



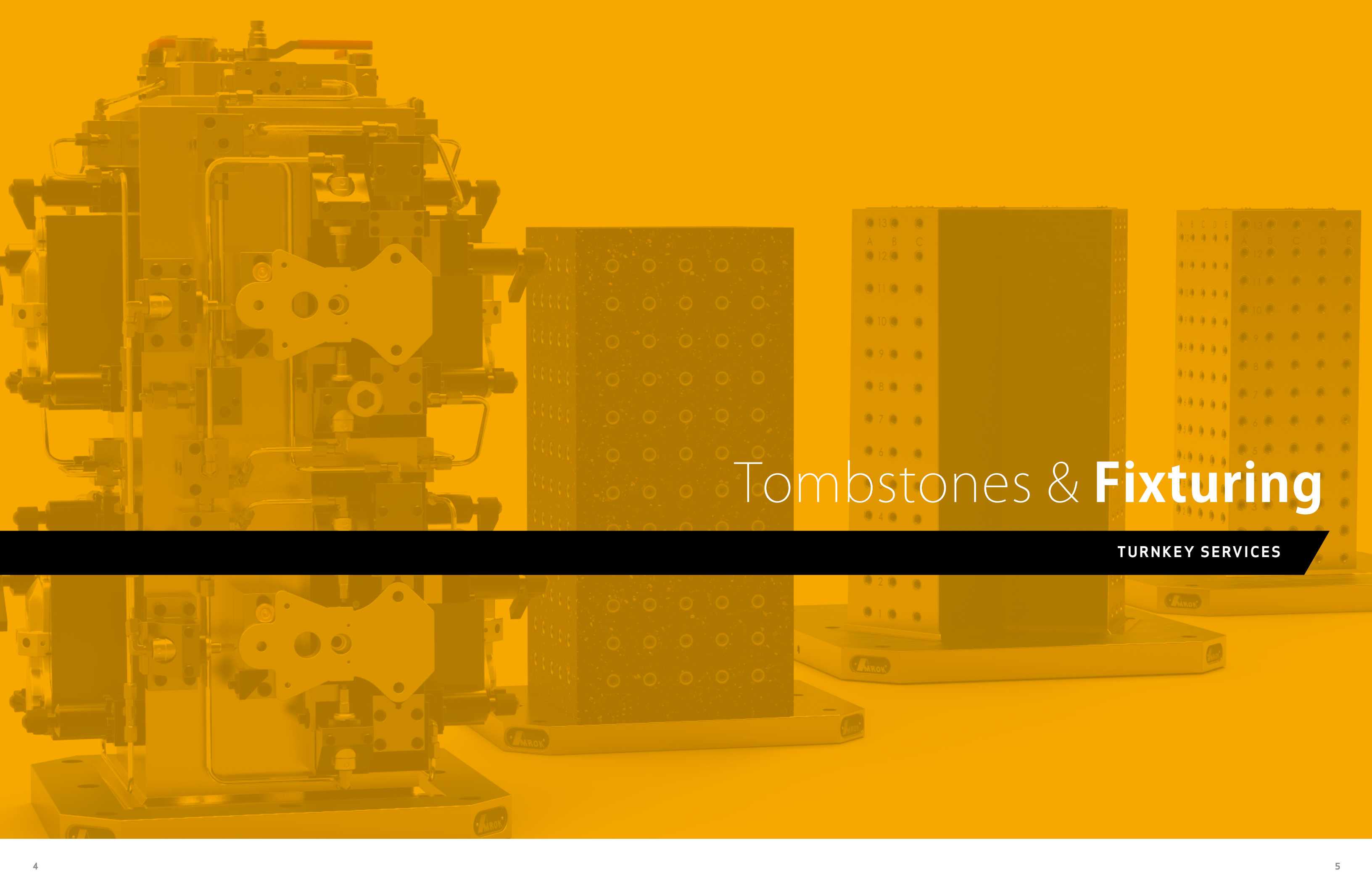
# Workholding & Components

**FIXTURING SYSTEMS OVERVIEW**

# Table of Contents:

- 1** TOMBSTONES & GRID PLATES | PG. 04-11
- 2** MODULAR WORKHOLDING COMPONENTS | PG. 12-37
- 3** DESIGN & BUILD FIXTURES | PG. 38-43





# Tombstones & **Fixturing**

TURNKEY SERVICES

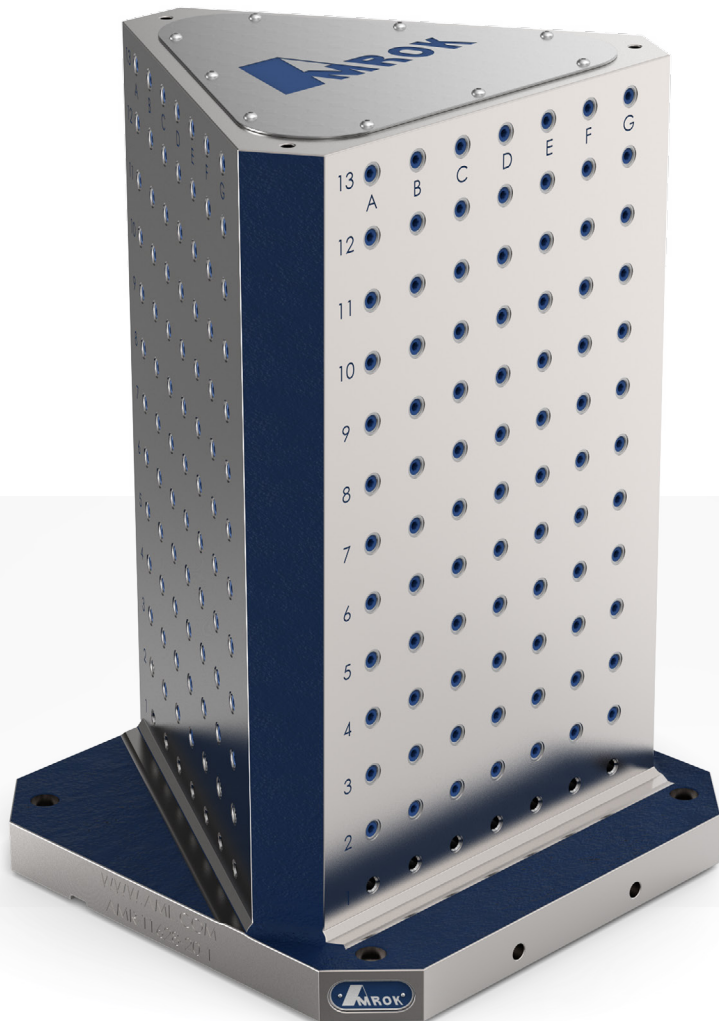
# Tooling Column Shape Options

## AMROK Tombstones

**MADE TO FIT YOUR MACHINING CENTER BY:**

AMROK Tombstones and Grid Plates are designed to hold the industry's tightest tolerances for flatness, parallelism, perpendicularity, surface finish, and hole location. All Tombstones and grid plates are built, and then inspected using AME's in-house Coordinate Measuring Machine.

- Milled edge locating
- Hardened and ground steel edge-locating wear pads (available upon request)
- Center locating
- Mounting holes to your specification



**TOMBSTONES MADE TO ORDER:**

AMROK Tombstones are offered in virtually any size and shape and can be made from cast iron, aluminum, steel weldments, or the newly developed epoxy-mineral material. Choose your tooling column from the standard shapes below or ask the AMROK experts to help with a customized solution.

- Material of your choice - Cast iron, Aluminum, Steel or the AMROK Epoxy-Mineral tombstone.
- Industry standard 2.0000" spacing utilizes hardened threaded inserts and bushings for durability.
- Custom hole patterns, T-slots, or any other locating/ fastening system available
- Plain Faces - Precision face machined without holes.
- Easy-to-use- on-line catalog features standard sizes with "special" sizes available upon request.



**VARIETY OF OPTIONS TO CHOOSE FROM:**

AMROK Tombstones and Grid Plates are designed to hold the industry's tightest tolerances for flatness, parallelism, perpendicularity, surface finish, and hole location. All Tombstones and grid plates are built, and then inspected using AME's in-house Coordinate Measuring Machine.



**CUBE**

**DOUBLE ANGLE**

**CROSS COLUMN**



**SINGLE ANGLE**

**OCTAGON**

**HEXAGON**

**TRIANGLE**



**Y**

**WINDOWS**

**CONSOLES**

**RISERS (GRID PLATES)**

# Tolerance & Machining Options

## AMROK Tombstones

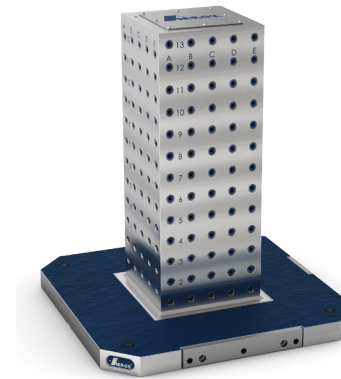
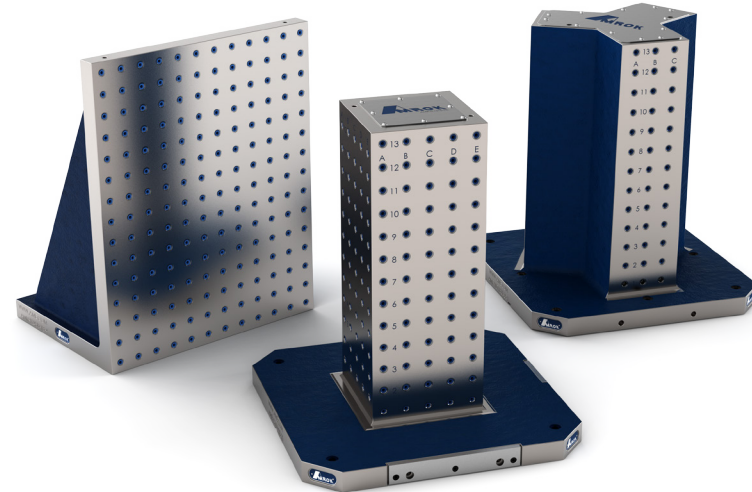
### MADE TO FIT YOUR MACHINING CENTER BY:

AMROK® tombstones, tooling columns and plates are manufactured to the highest precision and quality standards with our precision tolerances.

- Inserts allow positioning and clamping in every hole with co-axial positioned bushings.

- Assures high wear resistance hardened precision bushings.

- Replacement bushings and insert kits with an extraction tool are offered if needed.



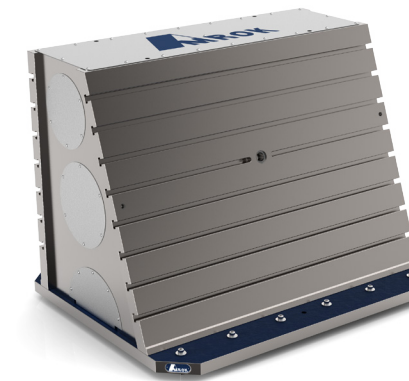
### GRID:

For maximum flexibility, choose a precision grid. AMROK grids are typically machined to the industry standard 2 inch spacing, but custom spacing is available upon request. Alpha-numeric labeling makes it easy to relocate fixturing components on the grid. Each hole features a hardened threaded insert beneath a precision bushing and can be used for both locating and mounting.



### PLAIN FACE:

For customers who prefer to machine the mounting and locating holes themselves, plain face AMROK Tombstones are available with machined faces manufactured to precision tolerances for parallelism and perpendicularity within the tooling column.



### T-SLOT:

T Slot fixtures can be manufactured to provide linear locating.



### CUSTOM:

Have a custom requirement? AMROK tombstones can be customized to individual specifications.

Tolerance	Precision
Flatness (tombstones & plates)	.0005 / 12x12
Parallelism (plates)	.0005 / 12 Max .002 total
Perpendicularity	.0008 / 12 Min .001, Max .002/48
Surface Finish	63 RMS
Face Thickness	≤18" = ±.002, >18" = ±.003
Tapped Holes (non accumulative)	±.005
Precision Bushing I.D.	0
Precision Bushing Concentricity	0.0001
Bored or Precision Bushing Hole to Adjacent Hole	±.0005
First Row Bushing Hole Location from Datums	±.001 (Cast Iron) ±.002 (Epoxy Mineral)
Bored or Precision Bushing Hole Spacing (non accumulative)	(for aluminum, add 50% to these tolerances)

# Epoxy Mineral Tombstone

## Maximum Vibration Damping

### HIGH PERFORMANCE/LIGHT WEIGHT MACHINING:

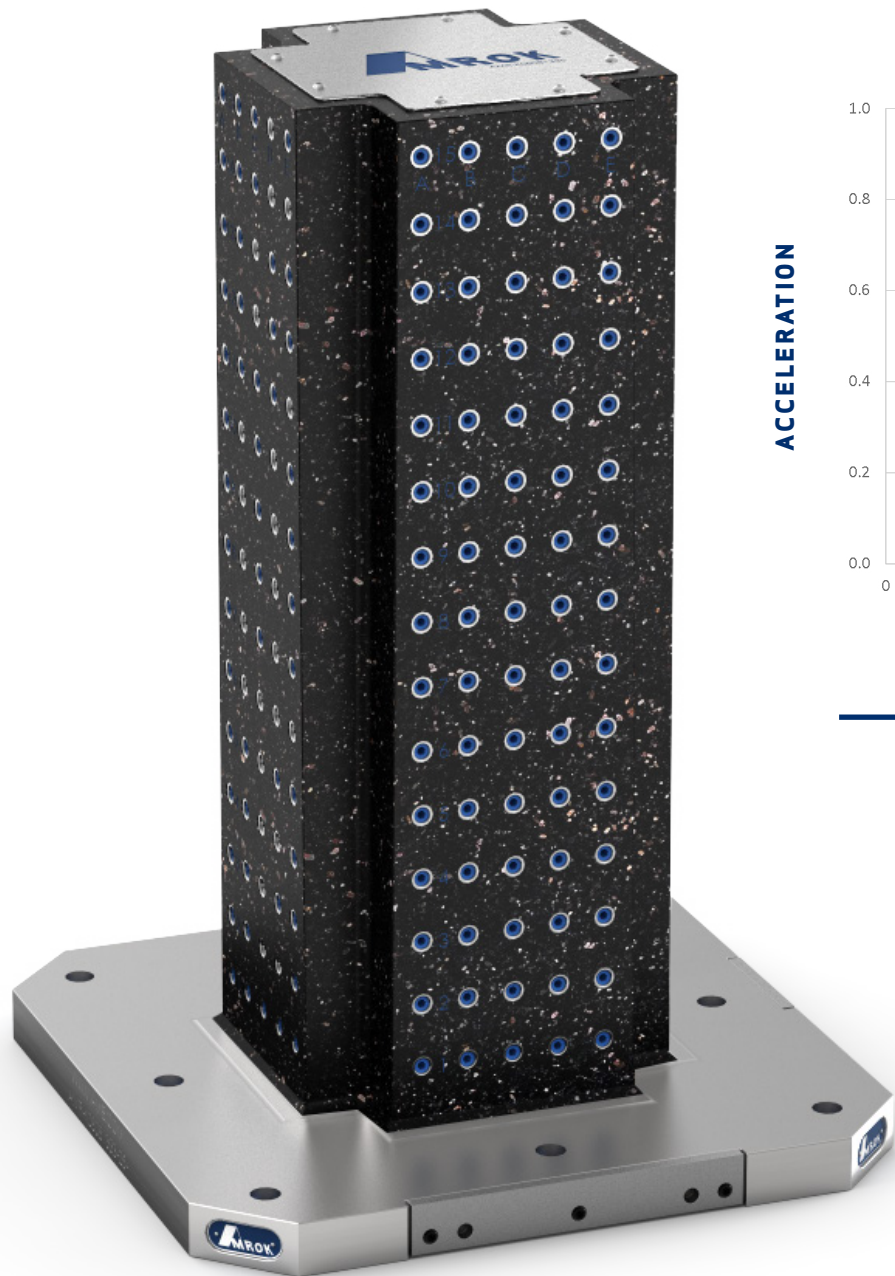
Epoxy Mineral tombstones are ideal for high speed machining centers where weight and accuracy are factors. Epoxy Mineral provides better vibration dampening than aluminum or cast iron.

### MAXIMUM VIBRATION DAMPING:

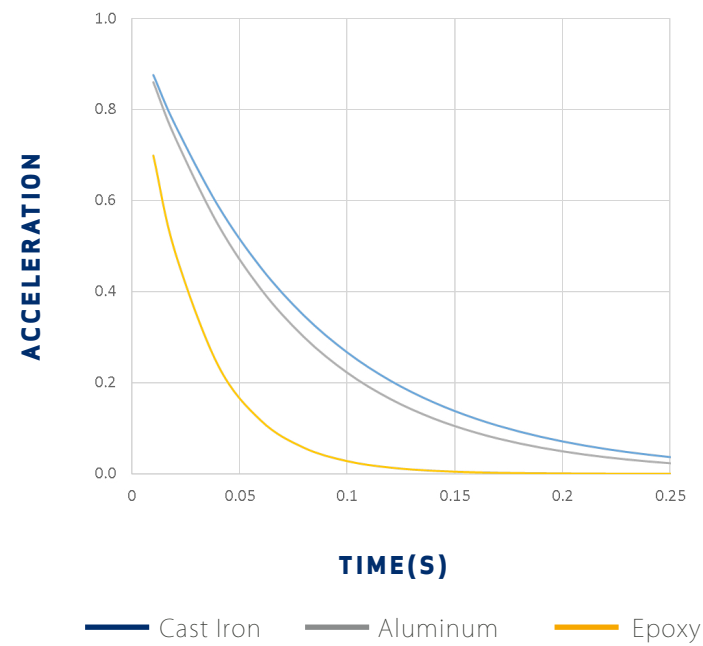
Amrok Epoxy Mineral Tombstones feature vibration damping that rates 10x better than Cast Iron. Vibration reduction within the tooling column will increase tool life, improve part finish, and allow operators to utilize the entire workspace.

### LIGHTWEIGHT & STABLE:

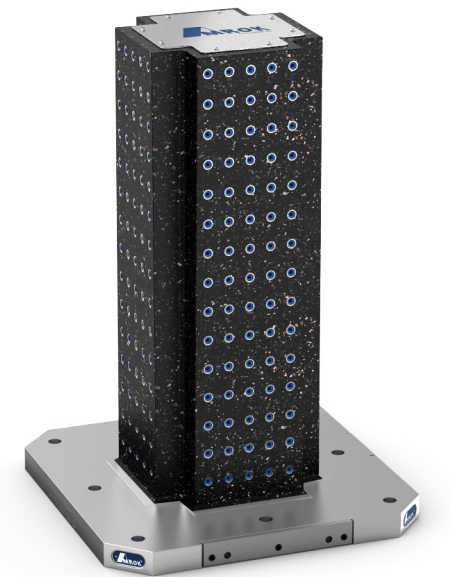
Amrok epoxy-mineral tombstones are resistant to corrosion and thermal expansion providing stability in challenging machining environments. With weight comparable to aluminum, machines can transport the tombstone at maximum speed without exceeding the capacity of the machine table.



### VIBRATION DECAY



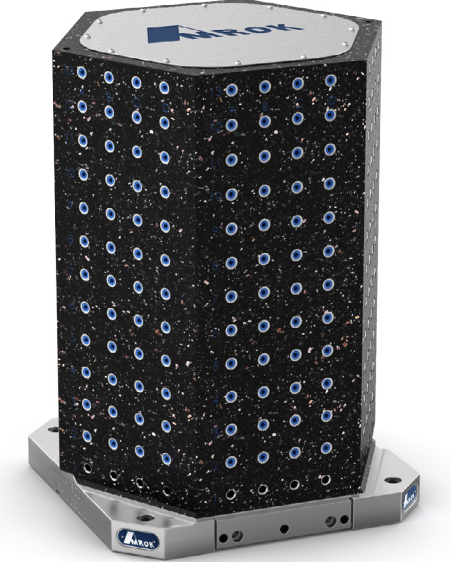
EPOXY CUBE



EPOXY CROSS ANGLE



EPOXY DOUBLE ANGLE

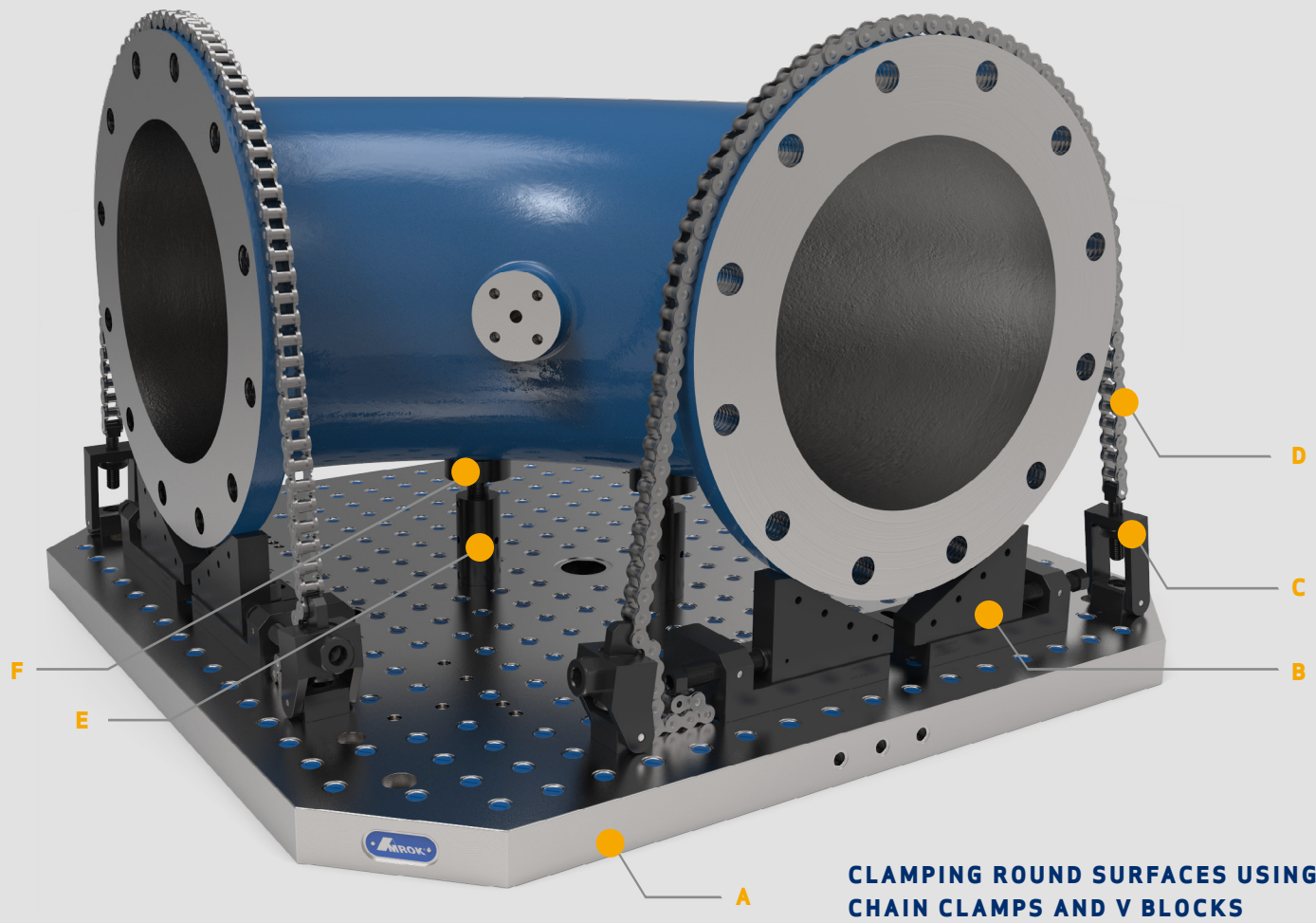


EPOXY HEXAGON



# **Modular** Workholding

LEARN MORE AT | [AMROKTOMBSTONES.COM](https://www.amroktombstones.com)



## Stress-Free Clamping

S.A.F.E. Elements:

Relax. Clamps designed to accommodate workpieces without introducing stress or distortion.

- A. BASE GRID PLATE**
- B. SPLIT V BLOCK**
- C. CHAIN CLAMP**
- D. CLAMPING CHAIN**
- E. ROUND SPACER**
- F. S.A.F.E. BALL ELEMENT**

## A Complete System. For Complex Work.

- 1/ SELF ALIGNING FIXTURE ELEMENTS (S.A.F.E.)**
- 2/ CLAMPING BARS & BASES**
- 3/ VISE SYSTEMS**
- 4/ CLAMP ASSEMBLIES**
- 5/ V BLOCKS & CHAIN/ CABLE CLAMPING**
- 6/ SPRING SUPPORTS**
- 7/ LOCATORS SPACERS, RISERS**
- 8/ ACCESSORIES**



# Self Aligning Fixture Elements (S.A.F.E.)

- Smooth or serrated surfaces.
- Adjustable or precision heights.
- Housing equipped with viton O-ring to prevent penetration of chips and coolant.
- Threaded ball elements can be fixed or adjustable.
- Press fit ball elements are fixed and can be used for locating and positioning.

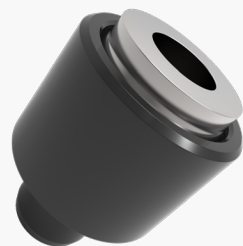
**VISIT [AMROKTOMBSTONES.COM](http://AMROKTOMBSTONES.COM)**

FOR THE FULL SELECTION ONLINE INCLUDING DOWNLOADABLE CAD MODELS.

# Workholding Systems for Gripping Work



**THREADED BALL ELEMENTS**



**PRESS FIT SHANK BALL ELEMENTS**



**SET SCREWS**

## 400 SERIES

**LOAD CAPACITY:** 1,798 lbs  
**BALL FACE DIAMETER:** .26" in  
**BALL DIAMETER:** .315" in

## 500 SERIES

**LOAD CAPACITY:** 4,496 lbs  
**BALL FACE DIAMETER:** .39" in  
**BALL DIAMETER:** .472" in

## 600 SERIES

**LOAD CAPACITY:** 11,240 lbs  
**BALL FACE DIAMETER:** .71" in  
**BALL DIAMETER:** .945" in

## 700 SERIES

**LOAD CAPACITY:** 22,480 lbs  
**BALL FACE DIAMETER:** 1.36" in  
**BALL DIAMETER:** 1.575" in

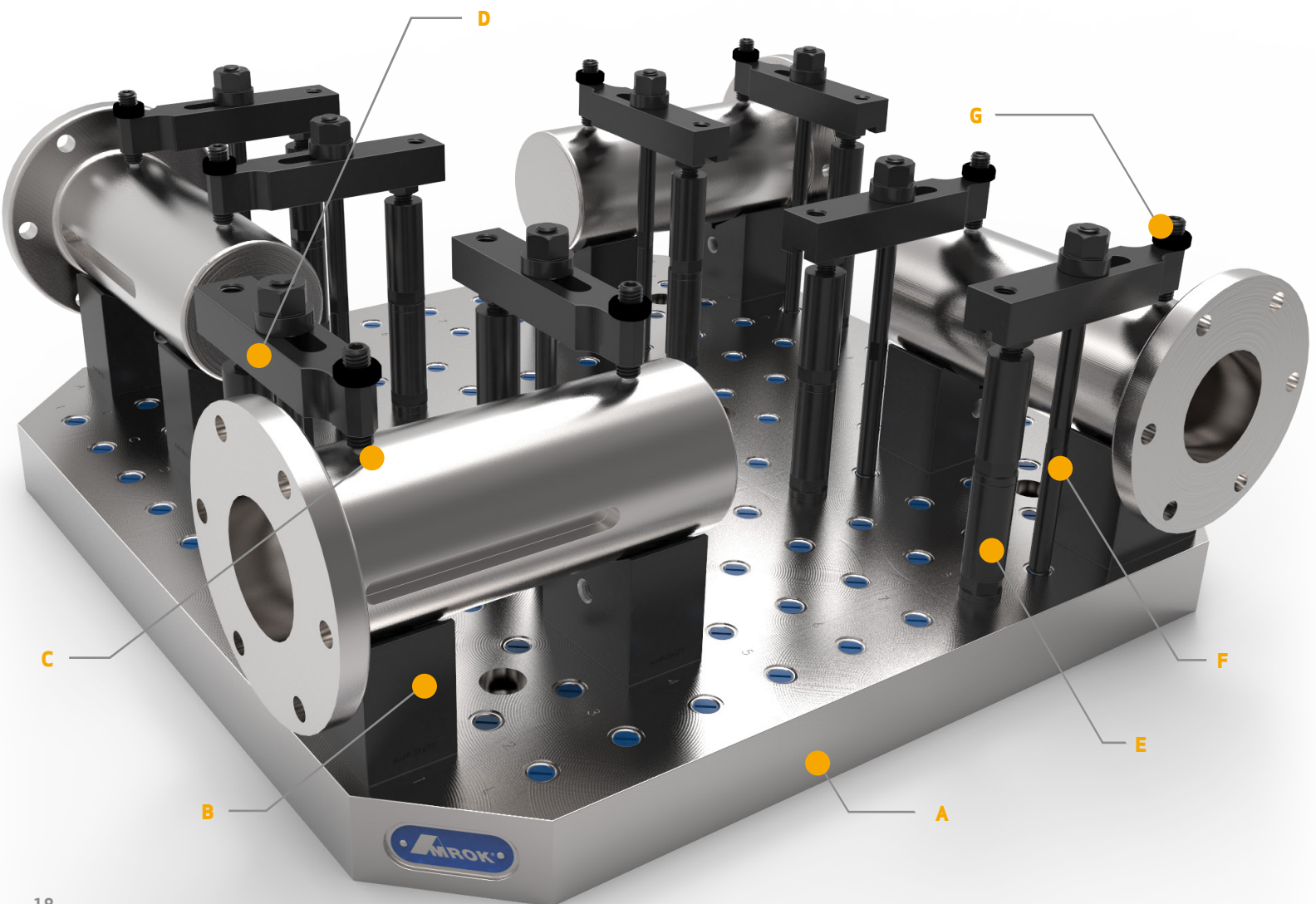
# Clamping Bars & Bases

With Black Oxide finish these are all available with built-in ball elements (smooth or serrated) or tapped holes (1/2"-13 or 5/8"-11 grid sizes). Built-in ball element versions are ideal for small spaces because of their compact height.

Tapped hole versions are ideal for taller support heights. They require a threaded ball element which can adjust for additional support height.

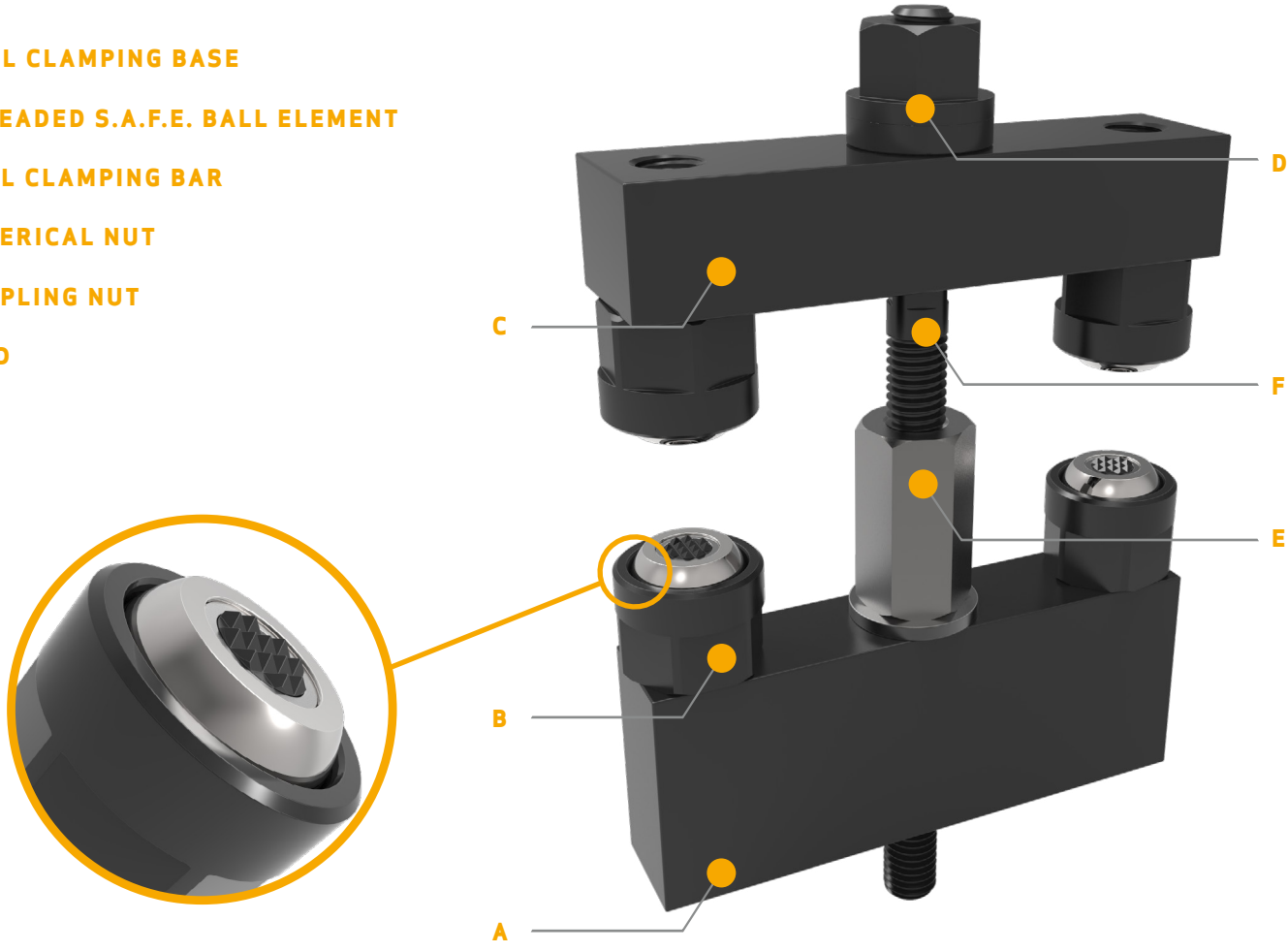
\*Special sizes and custom designs available upon request.

- A. BASE GRID PLATE
- B. V BLOCK
- C. SET SCREW S.A.F.E. BALL ELEMENT
- D. JACK SCREW CLAMPING BAR (PREPPED WITH TAPPED HOLE)
- E. SPACER
- F. STUD
- G. SPHERICAL NUT



## Ball Element Series Specifications

- A. DUAL CLAMPING BASE
- B. THREADED S.A.F.E. BALL ELEMENT
- C. DUAL CLAMPING BAR
- D. SPHERICAL NUT
- E. COUPLING NUT
- F. STUD



# Clamping Bars and Bases

## Sizes & Styles

\*Special sizes and custom designs available upon request.



**SINGLE BAR HEEL REST  
TAPPED HOLE**

**SINGLE BAR HEEL REST  
BALL ELEMENTS**

**SINGLE BAR STRAP CLAMP**



**SINGLE BAR JACK SCREW  
TAPPED HOLE**



**SINGLE BAR JACK SCREW BALL  
ELEMENTS 500 SERIES**



**SINGLE BAR JACK SCREW BALL  
ELEMENTS 600 SERIES**



**DUAL CLAMP BAR & BASES  
TAPPED HOLE**



**DUAL CLAMP BAR BALL  
ELEMENTS 500 SERIES**



**DUAL CLAMP BAR BALL  
ELEMENTS 600 SERIES**



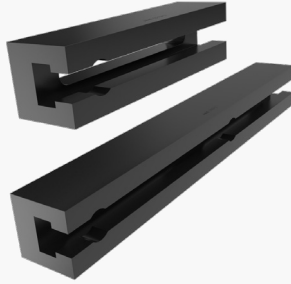
**SINGLE BAR JACK SCREW BALL  
ELEMENTS 700 SERIES**



**SINGLE BAR JACK SCREW  
OFFSET BALL ELEMENTS**



**SINGLE BAR HEEL REST OFFSET  
BALL ELEMENTS**



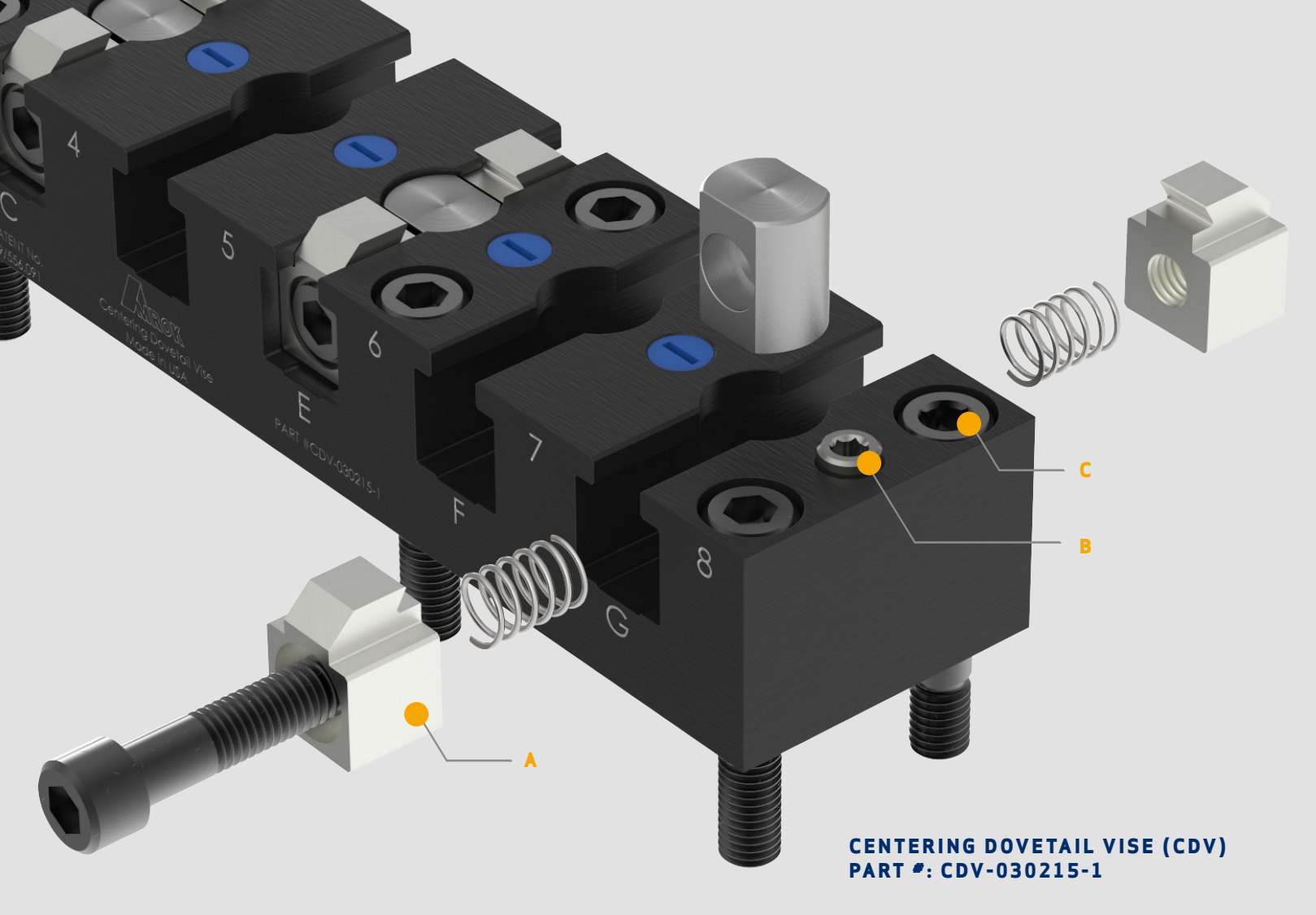
**T-SLOT CLAMP BAR**



**SLIDING BASE BAR**



**UNIVERSAL CLAMP BAR**



**CENTERING DOVETAIL VISE (CDV)**  
PART #: CDV-030215-1

## More Sizes & Widths Available



**.125" TALL JAW**



**.250" TALL JAW**



**.375" TALL JAW**

**DIFFERENT HEIGHTS FOR VARIOUS JOB REQUIREMENTS**

## Centering Dovetail Vises

**MATERIAL TO BE PRE-MACHINED WITH DOVETAIL CUTS WITH 2 LOCATOR PIN HOLES:**

**DOVETAIL WIDTHS ARE AS FOLLOWS:**

**For 3" wide vises:** 1. 1.250"-2.250" wide at outside theoretical sharp corner

**For 6" wide vises:** 2. 2.250"-5.000" wide at outside theoretical sharp corner

**DO NOT LEAVE OUTSIDE CORNERS ON DOVETAIL SHARP.**

1. .150" Tall Dovetail (For CDV-xxxxxx-1 Vises) With .150" Deep Locator Pin Holes
2. .280" Tall Dovetail (For CDV-xxxxxx-2 Vises) With .280" Deep Locator Pin Holes
3. .400" Tall Dovetail (For CDV-xxxxxx-3 Vises) With .280" Deep Locator Pin Holes

**WISE MOUNTING OPTIONS:**

1. Can be mounted end to end to suit the length of your part

### A. JAWS

15° or 30° options

### B. LOCATING PIN

Ø.4999"-.4995" X .125"  
above top surface using  
#CDV-LOCPIN-1

Ø.4999"-.4995" X .250"  
above top surface using  
#CDV-LOCPIN-2

### C. PRECISION LOCATING SCREW FOR LOCATING & MOUNTING VISE

(Ø.500" body / 1/2-13 thread)

#AMF-87996 (2) included #AMF-87543  
for center hole mtg. (purchase separately)



**A.** CDV-06-JKIT-1

**B.** CDV-06-JKIT-2

**C.** CDV-06-JKIT-3

## Fixed & Movable Vises

### Sizes & Styles That Fit Your Work.

- Black oxide finish
- Precision bushing holes (.5007/.5013 or .6257/.6263) allow for quick and easy precision location
- 5/16" minimum plate thickness for face milling application, when using taller parallels
- Two precision dowel screws are used to locate vise on S.A.F.E. grids

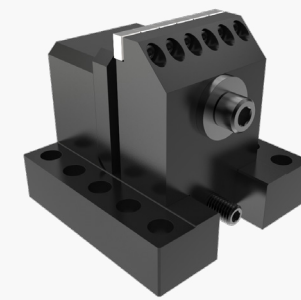
\*Special sizes and custom designs available upon request.



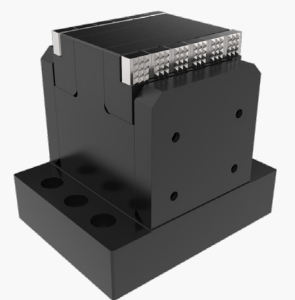
VICE SET A



VICE SET B



MOVABLE VISE



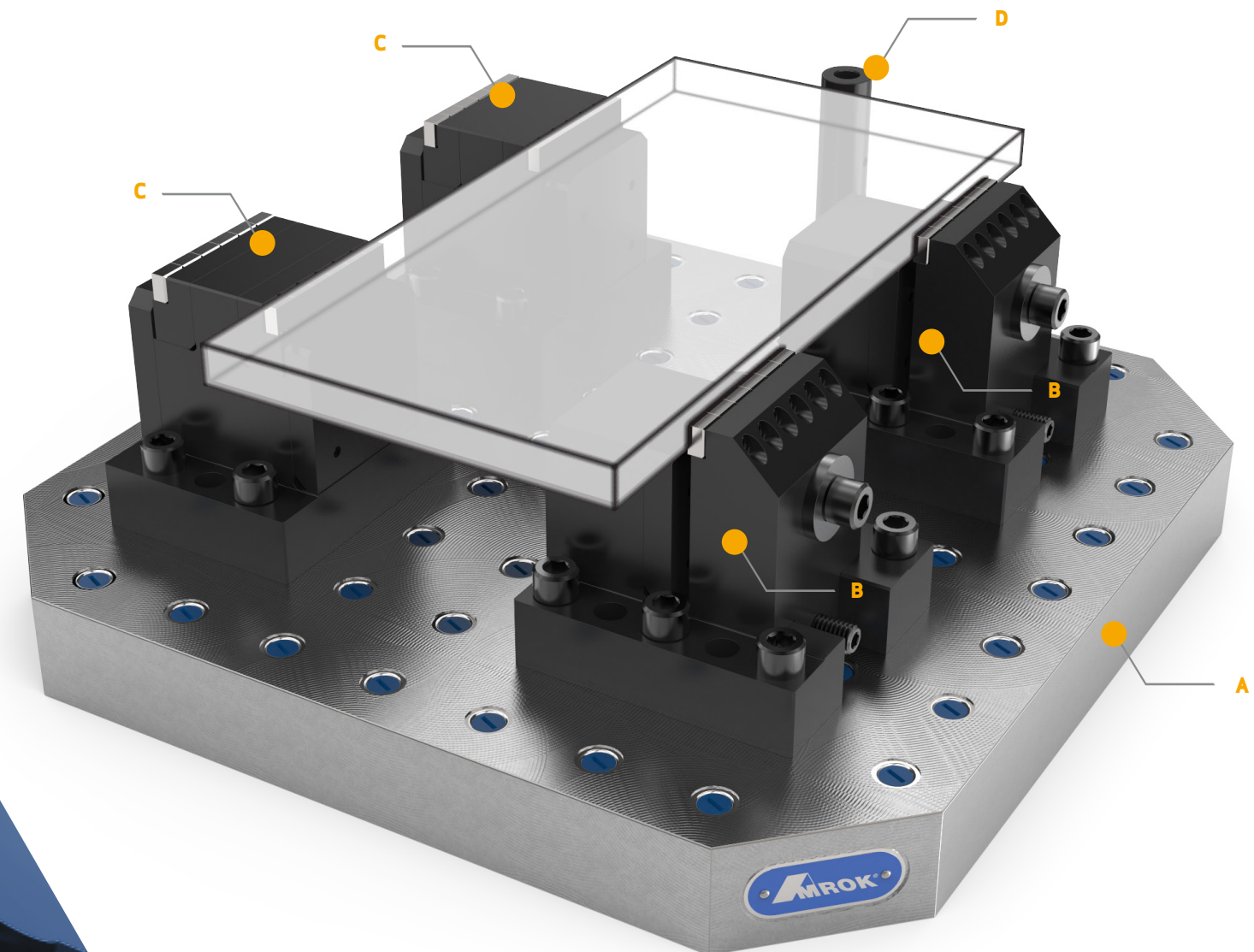
FIXED VISE

A. BASE GRID PLATE

B. MOVABLE VISE

C. FIXED VISE

D. PRECISION EDGE TOWER



**Easy Setup** Using  
Centerline or Outside  
Locating Holes

# Clamp Assemblies & Stops

## Sizes & Styles That Fit Your Work.

- Black oxide finish
- Accurate Support Height

\*Special sizes and custom designs available upon request.

**A. BASE GRID PLATE**

**B. SLIDING PARALLEL CLAMP  
(PREPPED WITH TAPPED HOLE)**

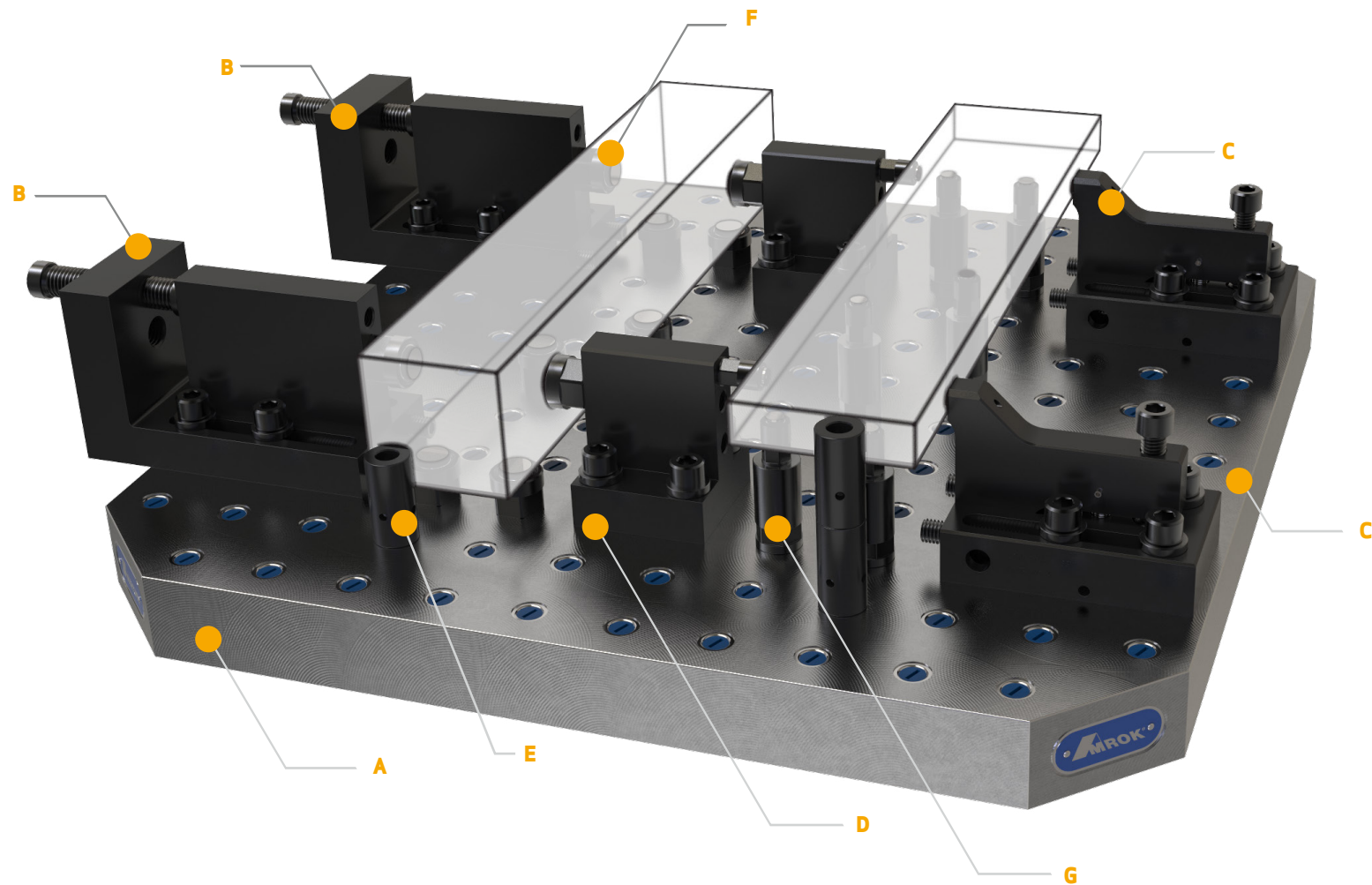
**C. PARALLEL CLAMP  
(INTEGRATED BALL ELEMENT)**

**D. PARALLEL STOP  
(PREPPED WITH TAPPED HOLES)**

**E. PRECISION EDGE TOWER**

**F. FIXED S.A.F.E. BALL ELEMENT**

**G. ROUND SPACER**



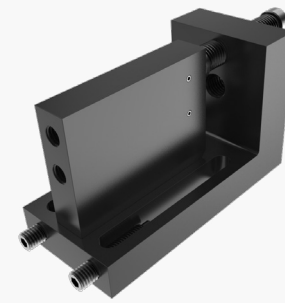
**PARALLEL CLAMP  
(PREPPED WITH TAPPED HOLE)**



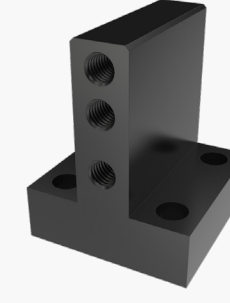
**PARALLEL CLAMP  
(INTEGRATED BALL ELEMENT)**



**PARALLEL CLAMP  
(PREPPED WITH TAPPED HOLE)**



**SLIDING PARALLEL CLAMP  
(PREPPED WITH TAPPED HOLES)**



**PARALLEL STOP  
(PREPPED WITH TAPPED HOLES)**



**SLIDING PARALLEL CLAMP  
(PREPPED WITH TAPPED HOLES)**



**400 SERIES  
CLAMP UNIT**



**500 SERIES  
CLAMP UNIT**



**500 SERIES  
SLIDING CLAMP UNIT**

# V-Blocks & Chain/Cable Clamping

## Uniform Clamping.

Locate and clamp your round workpieces with our hardened and ground v blocks. They are ideal when used with chain, cable or long clamping bars.

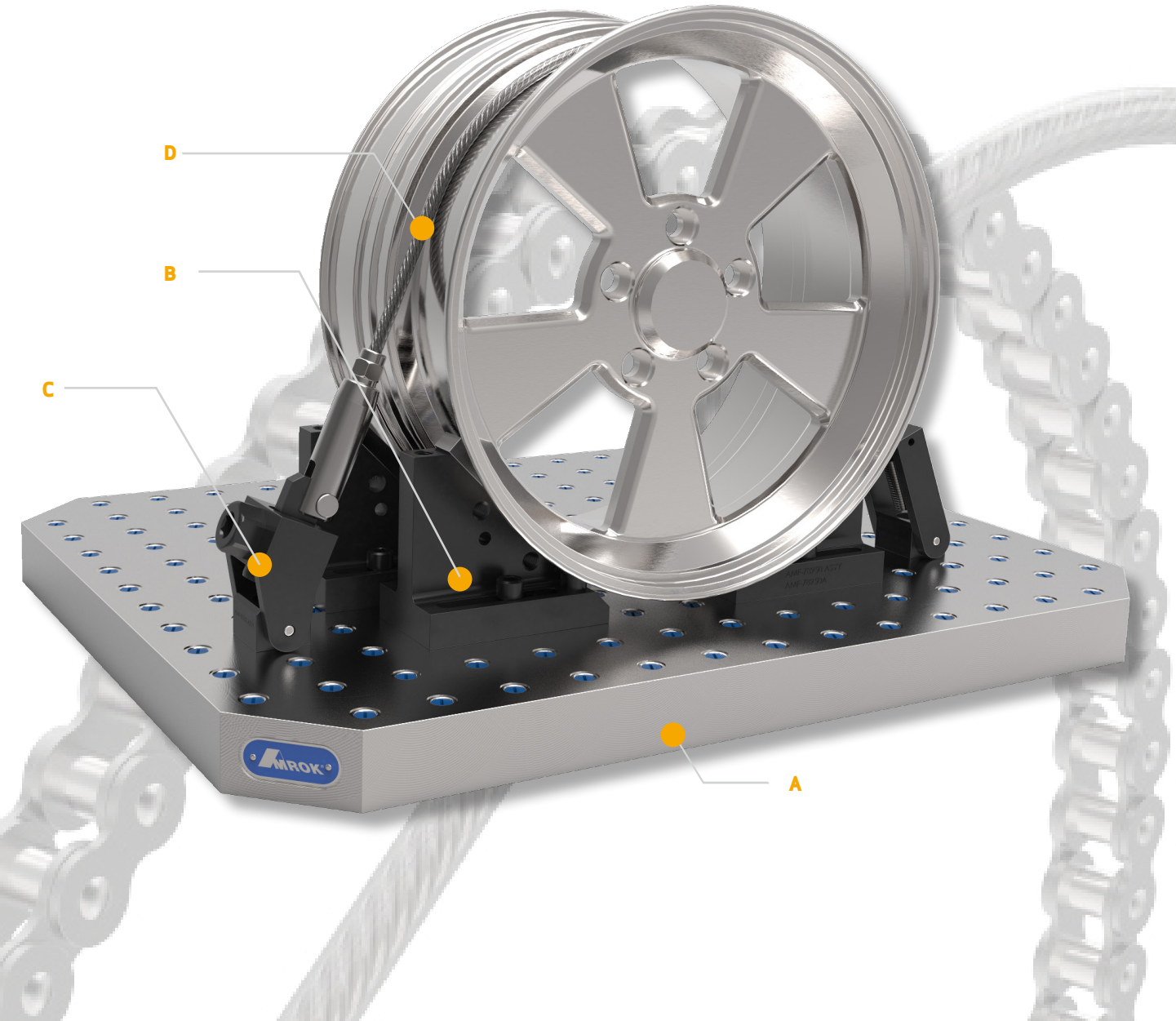
\*Special sizes and custom designs available upon request.

**A. BASE GRID PLATE**

**B. SPLIT V BLOCKS**

**C. STANDARD CHAIN CLAMP ASSEMBLY**

**D. CLAMPING CABLE**



**V REST**



**V STOP**



**V WITH FLANGE**



**SPLIT V**



**ADJUSTABLE SPLIT VS**



**STANDARD CHAIN & CABLE**



**CHAIN & HEAVY DUTY CABLE**



**CHAIN AND CABLE**

# Locators, Spaces, Risers

## Precision Alignment.

Keep your workpieces in line with our precision locators. Bring your clamps and S.A.F.E. ball elements to the perfect position with our spacers. Position your components anywhere on the grid with our risers. Uniform clamping pressure on round parts located with fixed or adjustable V Blocks.

\*Special sizes and custom designs available upon request.

**A. BASE GRID PLATE**

**B. PRECISION EDGE TOWER**

**C. SLIDING BASE BAR**

**D. BLOCK SPACER**

**E. JACK SCREW**

**F. FIXED S.A.F.E. BALL ELEMENT**

**G. THREADED STUD**

**H. JACK SCREW CLAMPING BAR (INTEGRATED BALL ELEMENT)**

**I. SPHERICAL NUT**

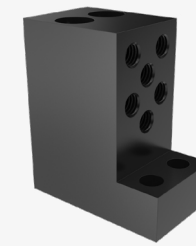
**J. HEEL REST**

**K. ADJUSTABLE S.A.F.E. BALL ELEMENT**

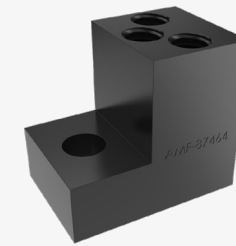
**L. HEEL REST CLAMPING BAR (PREPPED WITH TAPPED HOLE)**



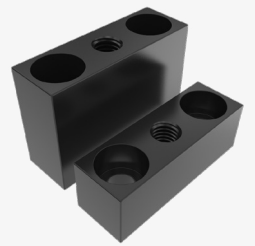
**MINI WORK TOWER**



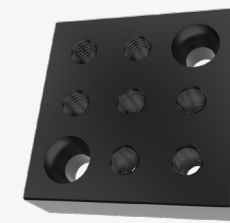
**HEAVY DUTY PRECISION LOCATOR**



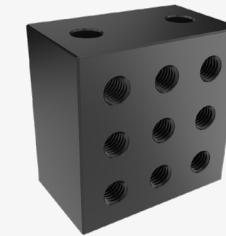
**UNIVERSAL LOCATER BLOCK**



**BLOCK SPACER**



**RISER BLOCK**



**SIDE MOUNTING BLOCK**

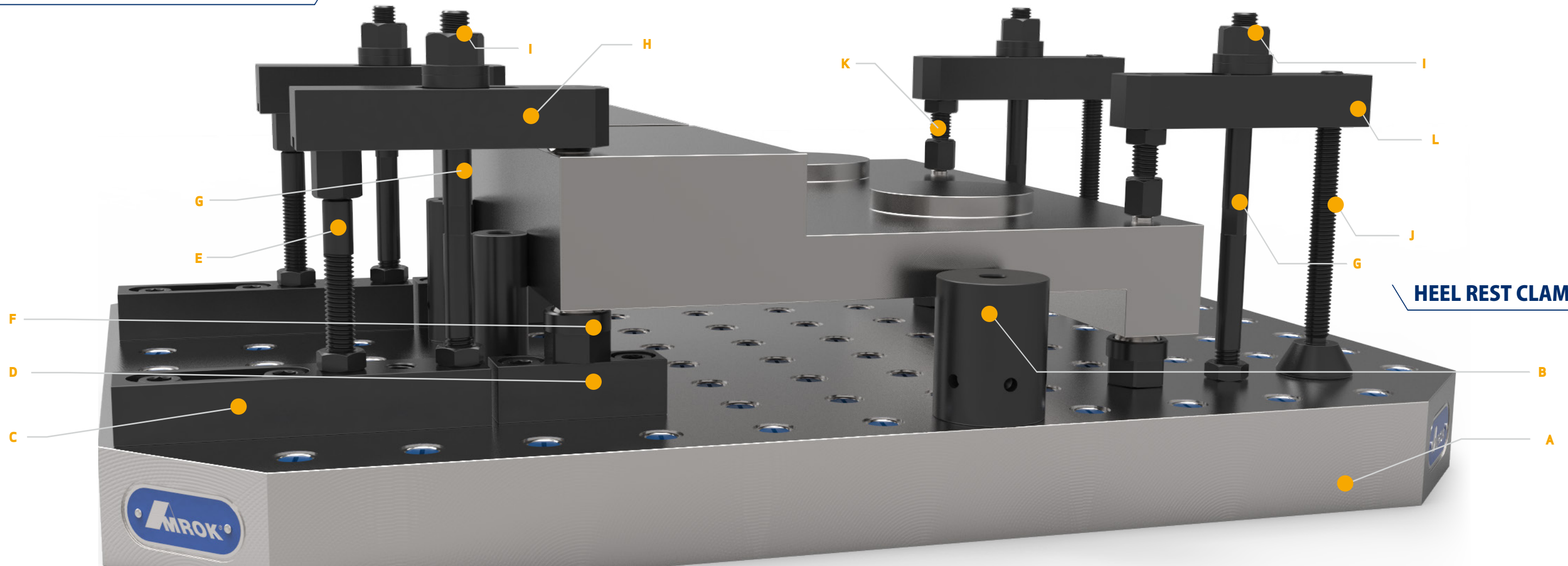


**PRECISION EDGE TOWER**



**ROUND SPACERS**

### JACK SCREW CLAMPING



### HEEL REST CLAMPING



# Spring Supports

When your workpieces become too long or wide, our spring supports will cradle your part to reduce vibration. Our spring supports easily slip under your part, making set up a breeze. Once under your part, they spring up to push the part and are locked by a few turns of a set screw.

\*Special sizes and custom designs available upon request.



**WHISTLE-NOTCH LOCKING STYLE**  
LOAD CAPACITY 2,225 LBS



**SQUEEZE LOCKING STYLE B**  
LOAD CAPACITY 1,800 LBS



**SQUEEZE LOCKING STYLE A**  
LOAD CAPACITY 1,125 LBS



**TAPER LOCKING STYLE**  
LOAD CAPACITY 2,250 LBS

# Universal Support Bodies



**BOTTOM PLUG**  
(STANDARD TO ACME THREADED)



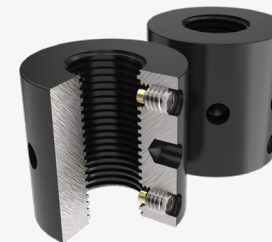
**TOP PLUG**  
(ACME THREADED)



**COUPLING ROD**  
(ACME THREADED)

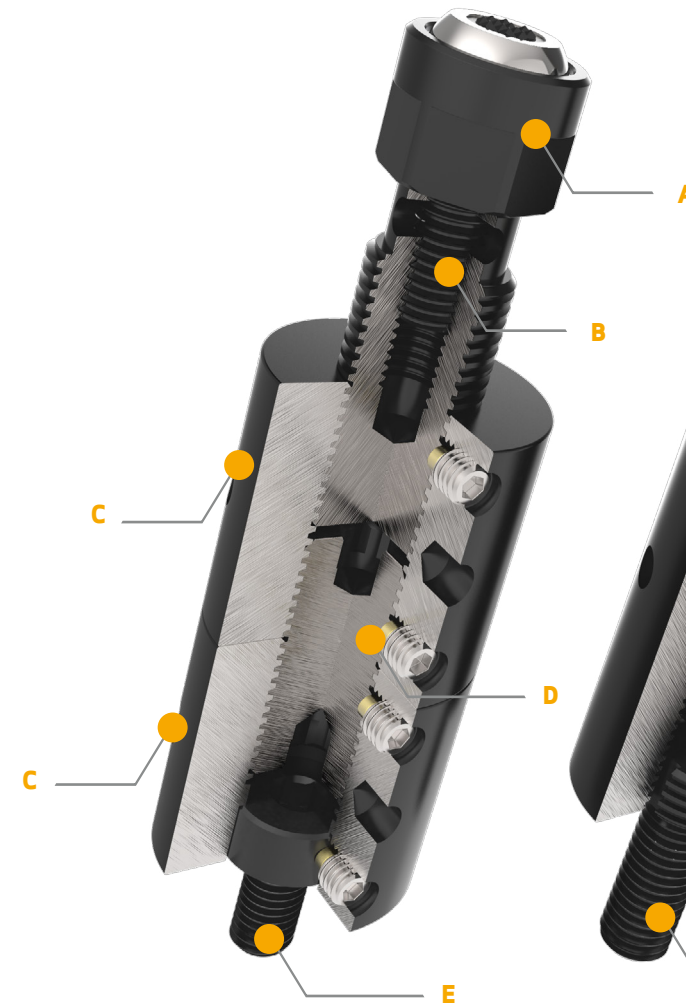


**ROTATING BOTTOM PLUG**  
(STANDARD THREADED)



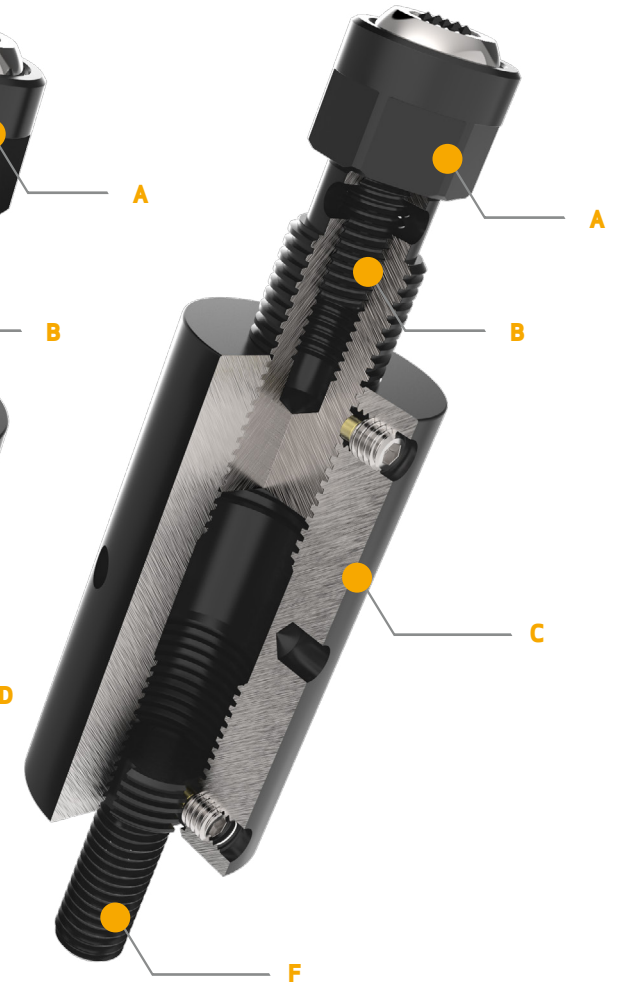
**MAIN BODY COLLAR**  
(ACME THREADED)

## ROTATING SETUP



- A. THREADED S.A.F.E. BALL ELEMENT
- B. TOP PLUG (ACME THREADED)
- C. MAIN BODY COLLAR (ACME THREADED)
- D. COUPLING ROD (ACME THREADED)
- E. ROTATING BOTTOM PLUG (STANDARD THREADED)
- F. BOTTOM PLUG (STANDARD TO ACME THREADED)

## NON-ROTATING SETUP



- A. THREADED S.A.F.E. BALL ELEMENT
- B. TOP PLUG (ACME THREADED)
- C. MAIN BODY COLLAR (ACME THREADED)
- D. COUPLING ROD (ACME THREADED)
- E. ROTATING BOTTOM PLUG (STANDARD THREADED)
- F. BOTTOM PLUG (STANDARD TO ACME THREADED)

# Accessories

## Parts on Demand.

When you have all the parts you need to build a fixture, it makes your life easy. We offer just the right accessories to complete your fixturing projects.

\*Special sizes and custom designs available upon request.

A. AMROK GRID PLATE

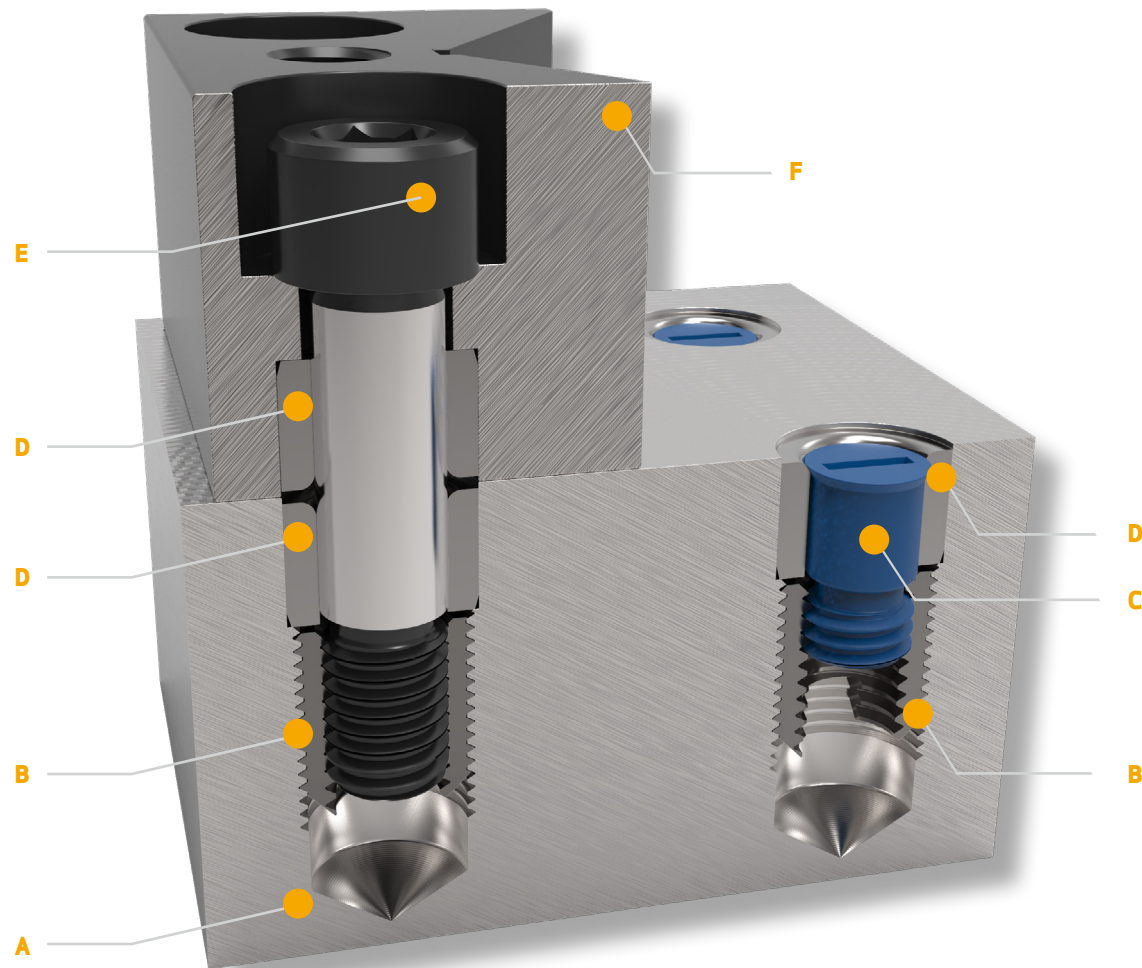
B. THREADED INSERT

C. HOLE PLUG

D. PRECISION BUSHING

E. PRECISION LOCATING SCREW

F. V STOP BLOCK



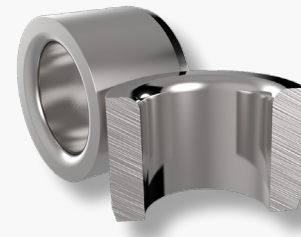
PRECISION LOCATING SCREWS



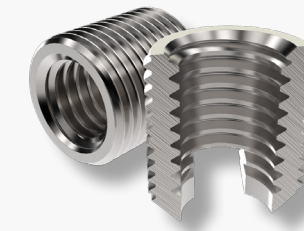
SPHERICAL SCREWS (PRECISION OR NON-PRECISION)



HOLE PLUGS



PRECISION BUSHINGS



THREADED INSERTS



INSERT/BUSHING REPAIR KIT



PRECISION LOCATING PINS



ADAPTER SCREW



COUPLING NUT



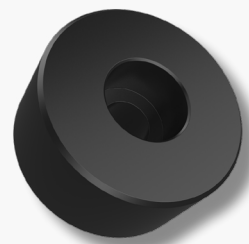
**JACK SCREWS**



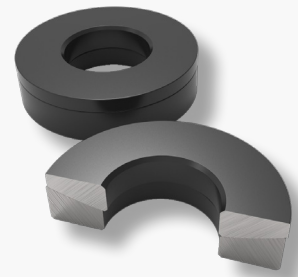
**STUDS**



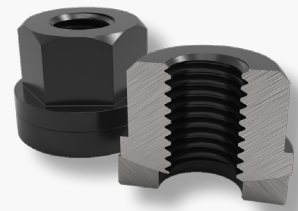
**LEVELING REST PADS**



**PRECISION REST BUTTON**



**SPHERICAL WASHER ASSEMBLY**



**SPHERICAL NUT ASSEMBLY**



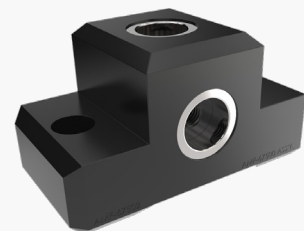
**WASHERS**



**HEEL RESTS**



**SPRINGS**



**CALIBRATION BLOCK**

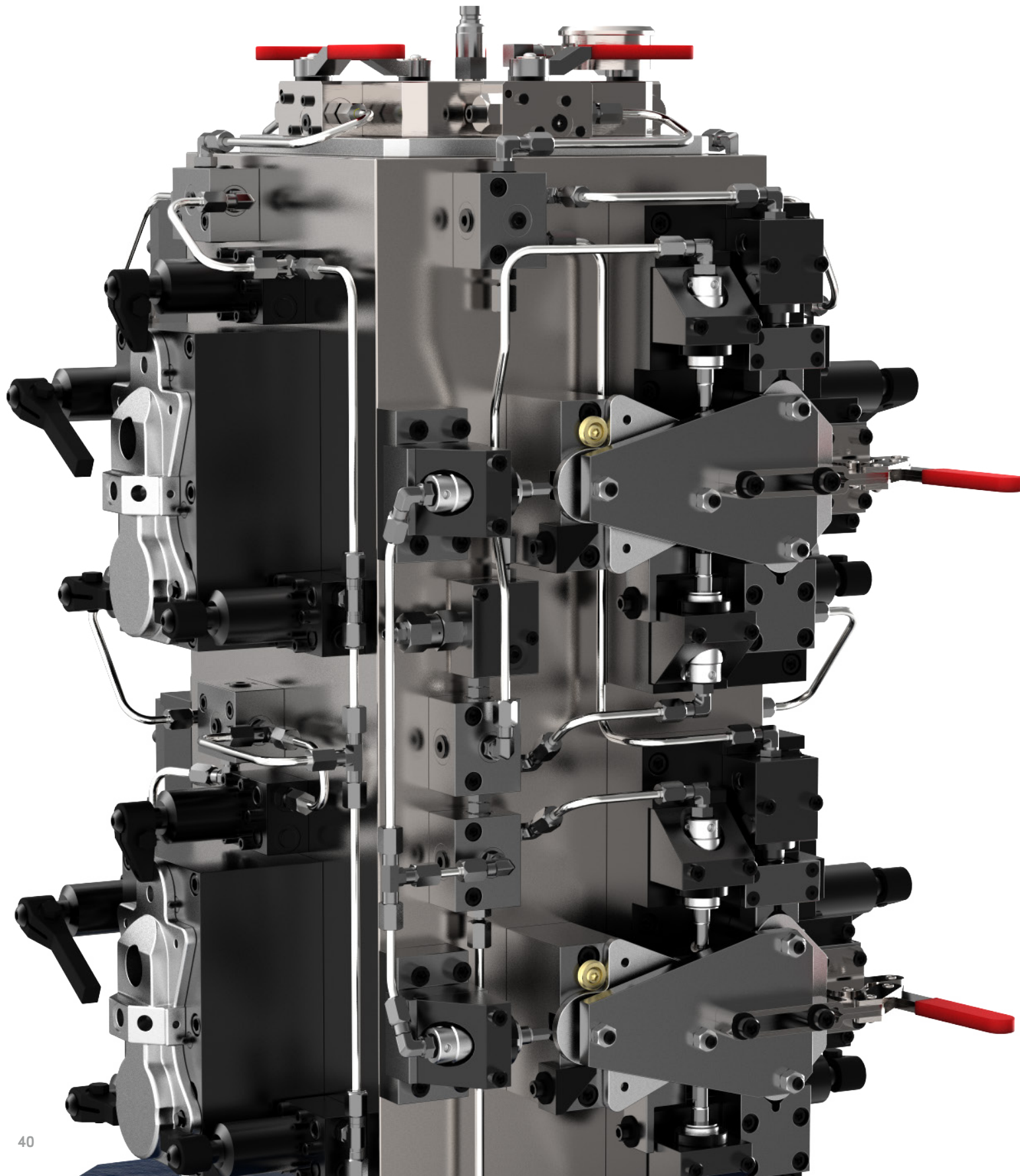
# Options When You Need Them



# Design & **Build**

FULL TURNKEY SERVICES

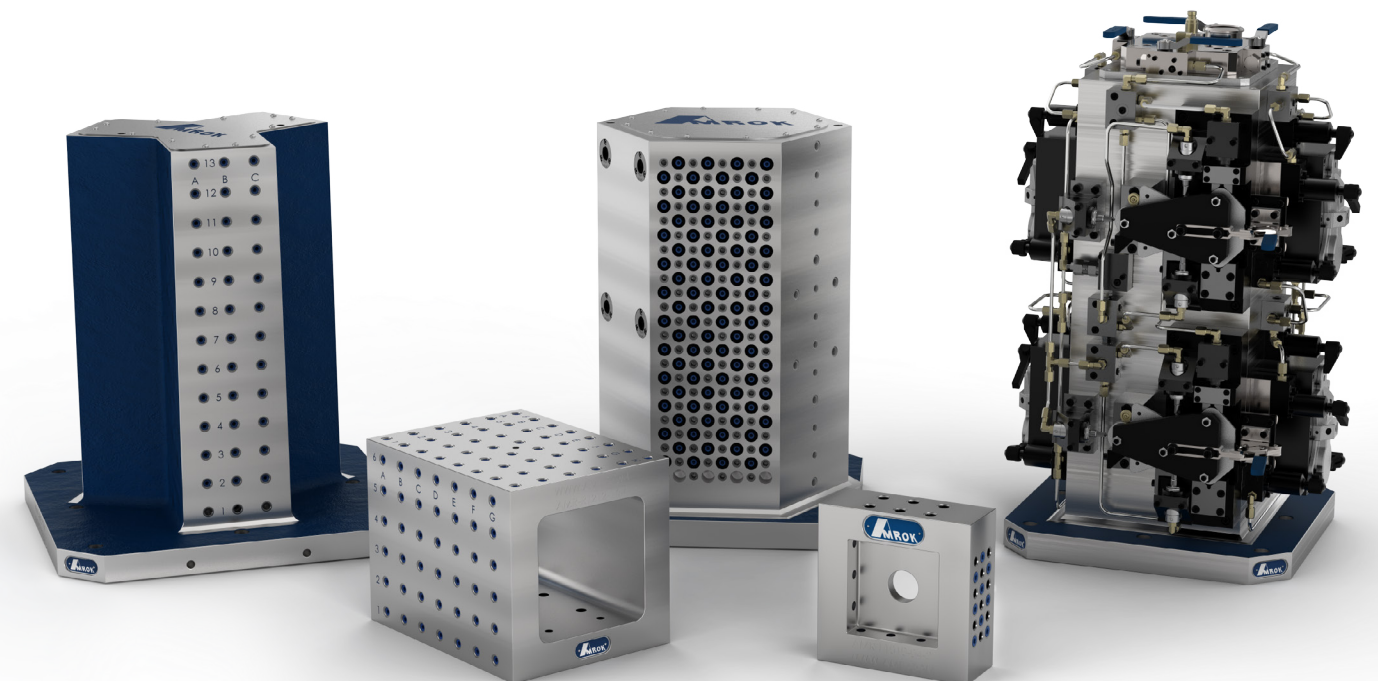
## Design & Build Capabilities



# Centering Dovetail Mounting Options for All Jobs

We built the Amrok brand at Advanced Machine & Engineering through our own experience in our own shop. As our engineers have designed innovative work holding systems, we've witnessed them transform the performance of our milling department. That's how AMROK was born. Now we making similar transformations for manufacturers throughout North America.

When we're working with industrial giants or small job shops we listen closely to their machining challenges so that we can design and build a better fixture. That's what we did with the AMROK CDV line. If you're looking for a complete fixture featuring the CDV, we have a full line of tombstones, grid plates, or customized grids ready to mount directly to your machine table.



# Contact Us



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**Ready?** Connect with us to get started.

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