



Advanced Machine and Engineering  
[www.amrok.com](http://www.amrok.com)

TOMBSTONES, CUSTOM FIXTURES, & WORKHOLDING COMPONENTS  
AMERICAN WORKHOLDING WISDOM

# BUILD ON THE ROCK

[WWW.AMROK.COM](http://WWW.AMROK.COM)

Every manufacturer requires repeatable, precise, and productive workholding solutions that offer simplified, versatile designs. In fact, it was that exact need that encouraged our founders to create what is now known as the AMROK division, located in the heart of one of America's largest manufacturing hubs—Rockford, Illinois.

## A BRIEF HISTORY

In the 1960's, we found ourselves utilizing our internal engineering teams to design improved and custom fixturing solutions due to the lacking designs of what was being offered in the industry. Over the years, shop managers watched the innovative designs of our engineers transform milling departments throughout the company into some of the most lean, efficient, and successful departments throughout the entire company. By the early 2000's there was such an immense improvement that it was obvious what needed to happen—the AMROK division was born.

Now, over 15 years after AMROK was established, it has become our mission to share generations of workholding wisdom with manufacturers throughout North America by working closely with companies, whether they are industrial giants or small job shops. Our workholding and custom fixturing teams continue to gather knowledge by learning about and witnessing your manufacturing challenges first-hand. It is through these personal relationships that we are able to help you discover optimized solutions while improving your bottom line.

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**ALVIN GOELLNER**  
NATIONAL PRODUCT SALES MANAGER  
*Advanced Machine and Engineering—*  
*AMROK Division*

*Alvin Goellner*

## ADVANCED MANUFACTURING

*"My entire life I have been involved in Advanced Machine and Engineering—that is just what happens when you are born into a tightly-knit, family-owned business. My career here started when I was young, running various machines—manual lathes, mills, and CNC mills and horizontals, and high-precision machines—working my way up to my current position as National Product Sales Manager for the AMROK division of AME.*

*The experiences I have had working with customers around the world have been incredible—it has been an extremely rewarding experience developing improved and optimized solutions for various workholding challenges over the years. Visiting past customers and seeing the success they have experienced with new setups is part of what keeps us motivated at AMROK to keep developing and growing our workholding wisdom."*

# WORKHOLDING WISDOM

AMROK has evolved over years of **innovation, growth, and continuous improvement**. Our partnerships with some of the brightest minds in workholding allow us to deliver the products, systems, and know-how that will optimize your setup and simplify your processes.

We know there are countless ways to hold a part during the machining process, so our **workholding and custom fixturing experts** work closely with you to understand your manufacturing challenges **first-hand**. It is through these personal relationships that we are able to find the right solution for your application while also improving your bottom line.

**The success of your end product relies on a robust foundation—make it stronger with AMROK.**



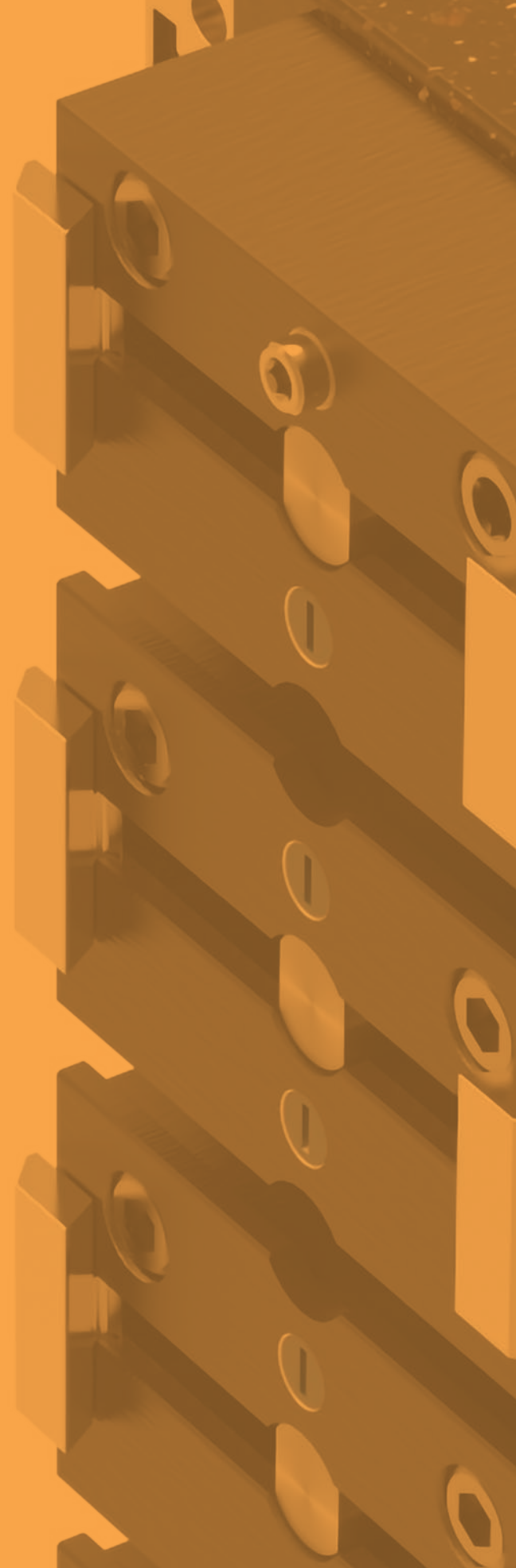
# WORKHOLDING WISDOM

As part of our mission, we developed an educational blog that offers tools, tips, and tactics for the workholding and fixturing communities at [www.workholdingwisdom.com](http://www.workholdingwisdom.com). Workholding Wisdom is designed for new machinists, seasoned engineers, c-suite executives, and everyone in between.

**Want to join our expert panel as a contributing author?** Contact Nick Goellner—Marketing Director at [contact@workholdingwisdom.com](mailto:contact@workholdingwisdom.com) for more information.

**Image:** Epoxy mineral Tombstone with Centering Dovetail Vises (CDV)—Reduce overall weight in your workholding foundation by utilizing Epoxy mineral tombstones, a lighter alternative with improved vibration damping.

Epoxy Tombstones—Page 46  
Centering Dovetail Vise—Page 68





# WORKHOLDING FOUNDATIONS

# WORKHOLDING FOUNDATIONS

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Solid Foundation

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TO ORDER  
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46 EPOXY MINERAL  
TOMBSTONES  
**NEW**, Lightweight  
Foundational Workholding

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## SUB-PLATES



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12 RECTANGULAR  
Sub-Plate



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12 CIRCULAR  
Sub-Plate

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## TOMBSTONES



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14 CUBE  
Tombstone



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18 CROSS  
Tombstone



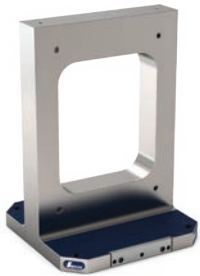
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22 DOUBLE ANGLE  
Tombstone



# WORKHOLDING FOUNDATIONS

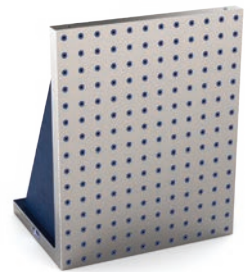
## TOMBSTONES *Continued*



**26 WINDOW FRAME**  
Tombstone Base



**28 FIXTURE PLATE**  
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**30 SINGLE ANGLE**  
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**34 HEXAGON**  
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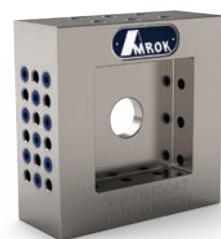
**38 TRIANGLE**  
Tombstone



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Tombstone



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Tombstone

# WORKHOLDING FOUNDATIONS

## NEW EPOXY MINERAL TOMBSTONES



**48 CUBE**  
**NEW** Lightweight Epoxy  
 Mineral Tombstone



**52 CROSS**  
**NEW** Lightweight Epoxy  
 Mineral Tombstone

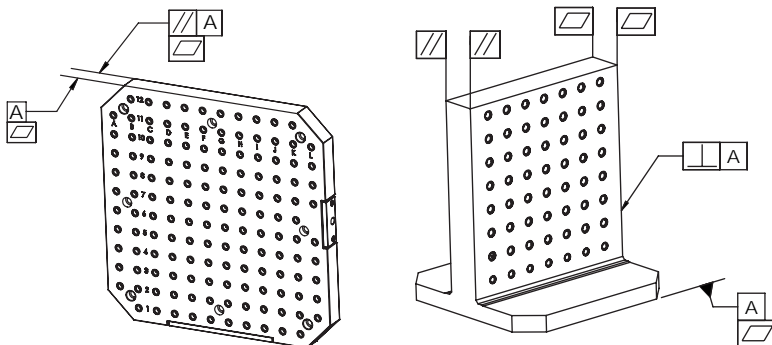


**56 DOUBLE ANGLE**  
**NEW** Lightweight Epoxy  
 Mineral Tombstone

## TOLERANCING STANDARDS

Tolerance	Precision	
Flatness (Tombstones and Plates)	.0005/12x12	
Parallelism (Plates)	.0005/12 Max: .002 total	
Perpendicularity	.0008/12 Min: .001, Max: .002/48	
Surface Finish	63 RMS	
Face Thickness (Tombstones)	$\leq 18" = \pm .002, > 18" = \pm .003"$	
Tapped Holes (Non-Accumulative)	$\pm .005$	
Precision Bushing I.D.	$- 0 / + .0006$	
Precision Bushing Concentricity	.0001	
Bored or Precision Bushing Hole to Adjacent Hole	$\pm .0005$	
First Row Bushing Hole Location from Datums	$\pm .002$	
Bored or Precision Bushing Hole Spacing (Non-Accumulative)	0-10" 10-20" 20-30" 30-40"	$\pm .0005^*$ $\pm .0008$ $\pm .0010$ $\pm .0012$

\* For aluminum add 50% to these tolerances.





**BUILT ON  
A SOLID  
FOUNDATION**

# BUILD ON THE ROCK

## THE LEADER IN TURN-KEY WORKHOLDING SOLUTIONS

Advanced Machine and Engineering designs and manufactures standard and custom tombstones and sub-plates for virtually any workholding application. By holding the **industry's tightest tolerances** for flatness, parallelism, perpendicularity, surface finish, and hole location, we have developed a highly-regarded reputation for being a leader in the workholding industry.


## BACKED BY PRECISION

We offer a **fully operational manufacturing facility** equipped with milling, boring, turning, EDM, OD and ID grinding, and two of Hexagon's DEA large-format CMM's to support our commitment to our high-precision standards.

*Reference our full equipment list on page 224.*

## WORLDLY EXPERTISE

Our workholding solutions have been developed with **generations** of experience and engineers from **around the world**, leveraging a practical understanding of the machining environment to design and build fixtures that meet the demands of the industry.



**Image:** AMROK division's Hexagon DEA large format coordinate measuring machine (CMM) being used for inspection of large sub-plate.



## TOMBSTONES MADE TO ORDER

### MATERIAL OF YOUR CHOICE

AMROK tombstones are available in a variety of materials, including cast iron, aluminum, steel, and AMROK's **NEW** epoxy mineral.

### INDUSTRY STANDARD

The support of **industry** standard 2.0000" grid spacing utilizes hardened, threaded inserts and bushings for long-term durability.

### CUSTOMIZABILITY

Customize your tombstone to optimize a specific application with custom hole patterns, t-slots, or other locating/fastening systems—or start with a plain-faced tombstone. Special sizes are also available upon request.

# TOMBSTONE SUB-PLATES

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



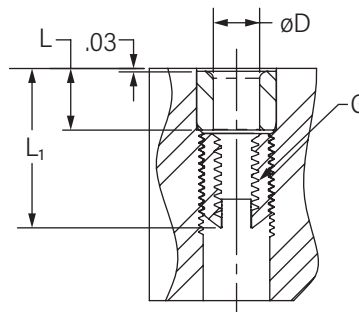
## ADDITIONAL OPTIONS AVAILABLE

- Custom sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

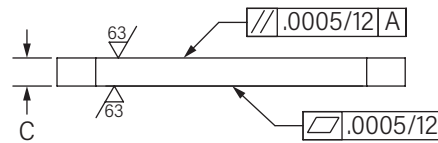
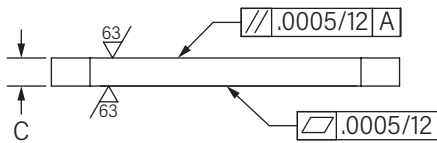
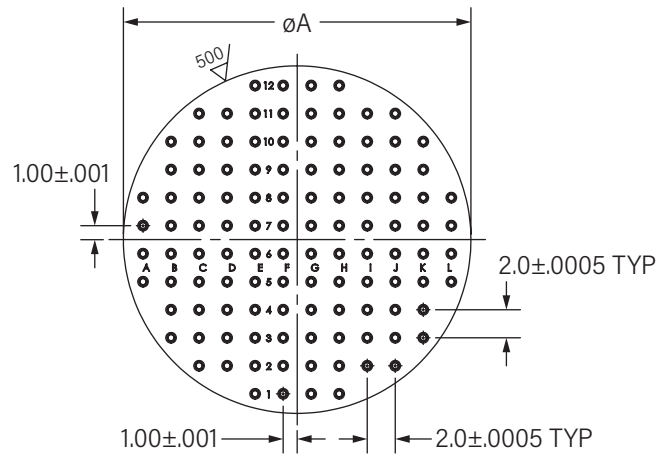
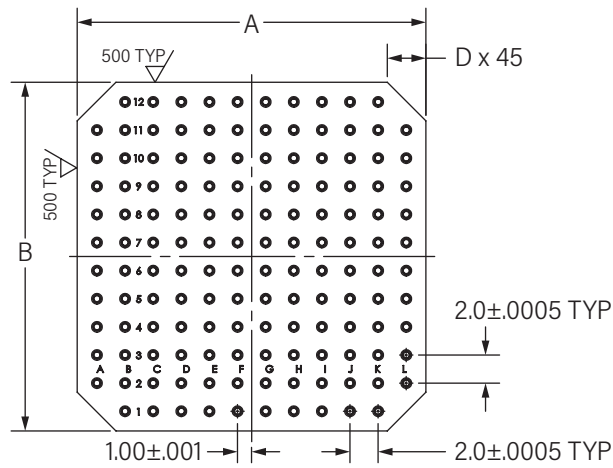
*Note: CAD models available for download online.*

## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE SUB-PLATES



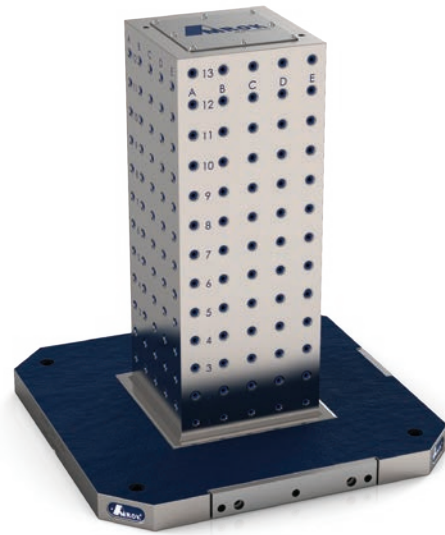
Shape	Dimensions						Weight		No. Grid Holes	Part Number UNC 1/2"-13	Part Number UNC 5/8"-11
	A		B		C±.005*	D	Alum.	Steel			
	in	mm	in	mm	in	in	lbs	lbs			
□	15.75	400	15.75	400	1.60	2.00	38	105	60	AMR-P1616-02-50	-
□	19.69	500	15.75	400	2.00	2.00	60	165	76	AMR-P2016-02-50	AMR-P2016-02-62
□	19.69	500	19.69	500	2.00	2.35	75	206	96	AMR-P2020-02-50	AMR-P2020-02-62
□	24.80	630	19.69	500	2.00	2.35	95	262	116	AMR-P2520-02-50	AMR-P2520-02-62
□	24.80	630	24.80	630	2.00	2.75	120	331	140	AMR-P2525-02-50	AMR-P2525-02-62
□	31.50	800	24.80	630	2.36	2.75	181	498	188	AMR-P3225-02-50	AMR-P3225-02-62
□	31.50	800	31.50	800	2.36	3.90	227	625	244	AMR-P3232-02-50	AMR-P3232-02-62
□	39.37	1000	19.69	500	2.36	3.90	175	481	188	AMR-P3920-02-50	AMR-P3920-02-62
□	39.37	1000	29.50	750	2.36	3.90	218	600	268	AMR-P3930-02-50	AMR-P3930-02-62
○	13.00	330	-	-	1.60	-	21	58	32	AMR-P13D-02-50	-
○	15.75	400	-	-	1.60	-	31	87	44	AMR-P16D-02-50	-
○	19.69	500	-	-	2.00	-	60	166	68	AMR-P20D-02-50	AMR-P20D-02-62
○	24.80	630	-	-	2.36	-	114	314	112	AMR-P25D-02-50	AMR-P25D-02-62
○	31.50	800	-	-	2.36	-	184	507	180	AMR-P32D-02-50	AMR-P32D-02-62

\*Higher plate thickness tolerances are available upon request.

Note: Geometric tolerances shown are precision. Please specify aluminum or steel when ordering. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CUBE, CAST IRON

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 25" and heights up to 40"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance
- Also available in Epoxy mineral (page 48)



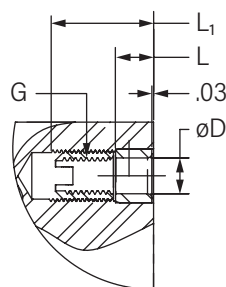
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

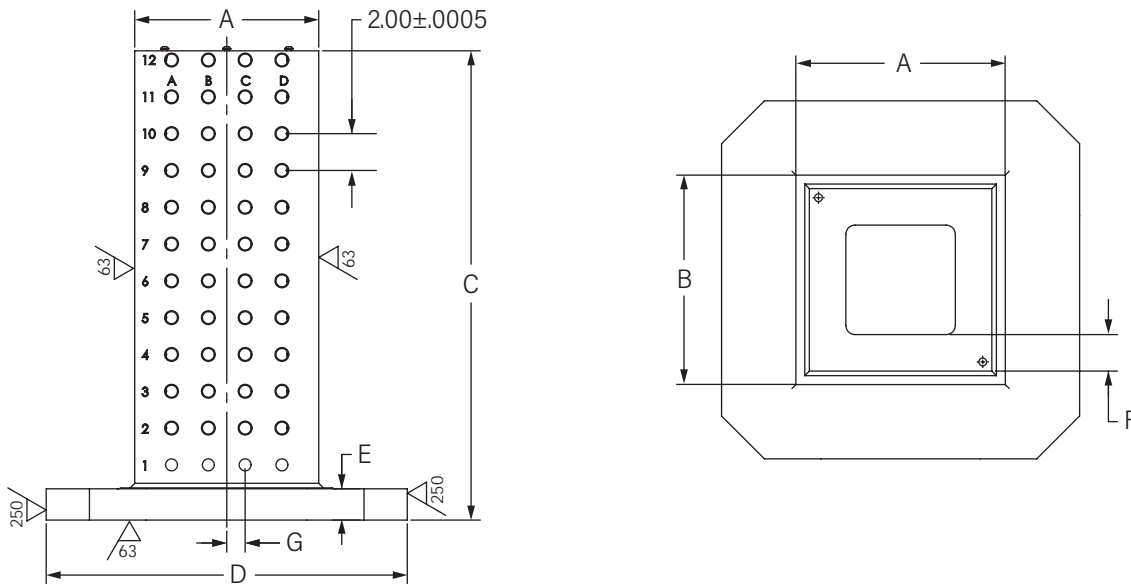
## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69





# TOMBSTONE CUBE, CAST IRON



Dimensions							Wt.	Part Number			
A	B	C	D		E	F		G	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
6.00	6.00	20.00	11.81	300	1.50	-	1.000	210	AMR-C060620-12	AMR-C060620-12-50	AMR-C060620-12-62
6.00	6.00	20.00	15.75	400	1.50	-	1.000	265	AMR-C060620-16	AMR-C060620-16-50	AMR-C060620-16-62
6.00	6.00	24.00	15.75	400	1.50	-	1.000	285	AMR-C060624-16	AMR-C060624-16-50	AMR-C060624-16-62
6.00	8.00	20.00	11.81	300	1.50	2.00	1.000	250	AMR-C060820-12	AMR-C060820-12-50	AMR-C060820-12-62
6.00	8.00	24.00	15.75	400	1.50	2.00	1.000	335	AMR-C060824-16	AMR-C060824-16-50	AMR-C060824-16-62
6.00	8.00	26.00	15.75	400	1.50	2.00	1.000	360	AMR-C060826-16	AMR-C060826-16-50	AMR-C060826-16-62
6.00	12.00	24.00	15.75	400	1.50	2.00	1.000	425	AMR-C061224-16	AMR-C061224-16-50	AMR-C061224-16-62
8.00	8.00	18.00	11.81	300	2.00	2.00	-	275	AMR-C080818-12	AMR-C080818-12-50	AMR-C080818-12-62
8.00	8.00	18.00	15.75	400	2.00	2.00	-	265	AMR-C080818-16	AMR-C080818-16-50	AMR-C080818-16-62
8.00	8.00	20.00	15.75	400	1.50	2.00	-	330	AMR-C080820-16	AMR-C080820-16-50	AMR-C080820-16-62
8.00	8.00	22.00	15.75	400	2.00	2.00	-	380	AMR-C080822-16	AMR-C080822-16-50	AMR-C080822-16-62
8.00	8.00	24.00	15.75	400	2.00	2.00	-	405	AMR-C080824-16	AMR-C080824-16-50	AMR-C080824-16-62
8.00	8.00	24.00	19.69	500	2.00	2.00	-	485	AMR-C080824-20	AMR-C080824-20-50	AMR-C080824-20-62
8.00	8.00	26.00	15.75	400	2.00	2.00	-	440	AMR-C080826-16	AMR-C080826-16-50	AMR-C080826-16-62
8.00	8.00	26.00	19.69	500	2.00	2.00	-	510	AMR-C080826-20	AMR-C080826-20-50	AMR-C080826-20-62
8.00	8.00	28.00	15.75	400	2.00	2.00	-	455	AMR-C080828-16	AMR-C080828-16-50	AMR-C080828-16-62
8.00	8.00	28.00	19.69	500	2.00	2.00	-	540	AMR-C080828-20	AMR-C080828-20-50	AMR-C080828-20-62
8.00	10.00	20.00	11.81	300	1.50	2.00	-	325	AMR-C081020-12	AMR-C081020-12-50	AMR-C081020-12-62
8.00	10.00	24.00	15.75	400	1.50	2.00	-	430	AMR-C081024-16	AMR-C081024-16-50	AMR-C081024-16-62
8.00	12.00	20.50	19.69	500	2.00	2.00	-	510	AMR-C081221-20	AMR-C081221-20-50	AMR-C081221-20-62
8.00	12.00	24.00	15.75	400	1.50	2.00	-	480	AMR-C081224-16	AMR-C081224-16-50	AMR-C081224-16-62
8.00	12.00	24.00	19.69	500	2.00	2.00	-	570	AMR-C081224-20	AMR-C081224-20-50	AMR-C081224-20-62
8.00	16.00	30.00	19.69	500	2.00	2.00	-	785	AMR-C081630-20	AMR-C081630-20-50	AMR-C081630-20-62
8.00	18.00	36.00	24.80	630	2.00	2.00	-	1145	AMR-C081836-25	AMR-C081836-25-50	AMR-C081836-25-62
9.00	9.00	24.00	19.69	500	2.00	2.00	-	535	AMR-C090924-20	AMR-C090924-20-50	AMR-C090924-20-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CUBE, CAST IRON

Dimensions								Wt.	Part Number		
A	B	C	D		E	F	G		lbs	Plain Face	UNC ½"-13
in	in	in	in	mm	in	in	in				
10.00	10.00	16.00	24.80	630	2.00	2.00	1.000	555	AMR-C101016-25	AMR-C101016-25-50	AMR-C101016-25-62
10.00	10.00	18.00	15.75	400	1.50	2.00	1.000	375	AMR-C101018-16	AMR-C101018-16-50	AMR-C101018-16-62
10.00	10.00	20.00	15.75	400	2.00	2.00	1.000	430	AMR-C101020-16	AMR-C101020-16-50	AMR-C101020-16-62
10.00	10.00	20.50	15.75	400	2.00	2.00	1.000	440	AMR-C101021-16	AMR-C101021-16-50	AMR-C101021-16-62
10.00	10.00	24.00	15.75	400	1.50	2.00	1.000	475	AMR-C101024-16	AMR-C101024-16-50	AMR-C101024-16-62
10.00	10.00	24.00	19.69	500	2.00	2.00	1.000	570	AMR-C101024-20	AMR-C101024-20-50	AMR-C101024-20-62
10.00	10.00	24.00	24.80	630	2.00	2.00	1.000	685	AMR-C101024-25	AMR-C101024-25-50	AMR-C101024-25-62
10.00	10.00	26.00	15.75	400	1.50	2.00	1.000	520	AMR-C101026-16	AMR-C101026-16-50	AMR-C101026-16-62
10.00	10.00	26.00	24.80	630	2.00	2.00	1.000	720	AMR-C101026-25	AMR-C101026-25-50	AMR-C101026-25-62
10.00	10.00	28.00	15.75	400	1.50	2.00	1.000	540	AMR-C101028-16	AMR-C101028-16-50	AMR-C101028-16-62
10.00	10.00	28.00	24.80	630	2.00	2.00	1.000	635	AMR-C101028-20	AMR-C101028-20-50	AMR-C101028-20-62
10.00	10.00	28.00	24.80	630	2.00	2.00	1.000	755	AMR-C101028-25	AMR-C101028-25-50	AMR-C101028-25-62
10.00	10.00	30.00	24.80	630	2.00	2.00	1.000	805	AMR-C101030-25	AMR-C101030-25-50	AMR-C101030-25-62
10.00	10.00	32.00	19.69	500	2.00	2.00	1.000	715	AMR-C101032-20	AMR-C101032-20-50	AMR-C101032-20-62
10.00	10.00	32.00	24.80	630	2.00	2.00	1.000	820	AMR-C101032-25	AMR-C101032-25-50	AMR-C101032-25-62
10.00	10.00	36.00	19.69	500	2.00	2.00	1.000	900	AMR-C101036-25	AMR-C101036-25-50	AMR-C101036-25-62
10.00	14.00	30.00	19.69	500	2.00	2.00	1.000	805	AMR-C101430-20	AMR-C101430-20-50	AMR-C101430-20-62
10.00	14.00	30.00	24.80	630	2.00	2.00	1.000	930	AMR-C101430-25	AMR-C101430-25-50	AMR-C101430-25-62
12.00	12.00	18.00	15.75	400	1.50	2.00	-	440	AMR-C121218-16	AMR-C121218-16-50	AMR-C121218-16-62
12.00	12.00	18.50	19.69	500	2.00	2.00	-	545	AMR-C121219-20	AMR-C121219-20-50	AMR-C121219-20-62
12.00	12.00	22.00	19.69	500	2.00	2.00	-	620	AMR-C121222-20	AMR-C121222-20-50	AMR-C121222-20-62
12.00	12.00	24.00	15.75	400	2.00	2.00	-	590	AMR-C121224-16	AMR-C121224-16-50	AMR-C121224-16-62
12.00	12.00	24.00	19.69	500	2.00	2.00	-	660	AMR-C121224-20	AMR-C121224-20-50	AMR-C121224-20-62
12.00	12.00	24.00	24.80	630	2.00	2.00	-	780	AMR-C121224-25	AMR-C121224-25-50	AMR-C121224-25-62
12.00	12.00	28.00	15.75	400	1.50	2.00	-	670	AMR-C121228-16	AMR-C121228-16-50	AMR-C121228-16-62
12.00	12.00	28.00	19.69	500	2.00	2.00	-	745	AMR-C121228-20	AMR-C121228-20-50	AMR-C121228-20-62
12.00	12.00	28.00	24.80	630	2.00	2.00	-	865	AMR-C121228-25	AMR-C121228-25-50	AMR-C121228-25-62
12.00	12.00	30.00	24.80	630	2.00	2.00	-	905	AMR-C121230-25	AMR-C121230-25-50	AMR-C121230-25-62
12.00	12.00	30.50	19.69	500	2.00	2.00	-	795	AMR-C121231-20	AMR-C121231-20-50	AMR-C121231-20-62
12.00	12.00	32.00	19.69	500	2.00	2.00	-	860	AMR-C121232-20	AMR-C121232-20-50	AMR-C121232-20-62
12.00	12.00	32.00	24.80	630	2.00	2.00	-	945	AMR-C121232-25	AMR-C121232-25-50	AMR-C121232-25-62
12.00	12.00	36.00	24.80	630	2.00	2.00	-	1030	AMR-C121236-25	AMR-C121236-25-50	AMR-C121236-25-62
12.00	16.00	24.00	19.69	500	2.00	2.00	-	755	AMR-C121624-20	AMR-C121624-20-50	AMR-C121624-20-62
12.00	16.00	24.00	24.80	630	2.00	2.00	-	870	AMR-C121624-25	AMR-C121624-25-50	AMR-C121624-25-62
12.00	16.00	28.00	19.69	500	2.00	2.00	-	855	AMR-C121628-20	AMR-C121628-20-50	AMR-C121628-20-62
12.00	16.00	30.00	24.80	630	2.00	2.00	-	1020	AMR-C121630-25	AMR-C121630-25-50	AMR-C121630-25-62
12.00	16.00	32.00	24.80	630	2.00	2.00	-	1070	AMR-C121632-25	AMR-C121632-25-50	AMR-C121632-25-62
12.00	18.00	24.00	24.80	630	2.00	2.00	-	915	AMR-C121824-25	AMR-C121824-25-50	AMR-C121824-25-62
12.00	18.00	28.00	24.80	630	2.00	2.00	-	1025	AMR-C121828-25	AMR-C121828-25-50	AMR-C121828-25-62
12.00	18.00	30.00	24.80	630	2.00	2.00	-	1080	AMR-C121830-25	AMR-C121830-25-50	AMR-C121830-25-62
12.00	18.00	32.00	19.69	500	2.00	2.00	-	1050	AMR-C121832-20	AMR-C121832-20-50	AMR-C121832-20-62
12.00	18.00	32.00	24.80	630	2.00	2.00	-	11.35	AMR-C121832-25	AMR-C121832-25-50	AMR-C121832-25-62
12.00	18.00	36.00	24.80	630	2.00	2.00	-	1295	AMR-C121836-25	AMR-C121836-25-50	AMR-C121836-25-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CUBE, CAST IRON

Dimensions								Wt.	Part Number		
A	B	C	D		E	F	G		Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
12.00	18.00	36.00	31.50	800	2.00	2.00	-	1460	AMR-C121836-32	AMR-C121836-32-50	AMR-C121836-32-62
12.00	18.00	42.00	24.80	630	2.00	2.00	-	1480	AMR-C121842-25	AMR-C121842-25-50	AMR-C121842-25-62
14.00	14.00	24.00	24.80	630	2.00	2.00	1.000	870	AMR-C141424-25	AMR-C141424-25-50	AMR-C141424-25-62
14.00	14.00	28.00	24.80	630	2.00	2.00	1.000	1000	AMR-C141428-25	AMR-C141428-25-50	AMR-C141428-25-62
14.00	14.00	30.00	24.80	630	2.00	2.00	1.000	1020	AMR-C141430-25	AMR-C141430-25-50	AMR-C141430-25-62
14.00	14.00	32.00	24.80	630	2.00	2.00	1.000	1110	AMR-C141432-25	AMR-C141432-25-50	AMR-C141432-25-62
14.00	14.00	34.00	24.80	630	2.25	2.00	1.000	1145	AMR-C141434-25	AMR-C141434-25-50	AMR-C141434-25-62
14.00	14.00	36.00	24.80	630	2.25	2.00	1.000	1205	AMR-C141436-25	AMR-C141436-25-50	AMR-C141436-25-62
14.00	20.00	34.00	31.50	800	2.00	2.00	1.000	1565	AMR-C142034-32	AMR-C142034-32-50	AMR-C142034-32-62
16.00	16.00	24.00	24.80	630	2.00	2.00	-	965	AMR-C161624-25	AMR-C161624-25-50	AMR-C161624-25-62
16.00	16.00	28.00	24.80	630	2.00	2.00	-	1080	AMR-C161628-25	AMR-C161628-25-50	AMR-C161628-25-62
16.00	16.00	30.00	24.80	630	2.00	2.00	-	1135	AMR-C161630-25	AMR-C161630-25-50	AMR-C161630-25-62
16.00	16.00	32.00	24.80	630	2.00	2.00	-	1240	AMR-C161632-25	AMR-C161632-25-50	AMR-C161632-25-62
16.00	16.00	36.00	24.80	630	2.00	2.00	-	1360	AMR-C161636-25	AMR-C161636-25-50	AMR-C161636-25-62
18.00	18.00	24.00	24.80	630	2.00	2.00	1.000	1055	AMR-C181824-25	AMR-C181824-25-50	AMR-C181824-25-62
18.00	18.00	30.00	24.80	630	2.00	2.00	1.000	1255	AMR-C181830-25	AMR-C181830-25-50	AMR-C181830-25-62
18.00	18.00	32.00	24.80	630	2.00	2.00	1.000	1320	AMR-C181832-25	AMR-C181832-25-50	AMR-C181832-25-62
20.00	20.00	24.00	24.80	630	2.00	2.00	-	1145	AMR-C202024-25	AMR-C202024-25-50	AMR-C202024-25-62
20.00	20.00	30.00	24.80	630	2.00	2.00	-	1370	AMR-C202030-25	AMR-C202030-25-50	AMR-C202030-25-62
20.00	20.00	32.00	24.80	630	2.00	2.00	-	1445	AMR-C202032-25	AMR-C202032-25-50	AMR-C202032-25-62
20.00	20.00	36.00	24.80	630	2.00	2.00	-	1675	AMR-C202036-25	AMR-C202036-25-50	AMR-C202036-25-62
22.00	22.00	36.00	24.80	630	2.00	2.00	1.000	1830	AMR-C222236-25	AMR-C222236-25-50	AMR-C222236-25-62
22.00	22.00	36.00	31.50	800	2.00	2.00	1.000	2000	AMR-C222236-32	AMR-C222236-32-50	AMR-C222236-32-62
25.00	25.00	40.00	31.50	800	2.00	2.00	-	3365	AMR-C252540-32	AMR-C252540-32-50	AMR-C252540-32-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CROSS, CAST IRON

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 10" and heights up to 40"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance
- Also available in Epoxy mineral (page 52)



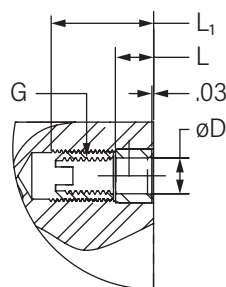
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

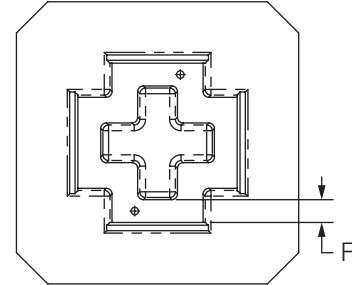
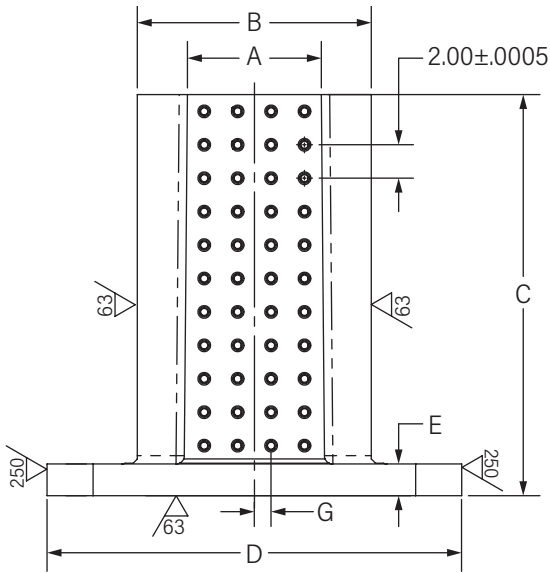
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE CROSS, CAST IRON



Dimensions								Weight	Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
3.00	8.00	32.00	19.69	500	2.00	-	-	535	AMR-K03030832-20	AMR-K03030832-20-50	AMR-K03030832-20-62
4.00	10.00	20.00	15.75	400	1.50	-	1.000	410	AMR-K04041020-16	AMR-K04041020-16-50	AMR-K04041020-16-62
4.00	10.00	24.00	15.75	400	1.50	-	1.000	485	AMR-K04041024-16	AMR-K04041024-16-50	AMR-K04041024-16-62
4.00	10.00	26.00	15.75	400	1.50	-	1.000	520	AMR-K04041026-16	AMR-K04041026-16-50	AMR-K04041026-16-62
4.00	10.00	26.00	19.69	500	1.50	-	1.000	575	AMR-K04041026-20	AMR-K04041026-20-50	AMR-K04041026-20-62
4.00	10.00	28.00	15.75	400	1.50	-	1.000	555	AMR-K04041028-16	AMR-K04041028-16-50	AMR-K04041028-16-62
4.00	12.00	32.00	24.80	630	1.50	-	1.000	865	AMR-K04041232-25	AMR-K04041232-25-50	AMR-K04041232-25-62
4.00	12.00	36.00	24.80	630	2.00	-	1.000	1055	AMR-K04041236-25	AMR-K04041236-25-50	AMR-K04041236-25-62
4.00	14.00	26.00	15.75	400	1.50	-	1.000	735	AMR-K04041426-16	AMR-K04041426-16-50	AMR-K04041426-16-62
4.00	16.00	32.00	19.69	500	2.00	-	1.000	995	AMR-K04041632-20	AMR-K04041632-20-50	AMR-K04041632-20-62
4.00	16.00	32.00	24.80	630	2.00	-	1.000	1225	AMR-K04041632-25	AMR-K04041632-25-50	AMR-K04041632-25-62
5.00	12.00	20.00	15.75	400	1.50	2.00	1.000	550	AMR-K05051220-16	AMR-K05051220-16-50	AMR-K05051220-16-62
5.00	12.00	24.00	15.75	400	1.50	2.00	1.000	655	AMR-K05051224-16	AMR-K05051224-16-50	AMR-K05051224-16-62
5.00	12.00	26.00	15.75	400	1.50	2.00	1.000	715	AMR-K05051226-16	AMR-K05051226-16-50	AMR-K05051226-16-62
5.00	12.00	28.00	19.69	500	2.00	2.00	1.000	845	AMR-K05051228-20	AMR-K05051228-20-50	AMR-K05051228-20-62
6.00	12.00	24.00	19.69	500	2.00	2.00	-	685	AMR-K06061224-20	AMR-K06061224-20-50	AMR-K06061224-20-62
6.00	12.00	28.00	19.69	500	2.00	2.00	-	770	AMR-K06061228-20	AMR-K06061228-20-50	AMR-K06061228-20-62
6.00	12.00	30.00	19.69	500	2.00	2.00	-	810	AMR-K06061230-20	AMR-K06061230-20-50	AMR-K06061230-20-62
6.00	12.00	32.00	19.69	500	2.00	2.00	-	870	AMR-K06061232-20	AMR-K06061232-20-50	AMR-K06061232-20-62
6.00	14.00	20.00	15.75	400	1.50	2.00	-	585	AMR-K06061420-16	AMR-K06061420-16-50	AMR-K06061420-16-62
6.00	14.00	24.00	15.75	400	1.50	2.00	-	660	AMR-K06061424-16	AMR-K06061424-16-50	AMR-K06061424-16-62
6.00	14.00	24.00	19.69	500	2.00	2.00	-	785	AMR-K06061424-20	AMR-K06061424-20-50	AMR-K06061424-20-62
6.00	14.00	28.00	19.69	500	2.00	2.00	-	905	AMR-K06061428-20	AMR-K06061428-20-50	AMR-K06061428-20-62
6.00	16.00	28.00	19.69	500	2.00	2.00	-	960	AMR-K06061628-20	AMR-K06061628-20-50	AMR-K06061628-20-62
6.00	16.00	28.00	24.80	630	2.00	2.00	-	1145	AMR-K06061628-25	AMR-K06061628-25-50	AMR-K06061628-25-62
6.00	16.00	30.00	24.80	630	2.00	2.00	-	1250	AMR-K06061630-25	AMR-K06061630-25-50	AMR-K06061630-25-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CROSS, CAST IRON

Dimensions							Weight	Part Number			
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
6.00	16.00	32.00	24.80	630	2.00	2.00	-	1195	AMR-K06061632-25	AMR-K06061632-25-50	AMR-K06061632-25-62
8.00	18.00	28.00	19.69	500	2.00	2.00	1.000	1070	AMR-K08081828-20	AMR-K08081828-20-50	AMR-K08081828-20-62
8.00	18.00	32.00	24.80	630	2.00	2.00	1.000	1320	AMR-K08081832-25	AMR-K08081832-25-50	AMR-K08081832-25-62
8.00	18.00	36.00	24.80	630	2.00	2.00	1.000	1565	AMR-K08081836-25	AMR-K08081836-25-50	AMR-K08081836-25-62
10.00	22.00	36.00	24.80	630	2.00	2.00	-	1880	AMR-K10102236-25	AMR-K10102236-25-50	AMR-K10102236-25-62
10.00	22.00	36.00	31.50	800	2.00	2.00	-	2060	AMR-K10102236-32	AMR-K10102236-32-50	AMR-K10102236-32-62
10.00	22.00	40.00	31.50	800	2.00	2.00	-	2265	AMR-K10102240-32	AMR-K10102240-32-50	AMR-K10102240-32-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

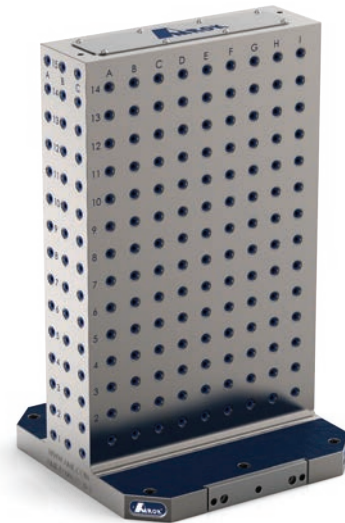


# PRACTICAL SOLUTIONS



# TOMBSTONE DOUBLE ANGLE, CAST IRON

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 39.37" and heights up to 50"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance
- Also available in Epoxy mineral (page 56)



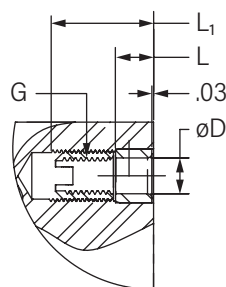
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

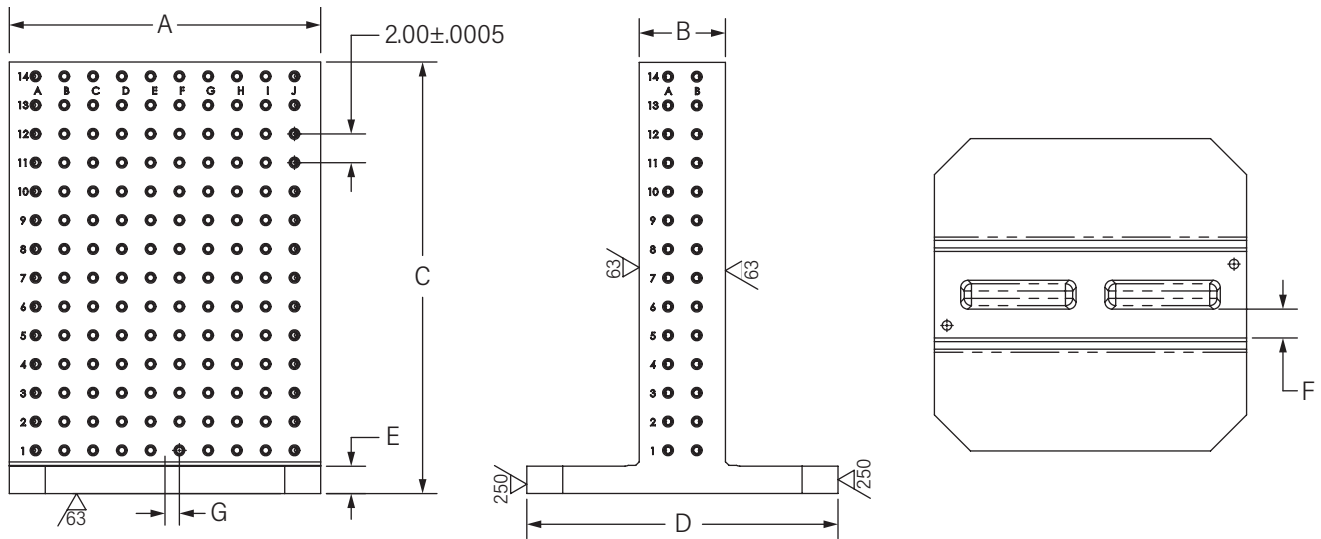
## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69





# TOMBSTONE DOUBLE ANGLE, CAST IRON



Dimensions							Weight		Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 3/8"-11
in	in	in	in	mm	in	in	in	lbs			
11.81	3.00	16.00	11.81	300	1.50	-	-	190	AMR-D120316-12	AMR-D120316-12-50	-
12.00	3.00	24.00	15.75	400	1.50	-	-	310	AMR-D120324-16	AMR-D120324-16-50	-
11.81	4.00	16.00	11.81	300	1.50	-	-	235	AMR-D120416-12	AMR-D120416-12-50	AMR-D120416-12-62
12.00	4.00	22.00	15.75	400	2.00	-	-	370	AMR-D120422-16	AMR-D120422-16-50	AMR-D120422-16-62
12.00	4.00	24.00	15.75	400	2.00	-	-	405	AMR-D120424-16	AMR-D120424-16-50	AMR-D120424-16-62
12.00	6.00	24.00	19.69	500	2.00	2.00	-	525	AMR-D120624-20	AMR-D120624-20-50	AMR-D120624-20-62
12.00	6.00	28.00	19.69	500	2.00	2.00	-	580	AMR-D120628-20	AMR-D120628-20-50	AMR-D120628-20-62
15.75	3.00	18.00	15.75	400	1.50	-	-	292	AMR-D160318-16	AMR-D160318-16-50	-
15.75	3.00	24.00	15.75	400	1.50	-	-	370	AMR-D160324-16	AMR-D160324-16-50	-
15.75	4.00	20.00	15.75	400	1.50	-	-	390	AMR-D160420-16	AMR-D160420-16-50	AMR-D160420-16-62
15.75	4.00	24.00	15.75	400	2.00	-	-	485	AMR-D160424-16	AMR-D160424-16-50	AMR-D160424-16-62
15.75	4.00	26.00	15.75	400	2.00	-	-	520	AMR-D160426-16	AMR-D160426-16-50	AMR-D160426-16-62
15.75	4.00	28.00	15.75	400	2.00	-	-	555	AMR-D160428-16	AMR-D160428-16-50	AMR-D160428-16-62
15.75	5.00	28.00	15.75	400	1.50	2.00	-	645	AMR-D160528-16	AMR-D160528-16-50	AMR-D160528-16-62
15.75	6.00	24.00	15.75	400	2.00	2.00	-	535	AMR-D160624-16	AMR-D160624-16-50	AMR-D160624-16-62
16.00	6.00	24.00	19.69	500	2.00	2.00	-	615	AMR-D160624-20	AMR-D160624-20-50	AMR-D160624-20-62
16.00	6.00	28.00	19.69	500	2.00	2.00	-	690	AMR-D160628-20	AMR-D160628-20-50	AMR-D160628-20-62
19.69	3.00	24.00	19.69	500	2.00	2.00	-	540	AMR-D200324-20	AMR-D200324-20-50	-
19.69	4.00	24.00	19.69	500	2.00	2.00	-	655	AMR-D200424-20	AMR-D200424-20-50	AMR-D200424-20-62
19.69	4.00	28.00	19.69	500	2.00	2.00	-	735	AMR-D200428-20	AMR-D200428-20-50	AMR-D200428-20-62
19.69	5.00	30.00	19.69	500	2.00	2.00	-	910	AMR-D200530-20	AMR-D200530-20-50	AMR-D200530-20-62
19.69	6.00	24.00	19.69	500	2.00	2.00	-	700	AMR-D200624-20	AMR-D200624-20-50	AMR-D200624-20-62
19.69	6.00	28.00	19.69	500	2.00	2.00	-	790	AMR-D200628-20	AMR-D200628-20-50	AMR-D200628-20-62
20.00	6.00	30.00	24.80	630	2.00	2.00	-	965	AMR-D200630-25	AMR-D200630-25-50	AMR-D200630-25-62
20.00	6.00	32.00	24.80	630	2.00	2.00	-	1010	AMR-D200632-25	AMR-D200632-25-50	AMR-D200632-25-62
19.69	8.00	24.00	19.69	500	2.00	2.00	-	805	AMR-D200824-20	AMR-D200824-20-50	AMR-D200824-20-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE DOUBLE ANGLE, CAST IRON

Dimensions								Weight	Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
19.69	8.00	28.00	19.69	500	2.00	2.00	-	920	AMR-D200828-20	AMR-D200828-20-50	AMR-D200828-20-62
19.69	8.00	32.00	19.69	500	2.00	2.00	-	1035	AMR-D200832-20	AMR-D200832-20-50	AMR-D200832-20-62
21.65	6.00	30.00	19.69	500	2.00	2.00	1.000	1000	AMR-D220630-22	AMR-D220630-22-50	AMR-D220630-22-62
21.65	8.00	30.00	19.69	500	2.00	2.00	1.000	1025	AMR-D220830-22	AMR-D220830-22-50	AMR-D220830-22-62
24.80	4.00	28.00	24.80	630	2.00	2.00	-	990	AMR-D250428-25	AMR-D250428-25-50	AMR-D250428-25-62
24.80	4.00	30.00	24.80	630	2.00	2.00	-	1045	AMR-D250430-25	AMR-D250430-25-50	AMR-D250430-25-62
24.80	4.00	32.00	24.80	630	2.00	2.00	-	1095	AMR-D250432-25	AMR-D250432-25-50	AMR-D250432-25-62
24.80	5.00	28.00	24.80	630	2.50	2.00	-	1160	AMR-D250528-25	AMR-D250528-25-50	AMR-D250528-25-62
24.80	5.00	30.00	24.80	630	2.50	2.00	-	1225	AMR-D250530-25	AMR-D250530-25-50	AMR-D250530-25-62
24.80	5.00	32.00	24.80	630	2.50	2.00	-	1290	AMR-D250532-25	AMR-D250532-25-50	AMR-D250532-25-62
24.80	6.00	30.00	24.80	630	2.00	2.00	-	1100	AMR-D250630-25	AMR-D250630-25-50	AMR-D250630-25-62
24.80	6.00	32.00	24.80	630	2.00	2.00	-	1160	AMR-D250632-25	AMR-D250632-25-50	AMR-D250632-25-62
24.80	6.00	36.00	24.80	630	2.00	2.00	-	1270	AMR-D250636-25	AMR-D250636-25-50	AMR-D250636-25-62
24.80	8.00	32.00	24.80	630	2.00	2.00	-	1325	AMR-D250832-25	AMR-D250832-25-50	AMR-D250832-25-62
24.80	8.00	34.00	24.80	630	2.00	2.00	-	1400	AMR-D250834-25	AMR-D250834-25-50	AMR-D250834-25-62
24.80	8.00	36.00	24.80	630	2.00	2.00	-	1340	AMR-D250836-25	AMR-D250836-25-50	AMR-D250836-25-62
24.80	8.00	38.00	24.80	630	2.00	2.00	-	1540	AMR-D250838-25	AMR-D250838-25-50	AMR-D250838-25-62
31.50	8.00	36.00	31.50	800	2.00	2.00	1.000	1905	AMR-D320836-32	AMR-D320836-32-50	AMR-D320836-32-62
31.50	8.00	40.00	31.50	800	2.00	2.00	1.000	2085	AMR-D320840-32	AMR-D320840-32-50	AMR-D320840-32-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.



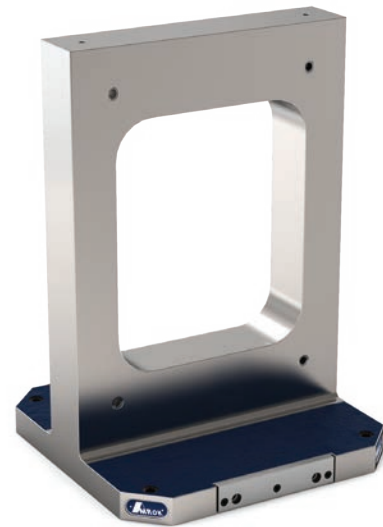
**OPTIONS  
WHEN YOU  
NEED THEM**

# TOMBSTONE WINDOW FRAME

- Plain-faced, precision-machined faces
- 1/2"-13 mounting holes on each corner with hardened, threaded inserts and bushings for precision positioning, easy locating, high wear resistance, and easy replaceability
- Includes two blank fixture plates (*page 28*) mounted to either side of the window frame
- Standard face widths up to 31.5" and heights up to 40"—custom sizes available

## ADDITIONAL OPTIONS AVAILABLE

- Custom designed fixture plates
- Custom and metric hole sizes and patterns
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

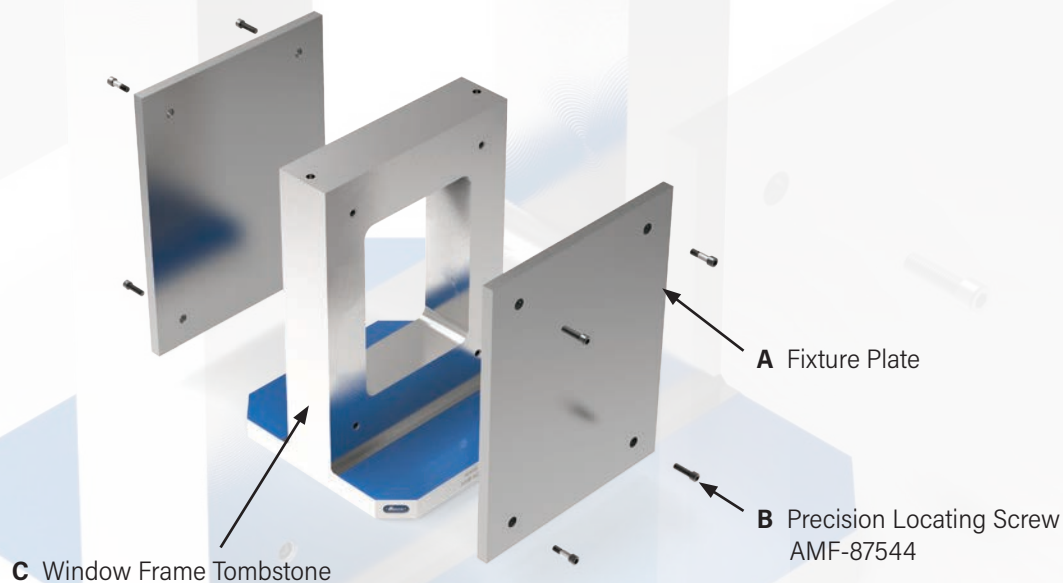
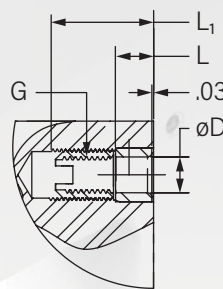


*Note: CAD models available for download online.*

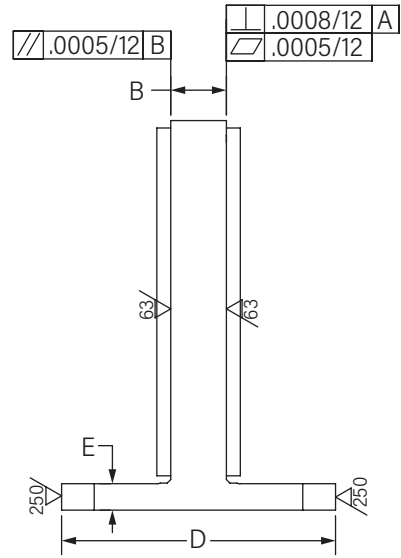
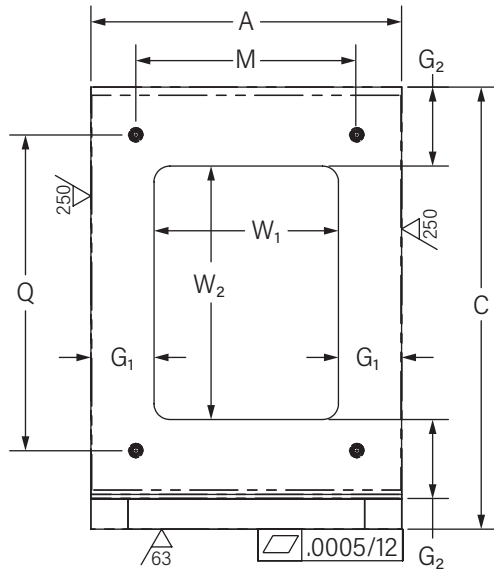
## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69

*Note: 5/8"-11 system available upon request.*



# TOMBSTONE WINDOW FRAME



Dimensions												Wt. Cast Iron	Part Number	
A	B ±.001	C	D		E	G <sub>1</sub>	G <sub>2</sub>	M ±.0005	Q ±.0005	W <sub>1</sub>	W <sub>2</sub>		Plain Face	UNC ½"-13
in	in	in	in	mm	in	in	in	in	in	in	in	lbs		
11.81	3.00	18.00	11.81	300	1.50	2.0	3.0	10.00	12.00	7.80	10.50	143	AMR-W120318-12	AMR-W120318-12-50
15.75	3.00	18.00	11.81	300	1.50	3.0	4.0	12.00	18.00	9.75	14.50	267	AMR-W160324-16	AMR-W160324-16-50
15.75	4.00	24.00	15.75	400	1.50	3.0	4.0	12.00	18.00	9.75	14.50	323	AMR-W160424-16	AMR-W160424-16-50
19.68	5.00	28.00	19.69	500	2.00	4.0	5.0	14.00	20.00	11.68	16.00	624	AMR-W200428-20	AMR-W200428-20-50
19.68	4.00	28.00	19.69	500	2.00	4.0	5.0	14.00	20.00	11.68	16.00	540	AMR-W200528-20	AMR-W200528-20-50
24.80	5.00	32.00	24.80	630	2.00	5.0	6.0	18.00	24.00	14.80	18.00	941	AMR-W250532-25	AMR-W250532-25-50
24.80	6.00	32.00	24.80	630	2.00	5.0	6.0	18.00	24.00	14.80	18.00	1065	AMR-W250632-25	AMR-W250632-25-50
31.50	8.00	40.00	31.50	800	2.00	8.0	8.0	22.00	32.00	15.50	22.00	2100	AMR-W320840-32	AMR-W320840-32-50

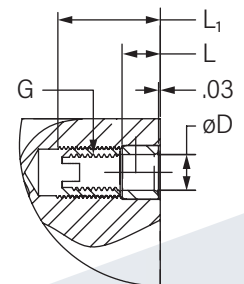
Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

## WINDOW FRAME PLATE ASSEMBLIES

Weight	Part Number	
Cast Iron		
lbs	Plate Assembly	Fixture Plate (Included in Assembly)
195	AMR-W120318-12-50P	AMR-P1216-01-50
365	AMR-W160324-16-50P	AMR-P1622-01-50
420	AMR-W160424-16-50P	AMR-P1622-01-50
765	AMR-W200428-20-50P	AMR-P2025-01-50
680	AMR-W200528-20-50P	AMR-P2025-01-50
1195	AMR-W250532-25-50P	AMR-P2529-01-50
1315	AMR-W250632-25-50P	AMR-P2529-01-50
2505	AMR-W320840-32-50P	AMR-P3137-01-50

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
½"-13	.5007/.5013	0.53	1.44
⅝"-11	.6257/.6263	0.78	1.69

Note: ⅝"-11 system available upon request.



Note: Includes tombstone and two fixture plates.

# TOMBSTONE FIXTURE PLATES FOR WINDOW FRAMES

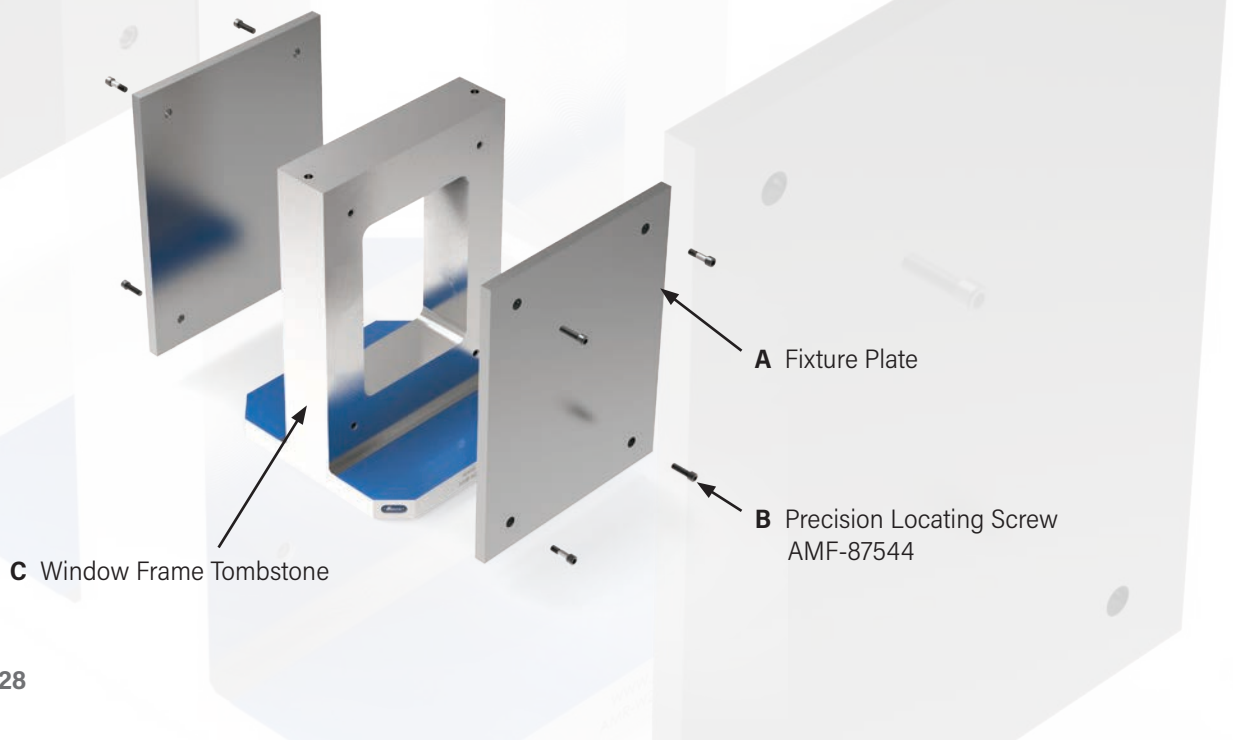
- Mountable on any 2" grid pattern horizontally or vertically for quick-change dedicated machining
- ½"-13 mounting holes on each corner with hardened, threaded inserts and bushings for precision positioning, easy locating, high wear resistance, and easy replaceability
- Locate by using any two of the four mounting holes with precision locating screws (*page 166*)
- Standard face up to 31x37"—custom sizes available
- Compatible with tombstones and sub-plates



*Note: CAD models available for download online.*

## ADDITIONAL OPTIONS AVAILABLE

- Aluminum and cast iron sizes available
- Custom designed fixture plates
- Custom and metric hole sizes and patterns
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

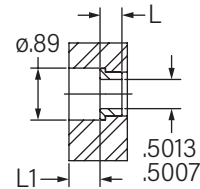
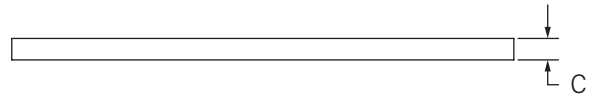
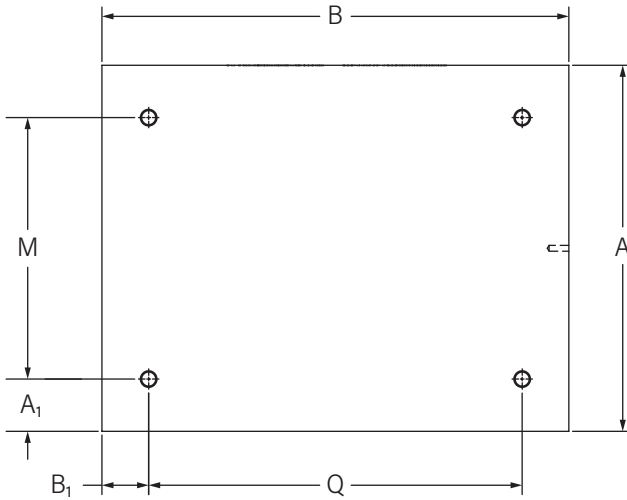


**C** Window Frame Tombstone

**A** Fixture Plate

**B** Precision Locating Screw  
AMF-87544

# TOMBSTONE FIXTURE PLATES FOR WINDOW FRAMES

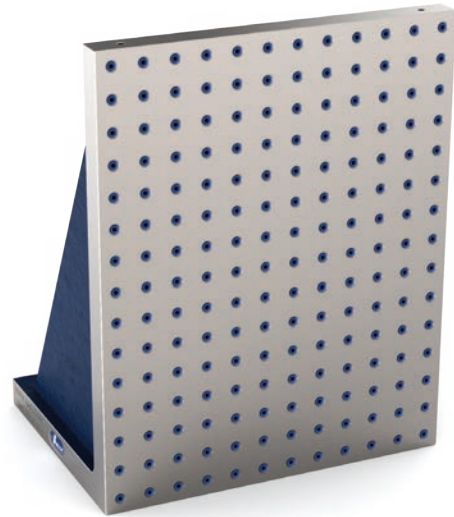


Nom. Size	Dimensions									Weight Steel lbs	Plate Part Number UNC ½"-13	Tombstone Part Number UNC ½"-13
	A	B	A <sub>1</sub>	B <sub>1</sub>	C±.001	L	L <sub>1</sub>	M±.0005	Q±.0005			
	in	in	in	in	in	in	in	in	in			
12x16	11.75	15.90	0.88	1.95	1.00	0.38	0.53	10.00	12.00	52	AMR-P1216-01-50	AMR-W120318-12-50
16x22	15.70	21.90	1.85	1.95	1.00	0.38	0.53	12.00	18.00	97	AMR-P1622-01-50	AMR-W160324-16-50
20x25	19.60	25.00	2.80	2.50	1.00	0.38	0.53	14.00	20.00	138	AMR-P2025-01-50	AMR-W200428-20-50
25x29	24.50	29.00	3.25	2.50	1.25	0.50	0.69	18.00	24.00	250	AMR-P2529-01-50	AMR-W250532-25-50
31x37	31.00	37.00	2.50	2.50	1.25	0.50	0.69	26.00	32.00	403	AMR-P3137-01-50	AMR-W320840-32-50
6x18	5.90	17.90	0.95	1.95	1.00	0.38	0.53	4.00	14.00	30	AMR-P0618-01-50	AMR-C060620-12-50
8x8	7.90	7.90	0.95	2.95	1.00	0.38	0.53	6.00	6.00	18	AMR-P0808-01-50	AMR-C101018-16-50
8x20	7.90	19.50	1.95	1.75	1.00	0.38	0.53	4.00	16.00	44	AMR-P0820-01-50	AMR-C080822-16-50
10x10	9.90	9.90	0.95	0.95	1.00	0.38	0.53	8.00	8.00	28	AMR-P1010-01-50	AMR-C121213-20-50
10x20	9.90	19.90	1.95	2.95	1.00	0.38	0.53	6.00	14.00	55	AMR-P1020-01-50	AMR-C101024-16-50
12x12	11.90	11.90	1.95	1.95	1.00	0.38	0.53	8.00	8.00	40	AMR-P1212-01-50	AMR-C121218-16-50
12x24	11.90	23.90	1.95	1.95	1.00	0.38	0.53	8.00	20.00	80	AMR-P1224-01-50	AMR-C121228-20-50
14x26	13.90	25.90	1.95	1.95	1.00	0.38	0.53	10.00	22.00	101	AMR-P1426-01-50	AMR-C141428-20-50
16x16	15.90	15.90	1.95	1.95	1.00	0.38	0.53	12.00	12.00	71	AMR-P1616-01-50	AMR-C161624-25-50
16x26	15.90	25.90	1.95	1.95	1.00	0.38	0.53	12.00	22.00	116	AMR-P1626-01-50	AMR-S1630-18-50
18x18	17.90	17.90	1.95	2.95	1.00	0.38	0.53	14.00	12.00	90	AMR-P1818-01-50	AMR-D180424-16-50
20x20	19.90	19.90	1.95	2.95	1.00	0.38	0.53	16.00	14.00	111	AMR-P2020-01-50	AMR-C202024-25-50
20x22	19.50	21.50	1.75	3.75	1.00	0.38	0.53	16.00	14.00	122	AMR-P0222-01-50	AMR-D200624-20-50
25x26	24.50	25.90	2.25	1.95	1.25	0.50	0.69	20.00	22.00	182	AMR-P2526-01-50	AMR-D250629-25-50

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE SINGLE ANGLE

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts, and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 32" and heights up to 48"—custom sizes available
- Available in two versions: Version I offers diagonal hole positioning, Version II offers coaxial hole positioning
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



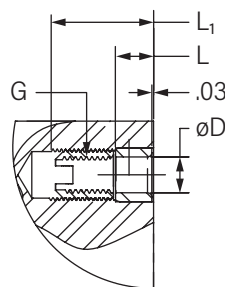
*Note: CAD models available for download online.*

## ADDITIONAL OPTIONS AVAILABLE

- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

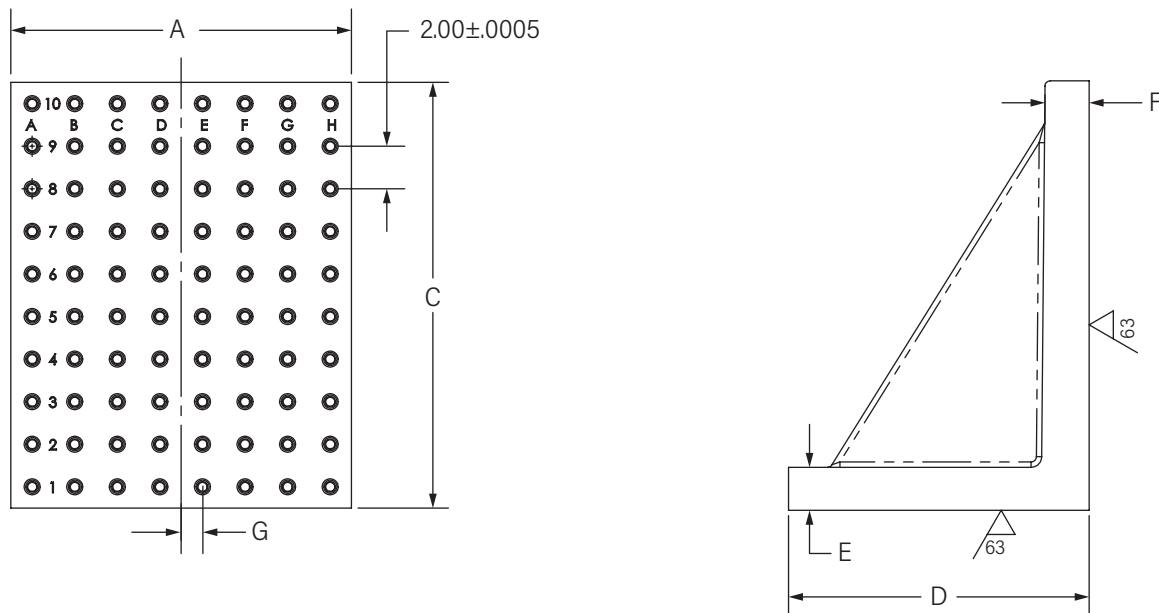
## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69





# TOMBSTONE SINGLE ANGLE



Version	Dimensions						Weight	Part Number		
	A	C	D	E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
	in	in	in	in	in	in	lbs			
I	4.00	6.00	6.00	1.60	1.60	1.000	20	AMR-S0406-06	AMR-S0406-06-50	AMR-S0406-06-62
I	4.00	10.00	8.00	1.60	1.60	1.000	36	AMR-S0410-08	AMR-S0410-08-50	AMR-S0410-08-62
I	4.00	12.00	9.00	1.60	1.60	1.000	46	AMR-S0412-09	AMR-S0412-09-50	AMR-S0412-09-62
I	4.00	16.00	10.00	2.00	2.00	1.000	63	AMR-S0416-10	AMR-S0416-10-50	AMR-S0416-10-62
I	4.00	20.00	10.00	2.00	2.00	1.000	86	AMR-S0420-10	AMR-S0420-10-50	AMR-S0420-10-62
I	8.00	12.00	10.00	1.60	1.60	1.000	73	AMR-S0812-10	AMR-S0812-10-50	AMR-S0812-10-62
I	8.00	16.00	10.00	1.60	1.60	1.000	89	AMR-S0816-10	AMR-S0816-10-50	AMR-S0816-10-62
II	8.00	20.00	14.00	1.60	1.60	1.000	137	AMR-S0820-14	AMR-S0820-14-50	AMR-S0820-14-62
II	8.00	40.00	18.00	2.25	2.25	1.000	359	AMR-S0840-18	AMR-S0840-18-50	AMR-S0840-18-62
II	12.00	18.00	14.00	1.60	1.60	1.000	160	AMR-S1218-14	AMR-S1218-14-50	AMR-S1218-14-62
II	12.00	18.75	10.00	2.00	2.00	1.000	158	AMR-S1219-10	AMR-S1219-10-50	AMR-S1219-10-62
II	12.00	24.00	15.00	2.00	2.00	1.000	248	AMR-S1224-15	AMR-S1224-15-50	AMR-S1224-15-62
II	12.00	30.00	15.00	2.00	2.00	1.000	290	AMR-S1230-15	AMR-S1230-15-50	AMR-S1230-15-62
II	12.00	38.50	15.00	2.00	2.00	1.000	350	AMR-S1239-15	AMR-S1239-15-50	AMR-S1239-15-62
II	12.00	40.00	17.75	2.50	2.50	1.000	487	AMR-S1240-18	AMR-S1240-18-50	AMR-S1240-18-62
II	16.00	20.00	14.00	2.00	2.00	1.000	257	AMR-S1620-14	AMR-S1620-14-50	AMR-S1620-14-62
II	16.00	24.00	17.75	2.00	2.00	1.000	341	AMR-S1624-18	AMR-S1624-18-50	AMR-S1624-18-62
II	16.00	30.00	18.00	2.00	2.00	1.000	397	AMR-S1630-18	AMR-S1630-18-50	AMR-S1630-18-62
II	18.00	16.00	13.00	1.60	1.60	-	187	AMR-S1816-13	AMR-S1816-13-50	AMR-S1816-13-62
II	18.00	22.00	13.00	2.00	2.00	-	283	AMR-S1822-13	AMR-S1822-13-50	AMR-S1822-13-62
II	18.00	24.00	15.00	2.00	2.00	-	329	AMR-S1824-15	AMR-S1824-15-50	AMR-S1824-15-62
II	18.00	30.00	18.00	2.00	2.00	-	431	AMR-S1830-18	AMR-S1830-18-50	AMR-S1830-18-62
II	20.00	26.00	15.00	2.00	2.00	1.000	374	AMR-S2026-15	AMR-S2026-15-50	AMR-S2026-15-62
II	22.00	30.00	18.00	2.13	2.13	-	497	AMR-S2230-18	AMR-S2230-18-50	AMR-S2230-18-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE SINGLE ANGLE

Version	Dimensions						Weight	Part Number		
	A	C	D	E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
	in	in	in	in	in	in	lbs			
II	24.00	24.00	12.00	2.00	2.00	1.000	253	AMR-S2424-12	AMR-S2424-12-50	AMR-S2424-12-62
II	24.00	30.00	18.00	2.00	2.00	1.000	530	AMR-S2430-18	AMR-S2430-18-50	AMR-S2430-18-62
II	24.00	48.00	18.00	2.25	2.25	1.000	920	AMR-S2448-18	AMR-S2448-18-50	AMR-S2448-18-62
II	30.00	30.00	18.00	2.25	2.25	-	802	AMR-S3030-18	AMR-S3030-18-50	AMR-S3030-18-62
II	30.00	40.00	24.00	2.50	2.50	-	1141	AMR-S3040-24	AMR-S3040-24-50	AMR-S3040-24-62
II	32.00	48.00	30.50	2.25	2.25	1.000	1410	AMR-S3248-31	AMR-S3248-31-50	AMR-S3248-31-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

**BUILT ON A  
SOLID  
FOUNDATION**



# TOMBSTONE HEXAGON

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 10.39" and heights up to 28"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



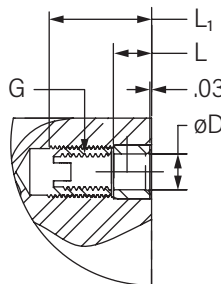
*Note: CAD models available for download online.*

## ADDITIONAL OPTIONS AVAILABLE

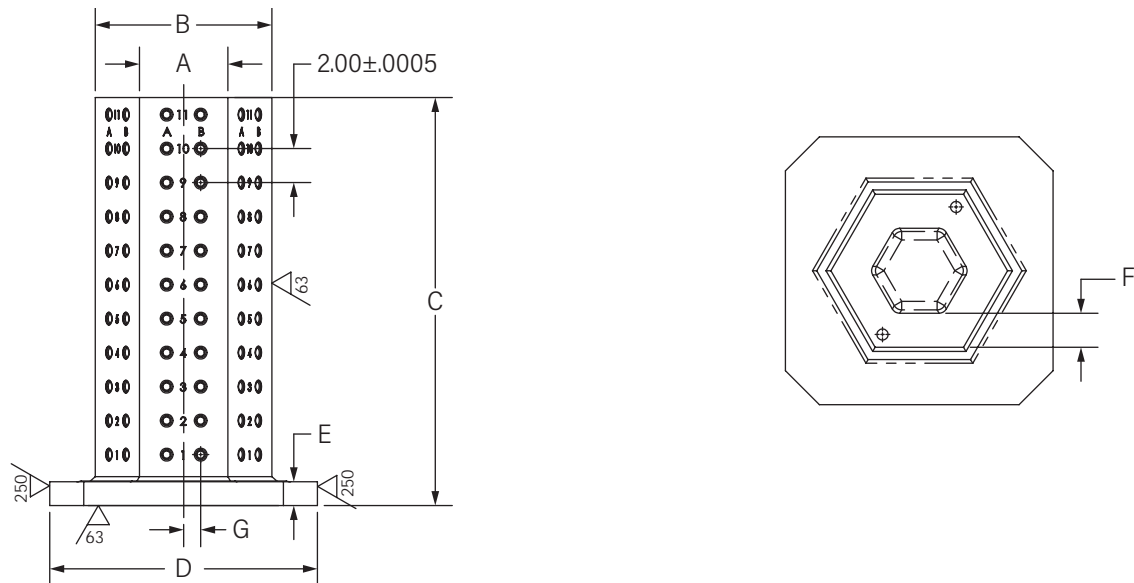
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE HEXAGON



Dimensions								Weight	Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
2.89	5.00	18.00	11.81	300	1.40	-	-	145	AMR-H030518-12	AMR-H030518-12-50	AMR-H030518-12-62
4.04	7.00	12.00	15.75	400	1.40	2.00	-	185	AMR-H040712-16	AMR-H040712-16-50	AMR-H040712-16-62
4.04	7.00	18.00	11.81	300	1.40	2.00	-	205	AMR-H040718-12	AMR-H040718-12-50	AMR-H040718-12-62
4.04	7.00	24.00	15.75	400	1.40	2.00	-	300	AMR-H040724-16	AMR-H040724-16-50	AMR-H040724-16-62
5.20	9.00	18.00	11.81	300	1.40	2.00	1.000	270	AMR-H050918-12	AMR-H050918-12-50	AMR-H050918-12-62
5.20	9.00	24.00	15.75	400	1.40	2.00	1.000	385	AMR-H050924-16	AMR-H050924-16-50	AMR-H050924-16-62
5.77	10.00	18.00	11.81	300	1.40	2.00	1.000	300	AMR-H061018-12	AMR-H061018-12-50	AMR-H061018-12-62
5.77	10.00	22.00	19.69	500	1.90	2.00	1.000	490	AMR-H061022-20	AMR-H061022-20-50	AMR-H061022-20-62
5.77	10.00	24.00	15.75	400	1.40	2.00	1.000	430	AMR-H061024-16	AMR-H061024-16-50	AMR-H061024-16-62
5.77	10.00	24.00	19.69	500	1.90	2.00	1.000	520	AMR-H061024-20	AMR-H061024-20-50	AMR-H061024-20-62
5.77	10.00	26.00	15.75	400	1.40	2.00	1.000	460	AMR-H061026-16	AMR-H061026-16-50	AMR-H061026-16-62
5.77	10.00	28.00	15.75	400	1.40	2.00	1.000	490	AMR-H061028-16	AMR-H061028-16-50	AMR-H061028-16-62
5.77	10.00	28.00	19.69	500	1.90	2.00	1.000	580	AMR-H061028-20	AMR-H061028-20-50	AMR-H061028-20-62
8.08	14.00	24.00	15.75	400	1.40	2.00	-	600	AMR-H081424-16	AMR-H081424-16-50	AMR-H081424-16-62
8.08	14.00	28.00	19.69	500	1.90	2.00	-	780	AMR-H081428-20	AMR-H081428-20-50	AMR-H081428-20-62
8.08	14.00	32.00	24.80	630	1.90	2.00	-	985	AMR-H081432-25	AMR-H081432-25-50	AMR-H081432-25-62
9.24	16.00	24.00	19.69	500	1.40	2.00	1.000	735	AMR-H091624-20	AMR-H091624-20-50	AMR-H091624-20-62
9.24	16.00	24.00	24.80	630	1.90	2.00	1.000	880	AMR-H091624-25	AMR-H091624-25-50	AMR-H091624-25-62
9.24	16.00	28.00	19.69	500	1.90	2.00	1.000	880	AMR-H091628-20	AMR-H091628-20-50	AMR-H091628-20-62
9.24	16.00	28.00	24.80	630	1.90	2.00	1.000	990	AMR-H091628-25	AMR-H091628-25-50	AMR-H091628-25-62
9.24	16.00	32.00	24.80	630	1.90	2.00	1.000	1105	AMR-H091632-25	AMR-H091632-25-50	AMR-H091632-25-62
9.24	16.00	36.00	24.80	630	1.90	2.00	1.000	1215	AMR-H091636-25	AMR-H091636-25-50	AMR-H091636-25-62
10.39	18.00	28.00	19.69	500	1.90	2.00	1.000	980	AMR-H091636-25	AMR-H091636-25-50	AMR-H091636-25-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE OCTAGON

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 11.60" and heights up to 40"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



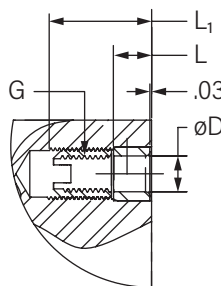
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

## HOLE DIMENSIONS

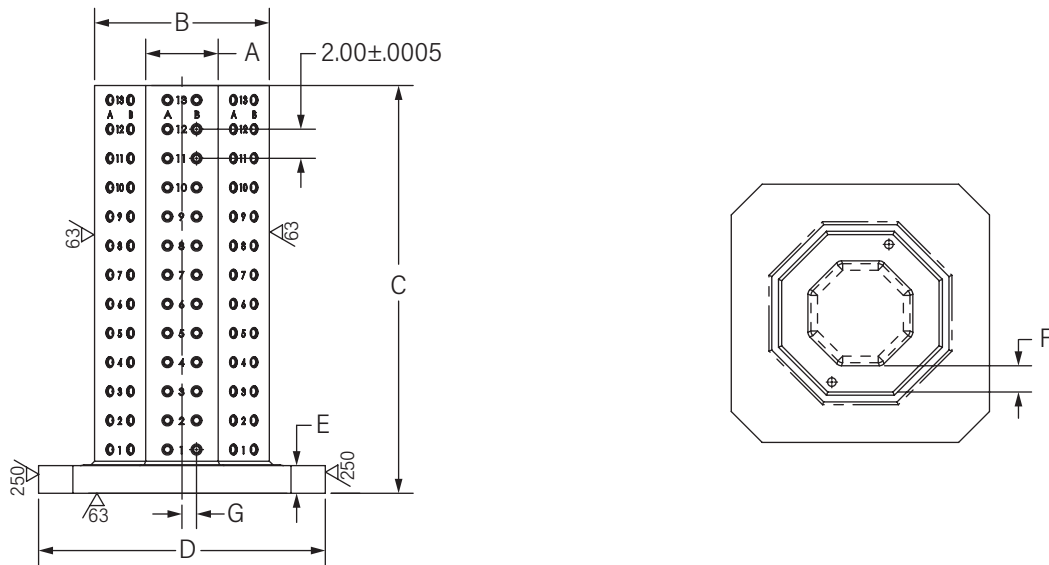
Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE OCTAGON

Dimensions								Weight	Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
3.31	8.00	18.00	11.81	300	1.40	2.00	-	230	AMR-O030818-12	AMR-O030818-12-50	AMR-O030818-12-62
4.41	10.00	18.00	11.81	300	1.40	2.00	-	290	AMR-O041018-12	AMR-O041018-12-50	AMR-O041018-12-62
4.14	10.00	18.00	24.80	630	1.90	-	-	530	AMR-O041018-25	AMR-O041018-25-50	AMR-O041018-25-62
4.00	9.66	33.00	19.69	500	1.90	2.00	-	445	AMR-O041022-20	AMR-O041022-20-50	AMR-O041022-20-62
4.14	10.00	28.00	15.75	400	1.40	2.00	-	475	AMR-O041028-16	AMR-O041028-16-50	AMR-O041028-16-62
4.14	10.00	28.00	19.69	500	1.90	2.00	-	565	AMR-O041028-20	AMR-O041028-20-50	AMR-O041028-20-62
4.97	12.00	24.00	15.75	400	1.40	2.00	1.000	495	AMR-O051224-16	AMR-O051224-16-50	AMR-O051224-16-62
4.97	12.00	28.00	19.69	500	1.90	2.00	1.000	660	AMR-O051228-20	AMR-O051228-20-50	AMR-O051228-20-62
5.80	14.00	24.00	15.75	400	1.40	2.00	1.000	580	AMR-O061424-16	AMR-O061424-16-50	AMR-O061424-16-62
5.80	14.00	28.00	19.69	500	1.90	2.00	1.000	755	AMR-O061428-20	AMR-O061428-20-50	AMR-O061428-20-62
5.80	14.00	32.00	24.80	630	1.90	2.00	1.000	955	AMR-O061432-25	AMR-O061432-25-50	AMR-O061432-25-62
7.46	18.00	28.00	19.69	500	1.90	2.00	-	945	AMR-O071828-20	AMR-O071828-20-50	AMR-O071828-20-62
7.46	18.00	32.00	24.80	630	1.90	2.00	-	1180	AMR-O071832-25	AMR-O071832-25-50	AMR-O071832-25-62
7.46	18.00	34.00	24.80	630	1.90	2.00	-	1240	AMR-O071834-25	AMR-O071834-25-50	AMR-O071834-25-62
8.15	19.69	24.00	19.69	500	1.90	2.00	-	885	AMR-O082024-20	AMR-O082024-20-50	AMR-O082024-20-62
8.15	19.69	32.00	19.69	500	1.90	2.00	-	1200	AMR-O082032-20	AMR-O082032-20-50	AMR-O082032-20-62
11.60	28.00	40.00	31.50	800	1.90	2.00	-	2320	AMR-O122840-32	AMR-O122840-32-50	AMR-O122840-32-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.



# TOMBSTONE TRIANGLE

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 16" and heights up to 32"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



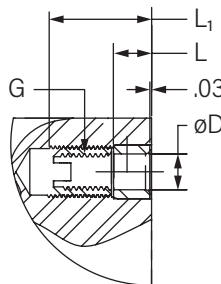
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

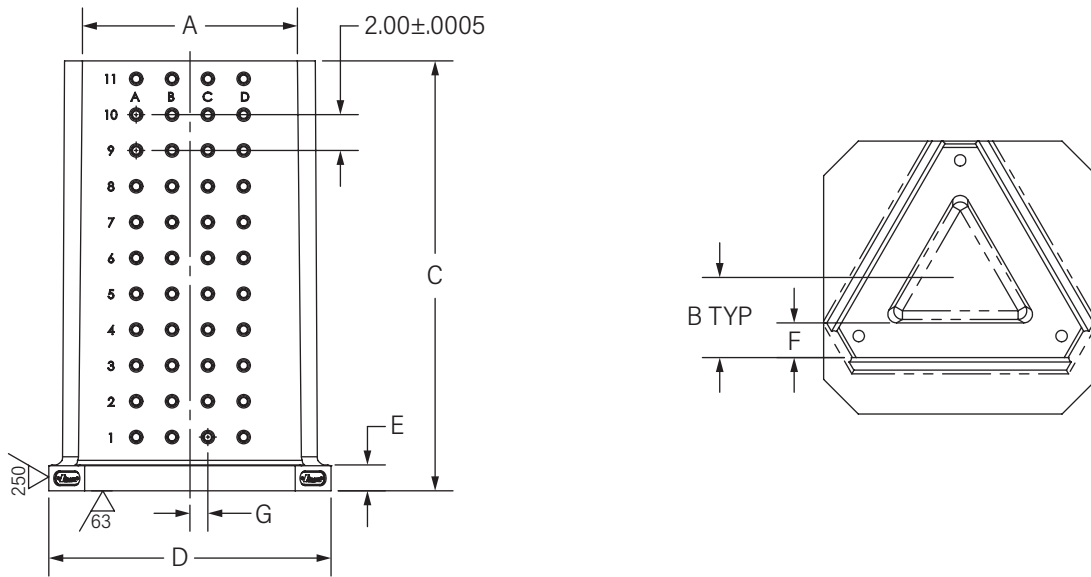
## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69





# TOMBSTONE TRIANGLE



Dimensions								Weight	Part Number		
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
6.00	2.25	28.00	15.75	400	1.40	-	-	265	AMR-T0628-16	AMR-T0628-16-50	AMR-T0628-16-62
8.00	3.08	18.00	11.81	300	1.40	2.00	1.000	235	AMR-T0818-12	AMR-T0818-12-50	AMR-T0818-12-62
10.00	3.85	24.00	15.75	400	1.40	2.00	-	435	AMR-T1024-16	AMR-T1024-16-50	AMR-T1024-16-62
10.00	3.85	28.00	19.69	500	1.90	2.00	-	590	AMR-T1028-20	AMR-T1028-20-50	AMR-T1028-20-62
12.00	4.62	24.00	15.75	400	1.40	2.00	1.000	525	AMR-T1224-16	AMR-T1224-16-50	AMR-T1224-16-62
12.00	4.62	28.00	15.75	400	1.90	2.00	1.000	635	AMR-T1228-16	AMR-T1228-16-50	AMR-T1228-16-62
12.00	4.62	28.00	19.69	500	1.90	2.00	1.000	700	AMR-T1228-20	AMR-T1228-20-50	AMR-T1228-20-62
14.00	5.38	24.00	19.69	500	1.90	2.00	-	700	AMR-T1424-20	AMR-T1424-20-50	AMR-T1424-20-62
14.00	5.38	28.00	19.69	500	1.90	2.00	-	795	AMR-T1428-20	AMR-T1428-20-50	AMR-T1428-20-62
16.00	6.16	28.00	19.69	500	1.90	2.00	1.000	895	AMR-T1628-20	AMR-T1628-20-50	AMR-T1628-20-62
16.00	6.16	32.00	24.80	630	1.90	2.00	1.000	1125	AMR-T1632-25	AMR-T1632-25-50	AMR-T1632-25-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE<sub>Y</sub>

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered as plain-face, or 1/2"-13 or 5/8"-11 grid systems offering hardened, threaded inserts and precision bushings
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 8" and heights up to 30"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



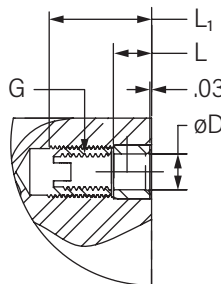
Note: CAD models available for download online.

## ADDITIONAL OPTIONS AVAILABLE

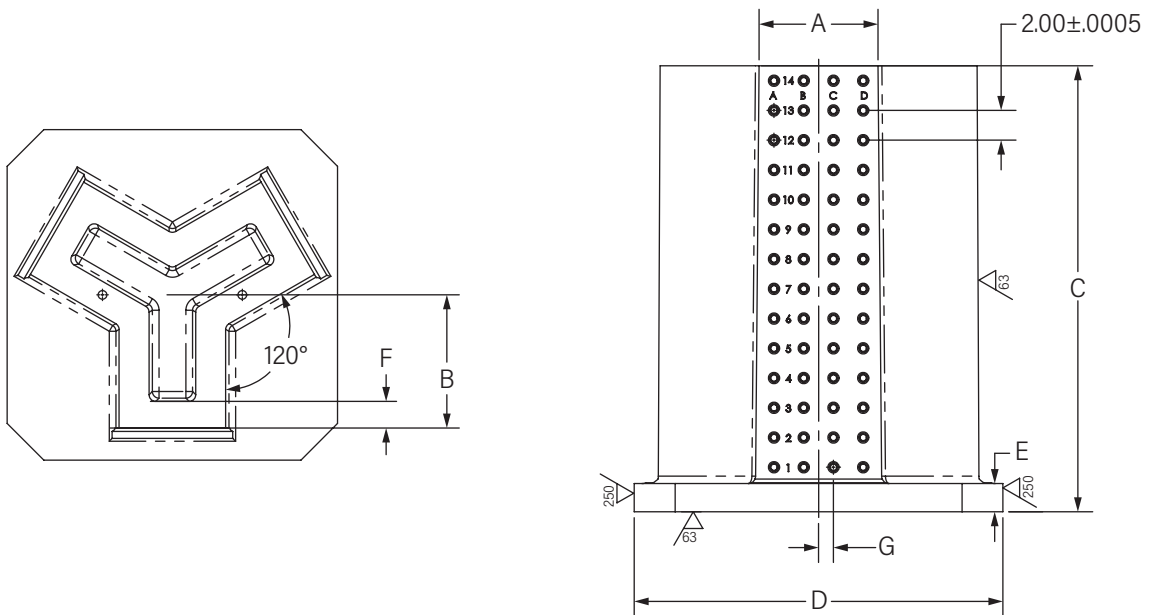
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE<sub>Y</sub>



Dimensions							Weight	Part Number			
A	B	C	D		E	F	G	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	mm	in	in	in	lbs			
3.75	3.875	26.00	15.75	400	1.40	-	1.000	345	AMR-Y040826-16	AMR-Y040826-16-50	AMR-Y040826-16-62
3.75	3.875	26.00	19.69	500	1.40	-	1.000	395	AMR-Y040826-20	AMR-Y040826-20-50	AMR-Y040826-20-62
4.00	6.00	24.00	15.75	400	1.40	-	1.000	490	AMR-Y041224-16	AMR-Y041224-16-50	AMR-Y041224-62
7.00	8.52	28.00	19.69	500	1.65	1.50	-	845	AMR-Y071828-20	AMR-Y071828-20-50	-
7.00	8.50	28.00	24.80	630	1.65	1.50	-	880	AMR-Y071828-25	AMR-Y071828-25-50	-
8.00	10.00	30.00	24.80	630	1.90	2.00	1.000	1365	AMR-Y082130-25	AMR-Y082130-25-50	AMR-Y082130-25-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# RISER

- Designed to raise workpiece off worktable for four-sided machining
- Standard design is without a grid pattern (plain-face)
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 12"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



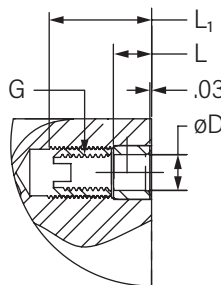
## ADDITIONAL OPTIONS AVAILABLE

- Custom sizes to accommodate specific applications
- Industry standard 2" grid, custom hole patterns, metric hole sizes, t-slots, or any other locating/fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (*page 169*)

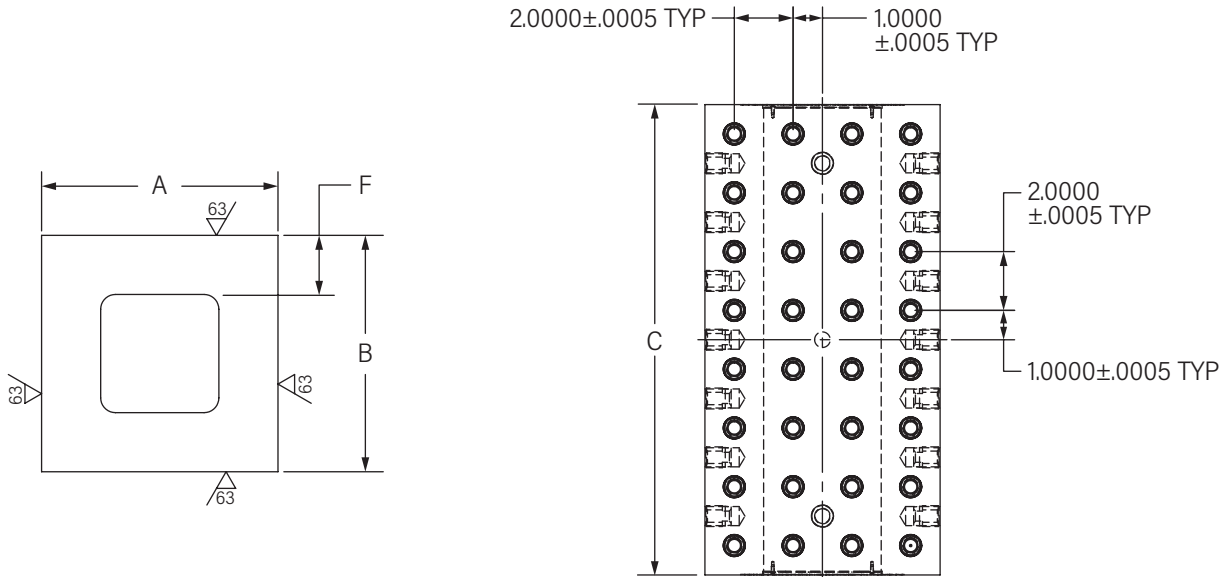
*Note: CAD models available for download online.*

## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
½"-13	.5007/.5013	0.53	1.44
⅝"-11	.6257/.6263	0.78	1.69



# RISER



Dimensions				Weight			Part Number		
A±.002	B±.002	C±.030		F	Alum.	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	mm	in	lbs	lbs			
5.000	6.000	12	-	2.50	30	76	AMR-R0506-12	AMR-R0506-12-50	AMR-R0506-12-62
5.000	10.000	-	250	2.00	44	124	AMR-R0510-10	AMR-R0510-10-50	AMR-R0510-10-62
6.000	6.000	-	400	1.88	45	128	AMR-R0606-16	AMR-R0606-16-50	AMR-R0606-16-62
6.000	10.000	18	-	1.63	84	224	AMR-R0610-18	AMR-R0610-18-50	AMR-R0610-18-62
8.000	8.000	-	400	2.00	75	197	AMR-R0808-16	AMR-R0808-16-50	AMR-R0808-16-62
8.000	8.000	-	500	2.00	94	247	AMR-R0808-20	AMR-R0808-20-50	AMR-R0808-20-62
8.000	24.803	-	630	2.38	-	1040	AMR-R0808-20	AMR-R0808-20-50	AMR-R0808-20-62
10.000	8.362	18	-	1.63	88	230	AMR-R0810-18	AMR-R0810-18-50	AMR-R0810-18-62
10.000	10.000	-	400	2.00	100	262	AMR-R1010-16	AMR-R1010-16-50	AMR-R1010-16-62
10.000	10.000	-	500	2.00	126	328	AMR-R1010-20	AMR-R1010-20-50	AMR-R1010-20-62
12.000	12.000	-	400	2.00	126	329	AMR-R1212-16	AMR-R1212-16-50	AMR-R1212-16-62
12.000	12.000	-	500	2.00	157	411	AMR-R1212-20	AMR-R1212-20-50	AMR-R1212-20-62
12.000	12.000	-	630	2.00	198	518	AMR-R1212-25	AMR-R1212-25-50	AMR-R1212-25-62
12.000	12.000	-	800	2.00	251	655	AMR-R1212-32	AMR-R1212-32-50	AMR-R1212-32-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# CONSOLE

- Designed to raise workpieces off of the worktable for four-sided machining
- Standard design is plain-face
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (page 8)
- Standard face widths up to 12"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are accurately located to ensure easy locating coupled with high wear resistance



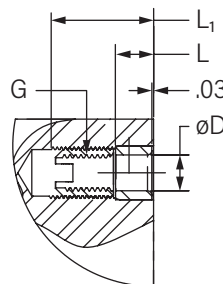
## ADDITIONAL OPTIONS AVAILABLE

- Custom sizes to accommodate specific applications
- Industry standard 2" grid, custom hole patterns, metric hole sizes, t-slots, or any other locating/ fastening systems
- Replacement bushings and insert kits with an extraction tool upon request (page 169)

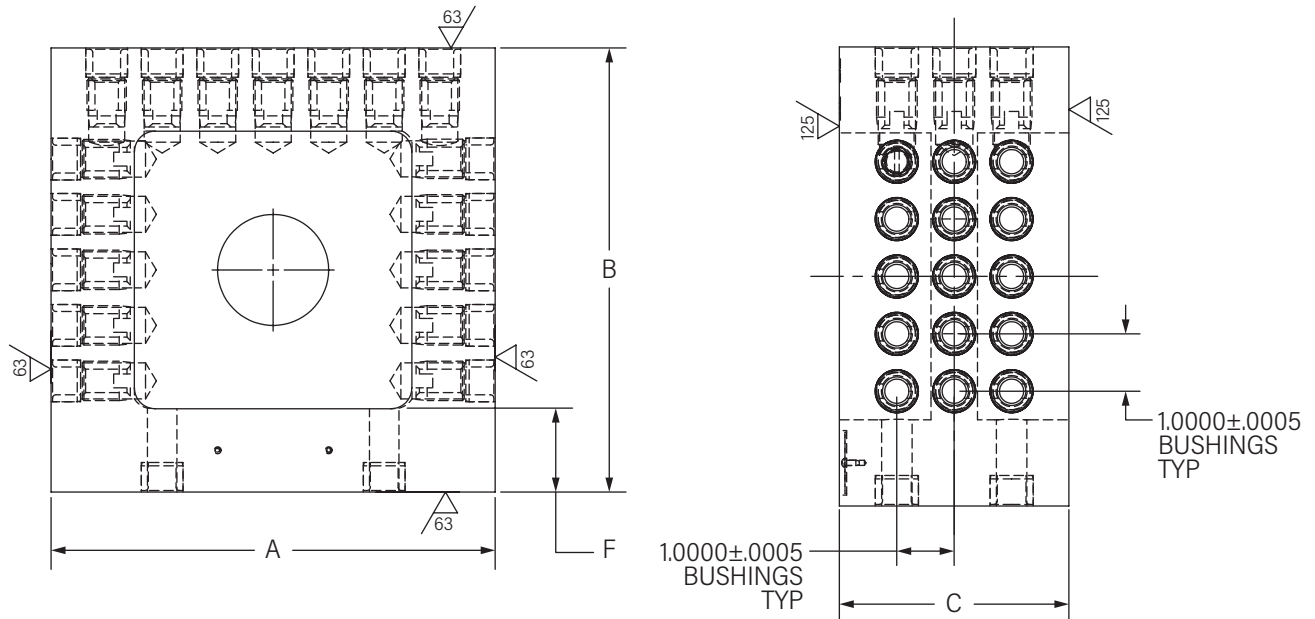
Note: CAD models available for download online.

## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
½"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# CONSOLE



Dimensions				Weight		Part Number		
A±.002	B±.002	C±.002	F	Alum.	Cast Iron	Plain Face	UNC 1/2"-13	UNC 5/8"-11
in	in	in	in	lbs	lbs			
6.000	6.000	4.00	1.5	11	29	AMR-F0606-04	AMR-F0606-04-50	AMR-F0606-04-62
6.000	8.000	4.00	1.5	14	36	AMR-F0608-04	AMR-F0608-04-50	AMR-F0608-04-62
8.000	6.000	4.00	1.5	14	36	AMR-F0806-04	AMR-F0806-04-50	AMR-F0806-04-62
8.000	8.000	4.00	1.5	17	45	AMR-F0808-04	AMR-F0808-04-50	AMR-F0808-04-62
10.000	10.000	4.00	2.0	28	73	AMR-F1010-04	AMR-F1010-04-50	AMR-F1010-04-62
12.000	12.000	4.00	2.0	37	96	AMR-F1212-04	AMR-F1212-04-50	AMR-F1212-04-62

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# EPOXY MINERAL TOMBSTONES

AMROK's Epoxy mineral tombstone, a TRIAG® product, offers an **alternative to aluminum, steel, and cast iron** tombstones for projects requiring higher throughput and increased capacity. Epoxy is a lightweight material that:

- Reduces the overall weight on the machine pallet used for larger work pieces or high-density machining applications
- Lowers thermal conductivity and provides **consistent precision machining** of workpieces
- Offers **100 times better vibration damping** capabilities in comparison to aluminum and 10 times better than cast iron
- Features low tensile and impact strength, which assures **spindle head safety** in unexpected crash scenarios

## TRIAG

<https://www.triag-int.ch/en/>





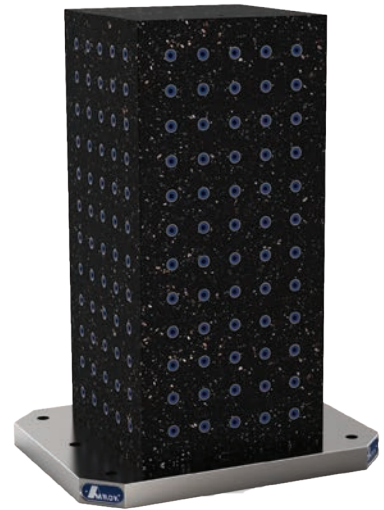


# TOMBSTONE CUBE, EPOXY MINERAL

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered in 1/2"-13 and 5/8"-11; also available without a grid (plain-face)
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 16.00" and heights up to 39.50"—custom sizes available
- Hardened, precision bushings are tapped and accurately located to ensure easy locating coupled with high wear resistance
- Also available in cast iron (*page 14*)

## ADDITIONAL OPTIONS AVAILABLE

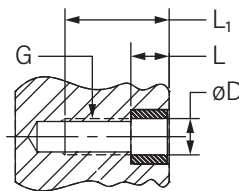
- **COMING SOON:** Aluminum base plates integrated with epoxy mineral can be provided upon request
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, or any other locating/fastening systems
- Replacement bushings available upon request (*page 168*)



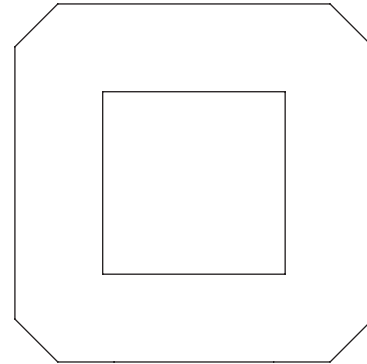
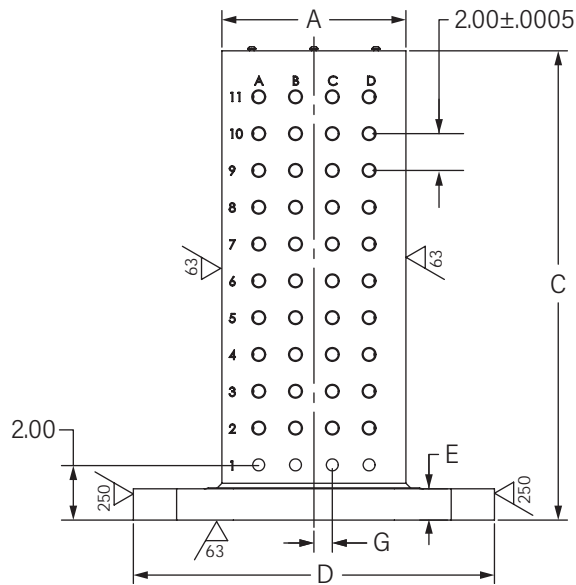
*Note: CAD models available for download online.*

## HOLE DIMENSIONS

Dimensions			
G	øD	L	L <sub>1</sub>
UNC	in	in	in
1/2"-13	.5007/.5013	0.53	1.44
5/8"-11	.6257/.6263	0.78	1.69



# TOMBSTONE CUBE, EPOXY MINERAL



Dimensions						Weight	Part Number
A	C	D		E	G	Epoxy	
in	in	in	mm	in	in	lbs	UNC 1/2"-13
8.00	19.50	11.81	300	1.50	0	200	AMRE-C080820-12
8.00	19.50	15.75	400	1.50	0	240	AMRE-C080820-16
8.00	19.50	19.69	500	1.50	0	205	AMRE-C080820-20
8.00	19.50	24.80	630	1.50	0	400	AMRE-C080820-25
8.00	21.50	11.81	300	1.50	0	215	AMRE-C080822-12
8.00	21.50	15.75	400	1.50	0	260	AMRE-C080822-16
8.00	21.50	19.69	500	1.50	0	320	AMRE-C080822-20
8.00	21.50	24.80	630	1.50	0	415	AMRE-C080822-25
8.00	23.50	11.81	300	1.50	0	231	AMRE-C080824-12
8.00	23.50	15.75	400	1.50	0	275	AMRE-C080824-16
8.00	23.50	19.69	500	1.50	0	335	AMRE-C080824-20
8.00	23.50	24.80	630	1.50	0	430	AMRE-C080824-25
8.00	25.50	11.81	300	1.50	0	245	AMRE-C080826-12
8.00	25.50	15.75	400	1.50	0	290	AMRE-C080826-16
8.00	25.50	19.69	500	1.50	0	350	AMRE-C080826-20
8.00	25.50	24.80	630	1.50	0	445	AMRE-C080826-25
10.00	25.50	15.75	400	1.50	1.000	370	AMRE-C101026-16
10.00	25.50	19.69	500	1.50	1.000	425	AMRE-C101026-20
10.00	25.50	24.80	630	1.50	1.000	520	AMRE-C101026-25
10.00	27.50	15.75	400	1.50	1.000	390	AMRE-C101028-16
10.00	27.50	19.69	500	1.50	1.000	450	AMRE-C101028-20
10.00	27.50	24.80	630	1.50	1.000	545	AMRE-C101028-25
10.00	29.50	15.75	400	1.50	1.000	410	AMRE-C101030-16
10.00	29.50	19.69	500	1.50	1.000	470	AMRE-C101030-20
10.00	29.50	24.80	630	1.50	1.000	565	AMRE-C101030-25
10.00	31.50	15.75	400	1.50	1.000	435	AMRE-C101032-16

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CUBE, EPOXY MINERAL

Dimensions						Weight	Part Number
A	C	D		E	G	Epoxy	
in	in	in	mm	in	in	lbs	UNC 1/2"-13
10.00	31.50	19.69	500	1.50	1.000	495	AMRE-C101032-20
10.00	31.50	24.80	630	1.50	1.000	590	AMRE-C101032-25
10.00	33.50	15.75	400	1.50	1.000	455	AMRE-C101034-16
10.00	33.50	19.69	500	1.50	1.000	515	AMRE-C101034-20
10.00	33.50	24.80	630	1.50	1.000	610	AMRE-C101034-25
12.00	21.50	15.75	400	1.50	0	360	AMRE-C121222-16
12.00	21.50	19.69	500	1.50	0	420	AMRE-C121222-20
12.00	21.50	24.80	630	1.50	0	515	AMRE-C121222-25
12.00	21.50	31.50	800	1.50	0	670	AMRE-C121222-32
12.00	23.50	15.75	400	1.50	0	385	AMRE-C121224-16
12.00	23.50	19.69	500	1.50	0	445	AMRE-C121224-20
12.00	23.50	24.80	630	1.50	0	540	AMRE-C121224-25
12.00	23.50	31.50	800	1.50	0	695	AMRE-C121224-32
12.00	25.50	15.75	400	1.50	0	410	AMRE-C121226-16
12.00	25.50	19.69	500	1.50	0	470	AMRE-C121226-20
12.00	25.50	24.80	630	1.50	0	565	AMRE-C121226-25
12.00	25.50	31.50	800	1.50	0	720	AMRE-C121226-32
12.00	27.50	15.75	400	1.50	0	435	AMRE-C121228-16
12.00	27.50	19.69	500	1.50	0	495	AMRE-C121228-20
12.00	27.50	24.80	630	1.50	0	590	AMRE-C121228-25
12.00	27.50	31.50	800	1.50	0	745	AMRE-C121225-32
12.00	29.50	15.75	400	1.50	0	460	AMRE-C121230-16
12.00	29.50	19.69	500	1.50	0	515	AMRE-C121230-20
12.00	29.50	24.80	630	1.50	0	610	AMRE-C121230-25
12.00	29.50	31.50	800	1.50	0	765	AMRE-C121230-32
12.00	31.50	19.69	500	1.50	0	540	AMRE-C121232-20
12.00	31.50	24.80	630	1.50	0	635	AMRE-C121232-25
12.00	31.50	31.50	800	1.50	0	790	AMRE-C121232-32
14.00	27.50	19.69	500	1.50	1.000	585	AMRE-C141428-20
14.00	27.50	24.80	630	1.50	1.000	680	AMRE-C141428-25
14.00	27.50	31.50	800	1.50	1.000	835	AMRE-C141428-32
14.00	29.50	19.69	500	1.50	1.000	615	AMRE-C141430-20
14.00	29.50	24.80	630	1.50	1.000	710	AMRE-C141430-25
14.00	29.50	31.50	800	1.50	1.000	865	AMRE-C141430-32
14.00	31.50	19.69	500	1.50	1.000	645	AMRE-C141432-20
14.00	31.50	24.80	630	1.50	1.000	740	AMRE-C141432-25
14.00	31.50	31.50	800	1.50	1.000	895	AMRE-C141432-32
14.00	33.50	19.69	500	1.50	1.000	675	AMRE-C141434-20
14.00	33.50	24.80	630	1.50	1.000	770	AMRE-C141434-25
14.00	33.50	31.50	800	1.50	1.000	925	AMRE-C141434-32
14.00	35.50	24.80	630	1.50	1.000	795	AMRE-C141436-25
14.00	35.50	31.50	800	1.50	1.000	950	AMRE-C141436-32
14.00	37.50	24.80	630	1.50	1.000	830	AMRE-C141438-25

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CUBE, EPOXY MINERAL

Dimensions						Weight	Part Number
A	C	D		E	G	Epoxy	
in	in	in	mm	in	in	lbs	UNC 1/2"-13
14.00	37.50	31.50	800	1.50	1.000	985	AMRE-C141438-32
14.00	39.50	24.80	630	1.50	1.000	855	AMRE-C141440-25
14.00	39.50	31.50	800	1.50	1.000	1010	AMRE-C141440-32
16.00	27.50	19.69	500	1.50	0	675	AMRE-C161628-20
16.00	27.50	24.80	630	1.50	0	770	AMRE-C161628-25
16.00	27.50	31.50	800	1.50	0	925	AMRE-C161628-32
16.00	29.50	19.69	500	1.50	0	710	AMRE-C161630-20
16.00	29.50	24.80	630	1.50	0	805	AMRE-C161630-25
16.00	29.50	31.50	800	1.50	0	960	AMRE-C161630-32
16.00	31.50	19.69	500	1.50	0	745	AMRE-C161632-20
16.00	31.50	24.80	630	1.50	0	840	AMRE-C161632-25
16.00	31.50	31.50	800	1.50	0	995	AMRE-C161632-32
16.00	33.50	19.69	500	1.50	0	780	AMRE-C161634-20
16.00	33.50	24.80	630	1.50	0	875	AMRE-C161634-25
16.00	33.50	31.50	800	1.50	0	1030	AMRE-C161634-32
16.00	33.50	24.80	630	1.50	0	910	AMRE-C161636-25
16.00	33.50	31.50	800	1.50	0	1065	AMRE-C161636-32
16.00	37.50	24.80	630	1.50	0	945	AMRE-C161638-25
16.00	37.50	31.50	800	1.50	0	1100	AMRE-C161638-32
16.00	39.50	24.80	630	1.50	0	980	AMRE-C161640-25
16.00	39.50	31.50	800	1.50	0	1135	AMRE-C161640-32

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CROSS, EPOXY MINERAL

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered in ½"-13 and ⅝"-11; also available without a grid (plain-face)
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 9.15" with up to 16.00" between parallel faces; heights up to 39.50"—custom sizes available
- Hardened, precision bushings are tapped and accurately located to ensure easy locating coupled with high wear resistance
- Also available in cast iron (*page 18*)



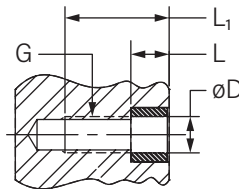
*Note: CAD models available for download online.*

## ADDITIONAL OPTIONS AVAILABLE

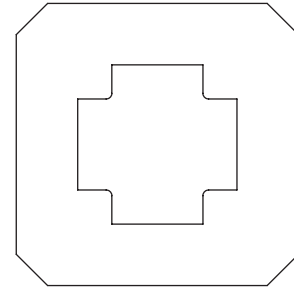
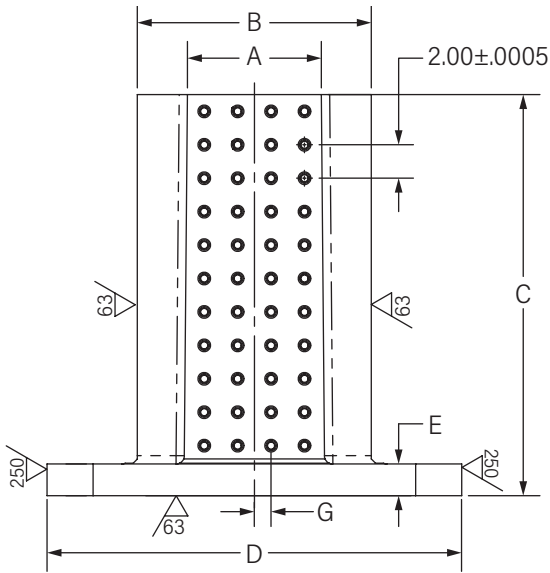
- **COMING SOON:** Aluminum base plates integrated with epoxy mineral can be provided upon request
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, or any other locating/fastening systems
- Replacement bushings available upon request (*page 168*)

## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
½"-13	.5007/.5013	0.53	1.44
⅝"-11	.6257/.6263	0.78	1.69



# TOMBSTONE CROSS, EPOXY MINERAL



Dimensions							Weight	Part Number
A	B	C	D		E	G	Epoxy	
in	in	in	in	mm	in	in	lbs	UNC 1/2"-13
3.15	12.00	21.50	15.75	400	1.50	0	230	AMRE-K03031222-16
3.15	12.00	21.50	19.69	500	1.50	0	290	AMRE-K03031222-20
3.15	12.00	21.50	24.80	630	1.50	0	385	AMRE-K03031222-25
3.15	12.00	23.50	15.75	400	1.50	0	245	AMRE-K03031224-16
3.15	12.00	23.50	19.69	500	1.50	0	305	AMRE-K03031224-20
3.15	12.00	23.50	24.80	630	1.50	0	400	AMRE-K03031224-25
3.15	12.00	25.50	15.75	400	1.50	0	255	AMRE-K03031226-16
3.15	12.00	25.50	19.69	500	1.50	0	315	AMRE-K03031226-20
3.15	12.00	25.50	24.80	630	1.50	0	410	AMRE-K03031226-25
3.15	12.00	27.50	15.75	400	1.50	0	270	AMRE-K03031228-16
3.15	12.00	27.50	19.69	500	1.50	0	325	AMRE-K03031228-20
3.15	12.00	27.50	24.80	630	1.50	0	420	AMRE-K03031228-25
3.15	12.00	29.50	15.75	400	1.50	0	280	AMRE-K03031230-16
3.15	12.00	29.50	19.69	500	1.50	0	340	AMRE-K03031230-20
3.15	12.00	29.50	24.80	630	1.50	0	435	AMRE-K03031230-25
3.15	12.00	31.50	15.75	400	1.50	0	295	AMRE-K03031232-16
3.15	12.00	31.50	19.69	500	1.50	0	355	AMRE-K03031232-20
3.15	12.00	31.50	24.80	630	1.50	0	450	AMRE-K03031232-25
5.15	14.00	27.50	15.75	400	1.50	1.000	405	AMRE-K05051428-16
5.15	14.00	27.50	19.69	500	1.50	1.000	460	AMRE-K05051428-20
5.15	14.00	27.50	24.80	630	1.50	1.000	555	AMRE-K05051428-25
5.15	14.00	27.50	31.50	800	1.50	1.000	710	AMRE-K05051428-32
5.15	14.00	29.50	15.75	400	1.50	1.000	425	AMRE-K05051430-16
5.15	14.00	29.50	19.69	500	1.50	1.000	485	AMRE-K05051430-20
5.15	14.00	29.50	24.80	630	1.50	1.000	580	AMRE-K05051430-25
5.15	14.00	29.50	31.50	800	1.50	1.000	735	AMRE-K05051430-32

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# TOMBSTONE CROSS, EPOXY MINERAL

Dimensions							Weight	Part Number UNC ½"-13
A	B	C	D		E	G	Epoxy	
in	in	in	in	mm	in	in	lbs	
5.15	14.00	31.50	19.69	500	1.50	1.000	505	AMRE-K05051432-20
5.15	14.00	31.50	24.80	630	1.50	1.000	600	AMRE-K05051432-25
5.15	14.00	31.50	31.50	800	1.50	1.000	755	AMRE-K05051432-32
5.15	14.00	33.50	19.69	500	1.50	1.000	530	AMRE-K05051434-20
5.15	14.00	33.50	24.80	630	1.50	1.000	625	AMRE-K05051434-25
5.15	14.00	33.50	31.50	800	1.50	1.000	780	AMRE-K05051434-32
5.15	14.00	35.50	24.80	630	1.50	1.000	645	AMRE-K05051436-25
5.15	14.00	35.50	31.50	800	1.50	1.000	800	AMRE-K05051436-32
5.15	14.00	37.50	24.80	630	1.50	1.000	670	AMRE-K05051438-25
5.15	14.00	37.50	31.50	800	1.50	1.000	825	AMRE-K05051438-32
5.15	14.00	39.50	31.50	800	1.50	1.000	845	AMRE-K05051440-32
7.15	12.00	21.50	15.75	400	1.50	0	305	AMRE-K07071222-16
7.15	12.00	21.50	19.69	500	1.50	0	365	AMRE-K07071222-20
7.15	12.00	21.50	24.80	630	1.50	0	460	AMRE-K07071222-25
7.15	12.00	21.50	31.50	800	1.50	0	615	AMRE-K07071222-32
7.15	12.00	23.50	15.75	400	1.50	0	325	AMRE-K07071224-16
7.15	12.00	23.50	19.69	500	1.50	0	385	AMRE-K07071224-20
7.15	12.00	23.50	24.80	630	1.50	0	480	AMRE-K07071224-25
7.15	12.00	23.50	31.50	800	1.50	0	635	AMRE-K07071224-32
7.15	12.00	25.50	15.75	400	1.50	0	345	AMRE-K07071226-16
7.15	12.00	25.50	19.69	500	1.50	0	400	AMRE-K07071226-20
7.15	12.00	25.50	24.80	630	1.50	0	495	AMRE-K07071226-25
7.15	12.00	25.50	31.50	800	1.50	0	650	AMRE-K07071226-32
7.15	12.00	27.50	15.75	400	1.50	0	360	AMRE-K07071228-16
7.15	12.00	27.58	19.69	500	1.50	0	420	AMRE-K07071228-20
7.15	12.00	27.50	24.80	630	1.50	0	515	AMRE-K07071228-25
7.15	12.00	27.50	31.50	800	1.50	0	670	AMRE-K07071228-32
7.15	12.00	29.50	15.75	400	1.50	0	380	AMRE-K07071230-16
7.15	12.00	29.50	19.69	500	1.50	0	440	AMRE-K07071230-20
7.15	12.00	28.50	24.80	630	1.50	0	535	AMRE-K07071230-25
7.15	12.00	29.50	31.50	800	1.50	0	690	AMRE-K07071230-32
7.15	12.00	31.50	19.69	500	1.50	0	455	AMRE-K07071232-20
7.15	12.00	31.50	24.80	630	1.50	0	550	AMRE-K07071232-25
7.15	12.00	31.50	31.50	800	1.50	0	705	AMRE-K07071232-30
7.15	16.00	27.50	19.69	500	1.50	0	535	AMRE-K07071628-20
7.15	16.00	27.50	24.80	630	1.50	0	630	AMRE-K07071628-25
7.15	16.00	27.50	31.50	800	1.50	0	785	AMRE-K07071628-32
7.15	16.00	29.50	19.69	500	1.50	0	565	AMRE-K07071630-20
7.15	16.00	29.50	24.80	630	1.50	0	660	AMRE-K07071630-25
7.15	16.00	29.50	31.50	800	1.50	0	815	AMRE-K07071630-32
7.15	16.00	31.50	19.69	500	1.50	0	590	AMRE-K07071632-20
7.15	16.00	31.50	24.80	630	1.50	0	685	AMRE-K07071632-25
7.15	16.00	31.50	31.50	800	1.50	0	840	AMRE-K07071632-32

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.



# TOMBSTONE CROSS, EPOXY MINERAL

Dimensions							Weight	Part Number
A	B	C	D		E	G	Epoxy	
in	in	in	in	mm	in	in	lbs	UNC ½"-13
7.15	16.00	33.50	19.69	500	1.50	0	615	AMRE-K07071634-20
7.15	16.00	33.50	24.80	630	1.50	0	710	AMRE-K07071634-25
7.15	16.00	33.50	31.50	800	1.50	0	865	AMRE-K07071634-32
7.15	16.00	35.50	24.80	630	1.50	0	740	AMRE-K07071636-25
7.15	16.00	35.50	31.50	800	1.50	0	895	AMRE-K07071636-62
7.15	16.00	37.50	24.80	630	1.50	0	765	AMRE-K07071638-25
7.15	16.00	37.50	31.50	800	1.50	0	920	AMRE-K07071638-32
7.15	16.00	39.50	31.50	800	1.50	0	945	AMRE-K07071640-32
9.15	14.00	27.50	15.75	400	1.50	1.000	475	AMRE-K09091428-16
9.15	14.00	27.50	19.69	500	1.50	1.000	535	AMRE-K09091428-20
9.15	14.00	27.50	24.80	630	1.50	1.000	630	AMRE-K09091428-25
9.15	14.00	27.50	31.50	800	1.50	1.000	785	AMRE-K09091428-32
9.15	14.00	29.50	15.75	400	1.50	1.000	500	AMRE-K09091430-16
9.15	14.00	29.50	19.69	500	1.50	1.000	560	AMRE-K09091430-20
9.15	14.00	29.50	24.80	630	1.50	1.000	560	AMRE-K09091430-25
9.15	14.00	29.50	31.50	800	1.50	1.000	810	AMRE-K09091430-32
9.15	14.00	31.50	19.69	500	1.50	1.000	590	AMRE-K09091432-20
9.15	14.00	31.50	24.80	630	1.50	1.000	685	AMRE-K09091432-25
9.15	14.00	31.50	31.50	800	1.50	1.000	840	AMRE-K09091432-32
9.15	14.00	33.50	19.69	500	1.50	1.000	615	AMRE-K09091434-20
9.15	14.00	33.50	24.80	630	1.50	1.000	710	AMRE-K09091434-25
9.15	14.00	33.50	31.50	800	1.50	1.000	865	AMRE-K09091434-32
9.15	14.00	33.50	31.50	800	1.50	1.000	740	AMRE-K09091436-25
9.15	14.00	35.50	31.50	800	1.50	1.000	895	AMRE-K09091436-32
9.15	14.00	37.50	24.80	630	1.50	1.000	765	AMRE-K09091438-25
9.15	14.00	37.50	31.50	800	1.50	1.000	920	AMRE-K09091438-32
9.15	14.00	39.50	31.50	800	1.50	1.000	945	AMRE-K09091440-32

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

# DOUBLE ANGLE TOMBSTONE EPOXY MINERAL

- Industry standard 2" grid pattern provides flexibility in fixturing setups
- Offered in ½"-13 and ⅝"-11; also available without a grid (plain-face)
- Manufactured to a higher standard of quality with best-in-class precision tolerancing—see full table of precision tolerancing standards (*page 8*)
- Standard face widths up to 31.00" with up to 16.00" depths; heights up to 39.50"—custom sizes available
- Hardened, threaded inserts allow for clamping in every hole while offering quick and easy replaceability
- Hardened, precision bushings are tapped and accurately located to ensure easy locating coupled with high wear resistance
- Also available in cast iron (*page 22*)



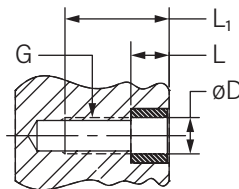
*Note: CAD models available for download online.*

## ADDITIONAL OPTIONS AVAILABLE

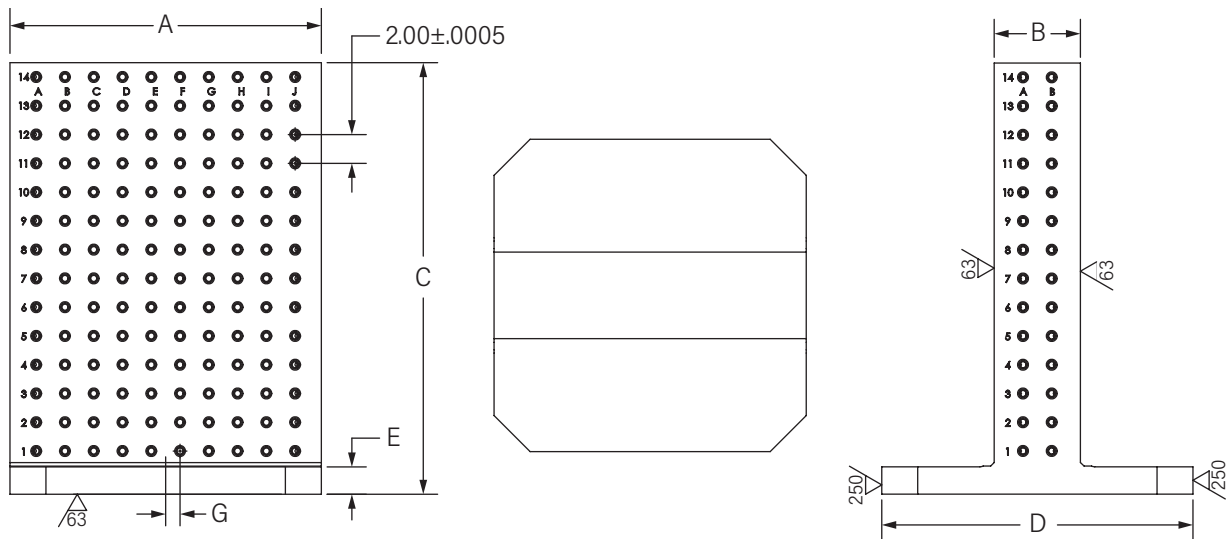
- **COMING SOON:** Aluminum base plates integrated with epoxy mineral can be provided upon request
- Custom column sizes to accommodate specific applications
- Custom hole patterns, metric hole sizes, or any other locating/fastening systems
- Replacement bushings available upon request (*page 168*)

## HOLE DIMENSIONS

Dimensions			
G	∅D	L	L <sub>1</sub>
UNC	in	in	in
½"-13	.5007/.5013	0.53	1.44
⅝"-11	.6257/.6263	0.78	1.69



# DOUBLE ANGLE TOMBSTONE<sub>EPOXY MINERAL</sub>



Dimensions							Weight Epoxy	Part Number
A	B	C	D		E	G		
in	in	in	in	mm	in	in	lbs	
								UNC 1/2"-13
16.00	8.00	21.50	15.75	400	1.50	0	375	AMRE-D160822-16
16.00	8.00	21.50	19.69	500	1.50	0	435	AMRE-D160822-20
16.00	8.00	21.50	24.80	630	1.50	0	530	AMRE-D160822-25
16.00	8.00	23.50	15.75	400	1.50	0	405	AMRE-D160824-16
16.00	8.00	23.50	19.69	500	1.50	0	465	AMRE-D160824-20
16.00	8.00	23.50	24.80	630	1.50	0	560	AMRE-D160824-25
16.00	8.00	25.50	15.75	400	1.50	0	430	AMRE-D160826-16
16.00	8.00	25.50	19.69	500	1.50	0	490	AMRE-D160826-20
16.00	8.00	25.50	24.80	630	1.50	0	585	AMRE-D160826-25
16.00	8.00	27.50	15.75	400	1.50	0	460	AMRE-D160828-16
16.00	8.00	27.50	19.69	500	1.50	0	515	AMRE-D160828-20
16.00	8.00	27.50	24.80	630	1.50	0	610	AMRE-D160828-25
20.00	8.00	25.50	19.69	500	1.50	0	570	AMRE-D200826-20
20.00	8.00	25.50	24.80	630	1.50	0	665	AMRE-D200826-25
20.00	8.00	25.50	31.50	800	1.50	0	820	AMRE-D200826-32
20.00	8.00	27.50	19.69	500	1.50	0	605	AMRE-D200828-20
20.00	8.00	27.50	24.80	630	1.50	0	700	AMRE-D200828-25
20.00	8.00	27.50	31.50	800	1.50	0	855	AMRE-D200828-32
20.00	8.00	29.50	19.69	500	1.50	0	640	AMRE-D200830-20
20.00	8.00	29.50	24.80	630	1.50	0	735	AMRE-D200830-25
20.00	8.00	29.50	31.50	800	1.50	0	890	AMRE-D200830-32
20.00	8.00	31.50	19.69	500	1.50	0	670	AMRE-D200832-20
20.00	8.00	31.50	24.80	630	1.50	0	765	AMRE-D200832-25
20.00	8.00	31.50	31.50	800	1.50	0	920	AMRE-D200832-32
20.00	8.00	33.50	19.69	500	1.50	0	705	AMRE-D200834-20
20.00	8.00	33.50	24.80	630	1.50	0	800	AMRE-D200834-25

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

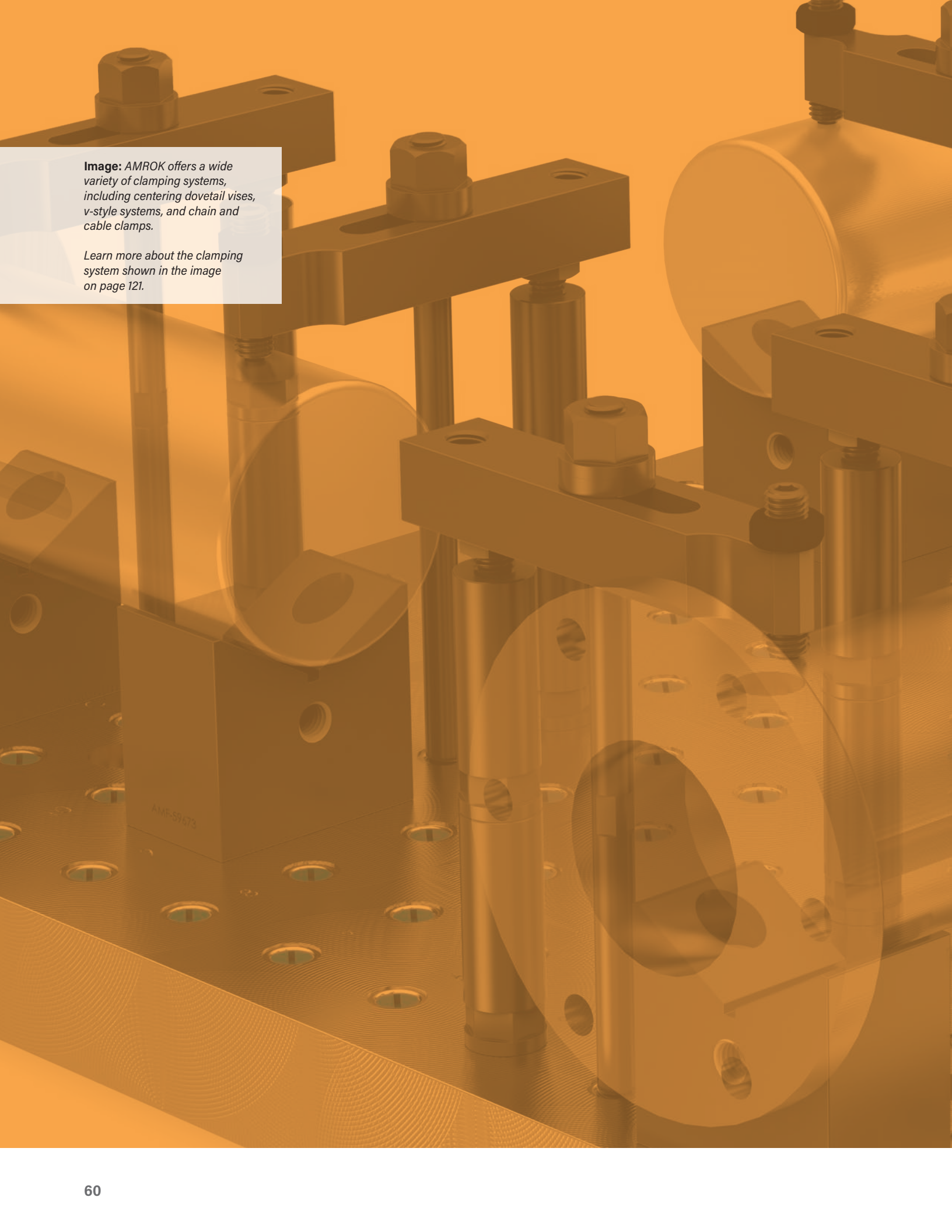
# DOUBLE ANGLE TOMBSTONE EPOXY MINERAL

Dimensions							Weight	Part Number
A	B	C	D		E	G	Epoxy	
in	in	in	in	mm	in	in	lbs	UNC 1/2"-13
20.00	8.00	33.50	31.50	800	1.50	0	955	AMRE-D200834-32
20.00	8.00	35.50	24.80	630	1.50	0	835	AMRE-D200836-25
20.00	8.00	35.50	31.50	800	1.50	0	990	AMRE-D200836-32
20.00	8.00	37.50	24.80	630	1.50	0	870	AMRE-D200838-25
20.00	8.00	37.50	31.50	800	1.50	0	1025	AMRE-D200838-32
20.00	8.00	39.50	31.50	800	1.50	0	1060	AMRE-D200840-32
24.00	8.00	25.50	24.80	630	1.50	0	730	AMRE-D240826-25
24.00	8.00	25.50	31.50	800	1.50	0	885	AMRE-D240826-32
24.00	8.00	27.50	24.80	630	1.50	0	770	AMRE-D240828-25
24.00	8.00	27.50	31.50	800	1.50	0	925	AMRE-D240828-32
24.00	8.00	29.50	24.80	630	1.50	0	810	AMRE-D240830-25
24.00	8.00	29.50	31.50	800	1.50	0	965	AMRE-D240830-32
24.00	8.00	31.50	24.80	630	1.50	0	850	AMRE-D240832-25
24.00	8.00	31.50	31.50	800	1.50	0	1005	AMRE-D240832-32
24.00	8.00	33.50	24.80	630	1.50	0	890	AMRE-D240834-25
24.00	8.00	33.50	31.50	800	1.50	0	1045	AMRE-D240834-32
24.00	8.00	35.50	24.80	630	1.50	0	930	AMRE-D240836-25
24.00	8.00	35.50	31.50	800	1.50	0	1085	AMRE-D240836-32
24.00	8.00	37.50	24.80	630	1.50	0	970	AMRE-D240838-25
24.00	8.00	37.50	31.50	800	1.50	0	1125	AMRE-D240838-32
24.00	8.00	39.50	31.50	800	1.50	0	1165	AMRE-D240840-32
31.00	12.00	25.50	31.50	800	1.50	1.000	1060	AMRE-D311226-32
31.00	12.00	27.50	31.50	800	1.50	1.000	1110	AMRE-D311228-32
31.00	12.00	29.50	31.50	800	1.50	1.000	1155	AMRE-D311230-32
31.00	12.00	31.50	31.50	800	1.50	1.000	1200	AMRE-D311232-32
31.00	12.00	33.50	31.50	800	1.50	1.000	1250	AMRE-D311234-32
31.00	12.00	35.50	31.50	800	1.50	1.000	1295	AMRE-D311236-32
31.00	12.00	37.50	31.50	800	1.50	1.000	1340	AMRE-D311238-32
31.00	12.00	39.50	31.50	800	1.50	1.000	1385	AMRE-D311240-32
31.00	16.00	27.50	31.50	800	1.50	1.000	1230	AMRE-D311628-32
31.00	16.00	29.50	31.50	800	1.50	1.000	1280	AMRE-D311630-32
31.00	16.00	31.50	31.50	800	1.50	1.000	1330	AMRE-D311632-32
31.00	16.00	33.50	31.50	800	1.50	1.000	1380	AMRE-D311634-32
31.00	16.00	35.50	31.50	800	1.50	1.000	1430	AMRE-D311636-32
31.00	16.00	37.50	31.50	800	1.50	1.000	1480	AMRE-D311638-32
31.00	16.00	39.50	31.50	800	1.50	1.000	1530	AMRE-D311640-32

Note: Geometric tolerances shown are precision. For full tolerancing and precision table, reference page 8.

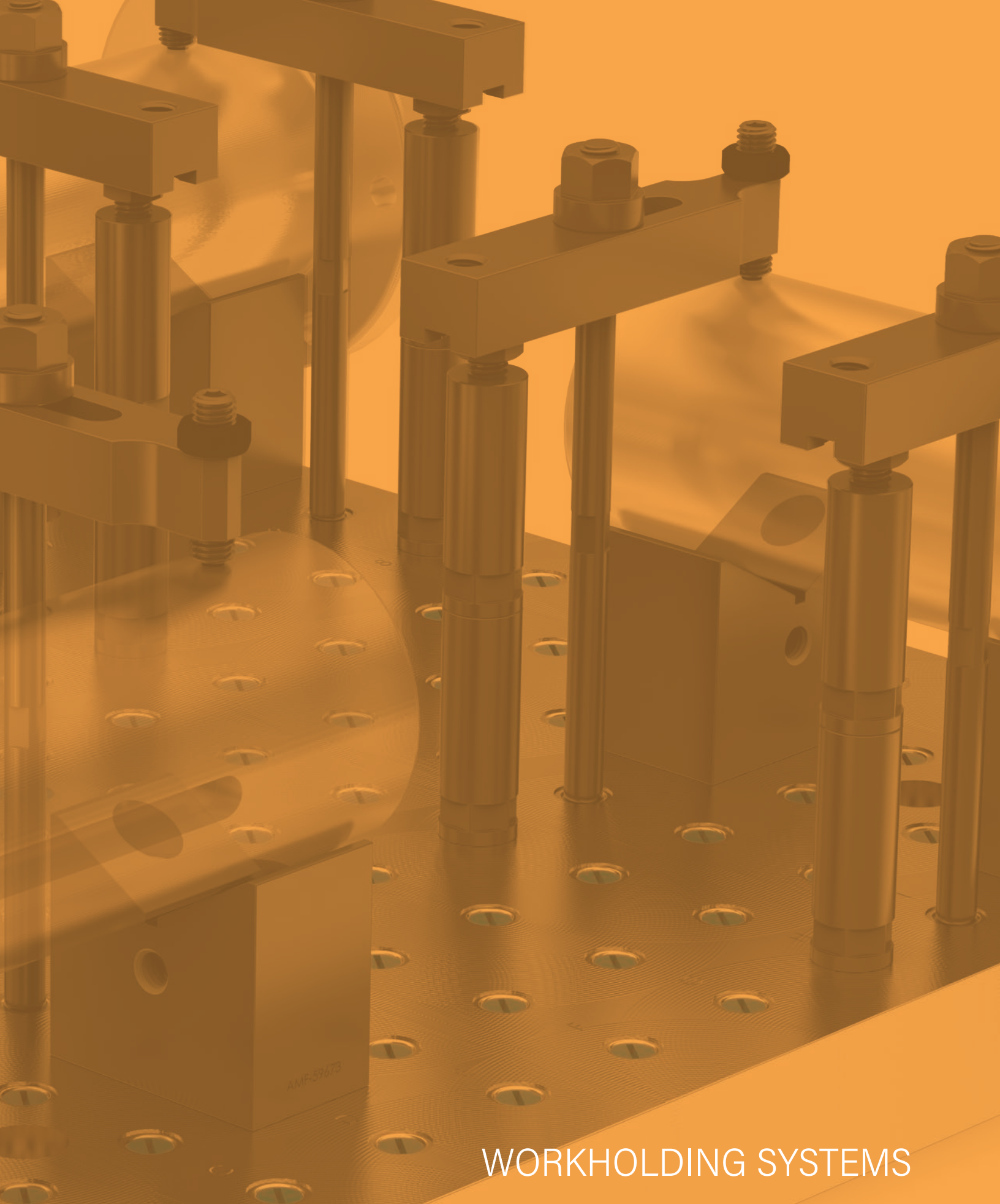


**ENGINEERED  
TO BE  
ADVANCED**



**Image:** AMROK offers a wide variety of clamping systems, including centering dovetail vises, v-style systems, and chain and cable clamps.

Learn more about the clamping system shown in the image on page 121.



# WORKHOLDING SYSTEMS

# WORKHOLDING SYSTEMS

**66 WORKHOLDING SYSTEMS OVERVIEW**  
Fixturing Systems and Modular Workholding Components

**68 VISE SYSTEMS**  
Centering Dovetail Vise (CDV) and Other Dovetail Vises

**88 TRIAG INTERNATIONAL**  
Modular Vise Systems

**94 SAFE SYSTEM**  
Self-Aligning Fixture Element Design

**96 CLAMPING SYSTEMS**  
Threaded and SAFE Systems

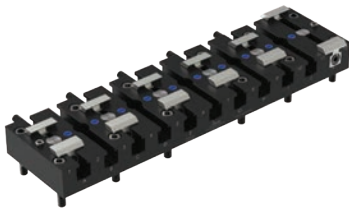
**120 V-BLOCK SYSTEMS**  
Round Part Clamping


**131 CHAIN/CABLE CLAMP SYSTEMS**

**137 LOCATORS, SPACERS, AND RISERS**

**148 SPRING SUPPORT SYSTEMS**  
Clamping Systems

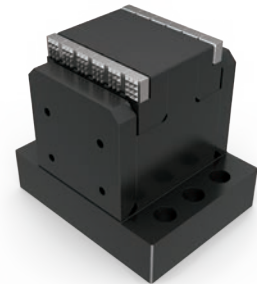
## VISE SYSTEMS



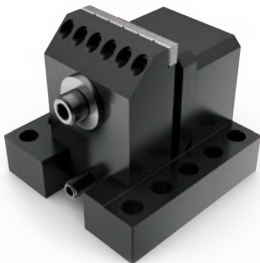
**68 CENTERING DOVETAIL VISES**   
Vise System



**78 DOVETAIL VISES**  
Vise System



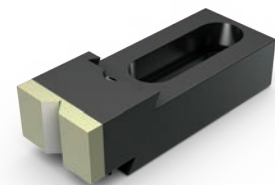
**80 FIXED VISES**  
Vise Systems



**81 MOVABLE VISES**  
Vise System



**82 VISE SETS**  
Vise System

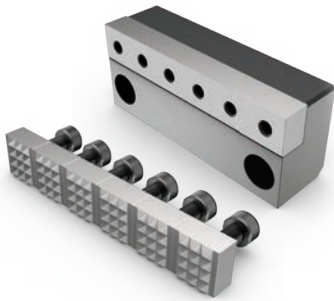


**84 TOE CLAMP**  
Vise System

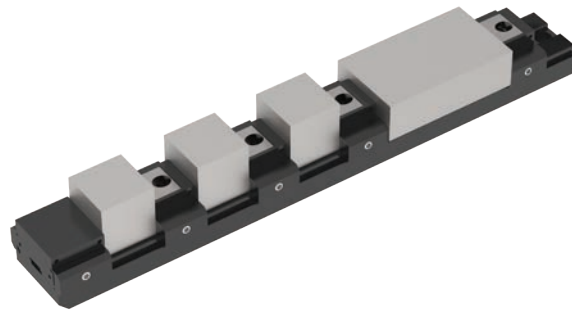


# WORKHOLDING SYSTEMS

## WISE SYSTEMS *Continued*



**86 VISE REPLACEMENT PARTS**  
Vise System



**88 TRIAG MODULAR VISE SYSTEM**

TRIAG

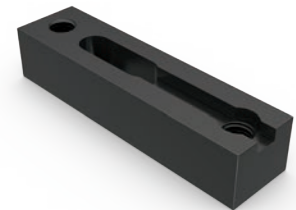
## CLAMPING SYSTEMS



**96 CLAMPING BARS**  
Clamping Systems



**104 T-SLOT CLAMPING BAR**  
Clamping Systems



**105 UNIVERSAL CLAMPING BAR**  
Clamping Systems



**106 SINGLE CLAMPING BAR HEEL REST**  
Clamping Systems



**109 CLAMPING BASE BAR**  
Clamping Systems



**110 CLAMPING ASSEMBLIES**  
Clamping Systems

# WORKHOLDING SYSTEMS

## V-BLOCK SYSTEMS



**120 V-REST**  
V-Block System



**122 V-STOP**  
V-Block System

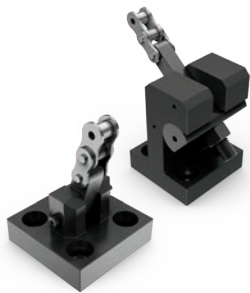


**124 V-BLOCK WITH FLANGE**  
Vise System



**126 SPLIT V-BLOCK**  
V-Block System

## CHAIN/CABLE SYSTEMS



**131 CHAIN/CABLE CLAMP**  
Heavy Duty; Fixed and Adjustable



**132 CHAIN/CABLE CLAMP**  
Standard; Fixed and Adjustable



**136 CHAINS/CABLES**  
Chain/Cable System

# WORKHOLDING SYSTEMS

## LOCATORS, SPACERS, AND RISERS



137 LOCATORS,  
SPACERS, AND  
RISERS

## SPRING SUPPORT SYSTEMS



148 SQUEEZE LOCKS  
Spring Supports

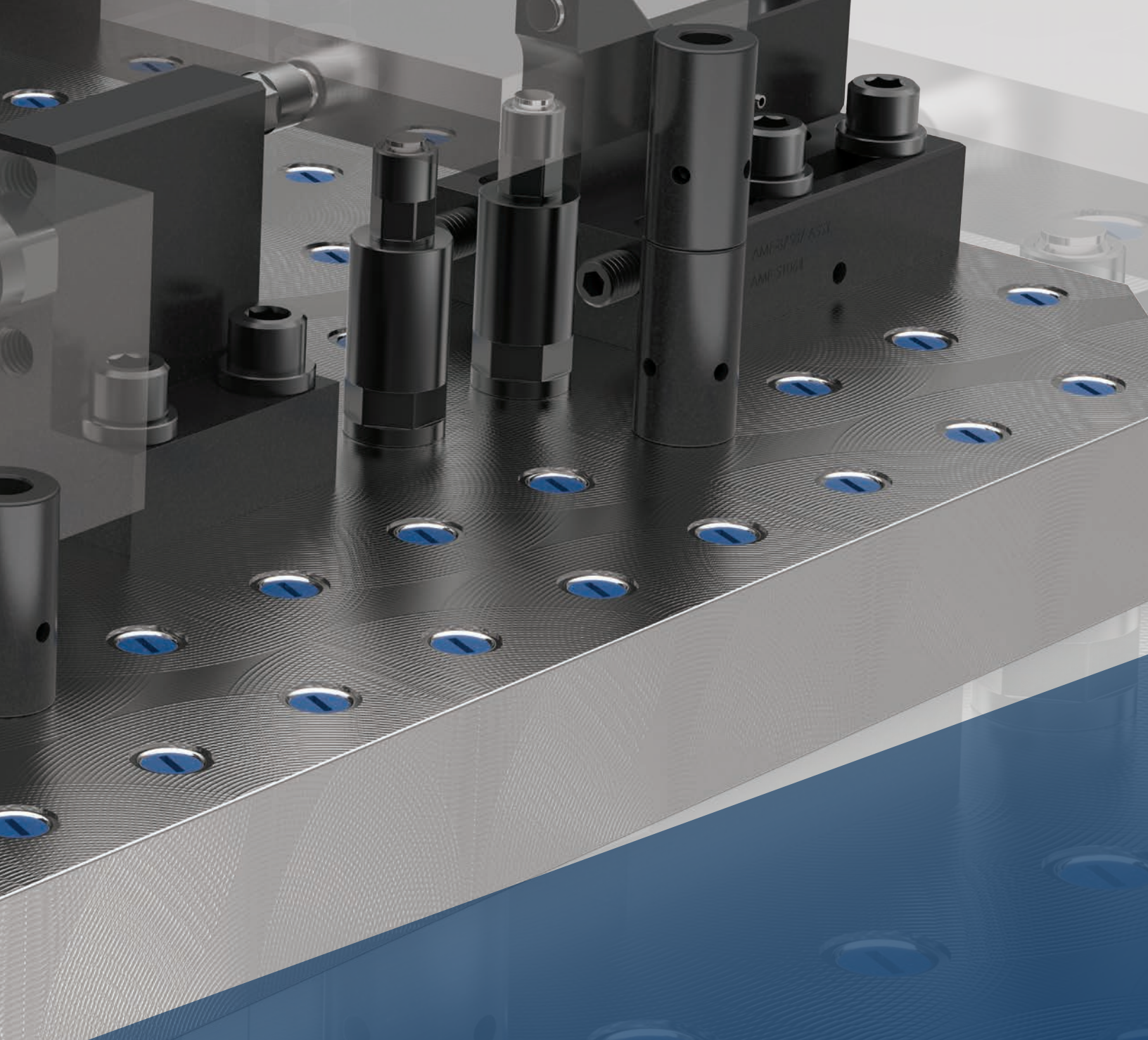


150 WHISTLE-NOTCH  
LOCKS  
Spring Supports



151 PLUG LOCKS  
Spring Supports





## WORKHOLDING SYSTEMS

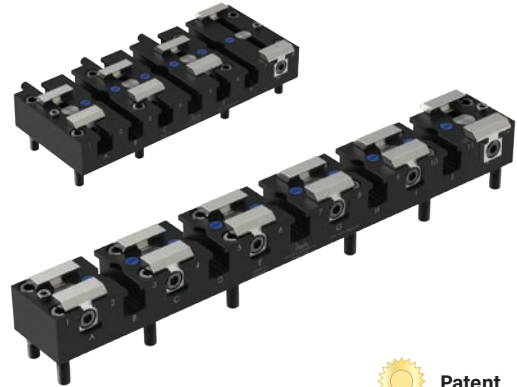
Advanced Machine and Engineering is home to some of the highest-quality **turn-key solutions** in the industry. Here are some of our highlighted products:

- **Patented** centering dovetail vise for aggressive 5-axis machining (*page 68*)
- Heavy-duty modular vise systems for versatile setups on precision grids holding the tightest tolerances in the industry—for full tolerancing and precision table, reference page 8
- Integrated self-aligning fixture elements providing safe and accurate machining solutions for irregular-shaped workpieces
- An exclusive partnership with **Triag International**—an international leader in modular workholding solutions (*page 88*)

# CENTERING DOVETAIL VISE (CDV)

## STANDARDIZATION

- Parts are all prepped, clamped, and located the same way, each time
- Manufacturing operations are able to be streamlined
- Fits on industry standard, 2" grids using precision locating screws included in each assembly
- Grid system allows for between-center, on-center, Bridgeport, and t-slot mounting with no additional sub-plate or tombstone mounting



Note: CAD models available for download online.

## COST SAVINGS

- More parts can be machined off-line at a reduced manufacturing cost
- Multiple parts can be held by the same unit, increasing production capabilities
- Allows for minimal excess stock for clamping and locating parts, reducing scrap costs
- No additional components are required for functionality

## TIME SAVINGS

- No change-over or additional components required for clamping and locating
- Design allows for five-sided machining of parts
- Multiple parts can be machined on a single unit, allowing machinists to run multiple machines simultaneously

## HIGH TORQUE/HEAVY LOADS

- Various jaw width and height options provide better load distribution and workpiece clamping

## EASE OF USE

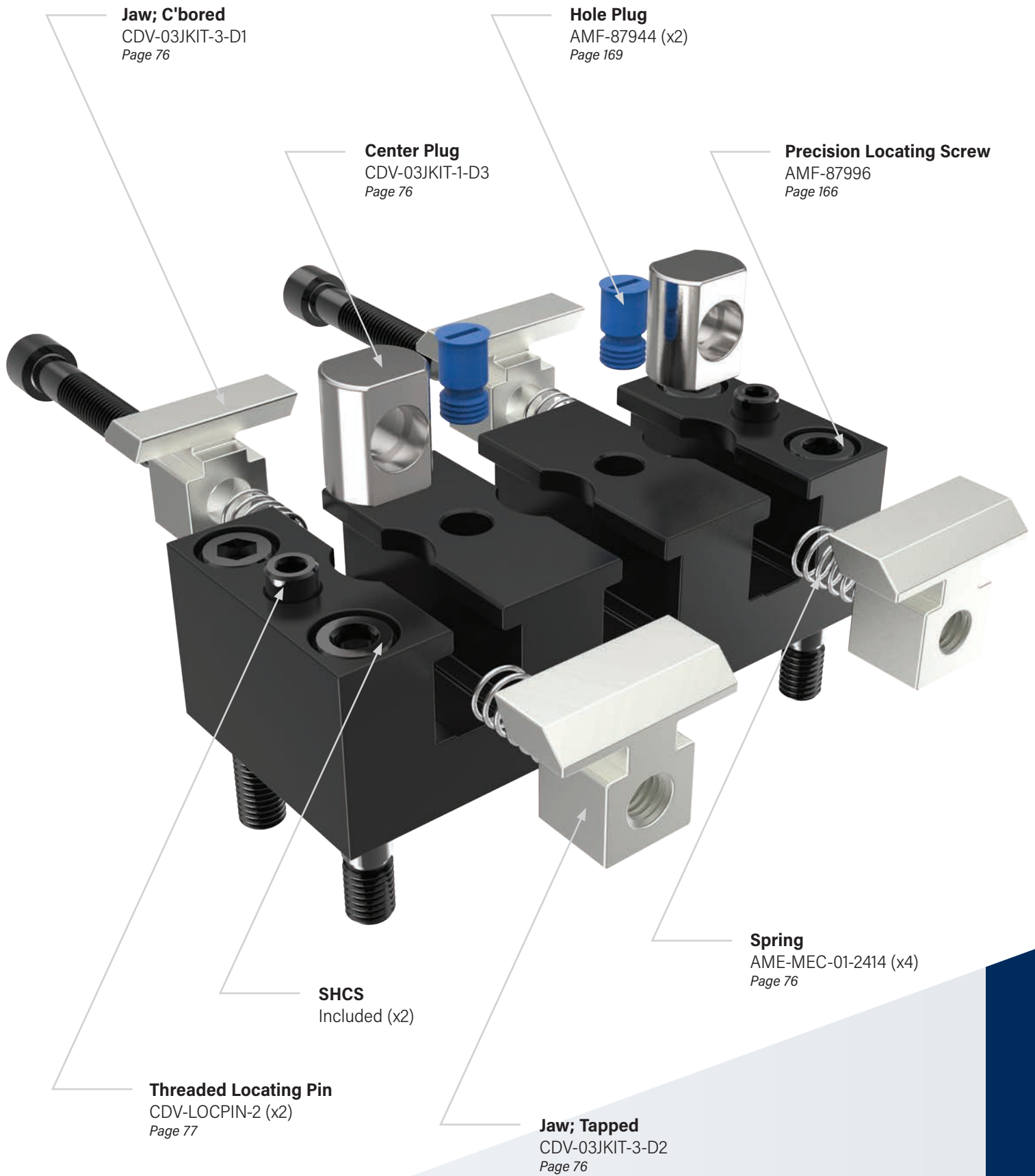
- Parts are always clamped and located the same way
- Simple design allows for fast and easy loading and unloading, and requires virtually no training
- Jaw assemblies can be added and removed quickly for versatility and flexibility
- Maintenance is streamlined with simplified disassembly

## SCRAP REDUCTION

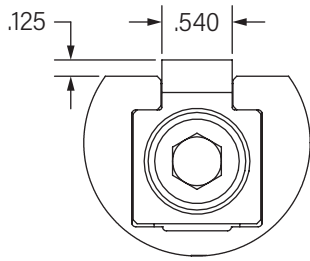
- Eliminates distortion in machined parts caused by clamping forces
- Securely holds parts so they do not become loose during machining
- Precision mounting lowers scrap production costs

Parts Included in Assembly		
Quantity	Part Description	Part Number
2	Threaded Locating Pins	CDV-LOCPIN-1 or CDV-LOCPIN-2
2	Precision Locating Screws	AMF-87996
Varies	Socket Head Cap Screws for Mounting	SHCS ½"-13 x 2.75 Long

# CENTERING DOVETAIL VISE (CDV)

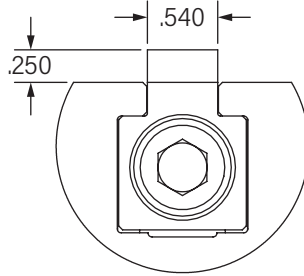


# CENTERING DOVETAIL VISE (CDV)



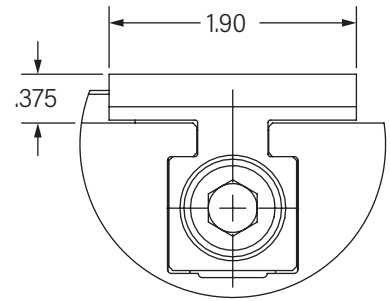
DETAIL A

Jaw Style 1  
 CDV-03KIT-1  
 CDV-03KIT-1-15  
 CDV-06KIT-1  
 CDV-06KIT-1-15



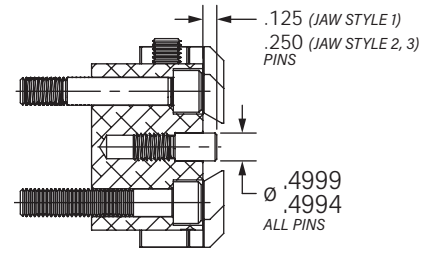
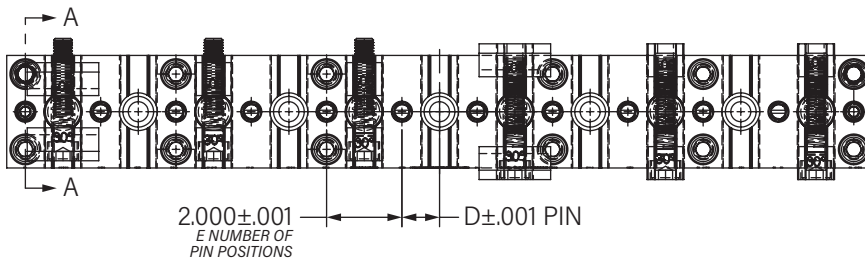
DETAIL B

Jaw Style 2  
 CDV-03KIT-2  
 CDV-03KIT-2-15  
 CDV-06KIT-2  
 CDV-06KIT-2-15

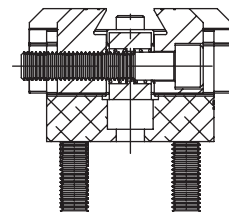
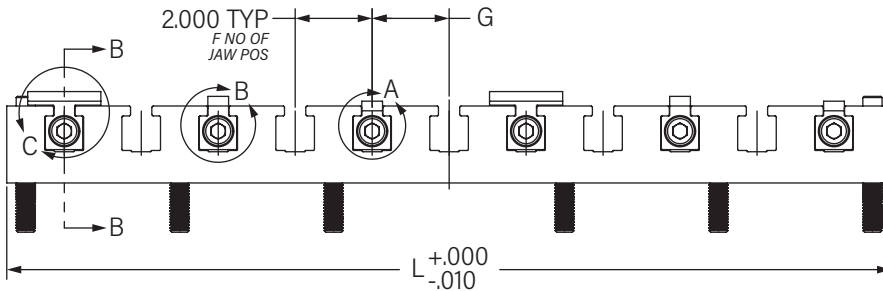


DETAIL C

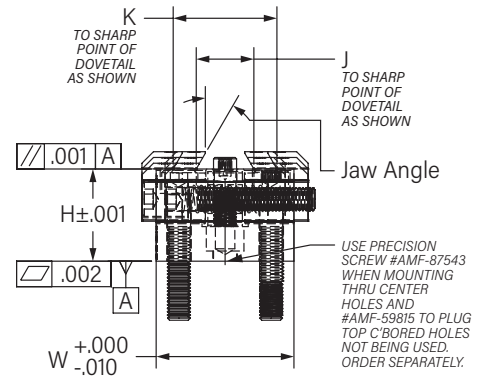
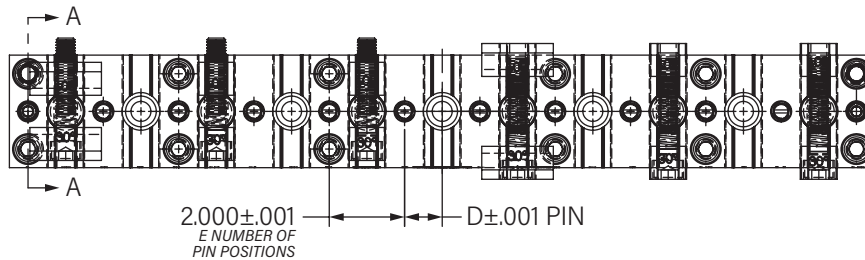
Jaw Style 3  
 CDV-03KIT-3  
 CDV-03KIT-3-15  
 CDV-06KIT-3  
 CDV-06KIT-3-15



SECTION A-A



SECTION B-B



Locating screws and fasteners for mounting to standard gridplates and/or tombstones are included.



# CENTERING DOVETAIL VISE (CDV)

## CENTERING DOVETAIL VISE—30° JAW ANGLE

Vise			Dimensions										Base Mat'l	Part Number	
			Dovetail		Jaw				Pin		Corner Mounting				Center Mntg.
			Min	Max	Style	No. Sets*	No. Pos.	Loc. from Ctr.	No. Pos.	Loc. from Ctr.	A	B			C
W in	H in	L in	J in	K in			F	G in	E	D in	A in	B in	C in		
3.000	2.000	3.000	1.250	2.250	1	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-1
3.000	2.000	3.000	1.250	2.250	1	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-1S
3.000	2.000	3.000	1.250	2.250	2	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-2
3.000	2.000	3.000	1.250	2.250	2	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-2S
3.000	2.000	3.000	1.250	2.250	3	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-3
3.000	2.000	3.000	1.250	2.250	3	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-3S
3.000	2.000	5.000	1.250	2.250	1	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-1
3.000	2.000	5.000	1.250	2.250	1	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-1S
3.000	2.000	5.000	1.250	2.250	2	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-2
3.000	2.000	5.000	1.250	2.250	2	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-2S
3.000	2.000	5.000	1.250	2.250	3	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-3
3.000	2.000	5.000	1.250	2.250	3	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-3S
3.000	2.000	7.000	1.250	2.250	1	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-1
3.000	2.000	7.000	1.250	2.250	1	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-1S
3.000	2.000	7.000	1.250	2.250	2	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-2
3.000	2.000	7.000	1.250	2.250	2	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-2S
3.000	2.000	7.000	1.250	2.250	3	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-3
3.000	2.000	7.000	1.250	2.250	3	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-3S
3.000	2.000	15.000	1.250	2.250	1	4	7	2.00	8	1.000	7.000	1.000	2.000	Alum.	CDV-030215-1
3.000	2.000	15.000	1.250	2.250	1	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-1S
3.000	2.000	15.000	1.250	2.250	2	4	7	2.00	8	1.000	7.000	1.000	6.000	Alum.	CDV-030215-2
3.000	2.000	15.000	1.250	2.250	2	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-2S
3.000	2.000	15.000	1.250	2.250	3	4	7	2.00	8	1.000	7.000	1.000	6.000	Alum.	CDV-030215-3
3.000	2.000	15.000	1.250	2.250	3	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-3S
3.000	2.000	23.000	1.250	2.250	1	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-1
3.000	2.000	23.000	1.250	2.250	1	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-1S
3.000	2.000	23.000	1.250	2.250	2	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-2
3.000	2.000	23.000	1.250	2.250	2	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-2S
3.000	2.000	23.000	1.250	2.250	3	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-3
3.000	2.000	23.000	1.250	2.250	3	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-3S
6.000	2.000	5.000	2.250	5.000	1	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-1
6.000	2.000	5.000	2.250	5.000	1	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-1S
6.000	2.000	5.000	2.250	5.000	2	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-2
6.000	2.000	5.000	2.250	5.000	2	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-2S
6.000	2.000	5.000	2.250	5.000	3	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-3

\*Jaw sets are supplied with the unit.

# CENTERING DOVETAIL VISE (CDV)

## CENTERING DOVETAIL VISE—30° JAW ANGLE

Dimensions													Base Mat'l	Part Number	
Vise			Dovetail		Jaw				Pin		Corner Mounting				Center Mntg.
			Min	Max	Style	No. Sets*	No. Pos.	Loc. from Ctr.	No. Pos.	Loc. from Ctr.	A	B			C
W	H	L	J	K			F	G	E	D	in	in			in
in	in	in	in	in			in		in	in	in	in			
6.000	2.000	5.000	2.250	5.000	3	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-3S
6.000	2.000	7.000	2.250	5.000	1	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-1
6.000	2.000	7.000	2.250	5.000	1	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-1S
6.000	2.000	7.000	2.250	5.000	2	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-2
6.000	2.000	7.000	2.250	5.000	2	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-2S
6.000	2.000	7.000	2.250	5.000	3	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-3
6.000	2.000	7.000	2.250	5.000	3	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-3S
6.000	2.000	15.000	2.250	5.000	1	4	7	2.00	8	1.000	7.000	2.000	2.000	Alum.	CDV-060215-1
6.000	2.000	15.000	2.250	5.000	1	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-1S
6.000	2.000	15.000	2.250	5.000	2	4	7	2.00	8	1.000	7.000	2.000	6.000	Alum.	CDV-060215-2
6.000	2.000	15.000	2.250	5.000	2	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-2S
6.000	2.000	15.000	2.250	5.000	3	4	7	2.00	8	1.000	7.000	2.000	6.000	Alum.	CDV-060215-3
6.000	2.000	15.000	2.250	5.000	3	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-3S
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-1
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-1S
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-2
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-2S
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-3
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-3S

\*Jaw sets are supplied with the unit.

## CENTERING DOVETAIL VISE—15° JAW ANGLE

Dimensions													Base Mat'l	Part Number	
Vise			Dovetail		Jaw				Pin		Corner Mounting				Center Mntg.
			Min	Max	Style	No. Sets*	No. Pos.	Loc. from Ctr.	No. Pos.	Loc. from Ctr.	A	B			C
W	H	L	J	K			F	G	E	D	in	in			in
in	in	in	in	in			in		in	in	in	in			
3.000	2.000	3.000	1.250	2.250	1	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-1-15
3.000	2.000	3.000	1.250	2.250	1	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-1S-15
3.000	2.000	3.000	1.250	2.250	2	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-2-15
3.000	2.000	3.000	1.250	2.250	2	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-2S-15
3.000	2.000	3.000	1.250	2.250	3	1	1	0.00	2	1.000	1.000	1.000	-	Alum.	CDV-030203-3-15
3.000	2.000	3.000	1.250	2.250	3	1	1	0.00	2	1.000	1.000	1.000	-	Steel	CDV-030203-3S-15

\*Jaw sets are supplied with the unit.

# CENTERING DOVETAIL VISE (CDV)

## CENTERING DOVETAIL VISE—15° JAW ANGLE

Vise			Dimensions										Base Mat'l	Part Number			
			Dovetail		Jaw				Pin		Corner Mounting				Center Mntg.		
			Min	Max	Style	No. Sets*	No. Pos.	Loc. from Ctr.	No. Pos.	Loc. from Ctr.	A	B			C		
W	H	L	J	K			F	G	E	D	A	B	C				
in	in	in	in	in						in	in	in	in	in	in	in	in
3.000	2.000	5.000	1.250	2.250	1	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-1-15		
3.000	2.000	5.000	1.250	2.250	1	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-1S-15		
3.000	2.000	5.000	1.250	2.250	2	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-2-15		
3.000	2.000	5.000	1.250	2.250	2	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-2S-15		
3.000	2.000	5.000	1.250	2.250	3	2	2	1.00	3	2.000	2.000	1.000	1.000	Alum.	CDV-030205-3-15		
3.000	2.000	5.000	1.250	2.250	3	2	2	1.00	3	2.000	2.000	1.000	1.000	Steel	CDV-030205-3S-15		
3.000	2.000	7.000	1.250	2.250	1	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-1-15		
3.000	2.000	7.000	1.250	2.250	1	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-1S-15		
3.000	2.000	7.000	1.250	2.250	2	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-2-15		
3.000	2.000	7.000	1.250	2.250	2	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-2S-15		
3.000	2.000	7.000	1.250	2.250	3	3	3	2.00	4	1.000	3.000	1.000	2.000	Alum.	CDV-030207-3-15		
3.000	2.000	7.000	1.250	2.250	3	3	3	2.00	4	1.000	3.000	1.000	2.000	Steel	CDV-030207-3S-15		
3.000	2.000	15.000	1.250	2.250	1	4	7	2.00	8	1.000	7.000	1.000	2.000	Alum.	CDV-030215-1-15		
3.000	2.000	15.000	1.250	2.250	1	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-1S-15		
3.000	2.000	15.000	1.250	2.250	2	4	7	2.00	8	1.000	7.000	1.000	6.000	Alum.	CDV-030215-2-15		
3.000	2.000	15.000	1.250	2.250	2	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-2S-15		
3.000	2.000	15.000	1.250	2.250	3	4	7	2.00	8	1.000	7.000	1.000	6.000	Alum.	CDV-030215-3-15		
3.000	2.000	15.000	1.250	2.250	3	4	7	2.00	8	1.000	7.000	1.000	6.000	Steel	CDV-030215-3S-15		
3.000	2.000	23.000	1.250	2.250	1	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-1-15		
3.000	2.000	23.000	1.250	2.250	1	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-1S-15		
3.000	2.000	23.000	1.250	2.250	2	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-2-15		
3.000	2.000	23.000	1.250	2.250	2	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-2S-15		
3.000	2.000	23.000	1.250	2.250	3	6	11	2.00	12	1.000	11.000	1.000	10.000	Alum.	CDV-030223-3-15		
3.000	2.000	23.000	1.250	2.250	3	6	11	2.00	12	1.000	11.000	1.000	10.000	Steel	CDV-030223-3S-15		
6.000	2.000	5.000	2.250	5.000	1	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-1-15		
6.000	2.000	5.000	2.250	5.000	1	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-1S-15		
6.000	2.000	5.000	2.250	5.000	2	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-2-15		
6.000	2.000	5.000	2.250	5.000	2	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-2S-15		
6.000	2.000	5.000	2.250	5.000	3	2	2	1.00	3	2.000	2.000	2.000	1.000	Alum.	CDV-060205-3-15		
6.000	2.000	5.000	2.250	5.000	3	2	2	1.00	3	2.000	2.000	2.000	1.000	Steel	CDV-060205-3S-15		
6.000	2.000	7.000	2.250	5.000	1	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-1-15		
6.000	2.000	7.000	2.250	5.000	1	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-1S-15		
6.000	2.000	7.000	2.250	5.000	2	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-2-15		
6.000	2.000	7.000	2.250	5.000	2	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-2S-15		
6.000	2.000	7.000	2.250	5.000	3	3	3	2.00	4	1.000	3.000	2.000	2.000	Alum.	CDV-060207-3-15		

\*Jaw sets are supplied with the unit.

# CENTERING DOVETAIL VISE (CDV)

## CENTERING DOVETAIL VISE—15° JAW ANGLE

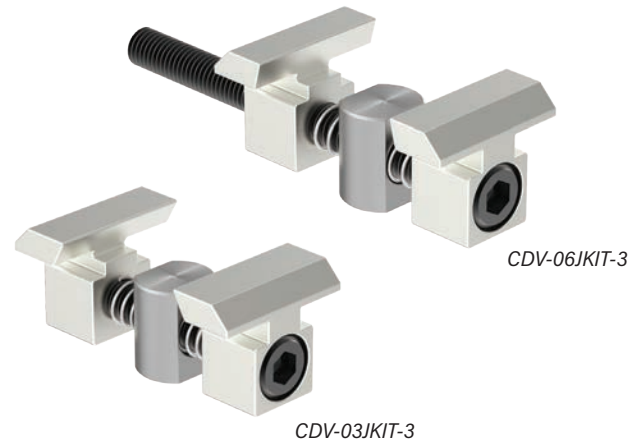
Dimensions														Base Mat'l	Part Number
Vise			Dovetail		Jaw				Pin		Corner Mounting		Center Mntg.		
			Min	Max	Style	No. Sets*	No. Pos.	Loc. from Ctr.	No. Pos.	Loc. from Ctr.	A	B	C		
W	H	L	J	K			F	G	E	D	in	in	in		
in	in	in	in	in			in		in	in	in	in	in	15° Jaw Angle	
6.000	2.000	7.000	2.250	5.000	3	3	3	2.00	4	1.000	3.000	2.000	2.000	Steel	CDV-060207-3S-15
6.000	2.000	15.000	2.250	5.000	1	4	7	2.00	8	1.000	7.000	2.000	2.000	Alum.	CDV-060215-1-15
6.000	2.000	15.000	2.250	5.000	1	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-1S-15
6.000	2.000	15.000	2.250	5.000	2	4	7	2.00	8	1.000	7.000	2.000	6.000	Alum.	CDV-060215-2-15
6.000	2.000	15.000	2.250	5.000	2	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-2S-15
6.000	2.000	15.000	2.250	5.000	3	4	7	2.00	8	1.000	7.000	2.000	6.000	Alum.	CDV-060215-3-15
6.000	2.000	15.000	2.250	5.000	3	4	7	2.00	8	1.000	7.000	2.000	6.000	Steel	CDV-060215-3S-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-1-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-1S-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-2-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-2S-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Alum.	CDV-060223-3-15
6.000	2.000	23.000	2.250	5.000	3	6	11	2.00	12	1.000	11.000	2.000	10.000	Steel	CDV-060223-3S-15

\*Jaw sets are supplied with the unit.

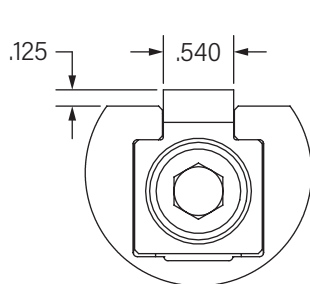
# CENTERING DOVETAIL VISE JAW ASSEMBLY

All jaw types are interchangeable for any Centering Dovetail Vise (CDV). They can be used together on the same base as long as the dovetail is prepped for the tallest jaw you plan to use on the CDV.

*Note: Jaws are hardened to 40-45 Rc.*

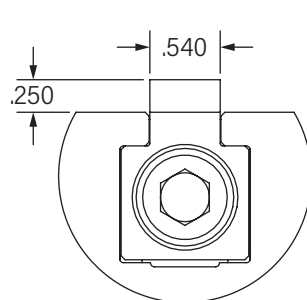


Dimensions			Dovetail Width	Part Number
Jaw Height	Jaw Width	Jaw Angle		
in	in	degrees	in	
0.125	0.54	30°	1.250-2.250	CDV-03JKIT-1
0.250	0.54	30°	1.250-2.250	CDV-03JKIT-2
0.375	1.90	30°	1.250-2.250	CDV-03JKIT-3
0.125	0.54	15°	1.250-2.250	CDV-03JKIT-1-15
0.250	0.54	15°	1.250-2.250	CDV-03JKIT-2-15
0.375	1.90	15°	1.250-2.250	CDV-03JKIT-3-15
0.125	0.54	30°	2.250-5.000	CDV-06JKIT-1
0.250	0.54	30°	2.250-5.000	CDV-06JKIT-2
0.375	1.90	30°	2.250-5.000	CDV-06JKIT-3
0.125	0.54	15°	2.250-5.000	CDV-06JKIT-1-15
0.250	0.54	15°	2.250-5.000	CDV-06JKIT-2-15
0.375	1.90	15°	2.250-5.000	CDV-06JKIT-3-15



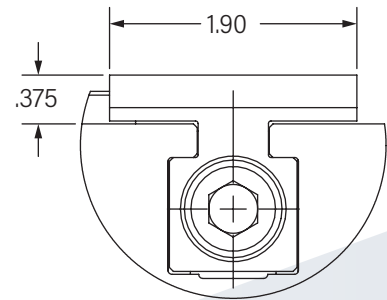
**DETAIL A**

*Jaw Style 1*  
 CDV-03KIT-1  
 CDV-03KIT-1-15  
 CDV-06KIT-1  
 CDV-06KIT-1-15



**DETAIL B**

*Jaw Style 2*  
 CDV-03KIT-2  
 CDV-03KIT-2-15  
 CDV-06KIT-2  
 CDV-06KIT-2-15



**DETAIL C**

*Jaw Style 3*  
 CDV-03KIT-3  
 CDV-03KIT-3-15  
 CDV-06KIT-3  
 CDV-06KIT-3-15

# CENTERING DOVETAIL VISE JAW ASSEMBLY REPLACEMENT PARTS



Counterbored Jaw



Threaded Jaw



Center Plug



Spring



Socket Head Cap Screw

Description	Details	Part Number
Jaw, Counterbored	-	CDV-03JKIT-1-D1
Jaw, Counterbored	-	CDV-03JKIT-1-15-D1
Jaw, Counterbored	-	CDV-03JKIT-2-D1
Jaw, Counterbored	-	CDV-03JKIT-2-15-D1
Jaw, Counterbored	-	CDV-03JKIT-3-D1
Jaw, Counterbored	-	CDV-03JKIT-3-15-D1
Jaw, Threaded	-	CDV-03JKIT-1-D2
Jaw, Threaded	-	CDV-03JKIT-1-15-D2
Jaw, Threaded	-	CDV-03JKIT-2-D2
Jaw, Threaded	-	CDV-03JKIT-2-15-D2
Jaw, Threaded	-	CDV-03JKIT-3-D2
Jaw, Threaded	-	CDV-03JKIT-3-15-D2
Center Plug	-	CDV-03JKIT-1-D3
Spring	For 6" Wide Vise	AME-MEC-01-2415
Spring	For 3" Wide Vise	AME-MEC-01-2414
Socket Head Cap Screw	For 3" Wide Vise, 1/2"-13 x 2.75" Long	-
Socket Head Cap Screw	For 6" Wide Vise, 1/2"-13 x 6.00" Long Full Thread	-

# CENTERING DOVETAIL VISE VISE ASSEMBLY REPLACEMENT PARTS



Precision Locating Screw



Socket Head Cap Screw



Hole Plug



C'bored Hole Plug



Locating Pin

Description	Details	Part Number
Precision Locating Screw	For locating on center	AMF-87543
Precision Locating Screw	For locating 1" off-center	AMF-87996
Socket Head Cap Screw	½"-13 x 2.75" Long - For 3" Wide Vise	-
Socket Head Cap Screw	½"-13 x 6.00" Long - For 6" Wide Vise	-
Hole Plug	-	AMF-87944
C'Bored Hole Plug	-	AMF-59815
Locating Pin	ø.4999 / .125"	CDV-LOCPIN-1
Locating Pin	ø.4999 / .250"	CDV-LOCPIN-2

*Note: Locating screws and fasteners for mounting to standard gridplates and/or tombstones are included.*

# DOVETAIL VISE

- Exposes up to five faces for open and efficient machining
- Quick and easy precision location setups enabled by two precision bushing holes and two precision locating screws (*page 166*)
- Reduced scrap costs
- Mounting for a 2" grid system uses standard ½"-13 SHCS
- Designed to hold pre-machined parts at a 15° angle

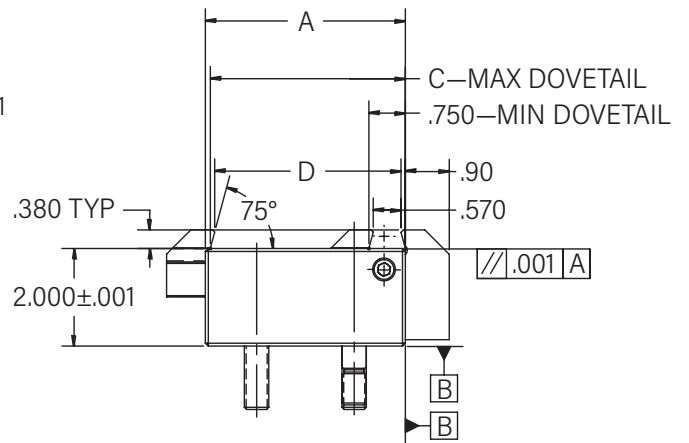
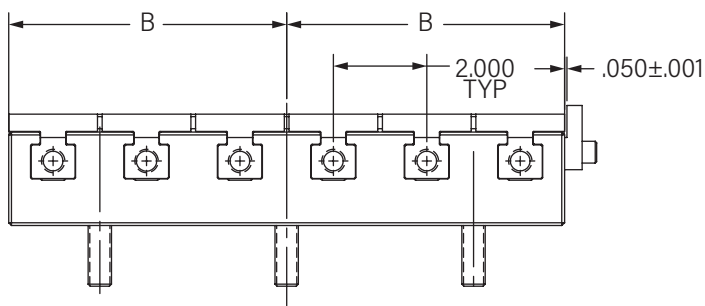
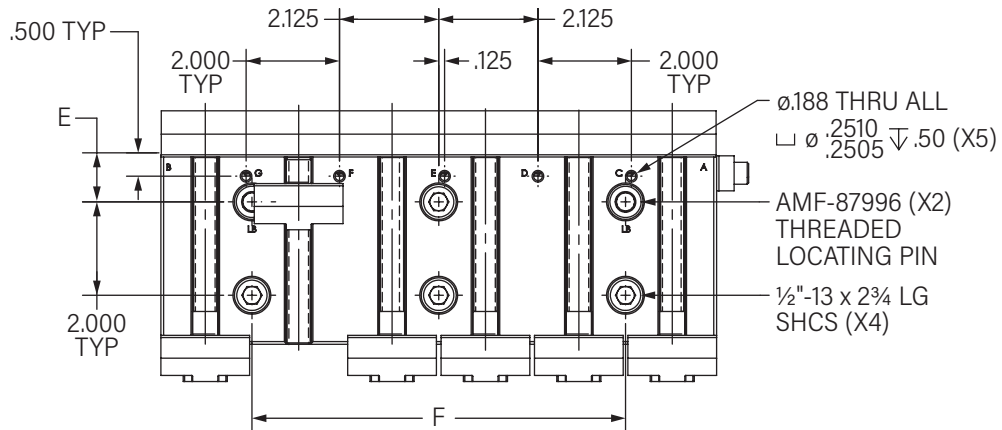
## ADDITIONAL OPTIONS AVAILABLE

- Metric system units available upon request





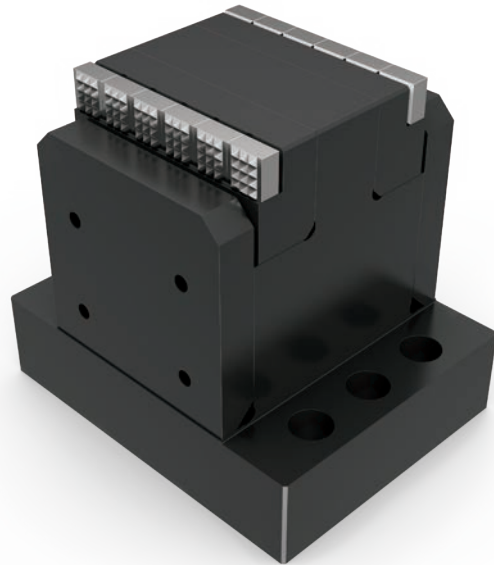
# DOVETAIL VISE



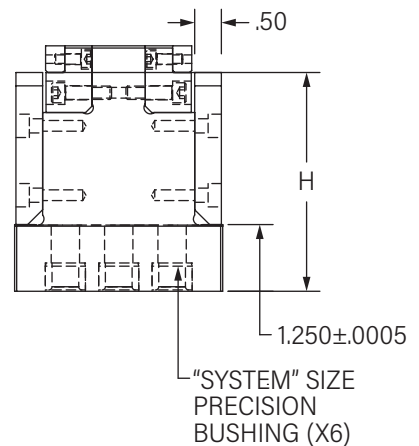
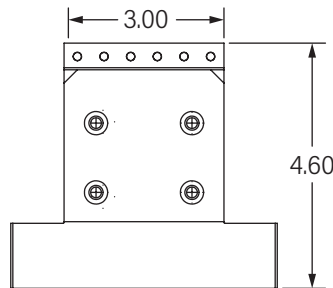
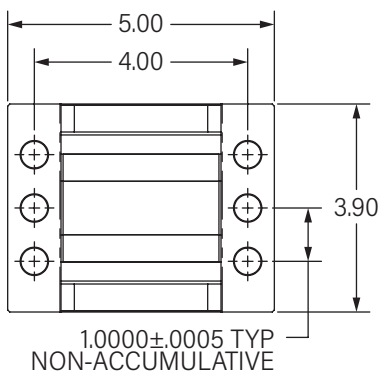
Dimensions						Jaw Quantity	Weight lbs	Part Number
A	B±.002	C	D	E±.0005	F±.0005			
in	in	in	in	in	in			
4.10	2.45	4.000	3.820	1.05	4.00	2	13	AMF-59778-5
5.10	2.45	5.000	4.820	1.55	4.00	2	15	AMF-59779-5
4.10	3.95	4.000	3.820	1.05	4.00	4	20	AMF-59778-8
5.10	3.95	5.000	4.820	1.55	4.00	4	24	AMF-59779-8
4.10	5.95	4.000	3.820	1.05	8.00	6	31	AMF-59778-12
5.10	5.95	5.000	4.820	1.55	8.00	6	36	AMF-59779-12
4.10	7.95	4.000	3.820	1.05	12.00	8	42	AMF-59778-16
5.10	7.95	5.000	4.820	1.55	12.00	8	48	AMF-59779-16
4.10	11.95	4.000	3.820	1.05	20.00	12	61	AMF-59778-24
5.10	11.95	5.000	4.820	1.55	20.00	12	72	AMF-59779-24

# FIXED VISES

- Black oxide finish provides corrosion resistance and extended life
- Quick and easy precision location setups enabled by a set of six precision bushing holes
- Can also be used as a precision stop from two sides when used with smooth jaws
- Pairs with movable vises (*page 81*)
- Smooth or serrated jaw styles available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems
- For a full list of vise accessories and replacement parts, reference *page 86*



*Note: A minimum plate thickness of 5/16" is required for face milling applications when using a taller parallels.*



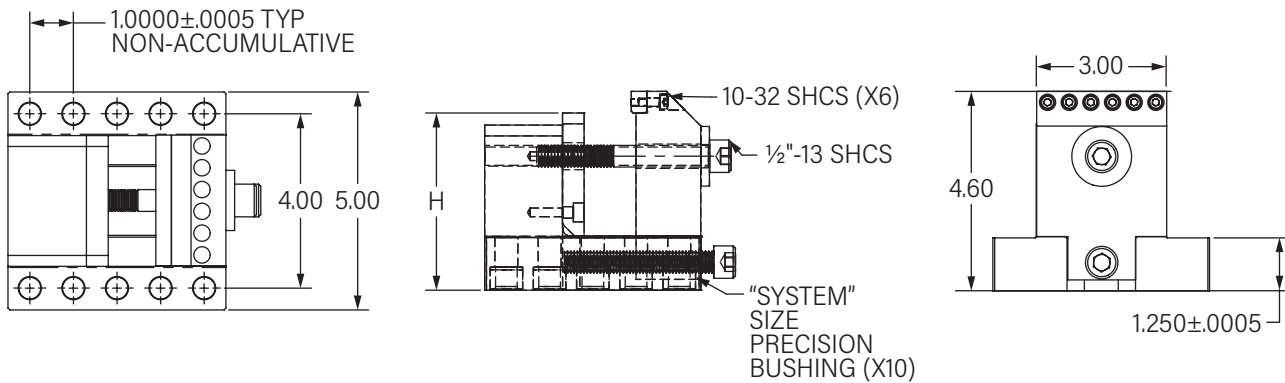
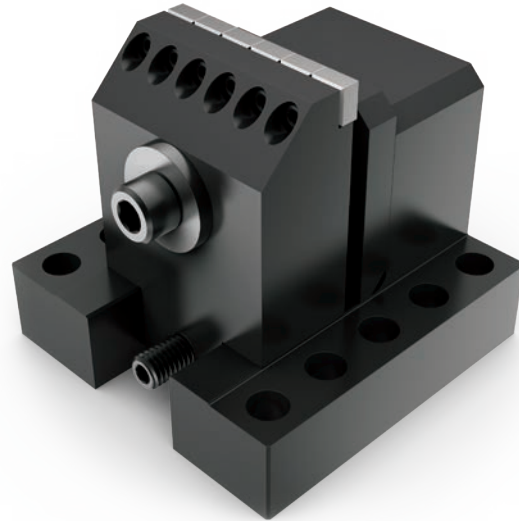
Dimensions	System	Jaw Style	Part Number	Mating Locating Screw Part Number (Not Included)
H±.001				
in	UNC			
4.10	1/2"-13	Serrated	AMF-59547-01	AMF-87994
4.10	1/2"-13	Smooth	AMF-59547-02	AMF-87994
4.10	5/8"-11	Serrated	AMF-59547-03	AMF-87883
4.10	5/8"-11	Smooth	AMF-59547-04	AMF-87883

*Note: The height may be raised to 4.350"±.001 when using parallel AMF-59547-01-D4 (*page 86*). Two precision dowel screws are used to locate vice on grids.*

# MOVABLE VISES

- Black oxide finish provides corrosion resistance and extended life
- Quick and easy precision location setups enabled by a set of six precision bushing holes
- Can also be used as a precision stop from two sides when used with smooth jaws
- Pairs with fixed vises (*page 80*)
- Smooth or serrated jaw styles available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems
- For a full list of vise accessories and replacement parts, reference *page 86*

*Note: A minimum plate thickness of 5/16" is required for face milling applications when using a taller parallels.*

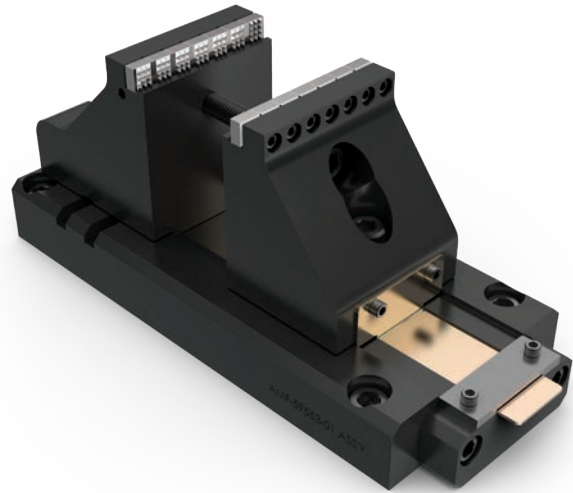


Dimensions H±.001	System	Jaw Style	Part Number	Mating Locating Screw
				Part Number (Not Included)
in	UNC			
4.10	1/2"-13	Serrated	AMF-59546-01	AMF-87994
4.10	1/2"-13	Smooth	AMF-59546-02	AMF-87994
4.10	5/8"-11	Serrated	AMF-59546-03	AMF-87883
4.10	5/8"-11	Smooth	AMF-59546-04	AMF-87883

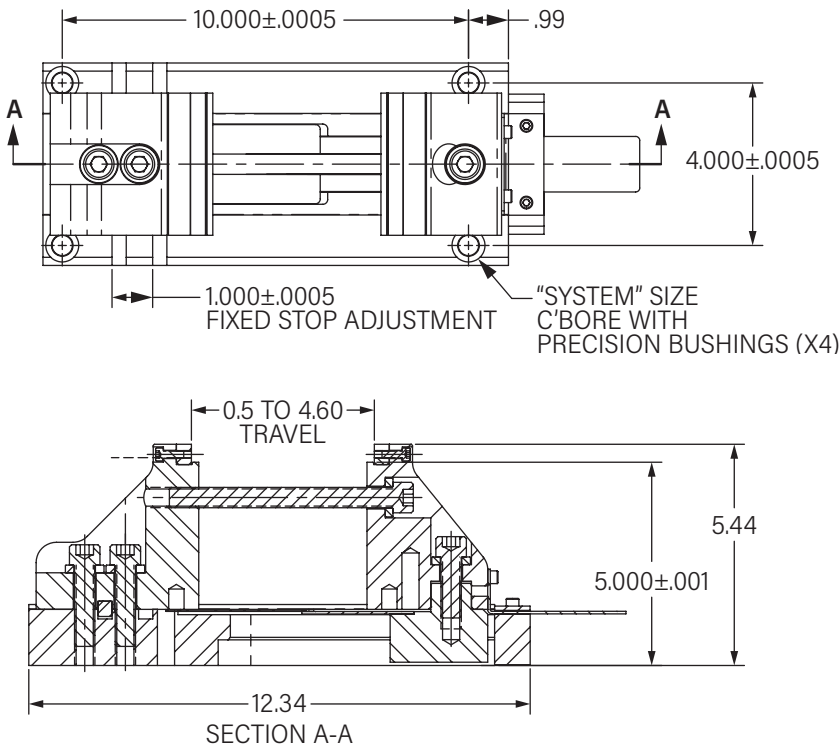
*Note: The height may be raised to 4.350"±.001 when using parallel AMF-59546-01-D4 (*page 86*). Two precision dowel screws are used to locate vice on grid.*

# WISE SETS LOW PROFILE

- Black oxide finish provides corrosion resistance and extended life
- Quick and easy precision location setups enabled by a set of four precision bushing holes and two precision locating screws (page 166)
- Addresses spindle clearance problems for horizontal mills with a low profile 5" support height
- The fixed jaw can be adjusted up to 1" in cases requiring a change in spacing between the jaw and grid
- Smooth or serrated jaw styles available, with clamping widths between 0.50" to 4.60," to meet different requirements
- For a full list of vise accessories and replacement parts, reference page 86



Note: A minimum plate thickness of 5/16" is required for face milling applications when using a taller parallels.



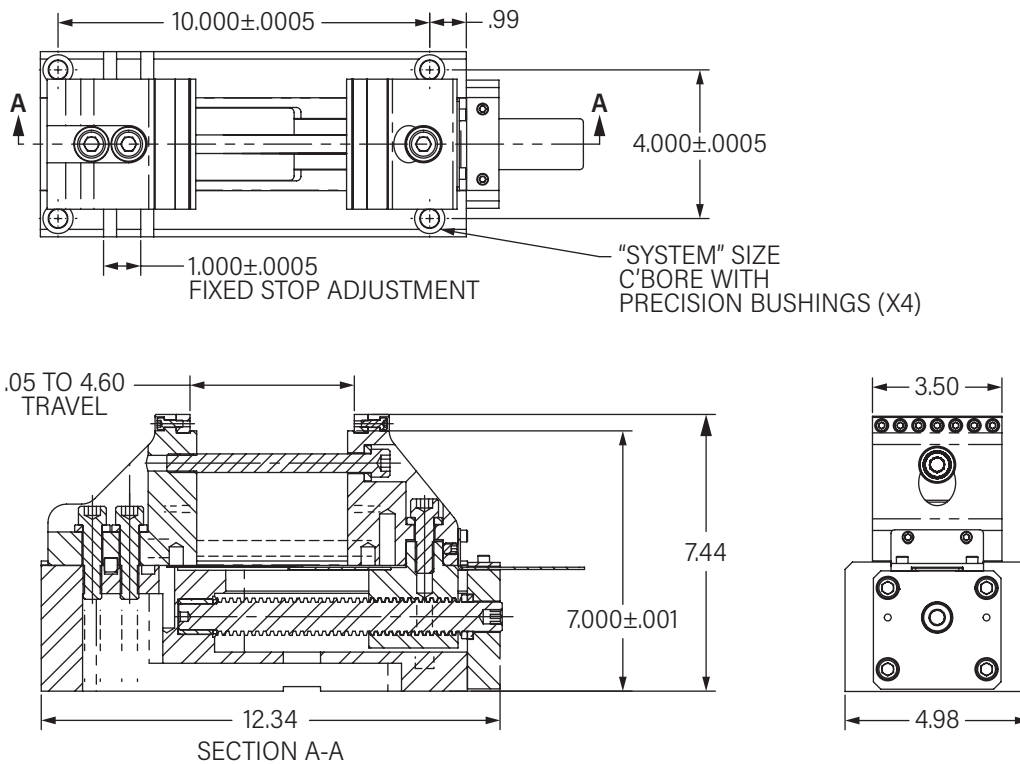
Profile	Jaw Style	System	Part Number
		UNC	
Low Profile	Serrated	1/2"-13	AMF-55953-01
Low Profile	Smooth	1/2"-13	AMF-55953-02

# WISE SETS STANDARD

- Black oxide finish provides corrosion resistance and extended life
- Quick and easy precision location setups enabled by a set of four precision bushing holes and two precision locating screws (page 166)
- Addresses spindle clearance problems for horizontal mills with a 7" support height
- The fixed jaw can be adjusted up to 1" in cases requiring a change in spacing between the jaw and grid
- Smooth or serrated jaw styles available, with clamping widths between 0.50" to 4.60," to meet different requirements
- For a full list of vise accessories and replacement parts, reference page 86



Note: A minimum plate thickness of  $\frac{5}{16}$ " is required for face milling applications when using a taller parallels.

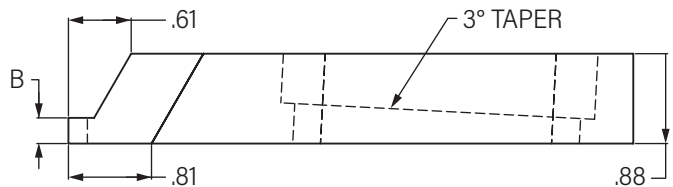
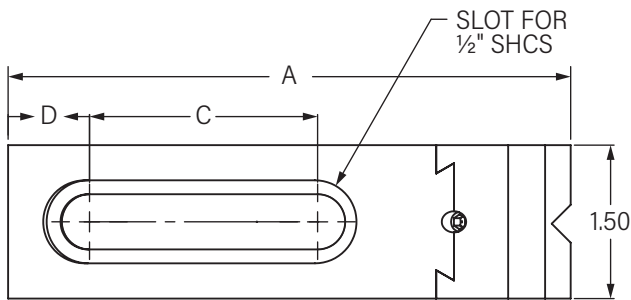
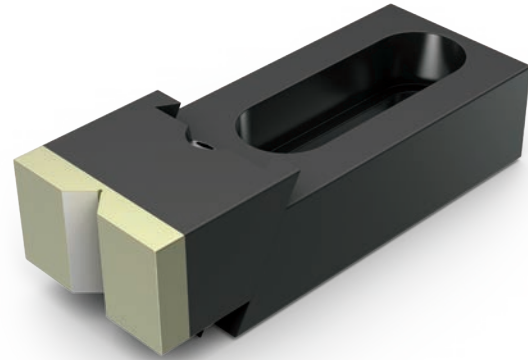


Profile	Jaw Style	System	Part Number
		UNC	
Standard	Serrated	$\frac{1}{2}$ "-13	AMF-59552-01
Standard	Smooth	$\frac{1}{2}$ "-13	AMF-59552-02

# TOE CLAMP

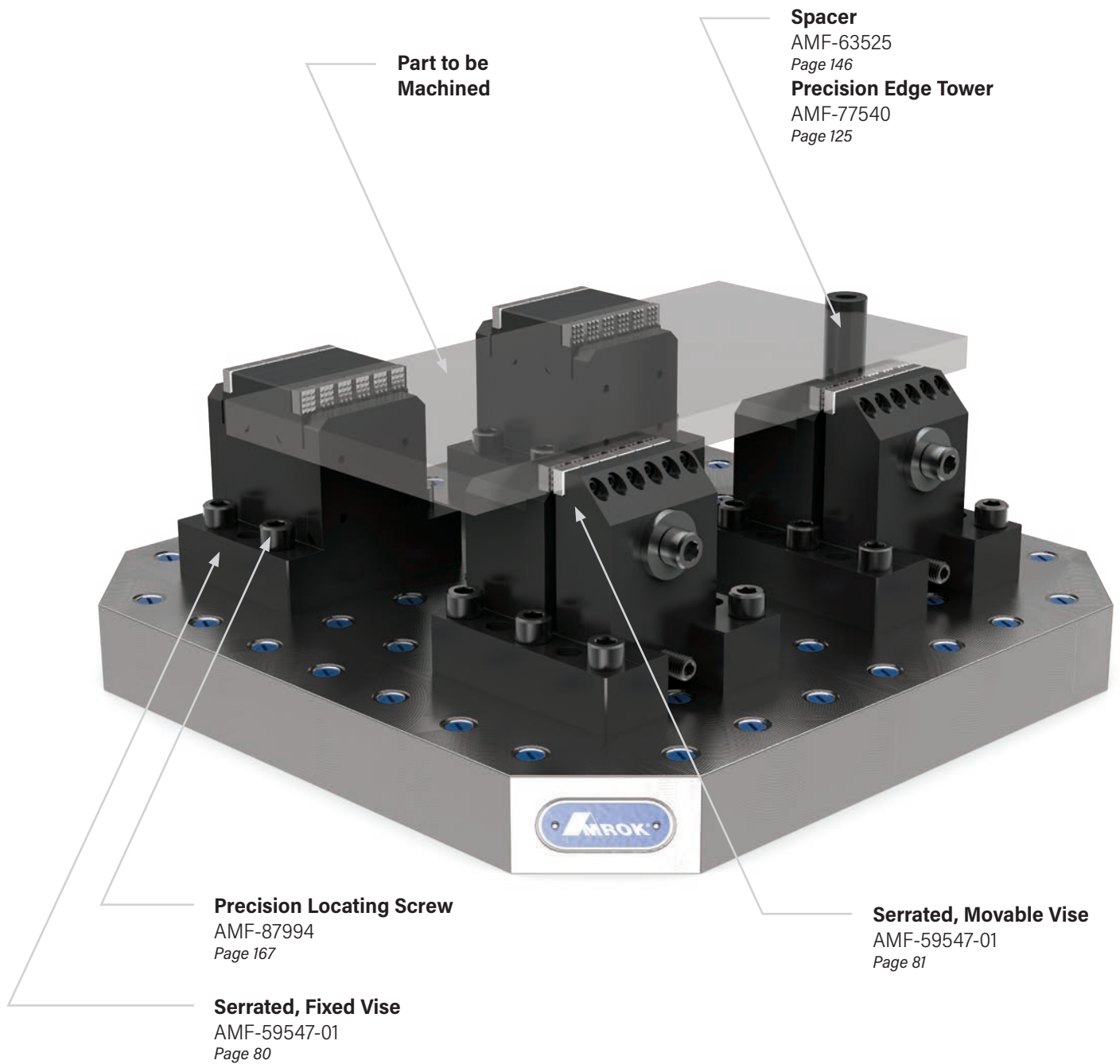
- Exposes more of the workpiece for open and efficient machining
- Addresses spindle clearance problems with low-profile design
- Black oxide finish on body of clamp provides corrosion resistance and extended life
- Gripper available in smooth brass or serrated steel on the front face of the jaws
- 1000 pounds of downward clamping force
- Adjustable clamp head with 3° taper prevents back-off

Note: Minimum part thickness of ¼" is required.



Dimensions				Gripper Type	Clamp Material	Part Number
A	B	C	D			
in	in	in	in			
4.06	0.25	1.500	0.380	Serrated	Steel	AMF-42540S
4.06	0.25	1.500	0.380	Smooth	Brass	AMF-42540B
5.50	0.25	2.250	0.750	Serrated	Steel	AMF-42541S
5.50	0.25	2.250	0.750	Smooth	Brass	AMF-42541B
7.44	0.25	3.250	1.250	Serrated	Steel	AMF-42542S
7.44	0.25	3.250	1.250	Smooth	Brass	AMF-42542B
4.06	0.88	1.500	0.380	Serrated	Steel	AMF-42543S
4.06	0.88	1.500	0.380	Smooth	Brass	AMF-42543B
5.50	0.88	2.250	0.750	Serrated	Steel	AMF-42544S
5.50	0.88	2.250	0.750	Smooth	Brass	AMF-42544B
7.44	0.88	3.250	1.250	Serrated	Steel	AMF-42545S
7.44	0.88	3.250	1.250	Smooth	Brass	AMF-42545B

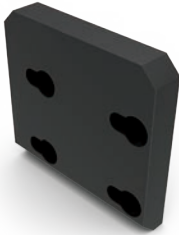
# APPLICATION EXAMPLE



# WISE ACCESSORIES

All components for our vises are available to be purchased individually as spare or replacement parts. Please contact us directly for prices, quantities, and delivery options.

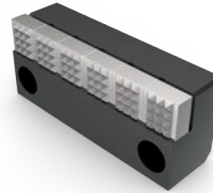
**+1.815.962.6076**



AMF-59547-01-D4



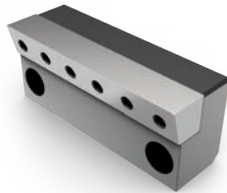
AMF-59546-01-D4



AMF-59547-01-D2



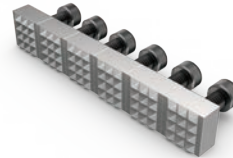
AMF-59547-02-D2



AMF-59547-03-D2



AMF-59547-04-D2



AMF-59546-01-D9



AMF-59546-02-D9



AMF-59546-03-D9



AMF-87994



AMF-87883

Description	Details	Vise Type	Part Number
Parallel	4.350" Vise Height	Fixed	AMF-59547-01-D4
Parallel	4.350" Vise Height	Movable	AMF-59546-01-D4
Vise Jaw	Serrated, Hard	Fixed	AMF-59547-01-D2
Vise Jaw	Smooth, Hard	Fixed	AMF-59547-02-D2
Vise Jaw	15° Angle, Smooth, Hard	Fixed	AMF-59547-03-D2
Vise Jaw	Smooth, Soft	Fixed	AMF-59547-04-D2
Vise Jaw Face	Serrated, Hard	Movable	AMF-59546-01-D9
Vise Jaw Face	Smooth, Hard	Movable	AMF-59546-02-D9
Vise Jaw Face	15° Angle, Smooth, Hard	Movable	AMF-59546-03-D9
Precision Locating Screw	½"-13 Grid System	Fixed/Movable	AMF-87994
Precision Locating Screw	⅝"-11 Grid System	Fixed/Movable	AMF-87883





**SINGLE-  
SOURCE  
TURNKEY  
SOLUTIONS**

# TRIAG INTERNATIONAL



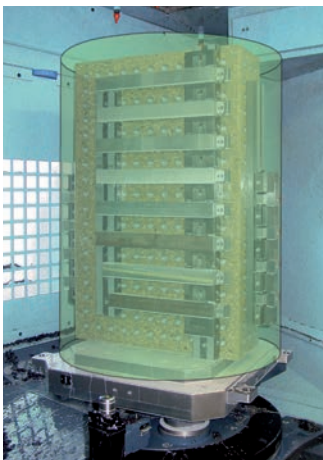
80% of all machines are not used to their full potential—the solution: Triag modular clamping systems

- Flexibility of modular workholding becomes more efficient by adapting to the workholding system to each situation
- High density workholding improves production capabilities

## Advantages of using a modular workholding system:

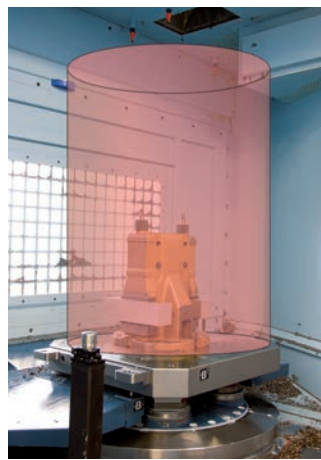
- Utilizes full workspace of the machine with capabilities supporting high-density as well as small and large parts
- Compatible with different machines including vertical, horizontal, and 5-axis
- Fast and easy changeover between jobs
- Flexibility in the form of a variety of compatible components, improving equipment costs
- Enables lights-out production cycles
- Competitive prices as compared to standard vises
- Off-the-shelf replacement parts are readily available

## FULL POTENTIAL WORKHOLDING



- Efficient changeover between jobs
- Adaptable, modular workholding for abnormally shaped workpieces
- Lights-out manufacturing
- Maximized machining space for improved production capabilities

## TRADITIONAL WORKHOLDING



- Expensive, custom fixturing that only clamps a single, specific workpiece
- Low production capabilities; no possibility for lights-out manufacturing
- Machinist has significant hands-on operating time for changeovers

# TRIAG INTERNATIONAL

## ONE SYSTEM FOR ALL APPLICATIONS

Consistent foundations allow for various types of setups to be less costly, easier to use, and more efficient to change over between machining cycles.



*Collet chuck ER32 in operation.*



*A mixed setup to maximize work area.*



*Large part clamping.*

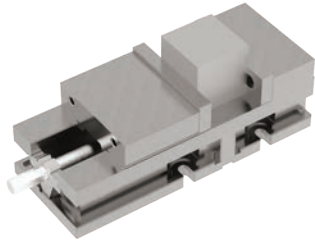


*Eight parts being machined on three faces in one operation.*

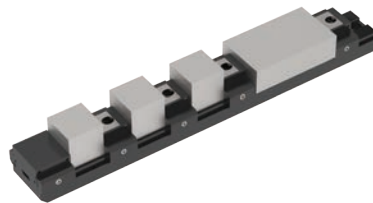
# TRIAG INTERNATIONAL

A traditional vise or dedicated fixture may serve the purpose of machining a specific workpiece, however the modular vise provides a combination of high flexibility and high density workholding for the same result.

**Traditional Vise**



**Modular Vise**

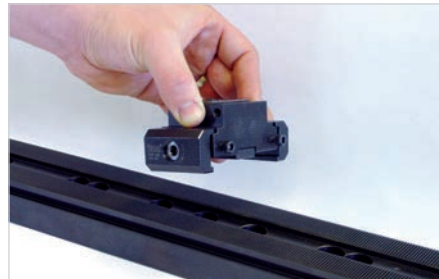


## POWERCLAMP MODULAR WORKHOLDING SYSTEM

- Patented clamping system provides a 3-step, simplified process, improving efficiency over the competition
- Clamp single or multiple workpieces
- Combines the advantages of traditional vises with the features of an advanced modular system
- Adapts to difficult-to-clamp parts



**Loosen Bolt**



**Lift and Change Position**



**Fasten Bolt**

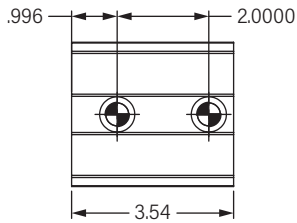
# TRIAG INTERNATIONAL

## POWERCLAMP BASE RAILS *on 2" spacing with 1/2" precision bores*

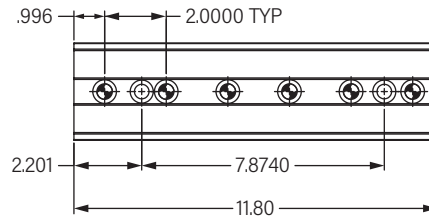
The core of the patented Triag modular clamping system is the base rail:

- Wide range of lengths and widths to fit any application
- More than 100 standard clamping modules are compatible
- Clamping forces up to 15daN (15t)
- Precision serration with 2mm pitch allows fast and accurate clamping

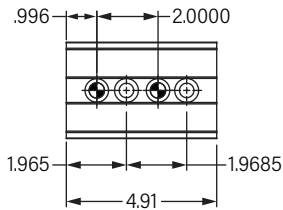
PCB2-90



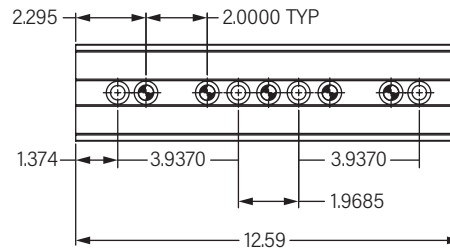
PCB2-300



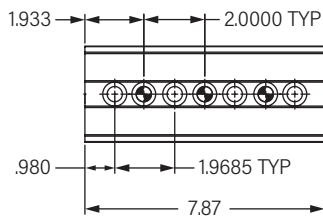
PCB2-125



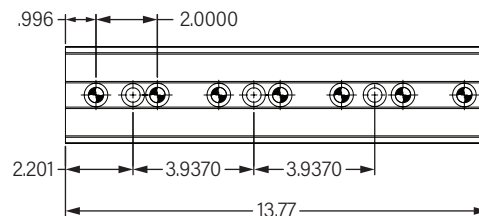
PCB2-320



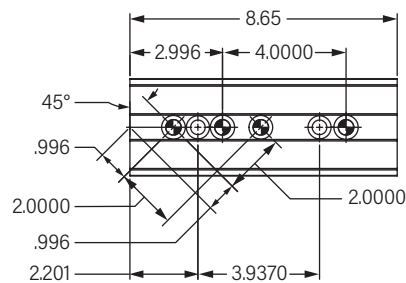
PCB2-200



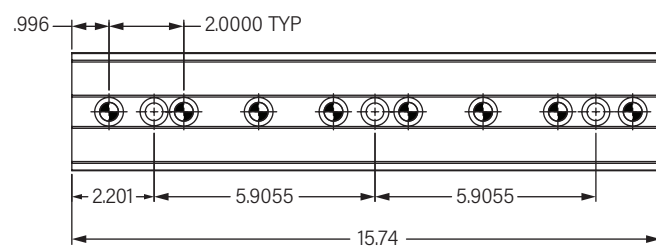
PCB2-350



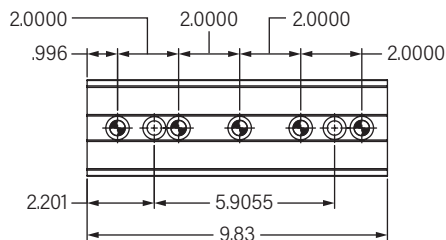
PCB2-220-W2



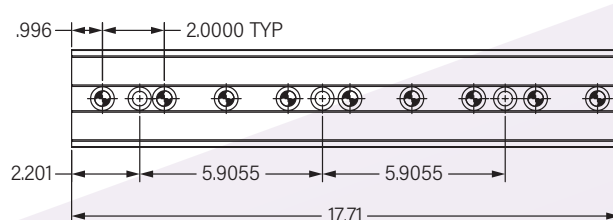
PCB2-400



PCB2-250

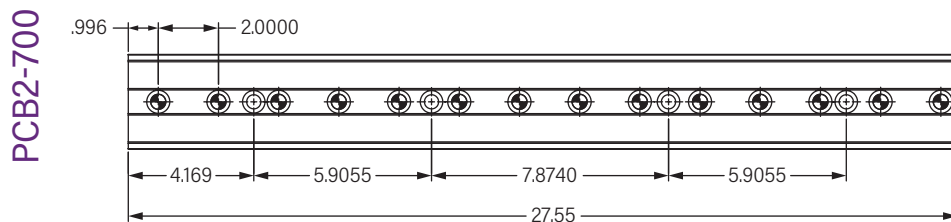
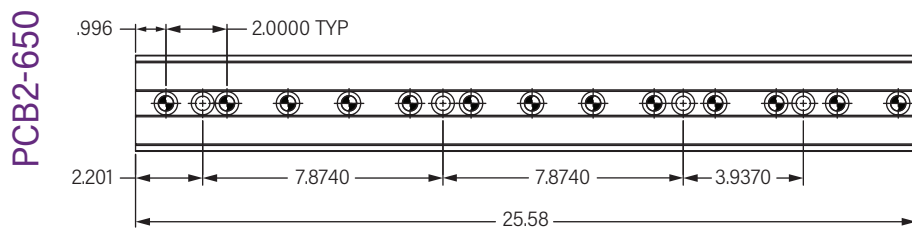
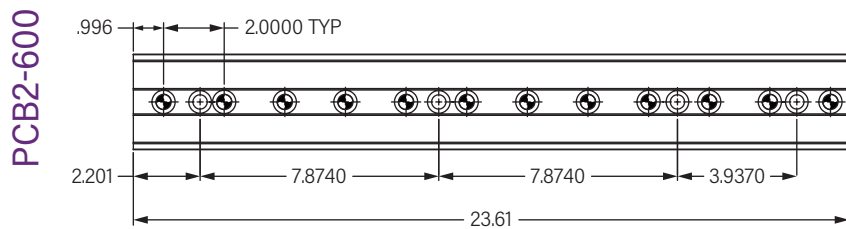
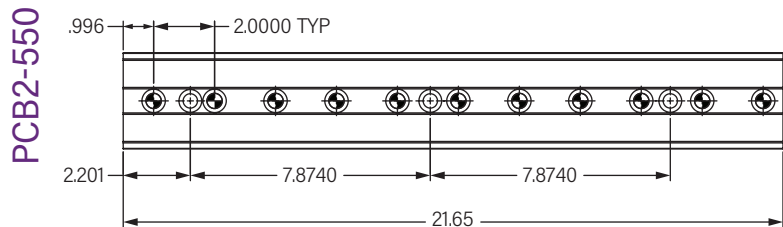
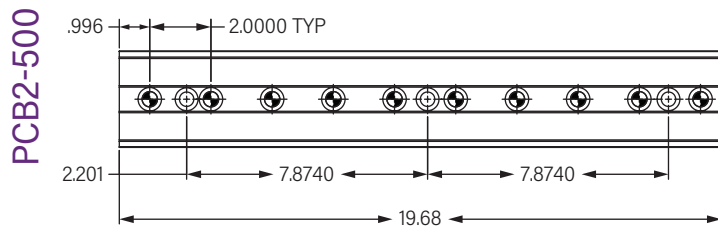


PCB2-450



# TRIAG INTERNATIONAL

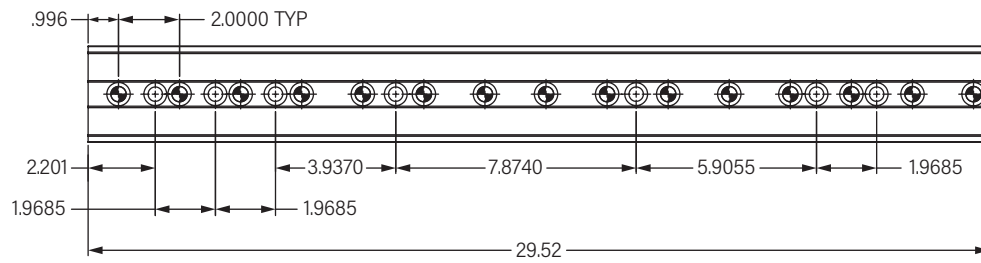
POWERCLAMP BASE RAILS on 2" spacing with 1/2" precision bores



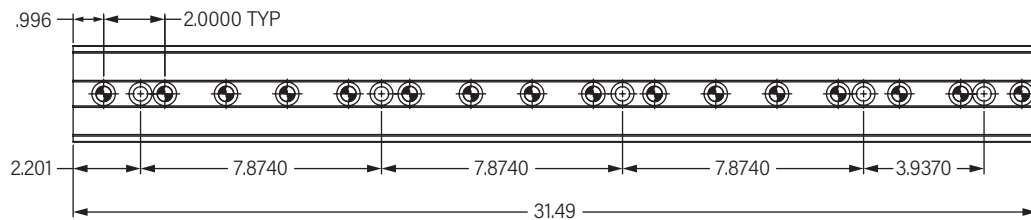
# TRIAG INTERNATIONAL

POWERCLAMP BASE RAILS on 2" spacing with 1/2" precision bores

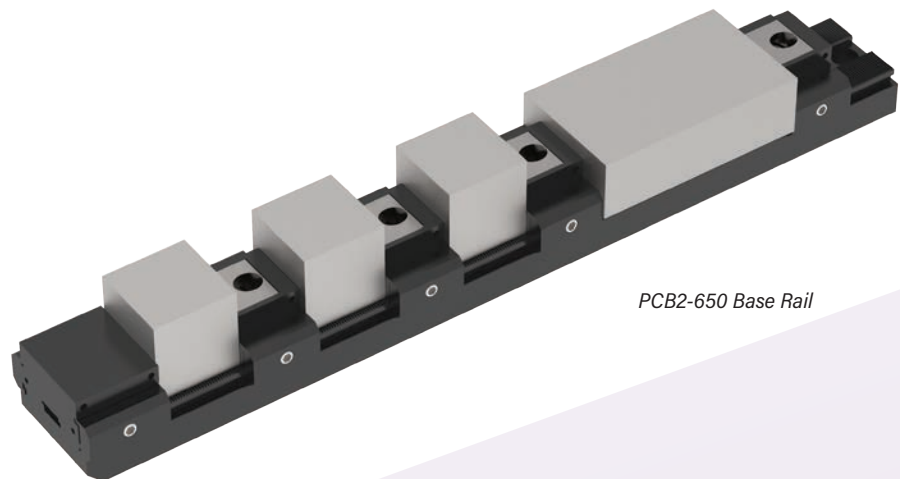
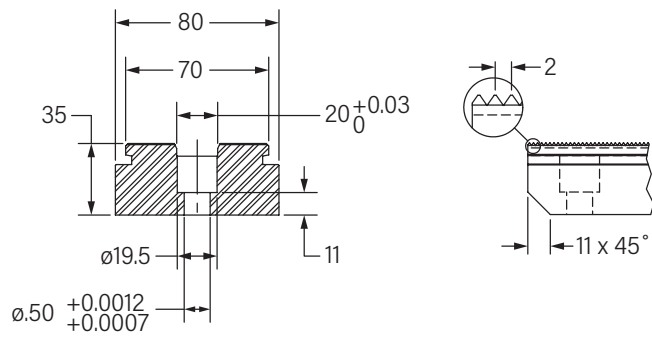
PCB2-750



PCB2-800



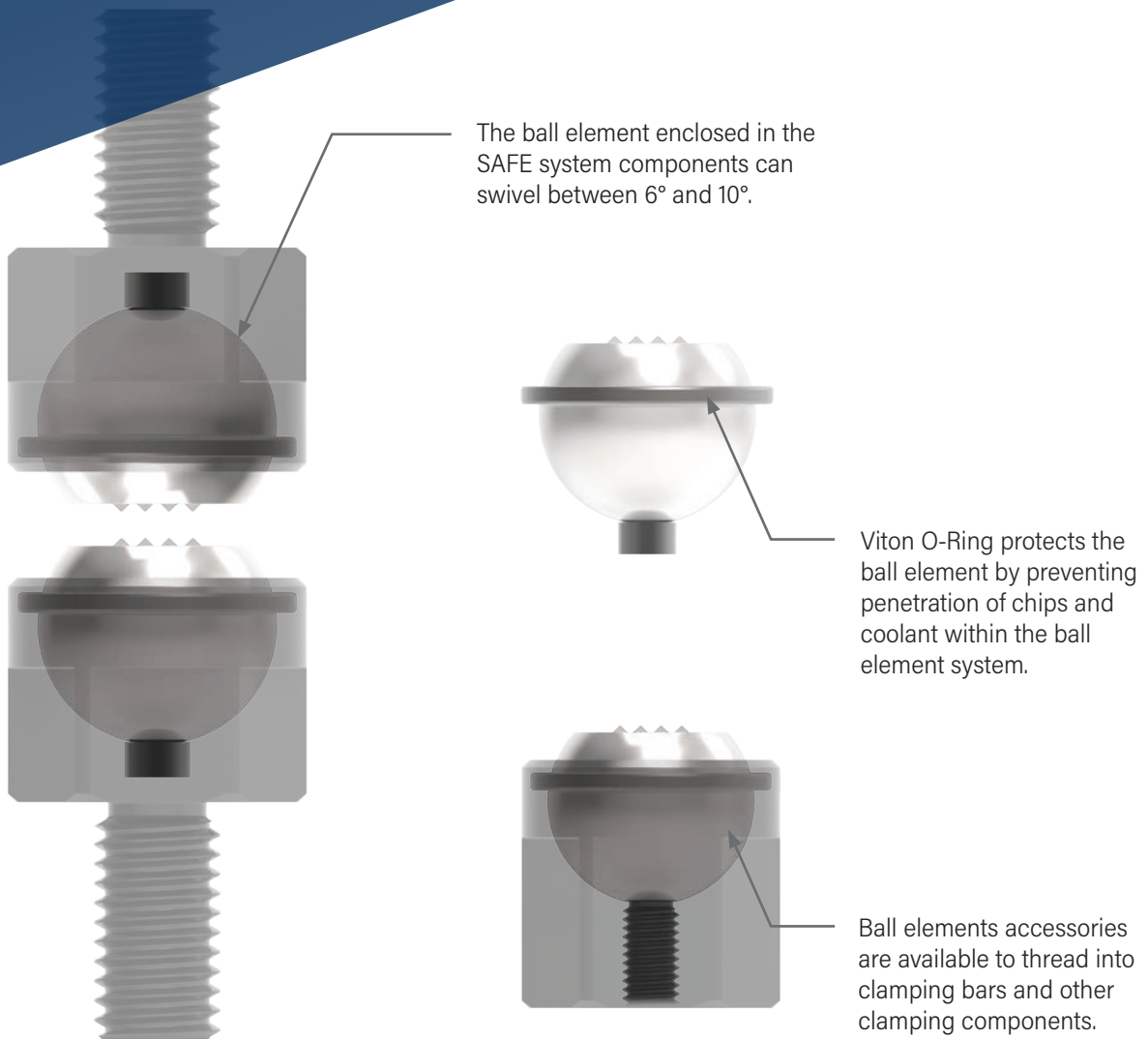
SECTION VIEW



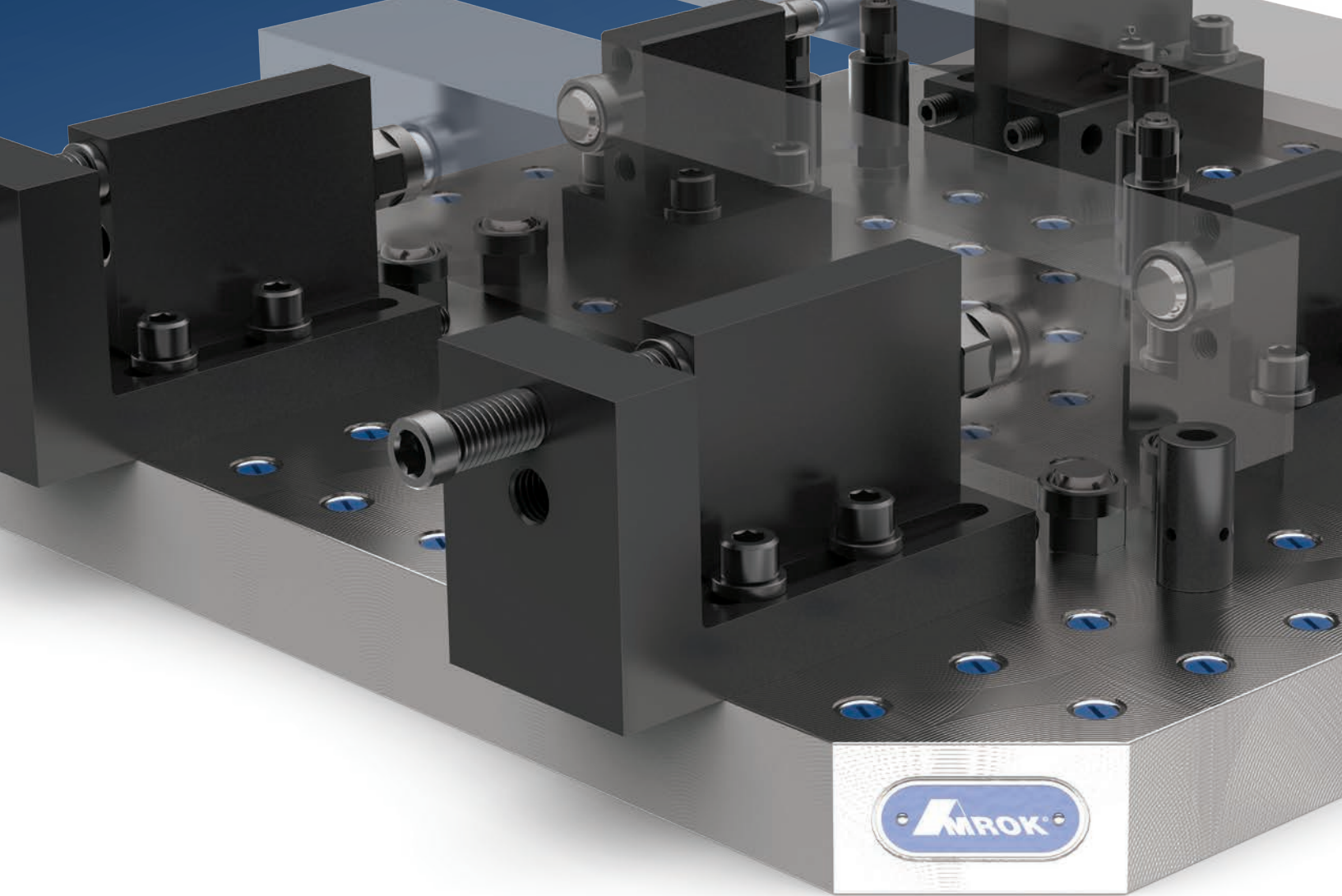
PCB2-650 Base Rail

# STRESS-FREE CLAMPING

- Simplified for optimal setup time with high-precision, stress-free clamping and locating
- Minimized real estate of clamping assembly systems
- Ideal for smaller spaces due to compact height; also available as a threaded option to integrate into standard clamping components
- Swiveling ball element contact pads allow for less internal stresses for bent or unconventionally angled workpieces; ball elements swivel up to 10°
- Viton O-Rings protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates ½"-13 or ⅝"-11 grid systems

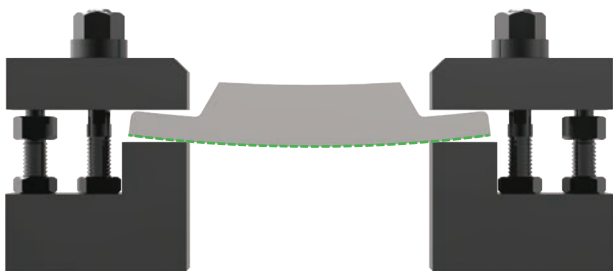




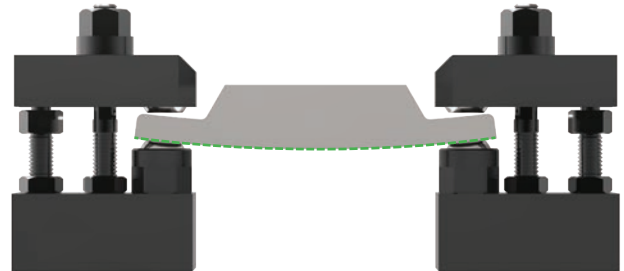


## CONVENTIONAL METHOD

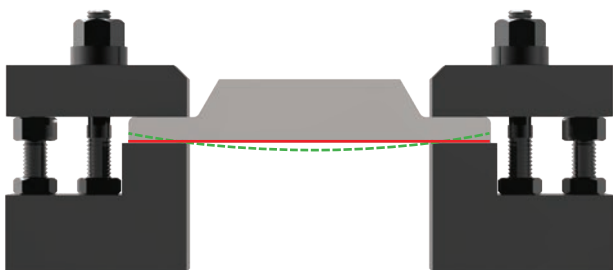
## NEW METHOD



Unclamped

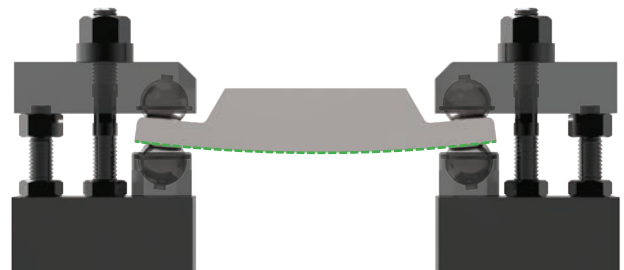


Unclamped



Clamped

*The workpiece being clamped is distorted by the clamping system, putting tension on the workpiece while creating inaccuracies in the machining process.*



Clamped

*The clamping system being used to clamp the workpiece is equipped with SAFE ball elements, allowing the contact points to align themselves to the contour of the workpiece for stress-free clamping and a more accurate, finished part.*

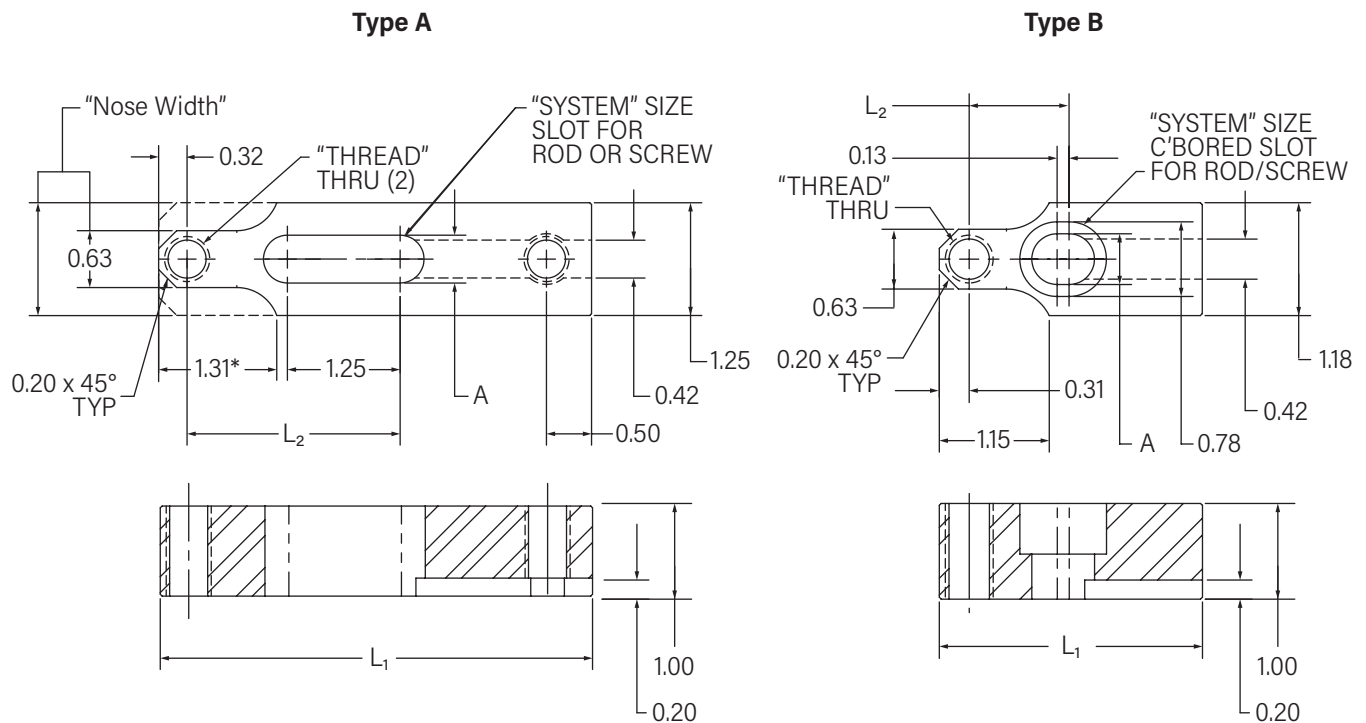
# SINGLE CLAMPING BAR THREADED

- Black oxide finish provides corrosion resistance and extended life
- Threaded holes accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Long slot for improved clamping range with less weight
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.



\*There are two different styles of clamping bar—standard wide nose, and narrow nose. For more information, please call +1.815.962.6076.

Type	Nose Width	Dimensions			Thread	System	Part Number
		A	L <sub>1</sub>	L <sub>2</sub>			
		in	in	in	UNC	UNC	
A	Narrow	0.53	4.80	2.36	1/2"-13	1/2"-13	AMF-87542
A	Narrow	0.53	6.25	3.06	1/2"-13	1/2"-13	AMF-87542-02
B	Narrow	0.53	2.75	1.05	1/2"-13	1/2"-13	AMF-87542-03
A	Standard	0.66	5.13	2.36	1/2"-13	5/8"-11	AMF-87699
A	Standard	0.66	6.56	3.06	1/2"-13	5/8"-11	AMF-87699-02

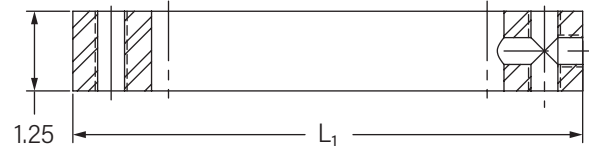
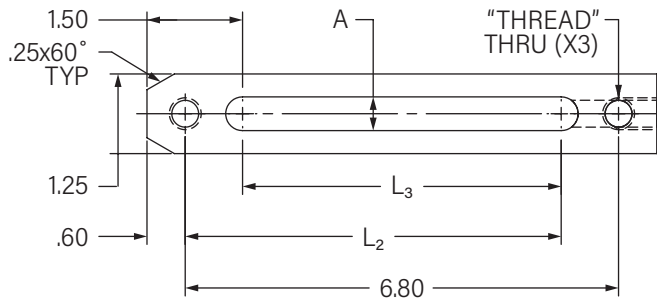
# SINGLE CLAMPING BAR STRAP CLAMP

- Ideal for applications requiring additional support height
- Black oxide finish provides corrosion resistance and extended life
- Accommodate clamping requiring straps
- Long slot for improved clamping range with less weight
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Dimensions				Thread	System	Part Number
A	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>			
in	in	in	in	UNC	UNC	AMF-59623-01
0.53	8.00	5.90	5.00	1/2"-13	1/2"-13	

# SINGLE CLAMPING BAR BALL ELEMENT

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

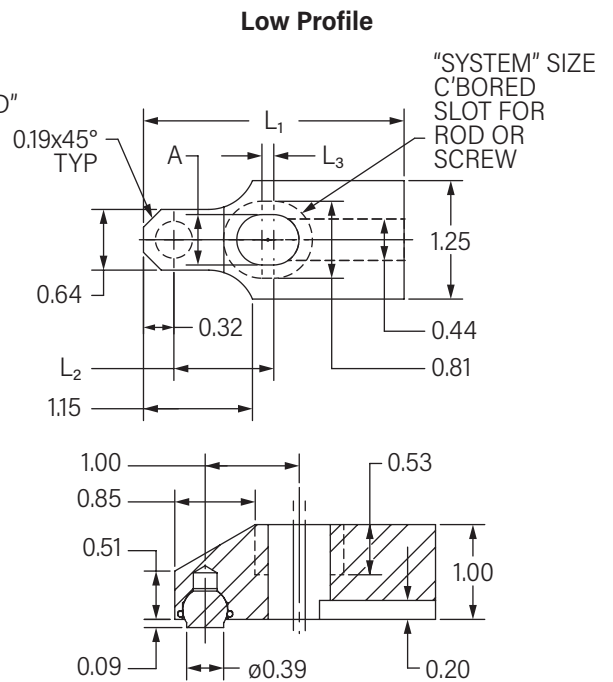
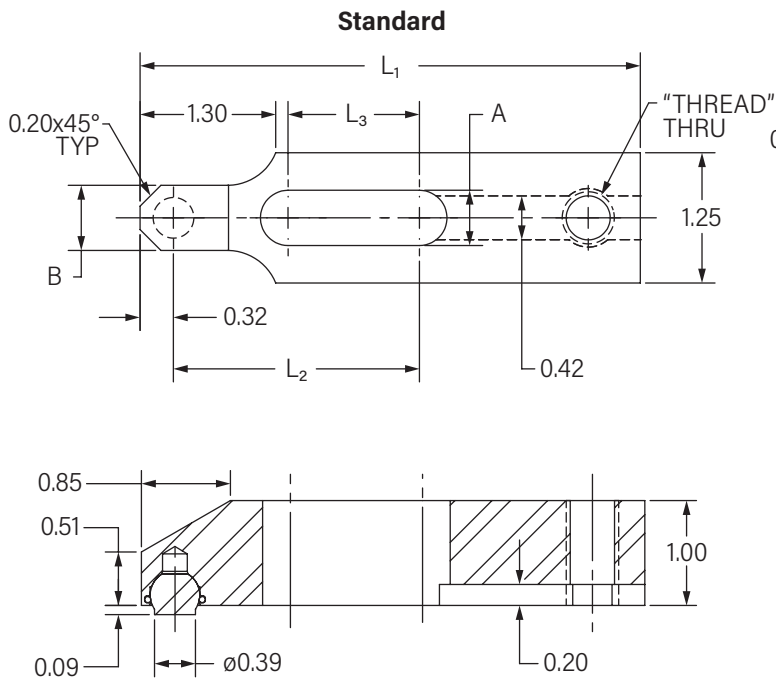
Note: CAD models available for download online.

Type	Profile	Ball Element						Dimensions				Thread	System	Part Number
		Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	A	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>			
			in	in	in	degree	lbs	in	in	in	in			
A	Standard	Smooth	0.472	0.39	-	6°	4496	0.53	4.80	2.36	1.26	1/2"-13	1/2"-13	AMF-87581
A	Standard	Smooth	0.472	0.39	-	6°	4496	0.66	4.80	2.36	1.26	1/2"-13	5/8"-11	AMF-87581-02
A	Standard	Serrated	0.472	0.43	0.03	6°	4496	0.53	4.80	2.36	1.26	1/2"-13	1/2"-13	AMF-87599
A	Standard	Serrated	0.472	0.43	0.03	6°	4496	0.66	4.80	2.36	1.26	1/2"-13	5/8"-11	AMF-87599-01
A	Low Profile	Smooth	0.472	0.39	-	6°	4496	0.53	2.75	1.06	0.12	1/2"-13	1/2"-13	AMF-87581-03
A	Low Profile	Smooth	0.472	0.39	-	6°	4496	0.53	2.75	1.06	0.12	1/2"-13	1/2"-13	AMF-87581-04
A	Low Profile	Serrated	0.472	0.43	0.03	6°	4496	0.53	2.75	1.06	0.12	1/2"-13	1/2"-13	AMF-87581-05
A	Low Profile	Serrated	0.472	0.43	0.03	6°	4496	0.53	2.75	1.06	0.12	1/2"-13	1/2"-13	AMF-87599-02
B	Standard	Smooth	0.945	0.71	-	6°	11240	0.53	5.25	2.36	1.25	1/2"-13	1/2"-13	AMF-87623
B	Standard	Serrated	0.945	0.71	0.03	6°	11240	0.53	5.25	2.36	1.25	1/2"-13	1/2"-13	AMF-87628
B	Standard	Smooth	0.945	0.71	-	6°	11240	0.66	5.25	2.36	1.25	1/2"-13	5/8"-11	AMF-87695
B	Standard	Serrated	0.945	0.71	0.03	6°	11240	0.66	5.25	2.36	1.25	1/2"-13	5/8"-11	AMF-87696
B	Low Profile	Smooth	0.945	0.71	-	6°	11240	0.53	3.25	1.16	-	1/2"-13	1/2"-13	AMF-87623-01
B	Low Profile	Serrated	0.945	0.71	0.03	6°	11240	0.53	3.25	1.16	-	1/2"-13	1/2"-13	AMF-87628-01
B	Low Profile	Smooth	0.945	0.71	-	6°	11240	0.66	3.25	1.16	-	1/2"-13	5/8"-11	AMF-87695-01
B	Low Profile	Serrated	0.945	0.71	0.03	6°	11240	0.66	3.25	1.16	-	1/2"-13	5/8"-11	AMF-87696-01
C*	Standard	Smooth	1.575	1.22	-	6°	22480	0.66	8.86	3.74	1.77	5/8"-11	5/8"-11	AMF-87723
C*	Standard	Serrated	1.575	1.36	0.03	6°	22480	0.66	8.86	3.74	1.77	5/8"-11	5/8"-11	AMF-87728

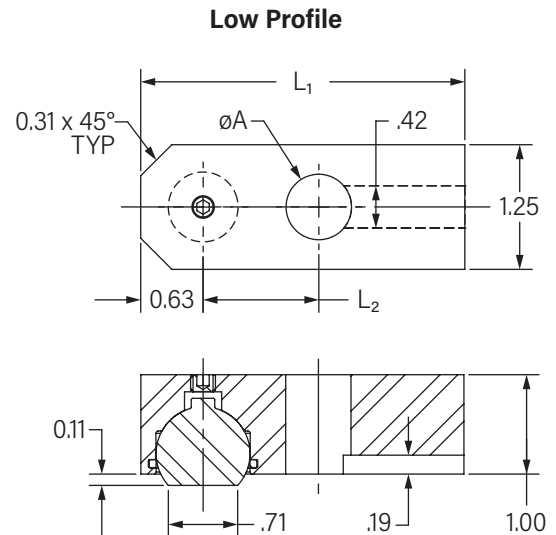
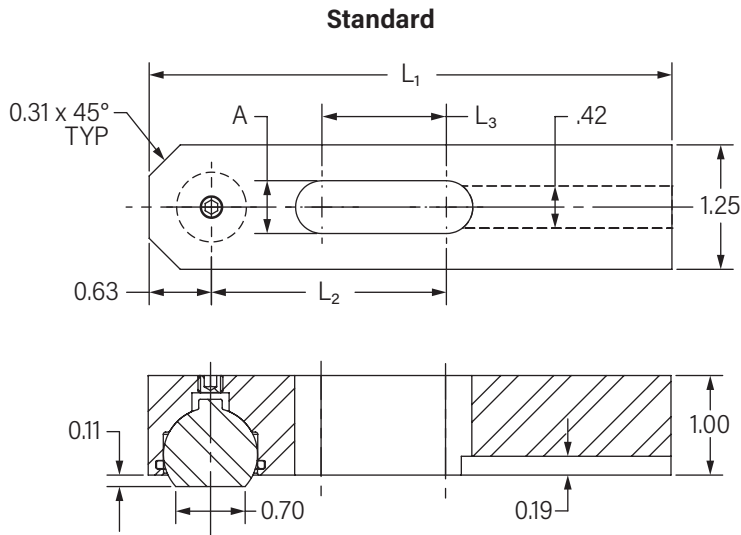
\*Type C single clamping bars are designed with a slot to slide clamp on a jack screw to its required position.

# SINGLE CLAMPING BAR BALL ELEMENT

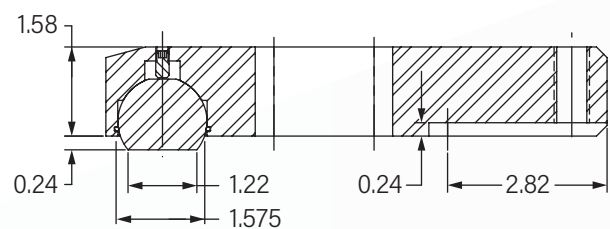
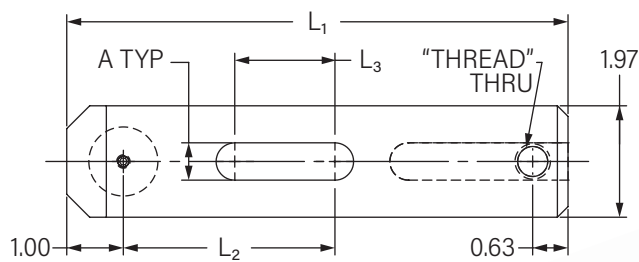
## TYPE A



## TYPE B



## TYPE C



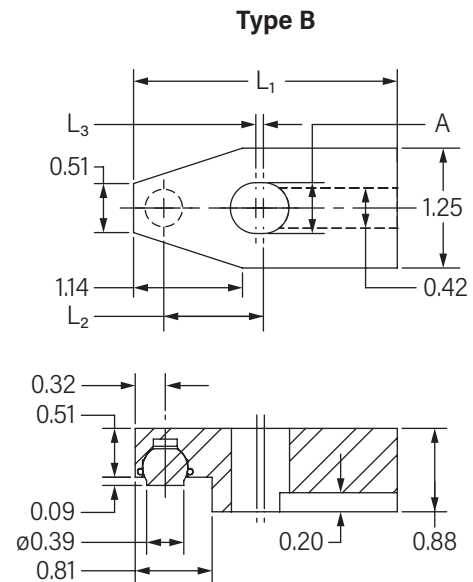
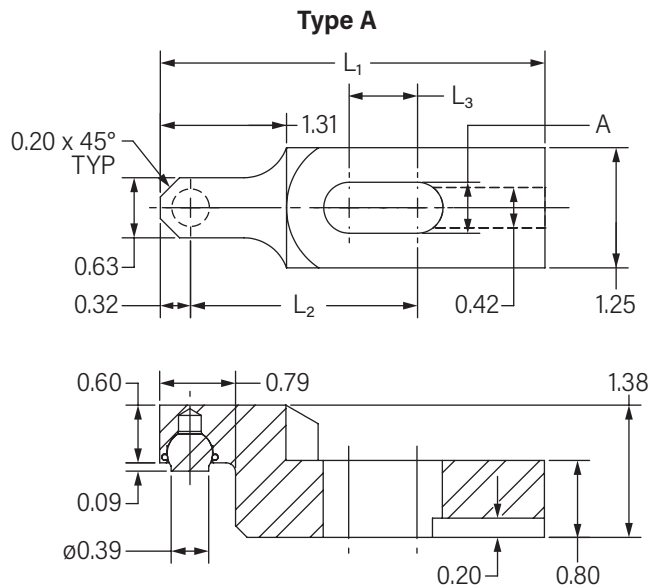
# SINGLE CLAMPING BAR OFFSET BALL ELEMENT

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available for different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.

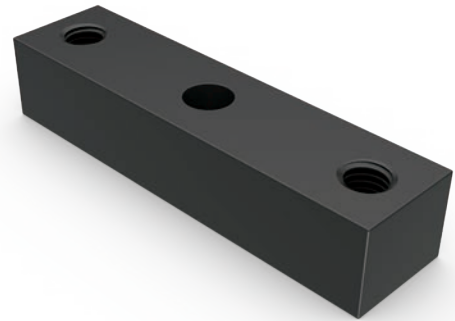


Type	Ball Element					Dimensions					System	Part Number
	Style	øBall in	øBall Face in	Serration Height (SH) in	Swivel degree	Load Capacity lbs	A in	L <sub>1</sub> in	L <sub>2</sub> in	L <sub>3</sub> in		
B	Smooth	0.472	0.39	-	6°	1798	0.53	2.75	1.04	0.08	1/2"-13	AMF-51444-03
B	Serrated	0.472	0.43	0.03	6°	1798	0.53	2.75	1.04	0.08	1/2"-13	AMF-51444-04
A	Smooth	0.472	0.39	-	6°	1798	0.53	5.00	2.36	0.71	1/2"-13	AMF-87571
A	Smooth	0.472	0.39	-	6°	1798	0.53	4.00	2.36	0.71	1/2"-13	AMF-87571-01
A	Serrated	0.472	0.43	0.03	6°	1798	0.53	5.00	2.36	0.71	1/2"-13	AMF-87572
A	Serrated	0.472	0.43	0.03	6°	1798	0.53	4.00	2.36	0.71	1/2"-13	AMF-87572-01

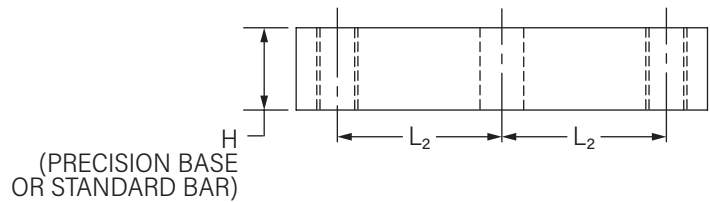
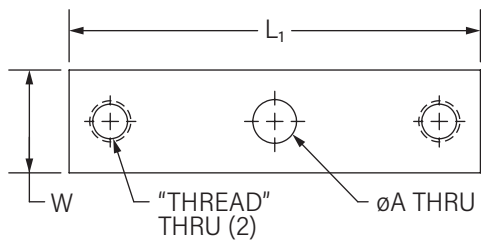
# DUAL CLAMPING BAR THREADED HOLE

- Black oxide finish provides corrosion resistance and extended life
- Threaded holes accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Capable of use as a non-precision single- or dual-clamping base
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Dimensions					Thread	System	Part Number
øA	H	L <sub>1</sub>	L <sub>2</sub>	W			
in	in	in	in	in	UNC	UNC	
0.53	1.000±.0005	5.00	2.00	1.00	1/2"-13	1/2"-13	AMF-25510
0.53	2.000±.0005	5.00	2.00	1.00	1/2"-13	1/2"-13	AMF-25520
0.53	1.00±.015	3.00	1.00	1.25	1/2"-13	1/2"-13	AMF-32510
0.66	1.00±.015	3.00	1.00	1.25	5/8"-11	5/8"-11	AMF-32510-01
0.53	1.00±.015	5.00	2.00	1.25	1/2"-13	1/2"-13	AMF-34510
0.66	1.00±.015	5.00	2.00	1.25	5/8"-11	5/8"-11	AMF-34510-01
0.53	1.00±.015	7.00	3.00	1.25	1/2"-13	1/2"-13	AMF-36510
0.66	1.00±.015	7.00	3.00	1.25	5/8"-11	5/8"-11	AMF-34510-01

# DUAL CLAMPING BAR BALL ELEMENT

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Capable of use as a non-precision single- or dual-clamping base
- Accommodates ½"-13 or ⅝"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.

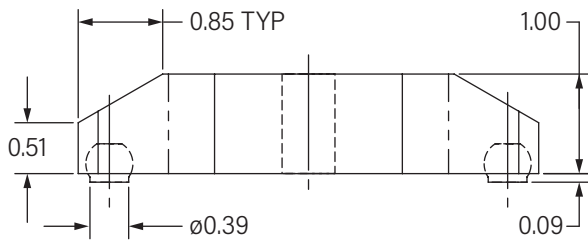
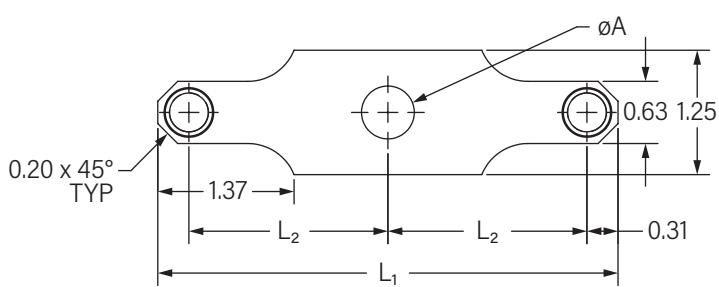
Type	Ball Element						Dimensions			System	Part Number
	Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	øA	L <sub>1</sub>	L <sub>2</sub>		
		in	in	in	degree	lbs	in	in	in		
A	Smooth	0.472	0.39	-	6°	4496	0.53	2.63	1.00	½"-13	AMF-54430-01
A	Serrated	0.472	0.43	0.03	6°	4496	0.53	2.63	1.00	½"-13	AMF-54431-01
A	Smooth	0.472	0.39	-	6°	4496	0.53	4.63	2.00	½"-13	AMF-87575
A	Smooth	0.472	0.39	-	6°	4496	0.66	4.63	2.00	⅝"-11	AMF-87575-01
A	Serrated	0.472	0.43	0.03	6°	4496	0.53	4.63	2.00	½"-13	AMF-87576
A	Serrated	0.472	0.43	0.03	6°	4496	0.66	4.63	2.00	⅝"-11	AMF-87576-01
B	Smooth	0.945	0.71	-	6°	11240	0.53	5.25	2.00	½"-13	AMF-87638
B	Serrated	0.945	0.71	0.03	6°	11240	0.53	5.25	2.00	½"-13	AMF-87639
B	Smooth	0.945	0.71	-	6°	11240	0.66	5.25	2.00	⅝"-11	AMF-87697
B	Serrated	0.945	0.71	0.03	6°	11240	0.66	5.25	2.00	⅝"-11	AMF-87698



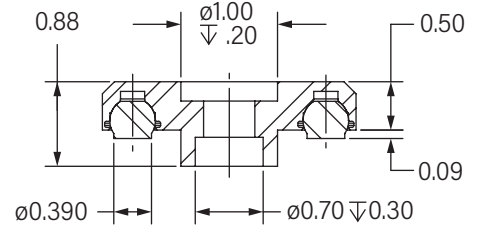
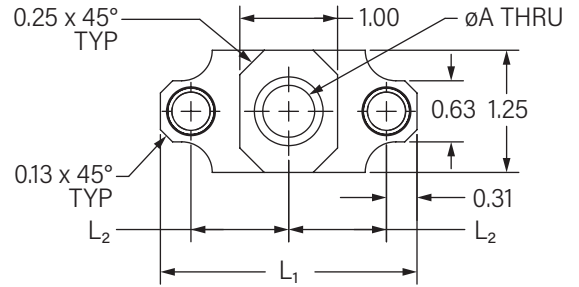
# DUAL CLAMPING BAR BALL ELEMENT

## TYPE A

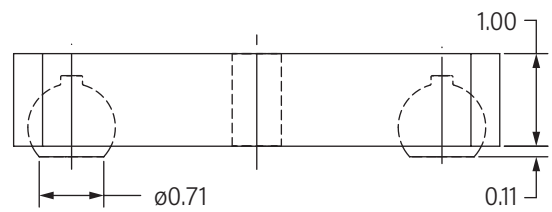
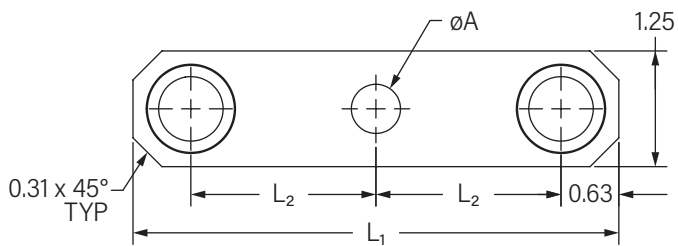
### Standard



### Low Profile



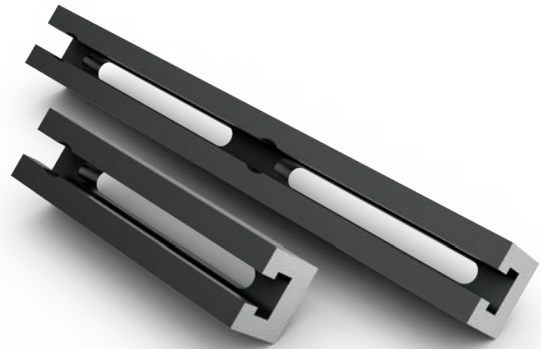
## TYPE B



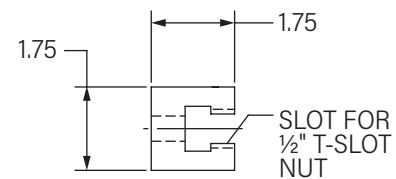
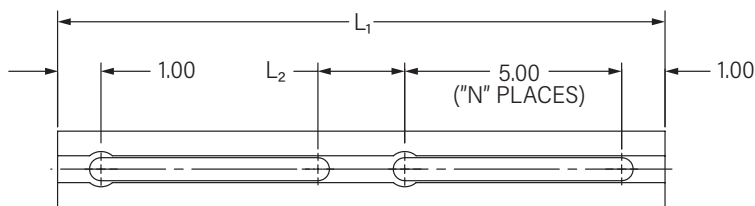
# T-SLOT CLAMPING BAR

- Black oxide finish provides corrosion resistance and extended life
- Heavy-duty design is suited for accommodating clamping applications for large workpieces
- T-slot is designed for adjustable positioning, direct mountability, and can accommodate 1/2"-13 ball elements
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Dimensions			Part Number
L <sub>1</sub>	L <sub>2</sub>	N	
in	in	Places	
7.00	-	1	AMF-31570
14.00	2.00	2	AMF-31571
21.00	2.00	3	AMF-31572
28.00	2.00	4	AMF-31573

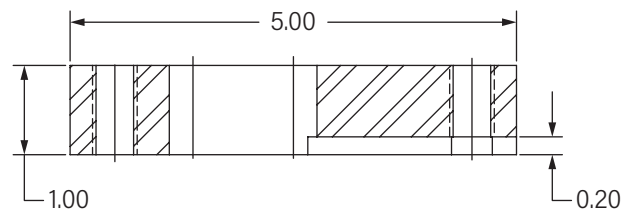
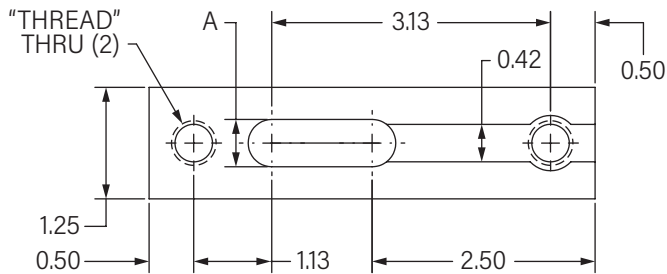
# UNIVERSAL CLAMPING BAR

- Black oxide finish provides corrosion resistance and extended life
- Heavy-duty design is suited for accommodating clamping applications for large workpieces
- Threaded holes to accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Capable of use as a non-precision single- or dual-clamping base
- Accommodates ½"-13 or ⅝"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.



Dimensions	Thread	System	Part Number
A	UNC	UNC	
in	UNC	UNC	
0.53	½"-13	½"-13	AMF-31510
0.66	½"-13	⅝"-11	AMF-31510-04

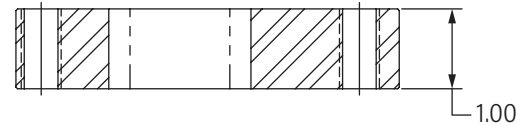
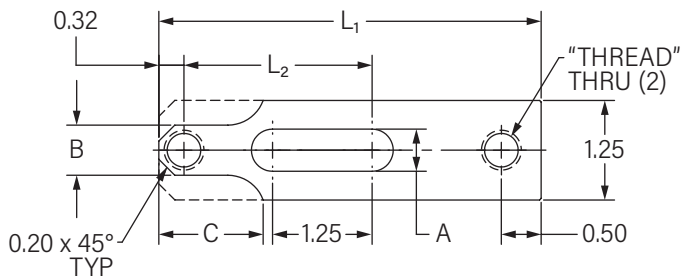
# SINGLE CLAMPING BAR HEEL REST THREADED HOLE

- Heavy-duty design is suited for accommodating clamping applications for large workpieces
- Black oxide finish provides corrosion resistance and extended life
- Threaded holes to accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Capable of use as a non-precision single- or dual-clamping base
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.



Dimensions					Thread	System	Part Number
A	B	C	L <sub>1</sub>	L <sub>2</sub>			
in	in	in	in	in	UNC	UNC	
0.53	0.63	1.31	6.25	3.06	1/2"-13	1/2"-13	AMF-87542-04
0.53	0.63	1.31	4.80	2.36	1/2"-13	1/2"-13	AMF-87542-01
0.66	-	-	5.13	2.36	1/2"-13	5/8"-11	AMF-87699-01
0.66	-	-	6.56	3.06	1/2"-13	5/8"-11	AMF-87699-03

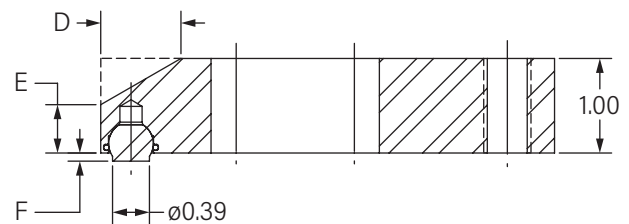
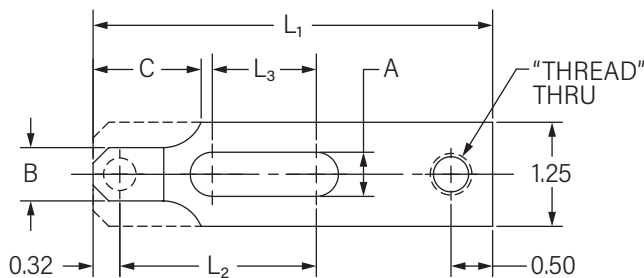
# SINGLE CLAMPING BAR HEEL REST BALL ELEMENT

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.

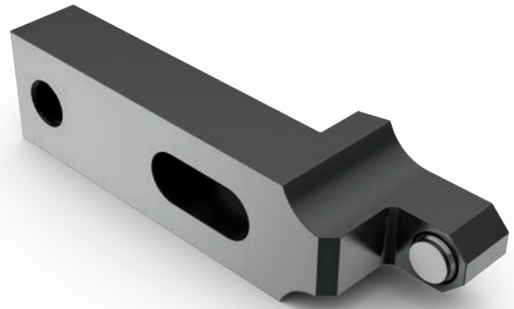


Ball Element						Dimensions									Thread	System	Part Number
Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Cap.	A	B	C*	D	E	F	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>			
	in	in	in	degree	lbs	in	in	in	in	in	in	in	in	in	UNC	UNC	
Smooth	0.472	0.43	-	6°	4496	0.53	0.63	1.31	0.85	0.51	0.09	4.80	2.36	1.25	1/2"-13	1/2"-13	AMF-87581-06
Smooth	0.472	0.43	-	6°	4496	0.66	0.88	1.23	0.85	0.51	0.09	4.80	3.06	1.25	1/2"-13	5/8"-11	AMF-87581-07
Serrated	0.472	0.43	0.03	6°	4496	0.53	0.63	1.31	0.85	0.51	0.09	4.80	2.36	1.25	1/2"-13	1/2"-13	AMF-87599-03
Serrated	0.472	0.43	0.03	6°	4496	0.66	0.88	1.23	0.85	0.51	0.09	4.80	2.36	1.25	1/2"-13	5/8"-11	AMF-87599-04
Smooth	0.945	0.71	-	6°	11240	0.53	-	-	45°	0.25	0.11	5.25	2.36	1.25	1/2"-13	1/2"-13	AMF-87623-02
Serrated	0.945	0.71	0.03	6°	11240	0.53	-	-	45°	0.25	0.11	5.25	3.06	1.25	1/2"-13	1/2"-13	AMF-87628-02
Smooth	0.945	0.71	-	6°	11240	0.66	-	-	45°	0.25	0.11	5.25	2.36	1.25	5/8"-11	5/8"-11	AMF-87695-02
Serrated	0.945	0.71	0.03	6°	11240	0.66	-	-	45°	0.25	0.11	5.25	2.36	1.25	5/8"-11	5/8"-11	AMF-87696-02

\* "C" dimension does not apply to ball elements with face diameter of 0.71 inches

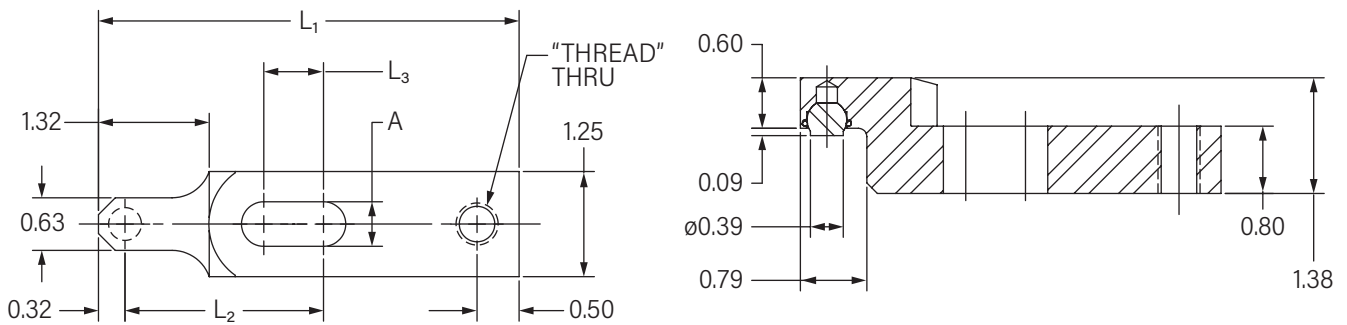
# SINGLE CLAMPING BAR HEEL REST OFFSET BALL ELEMENT

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.



Ball Element						Dimensions				Thread	System	Part Number
Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	A	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>			
Style	in	in	in	degree	lbs	in	in	in	in	UNC	UNC	
Smooth	0.472	0.39	-	6°	4496	0.53	5.00	2.36	0.71	1/2"-13	1/2"-13	AMF-87571-02
Serrated	0.472	0.43	0.03	6°	4496	0.53	5.00	2.36	0.71	1/2"-13	1/2"-13	AMF-87572-02

# CLAMPING BASE BAR SLIDING

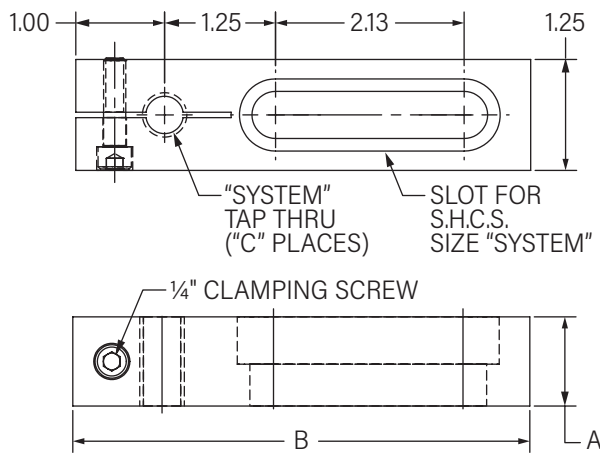
- Hardened and ground for longer life and improved accuracy
- Able to be positioned in multiple configurations when used with compact units
- Black oxide finish provides corrosion resistance and extended life
- Threaded holes accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Accommodates 1/2"-13 or 5/8"-11 grid systems



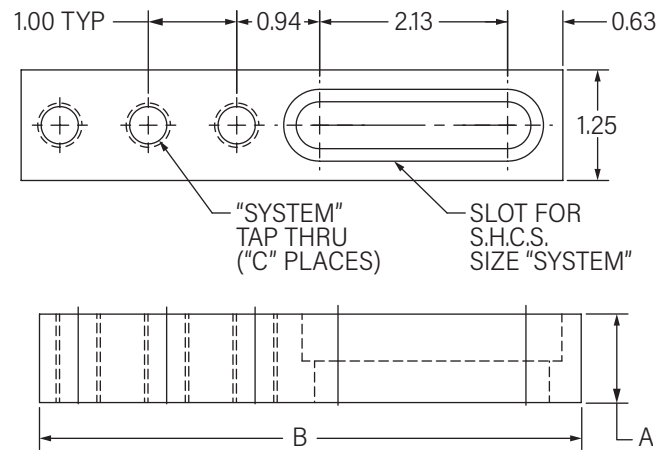
Note: Custom sizes available upon request.

Note: CAD models available for download online.

**One Hole Sliding Bar**



**Two and Three Hole Sliding Bar**



Number of Holes	Dimensions			System	Part Number
	A±.0005	B	C		
	in	in	places	UNC	
1	1.000	5.13	1	1/2"-13	AMF-72510
1	1.000	5.13	1	5/8"-11	AMF-72510-01
1	1.200	5.13	1	1/2"-13	AMF-72510-02
1	1.200	5.13	1	5/8"-11	AMF-72510-03
2	1.200	5.13	2	1/2"-13	AMF-87736
2	1.200	5.13	2	5/8"-11	AMF-87736-01
2	1.000	5.13	2	1/2"-13	AMF-87736-02
2	1.000	5.13	2	5/8"-11	AMF-87736-03
3	1.000	6.13	3	1/2"-13	AMF-72520
3	1.000	6.13	3	5/8"-11	AMF-72520-01
3	1.200	6.13	3	1/2"-13	AMF-72520-02
3	1.200	6.13	3	5/8"-11	AMF-72520-03

# FLOATING CLAMPING ASSEMBLY BALL ELEMENT

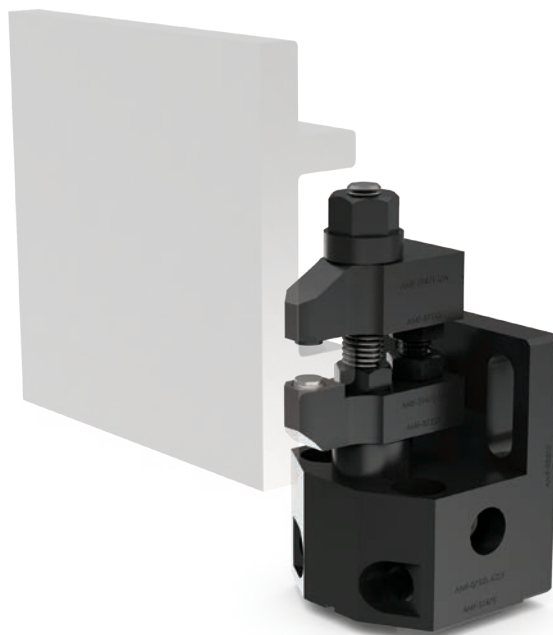
- Different configurations accommodate use for vertical or horizontal clamping
- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 grid systems only



Note: CAD models available for download online.

Note: Custom sizes available upon request.

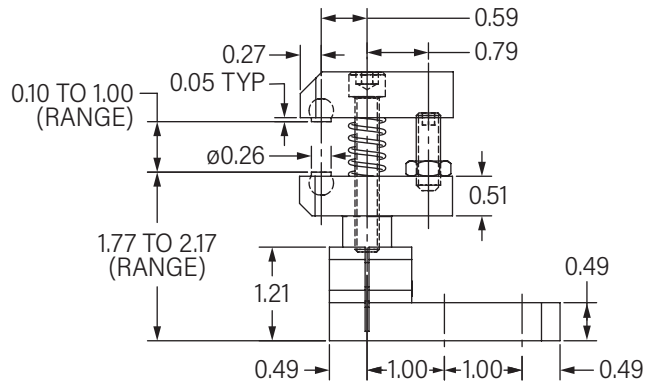
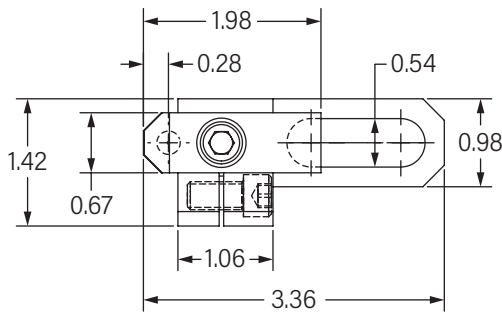
Type	Clamping Orientation		Ball Element							Part Number
	Horizontal	Vertical	Moving Jaw Style	Fixed Jaw Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	
					in	in	in	degree	lbs	
A	✓	✓	Smooth	Smooth	0.315	0.26	-	6°	1798	AMF-87477
A	✓	✓	Serrated	Smooth	0.315	0.26	0.03	6°	1798	AMF-87477-01
B	✓	-	Smooth	Smooth	0.472	0.39	-	6°	4496	AMF-54414
B	✓	-	Serrated	Smooth	0.472	0.39	0.03	6°	4496	AMF-54414-01
C	-	✓	Smooth	Smooth	0.472	0.39	-	6°	4496	AMF-87505
C	-	✓	Serrated	Smooth	0.472	0.39	0.03	6°	4496	AMF-87505-01



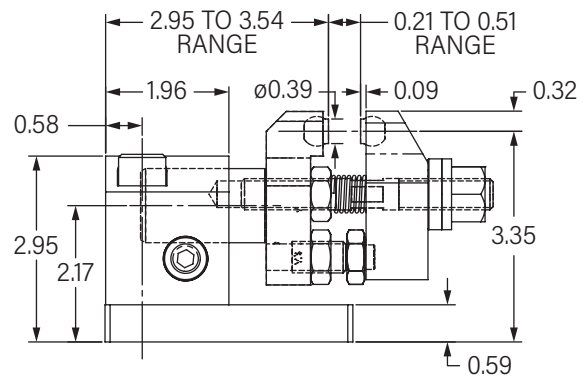
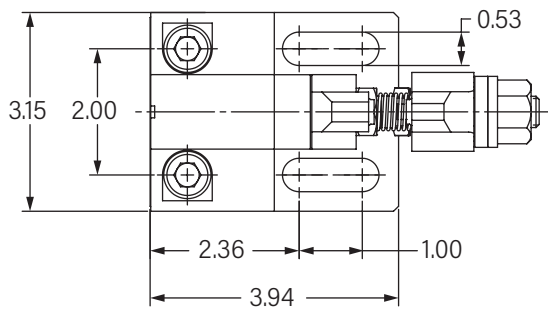


# FLOATING CLAMPING ASSEMBLY BALL ELEMENT

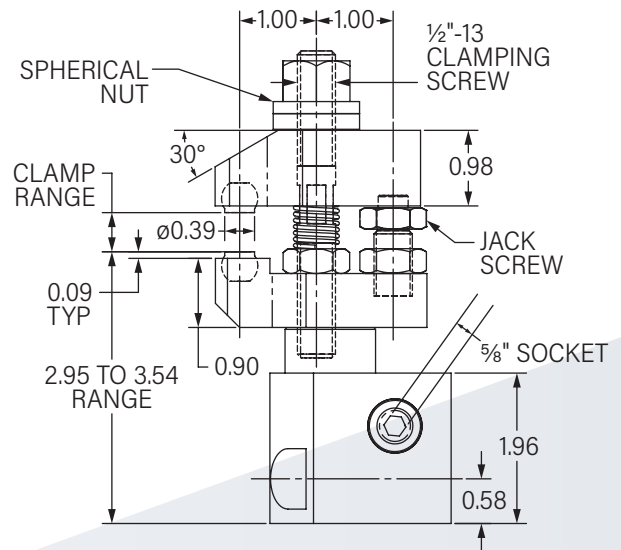
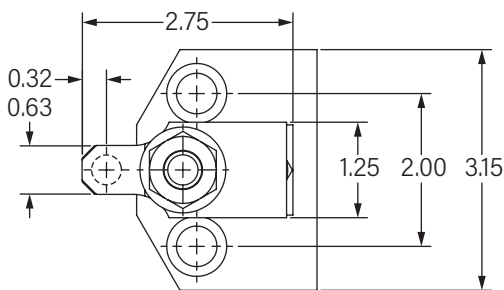
## TYPE A



## TYPE B



## TYPE C



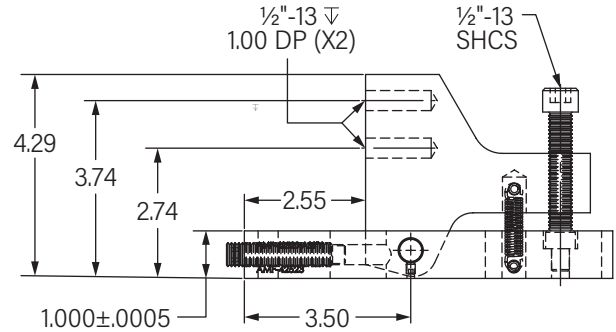
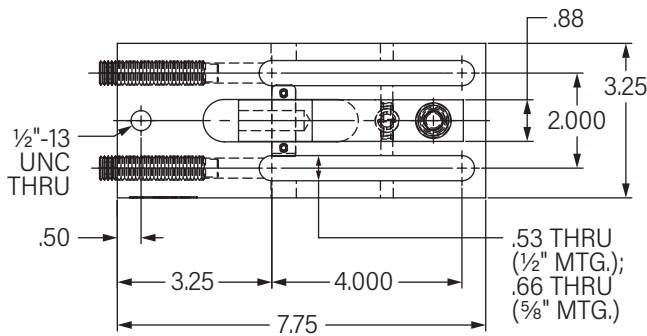
# PIVOT CLAMPING ASSEMBLY THREADED

- Different configurations accommodate use for vertical or horizontal clamping
- Position retaining screws prevents back-off
- Incorporates multiple stop heights for clamping various thickness workpieces
- Black oxide finish provides corrosion resistance and extended life
- Threaded hole units accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

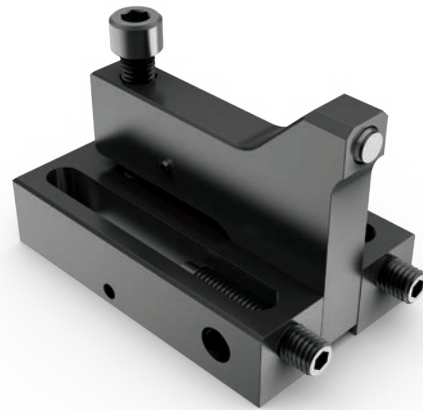
Note: CAD models available for download online.



System	Part Number
1/2"-13	AMF-42520
5/8"-11	AMF-42620

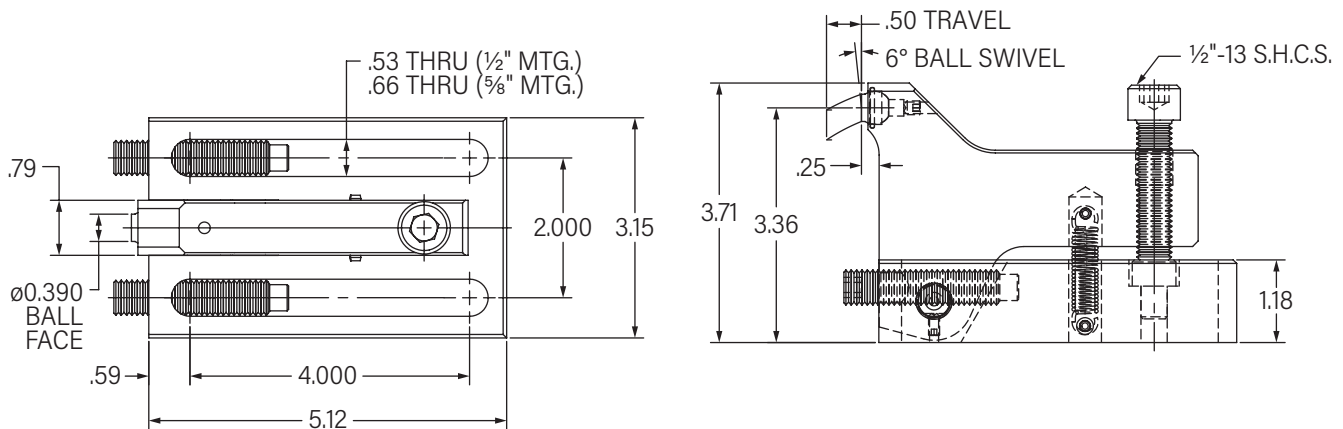
# PIVOT CLAMPING ASSEMBLY BALL ELEMENT

- Different configurations accommodate use for vertical or horizontal clamping
- Position retaining screws prevents back-off
- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element units are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

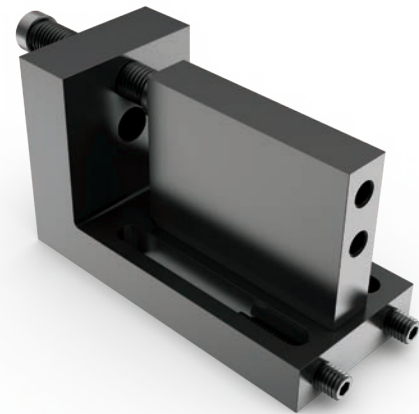
Note: Custom sizes available upon request.



Style	Ball Element				System	Part Number
	øBall	øBall Face	Serration Height (SH)	Swivel		
	in	in	in	degree		
Smooth	0.472	0.39	-	6°	1/2"-13	AMF-87587
Serrated	0.472	0.43	0.03	6°	1/2"-13	AMF-87588
Smooth	0.472	0.39	-	6°	5/8"-11	AMF-87552
Serrated	0.472	0.43	0.03	6°	5/8"-11	AMF-87553

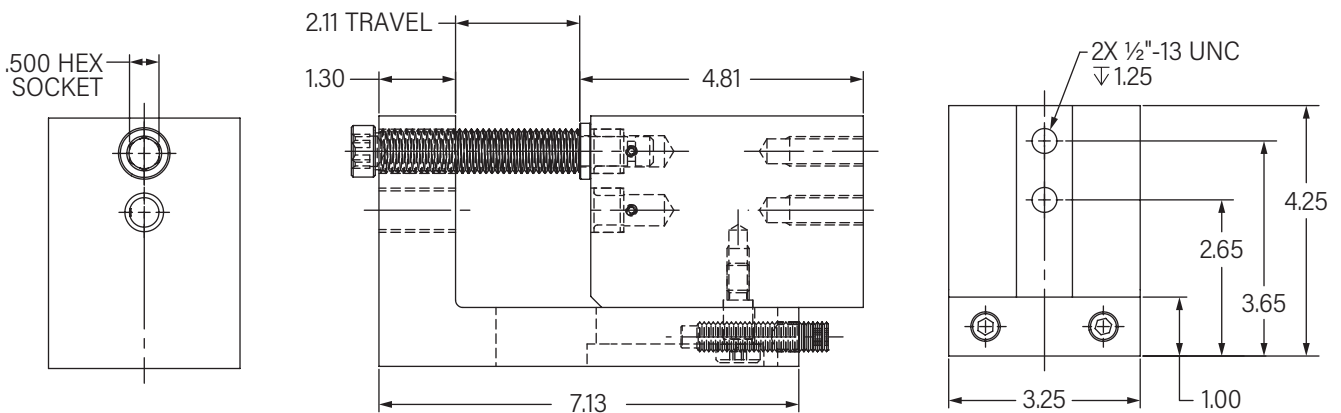
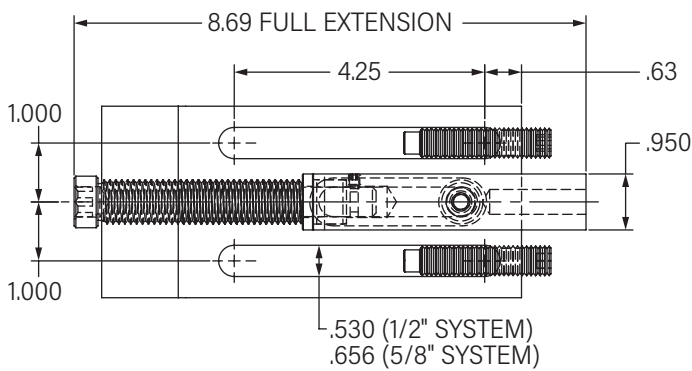
# LINEAR CLAMPING ASSEMBLY THREADED

- Different configurations accommodate use for vertical or horizontal clamping
- Position retaining screws prevents back-off
- Incorporates multiple stop heights for clamping various thickness workpieces
- Black oxide finish provides corrosion resistance and extended life
- Threaded hole units accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

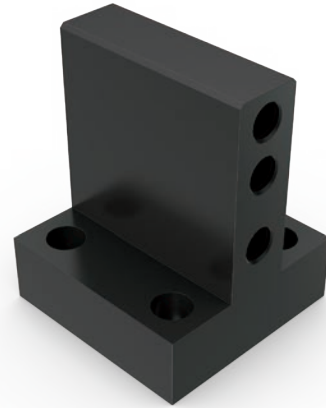
Note: CAD models available for download online.



System	Part Number
1/2"-13	AMF-59300-01
5/8"-11	AMF-59300-02

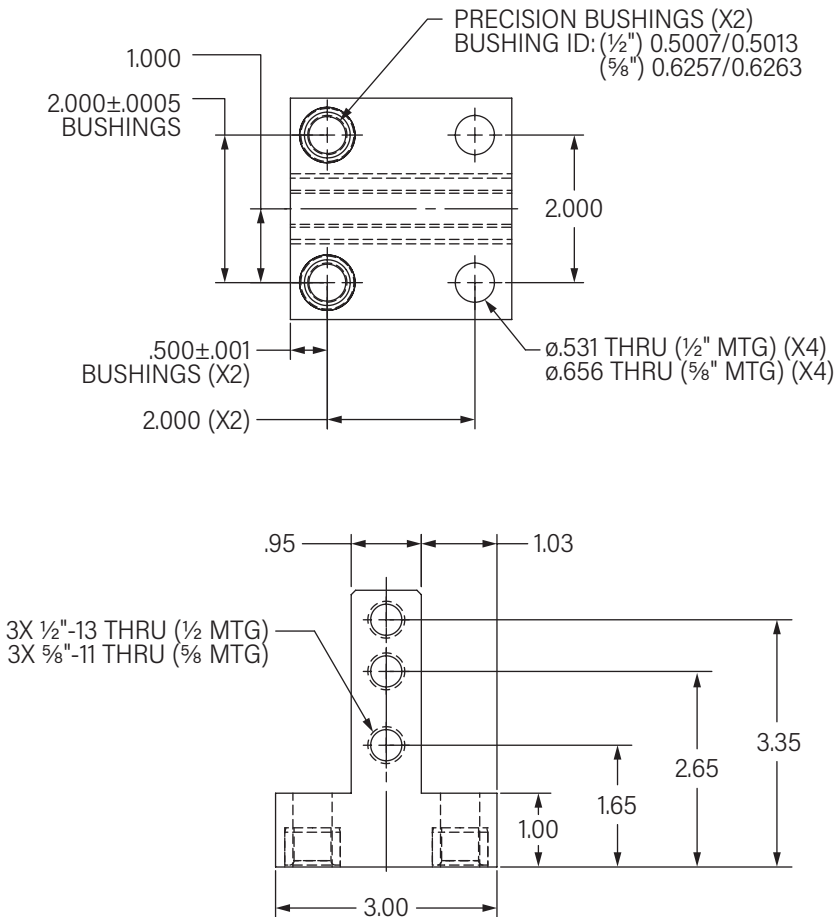
# CLAMPING ASSEMBLY STOP, FIXED

- Different configurations accommodate use for vertical or horizontal clamping
- Position retaining screws prevents back-off
- Incorporates multiple stop heights for clamping various thickness workpieces
- Black oxide finish provides corrosion resistance and extended life
- Threaded hole units accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.



System	Part Number
1/2"-13	AMF-42512-02
5/8"-11	AMF-42512-03

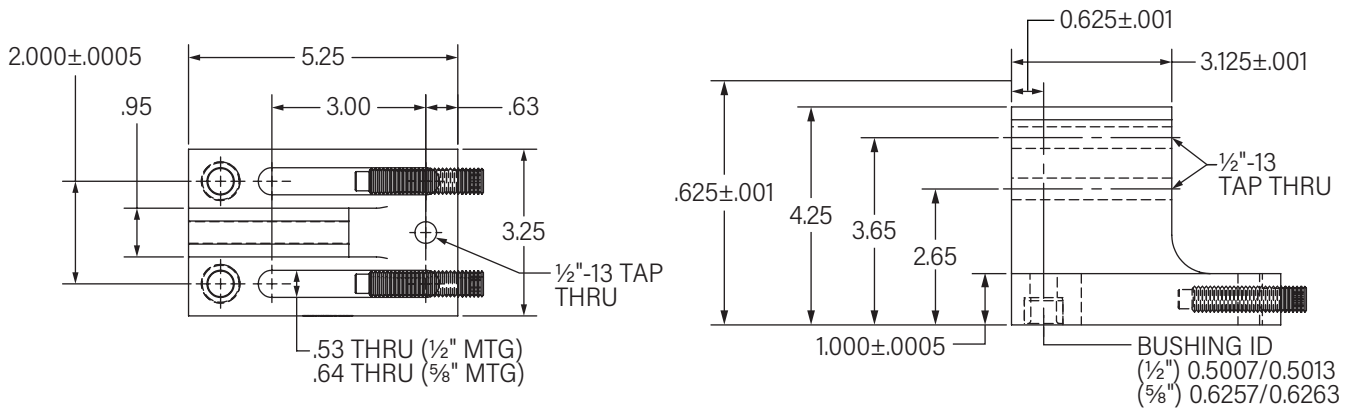
# CLAMPING ASSEMBLY STOP, ADJUSTABLE

- Different configurations accommodate use for vertical or horizontal clamping
- Position retaining screws prevents back-off
- Incorporates height indicator and multiple stop heights for clamping various thickness workpieces
- Black oxide finish provides corrosion resistance and extended life
- Threaded hole units accommodate smooth or serrated, and fixed or adjustable ball elements, allowing for taller support heights
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.

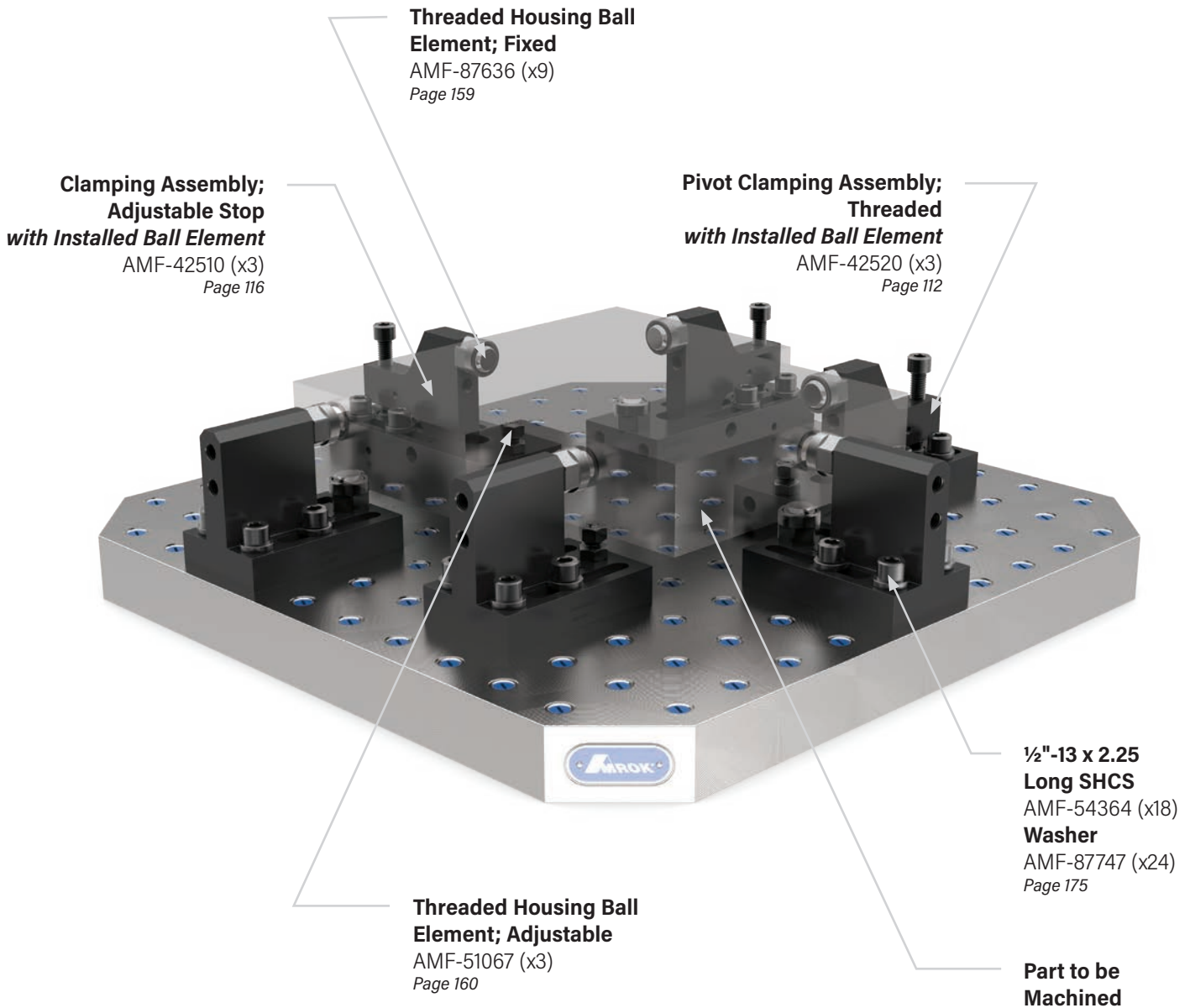


System	Part Number
1/2"-13	AMF-42510
5/8"-11	AMF-42610



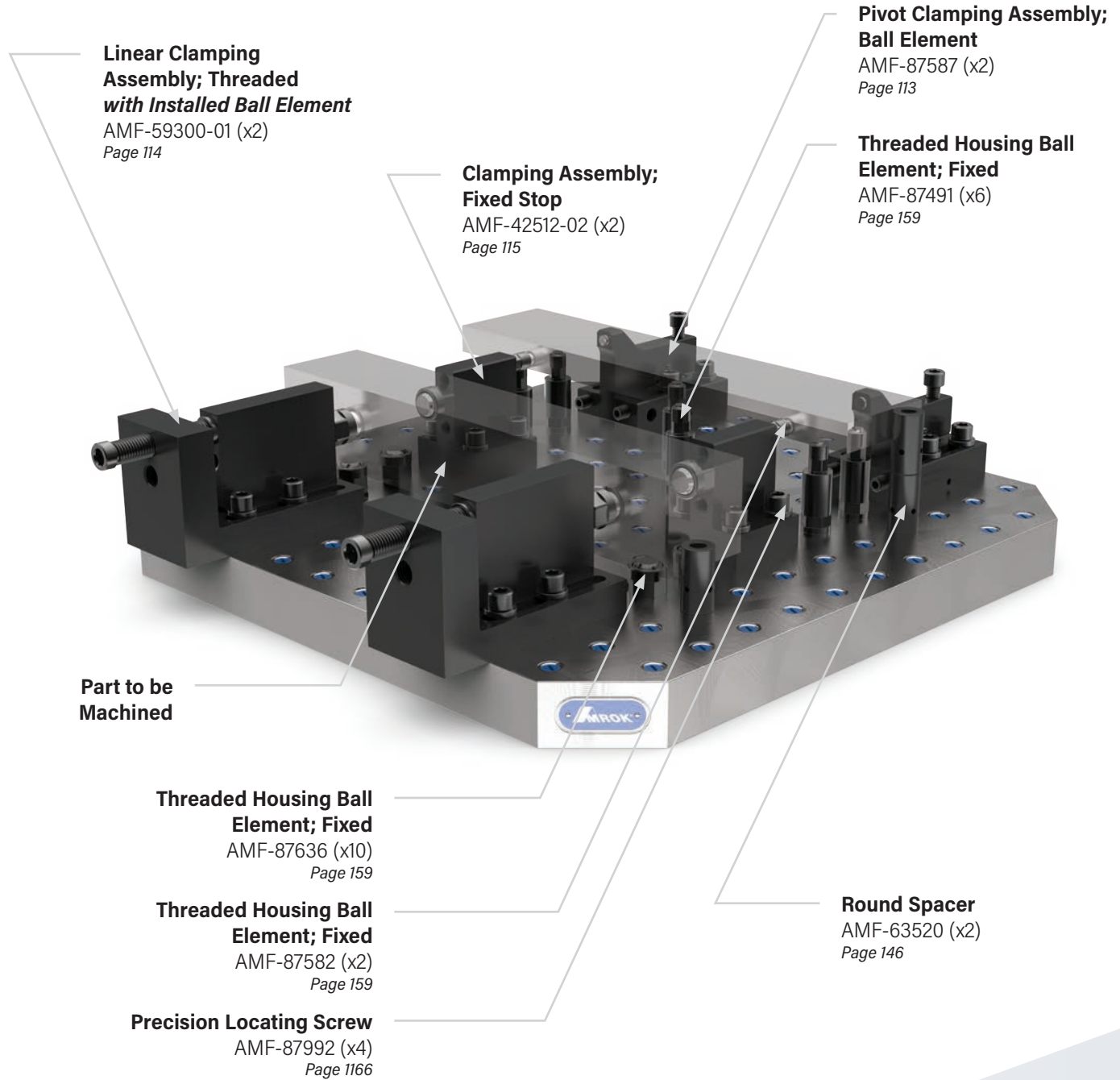
**STRESS-  
FREE  
CLAMPING**

# APPLICATION EXAMPLE





# APPLICATION EXAMPLE



# V-REST

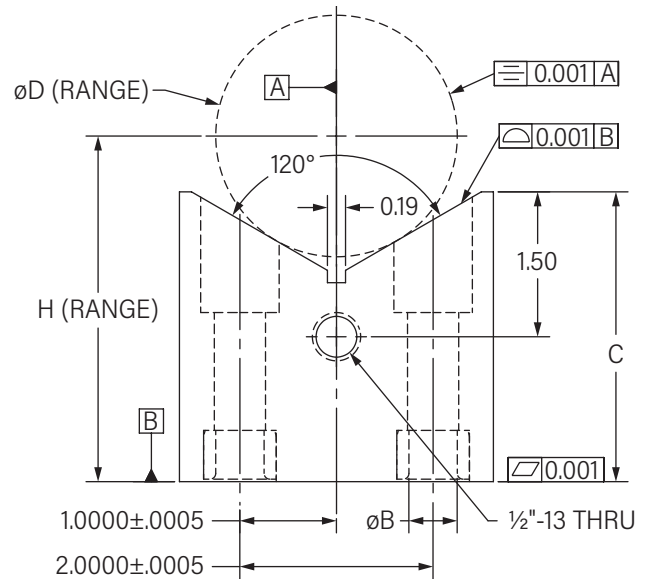
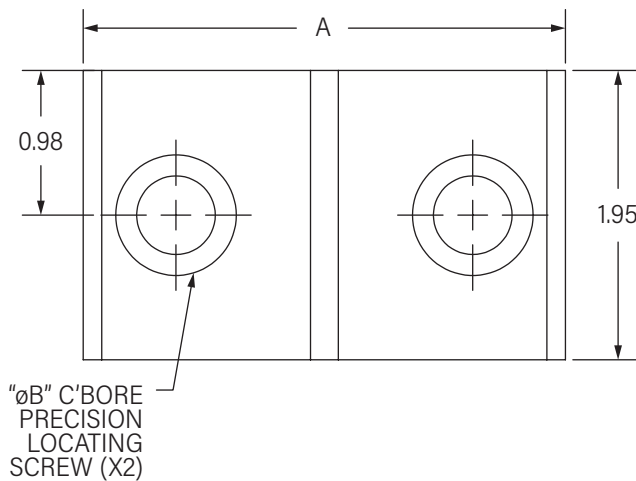
- Hardened and ground for longer life and improved accuracy
- Face has threaded hole for convenient locating, clamping, or stopping
- Black oxide finish provides corrosion resistance and extended life
- Precision locating in a horizontal or vertical position with precision locating screw\*
- Ideal for use with a chain, cable or long clamping bar
- Accommodates 1/2"-13 or 5/8"-11 grid systems



To determine height (H), use the following formula:  
 $H \pm 0.001 = (.1547 \cdot D/2) - (.5774 \cdot A/2) + C$

Note: Custom sizes available upon request.

Note: CAD models available for download online.



Dimensions				Bushing ID	Part Number	Mating Part Number
A**	$\phi B$	C	$\phi D$			Precision Locating Screw
in	in	in	in	in		
3.25	1/2"	3.00	0.50/5.00	0.5007/0.5013	AMF-59673	AMF-87983
3.25	5/8"	3.00	0.50/5.00	0.6257/0.6263	AMF-59673-01	AMF-87882
3.25	1/2"	5.00	0.50/5.00	0.5007/0.5013	AMF-59674	AMF-87983
3.25	5/8"	5.00	0.50/5.00	0.6257/0.6263	AMF-59674-01	AMF-87882
5.25	1/2"	3.58	0.50/9.50	0.5007/0.5013	AMF-59675	AMF-87983
5.25	5/8"	3.58	0.50/9.50	0.6257/0.6263	AMF-59675-01	AMF-87882
5.25	1/2"	5.58	0.50/9.50	0.5007/0.5013	AMF-59676	AMF-87983
5.25	5/8"	5.58	0.50/9.50	0.6257/0.6263	AMF-59676-01	AMF-87882

\*See chart for precision mating screw part number, sold separately.

\*\*5.25" wide V-rests, for 1/2" system only, have a second set of precision bushings on a 4.000±0.0005 spread. 5.25" wide V-rests, for 5/8" system only, has two holes on a 4.000±0.0005" spread.

# APPLICATION EXAMPLE



**Jack Screw**  
AMF-87338 (x8)  
Page 176

**Round Spacer**  
AMF-63530 (x16)  
Page 146

**Stud**  
AMF-77567 (x8)  
Page 177

**Spherical Nut Assembly**  
AMF-87100 (x8)  
Page 174

**Set Screw; Ball Element**  
AMF-87495 (x8)  
Page 158

**Single Clamping Bar; Threaded**  
AMF-87542-02 (x8)  
Page 96

**Part to be Machined (x4)**

**V-Rest**  
AMF-59673  
Page 120

**Precision V-Rest**  
AMF-59675  
Page 120

**Precision Locating Screws**  
AMF-87985 (x8)  
Page 166

**Precision Locating Screws**  
AMF-87985 (x8)  
Page 166

# V-STOP

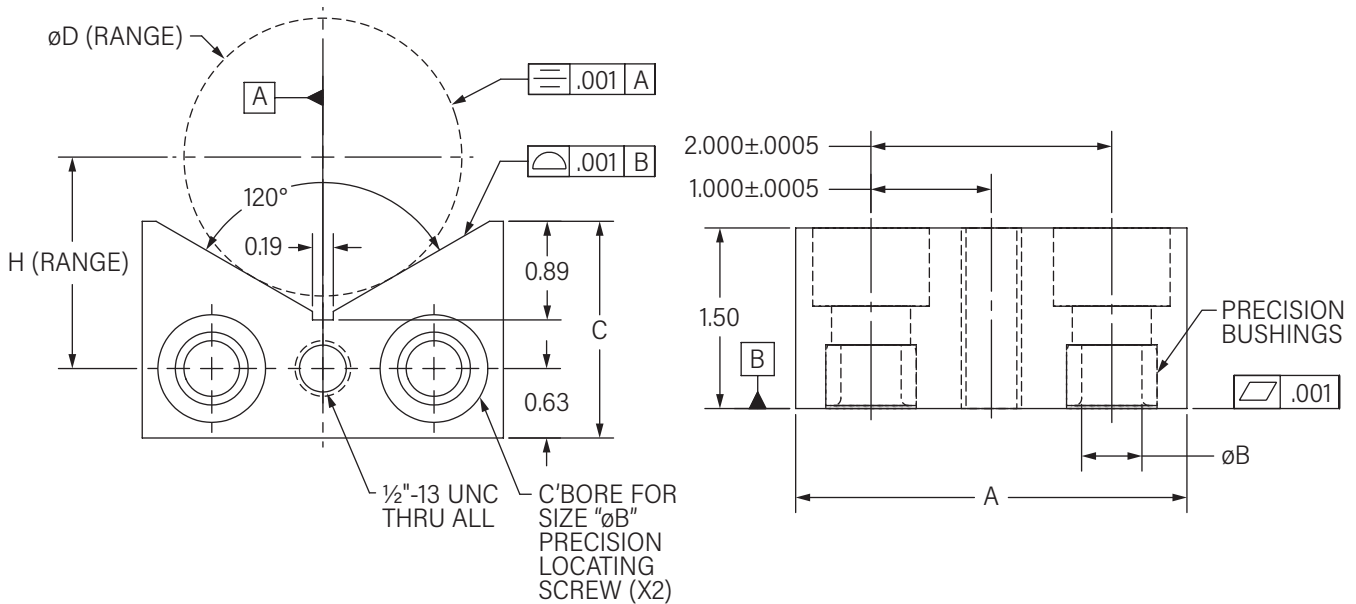
- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Face has threaded hole for convenient locating, clamping, or stopping
- Precision locating in a horizontal or vertical position with precision locating screw\*
- Ideal for use with a chain, cable, or long clamping bar
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

To determine height (H), use the following formula:  
 $H \pm 0.001 = (1.1547 \cdot D/2) - (.5774 \cdot A/2) + C - .5528$

Note: Custom sizes available upon request.

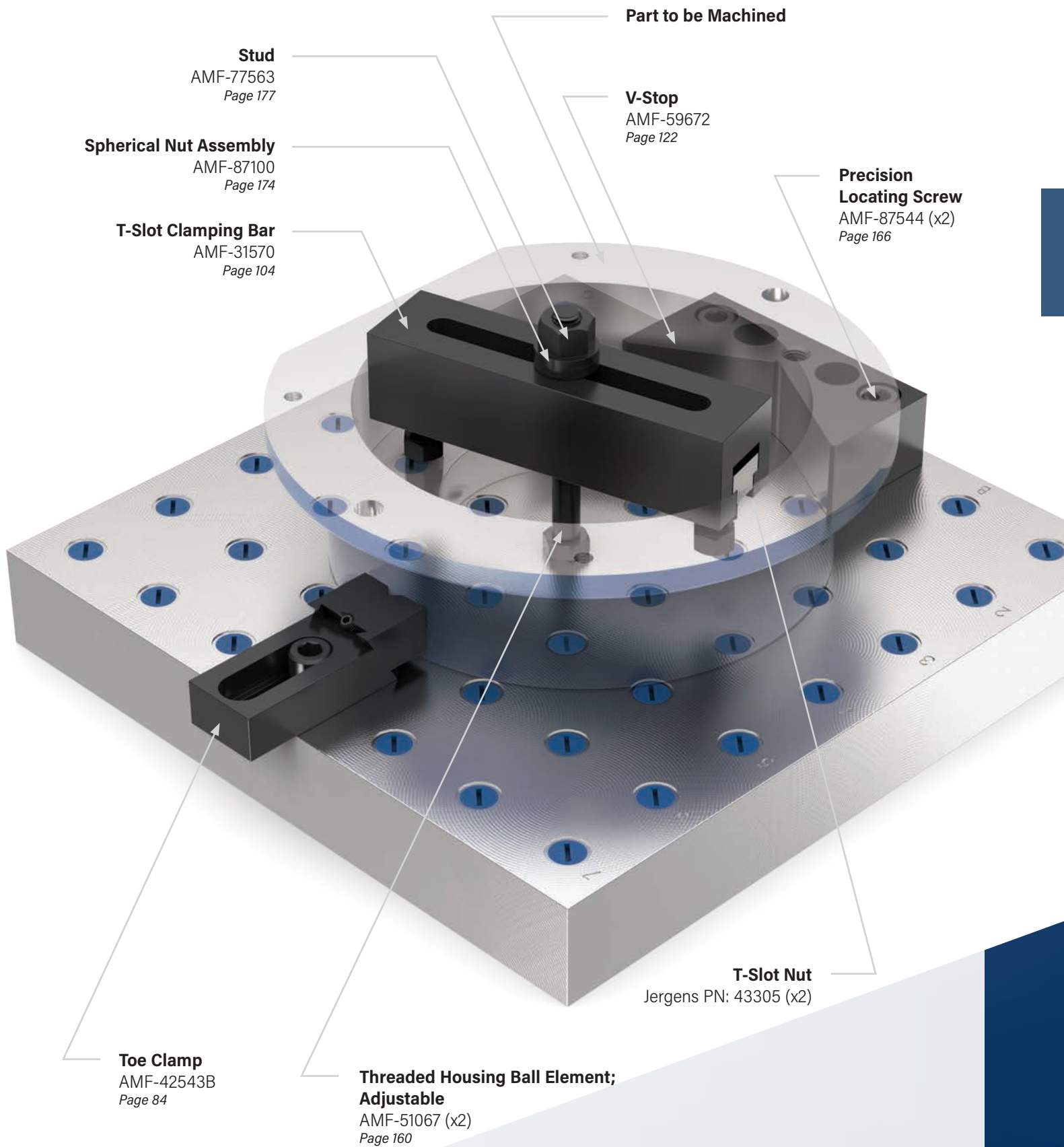


Dimensions				Bushing ID	Part Number	Mating Part Number
A**	øB	C	øD			Precision Locating Screw
in	in	in	in	in		
3.25	1/2"	1.95	0.50/5.00	0.5007/0.5013	AMF-59671	AMF-87991
3.25	5/8"	1.95	0.50/5.00	0.6257/0.6263	AMF-59671-01	AMF-87885
5.25	1/2"	2.53	0.50/5.00	0.5007/0.5013	AMF-59672	AMF-87991
5.25	5/8"	2.53	0.50/5.00	0.6257/0.6263	AMF-59672-01	AMF-87885

\*See chart for precision mating screw part number, sold separately.

\*\*5.25" wide V-rests have a second set of precision bushings on a 4.000±0.0005 spread.

# APPLICATION EXAMPLE



**Part to be Machined**

**Stud**  
AMF-77563  
Page 177

**V-Stop**  
AMF-59672  
Page 122

**Spherical Nut Assembly**  
AMF-87100  
Page 174

**Precision Locating Screw**  
AMF-87544 (x2)  
Page 166

**T-Slot Clamping Bar**  
AMF-31570  
Page 104

**T-Slot Nut**  
Jergens PN: 43305 (x2)

**Toe Clamp**  
AMF-42543B  
Page 84

**Threaded Housing Ball Element;  
Adjustable**  
AMF-51067 (x2)  
Page 160

# V-BLOCK WITH FLANGE

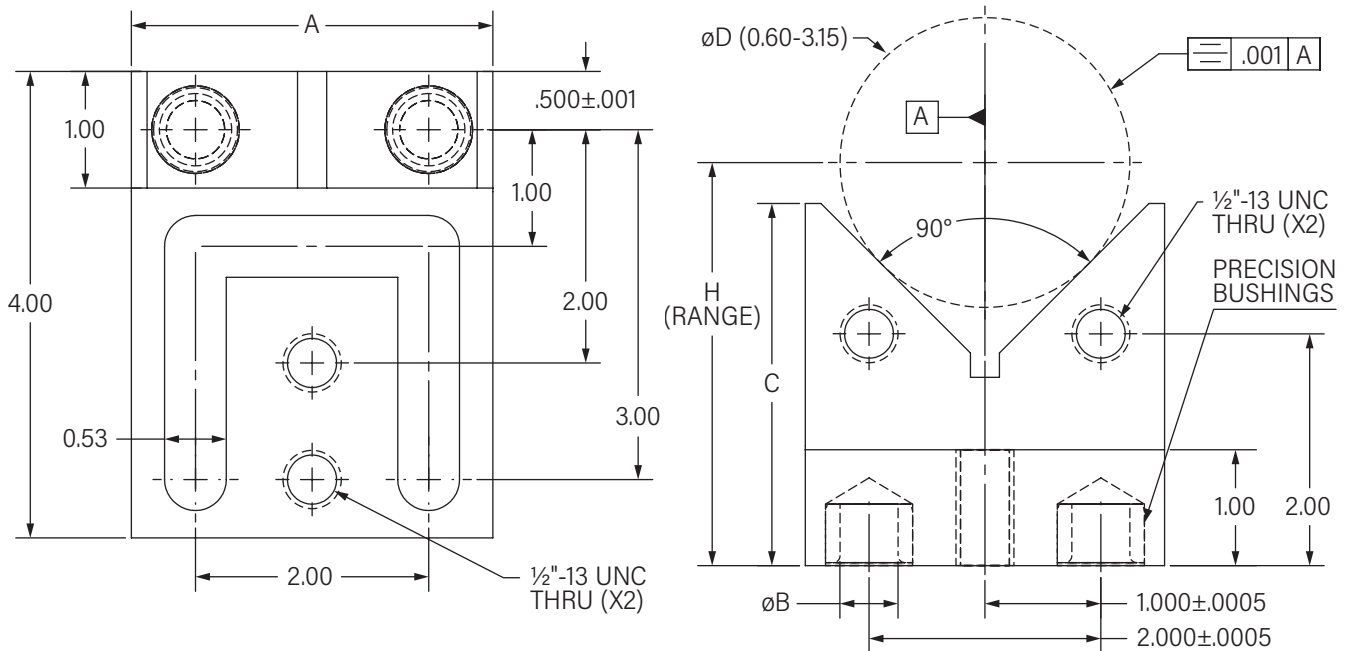
- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Face has threaded hole for convenient locating, clamping, or stopping
- Precision and adjustable locating in a horizontal or vertical position with precision locating screw\*
- Ideal for use with a chain, cable, or long clamping bar
- Accommodates ½"-13 grid systems



To determine height (H), use the following formula:  
 $H \pm 0.001 = (D \times .70717) + 1.7099$

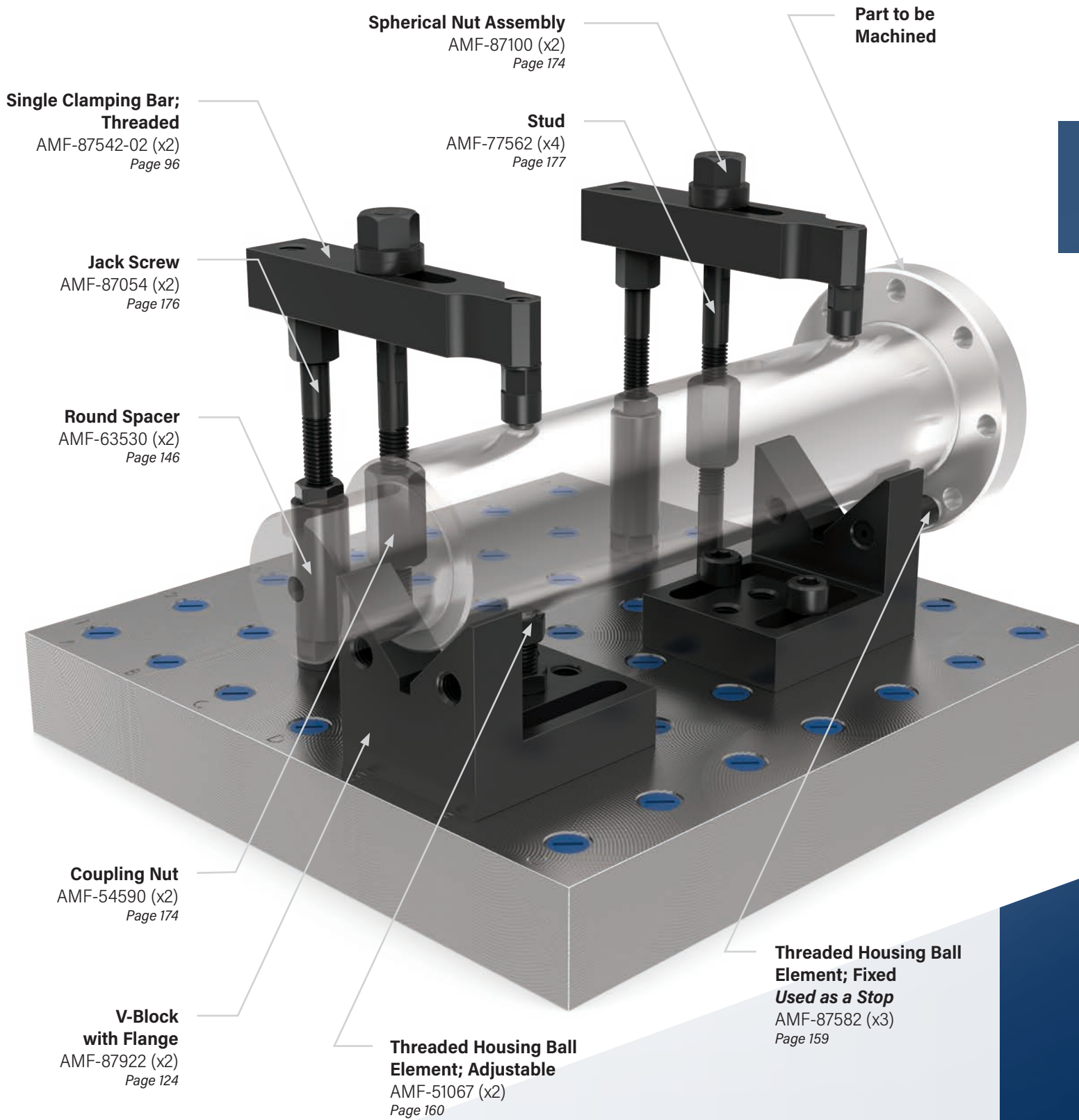
Note: Custom sizes available upon request.

Note: CAD models available for download online.



Dimensions				Bushing ID	Part Number
A	øB	C	øD		
in	in	in	in	in	
3.10	.5007/.5013	3.13	0.60/3.15	0.5007/0.5013	AMF-87922

# APPLICATION EXAMPLE



**Single Clamping Bar;  
Threaded**  
AMF-87542-02 (x2)  
Page 96

**Spherical Nut Assembly**  
AMF-87100 (x2)  
Page 174

**Part to be  
Machined**

**Stud**  
AMF-77562 (x4)  
Page 177

**Jack Screw**  
AMF-87054 (x2)  
Page 176

**Round Spacer**  
AMF-63530 (x2)  
Page 146

**Coupling Nut**  
AMF-54590 (x2)  
Page 174

**Threaded Housing Ball  
Element; Fixed  
Used as a Stop**  
AMF-87582 (x3)  
Page 159

**V-Block  
with Flange**  
AMF-87922 (x2)  
Page 124

**Threaded Housing Ball  
Element; Adjustable**  
AMF-51067 (x2)  
Page 160

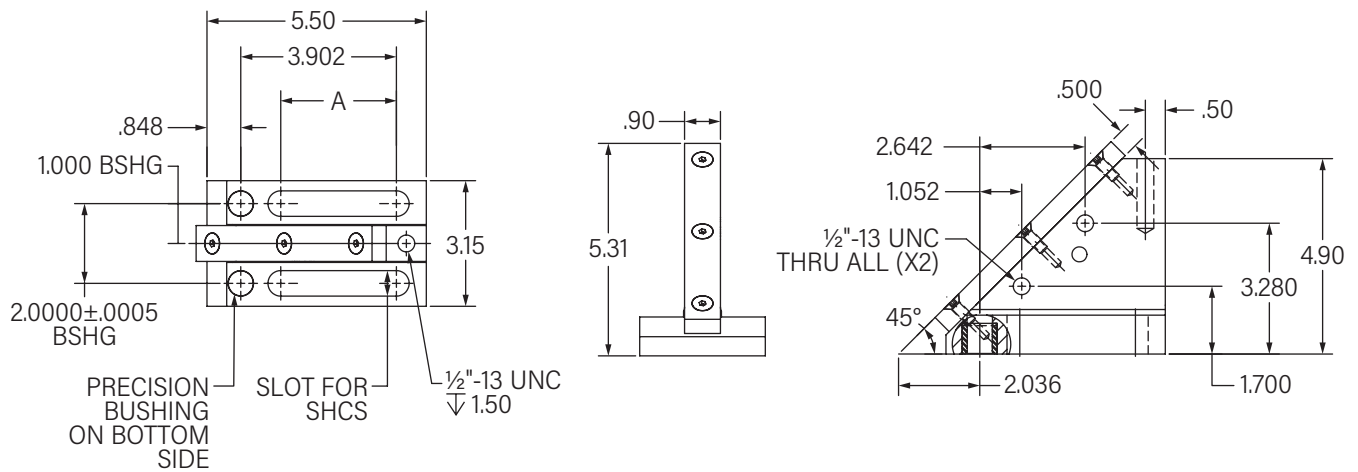
# SPLIT V-BLOCK SEPARATE, WITH HARDENED PADS

- Black oxide finish provides corrosion resistance and extended life
- Precision and adjustable mounting features to suit various setups
- Face has threaded hole for convenient locating, clamping, or stopping
- Supports diameters up to 120"—larger materials can be secured when used with consoles
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Sold as a single unit—two units are needed to make up a full set. Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions		System	Part Number
A	Bushing ID		
in	in	UNC	
3.15	0.5007/0.5013	1/2"-13	AMF-78950
2.90	0.6257/0.6263	5/8"-11	AMF-78951



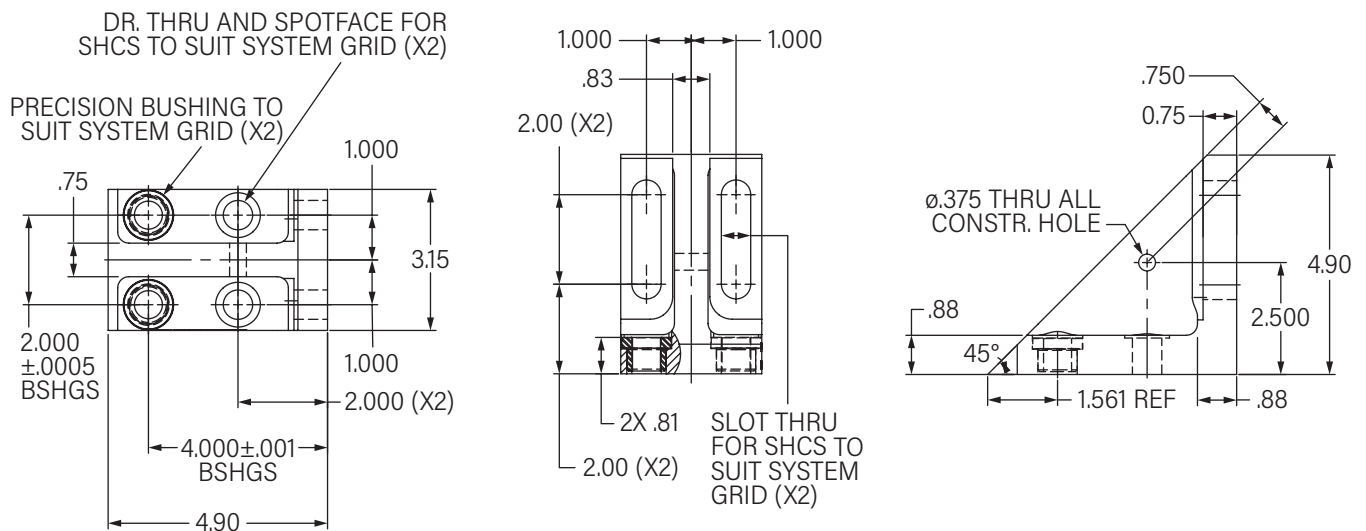
# SPLIT V-BLOCK SEPARATE, WITHOUT HARDENED PADS

- Black oxide finish provides corrosion resistance and extended life
- Precision and adjustable mounting features to suit various setups
- Two possible mounting types: precision location or shifting with elongated slot
- Supports diameters up to 120"—larger materials can be secured when used with consoles
- Accommodates ½"-13 or ⅝"-11 grid systems

*Note: Sold as a single unit—two units are needed to make up a full set.  
Custom sizes available upon request.*



*Note: CAD models available for download online.*



Bushing ID	Grid Size	Part Number
	UNC	
0.5007/0.5013	½"-13	AMF-54439
0.6257/0.6263	⅝"-11	AMF-54440

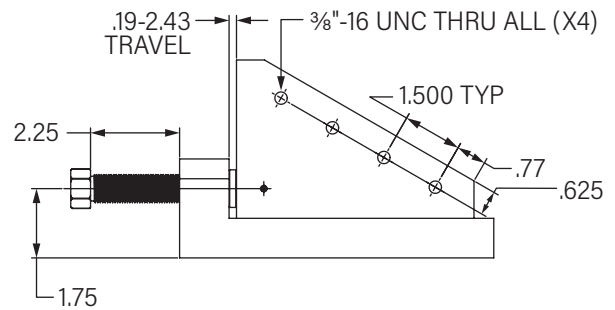
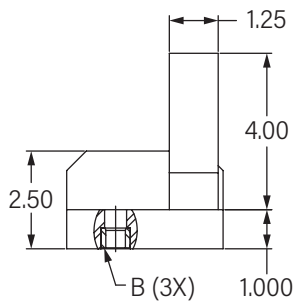
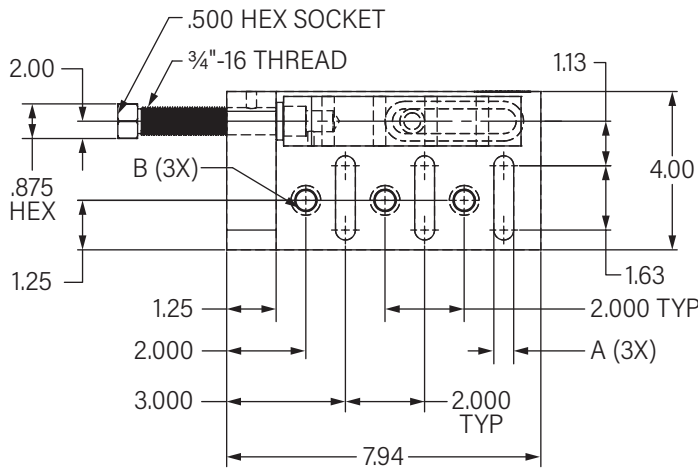
# SPLIT V-BLOCK ADJUSTABLE

- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Precision bushing and slots for locating
- Face has threaded holes for convenient locating, clamping, or stopping
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Sold as a single unit—two units are needed to make up a full set.  
 Custom sizes available upon request.

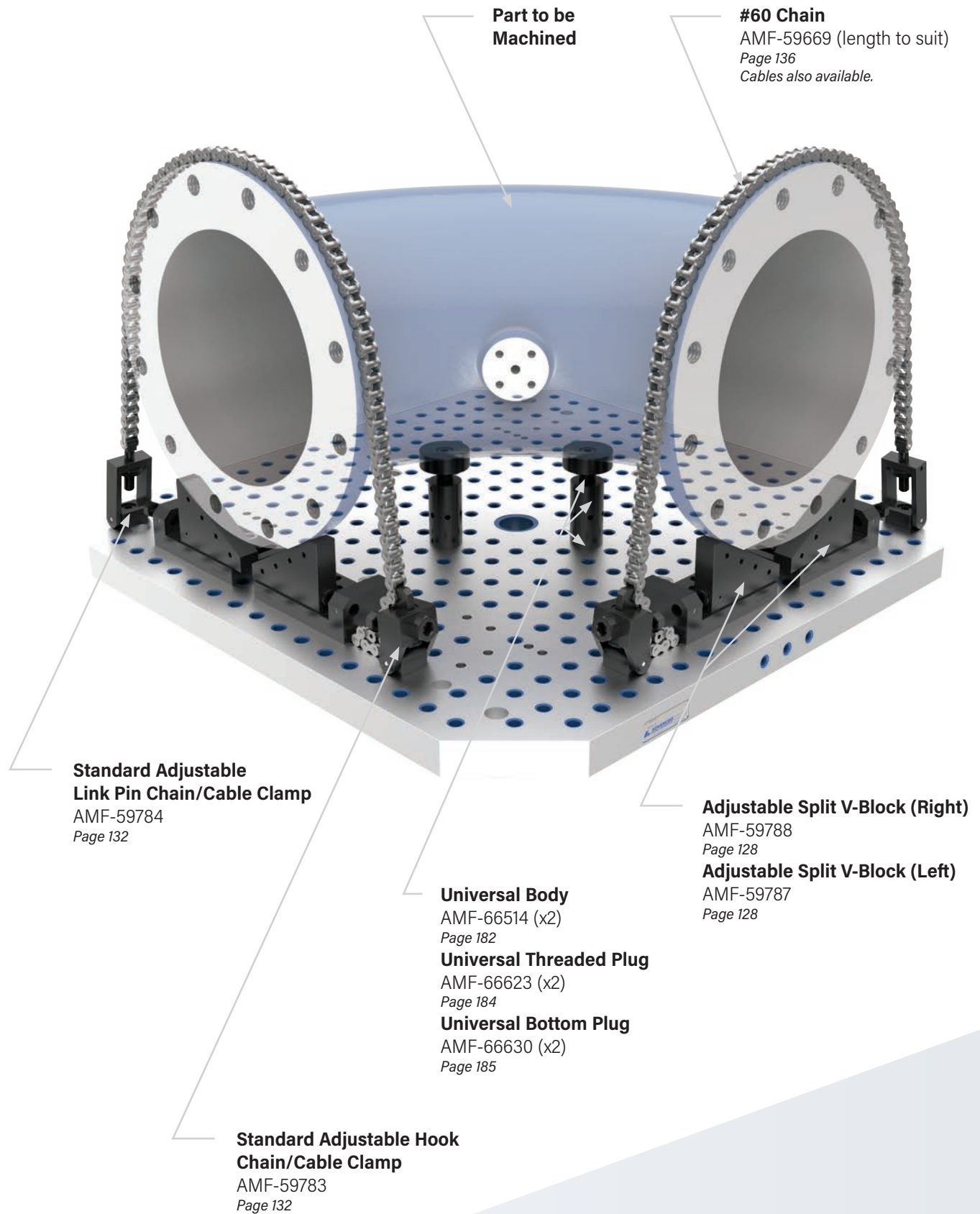


Note: CAD models available for download online.



Dimensions		Side	Part Number
A	B (ID)		
in	in		
.502/.506	0.5007/0.5013	Left	AMF-59785
.502/.507	0.5007/0.5013	Right	AMF-59786
.627/.631	0.6257/0.6263	Left	AMF-59787
.627/.632	0.6257/0.6263	Right	AMF-59788

# APPLICATION EXAMPLE



**Part to be Machined**

**#60 Chain**  
AMF-59669 (length to suit)  
Page 136  
Cables also available.

**Standard Adjustable Link Pin Chain/Cable Clamp**  
AMF-59784  
Page 132

**Adjustable Split V-Block (Right)**  
AMF-59788  
Page 128

**Adjustable Split V-Block (Left)**  
AMF-59787  
Page 128

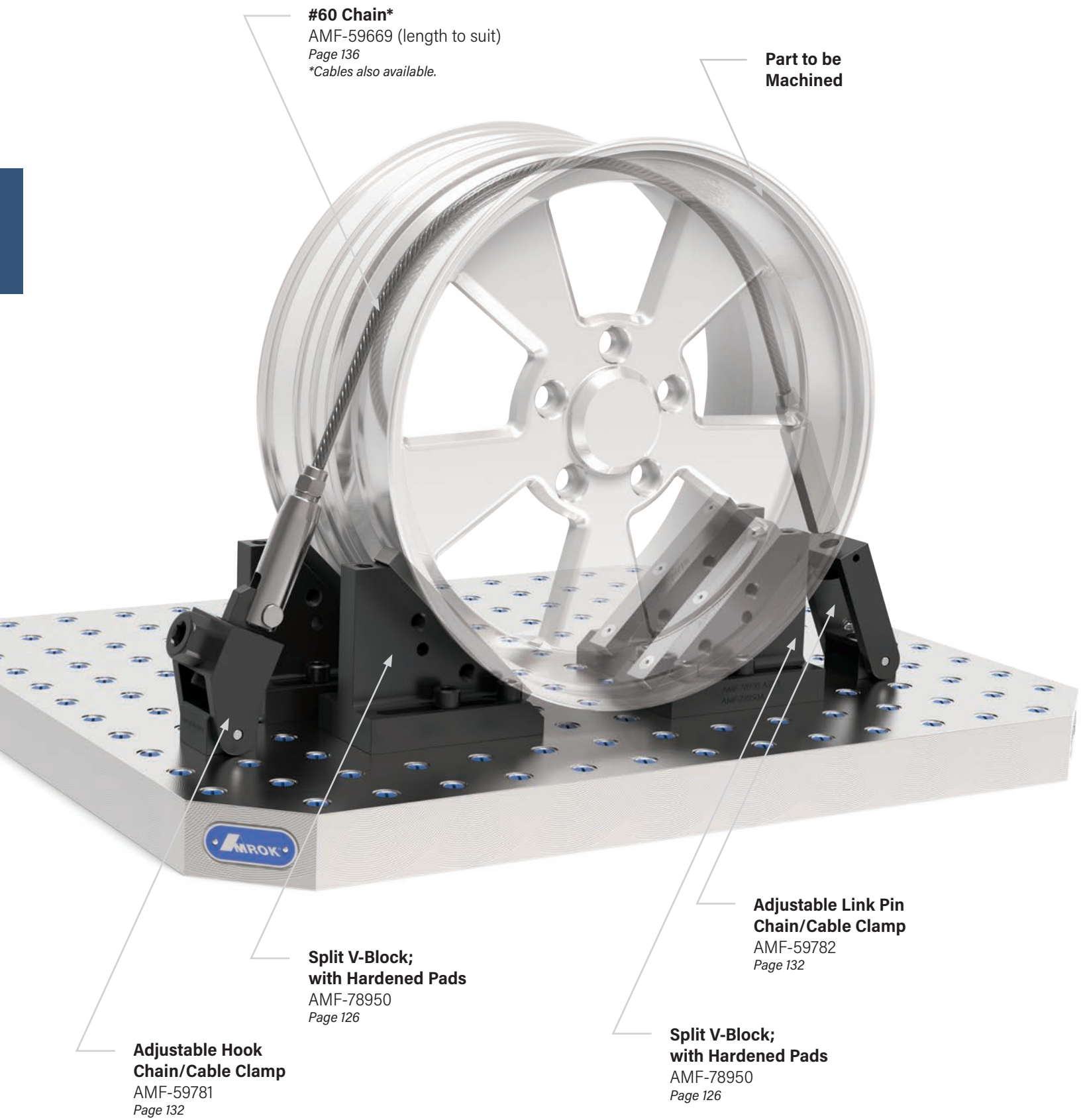
**Universal Body**  
AMF-66514 (x2)  
Page 182

**Universal Threaded Plug**  
AMF-66623 (x2)  
Page 184

**Universal Bottom Plug**  
AMF-66630 (x2)  
Page 185

**Standard Adjustable Hook Chain/Cable Clamp**  
AMF-59783  
Page 132

# APPLICATION EXAMPLE



**#60 Chain\***  
AMF-59669 (length to suit)  
Page 136  
*\*Cables also available.*

**Part to be Machined**

**Adjustable Hook Chain/Cable Clamp**  
AMF-59781  
Page 132

**Split V-Block; with Hardened Pads**  
AMF-78950  
Page 126

**Adjustable Link Pin Chain/Cable Clamp**  
AMF-59782  
Page 132

**Split V-Block; with Hardened Pads**  
AMF-78950  
Page 126

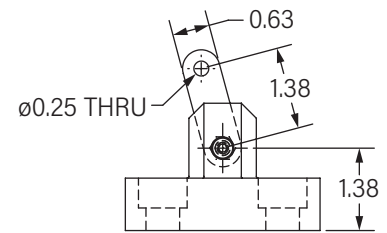
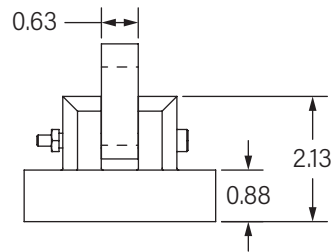
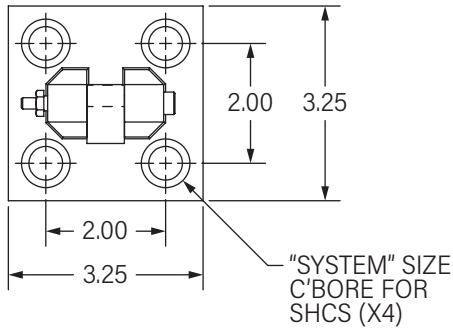
# CHAIN/CABLE CLAMP FIXED, HEAVY DUTY

- Black oxide finish provides corrosion resistance and extended life
- Housing is built with a counterbore for attaching clamps with a socket head cap screw
- Features fixed link style to accommodate specific applications
- Designed for use with a 60 series chain (page 136)
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Sold as a single unit—two units are needed to make up a full set. Custom sizes available upon request.*



*Note: CAD models available for download online.*

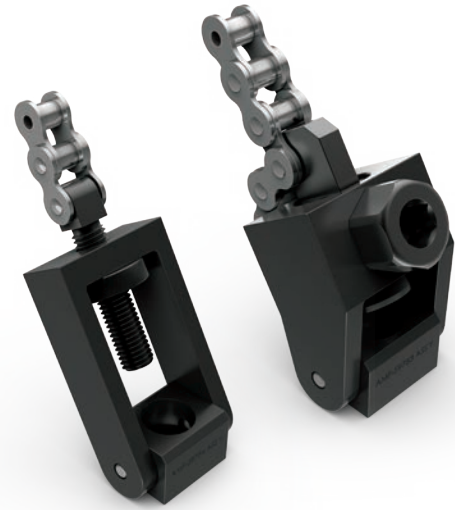


Type	System	Part Number
	Fixed Link Pin	
Fixed Link Pin	1/2"-13	AMF-59724
Fixed Link Pin	5/8"-11	AMF-59724-01

# CHAIN/CABLE CLAMP ADJUSTABLE, STANDARD

- Black oxide finish provides corrosion resistance and extended life
- Housing is built with a counterbore for attaching clamps with a socket head cap screw
- Features adjustable hook and link pin styles to accommodate a variety of applications
- Both heavy-duty and standard options are available
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Sold as a single unit—two units are needed to make up a full set. Custom sizes available upon request. Heavy-duty, fixed version available on page 131; heavy-duty, adjustable version available on page 134.*

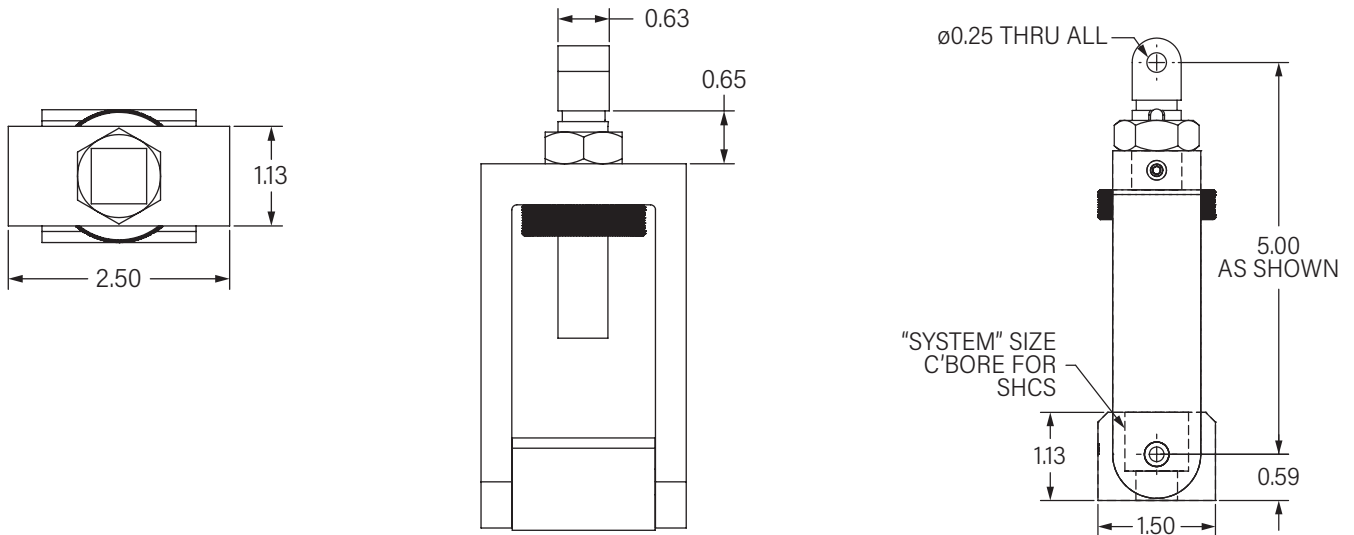


*Note: CAD models available for download online.*

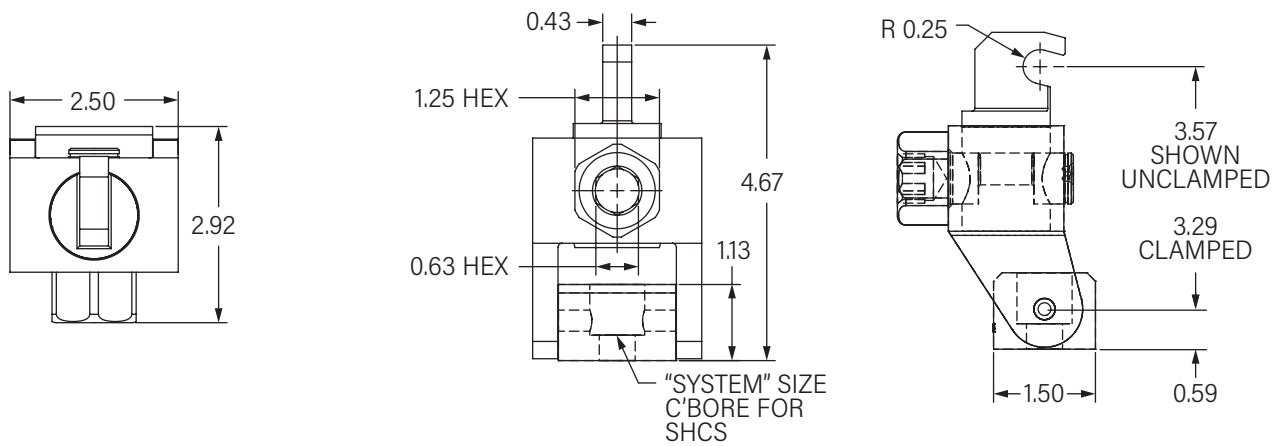
Type	System	Part Number
	UNC	
Adjustable Hook	1/2"-13	AMF-59781
Adjustable Link Pin	1/2"-13	AMF-59782
Adjustable Hook	5/8"-11	AMF-59783
Adjustable Link Pin	5/8"-11	AMF-59784

# CHAIN/CABLE CLAMP ADJUSTABLE, STANDARD

## STANDARD LINK PIN



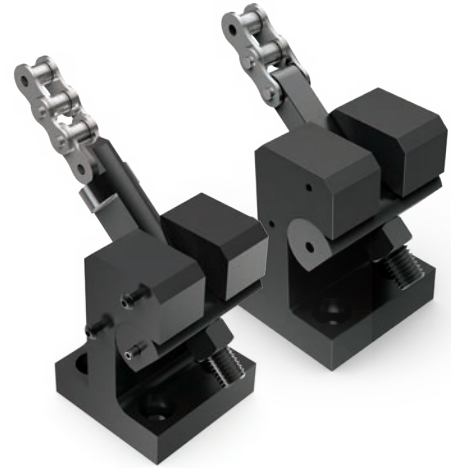
## STANDARD HOOK



# CHAIN/CABLE CLAMP ADJUSTABLE, HEAVY DUTY

- Black oxide finish provides corrosion resistance and extended life
- Housing is built with a counterbore for attaching clamps with a socket head cap screw
- Features adjustable hook and link pin styles to accommodate a variety of applications
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Sold as a single unit—two units are needed to make up a full set. Custom sizes available upon request. Standard version available on page 132.*



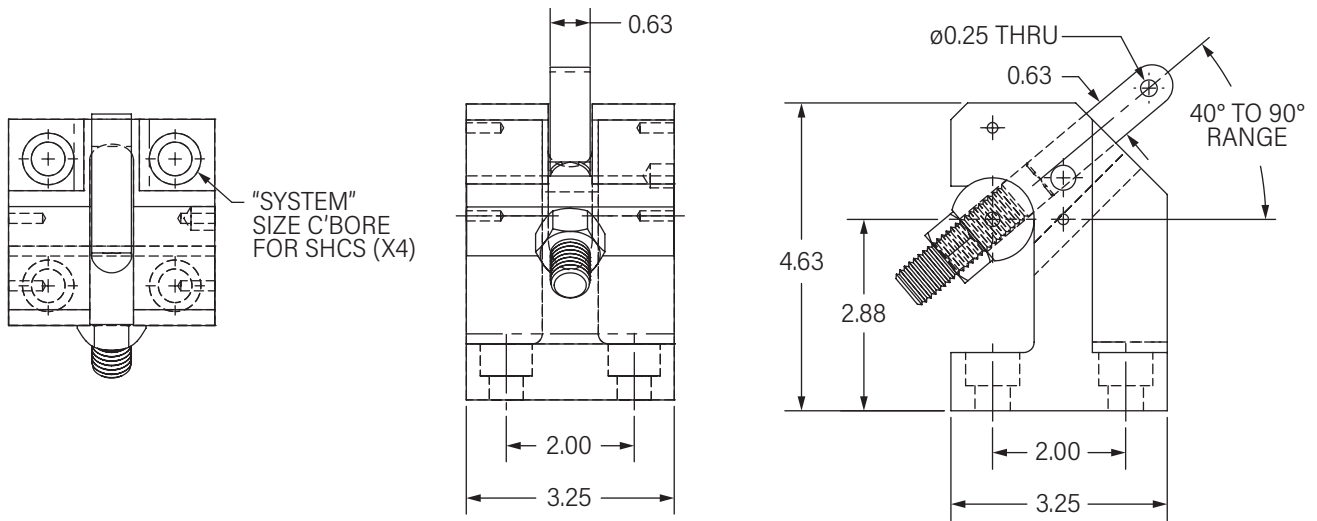
*Note: CAD models available for download online.*

Type	System	Part Number
	UNC	
Adjustable Link Pin	1/2"-13	AMF-59723
Adjustable Hook	1/2"-13	AMF-59723-01
Adjustable Link Pin	5/8"-11	AMF-59723-02
Adjustable Hook	5/8"-11	AMF-59723-03

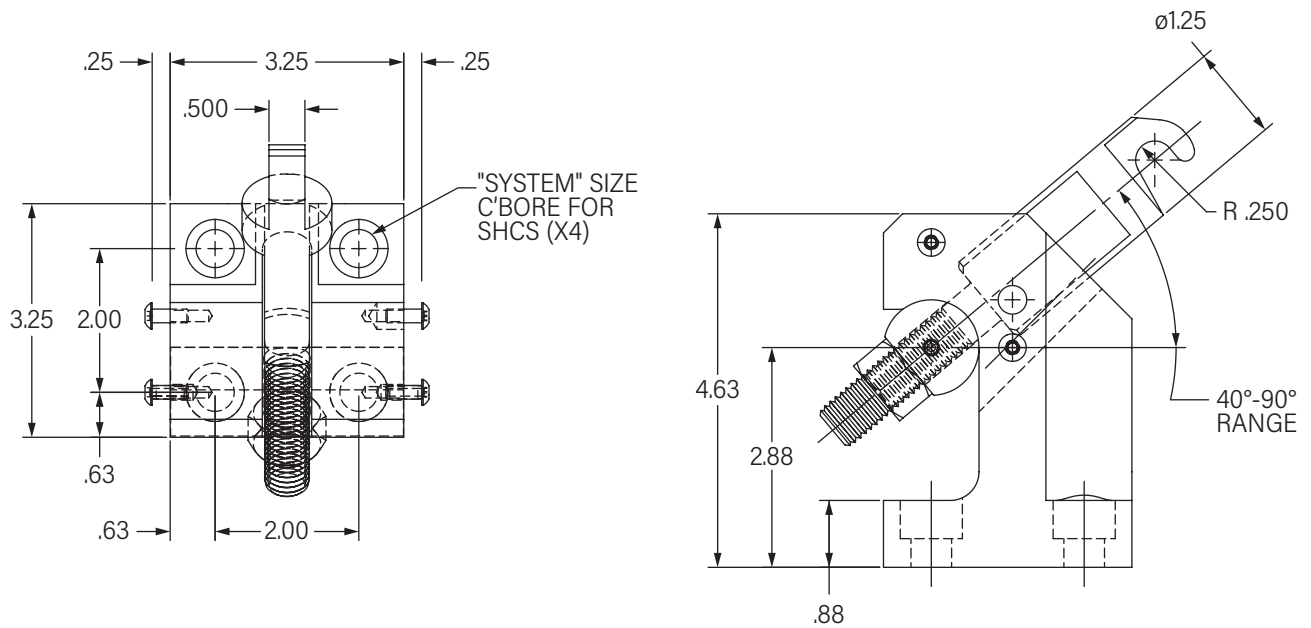


# CHAIN/CABLE CLAMP ADJUSTABLE, HEAVY DUTY

## HEAVY-DUTY LINK PIN



## HEAVY-DUTY HOOK



# STANDARD ACCESSORIES CHAIN AND CABLE\*

Chain Length	Part Number
in	
12	AMF-59665
24	AMF-59666
36	AMF-59667
48	AMF-59668
60	AMF-59669
72	AMF-59670

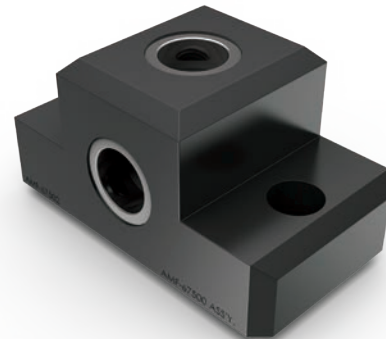
*Note: Chains are adjustable in 3/4" increments. Custom sizes available upon request.  
 \*Cables are custom-made to each application. Please contact us directly to learn more.  
 +1.815.962.6076*



*Note: CAD models available for download online.*

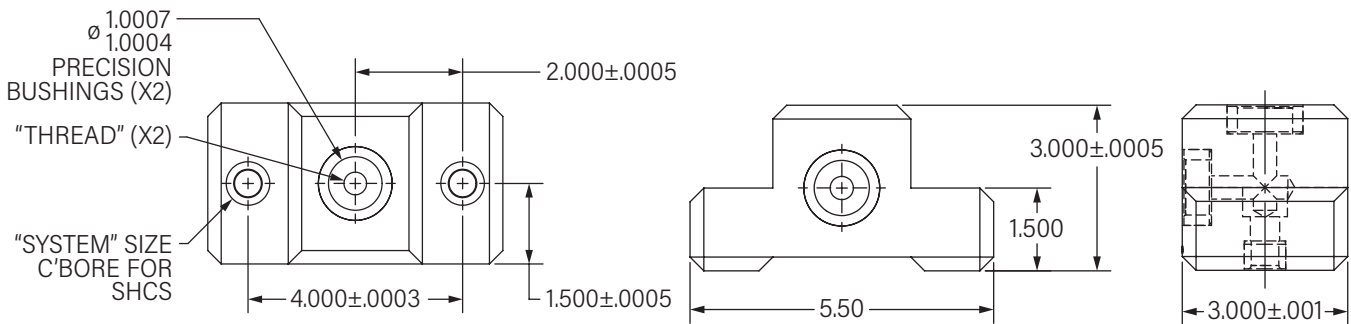
# LOCATORS, SPACERS, AND RISERS CALIBRATION BLOCK

- Standard size unit works on both horizontal and vertical machines
- Improves and simplifies probe calibrations
- Standardizes probe calibration and other checking procedures
- Useful in checking machine repeatability and directional stability after a crash or any major maintenance procedure
- Black oxide finish provides corrosion resistance and extended life
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Custom sizes available upon request.

Note: CAD models available for download online.



Bushing ID	Thread	System	Part Number
in	in	UNC	
0.5007/0.5013	1/2"-13	1/2"-13	AMF-67500
0.6257/0.6263	5/8"-11	5/8"-11	AMF-67600

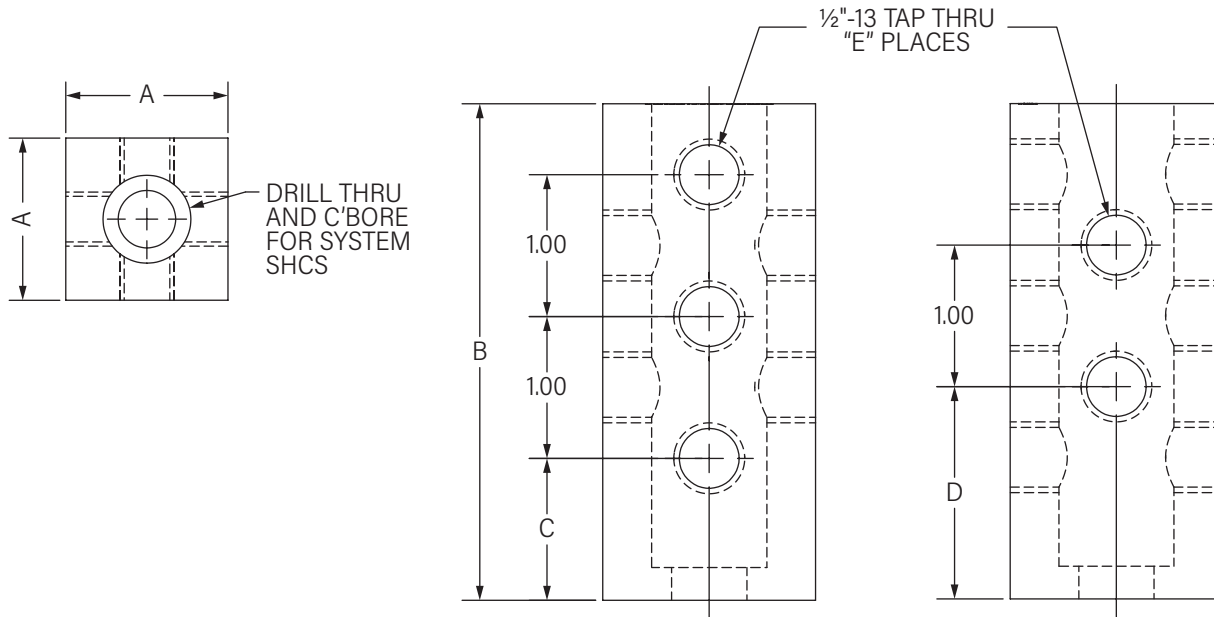
# LOCATORS, SPACERS, AND RISERS MINI WORK TOWER

- Black oxide finish provides corrosion resistance and extended life
- 1/2"-13 thru hole—1, 3, or 5 places depending on length
- Face has threaded hole for convenient locating, clamping, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*page 159*)
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions					System	Part Number
A	B	C	D	E		
in	in	in	in	places	UNC	
1.500	1.50	1.00	-	1	1/2"-13	AMF-62510
1.750	1.75	1.25	-	1	5/8"-11	AMF-62510-01
1.500	2.50	1.00	1.50	3	1/2"-13	AMF-62520
1.750	2.75	1.25	1.75	3	5/8"-11	AMF-62520-01
1.500	3.50	1.00	1.50	5	1/2"-13	AMF-62530
1.750	3.75	1.25	1.75	5	5/8"-11	AMF-62530-01

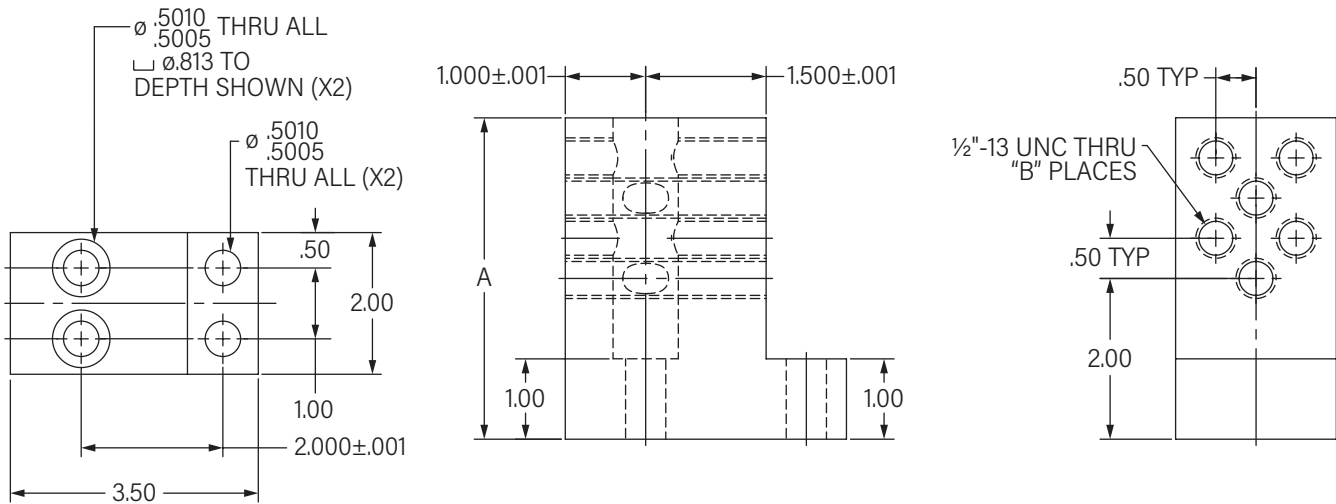
# LOCATORS, SPACERS, AND RISERS HEAVY DUTY PRECISION LOCATOR

- Black oxide finish provides corrosion resistance and extended life
- ½"-13 thru hole—3 or 6 places depending on height
- Face has threaded holes for convenient locating, clamping, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*Reference page 159*)
- Accommodates ½"-13 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.

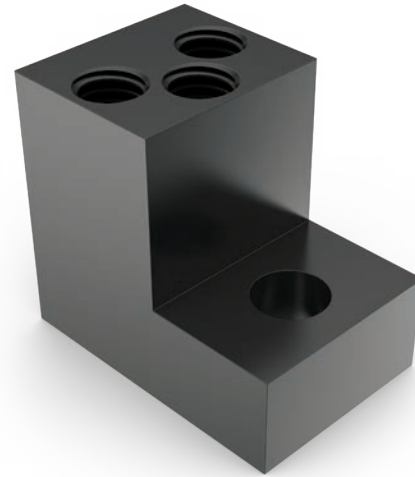


Dimensions		System	Part Number
A	B		
in	places	UNC	
3.00	3	½"-13	AMF-75510
4.00	6	½"-13	AMF-75520

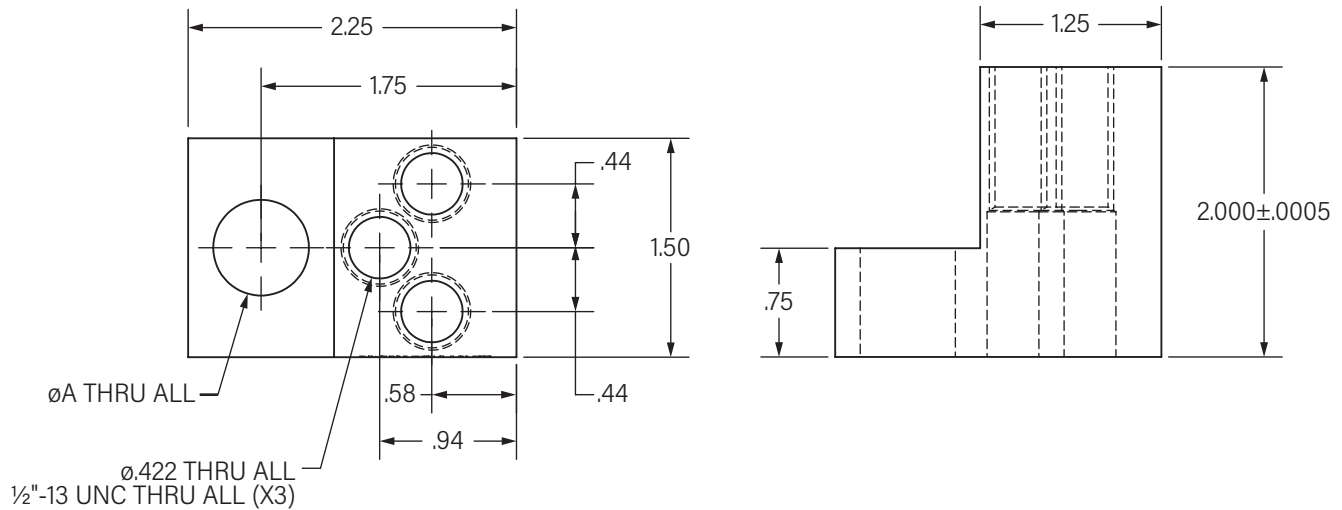
# LOCATORS, SPACERS, AND RISERS UNIVERSAL LOCATOR BLOCK

- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Face has threaded hole for convenient locating, clamping, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*page 159*)
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.

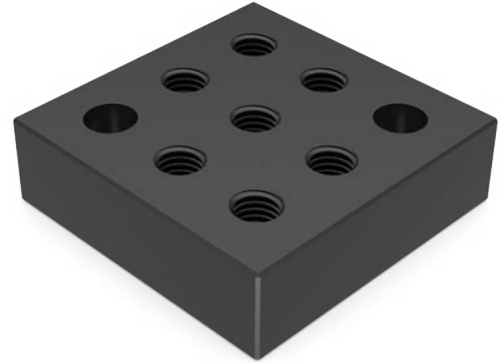


Dimensions		System	Part Number
$\phi A$	in		
0.66		5/8"-11	AMF-51473
0.53		1/2"-13	AMF-87464

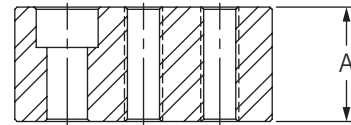
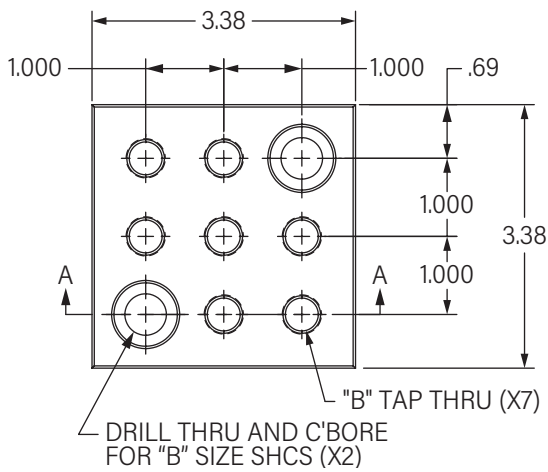
# LOCATORS, SPACERS, AND RISERS RISER BLOCK

- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Face has threaded hole for convenient locating, clamping, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*page 159*)
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Stainless steel material and custom sizes available upon request.



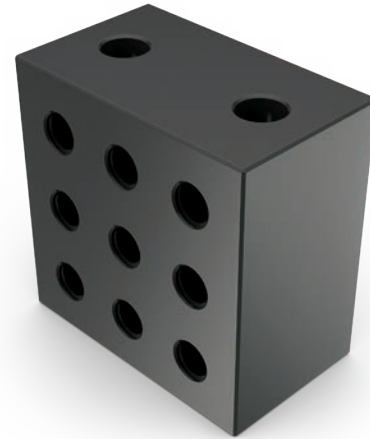
Note: CAD models available for download online.



Dimensions		System	Part Number	
A±.0005	B			
in	in	UNC	440C Stainless Steel	4140
1.000	1/2"-13	1/2"-13	AMF-59618	AMF-59618-01
1.000	5/8"-11	5/8"-11	-	AMF-59618-02
1.250	1/2"-13	1/2"-13	AMF-59619	AMF-59619-01
1.250	5/8"-11	5/8"-11	-	AMF-59619-02
1.500	1/2"-13	1/2"-13	AMF-59620	AMF-59620-01
1.500	5/8"-11	5/8"-11	-	AMF-59620-02
2.000	1/2"-13	1/2"-13	AMF-59621	AMF-59621-01
2.000	5/8"-11	5/8"-11	-	AMF-59621-02

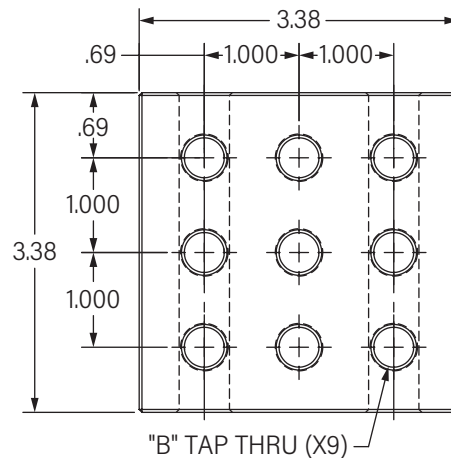
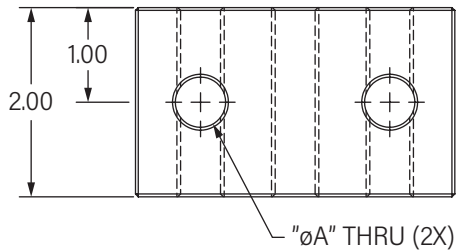
# LOCATORS, SPACERS, AND RISERS SIDE MOUNTING BLOCK

- Black oxide finish provides corrosion resistance and extended life
- Hardened and ground for longer life and improved accuracy
- Ideal for clamping small parts horizontally for vertical mills and vice versa
- Face has threaded hole for convenient locating, clamping, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*page 159*)
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: Stainless steel material and custom sizes available upon request.

Note: CAD models available for download online.



Dimensions		System	Part Number	
øA	B			
in	in	UNC	440C Stainless Steel	4140
0.53	1/2"-13	1/2"-13	AMF-59622	AMF-59622-01
0.66	5/8"-11	5/8"-11	-	AMF-59622-02



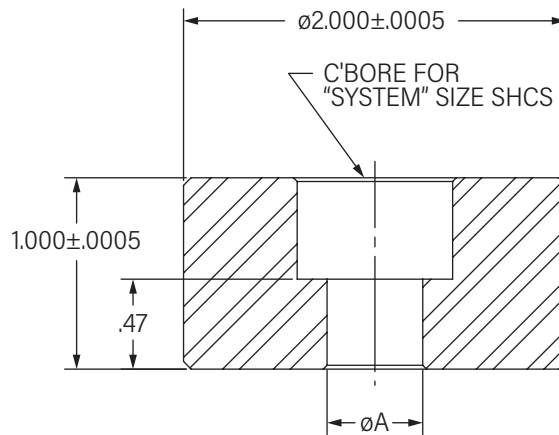
# LOCATORS, SPACERS, AND RISERS PRECISION REST BUTTON

- Black oxide finish provides corrosion resistance and extended life
- Diameters are concentric within 0.0005"
- Can be used for supporting and side locating (use with precision screws when side locating)
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Dimensions	System	Part Number
øA		
in	UNC	
0.6257/0.6263	5/8"-11	AMF-87917
0.5007/0.5013	1/2"-13	AMF-87990

# LOCATORS, SPACERS, AND RISERS PRECISION EDGE TOWER

- Black oxide finish provides corrosion resistance and extended life
- Precision counterbore and tapped holes are available on units 1.50" or taller
- Precision shaft threads into the precision counterbore for accurate transfer of location from grid plate
- All three diameters are concentric within 0.0005"
- May also be used for locating, side-locating, supporting, or stopping
- Accommodates ½"-13 grid systems

*Note: Custom sizes available upon request.*

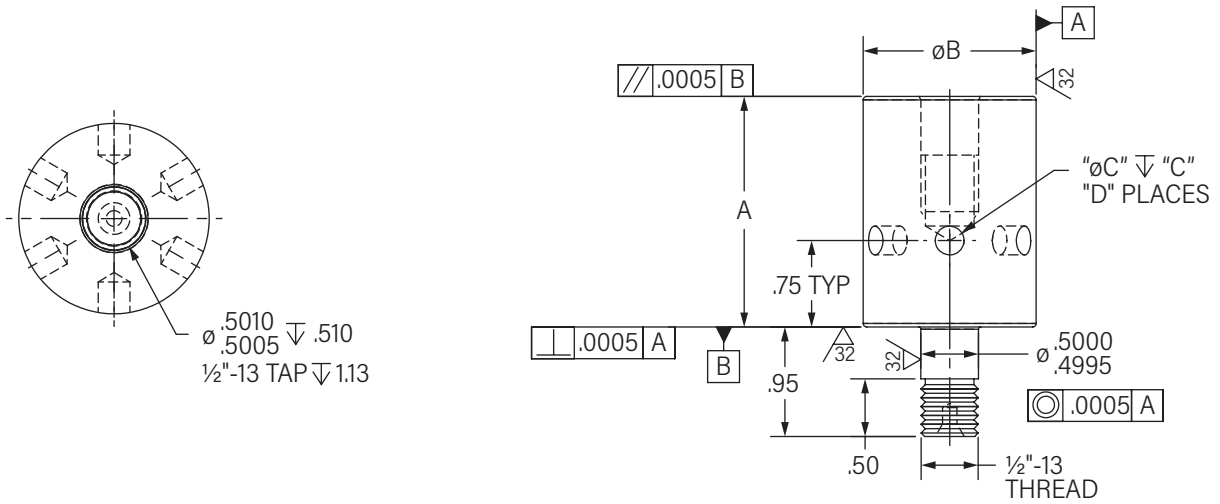


*Note: CAD models available for download online.*

## ADDITIONAL ACCESSORIES

- Spanner wrench; 1.00" version (AMF-59241-01)
- Replacement pin; 1.00" version (AMF-59242-01)
- Spanner wrench; 1.50" and 2.00" versions (AMF-59241)
- Replacement pin; 1.50" and 2.00" versions (AMF-59242)

# LOCATORS, SPACERS, AND RISERS PRECISION EDGE TOWER



Dimensions				System	Part Number
A $\pm .0005$	B $\pm .001$	C	D		
in	in	in	places	UNC	
1.000	1.000	3/16"	4	1/2"-13	AMF-64510
1.250	1.000	3/16"	4	1/2"-13	AMF-64512
1.500	1.000	3/16"	4	1/2"-13	AMF-64515
1.750	1.000	3/16"	4	1/2"-13	AMF-64517
2.000	1.000	3/16"	4	1/2"-13	AMF-64520
2.500	1.000	3/16"	4	1/2"-13	AMF-64525
3.000	1.000	3/16"	4	1/2"-13	AMF-64530
1.000	2.000	1/4"	6	1/2"-13	AMF-65510
1.250	2.000	1/4"	6	1/2"-13	AMF-65512
1.500	2.000	1/4"	6	1/2"-13	AMF-65515
1.750	2.000	1/4"	6	1/2"-13	AMF-65517
2.000	2.000	1/4"	6	1/2"-13	AMF-65520
2.500	2.000	1/4"	6	1/2"-13	AMF-65525
3.000	2.000	1/4"	6	1/2"-13	AMF-65530
1.000	1.500	1/4"	6	1/2"-13	AMF-67510
1.250	1.500	1/4"	6	1/2"-13	AMF-67512
1.500	1.500	1/4"	6	1/2"-13	AMF-67515
1.750	1.500	1/4"	6	1/2"-13	AMF-67517
2.000	1.500	1/4"	6	1/2"-13	AMF-67520
2.500	1.500	1/4"	6	1/2"-13	AMF-67525
3.000	1.500	1/4"	6	1/2"-13	AMF-67530

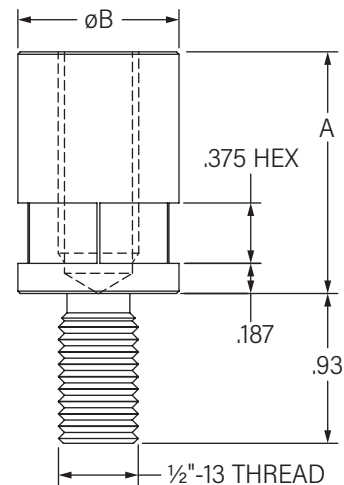
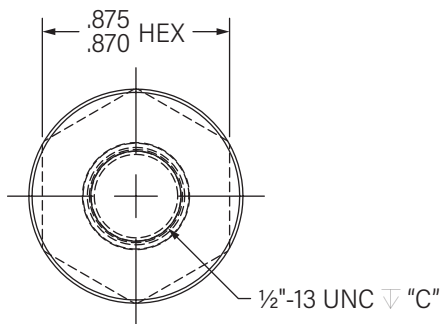
# LOCATORS, SPACERS, AND RISERS ROUND SPACERS

- Black oxide finish provides corrosion resistance and extended life
- Use as precision extensions for ball elements, locators, and supports
- May also be used for locating, supporting, or stopping
- Doubles as a clamp when combined with threaded housings with ball elements (*page 159*)
- Accommodates ½"-13 or ⅝"-11 grid systems

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions			System	Part Number
A±.001	øB	C		
in	in	in	UNC	
1.000	1.00	0.62	½"-13	AMF-63510
1.250	1.00	0.87	½"-13	AMF-63512
1.500	1.00	1.25	½"-13	AMF-63515
1.750	1.00	1.25	½"-13	AMF-63517
2.000	1.00	1.25	½"-13	AMF-63520
2.500	1.00	1.25	½"-13	AMF-63525
3.000	1.00	1.25	½"-13	AMF-63530
1.000	2.00	0.62	½"-13	AMF-63510-01
1.250	2.00	0.87	½"-13	AMF-65512-01
1.500	2.00	1.25	½"-13	AMF-65515-01
1.750	2.00	1.25	½"-13	AMF-65517-01
2.000	2.00	1.25	½"-13	AMF-65520-01
2.500	2.00	1.25	½"-13	AMF-65525-01
3.000	2.00	1.25	½"-13	AMF-65530-01

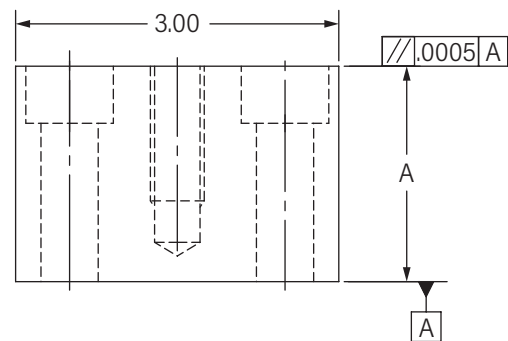
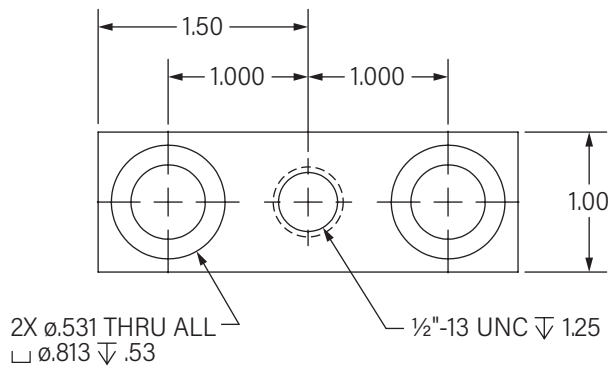
# LOCATORS, SPACERS, AND RISERS BLOCK SPACER

- Black oxide finish provides corrosion resistance and extended life
- Use as precision extensions for ball elements, locators, and supports
- May also be used for locating, supporting, or stopping
- Accommodates ½"-13 grid systems only

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions	System	Part Number
A±.0005		
in	UNC	
1.000	½"-13	AMF-71512
2.000	½"-13	AMF-71522
3.000	½"-13	AMF-71532

# SPRING SUPPORT SQUEEZE LOCK

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth, ball element contact pads available to meet different requirements
- Cap screw locks support at desired height
- Load Capacity: 1,000 lbs at 5 ft-lbs
- Accommodates ½"-13 grid systems



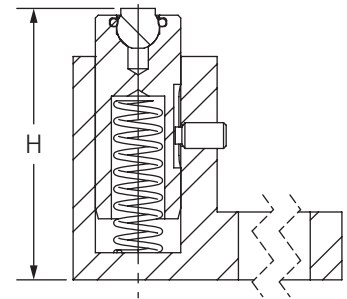
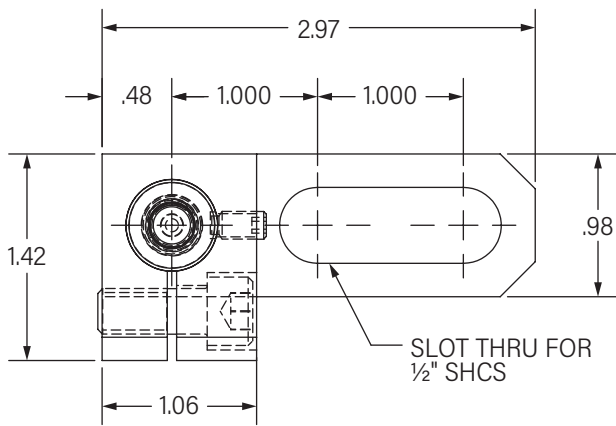
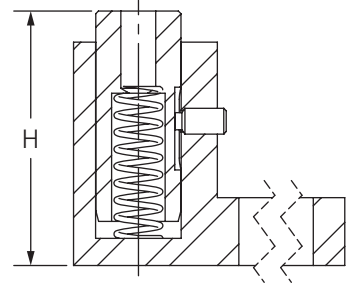
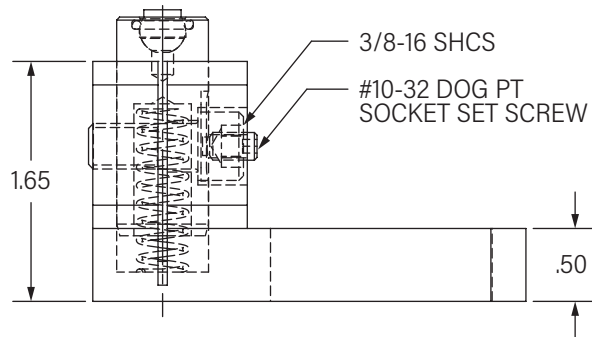
Note: Custom sizes available upon request.

Note: CAD models available for download online.

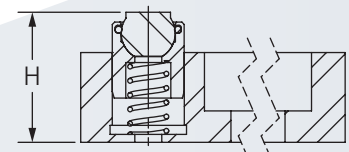
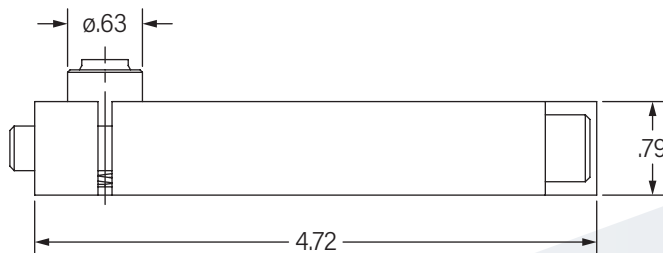
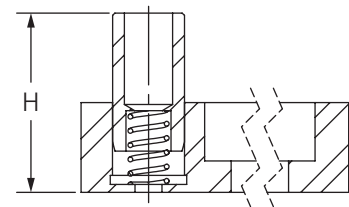
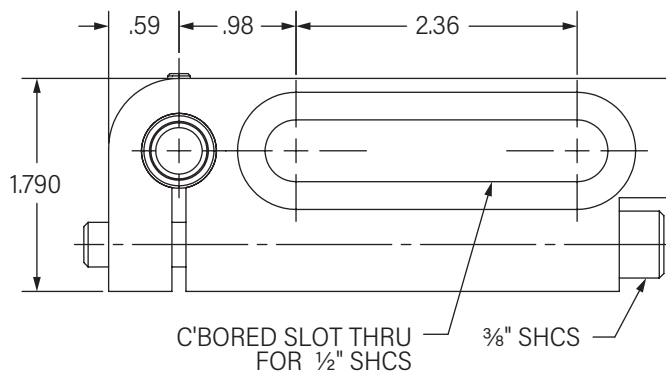
Type	Ball Element					Dimensions		Thread	System	Part Number
	Style	øBall	øBall Face	Swivel	Load Capacity	H				
		in	in	degree	lbs	in	UNC	UNC		
Standard	Smooth	0.315	0.26	6°	1798	1.75/2.15	-	½"-13	AMF-87478	
Standard	-	-	-	-	-	1.75/2.15	5/16"-18 x .50	½"-13	AMF-76550	
Low Profile	Smooth	0.472	0.39	6°	4496	0.83/1.14	-	½"-13	AMF-87593	
Low Profile	-	-	-	-	-	1.31/1.65	½"-13 x .63	½"-13	AMF-76510	

# SQUEEZE LOCK SPRING SUPPORT

## STANDARD



## LOW PROFILE



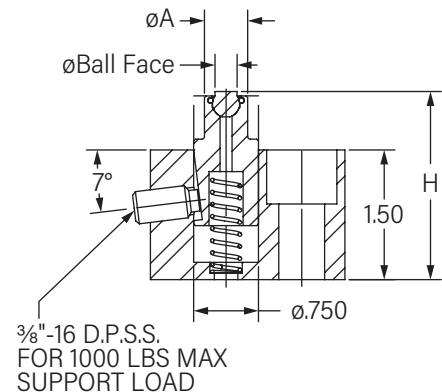
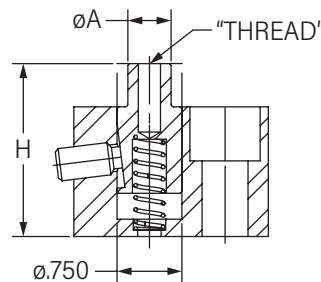
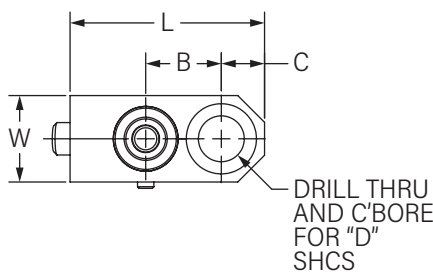
# SPRING SUPPORT WHISTLE-NOTCH LOCK

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth, ball element contact pads or tapped hole available to meet different requirements
- Positive stop; set screw locks the plunger when it comes into contact with the part
- Load Capacity: 1,000 lbs maximum at 5 ft-lbs of torque maximum
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.



Note: Use dowel or roll pin for anti-rotation of base.

Type	Ball Element				Dimensions							Thread	System	Part Number
	Style	øBall	øBall Face	Swivel	øA	B	C	D	H	L	W			
		in	in	degree	in	in	in	in	in	in	in			
Ball Element	Smooth	0.472	0.39	6°	0.75	0.88	0.50	1/2"	1.81/2.18	2.25	1.00	-	1/2"-13	AMF-87593-01
Ball Element	Smooth	0.315	0.26	6°	0.50	0.88	0.50	1/2"	1.81/2.18	2.25	1.00	-	1/2"-13	AMF-87593-02
Threaded	-	-	-	-	0.75	0.88	0.50	1/2"	1.75/2.13	2.25	1.00	1/2"-13	1/2"-13	AMF-87593-03
Threaded	-	-	-	-	0.50	0.88	0.50	1/2"	1.75/2.13	2.25	1.00	5/16"-18	1/2"-13	AMF-87593-04
Ball Element	Smooth	0.472	0.39	6°	0.75	1.00	0.63	5/8"	1.81/2.18	2.50	1.25	-	5/8-11	AMF-87593-05
Ball Element	Smooth	0.315	0.26	6°	0.50	1.00	0.63	5/8"	1.81/2.18	2.50	1.25	-	5/8-11	AMF-87593-06
Threaded	-	-	-	-	0.50	1.00	0.63	5/8"	1.75/2.13	2.50	1.25	5/16"-18	5/8-11	AMF-87593-08
Threaded	-	-	-	-	0.75	1.00	0.63	5/8"	1.75/2.13	2.50	1.25	1/2"-13	5/8-11	AMF-87593-07



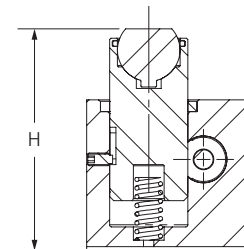
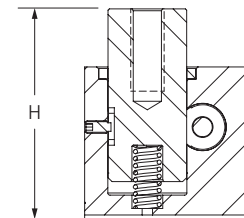
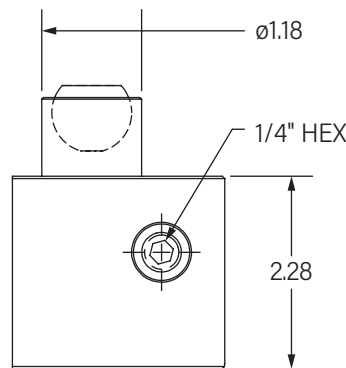
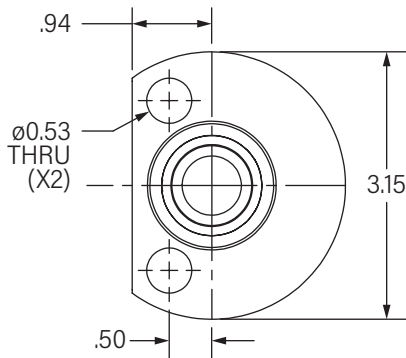
# SPRING SUPPORT PLUG LOCK

- Black oxide finish provides corrosion resistance and extended life
- Built-in ball element assemblies are ideal for smaller spaces due to their compact height
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth, ball element contact pad or tapped hole available to meet different requirements
- Cap screw locks plugs against plunger at an adjustable height
- Load Capacity: 1,000 lbs maximum at 10 ft-lbs torque maximum
- Accommodates 1/2"-13 or 5/8"-11 grid systems

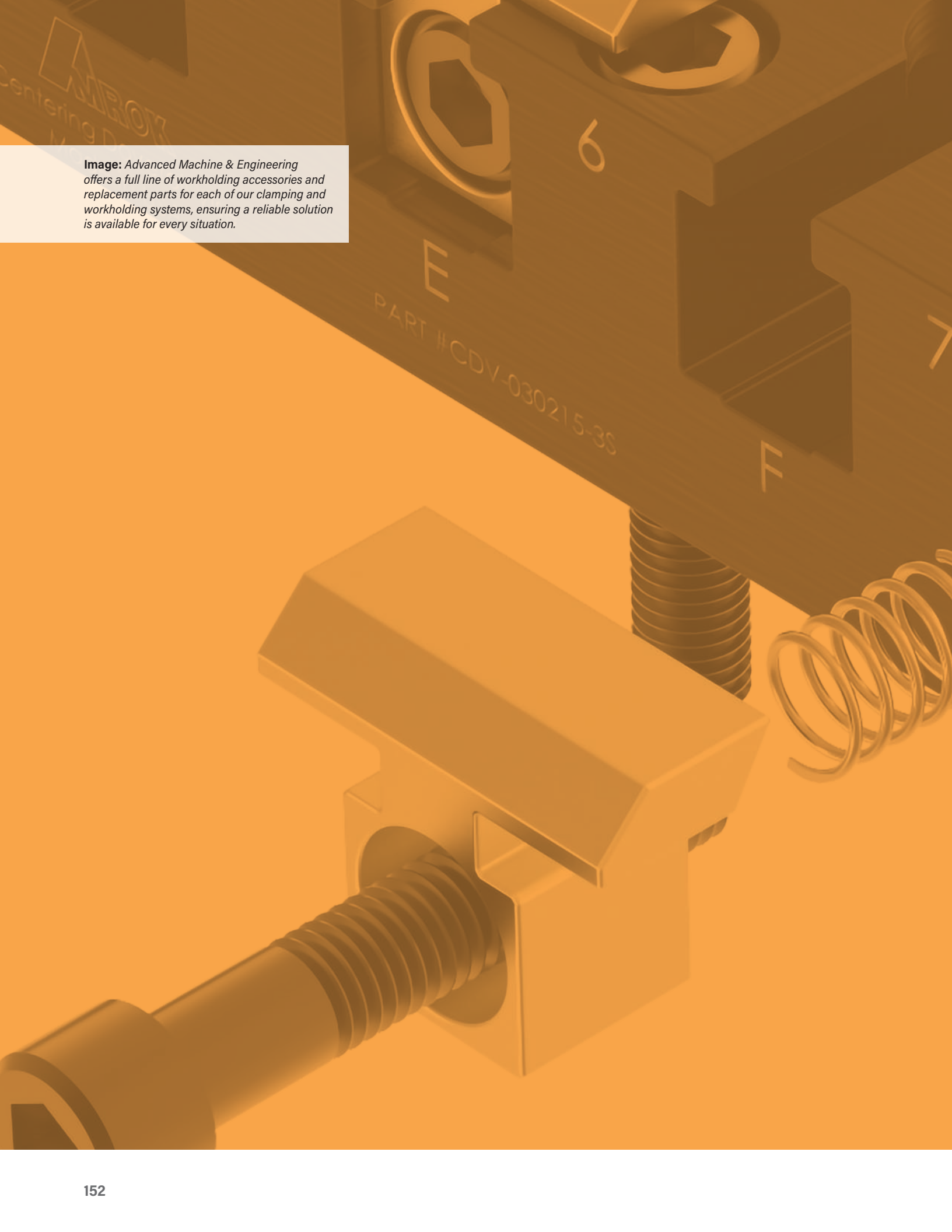


Note: CAD models available for download online.

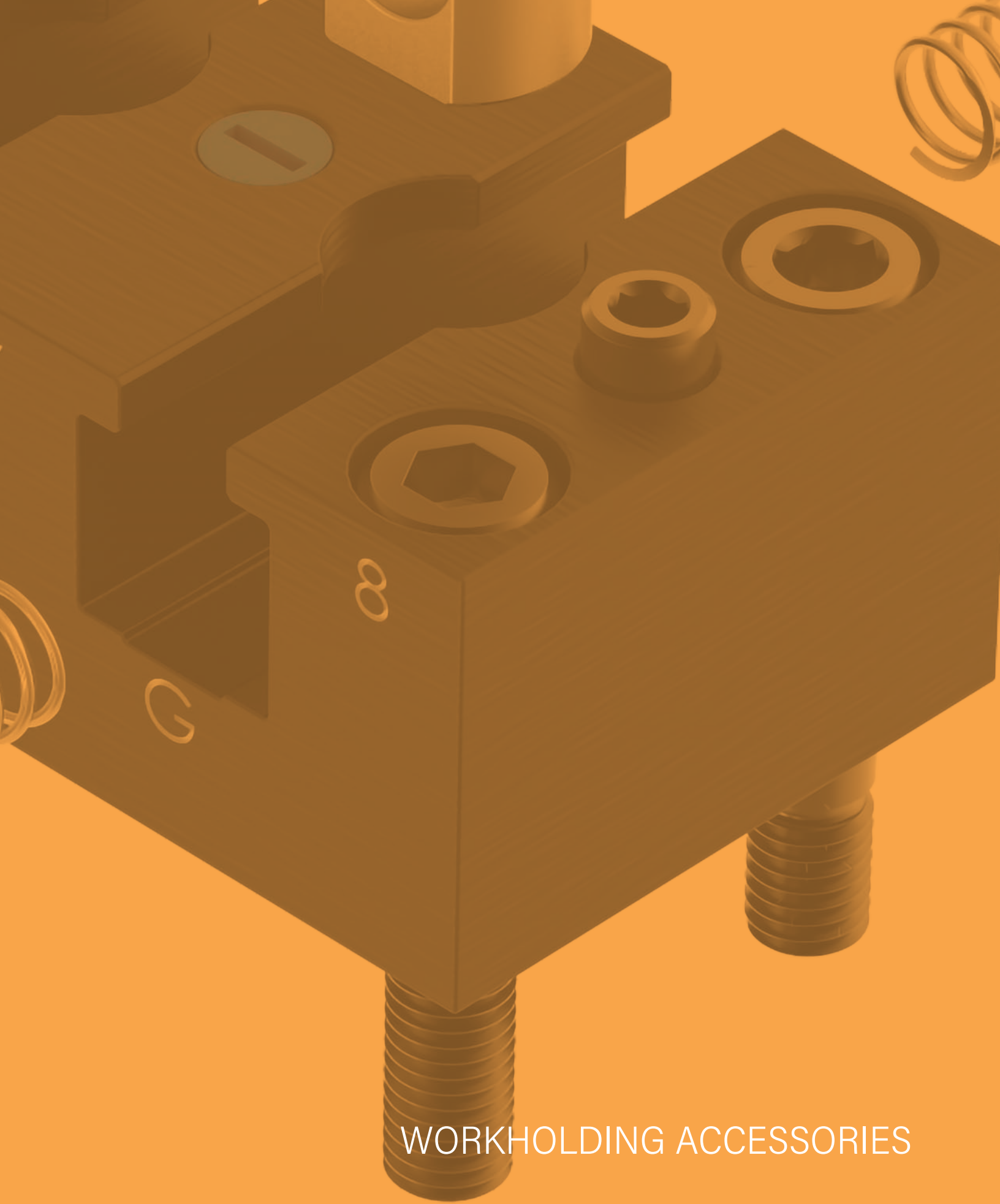
Note: Custom sizes available upon request.



Type	Ball Element				Dimensions	Thread	System	Part Number
	Style	ØBall	ØBall Face	Swivel	H			
		in	in	degree	in			
Ball Element	Smooth	0.945	0.70	6	2.95/3.35	-	1/2"-13	AMF-87615
Threaded	-	-	-	-	2.95/3.35	1/2"-13 x 1.00	1/2"-13	AMF-76530
Threaded	-	-	-	-	2.95/3.35	5/8"-11 x 1.00	1/2"-13	AMF-76630
Ball Element	Smooth	0.945	0.7	6	2.95/3.35	-	5/8"-11	AMF-87615-04
Threaded	-	-	-	-	2.95/3.35	1/2"-13 x 1.00	5/8"-11	AMF-76530-02
Threaded	-	-	-	-	2.95/3.35	5/8"-11 x 1.00	5/8"-11	AMF-76630-02



**Image:** Advanced Machine & Engineering offers a full line of workholding accessories and replacement parts for each of our clamping and workholding systems, ensuring a reliable solution is available for every situation.



# WORKHOLDING ACCESSORIES

# WORKHOLDING ACCESSORIES

## SELF-ALIGNING FIXTURE ELEMENT (SAFE) ACCESSORIES



158 SET SCREWS  
with Ball Elements



159 THREADED  
HOUSING  
with Ball Elements



161 PRESS-FIT SHANK  
with Ball Elements



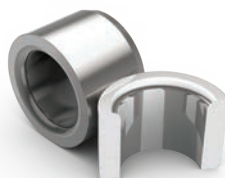
162 STUD  
with Ball Elements



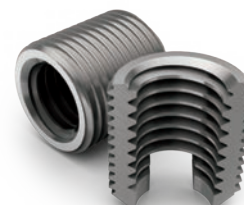
## STANDARD ACCESSORIES



166 PRECISION  
LOCATING SCREW  
Standard Accessories



168 BUSHING  
Standard Accessories



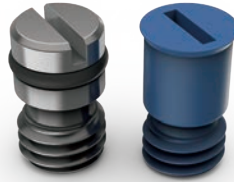
168 THREADED INSERT  
Standard Accessories

# WORKHOLDING ACCESSORIES

## STANDARD ACCESSORIES *Continued*



**169 INSERT/BUSHING  
REPAIR KIT**  
Standard Accessories



**169 THREADED HOLE  
PLUG**  
Standard Accessories



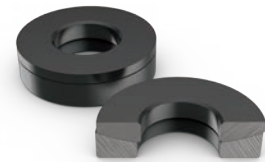
**170 PRECISION  
LOCATING PIN**  
Standard Accessories



**171 SPHERICAL  
SCREWS**  
Standard Accessories



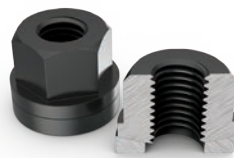
**173 ADAPTER SCREW**  
Standard Accessories



**173 SPHERICAL  
WASHER ASSEMBLY**  
Standard Accessories



**174 COUPLING NUT**  
Standard Accessories



**174 SPHERICAL NUT  
ASSEMBLY**  
Standard Accessories



**175 WASHER**  
Standard Accessories

# WORKHOLDING ACCESSORIES

## STANDARD ACCESSORIES *Continued*



**175 HEEL REST**  
Standard Accessories



**176 JACK SCREW**  
Standard Accessories



**177 STUD**  
Standard Accessories



**178 LEVELING REST PADS**  
Standard Accessories

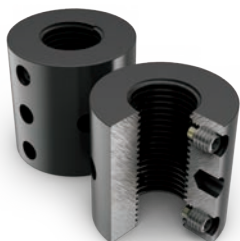


**178 SPRING**  
Standard Accessories

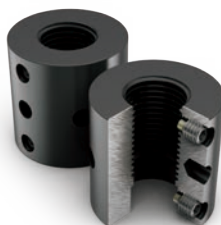


**179 CALIBRATION BLOCK**  
Standard Accessories

## UNIVERSAL ACCESSORIES



**182 BODY**  
Standard Accessories



**183 ROTATING BODY**  
Standard Accessories



**184 THREADED PLUG**  
Standard Accessories

# WORKHOLDING ACCESSORIES

UNIVERSAL ACCESSORIES *Continued*



**185 BOTTOM PLUG**  
Standard Accessories



**186 ROTATING PLUG**  
Standard Accessories



**187 CONNECTING ROD**  
Standard Accessories

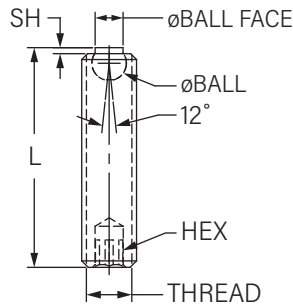
# SAFE ACCESSORIES SET SCREW

- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Style	Ball Element					Dimensions		Hex	Thread	Part Number
	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	L				
	in	in	in	degree	lbs	in	in	UNC		
Serrated	0.315	0.26	0.05	6°	1798	2.00	0.250	1/2"-13	AMF-87412	
Serrated	0.315	0.26	0.05	6°	1798	3.00	0.250	1/2"-13	AMF-87456	
Smooth	0.315	0.26	0.05	6°	1798	2.00	0.250	1/2"-13	AMF-87495	
Smooth	0.315	0.26	0.05	6°	1798	3.00	0.250	1/2"-13	AMF-87496	
Smooth	0.472	0.43	0.06	6°	4496	2.50	0.312	5/8"-11	AMF-87595	
Smooth	0.472	0.43	0.06	6°	4496	3.50	0.312	5/8"-11	AMF-87596	
Serrated	0.472	0.43	0.06	6°	4496	2.50	0.312	5/8"-11	AMF-87597	
Serrated	0.472	0.43	0.06	6°	4496	3.50	0.312	5/8"-11	AMF-87598	



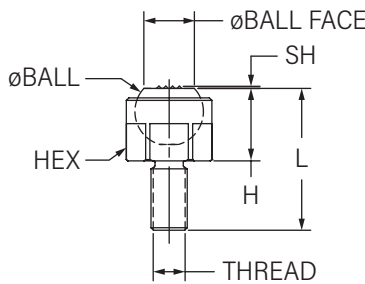
# SAFE ACCESSORIES THREADED HOUSING, FIXED

- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Adjustable, threaded housing available on page 160
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.



Style	Ball Element					Dimensions		Hex	Thread	Part Number
	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	L	H			
	in	in	in	degree	lbs	in	in	in	UNC	
Smooth	0.315	0.26	-	6°	1,798	1.4	1.00±0.0005	3/8"	5/16"-18	AMF-87490
Serrated	0.315	0.26	0.03	6°	1,798	1.4	1.00±0.005	3/8"	5/16"-18	AMF-87491
Smooth	0.472	0.43	-	6°	4,496	1.95	1.00±0.0005	9/16"	1/2"-13	AMF-87582
Serrated	0.472	0.43	0.028	6°	4,496	1.95	1.00±0.005	9/16"	1/2"-13	AMF-87583
Smooth	0.472	0.43	-	6°	4,496	2.15	1.20±0.0005	9/16"	1/2"-13	AMF-87589
Serrated	0.472	0.43	0.028	6°	4,496	2.15	1.20±0.005	9/16"	1/2"-13	AMF-87590
Smooth	0.472	0.43	-	6°	4,496	2.95	2.00±0.0005	9/16"	1/2"-13	AMF-87589-01
Serrated	0.472	0.43	0.028	6°	4,496	2.95	2.00±0.005	9/16"	1/2"-13	AMF-87590-01
Smooth	0.945	0.71	-	6°	11,240	1.95	1.00±0.0005	1 1/16"	1/2"-13	AMF-87636
Serrated	0.945	0.71	0.025	6°	11,240	1.95	1.00±0.005	1 1/16"	1/2"-13	AMF-87637
Smooth	0.945	0.71	-	6°	11,240	2.18	1.20±0.0005	1 1/16"	1/2"-13	AMF-87601
Serrated	0.945	0.71	0.025	6°	11,240	2.18	1.20±0.005	1 1/16"	1/2"-13	AMF-87602
Smooth	0.945	0.71	-	6°	11,240	2.95	2.00±0.0005	1 1/16"	1/2"-13	AMF-87601-01
Serrated	0.945	0.71	0.025	6°	11,240	2.95	2.00±0.005	1 1/16"	1/2"-13	AMF-87602-01
Smooth	0.945	0.71	-	6°	11,240	1.95	1.00±0.0005	1 1/16"	5/8"-11	AMF-87626
Serrated	0.945	0.71	0.025	6°	11,240	1.95	1.00±0.005	1 1/16"	5/8"-11	AMF-87627
Smooth	0.945	0.71	-	6°	11,240	2.95	2.00±0.0005	1 1/16"	5/8"-11	AMF-87626-01
Serrated	0.945	0.71	0.025	6°	11,240	2.95	2.00±0.005	1 1/16"	5/8"-11	AMF-87627-01
Smooth	1.575	1.36	-	6°	22,480	2.48	1.25±0.0005	7/8"	1/2"-13	AMF-87717-01
Serrated	1.575	1.36	0.05	6°	22,480	2.48	1.25±0.005	7/8"	1/2"-13	AMF-87718-01
Smooth	1.575	1.36	-	6°	22,480	2.48	1.25±0.0005	7/8"	5/8"-11	AMF-87717
Serrated	1.575	1.36	0.05	6°	22,480	2.48	1.25±0.005	7/8"	5/8"-11	AMF-87718

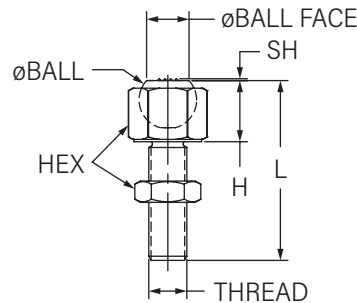
# SAFE ACCESSORIES THREADED HOUSING, ADJUSTABLE

- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Smooth or serrated ball element contact pads available to meet different requirements
- Fixed, threaded housing available on page 159
- Accommodates 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.



Ball Element						Dimensions		Hex	Thread	Part Number
Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	L	H			
	in	in	in	degree	lbs	in	in	in	UNC	
Smooth	0.315	0.26	-	6°	1,798	1.73	0.63±0.015	1/2"	5/16"-18	AMF-87481
Serrated	0.315	0.26	0.03	6°	1,798	1.73	0.63±0.015	1/2"	5/16"-18	AMF-87483
Smooth	0.472	0.43	-	6°	4,496	2.75	0.81±0.015	11/16"	1/2"-13	AMF-87584
Serrated	0.472	0.43	0.028	6°	4,496	2.75	0.81±0.015	11/16"	1/2"-13	AMF-87594
Smooth	0.472	0.43	-	6°	4,496	1.75	0.50±0.015	11/16"	1/2"-13	AMF-51067
Serrated	0.472	0.43	0.028	6°	4,496	1.75	0.50±0.015	9/16"	1/2"-13	AMF-54469
Smooth	0.945	0.71	-	6°	11,240	2.95	1.00±0.015	15/16"	5/8"-11	AMF-87654
Serrated	0.945	0.71	0.025	6°	11,240	2.95	1.00±0.015	15/16"	5/8"-11	AMF-87655
Smooth	0.945	0.71	-	6°	11,240	2.95	1.00±0.015	15/16"	3/4"-16	AMF-87641
Serrated	0.945	0.71	0.025	6°	11,240	2.95	1.00±0.015	15/16"	3/4"-16	AMF-87642
Smooth	1.575	1.36	-	6°	22,480	2.95	1.25±0.015	7/8"	1 1/4"-12	AMF-54470-01
Serrated	1.575	1.36	0.05	6°	22,480	2.95	1.25±0.015	7/8"	1 1/4"-12	AMF-54471-01
Smooth	1.575	1.36	-	6°	22,480	3.54	1.25±0.015	7/8"	1 1/4"-12	AMF-87741-02
Serrated	1.575	1.36	0.05	6°	22,480	3.54	1.25±0.015	7/8"	1 1/4"-12	AMF-87742-02

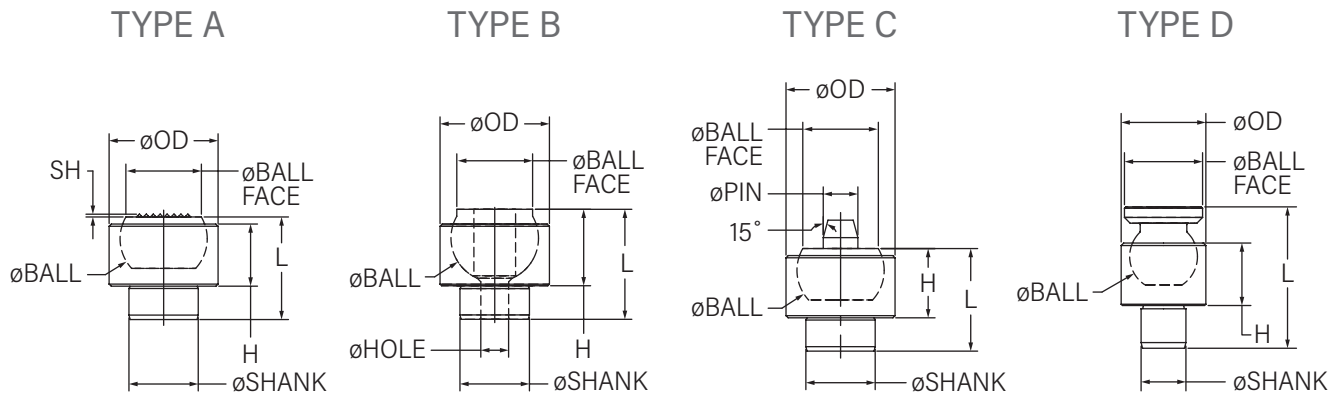
# SAFE ACCESSORIES PRESS-FIT SHANK

- Fixed height doubles for use in locating and positioning post pieces
- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; press-fit shanks swivel up to 10°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Ball element contact pads are available with smooth or serrated surfaces



Note: Custom sizes available upon request.

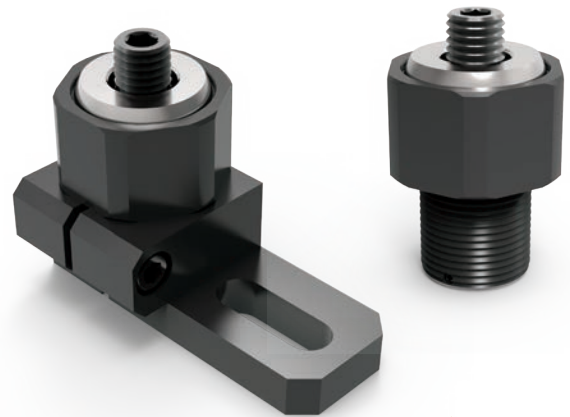
Note: CAD models available for download online.



Type	Ball Element						Dimensions					Part Number
	Style	øBall	øBall Face	Serration Height (SH)	Swivel	Load Capacity	Locator Type	øLocator	L	H ±0.0005	øShank	
		in	in	in	deg.	lbs		in	in	in	in	
A	Smooth	0.945	0.71	-	6°	11240	-	-	1.59	1.000	0.6260-0.6255	AMF-87620
A	Serrated	0.945	0.71	0.03	6°	11240	-	-	1.59	1.000	0.6260-0.6255	AMF-87625
B	Smooth	0.945	0.71	-	4°	11240	Hole	0.3756/.3750	1.59	1.000	0.6260-0.6255	AMF-87624
C	Smooth	0.945	0.71	-	6°	11240	Pin	0.3120	1.59	1.000	0.6260-0.6255	AMF-87621
B	Serrated	1.575	0.79	0.05	6°	22480	-	-	1.85	1.250	1.2513-1.2507	AMF-87725
C	Smooth	1.575	1.36	-	6°	22480	-	-	1.85	1.250	1.2513-1.2507	AMF-87720
C	Smooth	1.575	1.36	-	6°	22480	Pin	0.6245	1.84	1.250	1.2513-1.2507	AMF-87721
C	Smooth	1.575	1.36	-	10°	22480	Hole	0.5001	1.85	1.250	1.2513-1.2507	AMF-87724
C	Smooth	1.575	1.36	-	10°	22480	Hole	0.5007	1.85	1.250	1.2513-1.2507	AMF-87724-03
C	Smooth	1.575	1.36	-	5°	22480	Hole	0.6251	1.85	1.250	1.2513-1.2507	AMF-87722
C	Smooth	1.575	1.36	-	5°	22480	Hole	0.6257	1.85	1.250	1.2513-1.2507	AMF-87722-01
D	Smooth	0.945	1.09	-	3°	11240	Hole	0.3750	1.97	1.375	0.6260-0.6255	AMF-87673

# SAFE ACCESSORIES INVERTED STUD BALL ELEMENT, THREADED

- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Ball element contact pads available to meet different requirements
- Accommodates ½"-13 or ⅝"-11 grid systems



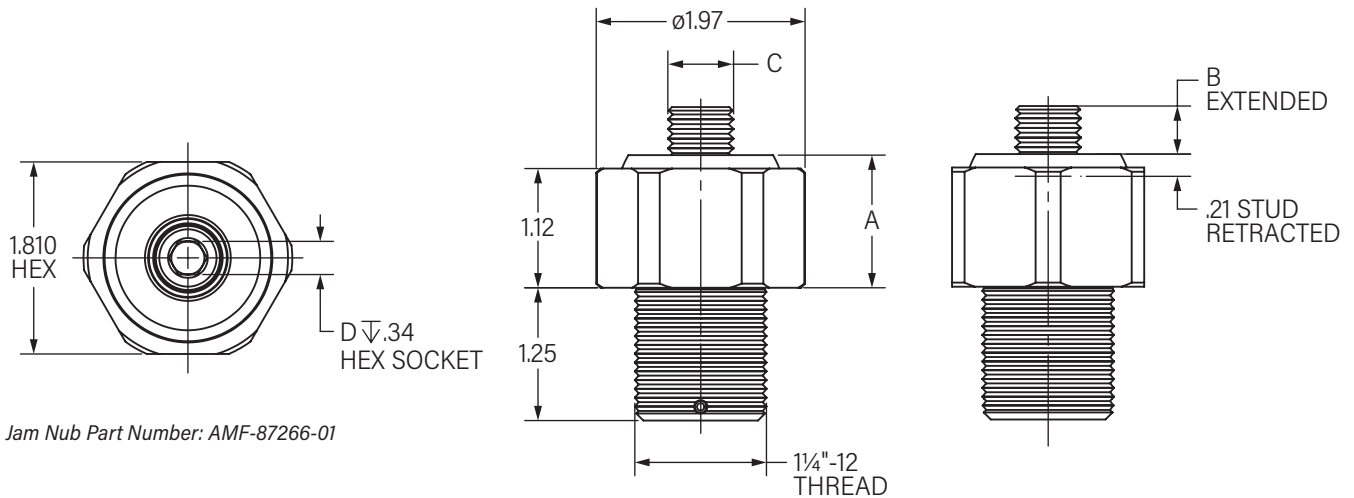
Note: Custom sizes available upon request.

Note: CAD models available for download online.

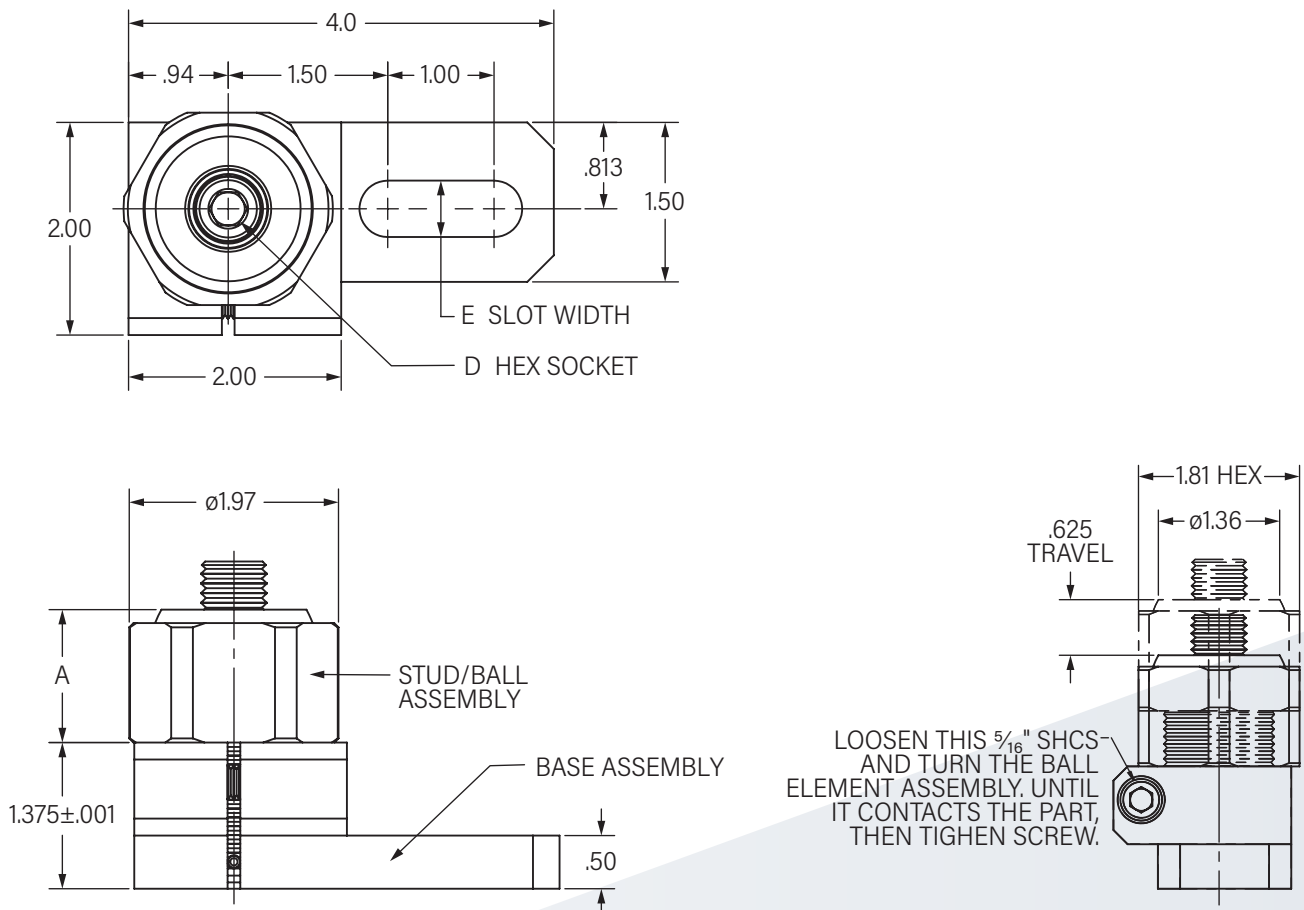
Ball Element				Dimensions					Part Number		
øBall	øBall Face	Swivel	Load Capacity	A±.0005	B	C	D	E	Stud/Ball Assembly	Base Assembly	Stud/Ball/Base Assembly
in	in	degree	lbs	in	in	in	in	in			
1.575	1.363	6°	22,480	1.2500	0.45	⅝"-11	0.313	0.530	AMF-59820-01	AMF-59819-01	AMF-59818-01
1.575	1.363	6°	22,480	1.5000	0.75	⅝"-11	0.313	0.530	AMF-59820-02	AMF-59819-01	AMF-59818-02
1.575	1.363	6°	22,480	1.5000	0.65	½"-13	0.260	0.530	AMF-59828-01	AMF-59819-01	AMF-59818-05
1.575	1.363	6°	22,480	1.2500	0.45	½"-13	0.260	0.530	AMF-59828-03	AMF-59819-01	AMF-59818-07

# SAFE ACCESSORIES INVERTED STUD BALL ELEMENT, THREADED

## STUD/BALL ASSEMBLY

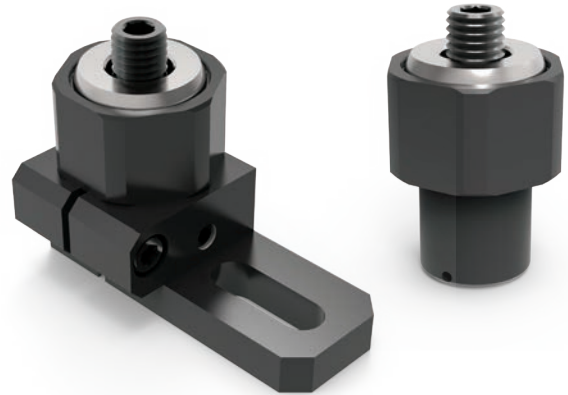


## STUD/BALL/BASE ASSEMBLY



# SAFE ACCESSORIES INVERTED STUD BALL ELEMENT, PRESS-FIT

- Swiveling ball element contact pads allow for less internal stresses for bent or angled parts that require clamping for machining; ball elements swivel up to 6°
- Long life is provided by Viton O-Ring protection, preventing penetration of chips and coolant within the ball element system
- Ball element contact pads available to meet different requirements
- Accommodates ½"-13 or ⅝"-11 grid systems



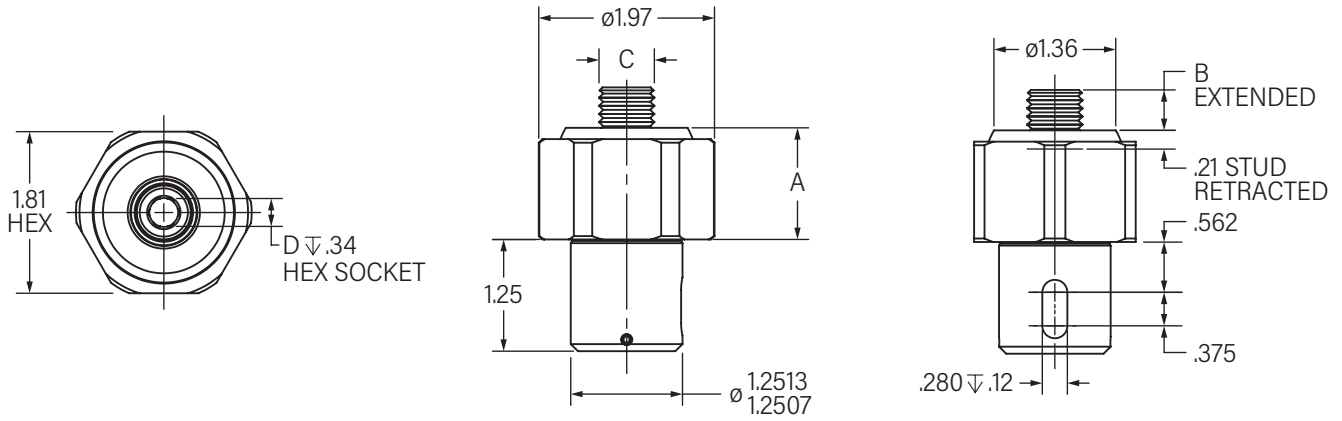
Note: When press-fit style is used with base, it is a slip-fit. Custom sizes available upon request.

Note: CAD models available for download online.

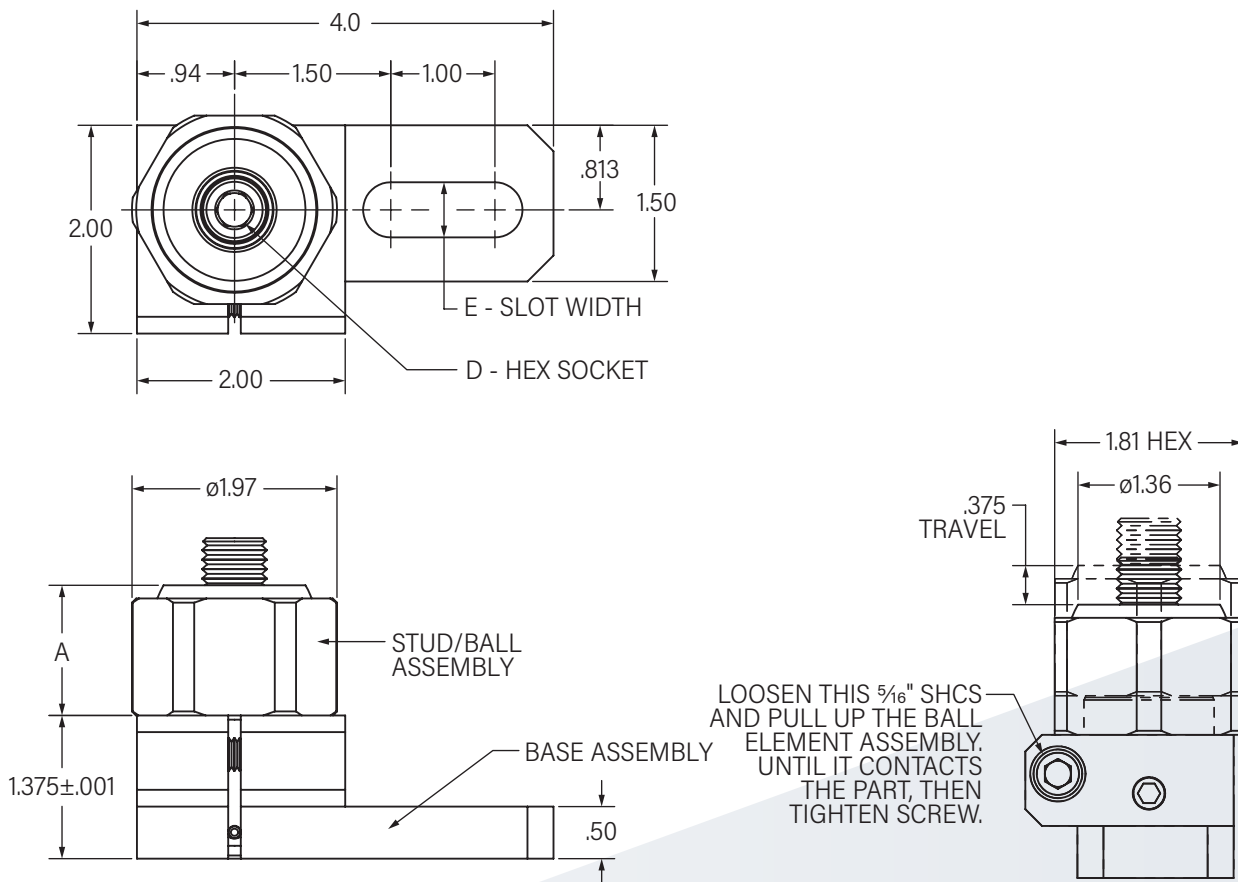
Ball Element				Dimensions					Part Number		
øBall	øBall Face	Swivel	Load Capacity	A±.0005	B	C	D	E	Stud/Ball Assembly	Base Assembly	Stud/Ball/Base Assembly
in	in	degree	lbs	in	in	in	in	in			
1.575	1.363	6°	22,480	1.2500	0.45	⅝"-11	0.313	0.530	AMF-59820	AMF-59819	AMF-59818
1.575	1.363	6°	22,480	1.5000	0.75	⅝"-11	0.313	0.530	AMF-59820-03	AMF-59819	AMF-59818-03
1.575	1.363	6°	22,480	1.5000	0.65	½"-13	0.260	0.530	AMF-59828	AMF-59819	AMF-59818-04
1.575	1.363	6°	22,480	1.2500	0.45	½"-13	0.260	0.530	AMF-59828-02	AMF-59819	AMF-59818-06

# SAFE ACCESSORIES INVERTED STUD BALL ELEMENT, PRESS-FIT

## STUD/BALL ASSEMBLY



## STUD/BALL/BASE ASSEMBLY



# STANDARD ACCESSORIES PRECISION LOCATING SCREW

- Black oxide finish provides corrosion resistance and extended life
- Hardened to Rc 33-39 and ground for longer life and improved accuracy
- Mainly used to position and clamp components on grid bases
- Can also be used as a locator for fixture plates
- Accommodates 1/2"-13 or 5/8"-11 grid systems

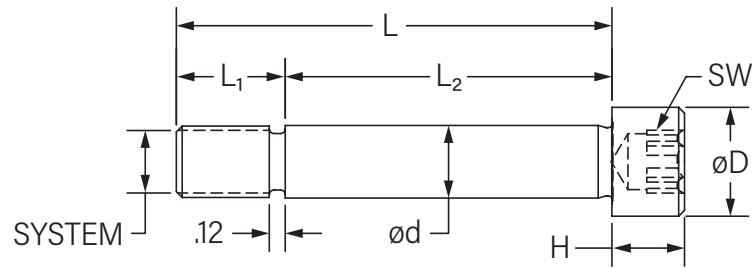
*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



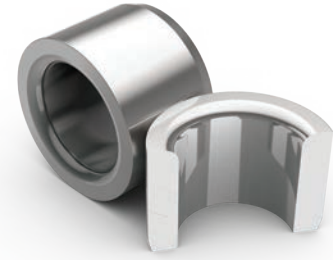
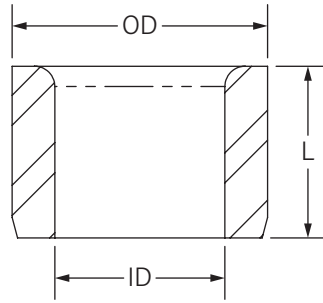
# STANDARD ACCESSORIES PRECISION LOCATING SCREW



Dimensions							System	Part Number
øD	ød	L	L <sub>1</sub>	L <sub>2</sub>	H	SW		
in	mm	in	in	in	in	in	UNC	
0.75	0.4995-0.4999	1.47	0.75	0.72	0.50	3/8	1/2"-13	AMF-87543
0.75	0.4995-0.4999	1.63	0.75	0.88	0.50	3/8	1/2"-13	AMF-87541
0.75	0.4995-0.4999	1.72	0.75	0.97	0.50	3/8	1/2"-13	AMF-87544
0.75	0.4995-0.4999	1.95	0.75	1.20	0.50	3/8	1/2"-13	AMF-87970
0.75	0.4995-0.4999	2.07	0.75	1.32	0.50	3/8	1/2"-13	AMF-87991
0.75	0.4995-0.4999	2.19	0.75	1.44	0.50	3/8	1/2"-13	AMF-87992
0.75	0.4995-0.4999	2.31	0.75	1.56	0.50	3/8	1/2"-13	AMF-87993
0.75	0.4995-0.4999	2.42	0.75	1.67	0.50	3/8	1/2"-13	AMF-87994
0.75	0.4995-0.4999	2.54	0.75	1.79	0.50	3/8	1/2"-13	AMF-87995
0.75	0.4995-0.4999	2.66	0.75	1.91	0.50	3/8	1/2"-13	AMF-87996
0.75	0.4995-0.4999	2.77	0.75	2.02	0.50	3/8	1/2"-13	AMF-87997
0.75	0.4995-0.4999	2.89	0.75	2.14	0.50	3/8	1/2"-13	AMF-87998
0.75	0.4995-0.4999	3.00	0.75	2.25	0.50	3/8	1/2"-13	AMF-87983
0.75	0.4995-0.4999	3.15	0.75	2.40	0.50	3/8	1/2"-13	AMF-87985
0.75	0.4995-0.4999	3.40	0.75	2.65	0.50	3/8	1/2"-13	AMF-87986
0.75	0.4995-0.4999	3.65	0.75	2.90	0.50	3/8	1/2"-13	AMF-87987
0.75	0.4995-0.4999	3.75	0.75	3.00	0.50	3/8	1/2"-13	AMF-87984
0.75	0.4995-0.4999	3.90	0.75	3.15	0.50	3/8	1/2"-13	AMF-87988
0.75	0.4995-0.4999	4.15	0.75	3.40	0.50	3/8	1/2"-13	AMF-87989
0.75	0.4995-0.4999	5.00	0.75	4.25	0.50	3/8	1/2"-13	AMF-59505
0.75	0.4995-0.4999	5.50	0.75	4.75	0.50	3/8	1/2"-13	AMF-59506
0.94	0.6245-0.6249	2.38	0.94	1.44	0.63	1/2	5/8"-11	AMF-87885
0.94	0.6245-0.6249	2.02	0.94	1.08	0.63	1/2	5/8"-11	AMF-87895
0.94	0.6245-0.6249	2.27	0.94	1.08	0.63	1/2	5/8"-11	AMF-87887
0.94	0.6245-0.6249	2.38	0.94	1.33	0.63	1/2	5/8"-11	AMF-87886
0.94	0.6245-0.6249	2.75	0.94	1.81	0.63	1/2	5/8"-11	AMF-87884
0.94	0.6245-0.6249	2.83	0.94	1.89	0.63	1/2	5/8"-11	AMF-87883
0.94	0.6245-0.6249	3.31	0.94	2.38	0.63	1/2	5/8"-11	AMF-87882

# STANDARD ACCESSORIES BUSHINGS

- Bushings are hardened to 60HRC
- ID is precision ground, and OD is concentric precision ground (.0001)
- Design allows for field replacements without reworking the bored hole
- Accommodates 1/2"-13 or 5/8"-11 grid systems



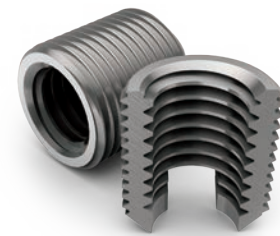
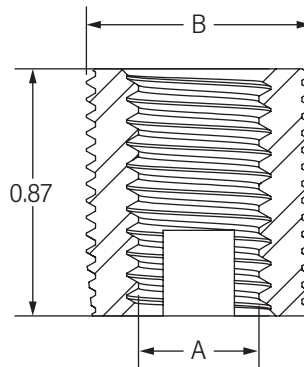
Note: Custom sizes available upon request.

Note: CAD models available for download online.

Dimensions			System	Part Number
L	ID	OD		
in	in	in	UNC	
0.50	.5007/.5013	.7515/.7518	1/2"-13	AMF-80995
0.50	.5007/.5013	.7886/.7889	1/2"-13	AMF-80992-01
0.50	.5007/.5013	.8260/.8263	1/2"-13	AMF-80953-01
0.75	.6257/.6263	.8767/.8770	5/8"-11	AMF-80989-02
0.75	.6257/.6263	.9052/.9055	5/8"-11	AMF-80990-01
0.75	.6257/.6263	.9253/.9256	5/8"-11	AMF-80952-01

# STANDARD ACCESSORIES THREADED INSERTS

- Bushings are hardened to 60HRC
- Clear chromate coated to provide corrosion resistance and extended life
- High pull out strength
- Strong wear resistance threads
- Vibration resistance due to locking style inserts
- Design allows for field replacements without reworking the bored hole
- For 1/2"-13 or 5/8"-11 grid systems



Note: CAD models available for download online.

Note: Custom sizes available upon request.

Dimensions		Part Number
A	B	
UNC	ISO Metric	
1/2"-13	M18 x 1.5	AMF-87321
1/2"-13	M20 x 1.5	AMF-87787
5/8"-11	M20 x 1.5	AMF-87293
5/8"-11	M22 x 1.5	AMF-87788

# STANDARD ACCESSORIES INSERT/BUSHING REPAIR KIT

Replacement kits for standard inserts and bushings are a must-have for every workholding department's toolkit. Providing the ability to prevent unexpected downtime keeps your production processes running smoothly and orders delivered on time.



Our repair kit includes the following:

- Extraction tool (x1)
- Insertion tool (x1)
- Bushings (x5)
- Threaded inserts (x5)

Note: CAD models available for download online.

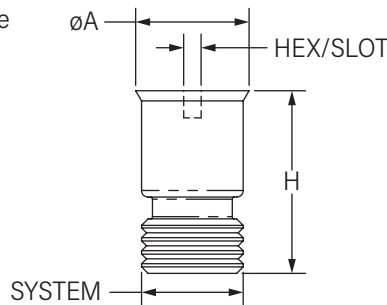
Note: Bushings and inserts provided in kit are standard OD and external thread. Custom sizes available upon request.

Bushing ID	Part Number
in	
.6257/.6263	AMF-54592
.5007/.5013	AMF-59071

# STANDARD ACCESSORIES HOLE PLUGS

- Plastic and/or aluminum plugs available
- Accommodates 1/2"-13 or 5/8"-11 systems

Note: Custom sizes available upon request.



Note: CAD models available for download online.

Dimensions		Hex/Slot	Material	System	Part Number
ØA	H				
in	in			UNC	
0.490	0.875	Slot	Aluminum	1/2"-13	AMF-87918
0.615	1.125	Slot	Aluminum	5/8"-11	AMF-87919
0.520	0.840	Slot	Plastic	1/2"-13	AMF-87944
0.492	0.820	Slot	Plastic	M12 x 1.75	AMF-87944-01
0.645	1.150	Slot	Plastic	5/8"-11	AMF-89976

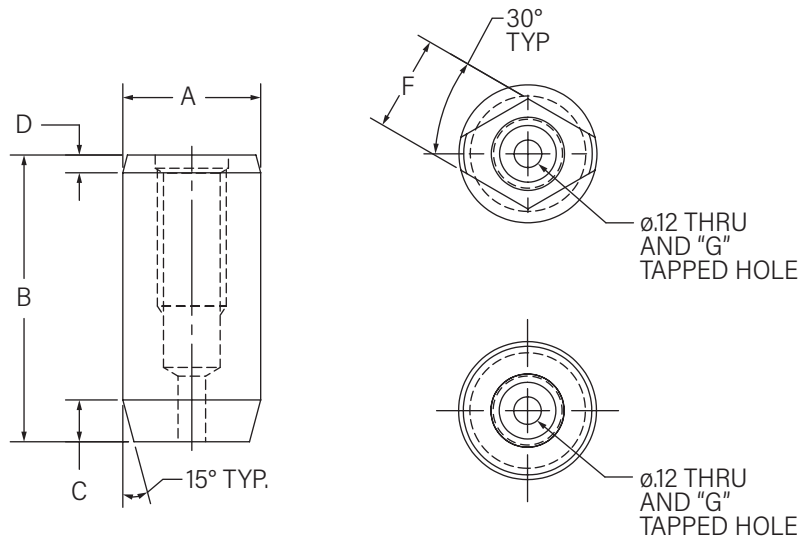
# STANDARD ACCESSORIES PRECISION LOCATING PINS

- Hardened and ground for longer life and improved accuracy
- Designs include both round and diamond options to accommodate different applications
- Provides second and third plane positioning

Note: Custom sizes available upon request.



Note: CAD models available for download online.



Style	Dimensions							System	Part Number
	A	B	C	D	E	F	G		
	in	in	in	in	in	in	in	UNC	
Round	.4997/.4999	1.15	0.15	0.06	-	-	1/4-20 x .50	1/2"-13	AMF-87708-01
Round	.5003/.5005	1.15	0.15	0.06	-	-	1/4-20 x .50	1/2"-13	AMF-87708-02
Round	.6247/.6249	1.30	0.19	0.08	-	-	5/16-18 x .62	5/8"-11	AMF-87709-01
Round	.6253/.6255	1.30	0.19	0.08	-	-	5/16-18 x .62	5/8"-11	AMF-87709-02
Diamond	.4997/.4999	1.15	0.15	0.06	0.59	0.38	1/4-20 x .50	1/2"-13	AMF-87738-01
Diamond	.5003/.5005	1.15	0.15	0.06	0.59	0.38	1/4-20 x .50	1/2"-13	AMF-87738-02
Diamond	.6247/.6249	1.30	0.19	0.08	0.63	0.44	5/16-18 x .62	5/8"-11	AMF-87739-01
Diamond	.6253/.6255	1.30	0.19	0.08	0.63	0.44	5/16-18 x .62	5/8"-11	AMF-87739-02

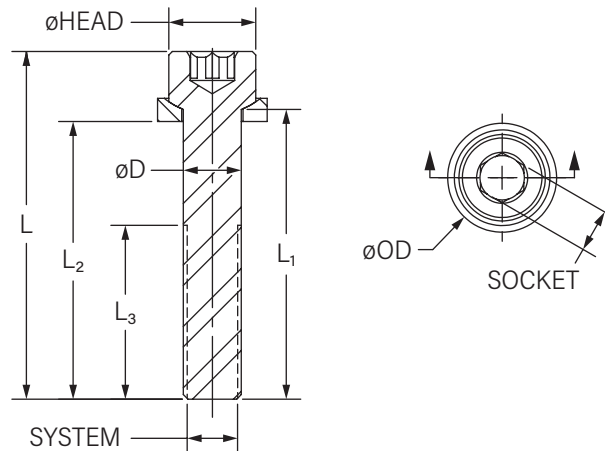
# STANDARD ACCESSORIES PRECISION SPHERICAL SCREWS

- Black oxide finish provides corrosion resistance and extended life
- Accommodates 1/2"-13 or 5/8"-11 grid systems

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*

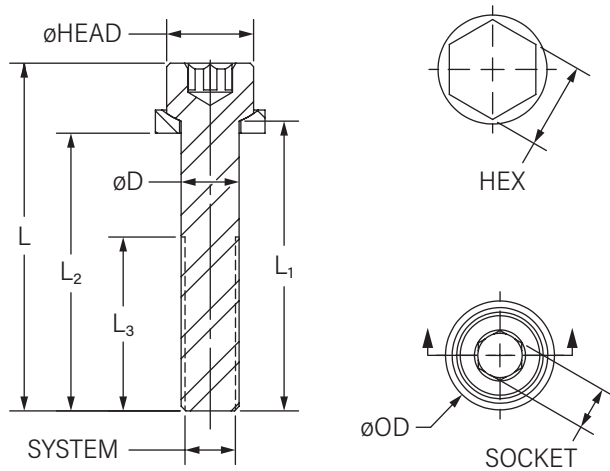


Dimensions					øHEAD	Socket	System	Part Number	Mating Washer	
øD	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>					øOD	Part Number
in	in	in	in	in			UNC	in		
.3739/.3745	2.99	2.56	2.46	0.79	0.56	5/16	3/8"-16	AMF-87145-01	0.75	AMF-88116
.3739/.3745	3.39	2.95	2.85	0.79	0.56	5/16	3/8"-16	AMF-87146-01	0.75	AMF-88116
.3739/.3745	3.78	3.35	3.25	0.79	0.56	5/16	3/8"-16	AMF-87147-01	0.75	AMF-88116
.4989/.4995	3.41	3.95	2.85	0.87	0.75	3/8	1/2"-13	AMF-87311-01	0.95	AMF-88322
.4989/.4995	3.80	3.35	3.25	0.87	0.75	3/8	1/2"-13	AMF-87312-01	0.95	AMF-88322
.4989/.4995	4.19	3.74	3.64	0.87	0.75	3/8	1/2"-13	AMF-87313-01	0.95	AMF-88322
.4989/.4995	4.59	4.13	4.03	0.87	0.75	3/8	1/2"-13	AMF-87314-01	0.95	AMF-88322
.4989/.4995	4.98	4.53	4.43	0.87	0.75	3/8	1/2"-13	AMF-87315-01	0.95	AMF-88322
.6239/.6245	3.50	2.95	2.80	0.87	0.94	1/2	5/8"-11	AMF-87270-01	1.13	AMF-88292
.6239/.6245	3.90	3.35	3.20	0.87	0.94	1/2	5/8"-11	AMF-87271-01	1.13	AMF-88292
.6239/.6245	4.29	3.74	3.59	0.87	0.94	1/2	5/8"-11	AMF-87272-01	1.13	AMF-88292
.6239/.6245	4.69	4.13	3.98	0.87	0.94	1/2	5/8"-11	AMF-87273-01	1.13	AMF-88292
.6239/.6245	5.08	4.53	4.38	0.87	0.94	1/2	5/8"-11	AMF-87274-01	1.13	AMF-88292

# STANDARD ACCESSORIES NON-PRECISION SPHERICAL SCREWS

- Black oxide finish provides corrosion resistance and extended life
- Accommodates 1/2"-13 or 5/8"-11 grid systems

Note: Custom sizes available upon request.

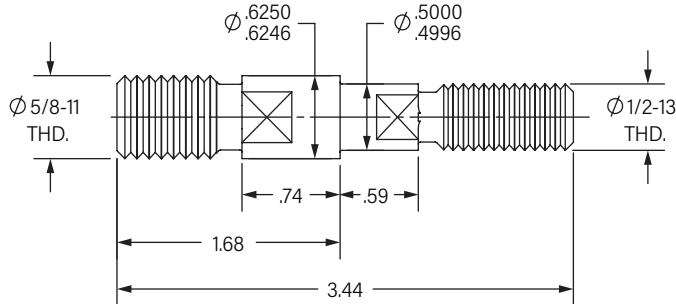


Note: CAD models available for download online.

Dimensions					øHead	Socket	Hex Head	System	Part Number	Mating Washer	
øD	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>						øOD	Part Number
in	in	in	in	in			UNC		in		
0.375	2.37	2.00	1.93	1.25	0.56	-	9/16"	3/8"-16	AMF-51426	0.75	AMF-88116
0.375	2.37	2.00	1.93	1.25	0.56	5/16"	-	3/8"-16	AMF-51426-02	0.75	AMF-88116
0.375	2.87	2.50	2.43	1.25	0.56	-	9/16"	3/8"-16	AMF-51427	0.75	AMF-88116
0.375	2.87	2.50	2.43	1.25	0.56	5/16"	-	3/8"-16	AMF-51427-02	0.75	AMF-88116
0.375	3.37	3.00	2.93	1.25	0.56	-	9/16"	3/8"-16	AMF-51428	0.75	AMF-88116
0.375	3.37	3.00	2.93	1.25	0.56	5/16"	-	3/8"-16	AMF-51428-02	0.75	AMF-88116
0.500	2.50	2.00	1.90	1.50	0.75	-	3/8"	1/2"-13	AMF-51441	0.95	AMF-88322
0.500	2.50	2.00	1.90	1.50	0.75	3/4"	-	1/2"-13	AMF-51441-02	0.95	AMF-88322
0.500	3.00	2.50	2.40	1.50	0.75	-	3/8"	1/2"-13	AMF-51442	0.95	AMF-88322
0.500	3.00	2.50	2.40	1.50	0.75	3/4"	-	1/2"-13	AMF-51442-02	0.95	AMF-88322
0.500	3.75	3.25	3.15	1.50	0.75	-	3/8"	1/2"-13	AMF-51443	0.95	AMF-88322
0.500	3.75	3.25	3.15	1.50	0.75	3/4"	-	1/2"-13	AMF-51443-02	0.95	AMF-88322

# STANDARD ACCESSORIES ADAPTER SCREW

- Use 1/2"-13 threads on a 5/8"-11 grid base, and vice versa
- Maintains precise locations similar to locating pins

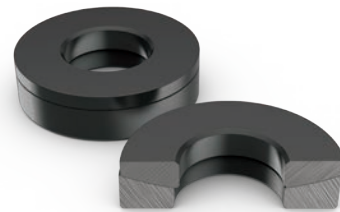
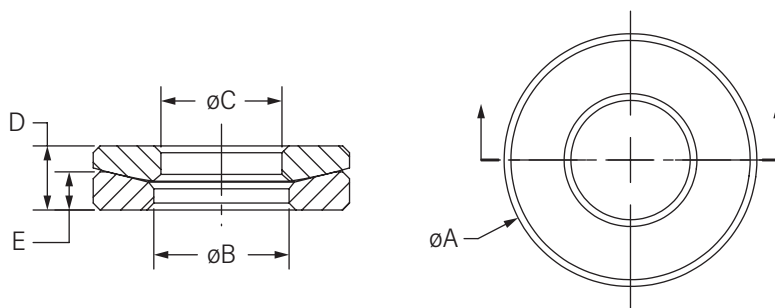


Note: CAD models available for download online.

Dimensions		Part Number
L		
in		
3.44		AMF-87876

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES SPHERICAL WASHER ASSEMBLY

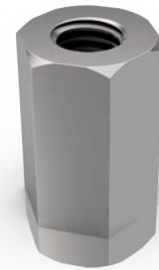
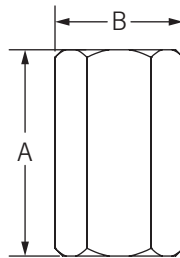
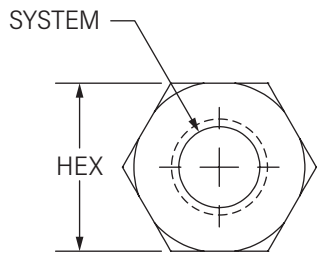


Note: CAD models available for download online.

Dimensions					Part Number	Mating Washer	
ØA	ØB	ØC	D	E		Ø	Part Number
in	in	in	in	in			
1.13	0.56	0.53	0.28	0.17	AMF-59633	1.13	AMF-87100-01
1.38	0.69	0.66	0.31	0.22	AMF-59634	1.38	AMF-87100-04

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES COUPLING NUT

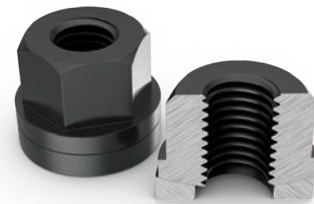
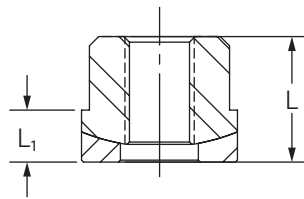
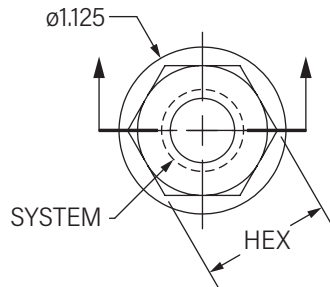


Note: CAD models available for download online.

Dimensions		Hex	System	Part Number
A	B			
in	in		UNC	
1.25	1.01	0.88	½"-13	AMF-54590
1.63	1.23	1.06	⅝"-11	AMF-54590-01

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES SPHERICAL NUT ASSEMBLY



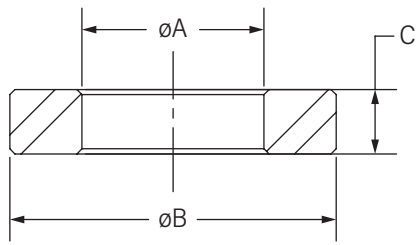
Note: CAD models available for download online.

Dimensions		Hex	System	Part Number	Mating Washer	
L	L <sub>1</sub>				Ø	Part Number
in	in		UNC			
0.91	0.38	0.88	½"-13	AMF-87100	1.13	AMF-87100-01
1.03	0.41	1.06	⅝"-11	AMF-87100-03	1.38	AMF-87100-04

Note: Custom sizes available upon request.



# STANDARD ACCESSORIES WASHER

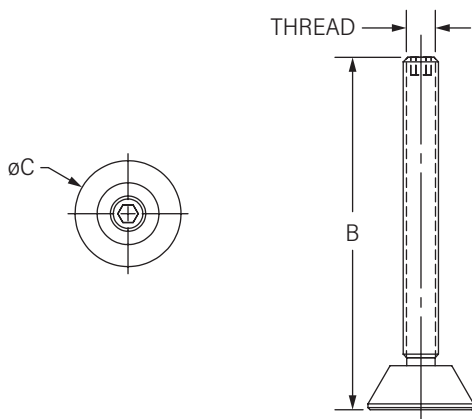


Note: CAD models available for download online.

Dimensions			Part Number
$\varnothing A$	$\varnothing B$	C	
in	in	in	
0.53	1.13	0.125	AMF-87746-01
0.66	1.38	0.125	AMF-87746-02
0.53	0.95	0.188	AMF-87747
0.66	0.95	0.188	AMF-87747-01

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES HEEL REST

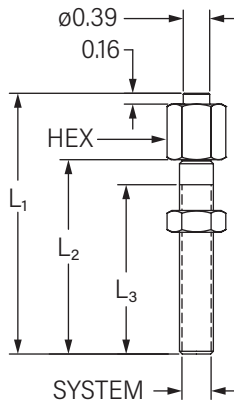


Note: CAD models available for download online.

Dimensions		Thread	Part Number
B	$\varnothing C$		
in	in	UNC	
3	1.50	$\frac{1}{2}$ "-13	AMF-59575
4	1.50	$\frac{1}{2}$ "-13	AMF-59576
5	1.50	$\frac{1}{2}$ "-13	AMF-59577
4	1.75	$\frac{5}{8}$ "-11	AMF-59578
5	1.75	$\frac{5}{8}$ "-11	AMF-59579
6	1.75	$\frac{5}{8}$ "-11	AMF-59580

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES JACK SCREW

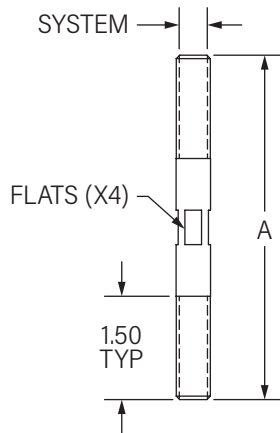


Note: CAD models available for download online.

Dimensions			Hex	System	Part Number
$L_1$	$L_2$	$L_3$			
in	in	in		UNC	
1.31	0.87	0.87	3/4"	1/2"-13	AMF-87338
1.31	0.87	0.87	1"	5/8"-11	AMF-87338-01
1.75	1.00	1.00	3/4"	1/2"-13	AMF-87339
1.75	1.00	1.00	1"	5/8"-11	AMF-87339-01
2.13	1.50	1.44	3/4"	1/2"-13	AMF-87182
2.13	1.50	1.44	1"	5/8"-11	AMF-87182-01
2.75	1.75	1.56	3/4"	1/2"-13	AMF-87183
2.75	1.75	1.56	1"	5/8"-11	AMF-87183-01
3.13	2.13	2.00	3/4"	1/2"-13	AMF-87184
3.13	2.13	2.00	1"	5/8"-11	AMF-87184-01
3.38	2.25	2.13	3/4"	1/2"-13	AMF-87053
3.38	2.25	2.13	1"	5/8"-11	AMF-87053-01
3.93	2.88	2.50	3/4"	1/2"-13	AMF-87070
3.93	2.88	2.50	1"	5/8"-11	AMF-87070-01
4.50	3.44	2.50	3/4"	1/2"-13	AMF-87054
4.50	3.44	2.50	1"	5/8"-11	AMF-87054-01

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES STUD

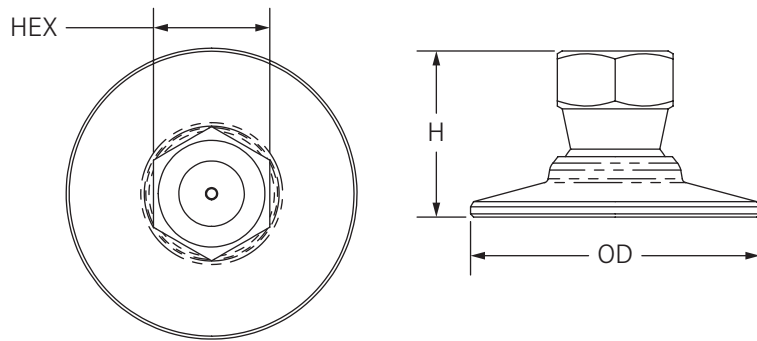


Note: CAD models available for download online.

Dimensions	System	Part Number
A		
in	UNC	
3.00	½"-13	AMF-77560
3.00	⅝"-11	AMF-77560-01
4.00	½"-13	AMF-77561
4.00	⅝"-11	AMF-77561-01
5.00	½"-13	AMF-77562
5.00	⅝"-11	AMF-77562-01
6.00	½"-13	AMF-77563
6.00	⅝"-11	AMF-77563-01
7.00	½"-13	AMF-77564
7.00	⅝"-11	AMF-77564-01
8.00	½"-13	AMF-77565
8.00	⅝"-11	AMF-77565-01
9.00	½"-13	AMF-77566
9.00	⅝"-11	AMF-77566-01
10.00	½"-13	AMF-77567
10.00	⅝"-11	AMF-77567-01

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES LEVELING REST PAD

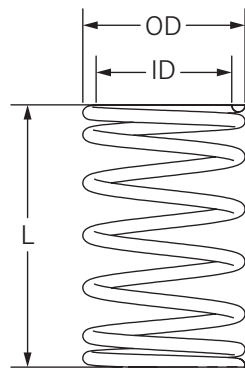


Note: CAD models available for download online.

Dimensions		Hex	System	Part Number
H	OD		UNC	
in	in			
3/4"	1 7/8"	3/4"	1/2"-13	AMF-59677
7/8"	2 1/4"	7/8"	5/8"-11	AMF-59678

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES SPRING



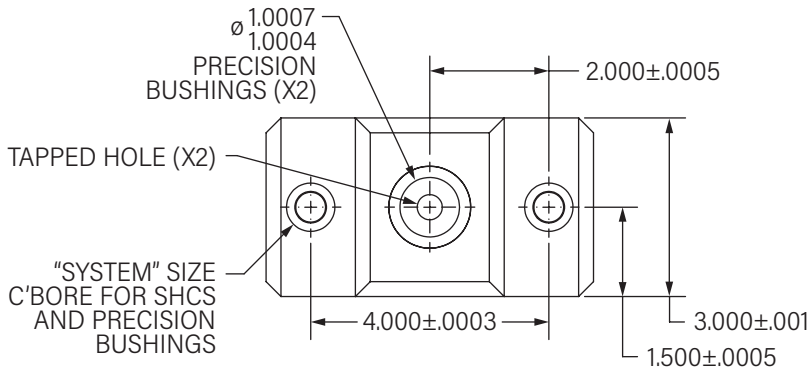
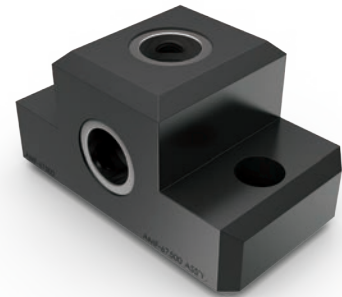
Note: CAD models available for download online.

Dimensions				System	Part Number
L—Free State	L—Compressed	OD	ID		
in	in	in	in		
3 1/8"	2 1/2"	0.61	0.51	1/2"-13	AMF-88107
3 1/8"	2 1/2"	0.74	0.64	5/8"-11	AMF-88107-01
5 1/8"	3 3/4"	0.61	0.51	1/2"-13	AMF-88108
5 1/8"	3 3/4"	0.74	0.64	5/8"-11	AMF-88108-01
1	3/4"	0.61	0.51	1/2"-13	AMF-88181
1	3/4"	0.74	0.64	5/8"-11	AMF-88181-01

Note: Custom sizes available upon request.

# STANDARD ACCESSORIES CALIBRATION BLOCK

- Standard size unit works on both horizontal and vertical machines
- After initial positioning and indicating, probe calibrations are simplified and more efficient
- Standardizes probe calibration and other checking procedures
- Useful in checking machine repeatability and directional stability after a crash or any major maintenance procedure



Note: CAD models available for download online.

System	Bushing Size	Part Number
1/2"-13	0.5007/0.5013	AMF-67500
5/8"-11	0.6257/0.6263	AMF-67600

Note: Custom sizes available upon request.



# PRACTICAL SOLUTIONS

# UNIVERSAL ACCESSORIES BODY/ROTATING BODY ASSEMBLY



**Self-Aligning Fixture Element** *Page 158*

Ball element equipped with 1/2"-13 or 5/8"-11 threads, a smooth or serrated face, and fixed or adjustable design.

**Universal Threaded Plug** *Page 184*

- 66521—1/2"-13 x 1"
- 66522—1/2"-13 x 2"
- 66523—1/2"-13 x 3"
- 66621—5/8"-11 x 1"
- 66622—5/8"-11 x 2"
- 66623—5/8"-11 x 3"

**Universal Body** *Page 182*

- 66512—1"
- 66514—4"
- 66516—6"

**Universal Connecting Rod** *Page 187*

- 66640—2"

**Universal Rotating Body** *Page 183*

- 66540—2"

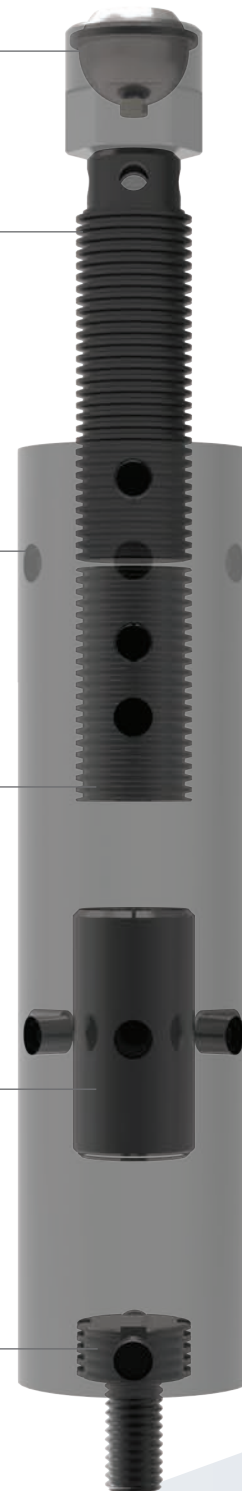
**Universal Rotating Plug** *Page 186*

- 66541—1/2"-13
- 66641—5/8"-11
- 66741—3/4"-10
- 66141—1"-10

**Universal Bottom Plug** *Page 185*

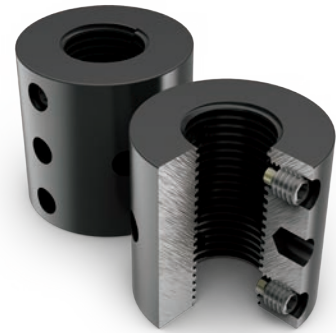
- 66530—1/2"-13
- 66630—5/8"-11
- 66730—3/4"-10
- 66130— 1"-10

*Note: Rotating plug is used only for AMF-66540 rotating body. Cannot be used with universal bodies.*



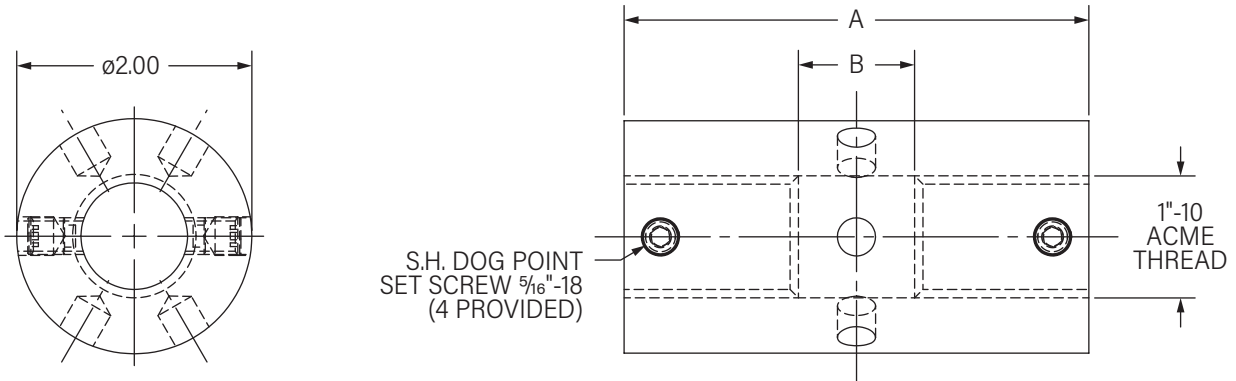
# UNIVERSAL ACCESSORIES BODY

- Provides heavy-duty support for large workpieces and fixtures
- Bodies can be joined together with universal connecting rods (page 187) to form taller supports
- Ball elements, v-blocks, and other accessories can be mounted with use of the universal threaded plug (page 184)
- ACME thread provides improved strength and longevity
- Black oxide finish provides corrosion resistance and extended life
- Mounts with universal bottom plug (page 185)



Note: CAD models available for download online.

Note: Custom sizes available upon request. See body and rotating body assembly breakdown on page 181.



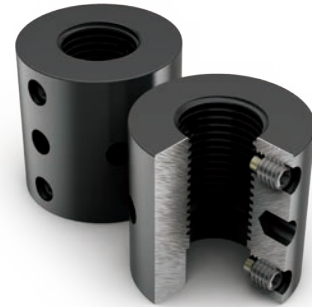
Note: See body and rotating body assembly breakdown on page 181.

Dimensions		Part Number
A	B	
in	in	
2.00	-	AMF-66512
4.00	1.0	AMF-66514
6.00	2.0	AMF-66516



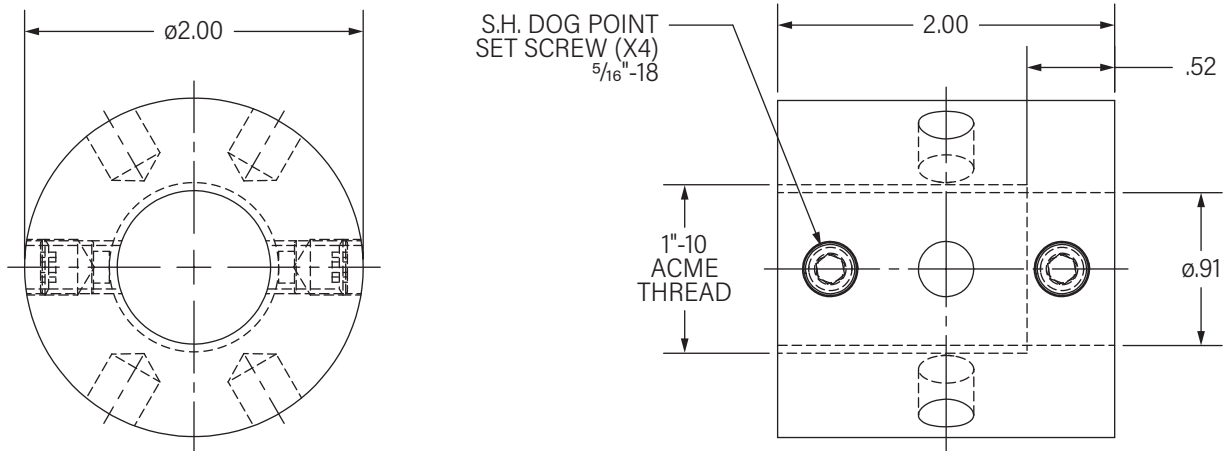
# UNIVERSAL ACCESSORIES ROTATING BODY

- Provides heavy-duty support for large workpieces and fixtures
- Bodies can be joined together with universal connecting rods (page 187) to form taller supports
- Ball elements, v-blocks, and other accessories can be mounted with use of the universal threaded plug (page 184)
- ACME thread provides improved strength and longevity
- Black oxide finish provides corrosion resistance and extended life
- Mounts with universal bottom plug (page 185) or universal rotating plug (page 186)



Note: CAD models available for download online.

Note: Custom sizes available upon request. See body and rotating body assembly breakdown on page 181.



Note: See body and rotating body assembly breakdown on page 181.

Part Number
AMF-66540

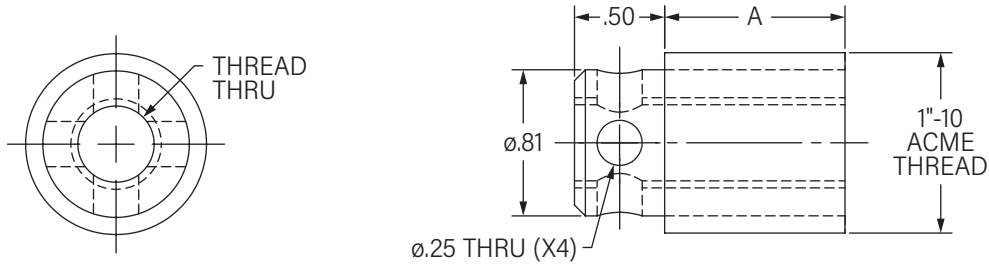
# UNIVERSAL ACCESSORIES THREADED PLUG

- Provides heavy-duty support for fixtures
- Mounts ball elements, v-blocks, and other accessories to universal bodies (*page 182*) and/or universal rotating bodies (*page 183*)
- ACME thread provides improved strength and longevity—ACME jam nut included
- Black oxide finish provides corrosion resistance and extended life

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions		System	Part Number
A	in		
1.00		½"-13	AMF-66521
2.00		½"-13	AMF-66522
3.00		½"-13	AMF-66523
1.00		⅝"-11	AMF-66621
2.00		⅝"-11	AMF-66622
3.00		⅝"-11	AMF-66623

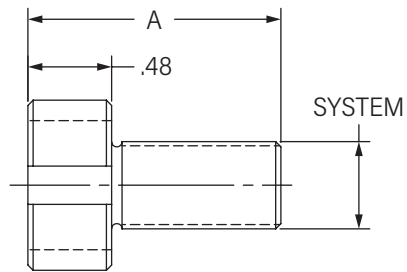
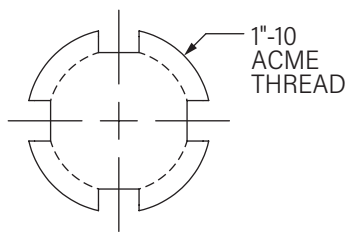
# UNIVERSAL ACCESSORIES BOTTOM PLUG

- Provides heavy-duty support for fixtures
- Mounts universal bodies (*page 182*) and/or universal rotating bodies (*page 183*) to threaded holes
- ACME thread provides improved strength and longevity
- Black oxide finish provides corrosion resistance and extended life

*Note: Custom sizes available upon request.*



*Note: CAD models available for download online.*



Dimensions		Part Number
A	System	
in	in	
1.45	½"-13	AMF-66530
1.45	⅝"-11	AMF-66630
2.00	⅝"-11	AMF-66630-01
1.45	¾"-10	AMF-66730
1.45	1"-8	AMF-66130

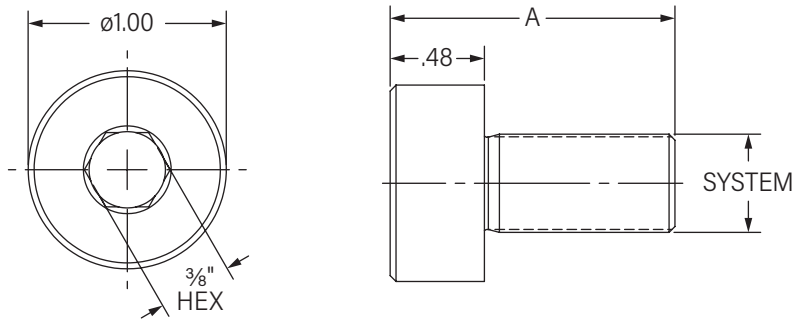
# UNIVERSAL ACCESSORIES ROTATING PLUG

- Provides support for fixtures
- Allows for universal rotating body\* (page 183) to rotate threaded V into axial alignment with the workpiece
- Black oxide finish provides corrosion resistance and extended life

\*Only made for use with universal rotating body.  
 Note: Custom sizes available upon request.



Note: CAD models available for download online.



Dimensions		Part Number
A	System	
in	in	
1.45	1/2"-13	AMF-66541
1.45	5/8"-11	AMF-66641
2.00	5/8"-11	AMF-66641-01
1.47	3/4"-10	AMF-66741
1.43	1"-8	AMF-66141

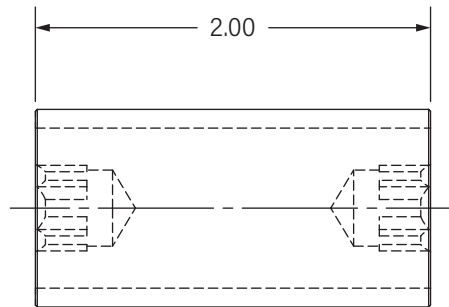
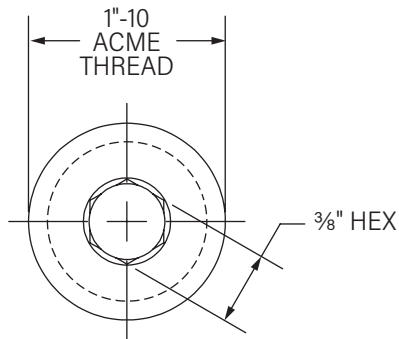
# UNIVERSAL ACCESSORIES CONNECTING ROD

- Black oxide finish provides corrosion resistance and extended life
- Provides support for fixtures
- Used to join universal bodies (*page 182*), universal rotating bodies (*page 183*), or other universal support bodies
- ACME thread provides improved strength and longevity

*Note: Custom sizes available upon request.*

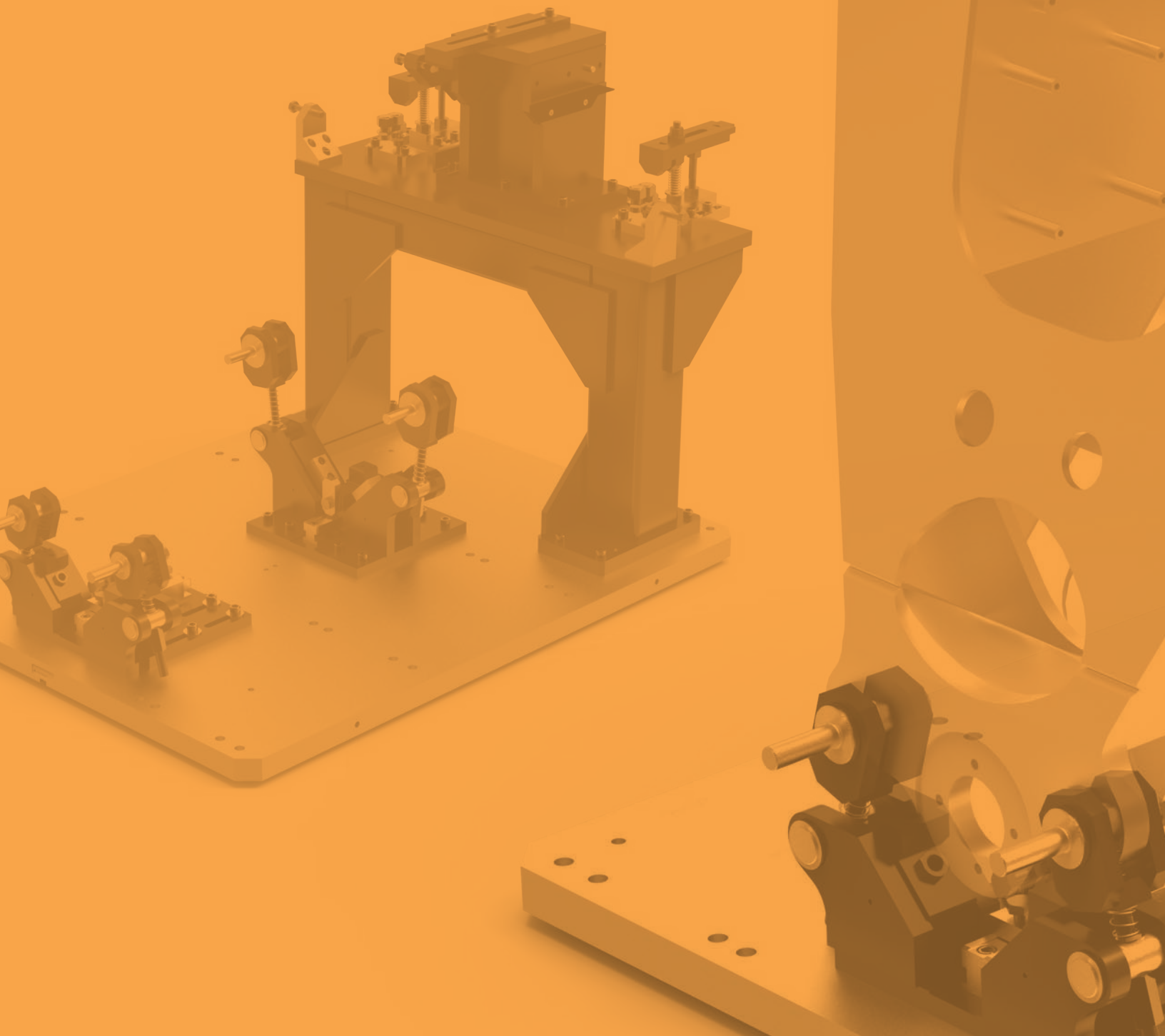


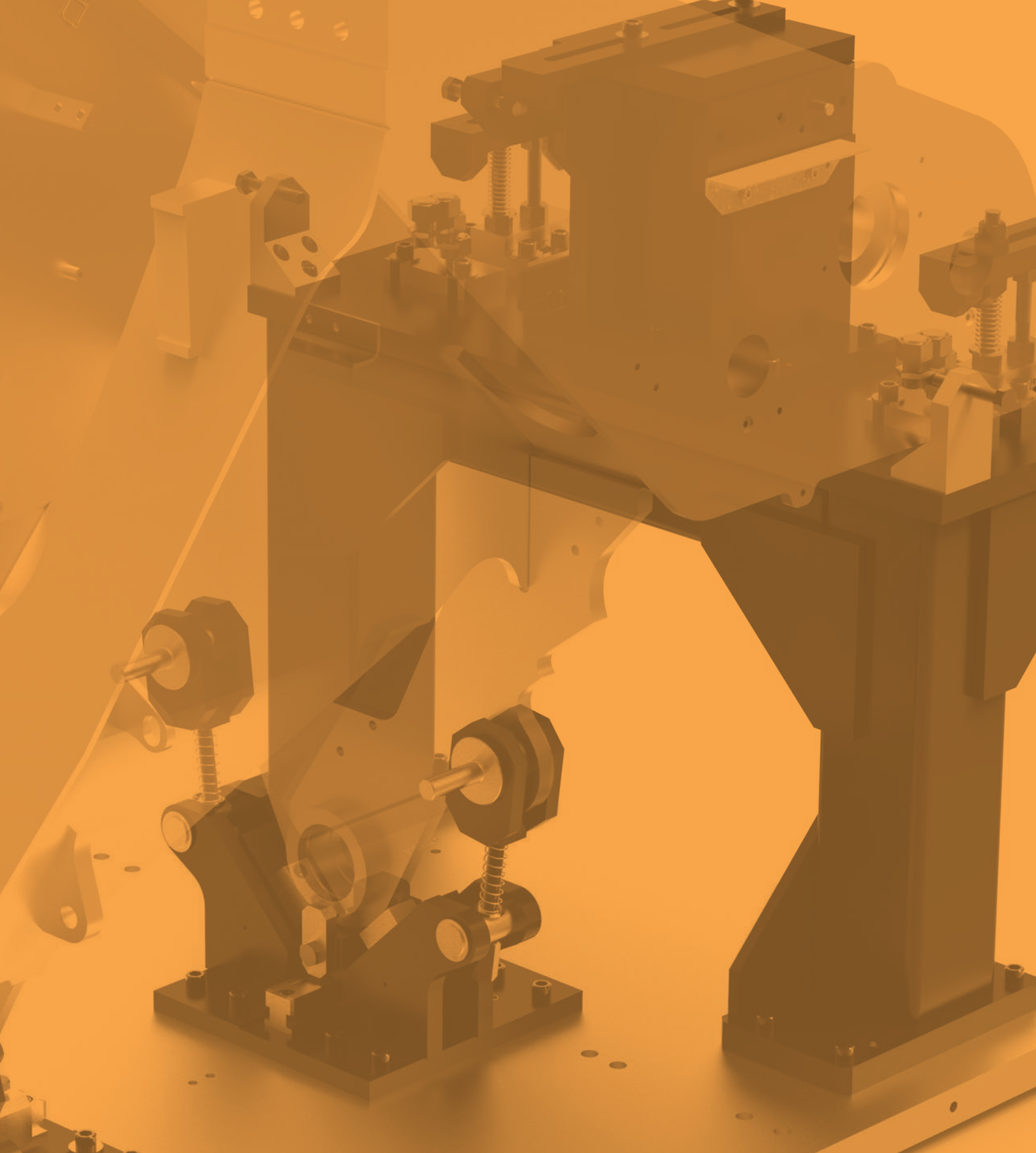
*Note: CAD models available for download online.*



Part Number
AMF-66640

**Image:** The Custom Fixturing Division of AMROK works with companies large and small alike—observing and learning about the issues at hand while working closely with engineers to provide the most innovative and cost-effective solutions. To learn more about the application shown in the image, please reference page 192.





# CUSTOM MACHINING FIXTURES

# INDUSTRIAL BURNER COMPONENTS

An industrial furnace company was looking to improve efficiency and cycle time by moving from manual, single-station machining operations to a multi-pallet machining operation for several of their production components.

## PROBLEM

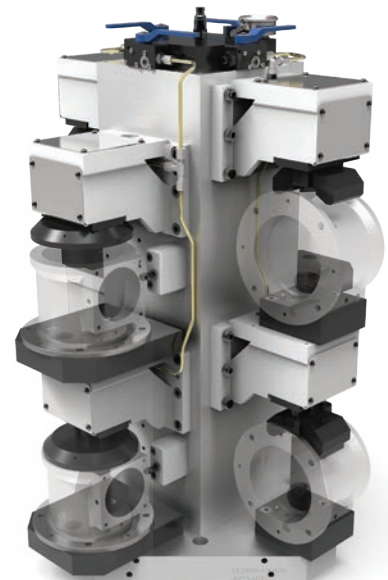
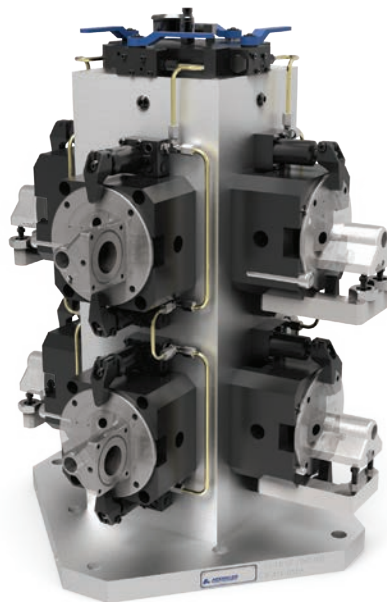
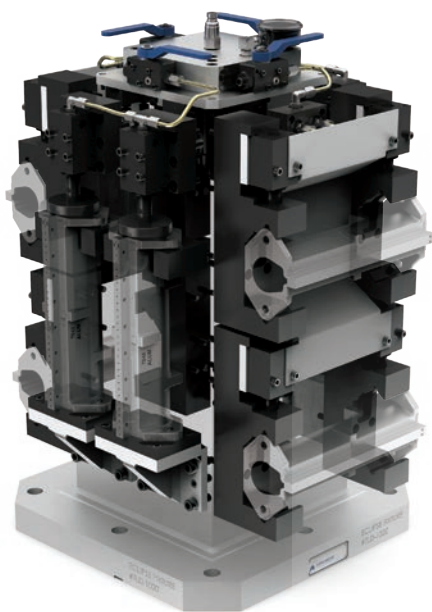
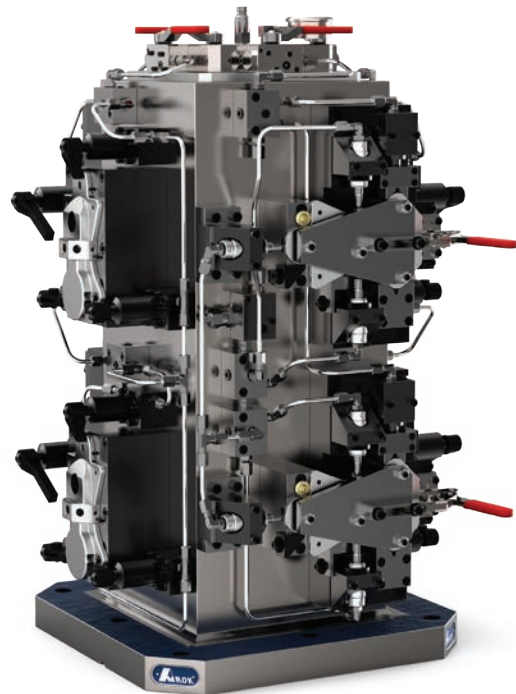
A series of burner component workpieces were being machined on single-station machines with increased handling and setup time.

## SOLUTION

Custom, hydraulic fixturing solutions were designed with multiple operations implemented into each tombstone.

## RESULTS

An increase in efficiency and decrease in scrap rate was reached by completing multiple parts per cycle—some setups finishing as many as four per cycle—with significantly less load, setup, and handling time.





# OIL COOLER HOUSING

A foundry and finishing company required a fixturing solution for a new 500 pallet machine that could help meet the demands of increased volume requirements.

## PROBLEM

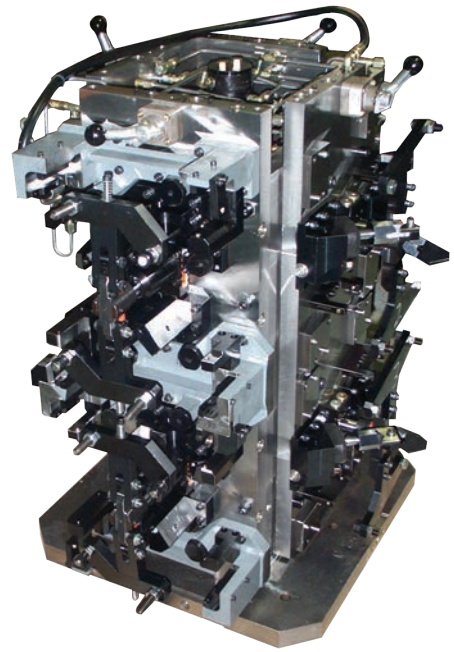
The required fixture involved four operations that could complete three parts per cycle.

## SOLUTION

A fixturing solution was designed to support one operation for each side of the tombstone, for a total of four operations. With some creative design, sixteen parts were able to be machined per cycle, completing a total of four per cycle rather than the requested three.

## RESULTS

The customer experienced a significant increase in efficiency and throughput, as well as a decrease in load/unload times.



# ENGINE HEAD

A machine tool company was looking for a solution that would reduce shipping costs for two different engine head designs for large earth-moving vehicles.

## PROBLEM

Extra shipping costs were being incurred due to the excess slag and material left behind from the casting process.

## SOLUTION

A universal fixturing solution was designed to fit both types of engine heads, and would run two different operations on each, supporting a six-sided machining operation.

## RESULTS

The company was able to reduce shipping costs as requested. Added value included the ability to ship an almost completed part.



# EARTH MOVING VEHICLE FRAME

A global-scale, earth-moving vehicle manufacturer needed a dedicated, manual fixturing solution to efficiently fasten a workpiece with loose tolerances for lineboring.

## CHALLENGE

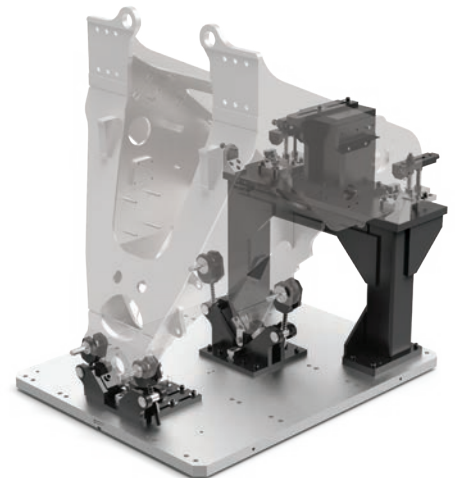
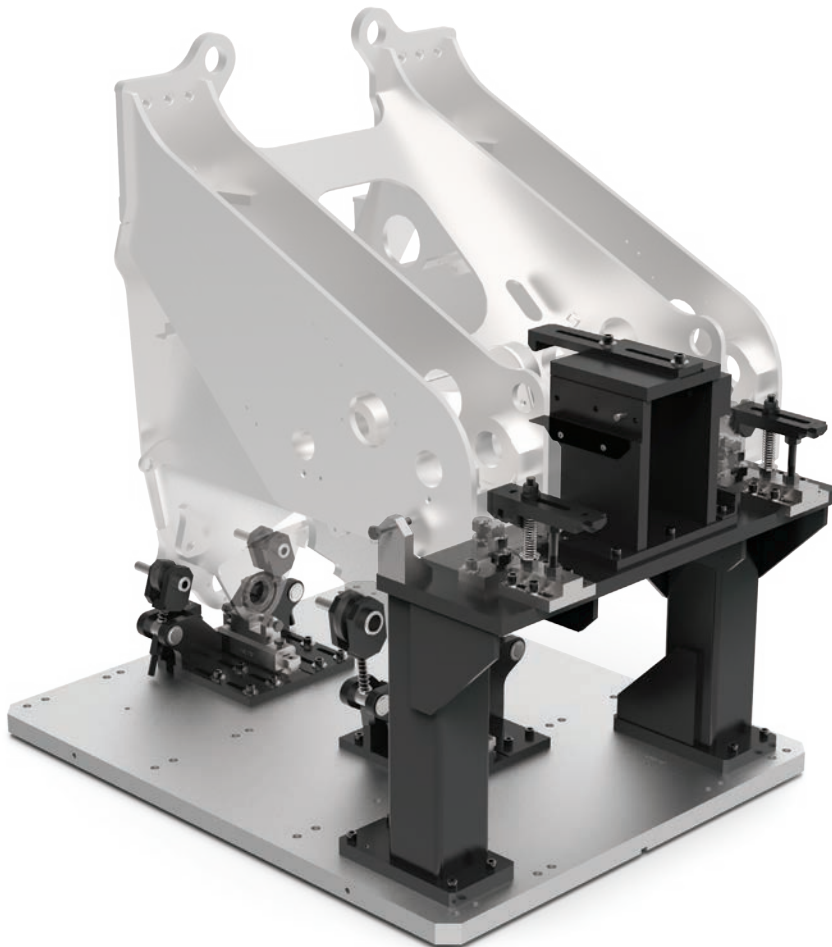
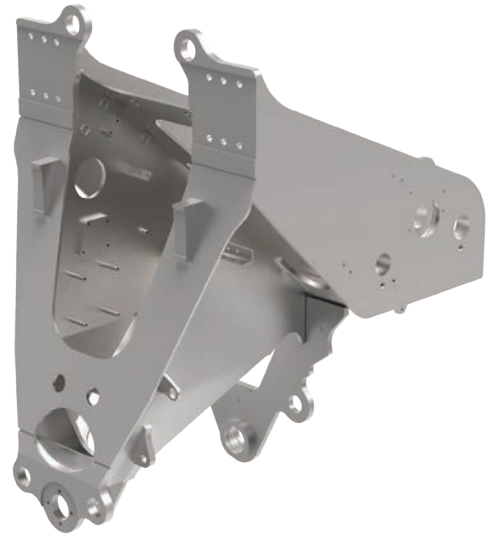
An earth moving vehicle frame needed a custom fixturing solution for a first-run machining process that had a challenging set of loose tolerances.

## SOLUTION

A system of adjustable fixturing was developed to be used when loading the part, which was then accommodated by a set of fixed clamps that fastened the workpiece into place for machining.

## RESULTS

The main benefits reported by the customer included improved ease of workpiece loading and unloading, as well as a decrease in scrap costs for this machining process.



# FRONT SUPPORT FOR EARTH-MOVING VEHICLE

A foundry and finishing company had a challenging set of datums on a front support for a large earth-moving vehicle.

## PROBLEM

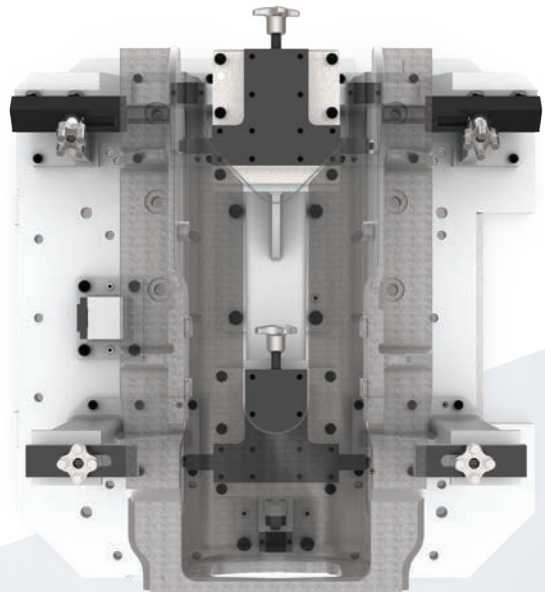
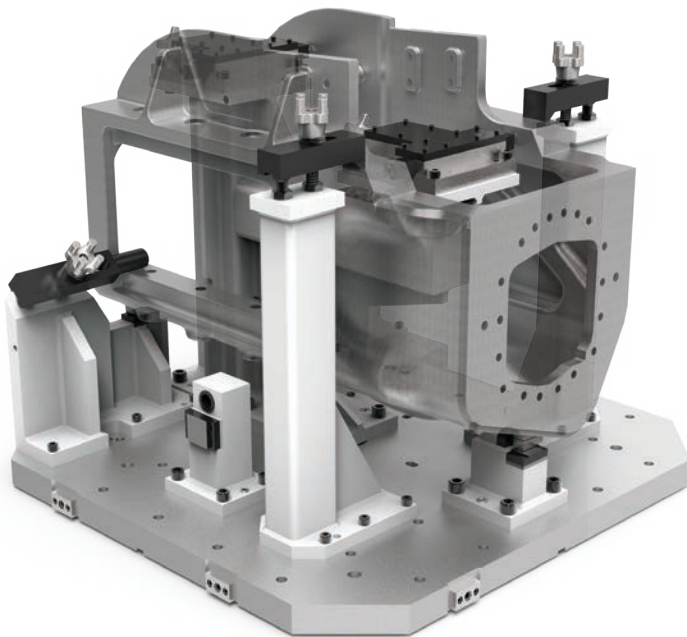
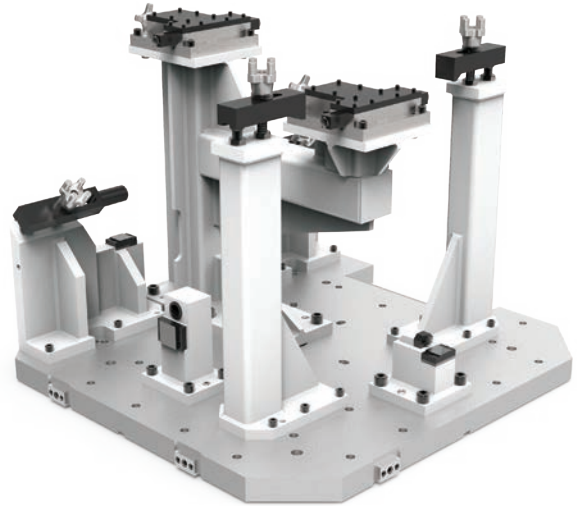
In order to properly and accurately machine the part, it needed to be located from the inside—without this capability, the part needed to be run on single-operation processes.

## SOLUTION

A set of bars with hardened, spherical rest buttons on their ends would extend by turning a knob. Once these bars are extended, the part is centered and located.

## RESULTS

The application resulted in more efficient loading, setup, and unload times while also reaching better accuracy and precision in the machining process. The product was also able to be machined to an almost end-use product.



# INVOLUTE

The AMROK fixturing division was challenged to improve the machining process for both left- and right-oriented workpieces being machined by Advanced Machine and Engineering's contracting division for a mining and mineral company.

## PROBLEM

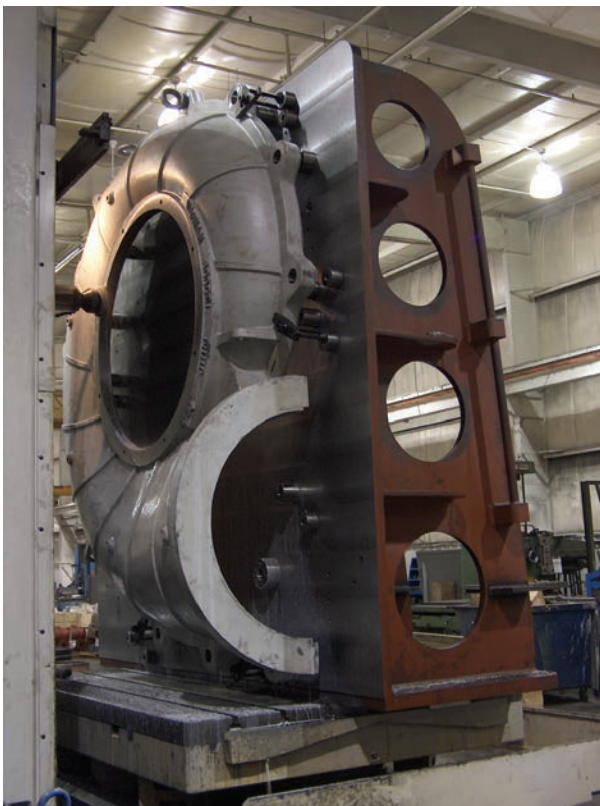
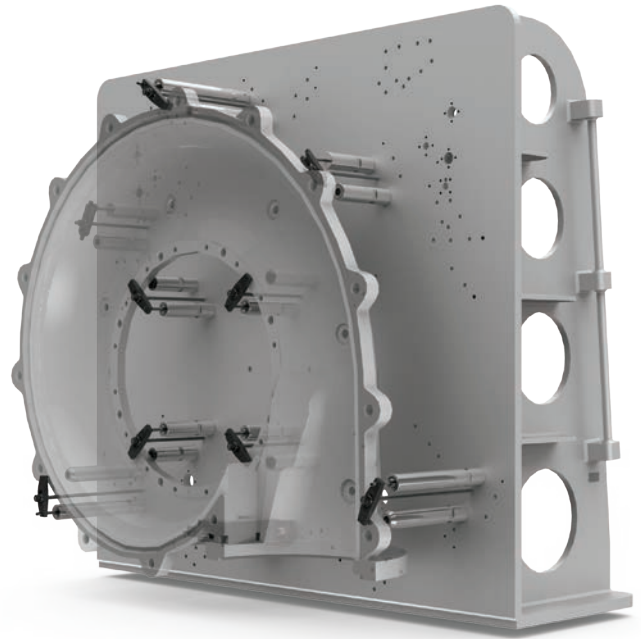
Every time this piece had to be machined, the fixturing had to be pieced together with a makeshift, single-angle tombstone. This process was not efficient, often delaying other jobs in the pipeline.

## SOLUTION

A large, single angle tombstone was fabricated to fit both the left- and right-oriented pieces, with custom fixturing that could be adjusted accordingly to the required process.

## RESULTS

The implementation of this fixture resulted in an estimated 80% increase in efficiency overall.



# TOP COVER FOR EARTH-MOVING VEHICLE

A foundry and finishing plant required a dedicated fixture for a heavy, diamond-shaped part.

## PROBLEM

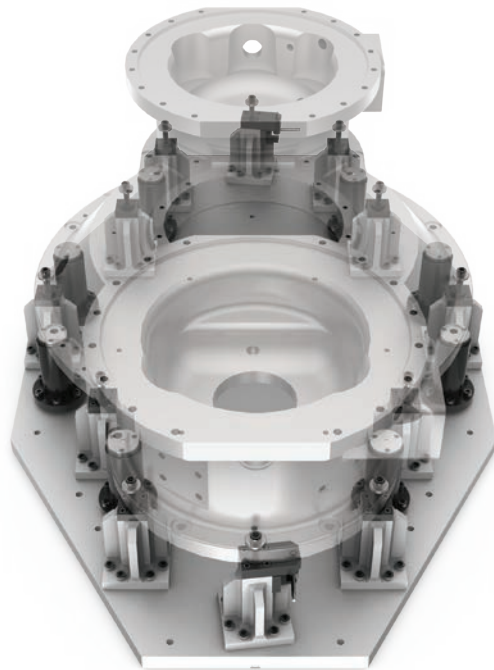
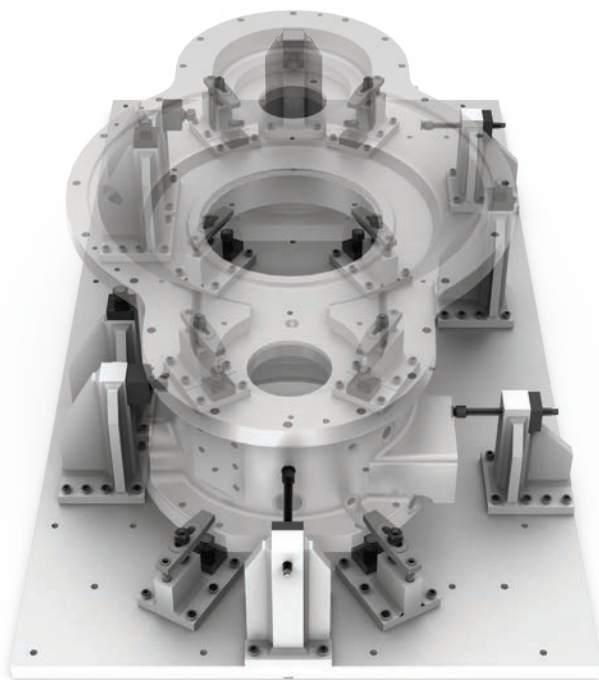
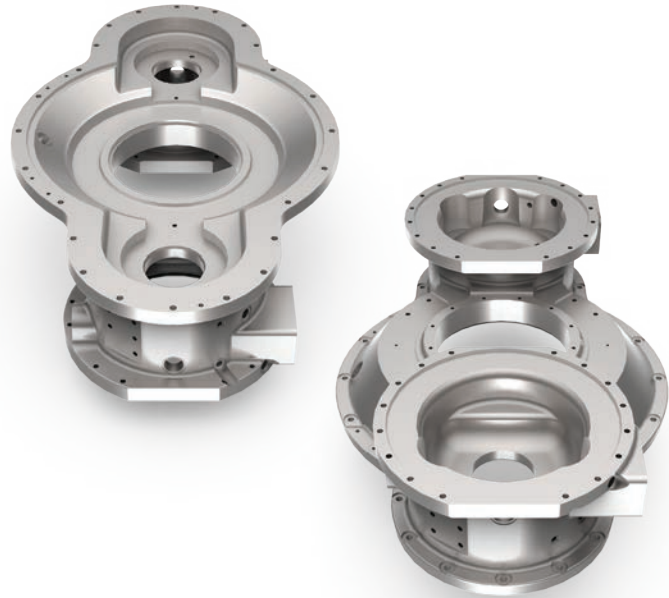
The large, diamond-shaped part was a continuous challenge not only for loading/unloading, but also for locating the part for accurate machining.

## SOLUTION

A series of eight ball-transfers were implemented to support up to 4000 pounds, making it significantly easier to adjust the workpiece accordingly prior to clamping down.

## RESULTS

The load, setup, and unload time for the part was decreased and the customer was able to provide an end-use product to the customer, rather than a partially finished part.



# HORSE COLLAR FOR EARTH-MOVING VEHICLE

A new horse collar casting workpiece needed a fixturing setup.

## PROBLEM

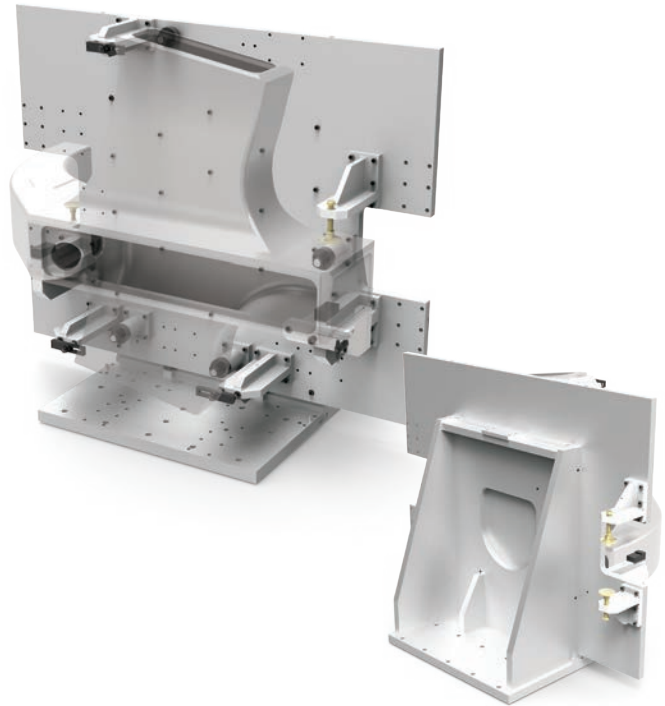
The fixturing for this application needed to be universal in such a way that both a left- and right-oriented part could be machined on the same tombstone with some quick adjustments.

## SOLUTION

With a pre-existing tombstone, a fixturing solution was designed to accommodate left- and right-oriented parts by simply moving a few fixturing components.

## RESULTS

The product being machined was now able to ship to the customer as a completed product with lower setup times and improved throughput.



# UNIVERSAL SETUP FOR AEROSPACE INDUSTRY

An international aerospace company was in need of a custom tombstone and fixturing setup to effectively and efficiently machine spars in different orientations.

## PROBLEM

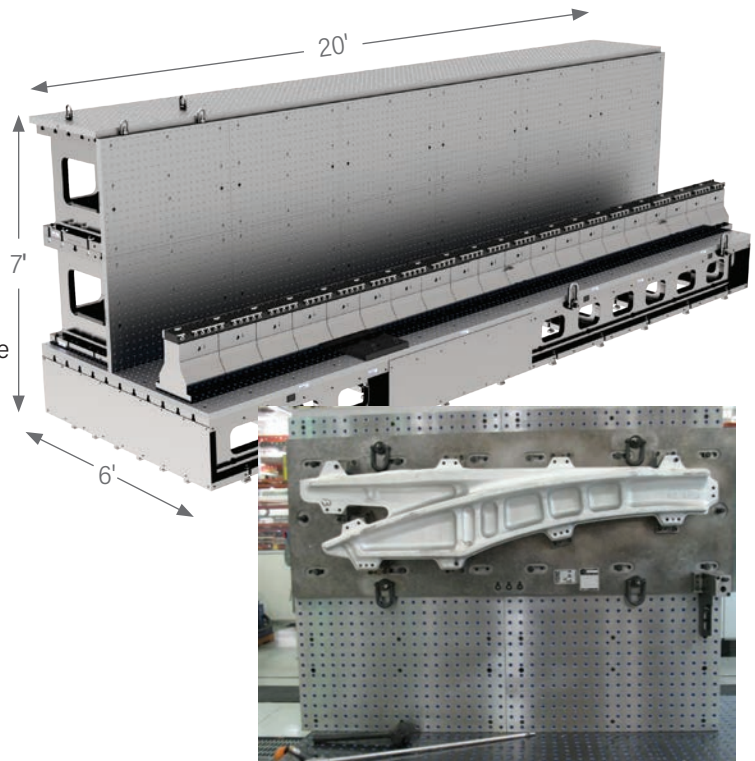
The original setup for these machining processes included clamping the workpiece using t-slots, limiting the flexibility of the setup.

## SOLUTION

Combining numerous counsels, risers, and gridplates; the designed setup is adjustable in both width and height, while also allowing versatility for fixturing capabilities with the two inch universal grid pattern.

## RESULTS

With the new setup, this company experienced an increase in flexibility and efficiency.



# BOX TOMBSTONE

A manufacturer required a large, box-shaped tombstone with a specific grid pattern for a new application.

## PROBLEM

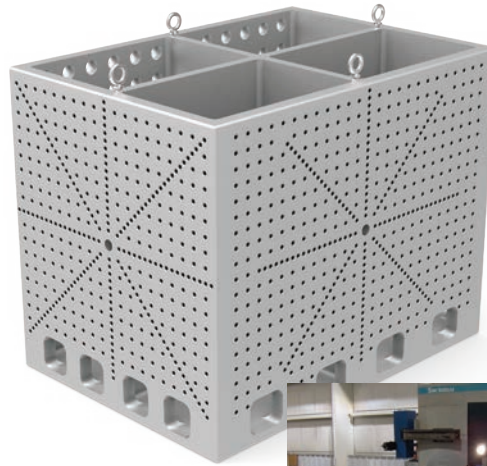
The original designed fixturing solutions had cumbersome loading and unloading operations, and had reduced accessibility due to the traditional shape of the tombstone. The fixturing being used for specific workpieces also required a custom grid pattern for optimal clamping.

## SOLUTION

A box tombstone was designed to be mounted to the machine table through the middle of the tombstone, making the walls of the tombstone closer to the door and more accessible. A standard grid pattern was also implemented in combination with a custom star-pattern to provide maximum flexibility.

## RESULTS

The customer experienced improved accessibility to the workpieces, as well as a decrease in load/unload time.



# CUSTOM TOMBSTONE

An international aerospace company installed new machines with bigger capacities.

## PROBLEM

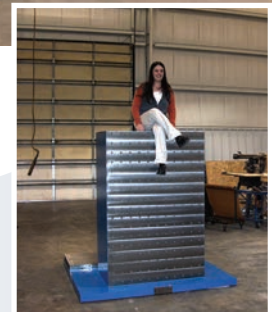
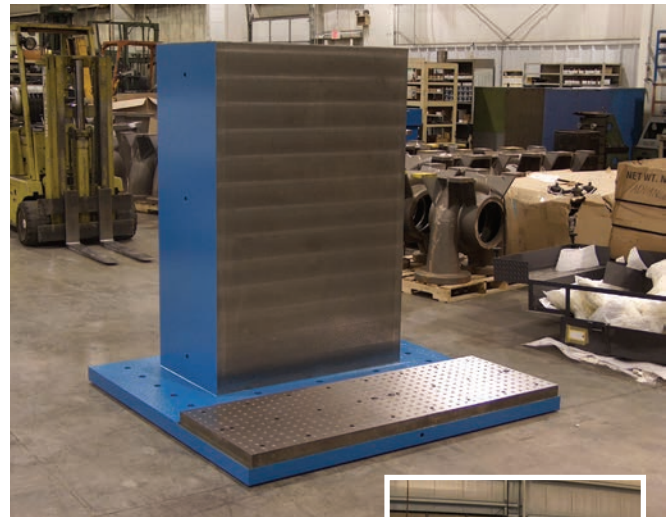
In order to effectively use the new machines, new tombstones and fixturing were required.

## SOLUTION

The new tombstones required for this setup needed custom designs that integrated the standard two inch grid system, and fixturing was designed modularly.

## RESULTS

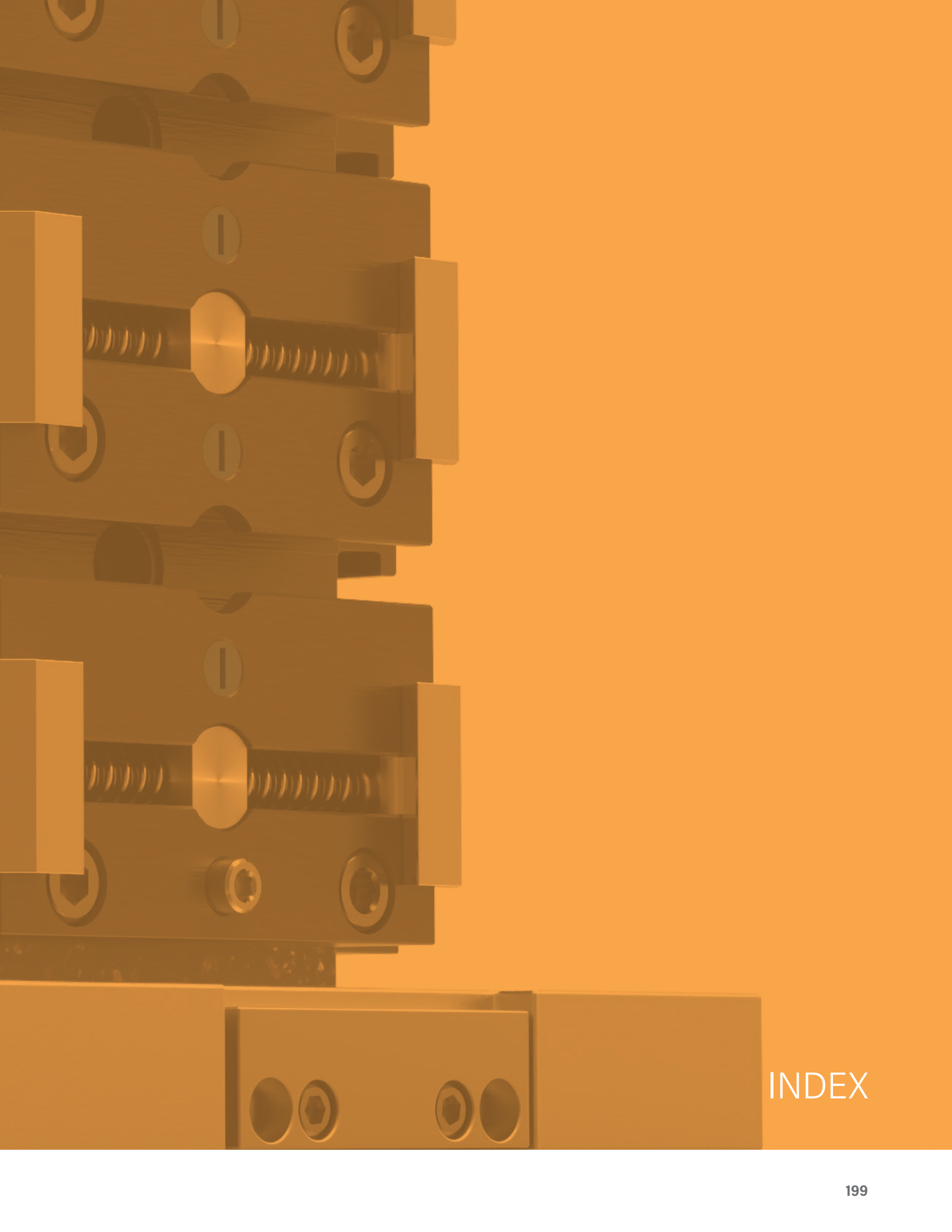
Improved flexibility with the modular setup decreased teardown and setup times.



**Image:** Depth of selection is a large component to choosing a reliable tombstone and workholding solution provider. AMROK not only offers a large selection of products, but we also offer custom solutions for customers both large and small.







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# FULL EQUIPMENT LIST

<b>CNC Turning Centers</b>
MAZAK QT 450M <ul style="list-style-type: none"> <li>20" x 40"</li> </ul>
MAZAK QT 450M <ul style="list-style-type: none"> <li>20" x 80"</li> <li>6.25" spindle head</li> </ul>
MAZAK QT 350MY <ul style="list-style-type: none"> <li>18" x 60"</li> </ul>
MAZAK QT 350M <ul style="list-style-type: none"> <li>18" x 60"</li> </ul>
MAZAK QT 250MY <ul style="list-style-type: none"> <li>12" x 40"</li> </ul>
MAZAK Slant Turn 20 ATC Mill Center <ul style="list-style-type: none"> <li>12" x 20"</li> <li>Gantry robot parts loader</li> </ul>
MAZAK Quick Turn 35 <ul style="list-style-type: none"> <li>20" x 60"</li> <li>5½" spindle head</li> </ul>
MAZAK Quick Turn 10 <ul style="list-style-type: none"> <li>10" x 20"</li> </ul>
MAZAK Quick Turn 18 Mill Center
MAZAK QTN100
DOOSAN Lynx 220L with Bar Feeder
DOOSAN Lynx 300L

<b>Multi-Axis Turning Centers</b>
MAZAK INTEGREGX 400
MAZAK INTEGREGX 200
MAZAK MULTIPLEX 6100Y CNC Lathe

<b>Complimentary Turning Equipment</b>
LEBLOND REGAL <ul style="list-style-type: none"> <li>26" diameter x 72"</li> <li>5<sup>3</sup>/<sub>16</sub>" spindle head</li> </ul>
VDF Heidenreich & Harbech <ul style="list-style-type: none"> <li>26" diameter x 96"</li> </ul>
MAZAK <ul style="list-style-type: none"> <li>15" x 60"</li> </ul>

<b>Horizontal CNC Machining Centers</b>
TOYODA FH800SX-i (2) <ul style="list-style-type: none"> <li>800mm x 800mm pallet pool envelope</li> <li>59" x 59"</li> <li>308 Tools</li> </ul>
NIIGATA HN100D <ul style="list-style-type: none"> <li>119 Tools</li> <li>Pallet changer</li> <li>Heavy-duty box ways</li> <li>High precision</li> </ul>
NIIGATA HN80D <ul style="list-style-type: none"> <li>90 tools</li> <li>Pallet changer</li> <li>Heavy-duty box ways</li> <li>High precision</li> </ul>
MAZAK HCN 4000 <ul style="list-style-type: none"> <li>14 pallet pool</li> <li>120 tools</li> </ul>
MAZAK H630 <ul style="list-style-type: none"> <li>80 tools</li> <li>Pallet changer</li> <li>30" x 80"</li> </ul>

<b>Vertical CNC Machining Centers</b>
MAZAK Nexus 510 <ul style="list-style-type: none"> <li>2 pallet vertical M/C</li> </ul>
MAZAK V-655 <ul style="list-style-type: none"> <li>60 tools</li> <li>Pallet changer</li> <li>30" x 80"</li> </ul>
MAZAK AJV 25-405 Tool and Pallet Changer
HAAS VF-2 <ul style="list-style-type: none"> <li>20 tools</li> <li>4th-axis rotary table</li> </ul>

<b>Horizontal Boring Mills with Index Tables</b>
IKEGAI NB130P CNC Boring Mill
IKEGAI NB110T CNC Horizontal Boring Mill
DEVLIEG Jig Mill 4K-72 <ul style="list-style-type: none"> <li>48" x 72"</li> <li>2-axis NC control</li> </ul>
DEVLIEG Jig Mill 4K-60 <ul style="list-style-type: none"> <li>60" x 48"</li> <li>2-axis NC control</li> </ul>



# FULL EQUIPMENT LIST

Grinding Equipment
Cylindrical Grinders
STUDER S40 Universal Cylindrical Grinder <ul style="list-style-type: none"> <li>• 60" Between Centers</li> <li>• 14" Swing</li> <li>• High Resolution 0.0001° B-Axis with 2 Wheel Heads</li> <li>• C-Axis for Form and Thread Grinding</li> </ul>
STUDER FAVORIT 533 <ul style="list-style-type: none"> <li>• 1000mm Cylinder Grinder</li> </ul>
MITSUBISHI CNC <ul style="list-style-type: none"> <li>• 13" x 42" Capacity</li> </ul>

Grinding Equipment
Internal Grinders
Tripet TST 400 Grinding Center <ul style="list-style-type: none"> <li>• Swivel range of each workhead is -5/+11°</li> <li>• Equipped with a 4-spindle turret head for internal and face grinding of diameters up to 15.75" (400mm)</li> <li>• Grinding lengths up to 9.85" (250mm)</li> </ul>
VOUMARD 150 CNC ID Grinder <ul style="list-style-type: none"> <li>• Three grinding heads</li> <li>• Grinding lengths up to 9.85" (250mm)</li> <li>• Maximum shaft lengths up to 59" (1500mm)</li> <li>• 14" x 60" capacity</li> </ul>
OKAMOTO IGM-15NCIII <ul style="list-style-type: none"> <li>• Internal diameter to be ground: 0.24" ~ 6"/8"</li> <li>• Maximum grinding stroke: 5</li> <li>• Swing over table: 24"</li> </ul>
HEALD Slide Head <ul style="list-style-type: none"> <li>• 15" x 15"</li> </ul>
SUNNEN Eclipse EC-3500 <ul style="list-style-type: none"> <li>• Automatic precision honing machine</li> <li>• 3.50" diameter maximum bore</li> </ul>
SUNNEN Precision Home
HENNINGER Oscillating Spindle Center Hold Grinding Machine
EX-CELL-O #74 Center Lap

Grinding Equipment
Rotary Grinders
MATTISION 42" <ul style="list-style-type: none"> <li>• 48" diameter with angular adjustable head</li> </ul>

Grinding Equipment
Surface Grinders
DANOBAT <ul style="list-style-type: none"> <li>• 40" x 100"</li> </ul>
OKAMOTO <ul style="list-style-type: none"> <li>• 10" x 24"</li> </ul>
DOALL Automatic <ul style="list-style-type: none"> <li>• 10" x 24"</li> </ul>
KENT Automatic <ul style="list-style-type: none"> <li>• 8" x 18" capacity</li> </ul>

EDM Machines
MITSUBISHI CNC EDM Wire Cutting Machine <ul style="list-style-type: none"> <li>• 31.49" x 22.63" x 8.46" maximum workpiece dimensions</li> </ul>

Sawing Machines
AMSAW 350PR with Handling System <ul style="list-style-type: none"> <li>• 5" - 14" capacity</li> </ul>
AMSAW 100 with Handling System <ul style="list-style-type: none"> <li>• Up to 4¼" capacity</li> </ul>
AMSAW 400 Automatic Bandsaw <ul style="list-style-type: none"> <li>• 16" capacity</li> </ul>
DOALL V-36 Vertical Contour Saw <ul style="list-style-type: none"> <li>• 9" x 36"</li> </ul>

Miscellaneous Machines
KUHN Type F Hydraulic Straightening Machine <ul style="list-style-type: none"> <li>• 70 Ton x 24' capacity for flats and rounds</li> </ul>

Inspection Equipment
DEA Model 3408 CNC Coordinate Measuring Machine <ul style="list-style-type: none"> <li>• 200" x 80" x 54" with PC-DMIS</li> </ul>
DEA Model 1204 CNC Coordinate Measuring Machine <ul style="list-style-type: none"> <li>• 72" x 38" x 54" with PC-DMIS</li> </ul>
BROWN & SHARPE Coordinate Measuring Machine <ul style="list-style-type: none"> <li>• 16¼" x 14" x 12"</li> </ul>
BROWN & SHARPE Electronic Digital Height Gauge
J&L Optical Comparator
WILSON Rockwell Tester



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