

TOOLING

16-2024

MAY 2024

METRIC/IMPERIAL

NPA

New Product Announcement



Anti-Vibration



Longer Tool Life



High Productivity



WHISPERLINE
ANTI-VIBRATION MILLING

Anti-Vibration Shell Mill Holders



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Highlights

Introducing a New Line of Vibration-Damping Camfix SEM Holders Designed for Long Overhangs In Milling Operations

In many cases, the vibration of the cutting tool is the limiting factor in the machining process, which necessitates reducing speed, feed, or depth of cut. By implementing WHISPERLINE shell mill holders, better machining conditions can be achieved, resulting in faster cutting, longer tool life, and a more profitable cost per part to achieve **better productivity**.

Based on the successful line of WHISPERLINE Boring Bars, holders for milling applications were developed to take advantage of our state-of-the-art milling cutters and superior inserts. These holders are specifically designed for applications that require a long overhang.

Advantages

- Patented vibration damping mechanism.
- Oil-free.
- Maintenance free.
- Coolant-through.
- Modularity by Camfix C5, C6 adaptations to fit all machine interfaces.
- Applications: face milling, deep shoulder and side milling, cavity milling, slot milling, and profiling.

Anti-vibration basics

The holder contains unique tuned mass damper configuration, to prevent vibrations that may develop due to axial, bending, and torsional machining forces. For long overhang holders, it is recommended to use a machine spindle with Face Contact (such as CAMFIX, HSK, BT-FC, SK-FC, CAT-FC). It is important to consider the limitations of the holder's operation, such as maximum coolant pressure and maximum temperature, as excessive heat can affect or damage the rubber support elements of the Damping mechanism.





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The technical recommendations are laser marked on each holder, please read before use.

1. Max. RPM 5000 – 7000 RPM
2. Max. coolant pressure 70 BAR
3. Max. temperature 100° C

To achieve the best results when working with rotating holders, there are a few basic rules that can also be implemented for **new** anti-vibration shell mill holders:

- Rigid clamping.
- Shortest possible assembly length.
- Largest possible assembly diameter.
- Minimum cutter weight to reduce potential for vibration.
- Avoid using extensions or reductions.

Suggested holder-cutter diameter combinations

- For holder diameter BD = 48 mm, it is preferred to use cutters with DC = 50 mm
- For holder diameter BD = 61 mm, it is preferred to use cutters with DC = 63 mm

Major guidelines for successful milling

- Reducing radial forces by choosing cutter – insert combination which provide best machining forces distribution in a particular application. The rule is – the bigger the KAPR angle is – the bigger the radial forces become.
- The most recommended insert geometry for successful vibration Damping is an insert with a positive rake angle, as this shape exerts lower cutting force when machining.
- A cutter with a coarse or variable pitch angle provides better performance.
- A smaller cutter diameter will reduce the bending forces acting on the holder.
- High temperature can affect the proper functioning of the damping mechanism, so it is recommended to use air or coolant through if possible.
- High RPM may reduce the vibration Damping effect.

Guidelines Summary

- ✓ Small KAPR
- ✓ Positive rake angle insert
- ✓ Coarse pitch cutter
- ✓ Small cutter diameter
- ✓ Coolant through



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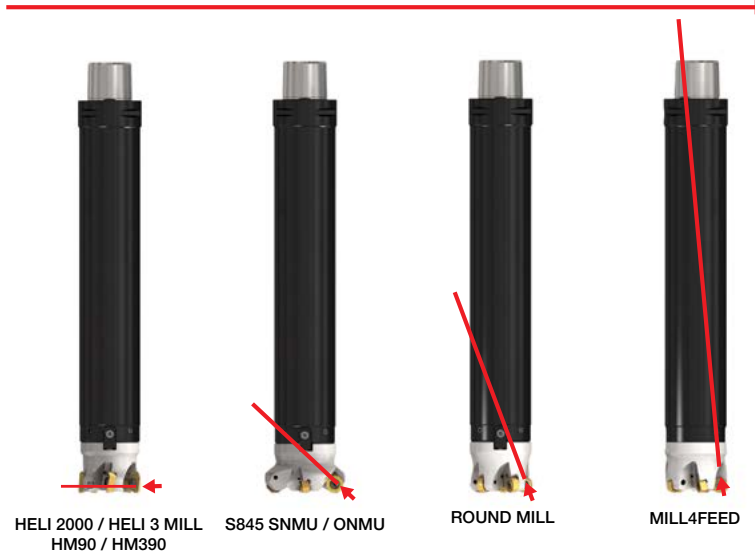
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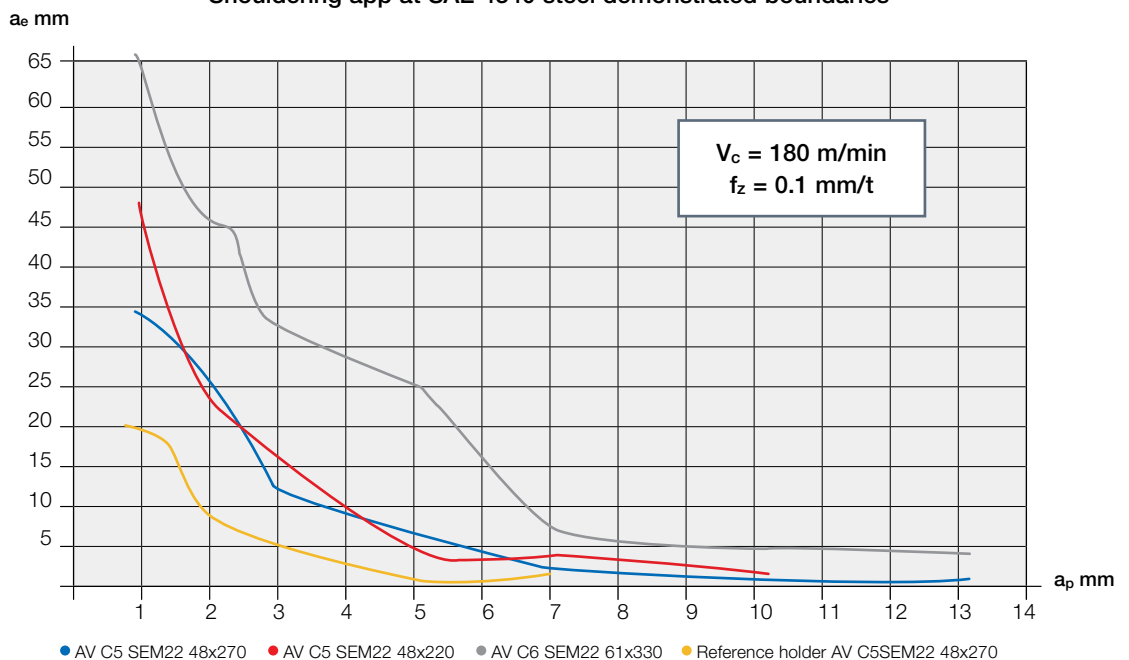
Better Performance



Each anti-vibration shell mill holder is designed and tuned to perform at its best with a specific overhang. The use of extensions reduces the vibration Damping effect. When using anti-vibration shell mill holders in 4D overhang applications, cutting conditions can be improved by approximately 50%.

For overhangs of 6D and more, the use of dampened holders is the only way to achieve good productivity and surface quality. The WHISPERLINE anti-vibration shell mill holder line is designed to fit a wide variety of cutting heads featuring different insert geometries.

HM390 FTD D050-5-22-15/HM390 FTD D063-5-27-15 cutter + HM390 TDKT 1505PDR IC380 insert
Shouldering app at SAE 4340 steel demonstrated boundaries



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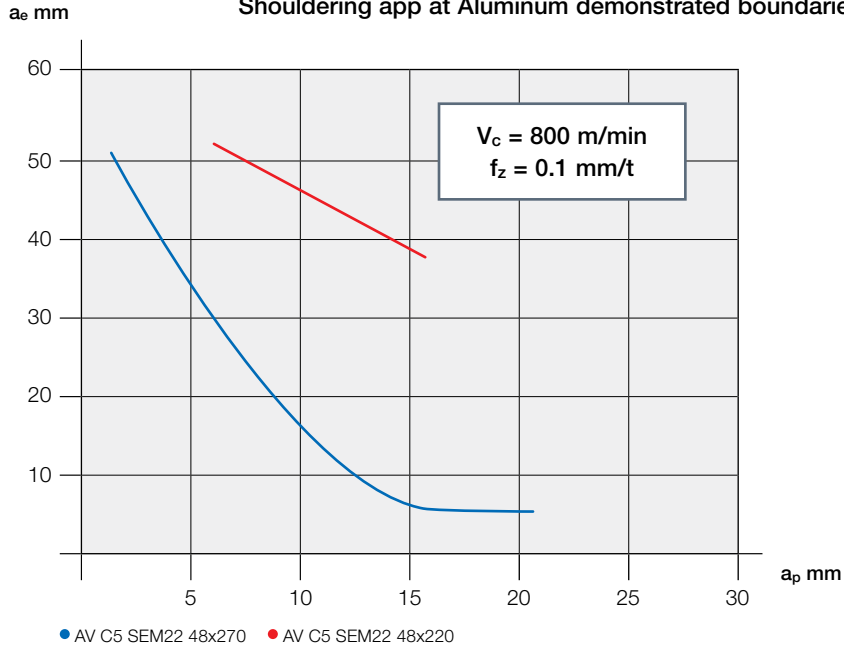
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HSM90S FAL-D050-4-22-22 cutter + HSM90S APCR 220708R-P 08 insert
HM90 FAL-D063-27-16 cutter + HM90 APCR 160508R-P IC08 insert
Shouldering app at Aluminum demonstrated boundaries



Click for Short Video

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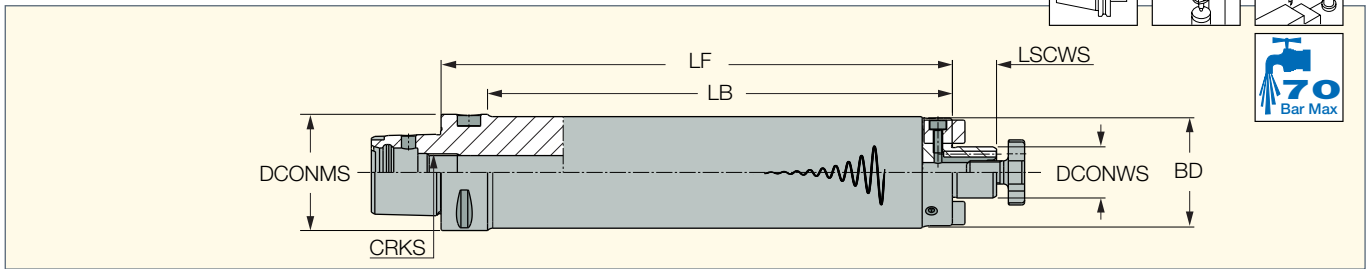
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WHISPERLINE ANTI-VIBRATION MILLING

AV C#-SEM

Anti-Vibration Shell Mill Holders with Coolant Holes and CAMFIX (ISO 26623-1) Shanks

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5080&mapp=IT&GFSTYP=M&srch=1>



Designation	DCONMS	DCONWS	BD	LSCWS	LB	LF	CRKS	DCP ⁽¹⁾	kg
AV C5 SEM22 48X220	50.00	22.00	48.00	19.00	200.0	220.00	M16	1	3.80
AV C5 SEM22 48X270	50.00	22.00	48.00	19.00	250.0	270.00	M16	1	4.70
AV C6 SEM22 48X270	63.00	22.00	48.00	19.00	248.0	270.00	M20	1	4.60
AV C6 SEM22 61X260	63.00	22.00	61.00	19.00	238.0	260.00	M20	1	7.50
AV C6 SEM22 61X310	63.00	22.00	61.00	19.00	288.0	310.00	M20	1	8.70
AV C6 SEM27 61X250	63.00	27.00	61.00	21.00	228.0	250.00	M20	1	7.40
AV C6 SEM27 61X300	63.00	27.00	61.00	21.00	278.0	300.00	M20	1	8.50

⁽¹⁾ 1 - Slot for data chip, 0 - Without slot for data chip

Spare Parts

Designation	Screw	Drive Dog	Shell Lock Screw	Cooling Tube	Wrench	Wrench 1
AV C5 SEM22 48X220	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH M10 SEMC 22*
AV C5 SEM22 48X270	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C5*	WRENCH COOL TUBE C5*	WRENCH M10 SEMC 22*
AV C6 SEM22 48X270	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM22 61X260	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM22 61X310	SR M4X10DIN912	DR.DOG 10S	M10 CLAMP SCREW SEM22	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M10 SEMC 22*
AV C6 SEM27 61X250	SR M5X14DIN912	DR.DOG 12S	M12 CLAMP SCREW SEM27	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M12 SEMC 27*
AV C6 SEM27 61X300	SR M5X14DIN912	DR.DOG 12S	M12 CLAMP SCREW SEM27	COOLING TUBE C6*	WRENCH COOL TUBE C6*	WRENCH M12 SEMC 27*

* Optional, to be ordered separately



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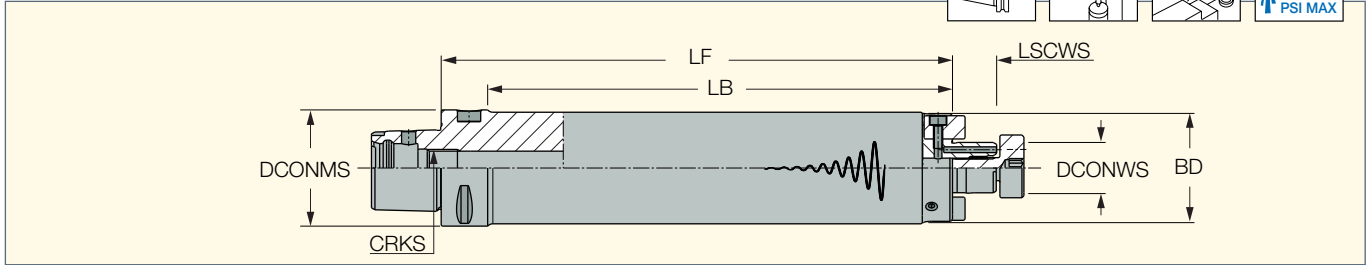
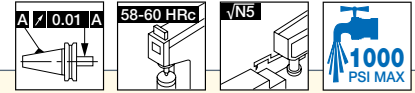
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Anti-Vibration Shell Mill Holders with Coolant Holes and CAMFIX (ISO 26623-1) Shanks

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5091&mapp=IT&GFSTYP=I&srch=1>



Designation	DCONMS	DCONWS	BD	LSCWS	LB	LF	CRKS	DCP ⁽¹⁾	Lbs
AV C5 SEM 3/4 1.89X8.66	1.960	.750	1.890	.669	7.870	8.660	M16	1	8.16
AV C5 SEM 3/4 1.89X10.63	1.960	.750	1.890	.669	9.840	10.630	M16	1	9.70
AV C6 SEM 3/4 2.4X10.24	2.480	.750	2.400	.669	9.370	10.240	M20	1	16.32
AV C6 SEM 3/4 2.4X12.20	2.480	.750	2.400	.669	11.330	12.200	M20	1	18.52
AV C6 SEM 1.0 2.4X9.86	2.480	1.000	2.400	.669	8.970	9.840	M20	1	15.88
AV C6 SEM 1.0 2.4X11.83	2.480	1.000	2.400	.669	10.940	11.810	M21	1	18.30

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Spare Parts

Designation	Screw	Drive Dog	Shell Lock Screw
AV C5 SEM 3/4 1.89X8.66	SR UNF 5-44X3/8"	DR.DOG 3/4"S	SCREW 3/8-24 SEM 3/4"
AV C5 SEM 3/4 1.89X10.63	SR UNF 5-44X3/8"	DR.DOG 3/4"S	SCREW 3/8-24 SEM 3/4"
AV C6 SEM 3/4 2.4X10.24	SR UNF 5-44X3/8"	DR.DOG 3/4"S	SCREW 3/8-24 SEM 3/4"
AV C6 SEM 3/4 2.4X12.20	SR UNF 5-44X3/8"	DR.DOG 3/4"S	SCREW 3/8-24 SEM 3/4"
AV C6 SEM 1.0 2.4X9.86	SR UNF 8-36X1/2	DR.DOG 1"S	SCREW 1/2-20X7/8 SEM 1"
AV C6 SEM 1.0 2.4X11.83	SR UNF 8-36X1/2	DR.DOG 1"S	SCREW 1/2-20X7/8 SEM 1"