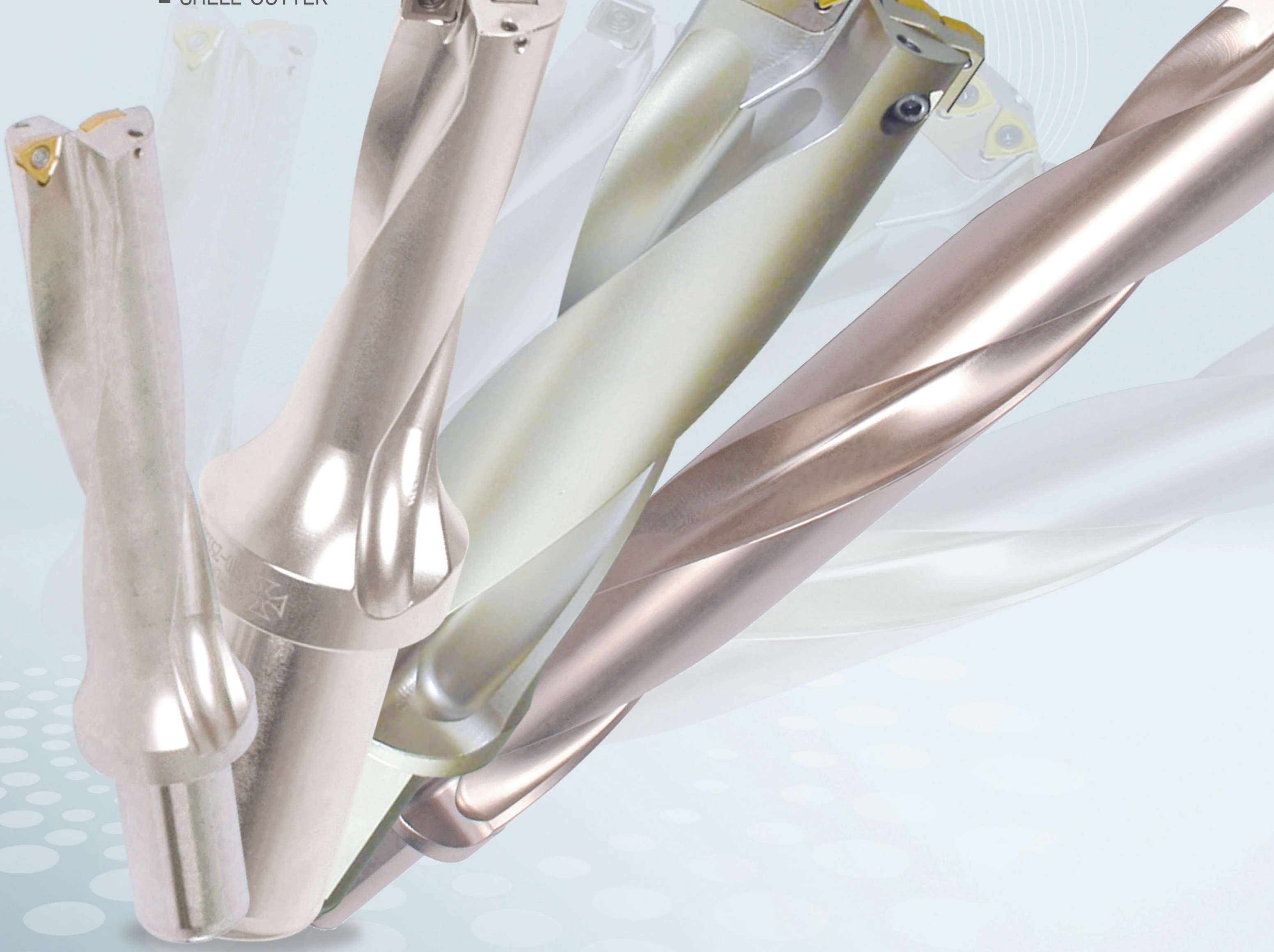
(주)코리아테크닉스는
조립인서트용 절삭공구 전문제조업체입니다.
1988년 설립하여 꾸준한 제품개발을 통해
한국을 대표 하는 절삭공구 메이커로 성장하였으며,
세계를 무대로, 뜨거운 열정과 도전정신으로
달려가고 있습니다.

현재 전세계 40여개국 80여개 업체로 수출하고 있으며,
국내 전국적인 영업망을 갖추어
보다 가까이, 보다 신속하게 고객의 생산성 향상과
고객감동을 실현하도록 노력하고 있습니다.
우수한 성능과 합리적인 가격, 꾸준한 신제품 개발로
고객의 요구와 기대를 만족시키는
(주)코리아테크닉스가 되겠습니다.

KoreaTechnics Ltd.
HIGH SPEED CUTTING TOOLS

MAIN PRODUCTS

- HIGH SPEED DRILL
- MAX DRILL
- TURBO DRILL
- TREPANNING DRILL
- ENDMILL CUTTER
- PULL STUD BOLT
- BALL NOSE CUTTER
- FINISHING BALL NOSE CUTTER
- HELICAL & BALL CUTTER ARBOR
- SQUARE SHOULDER CUTTER
- HELICAL ENDMILL CUTTER
- SHELL CUTTER



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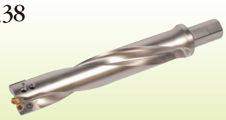
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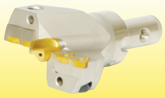
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MX HOLDER

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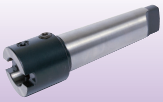
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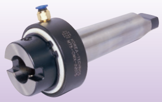
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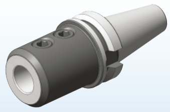
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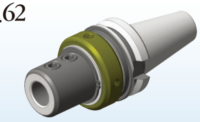
BT－CMS

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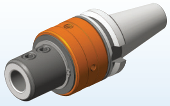
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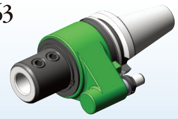
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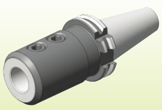
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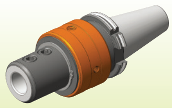
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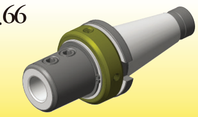
NT－CMS

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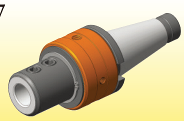
NT－CMB

MT HOLDER

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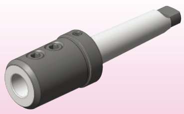
MT－WSA

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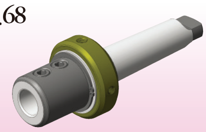
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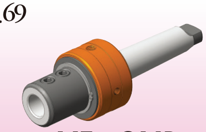
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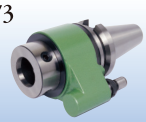
P.73  BT−OAE

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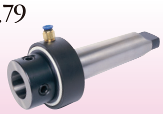
P.79  MT−OME

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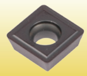
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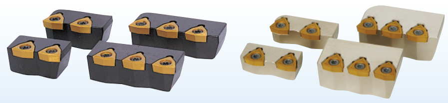
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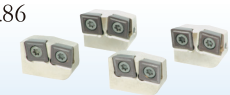
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PILOT DRILL

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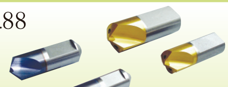
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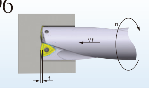
  - P.96 
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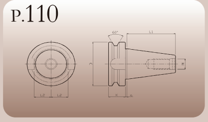
  - P.110 
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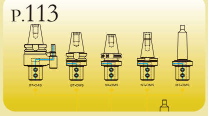
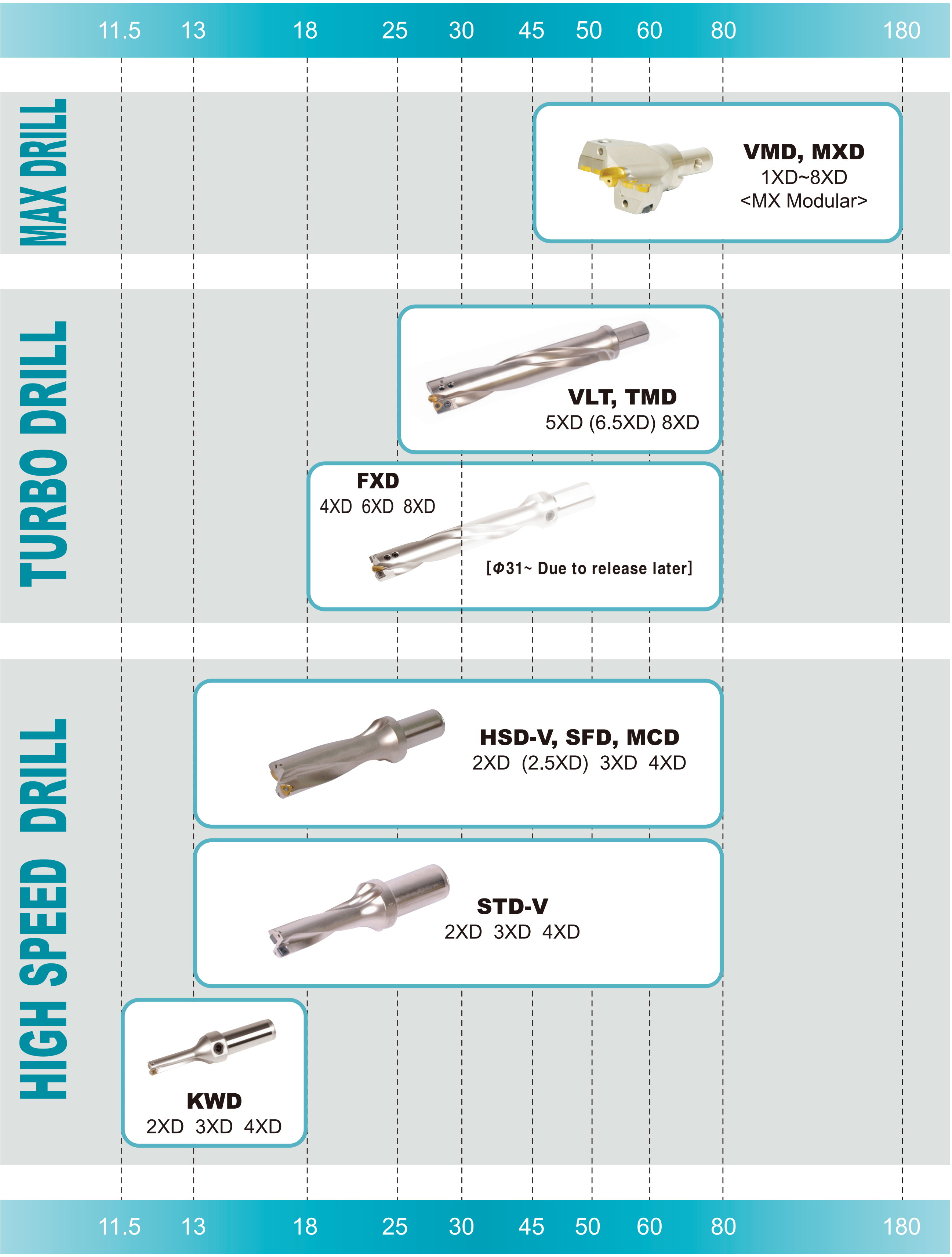
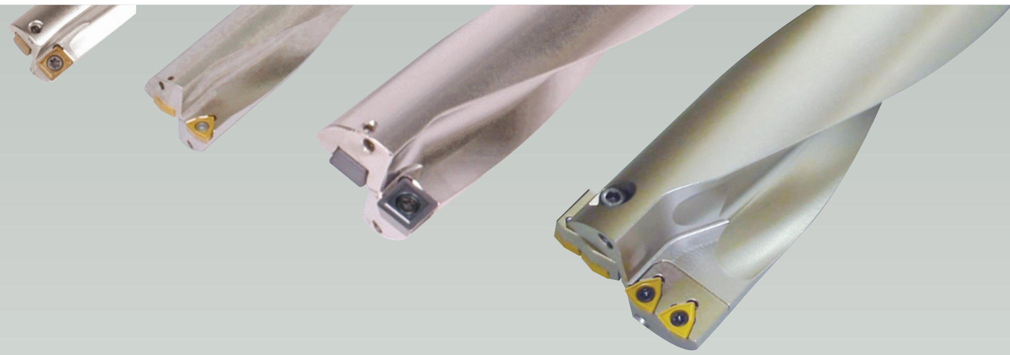
  - P.113 

Choose form KoreaTechnics Drill



DRILL

Construction System of high Speed drill's Code no.



▶ Basic Type

HSD - V29530D S32

드릴종류
Drill group

가공직경: Φ29.5
Drilling diameter: Φ29.5

기공깊이: 가공직경의 3배
Drilling depth: Dia×3

생크직경 : Φ32
Shank diameter: Φ32

▶ Adjustment Type

STD - V606520D S40

드릴종류
Drill group

가공직경: Φ60~Φ65 (조절타입)
Drilling diameter: Φ60~Φ65 (Adjustable)

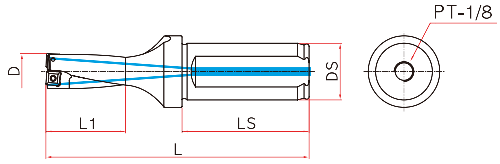
기공깊이: 가공직경의 2배
Drilling depth: Dia×2

생크직경 : Φ40
Shank diameter: Φ40

HIGH SPEED DRILL

STD-V 2×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● 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	29	99	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13520D S20	13.5	30	100					
STD-V14020D S20	14	31	101					
STD-V14520D S20	14.5	32	102					
STD-V15020D S20	15	33	103					
STD-V15520D S25	15.5	34	115	25	56	SPMX060204	TSB-22052	
STD-V16020D S25	16	35	116					
STD-V16520D S25	16.5	36	117					
STD-V17020D S25	17	37	118					
STD-V17520D S25	17.5	38	119					
STD-V18020D S25	18	39	120					
STD-V18520D S25	18.5	40	121					
STD-V19020D S25	19	41	122					
STD-V19520D S25	19.5	42	123					
STD-V20020D S25	20	43	124					
STD-V20520D S25	20.5	44	125					
STD-V21020D S25	21	45	126					
STD-V21520D S25	21.5	46	127					

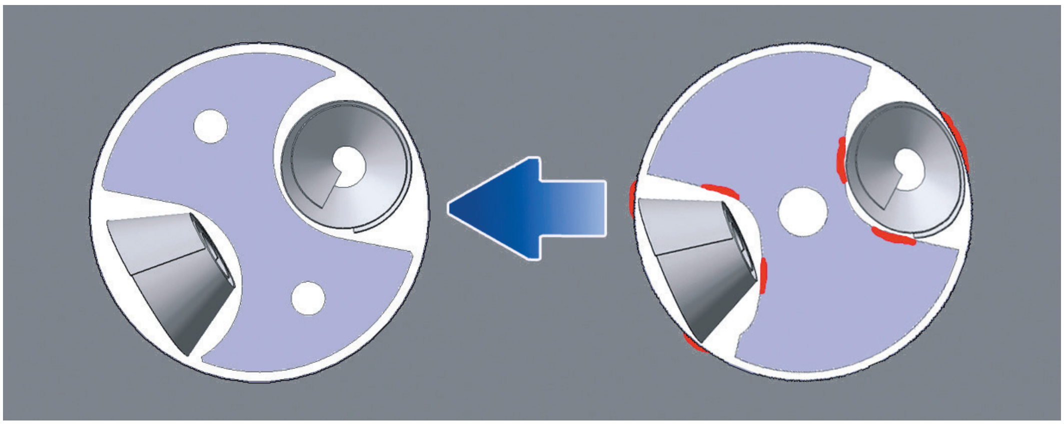
● The characteristic of STD-V small drills

* 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 greately extended.
* The drilling performance and the drilled surface are excellent by the best design.

● STD-V 소구경 드릴의 특징

* STD-V 소구경(Φ13~Φ21.5) 드릴은 절삭유 홀을 11자 타입으로 설계변경하여 드릴바디의 강성이 향상되고, 칩 배출 공간을 대폭 확장 시켰습니다.
* 최적의 설계로 절삭성능이 뛰어나고, 표면조도가 매우 우수합니다.

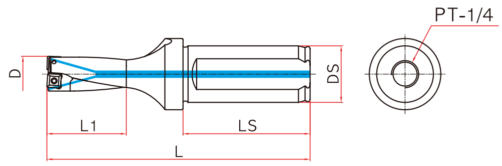
* The widen chip discharging space 넓어진 칩 배출 공간



HIGH SPEED DRILL

STD-V 2×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



Shank ISO9766, Parallel with clamping flat

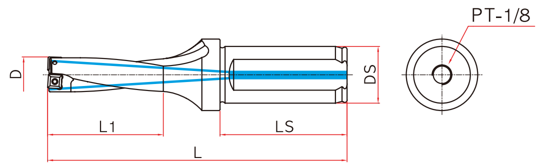
CODE NO.	치수, Dimension (mm)					인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
STD-V22020D S32	22	47	137					
STD-V22520D S32	22.5	48	138					
STD-V23020D S32	23	49	139					
STD-V23520D S32	23.5	50	140					
STD-V24020D S32	24	51	141					
STD-V24520D S32	24.5	52	142			SPMX07T308	TSB-25065	TXL-8
STD-V25020D S32	25	53	143					
STD-V25520D S32	25.5	54	144					
STD-V26020D S32	26	55	145					
STD-V26520D S32	26.5	56	146	32	60			
STD-V27020D S32	27	57	147					
STD-V27520D S32	27.5	58	148					
STD-V28020D S32	28	59	149					
STD-V28520D S32	28.5	60	150					
STD-V29020D S32	29	61	151					
STD-V29520D S32	29.5	63	153			SPMX090408	TSB-35090	
STD-V30020D S32	30	65	155					
STD-V31020D S32	31	67	157					
STD-V32020D S32	32	69	159					
STD-V33020D S32	33	71	161					
STD-V34020D S40	34	73	178					TXL-15
STD-V35020D S40	35	75	180					
STD-V36020D S40	36	77	182					
STD-V37020D S40	37	79	184			SPMX110408	TSB-40100	
STD-V38020D S40	38	81	186					
STD-V39020D S40	39	83	188					
STD-V40020D S40	40	85	190					
STD-V41020D S40	41	87	192					
STD-V42020D S40	42	89	194	40	70			
STD-V43020D S40	43	91	196					
STD-V44020D S40	44	93	198					
STD-V45020D S40	45	95	200					
STD-V46020D S40	46	97	202			SPMX140512	TSB-50125	TXL-20
STD-V47020D S40	47	99	204					
STD-V48020D S40	48	101	206					
STD-V49020D S40	49	103	208					
STD-V50020D S40	50	105	210					

∗ STD-V drill will be sold after STD drill is sold out.
∗ STD-V 드릴은, STD 드릴 재고 소진 후 판매됩니다.

∗ Please refer to the page 83 regarding SPMX Inserts.
∗ SPMX인서트는 83페이지를 참조해주세요.

STD-V 3×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



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	42	112	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13530D S20	13.5	44	114					
STD-V14030D S20	14	45	115					
STD-V14530D S20	14.5	47	117					
STD-V15030D S20	15	48	118					
STD-V15530D S25	15.5	50	131	25	56	SPMX060204	TSB-22052	
STD-V16030D S25	16	51	132					
STD-V16530D S25	16.5	53	134					
STD-V17030D S25	17	54	135					
STD-V17530D S25	17.5	56	137					
STD-V18030D S25	18	57	138					
STD-V18530D S25	18.5	59	140					
STD-V19030D S25	19	60	141					
STD-V19530D S25	19.5	62	143					
STD-V20030D S25	20	63	144					
STD-V20530D S25	20.5	65	146					
STD-V21030D S25	21	66	147					
STD-V21530D S25	21.5	68	149					

The characteristic of STD-V middle and big diameter drills

∗ The chip discharging space for STD-V middle dia and big dia drill((Φ22~Φ80) was greately extended.
These drills are stable and drilling surface are excellent in the deep hole drilling also.
* Please make sure the proper oil pressure and the cutting data(P.97) for the best performance.
(The proper pressure for STD-V2XD, 3XD is over 4kg/cm2, the proper pressure for 4XD is over 5kg/cm2)

STD-V 중 · 대구경 드릴의 특징

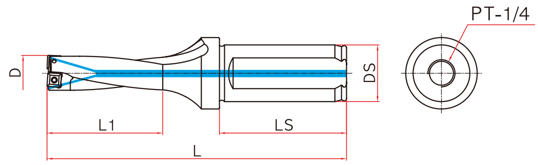
∗ STD–V 중 · 대구경(Φ22~Φ80) 드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다.
깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.
∗ 최적의 결과물을 위해, 절삭조건표(P.97)와 절삭유 적정 압력을 확인해 주세요.
(절삭유 적정압력은, STD–V 2XD, 3XD일때 4kg/cm² 이상, 4XD일때, 5kg/cm² 이상)

∗ The real drilled section 실제 가공 단면

HIGH SPEED DRILL

STD-V 3×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● 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	69	159	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22530D S32	22.5	71	161					
STD-V23030D S32	23	72	162					
STD-V23530D S32	23.5	74	164					
STD-V24030D S32	24	75	165					
STD-V24530D S32	24.5	77	167					
STD-V25030D S32	25	78	168					
STD-V25530D S32	25.5	80	170					
STD-V26030D S32	26	81	171					
STD-V26530D S32	26.5	83	173					
STD-V27030D S32	27	84	174					
STD-V27530D S32	27.5	86	176					
STD-V28030D S32	28	87	177	32	60	SPMX090408	TSB-35090	TXL-15
STD-V28530D S32	28.5	89	179					
STD-V29030D S32	29	90	180					
STD-V29530D S32	29.5	93	183					
STD-V30030D S32	30	95	185					
STD-V31030D S32	31	98	188					
STD-V32030D S32	32	101	191					
STD-V33030D S32	33	104	194					
STD-V34030D S40	34	107	212	40	70	SPMX110408	TSB-40100	
STD-V35030D S40	35	110	215					
STD-V36030D S40	36	113	218					
STD-V37030D S40	37	116	221					
STD-V38030D S40	38	119	224					
STD-V39030D S40	39	122	227					
STD-V40030D S40	40	125	230					
STD-V41030D S40	41	128	233					
STD-V42030D S40	42	131	236			SPMX140512	TSB-50125	TXL-20
STD-V43030D S40	43	134	239					
STD-V44030D S40	44	137	242					
STD-V45030D S40	45	140	245					
STD-V46030D S40	46	143	248					
STD-V47030D S40	47	146	251					
STD-V48030D S40	48	149	254					
STD-V49030D S40	49	152	257					
STD-V50030D S40	50	155	260					

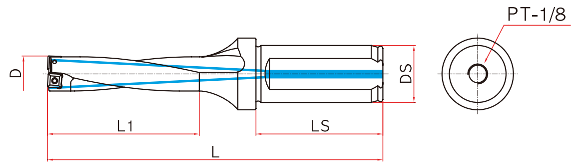
* STD-V drill will be sold after STD drill is sold out.
* STD-V 드릴은, STD 드릴 재고 소진 후 판매됩니다.

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

HIGH SPEED DRILL

STD-V 4×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)					인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
STD-V13040D S20	13	55	125	20	50	SPMX050204	TSB-20045	TXL-6
STD-V13540D S20	13.5	57	127					
STD-V14040D S20	14	59	129					
STD-V14540D S20	14.5	61	131					
STD-V15040D S20	15	63	133					
STD-V15540D S25	15.5	65	146	25	56	SPMX060204	TSB-22052	
STD-V16040D S25	16	67	148					
STD-V16540D S25	16.5	69	150					
STD-V17040D S25	17	71	152					
STD-V17540D S25	17.5	73	154					
STD-V18040D S25	18	75	156					
STD-V18540D S25	18.5	77	158					
STD-V19040D S25	19	79	160					
STD-V19540D S25	19.5	81	162					
STD-V20040D S25	20	83	164					
STD-V20540D S25	20.5	85	166					
STD-V21040D S25	21	87	168					
STD-V21540D S25	21.5	89	170					

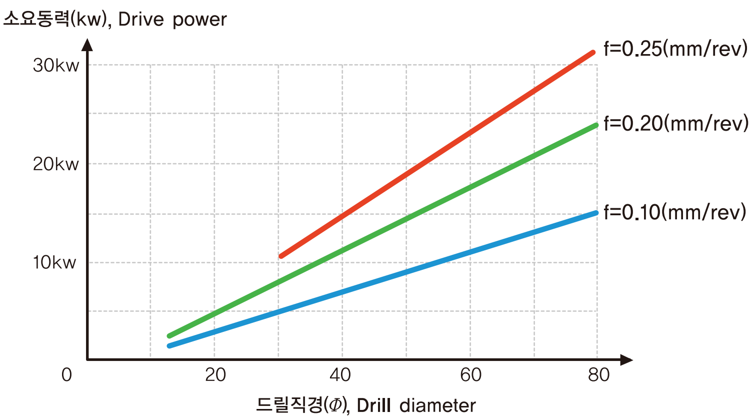
* Need to make sure the best cutting data for the best performance.
* Please make sure the cutting condition and oil pressure.

* 최고의 결과물을 위해서는 최적의 절삭조건이 필요합니다.
* 절삭조건표와 절삭유 압력 등을 꼭 확인해 주세요.

※ **The hole tolerance of STD-V drill** STD-V드릴 구멍공차

Dia	2XD	3XD	4XD
13~21.5	-0.1~+0.15	-0.1~+0.15	-0.15~+0.2
22~50	-0.1~+0.15	-0.12~+0.2	-0.15~+0.25
50~80	-0.15~+0.2	-0.15~+0.25	-0.15~+0.3

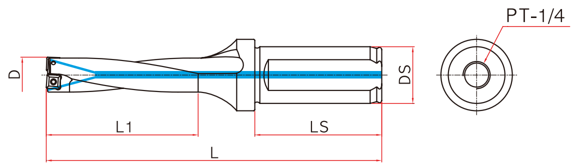
● Power Requirements 소요동력



HIGH SPEED DRILL

STD-V 4×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● Shank ISO9766, Parallel with clamping flat

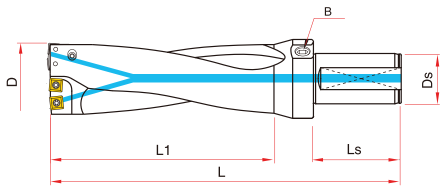
CODE NO.	치수, Dimension (mm)					인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
STD-V22040D S32	22	91	181	32	60	SPMX07T308	TSB-25065	TXL-8
STD-V22540D S32	22.5	93	183					
STD-V23040D S32	23	95	185					
STD-V23540D S32	23.5	97	187					
STD-V24040D S32	24	99	189					
STD-V24540D S32	24.5	101	191					
STD-V25040D S32	25	103	193					
STD-V25540D S32	25.5	105	195					
STD-V26040D S32	26	107	197					
STD-V26540D S32	26.5	109	199					
STD-V27040D S32	27	111	201					
STD-V27540D S32	27.5	113	203					
STD-V28040D S32	28	115	205	32	60	SPMX090408	TSB-35090	TXL-15
STD-V28540D S32	28.5	117	207					
STD-V29040D S32	29	120	210					
STD-V29540D S32	29.5	123	213					
STD-V30040D S32	30	125	215					
STD-V31040D S32	31	129	219					
STD-V32040D S32	32	133	223					
STD-V33040D S32	33	137	227					
STD-V34040D S40	34	141	246	40	70	SPMX110408	TSB-40100	
STD-V35040D S40	35	145	250					
STD-V36040D S40	36	149	254					
STD-V37040D S40	37	153	258					
STD-V38040D S40	38	157	262					
STD-V39040D S40	39	161	266					
STD-V40040D S40	40	165	270					
STD-V41040D S40	41	169	274					
STD-V42040D S40	42	173	278			SPMX140512	TSB-50125	TXL-20
STD-V43040D S40	43	177	282					
STD-V44040D S40	44	181	286					
STD-V45040D S40	45	185	290					
STD-V46040D S40	46	189	294					
STD-V47040D S40	47	193	298					
STD-V48040D S40	48	197	302					
STD-V49040D S40	49	201	306					
STD-V50040D S40	50	205	310					

* STD-V drill will be sold after STD drill is sold out.
* STD–V 드릴은, STD 드릴 재고 소진 후 판매됩니다.

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

STD-V Big diameter Drill(Cartridge type) STD-V 대구경 드릴 (카트리지 타입)

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● Shank ISO9766, Parallel with clamping flat

▶STD-V 2XD

CODE NO.	Dimension (mm), 치수					CARTRIDGE, 카트리지		INSERT 인서트	Component, 부품	
	D	L1	L	Ds	Ls	INNER, 내측	OUTER, 외측		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	265			STC-V6570N	STC-V6570T			
STD-V707520D S40	70-75	150	260			STC-V7075N	STC-V7075T			
STD-V758020D S40	75-80	160	268			STC-V7580N	STC-V7580T	SPMX140512	TSB-50125	TXL-20

▶STD-V 3XD

CODE NO.	Dimension (mm), 치수					CARTRIDGE, 카트리지		INSERT 인서트	Component, 부품	
	D	L1	L	Ds	Ls	INNER, 내측	OUTER, 외측		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			
STD-V758030D S40	75-80	240	348			STC-V7580N	STC-V7580T	SPMX140512	TSB-50125	TXL-20

▶STD-V 4XD

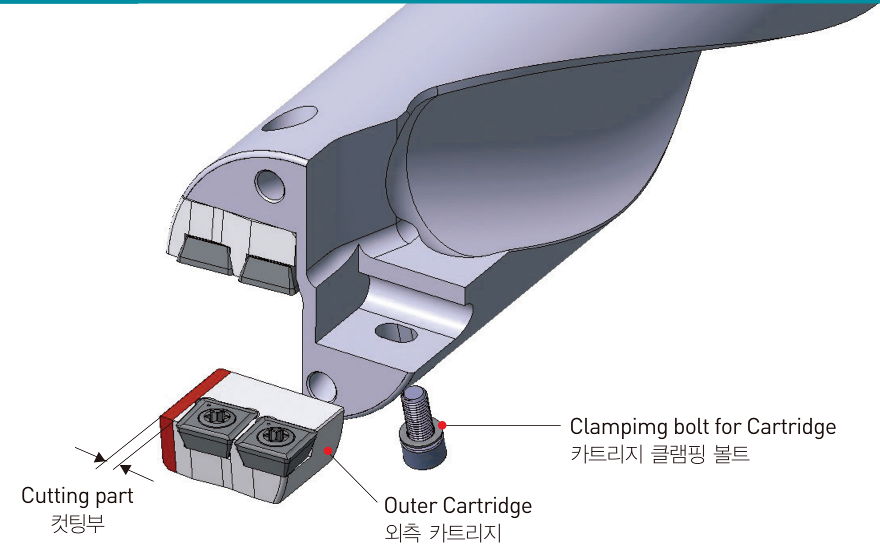
CODE NO.	Dimension (mm), 치수					CARTRIDGE, 카트리지		INSERT 인서트	Component, 부품	
	D	L1	L	Ds	Ls	INNER, 내측	OUTER, 외측		SCREW	T-DRIVER
STD-V505540D S40	50-55	220	330	40	70	STC-V5055N	STC-V5055T	SPMX090408	TSB-35090	TXL-15
STD-V556040D S40	55-60	240	350			STC-V5560N	STC-V5560T			
STD-V606540D S40	60-65	260	370			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			
STD-V758040D S40	75-80	320	428			STC-V7580N	STC-V7580T	SPMX140512	TSB-50125	TXL-20

* STD-V drill will be sold after STD drill is sold out.
* STD–V 대구경 드릴은, STD 대구경 드릴 재고 소진 후 판매됩니다.

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

The setting procedures for the big dia drill(Cartridage type)

STD-V 대구경 드릴 (카트리지 타입) 셋팅 방법



1) Loosen the clamping bolt of the outer cartridge and remove it from the drill body.
   외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.

2) Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
   외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업한다.

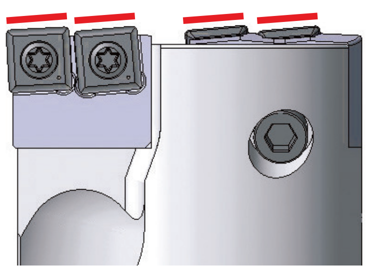
3) Slick the sharp corner of the cut cartridge.
   컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.

4) Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.
   외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.

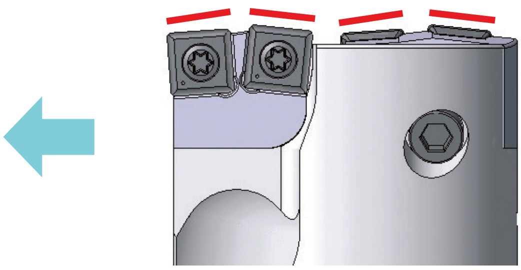
Example If you set STD-V606530D to Φ61
STD–V606530D를 Φ61로 셋팅한다면,

The standard drill diameter is Φ65 so Φ65–Φ61 = 4 ⇨ 4÷2=2(calculation by semidiameter), 2.0mm is cut off.
기본 직경은 Φ65이므로, Φ65–Φ61 = 4 ⇨ 4÷2=2(반지름으로 계산), 2.0mm를 컷팅한다.

Notice! The setting procedures is different from the big dia STD-V drill and STD drill and the cartridges is not interchangeable.
STD–V 대구경과 STD 대구경은 셋팅 방법이 다르며, 카트리지 호환이 안됩니다.



The insert arranged shape for STD-V big diameter drill
STD–V 대구경 인서트 배열모습



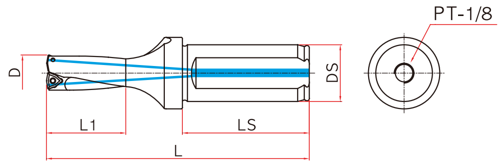
The insert arranged shape for STD big diameter drill
STD 대구경 인서트 배열모습

※ STD-V big dia drill is more excellent then STD big dia drill in the performance.
STD–V 대구경 드릴'은 'STD 대구경 드릴'보다 가공성능이 우수합니다.

HIGH SPEED DRILL

HSD-V 2×D

※ 범용선반 작업할 경우, 가공직경 ⌀40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ⌀40 or higher, we recommend using the VLT, VMD



● 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	WCGX 03T104	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					
HSD-V16020D S25	16.0	35	116	25	56	WCGX030204	TSB-22045	
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					
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					

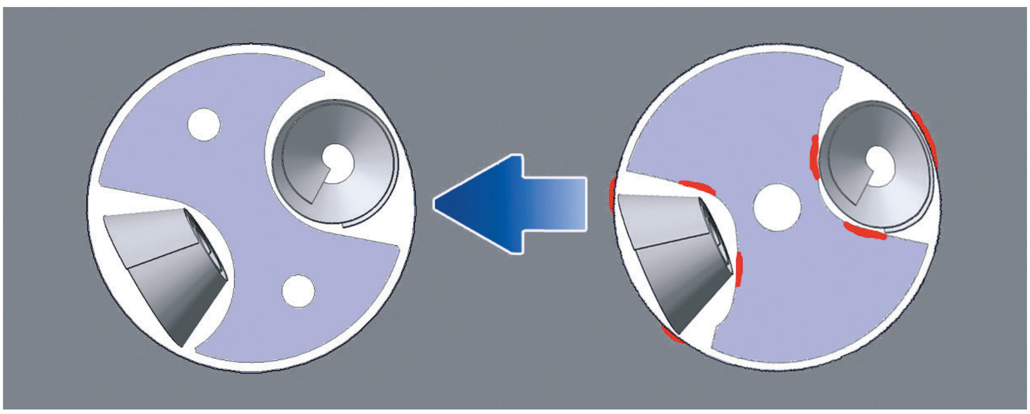
● The characteristic of HSD-V small drills

* 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 greately extended.
* The drilling performance and the drilled surface are excellent by the best design.

● HSD-V 소구경 드릴의 특징

* HSD–V 소구경(Φ13~Φ20) 드릴은 절삭유 홀을 11자 타입으로 설계변경하여 드릴바디의 강성이 향상되고, 칩 배출 공간이 대폭 확장 시켰습니다.
* 최적의 설계로 절삭성능이 뛰어나고, 표면조도가 매우 우수합니다.

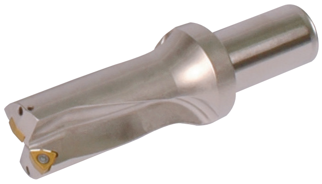
* The widen chip discharging space 넓어진 칩 배출 공간

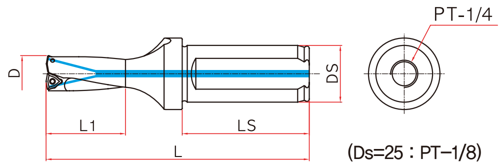


HIGH SPEED DRILL

HSD-V 2×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



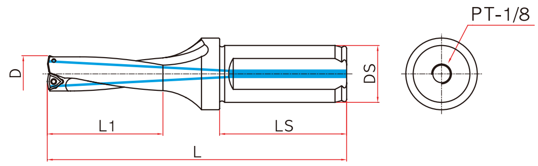


● Shank ISO9766, Parallel with clamping flat

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	WCGX040204	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	WCGX050308	TSB-30070	
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			WCGX06T308	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					
HSD-V42020D S40	42.0	87	192	40	70	WCGX080408	TSB-40110	
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					

* HSD-V drill will be sold after HSD drill is sold out. (HSD–V 드릴은, HSD 드릴 재고 소진 후 판매됩니다.)
* Please refer to the page 82 regarding WCGX Inserts. (WCGX인서트는 82페이지를 참조해주세요.)

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● 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	WCGX 03T104	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					
HSD-V16030D S25	16.0	51	132	25	56	WCGX030204	TSB-22045	
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					
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					

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

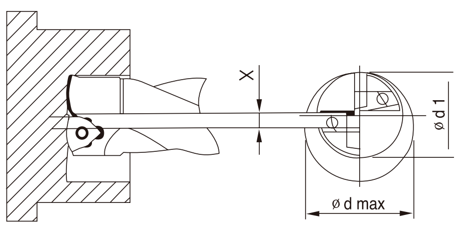
∗ The chip dischageing space for HSD-V middle dia and big dia drill((Φ22~Φ80) was greately extended.
These drills are stable and drilling surface are excellent in the deep hole drilling also.

* Please make sure the proper oil pressure and the cutting data(P.96) for the best performance.
(The proper pressure for HSD-V2XD, 3XD is over 3kg/cm^2, the proper pressure for 4XD is over 4kg/cm^2)

● HSD-V 중 · 대구경 드릴의 특징

∗ HSD-V 중 · 대구경(Φ20.5~Φ80) 드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다.
깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.

* 최적의 결과물을 위해, 절삭조건표(P.96)와 절삭유 적정 압력을 확인해 주세요.
(적정압력은, HSD-V 2XD, 3XD일때 3kg/cm^2 이상, 4XD일때, 4kg/cm^2 이상)



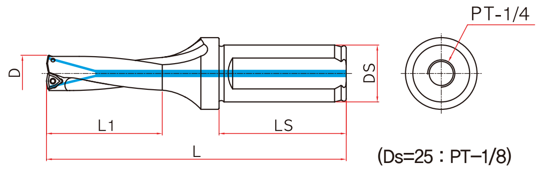
max. D = D + 2 x Adjustment

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

HIGH SPEED DRILL

HSD-V 3×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



Shank ISO9766, Parallel with clamping flat

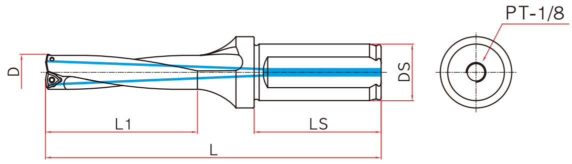
CODE NO.	치수, Dimension (mm)					인서트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
HSD-V20530D S25	20.5	65	146	25	56	WCGX040204	TSB-25055	TXL-8
HSD-V21030D S25	21.0	66	147					
HSD-V21530D S25	21.5	68	149					
HSD-V22030D S25	22.0	69	150					
HSD-V22530D S25	22.5	71	152					
HSD-V23030D S25	23.0	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	WCGX050308	TSB-30070	
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			WCGX06T308	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					
HSD-V42030D S40	42.0	129	234	40	70	WCGX080408	TSB-40110	
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					

∗ HSD-V drill will be sold after STD drill is sold out. (HSD–V 드릴은, HSD 드릴 재고 소진 후 판매됩니다.)
∗ Please refer to the page 82 regarding WCGX Inserts. (WCGX인서트는 82페이지를 참조해주세요.)

HIGH SPEED DRILL

HSD-V 4×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)					인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
HSD-V13040D S20	13.0	55	125	20	50	WCGX 03T104	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					
HSD-V16040D S25	16.0	67	148	25	56	WCGX030204	TSB-22045	
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					
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					

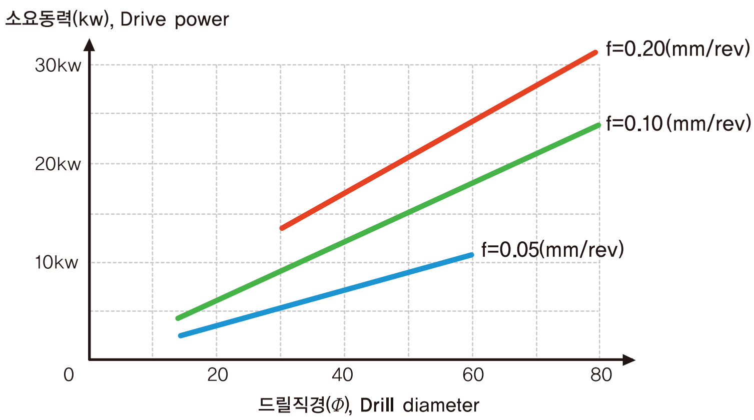
※ THE HOLE TOLERANCE OF HSD-V DRILL HSD-V드릴 구멍공차

Dia	2XD	3XD	4XD
13~21.5	-0.1~+0.15	-0.1~+0.15	-0.15~+0.2
22~50	-0.1~+0.15	-0.12~+0.2	-0.15~+0.25
50~80	-0.15~+0.2	-0.15~+0.25	-0.15~+0.3

∗ Need to make sure the best cutting data for the best performance.
∗ Please make sure the cutting condition and oil pressure.

∗ 최고의 결과물을 위해서는 최적의 절삭조건이 필요합니다.
∗ 절삭조건표와 절삭유 압력 등을 꼭 확인해 주세요.

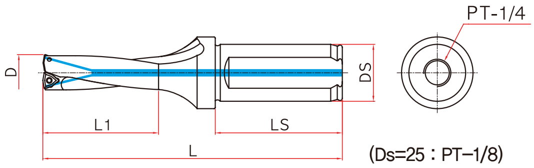
● Power Requirements 소요동력



HIGH SPEED DRILL

HSD-V 4×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



Shank ISO9766, Parallel with clamping flat

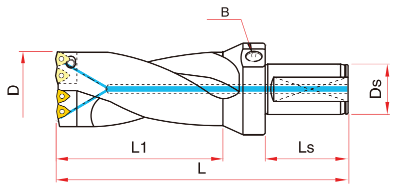
CODE NO.	치수, Dimension (mm)					인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls		SCREW	T-DRIVER
HSD-V20540D S25	20.5	85	166					
HSD-V21040D S25	21.0	87	168					
HSD-V21540D S25	21.5	89	170					
HSD-V22040D S25	22.0	91	172					
HSD-V22540D S25	22.5	93	174	25	56	WCGX040204	TSB-25055	
HSD-V23040D S25	23.0	95	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					TXL-8
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			WCGX050308	TSB-30070	
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	32	60			
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			WCGX06T308	TSB-35090	
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					
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					TXL-15
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	40	70	WCGX080408	TSB-40110	
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					

* HSD-V drill will be sold after HSD drill is sold out.(HSD–V 드릴은, HSD 드릴 재고 소진 후 판매됩니다.)
* Please refer to the page 82 regarding WCGX Inserts. (WCGX인서트는 82페이지를 참조해주세요.)

HIGH SPEED DRILL

HSD-V Big diameter Drill(Cartridge type) STD-V 대구경 드릴 (카트리지 타입)

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



● Shank ISO9766, Parallel with clamping flat

▶HSD-V 2XD CARTRIDGE TYPE

CODE NO.	D	L1	L	Ds	Ls	INSERT	SCREW	DRIVER	CARTRIDGE
HSD-V596520D S40	59-65	130	240	40	70	WCGX06T308	TSB-35090	TXL-15	HSC-V5965N/T
HSD-V657020D S40	65-70	140	250						HSC-V6570N/T
HSD-V707520D S40	70-75	150	260						HSC-V7075N/T
HSD-V758020D S40	75-80	160	270						HSC-V7580N/T

▶HSD-V 3XD CARTRIDGE TYPE

CODE NO.	D	L1	L	Ds	Ls	INSERT	SCREW	DRIVER	CARTRIDGE
HSD-V596530D S40	59-65	195	305	40	70	WCGX06T308	TSB-35090	TXL-15	HSC-V5965N/T
HSD-V657030D S40	65-70	210	320						HSC-V6570N/T
HSD-V707530D S40	70-75	225	335						HSC-V7075N/T
HSD-V758030D S40	75-80	240	350						HSC-V7580N/T

▶HSD-V 4XD CARTRIDGE TYPE

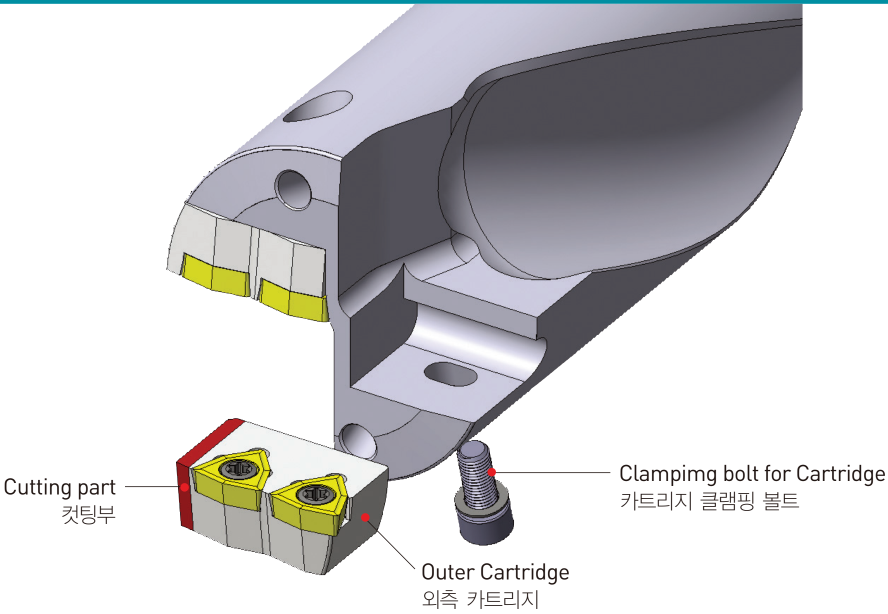
CODE NO.	D	L1	L	Ds	Ls	INSERT	SCREW	DRIVER	CARTRIDGE
HSD-V596540D S40	59-65	260	370	40	70	WCGX06T308	TSB-35090	TXL-15	HSC-V5965N/T
HSD-V657040D S40	65-70	280	390						HSC-V6570N/T
HSD-V707540D S40	70-75	300	410						HSC-V7075N/T
HSD-V758040D S40	75-80	320	430						HSC-V7580N/T

* HSD-V drill will be sold after HSD drill is sold out.
* HSD–V 대구경 드릴은, HSD 대구경 드릴 재고 소진 후 판매됩니다.

* Please refer to the page 82 regarding WCGX Inserts.
* WCGX인서트는 82페이지를 참조해주세요.

The setting procedures for the big dia drill(Cartridge type)

HSD-V 대구경 드릴 (카트리지 타입) 셋팅 방법



1) Loosen the clamping bolt of the outer cartridge and remove it from the drill body.
외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.

2) Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업한다.

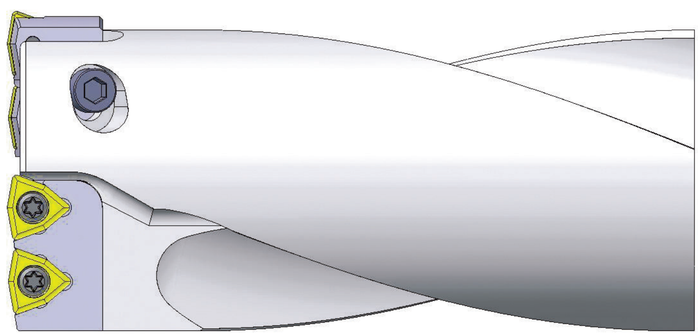
3) Slick the sharp corner of the cut cartridge.
컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.

4) Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.
외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.

Example

If you set HSD-V707530D to Φ72
HSD-707530D를 Φ72로 셋팅한다면,

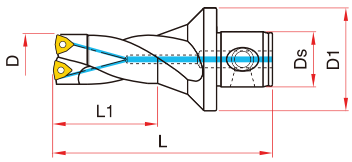
The standard drill diameter is Φ75 so Φ75−Φ72 = 3 ⇨ 3÷2=1.5(calculation by semidiameter), 1.5mm is cut off.
기본 직경은 Φ75이므로, Φ75−Φ72 = 3 ⇨ 3÷2=1.5(반지름으로 계산), 1.5mm를 컷팅한다.



HIGH SPEED DRILL

MCD 2×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



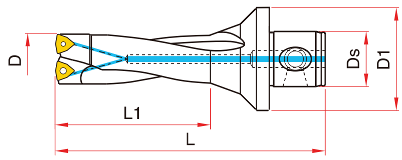
EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER
MCD-13020D	13	31	83	40	22	WCGX 03T104	TSB-18045	TXL-6
MCD-14020D	14	33	85					
MCD-15020D	15	35	87					
MCD-16020D	16	37	89			WCGX030204	TSB-22045	
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			WCGX040204	TSB-25055	TXL-8
MCD-22020D	22	49	101					
MCD-23020D	23	51	103					
MCD-24020D	24	53	105					
MCD-25020D	25	55	107					
MCD-26020D	26	57	117	50	28	WCGX050308	TSB-30070	
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			WCGX06T308	TSB-35090	TXL-15
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	WCGX080408	TSB-40110	
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					

HIGH SPEED DRILL

MCD 2.5×D

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



EXT MODULAR SHANK Type

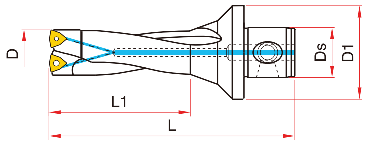
CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER
MCD-13025D	13	37	89	40	22	WCGX 03T104	TSB-18045	TXL-6
MCD-14025D	14	40	92					
MCD-15025D	15	42	94					
MCD-16025D	16	45	97			WCGX030204	TSB-22045	
MCD-17025D	17	47	99					
MCD-18025D	18	50	102					
MCD-19025D	19	52	104					
MCD-20025D	20	55	107					
MCD-21025D	21	58	109			WCGX040204	TSB-25055	TXL-8
MCD-22025D	22	60	112					
MCD-23025D	23	63	115					
MCD-24025D	24	65	117					
MCD-25025D	25	68	119					
MCD-26025D	26	70	131	50	28	WCGX050308	TSB-30070	
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			WCGX06T308	TSB-35090	TXL-15
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	WCGX080408	TSB-40110	
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					

HIGH SPEED DRILL

MCD 3×D

DRILL

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



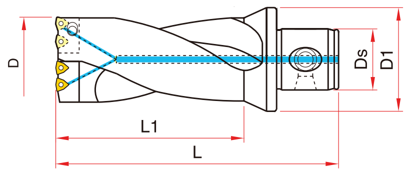
EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER
MCD-13030D	13	44	96					
MCD-14030D	14	47	99			WCGX 03T104	TSB-18045	
MCD-15030D	15	50	102					
MCD-16030D	16	53	105					TXL-6
MCD-17030D	17	56	108					
MCD-18030D	18	59	111			WCGX030204	TSB-22045	
MCD-19030D	19	62	114	40	22			
MCD-20030D	20	65	117					
MCD-21030D	21	68	120					
MCD-22030D	22	71	123					
MCD-23030D	23	74	126			WCGX040204	TSB-25055	
MCD-24030D	24	77	129					
MCD-25030D	25	80	132					TXL-8
MCD-26030D	26	83	144					
MCD-27030D	27	86	147					
MCD-28030D	28	89	150			WCGX050308	TSB-30070	
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	50	28			
MCD-34030D	34	107	168					
MCD-35030D	35	110	171					
MCD-36030D	36	113	174			WCGX06T308	TSB-35090	
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					
MCD-43030D	43	134	204					
MCD-44030D	44	137	207					TXL-15
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	63	36	WCGX080408	TSB-40110	
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					

HIGH SPEED DRILL

MCD CARTRIDGE TYPE

※ 범용선반 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장함.
※ If you are working on the lathe, diameter ø40 or higher, we recommend using the VLT, VMD



MCD 2×D

● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	CARTRIDGE
MCD-596520D	59~65	130	220	80	45	WCGX06T308	TSB-35090	TXL-15	HDC-5965N/T
MCD-657020D	65~70	140	230	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-080085N/T
MCD-707520D	70~75	150	240	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-085090N/T
MCD-758020D	75~80	160	250	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-090095N/T

MCD 2.5×D

● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	CARTRIDGE
MCD-596525D	59~65	160	250	80	45	WCGX06T308	TSB-35090	TXL-15	HDC-5965N/T
MCD-657025D	65~70	175	265	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-080085N/T
MCD-707525D	70~75	190	280	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-085090N/T
MCD-758025D	75~80	200	290	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-090095N/T

MCD 3×D

● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	CARTRIDGE
MCD-596530D	59~65	195	285	80	45	WCGX06T308	TSB-35090	TXL-15	HDC-5965N/T
MCD-657030D	65~70	210	300	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-080085N/T
MCD-707530D	70~75	225	315	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-085090N/T
MCD-758030D	75~80	240	330	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-090095N/T

HSD-V

Indexable Insert Drill

HSD-V

Indexable Insert Drill

▶The chip dischageing space for HSD-V drill was greately extended.
▶These drills are stable and drilling surface are excellent in the deep hole drilling also.
▶최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다.
▶깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.

Construction system of Turbo Drill's Code no.

▶ Basic Type

FXD - 27540D S32

- FXD — 드릴종류 / Drill group
- 275 — 가공직경 : Φ27.5 / Drilling diameter: Φ27.5
- 40D — 가공깊이:가공직경의 4배 / Drilling depth : Dia × 4
- S32 — 생크직경: Φ32 / Shank diameter: Φ32

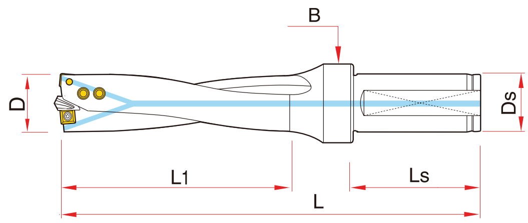
▶ Adjustment Type

VLT - 758065D S40

- VLT — 드릴종류 / Drill group
- 7580 — 가공직경 : Φ75~Φ80(조절타입) / Drilling diameter: Φ75~Φ80(Adjustable)
- 65D — 가공깊이:가공직경의 6.5배 / Drilling depth : Dia × 6.5
- S40 — 생크직경: Φ40 / Shank diameter: Φ40

FXD 4×D

●FXD Drill은 겹판가공이 가능합니다. 관통작업시 이송을 30%정도 줄여 작업해 주세요.



● Shank ISO9766, Parallel with clamping flat

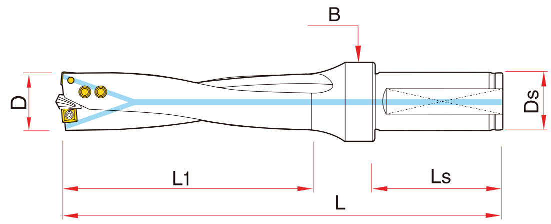
<table>
<tr><th>Code No.</th><th>D</th><th>L1</th><th>L</th><th>Ds</th><th>Ls</th><th>B</th><th>INSERT</th><th>INSERT SCREW</th><th>TORX DRIVE</th><th>PILOT DRILL</th></tr>
<tr><td>FXD-18040D S25</td><td>18.0</td><td>75</td><td>161</td><td rowspan="15">25</td><td rowspan="15">56</td><td rowspan="15">PT-1/8</td><td rowspan="4">SPMX 050204</td><td rowspan="4">TSB-20045</td><td rowspan="15">TXL-6</td><td rowspan="15">PLD-0620 TIN</td></tr>
<tr><td>FXD-18540D S25</td><td>18.5</td><td>77</td><td>163</td></tr>
<tr><td>FXD-19040D S25</td><td>19.0</td><td>79</td><td>165</td></tr>
<tr><td>FXD-19540D S25</td><td>19.5</td><td>81</td><td>167</td></tr>
<tr><td>FXD-20040D S25</td><td>20.0</td><td>83</td><td>169</td><td rowspan="11">SPMX 060204</td><td rowspan="11">TSB-22052</td></tr>
<tr><td>FXD-20540D S25</td><td>20.5</td><td>85</td><td>171</td></tr>
<tr><td>FXD-21040D S25</td><td>21.0</td><td>87</td><td>173</td></tr>
<tr><td>FXD-21540D S25</td><td>21.5</td><td>89</td><td>175</td></tr>
<tr><td>FXD-22040D S25</td><td>22.0</td><td>91</td><td>177</td></tr>
<tr><td>FXD-22540D S25</td><td>22.5</td><td>93</td><td>179</td></tr>
<tr><td>FXD-23040D S25</td><td>23.0</td><td>95</td><td>181</td></tr>
<tr><td>FXD-23540D S25</td><td>23.5</td><td>97</td><td>183</td></tr>
<tr><td>FXD-24040D S25</td><td>24.0</td><td>99</td><td>185</td></tr>
<tr><td>FXD-24540D S25</td><td>24.5</td><td>101</td><td>187</td></tr>
<tr><td>FXD-25040D S25</td><td>25.0</td><td>103</td><td>189</td></tr>
<tr><td>FXD-25540D S32</td><td>25.5</td><td>105</td><td>200</td><td rowspan="10">32</td><td rowspan="10">60</td><td rowspan="10">PT-1/4</td><td rowspan="10">SPMX 07T308</td><td rowspan="10">TSB-25065</td><td rowspan="10">TXL-8</td><td rowspan="10">PLD-0825 TIN</td></tr>
<tr><td>FXD-26040D S32</td><td>26.0</td><td>107</td><td>202</td></tr>
<tr><td>FXD-26540D S32</td><td>26.5</td><td>109</td><td>204</td></tr>
<tr><td>FXD-27040D S32</td><td>27.0</td><td>111</td><td>206</td></tr>
<tr><td>FXD-27540D S32</td><td>27.5</td><td>113</td><td>208</td></tr>
<tr><td>FXD-28040D S32</td><td>28.0</td><td>115</td><td>210</td></tr>
<tr><td>FXD-28540D S32</td><td>28.5</td><td>117</td><td>212</td></tr>
<tr><td>FXD-29040D S32</td><td>29.0</td><td>119</td><td>214</td></tr>
<tr><td>FXD-29540D S32</td><td>29.5</td><td>121</td><td>216</td></tr>
<tr><td>FXD-30040D S32</td><td>30.0</td><td>123</td><td>218</td></tr>
</table>

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

TURBO DRILL

FXD 6×D

●FXD Drill은 겹판가공이 가능합니다. 관통작업시 이송을 30%정도 줄여 작업해 주세요.



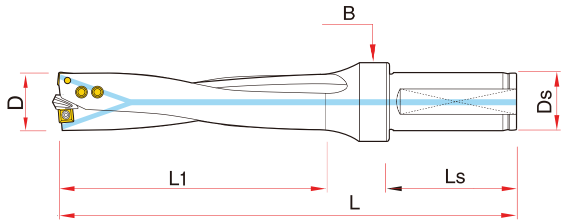
Shank ISO9766, Parallel with clamping flat

Code No.	D	L1	L	Ds	Ls	B	INSERT	INSERT SCREW	TORX DRIVE	PILOT DRILL
FXD-18060D S25	18.0	112	198							
FXD-18560D S25	18.5	115	201				SPMX 050204	TSB-20045		
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							
FXD-21560D S25	21.5	133	219	25	56	PT-1/8			TXL-6	PLD-0620 TIN
FXD-22060D S25	22.0	136	222							
FXD-22560D S25	22.5	139	225				SPMX 060204	TSB-22052		
FXD-23060D S25	23.0	142	228							
FXD-23560D S25	23.5	145	231							
FXD-24060D S25	24.0	148	234							
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	32	60	PT-1/4	SPMX 07T308	TSB-25065	TXL-8	PLD-0825 TIN
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							

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

FXD 8×D

●FXD Drill은 겹판가공이 가능합니다. 관통작업시 이송을 30%정도 줄여 작업해 주세요.



● Shank ISO9766, Parallel with clamping flat

<table>
<tr><th>Code No.</th><th>D</th><th>L1</th><th>L</th><th>Ds</th><th>Ls</th><th>B</th><th>INSERT</th><th>INSERT SCREW</th><th>TORX DRIVE</th><th>PILOT DRILL</th></tr>
<tr><td>FXD-18080D S25</td><td>18.0</td><td>149</td><td>235</td><td rowspan="15">25</td><td rowspan="15">56</td><td rowspan="15">PT-1/8</td><td rowspan="4">SPMX 050204</td><td rowspan="4">TSB-20045</td><td rowspan="15">TXL-6</td><td rowspan="15">PLD-0620 TIN</td></tr>
<tr><td>FXD-18580D S25</td><td>18.5</td><td>153</td><td>239</td></tr>
<tr><td>FXD-19080D S25</td><td>19.0</td><td>157</td><td>243</td></tr>
<tr><td>FXD-19580D S25</td><td>19.5</td><td>161</td><td>247</td></tr>
<tr><td>FXD-20080D S25</td><td>20.0</td><td>165</td><td>251</td><td rowspan="11">SPMX 060204</td><td rowspan="11">TSB-22052</td></tr>
<tr><td>FXD-20580D S25</td><td>20.5</td><td>169</td><td>255</td></tr>
<tr><td>FXD-21080D S25</td><td>21.0</td><td>173</td><td>259</td></tr>
<tr><td>FXD-21580D S25</td><td>21.5</td><td>177</td><td>263</td></tr>
<tr><td>FXD-22080D S25</td><td>22.0</td><td>181</td><td>267</td></tr>
<tr><td>FXD-22580D S25</td><td>22.5</td><td>185</td><td>271</td></tr>
<tr><td>FXD-23080D S25</td><td>23.0</td><td>189</td><td>275</td></tr>
<tr><td>FXD-23580D S25</td><td>23.5</td><td>193</td><td>279</td></tr>
<tr><td>FXD-24080D S25</td><td>24.0</td><td>197</td><td>283</td></tr>
<tr><td>FXD-24580D S25</td><td>24.5</td><td>201</td><td>287</td></tr>
<tr><td>FXD-25080D S25</td><td>25.0</td><td>205</td><td>291</td></tr>
<tr><td>FXD-25580D S32</td><td>25.5</td><td>209</td><td>304</td><td rowspan="10">32</td><td rowspan="10">60</td><td rowspan="10">PT-1/4</td><td rowspan="10">SPMX 07T308</td><td rowspan="10">TSB-25065</td><td rowspan="10">TXL-8</td><td rowspan="10">PLD-0825 TIN</td></tr>
<tr><td>FXD-26080D S32</td><td>26.0</td><td>213</td><td>308</td></tr>
<tr><td>FXD-26580D S32</td><td>26.5</td><td>217</td><td>312</td></tr>
<tr><td>FXD-27080D S32</td><td>27.0</td><td>221</td><td>316</td></tr>
<tr><td>FXD-27580D S32</td><td>27.5</td><td>225</td><td>320</td></tr>
<tr><td>FXD-28080D S32</td><td>28.0</td><td>229</td><td>324</td></tr>
<tr><td>FXD-28580D S32</td><td>28.5</td><td>233</td><td>328</td></tr>
<tr><td>FXD-29080D S32</td><td>29.0</td><td>237</td><td>332</td></tr>
<tr><td>FXD-29580D S32</td><td>29.5</td><td>241</td><td>336</td></tr>
<tr><td>FXD-30080D S32</td><td>30.0</td><td>245</td><td>340</td></tr>
</table>

* Please refer to the page 83 regarding SPMX Inserts.
* SPMX인서트는 83페이지를 참조해주세요.

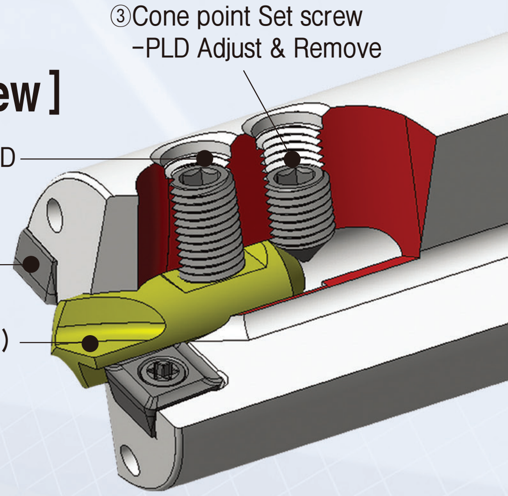
FXD

Indexable Insert Drill

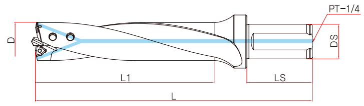
조립순서(Clamping method)

1. ①PLD를 홀에 삽입한다.
   The ①PLD insert to Hole.
2. ④인서트(2 Pcs.)를 체결한다.
   Locking the ④Insert.(2pcs.)
3. ③번 스크류로 PLD 높이를 조절한다.
   The PLD hight control as the ③Screw.
4. ②번 스크류로 강하게 클램핑한다.
   Clamping ②Screw tightly.
5. PLD와 ③번 스크류 사이에 유격이 발생하지 않도록 꽉 조여준다.
   Do not make a space between PLD and ③Screw so you must be tight.

[FXD Setting View]



STANDARD TYPE

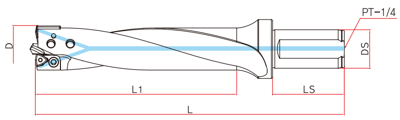


▶Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)					센터드릴 Pilot Drill	인 서 트 INSERT	부품, Component	
	D	L1	L	Ds	Ls			SCREW	Driver
VLT-25050D S32	25	150	240	32	60	PLD-V0630 TIN	WCGX030204	TSB-22045	TXL-6
VLT-26050D S32	26						WCGX040204	TSB-25055	TXL-8
VLT-27050D S32	27								
VLT-28050D S32	28								
VLT-29050D S32	29								
VLT-30050D S32	30								
VLT-31050D S32	31	175	265			PLD-V0835 TIN	WCGX050308	TSB-30070	
VLT-32050D S32	32								
VLT-33050D S32	33								
VLT-34050D S32	34								
VLT-35050D S32	35								
VLT-36050D S32	36	200	290						
VLT-37050D S32	37								
VLT-38050D S32	38								
VLT-39050D S32	39								
VLT-40050D S32	40								

※ Φ25~Φ40 : Standard type, 일반형

SINGLE INSERT CARTRIDGE TYPE



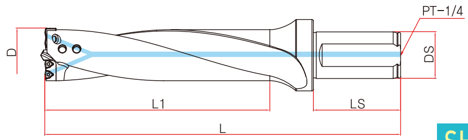
SHANK	Ds	Ls
S40	40	70

▶Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)			센터드릴 Pilot Drill	인 서 트 INSERT	부품, Component		카트리지, CARTRIDGE	
	D	L1	L			SCREW	Driver	INNER	OUTER
VLT-414550D S40	41	225	330	PLD-V1035 TIN-H	WCGX06T308	TSB-35080	TXL-15	VLC-410450N	VLC-000410T
	42								VLC-000420T
	43								VLC-000430T
	44								VLC-000440T
	45								VLC-000450T
VLT-465050D S40	46	250	355					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	WCGX080408	TSB-40110		VLC-510550N	VLC-000510T
	52								VLC-000520T
	53								VLC-000530T
	54								VLC-000540T
	55								VLC-000550T
VLT-565950D S40	56	300	405					VLC-560590N	VLC-000560T
	57								VLC-000570T
	58								VLC-000580T
	59								VLC-000590T

※ Φ41~Φ59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm).
1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

DUAL INSERT CARTRIDGE TYPE

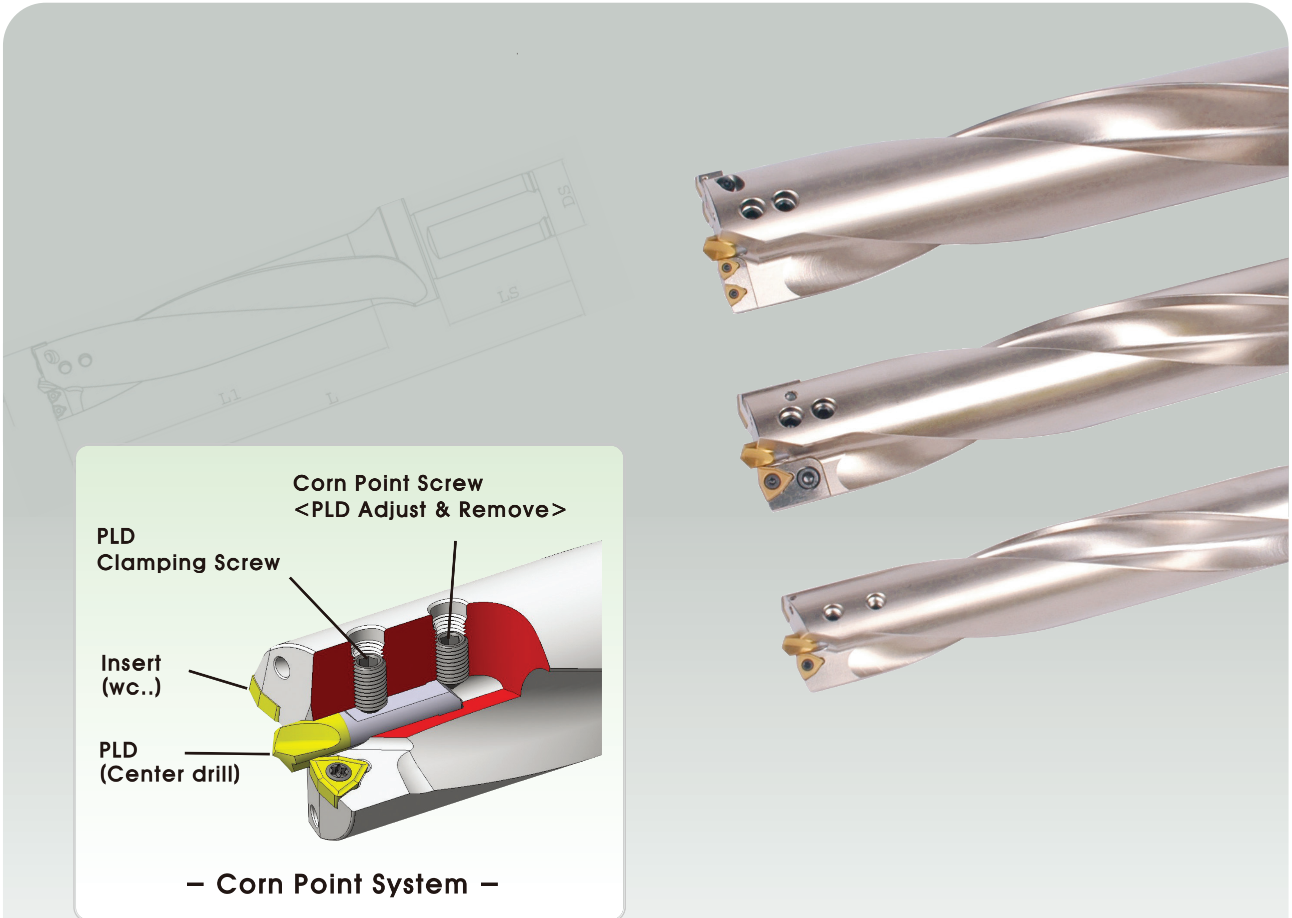


SHANK	Ds	Ls
S40	40	70

▶Shank ISO9766, Parallel with clamping flat

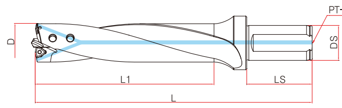
CODE NO.	치수, Dimension (mm)			센터드릴	인 서 트	부품, Component		카트리지, CARTRIDGE	
	D	L1	L	Pilot Drill	INSERT	SCREW	Driver	INNER	OUTER
VLT-606550D S40	60~65	325	430	PLD-V1238 TIN-H	WCGX050308	TSB-30070	TXL-8	VMC-060065N	VMC-060065T
VLT-657050D S40	65~70	350	455					VMC-065070N	VMC-065070T
VLT-707550D S40	70~75	375	480					VMC-070075N	VMC-070075T
VLT-758050D S40	75~80	400	505	PLD-V1645 TIN-H	WCGX06T308	TSB-35090	TXL-15	VMC-075080N	VMC-075080T

※ Φ60~Φ80 : Cut the outer cartridge and setting. (Adjust 5mm) 외측 카트리지를 컷팅하여 직경을 조절합니다.



▶**VLT A Type** Ø25mm-Ø40mm(Standard type)
▶**VLT B Type** Ø41mm-Ø59mm(Single Insert Cartridge type)
▶**VLT C Type** Ø60mm-Ø80mm(Dual Insert Cartridge type)

● STANDARD TYPE

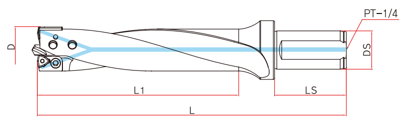


▶Shank ISO9766, Parallel with clamping flat

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	WCGX030204	TSB-22045	TXL-6
VLT-26065D S32	26						WCGX040204	TSB-25055	TXL-8
VLT-27065D S32	27								
VLT-28065D S32	28								
VLT-29065D S32	29								
VLT-30065D S32	30								
VLT-31065D S32	31	218	308			PLD-V0835 TIN	WCGX050308	TSB-30070	
VLT-32065D S32	32								
VLT-33065D S32	33								
VLT-34065D S32	34								
VLT-35065D S32	35								
VLT-36065D S32	36	250	340						
VLT-37065D S32	37								
VLT-38065D S32	38								
VLT-39065D S32	39								
VLT-40065D S32	40								

※ Φ25~Φ40 : Standard type, 일반형

● SINGLE INSERT CARTRIDGE TYPE



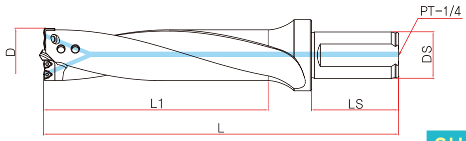
SHANK	Ds	Ls
S40	40	70

▶Shank ISO9766, Parallel with clamping flat

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	WCGX06T308	TSB-35080	TXL-15	VLC-410450N	VLC-000410T
	42								VLC-000420T
	43								VLC-000430T
	44								VLC-000440T
	45								VLC-000450T
VLT-465065D S40	46	315	420					VLC-460500N	VLC-000460T
	47								VLC-000470T
	48								VLC-000480T
	49								VLC-000490T
	50								VLC-000500T
VLT-515565D S40	51	348	453	PLD-V1238 TIN-H	WCGX080408	TSB-40110		VLC-510550N	VLC-000510T
	52								VLC-000520T
	53								VLC-000530T
	54								VLC-000540T
	55								VLC-000550T
VLT-565965D S40	56	380	485					VLC-560590N	VLC-000560T
	57								VLC-000570T
	58								VLC-000580T
	59								VLC-000590T

※ Φ41~Φ59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm).
1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

DUAL INSERT CARTRIDGE TYPE



SHANK	Ds	Ls
S40	40	70

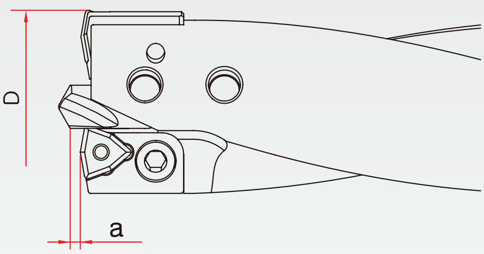
▶Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)			센터드릴 Pilot Drill	인 서 트 INSERT	부품, Component		카트리지, CARTRIDGE	
	D	L1	L			SCREW	Driver	INNER	OUTER
VLT-606565D S40	60~65	423	528	PLD-V1238 TIN-H	WCGX050308	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	WCGX06T308	TSB-35090	TXL-15	VMC-075080N	VMC-075080T

※ Φ60~Φ80 : Cut the outer cartridge and setting. (Adjust 5mm) 외측 카트리지를 컷팅하여 직경을 조절합니다.

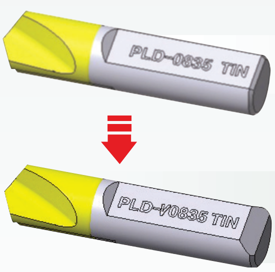
User Guide

Pilot drill(PLD) setting



Dill dia. (Ø)	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

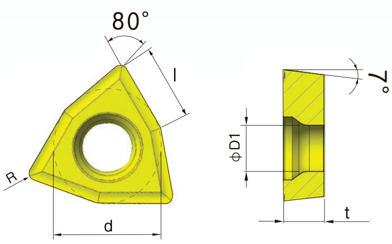
UPgrade PLD-V Type



• Existing PLD-application Drill: TSD, VMD(MXD)

• UPGRADE PLD-application Drill:
TSD, VMD(MXD) and VLT

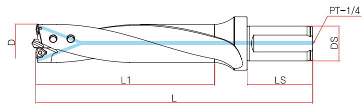
The Insert for VLT-Drill



CODE	R	d	D1	t	l
WCGX030204	0.4	5.56	2.5	2.38	3.8
WCGX040204	0.4	6.35	2.8	2.38	4.3
WCGX050308	0.8	7.94	3.4	3.18	5.4
WCGX06T308	0.8	9.525	4.4	3.97	6.5
WCGX080408	0.8	12.7	5.5	4.76	8.7

· The standard table above is for the reference of Inserts for VLT-DRILL, we also sell different designs of the Insert screws seperately.

STANDARD TYPE

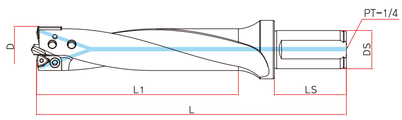


▶Shank ISO9766, Parallel with clamping flat

<table>
<tr><th rowspan="2">CODE NO.</th><th colspan="5">치수, Dimension (mm)</th><th rowspan="2">센터드릴
Pilot Drill</th><th rowspan="2">인 서 트
INSERT</th><th colspan="2">부품, Component</th></tr>
<tr><th>D</th><th>L1</th><th>L</th><th>Ds</th><th>Ls</th><th>SCREW</th><th>Driver</th></tr>
<tr><td>VLT-25080D S32</td><td>25</td><td rowspan="6">220</td><td rowspan="6">310</td><td rowspan="16">32</td><td rowspan="16">60</td><td rowspan="6">PLD-V0630 TIN</td><td>WCGX030204</td><td>TSB-22045</td><td>TXL-6</td></tr>
<tr><td>VLT-26080D S32</td><td>26</td><td rowspan="5">WCGX040204</td><td rowspan="5">TSB-25055</td><td rowspan="15">TXL-8</td></tr>
<tr><td>VLT-27080D S32</td><td>27</td></tr>
<tr><td>VLT-28080D S32</td><td>28</td></tr>
<tr><td>VLT-29080D S32</td><td>29</td></tr>
<tr><td>VLT-30080D S32</td><td>30</td></tr>
<tr><td>VLT-31080D S32</td><td>31</td><td rowspan="5">260</td><td rowspan="5">350</td><td rowspan="10">PLD-V0835 TIN</td><td rowspan="10">WCGX050308</td><td rowspan="10">TSB-30070</td></tr>
<tr><td>VLT-32080D S32</td><td>32</td></tr>
<tr><td>VLT-33080D S32</td><td>33</td></tr>
<tr><td>VLT-34080D S32</td><td>34</td></tr>
<tr><td>VLT-35080D S32</td><td>35</td></tr>
<tr><td>VLT-36080D S32</td><td>36</td><td rowspan="5">300</td><td rowspan="5">390</td></tr>
<tr><td>VLT-37080D S32</td><td>37</td></tr>
<tr><td>VLT-38080D S32</td><td>38</td></tr>
<tr><td>VLT-39080D S32</td><td>39</td></tr>
<tr><td>VLT-40080D S32</td><td>40</td></tr>
</table>

※ Φ25~Φ40 : Standard type, 일반형

SINGLE INSERT CARTRIDGE TYPE



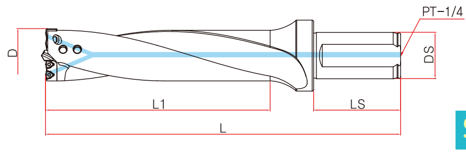
SHANK	Ds	Ls
S40	40	70

▶Shank ISO9766, Parallel with clamping flat

<table>
<tr><th rowspan="2">CODE NO.</th><th colspan="3">치수, Dimension (mm)</th><th rowspan="2">센터드릴
Pilot Drill</th><th rowspan="2">인 서 트
INSERT</th><th colspan="2">부품, Component</th><th colspan="2">카트리지, CARTRIDGE</th></tr>
<tr><th>D</th><th>L1</th><th>L</th><th>SCREW</th><th>Driver</th><th>INNER</th><th>OUTER</th></tr>
<tr><td rowspan="5">VLT-414580D S40</td><td>41</td><td rowspan="5">340</td><td rowspan="5">445</td><td rowspan="10">PLD-V1035
TIN-H</td><td rowspan="10">WCGX06T308</td><td rowspan="10">TSB-35080</td><td rowspan="19">TXL-15</td><td rowspan="5">VLC-410450N</td><td>VLC-000410T</td></tr>
<tr><td>42</td><td>VLC-000420T</td></tr>
<tr><td>43</td><td>VLC-000430T</td></tr>
<tr><td>44</td><td>VLC-000440T</td></tr>
<tr><td>45</td><td>VLC-000450T</td></tr>
<tr><td rowspan="5">VLT-465080D S40</td><td>46</td><td rowspan="5">380</td><td rowspan="5">485</td><td rowspan="5">VLC-460500N</td><td>VLC-000460T</td></tr>
<tr><td>47</td><td>VLC-000470T</td></tr>
<tr><td>48</td><td>VLC-000480T</td></tr>
<tr><td>49</td><td>VLC-000490T</td></tr>
<tr><td>50</td><td>VLC-000500T</td></tr>
<tr><td rowspan="5">VLT-515580D S40</td><td>51</td><td rowspan="5">420</td><td rowspan="5">525</td><td rowspan="9">PLD-V1238
TIN-H</td><td rowspan="9">WCGX080408</td><td rowspan="9">TSB-40110</td><td rowspan="5">VLC-510550N</td><td>VLC-000510T</td></tr>
<tr><td>52</td><td>VLC-000520T</td></tr>
<tr><td>53</td><td>VLC-000530T</td></tr>
<tr><td>54</td><td>VLC-000540T</td></tr>
<tr><td>55</td><td>VLC-000550T</td></tr>
<tr><td rowspan="4">VLT-565980D S40</td><td>56</td><td rowspan="4">460</td><td rowspan="4">565</td><td rowspan="4">VLC-560590N</td><td>VLC-000560T</td></tr>
<tr><td>57</td><td>VLC-000570T</td></tr>
<tr><td>58</td><td>VLC-000580T</td></tr>
<tr><td>59</td><td>VLC-000590T</td></tr>
</table>

※ Φ41~Φ59 : Adjustable 5mm unit when you replace individual outer cartridge(1mm).
1mm단위 개별 카트리지 사용으로 직경을 조절합니다.

DUAL INSERT CARTRIDGE TYPE



SHANK	Ds	Ls
S40	40	70

▶Shank ISO9766, Parallel with clamping flat

CODE NO.	치수, Dimension (mm)			센터드릴 Pilot Drill	인 서 트 INSERT	부품, Component		카트리지, CARTRIDGE	
	D	L1	L			SCREW	Driver	INNER	OUTER
VLT-606580D S40	60~65	520	625	PLD-V1238 TIN-H	WCGX050308	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	WCGX06T308	TSB-35090	TXL-15	VMC-075080N	VMC-075080T

※ Φ60~Φ80 : Cut the outer cartridge and setting. (Adjust 5mm) 외측 카트리지를 컷팅하여 직경을 조절합니다.

Corn Point System

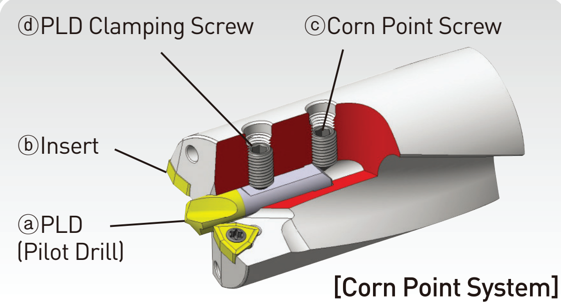
Anti-Vibration! Anti-Loose!

▣ Corn Point System Characteristic

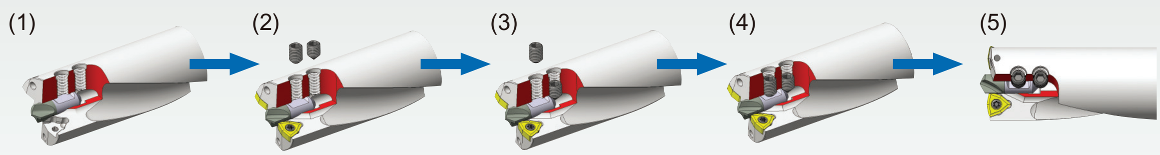
(1) It is fast and easy to adjust hight,
when you insert the PLD on the drill.

(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.



▣ How to Use (VLT, FXD)



(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 Screw]

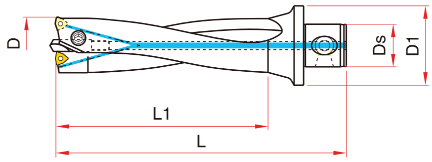
Prevention from screw loose.

• 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

●TURBO DRILL 은 일반 인써트 조립형 드릴의 한계인 직경의 3배 이상의 길이를 떨림없이 고속으로 드릴링 할 수 있으며 직경의 최대 8배까지 부드럽게 작업을 수행합니다.
●Turbo drills are supplied without pilot drills. Please order them separately.



DRILL

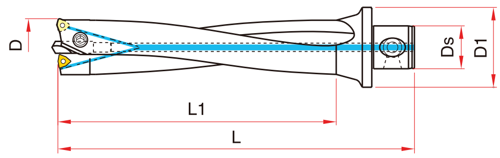
● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	PILOT DRILL
TMD−25050D	25	150	210	50	28	WCGX030204	TSB−22045	TXL−6	PLD−0630TIN
TMD−26050D	26					WCGX040204	TSB−25055	TXL−8	
TMD−27050D	27								
TMD−28050D	28								
TMD−29050D	29								
TMD−30050D	30								
TMD−31050D	31	175	235			WCGX050308	TSB−30070		PLD−0835TIN
TMD−32050D	32								
TMD−33050D	33								
TMD−34050D	34								
TMD−35050D	35								
TMD−36050D	36	200	260						
TMD−37050D	37								
TMD−38050D	38								
TMD−39050D	39								
TMD−40050D	40								
TMD−41050D	41	225	295	63	36	WCGX06T308	TSB−35090	TXL−15	PLD−1035TIN−H
TMD−42050D	42								
TMD−43050D	43								
TMD−44050D	44								
TMD−45050D	45								
TMD−46050D	46	250	320						
TMD−47050D	47								
TMD−48050D	48								
TMD−49050D	49								
TMD−50050D	50								
TMD−51050D	51	275	345			WCGX080408	TSB−40110	TXL−15	PLD−1238TIN−H
TMD−52050D	52								
TMD−53050D	53								
TMD−54050D	54								
TMD−55050D	55								
TMD−56050D	56	300	370						
TMD−57050D	57								
TMD−58050D	58								
TMD−59050D	59								

TURBO DRILL

TMD 8×D

●TURBO DRILL 은 일반 인써트 조립형 드릴의 한계인 직경의 3배 이상의 길이를 떨림없이 고속으로 드릴링 할 수 있으며 직경의 최대 8배까지 부드럽게 작업을 수행합니다.
●Turbo drills are supplied without pilot drills. Please order them separately.

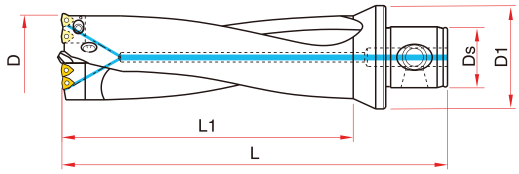


● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	PILOT DRILL
TMD−25080D	25	220	280	50	28	WCGX030204	TSB−22045	TXL−6	PLD−0630TIN
TMD−26080D	26					WCGX040204	TSB−25055	TXL−8	
TMD−27080D	27								
TMD−28080D	28								
TMD−29080D	29								
TMD−30080D	30								
TMD−31080D	31	260	320			WCGX050308	TSB−30070		PLD−0835TIN
TMD−32080D	32								
TMD−33080D	33								
TMD−34080D	34								
TMD−35080D	35								
TMD−36080D	36	300	360						
TMD−37080D	37								
TMD−38080D	38								
TMD−39080D	39								
TMD−40080D	40								
TMD−41080D	41	340	410	63	36	WCGX06T308	TSB−35090	TXL−15	PLD−1035TIN−H
TMD−42080D	42								
TMD−43080D	43								
TMD−44080D	44								
TMD−45080D	45								
TMD−46080D	46	380	450						
TMD−47080D	47								
TMD−48080D	48								
TMD−49080D	49								
TMD−50080D	50								
TMD−51080D	51	420	490			WCGX080408	TSB−40110	TXL−15	PLD−1238TIN−H
TMD−52080D	52								
TMD−53080D	53								
TMD−54080D	54								
TMD−55080D	55								
TMD−56080D	56	460	530						
TMD−57080D	57								
TMD−58080D	58								
TMD−59080D	59								

TMD CARTRIDGE TYPE

●Ø60~Ø80은 카트리지 타입으로 5mm을 조정할 수 있으며 최대 칫수로 출고됩니다.
(EX:TSD-657050D=Ø70으로 셋팅)
●TSD CARTRIDGE type is supplied with max. diameter. Max. 5mm adjustable by shortening the outer cartridge. Please place an order for pilot drills separately when ordering.



TMD 5×D CARTRIDGE TYPE

● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	CARTRIDGE	PILOT DRILL
TMD-606550D	60~65	325	415	80	45	WCGX050308	TSB-30070	TXL-8	MDC-060065N/T	PLD-1238TIN-H
TMD-657050D	65~70	350	440	80	45	WCGX050308	TSB-30070	TXL-8	MDC-065070N/T	PLD-1238TIN-H
TMD-707550D	70~75	375	465	80	45	WCGX050308	TSB-30070	TXL-8	MDC-070075N/T	PLD-1238TIN-H
TMD-758050D	75~80	400	490	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-075080N/T	PLD-1645TIN-H

TMD 8×D CARTRIDGE TYPE

● EXT MODULAR SHANK Type

CODE NO.	D	L1	L	D1	Ds	INSERT	SCREW	DRIVER	CARTRIDGE	PILOT DRILL
TMD-606580D	60~65	520	610	80	45	WCGX050308	TSB-30070	TXL-8	MDC-060065N/T	PLD-1238TIN-H
TMD-657080D	65~70	560	650	80	45	WCGX050308	TSB-30070	TXL-8	MDC-065070N/T	PLD-1238TIN-H
TMD-707580D	70~75	600	690	80	45	WCGX050308	TSB-30070	TXL-8	MDC-070075N/T	PLD-1238TIN-H
TMD-758080D	75~80	640	730	80	45	WCGX06T308	TSB-35090	TXL-15	MDC-075080N/T	PLD-1645TIN-H

●카트리지, 파이롯트드릴은 Page 108~110을 참조하세요. ●Please refer to the Page 108~110 regarding cartridges and pilot drills.

TURBO DRILL(VLT, VSD, TMD) CHARACTERISTIC TURBO 드릴(VLT, VSD, TMD) Drill의 특징

1) Turbo drill is drilled the the length over 5 times from the drill diamerter without shaking at high speed.
Turbo drill은 가공직경의 5배이상의 길이를 떨림없이 고속으로 드릴링 할 수 있다.

2) This drill is drilled smoothly the max length 8 times from drill diameter.
가공직경의 최대 8배까지 부드럽게 작업할 수 있다.

3) especially, the big diameter drilling is done without insert broken at the lathe.
특히, 선반에서의 대구경 가공시 떨림과 인서트 깨짐현상 없이 드릴링됩니다.
(when drilling over Φ40 at the lathe, we recommend Turbo drill or Max drill then High-speed drill.)
(선반에서 Φ40이상 가공시엔 High-speed Drill보다는 Turbo Drill이나 Max Drill을 권장합니다.)

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

1) VLT Single cartridge type is supplied its individual cartridge by 1mm unit.
VLT 1날 카트리지 타입은 개별 카트리지(1mm 단위)로 공급됩니다.

2) Make sure of the setting range of the drill body and adhere an outer cartridge to the drill body.
드릴 바디를 확인(셋팅 범위)하시고, 원하시는 외측 개별 카트리지를 바디에 장착하시면 간단히 셋팅 완료됩니다.

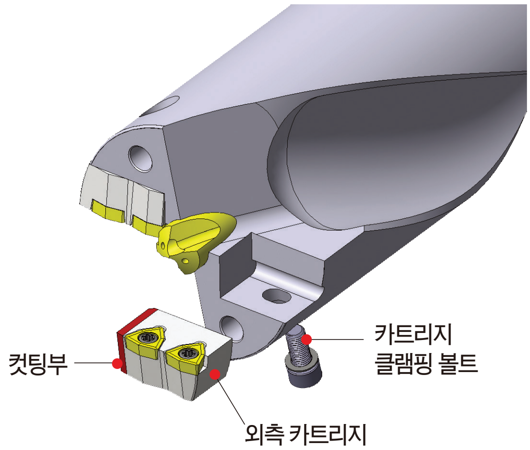
Example
If setting VLT-465050D to Φ48 seat
VLT-465050D을 Φ48로 셋팅한다면,
Adhere VLC-000480T(outer cartridge) to the outer cartridge putting place of the drill body.
VLC-000480T(외측 카트리지)를 드릴 바디의 외측 카트리지부에 장착한다.

DIAMETER SETTING PROCEDURES OF THE VLT(VSD,TMD) DOUBLE CARTRIDGES TYPE
VLT (VSD, TMD) 2날 카트리지 타입 가공경 셋팅방법

1) Loosen the clamping bolt of the outer cartridge and remove it from the drill body
외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.

2) Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter.
외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업한다.

3) Slick the sharp corner of the cut cartridge.
컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.



4) Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.
외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.

Example
If you set VLT-657030D to Φ'66
VLT-657080D을 Φ66로 셋팅한다면,
The standard drill diameter is Φ'70 so Φ70−Φ66 = 4 ⇨ 4÷2=2(calculation by semidiameter), 2 mm is cut off.
기본 직경은 Φ70이므로, Φ70−Φ66 = 4 ⇨ 4÷2=2(반지름으로 계산), 2mm를 컷팅한다.

NEW VMD DRILL

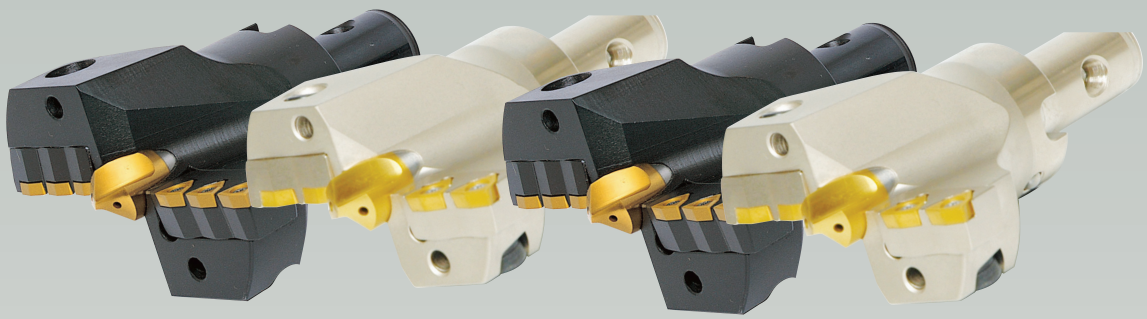
Stronger
More stable
More durable

VMD Drill Characteristic

■ The drill body treated by forging was much solider and much stronger in impact.
■ The especially treated surface of body make the inner-abrasion much better and the life make much longer.
■ As this drill was designed more stably, this drill is steady of drilling and is good of economical efficiency.
■ Drilling diameters are from 45mm to 180mm and the drilling depth is freely adjustable by using the MX modular system.
■ As this drill is VMC(Cartridge) type, the drilling diameters are adjustable.
■ We can supply to customers promptly by keeping stable stocks.

※ 범용선반 가공시, 가공직경 ø400이상은 TSD나, MXD 사용을 권장함.

Construction system of MAX Drill's Code no.



▶ Adjustment Type

VMD - 125130

- VMD → 드릴종류 / Drill group
- 125130 → 가공직경:Φ125~Φ130(조절타입) / Drilling diameter:Φ125~Φ130(Adjustable)

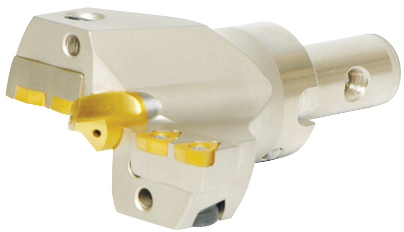
[MX MODULAR SYSTEM으로 체결강성이 뛰어납니다.]

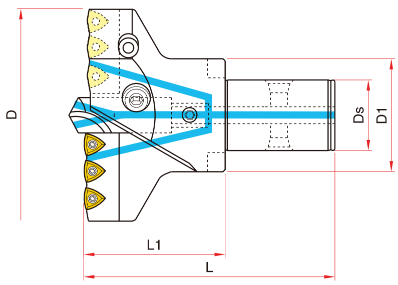
MAX DRILL

VMD

DRILL

●바디표면을 특수표면처리하여 내마모성 및 수명이 길어졌습니다.
●더욱 안정된 설계로 제작되어 MXD보다 드릴링이 안정되어 경제성이 뛰어납니다.
●MX Modular system으로 원하는 가공깊이 조절 가능.





● MX MODULAR SHANK Type

CODE NO	D	Ds	D1	L1	L	Pilot drill	Cartridge	Insert	Screw	Driver
VMD-045050	45- 50	13	28	50	85	PLD-V1035 TiN-H	VMC-045050N/T	WCGX030204	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	WCGX040204	TSB-25055	TXL-8
VMD-060065	60- 65	16	32	60	100		VMC-060065N/T	WCGX050308	TSB-30070	
VMD-065070	65- 70	16	32	60	100		VMC-065070N/T			
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	WCGX06T308	TSB-35090	TXL-15
VMD-080085	80- 85	22	40	70	115		VMC-080085N/T			
VMD-085090	85- 90	27	48	70	120		VMC-085090N/T			
VMD-090095	90- 95	27	48	70	120		VMC-090095N/T			
VMD-095100	95-100	27	48	70	120		VMC-095100N/T			
VMD-100105	100-105	32	58	80	130	PLD-2045 TiN-H	VMC-100105N/T	WCGX050308	TSB-30070	TXL-8
VMD-105110	105-110	32	58	80	130		VMC-105110N/T	WCGX06T308	TSB-35090	TXL-15
VMD-110115	110-115	32	58	80	130		VMC-110115N/T			
VMD-115120	115-120	40	70	90	145		VMC-115120N/T			
VMD-120125	120-125	40	70	90	145	PLD-2556 TiN-H	VMC-120125N/T			
VMD-125130	125-130	40	70	90	145		VMC-125130N/T			
VMD-130135	130-135	40	70	90	145		VMC-130135N/T			
VMD-135140	135-140	40	70	90	145		VMC-135140N/T			
VMD-140150	140-150	50	80	100	160		VMC-140150N/T	WCGX080408	TSB-40110	
VMD-150160	150-160	50	80	100	160		VMC-150160N/T			
VMD-160170	160-170	50	80	100	160	PLD-3068 TiN-H	VMC-160170N/T			
VMD-170180	170-180	50	80	100	160		VMC-170180N/T			

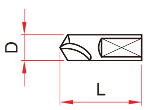
●V-MAX 드릴 헤드는 최대직경으로 공급됩니다. (Drill head is supplied with Max. diameter)

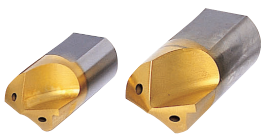
●VMD 카트리지는 드릴바디의 수명을 연장시키고 바깥쪽 카트리지 단면을 밀링 작업으로 직경을 (5mm) 조절할 수 있습니다.
●Please shorten the length of outer cartridge if smaller diameter is needed. (EX:Ø77=by 1.5mm cutting MDC-075080T)

CARTRIDGE

DRILLING RANGE	INNER	OUTER	INSERT	NO.OF INSERT	SCREW	DRIVER
45- 50	VMC-045050N	VMC-045050T	WCGX030204	2	TSB-22045	TXL-6
50- 55	VMC-050055N	VMC-050055T				
55- 60	VMC-055060N	VMC-055060T	WCGX040204	2	TSB-25055	TXL-8
60- 65	VMC-060065N	VMC-060065T	WCGX050308	2	TSB-30070	
65- 70	VMC-065070N	VMC-065070T				
70- 75	VMC-070075N	VMC-070075T				
75- 80	VMC-075080N	VMC-075080T	WCGX06T308	2	TSB-35090	TXL-15
80- 85	VMC-080085N	VMC-080085T				
85- 90	VMC-085090N	VMC-085090T				
90- 95	VMC-090095N	VMC-090095T				
95-100	VMC-095100N	VMC-095100T				
100-105	VMC-100105N	VMC-100105T	WCGX050308	3	TSB-30070	TXL-8
105-110	VMC-105110N	VMC-105110T	WCGX06T308	3	TSB-35090	TXL-15
110-115	VMC-110115N	VMC-110115T				
115-120	VMC-115120N	VMC-115120T				
120-125	VMC-120125N	VMC-120125T				
125-130	VMC-125130N	VMC-125130T				
130-135	VMC-130135N	VMC-130135T				
135-140	VMC-135140N	VMC-135140T				
140-150	VMC-140150N	VMC-140150T	WCGX080408	3	TSB-40110	
150-160	VMC-150160N	VMC-150160T				
160-170	VMC-160170N	VMC-160170T				
170-180	VMC-170180N	VMC-170180T				

PILOT DRILL

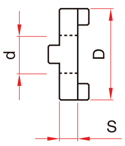




CODE NO.	D	L
PLD-V1035 TIN-H	10	35
PLD-V1238 TIN-H	12	38
PLD-V1645 TIN-H	16	45
PLD-2045 TIN-H	20	
PLD-2556 TIN-H	25	56
PLD-3068 TIN-H	30	68

●EX : PLD-2556 TiN-H(25TiN coated oil hole)

DRIVE RING



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

새로워진 V-MAX Drill!
Improved V-MAX Drill!

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

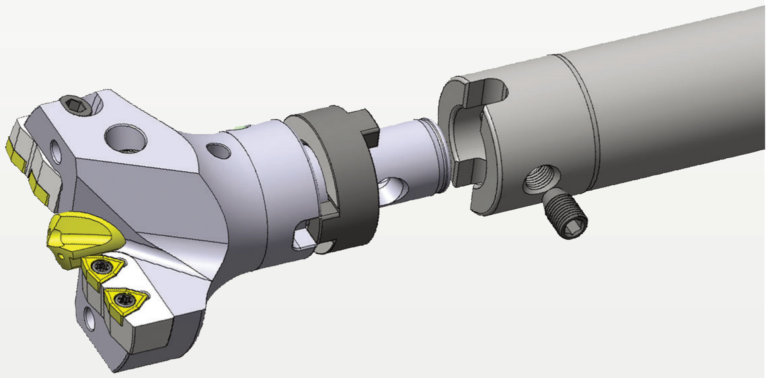
- The especially treated surface of body make the inner-abrasion much better and the life make much longer.
  바디표면을 특수표면처리하여 내마모성 및 수명이 길어졌다!

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

- Drilling diameters are from 45mm to 180mm and the drilling depth is freely adjustable by using the MX modular system.
  가공직경 Ø45~Ø180이며, 가공깊이는 MX Modular sytem으로 자유롭게 조절할 수 있다!

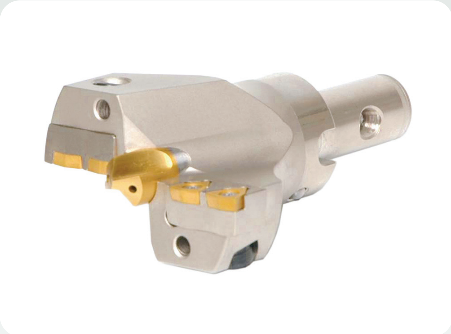
- As this drill is Cartridge(VMC) type, the drilling diameters are adjustable.
  카트리지(VMC) 타입으로 드릴바디의 수명을 연장시키고 가공직경을 조절할 수 있다!

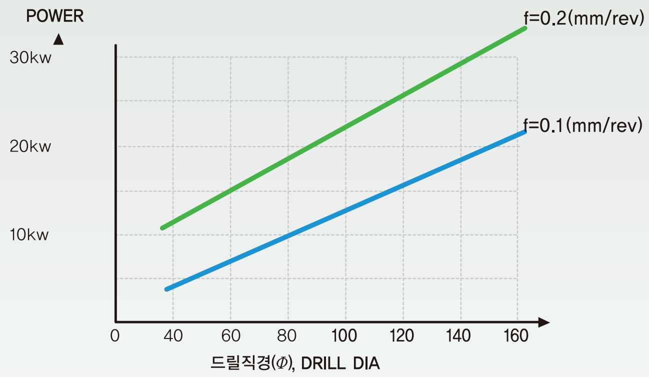
- We can supply to customers promptly by keeping stable stocks.
  안정된 재고관리로 원하시는 제품을 신속히 사용할 수 있다!



- The connecting strength by the MX modular system is excellent and the drilling depth is freely adjustable by connecting MXB, MXR and MXA.
- MX 모듈러 시스템에 의한 체결방식으로 체결강성이 뛰어나며, 가공깊이를 MXB, MXR, MXA등으로 연결하여 가공깊이를 자유롭게 조절할 수 있습니다.

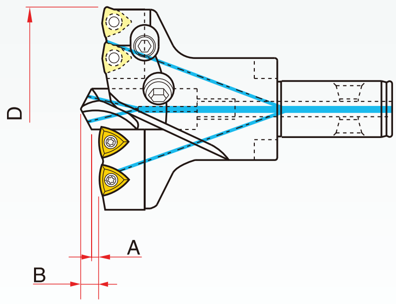
POWER REQUIRMENTS





MAX DRILL

Pilot Drill 높이



드릴경 D	2~4 x D A	B	4~6 x D A	B	6~8 x D 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

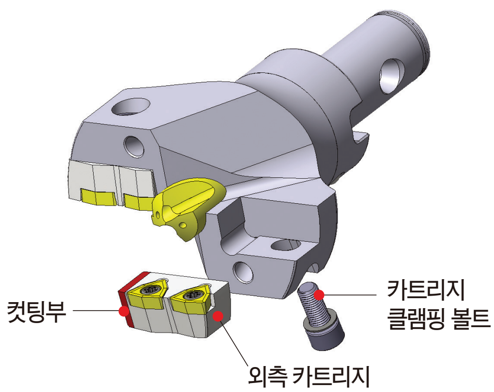
The diameter adjusting procedures of VMD(MXD)

VMD(MXD) 가공직경 조절방법

1) Loosen the clamping bolt of the outer cartridge and remove it from the drill body
외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.

2) Cut off the inside part, the contacted side of the outer cartridge by milling after calculating the drilling diameter
외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업한다.

3) Slick the sharp corner of the cut cartridge.
컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.



4) Adhere the cartridge closely to the drill body not happen gap and fix the cartridge with bolt tightly.
외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.

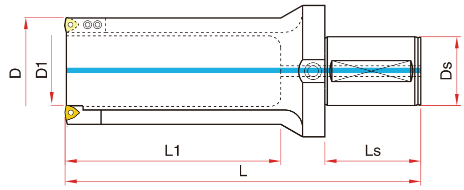
Example

If you set VMD-135140 to Φ136
VMD–135140을 Φ136로 셋팅한다면

The standard drill diameter is Φ140 so Φ140–Φ136 = 4 ⇨ 4÷2=2(calculation by semidiameter), 2mm is cut off.
기본 직경은 Φ140이므로, Φ140–Φ136 = 4 ⇨ 4÷2=2(반지름으로 계산), 2mm를 컷팅한다.

TPD 2.5×D

●SPECIAL주문생산품 (SPECIAL ORDER PRODUCTS)



● TPD CYLINDRICAL SHANK Type

CODE NO.	D	D1	L1	L	Ds	Ls	CARTRIDGE	INSERT	SCREW	DRIVER
TPD-04025D	40	10	100	210	32	70	TDC-W0503N/T	WCGX050308	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			TDC-W06T3N/T	WCGX06T308	TSB-35090	TXL-15
TPD-06525D	65	30.5	150	270						
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	50	100				
TPD-09025D	90	55	210	350						
TPD-09525D	95	60	210	350						
TPD-10025D	100	66	250	390						
TPD-11025D	110	76	250	390						

●트레판드릴은 적은 동력의 기계에서도 보다 효율적으로 드릴링 할 수 있습니다. 기본적으로 직경X2.5 (가공길이)를 표준으로 권장하며 길이가 짧을수록 유리합니다.
보다 자세한 사항에 대해서는 폐사로 문의 바랍니다.

TOOLING SYSTEM

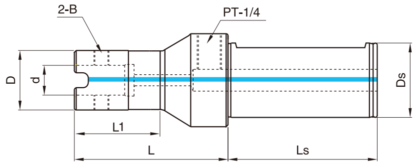
MX Holder System
Basic Holder System

TOOLING SYSTEM

- **MX Holder**
  - –MX Modular Type
    - • Extention
    - • Reduction
    - • Adaptor
- **Basic Holder**
  - –Weldon B type
  - –Side Lock type
  - –Ext Modular Type

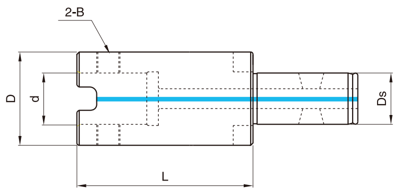
MX HOLDER

MXA/MXB



● MX CYLINDRICAL SHANK Type

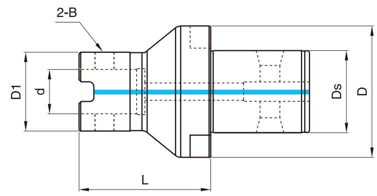
CODE NO.	Ds	d	L	L1	D	Ls	B	DRIVE RING
MXA-3213115	32	13	115	77	28	70	MTB-08115	DVR-281310
MXA-3213200	32	13	200	165	28			
MXA-3213300	32	13	300	265	28			
MXA-4016125	40	16	125	86	32	80		DVR-321610
MXA-4016200	40	16	200	161	32			
MXA-4016300	40	16	300	261	32			
MXA-4022148	40	22	148	109	40		MTB-10145	DVR-402212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



● MX EXTENSION

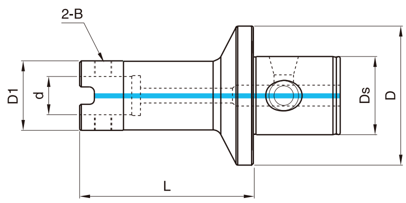
CODE NO.	D	d	L	Ds	B	DRIVE RING
MXB-2813115	28	13	115	13	MTB-08115	DVR-281310
MXB-2813150	28	13	150	13		
MXB-2813200	28	13	200	13		
MXB-2813300	28	13	300	13		
MXB-3216115	32	16	115	16	MTB-08115	DVR-321610
MXB-3216200	32	16	200	16		
MXB-3216300	32	16	300	16		
MXB-4022113	40	22	113	22	MTB-10145	DVR-402212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

●MX MODULAR SYSTEM 은 사용자의 편의를 위하여 다양한 길이와 강성을 유지하기 위해 EXTENSION 및 REDUCER 또는 MAS403/BT, DIN2080/NT, DIN228/MT, DIN69871/SK 타입의 각종 아바를 조립하여 강성 및 가공조건을 만족시켜 드립니다.



MX REDUCER

CODE NO.	Ds	d	L	D	D1	B	D1/DRIVE RING	D/DRIVE RING
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

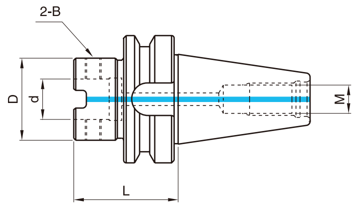


MX + EXT ADAPTOR

CODE NO.	Ds	d	L	D	D1	B	D1/DRIVE RING
MXE-3613100	36	13	100	63	28	MTB-08115	DVR-281310
MXE-3616100	36	16	100	63	32	MTB-08115	DVR-321610
MXE-3622100	36	22	100	63	40	MTB-10145	DVR-402212
MXE-3627100	36	27	100	63	48	MTB-12175	DVR-482712
MXE-3632100	36	32	100	63	58	MTB-12195	DVR-583214
MXE-4513100	45	13	100	80	28	MTB-08115	DVR-281310
MXE-4516100	45	16	100	80	32	MTB-08115	DVR-321610
MXE-4522100	45	22	100	80	40	MTB-10145	DVR-402212
MXE-4527100	45	27	100	80	48	MTB-12175	DVR-482712
MXE-4532100	45	32	100	80	58	MTB-12195	DVR-583214

●EXT MODULAR SYSTEM은 BT, NT, MT, SK샹크의 ETA홀더에 조립하여 사용할 수 있는 모듈라시스템입니다. MX 드릴 직경에 길이가 6배 이상 돌출 될 경우 익스텐션에 레듀샤를 적절히 조립하면 떨림없이 가공할 수 있으며 드릴강성을 높일 수 있습니다. MXE 레듀샤는 EXT 모듈라타입의 아바와 호환성을 이룹니다.

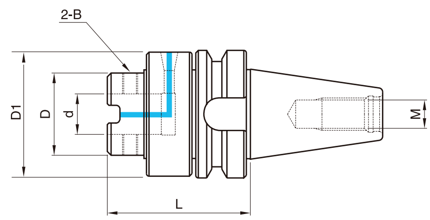
BT-MXA/BT-OMX/BT-OAX



● MAS403/BT MX MODULAR Type

CODE NO.	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

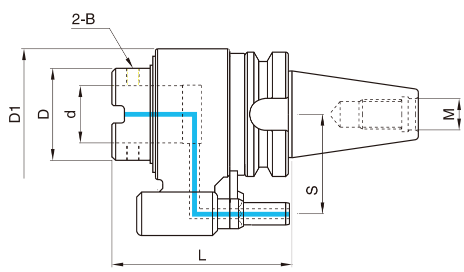
●스핀들 내부의 절삭유 공급이 가능한 장비에서 효율적으로 사용할 수 있습니다.



● MAS403/BT MX MODULAR OIL FEED Type

CODE NO.	d	L	D	D1	M	B
BT40-OMX-32095	32	95	65	98	M16	MTB-12175
BT50-OMX-32100	32	100	65	98	M24	MTB-12175
BT50-OMX-50110	50	110	80	115	M24	MTB-16225

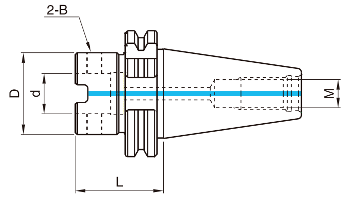
●Manual type Internal Oil hole Holder. 수동 내부 급유형 절삭유 공급 장치입니다.



● MAS403/BT MX MODULAR AUTO MATIC Type

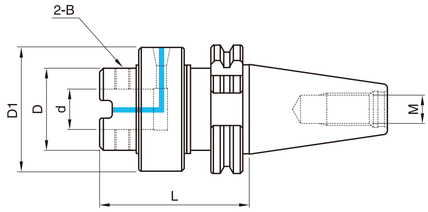
CODE NO.	d	L	D	D1	S	M	B
BT40-OAX-32120	32	120	65	80	65	M16	MTB-12175
BT50-OAX-32145	32	145	65	98	80	M24	MTB-12175
BT50-OAX-50150	50	150	80	98	80	M24	MTB-16225

● Automatic type Internal Oil hole Holder. 자동공구 교환이 가능한 내부 급유형 절삭유 공급 장치입니다.



DIN69871-AD MX MODULAR Type

CODE NO.	d	L	D	M	B
SK40-MXA-32065	32	65	58	M16	MTB-12195
SK50-MXA-32070	32	70	58	M24	
SK50-MXA-50070	50	70	80	M24	MTB-16260

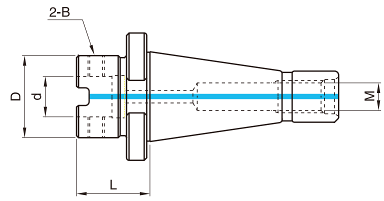


DIN69871-AD MX MODULAR OIL FEED Type

CODE NO.	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

MX HOLDER
NT-MXA/NT-OMX

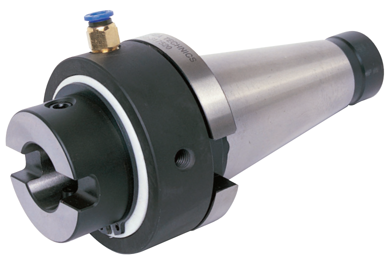
●MX MODULAR HOLDER 은 가공 장비에 절삭유 공급장치가 장착 되지 않았거나 툴장이 짧아 외부 절삭유 공급할 경우 MXA type 의 베이직홀더를 사용하십시오. 스핀들 내부로 절삭유가 공급되면 최상의 조건으로 드릴 작업을 할 수 있습니다.

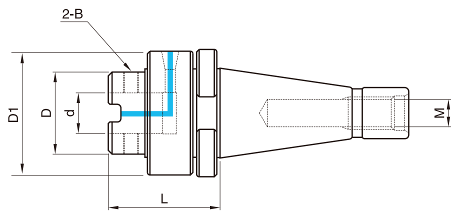


DIN2080 MX MODULAR Type

CODE NO.	d	L	D	M	B
NT40-MXA-32050	32	50	58	5/8-11 UNC	MTB-12195
NT50-MXA-32050	32	50	58	1”-8 UNC	
NT50-MXA-50080	50	80	80	1”-8 UNC	MTB-16260
NT40-MXA-32050M	32	50	58	M16	MTB-12195
NT50-MXA-32050M	32	50	58	M24	
NT50-MXA-50080M	50	80	80	M24	MTB-16260

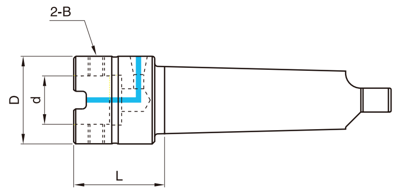
●MX MODULAR BASIC HOLDER 은 간이형 오일홀 공급 장치입니다. MXD , TSD , TMD 외 깊은 홀을 드릴링 할 때 사용되는 홀더입니다.





DIN2080 MX MODULAR OIL FEED Type

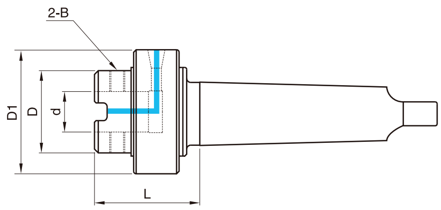
CODE NO.	d	L	D	D1	M	B
NT40-OMX-32080	32	80	65	98	5/8-11 UNC	MTB-12195
NT50-OMX-32080	32	80	65	98	1”-8 UNC	
NT50-OMX-50085	50	85	80	115	1”-8 UNC	MTB-16260
NT40-OMX-32080M	32	80	65	98	M16	MTB-12195
NT50-OMX-32080M	32	80	65	98	M24	
NT50-OMX-50085M	50	85	80	115	M24	MTB-16260



● DIN228B/ MX MODULAR Type

CODE NO.	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.

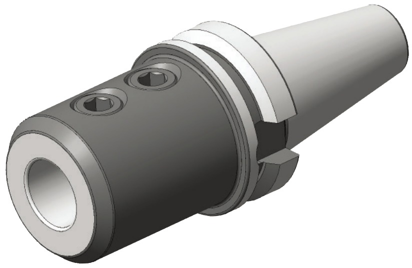


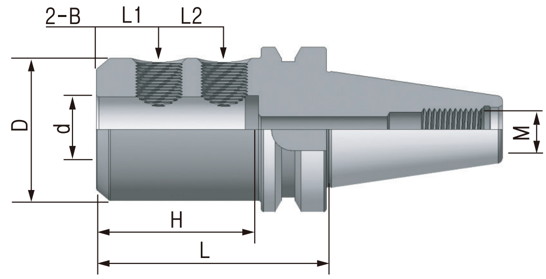
● DIN228B/MX MODULAR OIL FEED Type

CODE NO.	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.

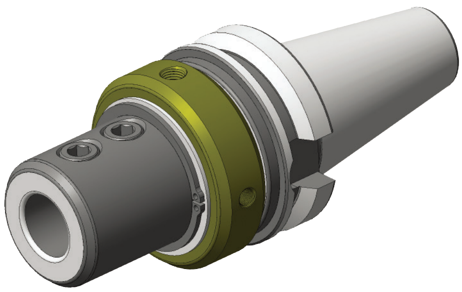
BT-WSA/BT-CMS

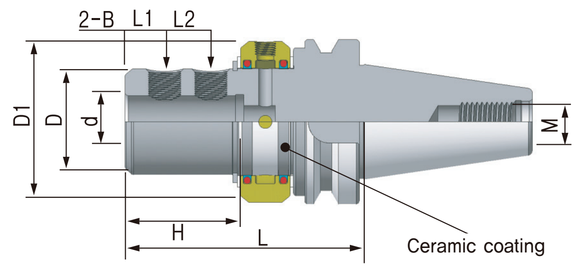




MAS / BT WELDON-B TYPE

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





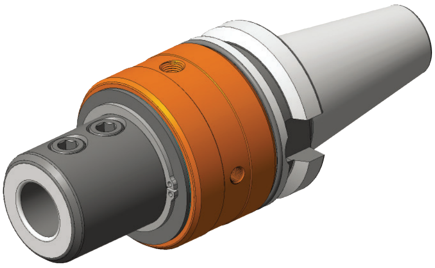
MAS / BT WELDON-B OIL FEED TYPE

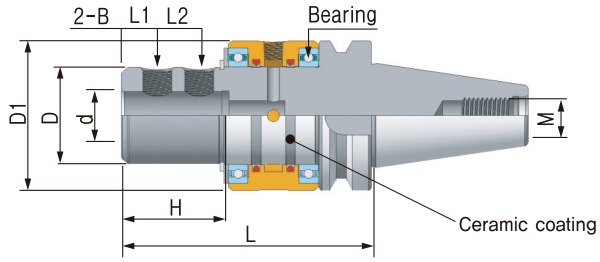
CODE NO.	d	L	D	D1	H	L1	L2	B	M
BT40-CMS-20110B	20	110	50	83	50	25	-	M1617SS-P15	
BT40-CMS-25130B	25	130	55	88	60	24	25	M1817SS-P20	M16
BT40-CMS-32135B	32	135	65	98	70	24	28	M2017SS-P20	
BT50-CMS-20120B	20	120	50	83	50	25	-	M1617SS-P15	
BT50-CMS-25140B	25	140	55	88	62	24	25	M1817SS-P20	
BT50-CMS-32145B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

※ 오일캡 실제 색상은 검정 (Black Oxid)입니다

NEW TYPE ARBOR BASIC HOLDER

BT-CMB/BT-CAW



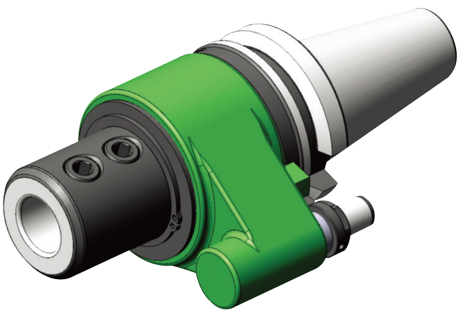


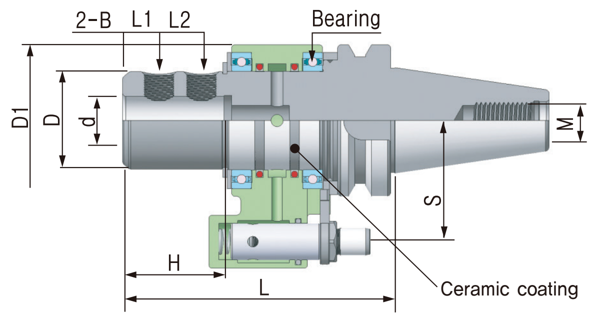
★ : 분리형(드릴체결부+스핀들부)

● MAS / BT WELDON-B OIL FEED BEARING TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B	M
BT40-CMB-20135B	20	135	50	82	50	25	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
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	

※ 오일캡 실제 색상은 검정 (Black Oxid)입니다.





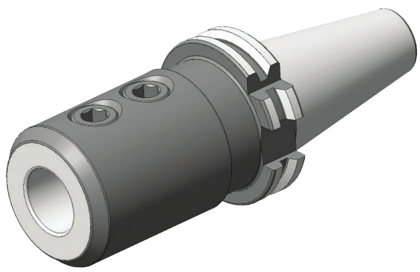
★ : 분리형(드릴체결부+스핀들부)

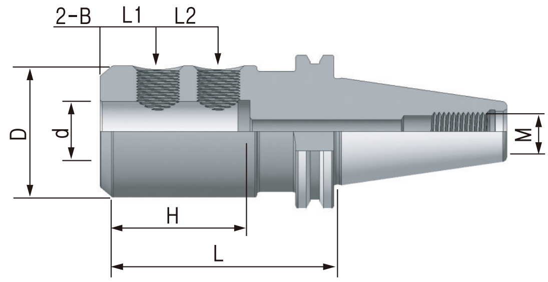
● MAS / BT WELDON-B AUTO MATIC TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B	M	S
BT40-CAW-20130B	20	130	50	80	50	25	-	M1617SS-P15	M16	65
★ 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	-	M1617SS-P15	M24	80
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		

※ 사용전 위치결정블럭(Stoper Block)에 따라, 위치결정핀(LOCATE PIN)높이를 조절하세요.
※ Please use after adjust Locate Pin hight, according to use stoper block.

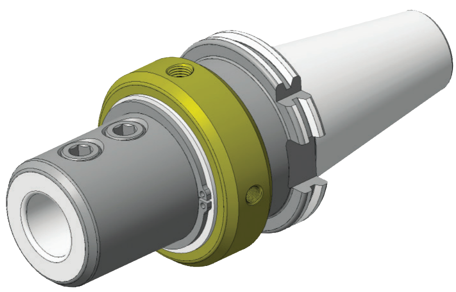
SK-WSA/SK-CMS

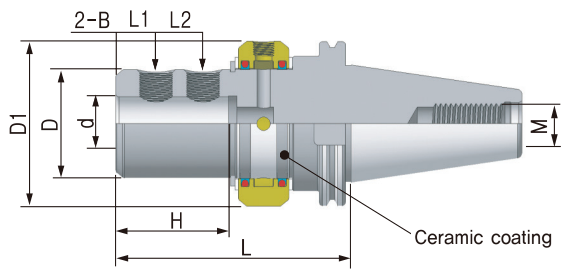




DIN 69871 / SK WELDON-B TYPE

CODE NO.	d	L	D	H	L1	L2	B	M
SK40-WSA-20065B	20	65	50	50	25	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
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	

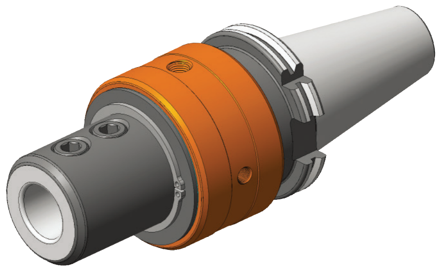


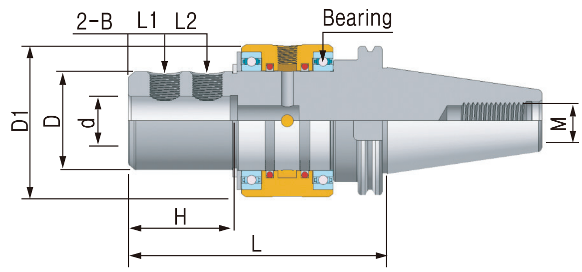


DIN 69871 / SK WELDON-B OIL FEED TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B	M
SK40-CMS-20115B	20	115	50	83	50	25	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
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	

※ 오일캡 실제 색상은 검정 (Black Oxid)입니다





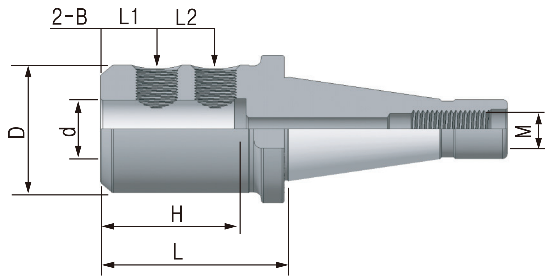
★ : 분리형(드릴체결부+스핀들부)

DIN69871 / SK WELDON-B OIL FEED BEARING TYPE

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

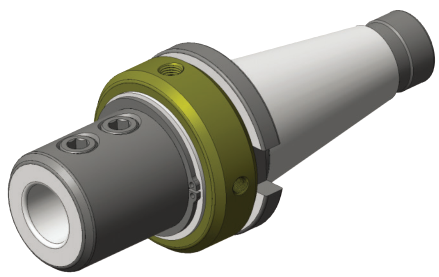
※ 오일캡 실제 색상은 검정 (Black Oxid)입니다

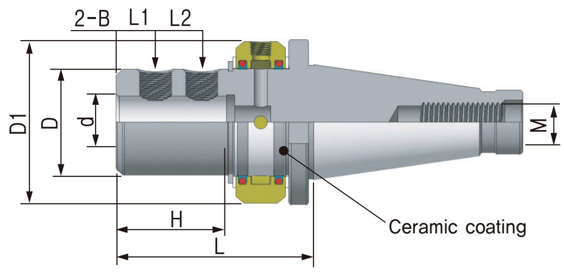
NT-WSA/NT-CMS



DIN2080 / NT WELDON-B TYPE

CODE NO.	d	L	D	H	L1	L2	B	M
NT40-WSA-20060B	20	60	50	50	25	-	M1617SS-P15	5/8"-11UNC
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	-	M1617SS-P15	1"-8UNC
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	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
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	

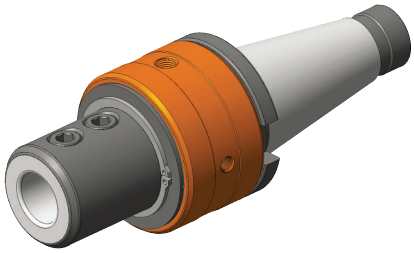


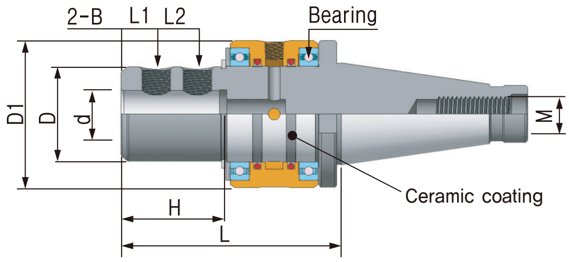


DIN2080 / NT WELDON-B OIL FEED TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B	M
NT40-CMS-20095B	20	95	50	83	50	25	-	M1617SS-P15	5/8"-11UNC
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	-	M1617SS-P15	1"-8UNC
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	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
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 (Black Oxid)입니다





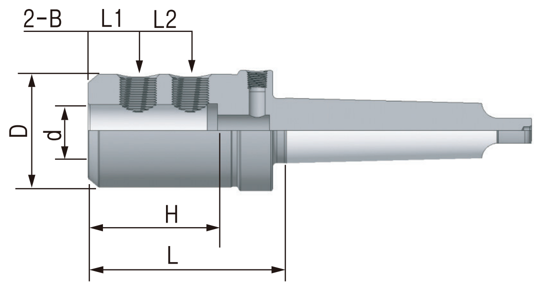
★ : 분리형(드릴체결부+스핀들부)

DIN2080 / NT WELDON-B OIL FEED BEARING TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B	M
NT40-CMB-20125B	20	125	50	82	50	25	-	M1617SS-P15	5/8"-11UNC
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	-	M1617SS-P15	1"-8UNC
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	-	M1617SS-P15	M16
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	-	M1617SS-P15	M24
NT50-CMB-25145MB	25	145	55	90	60	24	25	M1817SS-P20	
NT50-CMB-32150MB	32	150	65	100	70	24	28	M1817SS-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	

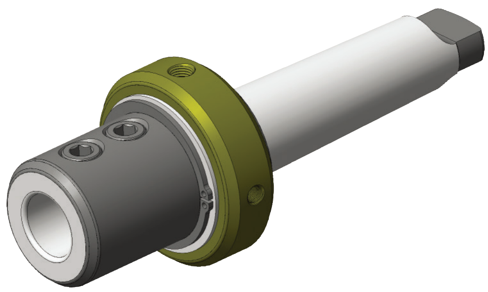
※ 오일캡 실제 색상은 검정 (Black Oxid)입니다

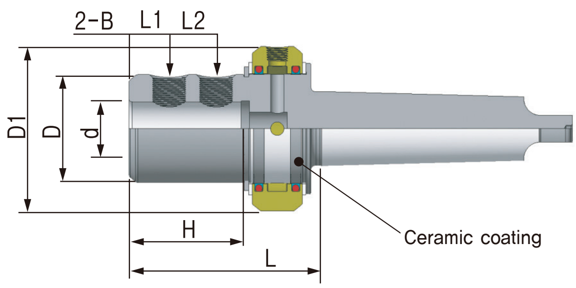
MT-WSA/MT-CMS



● DIN228B / MT WELDON-B TYPE

CODE NO.	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

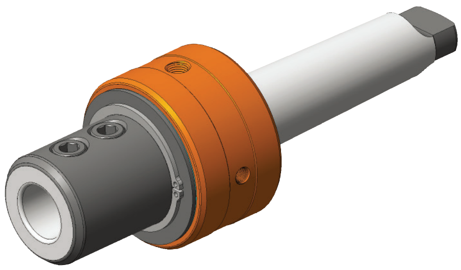


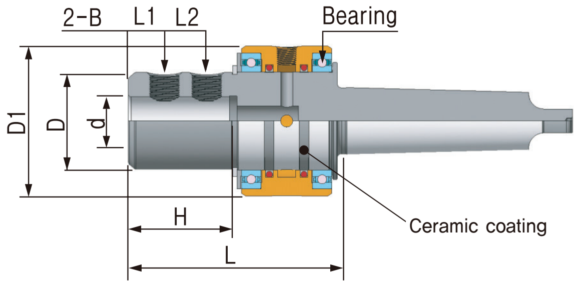


● DIN228B / MT WELDON-B OIL FEED TYPE

CODE NO.	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 (Black Oxid)입니다





DIN228B / MT WELDON-B OIL FEED BEARING TYPE

CODE NO.	d	L	D	D1	H	L1	L2	B
MT4-CMB-20110B	20	110	50	82	50	25	-	M1617SS-P15
MT4-CMB-25140B	25	140	55	90	60	24	25	M1817SS-P20
MT4-CMB-32145B	32	145	65	100	70	24	28	M2017SS-P20
MT5-CMB-25140B	25	140	55	90	60	24	25	M1817SS-P20
MT5-CMB-32145B	32	145	65	100	70	24	28	M2017SS-P20
MT5-CMB-40160B	40	160	80	100	80	30	32	M2020SS-P20
MT6-CMB-32150B	32	150	65	100	50	25	-	M2017SS-P20
MT6-CMB-40165B	40	165	80	100	60	24	25	M2020SS-P20
MT6-CMB-50175B	50	175	90	100	70	24	28	M2420SS-P20

※ 오일캡 실제 색상은 검정 (Black Oxid)입니다

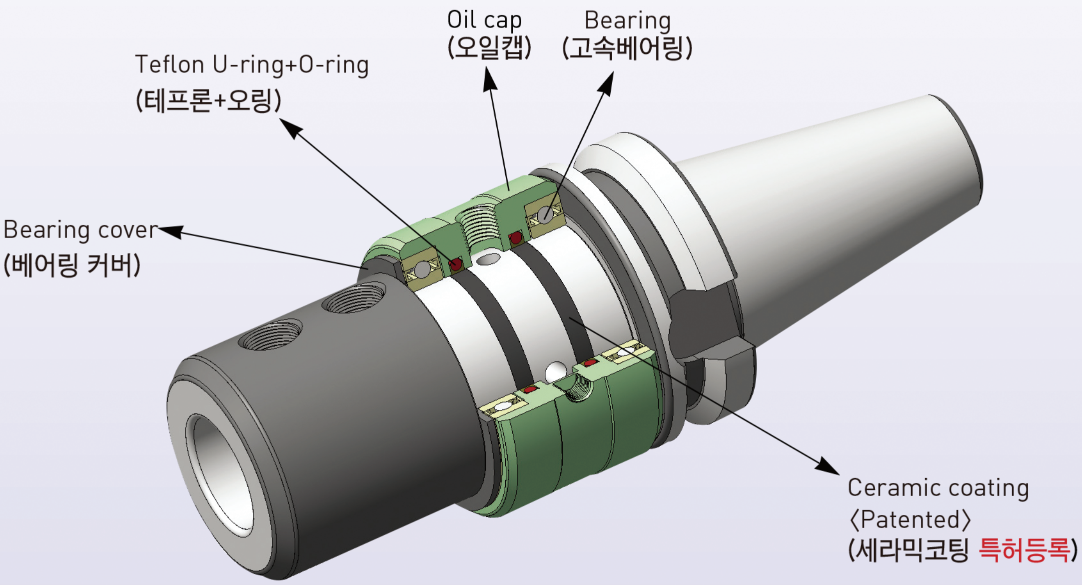
BASIC HOLDER

놀라운 수명!! 탁월한 성능!!

Surprising long life! Superior performance!

Let's meet the innovation Arbor

▣ **Patented article**
We are now applying for
The International patent
〈We got the patent for this in Jun 20, 2007.〉

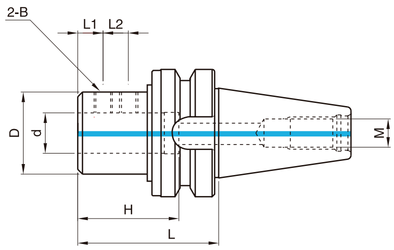


▶ **테프론과의 마찰부를 세라믹 코팅처리하여 아바 수명이 놀랍게 향상되었습니다.(특허등록)**
As the part of Arbor body touched with Teflon was treated by Ceramic coating, The arbor Life is much more upgraded.

▶ **특수성분 테프론 사용으로 미끄럼성을 높였습니다.**
The sliding nature of Teflon is improved by adding the special ingredient.

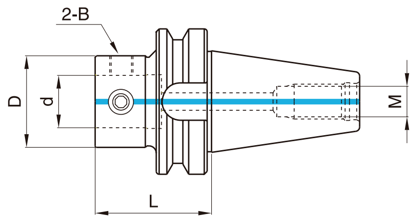
▶ **베어링 장착으로 고속 회전 (실내경 Φ65의 경우 max. 4,200)이 가능합니다.**
It is possible to turn with high speed by installing the bearings.(max.4,200)

▶ **섕크체결은 DIN규격을 준수하였습니다.**
The shank locking system was followed DIN regulation.



MAS403/BT SIDE LOCK Type

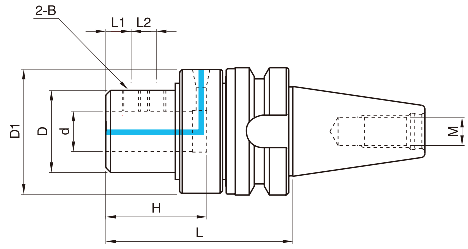
CODE NO.	d	L	D	H	L1	L2	B	M
BT40-SLA-32090	32	90	65	70	20	20	M1616SS	M16
BT40-SLA-40105	40	105	70	80	20	25	M1616SS	
BT50-SLA-20105	20	105	50	50	20	-	M1215SS	M24
BT50-SLA-25105	25	105	50	60	20	20	M1215SS	
BT50-SLA-32105	32	105	65	70	20	20	M1415SS	
BT50-SLA-40105	40	105	80	80	20	25	M1620SS	
BT50-SLA-50130	50	105	90	100	35	35	M2020SS	



MAS403/BT EXT BASIC HOLDER

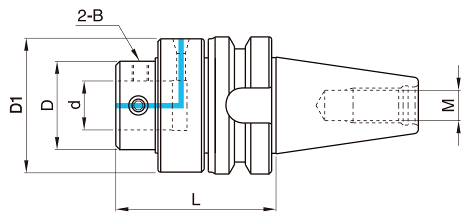
CODE NO.	D	d	L	B	M
BT30-ETA-22045	40	22	45	MTB-10145	M12
BT30-ETA-28055	50	28	55	MTB-12175	
BT40-ETA-22055	40	22	55	MTB-10145	M16
BT40-ETA-28030	50	28	30	MTB-12175	
BT40-ETA-28055	50	28	55	MTB-12175	
BT40-ETA-36055	63	36	55	MTB-16225	
BT50-ETA-22065	40	22	65	MTB-10145	M24
BT50-ETA-28070	50	28	70	MTB-12175	
BT50-ETA-36041	63	36	41	MTB-16225	
BT50-ETA-36080	63	36	80	MTB-16225	
BT50-ETA-45041	80	45	41	MTB-16260	
BT50-ETA-45080	80	45	80	MTB-16260	
BT50-ETA-55080	100	55	80	MTB-20330	

●간이형 절삭유 공급 장치이며 특수 가공 처리된 메카니칼씰에 의하여 고속 회전이 가능합니다.
(MAX 1500RPM)



● MAS403/BT SIDE LOCK OIL FEED Type

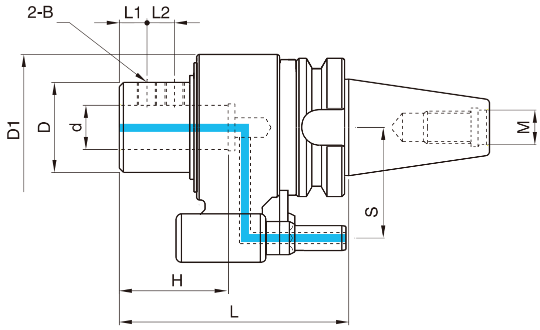
CODE NO.	d	L	D	D1	H	L1	L2	B	M
BT40-OMS-20105	20	105	50	78	50	20	-	M1215SS	M16
BT40-OMS-25120	25	120	50	78	60	20	20	M1215SS	
BT40-OMS-32125	32	125	65	98	70	20	20	M1415SS	
BT50-OMS-20120	20	120	50	78	50	20	-	M1215SS	M24
BT50-OMS-25135	25	135	50	78	60	20	20	M1215SS	
BT50-OMS-32135	32	135	65	98	70	20	20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



● MAS403/BT EXT MODULAR OIL FEED Type

CODE NO.	d	L	D	D1	B	M
BT40-OME-22090	22	90	50	78	MTB-10145	M16
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	MTB-10145	M24
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	

●내열 내마모성이 우수한 테프론을 특수 처리하여 고속에서도 누수가 없고 마찰 저항이 작아 장시간 운전이 가능합니다. (MAX. 3000RPM)

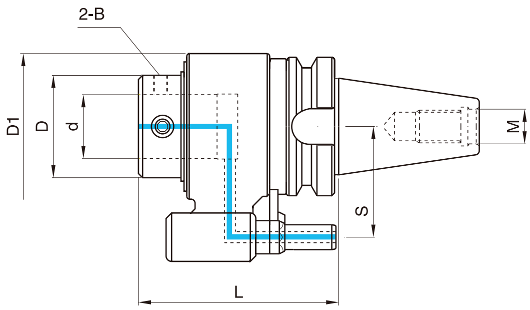


MAS403/BT SIDE LOCK AUTO MATIC Type

CODE NO.	d	L	H	L1	L2	D	D1	B	S
BT40-OAS-20120	20	120	50	20	–	55	80	M1215SS	
BT40-OAS-25140	25	140	60	20	20	55	80	M1215SS	65
BT40-OAS-32140	32	140	70	20	20	65	80	M1415SS	
BT50-OAS-20145	20	145	50	20	–	55	100	M1215SS	
BT50-OAS-25165	25	165	60	20	20	55	100	M1215SS	80
BT50-OAS-32165	32	165	70	20	20	65	100	M1415SS	
BT50-OAS-40175	40	175	80	20	25	65	100	M1616SS	

※ 사용전 위치결정블럭(Stoper Block)에 따라, 위치결정핀(LOCATE PIN)높이를 조절하세요.
※ Please use after adjust Locate Pin hight, according to use stoper block.

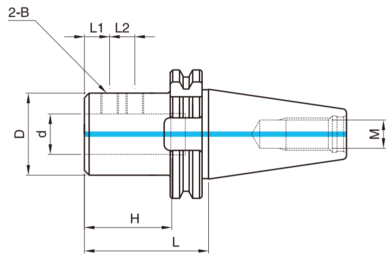
●EXT 모듈라타입을 사용하시면 게이지라인에서의 거리가 짧고 원통 및 단면 구속으로 떨림을 최소화할 수 있습니다.



MAS403/BT EXT MODULAR AUTO MATIC Type

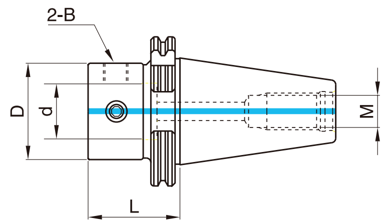
CODE NO.	d	L	D	B	D1	M	S
BT40-OAE-22110	22	110	55	MTB-10145			
BT40-OAE-28115	28	115	55	MTB-12175	80	M16	65
BT40-OAE-36120	36	120	65	MTB-16225			
BT50-OAE-22135	22	135	55	MTB-10145			
BT50-OAE-28135	28	135	55	MTB-12175	100	M24	80
BT50-OAE-36145	36	145	65	MTB-16225			
BT50-OAE-45145	45	145	80	MTB-16260			

※ 사용전 위치결정블럭(Stoper Block)에 따라, 위치결정핀(LOCATE PIN)높이를 조절하세요.
※ Please use after adjust Locate Pin hight, according to use stoper block.



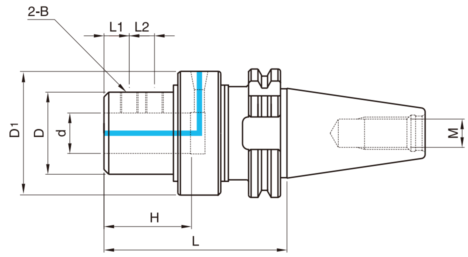
DIN69871/SK SIDE LOCK Type

CODE NO.	d	L	D	H	L1	L2	B	M
SK50-SLA-32105	32	105	65	70	20	20	M1415SS	M24
SK50-SLA-40105	40	105	65	80	20	25	M1620SS	



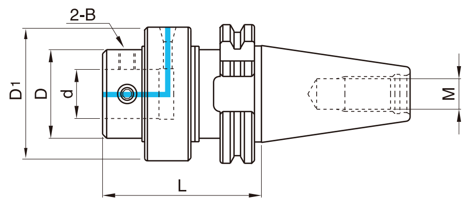
DIN69871/SK EXT BASIC Type

CODE NO.	D	d	L	B	M
SK40-ETA-22045	40	22	45	MTB-10145	M16
SK40-ETA-28050	50	28	50	MTB-12175	
SK40-ETA-36065	63	36	65	MTB-16225	
SK50-ETA-22045	40	22	45	MTB-10145	M24
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 SIDE LOCK OIL FEED Type

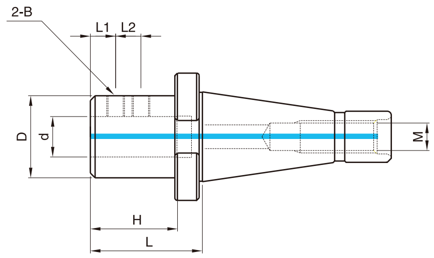
CODE NO.	d	L	D	D1	H	L1	L2	B	M
SK40-OMS-20110	20	110	50	78	50	20	-	M1215SS	
SK40-OMS-25125	25	125	50	78	60	20	20	M1215SS	M16
SK40-OMS-32130	32	130	65	98	70	20	20	M1415SS	
SK50-OMS-20105	20	105	50	78	50	20	-	M1215SS	
SK50-OMS-25120	25	120	50	78	60	20	20	M1215SS	
SK50-OMS-32125	32	125	65	98	70	20	20	M1415SS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



DIN69871/SK EXT MODULAR OIL FEED Type

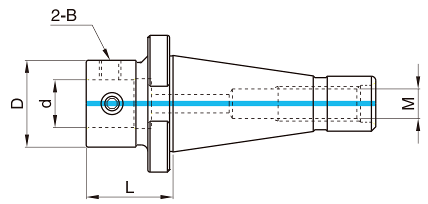
CODE NO.	d	L	D	D1	B	M
SK40-OME-22095	22	95	50	78	MTB-10145	
SK40-OME-28100	28	100	50	78	MTB-12175	M16
SK40-OME-36105	36	105	65	98	MTB-16225	
SK50-OME-22090	22	90	50	78	MTB-10145	
SK50-OME-28105	28	105	50	78	MTB-12175	
SK50-OME-36105	36	105	65	98	MTB-16225	M24
SK50-OME-45105	45	105	80	115	MTB-16260	

BASIC HOLDER
NT-SLA/NT-ETA



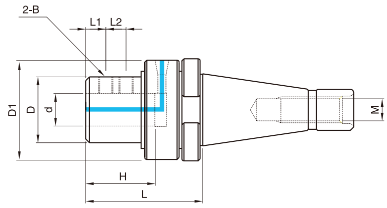
DIN2080/NT SIDE LOCK Type

CODE NO.	d	L	D	H	L1	L2	B	M
NT50-SLA-40090	40	90	65	80	20	25	M1415SS	1″-8 UNC
NT50-SLA-40090M	40	90	65	80	20	25	M1620SS	M24



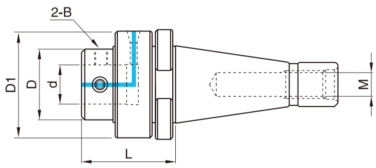
DIN2080/NT EXT BASIC HOLDER Type

CODE NO.	D	d	L	B	M
NT40-ETA-22040	40	22	40	MTB-10145	5/8-11 UNC
NT40-ETA-28045	50	28	45	MTB-12175	
NT40-ETA-36065	63	36	65	MTB-16225	
NT50-ETA-28055	50	28	55	MTB-12175	1″-8 UNC
NT50-ETA-36060	63	36	60	MTB-16225	
NT50-ETA-45060	80	45	60	MTB-16260	
NT40-ETA-22040M	40	22	40	MTB-10145	M16
NT40-ETA-28045M	50	28	45	MTB-12175	
NT40-ETA-36065M	63	36	65	MTB-16225	
NT50-ETA-28055M	50	28	55	MTB-12175	M24
NT50-ETA-36060M	63	36	60	MTB-16225	
NT50-ETA-45060M	80	45	60	MTB-16260	



DIN2080/NT SIDE LOCK OIL FEED Type

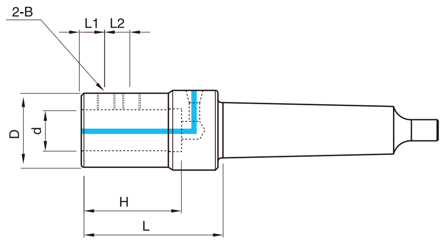
CODE NO.	d	L	D	D1	H	L1	L2	B	M
NT40-OMS-20090	20	90	50	78	50	20	–	M1215SS	
NT40-OMS-25105	25	105	50	78	60	20	20	M1215SS	5/8-11 UNC
NT40-OMS-32110	32	110	65	98	70	20	20	M1415SS	
NT50-OMS-20090	20	90	50	78	50	20	–	M1215SS	
NT50-OMS-25105	25	105	50	78	60	20	20	M1215SS	
NT50-OMS-32105	32	105	65	98	70	20	20	M1415SS	1″-8 UNC
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	–	M1215SS	
NT40-OMS-25105M	25	105	50	78	60	20	20	M1215SS	M16
NT40-OMS-32110M	32	110	65	98	70	20	20	M1415SS	
NT50-OMS-20090M	20	90	50	78	50	20	–	M1215SS	
NT50-OMS-25105M	25	105	50	78	60	20	20	M1215SS	
NT50-OMS-32105M	32	105	65	98	70	20	20	M1415SS	M24
NT50-OMS-40120M	40	120	65	98	80	20	25	M1616SS	
NT50-OMS-50145M	50	145	90	123	90	35	35	M2020SS	



DIN2080/NT EXT MODULAR OIL FEED Type

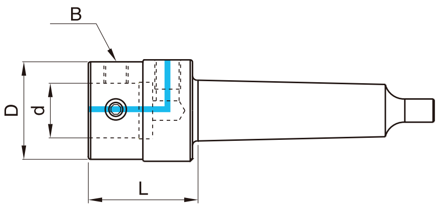
CODE NO.	d	L	D	D1	B	M
NT40-OME-22075	22	75	50	78	MTB-10145	
NT40-OME-28080	28	80	50	78	MTB-12175	5/8-11 UNC
NT40-OME-36090	36	90	65	98	MTB-16225	
NT50-OME-22080	22	80	50	78	MTB-10145	
NT50-OME-28080	28	80	50	78	MTB-12175	1″-8 UNC
NT50-OME-36090	36	90	65	98	MTB-16225	
NT50-OME-45090	45	90	80	115	MTB-16260	
NT40-OME-22075M	22	75	50	78	MTB-10145	
NT40-OME-28080M	28	80	50	78	MTB-12175	M16
NT40-OME-36090M	36	90	65	98	MTB-16225	
NT50-OME-22080M	22	80	50	78	MTB-10145	
NT50-OME-28080M	28	80	50	78	MTB-12175	M24
NT50-OME-36090M	36	90	65	98	MTB-16225	
NT50-OME-45090M	45	90	80	115	MTB-16260	

MT-SLA/MT-ETA



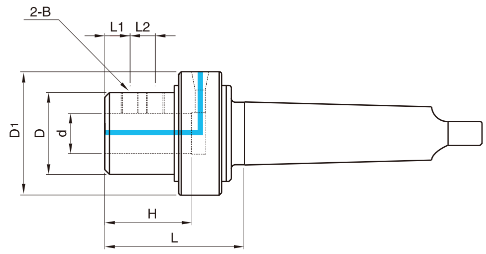
DIN228B/MT SIDE LOCK Type

CODE NO.	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



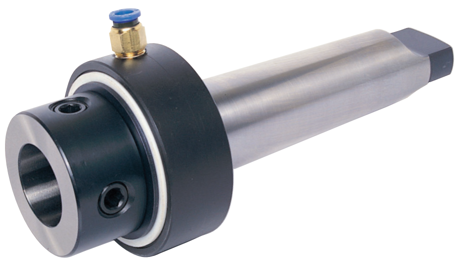
DIN228B/MT EXT BASIC Type

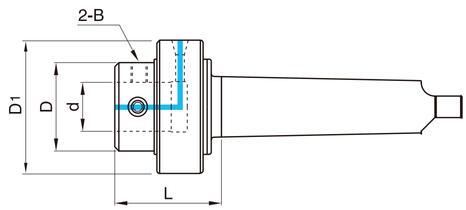
CODE NO.	D	d	L	B
MT4-ETA-22045	40	22	45	MTB-10145
MT4-ETA-28060	50	28	60	MTB-12175
MT4-ETA-36065	63	36	65	MTB-16225
MT5-ETA-22045	40	22	45	MTB-10145
MT5-ETA-28060	50	28	60	MTB-12175
MT5-ETA-36065	63	36	65	MTB-16225
MT5-ETA-45075	80	45	75	MTB-16260
MT6-ETA-36065	63	36	65	MTB-16225
MT6-ETA-45075	80	45	75	MTB-16260



DIN228B/MT SIDE LOCK OIL FEED Type

CODE NO.	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	75	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



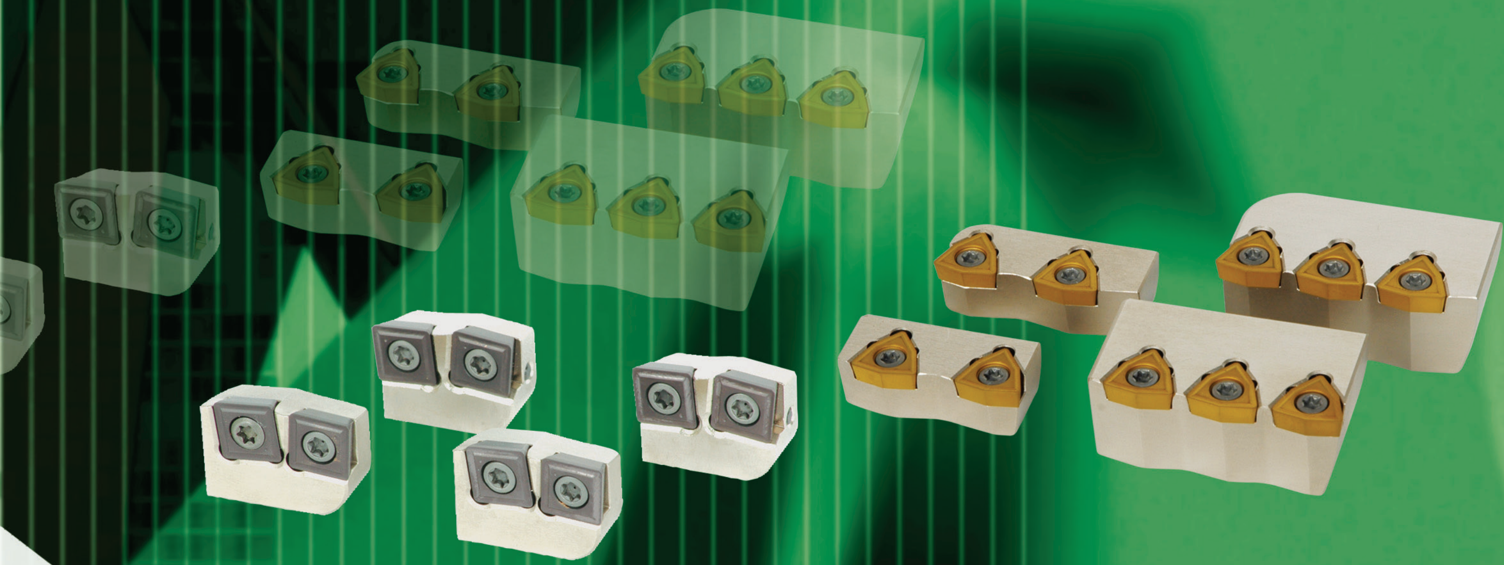


DIN228B/MT EXT MODULAR OIL FEED Type

CODE NO.	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


KoreaTechnics Ltd.
HIGH SPEED CUTTING TOOLS

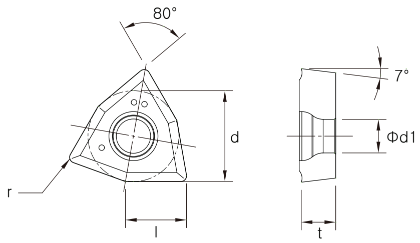
ACCESSORIES



ACCESSORIES

- INSERT
- CARTRIDGE
- PILOT DRILL
- DRIVE RING
- DRILL SLEEVE
- PULL STUD BOLT
- SCREWS

WCGX INSERT

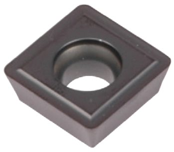


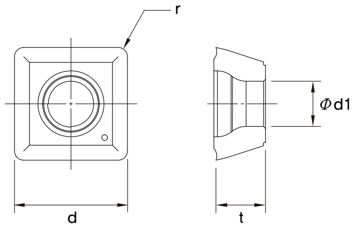
CODE NO.	l	d	t	r	Φd1	부품, Parts Screw
WCGX030204 PA	3.8	5.56	2.38	0.4	2.5	TSB-22045
WCGX040204 PA	4.3	6.35	2.38	0.4	2.8	TSB-25055
WCGX050308 PA	5.4	7.94	3.18	0.8	3.4	TSB-30070
WCGX06T308 PA	6.5	9.525	3.97	0.8	4.4	TSB-35090
WCGX080408 PA	8.7	12.7	4.76	0.8	5.5	TSB-40110

CODE NO.	피삭재, Workpiece					적용 드릴, For Drill			
	P	M	K	N	S	HSD(MCD)	VLT(TMD)	VMD	TPD
WCGX030204 PA	◎	○	○	△	△	Φ16.0~Φ20.0	Φ25	Φ45~Φ55	-
WCGX040204 PA	◎	○	○	△	△	Φ20.5~Φ25.0	Φ26.0~Φ30.0	Φ55~Φ60	-
WCGX050308 PA	◎	○	○	△	△	Φ25.5~Φ30.0	Φ31.0~Φ40.0	Φ60~Φ75	Φ40~Φ55
						-	Φ60.0~Φ75.0	Φ100~Φ105	
WCGX06T308 PA	◎	○	○	△	△	Φ31.0~Φ41.0	Φ41.0~Φ50.0	Φ75~Φ100	Φ60~Φ110
						Φ59.0~Φ80.0	Φ75.0~Φ80.0	Φ105~Φ140	
WCGX080408 PA	◎	○	○	△	△	Φ42.0~Φ58.0	Φ51.0~Φ59.0	Φ140~Φ180	-

ACCESSORIES

SPMX INSERT



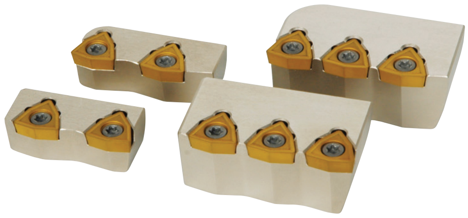


CODE NO.	d	t	r	Φd1	부품, Parts	
					For Screw	T-Driver
SPMX050204 PA	5.00	2.38	0.4	2.25	TSB-20045	TXL-6
SPMX060204 PA	6.00	2.38	0.4	2.61	TSB-22052	
SPMX07T308 PA	7.94	3.97	0.8	2.85	TSB-25065	TXL-8
SPMX090408 PA	9.80	4.30	0.8	4.05	TSB-35090	TXL-15
SPMX110408 PA	11.50	4.80	0.8	4.45	TSB-40100	
SPMX140512 PA	14.30	5.20	1.2	5.75	TSB-50125	TXL-20

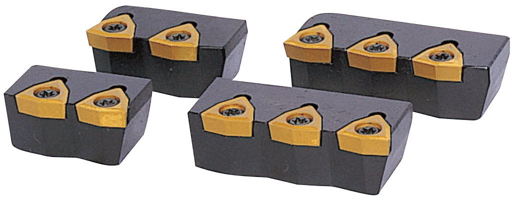
CODE NO.	피삭재, Workpiece					적용 드릴, For Drill	
	P	M	K	N	S	STD-V	FXD
SPMX050204 PA	◎	○	○	△	△	Φ13.0~Φ15.0	Φ18.0~Φ19.5
SPMX060204 PA	◎	○	○	△	△	Φ15.5~Φ21.5	Φ20.0~Φ25.0
SPMX07T308 PA	◎	○	○	△	△	Φ22.0~Φ27.5	Φ25.5~Φ30.0
SPMX110408 PA	◎	○	○	△	△	Φ28.0~Φ33.0	–
						Φ50.0-Φ60.0	–
SPMX110408 PA	◎	○	○	△	△	Φ34.0~Φ41.0	–
						Φ60.0-Φ75.0	–
SPMX140512 PA	◎	○	○	△	△	Φ42.0~Φ50.0	–
						Φ75.0~Φ80.0	–

CARTRIDGE

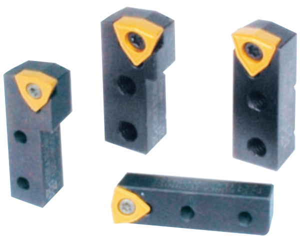
●Please shorten the length of outer cartridge if smaller diameter is needed. (EX:Ø77=by 1.5mm cutting MDC-075080T)
●DRILL 카트리지는 드릴바디의 수명을 연장시키고 바깥쪽 카트리지 단면을 밀링 작업으로 직경을 (5mm) 조절할 수 있습니다.



INNER	OUTER	INSERT	SCREW	DRIVER	FOR DRILL
HSC-5965N	HSC-5965T	WCGX06T308	TSB-35090	T-15	HSD-5965..D
HSC-6570N	HSC-6570T				HSD-6570..D
HSC-7075N	HSC-7075T				HSD-7075..D
HSC-7580N	HSC-7580T				HSD-7580..D
VMC-045050N	VMC-045050T	WCGX030204	TSB-22045	T-6	VMD-045050
VMC-050055N	VMC-050055T				VMD-050055
VMC-055060N	VMC-055060T	WCGX040204	TSB-25055	T-8	VMD-055060
VMC-060065N	VMC-060065T	WCGX050308	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	WCGX06T308	TSB-35090	T-15	VMD-075080, VLT · VSD-7580
VMC-080085N	VMC-080085T				VMD-080085
VMC-085090N	VMC-085090T				VMD-085090
VMC-090095N	VMC-090095T				VMD-090095
VMC-095100N	VMC-095100T				VMD-095100
VMC-100105N	VMC-100105T	WCGX050308	TSB-30070	T-8	VMD-100105
VMC-105110N	VMC-105110T	WCGX06T308	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	WCGX080408	TSB-40110		VMD-140150
VMC-150160N	VMC-150160T				VMD-150160
VMC-160170N	VMC-160170T				VMD-160170
VMC-170180N	VMC-170180T				VMD-170180

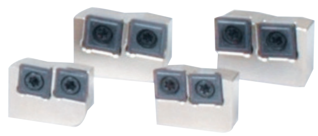


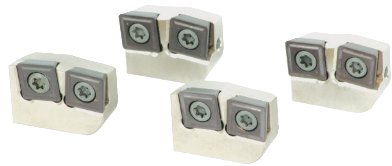
INNER	OUTER	INSERT	SCREW	DRIVER	FOR DRILL
HDC-5965N	HDC-5965T	WCGX06T308	TSB-35090	T-15	SFD·MCD-5965..D
MDC-045050N	MDC-045050T	WCGX030204	TSB-22045	T-6	MXD-045050
MDC-050055N	MDC-050055T				MXD-050055
MDC-055060N	MDC-055060T	WCGX040204	TSB-25055		MXD-055060
MDC-060065N	MDC-060065T			T-8	MXD-055060
MDC-065070N	MDC-065070T	WCGX050308	TSB-30070		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	WCGX06T308	TSB-35090	T-15	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	WCGX050308	TSB-30070	T-8	MXD-100105
MDC-105110N	MDC-105110T				MXD-105110
MDC-110115N	MDC-110115T				MXD-110115
MDC-115120N	MDC-115120T				MXD-115120
MDC-120125N	MDC-120125T	WCGX06T308	TSB-35090		MXD-120125
MDC-125130N	MDC-125130T				MXD-125130
MDC-130135N	MDC-130135T			T-15	MXD-130135
MDC-135140N	MDC-135140T				MXD-135140
MDC-140150N	MDC-140150T				MXD-140150
MDC-150160N	MDC-150160T	WCGX080408	TSB-40110		MXD-150160
MDC-160170N	MDC-160170T				MXD-160170
MDC-170180N	MDC-170180T				MXD-170180



INNER	OUTER	INSERT	INSERT SCREW	TORX DRIVER	CLAMPING BOLT FOR CARTRIDGE	FOR DRILL
TDC-W0503N	TDC-W0503T	WCGX050308	TSB-30070	T-8	M0412BH-W	TPD-040..D~TPD-055..D
TDC-W06T3N	TDC-W06T3T	WCGX 06T308	TSB-35090	T-15	M0616HC-W	TPD-060..D~TPD-110..D

● Adjustable within 6mm by exchangeable cartridge on the same drill body.
동일바디에 교환용 카트리지로 6mm범위 조절 가능(개별 카트리지 임)
(Example) STD-657040D(65-70 available)
예)STD - 657040D(ø65~ø70 사용가능)





INNER	OUTER	INSERT	INSERT SCREW	TORX DRIVER	CLAMPING BOLT FOR CARTRIDGE	FOR DRILL
STC-V5055N	STC-V5055T	SPMX-090408	TSB-35090	T-15	M0512BH-W	STD-V5055..D
STC-V5560N	STC-V5560T	SPMX-090408	TSB-35090		M0512BH-W	STD-V5560..D
STC-V6065N	STC-V6065T	SPMX-110408	TSB-40100		M0512BH-W	STD-V6065..D
STC-V6570N	STC-V6570T				M0614HC-W	STD-V6570..D
STC-V7075N	STC-V7075T					STD-V7075..D
STC-V7580N	STC-V7580T	SPMX-140512	TSB-50125	T-20		STD-V7580..D

INNER	OUTER	INSERT	INSERT SCREW	DRIVER	Clamping Bolt for cartridge	Adjust Screw	FOR DRILL
STC-5055N	STC-5051T	SPMX-090408	TSB-35090	T-15	M0512BH-W	M0306SS	STD-5055..D
	STC-5152T						
	STC-5253T						
	STC-5354T						
	STC-5455T						
STC-5560N	STC-5556T						STD-5560..D
	STC-5657T						
	STC-5758T						
	STC-5859T						
	STC-5960T						
STC-6065N	STC-6061T	SPMX-110408	TSB-40100				STD-6065..D
	STC-6162T						
	STC-6263T						
	STC-6364T						
	STC-6465T						
STC-6570N	STC-6566T				M0614HC-W		STD-6570..D
	STC-6667T						
	STC-6768T						
	STC-6869T						
	STC-6970T						
STC-7075N	STC-7071T						STD-7075..D
	STC-7172T						
	STC-7273T						
	STC-7374T						
	STC-7475T						
STC-7580N	STC-7576T	SPMX-140512	TSB-50125	T-20		M0408SS	STD-7580..D
	STC-7677T						
	STC-7778T						
	STC-7879T						
	STC-7980T						

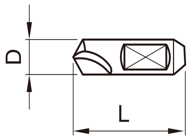
∗ It is not compatible with STC-V and stc.
* STC-V 카트리지와 STC카트리지는 서로 호환되지 않습니다.

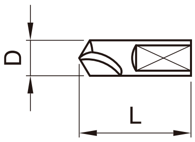
INNER	OUTER	INSERT	INSERT SCREW	TORX DRIVER	CLAMPING BOLT FOR CARTRIDGE	FOR DRILL
VLC-410450N	VLC-000410T	WCGX06T308	TSB-35090	T-15	M0510HC-W	VLT(VSD)-4145..D
	VLC-000420T					
	VLC-000430T					
	VLC-000440T					
	VLC-000450T					
VLC-460500N	VLC-000460T					VLT(VSD)-4650..D
	VLC-000470T					
	VLC-000480T					
	VLC-000490T					
	VLC-000500T					
VLC-510550N	VLC-000510T	WCGX080408	TSB-40110		M0614HC-W	VLT(VSD)-5155..D
	VLC-000520T					
	VLC-000530T					
	VLC-000540T					
	VLC-000550T					
VLC-560590N	VLC-000560T					VLT(VSD)-5659..D
	VLC-000570T					
	VLC-000580T					
	VLC-000590T					

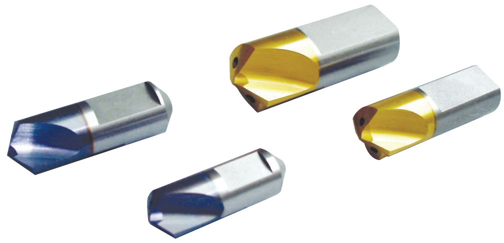
● Construction System of Screw's code no.

Code no.	Shape	Designation	Code no.	Shape	Designation
M□□□□BH		Button head screw 버튼헤드스크류	M□□□□BH-W		Button head screw+washer 버튼헤드스크류 + 와샤
M□□□□HC		Headcap screw 헤드캡스크류	M□□□□HC-W		Headcap screw + washer 헤드캡스크류 + 와샤
M□□□□SS		Set sctew 셋트스크류	M□□□□SS-H		Set sctew hole 셋트스크류 홀 관통
M□□□□CP		Cornpoint screw 콘 포인트 스크류	M□□ □□ □□ — □ 'M' size Length shape Note(etc.)		

PILOT DRILL/DRIVE RING/DRILL SLEEVE

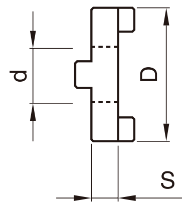




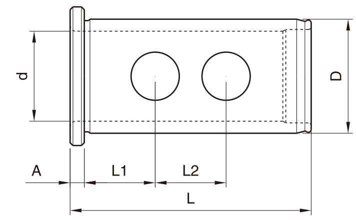


CODE NO.	D	L	FOR DRILL
PLD-V0630 TIN	6	30	VLT, FND, TSD, TMD
PLD-V0835 TIN	8	35	VLT, FND, TSD, TMD
PLD-V1035 TIN-H	10	35	VMD, VLT, MXD, TSD, TMD
PLD-V1238 TIN-H	12	38	VMD, VLT, MXD, TSD, TMD
PLD-V1645 TIN-H	16	45	VMD, VLT, MXD, TSD, TMD
PLD-2045 TIN-H	20	45	VMD, MXD
PLD-2556 TIN-H	25	56	VMD, MXD
PLD-3068 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

● Ex.) PLD-2556 TIN-H : Dia:Φ25, Length:56mm, TiN coated, Oil hole type)



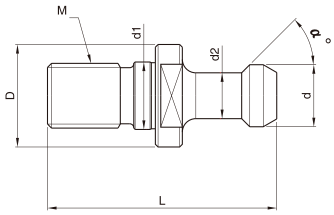
CODE NO.	D	d	S
DVR-281310	28	13	10
DVR-321610	32	16	
DVR-402212	40	22	12
DVR-482712	48	27	
DVR-583214	58	32	14
DVR-704014	70	40	
DVR-805016	80	50	16

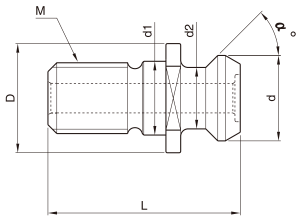


CODE NO.	D	d	L	L1	L2	A
DSL-322065	32	20	65	20	-	5
DSL-322565	32	25	65	20	20	5
DSL-402075	40	20	75	20	-	5
DSL-402575	40	25	75	20	25	5
DSL-403275	40	32	75	20	25	5
DSL-502095	50	20	95	35	-	5
DSL-502595	50	25	95	35	-	5
DSL-503295	50	32	95	35	35	5
DSL-504095	50	40	95	35	35	5

●사이드록 및 오일홀더용 드릴 슬리브입니다. (SLA, OMS, OAS)
●NEW TYPE 홀더(WSA, CMS, CMB, CAW)에는 적용되지 않습니다.

PULL STUD BOLT/DRIVERS



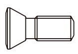
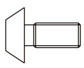
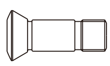
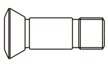
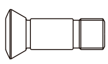
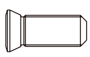
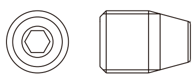
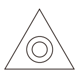


CODE NO.	D	d	d1	d2	M	L1	L	$\alpha°$
PSB-40-1	23	15	17	10	M16	29	60	45°
PSB-40-2	23	15	17	10	M16	29	60	60°
PSB-40-3	23	15	17	10	M16	29	60	90°
PS-G51	22	18.796	17	12.446	M16	19.106	44.106	45°
PSB-50-1	38	23	25	17	M24	45	85	45°
PSB-50-2	38	23	25	17	M24	45	85	60°
PSB-50-3	38	23	25	17	M24	45	85	90°
PS-G41	37	28.956	25	20.828	M24	25.2	65.2	45°

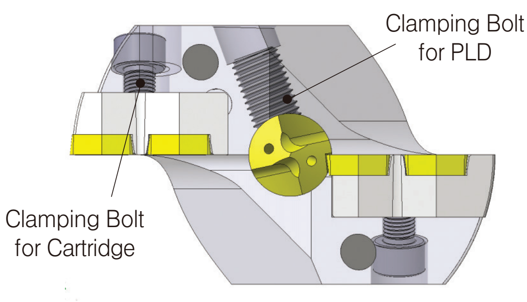
	TXL-6 TXL-8 TXL-15 TXL-20
	TXK-15 TXK-20
	TXT-20 TXT-25 TXT-30
	TXD-15 TXD-20

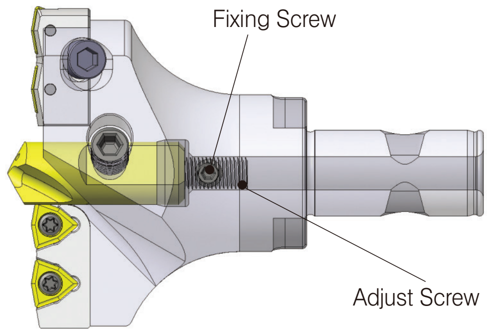
ACCESSORIES

CLAMPING SCREWS FOR INDEXABLE INSERTS

		CODE NO.	DESCRIPTION	DRIVER
	DRILL	TSB-18045	M 1.8X4.5	T-6
		TSB-20045	M 2.0X4.5	T-6
		TSB-22045	M 2.2X4.5	T-6
		TSB-22052	M 2.2X5.2	T-6
		TSB-25055	M 2.5X5.5	T-8
		TSB-25065	M 2.5X6.5	T-8
		TSB-30070	M 3.0X7.0	T-8
		TSB-35090	M 3.5X9.0	T-15
		TSB-40100	M 4.0X10.0	T-15
		TSB-40110	M 4.0X11.0	T-15
		TSB-50125	M 5.0X12.5	T-20
	CUTTER	CSB-6012	M 6.0X12.0	4
		CSB-8012	M 8.0X12.0	5
		CSB-8018	M 8.0X18.0	6
	BALL NOSE CUTTER	TSB-319	M 4.0X8.0	T-15
		TSB-243	M 5.0X11.0	T-20
		TSB-390	M 4.0X8.5	T-15
	FINISHING BALL CUTTER	TSB-391	M 5.0X9.0	T-20
		TSB-392	M 5.0X13.0	T-20
		TSB-393	M 5.0X15.5	T-20
		TSB-394	M 6.0X20.5	T-20
		TSB-395	M 8.0X25.0	T-30
	FINISHING BALL CUTTER	TSB-5114	M 4.0X13.0	T-15
		TSB-5214	M 5.0X16.0	T-15
		TSB-5314	M 6.0X21.0	T-20
		TSB-5414	M 8.0X25.0	T-20
	FINISHING BALL CUTTER	TSB-5116	M 3.5X8.5	T-15
		TSB-5216	M 5.0X10.0	T-15
		TSB-5314	M 5.0X13.0	T-20
		TSB-5414	M 6.0X17.5	T-20
	MODULAR ARBOR	MTB-08115	M 8.0X11.5	4
		MTB-10145	M 10.0X14.5	5
		MTB-12175	M 12.0X17.5	6
		MTB-16225	M 16.0X22.5	8
		MTB-16260	M 16.0X26.5	8
	SHIM	CST-43		

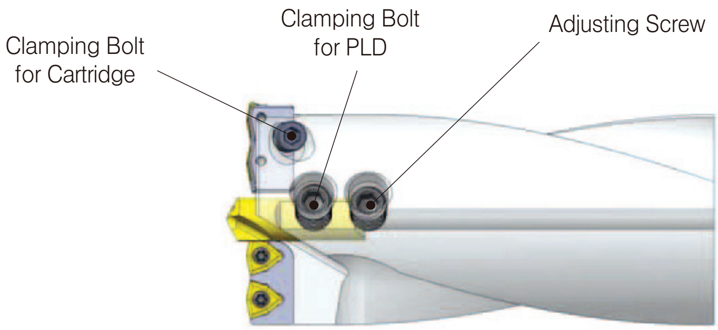
CLAMPING BOLTS FOR VMD



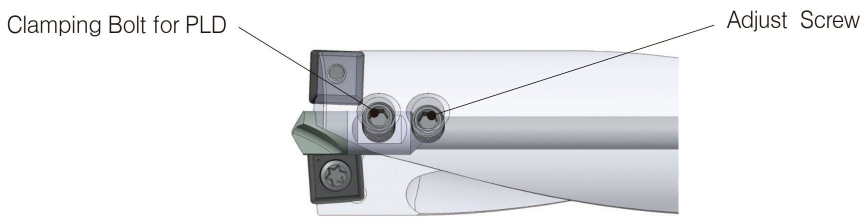


<table>
<tr><th>CODE NO.</th><th>Cartridge</th><th>Clamping Bolt for Cartridge</th><th>PILOT Drill</th><th>Clamping Bolt for PLD</th><th>Adjust Screw</th><th>Fixing Screw</th></tr>
<tr><td>VMD-045050</td><td>VMC-045050N/T</td><td rowspan="2">M0410BH-W</td><td rowspan="2">PLD-1035TIN-H</td><td rowspan="2">M0610SS</td><td rowspan="2">M0610SS-H</td><td rowspan="3">M0408SS</td></tr>
<tr><td>VMD-050055</td><td>VMC-050055N/T</td></tr>
<tr><td>VMD-055060</td><td>VMC-055060N/T</td><td rowspan="4">M0512BH-W</td><td rowspan="4">PLD-1238TIN-H</td><td rowspan="3">M0812SS</td><td rowspan="4">M0815SS-H</td></tr>
<tr><td>VMD-060065</td><td>VMC-060065N/T</td><td rowspan="3">M0508SS</td></tr>
<tr><td>VMD-065070</td><td>VMC-065070N/T</td></tr>
<tr><td>VMD-070075</td><td>VMC-070075N/T</td><td>M0815SS</td></tr>
<tr><td>VMD-075080</td><td>VMC-075080N/T</td><td>M0612HC-W</td><td rowspan="5">PLD-1645TIN-H</td><td rowspan="2">M1015SS</td><td rowspan="2">M1015SS-H</td><td rowspan="17">M0610SS</td></tr>
<tr><td>VMD-080085</td><td>VMC-080085N/T</td><td>M0614HC-W</td></tr>
<tr><td>VMD-085090</td><td>VMC-085090N/T</td><td rowspan="3">M0616HC-W</td><td rowspan="3">M1020SS</td><td rowspan="3">M1018SS-H</td></tr>
<tr><td>VMD-090095</td><td>VMC-090095N/T</td></tr>
<tr><td>VMD-095100</td><td>VMC-095100N/T</td></tr>
<tr><td>VMD-100105</td><td>VMC-100105N/T</td><td rowspan="3">M0818HC-W</td><td rowspan="4">PLD-2045TIN-H</td><td rowspan="3">M1220SS</td><td rowspan="3">M1220SS-H</td></tr>
<tr><td>VMD-105100</td><td>VMC-105110N/T</td></tr>
<tr><td>VMD-110115</td><td>VMC-110115N/T</td></tr>
<tr><td>VMD-115120</td><td>VMC-115120N/T</td><td>M0820HC-W</td><td>M1225SS</td><td rowspan="9">M1420SS-H</td></tr>
<tr><td>VMD-120125</td><td>VMC-120125N/T</td><td rowspan="8">M0825HC-W</td><td rowspan="6">PLD-2556TIN-H</td><td rowspan="6">M1425SS</td></tr>
<tr><td>VMD-125130</td><td>VMC-125130N/T</td></tr>
<tr><td>VMD-130135</td><td>VMC-130135N/T</td></tr>
<tr><td>VMD-135140</td><td>VMC-135140N/T</td></tr>
<tr><td>VMD-140150</td><td>VMC-140150N/T</td></tr>
<tr><td>VMD-150160</td><td>VMC-150160N/T</td></tr>
<tr><td>VMD-160170</td><td>VMC-160170N/T</td><td rowspan="2">PLD-3068TIN-H</td><td rowspan="2">M1625SS</td></tr>
<tr><td>VMD-170180</td><td>VMC-170180N/T</td></tr>
</table>

CLAMPING BOLTS FOR VLT

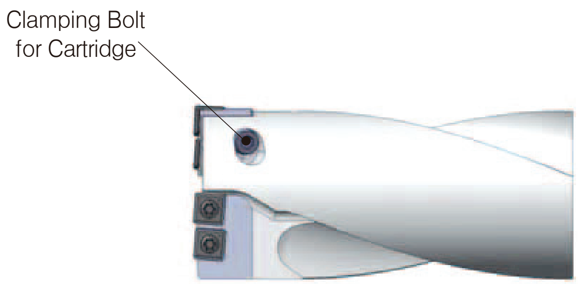


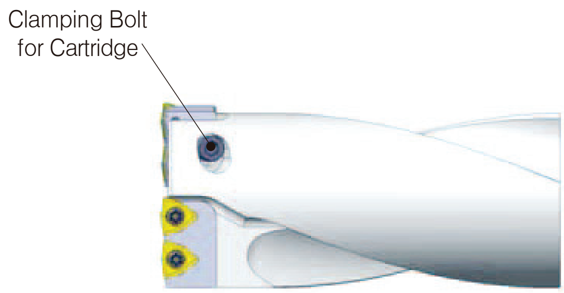
CODE NO.	카트리지 볼트, CARTRIDGE 내측, INNER	외측, OUTER	카트리지 볼트 Clamping Bolt for Cartridge	PILOT DRILL 센터드릴 Pilot Drill	PLD볼트 Clamping Bolt for PLD	조절볼트 Adjusting Screw
VLT~250..D VLT~280..D	–	–	–	PLD-V0630TIN	M0508SS	M0510CP
VLT~290..D VLT~300..D					M0510SS	
VLT~310..D VLT~340..D				PLD-V0835TIN	M0610SS	M0610CP
VLT~350..D VLT~400..D					M0612SS	
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	M0512HC-W		M0815SS	
		VLC-000470T				
		VLC-000480T				
		VLC-000490T				
		VLC-000500T				
VLT-5155..D	VLC-510550N	VLC-000510T	M0612HC-W	PLD-V1238TIN-H	M1015SS	M1016CP
		VLC-000510T				
		VLC-000520T				
		VLC-000530T				
		VLC-000540T				
		VLC-000550T				
VLT-5659..D	VLC-560590N	VLC-000560T	M614HC-W			
		VLC-000570T				
		VLC-000580T				
		VLC-000590T				
VLT-6065..D	VMC-060065N	VMC-060065T	M0510BH-W		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	PLD-V1645TIN-H		



FXD

CODE NO.	센터드릴, PILOT DRILL		
	센터드릴, Pilot Drill	PLD볼트, Clamping Bolt for PLD	조절볼트, Adjusting Screw
FXD-180..D~FXD-220..D	PLD-V0630TIN	M0506SS	M0506CP
FXD-225..D~FXD-250..D		M0508SS	
FXD-255..D~FXD-300..D	PLD-V0825TIN	M0608SS	M0610CP





STD-V

CODE NO.	카트리지, CARTRIDGE		
	내측, INNER	외측, OUTER	카트리지볼트 Clamping Bolt for Cartridge
STD-V5055..D	STC-V5055N	STC-V5055T	M0512BH-W
STD-V5560..D	STC-V5560N	STC-V5560T	M0512BH-W
STD-V6065..D	STC-V6065N	STC-V6065T	M0512BH-W
STD-V6570..D	STC-V6570N	STC-V6570T	M0614HC-W
STD-V7075..D	STC-V7075N	STC-V7075T	M0614HC-W
STD-V7580..D	STC-V7580N	STC-V7580T	M0614HC-W

HSD-V

CODE NO.	카트리지, CARTRIDGE		
	내측, INNER	외측, OUTER	카트리지볼트 Clamping Bolt for Cartridge
HSD-V5965..D	HSC-5965N	HSC-5965T	M0512BH-W
HSD-V6570..D	HSC-6570N	HSC-6570T	M0614HC-W
HSD-V7075..D	HSC-7075N	HSC-7075T	M0614HC-W
HSD-V7580..D	HSC-7580N	HSC-7580T	M0614HC-W


POWER
30KW
20KW
10KW
F=0.2mm/REV
F=0.1mm/REV
F=0.05mm/REV
0 20 30 40 50 60 70 80
DRILL DIA (m/m)
Required Power [HIGH SPEED DRILL]
X
ø d1
ø d max
The chart relates to the drilling of steel at a cutting speed of 100 m/min.
For cast iron materials the effective power requirement Pe is around 1/3 lower.
Power requirements for other cutting speeds can be calculated proportionally, e.g.:
Φ =40 mm (Drill dia)
f=0.16 mm (Feed)
v =180 m/min (Cutting speed)
Pe100 =8.3kw for vc = 180 m/min
(표상에 나타난 교점칫수,절삭속도100 m/min 기준)
Pe80=1.8 x 8.3 = 15kw for vc = 180 m/min
kw=Power requirement in kw
Φ =Drill diameter in mm
f=Feed in mm/rev.
k =Specific cutting force in N/㎟
v=CuttingSpeed in m/min
η =Machine efficiency
max. D = D + 2 x Adjustment
By offsetting a non-rotating drill
in the direction of the outside
cutting edge, holes lager than
the tool' s nominal diameter can
be produced
[HSD 카트리지 타입 가공직경 셋팅방법]
카트리지 클램핑 볼트
컷팅부
외측 카트리지
1) 외측카트리지를, 카트리지 클램핑 볼트를 풀어 바디에서 이탈시킨다.
2) 외측카트리지의 측면 밀착부를, 가공하려는 직경을 계산하여 밀링작업한다.
3) 컷팅된 외측카트리지의 날카로운 모서리면을 모따기 처리한다.
4) 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.
예) HSD-707530D를 Φ72로 셋팅한다면,
기본 직경은 Φ75이므로. Φ75-Φ72 = 3 -> 반지름으로 계산하여 1.5 mm를 컷팅한다.

[기술자료] TECHNICAL DATA

- 절삭 가공 공식 (Formula for Cutting operations)
- 피삭재 그룹 (Workpiece Grup)
- 가공조건표 (Recommended cutting values)
- 가공물 재질 구분표 (Comparison of Work-piece)
- 경도환산표 Hardness (Comparison Table)
- 작업시 유의사항 (Matters to be attended)
- 아버규격 (Arbor Standard)
- 아버사용법 (How to use Arbor)
- 결합도 (Module Combinations)

▶ 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]

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

● 토르크 [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]

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

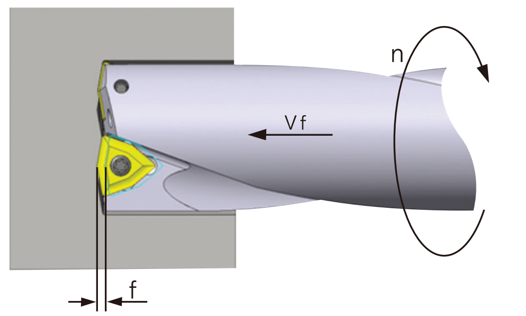
● 테이블 이송 속도 [mm/min]

$$V_f = f \times n$$

● 피삭재 배출량 [cm3/min]

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

- D : 툴 직경(mm)
- n : 회전수(min-1)
- Z : 날수
- f : 이송속도(mm)
- Vc : 절삭속도(m/min)
- Vf : 이송속도(mm/min)
- Pmot : 소요동력(kW)
- Q : 칩 배출량(cm3/min)
- η : 기계 가동율(0.7-0.95)
- Mc : 토르크(Nm)
- Ff : 이송분력(N)
- fz : 날당 이송량(mm)
- kc : 피삭재의 특정한 절삭동력(N/mm2) -> kc값은 피삭재그룹(다음페이지 참조)



▶피삭재 그룹표 (Workpiece Group)

ISO	피삭재 Material group	피삭재 조건 Composition		인장강도(N/mm2) Tensile strength	경도(HB/HRC) hardness	피삭재 그룹 Cutting groups	절삭동력(N/mm2) kc값(Values)
P Steel 강	일반강(alloy steel) 주강(cast seel) 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 Stainless steel 스테인레스강	Stainless steel 스테인레스강		martensitic/ferrit	680	200	12	2300
			martensitic	820	240	13	2800
			austenitic	600	180	14	2600
K Cast iron 주철	회주철 Grey cast iron		pearlitic/ferrit		180	15	1100
			pearlitic		260	16	1300
	구상흑연주철 Cast iron with nodular cast iron		ferritisc		160	17	1100
			pearlitic		250	18	1800
	가단주철 Malleable cast iron		ferritisc		130	19	900
			pearlitic		230	20	1000
N Nonferrous metals 비철금속	Aluminum Forging alloys 알루미늄 단조강		not heat treatable		60	21	500
			heat treatable		100	22	800
	Aluminum Cast alloys 알루미늄 주물강	〈=12% Si	not heat treatable		75	23	800
			heat treatable		90	24	
		〉12% Si	not heat treatable		130	25	
	Copper and copper alloys 구리 합금강	〉1% Pb	machining alloys		110	26	700
			CuZn, CuSnZn		90	27	700
			Cu, lead-fr		100	28	1700
S Super-alloys and titanium 티타늄 합금강	Heat-resistant alloy 고온 합금	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
	Titanium alloys 티탄 합금	Pure titanium		RM 400		36	1700
		α-β alloys		RM 1050		37	1700

Technical Data

▶HSD-V, HSD, SFD 절삭조건표 (Recommended cutting values for HSD-V, HSD, and SFD)

	재질구분	Vc (m/min)	이송 (mm/rev)						
			Φ13~Φ15.5	Φ16~Φ20	Φ20.5~Φ25	Φ25.5~Φ30	Φ31~Φ41	Φ42~Φ58	Φ59~Φ80
Steel 강	저탄소강 (-0.25%) (Unalloyed steel)	180-260	0.05-0.08	0.06-0.10	0.07-0.12	0.09-0.15	0.11-0.18	0.15-0.28	0.11-0.18
	고탄소강(0.25%-) (Low-alloy steeL)	150-240	0.05-0.08	0.06-0.10	0.07-0.12	0.09-0.15	0.11-0.18	0.15-0.28	0.11-0.18
	경합금강 (-HB300) (Low-alloy steeL)	120-240	0.05-0.08	0.06-0.10	0.07-0.12	0.09-0.15	0.11-0.18	0.15-0.28	0.11-0.18
	고합금강(HB300-) (High-alloy steel)	130-220	0.05-0.08	0.06-0.10	0.07-0.12	0.09-0.15	0.11-0.18	0.15-0.28	0.11-0.18
Stainless steel 스테인레스강	Stainless steel 스테인레스강	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	0.08-0.16
Cast iron 주철	회주철 Grey cast iron	150-250	0.05-0.11	0.07-0.13	0.08-0.12	0.10-0.18	0.14-0.26	0.18-0.35	0.14-0.26
	구상흑연주철 Cast iron with nodular cast	120-200	0.05-0.11	0.06-0.13	0.07-0.12	0.08-0.18	0.14-0.26	0.18-0.35	0.14-0.26
Nonferrous metals 비철금속	알루미늄 단조강 Aluminium forging alloys	300-380	0.04-0.06	0.05-0.07	0.16-0.08	0.07-0.09	0.10-0.14	0.12-0.17	0.10-0.14
	알루미늄 주물강 Aluminium cast alloys	260-330	0.04-0.06	0.05-0.07	0.06-0.08	0.07-0.09	0.10-0.14	0.12-0.17	0.10-0.14
Super-alloys and titanium 티타늄 합금강	Super-alloys and titanium 티타늄 합금강	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

▶STD-V, STD 절삭조건표 (Recommended cutting values for STD-V, STD)

	재질구분	Vc (m/min)	이송 (mm/rev)								
			Φ12.5~Φ15	Φ15.5~Φ21.5	Φ22~Φ27.5	Φ28~Φ33	Φ34~Φ41	Φ42~Φ50	Φ50~Φ60	Φ60~Φ75	Φ75~Φ80
Steel 강	저탄소강 (-0.25%) (Unalloyed steel)	180-250	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%-) (Low-alloy steeL)	160-220	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25	0.10-0.14	0.12-0.18	0.11-0.18
	경합금강 (-HB300) (Low-alloy steeL)	150-220	0.06-0.12	0.08-0.14	0.10-0.18	0.12-0.22	0.12-0.23	0.13-0.24	0.08-0.15	0.10-0.18	0.10-0.18
	고합금강 (HB300-) (High-alloy steel)	130-180	0.06-0.10	0.08-0.15	0.10-0.20	0.12-0.23	0.12-0.24	0.13-0.25	0.08-0.14	0.09-0.15	0.09-0.14
Stainless steel 스테인레스강	Stainless steel 스테인레스강	170-240	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.19	0.06-0.13	0.08-0.15	0.08-0.14
Cast iron 주철	회주철 Grey cast iron	180-250	0.06-0.12	0.08-0.16	0.12-0.20	0.15-0.25	0.16-0.28	0.18-0.30	0.12-0.20	0.15-0.20	0.15-0.20
	구상흑연주철 Cast iron with nodular cast	130-200	0.06-0.10	0.08-0.15	0.10-0.18	0.12-0.20	0.15-0.23	0.16-0.25	0.10-0.15	0.09-0.18	0.10-0.18
Nonferrous metals 비철금속	Aluminium 알루미늄	330-380	0.06-0.14	0.08-0.15	0.10-0.20	0.12-0.22	0.14-0.23	0.15-0.26	0.14-0.20	0.14-0.23	0.15-0.23
Super-alloys and titanium 티타늄 합금강	Super-alloys and titanium 티탄 합금	30-60	0.05-0.10	0.06-0.14	0.08-0.18	0.10-0.22	0.12-0.22	0.14-0.24	0.10-0.15	0.1-0.15	0.1-0.15

▶VLT, VSD, TSD 절삭조건표 (Recommended cutting values for VLT, VSD and TSD)

	재질구분	Vc (m/min)	이송 (mm/rev)						
			Φ25	Φ26~Φ30	Φ31~Φ40	Φ41~Φ50	Φ51~Φ59	Φ60~Φ75	Φ75~Φ80
Steel 강	탄소강(−0.25%) (Low−alloy steeL)	130−190	0.06−0.10	0.07−0.11	0.08−0.12	0.1−0.14	0.14−0.2	0.08−0.12	0.1−0.14
	탄소강 (0.25%−) (High−alloy 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
Stainless steel 스테인레스강	Stainless steel 스테인레스강	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
Cast iron 주철	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
Nonferrous metals 비철금속	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

▶VMD, MXD 절삭조건표 (Recommended cutting values for VMD, MXD)

	재질구분	Vc (m/min)	이송 (mm/rev)						
			Φ45~Φ55	Φ55~Φ60	Φ60~Φ75	Φ75~Φ100	Φ100~Φ105	Φ105~Φ150	Φ150~Φ180
Steel 강	탄소강 (-0.25%) (Low-alloy steeL)	120-180	0.06-0.10	0.07-0.11	0.08-0.12	0.1-0.14	0.14-0.2	0.08-0.12	0.1-0.14
	탄소강 (0.25%-) (High-alloy steeL)	110-170	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)	90-130	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
Stainless steel 스테인레스강	Stainless steel 스테인레스강	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
Cast iron 주철	회주철 Grey cast iron	120-180	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	100-180	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
Nonferrous metals 비철금속	알루미늄 단조강 Aluminium forging alloys	180-280	0.04-0.06	0.07-0.12	0.08-0.13	0.09-0.15	0.12-0.2	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	0.12-0.2	0.08-0.13	0.09-0.15

▶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
P Steel 강	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	41CrAMo7	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	Z100CnMoV51Z100CdV5	BA2	2260	Z100CnMoV51	Z100CnMoV51	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	100Vi	–	–	–	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	Z85WKCV2723	SKH3
	SKH3	BT4	T4	S18-1-2-5	HS18-1-1-5	X78WCo1805KU	–	Z80WKCV	SKH9
	SKH51	BM2	M2	S6-5-2	HS6-5-2	X82WCo1805KU	-2722	Z85WDCV	–
	–	–	–	M7	HS2-9-2	Z100WCWVHS2-9-2	2782	S2-9-2	–
	SKH2	BT1	T1	S18-0-1	HS18-0-1	X75W18Ku	–	Z08WCV	SKH2
	–	BS1	S1	45WCrV7	45WCrSi8	45WCrV8Ku	2710	–	–

▶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 Stainless Steel 스테인레스 강	Auste nnite 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	Z6CNNb18.10	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		X53CrMnNiNN	–	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	

▶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 Cast iron 주철	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-AlSi12	–	–	4261	–	–
	–	LM9	A360.2	G-AlSi10Mg(Cu)	–	–	4253	–	–
	–	LM20	A413.1	G-AiSi12(Cu)	–	–	4260	–	–
	–	LM24	A380.1	GD-AlSi8Cu	–	–	4250	3-	–
	–	–	A413.0	GD-AlSi12	–	–	4247	–	–

▶경도환산표 (Hardness Comparison Table)

인장강도 Rm N/㎟	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
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

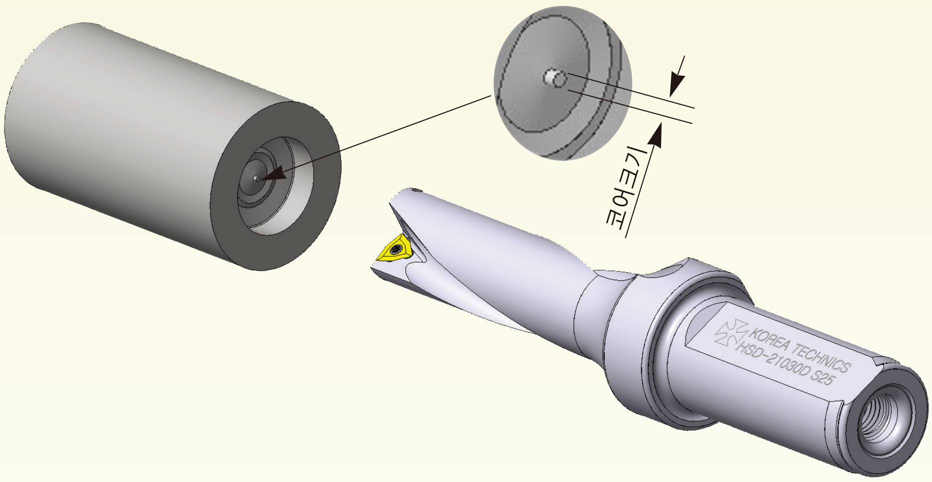
인장강도	N/㎟	Rm
비커스경도	다이아몬드 피라미드 136º 측정힘 F ≥98 NN/㎟	HV
브리넬경도 산출값: HB=0,95*HV	0,102*F/D = 30 N/㎟ F=측정힘(N) D=측정 추 직경(mm)	HB
록웰경도 C	다이아몬드 콘 120º 전체 측정 힘 1471 ±9N	HRC

선반 작업시 주의사항

Directions for the work of the lathe

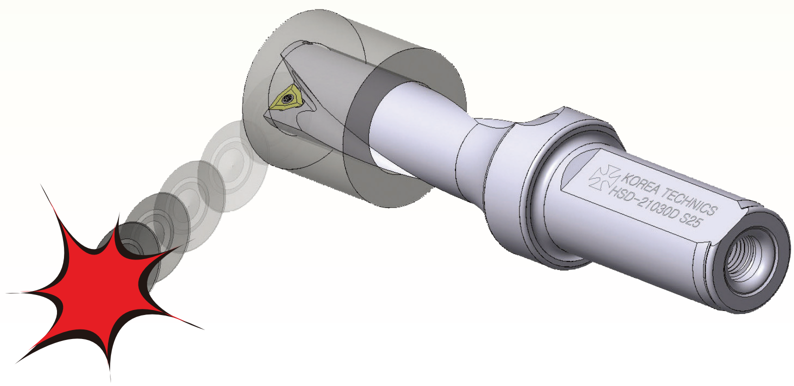
선반장비에서 하이스피드 드릴을 처음 사용하실 경우, 가공물을 5mm 가량 드릴링 하신 후에,
코어(Core) 크기를 확인해 주시기 바랍니다.
코어(Core)경의 크기는 0.2mm~0.8mm가 되어야 하며, 코어가 너무 작거나 내측 인서트와
안쪽 코너부분이 깨진다면 드릴을 180˚ 회전하여 작업을 하시기 바랍니다.

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.



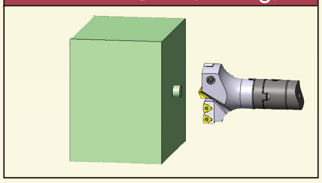
Turbo Drill & MAX Drill 사용시 주의사항

Directions for the use Turbo drill & MAX drill

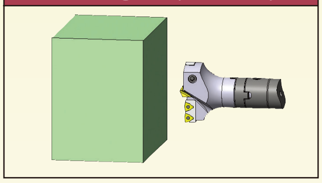
◈ 아래 그림과 같이 가공물 표면에 센터드릴 직경보다 큰 홈이 있거나, 돌출된 경우 심한 진동으로 센터드릴과 인서트에 손상이 생길 수 있습니다.

◈ As the below pictures in the case that there are biger home than center drill or protruded part, The center drill and insert can be broken by hard vibration.

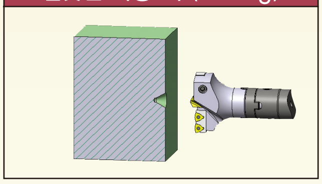
잘못된 사용 예 (Wrong)



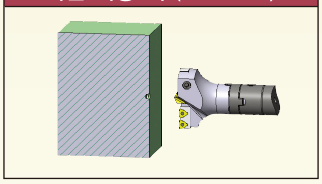
바른 사용 예 (Correct)



잘못된 사용 예 (Wrong)



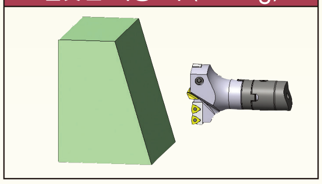
바른 사용 예 (Correct)



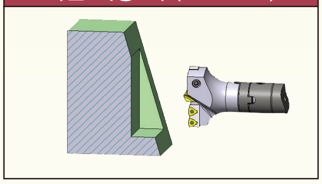
◈ 구배나 경사가 있는 가공면의 경우, 밀링작업하여 평평하게 하신후 드릴링 작업을 하십시오.

◈ In the case that there is inclined side, after make the part flat by milling work, please do drilling work.

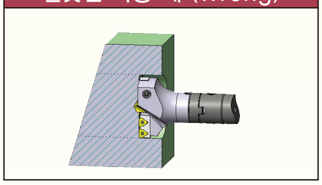
잘못된 사용 예 (Wrong)



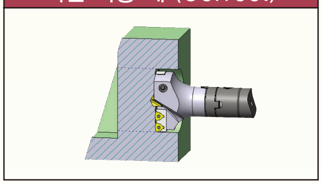
바른 사용 예 (Correct)



잘못된 사용 예 (Wrong)



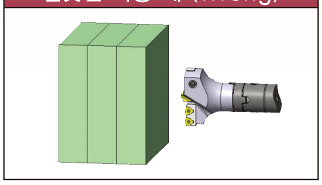
바른 사용 예 (Correct)



◈ 겹판가공은 불가합니다. 겹판가공을 원하실 경우, STD나 FXD 드릴을 사용하여 주십시오.

◈ Overlapped driling is impossible. In case of wanting the overlapped drilling, Please use STD and FXD drill.

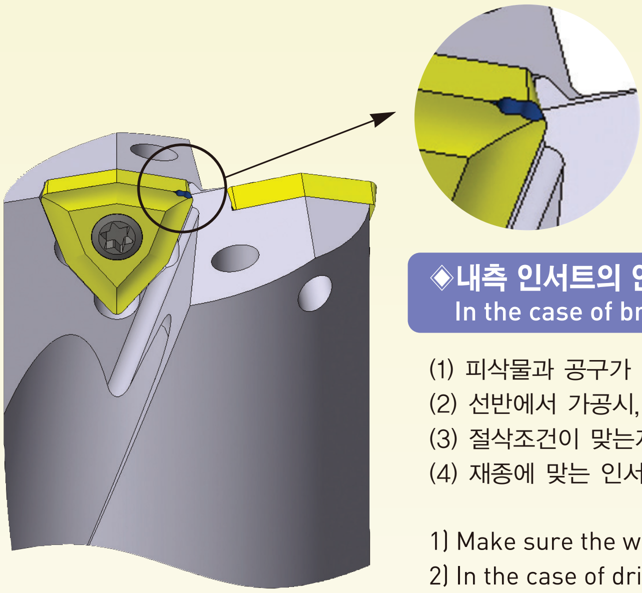
잘못된 사용 예 (Wrong)



바른 사용 예 (Correct)

High speed Drill 사용시 주의사항

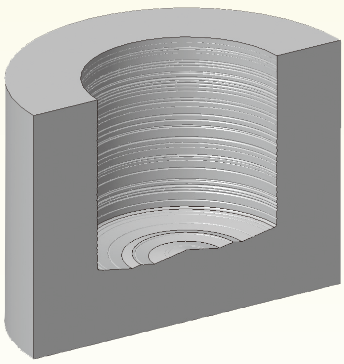
Directions for the use of High speed drill



◈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.

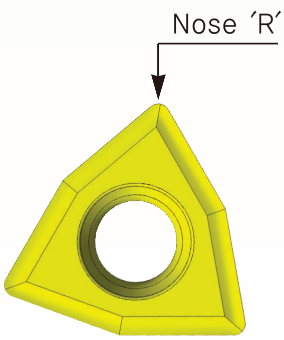
1) Make sure the workpiece and tool are fixed firmly.
2) In the case of drilling in the lathe, drill after turning the tool to 180 angle.
3) make sure the cutting condition is right.
4) make sure the insert is correct for the workpiece.



◈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.



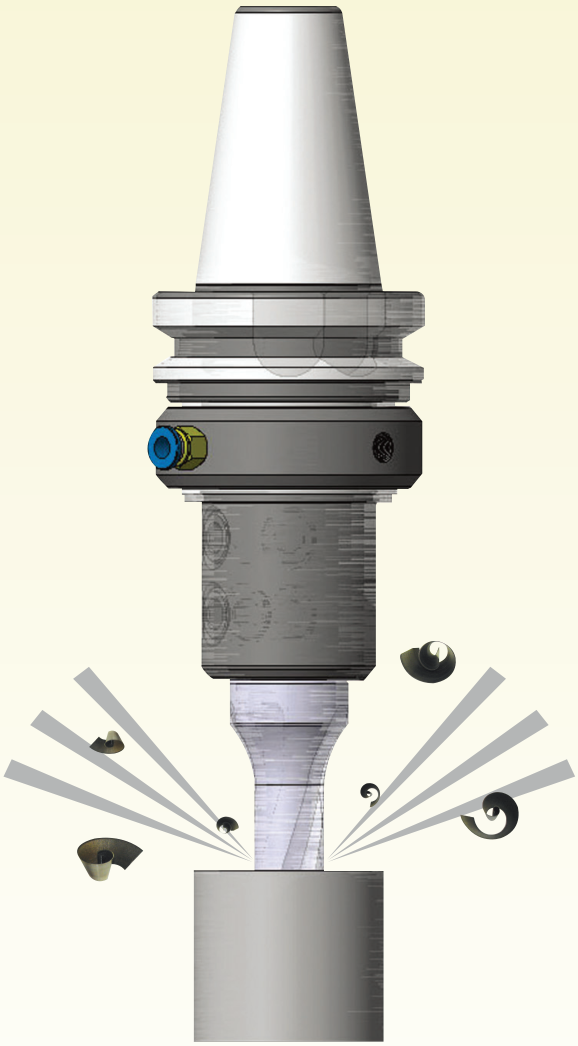
◈가공직경이 0.3mm정도 크거나 작게 나올 경우,
In the case that drilling diameter is 0.3mm smaller and bigger.

(1) 인서트 Nose 'R' 크기를 확인해 본다.
(2) 스핀들부에 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.

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.

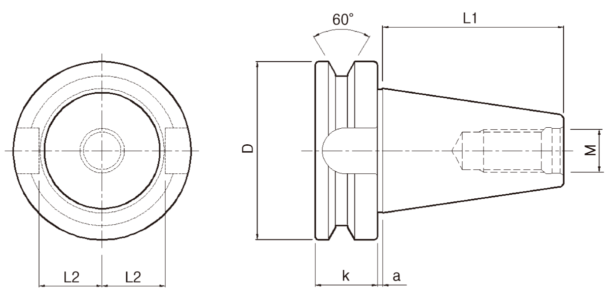
▶ If short chip came out, the insert happen to break.
(1) Raise the oil pressure.
(2) After the turing speed and the feed come down, process it.

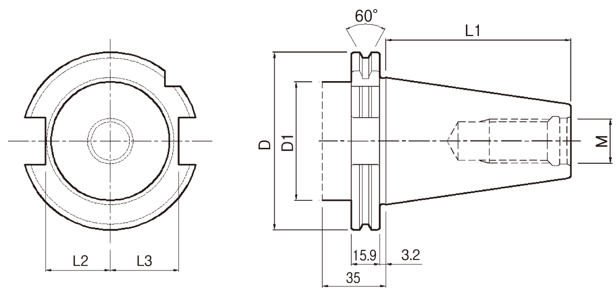
◈칩이 너무 긴 경우 (Too Loose)

▶ 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 cantained the low carbon content, process making the turning speed and feed high.

ARBOR STANDARD



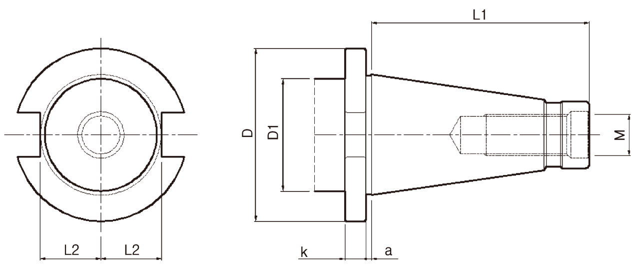


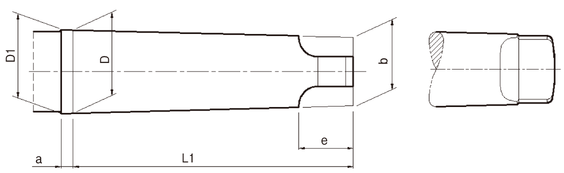
▶BT/MAS Holder

Taper No.	L1 mm	D mm	M mm	K mm	a mm	L2 mm
40	65.4	63	M16	25	2	22.8
50	101.8	100	M24	35	3	35.5

▶SK/DIN 69871 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





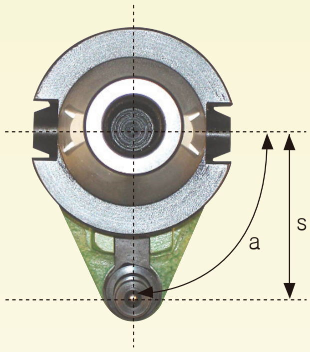
▶NT/DIN 2080 Holder

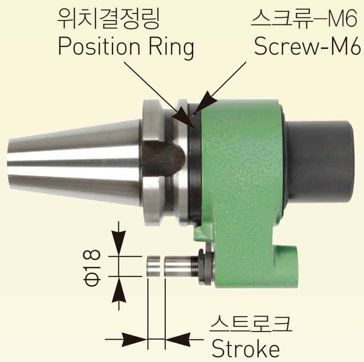
Taper No.	L1 mm	D mm	M mm/Inch	K mm	a mm	L2 mm
40	93.4	63	M16	10	1.6	22.5
50	126.8	97.5	M24	12	3.2	35.3
40	93.4	63	5/8-11 UNC	10	1.6	22.5
50	126.8	97.5	1-8 UNC	12	3.2	35.3

▶MT/DIN 228 Holder

Taper No.	L1 mm	D mm	D1 mm	a 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

▶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 누수가없고, 마찰 저항이 작아 장시간 운전이 가능합니다. (MAX. 3000RPM)
– 장비에 맞추어 위치결정핀의 높이와 각도(a)를 조절할 수 있습니다.

▶ The characteristics of Korea Technics' Automatic Holder (common for BT-OAS , OAE, OAX, CAW) are as follows:

1. It has an internal fueling type of cutting-oil supply apparatus with automatic tool changing function.
2. 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 3,000 rpm).
3. The height and angle (a) of the positioning pin are adjustable depending on equipment dimensions.

▶위치결정핀의 높이와 각도(a)의 조절 방법.

– 각도(a)의조절방법
① 위치결정링에 체결되어 있는 스크류(2EA–M6)를 렌지로 풀어준다.
② M/C에 장착된 위치 결정 블록의 위치에 맞게 오일케이스를 회전시킨다.
③ 정확한 위치에 오면 스크류(2EA–M6)를 완전히 체결한다.

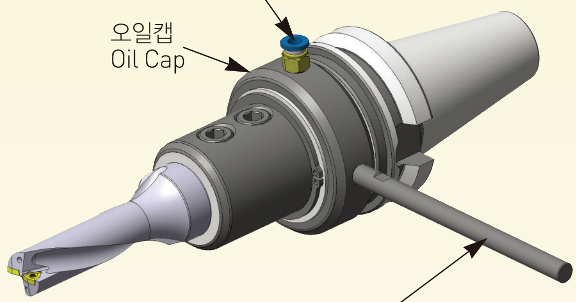
– 위치결정핀의높이조절방법
① 위치결정핀 스크류 (M4)와 너트를 풀어준다.
② 위치결정블록의 높이를 확인하고, 알맞은 높이로 바이스등으로 돌려 조절한다.
(※스트로크양 : BT40–4.5mm, BT50–7.5mm)
③ 셋팅후엔 스크류와 너트를 완전히 조여준다.

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

1. 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.

2. Adjustment method for the height of the positioning pin:
① Unfasten the positioning pin screw (M4: hex key wrench, 2mm) and nut (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 nut after setting.

▶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 나사가 두 곳이 나 있는데, 한 곳으로는 절삭유가 유입되는 곳이고, 다른 한 쪽으로는 스톱바가 장착되는 곳이다.

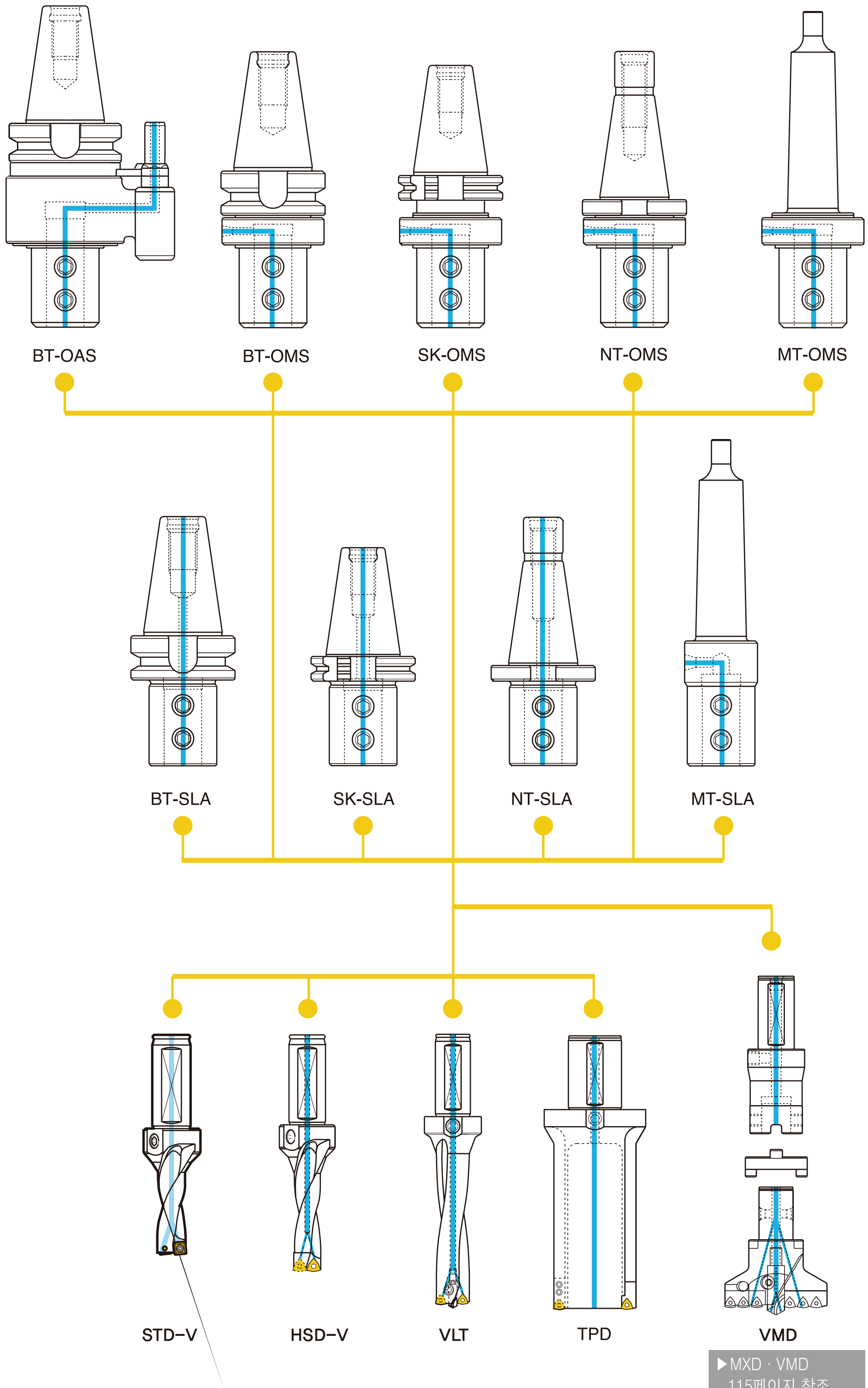
(4) 오일캡 내부에는 절삭유 누유를 막아주고 회전시 발생되는 마찰을 최소화 시켜주는 테프론 씰이 장착되어있다.

(5) 회전시 오일캡은 정지된 상태로 절삭유를 공급해준다.

(6) 오일피드 타입의 아버로는 OMS, OME, OMX, CMS, CMB 등이있음.

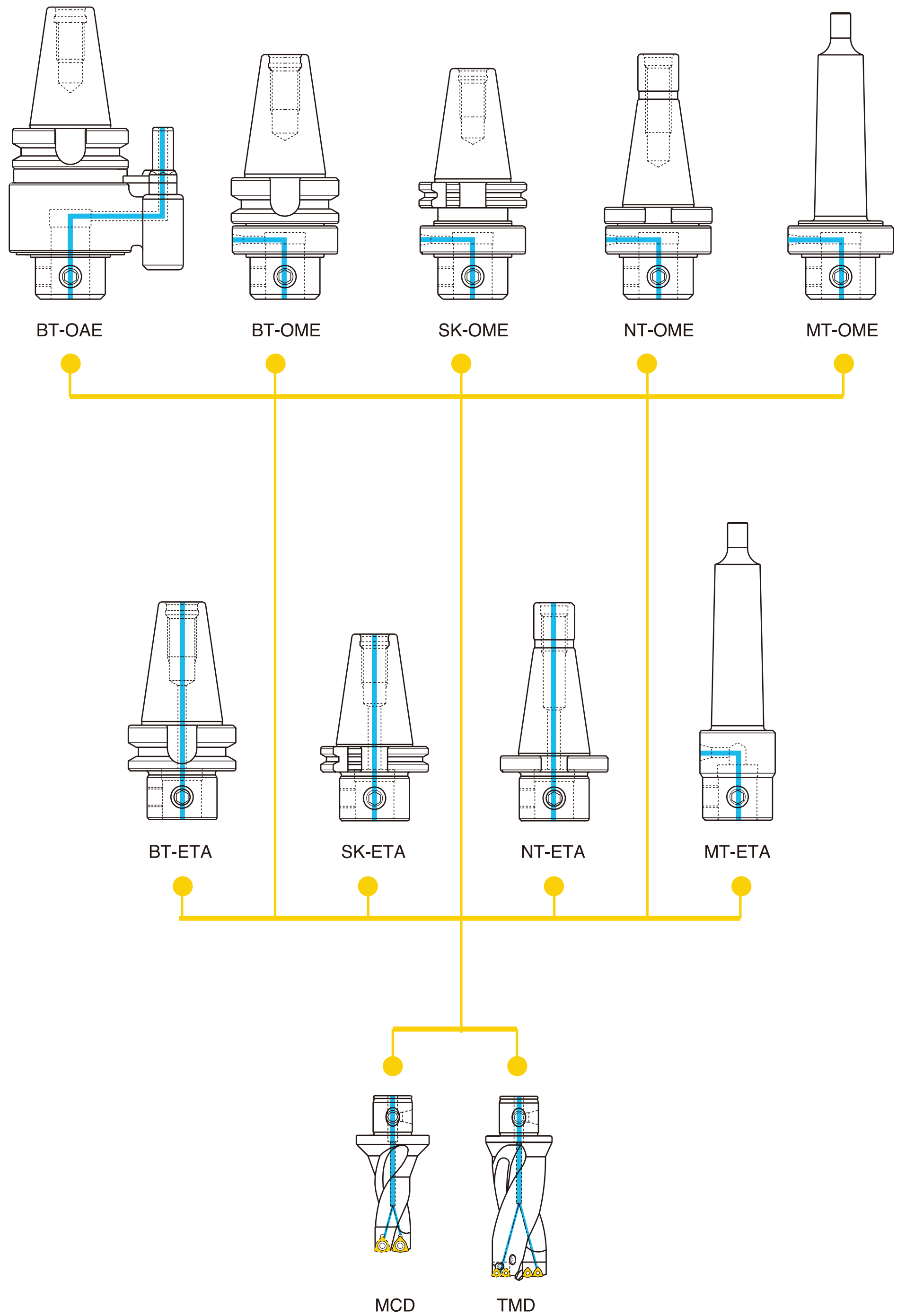
(1) When the diameters to be processed are too large, or when deep holes are processed, the cutting-oil must be supplied into the interior of the device.
(2) The oil feed arbor is a useful tool that enables processing deep holes, even with general-purpose equipment.
(3) Two threads are seen at 90 degrees 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.
(6) Arbor oil feed types include OMS, OME, OMX, CMS, and CMB.

CYLINDRICAL SHANK TYPE



▶MXD · VMD
115페이지 참조
Refer to page 115

EXT MODULAR SYSTEM



MX MODULAR SYSTEM