ ø 180	-

- PB213 : 다용도 ● PB213 : Multi-Purpose (steel, cast iron, stainless steel, heat resisting alloy)
- PB220 : 스테인레스 가공용 ● PB220 : For Stainless Steel

▶ SPMX



Code No.	d	t	r	ød1	부품 Parts	
					Screw	Driver
SPMX050204-□□□□□	5.00	2.38	0.4	2.25	TSB-20045	TXL-6
SPMX060204-□□□□□	6.00	2.38	0.4	2.61	TSB-22052	TXL-8
SPMX07T308-□□□□□	7.94	3.97	0.8	2.85	TSB-25065	
SPMX090408-□□□□□	9.80	4.30	0.8	4.05	TSB-35090	TXL-15
SPMX110408-□□□□□	11.50	4.80	0.8	4.45	TSB-40100	
SPMX140512-□□□□□	14.30	5.20	1.2	5.75	TSB-50125	TXL-20

형상 Shape	형번 Code No.	피삭재 Workpiece					적용 드릴 For Drill	
		P	M	K	S	N	STD	FXD
	SPMX050204-PB113	○	○	○	△	■	ø 13.0 ~ ø 15.0	ø 18.0 ~ ø 19.5
	SPMX060204-PB113	○	○	○	△	■	ø 15.5 ~ ø 21.5	ø 20.0 ~ ø 25.0
	SPMX07T308-PB113	○	○	○	△	■	ø 22.0 ~ ø 27.5	ø 25.5 ~ ø 30.0
	SPMX090408-PB113	○	○	○	△	■	ø 28.0 ~ ø 33.0 / ø 50.0 ~ ø 60.0	-
	SPMX110408-PB113	○	○	○	△	■	ø 34.0 ~ ø 41.0 / ø 60.0 ~ ø 75.0	-
	SPMX140512-PB113	○	○	○	△	■	ø 42.0 ~ ø 50.0 / ø 75.0 ~ ø 80.0	-
	SPMX050204-PB220	○	○	○	○	■	ø 13.0 ~ ø 15.0	ø 18.0 ~ ø 19.5
	SPMX060204-PB220	○	○	○	○	■	ø 15.5 ~ ø 21.5	ø 20.0 ~ ø 25.0
	SPMX07T308-PB220	○	○	○	○	■	ø 22.0 ~ ø 27.5	ø 25.5 ~ ø 30.0
	SPMX090408-PB220	○	○	○	○	■	ø 28.0 ~ ø 33.0 / ø 50.0 ~ ø 60.0	-
	SPMX110408-PB220	○	○	○	○	■	ø 34.0 ~ ø 41.0 / ø 60.0 ~ ø 75.0	-
	SPMX140512-PB220	○	○	○	○	■	ø 42.0 ~ ø 50.0 / ø 75.0 ~ ø 80.0	-

- PB113 : 다용도, 내인공에 최적화 ● PB113 : Multi-Purpose, Optimized for the central insert
- PB220 : 스테인레스 가공용 ● PB220 : For Stainless Steel



- ▶ SPMT(외인 Periphery Insert)
- ▶ XOMT(내인 Center Insert)



Code No.	l	d	t	r	ød1	부품 Parts	
						Screw	Driver
SPMT040204-□□□□□□		4.7	2.4	0.4	2.3	TSB-20045	
SPMT050204-□□□□□□		5.1	2.4	0.4	2.3		TXL-6
SPMT060205-□□□□□□		6.2	2.5	0.5	2.5	TSB-22052	
SPMT07T208-□□□□□□		7.5	2.8	0.7	2.8	TSB-25065	TXL-8
SPMT090308-□□□□□□		9.2	3.3	0.8	3.4	TSB-30072	
SPMT11T308-□□□□□□		11.0	4.0	0.8	4.0	TSB-35080	TXL-15
SPMT130410-□□□□□□		13.0	4.5	1.0	4.5	TSB-40100	
SPMT15M510-□□□□□□		15.2	5.0	1.0	5.5		TXL-20
SPMT180510-□□□□□□		18.2	5.5	1.0	6.0	TSB-50125	
XOMT040204-□□□□□□	4.3	4.9	2.4	0.4	2.3	TSB-20045	TXL-6
XOMT050204-□□□□□□	4.8	5.4	2.4	0.4	2.3		
XOMT060204-□□□□□□	5.8	6.6	2.5	0.4	2.5	TSB-22052	
XOMT07T205-□□□□□□	6.9	7.8	2.8	0.5	2.8	TSB-25065	TXL-8
XOMT090305-□□□□□□	8.4	9.6	3.3	0.5	3.4	TSB-30072	
XOMT11T306-□□□□□□	10.0	11.4	4.0	0.6	4.0	TSB-35080	TXL-15
XOMT130406-□□□□□□	11.9	13.6	4.5	0.6	4.5	TSB-40100	
XOMT15M508-□□□□□□	13.9	15.9	5.0	0.8	5.5		TXL-20
XOMT180508-□□□□□□	16.5	18.9	5.5	0.8	6.0	TSB-50125	

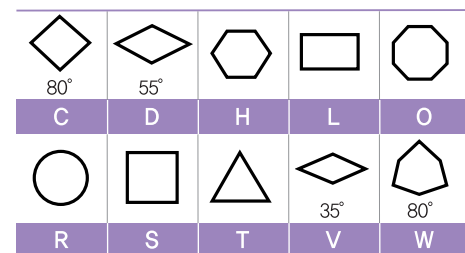
형상 Shape	형번 Code No.		피삭재 Workpiece					적용 드릴 For Drill
	외측	내측	P	M	K	S	N	KSD
외인 Periphery Insert	SPMT040204-PC214	XOMT040204-PC214	◎	○	○	○		ø 13.0 ~ ø 13.5
	SPMT050204-PC214	XOMT050204-PC214	◎	○	○	○		ø 14.0 ~ ø 16.0
	SPMT060205-PC214	XOMT060204-PC214	◎	○	○	○		ø 16.5 ~ ø 19.5
	SPMT07T208-PC214	XOMT07T205-PC214	◎	○	○	○		ø 20.0 ~ ø 23.5
	SPMT090308-PC214	XOMT090305-PC214	◎	○	○	○		ø 24.0 ~ ø 29.5
내인 Center Insert	SPMT11T308-PC214	XOMT11T306-PC214	◎	○	○	○		ø 30.0 ~ ø 35.0
	SPMT130410-PC214	XOMT130406-PC214	◎	○	○	○		ø 36.0 ~ ø 42.0
	SPMT15M510-PC214	XOMT15M508-PC214	◎	○	○	○		ø 43.0 ~ ø 50.0
	SPMT180510-PC214	XOMT180508-PC214	◎	○	○	○		ø 51.0 ~ ø 60.0

● PC214 : 다용도, KSD전용 ● PC214 : Multi-Purpose (steel, cast iron, stainless steel, heat resisting alloy), For KSD

▶ 인서트 형번 Designation System for koreatechnics Insert



① 인서트 형상 Insert Shape



② 여유각 Relief angle

3°	5°	7°	15°	20°
A	B	C	D	E
25°	30°	0°	11°	
F	G	N	P	

③ 공차 Tolerance (d)

A	C	H	E	G	J	K	L	M	U
±0.025					±0.05			±0.08	

④ 단면 형상 Groove and hole

기호	높이(mm)
T1	1.98
O2	2.38
O3	3.18
T3	3.97
O4	4.76
O5	5.56
O6	3.35

⑤ 내접원 직경, 인선의 길이 Cutting edge length

⑦ 노즈 'r' 크기 Nose radius

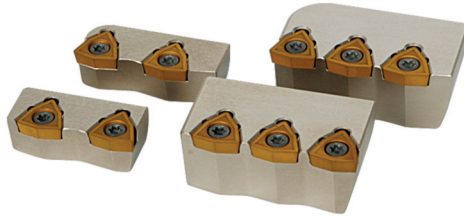
⑧ 코팅 & 칩브레이커 Coating & Chipbreaker

⑨ 재종 Work material



ACCESSORIES

CARTRIDGE



Inner	Outer	Insert	Screw	Driver	For Drill		
HSC-5965N	HSC-5965T				HSD-5965..D		
HSC-6570N	HSC-6570T	WCMX06T308	TSB-35090	T-15	HSD-6570..D		
HSC-7075N	HSC-7075T				HSD-7075..D		
HSC-7580N	HSC-7580T				HSD-7580..D		
VMC-045050N	VMC-045050T				WCMX030204	TSB-22045	T-6
VMC-050055N	VMC-050055T				VMD-050055		
VMC-055060N	VMC-055060T	WCMX040204	TSB-25055	T-8	VMD-055060		
VMC-060065N	VMC-060065T	WCMX050308	TSB-30070		VMD-060065, VLT·VSD-6065		
VMC-065070N	VMC-065070T				VMD-065070, VLT·VSD-6570		
VMC-070075N	VMC-070075T				VMD-070075, VLT·VSD-7075		
VMC-075080N	VMC-075080T			VMD-075080, VLT·VSD-7580			
VMC-080085N	VMC-080085T	WCMX06T308	TSB-35090	T-15	VMD-080085		
VMC-085090N	VMC-085090T				VMD-085090		
VMC-090095N	VMC-090095T				VMD-090095		
VMC-095100N	VMC-095100T				VMD-095100		
VMC-100105N	VMC-100105T	WCMX050308	TSB-30070	T-8	VMD-100105		
VMC-105110N	VMC-105110T	WCMX06T308	TSB-35090	T-15	VMD-105110		
VMC-110115N	VMC-110115T				VMD-110115		
VMC-115120N	VMC-115120T				VMD-115120		
VMC-120125N	VMC-120125T				VMD-120125		
VMC-125130N	VMC-125130T				VMD-125130		
VMC-130135N	VMC-130135T				VMD-130135		
VMC-135140N	VMC-135140T				VMD-135140		
VMC-140150N	VMC-140150T				VMD-140150		
VMC-150160N	VMC-150160T				WCMX080408	TSB-40110	VMD-150160
VMC-160170N	VMC-160170T						VMD-160170
VMC-170180N	VMC-170180T	VMD-170180					

※ Drill 카트리지는 드릴바디의 수명을 연장시키고 바깥쪽 카트리지 단면을 밀링 작업으로 직경을 (5mm/10mm)조절할 수 있습니다.

※ Please place an order shorten the length of outer cartridge if smaller diameter is needed.

(ex : $\varnothing 77$ =by 1.5mm cutting MDC-075080T)





Inner	Outer	Insert	Screw	Driver	For Drill
HDC-5965N	HDC-5965T	WCMX06T308	TSB-35090	T-15	SFD·MCD-5965..D
MDC-045050N	MDC-045050T	WCMX030204	TSB-22045	T-6	MXD-045050
MDC-050055N	MDC-050055T				MXD-050055
MDC-055060N	MDC-055060T	WCMX040204	TSB-25055	T-8	MXD-055060
MDC-060065N	MDC-060065T	WCMX050308	TSB-30070	T-15	MXD-060065
MDC-065070N	MDC-065070T				MXD-065070, TSD·TMD-6570..D
MDC-070075N	MDC-070075T				MXD-070075, TSD·TMD-7075..D
MDC-075080N	MDC-075080T				MXD-075080, TSD·TMD-7580..D
MDC-080085N	MDC-080085T				MXD-080085, SFD·MCD-6570..D
MDC-085090N	MDC-085090T				MXD-085090, SFD·MCD-7075..D
MDC-090095N	MDC-090095T				MXD-090095, SFD·MCD-7580..D
MDC-095100N	MDC-095100T				MXD-095100
MDC-100105N	MDC-100105T	WCMX050308	TSB-30070	T-8	MXD-100105
MDC-105110N	MDC-105110T	WCMX06T308	TSB-35090	T-15	MXD-105110
MDC-110115N	MDC-110115T				MXD-110115
MDC-115120N	MDC-115120T				MXD-115120
MDC-120125N	MDC-120125T				MXD-120125
MDC-125130N	MDC-125130T				MXD-125130
MDC-130135N	MDC-130135T				MXD-130135
MDC-135140N	MDC-135140T				MXD-135140
MDC-140150N	MDC-140150T				MXD-140150
MDC-150160N	MDC-150160T				MXD-150160
MDC-160170N	MDC-160170T				MXD-160170
MDC-170180N	MDC-170180T	WCMX080408	TSB-40110		MXD-170180

※ Drill 카트리지는 드릴바디의 수명을 연장시키고 바깥쪽 카트리지 단면을 밀링 작업으로 직경을 (5mm/10mm)조절할 수 있습니다.

※ Please place an order shorten the length of outer cartridge if smaller diameter is needed.
(ex : $\phi 77$ =by 1.5mm cutting MDC-075080T)



ACCESSORIES

CARTRIDGE



Inner	Outer	Insert	Insert Screw	Torx Driver	Clamping Bolt For Cartridge	For Drill	
STC-V5055N	STC-V5055T	SPMX090408	TSB-35090	T-15	M0512BH-W	STD-V5055..D	
STC-V5560N	STC-V5560T					STD-V5560..D	
STC-V6065N	STC-V6065T					STD-V6065..D	
STC-V6570N	STC-V6570T	SPMX110408	TSB-40100		T-20	M0614HC-W	STD-V6570..D
STC-V7075N	STC-V7075T						STD-V7075..D
STC-V7580N	STC-V7580T	SPMX140512	TSB-50125				

※ 동일바디에 교환용 카트리지로 5mm범위 조절 가능합니다.(개별카트리지) 예 : STD-V657040D(ø65~ø70 사용가능)

※ Adjustable within 5mm by exchangeable cartridge on the same drill body.(ex : STD-V657040D(ø65~ø70 available))

Inner	Outer	Insert	Insert Screw	Driver	Clamping Bolt For Cartridge	Adjust Screw	For Drill										
STC-5055N	STC-5051T	SPMX 090408	TSB-35090				STD-5055..D										
	STC-5152T																
	STC-5253T																
	STC-5354T																
STC-5560N	STC-5455T																
	STC-5556T																
	STC-5657T																
	STC-5758T																
STC-6065N	STC-5859T						SPMX 110408	TSB-40100	T-15		M0306SS	STD-6065..D					
	STC-5960T																
	STC-6061T																
	STC-6162T																
STC-6570N	STC-6263T																
	STC-6364T																
	STC-6465T																
	STC-6566T																
STC-7075N	STC-6667T	SPMX 140512	TSB-50125	T-20		M0408SS						STD-6570..D					
	STC-6768T																
	STC-6869T																
	STC-6970T																
STC-7580N	STC-7071T						SPMX 110408	TSB-40100				STD-7075..D					
	STC-7172T																
	STC-7273T																
	STC-7374T																
STC-7580N	STC-7475T											SPMX 140512	TSB-50125	T-20			STD-7580..D
	STC-7576T																
	STC-7677T																
	STC-7778T																
STC-7580N	STC-7879T	SPMX 140512	TSB-50125	T-20													STD-7580..D
	STC-7980T																
	STC-7980T																

※ STC-V 카트리지와 STC카트리지는 서로 호환되지 않습니다.

※ It is not compatible with STC-V and STC

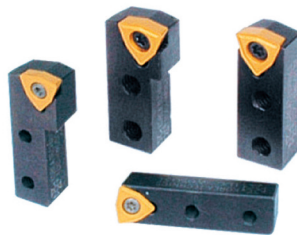




Inner	Outer	Insert	Insert Screw	Torx Driver	Clamping Bolt For Cartridge	For Drill
VLC-410450N	VLC-000410T	WCMX06T308	TSB-35078	T-15	M0510HC-W	VLT(VSD)-4145..D
	VLC-000420T					
	VLC-000430T					
	VLC-000440T					
	VLC-000450T					
VLC-460500N	VLC-000460T					
	VLC-000470T					
	VLC-000480T					
	VLC-000490T					
	VLC-000500T					
VLC-510550N	VLC-000510T	WCMX080408	TSB-40110	T-15	M0614HC-W	VLT(VSD)-5155..D
	VLC-000520T					
	VLC-000530T					
	VLC-000540T					
	VLC-000550T					
VLC-560590N	VLC-000560T					
	VLC-000570T					
	VLC-000580T					
	VLC-000590T					

※ 1mm단위 개별 카트리지가 사용으로 직경을 조절합니다.

※ Adjustable 1mm unit when you replace individual outer cartridge(1mm)



Inner	Outer	Insert	Insert Screw	Torx Driver	Clamping Bolt For Cartridge	For Drill
TDC-W0503N	TDC-W0503T	WCMX050308	TSB-30070	T-8	M0412BH-W	TPD-040..D~TPD-055..D
TDC-W06T3N	TDC-W06T3T	WCMX06T308	TSB-35090	T-15	M0614HC-W	TPD-060..D~TPD-110..D



ACCESSORIES

CARTRIDGE / WRENCH BOLT



▶ RBC-CC

Group	Code No.	Insert	미세조정볼트(M)	Screw	Driver	For Head
EMS25	RBC-028036-CC06	CCMT060204	M0306SS	TSB-25055	T-8	RBH-251437
EMS32	RBC-036047-CC06		M0408SS			RBH-321844
EMS40	RBC-047060-CC09	CCMT09T308	M0410SS	TSB-35080	T-15	RBH-402250
EMS50	RBC-060076-CC12	CCMT120408	M0514SS	TSB-50125	T-20	RBH-502855
EMS63	RBC-076098-CC12		M0515SS			RBH-633660
EMS80	RBC-098125-CC12		M0620SS			RBH-804576

▶ RBC-SC

Group	Code No.	Insert	미세조정볼트(M)	Screw	Driver	For Head
EMS25	RBC-028036-SC06	SCMT060204	M0306SS	TSB-25055	T-8	RBH-251437
EMS32	RBC-036047-SC06		M0408SS			RBH-321844
EMS40	RBC-047060-SC09	SCMT09T308	M0410SS	TSB-35080	T-15	RBH-402250
EMS50	RBC-060076-SC12	SCMT120408	M0514SS	TSB-50125	T-20	RBH-502855
EMS63	RBC-076098-SC12		M0515SS			RBH-633660
EMS80	RBC-098125-SC12		M0620SS			RBH-804576

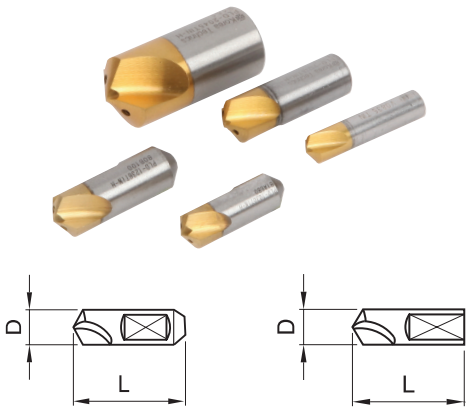
● Construction System of Screw's Code No.

Code No.	Shape	Designation	Code No.	Shape	Designation
M□□□□BH		버튼헤드 스크류 Button Head Screw	M□□□□BH-W		버튼헤드 스크류+와샤 Button Head Screw+Washer
M□□□□HC		헤드캡 스크류 Headcap Screw	M□□□□HC-W		헤드캡 스크류+와샤 Headcap Screw +Washer
M□□□□SS		셋트 스크류 Set Screw	M□□□□SS-H		셋트 스크류 홀관통 Set Screw Hole
M□□□□CP		콘포인트 스크류 Cornpoint Screw	$M \square \square \square \square \square \square - \square$ <p style="text-align: center;">M size Length Shape Note(etc.)</p>		

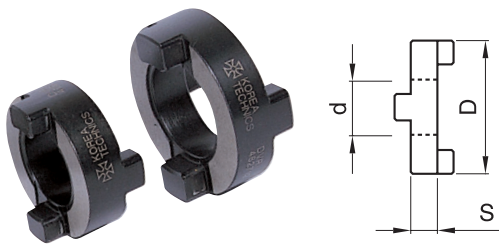


ACCESSORIES

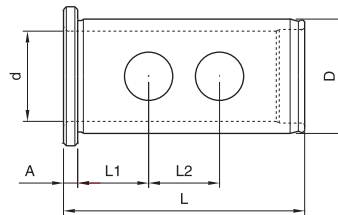
PILOT DRILL / DRIVE RING / DRILL SLEEVE



Code No.	D	L	For Drill
PLD-V0630 TiN	6	30	VLT, TSD, TMD
PLD-V0835 TiN	8	35	VLT, TSD, TMD
PLD-V1035 TiN-H	10	35	VMD, VLT, MXD, TSD, TMD
PLD-V1238 TiN-H	12	38	VMD, VLT, MXD, TSD, TMD
PLD-V1645 TiN-H	16	45	VMD, VLT, MXD, TSD, TMD
PLD-2045 TiN-H	20	45	VMD, MXD
PLD-2556 TiN-H	25	56	VMD, MXD
PLD-3068 TiN-H	30	68	VMD, MXD
PLD-0620 TiN	6	20	VSD, FXD
PLD-0825 TiN	8	25	VSD, FXD
PLD-1030 TiN-H	10	30	VSD, FXD
PLD-1236 TiN-H	12	36	VSD
PLD-1642 TiN-H	16	42	VSD



Code No.	D	d	S
DVR-281310	28	13	10
DVR-321610	32	16	10
DVR-402212	40	22	12
DVR-482712	48	27	12
DVR-583214	58	32	14
DVR-704014	70	40	14
DVR-805016	80	50	16



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

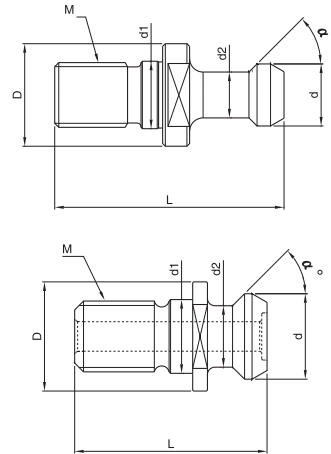
※ 드릴 슬리브(DSL)는 Weldon-B 타입 사이드락 아버(84~90페이지)와는 호환이 되지 않습니다.

※ Drill Sleeve(DSL) is not compatible with the Weldon-B type Side lock Arbor.(P.84~90)



ACCESSORIES

PULL STUD BOLT / DRIVERS



Code No.	D	d	d1	d2	M	L1	L	α°
PSB-40-1	23	15	17	10	M16	29	60	45°
PSB-40-2	23	15	17	10	M16	29	60	60°
PSB-40-3	23	15	17	10	M16	29	60	90°
PS-G51	22	18,796	17	12,446	M16	19,106	44,106	45°
PSB-50-1	38	23	25	17	M24	45	85	45°
PSB-50-2	38	23	25	17	M24	45	85	60°
PSB-50-3	38	23	25	17	M24	45	85	90°
PS-G41	37	28,956	25	20,828	M24	25,2	65,2	45°



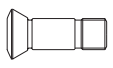
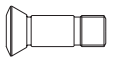
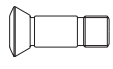

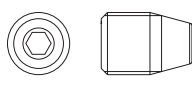

TXL-6 TXL-8 TXL-15 TXL-20	
TXL-15 TXL-20	
TXL-20 TXL-25 TXL-30	
TXL-15 TXL-20	



ACCESSORIES

CLAMPING SCREW FOR INDEXABLE INSERTS

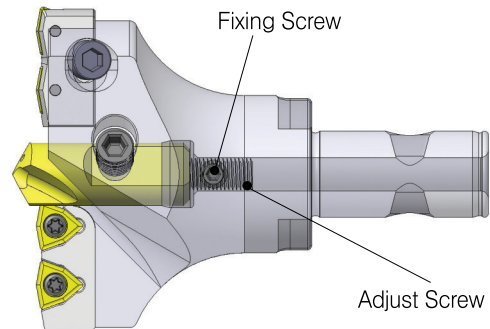
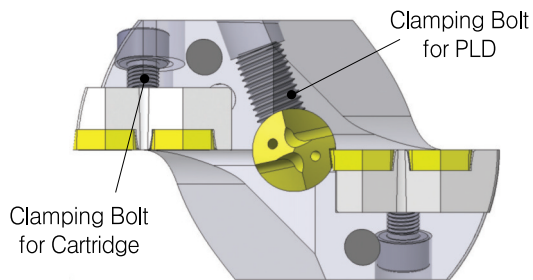


		Code No.	Description	Driver	Note
	DRILL & BORING	TSB-18045	M 1.8×4.5	T-6	
		TSB-20045	M 2.0×4.5	T-6	
		TSB-22045	M 2.2×4.5	T-6	
		TSB-22052	M 2.2×5.2	T-6	
		TSB-25055	M 2.5×5.5	T-8	
		TSB-25065	M 2.5×6.5	T-8	
		TSB-30070	M 3.0×7.0	T-8	
		TSB-30072	M 3.0×7.2	T-8	KSD(∅24~∅29.5)
		TSB-35078	M 3.5×7.8	T-15	VLT(∅41~∅59)
		TSB-35080	M 3.5×8.0	T-15	KSD, Boring Tool
		TSB-35090	M 3.5×9.0	T-15	
		TSB-40100	M 4.0×10.0	T-15	
		TSB-40110	M 4.0×11.0	T-15	
TSB-50125	M 5.0×12.5	T-20			
	CUTTER	CSB-6012	M 6.0×12.0	4	
		CSB-8012	M 8.0×12.0	5	
		CSB-8018	M 8.0×18.0	6	
	BALL NOSE CUTTER	TSB-319	M 4.0×8.0	T-15	
		TSB-243	M 5.0×11.0	T-20	
		TSB-390	M 4.0×8.5	T-15	
	FINISHING BALL CUTTER	TSB-391	M 5.0×9.0	T-20	
		TSB-392	M 5.0×13.0	T-20	
		TSB-393	M 5.0×15.5	T-20	
		TSB-394	M 6.0×20.5	T-20	
		TSB-395	M 8.0×25.0	T-30	
	FINISHING BALL CUTTER	TSB-5114	M 4.0×13.0	T-15	
		TSB-5214	M 5.0×16.0	T-15	
		TSB-5314	M 6.0×21.0	T-20	
		TSB-5414	M 8.0×25.0	T-20	
	FINISHING BALL CUTTER	TSB-5116	M 3.5×8.5	T-15	
		TSB-5216	M 5.0×10.0	T-15	
		TSB-5314	M 5.0×13.0	T-20	
		TSB-5414	M 6.0×17.5	T-20	
	MODULAR ARBOR	MTB-06085	M 6.0×8.5	3	
		MTB-08115	M 8.0×11.5	4	
		MTB-10145	M 10.0×14.5	5	
		MTB-12175	M 12.0×17.5	6	
		MTB-16225	M 16.0×22.5	8	
		MTB-16260	M 16.0×26.5	8	
	SHIM	CST-43			



ACCESSORIES

CLAMPING BOLTS FOR VMD

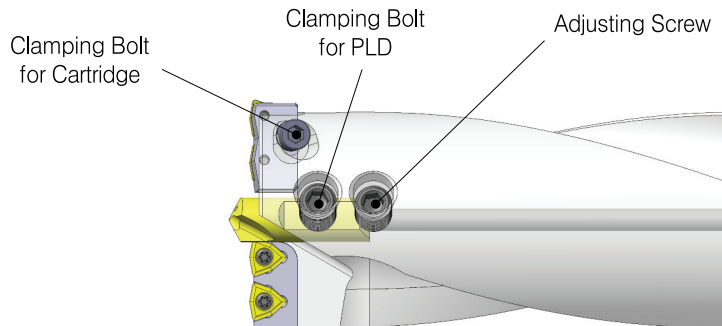


Code No.	Cartridge	Clamping Bolt For Cartridge	Pilot Drill	Clamping Bolt For PLD	Adjust Screw	Fixing Screw
VMD-045050	VMD-045050	M0410BH-W	PLD-V1035TiN-H	M0610SS	M0610SS-H	M0408SS
VMD-050055	VMD-050055					
VMD-055060	VMD-055060	M0512BH-W	PLD-V1238TiN-H	M0812SS	M0815SS-H	M0508SS
VMD-060065	VMD-060065					
VMD-065070	VMD-065070					
VMD-070075	VMD-070075			M0815SS		M0510SS
VMD-075080	VMD-075080	M0612HC-W	PLD-V1645TiN-H	M1015SS	M1015SS-H	M0610SS
VMD-080085	VMD-080085	M0614HC-W				
VMD-085090	VMD-085090	M0616HC-W	PLD-V1645TiN-H	M1020SS	M1016SS-H	M0612SS
VMD-090095	VMD-090095					
VMD-095100	VMD-095100					
VMD-100105	VMD-100105	M0818HC-W	PLD-2045TiN-H	M1220SS	M1220SS-H	M0615SS
VMD-105100	VMD-105100					
VMD-110115	VMD-110115			M1225SS	M1420SS-H	M0615SS
VMD-115120	VMD-115120	M0820HC-W				
VMD-120125	VMD-120125	M0825HC-W	PLD-2556TiN-H	M1425SS	M1420SS-H	M0615SS
VMD-125130	VMD-125130					
VMD-130135	VMD-130135					
VMD-135140	VMD-135140					
VMD-140150	VMD-140150					
VMD-150160	VMD-150160					
VMD-160170	VMD-160170		PLD-3068TiN-H	M1625SS	M0620SS	
VMD-170180	VMD-170180					



ACCESSORIES

CLAMPING BOLTS FOR VLT

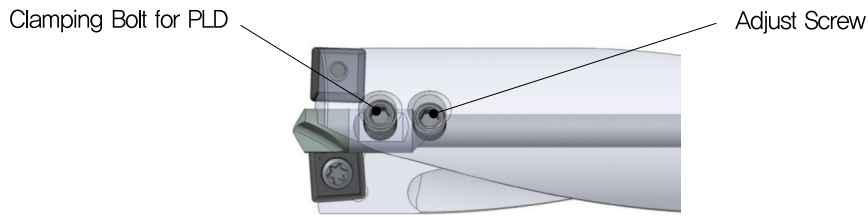


Code No.	카트리지 볼트 Cartridge			Pilot Drill		
	내측 Inner	외측 Outer	카트리지 볼트 Clamping Bolt For Cartridge	센터드릴 Pilot Drill	PLD 볼트 Clamping Bolt For PLD	조절 볼트 Adjusting Screw
VLT-250..D ~ VLT-280..D	x	x	x	PLD-V0630TiN	M0508SS	M0510CP
VLT-290..D ~ VLT-300..D	x	x	x		M0510SS	
VLT-310..D ~ VLT-340..D	x	x	x	PLD-V0835TiN	M0610SS	M0610CP
VLT-350..D ~ VLT-370..D	x	x	x		M0612SS	M0612CP
VLT-380..D ~ VLT-400..D	x	x	x		M0616SS	M0616CP
VLT-4145..D	VLC-410450N	VLC-000410T	M0510HC-W	PLD-V1035TiN-H	M0812SS	M0812CP
		VLC-000420T				
		VLC-000430T				
		VLC-000440T				
		VLC-000450T				
VLT-4650..D	VLC-460500N	VLC-000460T	M0614HC-W	PLD-V1238TiN-H	M1015SS	M1016CP
		VLC-000470T				
		VLC-000480T				
		VLC-000490T				
		VLC-000500T				
VLT-5155..D	VLC-510550N	VLC-000510T	M0512BH-W	PLD-V1645TiN-H	M1020SS	M1020CP
		VLC-000520T				
		VLC-000530T				
		VLC-000540T				
		VLC-000550T				
VLT-5659..D	VLC-56059N	VLC-000560T	M0612HC-W	M1025SS	M1025CP	
		VLC-000570T				
		VLC-000580T				
		VLC-000590T				
		VLC-000600T				
VLT-6065..D	VMC-060065N	VMC-060065T	M0512BH-W	PLD-V1645TiN-H	M1020SS	M1020CP
VLT-6570..D	VMC-065070N	VMC-065070T				
VLT-7075..D	VMC-070075N	VMC-070075T				
VLT-7580..D	VMC-075080N	VMC-075080T	M0612HC-W			



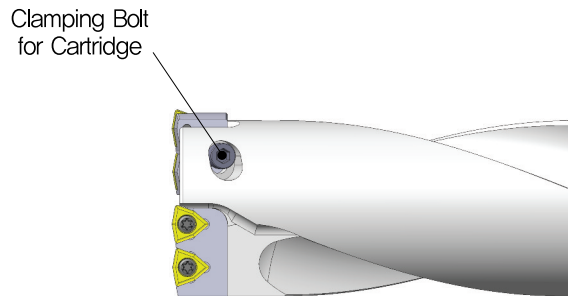
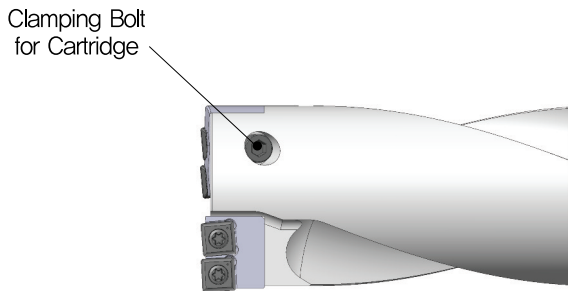
ACCESSORIES

CLAMPING BOLTS FOR FXD, STD-V, HSD-V



● FXD

Code No.	센터드릴 Pilot Drill		
	센터드릴 Pilot Drill	PLD 볼트 Clamping Bolt For PLD	조절 볼트 Adjusting Screw
FXD-180..D~FXD-220..D	PLD-0620TiN	M0506SS	M0506CP
FXD-225..D~FXD-250..D		M0508SS	M0508CP
FXD-255..D~FXD-300..D	PLD-0825TiN	M0608SS	M0610CP



● STD-V

Code No.	카트리지 Cartridge		
	내측 Inner	외측 Outer	카트리지 볼트 Clamping Bolt For Cartridge
STD-V5055..D	STC-V5055N	STC-V5055T	M0512BH-W
STD-V5560..D	STC-V5560N	STC-V5560T	
STD-V6065..D	STC-V6065N	STC-V6065T	
STD-V6570..D	STC-V6570N	STC-V6570T	M0614HC-W
STD-V7075..D	STC-V7075N	STC-V7075T	
STD-V7580..D	STC-V7580N	STC-V7580T	

● HSD-V

Code No.	카트리지 Cartridge		
	내측 Inner	외측 Outer	카트리지 볼트 Clamping Bolt For Cartridge
HSD-V5965..D	HSC-5965N	HSC-5965T	M0512BH-W
HSD-V6570..D	HSC-6570N	HSC-6570T	
HSD-V7075..D	HSC-7075N	HSC-7075T	M0614HC-W
HSD-V7580..D	HSC-7580N	HSC-7580T	



TECHNICAL DATA



절삭 가공 공식 Formula for Cutting operations

● 주축 회전수 [min-1]

$$n = \frac{V_c \times 1,000}{D \times \pi}$$

● 소요동력 [kW]

$$P_{mot} = \frac{Q \times k_c}{60,000 \times \eta}$$

● 절삭속도 [m/min]

$$V_c = \frac{\pi \times D \times n}{1,000}$$

● 토크 [Nm]

$$M_c = \frac{D^2 \times K_c \times f}{8,000} = \frac{P_{mot} \times 9,500}{n}$$

● 회전당 이송량 [mm]

$$f = f_z \times Z$$

● 이송분력 [N]

$$F_f = 0.63 \times \frac{f \times D \times k_c}{n}$$

● 테이블 이송 속도 [mm/min]

$$V_f = f \times n$$

● 피삭재 배출량 [cm³/min]

$$Q = \frac{V_f \times \pi \times D^2}{4,000}$$

• D : 톨 직경(mm)

• n : 회전수(min-1)

• Z : 날수

• f : 이송속도(mm)

• V_c : 절삭속도(m/min)

• V_f : 이송속도(mm/min)

• k_c : 피삭재의 특정한 절삭동력(N/mm²) → k_c값은 피삭재그룹(128페이지 참조)

• P_{mot} : 소요동력(kW)

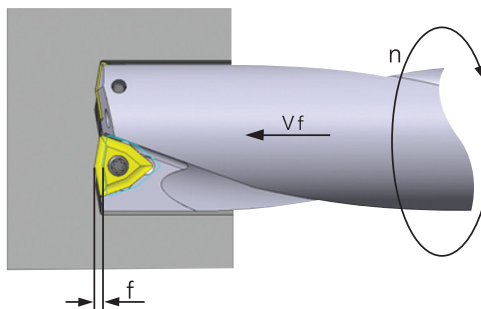
• Q : 칩 배출량(cm³/min)

• η : 기계 가동율(0.7-0.95)

• M_c : 토크(Nm)

• F_f : 이송분력(N)

• f_z : 날당 이송량(mm)



TECHNICAL DATA

RECOMMENDED CUTTING VALUES

● KSD 절삭조건표 Recommended Cutting Values KSD

	재질구분	Vc (m/min)	이송 (mm/rev)				
			ø13~ø16	ø16.5~ø23.5	ø24~ø29.5	ø30~ø42	ø43~ø60
P 강 Steel	탄소강 (-0.25%) (Unalloyed steel)	160-250	0.04-0.08	0.04-0.08	0.04-0.10	0.05-0.12	0.05-0.14
	탄소강 (0.25%-) (Unalloyed steel)	140-220	0.04-0.10	0.04-0.12	0.05-0.15	0.08-0.18	0.10-0.20
	합금강 (-HB300) (Low-alloy steel)	120-220	0.04-0.10	0.05-0.11	0.05-0.12	0.06-0.18	0.06-0.20
	합금강 (HB300-) (High-alloy steel)	120-180	0.04-0.12	0.05-0.12	0.07-0.16	0.08-0.18	0.08-0.20
M 스테인레스강 Stainless steel	스테인레스강 Stainless steel	130-220	0.04-0.10	0.04-0.12	0.05-0.14	0.06-0.16	0.06-0.18
K 주철 Cast iron	회주철 Grey cast iron	150-250	0.04-0.10	0.05-0.14	0.05-0.17	0.08-0.20	0.08-0.25
	구상흑연주철 Cast iron with nodular cast iron	100-200	0.04-0.10	0.04-0.12	0.05-0.14	0.06-0.15	0.06-0.18
S 티타늄 합금강 Super-alloys and titanium	티타늄 합금 Super-alloys and titanium	30-90	0.04-0.08	0.04-0.08	0.04-0.11	0.07-0.12	0.08-0.15



TECHNICAL DATA

RECOMMENDED CUTTING VALUES

● HSD-V, HSD, SFD 절삭조건표 Recommended Cutting Values For HSD-V, HSD, SFD

	재질구분	Vc (m/min)	이송 (mm/rev)						
			ø13~ø15.5	ø16~ø20	ø20.5~ø25	ø25.5~ø30	ø31~ø41	ø42~ø58	ø59~ø80
P 강 Steel	저탄소강 (-0.25%) (Unalloyed steel)	180-250	0.04-0.08	0.05-0.10	0.06-0.12	0.08-0.14	0.08-0.14	0.08-0.18	0.08-0.12
	고탄소강 (0.25%-) (Unalloyed steel)	150-220	0.05-0.08	0.06-0.12	0.07-0.14	0.08-0.18	0.12-0.22	0.12-0.25	0.10-0.18
	경합금강 (-HB300) (Low-alloy steel)	120-220	0.05-0.08	0.06-0.10	0.07-0.14	0.08-0.18	0.10-0.20	0.12-0.24	0.10-0.18
	고합금강 (HB300-) (High-alloy steel)	130-200	0.05-0.08	0.06-0.10	0.07-0.15	0.08-0.18	0.10-0.20	0.12-0.24	0.09-0.15
M 스테인레스강 Stainless steel	스테인레스강 Stainless steel	150-220	0.04-0.08	0.05-0.09	0.06-0.12	0.07-0.13	0.08-0.16	0.10-0.20	0.08-0.15
K 주철 Cast iron	회주철 Grey cast iron	150-250	0.05-0.11	0.08-0.13	0.10-0.15	0.12-0.20	0.15-0.26	0.18-0.30	0.12-0.20
	구상흑연주철 Cast iron with nodular cast	120-200	0.05-0.10	0.06-0.12	0.08-0.14	0.10-0.18	0.14-0.24	0.15-0.25	0.10-0.18
N 비철금속 Nonferrous metals	알루미늄 단조강 Aluminium forging alloys	300-380	0.04-0.06	0.05-0.07	0.06-0.08	0.07-0.10	0.10-0.13	0.12-0.20	0.10-0.16
	알루미늄 주물강 Aluminium cast alloys	260-330	0.04-0.06	0.05-0.07	0.06-0.08	0.07-0.10	0.10-0.15	0.12-0.20	0.10-0.16
S 티타늄 합금강 Super-alloys and titanium	티타늄 합금강 Super-alloys and titanium	40-80	0.03-0.05	0.04-0.06	0.04-0.07	0.05-0.08	0.06-0.10	0.07-0.13	0.06-0.10



TECHNICAL DATA

RECOMMENDED CUTTING VALUES

● STD-V, STD 절삭조건표 Recommended Cutting Values For STD-V, STD

	재질구분	Vc (m/min)	이송 (mm/rev)								
			∅12.5~∅15	∅15.5~∅21.5	∅22~∅27.5	∅28~∅33	∅34~∅41	∅42~∅50	∅50~∅60	∅60~∅75	∅75~∅80
P 강 Steel	저탄소강 (-0.25%) (Unalloyed steel)	180-240	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16	0.06-0.12	0.08-0.12	0.08-0.12
	고탄소강 (0.25%-) (Unalloyed steel)	150-220	0.06-0.12	0.08-0.15	0.10-0.17	0.12-0.20	0.12-0.22	0.13-0.24	0.10-0.14	0.12-0.16	0.11-0.18
	경합금강 (-HB300) (Low-alloy steel)	130-200	0.06-0.12	0.08-0.14	0.10-0.18	0.12-0.20	0.12-0.20	0.12-0.22	0.08-0.15	0.10-0.16	0.10-0.18
	고합금강 (HB300-) (High-alloy steel)	120-180	0.06-0.10	0.08-0.15	0.10-0.18	0.12-0.20	0.12-0.22	0.13-0.24	0.08-0.14	0.09-0.14	0.09-0.12
M 스테인레스강 Stainless steel	스테인레스강 Stainless steel	150-220	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18	0.06-0.13	0.08-0.15	0.08-0.14
K 주철 Cast iron	회주철 Grey cast iron	150-250	0.06-0.12	0.08-0.16	0.12-0.20	0.14-0.25	0.15-0.28	0.17-0.30	0.12-0.18	0.15-0.18	0.15-0.20
	구상흑연주철 Cast iron with nodular cast	120-200	0.06-0.10	0.08-0.15	0.10-0.18	0.12-0.20	0.14-0.22	0.16-0.24	0.10-0.15	0.09-0.17	0.10-0.18
N 비철금속 Nonferrous metals	알루미늄 Aluminium	300-380	0.06-0.14	0.08-0.15	0.10-0.20	0.12-0.22	0.14-0.23	0.15-0.24	0.14-0.20	0.14-0.22	0.15-0.22
S 티타늄 합금강 Super-alloys and titanium	티타늄 합금 Super-alloys and titanium	30-60	0.05-0.10	0.06-0.14	0.08-0.18	0.10-0.20	0.11-0.20	0.12-0.22	0.10-0.15	0.1-0.15	0.1-0.15



TECHNICAL DATA

RECOMMENDED CUTTING VALUES

● VLT, VSD, TSD 절삭조건표 Recommended Cutting Values For VLT, VSD, TSD

	재질구분	Vc (m/min)	이송 (mm/rev)						
			ø25	ø26~ø30	ø31~ø40	ø41~ø50	ø51~ø59	ø60~ø75	ø75~ø80
P 강 Steel	탄소강 (-0.25%) (Unalloyed steel)	130-190	0.06-0.10	0.07-0.11	0.08-0.12	0.08-0.14	0.10-0.18	0.08-0.12	0.1-0.14
	탄소강 (0.25%-) (Unalloyed steel)	130-190	0.06-0.1	0.07-0.11	0.08-0.12	0.1-0.14	0.12-0.18	0.08-0.12	0.1-0.14
	합금강 (-HB300) (Low-alloy steel)	100-140	0.06-0.1	0.07-0.11	0.08-0.12	0.1-0.14	0.12-0.18	0.08-0.12	0.1-0.14
	합금강 (HB300-) (High-alloy steel)	60-100	0.05-0.07	0.05-0.07	0.06-0.08	0.06-0.1	0.09-0.13	0.06-0.08	0.06-0.1
M 스테인레스강 Stainless steel	스테인레스강 Stainless steel	60-110	0.04-0.07	0.04-0.11	0.06-0.12	0.08-0.14	0.1-0.18	0.06-0.12	0.08-0.14
K 주철 Cast iron	회주철 Grey cast iron	130-190	0.07-0.13	0.07-0.15	0.08-0.16	0.1-0.18	0.12-0.22	0.08-0.16	0.1-0.18
	구상흑연주철 Cast iron with nodular cast iron	110-190	0.04-0.13	0.07-0.15	0.08-0.16	0.1-0.25	0.12-0.26	0.08-0.16	0.1-0.25
N 비철금속 Nonferrous metals	알루미늄 단조강 Aluminium forging alloys	200-300	0.04-0.06	0.07-0.12	0.08-0.13	0.09-0.15	0.12-0.2	0.08-0.13	0.09-0.15
	알루미늄 주물강 Aluminium cast alloys	140-300	0.04-0.06	0.06-0.12	0.08-0.13	0.09-0.15	0.12-0.2	0.08-0.13	0.09-0.15



TECHNICAL DATA

RECOMMENDED CUTTING VALUES

● VMD, MXD 절삭조건표 Recommended Cutting Values For VMD, MXD

	재질구분	Vc (m/min)	이송 (mm/rev)						
			∅45~∅55	∅55~∅60	∅60~∅75	∅75~∅100	∅100~∅105	∅105~∅150	∅150~∅180
P 강 Steel	탄소강 (-0.25%) (Unalloyed steel)	120-180	0.06-0.10	0.07-0.11	0.08-0.12	0.08-0.14	0.08-0.18	0.08-0.12	0.10-0.14
	탄소강 (0.25%-) (Unalloyed steel)	110-170	0.06-0.10	0.07-0.11	0.08-0.12	0.10-0.14	0.10-0.18	0.08-0.12	0.10-0.14
	합금강 (-HB300) (Low-alloy steel)	90-130	0.06-0.10	0.07-0.11	0.08-0.12	0.10-0.14	0.12-0.18	0.08-0.12	0.10-0.14
	합금강 (HB300-) (High-alloy steel)	60-100	0.05-0.07	0.05-0.07	0.06-0.08	0.06-0.10	0.09-0.13	0.06-0.08	0.06-0.10
M 스테인레스강 Stainless steel	스테인레스강 Stainless steel	60-110	0.04-0.07	0.04-0.11	0.06-0.12	0.08-0.14	0.10-0.18	0.06-0.12	0.08-0.14
K 주철 Cast iron	회주철 Grey cast iron	120-180	0.07-0.13	0.07-0.15	0.08-0.16	0.10-0.18	0.12-0.22	0.08-0.16	0.10-0.18
	구상흑연주철 Cast iron with nodular cast iron	100-180	0.04-0.13	0.07-0.15	0.08-0.16	0.10-0.25	0.12-0.26	0.08-0.16	0.10-0.25
N 비철금속 Nonferrous metals	알루미늄 단조강 Aluminium forging alloys	180-280	0.04-0.06	0.07-0.12	0.08-0.13	0.09-0.15	0.12-0.20	0.08-0.13	0.09-0.15
	알루미늄 주물강 Aluminium cast alloys	120-270	0.04-0.06	0.06-0.12	0.08-0.13	0.09-0.15	0.12-0.20	0.08-0.13	0.09-0.15



TECHNICAL DATA

WORKPIECE GROUP

● 피삭재 그룹표 Workpiece Group

ISO	피삭재 Material Group	피삭재 조건 Composition		인장강도(N/mm ²) Tensile Strength	경도(HB/HRC) Hardness	피삭재 그룹 Cutting Groups	절삭동력(N/mm ²) Kc값(Values)	
P 강 Steel	일반강 (Unalloyed steel) 주강(cast steel) 기계구조강 (machining steel)	<0.25% C	annealed	420	125	1	2000	
		>=0.25% C	annealed	650	190	2	2100	
		<0.55% C	tempered	850	250	3	2150	
		>=0.55% C	annealed	750	220	4	2200	
			tempered	1000	300	5	2200	
	경합금강, 주강(<5%) (Low-alloy steel)		annealed	600	200	6	2100	
		tempered	930	275	7	2100		
			1000	300	8	2100		
		1200	350	9	2100			
	고합금강, 공구강 (High-alloy steel)		annealed	680	200	10	2500	
			tempered	1100	325	11	3250	
M 스테인레스강 Stainless steel	Stainless steel 스테인레스강		martensitic/ferrit	680	200	12	2300	
			martensitic	820	240	13	2800	
			austenitic	600	180	14	2600	
K 주철 Cast iron	회주철 Grey cast iron		pearlitic/ferrit		180	15	1100	
			pearlitic		260	16	1300	
	구상흑연주철 Cast iron with nodular cast iron		ferritic		160	17	1100	
			pearlitic		250	18	1800	
	가단주철 Malleable cast iron		ferritic		130	19	900	
			pearlitic		230	20	1000	
N 비철금속 Nonferrous metals	알루미늄 단조강 Aluminum Forging alloys		not heat treatable		60	21	500	
			heat treatable		100	22	800	
	알루미늄 주물강 Aluminum Cast alloys	<=12% Si	not heat treatable		75	23	800	
			heat treatable		90	24		
		>12% Si	not heat treatable		130	25		
	구리 합금강 Copper and copper alloys	>1% Pb		machining alloys		110	26	700
				CuZn, CuSnZn		90	27	700
				Cu, lead-fr		100	28	1700
S 티타늄 합금강 Super-alloys and titanium	고온 합금 Heat-resistant alloy	Fe-based	annealed		200	31	3000	
			heat treatable		280	32	3100	
		Ni-od. Co-based	annealed		250	33	3300	
			heat treatable		350	34	3300	
			cast		320	35	3200	
	티탄 합금 Titanium alloys	Pure titanium		RM 400		36	1700	
		α - β alloys		RM 1050		37	1700	



TECHNICAL DATA

HARDNESS COMPARISON TABLE

● 경도환산표 Hardness Comparison Table

인장강도 Rm, N/mm ²	비커스 경도 HV	브리넬 경도 HB	록웰경도 HRC
255	80	76.0	
270	85	80.7	
285	90	85.5	
305	95	90.2	
320	100	95.0	
335	105	99.8	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	156	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	20.3
785	245	233	21.3
800	250	238	22.2
820	255	242	23.1
835	260	247	24.0
850	265	252	24.8
865	270	257	25.6
880	275	261	26.4
900	280	266	27.1
915	285	271	27.8
930	290	276	28.5
950	295	280	29.2
965	300	285	29.8
995	310	295	31.0
1030	320	304	32.2
1060	330	314	33.3
1095	340	323	34.4
1125	350	333	35.5
1155	360	342	36.6
1190	370	352	37.7
1220	380	361	38.8
1255	390	371	39.8
1290	400	380	40.8
1320	410	390	41.8
1350	420	399	42.7
1385	430	409	43.6

인장강도 Rm, N/mm ²	비커스 경도 HV	브리넬 경도 HB	록웰경도 HRC
1420	440	418	44.5
1455	450	428	45.3
1485	460	437	46.1
1520	470	447	46.9
1555	480	[456]	47.7
1595	490	[466]	48.4
1630	500	[475]	49.1
1665	510	[485]	49.8
1700	520	[494]	50.5
1740	530	[504]	51.1
1775	540	[513]	51.7
1810	550	[523]	52.3
1845	560	[532]	53.0
1880	570	[542]	53.6
1920	580	[551]	54.1
1955	590	[561]	54.7
1995	600	[570]	55.2
2030	610	[580]	55.7
2070	620	[589]	56.3
2105	630	[599]	56.8
2145	640	[608]	57.3
2180	650	[618]	57.8
	660		58.3
	670		58.8
	680		59.2
	690		59.7
	700		61.1
	720		61.0
	740		61.8
	760		62.5
	780		63.3
	800		64.0
	820		64.7
	840		65.3
	860		65.9
	880		66.4
	900		67.0
	920		67.5
	940		68.0

인장강도	N/mm ²	Rm
비커스경도	다이아몬드 피라미드 136 ^o 측정힘 F ≥98 NN/mm ²	HV
브리넬경도 산출값: HB=0,95*HV	0,102*F/D = 30 N/mm ² F=측정힘(N) D=측정 추 직경(mm)	HB
록웰경도 C	다이아몬드 콘 120 ^o 전체 측정 힘 1471 ±9N	HRC



TECHNICAL DATA

COMPARISON OF WORK-PIECE

● 재질구분표 Comparison of Work-Piece

ISO	Korea KS	United Kingdom BS	America AIS/SAE	German DIN	Spain UNF	Italy UNI	Sweden SS	France AFNOR	Japan JIS
	SM15C	080M15	1015	Ck15	C15K	C16	1370	XC12	S15C
	SM25C	-	1025	Ck25	-	-	-	-	S25C
	SM35C	060A35	1035(1037)	Ck35	-	C36	1572	XC38TS	S35C
	SM45C	080M46	1045(1046)	Ck45	C45K	C45	1672	XC42	S45C
	SM50C	060A52	1049	Ck50	-	C53	1674	XC48TS	S50C
	SM55C	070M62	1055	Ck55	C55K	C5	-	XC55	S55C
	SM58C	080A62	1060	Ck58	-	C60	1678	XC60	S58C
	-	212M36	1140	35S20	F210G	-	1957	35MF4	-
	SCMn1	150M28	1330	28Mn6	-	-	-	20M5	SCMn1
	-	230M07	1215	9SMn36	12SMn35	CF9SMN36	-	S300	-
	SMn438(H)	-	1355	36Mn5	36Mn5	-	2120	40M5	SMn738(H)
	sum22	230M07	1213	9SMn28	11SMn28	CF9SMN28	1912	S250	sum22
Low alloy steels									
	SNC815	655M13	3310,3415	14NiCr14	-	-	-	12NC15	SNC815(H)
	SNC415	-	3415	14NiCr10	15NiCr11	16NiCr11	-	14NC11	SNC415(H)
	SNC236	640A35	3435	36NiCr6	-	-	-	35NC6	SNC236
	SCM420,SCM430	1717DS110	41300	25CrMo4	55Cr3	35CrMo(KB)	2225	25CD4	SM420:SCM430
	SCM432,SCCRM3	708A37	4137:4135	34CrMo4	34CrMo4	35CrMo4	2234	35CD4	SM432:SCCRM3
	SCM415	-	-	15CrMo5	12CrMo4	-	2216	12CD4	SCM415(H)
	SCM440	708A40	4140	42CrMo4	42CrMo4	42CrMo4	2244	42CD4	SCM440(H)
	SCM440	708A37	4140:4142	41CrMo4	42CrMo4	41CrMo4	2244	42CD4TS	SCM440
	-	820A16	-	17CrNiMo6	14NiCrMo13	-	-	18NCD6	-
	-	1503-245-420	4520	16Mo5	16Mo5	16Mo5	-	-	-
	SCMnH1	Z120M12	-	G-X120Mn12	X120Mn12	XG120Mn12	-	Z120M12	SCMnH/1
	SCr415	523M15	5015	15Cr3	-	-	-	12C3	SCr415(H)
	-	(527M20)	5115	16MnCr5	16MnCr5	16MnCr5	2511	16MC5	-
	SCr430	530A32	5130	34Cr4	35Cr4	34Cr4(KB)	-	32C4	SCr430(H)
	SCr440	530M40	5140	42Cr4	42Cr4	41Cr4	-	42C4	SCr440(H)
	SPS	735A50	6050	50CrV4	51CrV4	50CrV4	2230	50CA4	SUP10
	SPS9	572M60	5155	55Cr3	-	-	-	55Cr3	SUP9(A)
	-	905M39	-	41CrAlMo7	41CrAlMo7	41CrAlMo7	2940	40CAD6,12	-
	SNCM220	850M20	8620	21NiCrMo22	20NiCrMo2	20NiCrMo2	2506	30NCD2	SNCM22(H)
	SNCM240	311-Type7	8637,8640	40NiCrMo22	40NiCrMo2	40NiCrMo2(KB)	-	-	SNCM240
	-	250A53	9255	55Si7	56Si7	55Si8	2085	55S7	-
	-	816M40	9840	36CrNiMo4	35NiCrMo4	38NiCrMo4(KB)	-	40NCD3	-
	SU2	534A99	52100	100Cr6	F,131	100Cr6	2258	100C6	SU2
	SUM22L	-	12L13	9SMnPb28	11SMnPb28	CF9SMnPb28	1914	S250Pb	SUM22L
	-	-	12L14	-SMnPb36	12SMnPb25	CF9SMnPb36	1926	S300Pb	-
	-	150-620Gr27	ASTM A182	13CrMo44	14CrMo45	14CrMo45	-	15CD3,5	-
	-	1501-622	ASTM A182	10CrMo910	TU,H	12CrMo9,10	2218	12CD9,10	-
	-	-	ASTM A350LF5	14Ni6	15Ni6	14Ni6	-	16N6	-
	-	1501-240	ASTM A204Gr.A	15Mo3	16Mo3	16Mo3KW	2912	15D3	-
	-	772M24	-13CrMo12	32CrMo12	F124.A	32CrMo12	2240	30Cd12	-
High alloy steels									
	SDT1	BD3	D3	X210Cr12	X210Cr12	X210CrMoV13Ku	-	Z200C12	SKD1
	STS12	-	A2	Z100CrMoV5/Z100CdV5	BA2	2260	Z100CrMoV51	Z100CrMoV51	SKD12
	-	-	-	X210CrW12	X210CrE12	X215CRW121Ku	2312	-	SKD2
	STD61	BH21	H21	X30WCrV9	X30WCrV9	X28W09KU	-	Z30WCV9	SKD5
	-	BH13	H13	X40CrMoV51	X40CrMoV5	X35CrMoVKU	2242	Z40CDV5	SKS31
	STS31	-	-	105WCr6	05WCr5	3KU	2140	105WC13	SKS43
	STS43	BW2	W210	100V1	-	-	-	Y105V	SKT4
	STF4	-	L6	55NiCrMoV6	F,520,S	-	-	55NCDV7	SUH1
	-	401S45	HW3	X45GrSi93	F322	10WCr6	-	Z45CS9	SKH55
	-	-	-	-	-	-	-	-	-
	SKH55	-	-	S6-5-2-5	HS6-5-2-5	-	2723	Z85WKC2723	SKH3
	SKH3	BT4	T4	S18-1-2-5	HS18-1-1-5	X78WCo1805KU	-	Z80WKC	SKH9
	SKH51	BM2	M2	S6-5-2	HS6-5-2	X82WCo1805KU	-2722	Z85WDCV	-
	-	-	-	M7	HS2-9-2	Z100WCWHS2-9-2	2782	S2-9-2	-
	SKH2	BT1	T1	S18-0-1	HS18-0-1	X75W18Ku	-	Z08WCV	SKH2
	-	BS1	S1	45WCrV7	45WCrSi8	45WCrV8Ku	2710	-	-

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TECHNICAL DATA



TECHNICAL DATA

COMPARISON OF WORK-PIECE

● 재질구분표 Comparison of Work-Piece

ISO	Korea KS	United Kingdom BS	America AIS/SAE	German DIN	Spain UNF	Italy UNI	Sweden SS	France AFNOR	Japan JIS
M 스테인레스 강 Stainless steel	Austenite range								
	STS301	-	301	X12CrNi77	-	2331	F.3517	Z12CN17.07X12CrNi707	SUS301
	STS303	-	303	X12CrNiS188Z10CNF18.09	-	2346	F.3517	X10CrNiS18.09	SUS303
	-	-	304	X5CrNi189	304S31	X5CrNi18	2332/2333F.3551	Z6CN18.09	SUS304
	STS304	304S15	304	X5CrNi189	F.3551	X5CrNi1810	2332	Z6CN18.09	SUS304
	STS304L	-	304L	X2CrNi1911	304C12	2333	-	-	SUS304L
	SSC16	-	304LX2CrNi1819	Z2CrNi1810	304S12	2352	F.3503	X2CrNi1011	SCS16
	STS304L	304S62	304LN	Z2CrNiN, 1810	-	-	2371	Z2CN1810	NSUS304LN
	STR31	-	HW3X45CrSi93	Z45CrSi93	401S45	-	SF322	X45CrSi8	SUH1
	STR309	-	309	X15CrNiSi201	-	-	-	Z15CNS2012	SUH309
	STR310	310S24	X12CrNi2521	F.332	X60CrNi2520	2361	Z12CN2520	SUH310	-
	STS316	-	316	X5CrNiMo1810	346S16	X5CrNiMo17122347	F.3543	Z6CND1711	SUS316
	STS316LN	-	316LN	X2CrNiMoN	-	2375	X2CND1713	SUS316LN	SUS316LN
	STS316L	-	316L	X2CrNiMo1812	-	-	-	-	SUS316L
	SSC16	-	316LXCrNiMo	Z2cndCND1712	316S13	2353	-	X2CrNiMo1712	SCS16
	-	320S17	316Ti	Z2CND1915	F.3535	X6CrNiMoTi1712	2350	Z6VDT17.12	-
	STS317L	-	317L	X24CrNiMo1816	317S12	2367	-	X2CrNiMo1816	317L
	-	-	X10CrNi	Z6CNDNb	-	-	-	X6CrNiMoMoNb	318
	-	-	S32304	"X2CrNiN,234"	-	-	2327	Z2CN23-04AZ	-
	-	-	S32900	X8CrNiMo.275	-	-	2324	-	-
	-	-	S31803	X2CrNiMoN	-	-	2377	Z2CND22-0503	-
	STS	351S12	321	X10CrNiTi	F.3553	X6CrNiTi1811	2337	Z6CNT18.10	SUS321
	STS347	-	347	X6CrNiNb189	347S17	X6CrNiNb18.112338	F.3552	Z6CENNb18.10	SUS347
	STS12	BA2	A2	Z100CnMoV51	Z100CnMoV51	Z100CnMoV51KU	2260	Z100CDV5	SKD12
	Ferrite range Martensite range								
	STS403	403S17	403	X7Cr13	F.3110	X6Cr13	2301	Z6C13	SUS403
	STS405	403S17	405	X10CrAl13	F.311	X10CrAl13	-	Z10C13	SUS405
	STS410	410S21	410	X10Cr13	F.3401	I13	2302	Z10C14	SUS410
	STS420J2	420S45	-	X46Cr13	F.3405	X40Cr145	2304	Z4CM	SUS420J2
	STS430	430S15	430	X8Cr17	F.3113	X8Cr17	2320	ZBC17	SUS430
	STS430F	-	430F	X12CrMoS17	F.3117	X10CrS17	2383	Z10CF17	SUS430F
	STS431	431S29	431	X22CrNi6	F.33427	X16CrNi16	2321	Z15CNi6.02	SUS431
	STS434	434S17	434	X6CrMo17	-	ZX8CrMo17	2325	ZBCD17.01	SUS434
	STR446	-	446	X10CrA124	-	X16Cr26	2322	Z10CAC24	SUH446
	SSC5	425C11	-	X5CrNi134	-	-	-	Z4CND13.4M	SCS5
	STR35,STR36	348S54	EV8	X53CrMnNiN219	-	X53CrMnNiN	-	Z52CMN21.09	SUH35,SUH36
	STR4	443S65	HNW6	X80CrNiSi20	F.320B	X80CrSiNi20	-	Z80CSN20.02	SUH4
	Heat resistance alloys								
	HRHC15	330C11	-	G-X40NiCrSi	-	XG50NiCr	-	-	SCH15
	STR330	-	X12NiCrSi	-	-	-	-	Z12NCS35.16	SUH330330
	-	3072-76	4676	NiCu30Al	-	-	-	-	-
	-	-	5390A	-	-	-	-	NC22Fed	-
	-	3146-3	5391	S-NiCr13A16MoNb	-	-	-	NC12D	-
	-	HR8	5383	NiCr19Fe19NbMo	-	-	-	NC19rNB	-
	-	-	5537C	CoCr20W15Ni	-	-	-	KC20WN	-
-	-	5660	NiFe35Cr14MoTi	-	-	-	ZSNCDT42	-	
-	-	5666	NiCr22Mo9Nb	-	-	-	NC22FeDNB	-	
-	-	AMS5397	NiCr15Cr10MoATi	-	-	-	-	-	
-	-	AMS5399	NiCr19Co11MoTi	-	-	-	NC19KDT	-	
-	-	AMS5544	NiCr19Fe19NbMo	-	-	-	NC20K14	-	
-	-	AMS5772	CoCr22W14Ni	-	-	-	KC22WN	-	
-	TA10-13/TA28	AMSR56400	TiAl6V4	-	-	-	T-A6V	-	
-	TA14/17	AMSR54520	TiAl5Sn2.5	-	-	-	T-A5E	-	



TECHNICAL DATA

COMPARISON OF WORK-PIECE

● 재질구분표 Comparison of Work-Piece

ISO	Korea KS	United Kingdom BS	America AIS/SAE	German DIN	Spain UNF	Italy UNI	Sweden SS	France AFNOR	Japan JIS	
K 주철 Cast iron	Gray cast iron									
	GC100	-	No20B	GG10	-	G10	110	Ft10D	FC100	
	GC150	Grade150	No25B	GG15	-	G14	115	Ft15D	FC150	
	GC200	Grade220	No30B	GG20	-	G20	120	Ft20D	FC200	
	GC250	Grade260	No35B	GG25	-	G25	125	Ft25D	Fc250	
	GC300	Grade300	GNo45B	GG30	-	G30	130	Ft30D	FC300	
	GC350	Grade350	No50B	GG35	-	G35	135	Ft35D	FC350	
	GCD400	SNG420/2	60-40-18	GGG40	-	GS400-12	0717-02	FCS400-12	FCD400	
	GCD500	SNG500/7	65-45-12	GGG50	-	GS500/7	0727-02	HGS500-7	FCD500	
	GCD600	SNG600/3	80-55-06	GGG60	-	GS600/3	0732-03	FGS600-3	FCD600	
	GCD700	SNG700/2	100-70-03	GGG70	-	GS700/2	0737-01	FGS700-2	FCD700	
	Ductile cast iron									
	-	B340/12	32510	GTS-35	-	-	0815	MN35-10	-	
	-	P440/7	40010	GTS-45	-	-	0852	-	-	
	-	P510/4	50005	GTS-55	-	-	0854	MP50-5	-	
	-	P570/3	70003	GTS-65	-	-	0858	MP60-3	-	
	Aluminium	Aluminium alloy								
		-	LM6	A413.2	G-AISi2	-	-	4261	-	-
		-	LM9	A360.2	G-AISi10Mg(Cu)	-	-	4253	-	-
-		LM20	A413.1	G-AISi2(Cu)	-	-	4260	-	-	
-		LM24	A380.1	GD-AISi8Cu	-	-	4250	3-	-	
-	-	A413.0	GD-AISi2	-	-	4247	-	-		

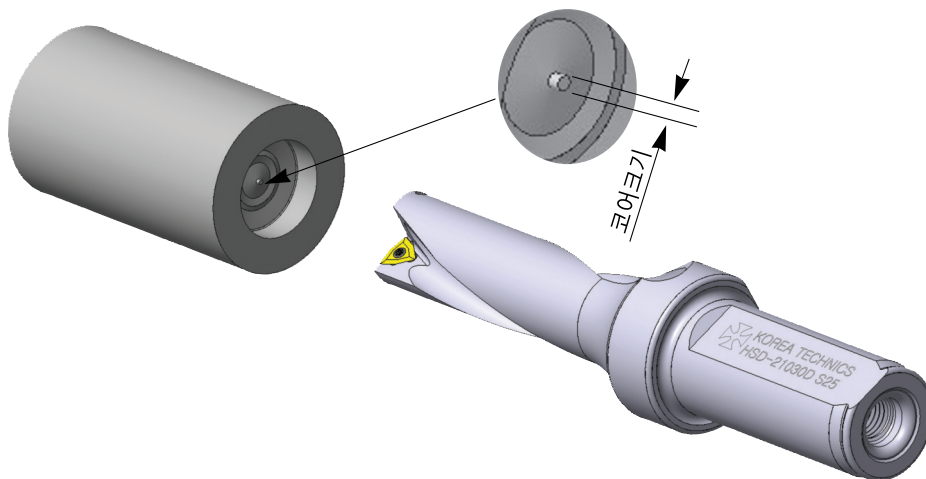


선반 작업시 주의사항

Directions for the work of the lathe

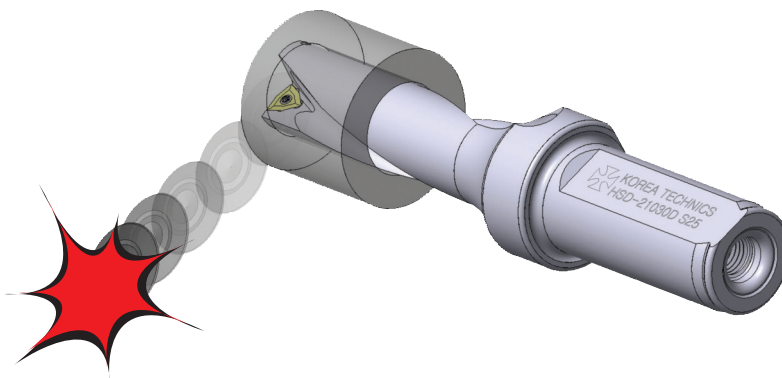
선반장비에서 하이스피드 드릴을 처음 사용하실 경우, 가공물을 5mm 가량 드릴링 하신 후에, 코어(Core) 크기를 확인해 주시기 바랍니다.
코어(Core)경의 크기는 0.2mm~0.8mm가 되어야 하며, 코어가 너무 작거나 내측 인서트와 안쪽 코너부분이 깨진다면 드릴을 180° 회전하여 작업을 하시기 바랍니다.

In case of use the high speed drill first in the lathe, after drilling the workpiece around 5mm make sure the core size.
The core size should be 0.2mm-0.8mm.
If the core size is too small or the corner part in the center of inside insert break, it is desirable to work turning the drill to 180 angle.



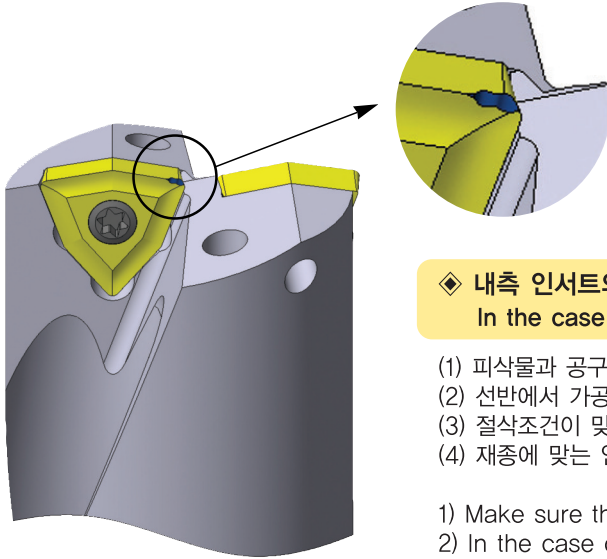
또한 선반에서 관통 작업을 할 경우, 원판(DISC)이 떨어져 나가며 부상의 위험이 발생될 수 있으니 반드시 안전커버를 사용하십시오.

In case of doing also the penetrating work in the lathe, coming off The original thing(DISC) the wound can happen so absolutely use the safety cover.



HIGH SPEED DRILL 사용시 주의사항

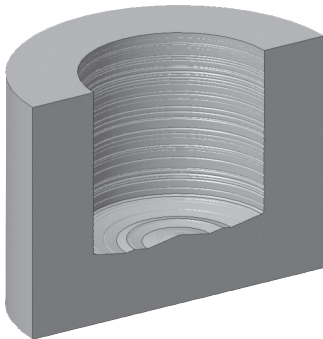
Directions for the use of HIGH SPEED DRILL



◆ 내측 인서트의 안쪽코너 부분이 깨질경우,
In the case of breaking the inside insert,

- (1) 피삭물과 공구가 단단히 고정되어 있는지 확인해 본다.
- (2) 선반에서 가공시, 공구를 180° 회전시켜 가공해 본다.
- (3) 절삭조건이 맞는지 확인해 본다.
- (4) 재종에 맞는 인서트를 사용했는지 확인해 본다.

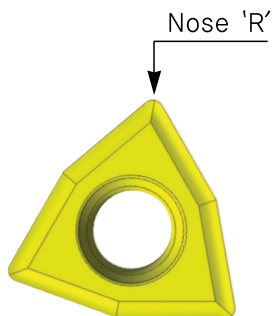
- 1) Make sure the workpiece and tool are fixed firmly.
- 2) In the case of drilling in the lathe, drill after turning the tool to 180 angle.
- 3) make sure the cutting condition is corret.
- 4) make sure the insert is correct for the workpiece.



◆ 가공조도면이 거칠경우,
In the case that drilling density is rough,

- (1) 절삭유 압을 높여서 가공해 본다.
- (2) 피삭물과 공구가 단단히 고정되어 있는지 확인해 본다.
- (3) 절삭속도를 높여 가공해 본다.

- 1) The oil pressure raise and process it.
- 2) make sure the workpiece and tool are fixed firmly.
- 3) cutting speed raise and process it.



◆ 가공직경이 0.3mm정도 크거나 작게 나올 경우,
In the case that drilling diameter is 0.3mm smaller and bigger.

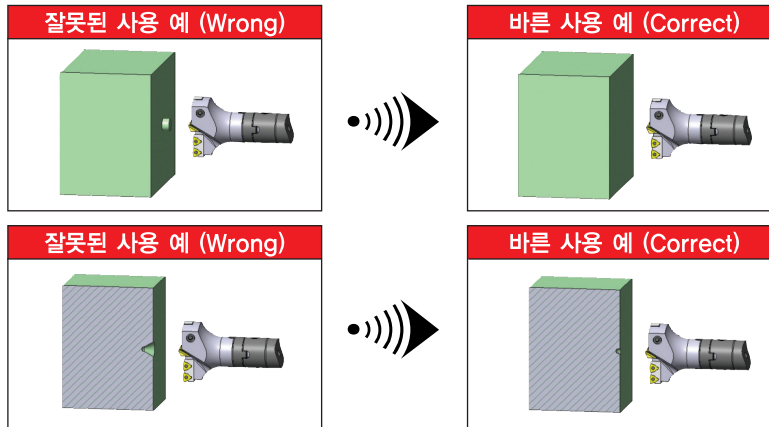
- (1) 인서트 Nose 'R' 크기를 확인해 본다.
- (2) 스피들부에 이물질이 있는지 확인해 보고, 아버의 내경 및 공구의 회전시 편심이 있는지 살펴본다.
- (3) 절삭조건이 맞는지 확인해 본다.

- 1) Make sure the Nose 'R' size
- 2) Make sure there is foreign substance and make sure arbor inside diameter or when it turn, there is the one sided.
- 3) Make sure cutting condition is correct.

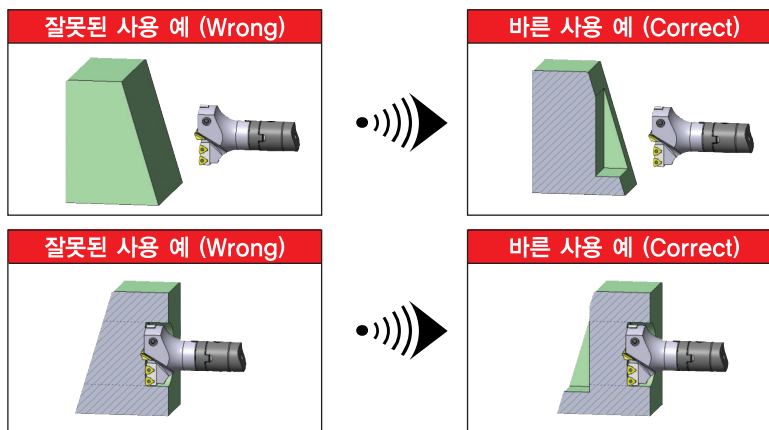
TURBO DRILL&MAX DRILL 사용시 주의사항

Directions for the use TURBO DRILL&MAX DRILL

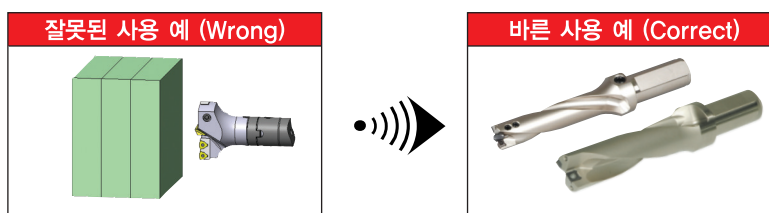
- ◆ 아래 그림과 같이 가공물 표면에 센터드릴 직경보다 큰 홀이 있거나, 돌출된 경우 심한 진동으로 센터드릴과 인서트에 손상이 생길 수 있습니다.
- ◆ As the below pictures in the case that there are bigger hole than center drill or protruded part, The center drill and insert can be broken by hard vibration.



- ◆ 구배나 경사가 있는 가공면의 경우, 밀링작업하여 평평하게 하신후 드릴링 작업을 하십시오.
- ◆ In the case that there is inclined side, after make the part flat by milling work, please do drilling work.



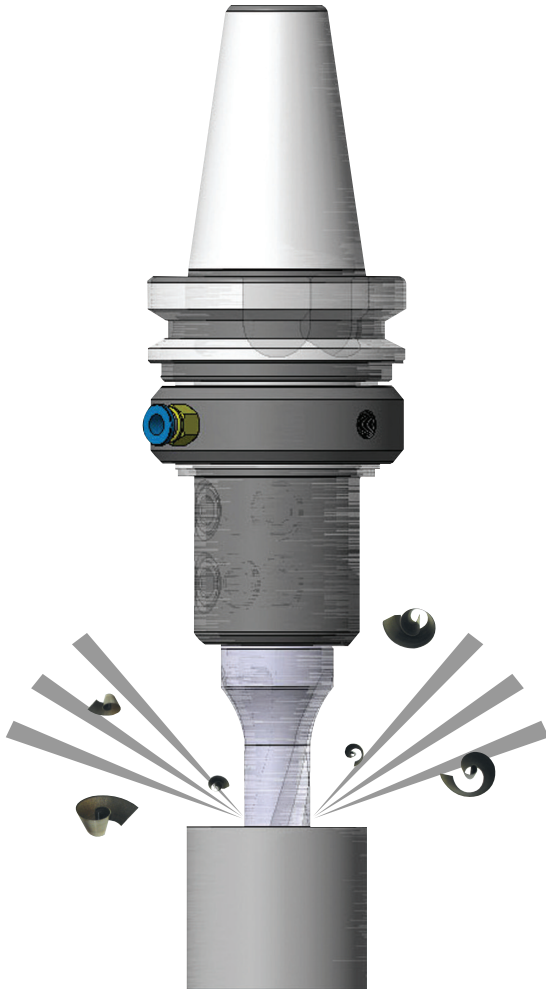
- ◆ 겹판가공은 불가능합니다. 겹판가공을 원하실 경우, STD나 FXD 드릴을 사용하여 주십시오.
- ◆ Overlapped drilling is impossible. In case of wanting the overlapped drilling, Please use STD and FXD drill.



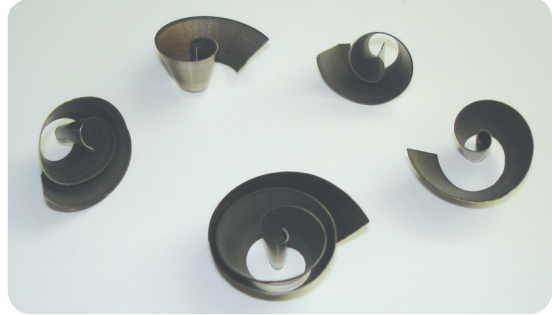


칩의 모양과 해결책

The solution according to the chip shape



◆ 알맞은 칩 모양(Optimal Shape of chip)



◆ 칩이 너무 짧은 경우(Too Short)



▶ 짧은 칩이 배출되면 인서트 파손이 생길 수 있습니다.

- (1) 절삭유 압력을 높이세요.
- (2) 회전속도와 피드를 낮추어 가공하세요.

▶ If short chip came out, the insert happen to break.

- (1) Raise the oil pressure.
- (2) After the turning speed and the feed come down, process it.

▶ 칩이 길게 발생되면, 원활한 칩배출이 되지 않고, 드릴에 엉키며 공구 손상이 생길 수 있으며, 면조도가 불량해 집니다.

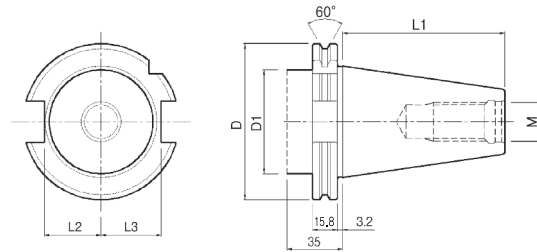
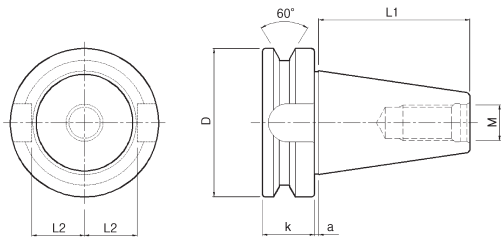
- (1) 탄소함량이 낮은 연강이나 스테인레스강은 회전속도를 높이고, 피드를 낮추어 가공하세요.
- (2) 탄소함량이 높은 탄소강이나 합금강은 회전속도와 피드를 높여 가공하세요.

▶ If the chip is long, the chip does not come out properly and it is entangled on the drill. It can arise tool damage and the drilled density is not good.

- 1) For mild steel and stainless steel contained the low carbon steel content, please process making the turning speed high and feed low.
- 2) For carbon steel or alloy contained the low carbon content, process making the turning speed and feed high.

◆ 칩이 너무 긴 경우 (Too Loose)



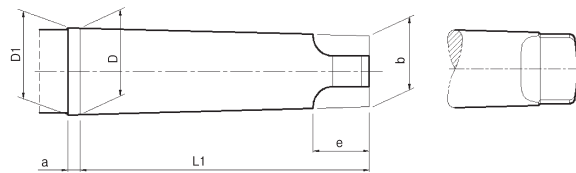
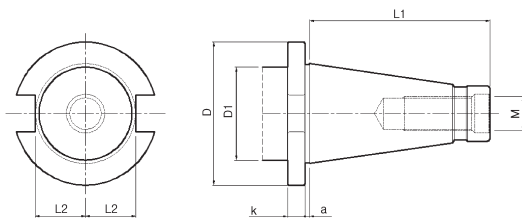


● BT/MAS Holder

Taper No.	L1 mm	D mm	M mm	K mm	a mm	L2 mm
40	65.4	63	M16	25	2	22.8
50	100	100	M24	35	3	35.5

● SK/DIN Holder

Taper No.	L1 mm	D (max.) mm	D1 mm	M mm	L2 mm	L3 mm
40	68.4	63.55	50	M16	22.8	25
50	101.75	97.5	80	M24	35.5	37.7



● NT/DIN 2080 Holder

Taper No.	L1 mm	D mm	M mm/inch	K mm	a mm	L2 mm
40	93.4	63	M16	10	1.6	22.5
50	126.8	97.5	M24	12	3.2	35.3
40	93.4	63	5/8-11 UNC	10	1.6	22.5
50	126.8	97.5	1-8 UNC	12	3.2	35.3

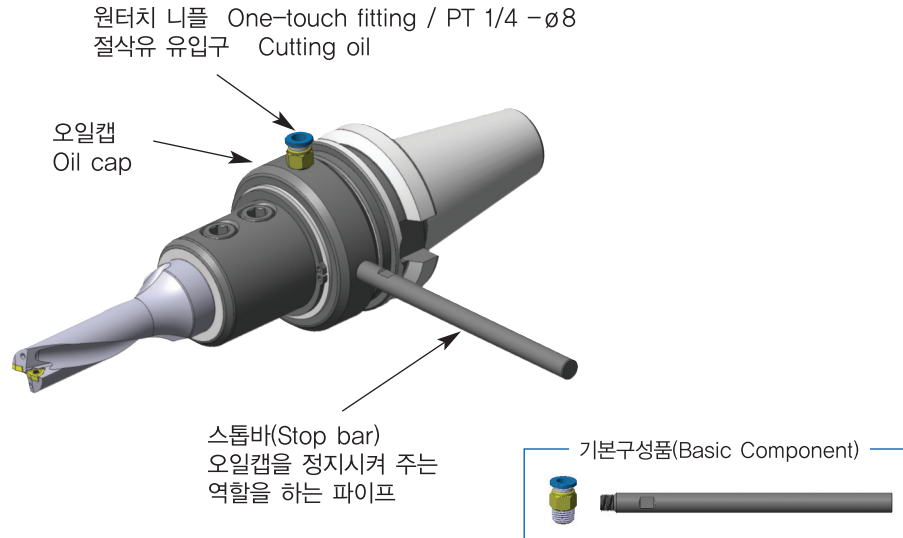
● MT/DIN 228 Holder

Taper No.	L1 mm	D mm	D1 mm	M mm	e mm	b mm
4	117.5	31.267	31.6	6.5	24	25.2
5	149.5	44.399	44.7	6.5	29	36.5
6	210	63.348	63.8	8	40	52.4



오일 피드 아버의 특징 및 사용법

Oil feed arbor feature and use

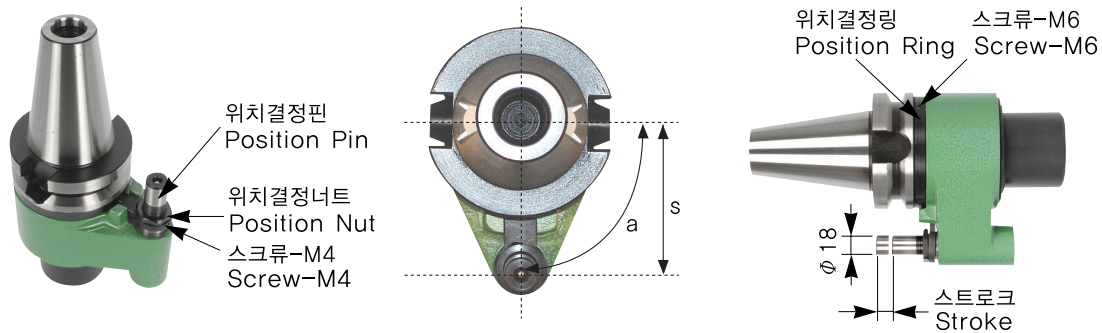


- (1) 가공직경이 비교적 크거나 깊은홀 가공시 반드시 절삭유 내부 공급을 해야 한다.
- (2) 오일피드 아버는 범용장비에서도 내부 급유를 유도하여 깊은홀 가공이 가능하도록 도와주는 유용한 공구이다.
- (3) 오일캡 외부에는 90도 방향으로 쓰레드가 2곳이 나 있는데, 한 곳으로는 절삭유가 유입되는 곳이고, 다른 한 쪽으로는 스톱바가 장착되는 곳이다.
- (4) 오일캡 내부에는 절삭유 누유를 막아주고 회전시 발생하는 마찰을 최소화 시켜주는 테프론 씬이 장착되어 있다.
- (5) 회전시 오일캡은 정지된 상태로 절삭유를 공급해 준다.
- (6) 오일피드 타입의 아버로는 OMS, OME, OMX, CMS, CMB 등이 있음.

- (1) When the diameters to be processed are too large, or when deep holes are processed, the cutting-oil must be supplied into the interior of the device.
- (2) The oil feed arbor is a useful tool that enables processing deep holes, even with general-purpose equipment.
- (3) Two threads are seen at 90 degrees from the outside of the oil cap : one for the feature where the cutting-oil is supplied, and the other for the feature where the stop bar is installed.
- (4) There is a teflon seal inside the oil cap that keeps the cutting-oil from leaking and it also minimizes friction.
- (5) When rotating, the cutting-oil is supplied with the oil cap stopped : the maximum rotation speed is 2,000 rpm. (CMB : 4,000 rpm)
- (6) Arbor oil feed types include OMS, OME, OMX, CMS, CMB

자동타입 아버 사용법

Automatic arbor manuals



▶ 코리아테크닉스 자동타입홀더의 특징(BT-OAS, BT-OAE, BT-OAX 공통)

- 자동공구 교환이 가능한 내부 급유형 절삭유 공급 장치입니다.
- 내열 내마모성이 우수한 테프론을 특수처리하여 고속에서도 누수가 없고, 마찰 저항이 작아 장시간 운전이 가능합니다. (MAX. 3000RPM)
- 장비에 맞추어 위치결정핀의 높이와 각도(a)를 조절할 수 있습니다.

▶ The characteristics of Kprea Technics' Automatic Holder

- It has an internal fueling type of cutting-oil supply apparatus with automatic tool changing function.
- Coated with teflon that has excellent heat-and wear-resistance characteristics via a specific coating process. As a result, no leakage occurs and friction is also decreased, which in turn allows prolonged rotation(maximum of 3,000rpm)
- The height and angle(a) of the positioning pin are adjustable depending on equipment dimensions.

▶ 위치결정핀의 높이와 각도(a)의 조절 방법

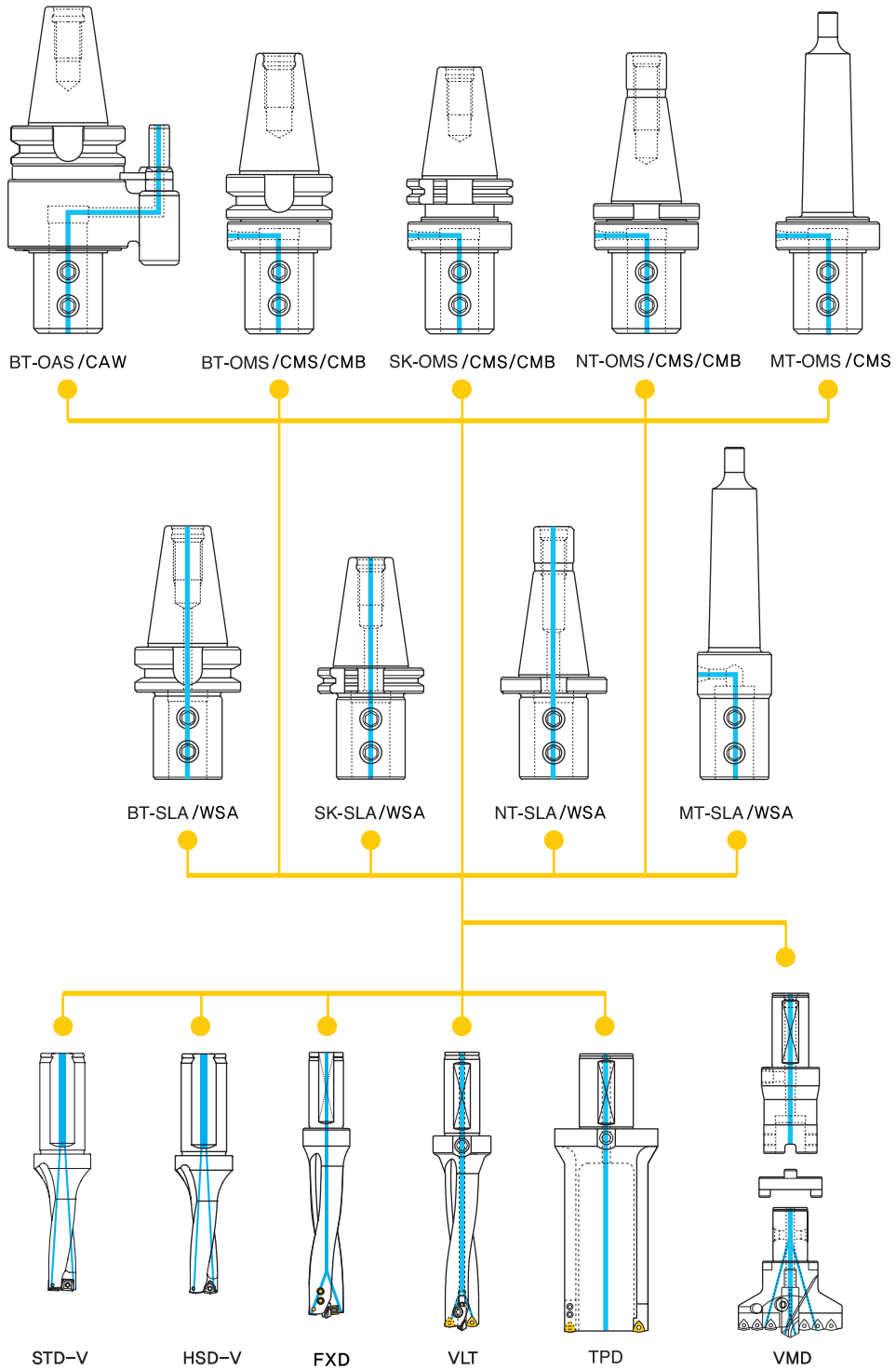
- 각도(a)의 조절방법
 - ① 위치결정링에 체결되어 있는 스크류(2EA-M6)를 렌치로 풀어준다.
 - ② M/C에 장착된 위치 결정 블록의 위치에 맞게 오일케이스를 회전시킨다.
 - ③ 정확한 위치에 오면 스크류(2EA-M6)를 완전히 체결한다.
- 위치결정핀의 높이 조절방법
 - ① 위치결정핀 스크류(M4)와 너트를 풀어준다.
 - ② 위치결정블록의 높이를 확인하고, 알맞은 높이로 바이스등으로 돌려 조절한다.
(※ 스트로크양 : BT40-4.5mm, BT50-7.5mm)
 - ③ 셋팅후엔 스크류와 너트를 완전히 조여준다.

▶ Adjustment method for the height of the positioning pin and angle(a) :

- Adjustment method for angle(a) :
 - ① Unfasten the screw (2EA-M6)secured to the positioning ring with the wrench. (hex key wrench, 3mm)
 - ② Rotate the oil case in line with the positioning control block installed in the M/C.
 - ③ Completely fasten the screw(2EA-M6)when it is aligned in the proper position.
- Adjustment method for height of the positioning pin :
 - ① Unfasten the positioning pin screw.(M4 : hex wrench, 2mm)and unt(hex key wrench, 27mm)
 - ② Confirm the height of the positioning control block, and then, hold and turn using the vise-grip to adjust it.(※ stroke distance : BT40=4.5mm, BT50=7.5mm)
 - ③ Completely fasten the screw and unt after setting.



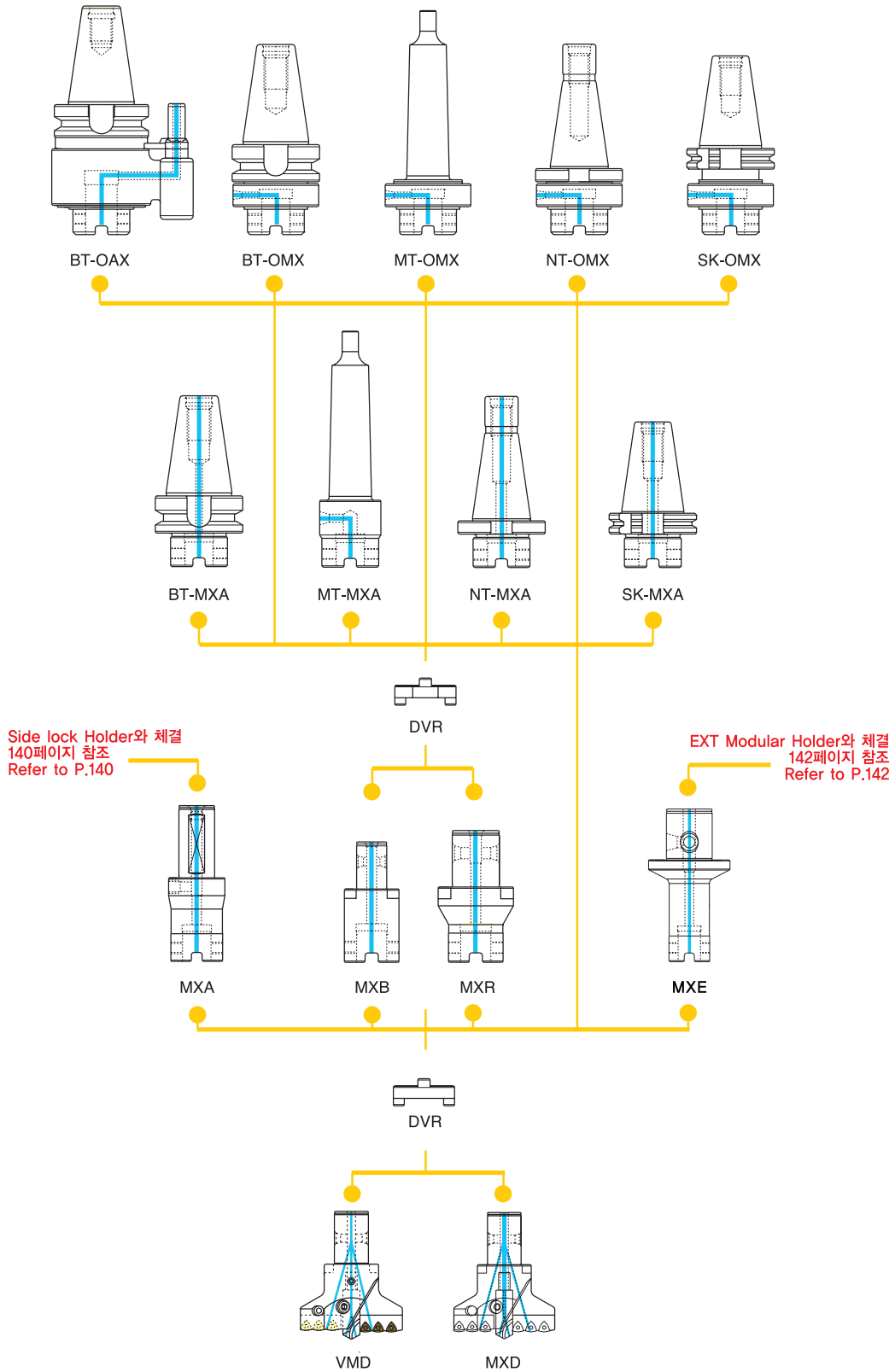
CYLINDRICAL SHANK TYPE



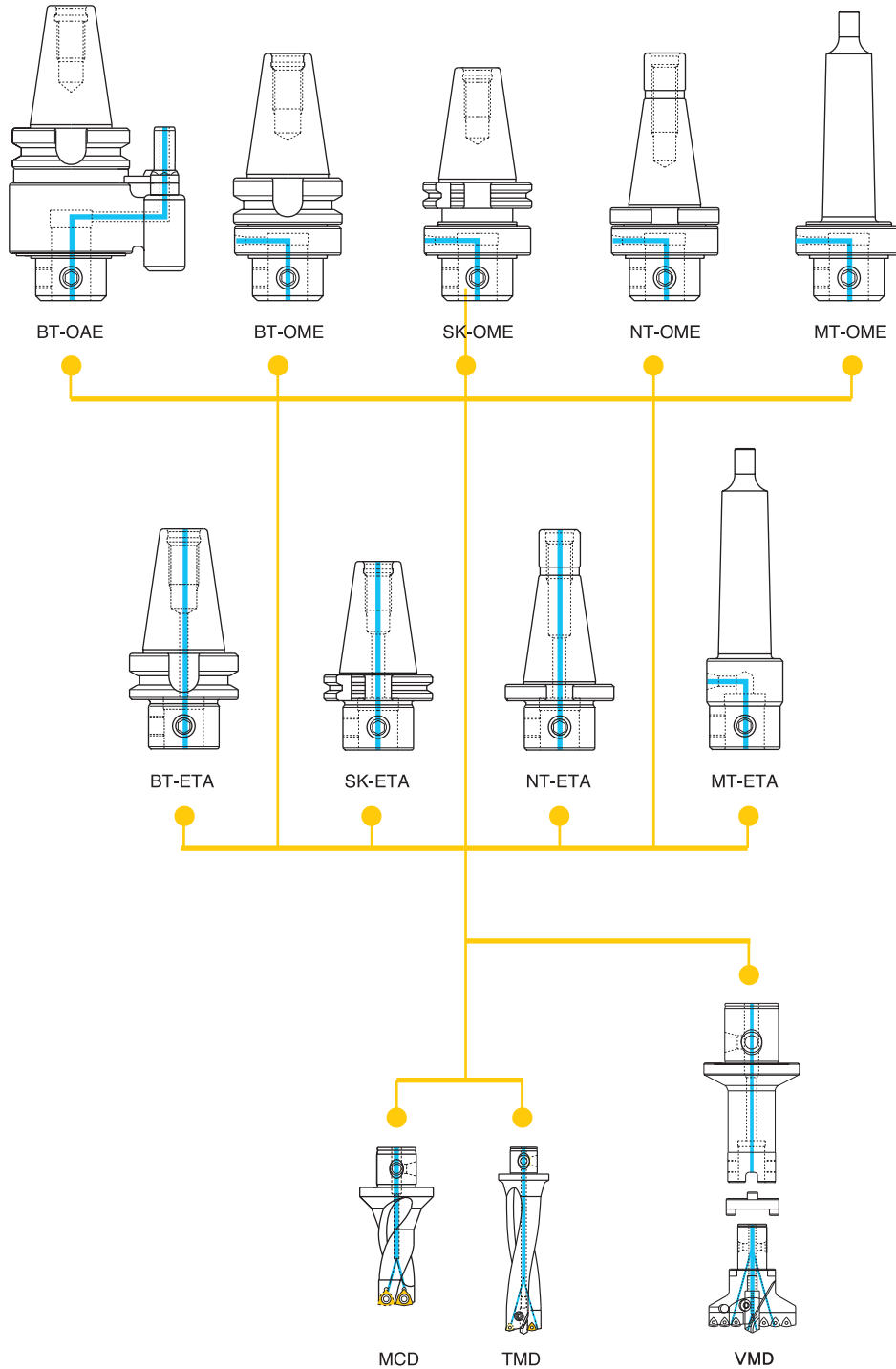
MX Modular system
141페이지 참조
Refer to P.141



MX MODULAR SYSTEM



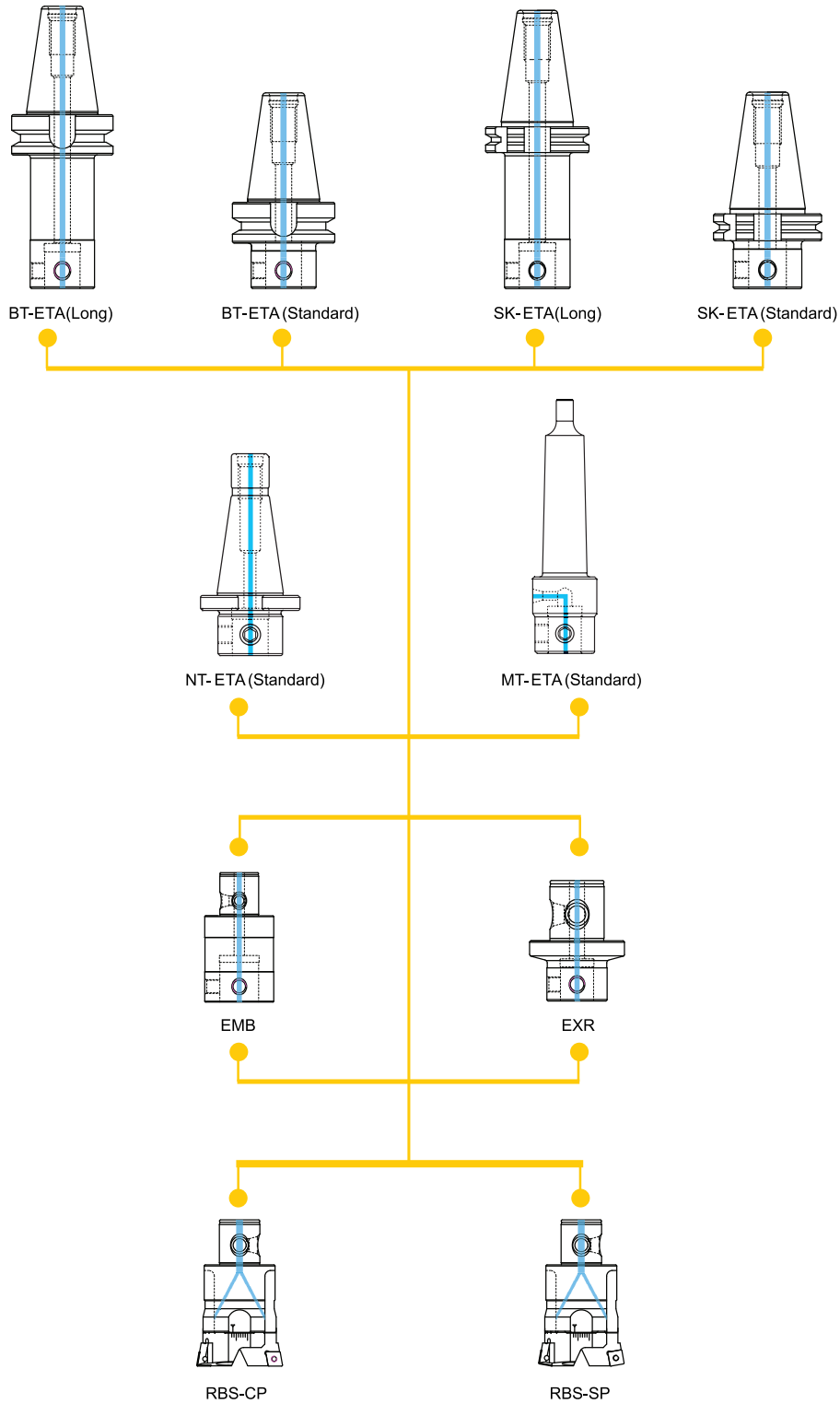
EXT MODULAR SYSTEM



MX Modular system
141페이지 참조
Refer to P.141



EMS MODULAR SYSTEM



TECHNICAL DATA

VMD MX- MODULE COMBINATIONS

● VMD MX-모듈 조립표

Code No.	L1	Drive ring	MX Extention	Drive ring	MX 모듈러 Arbor	MX Cylindrical Extention	Side lock arbor	MX Reducer	Drive ring	+
VMD-045050 VMD-050055	50	DVR-281310	MXB-2813115 MXB-2813150 MXB-2813200 MXB-2813300	DVR-281310	X	MXA-3213115 MXA-3213200 MXA-3213300	BT50-SLA-32105 BT50-OMS-32135 ⋮	MXR-1613100 → MXR-3213100 → MXR-5013080 →	DVR-321610 → DVR-583214 → DVR-805014 →	① ④ ⑥
VMD-055060 VMD-060065 VMD-065070	60	DVR-321610	① MXB-3216115 MXB-3216200 MXB-3216300	DVR-321610		① MXA-4016125 MXA-4016200 MXA-4016300	BT50-SLA-40105 BT50-OMS-40145 ⋮	① MXR-2216100 → MXR-3216100 → MXR-5016080 →	DVR-402212 → DVR-583214 → DVR-805016 →	② ④ ⑥
VMD-070075 VMD-075080 VMD-080085	70	DVR-402212	② MXB-4022113 MXB-4022200 MXB-4022300	DVR-402212		② MXA-4022148 MXA-4022200 MXA-4022300		② MXR-2722100 → MXR-3222100 → MXR-5022080 →	DVR-482712 → DVR-583214 → DVR-805016 →	③ ④ ⑥
VMD-085090 VMD-090095 VMD-095100	70	DVR-482712	③ MXB-4827113 MXB-4827200 MXB-4827300	DVR-482712		③ MXA-4027168 MXA-4027300		③ MXR-3227100 → MXR-5027080 →	DVR-583214 → DVR-805016 →	④ ⑥
VMD-100105 VMD-105110 VMD-1110115	80	DVR-583214	④ MXB-5832186 MXB-5832300	DVR-583214	④ BT50-MXA-32070 BT50-OMX-32100 ⋮	④ MXA-4032186 MXA-4032300		④ MXR-4032100 → MXR-5032080 →	DVR-704014 → DVR-805016 →	⑤ ⑥
VMD-115120 VMD-120125 VMD-125130 VMD-130135 VMD-135140	90	DVR-704014	⑤ MXB-7040186 MXB-7040300 MXB-7040500	DVR-704014	X	⑤ MXA-W5040186 MXA-W5040300	⑤ MXR-5040150 →	DVR-805016 →	⑥	
VMD-140150 VMD-150160 VMD-160170 VMD-170180	100	DVR-805016	⑥ MXB-8050204 MXB-8050300 MXB-8050500	DVR-805016	⑥ BT50-MXA-50080 BT50-OMX-50110 ⋮	⑥ MXA-W5050184 MXA-W5050300	BT50-SLA-50130 BT50-OMS-50170 ⋮	X	X	X

기본공통적용 Basic common application	연속 연결 가능 Continuous connection possible	연속 연결 불가능 Continuous connection impossible	틀림완료 Complete combination

TECHNICAL DATA





본사 Head Office

(14521) 경기도 부천시 원미구 평천로 826번길 47
TEL. 032-673-1818 FAX. 032-673-3369
47, Pyeongcheon-ro 826beon-gil, Wonmi-gu,
Bucheon-si, Gyeonggi-do, KOREA
TEL. +82-32-673-1818 FAX. +82-32-682-1219



해외 Overseas

overseas@koreatechnics.com
topplus@koreatechnics.com

국내 Internal

sales@koreatechnics.com
k-tec@koreatechnics.com



www.koreatechnics.com



공장 Factory

(14524) 경기도 부천시 원미구 부천로 285번길 31
TEL. 032-673-1814 FAX. 032-673-2016
31, Bucheon-ro 285beon-gil, Wonmi-gu,
Bucheon-si, Gyeonggi-do, KOREA
TEL. +82-32-673-1814 FAX. +82-32-673-2016



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