



KA Series

Interchangeable head boring bars with anti-vibration dampener system



Solves deep-boring challenges with superior chatter resistance (Max L/D = 10)

Unique anti-vibration mechanism provides superior anti-chatter performance

Shank diameters from 16mm to 40mm (Max L/D = 7, 10)

Variety of internal machining processes possible with interchangeable heads

Strong hold with serrated joint structure

Easy cutting edge adjustment with E-Sleeve design

Easy machining setup



KA Series

Interchangeable head boring bars with anti-vibration dampener system

Solves deep-boring challenges with max L/D = 10

Excellent anti-chatter performance due to unique anti-vibration design

Available for a wide range of machining operations



Anti-Vibration Controlled deep boring



Shank Lineup

Shank diameters, from 16mm to 32mm with L/D = 7 and 10, are available
Carbide reinforced style also available

Shank diameter	Available overhang length range	Type
$\varnothing 16\text{mm}$ $\varnothing 20\text{mm}$	 $L/D = 4 \sim 7$	Steel
	 $L/D = 7 \sim 10$	Carbide reinforcement
$\varnothing 25\text{mm}$ $\varnothing 32\text{mm}$ $\varnothing 40\text{mm}$	 $L/D = 4 \sim 7$	Steel
	 $L/D = 7 \sim 10$	Steel



Unique anti-vibration technology

Built-in proprietary damper technology
dampens vibration
Superior anti-chatter performance over carbide



Interchangeable head type

Interchangeable heads for a variety of machining applications
Strong fastening with serrated joint structure

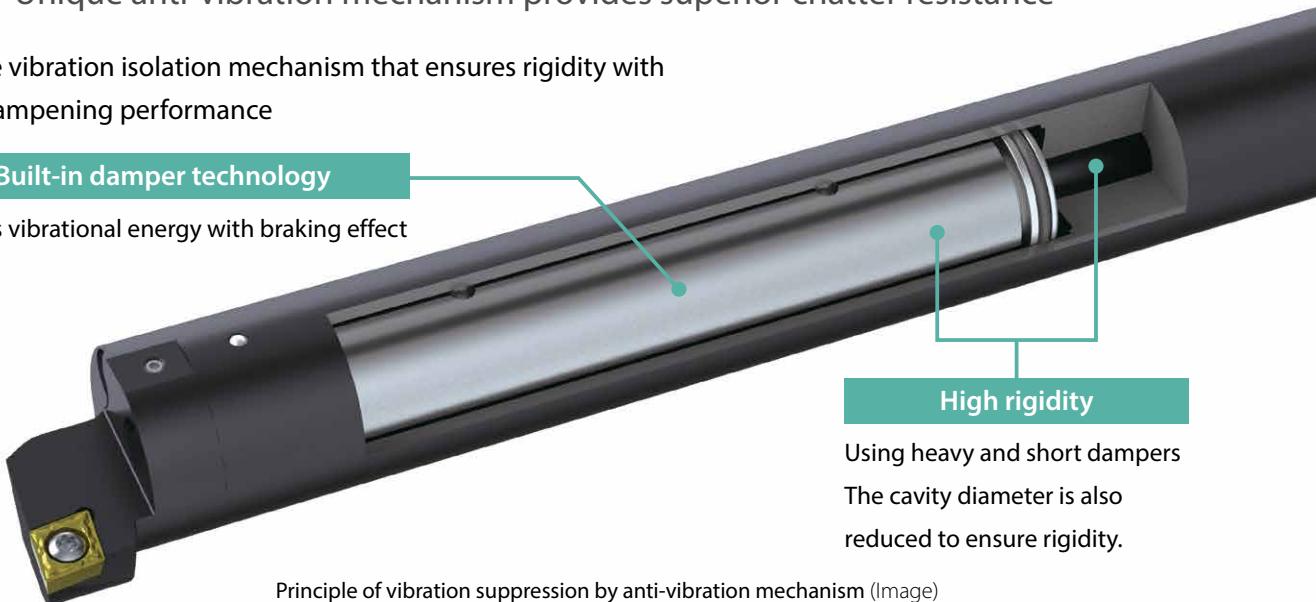
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Unique anti-vibration mechanism provides superior chatter resistance

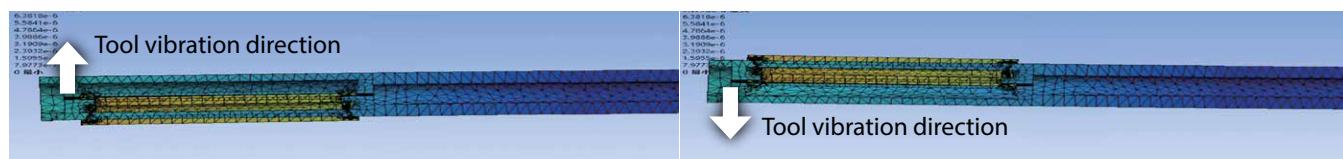
Unique vibration isolation mechanism that ensures rigidity with high dampening performance

Built-in damper technology

Absorbs vibrational energy with braking effect



Principle of vibration suppression by anti-vibration mechanism (Image)



The damper vibrates late against the shank, effective for vibration damping.

Video



Available up to L/D = 10. Excellent anti-vibration performance over conventional carbide shanks.

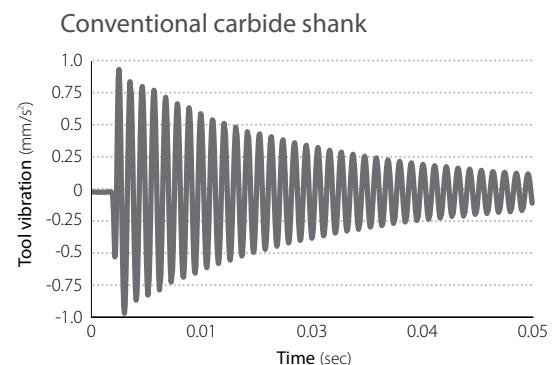
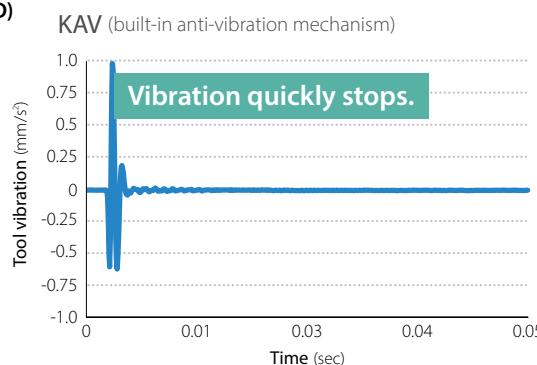
Hammering test (Internal evaluation)

Hammer impacts to the head of the tool

(ø20mm, Overhang length 10D)



Vibration measurement direction



10D Shank Anti-vibration performance (Internal evaluation)

KAV maintains stable machining

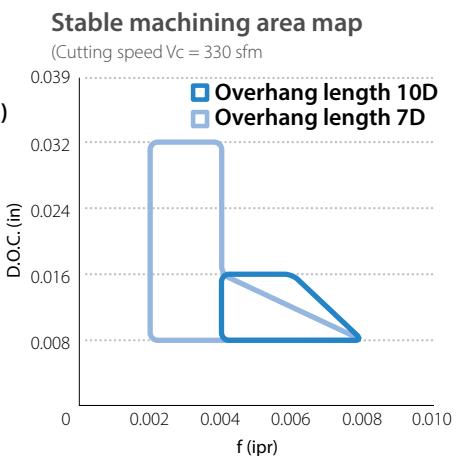
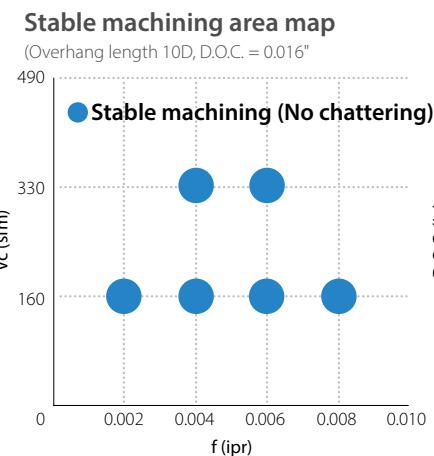


KAV-G20-10D / KAVH20-SCLCR09

CCMT3251PP

Overhang length: 140 mm (7D) / 200 mm (10D)

Workpiece: 4137



Unique anti-vibration mechanism provides superior anti-chatter performance compared to competitors

Anti-vibration performance comparison (internal evaluation)

Competitors produced chattering. KAV maintains stable machining.



KAV



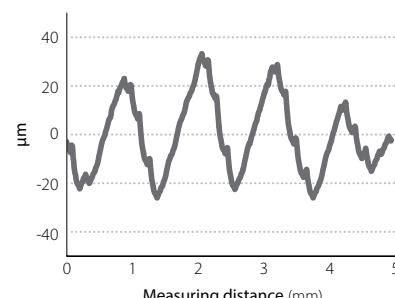
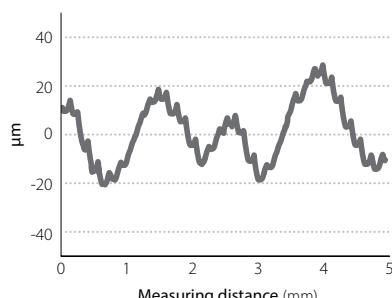
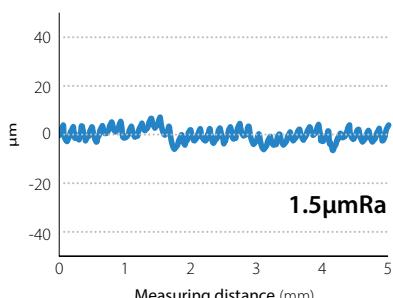
Competitor A (anti-vibration type)



Competitor B (anti-vibration type)



Surface finish



Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.016, $f = 0.006$ ipr Workpiece: 4137 Overhang length 320 mm

Case Studies

① Mechanical parts (Worm gears) 1045

Shank: KAV-G16-10D
Head: KAVH16-SDUCR07
Insert: DCGT21505EL-U (PV720)

$V_c = 160$ sfm
D.O.C. = 0.002
 $f = 0.008$ ipr, Wet

Overhang length: Ø16-160mm (10D)



(User evaluation)

② Mechanical parts (Worm gears) 4137

Shank: KAV-D32-10D
Head: KAVH32-PDUNR11
Insert: DNMG331HQ (CA515)

$V_c = 590$ sfm
D.O.C. = 0.006
 $f = 0.008$ ipr, Wet

Overhang length: Ø32-200mm (6.2D)



(User evaluation)

③ Auto parts (Differential case) 100-70-03

Shank: KAV-G20-10D
Head: KAVH20-STLPR11
Insert: TPGB222 (PV7005)

$V_c = 460$ sfm
D.O.C. = 0.008
 $f = 0.005$ ipr, Wet

Overhang length: Ø20-160mm (8D)



(User evaluation)

2

Interchangeable heads for a variety of machining applications
Strong fastening with serrated joint structure

Serrated structure

Securely fastens head and shank



Internal coolant recommended

Internal coolant recommended to prevent damage to anti-vibration mechanism

When using our plumbing parts:

Supports pressures up to 1015 PSI (some items are only recommended up to 145 PSI)



Coolant pipe connections: See page 12

Head Lineup

Shank diameter	Positive Type (Screw Clamp)				Negative Type (Lever Lock)		
	SCLC	SDUC	STLP	SVUB	PCLN	PDUN	PTFN
ø16mm	●	●	●				
ø20mm	●	●	●	●			
ø25mm	●	●	●	●			
ø32mm	●	●	●	●	●	●	●
ø40mm	●	●	●	●	●	●	●

3

Easy cutting edge adjustment with E-Sleeve
Smooth machining setup

E-Sleeve (Sold separately)

Separated structure with printed reference lines

Easy adjustment reduces setup time

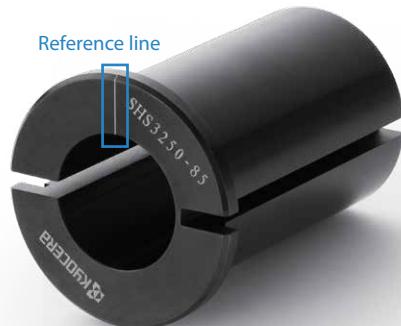
Adjusting the cutting edge position

Exclusive Sleeve (E-Sleeve)

Adjusting the cutting edge position with a reference line

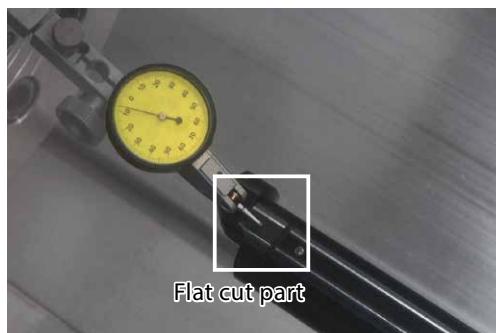


Adjusting the cutting edge position is easy by simply aligning the reference line between the shank and the sleeve.



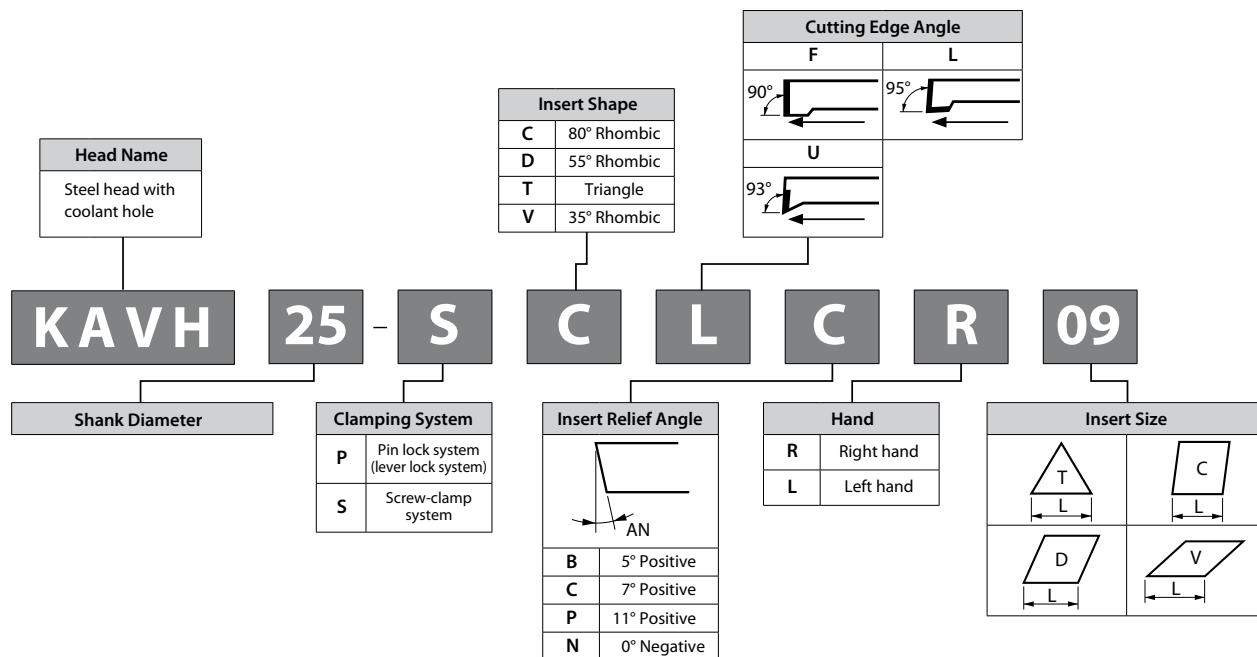
Conventional Sleeve

Adjusting the cutting edge position with the flat cut part of the head

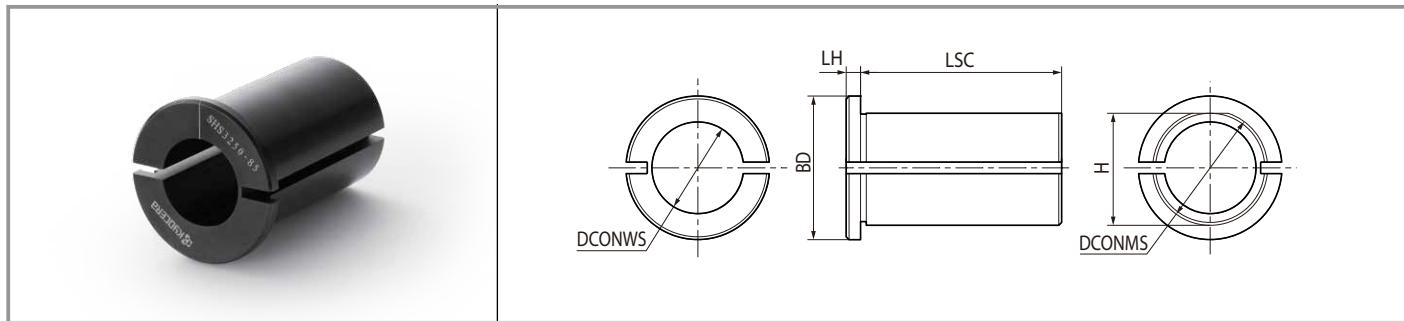


Adjust the flat cut part of the head by moving the tool while applying a dial gauge, etc.

Replaceable boring bar head identification system



Sleeve for KAV (E-Sleeve)



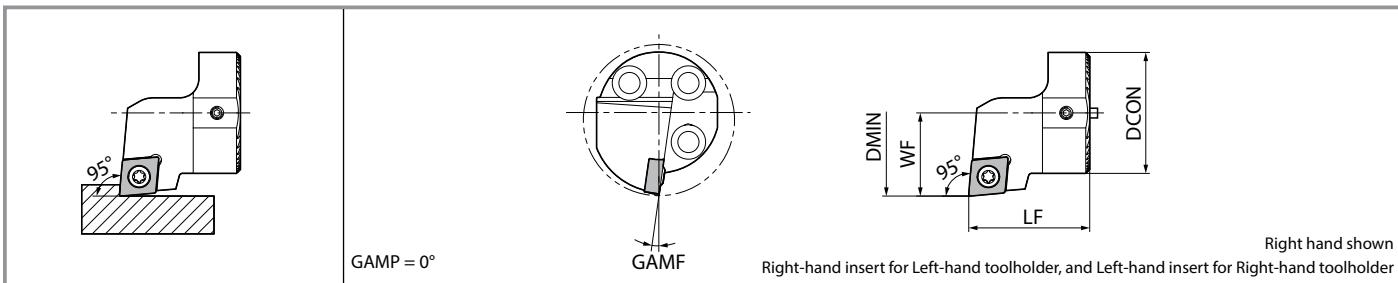
Sleeve dimensions

Description	Stock	Unit	Dimensions						Applicable Shank
			DCONMS	DCONWS	BD	LSC	LH	H	
SHS 1615N-75	●	inch	1.5"	0.630"	1.969"	2.756"	0.197"	1.461"	KAV-D16-7D/10D KAV-G16-10D
	●			0.787"					KAV-D20-7D/10D KAV-G20-10D
	●			0.984"					KAV-D25-7D/10D
	●			1.260"					KAV-D32-7D/10D
SHS 2520N-85	●		2"	0.984"	2.362"	3.15"	0.197"	1.941"	KAV-D25-7D/10D
	●			1.260"					KAV-D32-7D/10D
SHS 1640-75	●	mm	40	16	50	70	5	39	KAV-D16-7D/10D KAV-G16-10D
	●			20					KAV-D20-7D/10D KAV-G20-10D
	●			25					KAV-D25-7D/10D
	●			32					KAV-D32-7D/10D
SHS 2550-85	●		50	25	60	80	5	48.5	KAV-D25-7D/10D
	●			32					KAV-D32-7D/10D
	●			40					KAV-D40-7D/10D

Choose the sleeve DCONWS together with the shank DCONMS.

●: Standard Stock

KAVH-SCLC (Internal/Internal Facing, Screw Clamp)



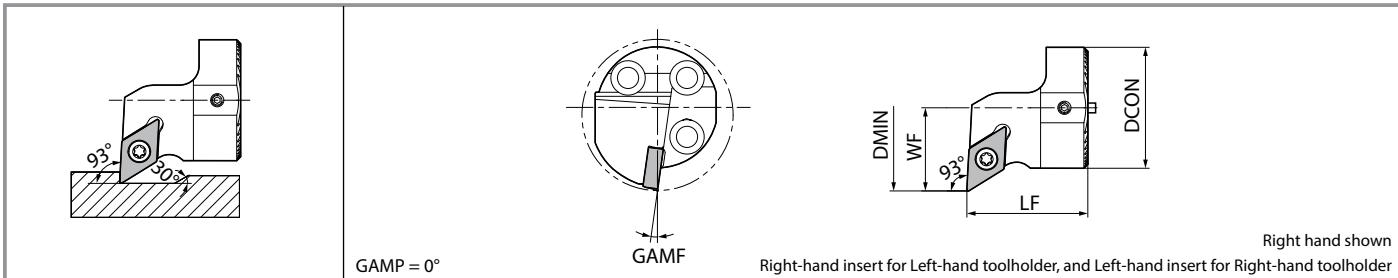
Toolholder dimensions

Description	Stock		Dimensions (mm)			GAMF (°)	Std. Corner R (RE)	Spare Parts		Applicable Shank	Applicable Insert	
	R	L	DMIN	DCON	LF			Clamp Screw	Wrench			
KAVH 16-SCLC%L06	●	●	20	16	20	11	-7	0.4	SB-2545TR	FT-8	KAV-D16/G16...	CC□T215... CC□W215...
KAVH 20-SCLC%L09	●	●	25	20	20	13	-8	0.4	SB-4065TR	FT-15	KAV-D20/G20...	CC□T325... CC□W325...
25-SCLC%L09	●	●	32	25		17					KAV-D25...	
32-SCLC%L09	●	●	40	32		22					KAV-D32...	
40-SCLC%L09	●	●	50	40		27					KAV-D40...	

When using the P chipbreaker, use Right-hand insert for Right-hand toolholder and Left-hand insert for Left-hand toolholder.

●: Standard Stock

KAVH-SDUC (Copying, Screw Clamp)



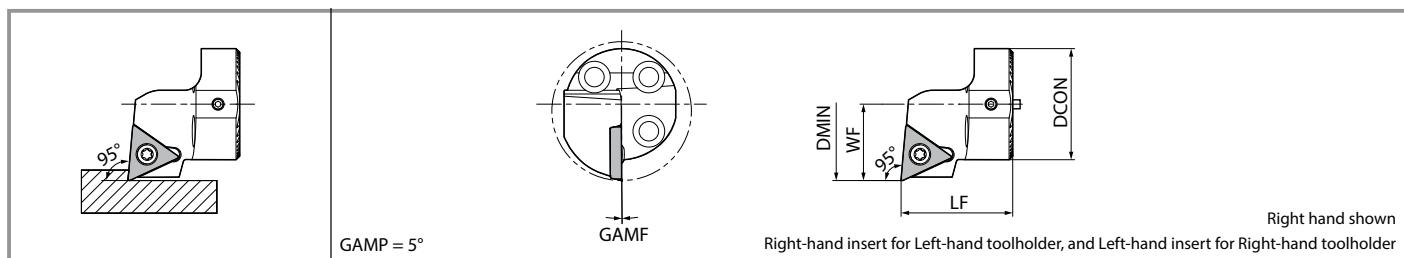
Toolholder dimensions

Description	Stock		Dimensions (mm)			GAMF (°)	Std. Corner R (RE)	Spare Parts		Applicable Shank	Applicable Insert	
	R	L	DMIN	DCON	LF			Clamp Screw	Wrench			
KAVH 16-SDUC%L07	●	●	20	16	20	11	-7	0.4	SB-2545TR	FT-8	KAV-D16/G16...	DC□T215... DC□W215... DC□X215...
KAVH 20-SDUC%L11	●	●	25	20	20	13	-9	0.4	SB-4065TR	FT-15	KAV-D20/G20...	DC□T325... DC□W325... DC□X325...
25-SDUC%L11	●	●	32	25		17	-8				KAV-D25...	
32-SDUC%L11	●	●	40	32		22	-8				KAV-D32...	
40-SDUC%L11	●	●	50	40		27	-7				KAV-D40...	

When using a WP chipbreaker, you need to correct the cutting edge position or the machining program.

●: Standard Stock

KAVH-STLP (Internal/Internal Facing, Screw Clamp)



Toolholder dimensions

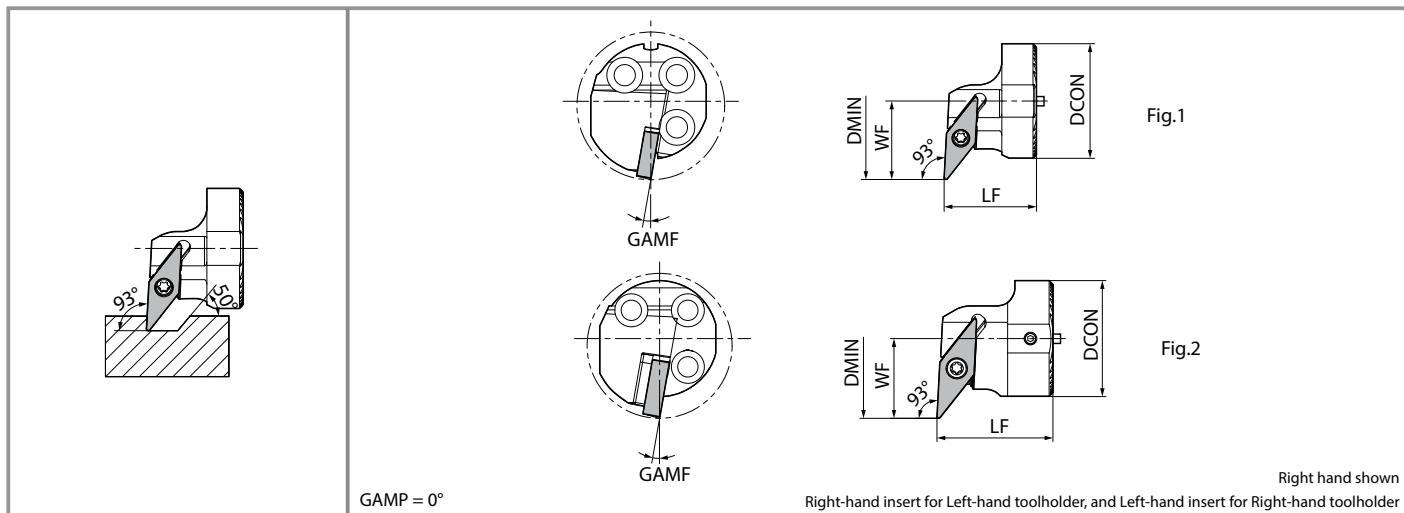
Description	Stock		Dimensions (mm)				GAMF (°)	Std. Corner R (RE)	Spare Parts		Applicable Shank	Applicable Insert
	R	L	DMIN	DCON	LF	WF			Clamp Screw	Wrench		
KAVH 16-STLP%11	●	●	20	16	20	11	-3.5	0.4	SB-3060TR	FT-10	KAV-D16/G16...	TP□T22... TP□H22... TP□B22... TP□X22...
20-STLP%11	●	●	25	20		13	-2		SB-3080TR		KAV-D20/G20...	
25-STLP%11	●	●	32	25		17	0		KAV-D25...			
KAVH 32-STLP%16	●	●	40	32	32	22	0	0.4	SB-4065TR	FT-15	KAV-D32...	TP□T32... TP□H32... TP□B32...
40-STLP%16	●	●	50	40		27	0				KAV-D40...	

●: Standard Stock

When using a WP chipbreaker insert, you need to correct the cutting edge position or the machining program.

When using the P chipbreaker, use Right-hand insert for Right-hand toolholder and Left-hand insert for Left-hand toolholder.

KAVH-SVUB (Copying, Screw Clamp)



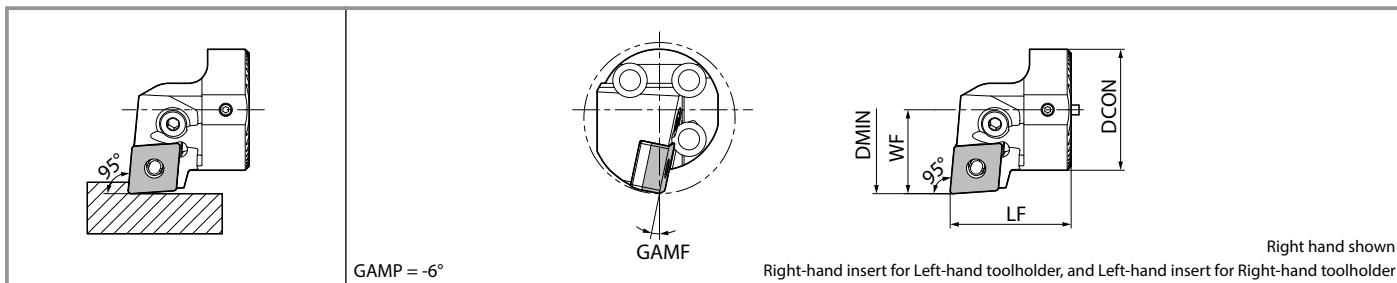
Toolholder dimensions

Description	Stock		Dimensions (mm)				GAMF (°)	Std. Corner R (RE)	Spare Parts					Shape	Applicable Shank	Applicable Insert
	R	L	DMIN	DCON	LF	WF			Clamp Screw	Wrench	Shim	Shim Screw	Wrench (for shim screws)			
KAVH 20-SVUB%11	●	●	25	20	20	13	-10	0.4	SB-2570TR	FT-8	-	-	-	Fig.1	KAV-D20/G20...	VB□T22... VB□W22...
25-SVUB%11	●	●	32	25		17										KAV-D25...
KAVH 32-SVUB%16	●	●	40	32	32	22	-10	0.4	SB-40125TRN	FT-15	SVN-32N *(SVN-32S)	SS-4N	LW-4	Fig.2	KAV-D32...	VB□T33... VB□W33...
40-SVUB%16	●	●	50	40		27										KAV-D40...

When using an insert with corner R (RE) = 0.008" or 1/64", please use shim marked with * (sold separately)

●: Standard Stock

KAVH-PCLN (Internal/Internal Facing, Lever Lock)



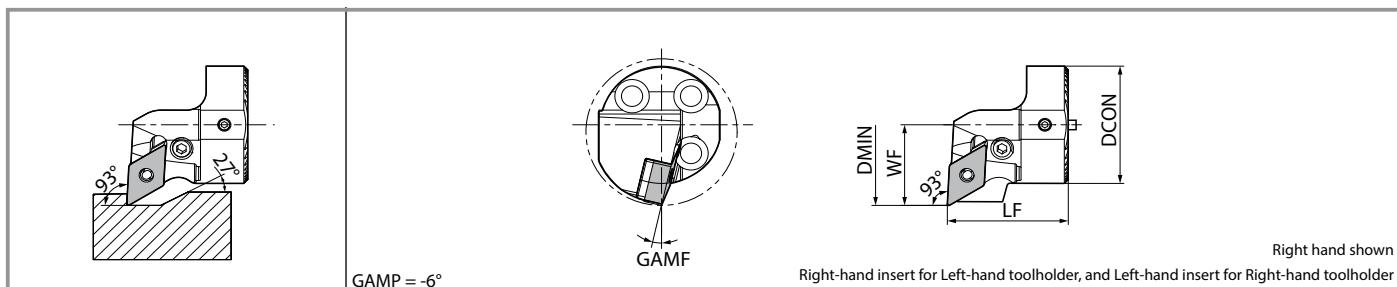
Toolholder dimensions

Description	Stock		Dimensions (mm)				GAMF (°)	Std. Corner R (RE)	Spare Parts						Applicable Shank	Applicable Insert
	R	L	DMIN	DCON	LF	WF			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench		
KAVH 32-PCLN%L12	●	●	40	32	32	22.2	-11.5	0.8	LL-2N	LS-2N	LC-42N%L	LSP-2	PC-2	LW-3	KAV-D32...	CN□A43... CN□G43... CN□M43...
40-PCLN%L12	●	●	50	40	32	27	-10								KAV-D40...	

Shim: LC-42NR for Right-hand toolholder, LC-42NL for Left-hand toolholder

●: Standard Stock

KAVH-PDUN (Copying, Lever Lock)



Toolholder dimensions

Description	Stock		Dimensions (mm)				GAMF (°)	Std. Corner R (RE)	Spare Parts						Applicable Shank	Applicable Insert
	R	L	DMIN	DCON	LF	WF			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench		
KAVH 32-PDUN%L11	●	●	40	32	32	22	-13	0.4	LL-1DN	LS-1SN	LD-32N	LSP-1	PC-1	FH-2.5	KAV-D32...	DN□G33...

●: Standard Stock

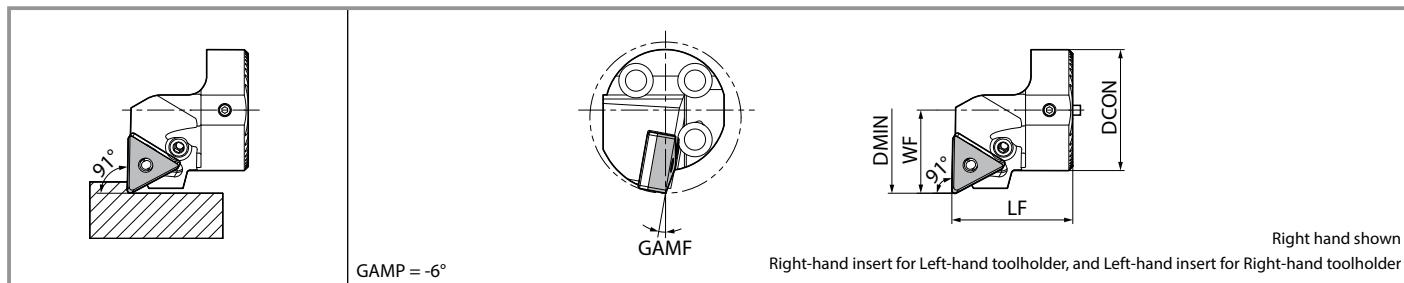
Description	Stock		Dimensions (mm)				GAMF (°)	Std. Corner R (RE)	Spare Parts						Applicable Shank	Applicable Insert
	R	L	DMIN	DCON	LF	WF			Lever	Locking Pin	Shim	Clamp Screw	Wrench (for clamp screws)			
KAVH 32-PDUN%L15	●	●	40	32	32	22	-12.5	0.8	LW-3	PP-4	PD-42	SB-2050TR	FT-6		KAV-D32...	DN□A43... DN□G43... DN□M43... DN□X43...
40-PDUN%L15	●	●	50	40	32	27									KAV-D40...	

●: Standard Stock

When using a WF chipbreaker insert, you need to correct the cutting edge position or machining program.

When using inserts with corner-R (RE) greater than 1/6", additional modifications to the shim are necessary to prevent workpiece and shim from interfering with each other.

KAVH-PTFN (Internal, Lever Lock)

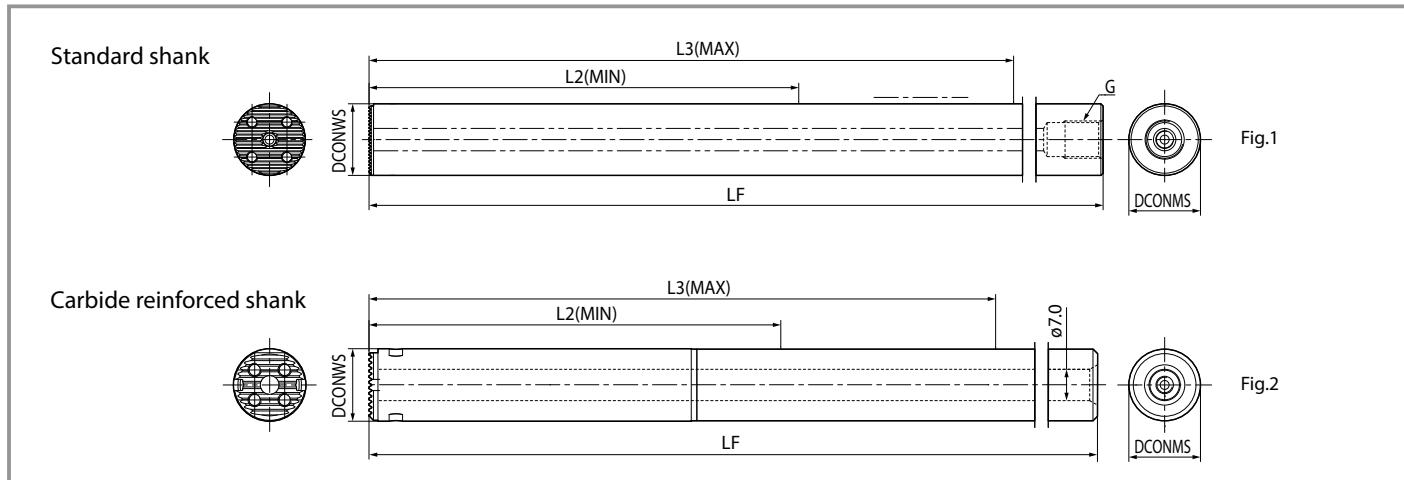


Toolholder dimensions

Description	Stock		Dimensions (mm)			GAMF (°)	Std. Corner R (RE)	Spare Parts					Applicable Shank	Applicable Insert		
	R	L	DMIN	DCON	LF			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench			
KAVH 32-PTFN ^R L16	●	●	40	32	32	22	-10	0.8	LL-1N	LS-1N	LT-32N *(LT-32N-20)	LSP-1	PC-1	FH-2.5	KAV-D32...	TN□A33... TN□G33...
40-PTFN ^R L16	●	●	50	40		27	-9								KAV-D40...	TN□M33... TN□X33...

* When using inserts with a corner-R (RE) greater than 16", purchase a shim marked with * (sold separately) to prevent workpiece and shim from interfering with each other.

●: Standard Stock



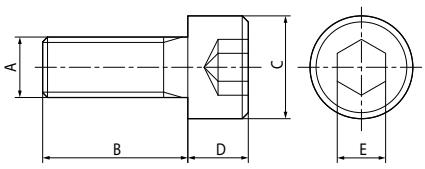
Toolholder dimensions

Description	Stock	Dimensions (mm)						G	Spare Parts			Drawing		
		DCONWS	DCONMS	LF	L2(MIN) Minimum Overhang length	L3(MAX) Maximum Overhang length			Head fastening bolts (3)	Wrench	O-ring			
Standard shank	KAV- D16-7D	●	16	16	157.5	44	92	G1/8	HH3X10S	LW-2.5	-	Fig.1		
	D20-7D	●	20	20	201.5	60	120		HH3.5X10S					
	D25-7D	●	25	25	256.5	80	155	G1/4	HH4X12S					
	D25-10D	●			331.5	155	230							
	D32-7D	●	32	32	321.5	96	192	G3/8	HH5X12	LW-4	GR-006-2			
	D32-10D	●			417.5	192	288							
	D40-7D	●	40	40	409.5	128	248	G1/2	HH6X12	LW-5				
	D40-10D	●			529.5	248	368							
Carbide reinforced shank	KAV- G16-10D	●	16.2	16	205.5	92	140	-	HH3X10S	LW-2.5	-	Fig.2		
	G20-10D	●	20.2	20	261.5	120	180		HH3.5X10S					

When cutting the back end, consider the length of the shank grip in addition to the amount of overhang length: See page 15.

●: Standard Stock

Head fastening bolt

Shape	Description	Stock	Dimensions (mm)				
			A	B	C	D	E
	HH3X10S	●	M3X0.5	10	5	3	2.5
	HH3.5X10S	●	M3.5X0.6	10	5.5	3	2.5
	HH4X12S	●	M4X0.7	12	7	4	3
	HH5X12	●	M5X0.8	12	8.5	5	4
	HH6X12	●	M6X1.0	12	10	6	5

Recommended tightening torque

●: Standard Stock

Shank diameter	Tightening torque
ø16mm	2.2 [N·m]
ø20mm	2.2 [N·m]
ø25mm	3.0 [N·m]
ø32mm	5.0 [N·m]
ø40mm	8.5 [N·m]

Internal coolant: Piping connections

1 Screw standard for shank back end (pipe connection)

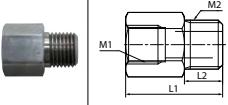
- The thread standard depends on the description. Please refer to the dimension chart "G" on page 11 when using commercially available piping parts.
- When using our piping components, they must be converted to "UNF3/8" or "G1/8." Check the table below and select the required joint parts (sold separately).

● Steel shank (Pressure ~ 1015.2 psi)

Type	Thread Standards and Conversion Joints
ø16-7D	G1/8
ø20-7D ø25-7D/10D	G1/8 ⇌ G1/4 J-ST-G1/4-G1/8
ø32-7D/10D	G1/8 ⇌ G1/4 ⇌ G3/8 J-ST-G3/8-G1/4 J-ST-G1/4-G1/8
ø40-7D/10D	G1/8 ⇌ G1/4 ⇌ G3/8 ⇌ G1/2 J-ST-G1/2-G3/8 J-ST-G3/8-G1/4 J-ST-G1/4-G1/8

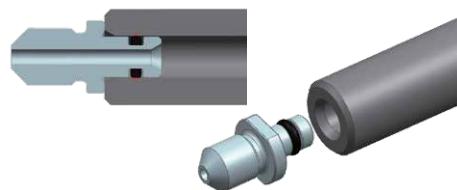
If a leak occurs, use a commercially available washer.

Joint

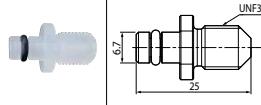
Shape	Description	Stock	M1	M2	L1	L2
	J-ST-G1/4-G1/8	●	G1/8	G1/4	27	12
	J-ST-G3/8-G1/4	●	G1/4	G3/8	33	13
	J-ST-G1/2-G3/8	●	G3/8	G1/2	37	17

●: Standard Stock

● Carbide reinforced shank (Pressure ~ 145 psi)

Type	Thread Standards and Conversion Joints
ø16-10D ø20-10D	
	UNF3/8 ⇌ ø7mm Straight Hole *The shank side is not threaded.

Resin joint (with O-ring)

Shape	Description	Stock	Thread Standard
	PR07-ST-UNF3/8	●	UNF3/8

You can order only the included O-ring (GR-004-2).

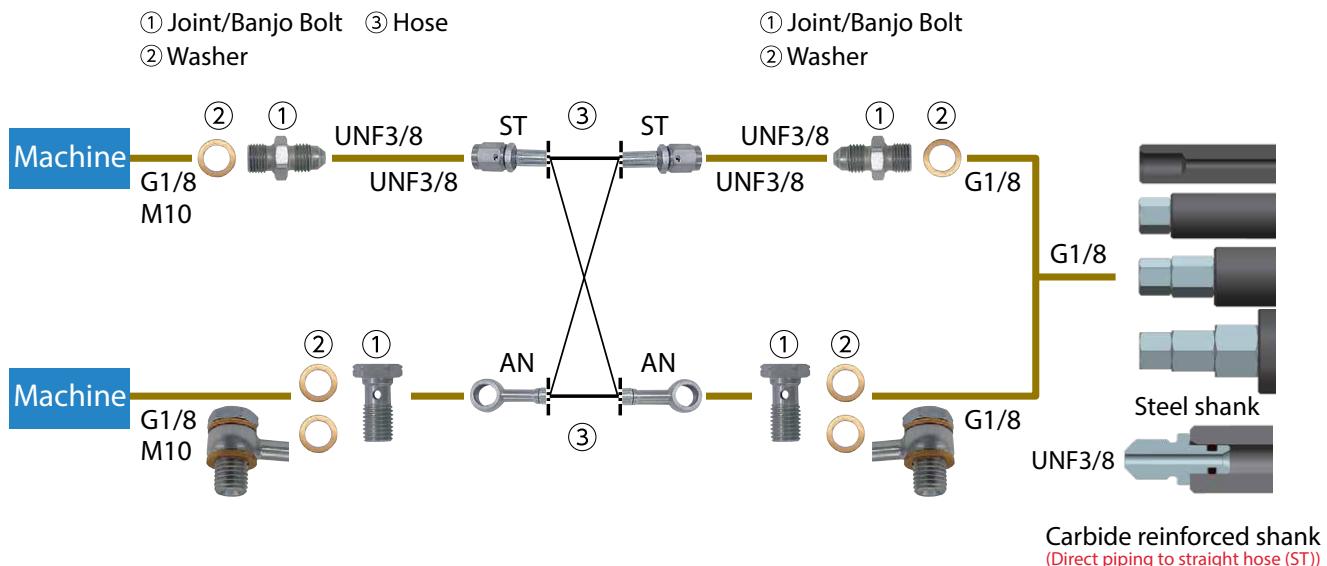
●: Standard Stock

② How to connect when using our plumbing parts

Easy to use with high pressure capable hoses and joints

- Can be used as internal coolant at normal pressure without a high-pressure pump unit
- Banjo bolts for angle hoses available. Supports a wide variety of machines.

< Piping Installation Guide >



Optional piping parts available (sold separately)

Choose from parts below to match your machine specifications and piping method.

① Joint or banjo bolt × 2, ② 2 ~ 4 washers, ③ 1 hose

① Joint/Banjo Bolt

Shape		Description	Stock	Thread Standard Thread connection to the machine
		J-G1/8-UNF3/8	●	G1/8
		J-M10X1.5-UNF3/8	●	M10X1.5
		BB-G1/8	●	G1/8
		BB-M10X1.5	●	M10X1.5

Pressure: ~ 4351 PSI

② Washer

Shape		Description	Stock
		WS-10	●

*Two washers are required when using banjo bolts

●: Standard Stock

③ Hose

Shape		Description	Stock	Thread Standard		Dimensions (mm)
				UNF3/8	UNF3/8	L
		HS-ST-ST-200	●	UNF3/8	UNF3/8	200
		HS-ST-ST-250	●			250
		HS-ST-AN-200	●	UNF3/8	– (Banjo Bolt)	200
		HS-ST-AN-250	●			250
		HS-AN-AN-200	●	– (Banjo Bolt)	– (Banjo Bolt)	200
		HS-AN-AN-250	●			250

Pressure: ~ 4351 PSI

●: Standard Stock

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

Precautions

About the Dedicated E-Sleeve

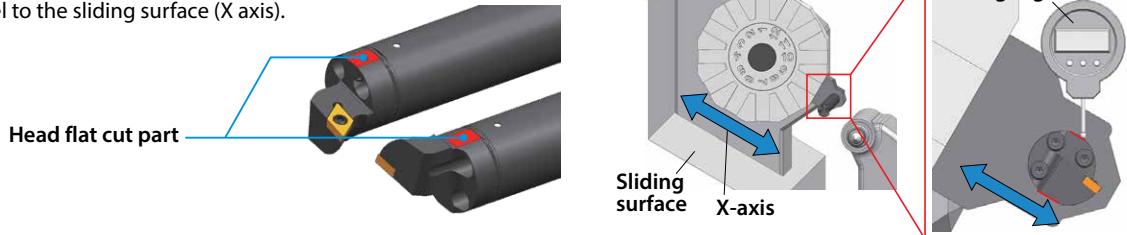
The shank does not have a flat cut. In order to ensure vibration-proof performance, we recommend using a special sleeve (SHS ****-**) that is sold separately.



How to adjust cutting edge position

When using a head flat cut part

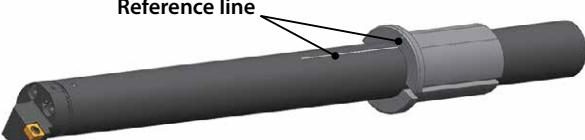
After attaching the tool to the machine, move the tool turret against the flat cut part of the head with a dial gauge, etc., and make sure that it is parallel to the sliding surface (X axis).



When using the reference lines of the shank/dedicated sleeve (E-Sleeve)

Align the reference lines printed on the shank and the dedicated sleeve (SHS ****-**).

It is easier to adjust the cutting edge position than using the flat on the head to align.



Recommendations for internal coolant

Under high temperatures, the anti-vibration mechanism may deteriorate or become damaged. Please use with [internal coolant](#).

The coolant pressure resistance of the shank is 1015 PSI. However, when using coolant parts (PR07-ST-UNF 3/8) for internal coolant in the carbide reinforced shank (KAV-G ***), the coolant pressure is 145 PSI. Please be careful.

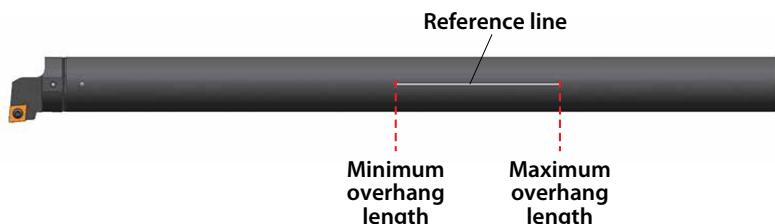


Available overhang length range

Available overhang length is set for this tool

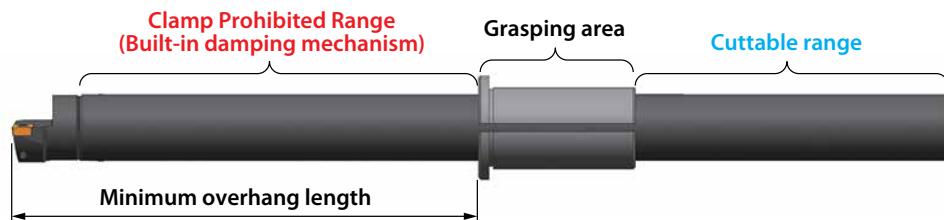
To adjust the overhang length, please use the reference line printed on the shank.

Available overhang length range		
Description	Minimum overhang length	Maximum overhang length
KAV-***-10D	Shank diameter × 7	Shank diameter × 10
KAV-***-7D	Shank diameter × 4	Shank diameter × 7



Shank cut

If the shank needs to be cut or modified, do so within the cutting range and do not clamp the built-in damping mechanism.



- Use the appropriate inserts and parts. Use of damaged parts may result in tool breakage and injury.
- Do not touch the cutting edge of the insert directly with your bare hands. There is a risk of injury.
- Make sure that there are no foreign materials such as chips in the insert seating area, serrated area, or shank grip area before mounting.
- Do not use the product under chattering conditions. This can lead to damage of the built-in damping mechanism.
- If tool falls or hits the part while machining, do not use it. The impact can cause tool damage and lead to large chattering.
- Avoid high humidity and store at room temperature (about 20°C).

Anti-Vibration

Max L/D = 10



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