



# Your Partner for Superior **MEDICAL SOLUTIONS**



Let's shape lives with  
our joint solutions.  
[kennametal.com/medical](http://kennametal.com/medical)

**S**

High-Temp Alloys

**M**

Stainless Steels

**C**

CFRP Materials

The medical industry's rapid and ongoing developments call for tools that can keep up with the latest innovations. Meeting the highest requirements for health and safety is a must when you're creating medical devices that will touch the lives of countless individuals.

## At Kennametal, our tooling solutions meet your skillsets to transform lives.

For medical grade titanium, stainless steels, composite materials and cobalt chrome, we have tooling expertise that's a cut above the rest and an unwavering commitment to transforming how everyday life is built. You can count on Kennametal to provide the solutions you need to create contemporary, transformative medical instruments, devices and implants.



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# CORE CAPABILITIES IN MEDICAL TOOLING

## **New Project Engineering**

We work in collaboration with your engineering team and machine tool builder to offer lean process development, full tooling packages, custom tooling designs and cost per part assessments.

## **Process Optimization**

We are prepared to assist you from tool selection to application to standardization and design strategically to reduce inventory, maximize value, minimize waste and improve process flow.

## **Supply Chain Optimization**

We can take you to the next level with best practices and premier industry equipment and software solutions for tool and supply management, reduced acquisition, possession and usage costs, creating a transparent purchase platform and increasing operational effectiveness.

## **Machining Strategy and Programming Support**

Whether you are working on something entirely new or reprogramming an existing part, we have the technical know-how to help you improve process and productivity. Our team utilizes the latest in digital tools and CAM packages to simulate and recommend the right machining strategy for your unique needs.

## **Building Better with Dynamic Partnerships**

Manufacturers choose to partner with us because of our established relationships, built over decades, with key customers, machine tool builders, suppliers and original equipment manufacturers (OEM) who work with us to support this rapidly and continually developing industry.

## **Global Application Support**

Local machine tool builders, OEMs and suppliers count on our global application support teams and you can too. We are ready to engineer full process solutions for medical components that will change peoples' lives in more than 60 countries.

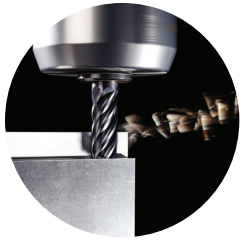


# ORTHOPEDIC IMPLANTS





# SOLUTIONS



## HARVI™ III

Featuring KCSM15A grade as best in class for titanium machining

Diameter range: 4mm – 25mm (1/8" – 1-1/2")

Available in square, radius, ball nose and taper ball nose



## HARVI IV

Dynamic milling and finishing operations

Featuring internal coolant supply and chipbreakers for more efficient chip evacuation

8-flute design enhances flexibility and process stability

Diameter range: 10mm – 25mm (3/8" – 1")

Available in square and radius



## KCS10B

HiPIMS coating technology

Delivers longer tool life with high depth-of-cut notching resistance

Optimum layer adhesion for increased process reliability and sharp cutting edges

AlTiN PVD coating ideal for difficult to machine materials like cobalt chrome, titanium and stainless steels



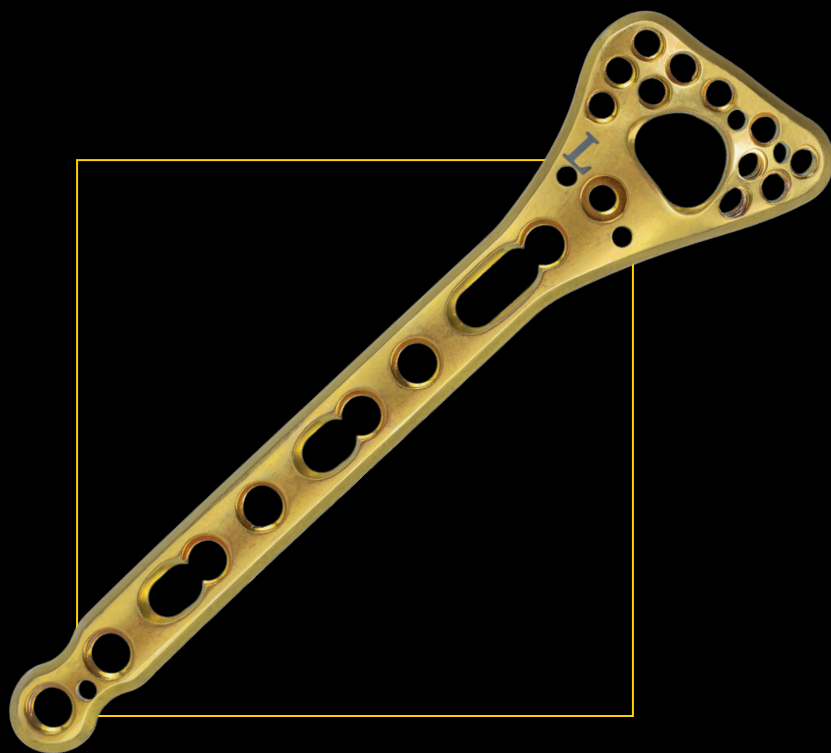
## KCU10B

Proprietary KENGGold™ PVD coating

Features TiSiN top layer, AlTiSiN second layer and AlTiN base layer for greater thermal deformation resistance and exceptional edge wear resistance

Available in insert styles for ISO turning, grooving and cut-off

# TRAUMA





# SOLUTIONS

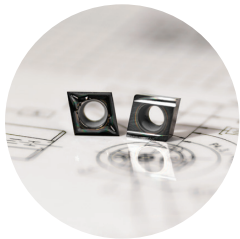


## Beyond Evolution™

Single-side grooving, cut-off and multi-directional turning

Triple-V insert seating for high stability and precise insert positioning

Fan effect precisely delivers coolant to cutting zone and improves chip control and tool life



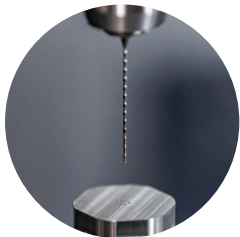
## TopSwiss™

Designed for low-feed, high depth-of-cut applications

Featuring straight and curved cutting edges for increased edge strength

Polished finishing geometries for increased welding resistance and smooth chip flow

Wiper geometries for increased feed rates and superior surface quality

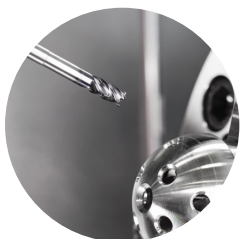


## KenDrill™ Micro

Microdrill portfolio with through coolant for drilling up to 50xD in medical components made of stainless steels, titanium and cobalt chrome (ex: bone screws, catheter components)

Through coolant options available from 1mm – 3mm from 2xD to 50xD

Delivering productivity boosts up to 4X more than traditional methods



## HARVI I TE

Versatile solid carbide end mill for medical grade stainless steels and titanium

Ideal solution for roughing on bone plate applications

Proprietary relief and end face designs reduce vibrations and improve chip evacuation, allowing for aggressive applications

Kennametal labs run the latest in machine tools, programming simulations and testing equipment. Around the globe, our dedicated teams are researching and testing machining methods on medical components every day.

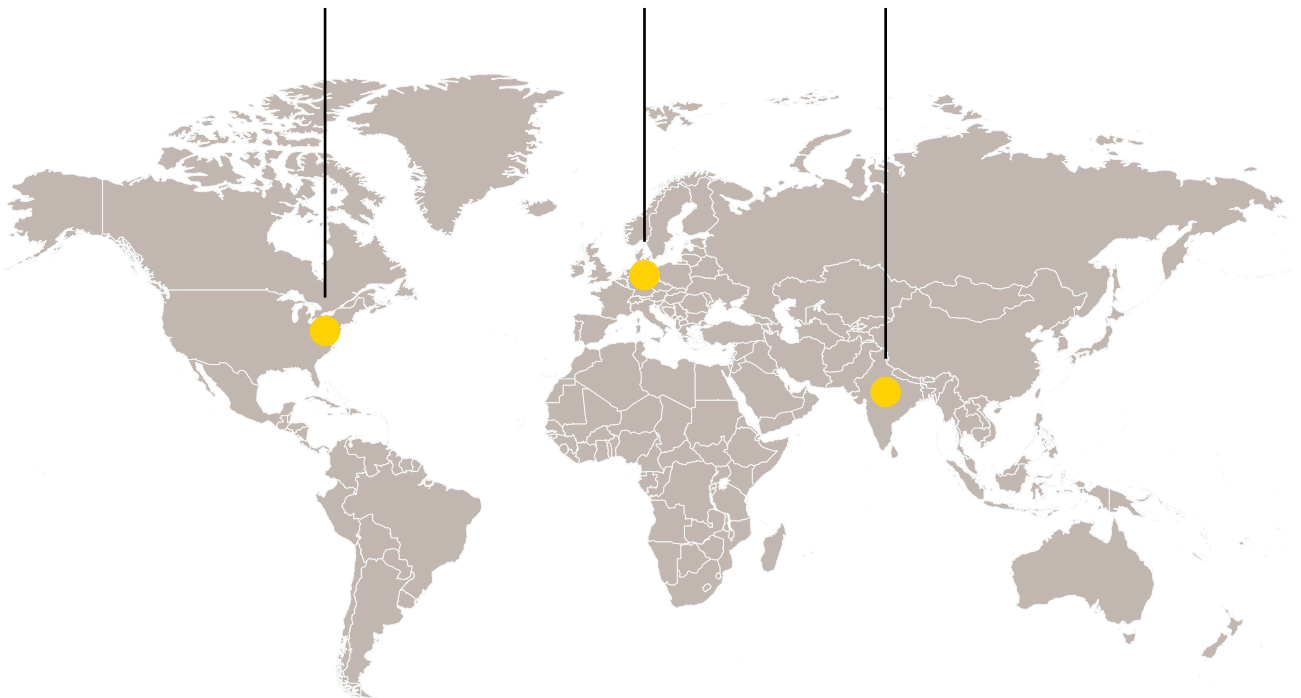


## Explore our locations below:

Latrobe, Pennsylvania  
**UNITED STATES**

Fuerth  
**GERMANY**

Bangalore  
**INDIA**





# Transformative Tooling Means Transformative Operations



A medical manufacturer seeking improved cycle times on a complex titanium humeral stem **reduced cycle times by over 40%** and saw an improvement in tool life from **8 pieces to 24 pieces** using a standard end mill from the *HARVI III Aero series in grade KCSM15A*.



A major medical implant producer was seeking a solution to reduce burr formation on the edge of a cobalt chrome knee component. By utilizing Kennametal's *HARVI III Solid Carbide End Mill* and an improved machining strategy suggested by the Kennametal team, the customer achieved an **80% increase in tool life**. The additional customer benefit from the project was nearly **\$80K in annual cost savings**, and increased productivity from reducing post-machining operations to remove the burrs.



**TopSwiss**  
INSERTS

# Your Digital Space for Integrated Machining— kennametal.com

One convenient platform for everything you need to build solutions in a collaborative environment.

- Keyword Search
- Browse Products
- Create Solutions and Projects
- Virtual Toolbox
- Solution Finder
- Team Collaboration
- Download Digital Assets
- Shopping



**TRANSFORM  
YOUR WORKFLOW**

**Create.  
Collaborate.  
Innovate.**





# We've Been Cutting Metal Since 1938.



## Our Story Is One of Continuous Innovation

It starts in 1938 with our founder, metallurgist Philip M. McKenna, who after years of research created revolutionary tungsten-titanium carbide alloy cutting tools specifically for working with steel. That single development not only led to a new class of machining tools that cut faster, lasted longer and drove productivity in everything from the automobile to the airplane, but also led to the opening of McKenna Metals Company in Latrobe, Pennsylvania, United States. Today, that company is Kennametal Inc.—a recognized leader in metalworking serving customers across continents and industries including transportation, construction, aerospace and defense, machining and cutting, energy and general engineering. We have a reputation for building innovative solutions for our customers' most challenging applications. The name Kennametal is synonymous for high-quality, high-performance tools that can withstand the most strenuous conditions and bring ease to a wide range of machining operations. We help our customers' operations run longer, faster and with greater precision. We don't cut corners. We cut metal. Your toughest materials don't stand a chance.





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**SHAPE LIVES WITH  
TRANSFORMATIVE TOOLING**

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