



**SWISSCERAMILL**

NEXT GENERATION CERAMIC TOOLS  
BRAND OF BSQ TECH SWITZERLAND



SWISSCERAMILL is a product brand of BSQ TECH advanced ceramic technologies

Made in Switzerland

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# SWISSCERAMILL CERAMIC END MILL

"SWISSCERAMILL™"

BSQ TECH GmbH in cooperation with the local manufacturer A&L Tool AG are launching the SwissCeraMill™ brand, an innovative and revolutionary milling tool based on high-tech ceramic zirconium oxide, which enables maximum tool life on aluminium, copper, brass, PEEK and various plastics. Tool life of at least a factor of 10x is the standard.

Switzerland is an important location for us, which is why everything is developed and manufactured in Switzerland.

Your biggest advantages are time reduction, increased productivity and better dimensional and surface quality, thanks to higher feeds, higher infeeds and special cutting geometries.



# YOUR MAIN ADVANTAGES WITH SWISSCERAMILL

- MAXIMUM PRECISION ON SERIES PRODUCTION → LESS THAN 0.002MM
- MAXIMUM PERFORMANCE → HIGHER FEEDS
- MAXIMUM TOOL LIFE → 10X HIGHER LIFE TIME
- MAXIMUM SURFACE QUALITY → RA 0.4 UNTIL RA0.05 (LIKE POLISHED)
- MAXIMUM PROCESS STABILITY → VERY STABLE FOR LARGE SERIES
- NEW AND UNIQUE THECHNOLOGY IS WORLDWIDE
- HIGHER PERFORMANCE THAN TUNGSTEN CARBIDE TOOLS
- EASY HANDLING AND NO ADDED KNOWLEDGE NEEDED
- VERY SHARP CUTTING EDGES GRINDED AND POLISHED
- NO COATING IS NECESSERY
- REGRINDING SERVICE IS GUARANTEED
- LOW SPINDLE LOAD UNTIL 75% LESS TO TUNGSTEN CARBIDE TOOLS
  
- ALL CERAMIC END MILL TOOLS ARE 100% MADE IN SWITZERLAND DEVELOPED AND PRODUCED
  
- THE RESULT OF ALL ADVENTAGE ARE
  - TO SAVE TIME IN PRODUCTION
  - TO GET HIGHER MASS AND SURFACE QUALITY
  - TO CREATE SOLUTIONS IN THE PRODUCTION



# WHY YOU SHOULD USE SWISSCERAMILL CERAMIC END MILL?

**MAKE THIS TEST AT THE BEGINNING, BEFORE YOU READ THE DETAILS.**

**IF ALL FIVE QUESTIONS YOU ANSWER WITH YES, YOU MUST USE SWISSCERAMILL**

**IF THERE IS ONE OF FIVE ANSWER WITH ANSWER NO, YOU SHOULD NOT USE SWISSCERAMILL**

1. DO YOU WANT TO RUN FASTER AND SAVE TIME IN PRODUCTION ? → YES / NO
2. DO YOU WANT THE HIGHEST PROCESS STABILITY, HIGHEST TOOL LIFE AND ALWAYS THE BEST DIMENSIONAL TOLERANCES ? → YES / NO
3. DO YOU WANT TO HAVE BEST SURFACE QUALITY ? → YES / NO
4. DO YOU WANT TO CREATE BEST SOLUTIONS IN THE PRODUCTION ? → YES / NO
5. DO YOU WANT TO PROTECT YOUR MACHINE SPINDLE WITH A LOW SPINDLELOAD ? → YES / NO

# WHAT KIND OF MATERIALS CAN WE CNC MILL?

## ALUMINIUM LINE (WHITE)

- ALUMINIUM
- BRASS
- COPPER
- ALL KIND OF PLASTICS



## GOLD LINE (GREEN)

- GOLD
- STERLING SILVER
- PLATINUM
- TITAN (FINISHING)
- INCONELL (FINISHING)
- BRASS



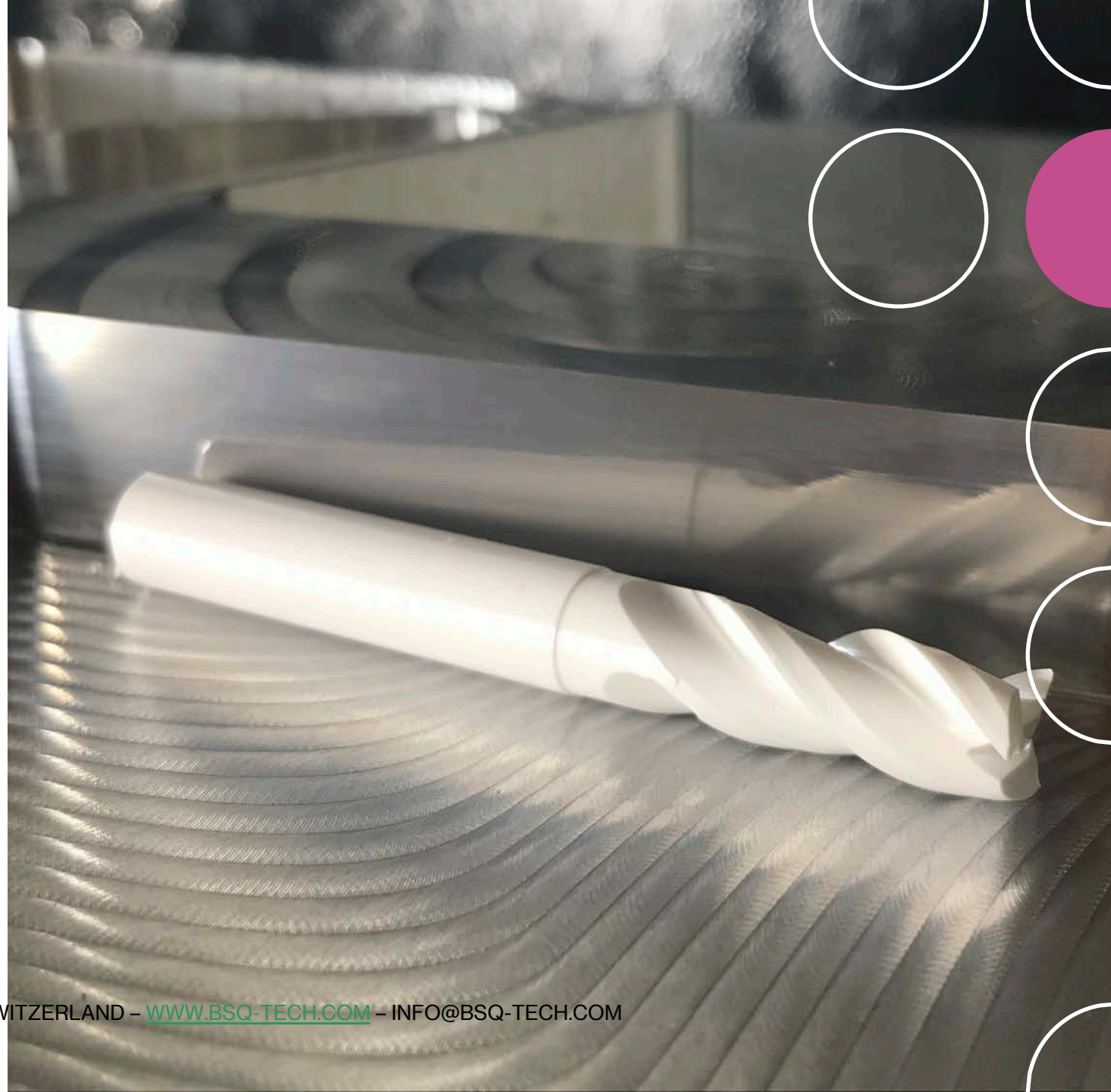
# WHAT IS BEST SURFACE ROUGHNESS POSSIBLE?

## ALUMINIUM LINE (WHITE)

- ALUMINIUM RA 0.15 – 0.4 ROUGHNESS POSSIBLE

## GOLD LINE (GREEN)

- ALUMINIUM RA 0.05 – 0.4 ROUGHNESS POSSIBLE



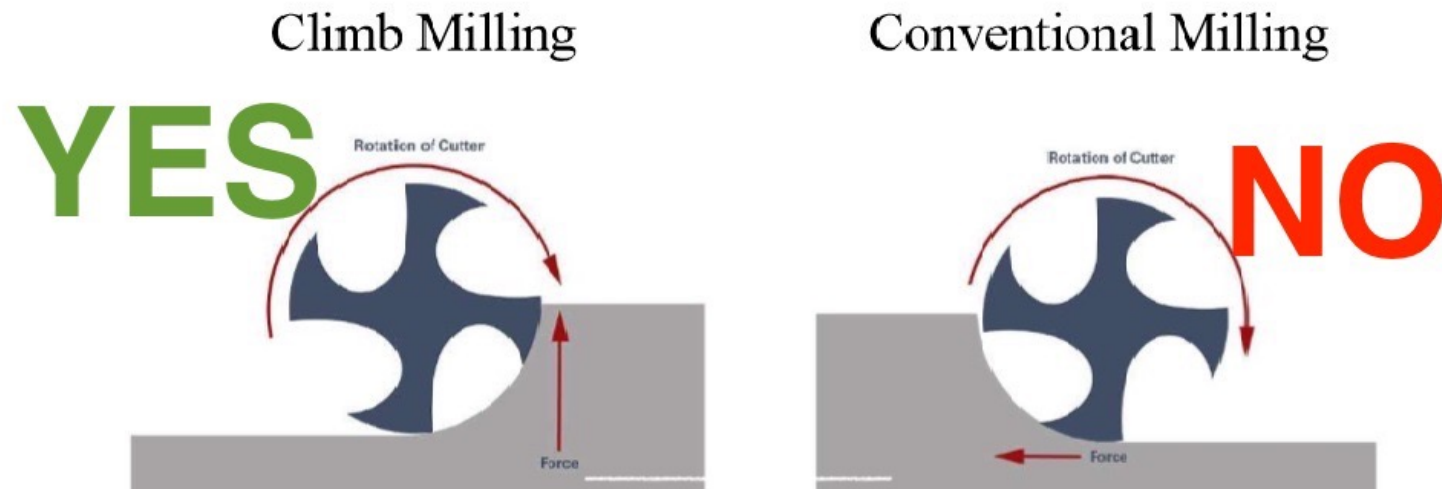
# WHAT KIND OF MILLING STRATEGY WE CAN USE?

HPC SLOTING MAXIMUM VOLUME	AE= 1XD / AP=0.5-2XD	FZ=MAX 0.1MM
HPC ROUGHING	AE=0.3XD / AP=2XD	FZ=0.1 – 0.2MM
HSC SIDE ROUGHING (MAXIMUM SPEED)	AE= 0.15XD / AP=2XD	FZ=0.1 – 0.3MM
HSC SIDE FINISHING	AE= 0.2MM / AP=2XD	FZ=0.02 - 0.08MM
TROCHOIDAL MILLING	AE= 0.2XD / AP=2XD	FZ=0.1 – 0.3MM
NON-RIGID CONDITIONS (MTC)	AE= 0.25XD / AP=2XD	FZ= 0.05 - 0.1MM
FINISHING GENERAL	FZ=0.02-0.08MM	
ROUGHING GENERAL	FZ=0.05-0.2MM	
RAMPING	USE SMALL FZ=0.05MM/T	
PLUNGING WITH HELIX	AP=3MM	FZ=0.05MM/T
PLUNGING 90°	USE SMALL FZ=0.04MM/T	



# WHICH IS THE CORRECT DIRECTION IN MILLING STRATEGY WE SHOULD USE?

We recommend to use only climb milling





# IS COOLANT NECESSARY FOR SWISS CERAMILL?

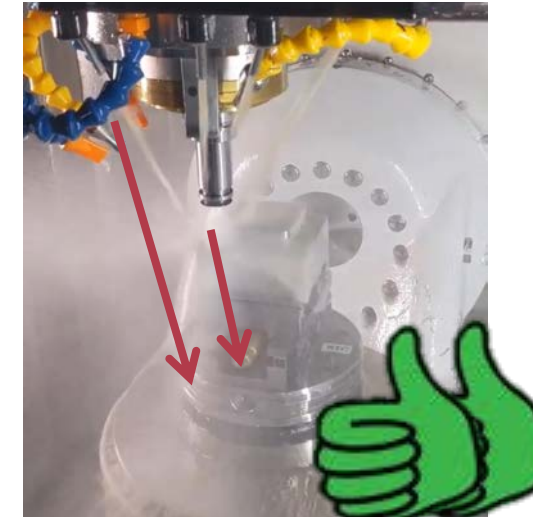
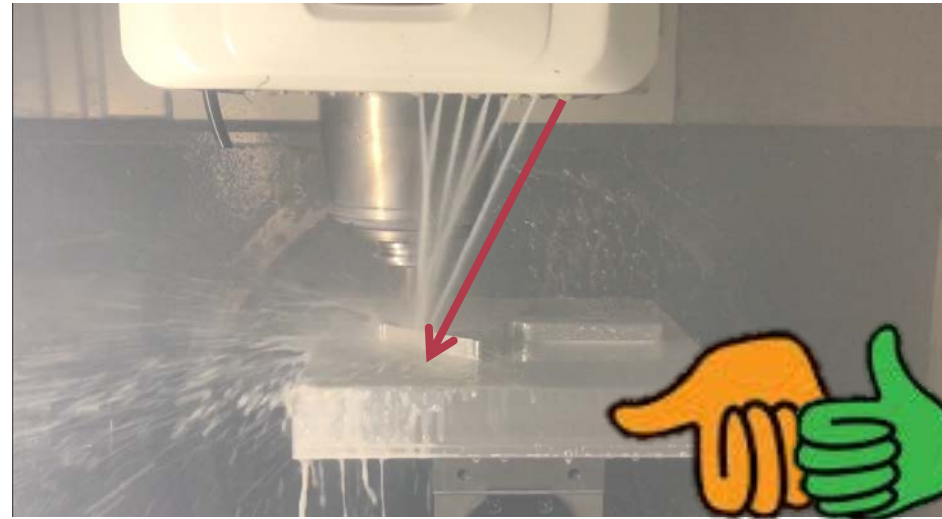
WE GENERALLY RECOMMEND TO MILL ALL THE TIME WITH COOLANT

WORK WITH CLIMBING TOOL INTERNAL COOLANT

WORK WITH COOLING OUTSIDE

WORK WITH HIGH COOLING PRESSURE, BEST UNTIL 80 BAR

IF LOWER COOLING PRESSURE LOW THE SPEED (FZ) AT BEGINNING



# WHAT KIND OF COOLANT IS BEST FOR SWISSCERAMILL?

- 💧 WE GENERALLY NO RECOMMEND ANY SPECIFIC COOLANT BRAND
- 💧 WE RECOMMEND TO WORK WITH ALL BRANDS
- 💧 USE COOLANT FOR NON FERROUS MATERIALS IF YOU MILL ONLY THIS MATERIALS
- 💧 YOU CAN WORK WITH OIL BASED COOLANT
- 💧 YOU CAN WORK WITH OIL AND WATER BASED COOLANT
- 💧 YOU CAN WORK WITH ETHANOL BASED COOLANT
- 💧 **PLEASE WORK WITH ANY KIND OF COOLANT. BUT WITHOUT WE DO NO RECOMMEND.**

# WHAT KIND OF DIMENSION CAN WE PRODUCE?

## ALUMINIUM LINE (WHITE)

- Ø1 – Ø20mm
- OUR STANDARD TOOLS ARE Ø1, Ø1.5, Ø2, Ø3, Ø4, Ø6, Ø8, Ø10, Ø12, Ø16, Ø20MM
- WE HAVE ON STOCK: Ø4, Ø6, Ø8, Ø10, Ø12, Ø16, Ø20MM

## GOLD LINE (GREEN)

- Ø1 – Ø6mm
- OUR STANDARD TOOLS ARE Ø1, Ø1.5, Ø2, Ø3, Ø4, Ø6MM
- WE HAVE NO TOOLS ON STOCK



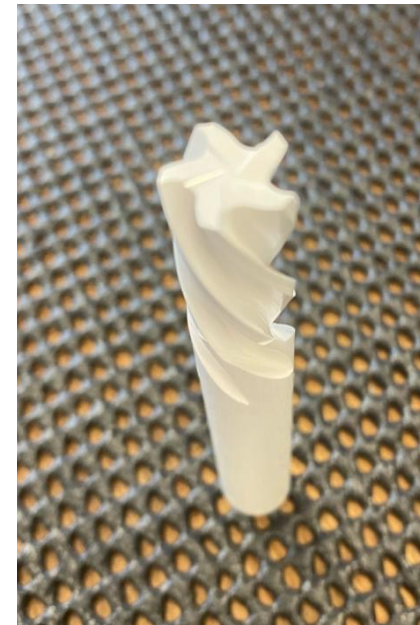
# WHAT KIND OF SPECIAL TOOLS CAN WE PRODUCE?

## ALUMINIUM LINE

- Ø1 – Ø20mm
- WE CAN OFFER ALL DIAMETER FROM 1MM TO 20MM
- DRILLS, REAMERS, DIFFERENT MILLING TOOLS

## GOLD LINE

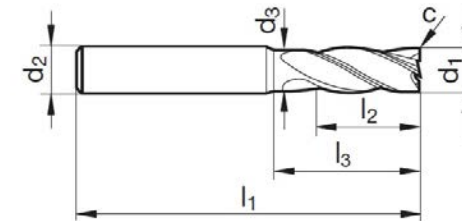
- Ø1 – Ø6mm
- WE CAN OFFER ALL DIAMETER FROM 1MM TO 6MM
- DRILLS, REAMERS, DIFFERENT MILLING TOOLS



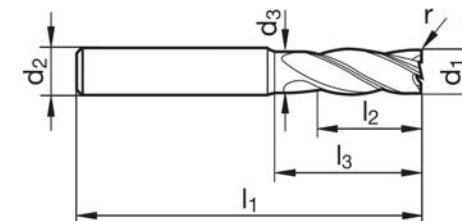
# WHAT KIND OF SHAPES CAN WE OFFER?

WE HAVE STANDART FROM  $\varnothing 4 - \varnothing 20\text{MM}$

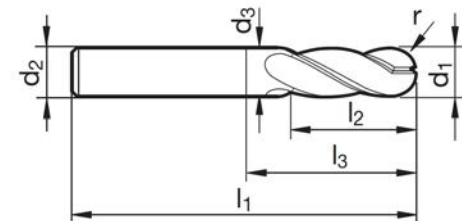
CERAMIC END MILLS WITH CORNER CHAMFER



CERAMIC END MILLS WITH CORNER RADIUS



CERAMIC END MILL BALL NOSE



# WHAT KIND OF QUANTITIES CAN WE PRODUCE?

- STANDARDPRODUCT
  - FROM 1 PIECE UNTIL TO 100 PIECES (BATCH)
  - FROM Ø1MM TO Ø20MM
  - STANDARD FROM Ø4MM TO Ø20MM ON STOCK
- 
- SPECIAL GEOMETRIES
  - SMALL AND LARGE QUANTITIES UNTIL 100 PIECES (BATCH)
  - PROTOTYPES FROM 2 PIECES



# WHAT KIND OF TOOLHOLDER CAN BE USED?

## SHRINK FIT CHUCKS

(BEST FOR FINISHING)



## HYDRAULIC CHUCKS

(BEST FOR FINISHING AND ROUGHING)



# WHAT KIND OF TOOLHOLDER CAN BE USED?

## **HPC PRECISION POWER CHUCKS**

(BEST FOR ROUGHING AND FINISHING)



## **PRECISION COLLET CHUCKS**

(BEST FOR ROUGHING AND FINISHING)





# WHAT KIND OF MACHINES CAN BE USED?

- SWISSCERAMILL CAN BE USED ON ALL CNC MACHINES.
- THERE ARE NO RESTRICTIONS IN SIZE OR SPEED RANGE.
- SWISSCERAMILL CAN BE USED FOR HIGH PERFORMANCE MILLING AS WELL AS FOR HIGH SPEED MILLING.
  
- REGARDLESS OF THE MACHINE POWER, SWISSCERAMILL CAN ALWAYS BE USED TO ACHIEVE THE DESIRED RESULTS.
- AT LOW SPEEDS, THE POTENTIAL OF THE TOOL IS NOT EXPLOITED BUT IS MUCH BETTER THAN CARBIDE TOOLS.



# WHAT KIND OF MACHINES CAN BE USED?

## SWISSCERAMILL CAN USED WITH ALL CNC MACHINES.

- MACHINES WITH RPM 6` 000 AND HIGHER
- MACHINES WITH RPM UNTIL RPM100` 000

## MOST COMMEN MACHINES IN HPC MILLING (HIGH PERFORMANCE CUTTING)

- MACHINES ABOUT RPM 6` 000 – 30` 000
- TRY TO CUT WITH MEDIUM FEED AND  $AE=1XD$  AND  $AP=1.5XD$  (FULLSLOT)
- FINISHING WITH MEDIUM FEED  $AE=0.05XD$  AND  $AP=2XD$  POSSIBLE

## MOST COMMEN MACHINES IN HSC MILLING (HIGH SPEED CUTTING)

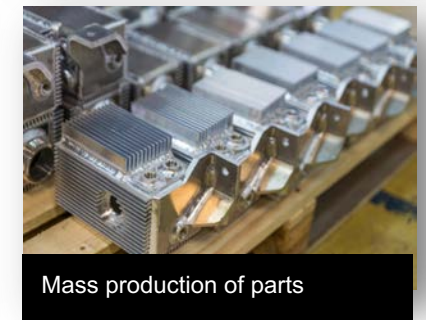
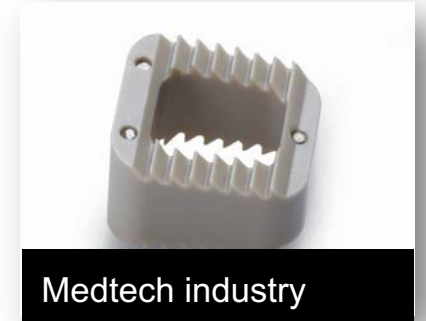
- MACHINES ABOUT RPM 30` 000 – 100` 000
- TRY TO CUT WITH HIGH FEED AND  $AE= 0.05-0.2XD$  AND  $AP=0.1-0.5XD$  FULLSLOT
- FINISHING WITH FEED  $FZ=0.02-0-06$   $AE=0.02XD$  AND  $AP=2XD$  POSSIBLE



# IN WHICH INDUSTRIES CAN WE USE SWISSCERAMILL?

SWISSCERAMILL DO NOT HAVE A LIMITATION TO AN INDUSTRY.

IT CAN BE USED IN ALL INDUSTRIES FOR ALL APPLICATION WHERE YOU WANT TO HAVE THE ADVENTAGES OF THIS NEW TECHNOLOGY



# WHAT IS THE RIGHT WAY TO START MILLING?

- FIRST STEP
- CHOOSE YOUR CUTTING STRATEGY YOU WANT TO MILL
- LOOK AT OUR DATA RECOMMENDATION
- USE OUR RECOMMENDATION TO START
- START A CAD/CAM SIMULATION
- CHECK THE SIMULATION IF THEY IS ALL CORRECT
- START MILLING WITH 70-80% OF PROGRAMMED FEED
- INCREASE THE FEED UNTIL 100% OR HIGHER TO 120%
  
- DIFFERENT MATERIAL NEEDS DIFFERENT CUTTING PARAMETERS
- IF THE TENSILE STRESS OF A MATERIAL IS HIGH, THAN LOW THE (VC AND FZ)
  
- WHITE CERAMIC USE ONLY WITH HIGH PRESSER COOLANT
- GREEN CERAMIC COOLANT IS PREFERED WITH COOLANG BUT NOT NECESSERY
  
- DO NOT MAKE ANY EXPERIMENTS WITH SWISSCERAMILL !!!

# WHERE CAN I ORDER SWISSCERAMILL?

- ORDER
- E-MAIL TO
  - - INFO@BSQ-TECH.COM
- OFFICIAL ORDER WITH ALL NECESSARY INFORMATION
  - - COMPANY INFORMATION
  - - PRODUCT INFORMATION
  - - QUANTITY
  - - DELIVERY TIME
- OUR CONDITIONS
  - - PREPAYMENT FOR NEW CUSTOMERS
  - - 14 DAYS FOR REGULAR CUSTOMERS
  - - SHIPPING SWITZERLAND WITH POST EXPRESS
  - - SHIPPING EUROPE / USA/ CANADA/ ASIA WITH FEDEX EXPRESS



# WHERE CAN I GET MORE INFORMATIONS?

- SOCIAL MEDIA
- LINKEDIN
  - <https://www.linkedin.com/company/37773923/admin/>
- INSTAGRAM
  - <https://www.instagram.com/bsqtech/>
- YOUTUBE (SWISSCERAMILL)
  - <https://www.youtube.com/watch?v=Ikrifzozs0>
  - <https://www.youtube.com/watch?v=rxnc4k6Yhf0>
  - [https://www.youtube.com/watch?v=CtS\\_WLJG-e0&t=55s](https://www.youtube.com/watch?v=CtS_WLJG-e0&t=55s)
- OUR WEBSITE
  - <https://www.bsq-tech.com/keramikfraeser>
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