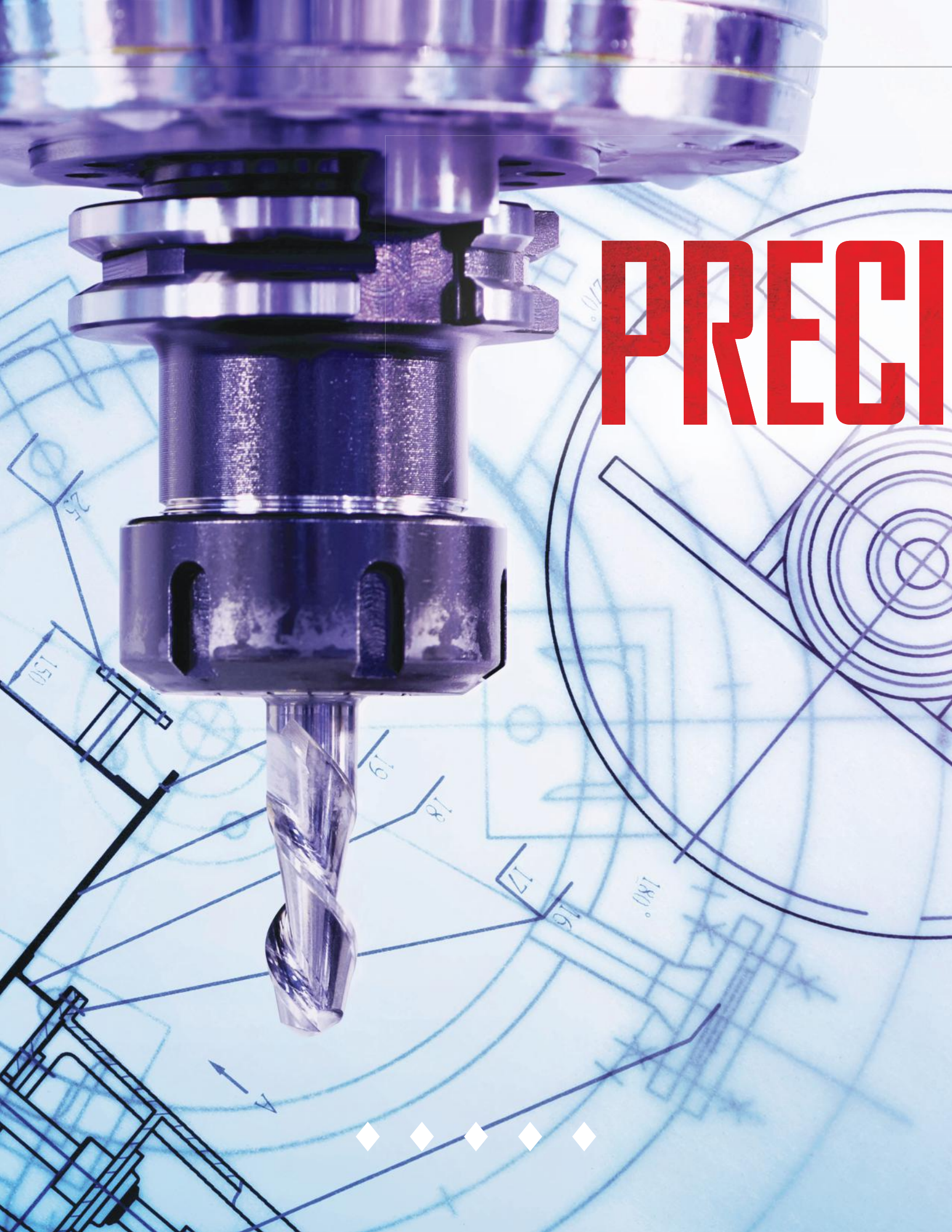
MITSUBISHI MATERIALS

MEDICAL SOLUTIONS



PRECISION TOOLING FOR
HIP, KNEE AND HARDWARE


PRECI

WHEN THERE'S NO ROOM FOR ERROR

SION MATTERS

How do you calibrate a perfect fit when it comes to replacement parts for the human body? Use cutting tools that are absolutely precise — every time.

Our cutting tools are expertly crafted by Mitsubishi Materials for unparalleled performance and control. Our exacting standards deliver well-designed and finely manufactured tools of the trade for highly specialized industries like yours.

Our promise is to deliver high-quality precision cutting tools that enable you to manufacture precisely perfect products every day.



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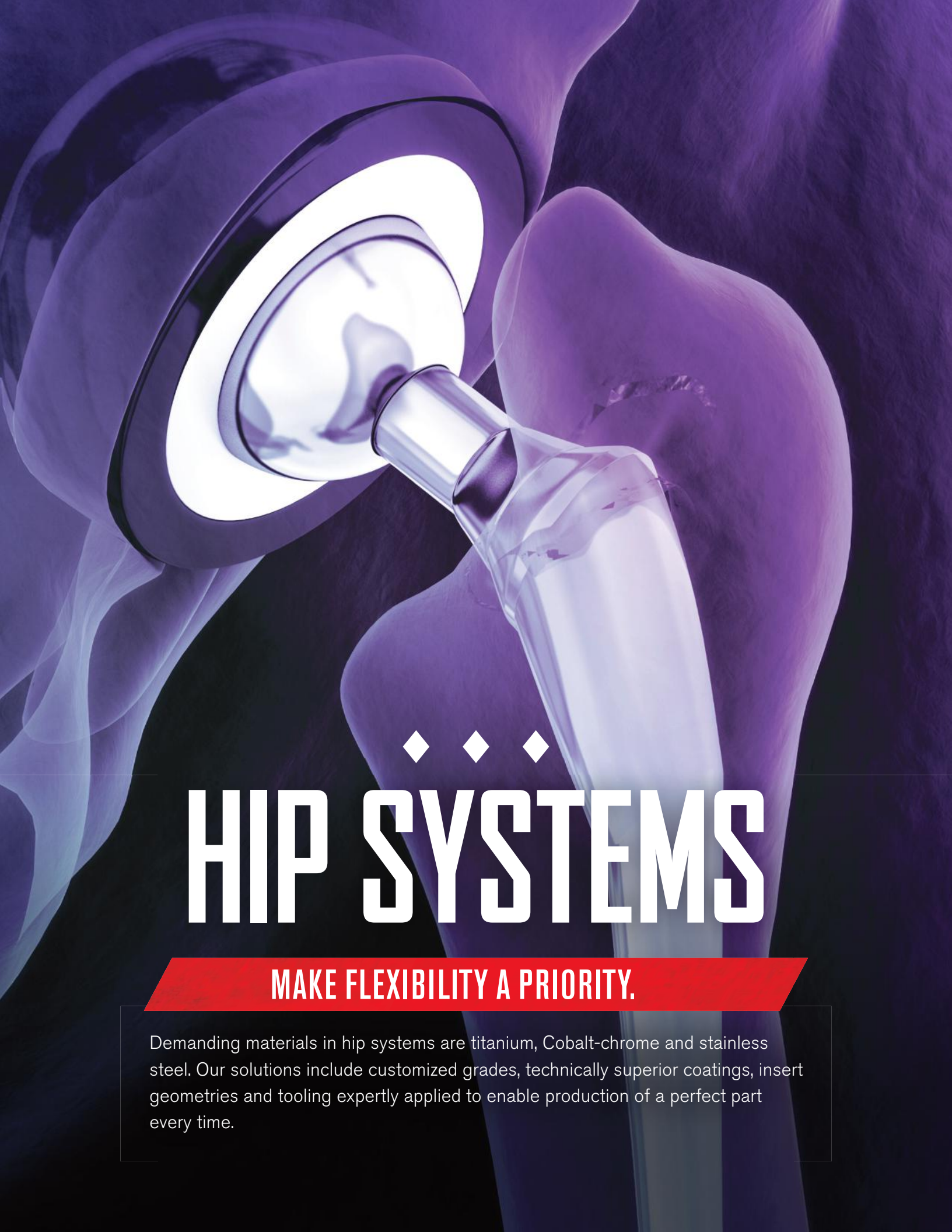


HIP SYSTEMS

MAKE FLEXIBILITY A PRIORITY.

Demanding materials in hip systems are titanium, Cobalt-chrome and stainless steel. Our solutions include customized grades, technically superior coatings, insert geometries and tooling expertly applied to enable production of a perfect part every time.



FEMORAL HIP STEM

Rough and finish profiling of hip stem head or head requires round solid carbide endmills that manage difficult-to-cut materials with a strong edge line maintained with our Impact Miracle coating.

PROFILE MILLING





1 VF2SB

Radius solid carbide endmill for roughing and corner profiling

- Superior chipping resistance with single phase nano crystal coating technology for higher film hardness and heat resistance

PROGRAM

DC 0.2 – 20.0 mm

DC 1/32 – 1/2 in.

1 VF2XLB

Extended reach ball nose designed for 3D contoured milling in small diameters

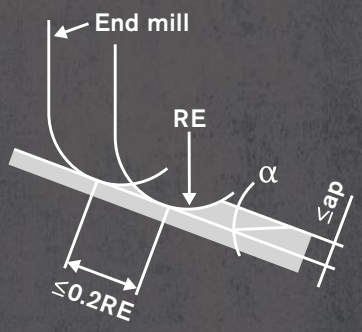
- Impact Miracle single phase nano crystal coating technology provides long tool life and edge security

PROGRAM

DC 2.0 – 6.0 mm

DC 1/32 – 1/4 in.

MILLING TIPS



1 α is the inclination of the attached surface.

2 If the depth of the cut is smaller than this table, feed rate can be increased.

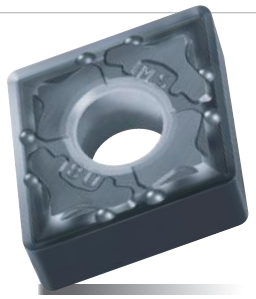
3 If the rigidity of the machine of the workpiece installation is very low, or chattering is generated, place reduce the revolution and the feed rate proportionately.

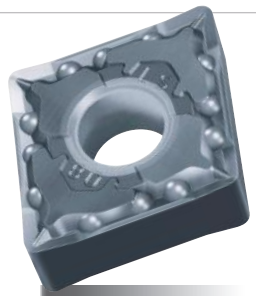


FEMORAL HEAD

First stage machining to rough out the shape of the hip stem, the solutions are new grade MP9015 in MS chip breaker. These sharp ground geometries work well in light to medium feed rates and depths of cut. Then finish the internal shape of the shell as well as the outside of the heads with LS for finishing in light depths of cut.

EXTERNAL TURNING

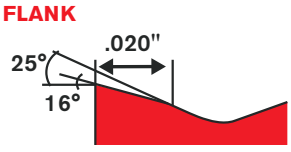




1 MS GEOMETRY IN MP9000/MT9000

Medium geometry for roughing in positive and negative inserts

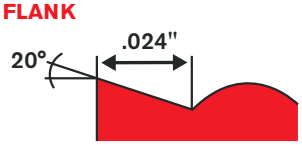
- MS chip breaker has large two-step rake angles to control long chipping materials



2 LS GEOMETRY IN MP9005/MP9015

Sharp positive inserts for finishing and profiling with tight tolerances and high surface finish requirements

- LS geometry is a precision chip breaker with a minus tolerance corner radius and graduated chip breaker angles



TAPER HOLE MACHINING



2 VQMHVRB

Difficult machining for hole tapering with depths of cut varying, usually produces vibrations

- The irregular flute helix reduces vibrations, plus a small corner radius for edge line security

PROGRAM

DC 2.0 – 20.0 mm

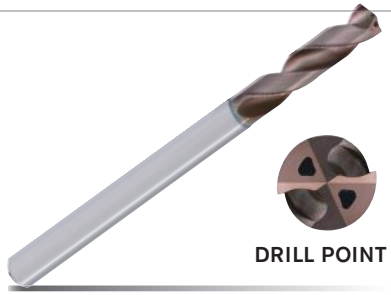
DC 1/8 – 1/2 in.



ACETABULAR SHELL

Solutions for holes in the heads and shell demand a strong edge line to hold up to uneven surfaces at entry and exit, as well as a sharp primary land for difficult to cut materials.

DRILLING



3 MMS

Small diameter drill that can handle uneven surfaces in stainless steel

- Sharper drill point and smaller margin designed to cut into stainless steel

PROGRAM

DC 3.0 – 20.0 mm

DC 1/8 – 25/32 in.



3 MICRO-MVS

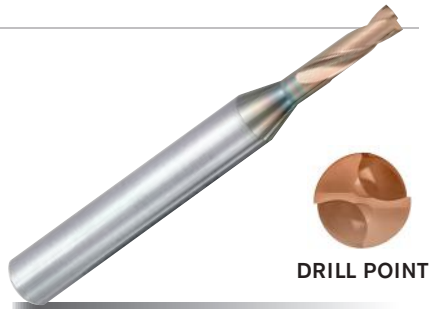
Drills in small diameters designed for titanium and Cobalt-chrome in uneven surfaces

- Stronger edge with double margin plus optimized flute shape

PROGRAM

DC 1.0 – 2.9 mm

DC 1/16, 3/32, 7/64 in.



3 MFE

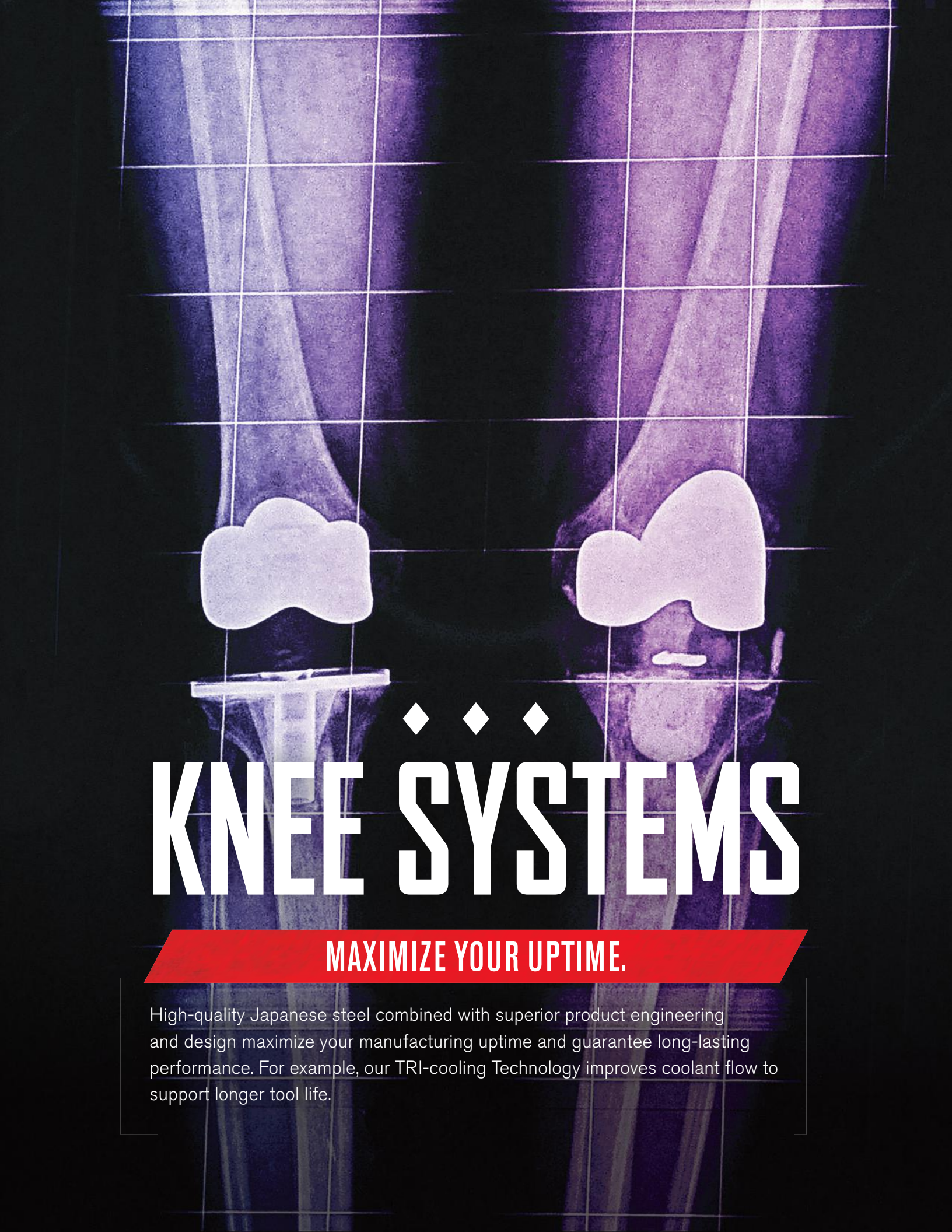
Shell requires some flat bottom holes

- Flat bottom drill with chip thinning geometry and flute design give excellent hole location and straightness

PROGRAM

DC 0.75 – 20.0 mm

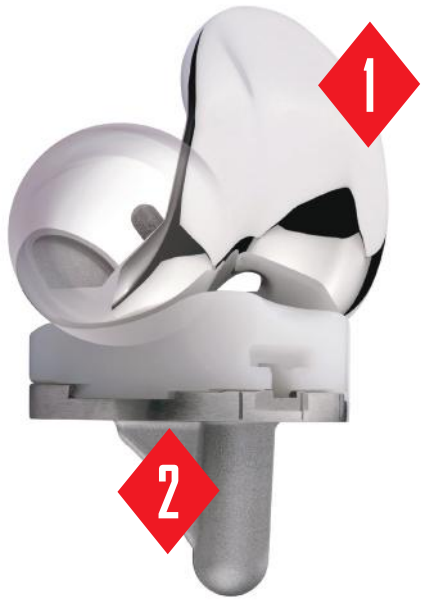
DC 1/8 – 25/32 in.



KNEE SYSTEMS

MAXIMIZE YOUR UPTIME.

High-quality Japanese steel combined with superior product engineering and design maximize your manufacturing uptime and guarantee long-lasting performance. For example, our TRI-cooling Technology improves coolant flow to support longer tool life.



KNEE SYSTEMS

Demanding materials in knee systems are titanium and Cobalt-chrome. Our solutions include customized grades, technically superior coatings, insert geometries and tooling expertly applied to enable production of a perfect part every time.

PROFILE MILLING







1 VQ4SVB

Contour 3D milling of external and internal profile

- Variable curve radius-cutting edges are ideal for difficult-to-cut materials

PROGRAM

DC 2.0 – 12.0 mm

DC 1/8 – 1/2 in.

2 VQMHVRB

Difficult machining for hole tapering with depths of cut varying, usually produces vibrations

- The irregular flute helix reduces vibrations plus a small corner radius for edge line security

PROGRAM

DC 2.0 – 20.0 mm

DC 1/8 – 1/2 in.

2 VPX

Rough to finish milling of flat surfaces

- Higher feed rates, a more economical rough milling solution
- Inch and metric cylindrical, arbor, exchangeable head

PROGRAM

DC 16.0 – 50.0 mm

DC 5/8 – 2 1/2 in.

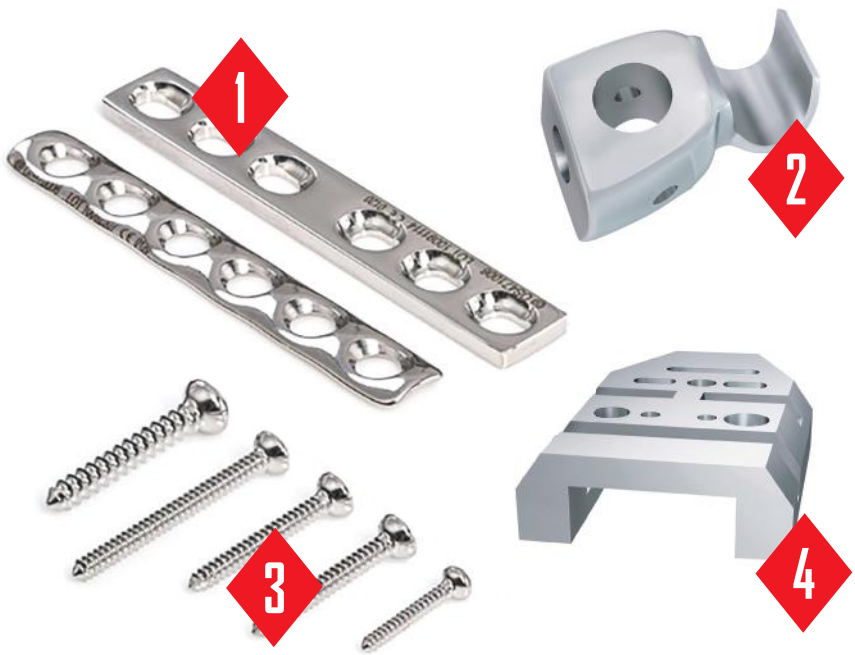


HARDWARE

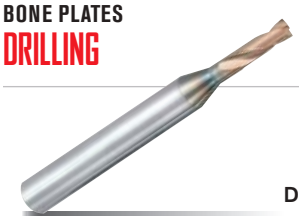
FOCUS ON THE FINISHED PART.

HARDWARE

Material and design innovation are at the forefront of everything we do. This allows our global customers to precisely manufacture a broad range of metal parts and components, from screws to bone plates. An innovation such as our variable helix is engineered to reduce vibrations and improve chip evacuation, both of which deliver a higher quality finished part.



BONE PLATES
DRILLING





DRILL POINT

1 MFE

Uneven surfaces and some flat-bottom blind holes

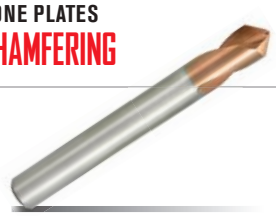
- Flat-bottom drill with chip thinning geometry and flute design give excellent hole location and straightness

PROGRAM

DC 0.75 – 20.0 mm

DC 1/8 – 25/32 in.

BONE PLATES
CHAMFERING





DRILL POINT

1 DLE SERIES

Chamfer existing holes in difficult-to-cut titanium or Cobalt-chrome

- 90-degree, two-step point angle with straight-strong cutting-edge design for chamfering

PROGRAM

DC 3.0 – 16.0 mm

SPINE
SIDE CUTTING





TIP OUTLINE

2 VQMHVRB SERIES

Rough and finish milling of angled and contoured surfaces

- Irregular helix flutes manage vibration in these materials through varying depths of cut

PROGRAM

DC 2.0 – 20.0 mm

DC 1/8 – 1/2 in.

SCREWS
DRILLING



3 MICRO-MWS

Small diameters in long reach

- Internal coolant down to DC 0.5 mm with lengths up to 12XD

PROGRAM

DC 0.5 – 2.95 mm

SCREWS
BACK TURNING



3 BTAT/BTBT IN GRADE MS6015

Swiss-style tools for back turning

- Ground and new pressed geometry SMB with minus radius tolerance and outstanding surface finish

PROGRAM

- **R/L handed**
- **Grades MS6015 and VP15TF**

SCREWS
POCKET MACHINING



3 VQXL

Small diameter milling for interior corners

- Small diameter combined with a variety of neck lengths aid in machining of deep cavity and complex parts

PROGRAM

DC 0.2 – 1.0 mm

INSTRUMENT
ROUGH MILLING



4 iMX

Economical, versatile face milling, shoulder and contour milling

- Exchangeable head solid carbide bar and solid carbide head with 20+ head options

PROGRAM

Metric, inch, square, radius, round, chamfer and ball nose heads available

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FOR YOUR SAFETY

- Don't handle inserts and chips without gloves.
- Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage.
- Please use safety covers and wear safety glasses.
- When using compounded cutting oils, please take fire precautions.
- When attaching inserts or spare parts, please use only the correct wrench or driver.
- When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc.

www.mmc-carbide.com/us

Tools specifications subject to change without notice.

MED-US-2019.03