



BIG DAISHOWA

NEW!

SMART DAMPER

Tool Holder with Integrated Damping System for Deep Hole Finish Boring and Extended Reach Milling



A PRODUCT OF:

BIG KAISER[®]

PRECISION TOOLING INC.

Higher Performance. Guaranteed.

SMART DAMPER

Integrated Damping System

Quick and excellent damping effect tool holder.

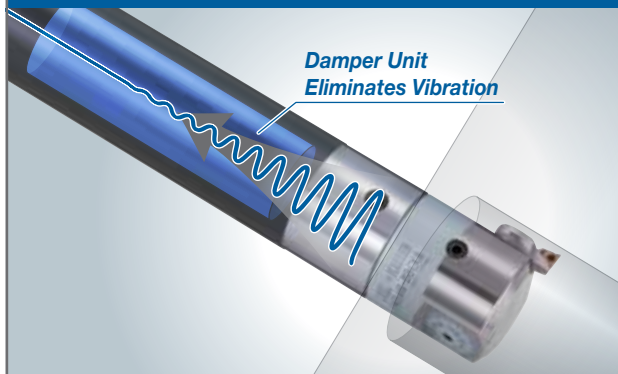
Results From Vibration With Long Projection Tool

- Poor surface finish
- Out of tolerance
- Shorter tool life

Smart Damper eliminates all of these problems, improves productivity and boosts quality.



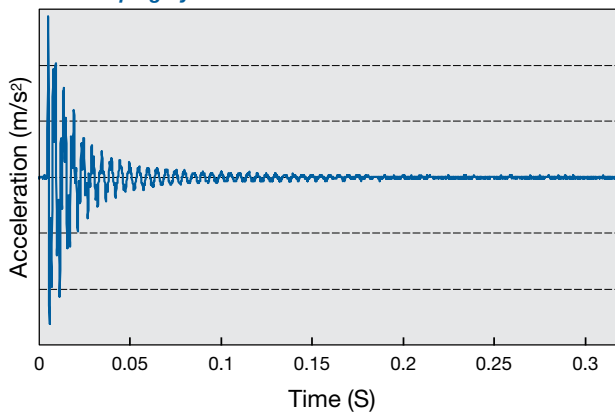
DAMPING MECHANISM



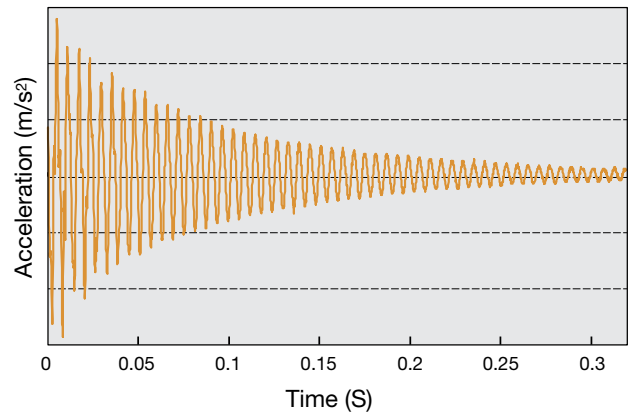
Smart Damper incorporates a unique damping mechanism functioning as both counter and friction dampers. The patent-pending counter weight maximizes the effect of the friction damper. Vibration is absorbed effectively and higher machining accuracy is achieved.

COMPARISON OF OSCILLATORY WAVEFORMS

Integrated Damping System **SMART DAMPER**



Standard Holder



KAB BORING HOLDER

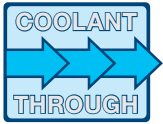
For Highly Efficient Deep Hole Finish Boring



KAB4-KAB6 for finish boring
6x L/D Ratio

FOR DETAILS
PG. 4-5

BIG-PLUS
SPINDLE SYSTEM
DUAL CONTACT



KAB Extension

To be used with standard KAB Shanks.



For standard KAB shanks, please see catalog—
KAISER Precision Modular Tooling System

AVAILABLE IN
BCV, BBT
& HSK

FACE MILL ARBOR TYPE FMH

Modular Design Provides Versatility

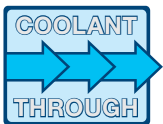


FMH22/FMH27

FOR DETAILS
PG. 6-7

BASIC HOLDER

Available in different lengths



DAMPER HEAD

L = 14" or 16"

BIG-PLUS
SPINDLE SYSTEM
DUAL CONTACT

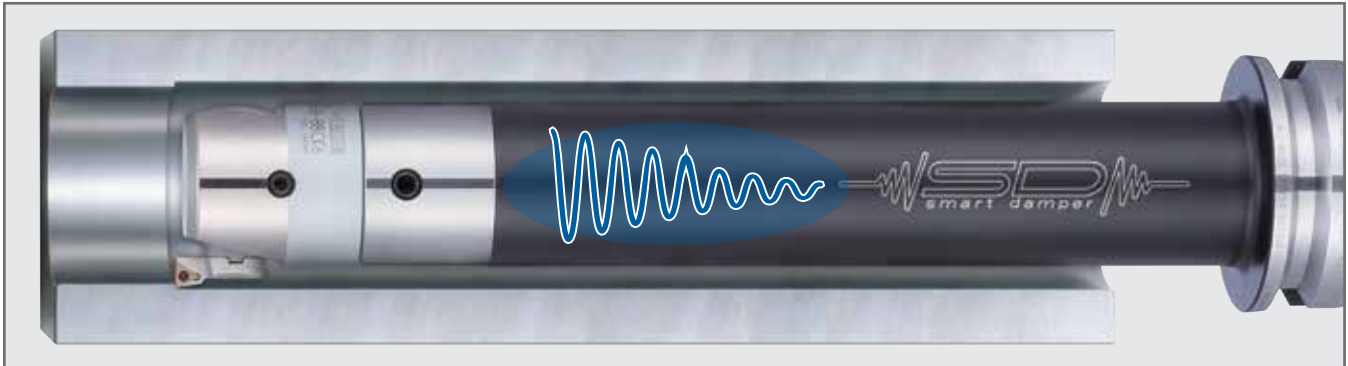
NEW!

AVAILABLE IN
BCV, BBT
& HSK

SMART DAMPER KAB BORING HOLDER OVERVIEW

For Vibration-Free Boring and Higher Metal Removal Rate

- KAB4-KAB6 for finish boring
- HSK-A100 and KAB Extension models also available



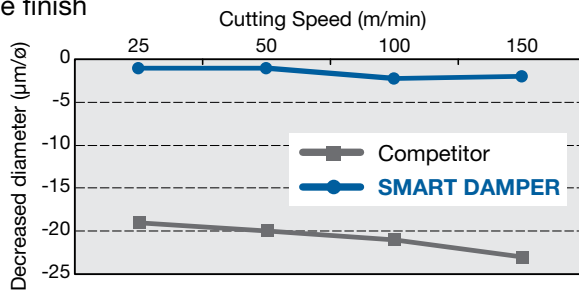
Finish Boring of Ductile Nodular Cast Iron (FCD500)

Holder	Cutting speed (SFM)				Result
	80	165	330	500	
Competitor (w/o damping system)	○	×	×		Outperforms competitor's holder by 6X higher productivity. Superior surface finish and better tool life due to the increased cutting speed.
Integrated Damping System SMART DAMPER BBT50-CK6DP-451	○	○	○		

×=Vibration ○=Acceptable ◎=Excellent surface finish

Cutting Conditions

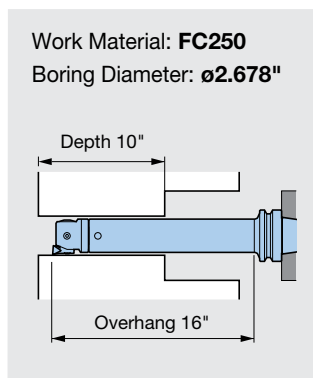
Machine	Horizontal Machining Center BBT50 (BIG-PLUS®)
Diameter	ø2.678"
Depth	16" (L/D=6)
Insert Nose Radius	R .016"
Feed	.008"/rev.
Depth of Cut	.012"/ø



Minimizes reduction of boring diameter

APPLICATION EXAMPLE

Standard holder cuts .004"/ø and 3 passes are required. Small nose radius of insert limits the speed. Cycle time is 90 min. per hole. Smart Damper completes the operation with only 1 pass. Larger nose radius improves surface finish. Cycle time is shortened to 10 min.

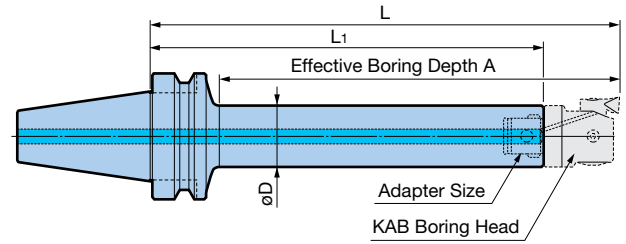
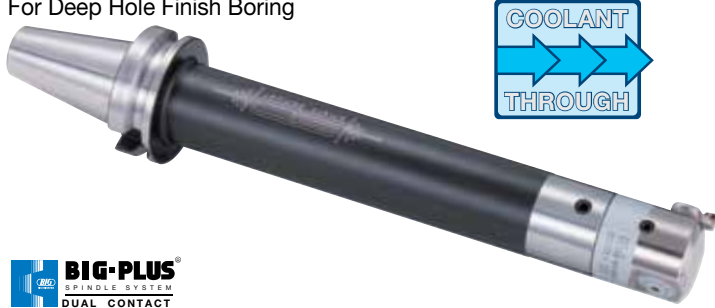


Cutting Conditions	Standard Holder (w/o damping system)	SMART DAMPER BBT50-CK6DP-451
Nose Radius	.008"	.016"
Cutting Speed	140 SFM	400 SFM
Feed	.002"/rev.	.0025"/rev.
	.40"/min.	1.4"/min.
Depth of Cut	.004"/ø	.012"/ø
Surface Roughness	Rz6-6.2	Rz5.0
Cycle Time	90 min.	10 min. 9X Higher Productivity

SMART DAMPER KAB BORING HOLDER BCV50, HSK-A100 & KAB

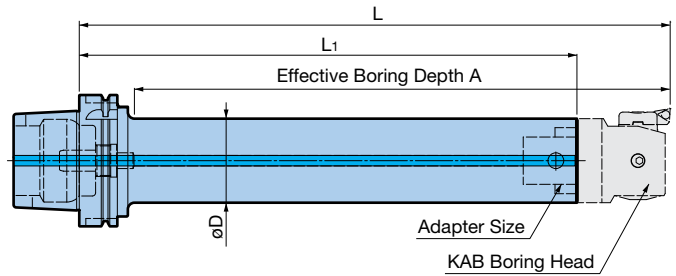


For Deep Hole Finish Boring



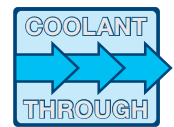
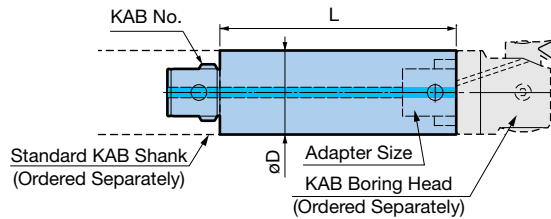
Catalog Number	Model	Adapter Size	øD	L	L1	A	Weight (lbs.)
11.368.646	BCV50xKA4DPxD10.0	KAB4	1.535	11.77	9.685	9.70	12.6
11.368.657	BCV50xKA5DPxD12.8	KAB5	1.968	14.61	12.520	12.50	20.7
11.368.668	BCV50xKA6DPxD16.0	KAB6	2.520	17.76	16.063	16.00	26.7

- Dimensions L & A are length when assembled with respective EWN head
- Insert is aligned with drive keys for tool orientation
- Boring head, inserts, etc. are sold separately



Catalog Number	Adapter Size	øD	L	L1	A	Weight (lbs.)
HSK-A100-CK4DP-241	KAB4	1.535	11.34	9.49	9.69	9.5
-CK5DP-303	KAB5	1.968	14.17	11.93	12.52	14.3
-CK6DP-379	KAB6	2.520	17.72	14.92	16.06	24.6

- Dimensions L & A are length when assembled with respective EWN head
- Insert is aligned with drive keys for tool orientation
- Boring head, inserts, etc. are sold separately



KAISER KAB Extension

Catalog Number	Adapter Size	øD	L	Weight (lbs.)
CK44DP-120	KAB4	1.535	4.724	2.9
CK55DP-150	KAB5	1.968	5.906	5.7
CK66DP-180	KAB6	2.520	7.087	11.7

- Additional reductions cannot be used together with the Smart Damper Extensions

CAUTION

Damping function may become less effective over time due to the break-down of special elastomers used in the damping mechanism. If excessive vibration occurs after 1 year of continued use, it is recommended to return Smart Damper bars for overhaul. Please contact BIG Kaiser for details of repair.

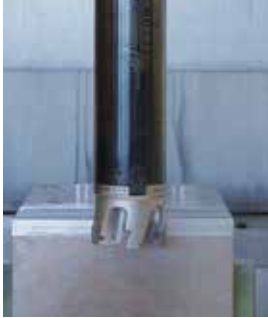
SMART DAMPER FACE MILL ARBOR TYPE FMH OVERVIEW

Integrated Damping System

Maximizes potential of cutters for the highest productivity.

- For FMH22 & FMH27
- Modular design provides versatility

CENTER-THROUGH COOLANT



Face Milling of S55C (C55) with High Feed Cutter

Holder	Radial depth of cut (inches)				Result
	.20	.40	.78	1.18	
Standard Holder (w/o damping system)	○	×	×		6X deeper depth of cut
Integrated Damping System SMART DAMPER BBT50-SDF36-47-170 SDF36-FMH22DP-47-180	○	○	○		

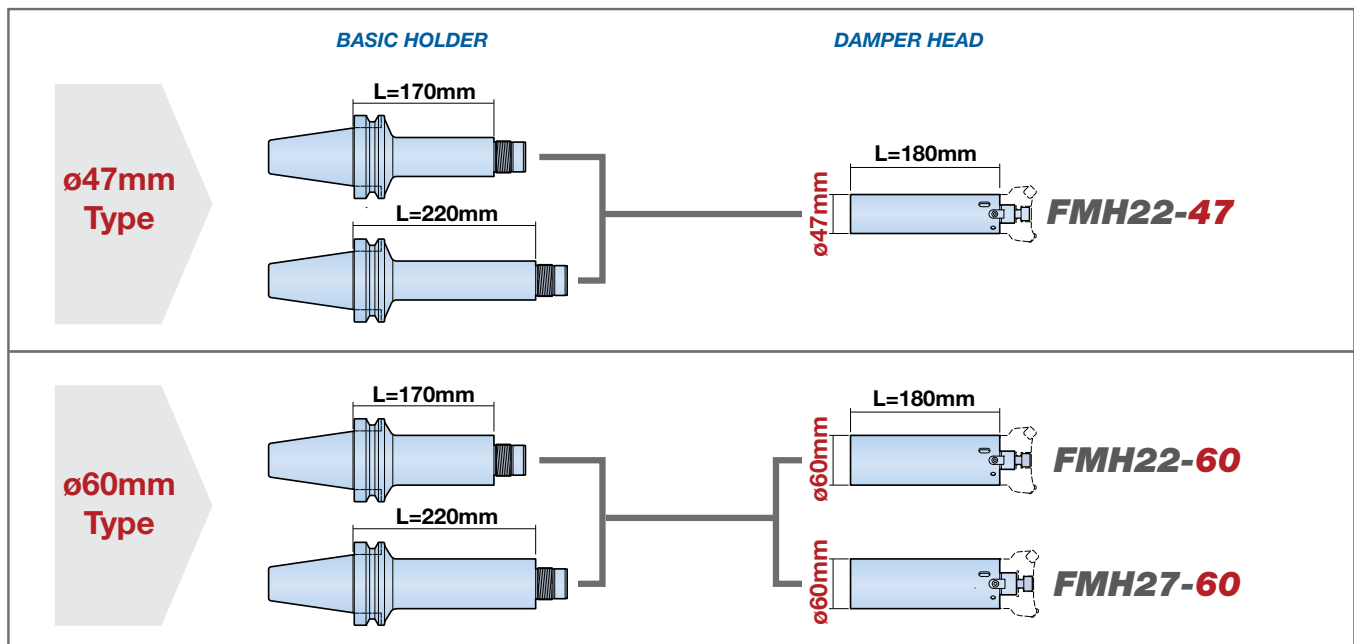
× = Vibration ○ = Good

Cutting Conditions

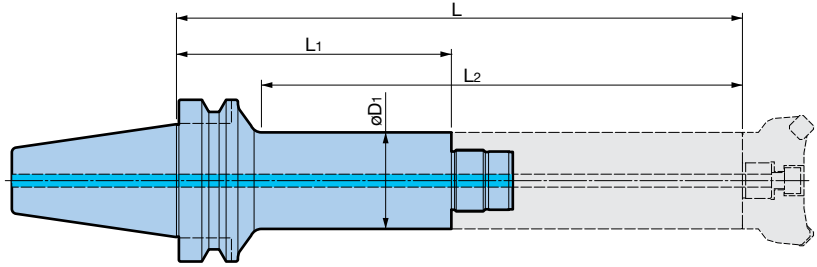
Machine	Vertical Machining Center BBT50 (BIG-PLUS®)
Cutter	ø1.968 (4 inserts)
Speed	300 SFM
Feed	.040"/tooth
Depth	.08"
Overhang	13.67"

Combinations (Example of BBT50)

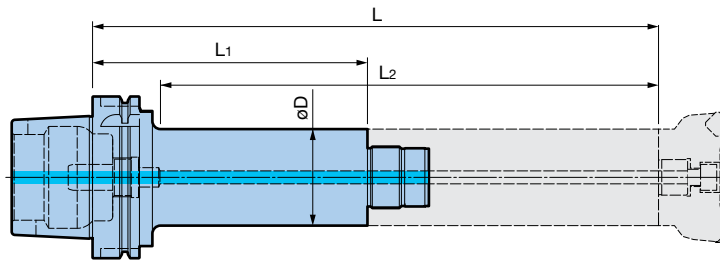
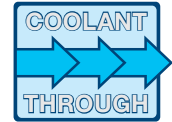
Select a suitable Basic Holder and Damper Head according to your application.



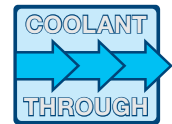
SMART DAMPER — FACE MILL ARBOR TYPE FMH BCV50, HSK-A100 & DAMPER HEAD



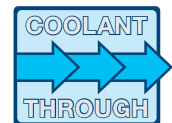
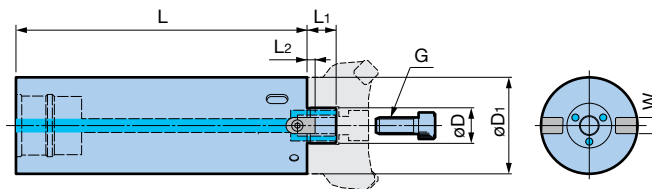
Catalog Number	øD ₁	L	L ₁	L ₂	Weight (lbs.)	Damper Head Model
BBT50-SDF36-47-170	47mm	13.780	6.693	11.693	12.3	FMH□□DP-47
47-220		15.748	8.661	13.661	13.9	
-SDF36-60-170	60mm	13.780	6.693	11.693	14.8	FMH□□DP-60
-60-220		15.748	8.661	13.661	17.2	
BCV50-SDF36-47-170	47mm	13.780	6.693	12.402	12.3	FMH□□DP-47
-SDF36-60-220	60mm	15.748	8.661	14.370	17.2	FMH□□DP-60



Catalog Number	øD	L	L ₁	L ₂	Weight (lbs.)	Damper Head Model
HSK-A100-SDF36-47-170	47	13.080	6.693	12.205	9.7	FMH□□DP-47
-47-220		15.748	8.661	14.173	11.0	
-SDF36-60-170	60	13.780	6.693	12.205	12.1	FMH□□DP-60
-60-220		15.748	8.661	14.173	14.3	



• Coolant pipe must be ordered separately



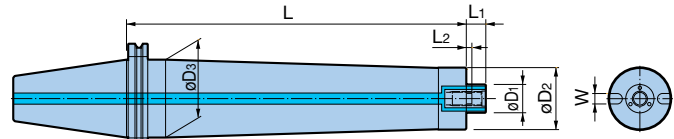
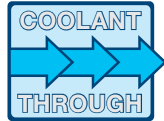
Damper Head

Catalog Number	øD	øD ₁	L	L ₁	L ₂	W	G	Weight (lbs.)	C-Spanner Model
SDF36-FMH22DP-47-180	22mm	1.850	7.087	.709	.197	.394	M10	6.6	FK45-50L
-60-180	22mm	2.362	7.087	.709	.197	.394	M10	9.9	
-FMH27DP-60-180	27mm	2.362	7.087	.709	.236	.472	M12	9.9	FK58-62L

- C-spanner and cutter clamping bolt are included
- Mounting dimensions of the cutter should be checked
- When øD₁ exceeds mounting diameter of the cutter, drive keys may not be engaged

SMART DAMPER BIG-PLUS® BCV50 & APPLICATION EXAMPLE

For Extended Reach Milling



Catalog Number	øD1	øD2	øD3	L	L1	L2	W	Weight (lbs.)
BCV50-SM1.000DP-12	1.000	2.190	2.750	12.00	.69	.20	.375	20.0

• By utilizing a clamping bolt with a center hole, coolant can be supplied through the bolt

CAUTION ⚠

Damping function may become less effective over time due to the break-down of special elastomers used in the damping mechanism. If excessive vibration occurs after 1 year of continued use, it is recommended to return Smart Damper bars for overhaul. Please contact BIG Kaiser for details of repair.

APPLICATION EXAMPLE – FACE MILL ARBOR TYPE FMH



**Cutter: ø50mm Fullcut Mill (5 inserts)
FMH22-FCM50115-40**

Work Material: 1045 **Cutting Speed:** 2"/min.
Machine: Vertical Machining Center **Feed:** .004"
 BBT50 (BIG-PLUS®) **Axial Depth of Cut:** .43"
Holder Diameter: ø47

× = Vibration ○ = Good

Holder	Radial depth of cut (inches)							
	.02	.04	.08	.16	.24	.31	.39	.43
Standard Holder (w/o damping system)	○	×	×	–	–			
Integrated Damping System SMART DAMPER BBT50-SDF36-47-170 SDF36-FMH22DP-47-180	○	○	○	○	○	○	○	×

BIG KAISER®

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