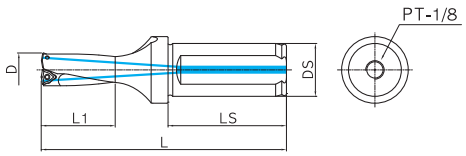
High Speed Drill

STD-V & HSD-V

HIGH SPEED DRILL
HSD-V 2×D



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인써트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	Wrench
HSD-V13020D S20	13.0	29	99	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13520D S20	13.5	30	100					
HSD-V14020D S20	14.0	31	101					
HSD-V14520D S20	14.5	32	102					
HSD-V15020D S20	15.0	33	103					
HSD-V15520D S20	15.5	34	104					
HSD-V16020D S25	16.0	35	116	25	56	WCMX030204	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					

● HSD-V 소구경 드릴의 특징 The characteristic of HSD-V small drill

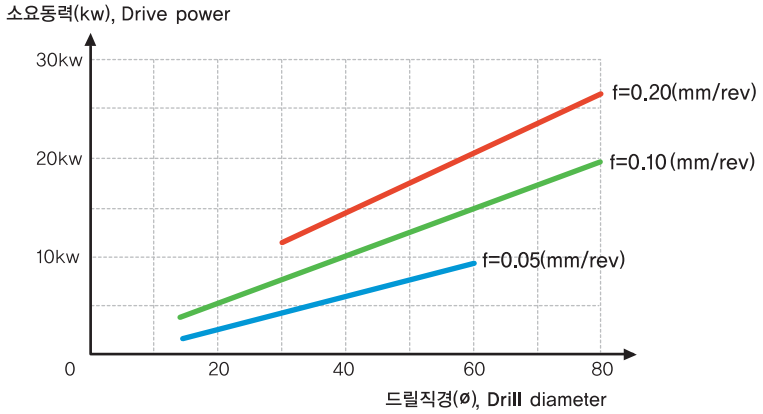
- HSD-V 소구경(ø13 ~ ø20)드릴은 절삭유 홀을 11자 타입으로 설계변경하여 드릴바디의 강성이 향상되고, 칩 배출 공간을 대폭 확장 시켰습니다.
- Small dia drills has been designed to have two oil holes(11types) from one oil hole , so the hardness of the drill body has been improved and the discharging space of the chip break has been greatly extended.
- 최적의 설계로 절삭성능이 뛰어나고, 표면조도가 매우 우수합니다.
- The drilling performance and the surface roughness are excellent by the best design.

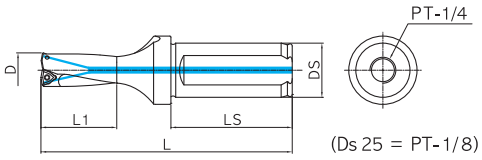
● HSD-V 드릴 구멍공차 The hole tolerance of HSD-V drill

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

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

● 소요동력 Power Requirements





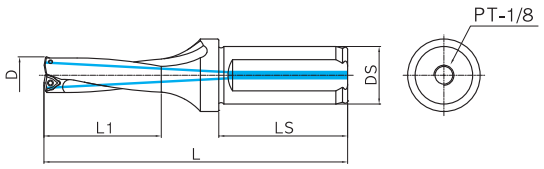
● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인써트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	Wrench
HSD-V20520D S25	20.5	44	125	25	56	WCMX040204	TSB-25055	TXL-8
HSD-V21020D S25	21.0	45	126					
HSD-V21520D S25	21.5	46	127					
HSD-V22020D S25	22.0	47	128					
HSD-V22520D S25	22.5	48	129					
HSD-V23020D S25	23.0	49	130					
HSD-V23520D S25	23.5	50	131					
HSD-V24020D S25	24.0	51	132					
HSD-V24520D S25	24.5	52	133					
HSD-V25020D S25	25.0	53	134					
HSD-V25520D S32	25.5	54	144	32	60	WCMX050308	TSB-30070	
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			WCMX06T308	TSB-35090	TXL-15
HSD-V32020D S32	32.0	67	157					
HSD-V33020D S32	33.0	69	159					
HSD-V34020D S32	34.0	71	161					
HSD-V35020D S32	35.0	73	163					
HSD-V36020D S32	36.0	75	165					
HSD-V37020D S32	37.0	77	167					
HSD-V38020D S32	38.0	79	169					
HSD-V39020D S32	39.0	81	171					
HSD-V40020D S32	40.0	83	173					
HSD-V41020D S32	41.0	85	175					
HSD-V42020D S40	42.0	87	192	40	70	WCMX080408	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					

※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버'(76페이지~88페이지)입니다.

※ If you are working on the lathe with diameter Ø40 or higher, we recommend using the VLT, FXD, VMD.
The tool holder that locks with HSD-V is Side Lock Arbor.(P.76~P.88)

HIGH SPEED DRILL
HSD-V 3×D



● Shank ISO9766, Parallel with clamping flat

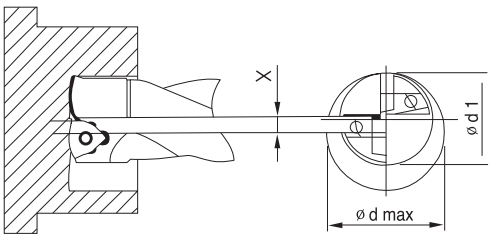
Code No.	치수 Dimension(mm)					인써트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	Wrench
HSD-V13030D S20	13.0	42	112	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13530D S20	13.5	44	114					
HSD-V14030D S20	14.0	45	115					
HSD-V14530D S20	14.5	47	117					
HSD-V15030D S20	15.0	48	118					
HSD-V15530D S20	15.5	50	120					
HSD-V16030D S25	16.0	51	132	25	56	WCMX030204	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					

● HSD-V 중 · 대구경 드릴의 특징 The characteristic of HSD-V middle and big diameter drills

- HSD-V 중 · 대구경(ø20.5~ø80)드릴은 최적의 설계로 칩 배출 공간을 대폭 확장 시켰습니다. 깊은 홀 가공에서도 드릴링이 안정되고, 표면조도가 우수합니다.
- The chip discharging space for HSD-V middle dia and big dia drill(Ø20.5~Ø80) has been greatly extended. These drills are stable and surface roughness are excellent in the deep hole drilling also.

- 최적의 결과물을 위해, 절삭조건표(116페이지)와 절삭유 적정 압력을 확인해 주세요. (절삭유 적정압력은, HSD-V 2×D,3×D일때 3kg/㎠이상, 4×D일때 4kg/㎠이상)
- Please make sure the proper oil pressure and the cutting data(P.116)for the best performance. (The proper pressure for HSD-V 2×D,3×D is over 3kg/㎠, the proper pressure for 4×D is over 4kg/㎠)

● 선반에서 인경 조절 Range of adjusting machining diameter in the lathe



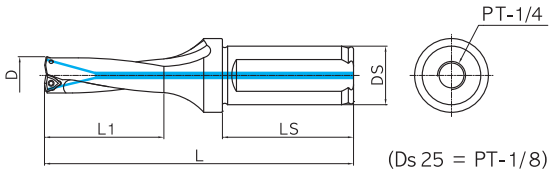
max. D = D + 2 Adjustment

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

- 선반에서 '하이 스피드 드릴'로 가공할 때, X축을 조정하여 가공 직경을 크게 하거나 작게 할 수 있습니다.
- In machining in the lathe, 'High speed drill' can extend and reduce the machining diameter by adjusting the x-axis.

- 가공직경을 조정하면 드릴링에 문제가 발생할 수 있는데, 이송량을 줄이거나 절삭속도를 줄여 해결하세요.
- The more the drilling diameter is extended or reduced, the more the drill loses drilling balance. In this case, reduce the feed or cutting speed in machining

- 가공직경을 과도하게 조정하면 홀더에 손상을 줄 수 있습니다.
- Reducing the machining diameter excessively could damage the holder



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인써트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	Wrench
HSD-V20530D S25	20.5	65	146	25	56	WCMX040204	TSB-25055	TXL-8
HSD-V21030D S25	21.0	66	147					
HSD-V21530D S25	21.5	68	149					
HSD-V22030D S25	22.0	69	150					
HSD-V22530D S25	22.5	71	152					
HSD-V23030D S25	23.0	72	153					
HSD-V23530D S25	23.5	74	155					
HSD-V24030D S25	24.0	75	156					
HSD-V24530D S25	24.5	77	158					
HSD-V25030D S25	25.0	78	159					
HSD-V25530D S32	25.5	80	170	32	60	WCMX050308	TSB-30070	
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			WCMX06T308	TSB-35090	TXL-15
HSD-V32030D S32	32.0	99	189					
HSD-V33030D S32	33.0	102	192					
HSD-V34030D S32	34.0	105	195					
HSD-V35030D S32	35.0	108	198					
HSD-V36030D S32	36.0	111	201					
HSD-V37030D S32	37.0	114	204					
HSD-V38030D S32	38.0	117	207					
HSD-V39030D S32	39.0	120	210					
HSD-V40030D S32	40.0	123	213					
HSD-V41030D S32	41.0	126	216					
HSD-V42030D S40	42.0	129	234	40	70	WCMX080408	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					

※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
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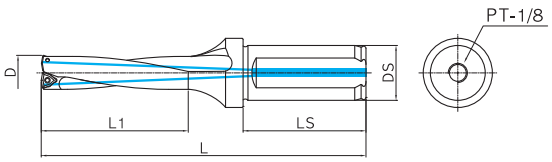
※ If you are working on the lathe with diameter Ø40 or higher, we recommend using the VLT, FXD, VMD.
The tool holder that locks with HSD-V is Side Lock Arbor.(P.76~P.88)

HIGH SPEED DRILL
HSD-V 4×D



● Shank ISO9766, Parallel with clamping flat

Code No.	치수 Dimension(mm)					인써트 Insert	부품 Component	
	D	L1	L	Ds	Ls		Screw	Wrench
HSD-V13040D S20	13.0	55	125	20	50	WCMX03T104	TSB-18045	TXL-6
HSD-V13540D S20	13.5	57	127					
HSD-V14040D S20	14.0	59	129					
HSD-V14540D S20	14.5	61	131					
HSD-V15040D S20	15.0	63	133					
HSD-V15540D S20	15.5	65	135					
HSD-V16040D S25	16.0	67	148	25	56	WCMX030204	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					

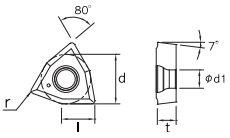
※ 최고의 결과물을 위해서는 절삭조건표(116페이지)와 절삭유 적정 압력을 확인해 주세요.(절삭유 적정압력은 5kg/㎠ 이상입니다.)
※ Please make sure the proper oil pressure and the cutting date(P.116)for the best performance.(The proper pressure is over 5kg/㎠)

● HSD-V용 인써트 Insert for HSD-V

▶ WCMX Dimension(mm)

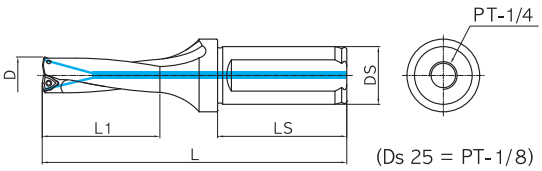

◀ PA8123


◀ PA3215



인써트 형번	l	d	t	r	ø d1	Screw	Wrench
WCMX03T104-□□□□□	3.3	4.76	1.98	0.4	2.15	TSB-18045	TXL-6
WCMX030204-□□□□□	3.8	5.56	2.38	0.4	2.55	TSB-22045	
WCMX040204-□□□□□	4.3	6.35	2.38	0.4	2.80	TSB-25055	TXL-8
WCMX050308-□□□□□	5.4	7.94	3.18	0.8	3.40	TSB-30070	
WCMX06T308-□□□□□	6.5	9.525	3.97	0.8	4.50	TSB-35090	TXL-15
WCMX080408-□□□□□	8.7	12.7	4.76	0.8	5.60	TSB-40110	

형상 Shape	형번 Code No.	피삭재 Workpiece					적용 드릴 For Drills			
		P	M	K	S	N	HSD(MCD)	VLT(TMD)	VMD	TPD
	WCMX03T104-PA8123	●	○	○			ø13.0 ~ ø15.5	–	–	–
	WCMX030204-PA8123	●	○	○			ø16.0 ~ ø20.0	ø25.0	ø45 ~ ø55	–
	WCMX040204-PA8123	●	○	○			ø20.5 ~ ø25.0	ø26.0 ~ ø30.0	ø55 ~ ø60	–
	WCMX050308-PA8123	●	○	○			ø25.5 ~ ø30.0	ø31.0 ~ ø40.0 ø60.0 ~ ø75.0	ø60 ~ ø75 ø100 ~ ø105	ø40 ~ ø55
	WCMX06T308-PA8123	●	○	○			ø31.0 ~ ø41.0 ø59.0 ~ ø80.0	ø41.0 ~ ø50.0 ø75.0 ~ ø80.0	ø75 ~ ø100 ø105 ~ ø140	ø62 ~ ø110
	WCMX080408-PA8123	●	○	○			ø42.0 ~ ø58.0	ø51.0 ~ ø59.0	ø140 ~ ø180	–
	WCMX03T104-PA3215	○	●		○		ø13.0 ~ ø15.5	–	–	–
	WCMX030204-PA3215	○	●		○		ø16.0 ~ ø20.0	ø25.0	ø45 ~ ø55	–
	WCMX040204-PA3215	○	●		○		ø20.5 ~ ø25.0	ø26.0 ~ ø30.0	ø55 ~ ø60	–
	WCMX050308-PA3215	○	●		○		ø25.5 ~ ø30.0	ø31.0 ~ ø40.0 ø60.0 ~ ø75.0	ø60 ~ ø75 ø100 ~ ø105	ø40 ~ ø55
	WCMX06T308-PA3215	○	●		○		ø31.0 ~ ø41.0 ø59.0 ~ ø80.0	ø41.0 ~ ø50.0 ø75.0 ~ ø80.0	ø75 ~ ø100 ø105 ~ ø140	ø62 ~ ø110
	WCMX080408-PA3215	○	●		○		ø42.0 ~ ø58.0	ø51.0 ~ ø59.0	ø140 ~ ø180	–



● Shank ISO9766, Parallel with clamping flat

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

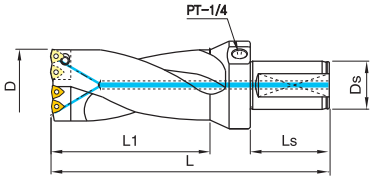
※ 가공경 ø40 이상을 범용선반에서 가공할 경우 센터붙이 타입 드릴(VLT, FXD, VMD) 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버'(76페이지~88페이지)입니다.

※ If you are working on the lathe with diameter Ø40 or higher, we recommend using the VLT, FXD, VMD.
The tool holder that locks with HSD-V is Side Lock Arbor.(P.76~P.88)

HIGH SPEED DRILL

HSD-V BIG DIAMETER DRILL(CARTRIDGE TYPE)

HSD-V 대구경 드릴(카트리지 타입)



● Shank ISO9766, Parallel with clamping flat

▶ HSD-V 2×D (CARTRIDGE TYPE)

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

▶ HSD-V 3×D (CARTRIDGE TYPE)

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

▶ HSD-V 4×D (CARTRIDGE TYPE)

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

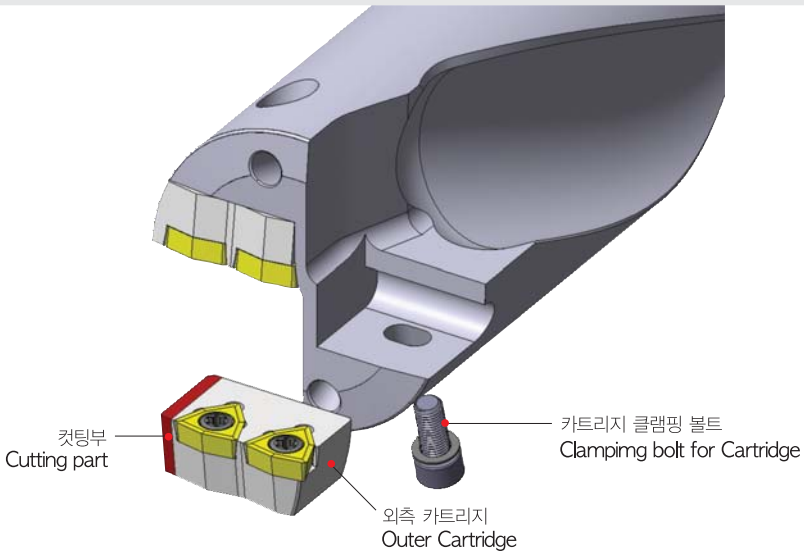
※ 범용선반에서 작업할 경우, 가공직경 ø40 이상이면 VLT나, VMD 사용을 권장합니다.
HSD-V드릴과 체결되는 툴 홀더는 '사이드락 아버'(76페이지~88페이지)입니다.

※ If you are working on the lathe with diameter Ø40 or higher, we recommend using the VLT, VMD.
The tool holder that locks with HSD-V is Side Lock Arbor.(P.76~P.88)

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

HSD-V VEDEO

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



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

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

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

4) 외측카트리지를 틈이 발생되지 않도록 바디에 밀착시키면서 카트리지 클림핑 볼트로 단단히 고정한다.
Put the cartridge closely to the drill body in order not to make any gap, and fix the cartridge with bolt tightly.

Example | HSD-V707530D를 ø72로 셋팅한다면,
기본 직경은 ø75이므로 ø75-ø72=3→3÷2=1.5(반지름으로 계산), 1.5mm를 컷팅한다.

If you set HSD-V707530D to ø72
The standard drill diameter is ø75 so ø75-ø72=3→3÷2=1.5(calculation by semidiameter), 1.5mm is cut off