

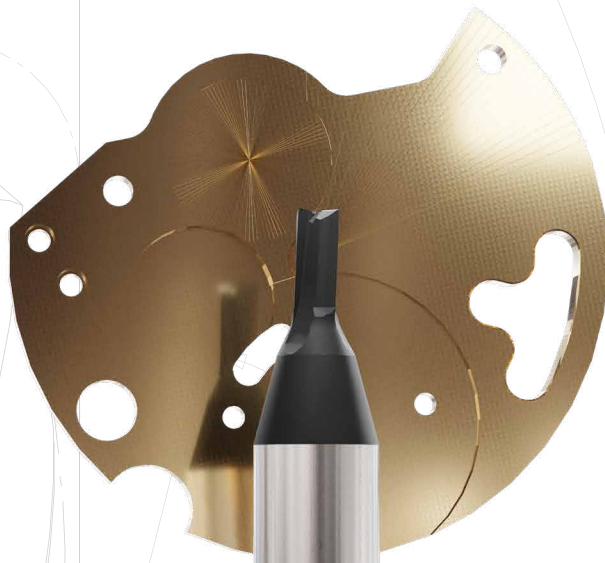
# WATCHMAKING INDUSTRY

SERIES SELECTION

**NEW SERIES  
ARTICLES!**  
ZECHA

*außergewöhnlich.*

# INNOVATIVE.



**Z ZECHA**



**ZECHA**  
*außergewöhnlich.*

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset$  1,57  $\pm$ 0,02)



## NEW TOOLS FOR THE WATCH- MAKING INDUSTRY

INNOVATIVE CUTTING MATERIALS, COATINGS,  
AND GEOMETRIES

With the advent of micro-CNC machines, the watchmaking industry is also evolving. ZECHA is pleased to introduce a new line of precision tools specifically designed for these cutting-edge machines. Our tools are meticulously crafted to address the unique challenges of fewer tool slots, shorter tool lengths, and the limited torque of micro-CNC spindles.

ZECHA's innovative solutions include end mills, thread whirl cutters, and engraving tools from various renowned series, all optimized for unparalleled performance. These tools combine high-quality cutting materials, advanced coatings, and precise

geometries to ensure exceptional results in the manufacturing of complex watch components.

Learn how ZECHA's state-of-the-art tools can revolutionize your micro-CNC machining processes. The following pages provide detailed descriptions of each tool series, highlighting the specific tools optimized for the watchmaking industry to set new standards in precision and efficiency.

Einzelheit A

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )

## SERIES OVERVIEW

Under the watchmaking industry series selection, various options are available. Below, you will find a brief explanation of the tool series along with relevant symbols indicating their characteristics and usage recommendations. Further information about each series and a legend for the symbols can be found on the following pages.

NEW SERIES!  
ZECHA

### 459P SERIES

PCD thread whirl cutter, 3 or 4-flutes, NIHS S thread type, 0° helix angle

NEW ARTICLE!  
ZECHA

### 459 SERIES

Solid carbide thread whirl cutter, 1, 3 or 4-flutes, NIHS S thread type, 0° helix angle

NEW ARTICLE!  
ZECHA

### 460 SERIES

Solid carbide thread whirl cutter, 1, 2, 3 or 4-flutes, M thread type, 0° helix angle

NEW SERIES!  
ZECHA

### 462P SERIES

PCD thread whirl cutter, 4-flutes, M thread type, 0° helix angle

- ALU
- INOX
- Ti
- U
- AU
- CU
- CU BE
- CU ZN
- Ni-Cr
- P
- Pt
- Pt

- 1
- 3
- 4
- ▽
- ▽▽
- ▽▽▽

- ALU
- AU
- CU
- CU BE
- CU ZN
- INOX
- P
- Pt
- Ti
- U

- 1
- 3
- 4
- ▽
- ▽
- ▽

- ALU
- AU
- CU
- CU BE
- CU ZN
- P
- Pt
- Ni-Cr

- PKD
- 3
- 4
- ▽
- ▽▽
- ▽▽▽

- ALU
- AU
- CU
- CU BE
- CU ZN
- P
- Pt
- Ni-Cr

- PKD
- 4
- ▽
- ▽▽
- ▽▽▽



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# WATCHMAKING INDUSTRY

SERIES SELECTION

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## SERIES OVERVIEW

NEW ARTICLE!  
ZECHA

### 462 SERIES

Solid carbide thread whirl cutter, 1, 3 or 4-flutes, M thread type, 0° helix angle



ALU

CU

INOX

TI

U

AU

CU  
BE

CU  
ZN

P

PKD

Pt

NEW SERIES!  
ZECHA

### 490P SERIES

PCD engraving tool, 1-flute, 0° helix angle



ALU

AU

CU

CU  
BE

CU  
ZN

P

PKD

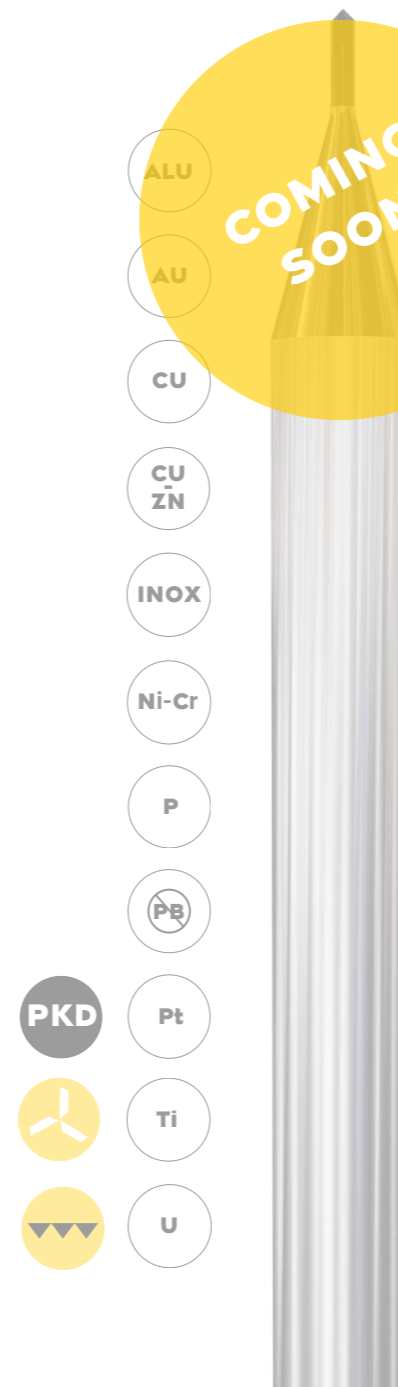
Pt

FVW

Ni-Cr

### 505P SERIES

PCD chamfer cutter, 3-flutes, 0° helix angle, 90° point angle



ALU

AU

CU

CU  
ZN

INOX

Ni-Cr

P

PKD

Pt

Ti

U

COMING SOON

NEW SERIES!  
ZECHA

### 905 SERIES

Solid carbide chamfer cutter, 3-flutes, 0° helix angle, 90° point angle and two-sided laser-sharpened coating



ALU

AU

CU

CU  
BE

CU  
ZN

FVW

DIA

P

PKD

Pt

Ni-Cr

# WATCHMAKING INDUSTRY

SERIES SELECTION

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## SERIES OVERVIEW IGUANA

NEW ARTICLE!  
ZECHA

### 918.F2 SERIES

Solid carbide end mill, 2-flutes with shank coolant channels and two-sided laser-sharpened coating



15°

- ALU
- AU
- CU
- CU BE
- CU ZN
- DIA
- FVW
- P
- PB
- Pt
- Ni-Cr

NEW ARTICLE!  
ZECHA

### 918.F3 SERIES

Solid carbide end mill, 3-flutes with shank coolant channels and two-sided laser-sharpened coating



- ALU
- AU
- CU
- CU BE
- CU ZN
- DIA
- FVW
- P
- PB
- Pt
- Ni-Cr

NEW ARTICLE!  
ZECHA

### 931.T2 SERIES

Solid carbide end mill with corner radius, 2-flutes with shank coolant channels and two-sided laser-sharpened coating



- ALU
- AU
- CU
- CU BE
- CU ZN
- DIA
- FVW
- P
- PB
- Pt
- Ni-Cr

NEW ARTICLE!  
ZECHA

### 931.T3 SERIES

Solid carbide end mill with corner radius, 3-flutes with shank coolant channels and two-sided laser-sharpened coating



- ALU
- AU
- CU
- CU BE
- CU ZN
- DIA
- FVW
- P
- PB
- Pt
- Ni-Cr

# WATCHMAKING INDUSTRY

SERIES SELECTION

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## PCD THREAD WHIRL CUTTER

MANUFACTURED WITH THE LATEST FEMTO LASER TECHNOLOGY

ZECHA's PCD thread whirl cutters set new standards in micro-CNC machining. Thanks to high-end PCD blanks and the latest FEMTO laser technology, these tools offer exceptional accuracy, burr-free milling, and an extremely long service life.

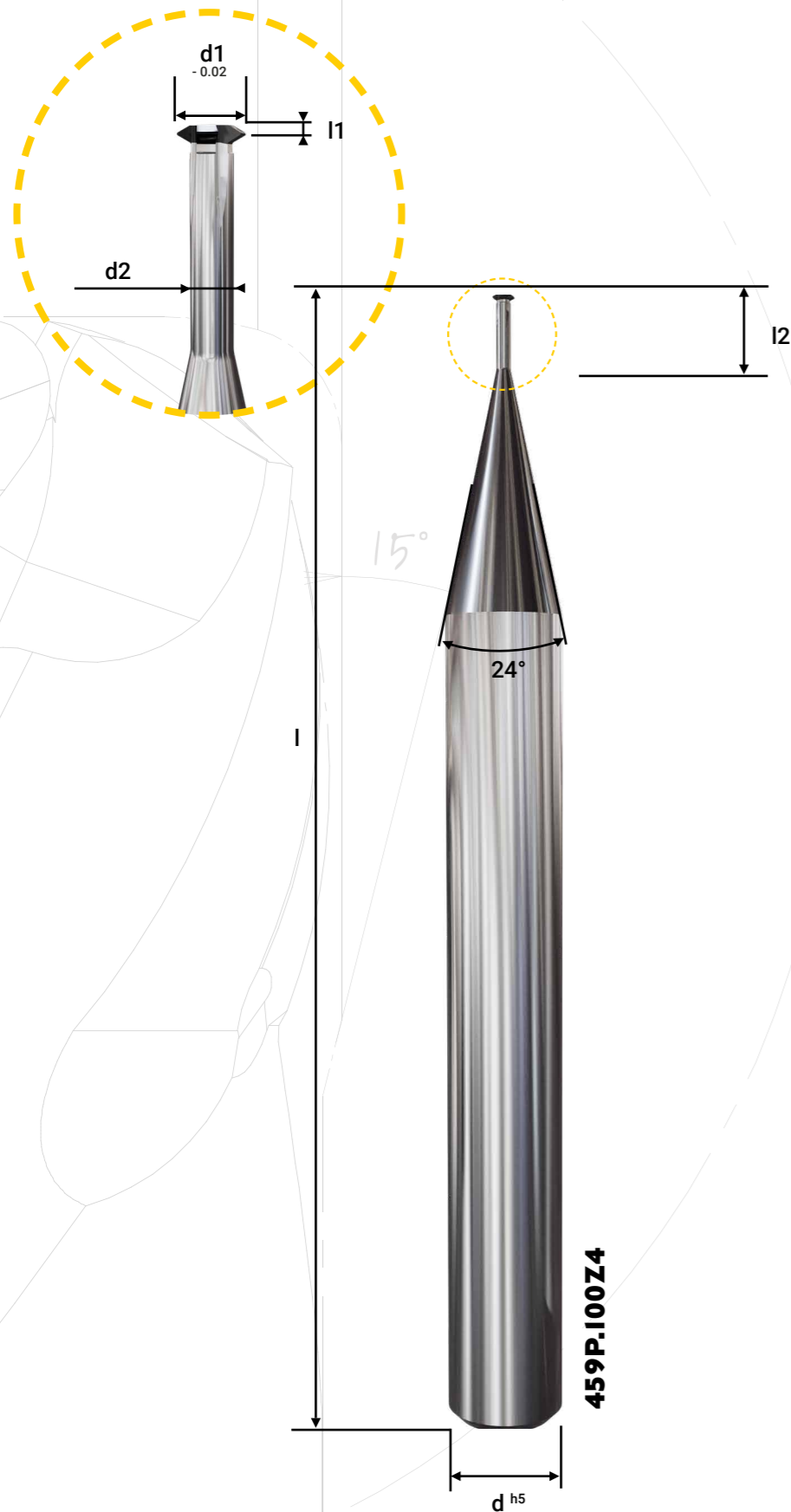
The FEMTO laser technology enables precise machining of PCD blanks without thermal damage, resulting in higher tool quality and reliability. This advanced technique ensures that the cutting edges are sharp and the tool geometry is perfect.

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# WATCHMAKING INDUSTRY

SERIES SELECTION

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## 459P SERIES

- PCD thread whirl cutter, 3 or 4-flutes, NIHS S thread type, 0° helix angle  
- For wet or dry machining of non-ferrous materials



Article Number	Thread Type	Size	p	d1	d2	l1	l2	d	l	Z
459P.040Z3	NIHS S	0.4	0.100	0.30	0.18	0.040	0.9	4.0	39	3
459P.050Z3	NIHS S	0.5	0.125	0.38	0.24	0.045	1.2	4.0	39	3
459P.060Z3	NIHS S	0.6	0.150	0.46	0.29	0.055	1.5	4.0	39	3
459P.070Z3	NIHS S	0.7	0.175	0.54	0.34	0.055	1.8	4.0	39	3
459P.080Z4	NIHS S	0.8	0.200	0.60	0.37	0.070	2.0	4.0	39	4
459P.090Z4	NIHS S	0.9	0.225	0.68	0.42	0.070	2.5	4.0	39	4
459P.100Z4	NIHS S	1.0	0.250	0.76	0.48	0.090	2.5	4.0	39	4
459P.120Z4	NIHS S	1.2	0.250	0.94	0.66	0.110	3.0	4.0	39	4

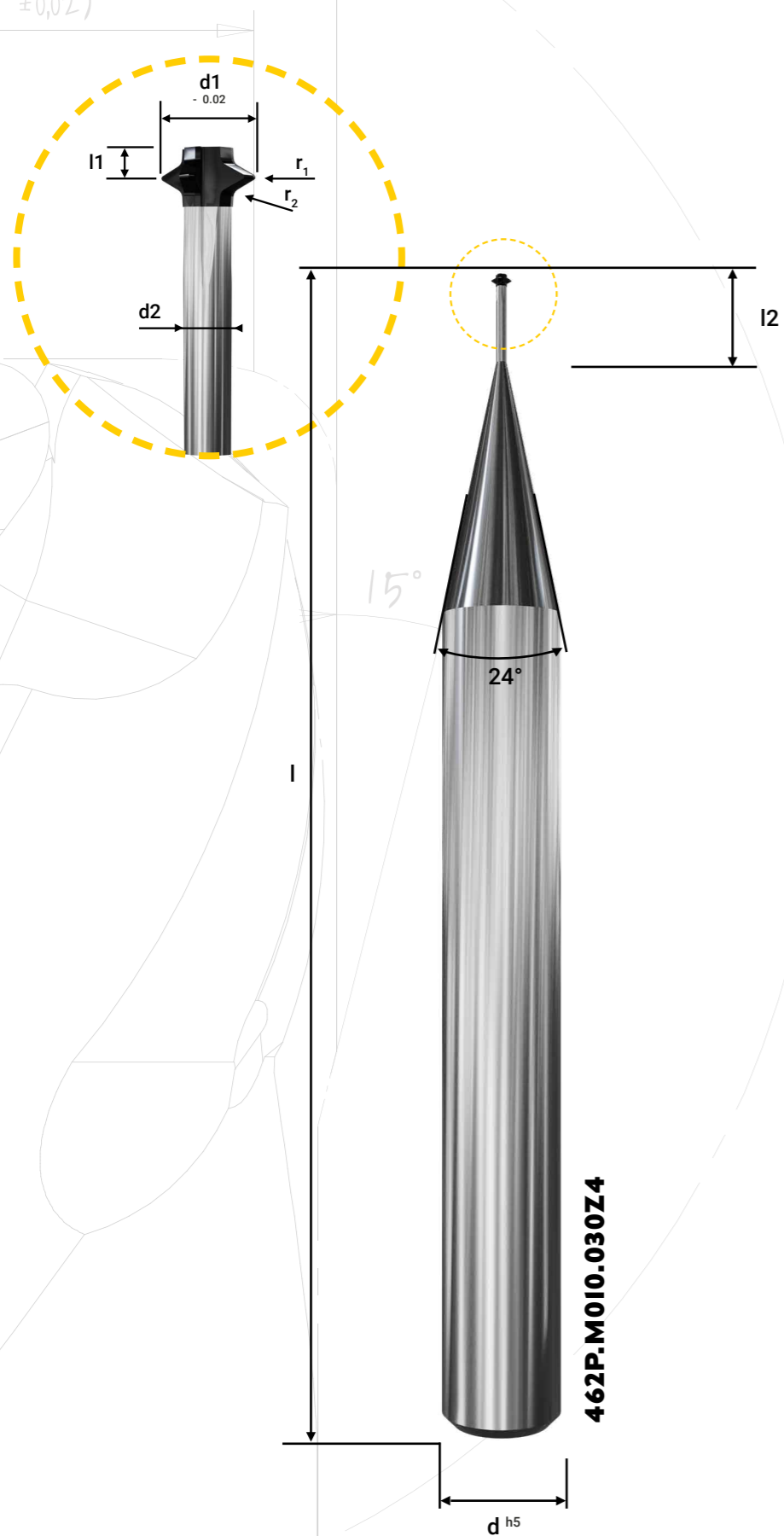
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# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )



## 462P SERIES

- PCD thread whirl cutter, 4-flutes, M thread type, 0° helix angle
- For wet or dry machining of non-ferrous materials
- German patent DE 10 2008 030 100 B4: M0,6 – M6

Material options: ALU, AU, CU, CU BE, CU ZN, P, PB, Pt, Ni-Cr

Coatings: PKD, and three yellow circular icons representing different coating types.

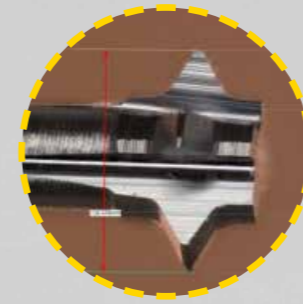


Article Number	Thread Type	Size	p	d1	d2	r1	r2	l1	l2	d	l	Z
462PM008.024Z4	M	0.8	0.200	0.53	0.26	0.010	0.05	0.16	2.4	4.0	39	4
462PM009.027Z4	M	0.9	0.225	0.61	0.30	0.020	0.05	0.18	2.7	4.0	39	4
462PM010.030Z4	M	1.0	0.250	0.68	0.34	0.018	0.06	0.20	3.0	4.0	39	4
462PM012.030Z4	M	1.2	0.250	0.88	0.54	0.018	0.06	0.20	3.0	4.0	39	4

# WATCHMAKING INDUSTRY

SERIES SELECTIONS

( $\varnothing 1,57 \pm 0,02$ )



## SOLID CARBIDE THREAD WHIRLING TOOLS

### THE NUMBER OF TEETH MAKES THE DIFFERENCE

ZECHA's solid carbide thread whirl cutters offer the highest precision and efficiency for mass production.

The advantages of these tools lie in the optimized number of teeth, even with the smallest diameters. This allows for either faster thread production or extended tool life, depending on the specific requirements.

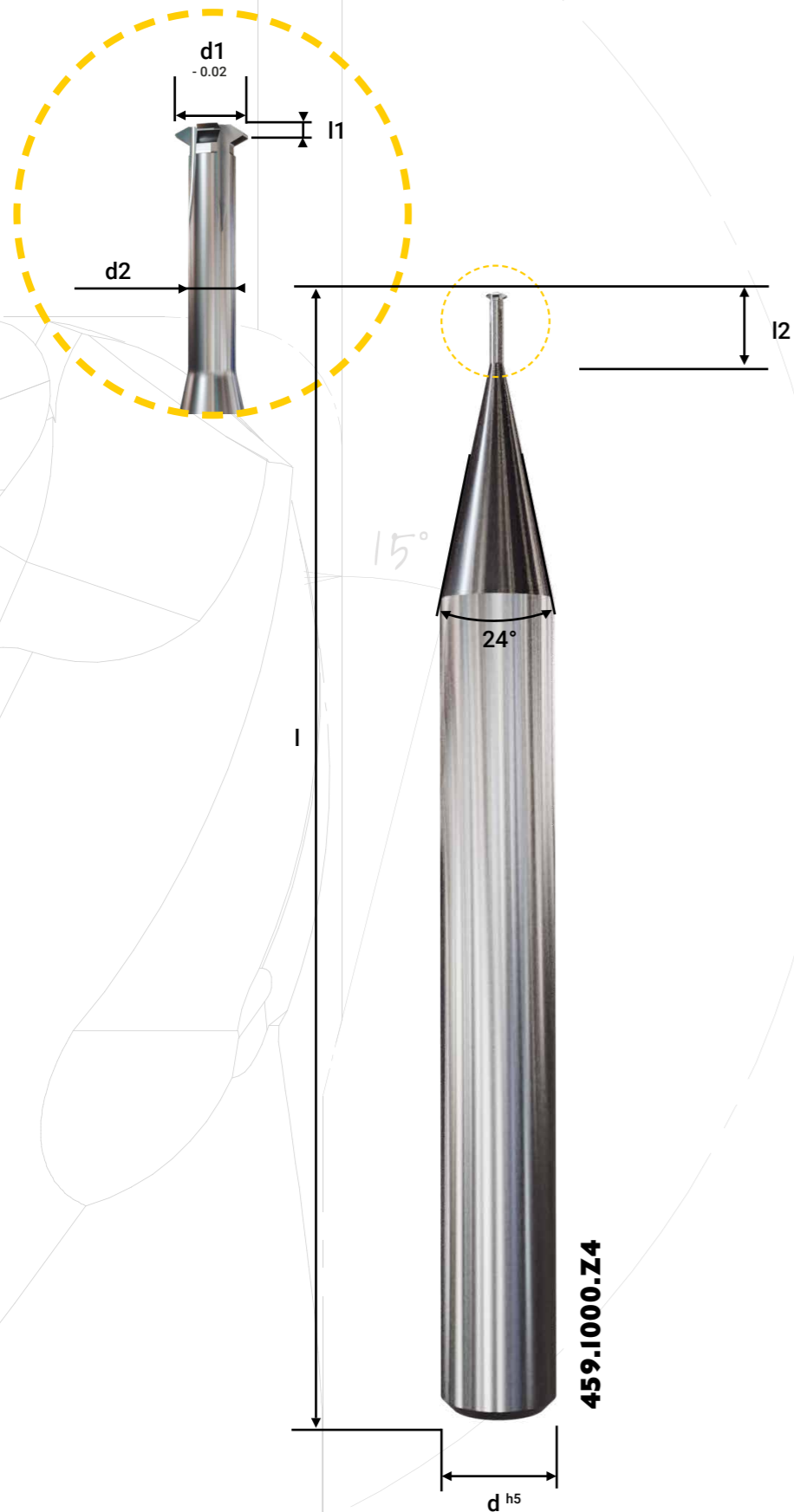
ZECHA's carbide thread whirl cutters are distinguished by tight tolerances in form and concentricity. This allows for the production of threads with excellent contour accuracy, even with the smallest thread sizes, such as NIHS S 0.3.

ZECHA's carbide thread whirl cutters are the ideal solution for manufacturing the finest threads in watch components. Rely on our decades of experience and cutting-edge technology to optimize your micro-CNC machining processes.

# WATCHMAKING INDUSTRY

SERIES SELECTION

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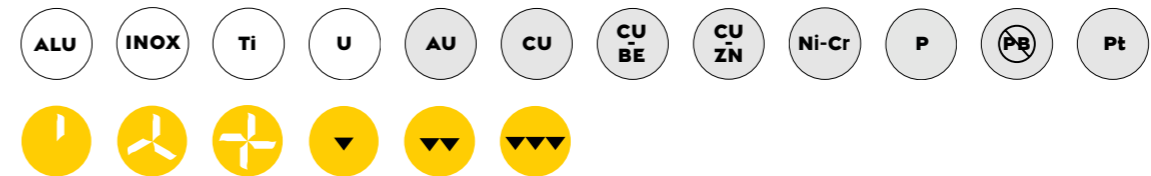
459.1000.Z4

d<sup>h5</sup>



## 459 SERIES

- Solid carbide thread whirl cutter, 1, 3 or 4-flutes, NIHS S thread type, 0° helix angle
- For wet or dry machining of non-ferrous materials

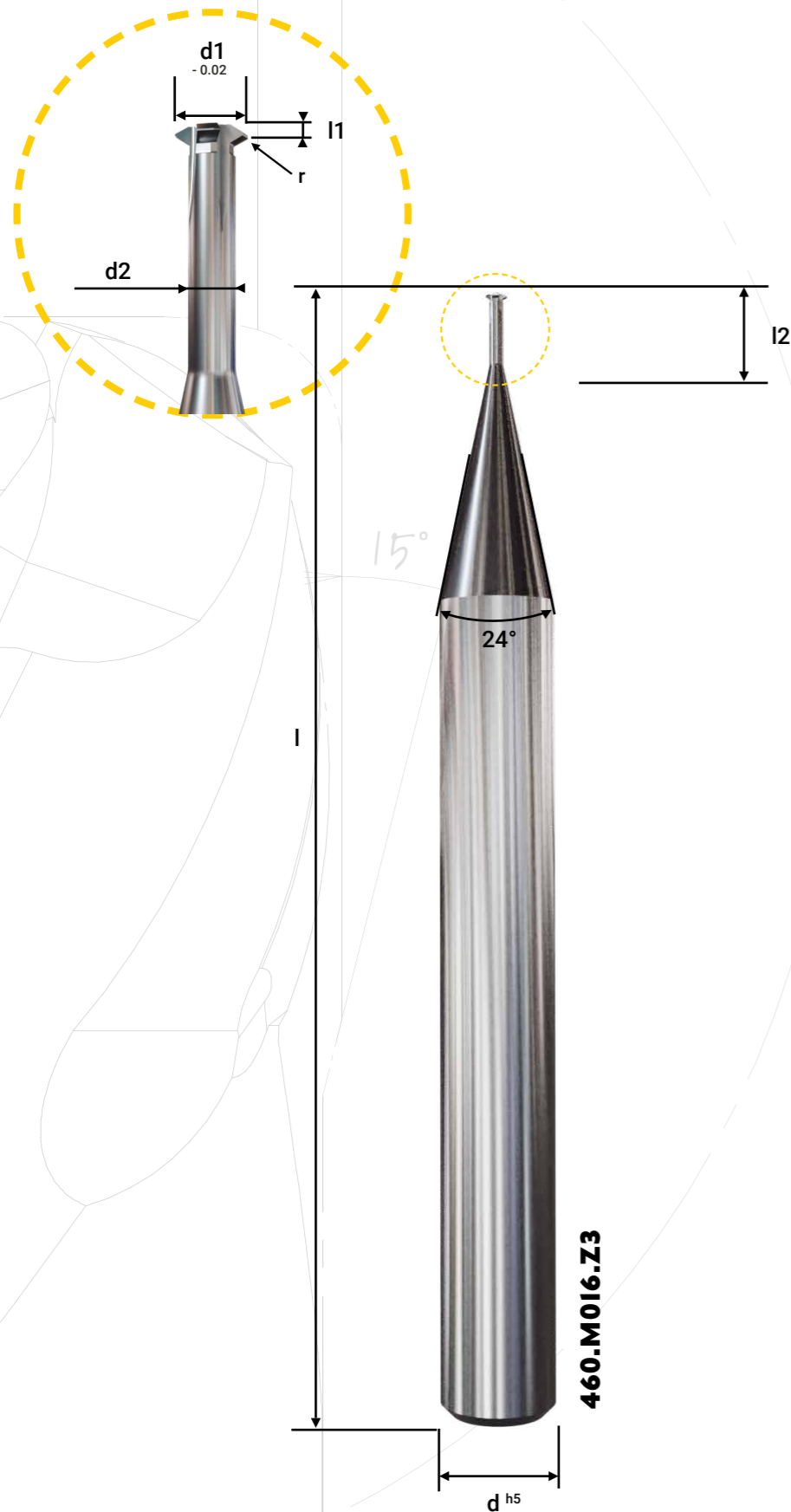


Article Number	Thread Type	Size	p	d1	d2	l1	l2	d	l	Z
459.0300.Z1	NIHS S	0.3	0.080	0.21	0.12	0.035	0.7	3.0	39	1
459.0400.Z1	NIHS S	0.4	0.100	0.30	0.18	0.040	0.9	3.0	39	1
<b>NEW</b> 459.0400.Z3	NIHS S	0.4	0.100	0.30	0.18	0.040	0.9	3.0	39	3
459.0500.Z1	NIHS S	0.5	0.125	0.39	0.24	0.045	1.2	3.0	39	1
<b>NEW</b> 459.0500.Z3	NIHS S	0.5	0.125	0.39	0.24	0.045	1.2	3.0	39	3
459.0600.Z1	NIHS S	0.6	0.150	0.46	0.29	0.055	1.5	3.0	39	1
<b>NEW</b> 459.0600.Z3	NIHS S	0.6	0.150	0.46	0.29	0.055	1.5	3.0	39	3
459.0700.Z1	NIHS S	0.7	0.175	0.54	0.34	0.055	1.8	3.0	39	1
<b>NEW</b> 459.0700.Z3	NIHS S	0.7	0.175	0.54	0.34	0.055	1.8	3.0	39	3
459.0800.Z3	NIHS S	0.8	0.200	0.60	0.37	0.070	2.0	3.0	39	3
<b>NEW</b> 459.0800.Z4	NIHS S	0.8	0.200	0.60	0.37	0.070	2.0	3.0	39	4
459.0900.Z3	NIHS S	0.9	0.225	0.68	0.42	0.070	2.5	3.0	39	3
<b>NEW</b> 459.0900.Z4	NIHS S	0.9	0.225	0.68	0.42	0.070	2.5	3.0	39	4
459.1000.Z3	NIHS S	1.0	0.250	0.76	0.48	0.090	2.5	3.0	39	3
<b>NEW</b> 459.1000.Z4	NIHS S	1.0	0.250	0.76	0.48	0.090	2.5	3.0	39	4
459.1200.Z3	NIHS S	1.2	0.250	0.94	0.66	0.110	3.0	3.0	39	3
<b>NEW</b> 459.1200.Z4	NIHS S	1.2	0.250	0.94	0.66	0.110	3.0	3.0	39	4
459.1400.Z3	NIHS S	1.4	0.300	1.10	0.75	0.130	3.5	3.0	39	3
<b>NEW</b> 459.1400.Z4	NIHS S	1.4	0.300	1.10	0.75	0.130	3.5	3.0	39	4

# WATCHMAKING INDUSTRY

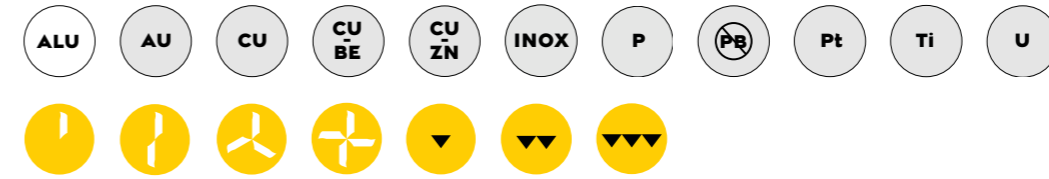
SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )



## 460 SERIES

- Solid carbide thread whirl cutter, 1, 2, 3 or 4-flutes, M thread type, 0° helix angle
- For wet or dry machining of non-ferrous materials



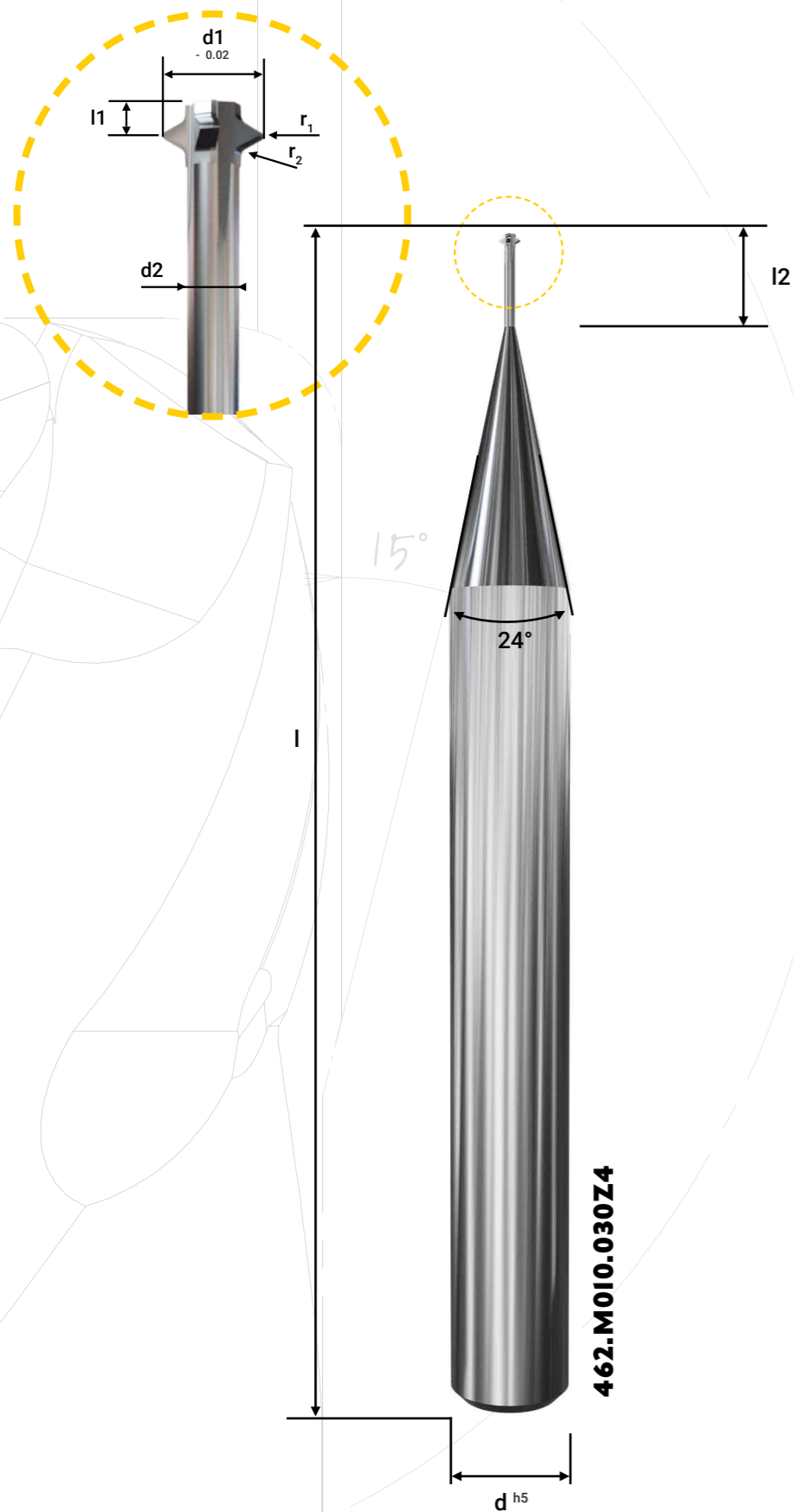
Article Number	Thread Type	Size	p	d1	d2	r	l1	l2	d	l	Z
460.M008.Z1	M	0.8	0.200	0.55	0.29	0.02	0.10	2.4	3.0	32	1
<b>NEW</b> 460.M008.Z4	M	0.8	0.200	0.55	0.29	0.02	0.10	2.4	3.0	32	4
460.M009.Z1	M	0.9	0.225	0.63	0.35	0.02	0.11	2.7	3.0	32	1
<b>NEW</b> 460.M009.Z4	M	0.9	0.225	0.63	0.35	0.02	0.11	2.7	3.0	32	4
460.M010.Z1	M	1.0	0.250	0.70	0.38	0.02	0.12	3.0	3.0	32	1
460.M010.Z2	M	1.0	0.250	0.70	0.38	0.02	0.12	3.0	3.0	32	2
<b>NEW</b> 460.M010.Z4	M	1.0	0.250	0.70	0.38	0.02	0.12	3.0	3.0	32	4
460.M012.Z2	M	1.2	0.250	0.90	0.50	0.02	0.14	3.5	3.0	32	2
<b>NEW</b> 460.M012.Z4	M	1.2	0.250	0.90	0.50	0.02	0.14	3.5	3.0	32	4
460.M014.Z2	M	1.4	0.300	1.03	0.52	0.03	0.17	3.5	3.0	32	2
<b>NEW</b> 460.M014.Z4	M	1.4	0.300	1.03	0.52	0.03	0.17	3.5	3.0	32	4
460.M016.Z3	M	1.6	0.350	1.18	0.64	0.03	0.17	4.0	3.0	32	3
<b>NEW</b> 460.M016.Z4	M	1.6	0.350	1.18	0.64	0.03	0.20	4.0	3.0	32	4
460.M018.Z3	M	1.8	0.350	1.38	0.70	0.03	0.17	4.0	3.0	32	3
<b>NEW</b> 460.M018.Z4	M	1.8	0.350	1.38	0.70	0.03	0.20	4.0	3.0	32	4
460.M020.Z4	M	2.0	0.400	1.50	0.75	0.03	0.20	5.0	3.0	32	4
460.M025.Z4	M	2.5	0.450	1.95	1.15	0.03	0.25	6.0	3.0	32	4
460.M030.Z4	M	3.0	0.500	2.40	1.60	0.03	0.25	6.0	3.0	32	4
460.M035.Z4	M	3.5	0.600	2.80	1.80	0.03	0.32	6.0	3.0	32	4
460.M040.Z4	M	4.0	0.700	3.10	1.98	0.04	0.36	8.0	5.0	40	4
460.M050.Z4	M	5.0	0.800	4.10	2.70	0.05	0.43	9.0	5.0	40	4
460.M060.Z4	M	6.0	1.000	4.90	3.26	0.06	0.49	9.0	5.0	40	4

Einzelheit A

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )



## 462 SERIES

- Solid carbide thread whirl cutter, 1, 3 or 4-flutes, M thread type, 0° helix angle
- For wet or dry machining of non-ferrous materials
- German Patent DE 10 2008 030 100 B4: M0,6 – M6



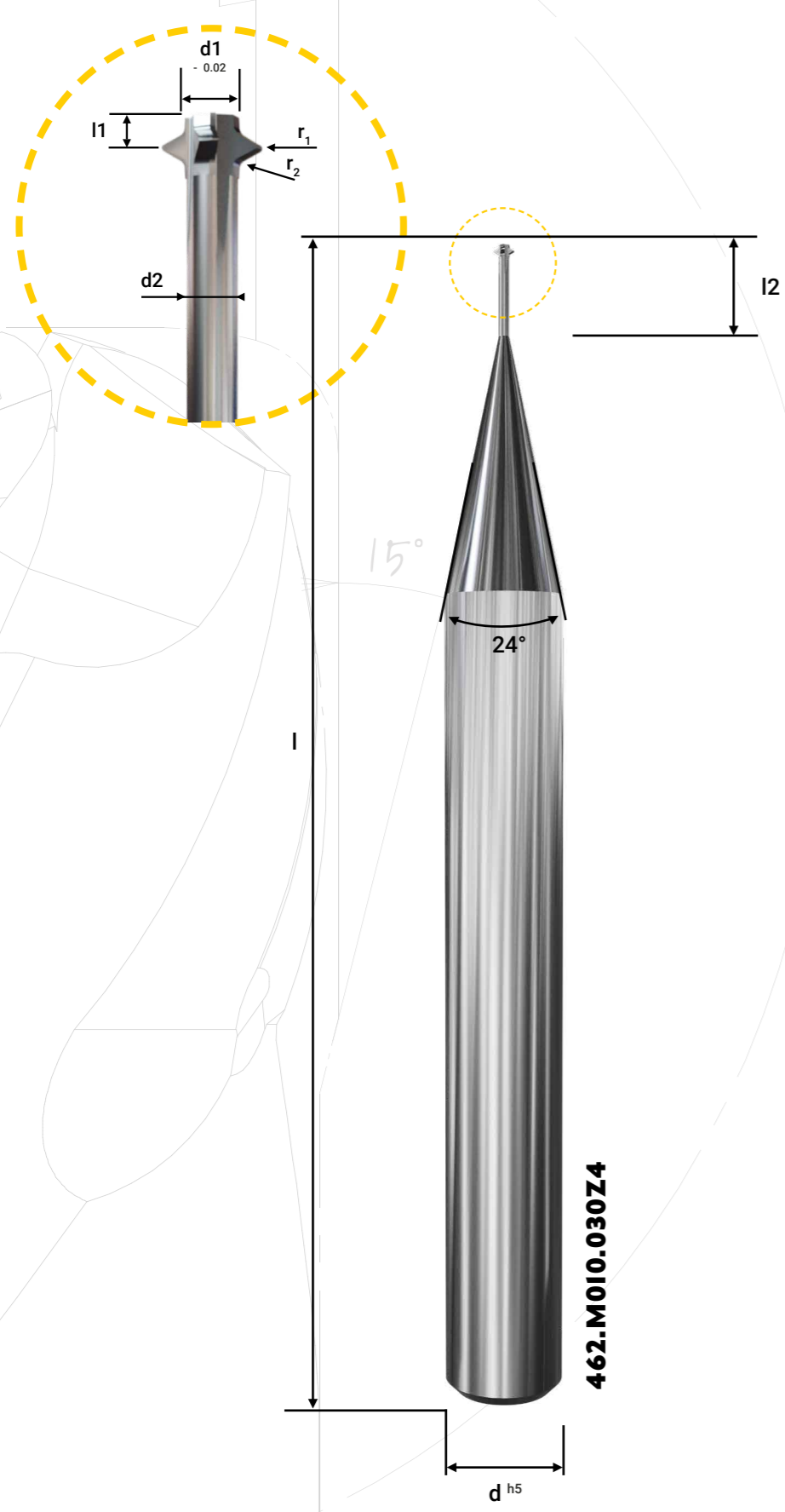
Article Number	Thread Type	Size	p	d1	d2	r1	r2	l1	l2	d	l	Z
462.M008.024Z1	M	0.8	0.200	0.53	0.26	0.010	0.05	0.16	2.4	3.0	32	1
<b>NEW</b> 462.M008.024Z4	M	0.8	0.200	0.53	0.26	0.010	0.05	0.16	2.4	3.0	32	4
462.M009.027Z1	M	0.9	0.225	0.61	0.30	0.020	0.05	0.18	2.7	3.0	32	1
<b>NEW</b> 462.M009.027Z4	M	0.9	0.225	0.61	0.30	0.020	0.05	0.18	2.7	3.0	32	4
462.M010.030Z3	M	1.0	0.250	0.68	0.34	0.020	0.06	0.20	3.0	3.0	32	3
<b>NEW</b> 462.M010.030Z4	M	1.0	0.250	0.68	0.34	0.020	0.06	0.20	3.0	3.0	32	4
462.M010.050Z3	M	1.0	0.250	0.68	0.34	0.020	0.06	0.20	5.0	3.0	32	3
<b>NEW</b> 462.M010.050Z4	M	1.0	0.250	0.68	0.34	0.020	0.06	0.20	5.0	3.0	32	4
462.M012.030Z3	M	1.2	0.250	0.88	0.54	0.020	0.06	0.20	3.0	3.0	32	3
<b>NEW</b> 462.M012.030Z4	M	1.2	0.250	0.88	0.54	0.020	0.06	0.20	3.0	3.0	32	4
462.M012.050Z3	M	1.2	0.250	0.88	0.54	0.020	0.06	0.20	5.0	3.0	32	3
<b>NEW</b> 462.M012.050Z4	M	1.2	0.250	0.88	0.54	0.020	0.06	0.20	5.0	3.0	32	4
462.M014.035Z4	M	1.4	0.300	1.03	0.63	0.020	0.06	0.24	3.5	3.0	32	4
462.M014.055Z4	M	1.4	0.300	1.03	0.63	0.020	0.06	0.20	5.5	3.0	32	4
462.M016.040Z4	M	1.6	0.350	1.17	0.71	0.025	0.06	0.28	4.0	3.0	32	4
462.M016.060Z4	M	1.6	0.350	1.17	0.71	0.025	0.06	0.28	6.0	3.0	32	4
462.M018.040Z4	M	1.8	0.350	1.37	0.91	0.025	0.06	0.28	4.0	3.0	32	4
462.M018.060Z4	M	1.8	0.350	1.37	0.91	0.025	0.06	0.28	6.0	3.0	32	4
462.M020.040Z4	M	2.0	0.400	1.52	1.00	0.030	0.06	0.32	4.0	3.0	32	4
462.M020.060Z4	M	2.0	0.400	1.52	1.00	0.030	0.06	0.32	6.0	3.0	32	4
462.M025.060Z4	M	2.5	0.450	1.96	1.39	0.030	0.06	0.36	6.0	3.0	32	4
462.M025.090Z4	M	2.5	0.450	1.96	1.39	0.030	0.06	0.36	9.0	3.0	32	4
462.M030.060Z4	M	3.0	0.500	2.41	1.77	0.036	0.06	0.40	6.0	3.0	32	4
462.M030.110Z4	M	3.0	0.500	2.41	1.77	0.036	0.06	0.40	11.0	3.0	32	4

To be continued on the next page...

# WATCHMAKING INDUSTRY

SERIES SELECTION

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$24^\circ$

**462.M010.030Z4**

$d^{h5}$



## 462 SERIES...CONTINUED

Article Number	Thread Type	Size	p	d1	d2	r1	r2	l1	l2	d	l	Z
462.M035.070Z4	M	3.5	0.600	2.80	2.04	0.046	0.06	0.48	7.0	3.0	32	4
462.M035.120Z4	M	3.5	0.600	2.80	2.04	0.046	0.06	0.48	12.0	3.0	32	4
462.M040.080S6Z4	M	4.0	0.700	3.19	2.31	0.050	0.06	0.56	8.0	6.0	64	4
462.M040.080Z4	M	4.0	0.700	3.19	2.31	0.050	0.06	0.56	8.0	5.0	40	4
462.M040.130S6Z4	M	4.0	0.700	3.19	2.31	0.050	0.06	0.56	13.0	6.0	64	4
462.M040.130Z4	M	4.0	0.700	3.19	2.31	0.050	0.06	0.56	13.0	5.0	40	4
462.M050.090S6Z4	M	5.0	0.800	4.08	3.09	0.060	0.06	0.64	9.0	6.0	64	4
462.M050.090Z4	M	5.0	0.800	4.08	3.09	0.060	0.06	0.64	9.0	5.0	40	4
462.M050.150Z4	M	5.0	0.800	4.08	3.09	0.060	0.06	0.64	15.0	5.0	40	4
462.M050.160S6Z4	M	5.0	0.800	4.08	3.09	0.060	0.06	0.64	16.0	6.0	64	4
462.M060.090S6Z4	M	6.0	1.000	4.87	3.64	0.070	0.06	0.80	9.0	6.0	64	4
462.M060.090Z4	M	6.0	1.000	4.87	3.64	0.070	0.06	0.80	9.0	5.0	40	4
462.M060.150Z4	M	6.0	1.000	4.87	3.64	0.070	0.06	0.80	15.0	5.0	40	4
462.M060.190S6Z4	M	6.0	1.000	4.87	3.64	0.070	0.06	0.80	19.0	6.0	64	4
462.M080.200Z4	M	8.0	1.250	6.10	4.00	0.080	0.06	1.30	20.0	8.0	70	4
462.M080.250Z4	M	8.0	1.250	6.10	4.00	0.080	0.06	1.30	25.0	8.0	70	4
462.M100.260Z4	M	10.0	1.500	7.75	5.20	0.100	0.06	1.50	26.0	10.0	80	4
462.M100.310Z4	M	10.0	1.500	7.75	5.20	0.100	0.06	1.50	31.0	10.0	80	4
462.M120.300Z4	M	12.0	1.750	9.50	6.51	0.110	0.22	1.75	30.0	10.0	100	4
462.M120.370Z4	M	12.0	1.750	9.50	6.51	0.110	0.22	1.75	37.0	10.0	100	4

Einzelheit A

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset$  1,57  $\pm$ 0,02)

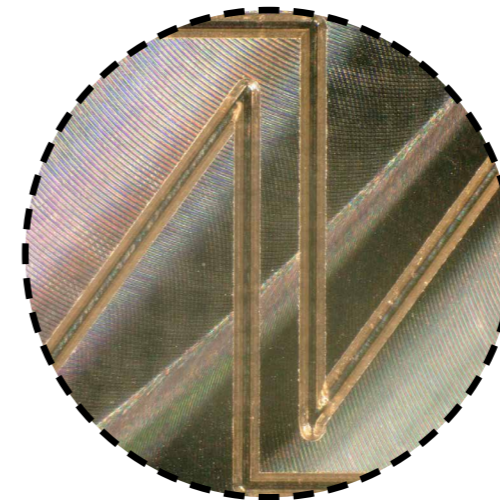


## PCD ENGRAVING TOOLS

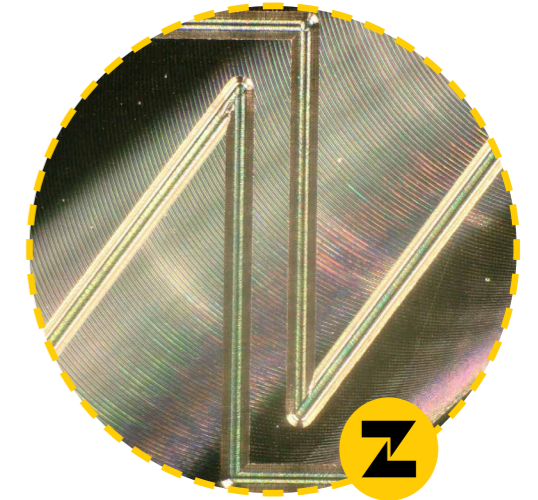
### BURR-FREE AND CLEAN CONTOURS

ZECHA's PCD engraving tools set new standards in engraving due to the combination of selected PCD substrates and advanced FEMTO laser technology. This innovative technology ensures a significantly longer lifespan compared to conventional engraving tools, burr-free engravings, and excellent contour accuracy.

By utilizing FEMTO laser technology, we can produce engraving tools with extremely tight tolerances and precise geometries. This technology guarantees sharp cutting edges and clean, consistent engravings. The burr-free results reduce the need for post-processing steps and increase efficiency.



STANDARD ENGRAVING TOOL



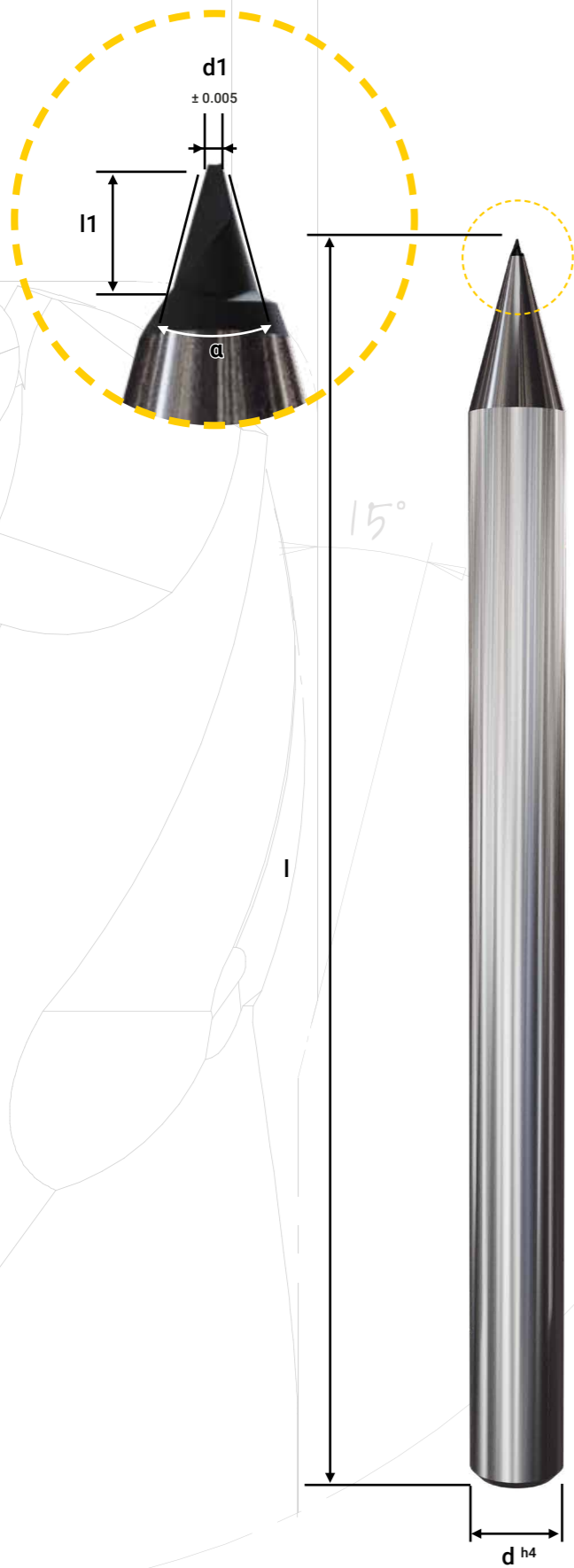
ZECHA PCD ENGRAVING TOOL

# WATCHMAKING INDUSTRY

SERIES SELECTION

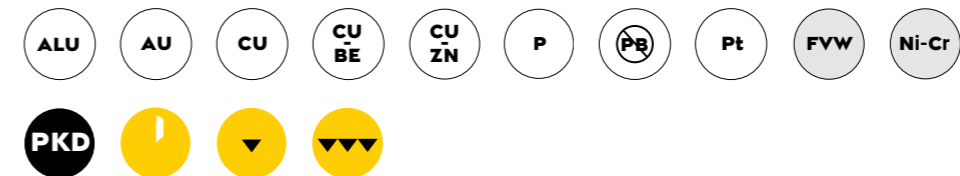
( $\emptyset 1,57 \pm 0,02$ )

NEW  
SERIES!  
ZECHA



## 490P SERIES

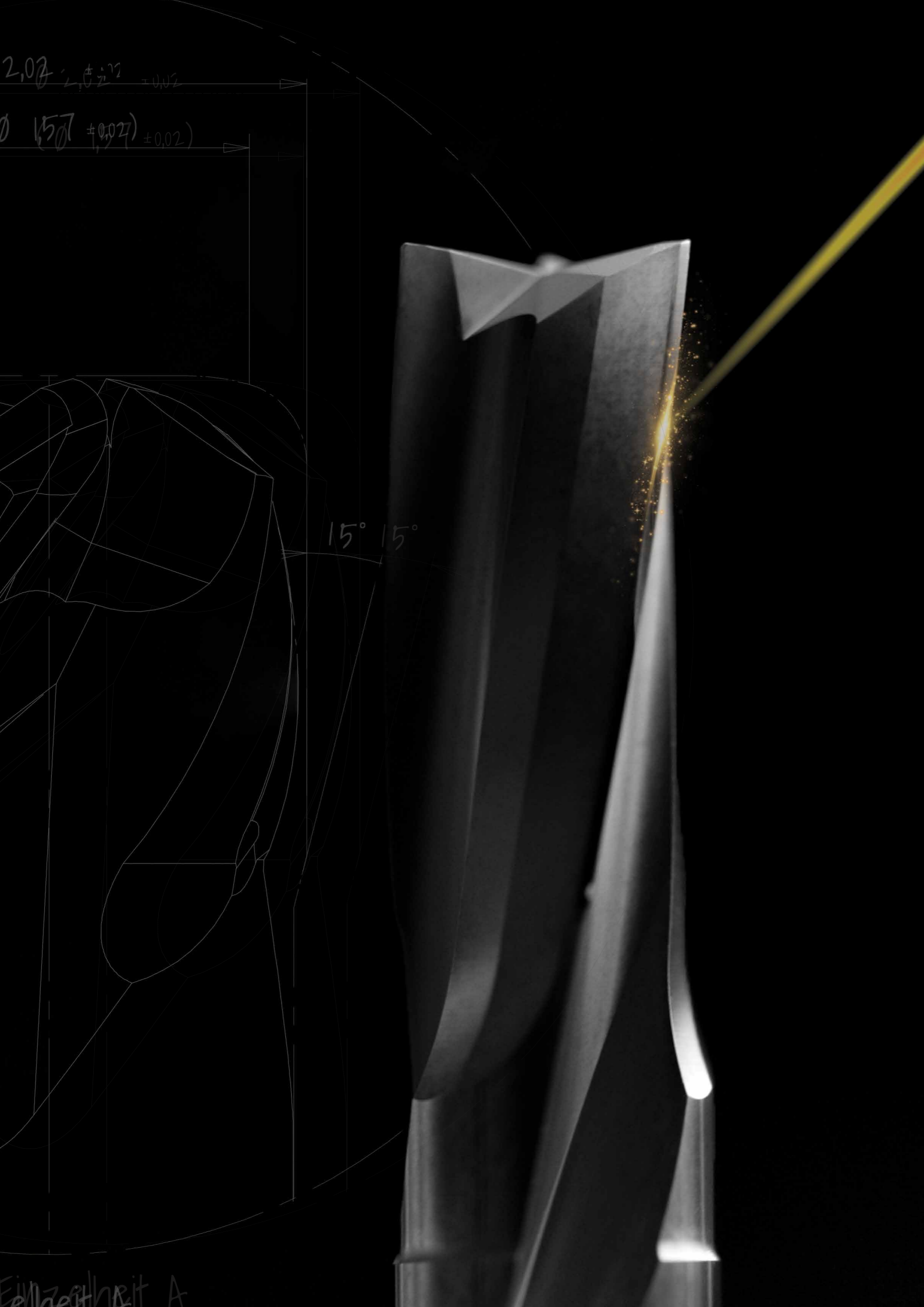
- PCD engraving tool, 1-flute, 0° helix angle
- For wet or dry machining of non-ferrous materials



Article Number	$\alpha$	d1	l1	d	l	Z
490P.030.005	30°	0.05	0.35	4.0	40	1
490P.030.008	30°	0.08	0.35	4.0	40	1
490P.030.010	30°	0.10	0.35	4.0	40	1
490P.050.005	50°	0.05	0.35	4.0	40	1
490P.050.008	50°	0.08	0.35	4.0	40	1
490P.050.010	50°	0.10	0.35	4.0	40	1
490P.060.005	60°	0.05	0.35	4.0	40	1
490P.060.008	60°	0.08	0.35	4.0	40	1
490P.060.010	60°	0.10	0.35	4.0	40	1

Einzelheit A





## NEW MICRO-IGUANAS

FROM STOCK WITH A TOTAL LENGTH OF 25 MM

The award-winning Iguana technology from ZECHA is now being expanded to meet the specific requirements of the watch industry. This innovative technology is distinguished by its laser-sharpened diamond-coated cutting edges, which are extremely precise and durable. The product line extension includes tools with a total length of 25 mm, designed to fit the ATC-E15 interface. The geometry has been designed to also allow for interpolation milling for micro-drilling. As a result, drills are replaced by these milling

cutters, saving valuable tool positions in the magazine.

With IGUANA technology, you achieve burr-free, clean cuts and an impressive surface quality even with challenging materials. Experience the precision and efficiency of IGUANA technology, which has been specially optimized for micro-CNC machining in the production of the finest watch components.

# WATCHMAKING INDUSTRY

SERIES SELECTIONS



## AWARD-WINNING TOOL SERIES

IGUANA-TECHNOLOGY WAS AWARDED THE STATE INNOVATION PRIZE 2021

The Ministry of Economic Affairs, Labor, and Housing awards the Baden-Württemberg State Innovation Prize (Dr. Rudolf Eberle Prize) annually for outstanding innovative achievements by medium-sized companies. The prize recognizes exemplary performance in the development of new products, processes, and technological services, as well as the application of modern technologies in products, manufacturing processes, and services.

In 2021, ZECHA Hartmetall-Werkzeugfabrikation GmbH was among the recipients of the State Innovation Prize for the first time, recognized for their advancements in diamond-coated micro-precision tools.

The IGUANA LASER SERIES ensures versatile applications for machining challenging materials, delivering smooth surfaces and top-notch performance.



Scan the QR code to view the highlights of our 641-hour 'IGUANA Milling Challenge'.

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset$  1,57  $\pm$ 0,02)



## IGUANA CHAMFER CUTTERS

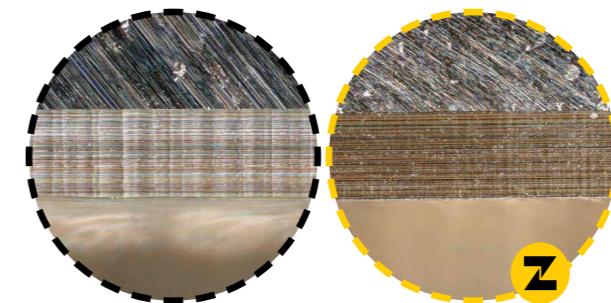
### UNIQUE AND COST-SAVING

By utilizing the latest laser machines and decades of continuous development in manufacturing processes, ZECHA has successfully transferred the unique IGUANA technology to chamfer milling cutters.

With cutting edges resharpened up to 1  $\mu$ m, very homogeneous surfaces and burr-free edges can be achieved. An additional advantage is the three cutting edges of the tools, which allow for

increased feed rates, saving valuable production time.

Due to the diamond coating used, tool wear is significantly minimized, allowing these tools to achieve extremely long lifespans. This excellent price-performance ratio helps you reduce manufacturing costs and increase productivity in your production process.



PCD-CHAMFER CUTTER (COMPETITOR) VS. IGUANA-CHAMFER CUTTER IN BRASS (ZECHA)

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# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )



905.050.090 Z3 - 25

d<sup>h5</sup>



## IGUANA 905 SERIES

- Solid carbide chamfer cutter, 3-flutes, 0° helix angle, 90° or 50° tip angle
- Two-sided laser-sharpened diamond coating
- For wet machining of non-ferrous materials
- Neck extension available upon request

ALU AU CU CU BE CU ZN FVW P Pt Ni-Cr

DIA



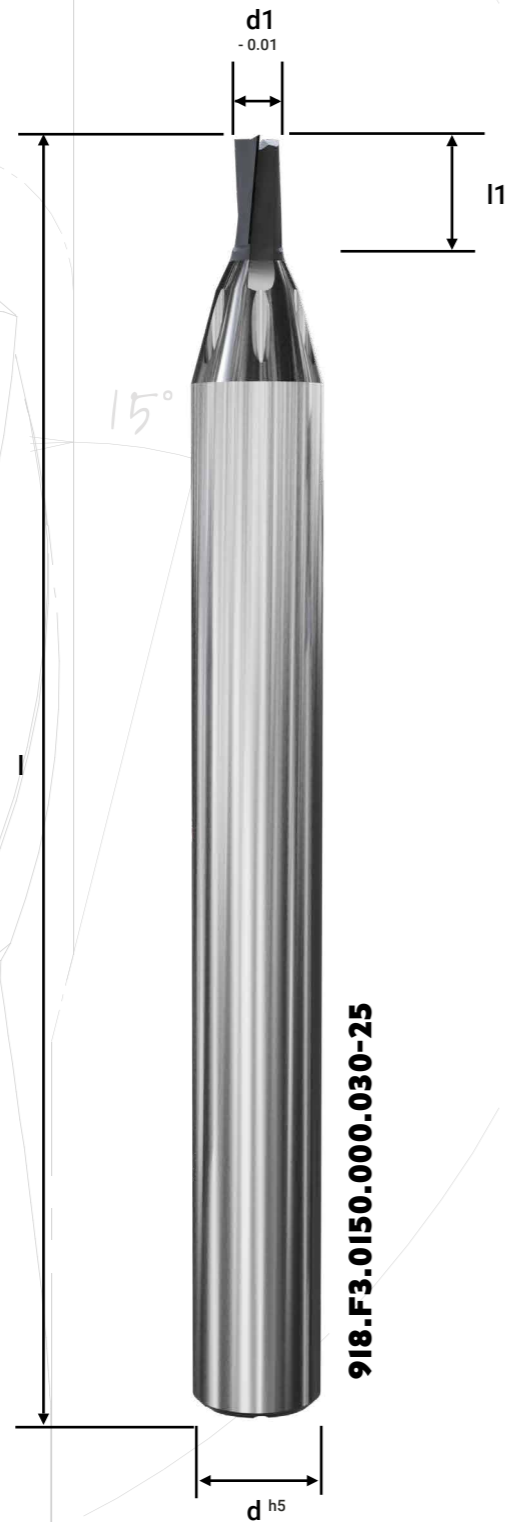
Article Number	$\alpha$	d1	d2	l1	d	l	Z
905.050.090 Z3 - 25	90°	1.5	0.50	1.60	3.0	25	3
905.050.050 Z3 - 25	50°	1.5	0.50	1.60	3.0	25	3
905.100.090 Z3 - 25	90°	2.0	1.00	2.10	3.0	25	3
905.100.050 Z3 - 25	50°	2.0	1.00	2.10	3.0	25	3

Einzelheit A

# WATCHMAKING INDUSTRY

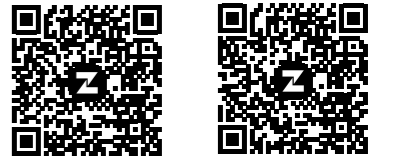
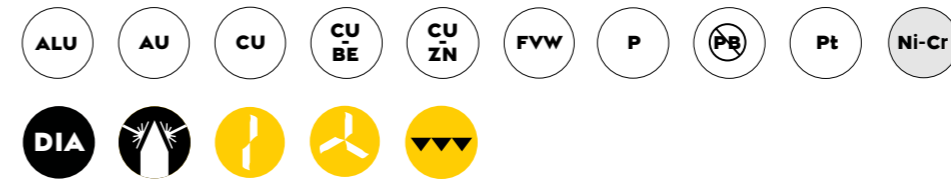
SERIES SELECTION

(Ø 1,57 ±0,02)



## IGUANA 918.F2 & 918.F3 SERIES

- Solid carbide end mill, 2 or 3-flutes with 5° inclination and shank coolant channels
- Two-sided laser-sharpened diamond coating
- For wet finishing of non-ferrous materials
- Neck extension available upon request



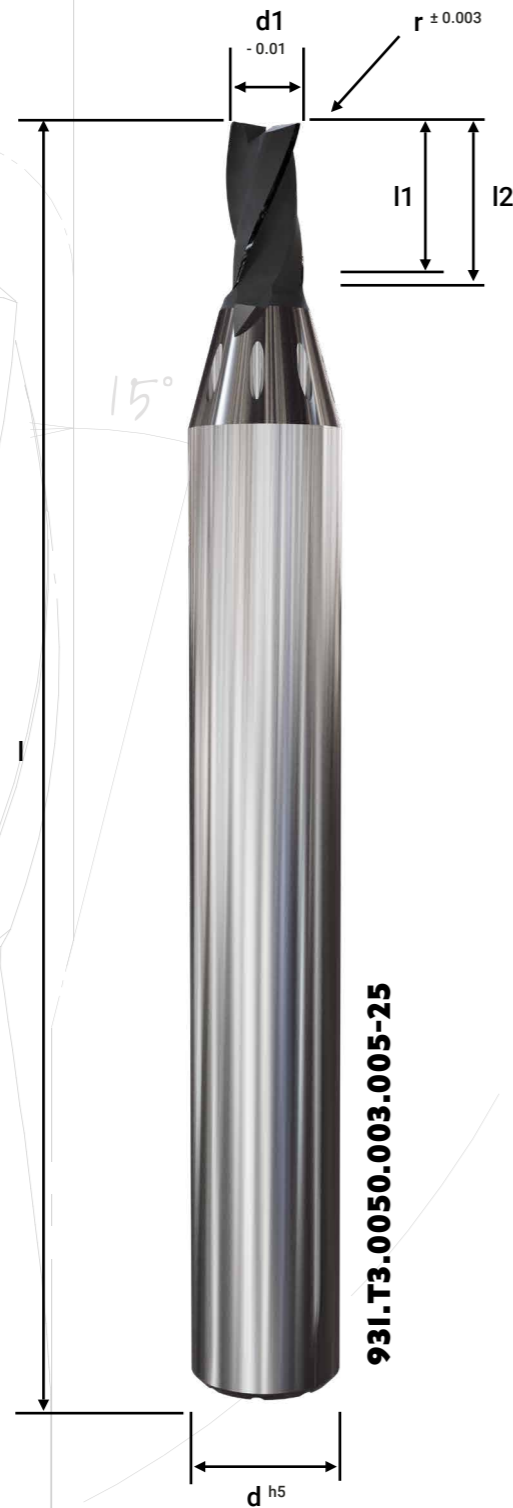
Article Number	d1	l1	d	l	Z	Inclination Angle				
						30'	1°	1° 30'	2°	3°
918.F2.0030.000.006-25	0.3	0.6	4.0	25	2	0.66	0.71	0.75	0.79	0.85
918.F3.0040.000.008-25	0.4	0.8	4.0	25	3	1.11	1.27	1.41	1.53	1.75
918.F3.0050.000.010-25	0.5	1.0	4.0	25	3	1.34	1.51	1.66	1.79	2.02
918.F3.0070.000.014-25	0.7	1.4	4.0	25	3	1.80	1.99	2.15	2.29	2.55
918.F3.0080.000.016-25	0.8	1.8	4.0	25	3	2.02	2.22	2.39	2.54	2.80
918.F3.0100.000.020-25	1.0	2.0	4.0	25	3	2.46	2.68	2.86	3.02	3.30
918.F3.0120.000.024-25	1.2	2.4	4.0	25	3	2.90	3.14	3.33	3.50	3.80
918.F3.0150.000.030-25	1.5	3.0	4.0	25	3	3.56	3.81	4.02	4.20	4.52
918.F3.0160.000.032-25	1.6	3.2	4.0	25	3	3.77	4.04	4.25	4.43	4.76
918.F3.0200.000.040-25	2.0	4.0	4.0	25	3	4.63	4.92	5.15	5.35	5.70
918.F3.0300.000.060-25	3.0	6.0	6.0	25	3	6.07	6.20	6.33	6.47	6.76

Einzelheit A

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset 1,57 \pm 0,02$ )

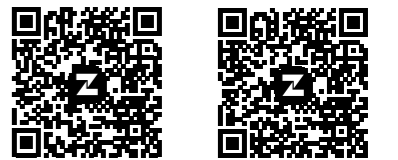
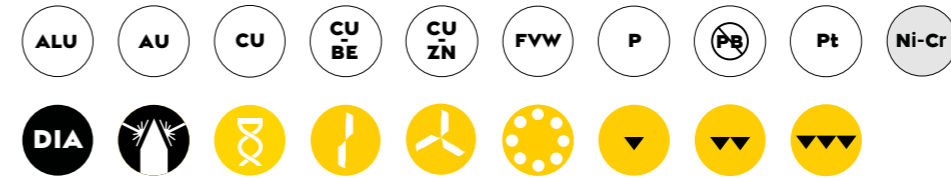


931.T3.0050.003.005-25



## IGUANA 931.T2 & 931.T3 SERIES

- Solid carbide end mill with corner radius, 2 or 3 flutes with shank coolant channels and 25° helix angle
- Two-sided laser-sharpened diamond coating
- For wet roughing, semi-finishing, or finishing of non-ferrous materials
- Neck extension available upon request



Article Number	d1	r	l1	l2	d	l	Z	Inclination angle				
								30'	1°	1° 30'	2°	3°
931.T2.0030.003.006-25	0.3	0.03	0.6	0.6	4.0	25	2	0.70	0.78	0.85	0.90	1.01
931.T2.0030.003.025-25	0.3	0.03	0.3	2.5	4.0	25	2	2.94	3.04	3.12	3.20	3.35
931.T3.0040.003.008-25	0.4	0.03	0.8	0.8	4.0	25	3	0.93	1.01	1.08	1.15	1.26
931.T3.0040.003.030-25	0.4	0.03	0.4	3.0	4.0	25	3	3.45	3.57	3.66	3.75	3.90
931.T3.0050.003.010-25	0.5	0.03	1.0	1.0	4.0	25	3	1.47	1.58	1.66	1.74	1.87
931.T3.0050.003.035-25	0.5	0.03	0.5	3.5	4.0	25	3	3.97	4.09	4.20	4.29	4.35
931.T3.0080.003.016-25	0.8	0.03	1.6	1.6	4.0	25	3	2.12	2.24	2.34	2.42	2.57
931.T3.0080.003.035-25	0.8	0.03	1.2	3.5	4.0	25	3	3.97	4.09	4.20	4.29	4.35
931.T3.0100.003.020-25	1.0	0.03	2.0	2.0	4.0	25	3	2.54	2.68	2.78	2.87	3.03
931.T3.0100.005.040-25	1.0	0.05	2.0	4.0	4.0	25	3	4.49	4.62	4.73	4.83	4.98
931.T3.0120.003.024-25	1.2	0.03	2.4	2.4	4.0	25	3	2.86	3.00	3.11	3.21	3.37
931.T3.0120.005.040-25	1.2	0.05	2.4	4.0	4.0	25	3	4.49	4.62	4.73	4.83	4.98
931.T3.0150.003.030-25	1.5	0.03	3.0	3.0	4.0	25	3	3.49	3.65	3.77	3.87	4.04
931.T3.0200.005.040-25	2.0	0.05	4.0	4.0	4.0	25	3	4.54	4.71	4.85	4.96	5.19
931.T3.0300.005.050-25	3.0	0.05	5.0	5.0	6.0	25	3	6.62	6.83	6.98	7.11	7.69
931.T3.0400.005.060-25	4.0	0.05	6.0	6.0	6.0	25	3	8.86	8.92	9.09	9.40	10.19

Einzelheit A

# WATCHMAKING INDUSTRY

SERIES SELECTION

( $\emptyset$  1,57  $\pm$ 0,02)



## SEE IT IN ACTION

### PRECISION IN WATCHMAKING

Experience the impressive performance of our optimized tool series firsthand. Scan the QR code below to watch a video on the ZECHA YouTube channel, showcasing our tools milling a high-precision watch component.



# WATCHMAKING INDUSTRY

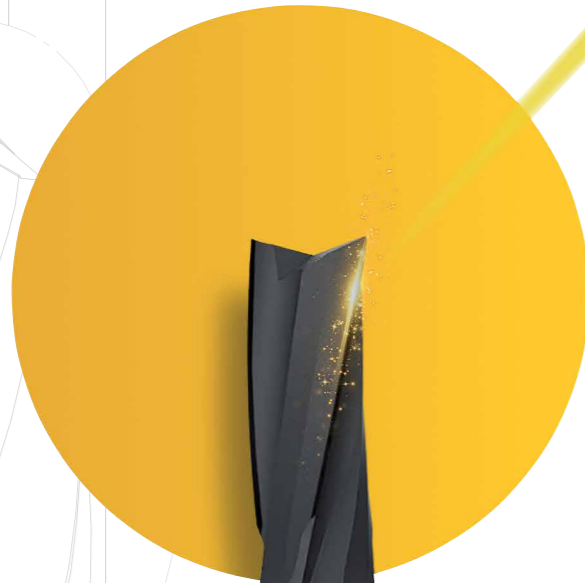
SERIES SELECTION

(∅ 1,57 ±0,02)



# ZECHA

*außergewöhnlich.*



## THE NEW ZECHA BRANDING

Over the years, brands consistently evolve and transform to meet the changing needs and preferences of their consumers. In the competitive landscape of 2024, ZECHA is poised to introduce its new brand identity, marking a significant milestone in its journey. The unveiling of the ZECHA branding represents a culmination of the brand's growth and commitment to excellence.

At the core of the new ZECHA logo lies a perfect circle, which symbolizes the meticulous process of the first step in the process of making all tools at ZECHA, which is grinding tools into flawless cylinders. This iconic image embodies ZECHA's dedication to precision and quality. It signifies the brand's unwavering pursuit of perfection, ensuring

that every tool manufactured by ZECHA is perfectly concentric, guaranteeing superior performance.

In the new branding, ZECHA also integrates the word "außergewöhnlich" into various visuals. Derived from the German language, "außergewöhnlich" translates to "extraordinary" in English. This carefully chosen word encapsulates the overarching goal of every product created by ZECHA. It signifies the brand's commitment to delivering exceptional tools that surpass expectations and set new standards within the industry.

The ZECHA logo through the years:



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# WATCHMAKING INDUSTRY

SERIES SELECTION

(∅ 1,57 ±0,02)

## SERIES OVERVIEW

Among the watch series options, various versions are available. Here, you will find a brief explanation of the different tool series, along with relevant symbols indicating their properties and usage recommendations. Additional information about the series and a legend for the symbols can be found on the following pages.

Series	Suitable Materials												Suitable Machining Processes						Coating/Cutting material		Tool Design								
	Aluminum	Fiber-Reinforced Materials	Gold	Copper	Copper-Beryllium	Plastics	Brass	Brass (LeadFree)	Nickel-chromium Alloys	Platinum	Stainless Steel	Titanium	< 1.000 N/mm² Steel	Drilling	Roughing	Pre-Finishing	Finishing	Dry	Wet	PCD	DIA	Geometry	Flutes	Center cutting	Inclined cutting edges	Helix Flutes	Shank coolant channels	Measurement protocol	
459	xx		x	x	x	x	x	x	x	x	xx	xx	xx		x	x	x	x	xx			Thread	1,3,4						
459.P	xx		xx	xx	xx	xx	xx	xx	x	xx					x	x	x	x	xx	x		Thread	3,4					x	
460	xx		x	x	x	x	x	x		x	x	x	x		x	x	x	x	xx			Thread	1,2,3,4						
462	xx		x	xx	x	x	x	x		x	xx	xx	xx		x	x	x	x	xx			Thread	1,3,4						
462.P	xx		xx	xx	xx	xx	xx	xx	x	xx					x	x	x	x	xx	x		Thread	4					x	
490.P	xx	x	xx	xx	xx	xx	xx	xx	x	xx					x	x	x	x	xx	x		Engraver	1					x	
905	xx	xx	xx	xx	xx	xx	xx	xx	x	xx					x	x	x		xx		x	Chamfer	3	x				x	
918.F	xx	xx	xx	xx	xx	xx	xx	xx	x	xx							x		xx		x	Square	2,3	x	x		x	x	
931.T	xx	xx	xx	xx	xx	xx	xx	xx	x	xx					x	x	x		xx		x	Toric	2,3	x		x	x	x	

<sup>1</sup> „xx“ indicates that it is optimally designed for processing this material. „x“ indicates that it also works in this material

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# WATCHMAKING INDUSTRY

## SERIES SELECTION

(Ø 1,57 ±0,02)

### ICON LEGEND

- Icons representing primary recommended materials
- Icons representing secondary recommended materials
- Icons representing the tool coating
- Icons representing the tool design properties
- Icons representing the indication types of the tool

### ICONS

#### Material Icons

<b>ALU</b> ALUMINUM	<b>AU</b> GOLD	<b>CU</b> COPPER	<b>CU-BE</b> COPPER-BERYLLIUM	<b>CU-ZN</b> BRASS	<b>FYW</b> FIBER-REINFORCED MATERIALS	<b>P</b> PLASTICS	<b>PB</b> LEAD-FREE NON-FERROUS METALS
<b>Pt</b> PLATINUM	<b>INOX</b> STAINLESS STEEL	<b>CG</b> CASTING	<b>Ni-Cr</b> NICKEL-CHROME ALLOYS	<b>Ti</b> TITANIUM	<b>U</b> < 1.000 N/MM² STEEL		

#### Coating

<b>DIA</b> DIAMOND COATING	<b>PKD</b> POLYCRYSTALLINE DIAMOND (PCD)
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#### Tool Properties

<b>1-FLUTE</b>	<b>2-FLUTE</b>	<b>3-FLUTE</b>	<b>4-FLUTE</b>	<b>SHAFT COOLING</b>	<b>HELIX FLUTES</b>
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#### Recommended Use

<b>ROUGHING</b>	<b>PRE-FINISHING</b>	<b>FINISHING</b>
-----------------	----------------------	------------------

### FURTHER INFO

Safety instructions:

1. For optimal machining results with our mills and drills, wet machining is recommended; dry machining is suitable only under certain conditions.
2. Keep the temperature low during the use of our mills and drills by ensuring constant cooling to maintain performance and safety.
3. Always follow the specific usage recommendations for our mills and drills per series to ensure optimal results and safety.
4. High concentricity accuracy of the machine is essential for the safe and efficient use of our mills and drills.

### AWARD-WINNING: AWARDS FOR OUTSTANDING PERFORMANCE

Only with motivated, positive thinking and independent personalities can a company exist and grow together on new challenges. ZECHA is proud of all its employees for their tireless commitment, passion for progress and willingness to actively contribute to innovation. The awards are the result of creative collaboration and a tribute to the industry.



#### INNOVATION AWARD OF THE STATE OF BADEN-WÜRTTEMBERG

In 2021, ZECHA Hartmetall-Werkzeugfabrikation GmbH was awarded the Innovation Prize of the State of Baden-Württemberg for the first time. The prize was awarded for the development of a tool family with diamond-coated micro-precision tools that offer outstanding performance in machining the most demanding materials with smooth surfaces. These achievements set new standards worldwide in the field of precision tools.



#### TOP 100-AWARD

With its outstanding innovation management, ZECHA Hartmetall-Werkzeugfabrikation GmbH receives the TOP 100 seal 2023, an award that is only given to particularly innovative medium-sized companies. The competition is based on a scientific selection process. The decisive factor is whether a company's innovations are random or systematically planned and will be repeatable in the future.

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## **VIEW PROOF**<sup>μ.0</sup>

### NEW OPTICAL PROOFING DEVICES

For the demanding production of watch components, utmost precision and reliability are essential. The C-VIEW PROOF by Cimtrode is the ideal solution to meet these requirements. As ZECHA Hartmetall-Werkzeugfabrikation GmbH, we highly recommend this state-of-the-art optical proofing machine, which perfectly complements our precision tools.

The C-VIEW PROOF offers intuitive operation, enabling you to perform micron-accurate measurements of tool contours and diameters, as well as concentricity and tool length in the clamped HSK state. Equipped with a spindle with less than 1 μm runout, advanced LED lighting, and innovative C-VIEW software, it allows for precise optical analyses and image comparison analyses to evaluate new or used tools.

Particularly noteworthy is the addition of the high-precision HSK15 spindle, specifically designed for the holders of smaller tools used in micro-machining within the watchmaking industry. This feature allows you to easily determine the exact tool length, including the holder, outside of your machine. This makes the C-VIEW PROOF an indispensable instrument for tool presetting in micro-machining applications.

By integrating the C-VIEW PROOF into your production process, you not only enhance accuracy but also increase the efficiency of your manufacturing. Trust in the combination of ZECHA precision tools and the C-VIEW PROOF for outstanding results in watchmaking.



Scan the QR code to watch a video on the Cimtrode YouTube channel that explains the various technical aspects and shows the machine in action.

Ø 2,02 ±0,02

(Ø 1,57 ±0,02)



# ZECHA'S COMMITMENT TO EXCELLENCE

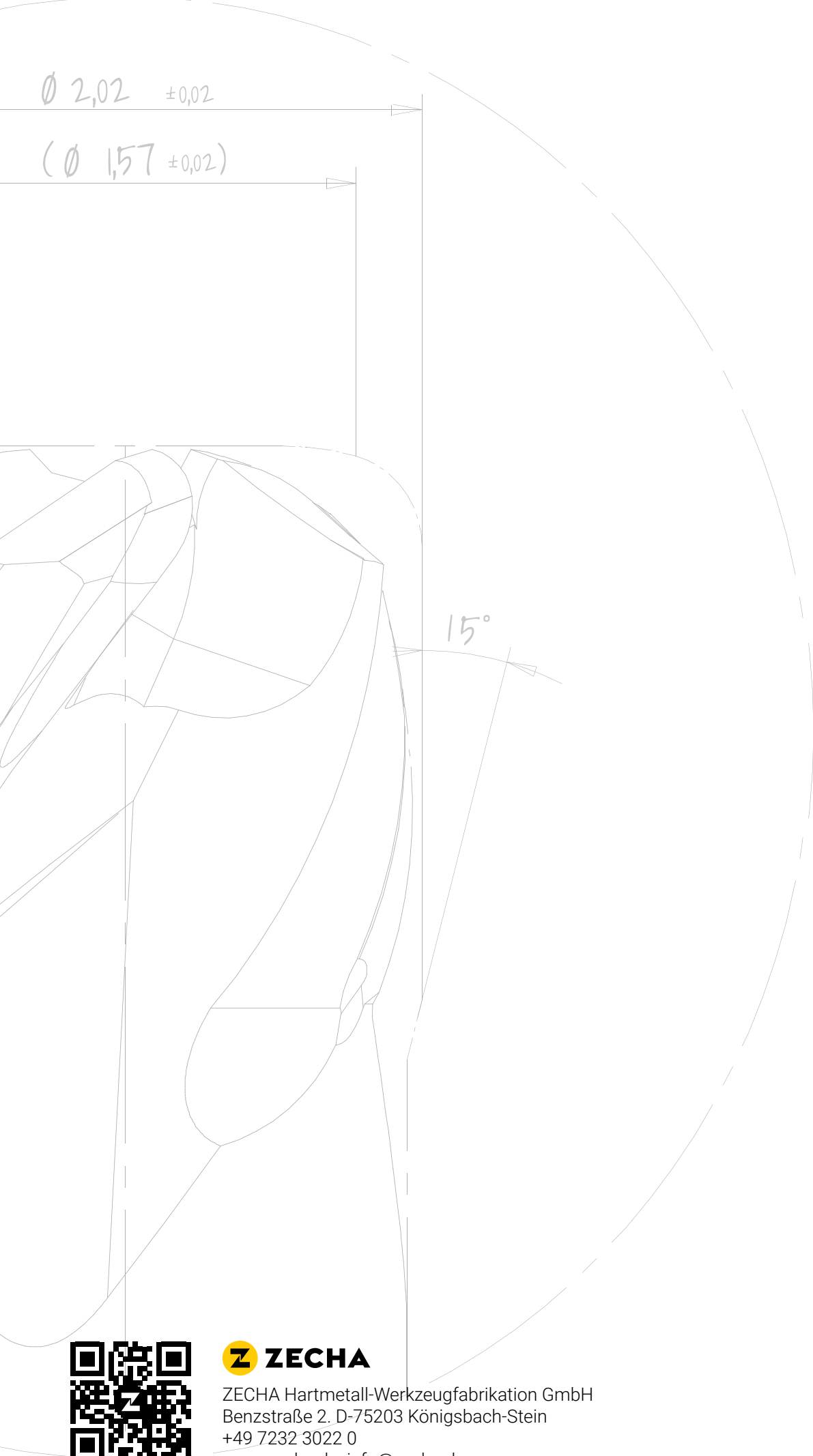
## OVER HALF A CENTURY OF PRECISION

ZECHA Hartmetall-Werkzeugfabrikation GmbH is a precision tool manufacturer that has been in Baden-Württemberg, Germany for nearly 60 years. With a focus on manufacturing high quality micro tools, we pride ourselves on providing our customers with the highest level of precision and consistency in our products. Our state-of-the-art manufacturing and measurement technologies allow us to maintain the highest quality standards and ensure that our tools meet our customers' needs.

With a focus on innovation and the constant research of new technologies, we improve the precision and efficiency of our tools. This philosophy allows us to stay at the forefront of the industry and provide our customers with state-of-the-art solutions for their tooling needs.



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