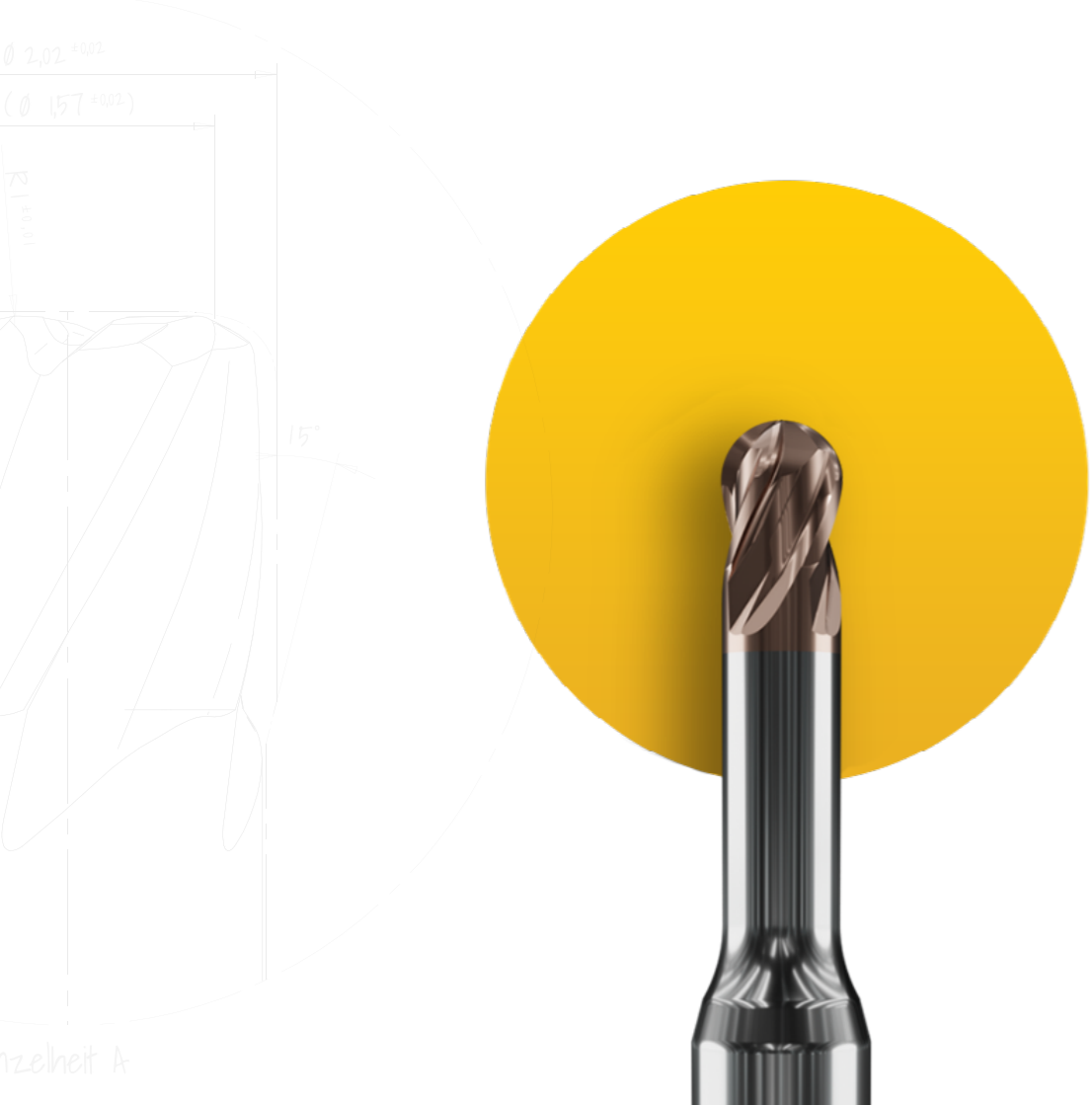




Application Examples

PEACOCK SERIES





PEACOCK SERIES

THE HARD-MILLING LEADER

The PEACOCK SERIES by ZECHA is designed for excellence in the mold and die industry, specifically for hard-milling materials up to 67 HRC.

Known for its innovative geometries and superior coating technologies, the PEACOCK SERIES ensures high precision and exceptional surface finishes.

These tools are optimized for high-performance milling, providing reliability and efficiency in every application.

Experience the unmatched quality and cutting-edge technology of the PEACOCK SERIES, perfect for tackling the most demanding machining tasks with ease.

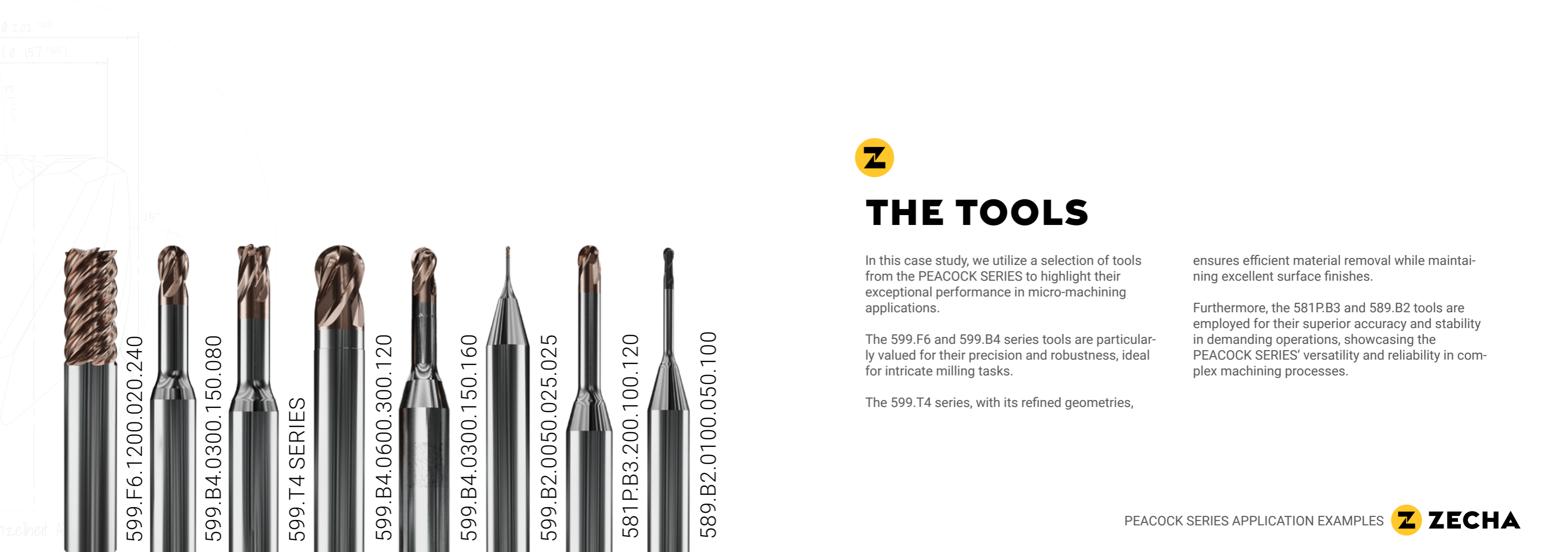
ZECHA

VISI
röders
TEC
STAVAX
52 HRC

APPLICATION 1
CONTROLLER IN STAVAX

$R\ 0,3 \pm 0,01$

$1,8 \pm 0,01$



599.F6.1200.020.240

599.B4.0300.150.080

599.T4 SERIES

599.B4.0600.300.120

599.B4.0300.150.160

599.B2.0050.025.025

581P.B3.200.100.120

589.B2.0100.050.100



THE TOOLS

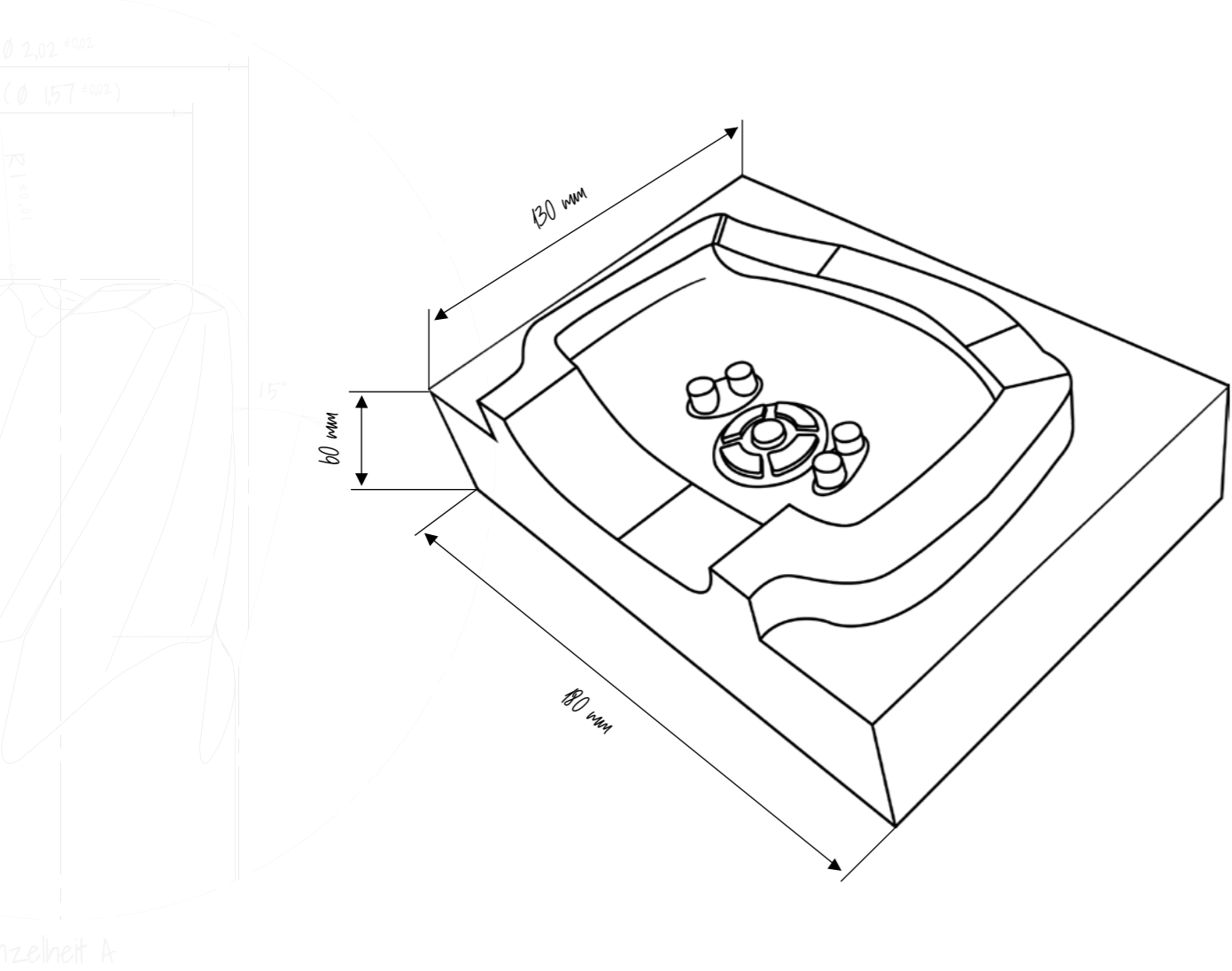
In this case study, we utilize a selection of tools from the PEACOCK SERIES to highlight their exceptional performance in micro-machining applications.

The 599.F6 and 599.B4 series tools are particularly valued for their precision and robustness, ideal for intricate milling tasks.

The 599.T4 series, with its refined geometries,

ensures efficient material removal while maintaining excellent surface finishes.

Furthermore, the 581P.B3 and 589.B2 tools are employed for their superior accuracy and stability in demanding operations, showcasing the PEACOCK SERIES' versatility and reliability in complex machining processes.



THE WORKPIECE

In this case study, we will be milling a 180x130x60mm Controller Form made of Stavax with a hardness of 52 HRC.

This workpiece features various difficult design elements, showcasing the PEACOCK SERIES tools' capability to handle complex geometries with precision.

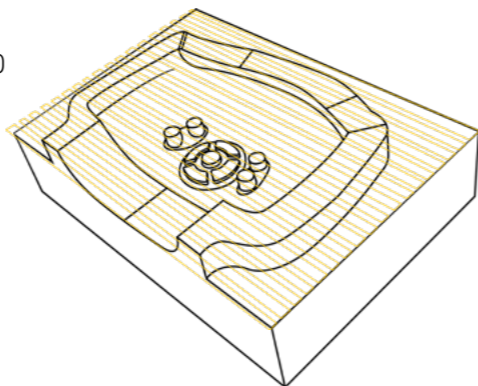
The combination of intricate details and challenging materials highlights the tools' superior performance in achieving high accuracy and exceptional surface finishes, making them ideal for demanding mold and die industry applications.

599.F6.1200.020.240



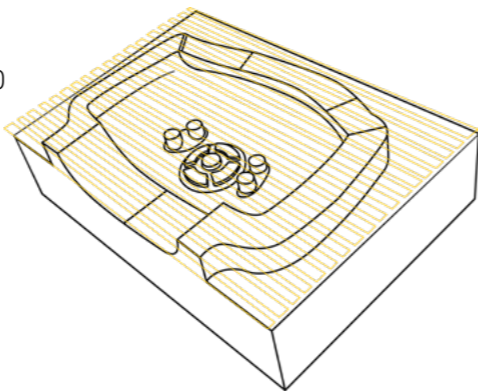
01. SURFACE MILLING

Tool: 599.F6.1200.020.240
RPM: 3,360
Feed rate: 3,145 mm/min
fpt: 0.150 mm/t
WOC: 4.000 mm
DOC: 0.500 mm
R-Angle: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:02:06 h



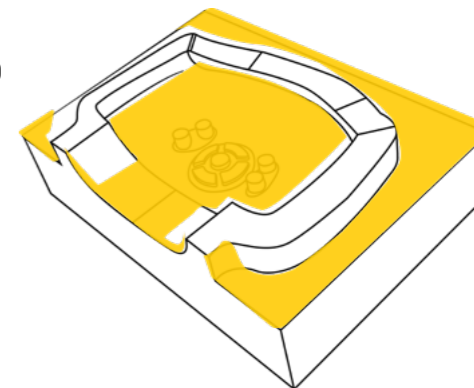
02. WAVEFORM ROUGHING

Tool: 599.F6.1200.020.240
RPM: 6,000
Feed rate: 6,900 mm/min
fpt: 0.190 mm/t
WOC: 0.500 mm
DOC: 15.900 mm
R-Angle: -
Offset: 0.100 mm
Cooling: Air
Runtime: 00:26:11 h



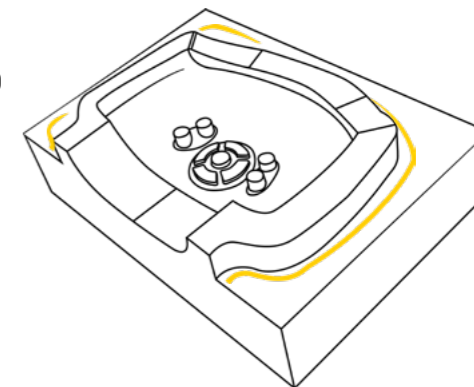
03. HELICAL ENTRY

Tool: 599.F6.1200.020.240
RPM: 6,000
Feed rate: 2,000 mm/min
fpt: 0.055 mm/t
WOC: Ø 9.600 mm
DOC: -
R-Angle: 0.2° ramp
Offset: -
Cooling: Air
Runtime: 00:00:00 h



04. CONTOUR MILLING

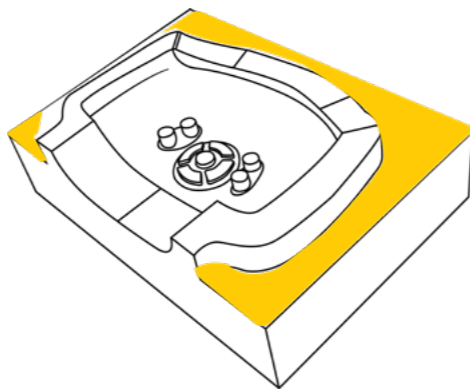
Tool: 599.F6.1200.020.240
RPM: 6,000
Feed rate: 6,900 mm/min
fpt: 0.190 mm/t
WOC: 0.200 mm
DOC: 15.000 mm
R-Angle: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:00:03 h





05. FINISHING SURFACE

Tool: 599.F6.1200.020.240
RPM: 3,360
Feed rate: 3,145 mm/min
fpt: 0.150 mm/t
WOC: 4.000 mm
DOC: 0.500 mm
R-Angle: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:03:19 h

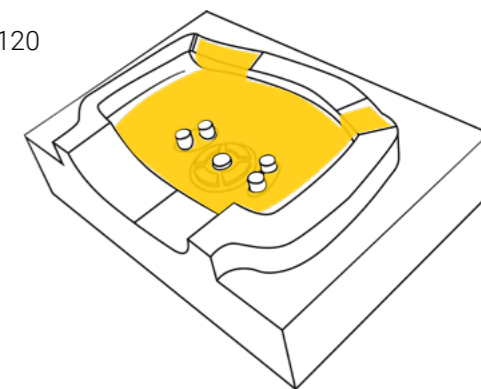


599.T4.0400.100.120



06. WAVEFORM ROUGHING

Tool: 599.T4.0400.100.120
RPM: 9,600
Feed rate: 2,880 mm/min
fpt: 0.075 mm/t
WOC: 1.000 mm
DOC: 0.400 mm
R-Angle: -
Offset: 0.100 mm
Cooling: Air
Runtime: 00:37:06 h

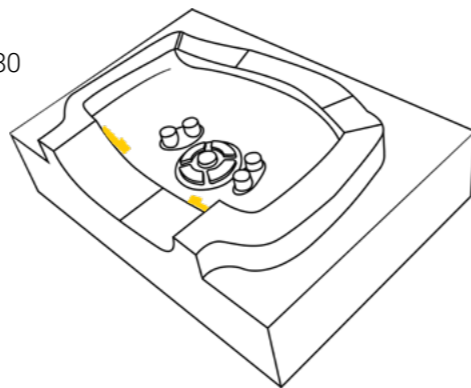


599.B4.0300.150.080



07. ROUGHING

Tool:	599.B4.0300.150.080
RPM:	11,400
Feed rate:	3,285 mm/min
fpt:	0.070 mm/t
WOC:	1.200 mm
DOC:	0.150 mm
R-Angle:	-
Offset:	0.100 mm
Cooling:	Air
Runtime:	00:00:40 h

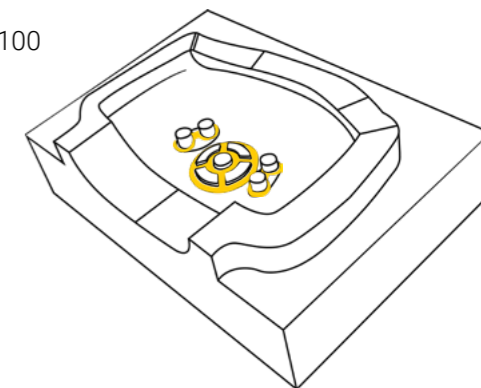


599.T4.0300.030.100



08. ROUGHING

Tool:	599.T4.0300.030.100
RPM:	10,800
Feed rate:	2,075 mm/min
fpt:	0.048 mm/t
WOC:	0.900 mm
DOC:	0.100 mm
R-Angle:	-
Offset:	0.100 mm
Cooling:	Air
Runtime:	00:02:57 h

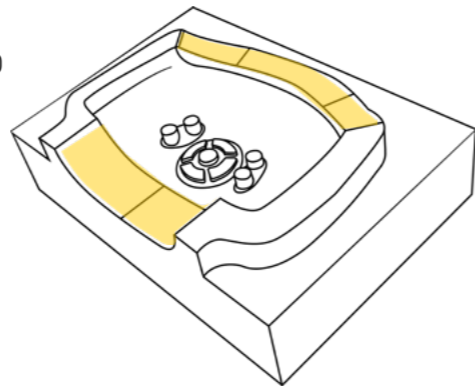


599.B4.0600.300.120



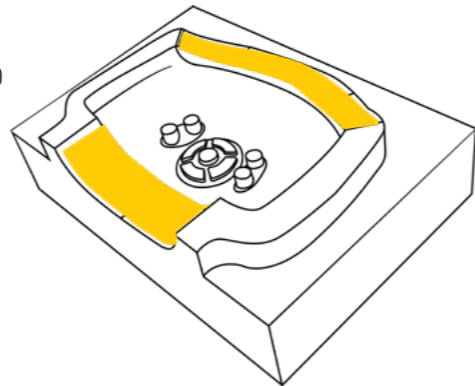
09. PRE-FINISHING

Tool: 599.B4.0600.300.120
RPM: 14,400
Feed rate: 6,900 mm/min
fpt: 0.120 mm/t
WOC: 0.500 mm
DOC: 0.500 mm
R-Angle: -
Offset: 0.030 mm
Cooling: Air
Runtime: 00:01:41 h



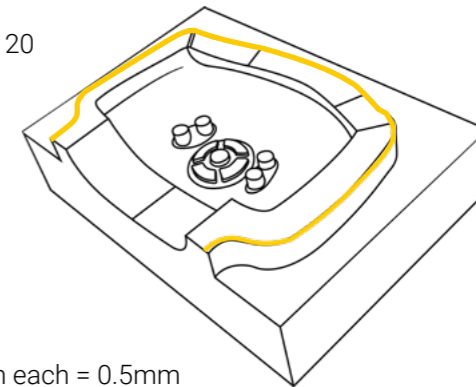
10. FINISHING

Tool: 599.B4.0600.300.120
RPM: 18,000
Feed rate: 7,775 mm/min
fpt: 0.110 mm/t
WOC: 0.150 mm
DOC: 0.150 mm
R-Angle: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:03:56 h



II. DEBURRING

Tool: 599.B4.0600.300.120
RPM: 18,000
Feed rate: 7,775 mm/min
fpt: 0.110 mm/t
WOC: 0.250 mm
DOC: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:00:06 h



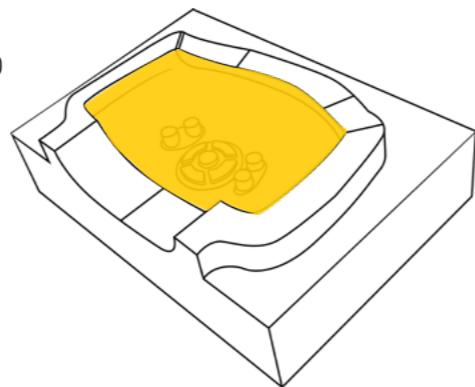
Chamfer milling 2 paths of 0.25mm each = 0.5mm

599.B4.0300.150.160



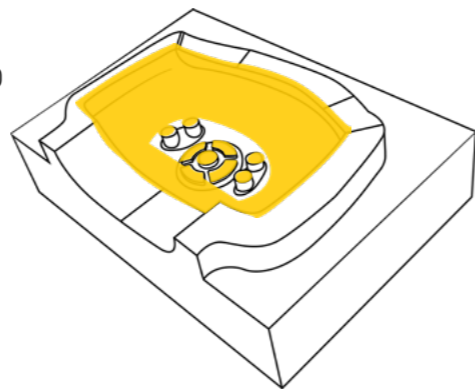
12. PRE-FINISHING

Tool: 599.B4.0300.150.160
RPM: 16,800
Feed rate: 3,100 mm/min
fpt: 0.046 mm/t
WOC: 0.200 mm
DOC: 0.200 mm
Offset: 0.030 mm
R-Angle: -
Cooling: Air
Runtime: 00:27:07 h



13. FINISHING

Tool: 599.B4.0300.150.160
RPM: 16,800
Feed rate: 3,100 mm/min
fpt: 0.046 mm/t
WOC: 0.050 mm
DOC: 0.050 mm
Offset: 0.000 mm
R-Angle: -
Cooling: Air
Runtime: 01:26:13 h

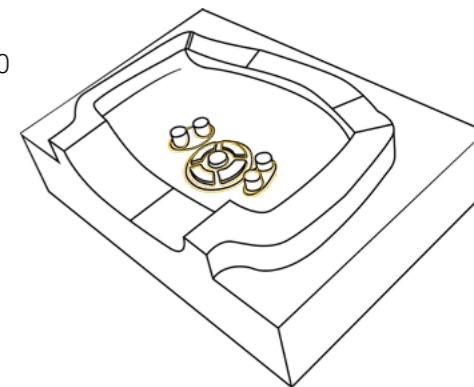


581P.B3.200.100.120



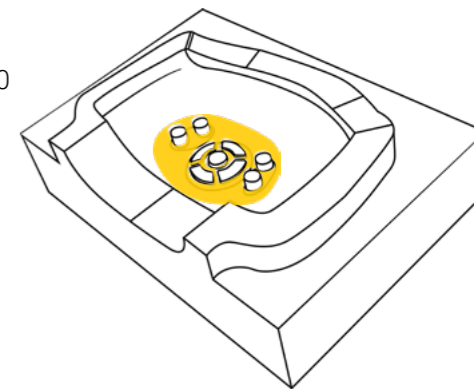
14. RESIDUAL MATERIAL

Tool: 581P.B3.200.100.120
RPM: 30,000
Feed rate: 1,350 mm/min
fpt: 0.015 mm/t
WOC: 0.050 mm
DOC: 0.050 mm
Offset: 0.040 mm
R-Angle: -
Cooling: Air
Runtime: 00:05:00 h



15. FINISHING

Tool: 581P.B3.200.100.120
RPM: 30,000
Feed rate: 1,350 mm/min
fpt: 0.015 mm/t
WOC: 0.050 mm
DOC: 0.050 mm
Offset: 0.040 mm
R-Angle: -
Cooling: Air
Runtime: 00:17:37 h

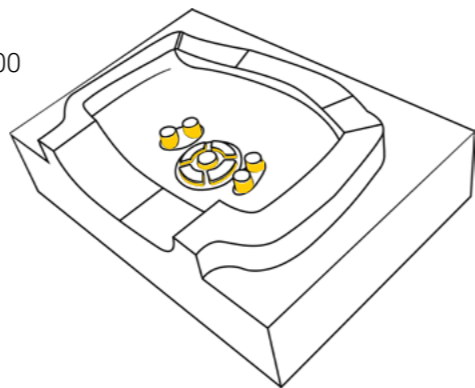


589.B2.0100.050.100



16. FINISHING (QUEEN BEE SERIES)

Tool:	589.B2.0100.050.100
RPM:	30,000
Feed rate:	840 mm/min
fpt:	0.014 mm/t
WOC:	0.060 mm
DOC:	0.060 mm
Offset:	0.000 mm
R-Angle:	-
Cooling:	Air
Runtime:	00:20:28 h

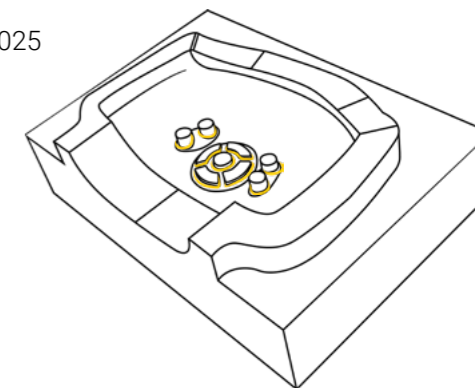


599.B2.0050.025.025



17. FINISHING

Tool:	599.B2.0050.025.025
RPM:	30,000
Feed rate:	640 mm/min
fpt:	0.010 mm/t
WOC:	0.040 mm
DOC:	0.040 mm
Offset:	0.000 mm
R-Angle:	-
Cooling:	Air
Runtime:	00:24:58 h

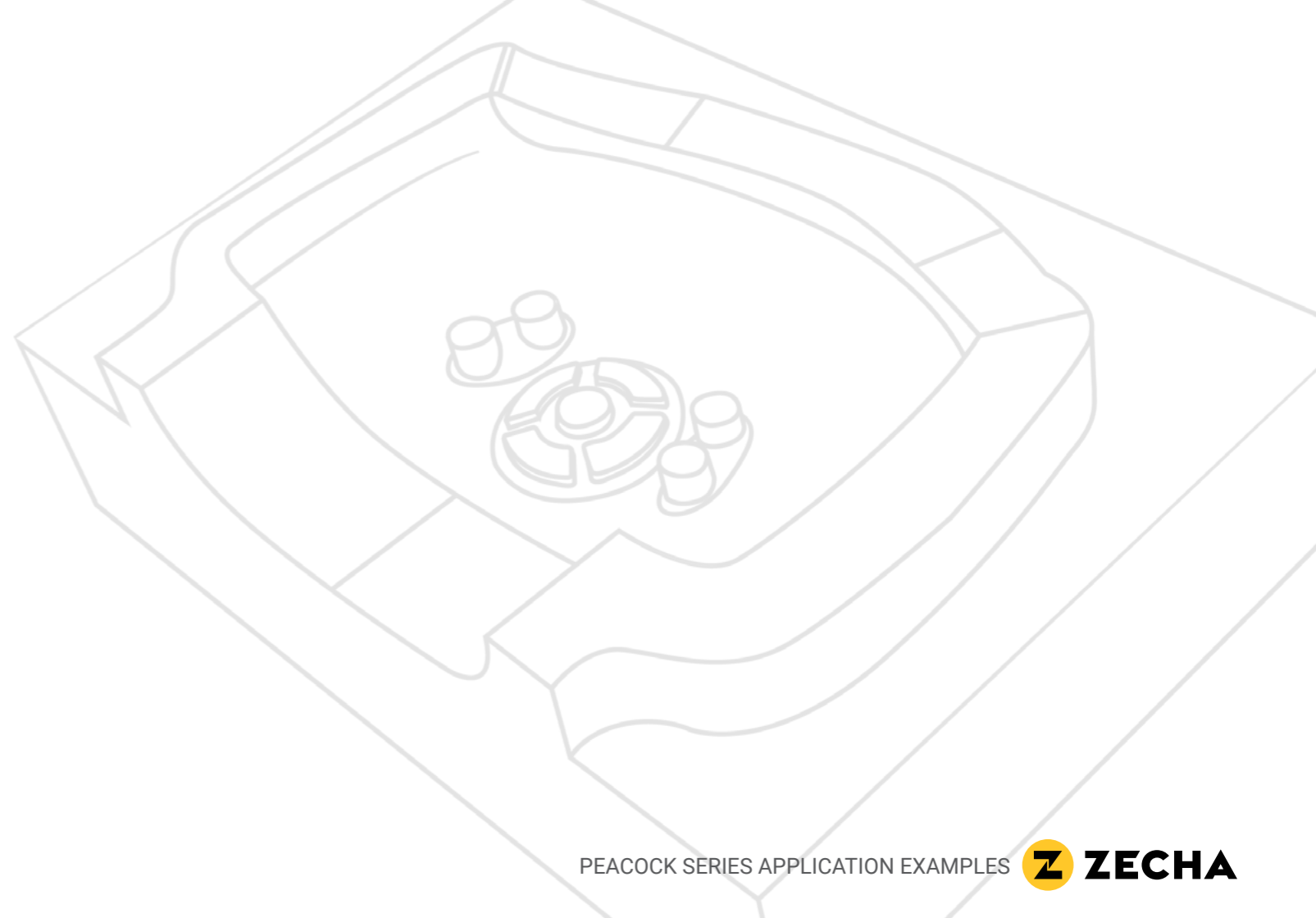
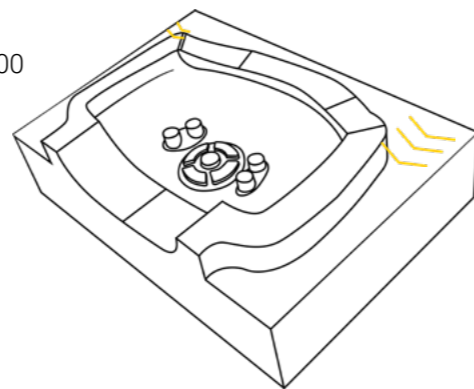


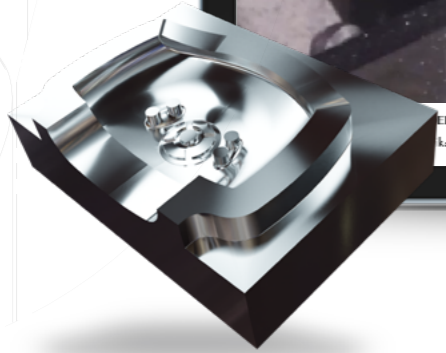
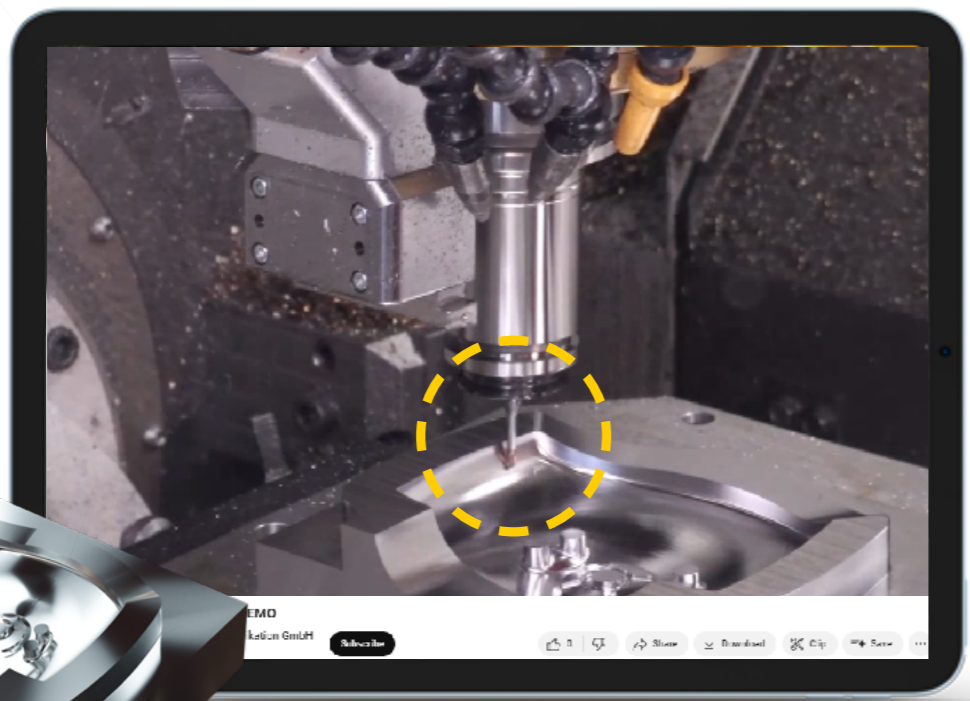
589.B2.0100.050.100



18. BALL ENGRAVING (QUEEN BEE SERIES)

Tool: 589.B2.0100.050.100
RPM: 30,000
Feed rate: 840 mm/min
fpt: 0.014 mm/t
WOC: Full gauge
DOC: 0.040 mm
Offset: 0.000 mm
R-Angle: -
Cooling: Air
Runtime: 00:01:14 h

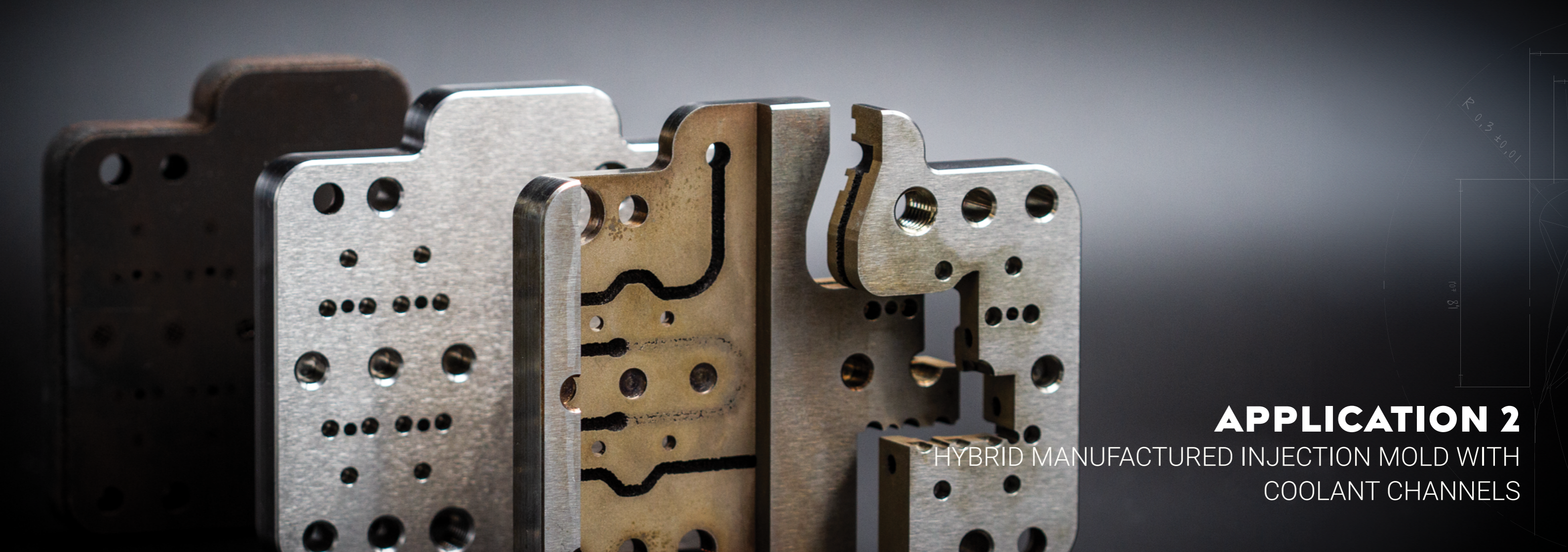




SEE IT IN ACTION

Experience the tools and strategies in action by scanning the QR code below. This will direct you to a video of the milling example on ZECHA's YouTube page, where you can see our precision and performance firsthand.





APPLICATION 2

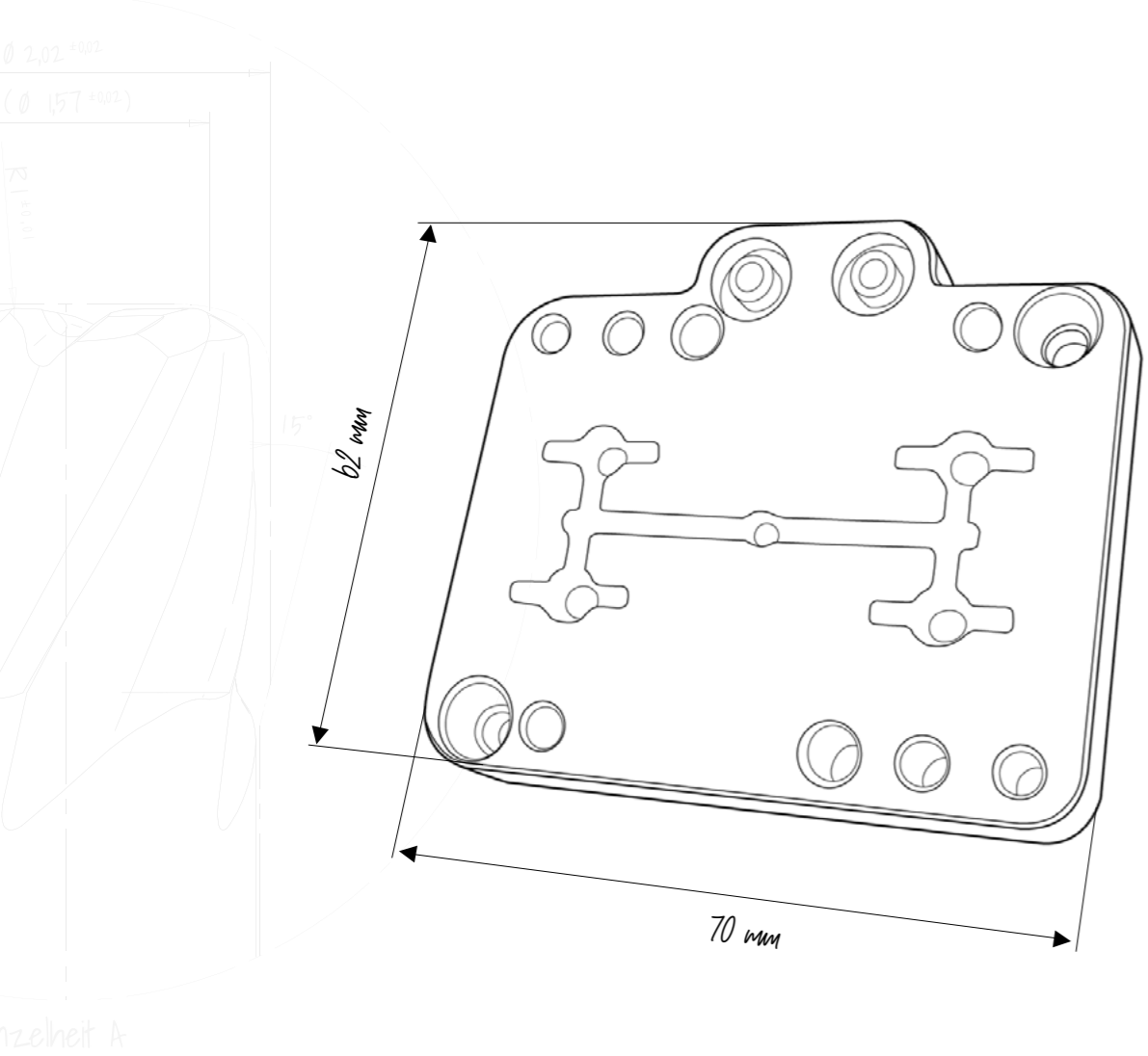
HYBRID MANUFACTURED INJECTION MOLD WITH
COOLANT CHANNELS



THE TOOLS

In this case study, ZECHA's PEACOCK SERIES showcases a wide variety of tools, including end mills, drills, thread whirlers, and engravers, all selected for their exceptional precision and performance. These tools demonstrate ZECHA's dedication to innovation and quality, providing optimal

solutions for diverse industrial applications. From achieving smooth finishes and accurate threads to executing fine engravings, the PEACOCK SERIES tools excel in their respective functions, making them indispensable for high-precision tasks across multiple industries.



THE WORKPIECE

In this case study, we are milling a small plastic injection mold (70 x 62mm) from high-strength stainless steel, featuring intricate internal coolant channels made possible through 3D printing. Utilizing hybrid manufacturing, after 3D printing ZECHA's PEACOCK SERIES tools perform the precise

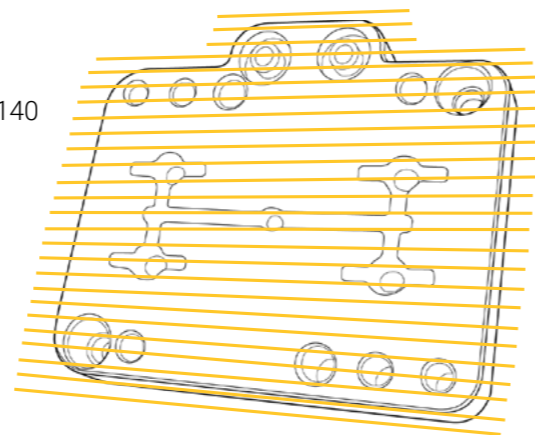
finishing work required, ensuring the highest levels of accuracy and surface quality. This combination of advanced 3D printing and ZECHA's precision tooling demonstrates the seamless integration of cutting-edge technologies to produce complex, high-performance molds.

599.HF6.0600.018.140



01. FACE MILLING

Tool:	599.HF6.0600.018.140
RPM:	3,714
Feed rate:	2,228 mm/min
Vc:	70 m/min
fpt:	0.100mm/t
WOC:	2.400 mm
DOC:	0.130 mm
R-Angle:	-
Offset:	0.050 mm
Cooling:	Air
Runtime:	00:06:00 h

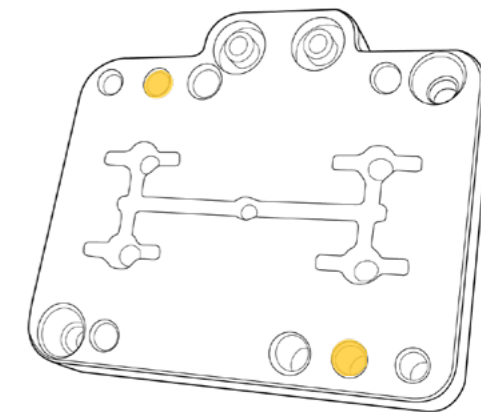


638H.0510.04



02. DRILLING Ø5:I (M6)

Tool:	638H.0510.04
RPM:	936
Feed rate:	23 mm/min
Vc:	15 m/min
fpt:	-
WOC:	-
DOC:	-
R-Angle:	-
Offset:	-
fpr:	0.025 mm/r
Cooling:	Oil/KSS
Runtime:	00:01:30 h

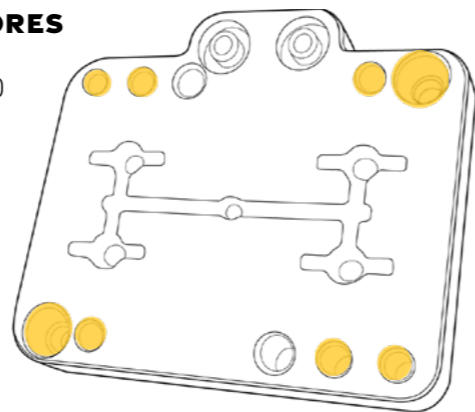


599.F4.0300.000.120



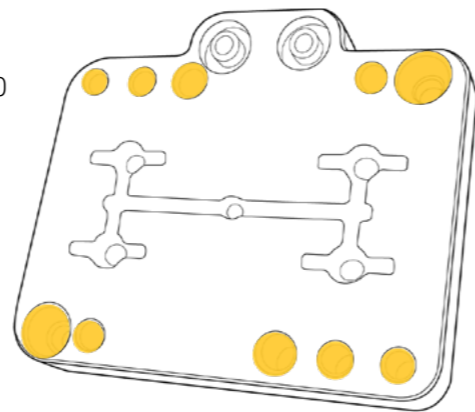
03. ROUGHING/FINISHING BORES

Tool: 599.F4.0300.000.120
RPM: 4,255
Feed rate: 255 mm/min
Vc: 40 m/min
ftp: 0.015 mm/t
WOC: 0.060 mm
DOC: 4.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:03:00 h



04. 5-AXIS CHAMFERING

Tool: 599.F4.0300.000.120
RPM: 4,255
Feed rate: 255 mm/min
Vc: 40 m/min
ftp: 0.015 mm/t
WOC: 0.060 mm
DOC: 4.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:01:00 h

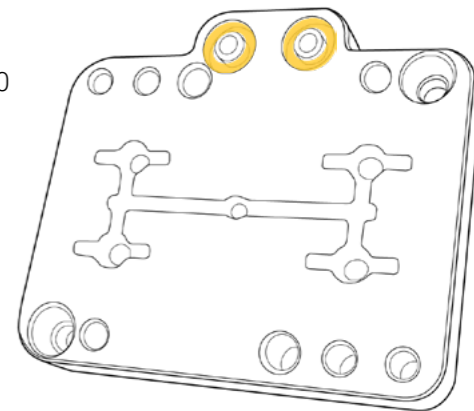


599.F4.0150.000.060



05. ROUGHING PILOT HOLES

Tool: 599.F4.0150.000.060
RPM: 10,610
Feed rate: 340 mm/min
Vc: 50 m/min
ftp: 0.008 mm/t
WOC: 0.030 mm
DOC: 1.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:02:30 h

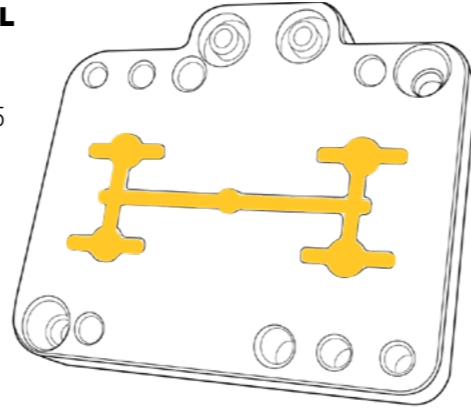


581P.B3.0150.075.045



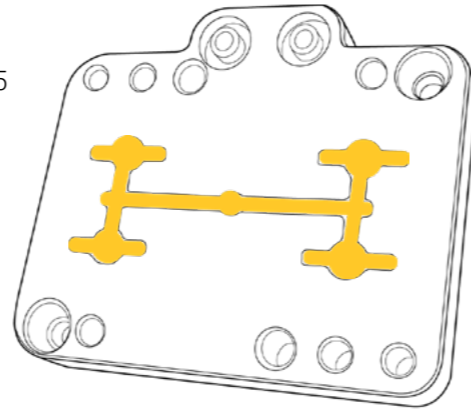
06. ROUGHING REST MATERIAL FROM 3D PRINT

Tool: 581P.B3.0150.075.045
RPM: 21,221
Feed rate: 1,146 mm/min
Vc: 100 m/min
ftp: 0.018 mm/t
WOC: 0.250 mm
DOC: 0.050 mm
R-Angle: -
Offset: 0.030 mm
Cooling: Air
Runtime: 00:16:00 h



07. PRE-FINISHING MOLD

Tool: 581P.B3.0150.075.045
RPM: 21,221
Feed rate: 955 mm/min
Vc: 100 m/min
ftp: 0.015 mm/t
WOC: 0.025 mm
DOC: 0.025 mm
R-Angle: -
Offset: 0.005 mm
Cooling: Air
Runtime: 00:30:00 h

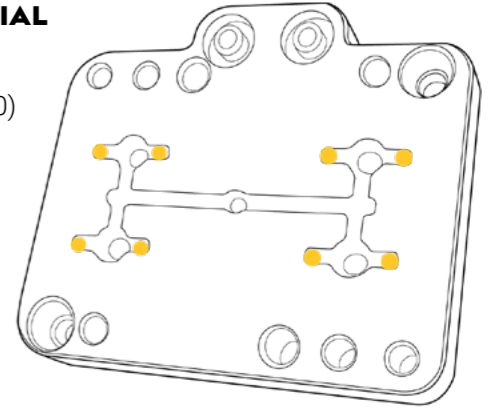


121636 (TORUS Ø1,0)



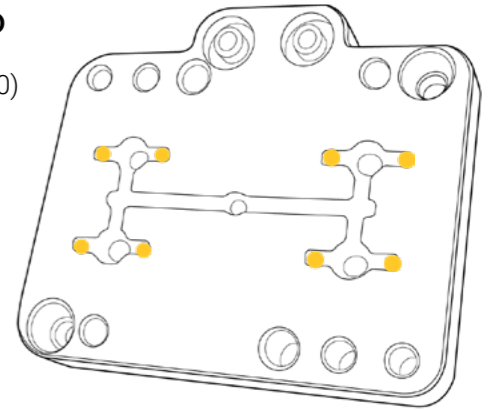
08. ROUGHING REST MATERIAL (TAPERED BORES)

Tool: 121636 (Torus Ø1,0)
RPM: 9,549
Feed rate: 306 mm/min
Vc: 30 m/min
ftp: 0.008 mm/t
WOC: 0.200 mm
DOC: 0.030 mm
R-Angle: -
Offset: 0.030 mm
Cooling: Air
Runtime: 00:17:00 h



09. FINISHING (TAPERED BORES)

Tool: 121636 (Torus Ø1,0)
RPM: 15,915
Feed rate: 446 mm/min
Vc: 50 m/min
ftp: 0.007 mm/t
WOC: 0.010 mm
DOC: 0.020 mm
R-Angle: -
Offset: -0.010 mm
Cooling: Air
Runtime: 00:25:00 h

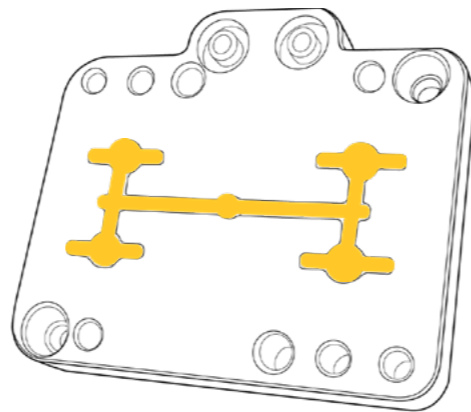


599.B2.0100.050.040



10. FINISHING MOLD

Tool:	599.B2.0100.050.040
RPM:	31,831
Feed rate:	955 mm/min
Vc:	100 m/min
ftp:	0.015 mm/t
WOC:	0.010 mm
DOC:	0.012 mm
R-Angle:	-
Offset:	-0.005 mm
Cooling:	Air
Runtime:	01:40:00 h

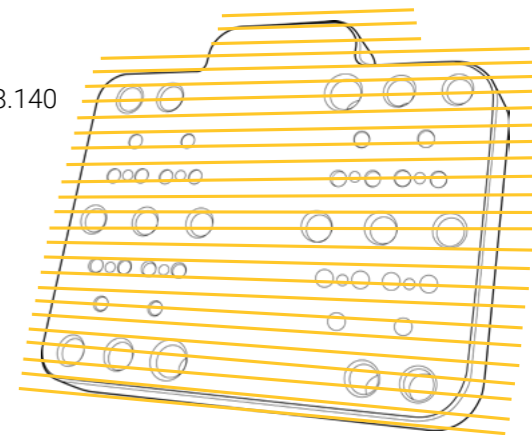


599.HF6.0600.018.140



11. FACE MILLING

Tool:	599.HF6.0600.018.140
RPM:	3,714
Feed rate:	2,228 mm/min
Vc:	70 m/min
ftp:	0.100 mm/t
WOC:	2.400 mm
DOC:	0.130 mm
R-Angle:	-
Offset:	0.050 mm
Cooling:	Air
Runtime:	00:06:00 h



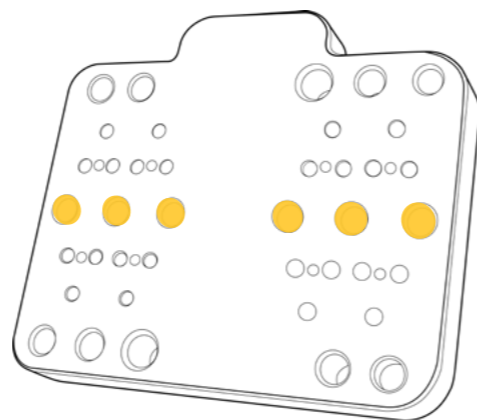


638H.0330.04



12. DRILLING Ø3.3

Tool: 638H.0330.04
 RPM: 1,447
 Feed rate: 22 mm/min
 Vc: 15 m/min
 ftp: -
 WOC: -
 DOC: -
 R-Angle: -
 Offset: -
 fpr: 0.015 mm/r
 Cooling: Oil/KSS
 Runtime: 00:02:30 h

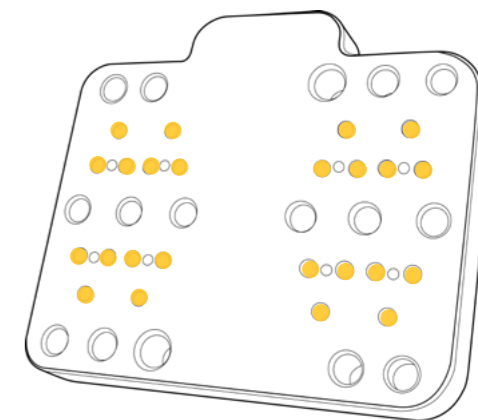


638H.0250.04



13. DRILLING Ø2.5

Tool: 638H.0250.04
 RPM: 1,910
 Feed rate: 29 mm/min
 Vc: 15 m/min
 ftp: -
 WOC: -
 DOC: -
 R-Angle: -
 Offset: -
 fpr: 0.015 mm/r
 Cooling: Oil/KSS
 Runtime: 00:07:00 h

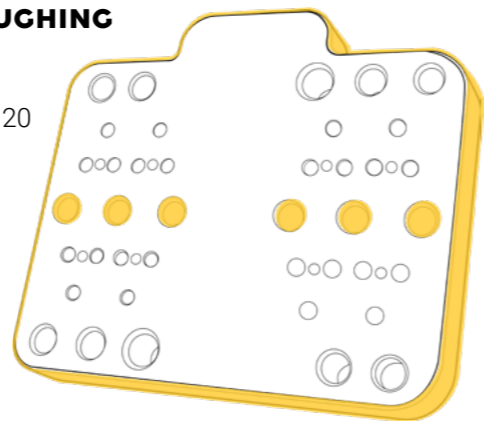


599.F4.0300.000.120



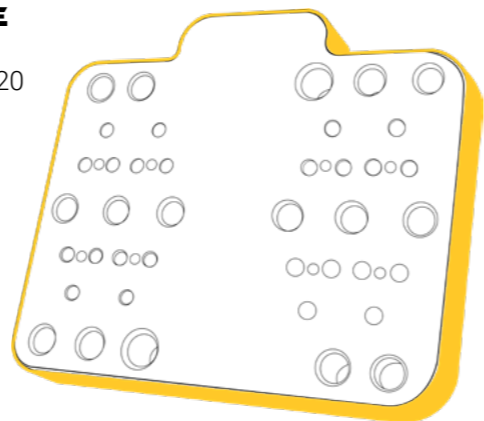
14. ENLARGING BORES/ ROUGHING OUTER SHAPE

Tool: 599.F4.0300.000.120
RPM: 4,244
Feed rate: 255 mm/min
Vc: 40 m/min
ftp: 0.015 mm/t
WOC: 0.060 mm
DOC: 4.500 mm
R-Angle: -
Offset: 0.000 mm
Cooling: Air
Runtime: 00:10:00 h



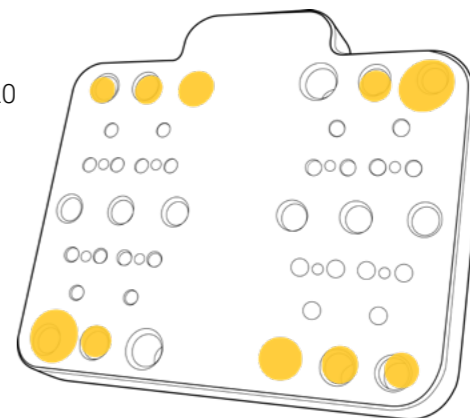
15. FINISHING OUTER SHAPE

Tool: 599.F4.0300.000.120
RPM: 6,366
Feed rate: 611 mm/min
Vc: 60 m/min
ftp: 0.024 mm/t
WOC: 0.060 mm
DOC: 2.000 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:03:00 h



16. 5-AXIS CHAMFERING

Tool: 599.F4.0300.000.120
RPM: 4,244
Feed rate: 255 mm/min
Vc: 40 m/min
ftp: 0.015 mm/t
WOC: 0.500 mm
DOC: 0.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:02:00 h

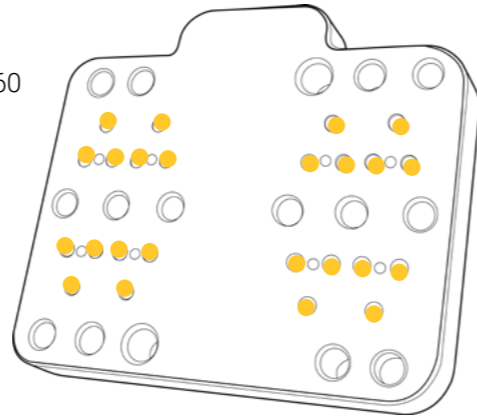


599.F4.0150.000.060



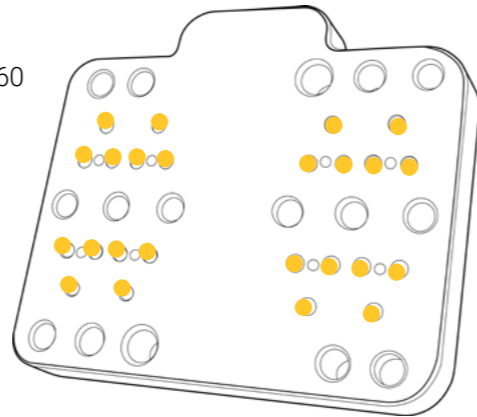
17. ENLARGING BORES

Tool: 599.F4.0150.000.060
RPM: 10,610
Feed rate: 340 mm/min
Vc: 50 m/min
ftp: 0.008 mm/t
WOC: 0.030 mm
DOC: 3.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:03:00 h



18. 5-AXIS CHAMFERING

Tool: 599.F4.0150.000.060
RPM: 10,610
Feed rate: 340 mm/min
Vc: 50 m/min
ftp: 0.008 mm/t
WOC: 0.500 mm
DOC: 0.500 mm
R-Angle: -
Offset: -
Cooling: Air
Runtime: 00:01:00 h

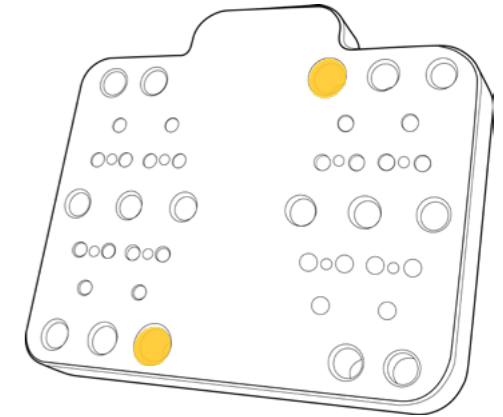


462H.M060.090.Z4



19. THREAD M6

Tool: 462H.M060.090.Z4
RPM: 2,288
Feed rate: 458 mm/min
Vc: 35 m/min
ftp: -
WOC: -
DOC: -
R-Angle: -
Offset: -
fpr: 0.050 mm/r
Cooling: Air
Runtime: 00:00:30 h





SEE IT IN ACTION

Experience the tools and strategies in action by scanning the QR code below. This will direct you to a video of the milling example on ZECHA's YouTube page, where you can see our precision and performance firsthand.

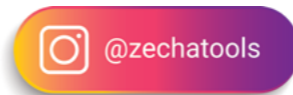




DON'T MISS A THING

Scan the QR codes below to access ZECHA's various social media accounts where you can stay up to date on new tools, new videos, live events and much more.

Subscribe and stay up to date.





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