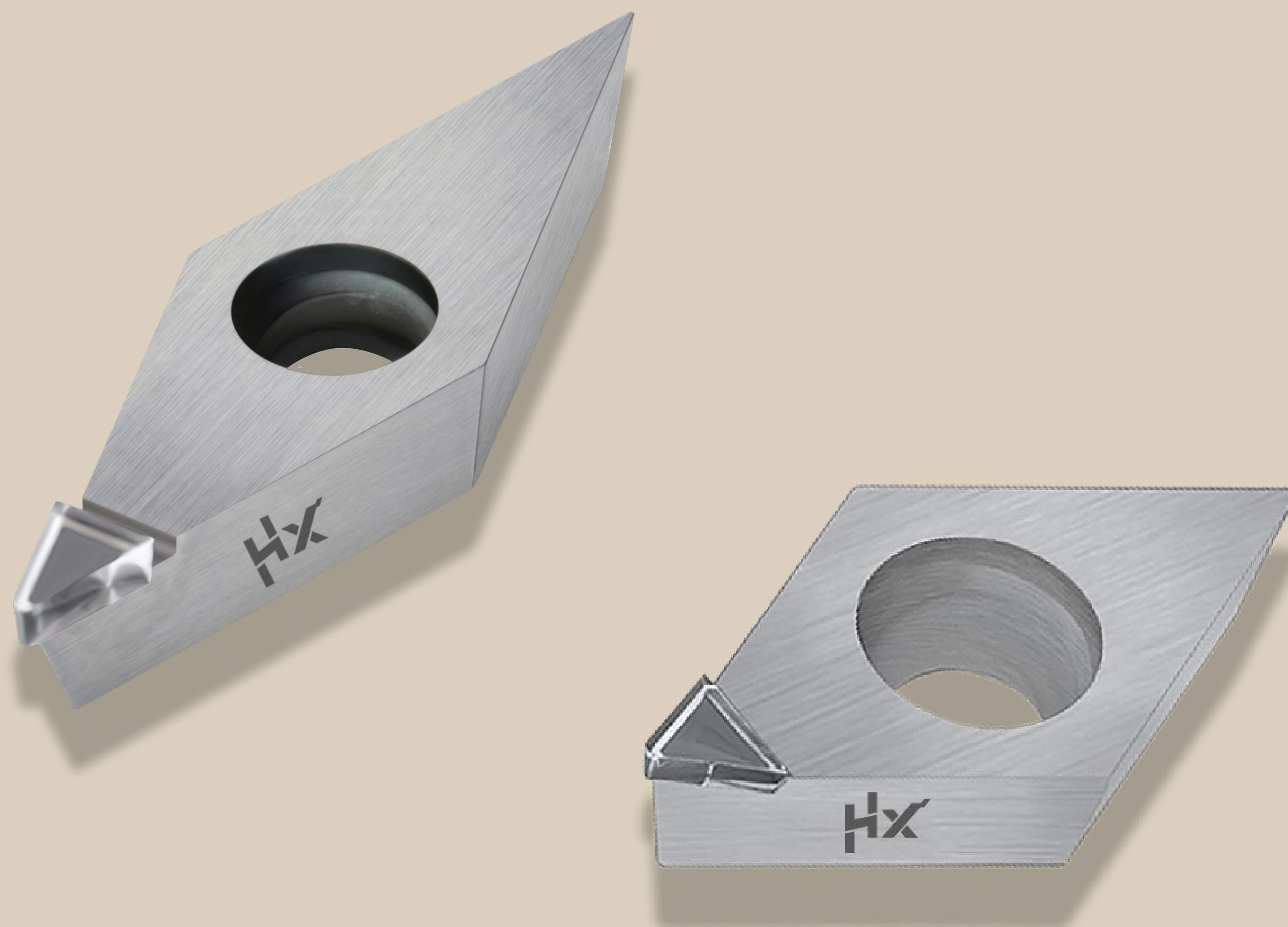


# SCD ISO INSERTS

INDIA'S PIONEERING MANUFACTURER OF  
PRECISION DIAMOND CUTTING TOOLS



WE SPECIALIZE IN TOOLS CRAFTED  
FROM SINGLE-CRYSTAL DIAMONDS.

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At **Hardten Precision Technologies**, we understand the critical role that precision plays in various industries. We provide high-quality solutions that meet the most demanding requirements of our customers. With our expertise in working with Lab-grown diamonds, which are meticulously developed and perfected at the Hardten Research Centre, we bring forth a new era of excellence in the field of precision technology.

Our comprehensive range of SCD diamond tools offers unrivalled precision and performance. We pride ourselves on our ability to deliver tools with a range of cutting edge waviness options, from un-controlled (2000-900nm), Semi-controlled (900-200nm), Controlled (200-50nm) and Ultra-Controlled (<50nm) waviness in the precise cutting edges. These tools empower our clients to achieve exceptional accuracy, efficiency, and reliability in their operations, regardless of their industry.

HARDTEN serves a diverse range of industries, including aerospace, automotive, electronics, medical, and more. We understand the unique challenges faced by each sector and tailor our precision technologies to suit their specific needs. Whether you require advanced cutting tools for intricate aerospace components or ultra-precise diamond tooling for medical device manufacturing, we have the expertise and capabilities to meet your requirements.

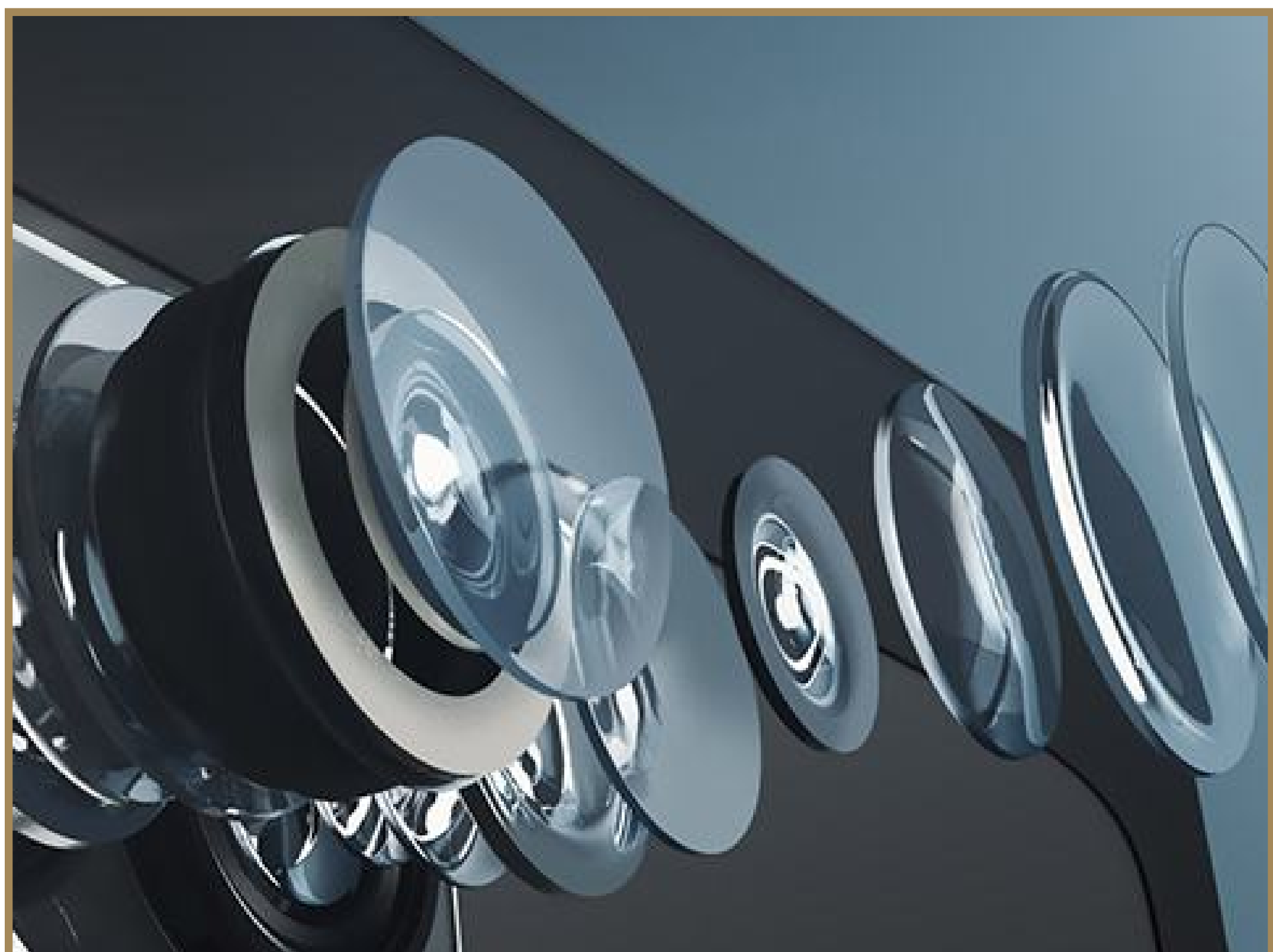


At HARDTEN, we believe in building long-lasting partnerships with our customers. We prioritize customer satisfaction and are committed to providing exceptional service, technical support, and customized solutions. Our team of experts is always ready to assist you throughout your journey with us, ensuring that you receive the utmost value from our precision technologies.

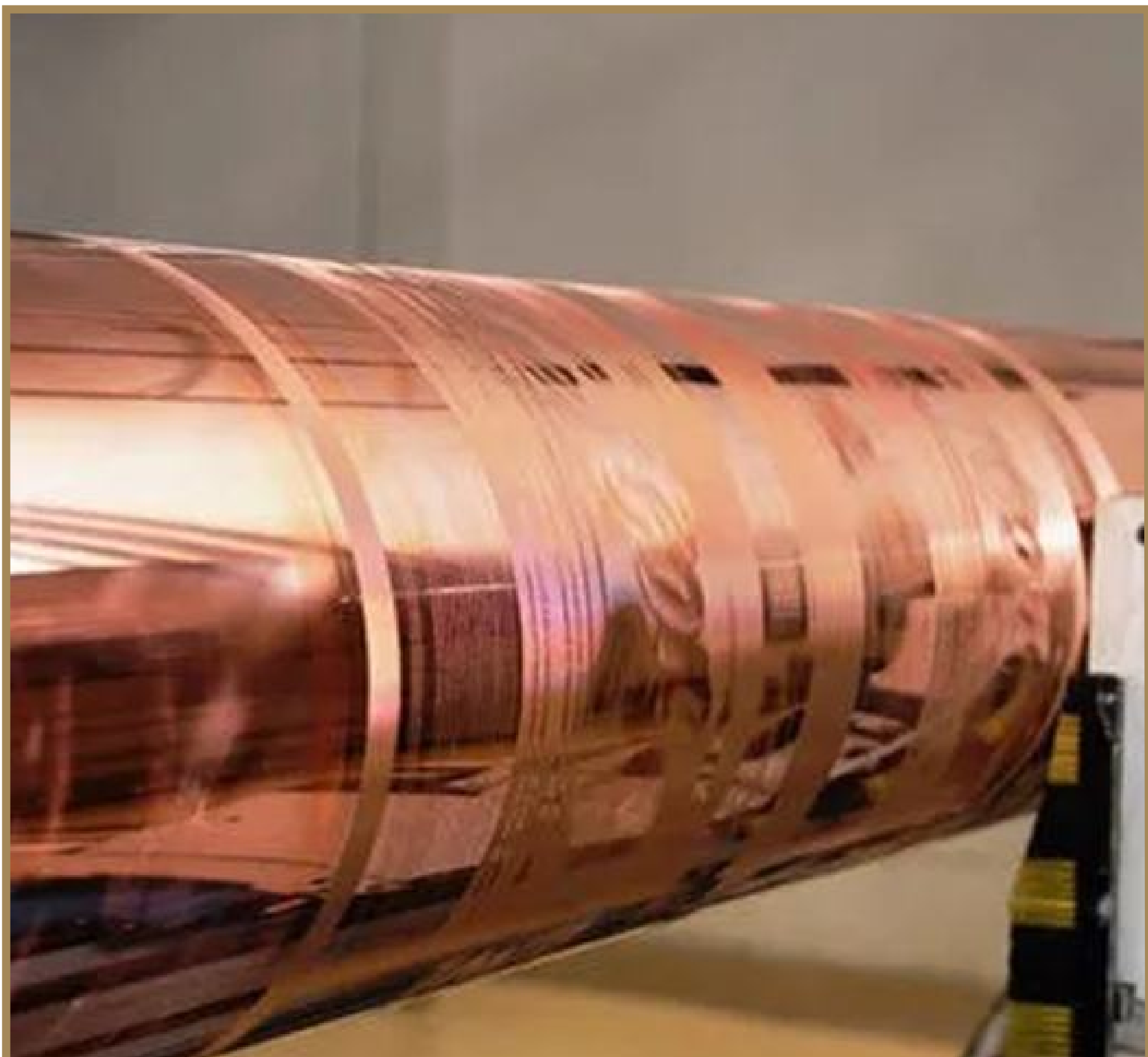
Experience the future of precision with Hardten Precision Technologies Pvt Ltd. JOIN US in revolutionizing industries and unlocking new possibilities with our ultra-precise diamond tools. Together, let us shape a world of unparalleled accuracy and efficiency!



Ophthalmic



Electro-Optics



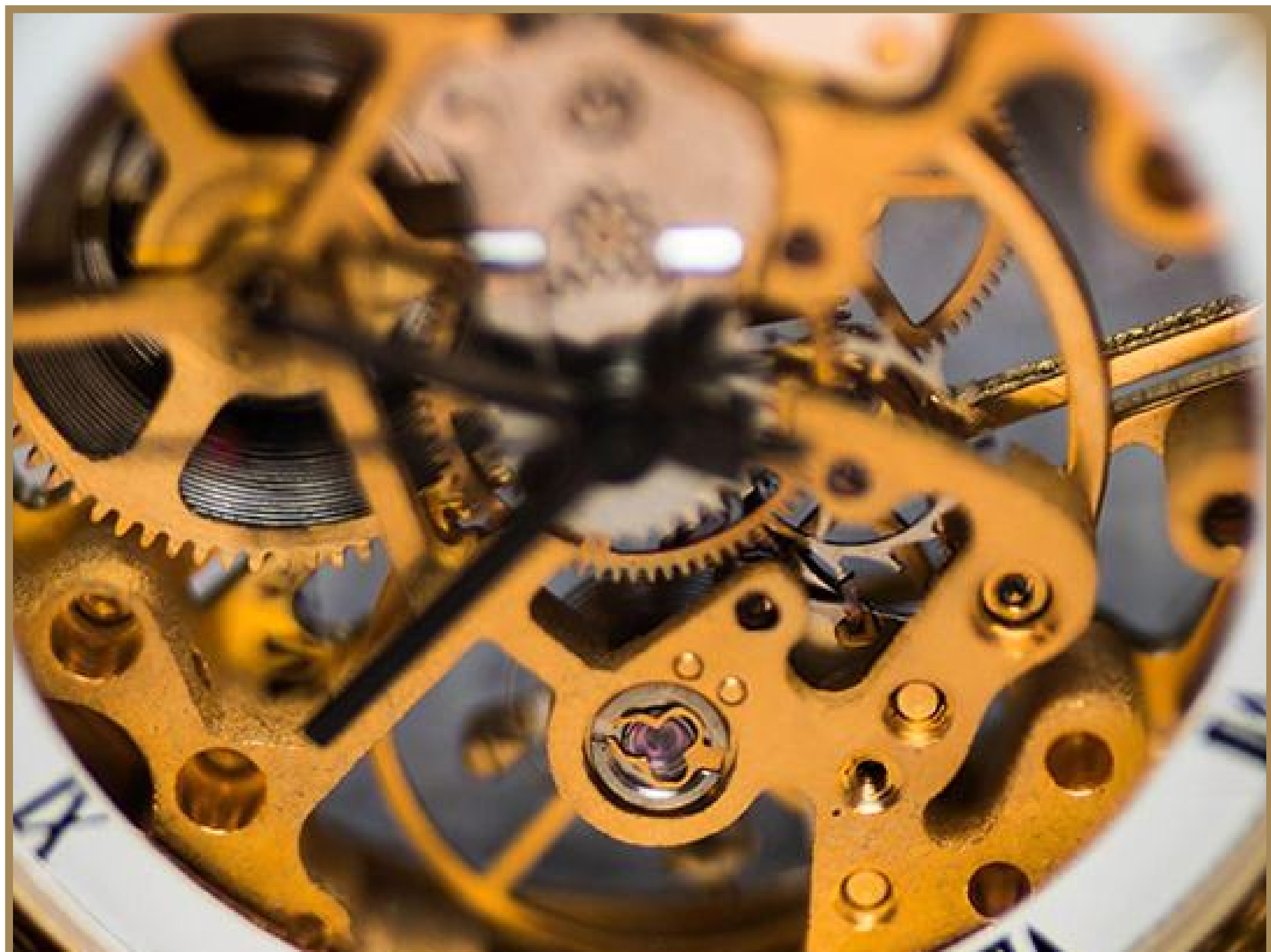
Rotogravure



Aerospace



Automotive



Watch & Jewellery



Space & Defence

|   |  |   |  |   |         |
|---|--|---|--|---|---------|
| H |  | D |  | L |         |
| O |  | E |  | A |         |
| P |  | F |  | B |         |
| S |  | M |  | K |         |
| T |  | V |  | R |         |
| C |  | W |  | X | Special |

1 - Insert Shape Symbol

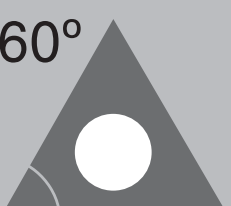
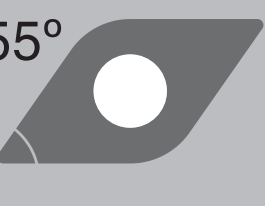
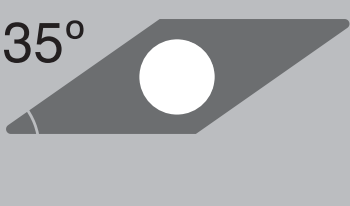
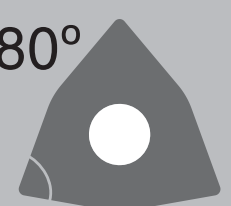
|   |  |   |                       |
|---|--|---|-----------------------|
| A |  | F |                       |
| B |  | G |                       |
| C |  | N |                       |
| D |  | P |                       |
| E |  | O | Other clearance angle |

2 - Normal Clearance Symbol

ISO **D** **C** **G** **W**

| 3 - Tolerance Symbol                                     |                 |                 |         |
|----------------------------------------------------------|-----------------|-----------------|---------|
|                                                          |                 |                 |         |
| Triangular inserts with a facet (secondary cutting edge) |                 |                 |         |
| Symbol                                                   | m (mm)          | d (mm)          | s (mm)  |
| A                                                        | ± 0.005         | ± 0.025         | ± 0.025 |
| F                                                        | ± 0.005         | ± 0.013         | ± 0.025 |
| C                                                        | ± 0.013         | ± 0.025         | ± 0.025 |
| H                                                        | ± 0.013         | ± 0.013         | ± 0.025 |
| E                                                        | ± 0.025         | ± 0.025         | ± 0.025 |
| G                                                        | ± 0.025         | ± 0.025         | ± 0.13  |
| J                                                        | ± 0.005         | ± 0.05 ~ ± 0.13 | ± 0.025 |
| K*                                                       | ± 0.013         | ± 0.05 ~ ± 0.13 | ± 0.025 |
| L*                                                       | ± 0.013         | ± 0.05 ~ ± 0.13 | ± 0.025 |
| M*                                                       | ± 0.08 ~ ± 0.20 | ± 0.05 ~ ± 0.13 | ± 0.13  |
| N*                                                       | ± 0.08 ~ ± 0.20 | ± 0.05 ~ ± 0.13 | ± 0.025 |
| U*                                                       | ± 0.13 ~ ± 0.38 | ± 0.08 ~ ± 0.25 | ± 0.13  |

| 4 - Insert Symbol |              |                                       |            |
|-------------------|--------------|---------------------------------------|------------|
| Symbol            | Type         | Holetype                              | Shape      |
| W                 | with hole    | Round hole one counters ink (40°~60°) |            |
| T                 |              |                                       |            |
| A                 | with hole    | Round hole                            |            |
| M                 |              |                                       |            |
| G                 | with hole    | round hole                            |            |
| N                 | without hole | -                                     |            |
| R                 |              | -                                     |            |
| X                 |              | -                                     | on request |

|  90°<br>S's |  60°<br>T's |  80°<br>C's |  55°<br>D's |  35°<br>V's |  80°<br>W's | <br>R's | Inner circle<br>IC (mm) | ANSI |
|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------|------|
| 06                                                                                           | 11                                                                                           | 06                                                                                           | 07                                                                                           | 11                                                                                            | -                                                                                              | -                                                                                          | 6.35                    | 2    |
| 07                                                                                           | -                                                                                            | -                                                                                            | -                                                                                            | -                                                                                             | -                                                                                              | -                                                                                          | 7.94                    | 2.5  |
| 09                                                                                           | 16                                                                                           | 09                                                                                           | 11                                                                                           | 16                                                                                            | 06                                                                                             | 09 (00)                                                                                    | 9.525                   | 3    |
| 12                                                                                           | 22                                                                                           | 12                                                                                           | 15                                                                                           | 22                                                                                            | 08                                                                                             | 12 (00)                                                                                    | 12.7                    | 4    |
| 15                                                                                           | -                                                                                            | 16                                                                                           | -                                                                                            | -                                                                                             | -                                                                                              | -                                                                                          | 15.875                  | 5    |
| 19                                                                                           | -                                                                                            | 19                                                                                           | -                                                                                            | -                                                                                             | -                                                                                              | -                                                                                          | 19.05                   | 6    |
| 25                                                                                           | -                                                                                            | 25                                                                                           | -                                                                                            | -                                                                                             | -                                                                                              | -                                                                                          | 25.4                    | 8    |
| 5 - Insert Size Symbol                                                                       |                                                                                              |                                                                                              |                                                                                              |                                                                                               |                                                                                                |                                                                                            |                         |      |

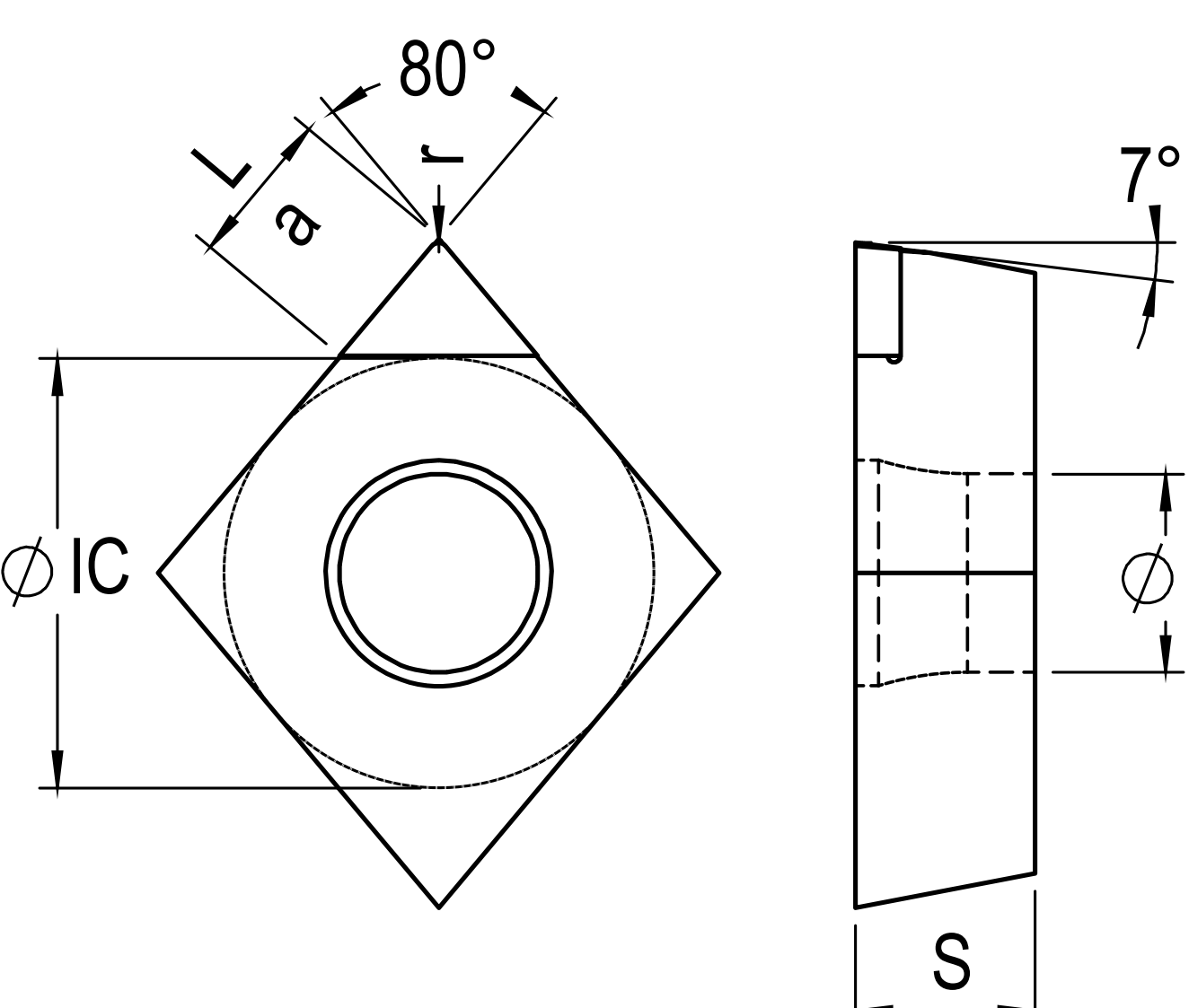
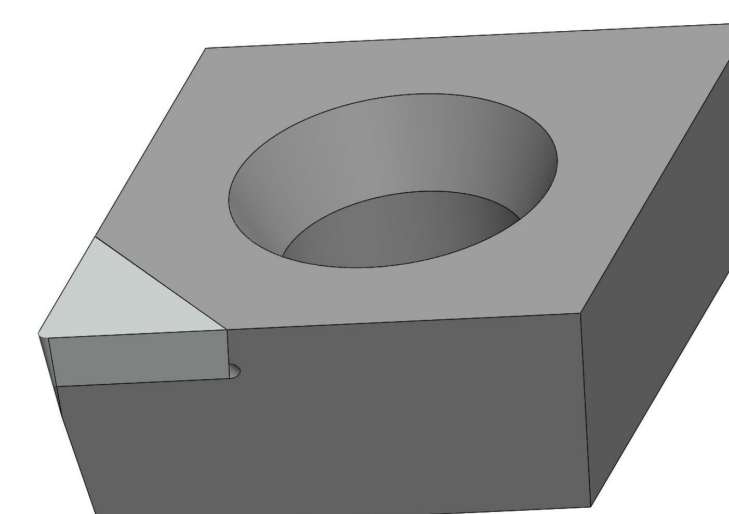
ISO 11 T3 04

| ISO | mm    | ANSI | inch  | 6 - Insert thickness Symbol |
|-----|-------|------|-------|-----------------------------|
| 01  | 1.59  | 1    | 0.062 |                             |
| T1  | 1.98  | 1.2  | 0.078 |                             |
| 02  | 2.38  | 1.5  | 0.094 |                             |
| 03  | 3.18  | 2    | 0.125 |                             |
| T3  | 3.97  | 2.5  | 0.156 |                             |
| 04  | 4.76  | 3    | 0.188 |                             |
| 05  | 5.56  | 3.5  | 0.219 |                             |
| 06  | 6.35  | 4    | 0.250 |                             |
| 07  | 7.94  | 5    | 0.312 |                             |
| 09  | 9.52  | 6    | 0.375 |                             |
| 12  | 12.70 | 8    | 0.500 |                             |

| 7 - Insert Edges Symbol | ISO                           | mm           | inch  | ANSI |
|-------------------------|-------------------------------|--------------|-------|------|
|                         | 00                            | Sharp nose   |       | 0    |
|                         | 01                            | 0.10         | 0.004 | 0.2  |
|                         | 02                            | 0.20         | 0.008 | 0.5  |
|                         | 04                            | 0.40         | 0.015 | 1    |
|                         | 08                            | 0.80         | 0.032 | 2    |
|                         | 12                            | 1.2          | 0.047 | 3    |
|                         | 16                            | 1.6          | 0.062 | 4    |
|                         | 20                            | 2.0          | 0.078 | 5    |
|                         | 24                            | 2.4          | 0.094 | 6    |
|                         | 28                            | 2.8          | 0.109 | 7    |
|                         | 32                            | 3.2          | 0.125 | 8    |
|                         | 00<br>(inch or M0/<br>metric) | Round insert |       | 0    |

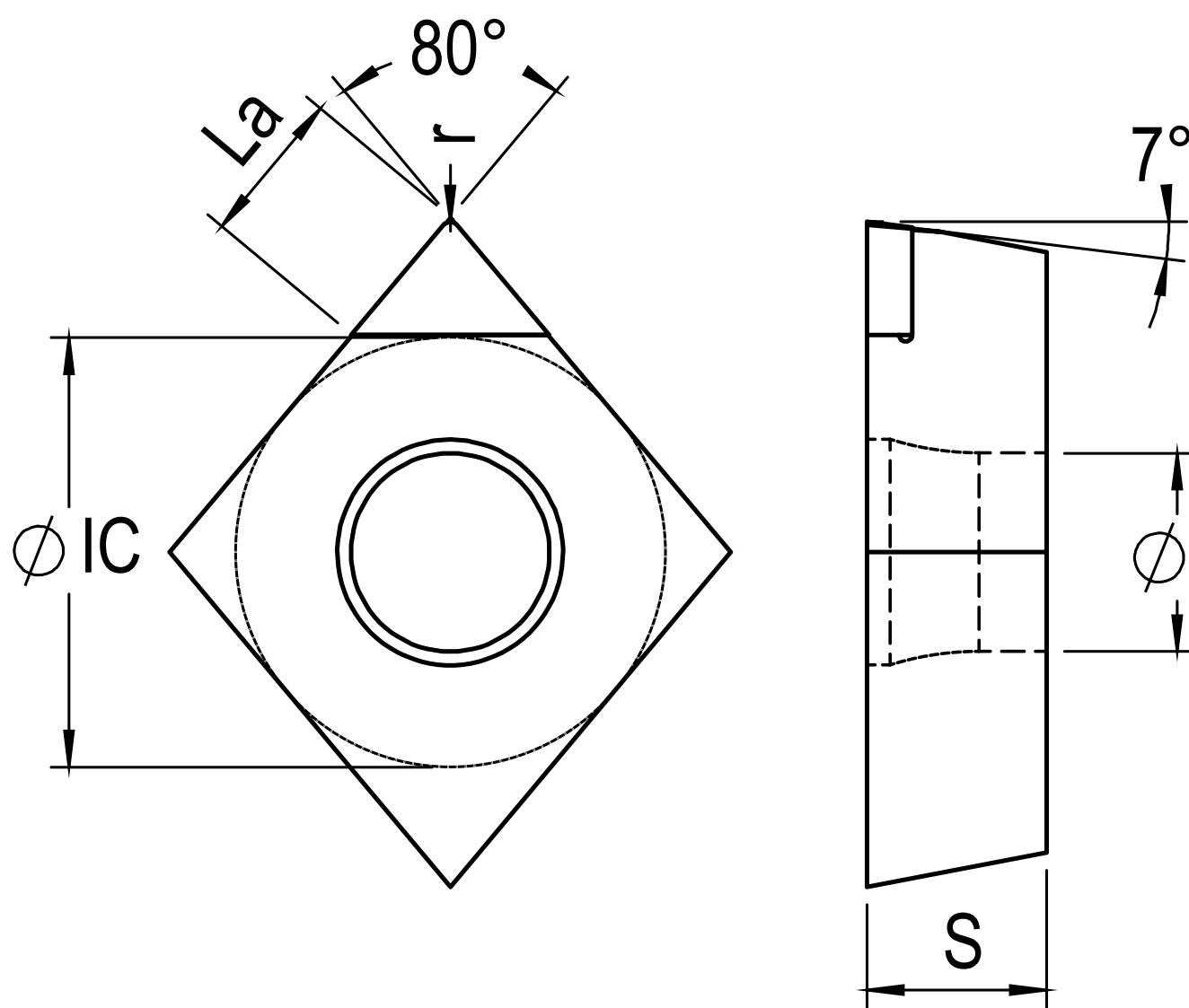
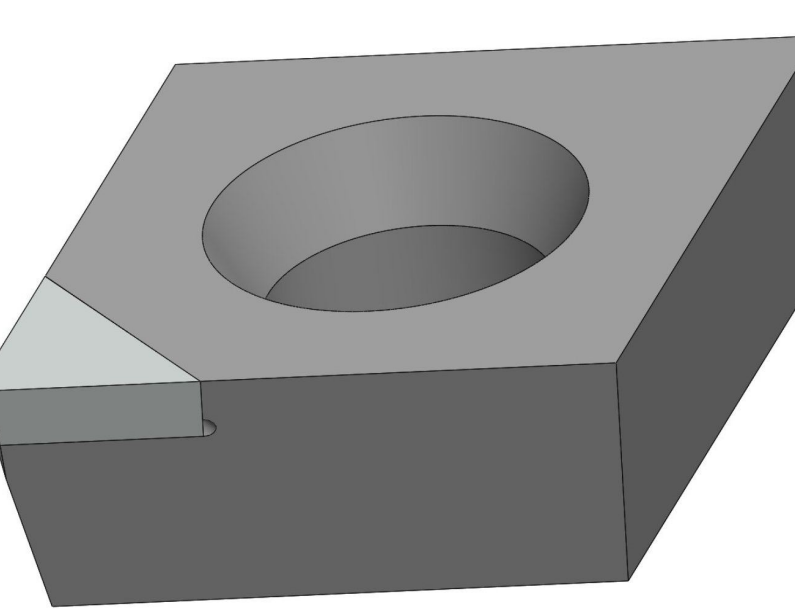
CC

80° Positive Screw-Down  
Standard  
CC▲▲ 0602 ▲▲

| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S    | rε  | La  |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|
|  | CCGW 060201 |  | 1    | 6.35 | 2.8 | 2.38 | 0.1 | 2.5 |
|                                                                                    | CCGW 060202 |                                                                                    |      |      |     |      | 0.2 |     |
|                                                                                    | CCGW 060204 |                                                                                    |      |      |     |      | 0.4 |     |
|                                                                                    | CCGT 060201 |                                                                                    |      |      |     |      | 0.1 |     |
|                                                                                    | CCGT 060202 |                                                                                    |      |      |     |      | 0.2 |     |
|                                                                                    | CCGT 060204 |                                                                                    |      |      |     |      | 0.4 |     |

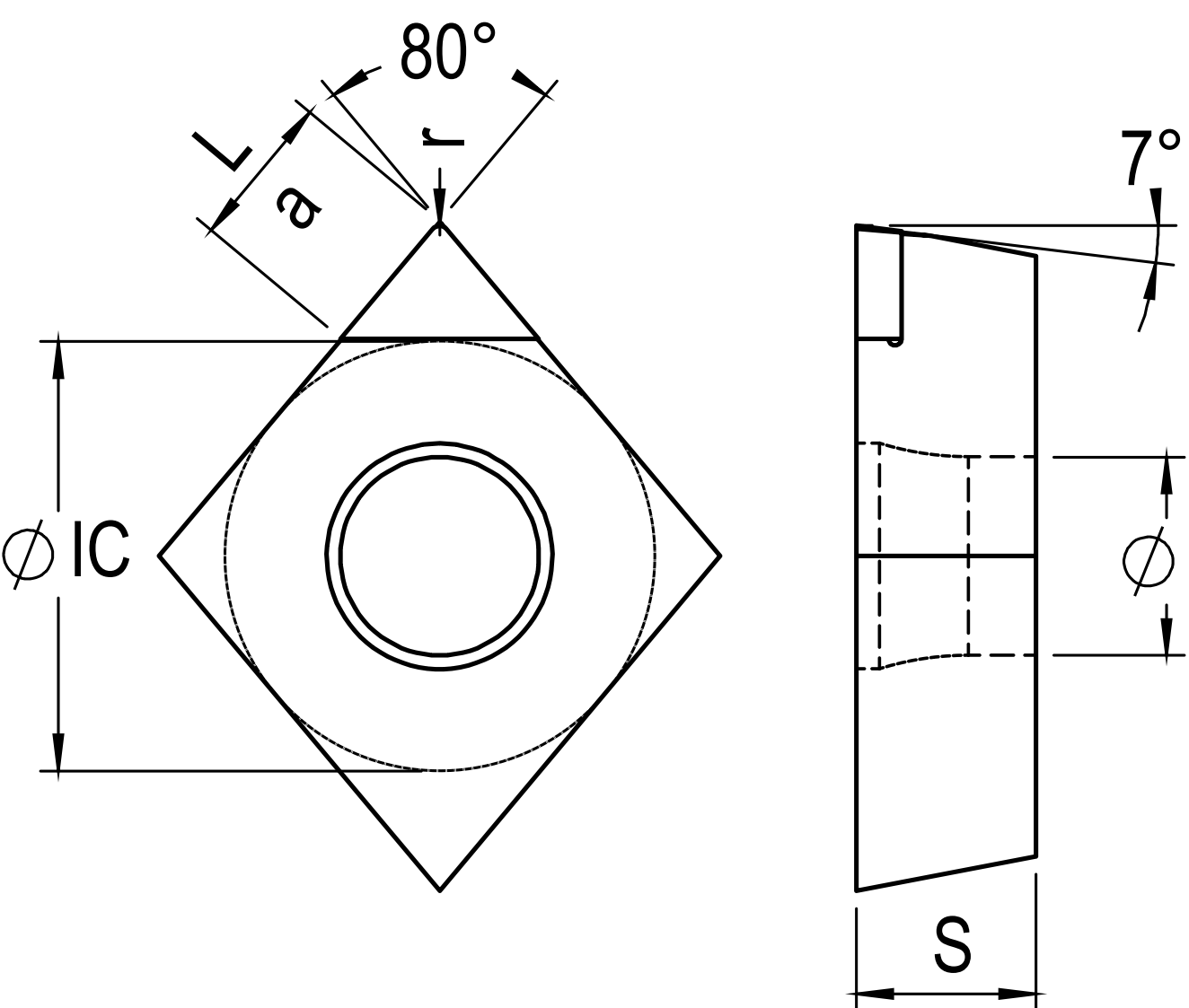
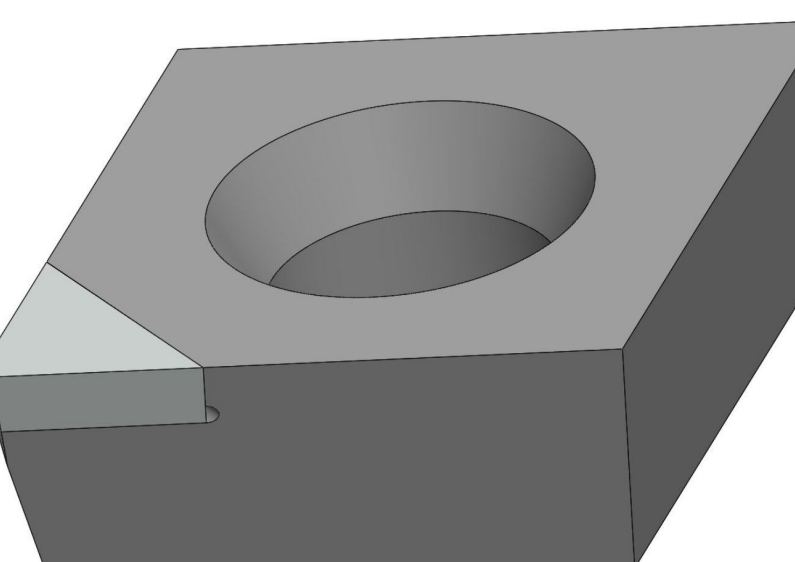
CC

80° Positive Screw-Down  
Standard  
CC▲▲ 09T3 ▲▲

| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|-----|
|  | CCGW 09T302 |  | 1    | 9.525 | 4.4 | 3.97 | 0.2 | 2.5 |
|                                                                                     | CCGW 09T304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | CCGW 09T308 |                                                                                      |      |       |     |      | 0.8 |     |
|                                                                                     | CCGT 09T302 |                                                                                      |      |       |     |      | 0.2 |     |
|                                                                                     | CCGT 09T304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | CCGT 09T308 |                                                                                      |      |       |     |      | 0.8 |     |

CC

80° Positive Screw-Down  
Standard  
CC▲▲ 1204 ▲▲

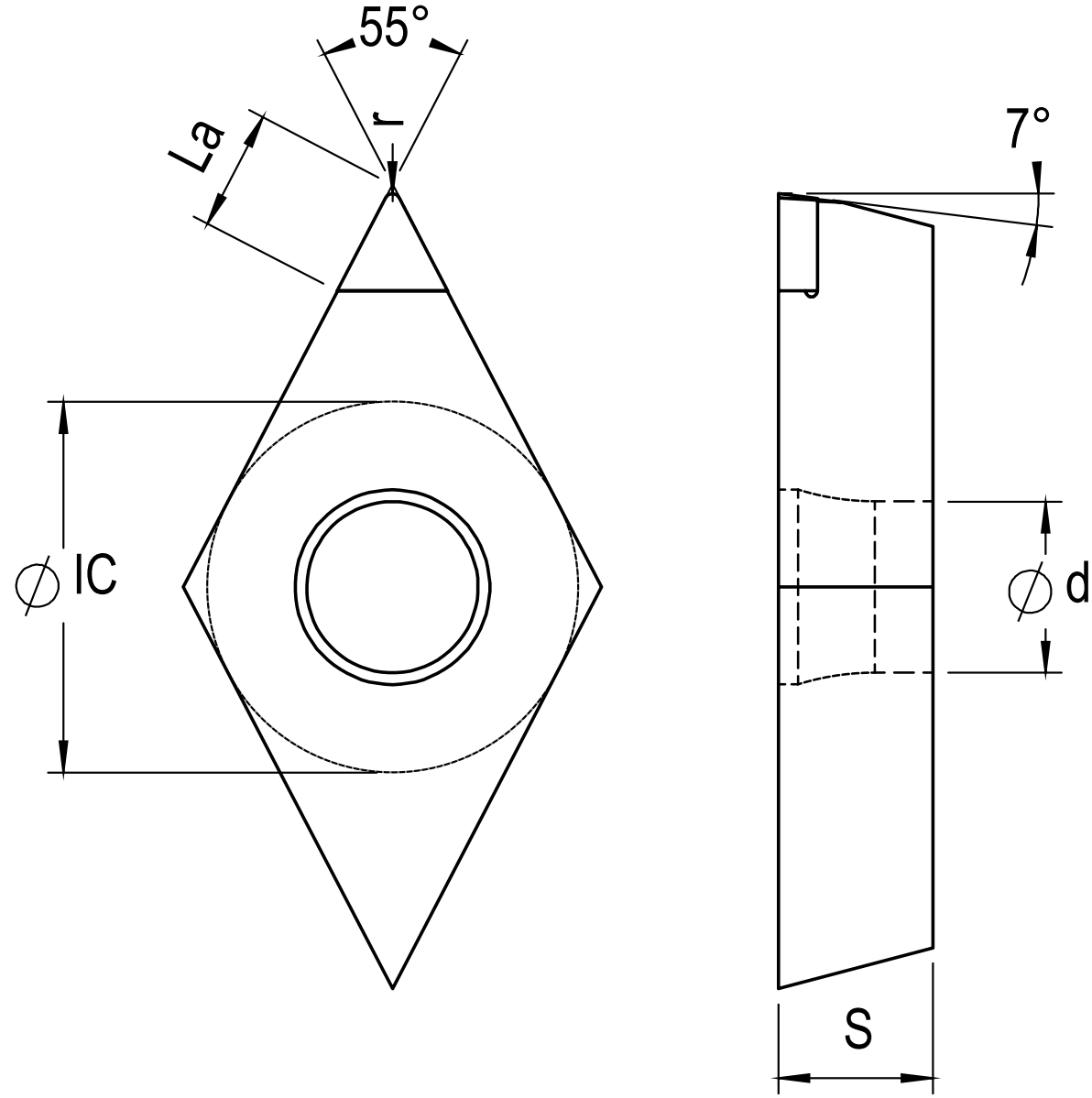
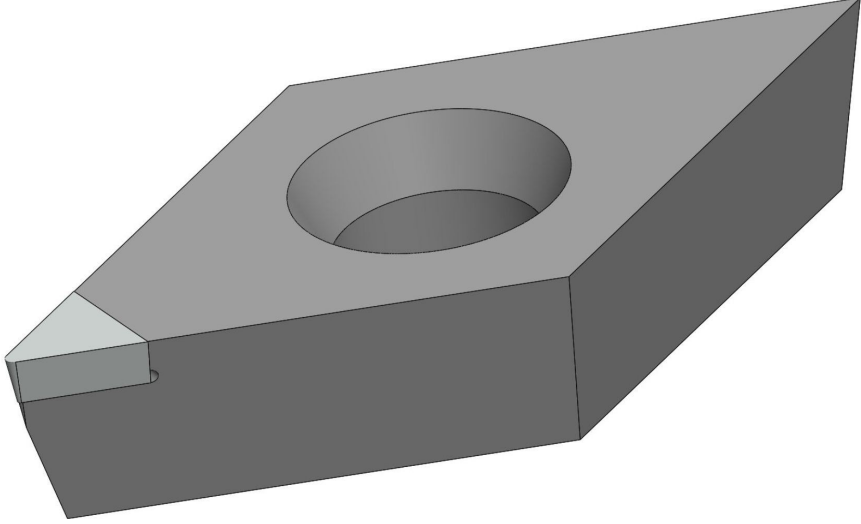
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød   | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|------|------|-----|-----|
|  | CCGW 120402 |  | 1    | 12.70 | 5.50 | 4.76 | 0.2 | 2.5 |
|                                                                                     | CCGW 120404 |                                                                                      |      |       |      |      | 0.4 |     |
|                                                                                     | CCGW 120408 |                                                                                      |      |       |      |      | 0.8 |     |
|                                                                                     | CCGT 120402 |                                                                                      |      |       |      |      | 0.2 |     |
|                                                                                     | CCGT 120404 |                                                                                      |      |       |      |      | 0.4 |     |
|                                                                                     | CCGT 120408 |                                                                                      |      |       |      |      | 0.8 |     |

DC

55° Positive Screw-down

Standard

DC▲▲ 0702 ▲▲

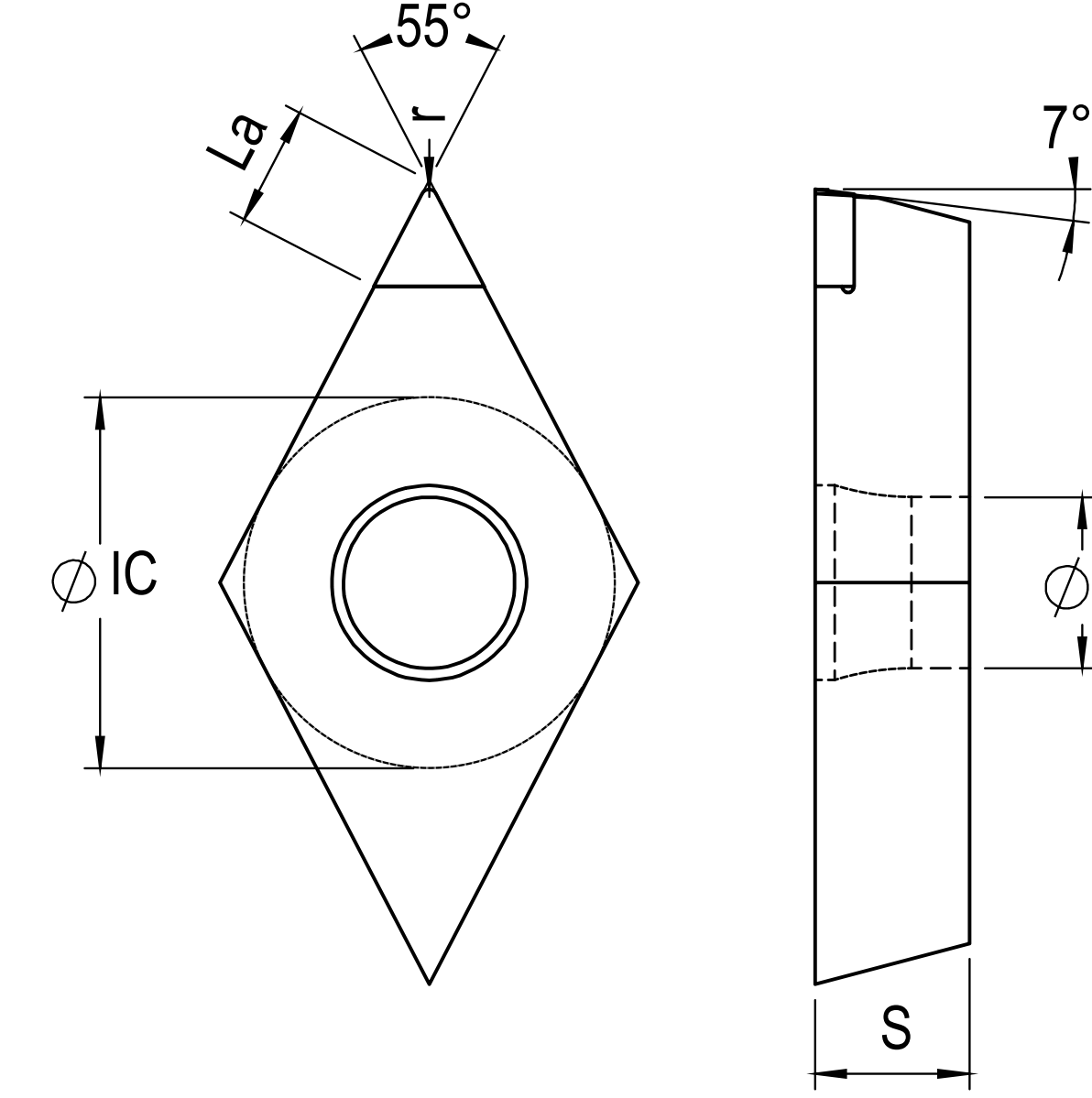
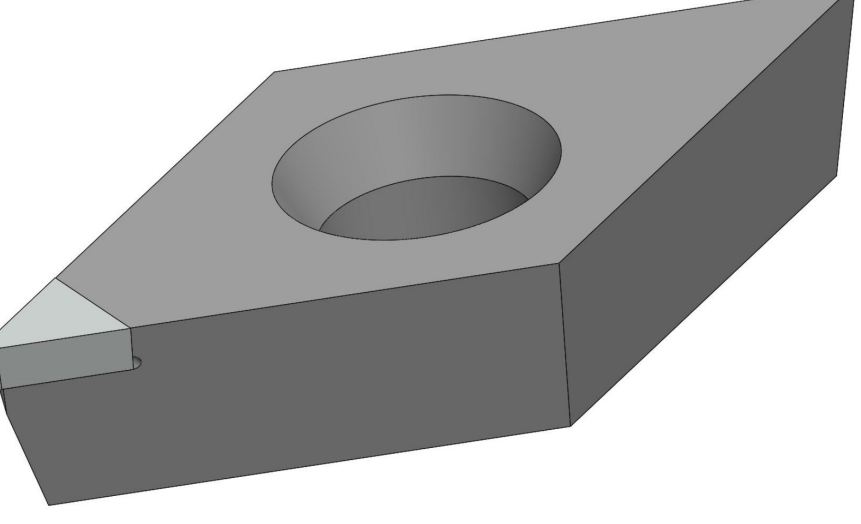
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S    | rε  | La  |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|
|  | DCGW 070202 |  | 1    | 6.35 | 2.8 | 2.38 | 0.2 | 2.5 |
|                                                                                    | DCGW 070204 |                                                                                    |      |      |     |      | 0.4 |     |
|                                                                                    | DCGW 070208 |                                                                                    |      |      |     |      | 0.8 |     |
|                                                                                    | DCGT 070202 |                                                                                    |      |      |     |      | 0.2 |     |
|                                                                                    | DCGT 070204 |                                                                                    |      |      |     |      | 0.4 |     |
|                                                                                    | DCGT 070208 |                                                                                    |      |      |     |      | 0.8 |     |

DC

55° Positive Screw-down

Standard

DC▲▲ 11T3 ▲▲

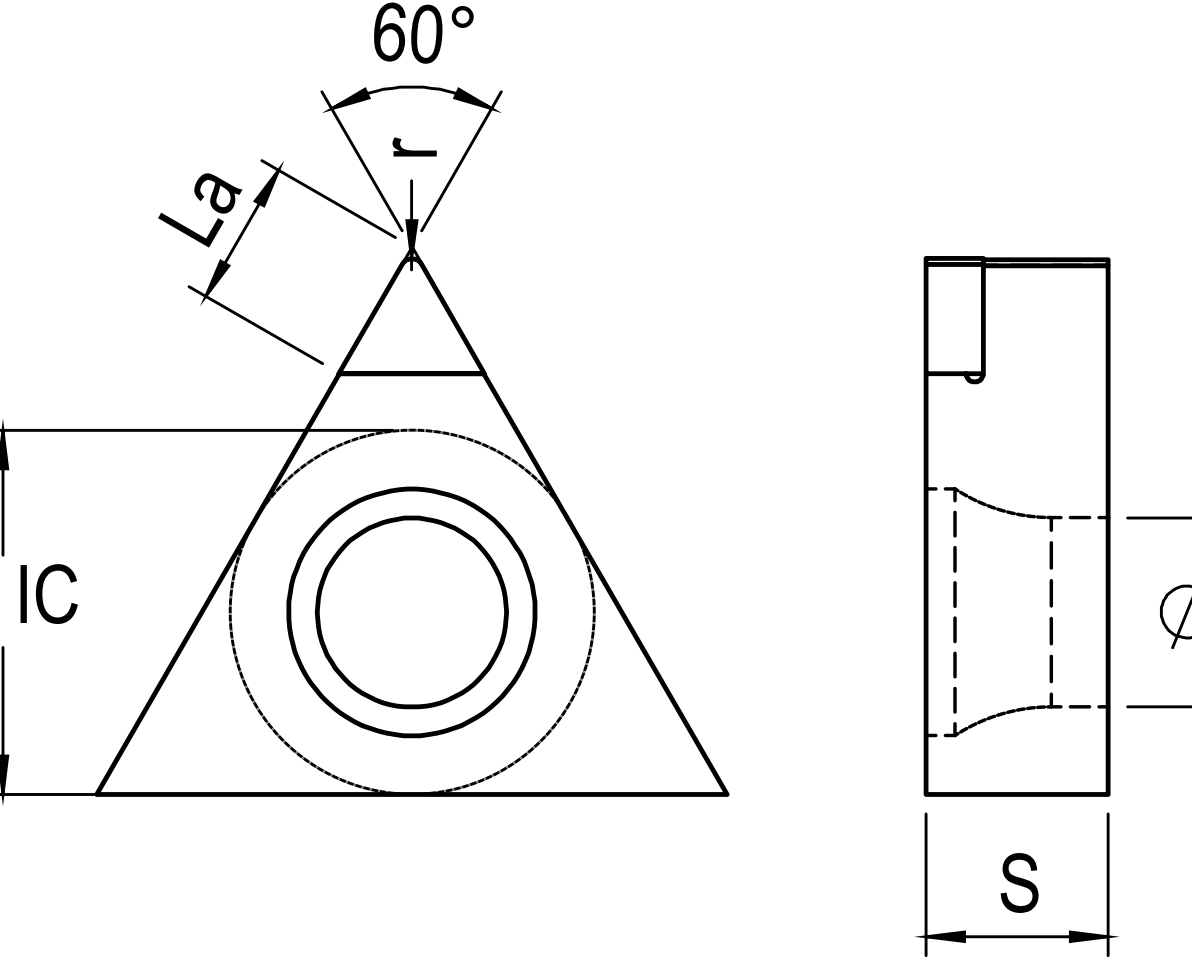
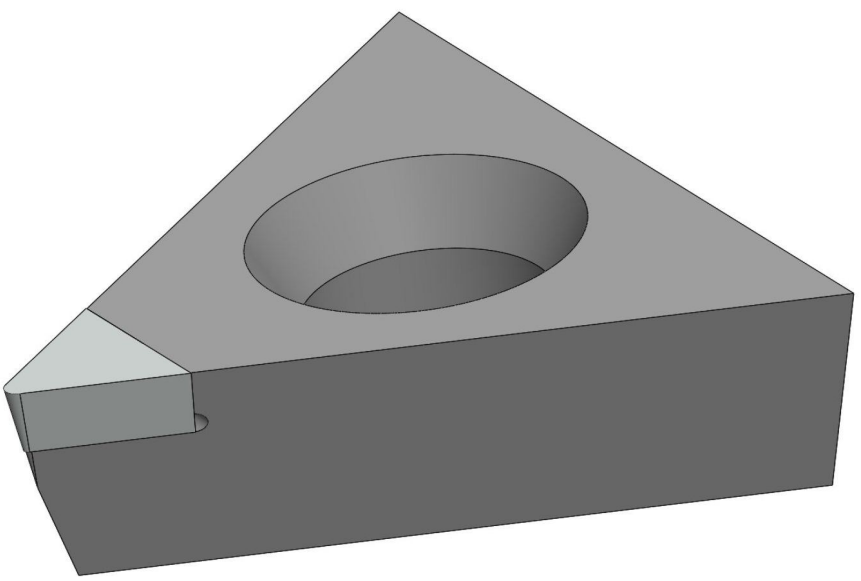
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|-----|
|  | DCGW 11T302 |  | 1    | 9.525 | 4.4 | 3.97 | 0.2 | 2.5 |
|                                                                                     | DCGW 11T304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | DCGW 11T308 |                                                                                      |      |       |     |      | 0.8 |     |
|                                                                                     | DCGT 11T302 |                                                                                      |      |       |     |      | 0.2 |     |
|                                                                                     | DCGT 11T304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | DCGT 11T308 |                                                                                      |      |       |     |      | 0.8 |     |

TC

60° Positive Screw-down

Standard

TC▲▲ 0802 ▲▲

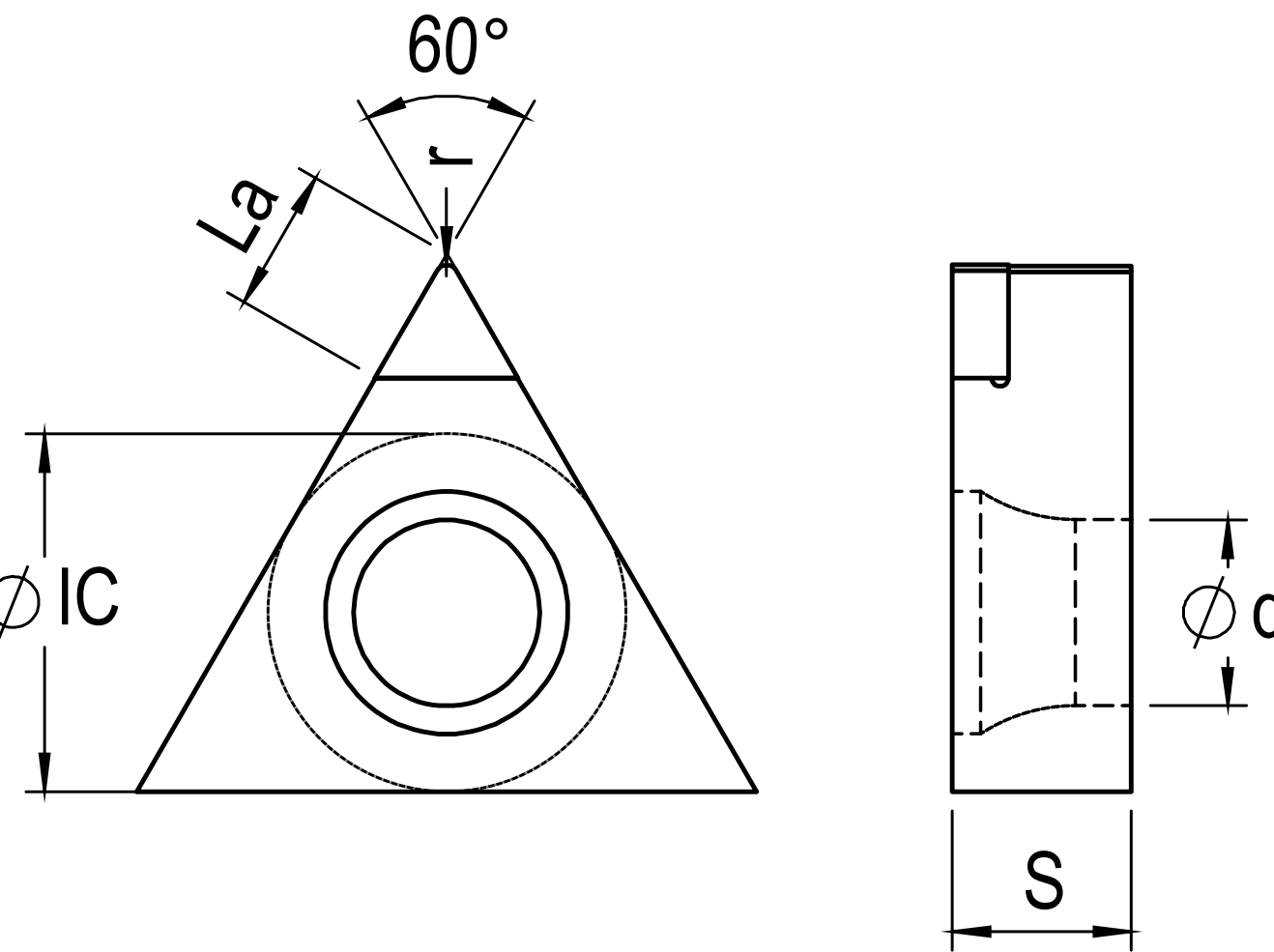
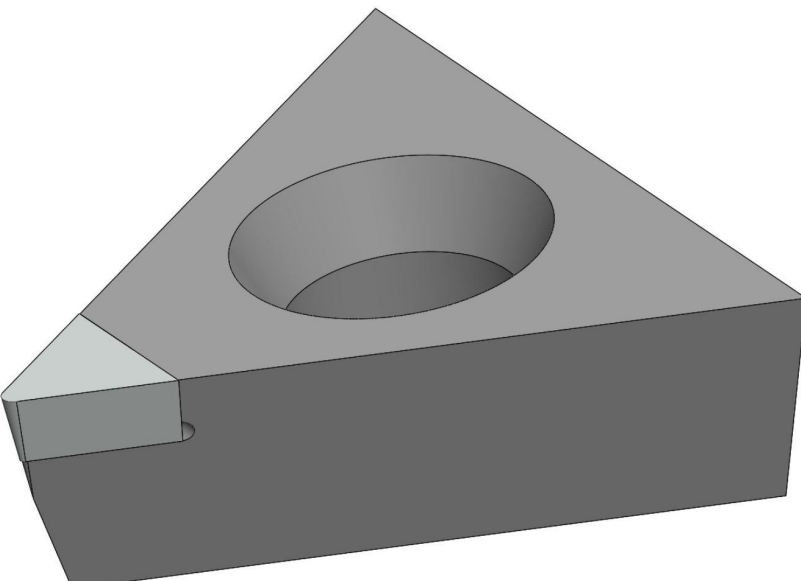
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC   | Ød  | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|
|  | TCGW 080202 |  | 1    | 4.76 | 2.4 | 2.38 | 0.2 | 2.5 |
|                                                                                     | TCGW 080204 |                                                                                      |      |      |     |      | 0.4 |     |
|                                                                                     | TCGW 080208 |                                                                                      |      |      |     |      | 0.8 |     |
|                                                                                     | TCGT 080202 |                                                                                      |      |      |     |      | 0.2 |     |
|                                                                                     | TCGT 080204 |                                                                                      |      |      |     |      | 0.4 |     |
|                                                                                     | TCGT 080208 |                                                                                      |      |      |     |      | 0.8 |     |

TC

60° Positive Screw-down

Standard

TC▲▲ 1103 ▲▲

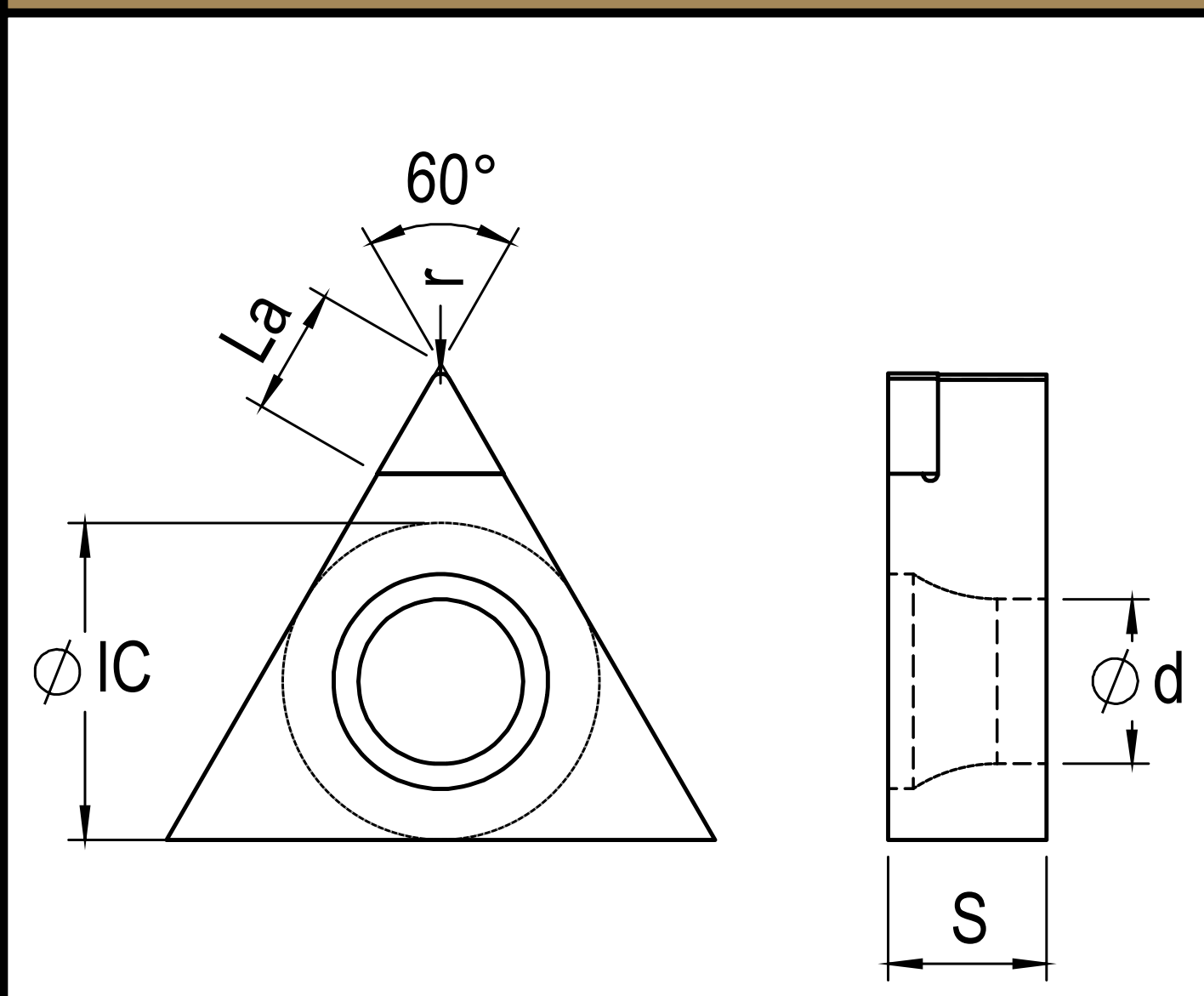
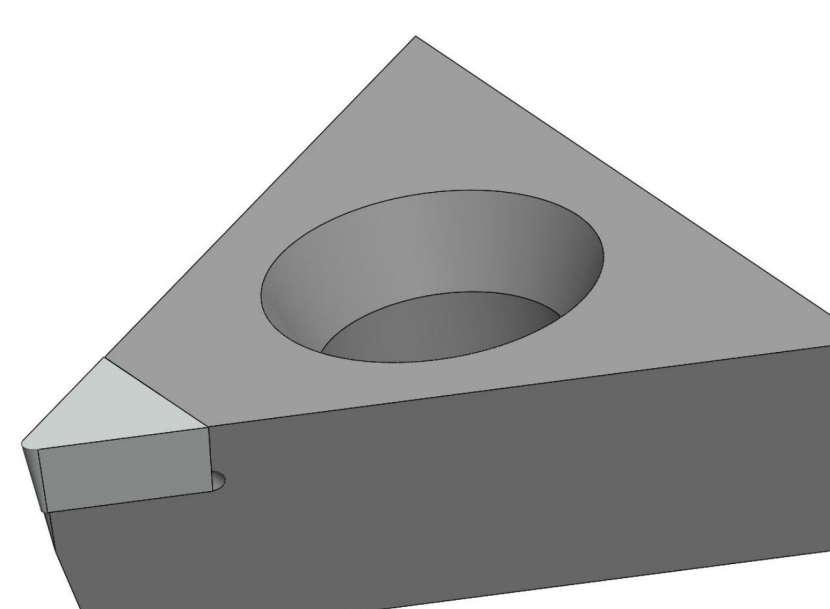
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S    | rε  | La  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|--|--|--|--|--|--|
|  | TCGW 110302 |  | 1    | 6.35 | 2.8 | 3.18 | 0.2 | 2.5 |  |  |  |  |  |  |
|                                                                                    | TCGW 110304 |                                                                                    |      |      |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                    | TCGW 110308 |                                                                                    |      |      |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                    | TCGT 110302 |                                                                                    |      |      |     |      | 0.2 |     |  |  |  |  |  |  |
|                                                                                    | TCGT 110304 |                                                                                    |      |      |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                    | TCGT 110308 |                                                                                    |      |      |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                    |             |                                                                                    |      |      |     |      |     |     |  |  |  |  |  |  |

TC

60° Positive Screw-down

Standard

TC▲▲ 1604 ▲▲

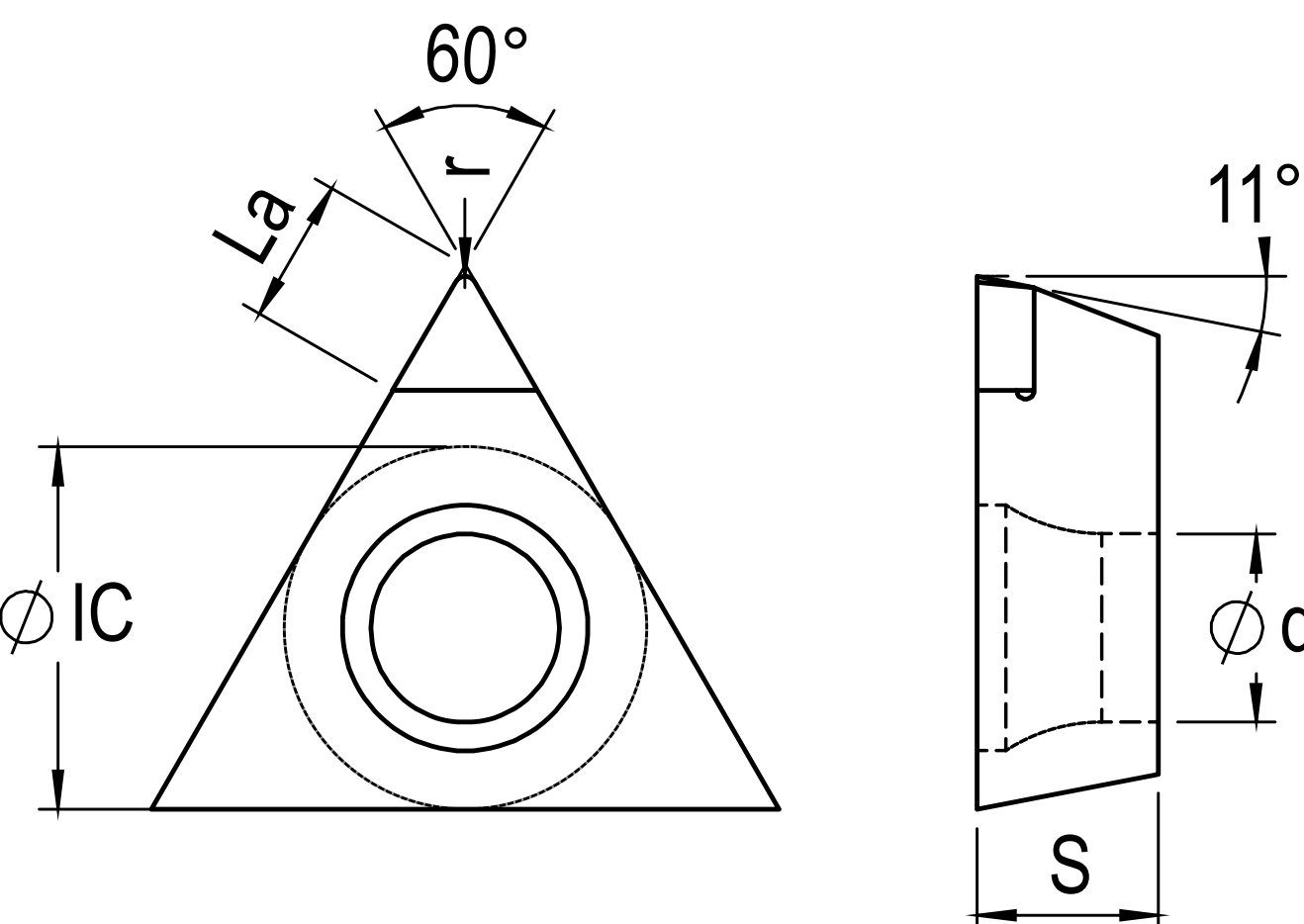
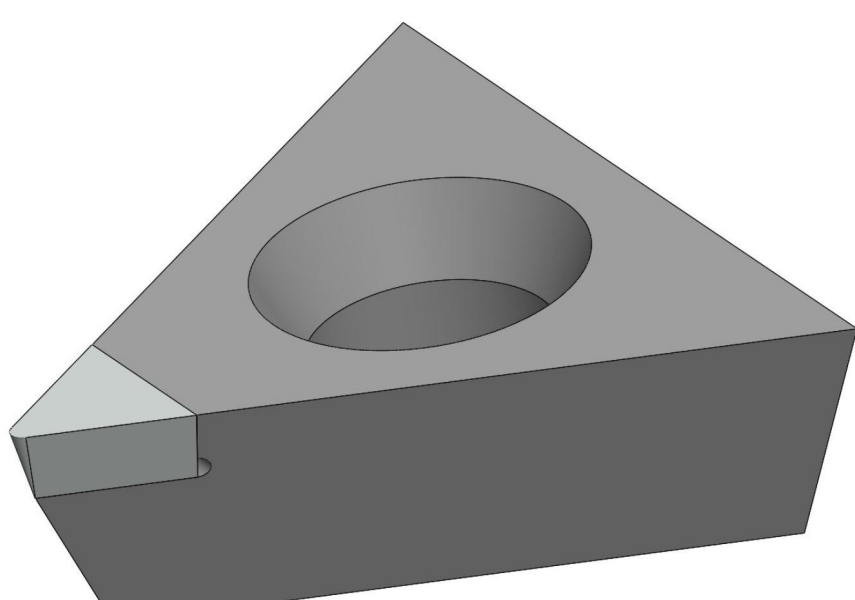
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|-----|--|--|--|--|--|--|
|  | TCGW 160402 |  | 1    | 9.525 | 4.4 | 4.76 | 0.2 | 2.5 |  |  |  |  |  |  |
|                                                                                     | TCGW 160404 |                                                                                      |      |       |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                     | TCGW 160408 |                                                                                      |      |       |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                     | TCGT 160402 |                                                                                      |      |       |     |      | 0.2 |     |  |  |  |  |  |  |
|                                                                                     | TCGT 160404 |                                                                                      |      |       |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                     | TCGT 160408 |                                                                                      |      |       |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                     |             |                                                                                      |      |       |     |      |     |     |  |  |  |  |  |  |

TP

60° Positive Screw-down

Standard

TP▲▲ 0802 ▲▲

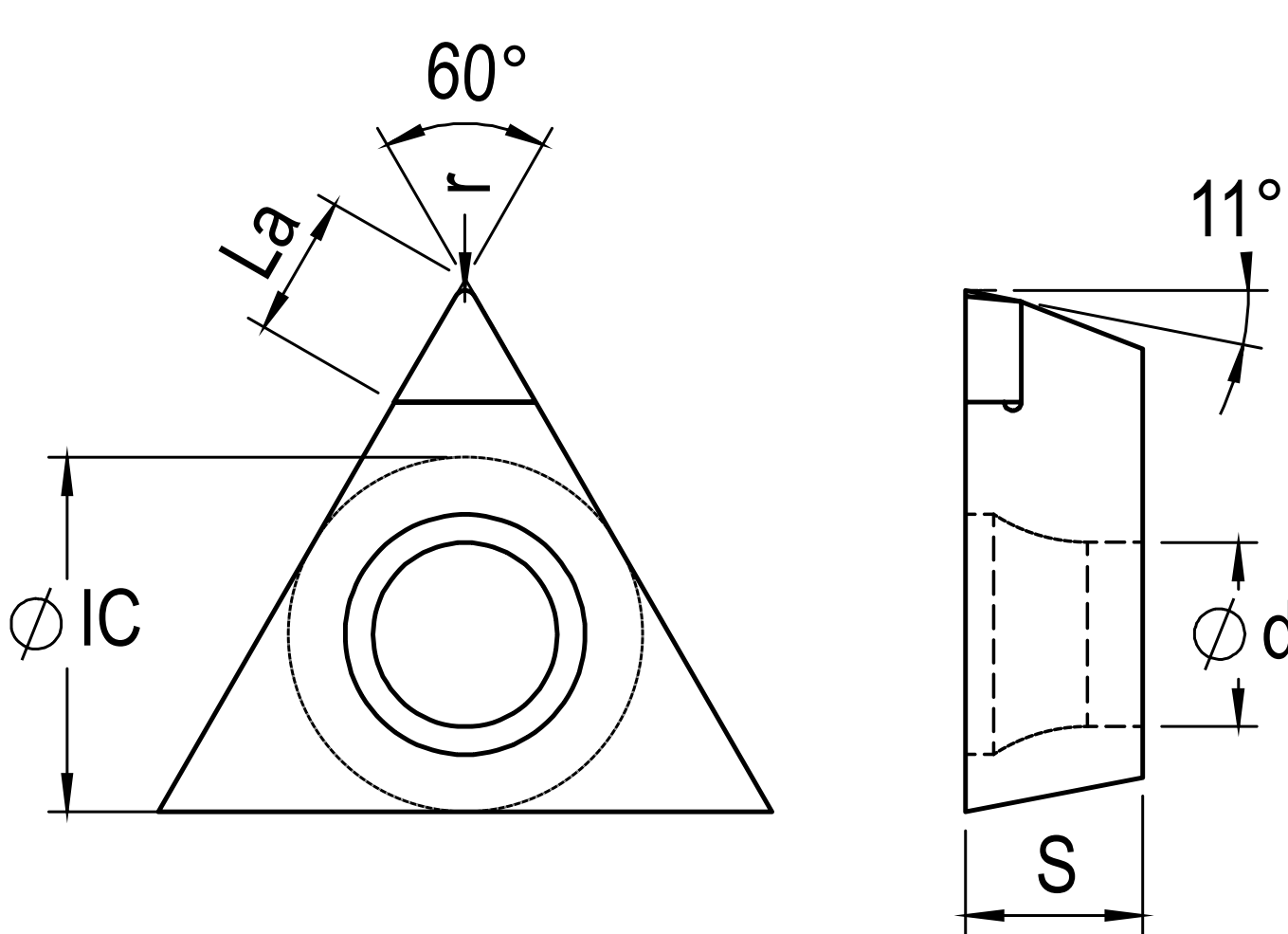
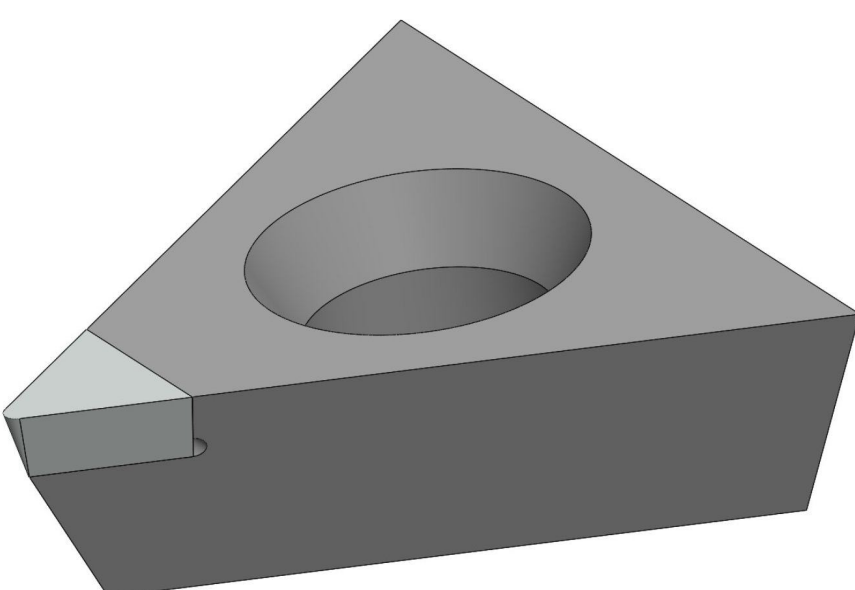
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC   | Ød  | S    | rε  | La  |  |  |  |  |  |  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|--|--|--|--|--|--|
|  | TPGW 080202 |  | 1    | 4.76 | 2.4 | 2.38 | 0.2 | 2.5 |  |  |  |  |  |  |
|                                                                                     | TPGW 080204 |                                                                                      |      |      |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                     | TPGW 080208 |                                                                                      |      |      |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                     | TPGT 080202 |                                                                                      |      |      |     |      | 0.2 |     |  |  |  |  |  |  |
|                                                                                     | TPGT 080204 |                                                                                      |      |      |     |      | 0.4 |     |  |  |  |  |  |  |
|                                                                                     | TPGT 080208 |                                                                                      |      |      |     |      | 0.8 |     |  |  |  |  |  |  |
|                                                                                     |             |                                                                                      |      |      |     |      |     |     |  |  |  |  |  |  |

TP

60° Positive Screw-down

Standard

TP▲▲ 1103 ▲▲

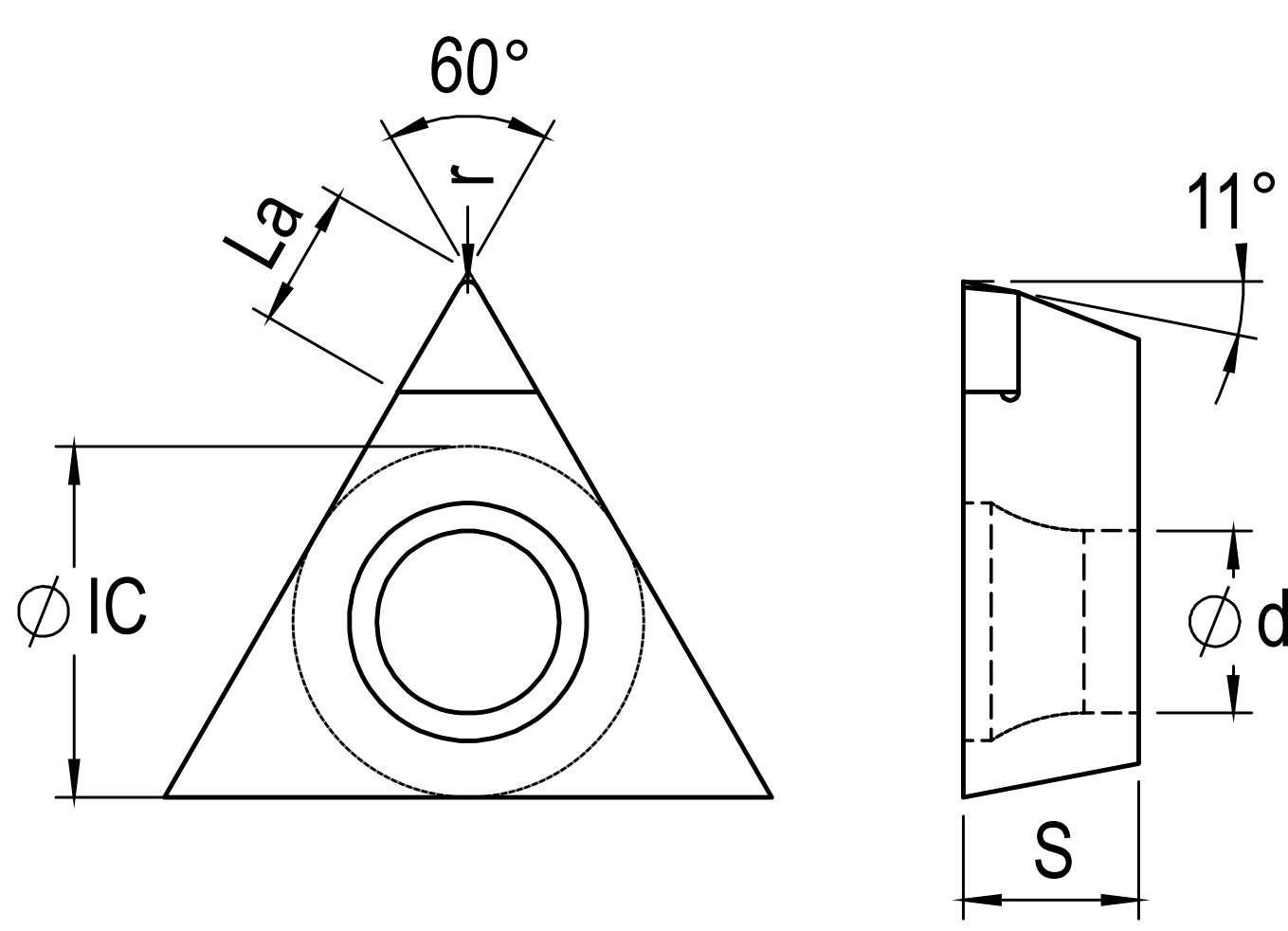
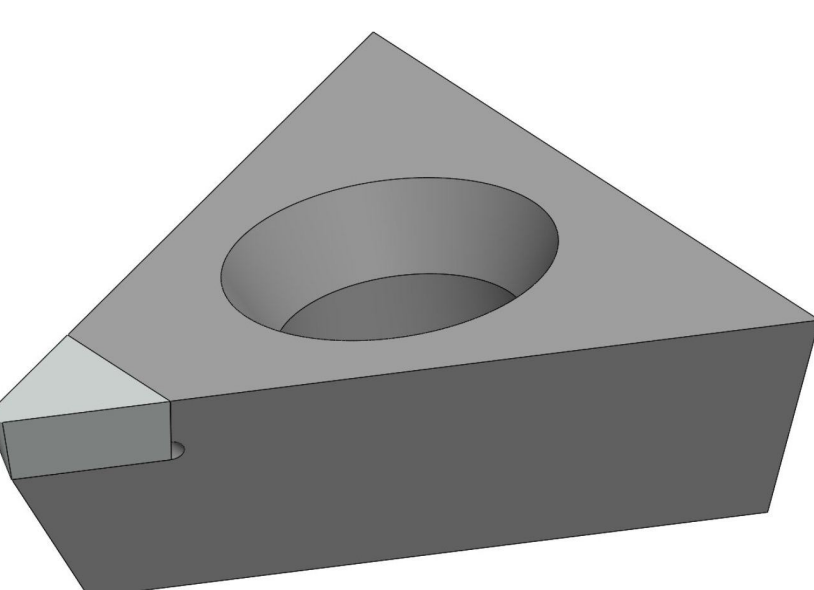
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S    | rε  | La  |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|------|-----|-----|
|  | TPGW 110302 |  | 1    | 6.35 | 3.3 | 3.18 | 0.2 | 2.5 |
|                                                                                    | TPGW 110304 |                                                                                    |      |      |     |      | 0.4 |     |
|                                                                                    | TPGW 110308 |                                                                                    |      |      |     |      | 0.8 |     |
|                                                                                    | TPGT 110302 |                                                                                    |      |      |     |      | 0.2 |     |
|                                                                                    | TPGT 110304 |                                                                                    |      |      |     |      | 0.4 |     |
|                                                                                    | TPGT 110308 |                                                                                    |      |      |     |      | 0.8 |     |

TP

60° Positive Screw-down

Standard

TP▲▲ 1603 ▲▲

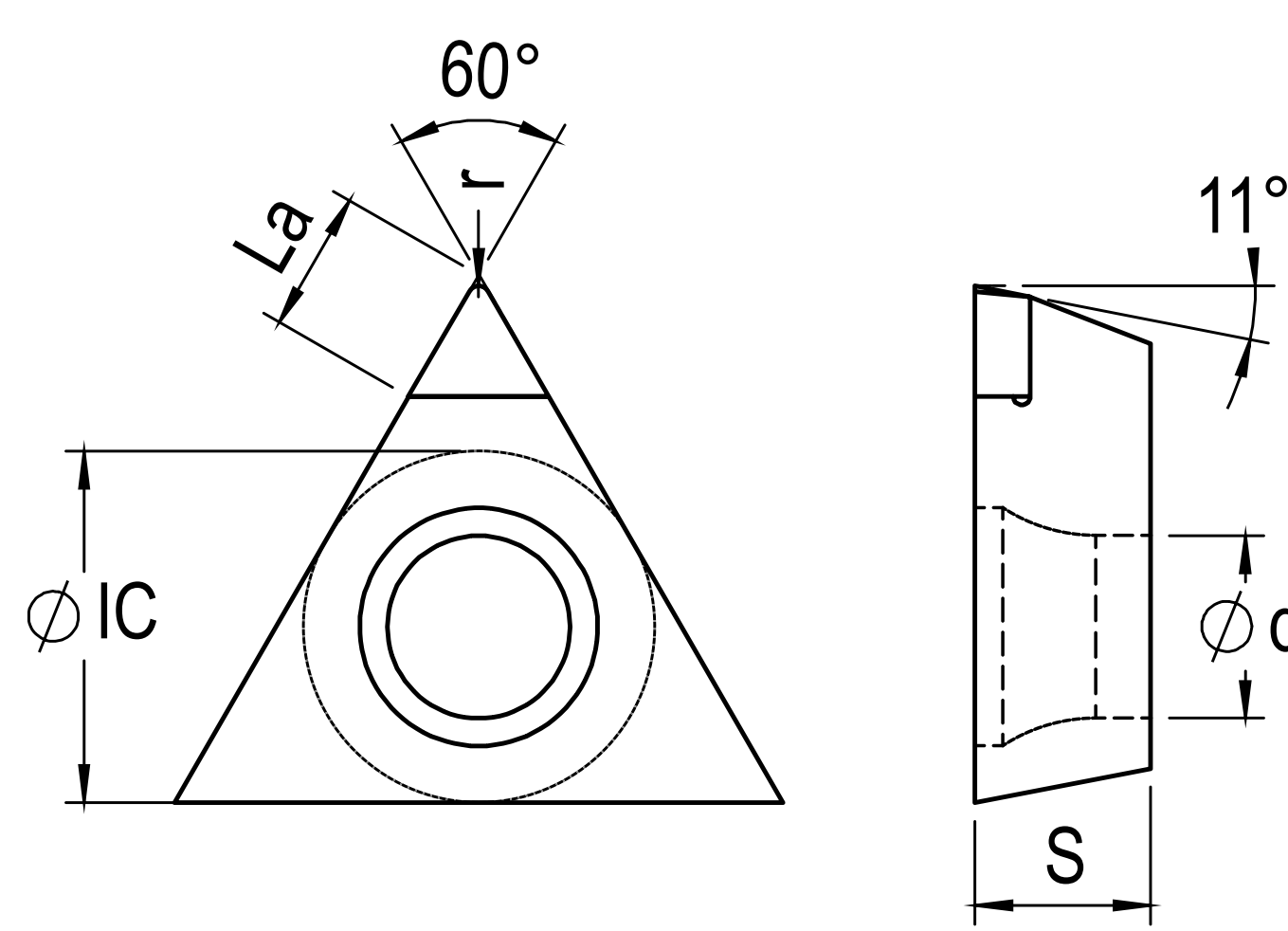
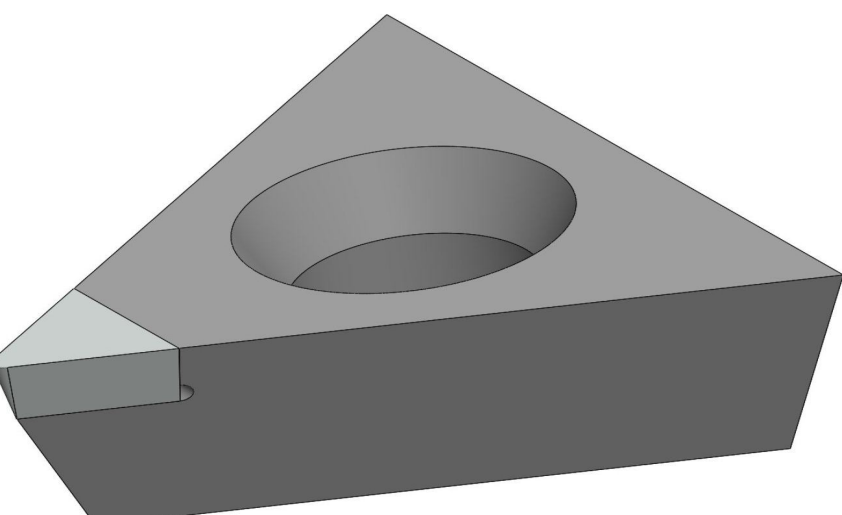
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|-----|
|  | TPGW 160302 |  | 1    | 9.525 | 3.3 | 3.18 | 0.2 | 2.5 |
|                                                                                     | TPGW 160304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | TPGW 160308 |                                                                                      |      |       |     |      | 0.8 |     |
|                                                                                     | TPGT 160302 |                                                                                      |      |       |     |      | 0.2 |     |
|                                                                                     | TPGT 160304 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | TPGT 160308 |                                                                                      |      |       |     |      | 0.8 |     |

TP

60° Positive Screw-down

Standard

TP▲▲ 1604 ▲▲

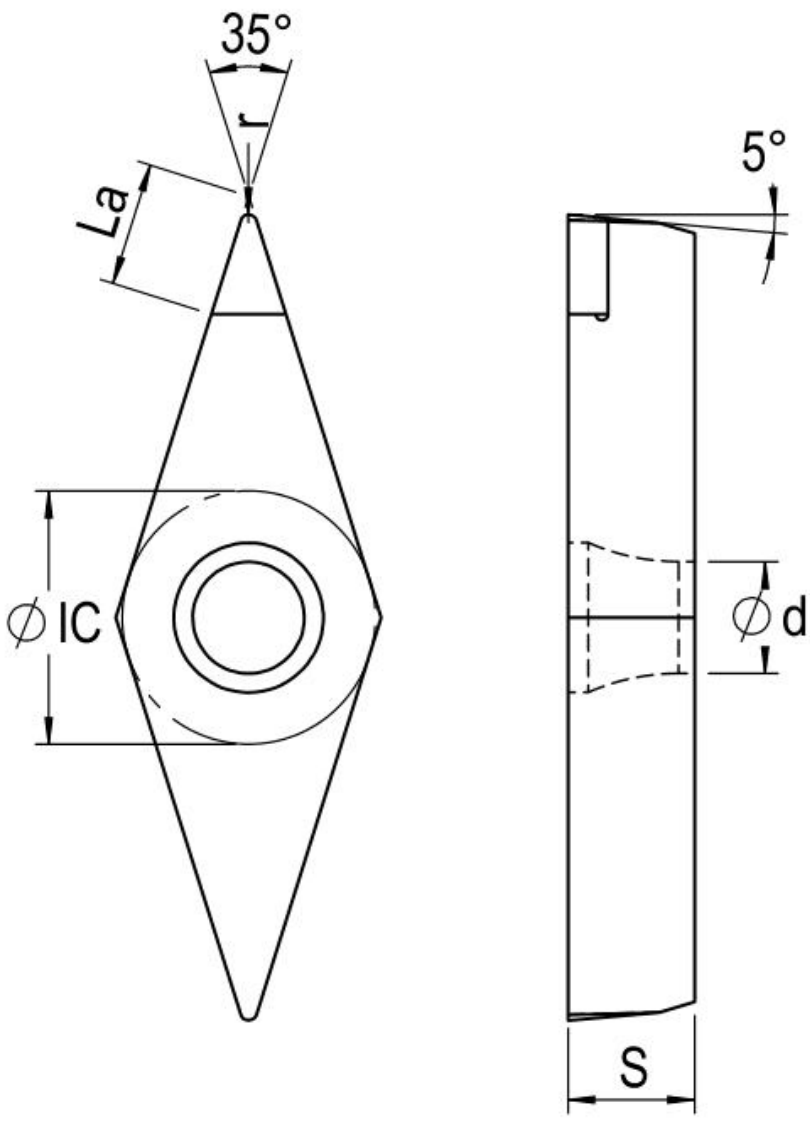
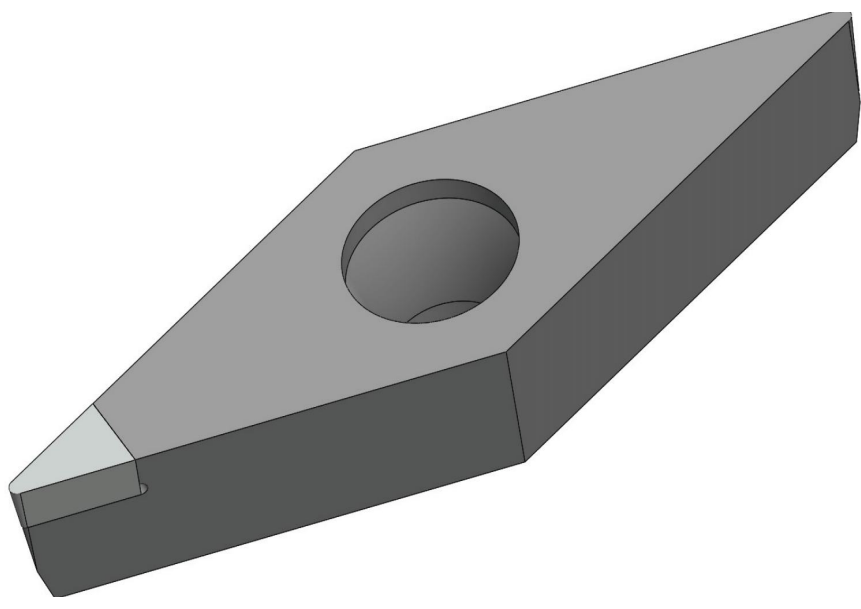
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|-----|
|  | TPGW 160402 |  | 1    | 9.525 | 3.3 | 4.76 | 0.2 | 2.5 |
|                                                                                     | TPGW 160404 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | TPGW 160408 |                                                                                      |      |       |     |      | 0.8 |     |
|                                                                                     | TPGT 160402 |                                                                                      |      |       |     |      | 0.2 |     |
|                                                                                     | TPGT 160404 |                                                                                      |      |       |     |      | 0.4 |     |
|                                                                                     | TPGT 160408 |                                                                                      |      |       |     |      | 0.8 |     |

VB

35° Positive Screw-down

Standard

VB▲▲ 1103 ▲▲

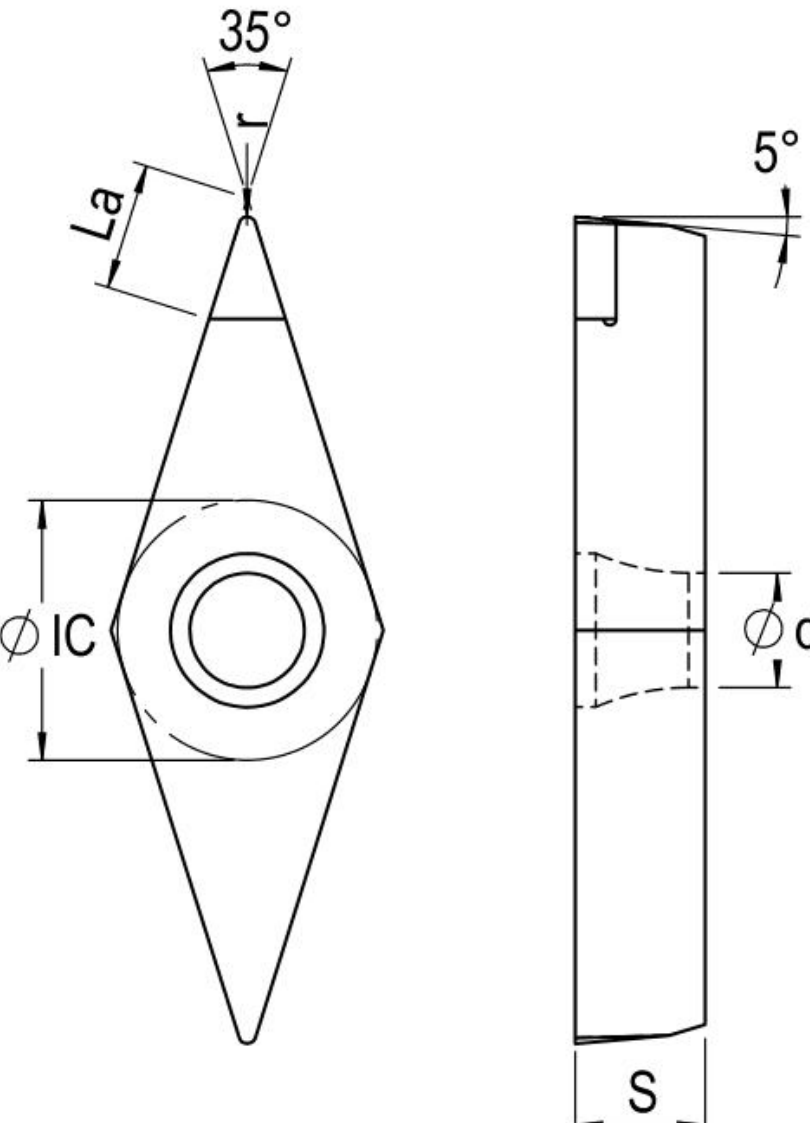
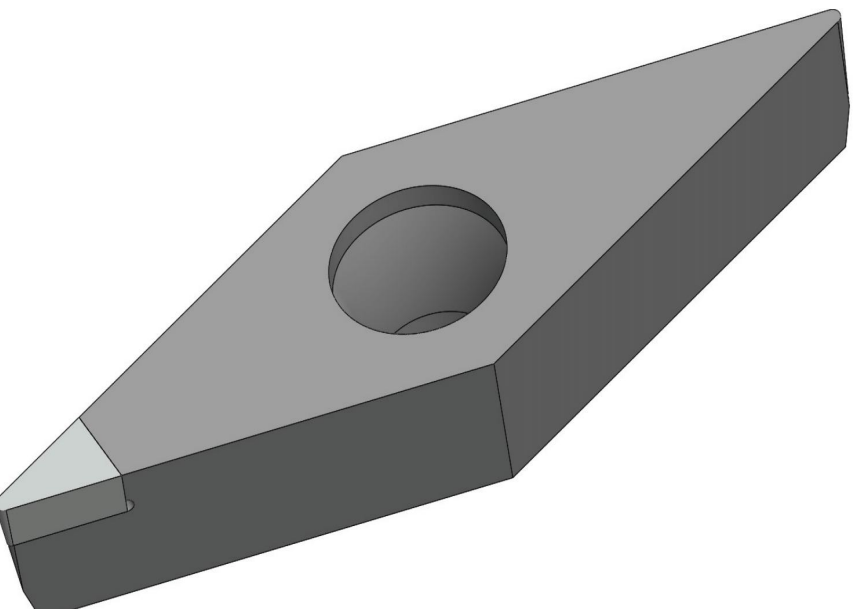
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S    | rε  | La |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|------|-----|----|
|  | VBGW 110302 |  | 1    | 6.35 | 2.8 | 3.18 | 0.2 | 3  |
|                                                                                    | VBGW 110304 |                                                                                    |      |      |     |      | 0.4 |    |
|                                                                                    | VBGW 110308 |                                                                                    |      |      |     |      | 0.8 |    |
|                                                                                    | VBGT 110302 |                                                                                    |      |      |     |      | 0.2 |    |
|                                                                                    | VBGT 110304 |                                                                                    |      |      |     |      | 0.4 |    |
|                                                                                    | VBGT 110308 |                                                                                    |      |      |     |      | 0.8 |    |

VB

35° Positive Screw-down

Standard

VB▲▲ 1604 ▲▲

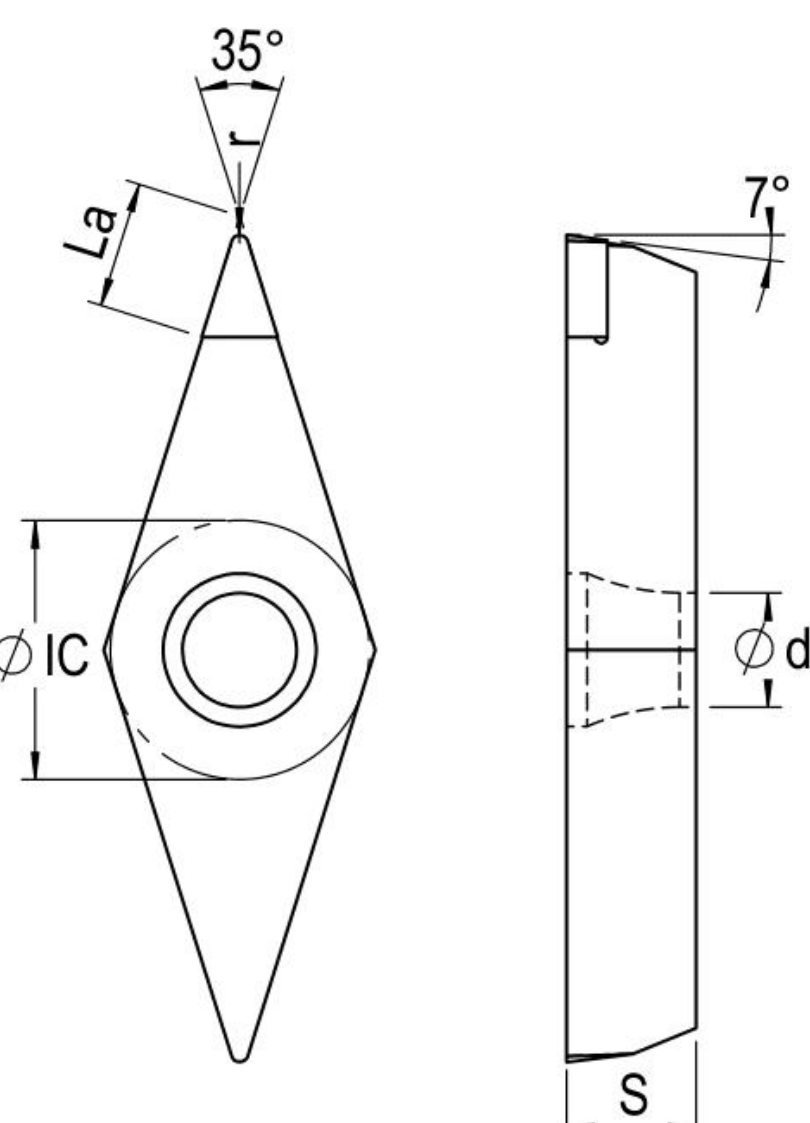
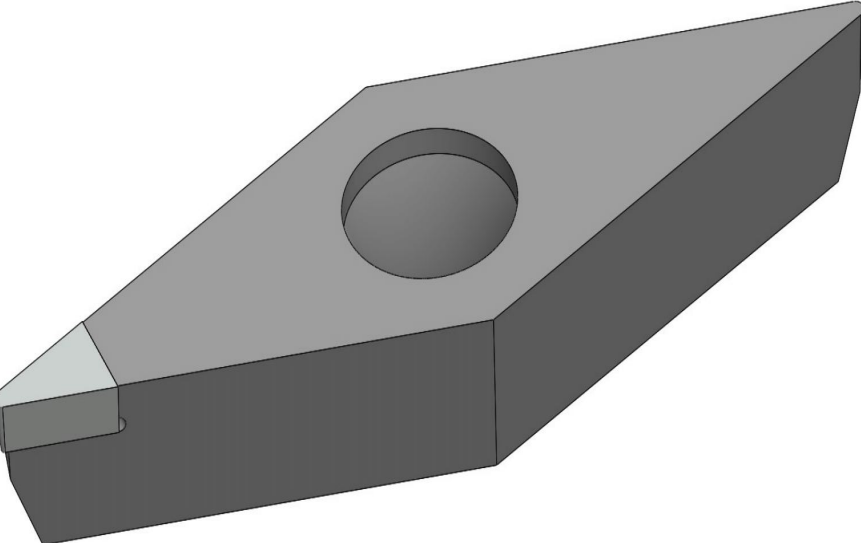
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød  | S    | rε  | La |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|-----|------|-----|----|
|  | VBGW 160402 |  | 1    | 9.525 | 4.4 | 4.76 | 0.2 | 3  |
|                                                                                     | VBGW 160404 |                                                                                      |      |       |     |      | 0.4 |    |
|                                                                                     | VBGW 160408 |                                                                                      |      |       |     |      | 0.8 |    |
|                                                                                     | VBGT 160402 |                                                                                      |      |       |     |      | 0.2 |    |
|                                                                                     | VBGT 160404 |                                                                                      |      |       |     |      | 0.4 |    |
|                                                                                     | VBGT 160408 |                                                                                      |      |       |     |      | 0.8 |    |

VC

35° Positive Screw-down

Standard

VC▲▲ 1103 ▲▲

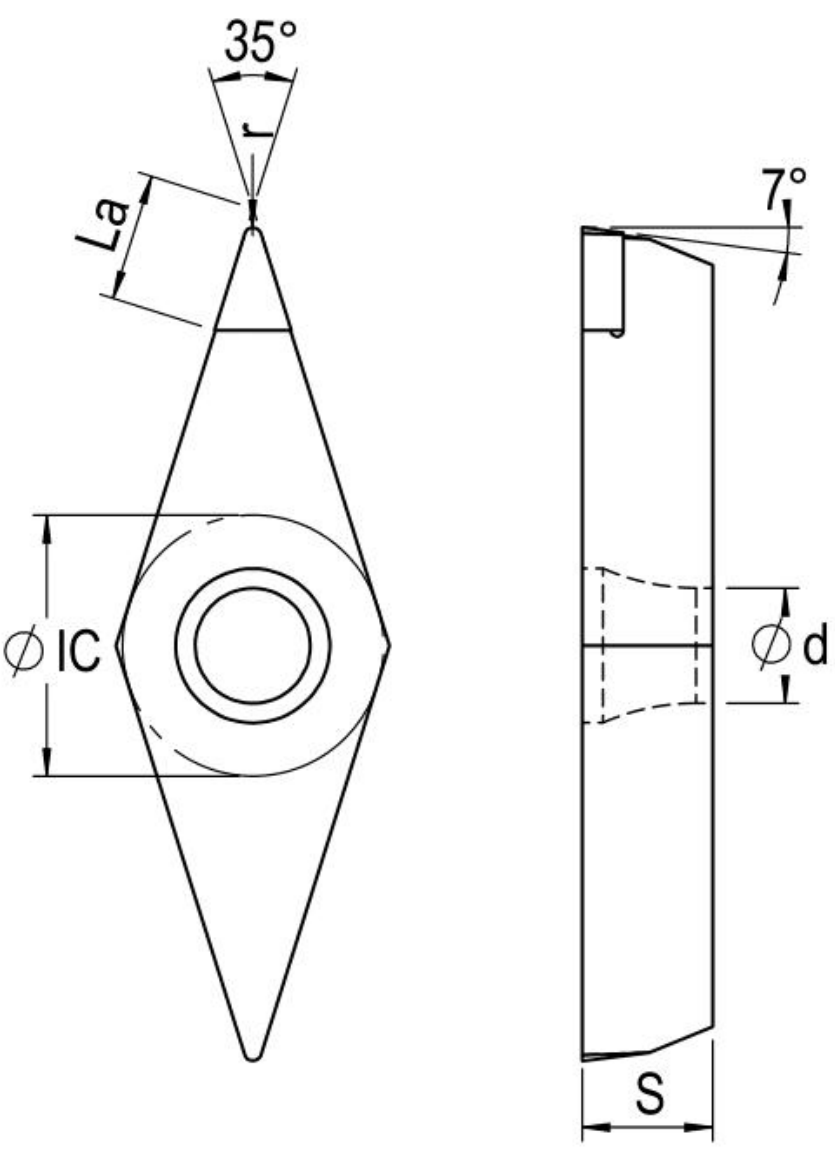
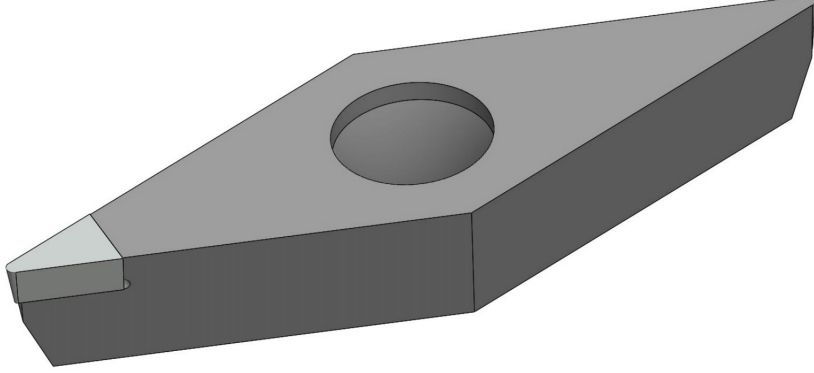
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC   | Ød  | S    | rε  | La |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|------|-----|------|-----|----|
|  | VCGW 110302 |  | 1    | 6.35 | 2.8 | 3.18 | 0.2 | 3  |
|                                                                                     | VCGW 110304 |                                                                                      |      |      |     |      | 0.4 |    |
|                                                                                     | VCGW 110308 |                                                                                      |      |      |     |      | 0.8 |    |
|                                                                                     | VCGT 110302 |                                                                                      |      |      |     |      | 0.2 |    |
|                                                                                     | VCGT 110304 |                                                                                      |      |      |     |      | 0.4 |    |
|                                                                                     | VCGT 110308 |                                                                                      |      |      |     |      | 0.8 |    |

VC

35° Positive Screw-down

Standard

VC▲▲ 1604 ▲▲

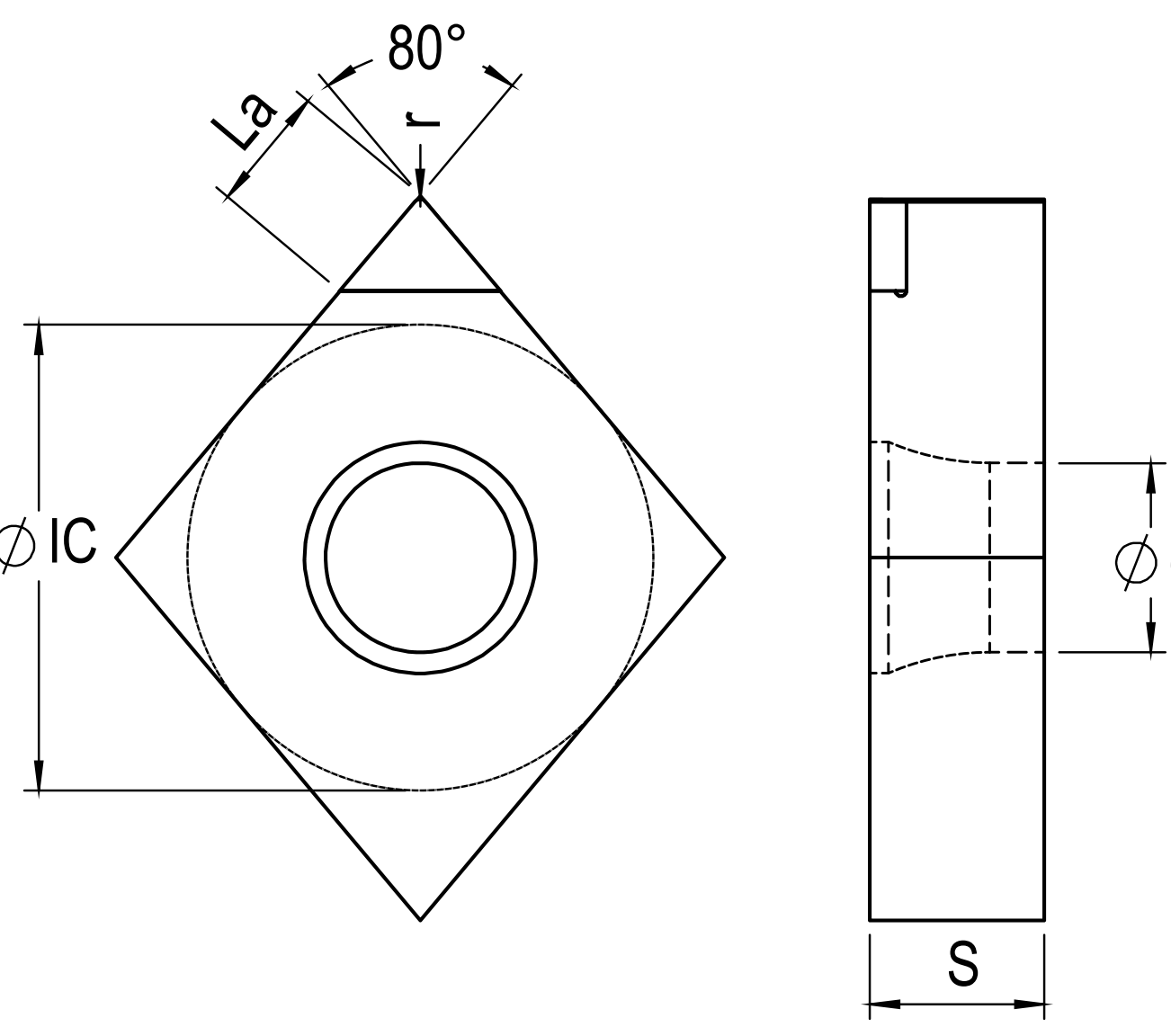
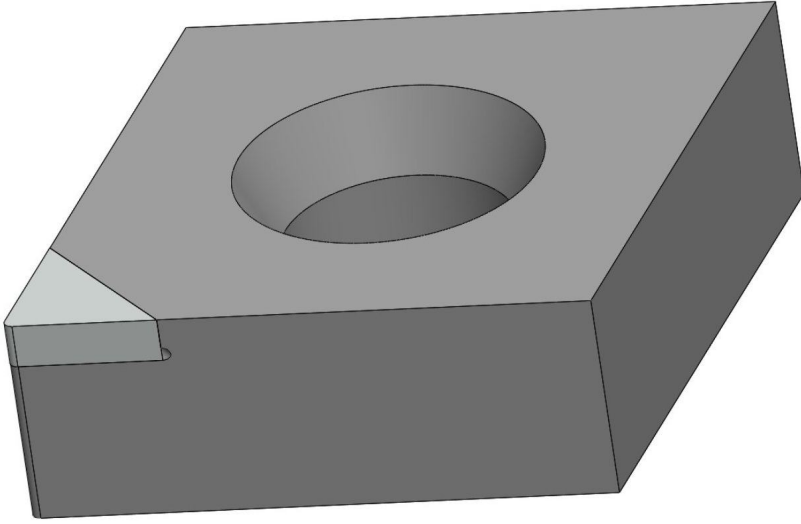
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC    | Ød  | S    | rε  | La |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|-------|-----|------|-----|----|
|  | VCGW 160402 |  | 1    | 9.525 | 4.4 | 4.76 | 0.2 | 3  |
|                                                                                    | VCGW 160404 |                                                                                    |      |       |     |      | 0.4 |    |
|                                                                                    | VCGW 160408 |                                                                                    |      |       |     |      | 0.8 |    |
|                                                                                    | VCGT 160402 |                                                                                    |      |       |     |      | 0.2 |    |
|                                                                                    | VCGT 160404 |                                                                                    |      |       |     |      | 0.4 |    |
|                                                                                    | VCGT 160408 |                                                                                    |      |       |     |      | 0.8 |    |

CN

80° Negative Screw-Down

Standard

CN▲▲ 1204 ▲▲

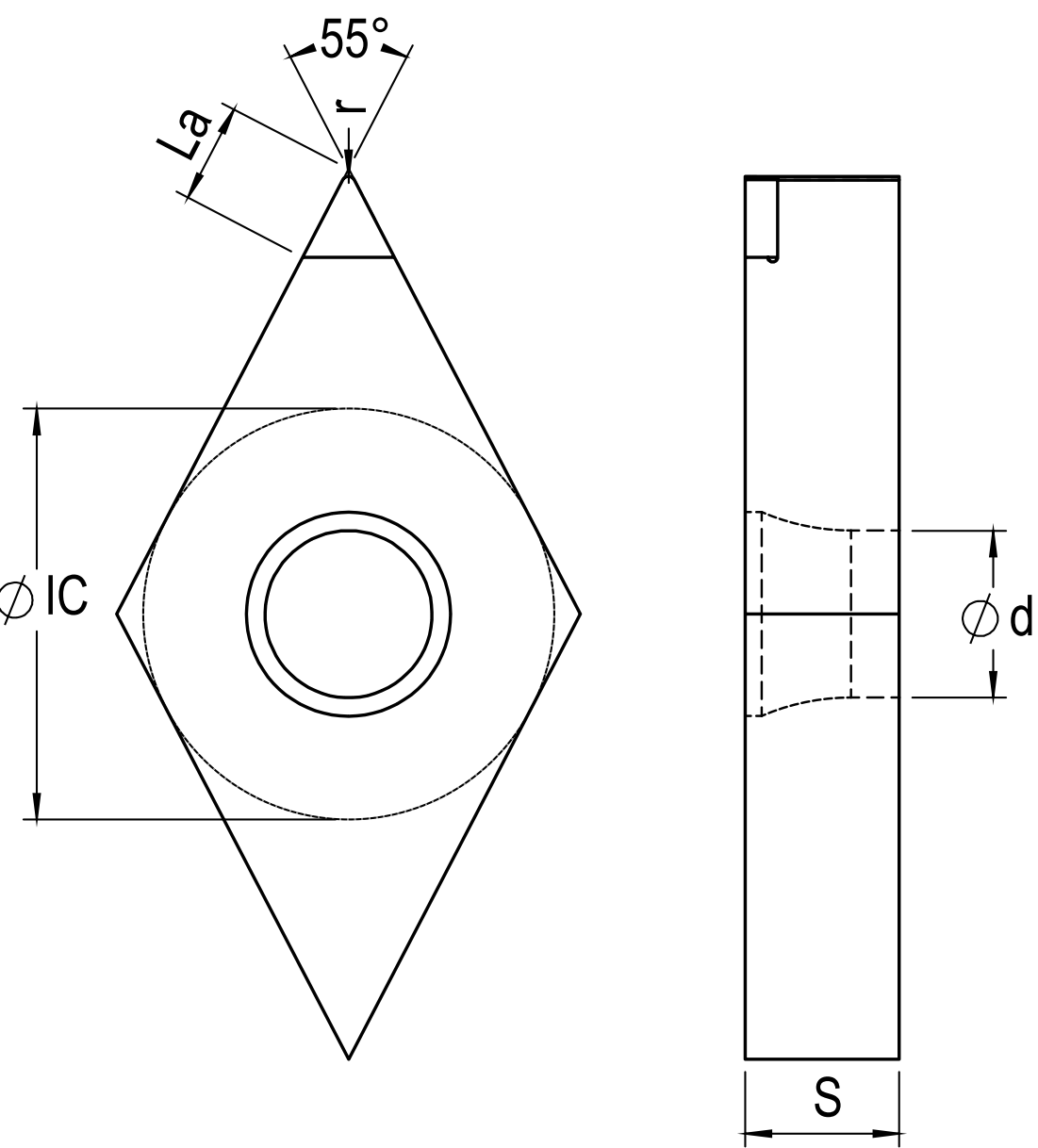
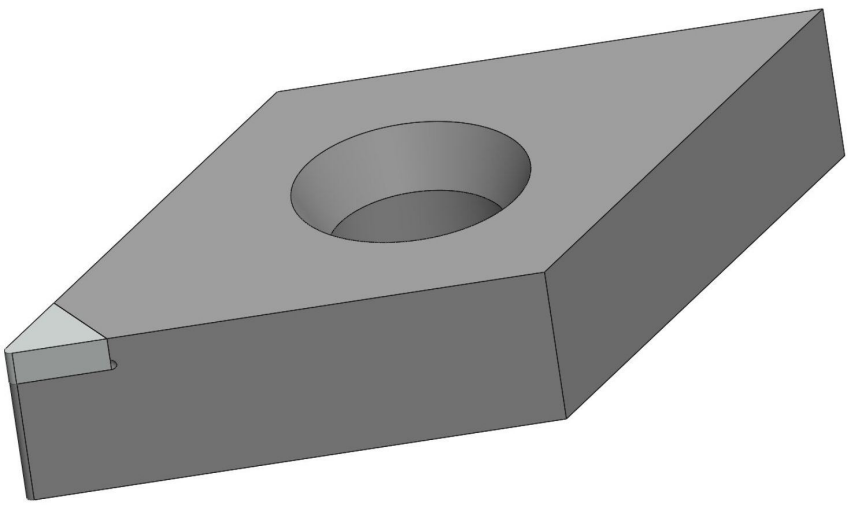
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC   | Ød   | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|------|------|------|-----|-----|
|  | CNGA 120402 |  | 1    | 12.7 | 5.16 | 4.76 | 0.2 | 2.5 |
|                                                                                     | CNGA 120404 |                                                                                      |      |      |      |      | 0.4 |     |
|                                                                                     | CNGA 120408 |                                                                                      |      |      |      |      | 0.8 |     |
|                                                                                     | CNGM 120402 |                                                                                      |      |      |      |      | 0.2 |     |
|                                                                                     | CNGM 120404 |                                                                                      |      |      |      |      | 0.4 |     |
|                                                                                     | CNGM 120408 |                                                                                      |      |      |      |      | 0.8 |     |

DN

55° Negative Screw-down

Standard

DN▲▲ 1504 ▲▲

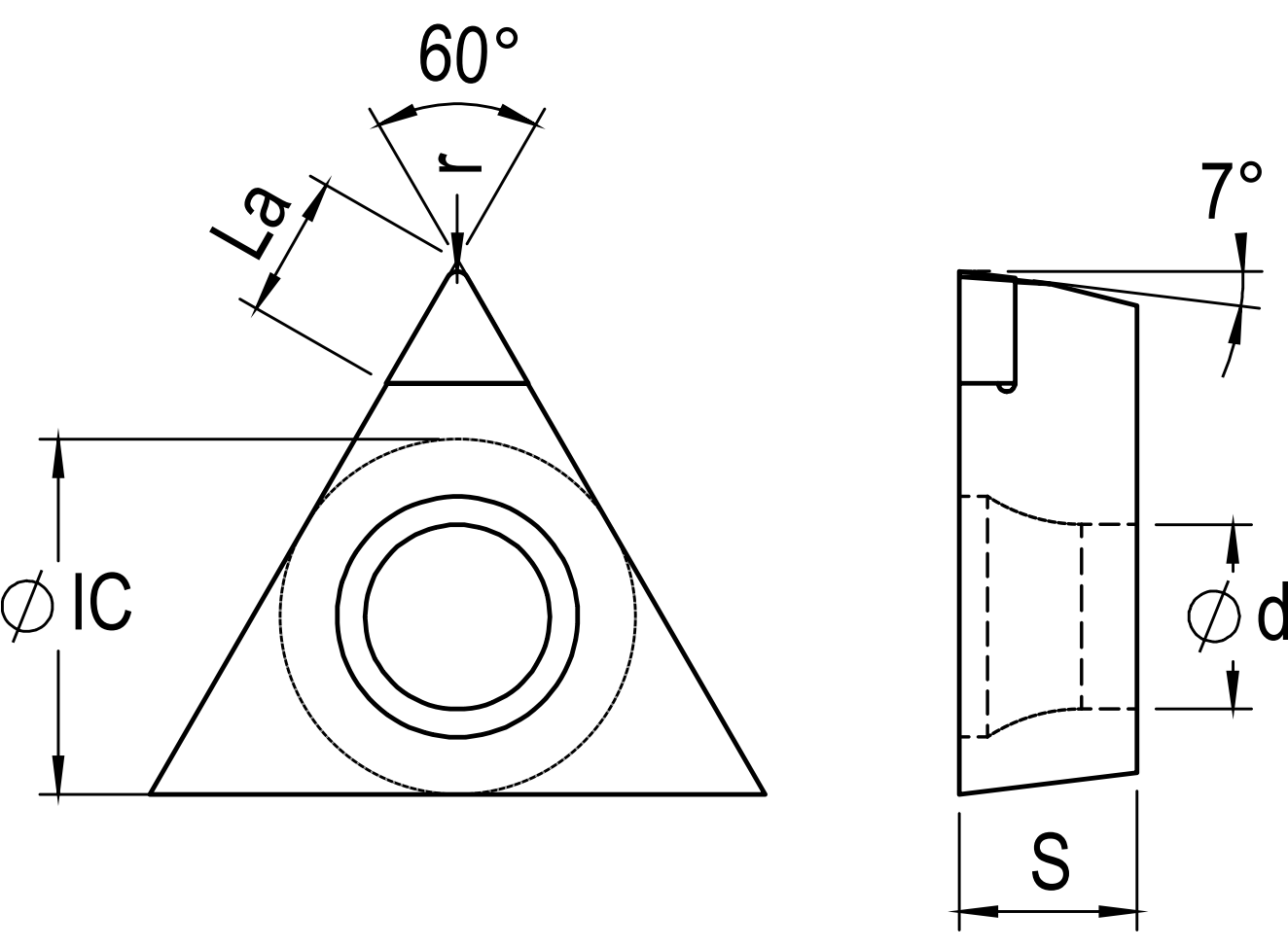
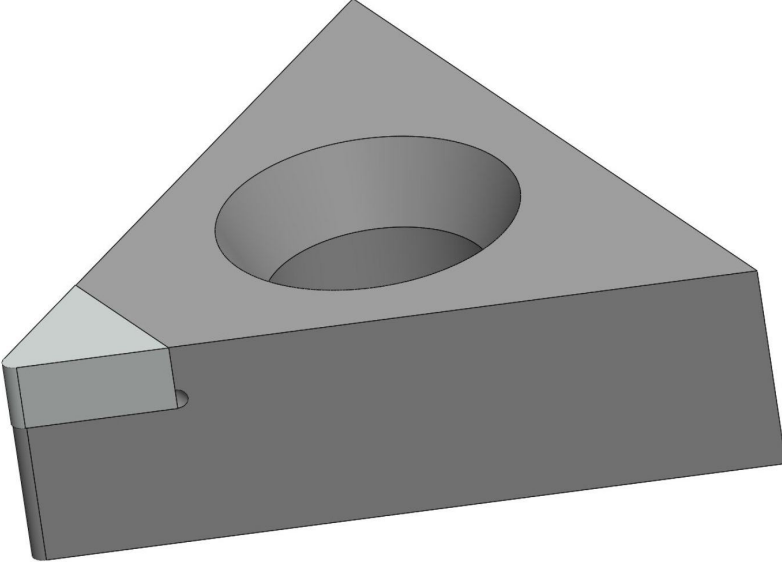
| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC   | Ød   | S    | rε  | La  |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|------|------|------|-----|-----|
|  | DNGA 150402 |  | 1    | 12.7 | 5.16 | 4.76 | 0.2 | 2.5 |
|                                                                                     | DNGA 150404 |                                                                                      |      |      |      |      | 0.4 |     |
|                                                                                     | DNGA 150408 |                                                                                      |      |      |      |      | 0.8 |     |
|                                                                                     | DNGM 150402 |                                                                                      |      |      |      |      | 0.2 |     |
|                                                                                     | DNGM 150404 |                                                                                      |      |      |      |      | 0.4 |     |
|                                                                                     | DNGM 150408 |                                                                                      |      |      |      |      | 0.8 |     |

TN

55° Negative Screw-down

Standard

TN▲▲ 1604 ▲▲

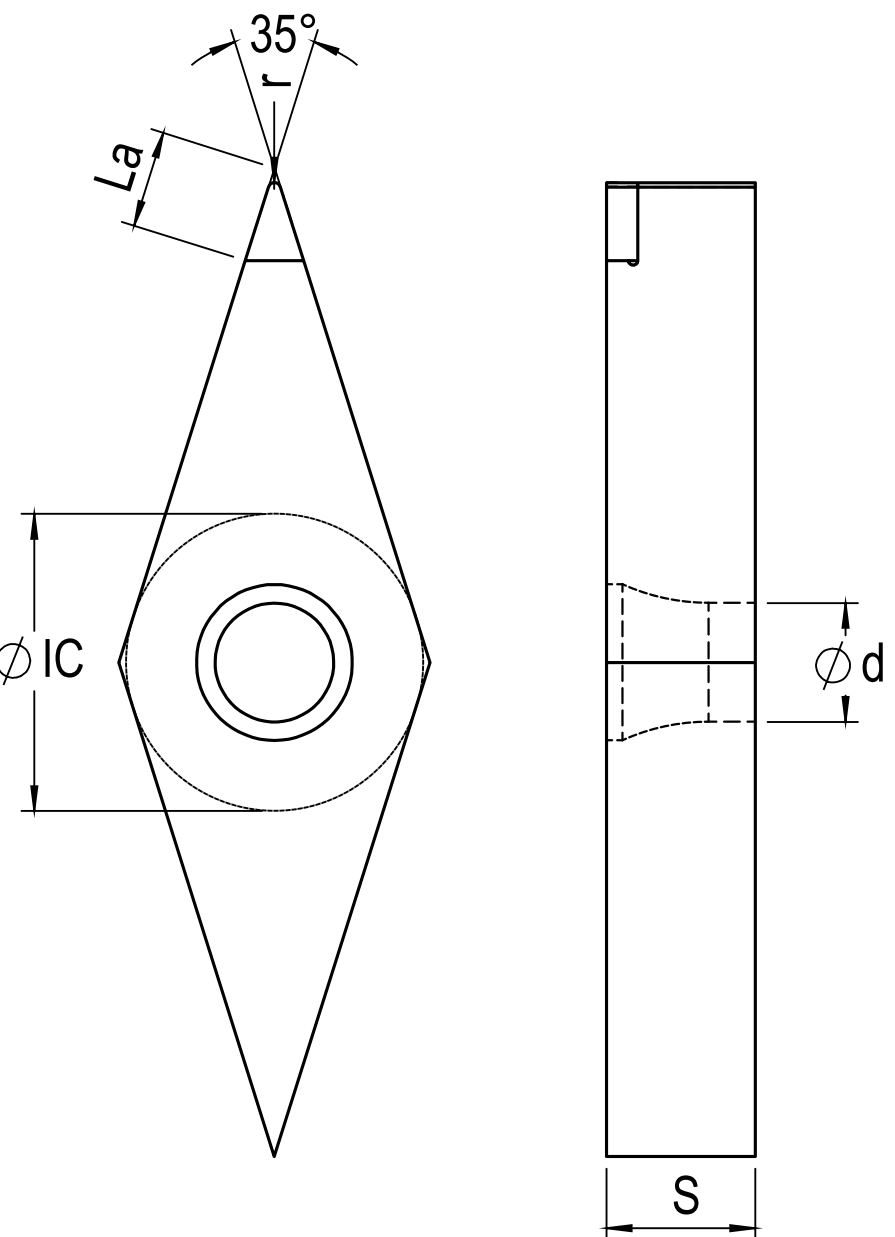
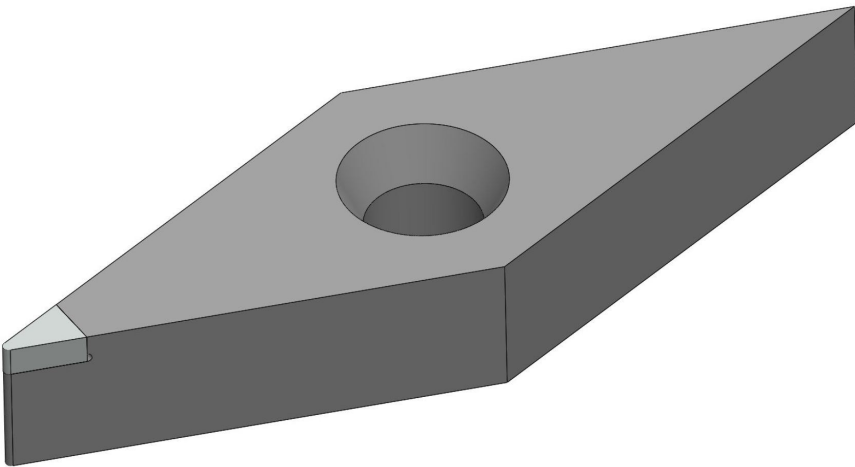
| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC    | Ød   | S    | rε  | La  |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|-------|------|------|-----|-----|
|  | TNGA 160402 |  | 1    | 9.525 | 3.81 | 4.76 | 0.2 | 2.5 |
|                                                                                    | TNGA 160404 |                                                                                    |      |       |      |      | 0.4 |     |
|                                                                                    | TNGA 160408 |                                                                                    |      |       |      |      | 0.8 |     |
|                                                                                    | TNGM 160402 |                                                                                    |      |       |      |      | 0.2 |     |
|                                                                                    | TNGM 160404 |                                                                                    |      |       |      |      | 0.4 |     |
|                                                                                    | TNGM 160408 |                                                                                    |      |       |      |      | 0.8 |     |

VN

35° Negative Screw-down

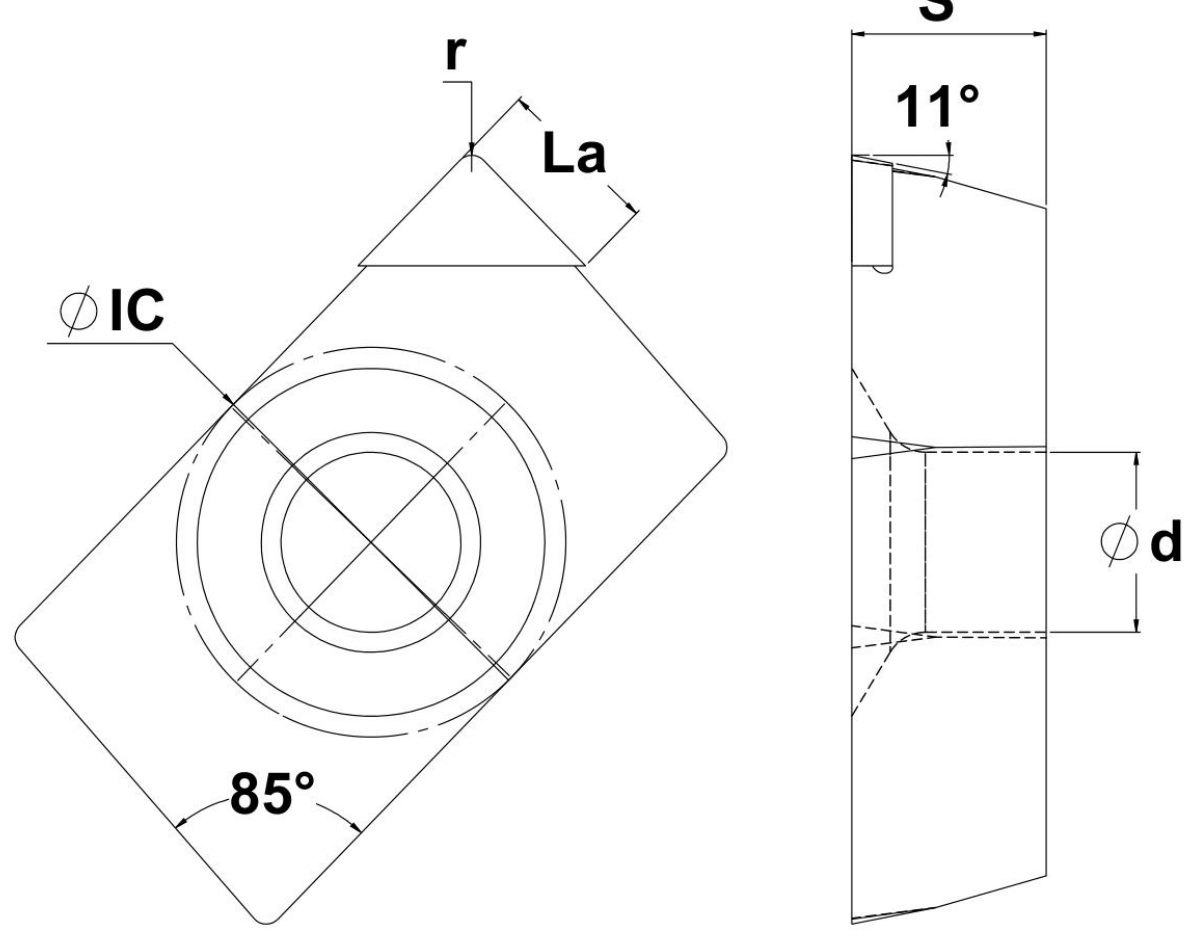
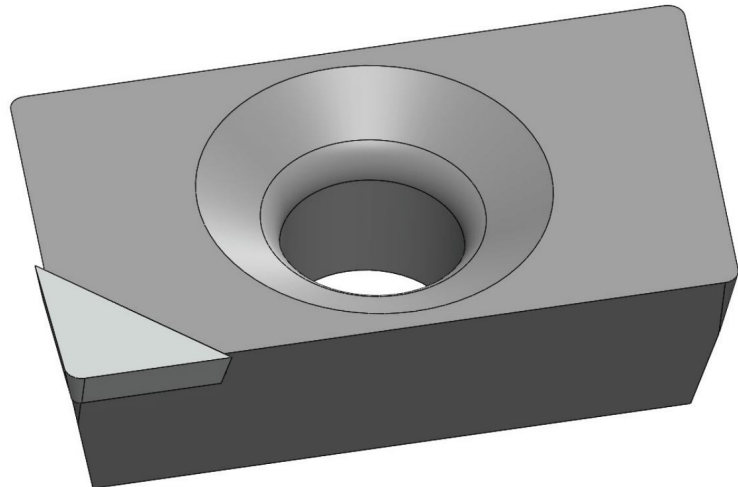
Standard

VN▲▲ 1604 ▲▲

| Shape                                                                               | ISO         | 3D Image                                                                             | Tips | IC    | Ød   | S    | rε  | La |
|-------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------|------|-------|------|------|-----|----|
|  | VNGA 160402 |  | 1    | 9.525 | 3.81 | 4.76 | 0.2 | 3  |
|                                                                                     | VNGA 160404 |                                                                                      |      |       |      |      | 0.4 |    |
|                                                                                     | VNGA 160408 |                                                                                      |      |       |      |      | 0.8 |    |
|                                                                                     | VNGM 160402 |                                                                                      |      |       |      |      | 0.2 |    |
|                                                                                     | VNGM 160404 |                                                                                      |      |       |      |      | 0.4 |    |
|                                                                                     | VNGM 160408 |                                                                                      |      |       |      |      | 0.8 |    |

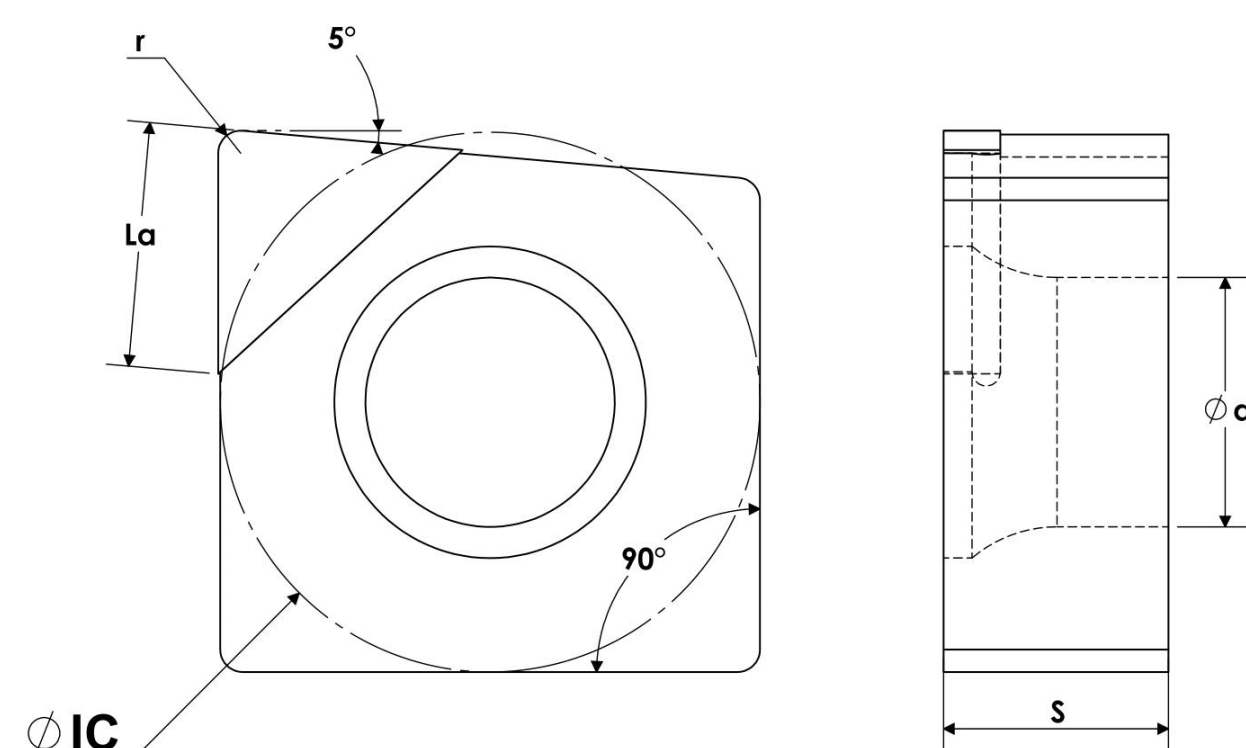
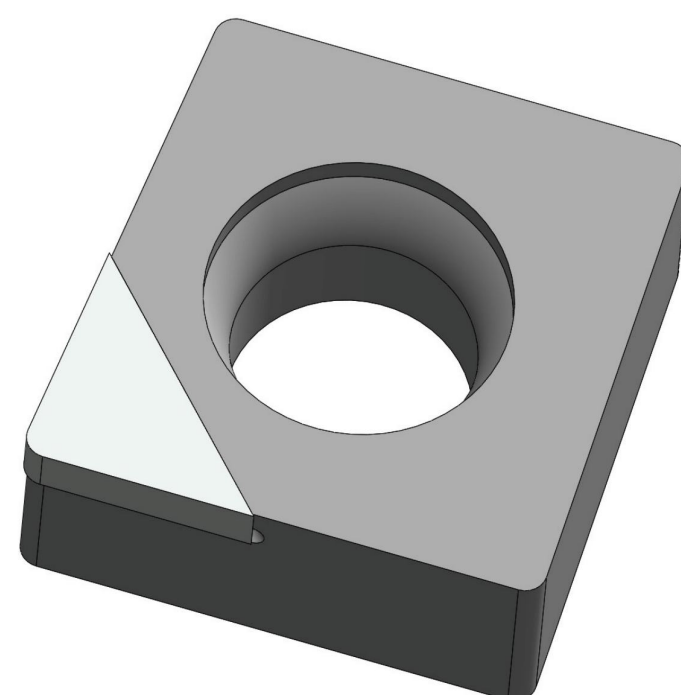
AP

MILLING  
Standard  
APKT

| Shape                                                                              | ISO         | 3D Image                                                                           | Tips | IC   | Ød  | S   | rE  | La |
|------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------|------|------|-----|-----|-----|----|
|  | APKT 113504 |  | 1    | 6.17 | 2.8 | 3.5 | 0.4 | 4  |
|                                                                                    | APKT 113508 |                                                                                    |      |      |     |     | 0.8 |    |
|                                                                                    | APKT 113512 |                                                                                    |      |      |     |     | 1.2 |    |
|                                                                                    | APKT 160404 |                                                                                    | 1    | 9.40 | 4.4 | 5.2 | 0.4 |    |
|                                                                                    | APKT 160408 |                                                                                    |      |      |     |     | 0.8 |    |
|                                                                                    | APKT 160412 |                                                                                    |      |      |     |     | 1.2 |    |

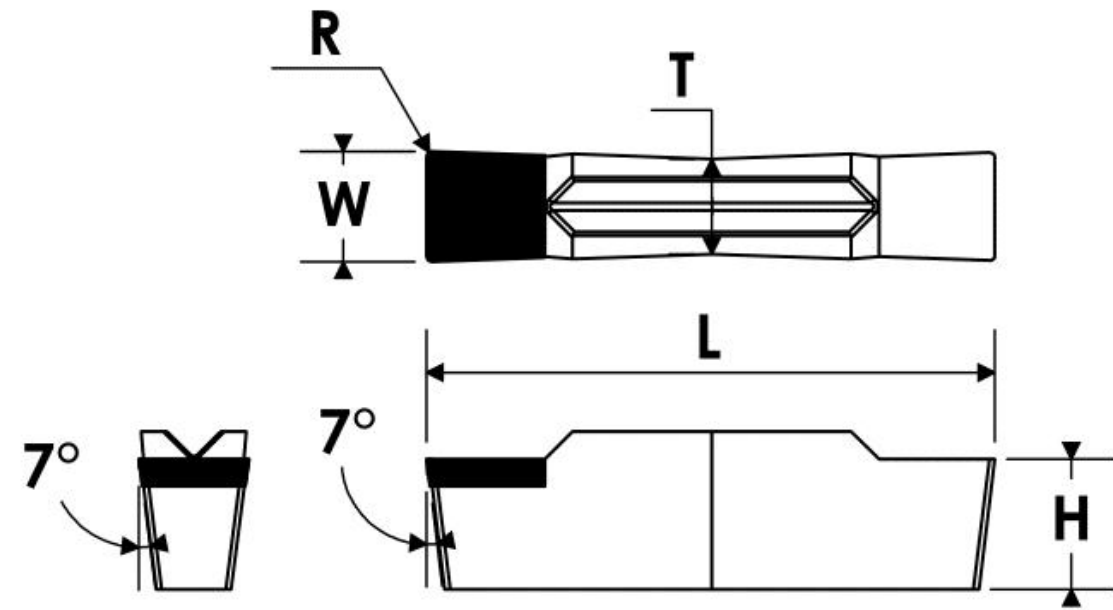
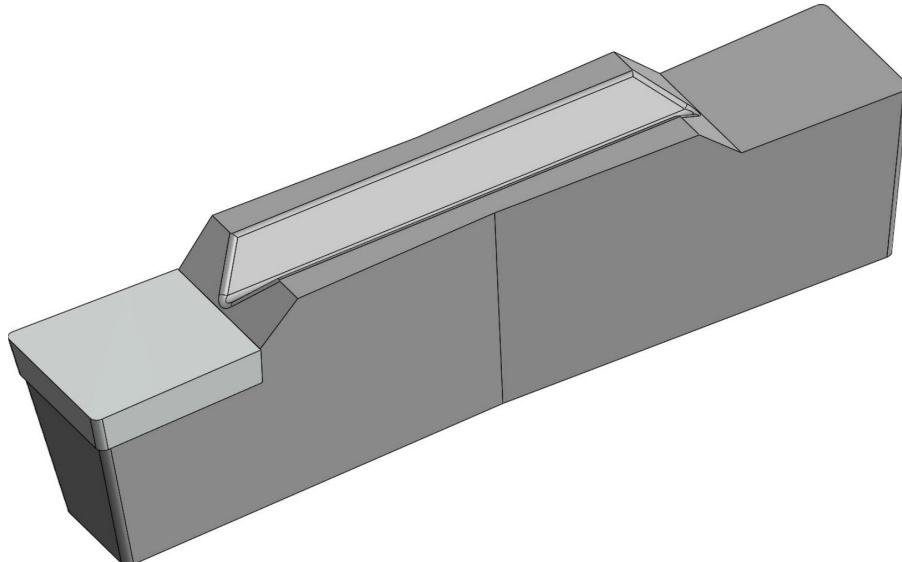
SN

MILLING  
Standard  
SNEX

| Shape                                                                               | ISO       | 3D Image                                                                             | Tips | IC   | Ød | S    | rE  | La |
|-------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|------|------|----|------|-----|----|
|  | SNEX 09T3 |  | 1    | 9.40 | 4  | 3.96 | 0.4 | 4  |
|                                                                                     | SNEX 1204 |                                                                                      | 0.8  |      |    |      |     |    |
|                                                                                     |           |                                                                                      | 1.2  |      |    |      |     |    |
|                                                                                     |           |                                                                                      | 0.4  |      |    |      |     |    |
|                                                                                     |           |                                                                                      | 0.8  |      |    |      |     |    |
|                                                                                     |           |                                                                                      | 1.2  |      |    |      |     |    |

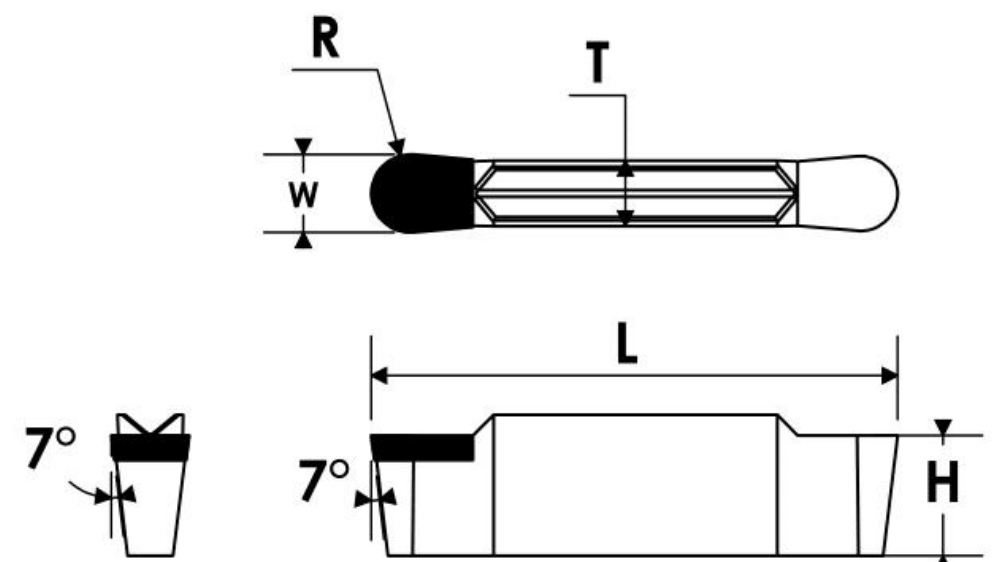
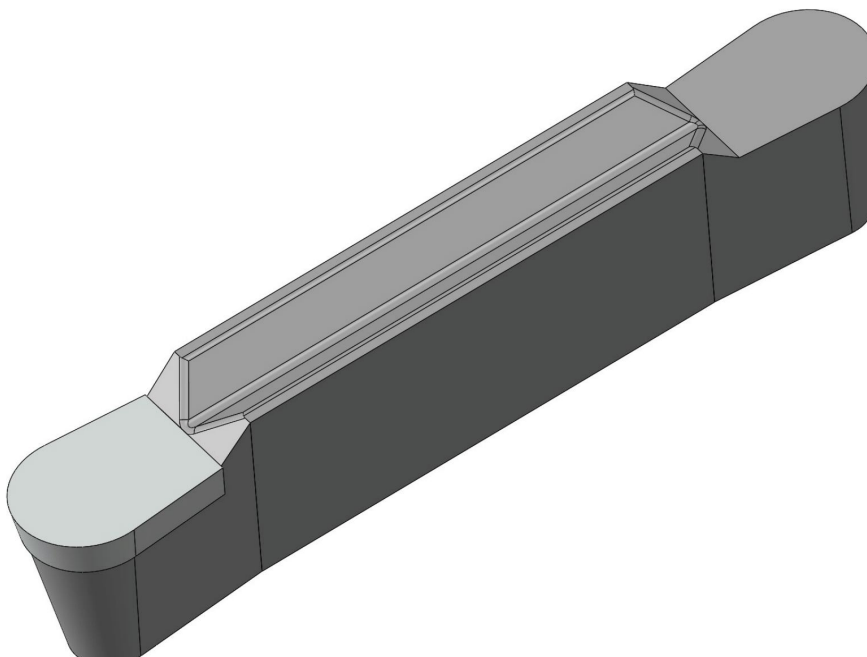
HG

GROOVING  
Standard  
HGGN▲OO

| Shape                                                                             | ISO     | 3D Image                                                                           | W±0.02 | R   | L    | T   | H   |
|-----------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------|--------|-----|------|-----|-----|
|  | HGGN200 |  | 2.0    | 0.2 | 16.0 | 1.6 | 3.5 |
|                                                                                   | HGGN300 |                                                                                    | 3.0    |     | 21.0 | 2.3 | 4.8 |
|                                                                                   | HGGN400 |                                                                                    | 4.0    |     | 21.0 | 3.3 | 4.8 |
|                                                                                   | HGGN500 |                                                                                    | 5.0    |     | 26.0 | 4.1 | 5.8 |
|                                                                                   | HGGN600 |                                                                                    | 6.0    |     | 26.0 | 5.0 | 5.8 |
|                                                                                   | HGGN800 |                                                                                    | 8.0    |     | 31.0 | 6.0 | 6.5 |

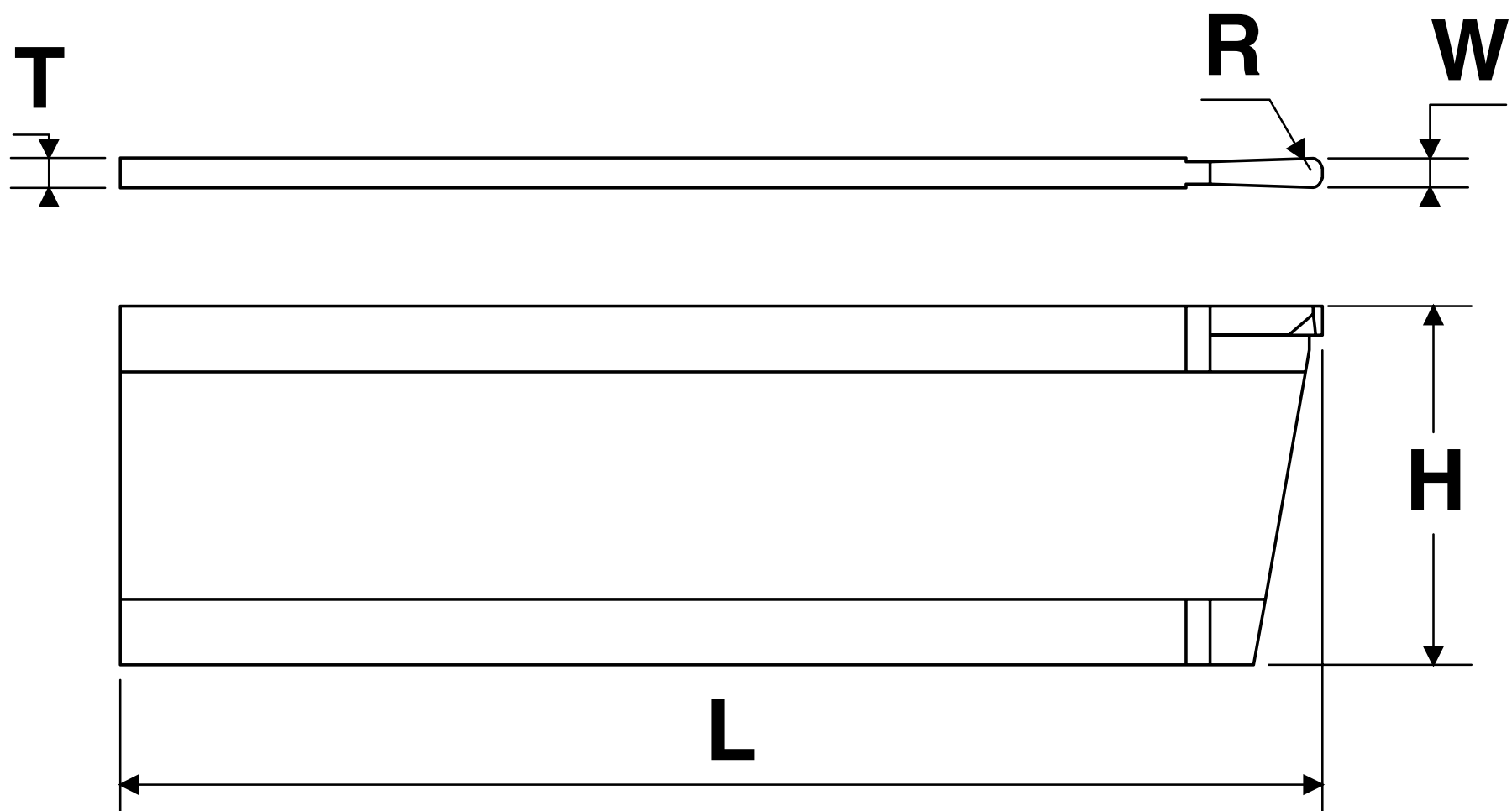
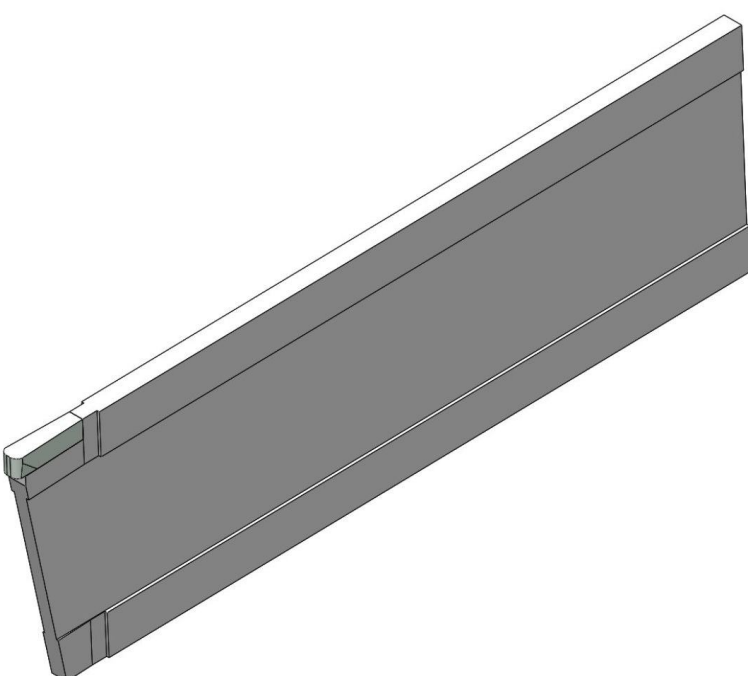
HR

GROOVING  
Special  
HRMN▲OO

| Shape                                                                               | ISO     | 3D Image                                                                             | W±0.02 | R   | L    | T   | H   |
|-------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------|--------|-----|------|-----|-----|
|  | HRMN300 |  | 3.0    | 1.5 | 21.0 | 2.3 | 4.8 |
|                                                                                     | HRMN400 |                                                                                      | 4.0    | 2.0 | 21.0 | 3.3 | 4.8 |
|                                                                                     | HRMN500 |                                                                                      | 5.0    | 2.5 | 26.0 | 4.1 | 5.8 |
|                                                                                     | HRMN600 |                                                                                      | 6.0    | 3.0 | 26.0 | 5.0 | 5.8 |
|                                                                                     | HRMN800 |                                                                                      | 8.0    | 4.0 | 31.0 | 6.0 | 6.5 |

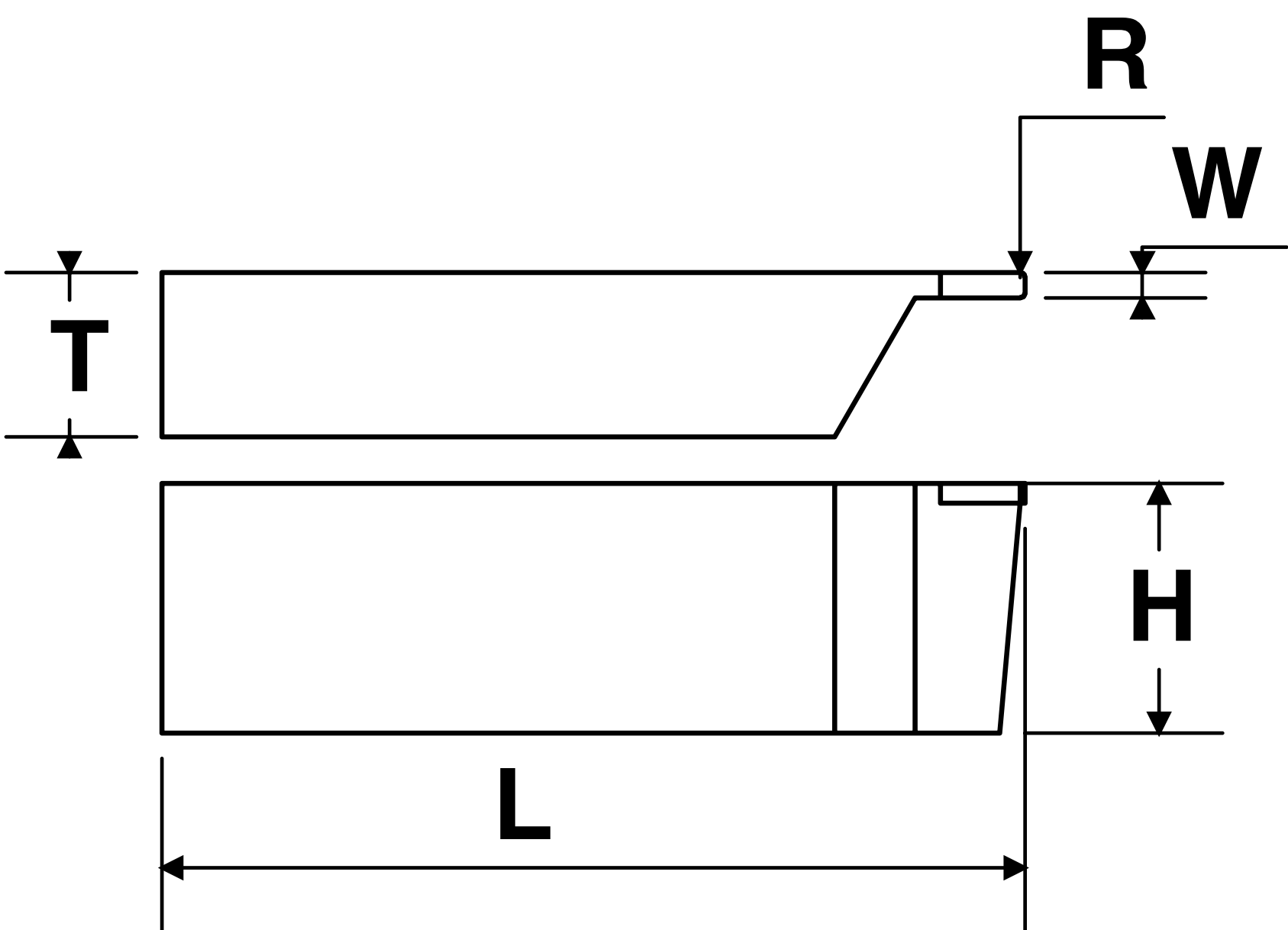
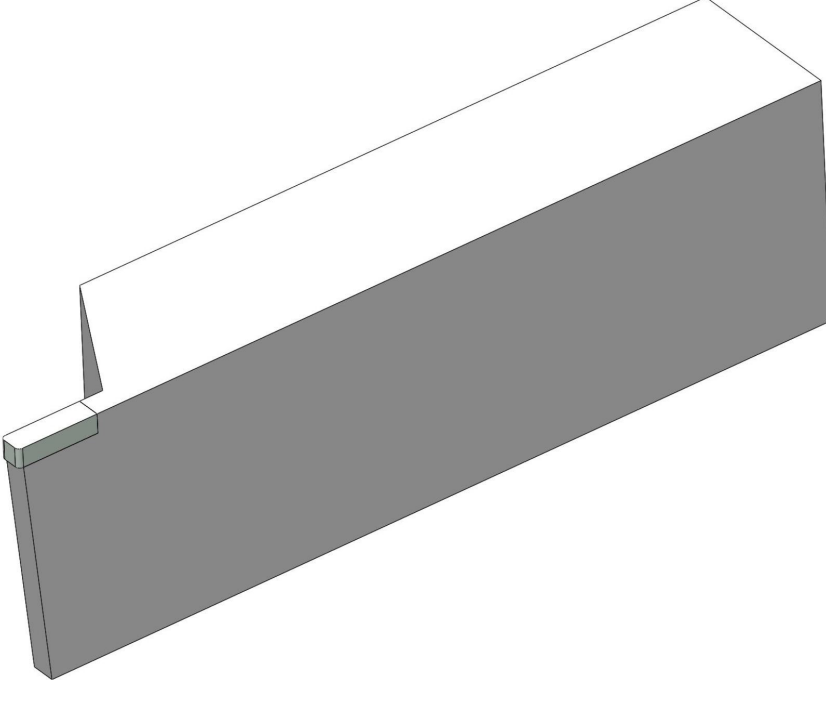
GBC

GROOVING  
Special  
Carbide

| Shape                                                                               | 3D Image                                                                             | W±0.02 | R    | L  | T    | H  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|------|----|------|----|
|  |  | 1.25   | 0.5  | 75 | 1.25 | 15 |
|                                                                                     |                                                                                      | 2.16   | 0.25 | 75 | 2.16 | 15 |
|                                                                                     |                                                                                      | 3.64   | 1    | 75 | 3.64 | 15 |
|                                                                                     |                                                                                      | 4.04   | 0.25 | 75 | 4.04 | 15 |
|                                                                                     |                                                                                      | 5.0    | 2    | 75 | 5.0  | 15 |

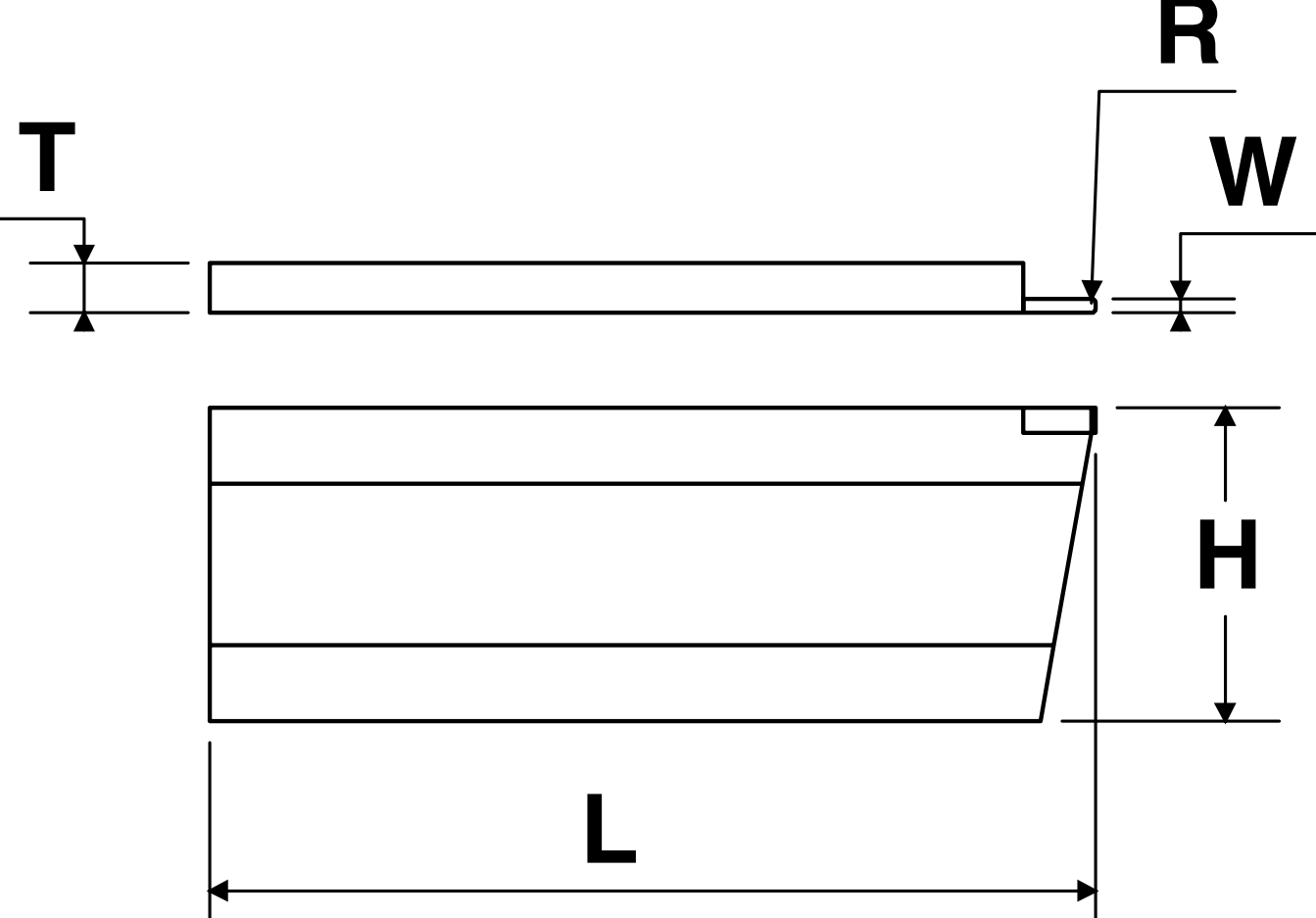
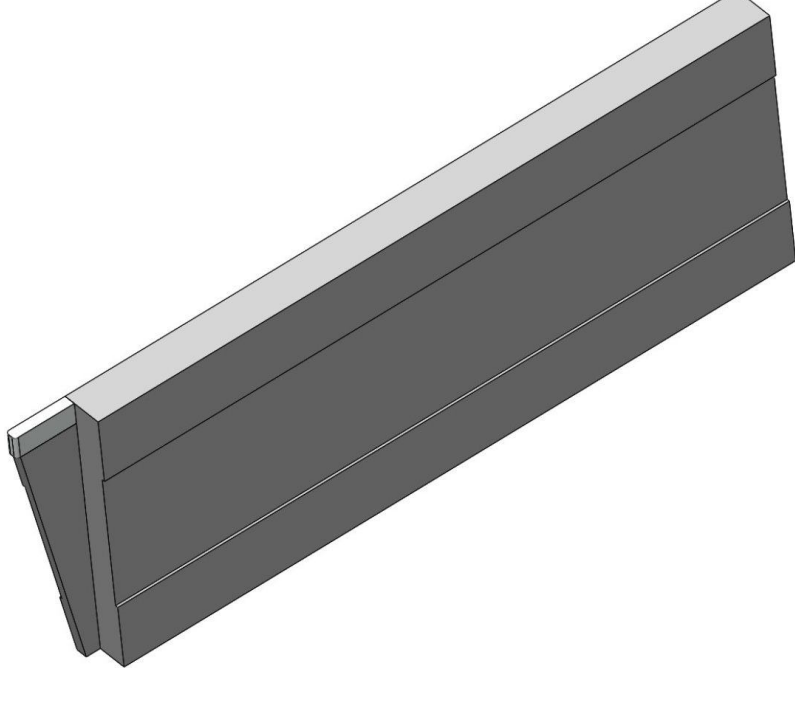
GBS

GROOVING  
Special  
Steel

| Shape                                                                              | 3D Image                                                                           | W±0.02 | R   | L   | T  | H  |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|-----|-----|----|----|
|  |  | 2.5    | 0.5 | 150 | 25 | 25 |
|                                                                                    |                                                                                    | 3      | 0.5 | 150 | 25 | 25 |
|                                                                                    |                                                                                    | 5.3    | 0.5 | 150 | 25 | 25 |

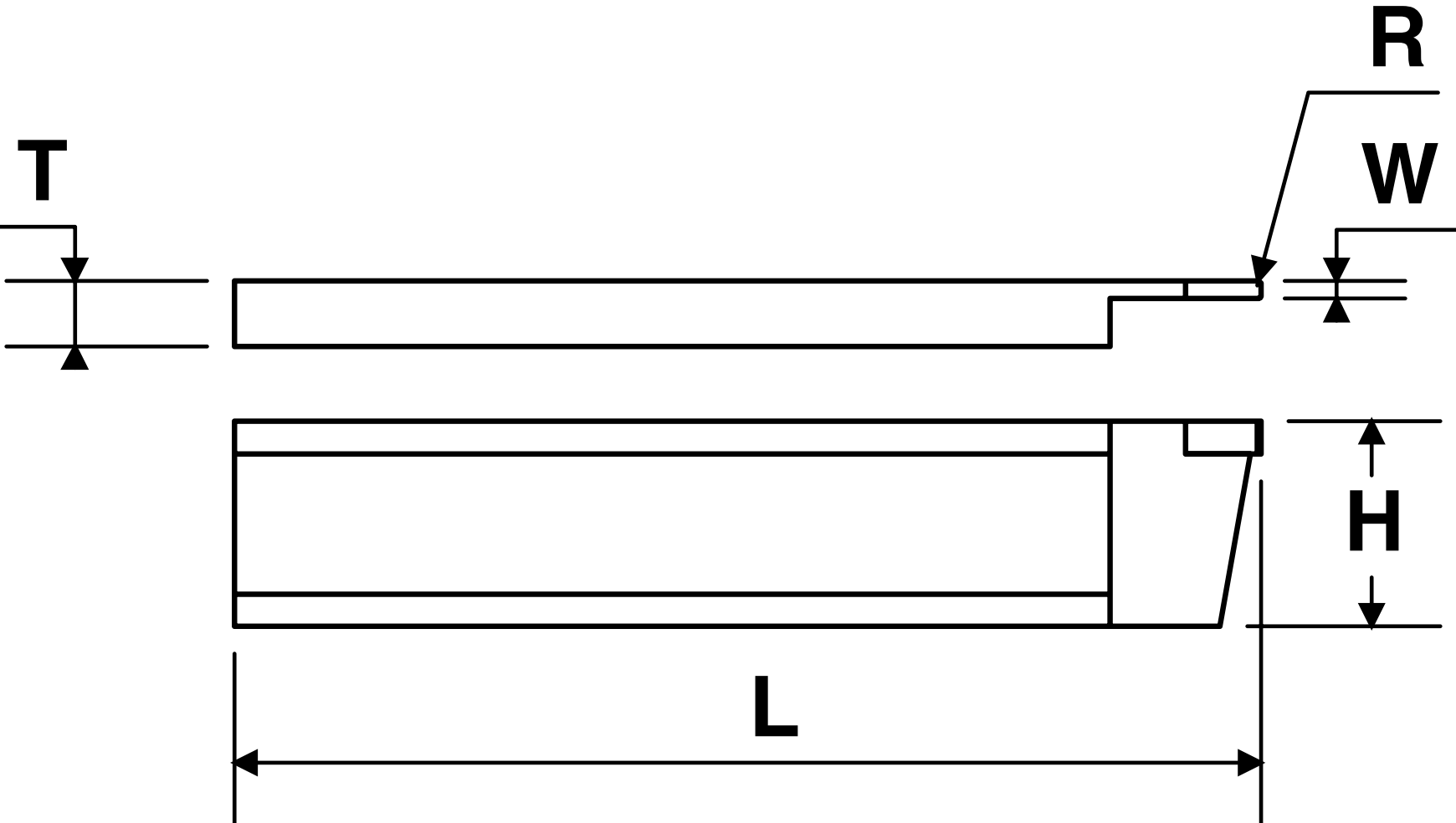
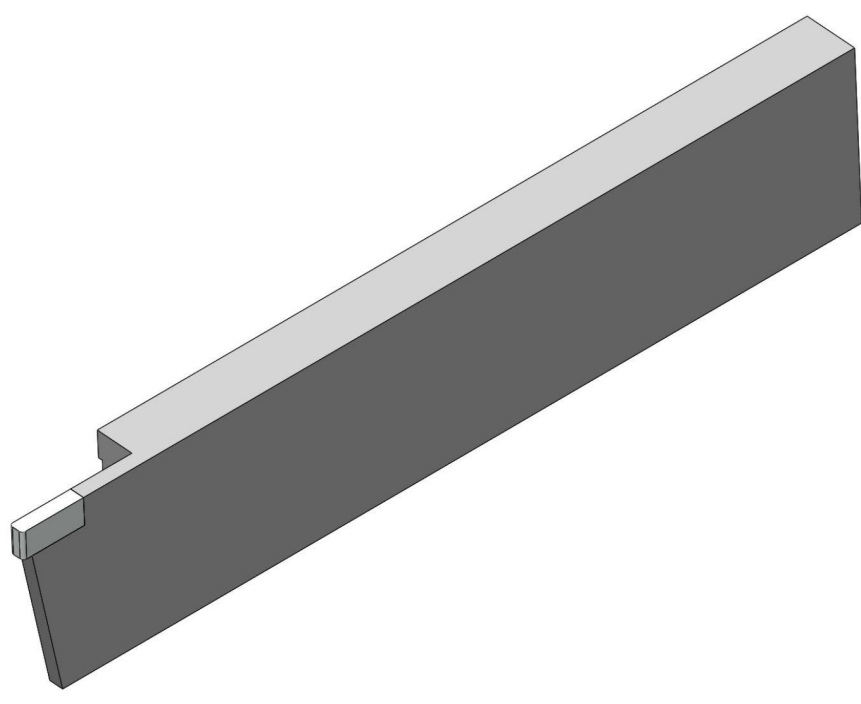
GBCL

GROOVING  
Special  
Carbide

| Shape                                                                               | 3D Image                                                                             | W±0.02 | R    | L  | T    | H    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|------|----|------|------|
|  |  | 0.82   | 0.25 | 80 | 2.92 | 18.5 |
|                                                                                     |                                                                                      | 1.67   | 0.25 | 75 | 5.06 | 16   |
|                                                                                     |                                                                                      | 2.02   | 0.25 | 80 | 2.02 | 15.5 |
|                                                                                     |                                                                                      | 3.263  | 0.3  | 55 | 7.24 | 16   |
|                                                                                     |                                                                                      | 4.56   | 0.3  | 75 | 4.56 | 16   |

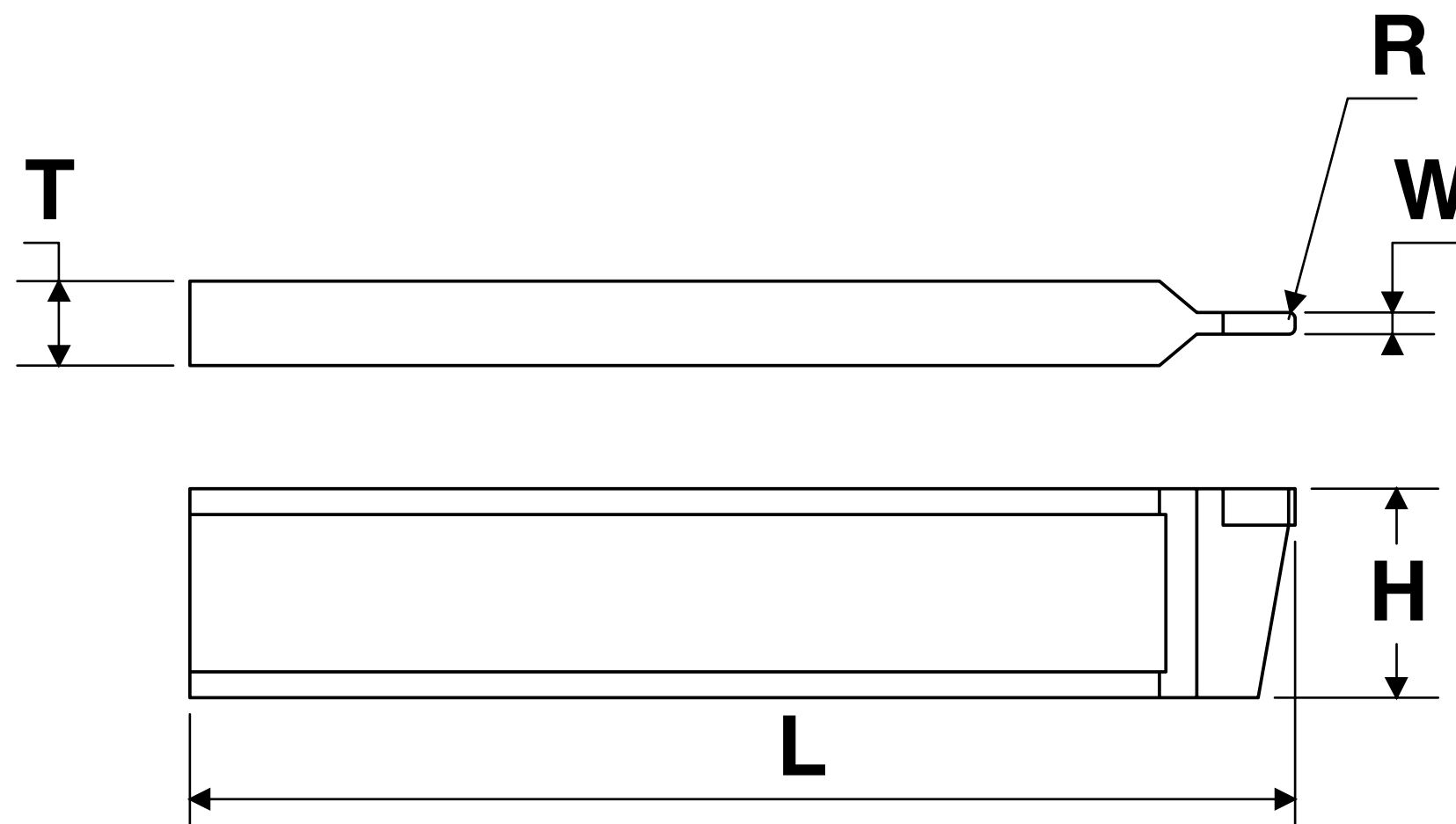
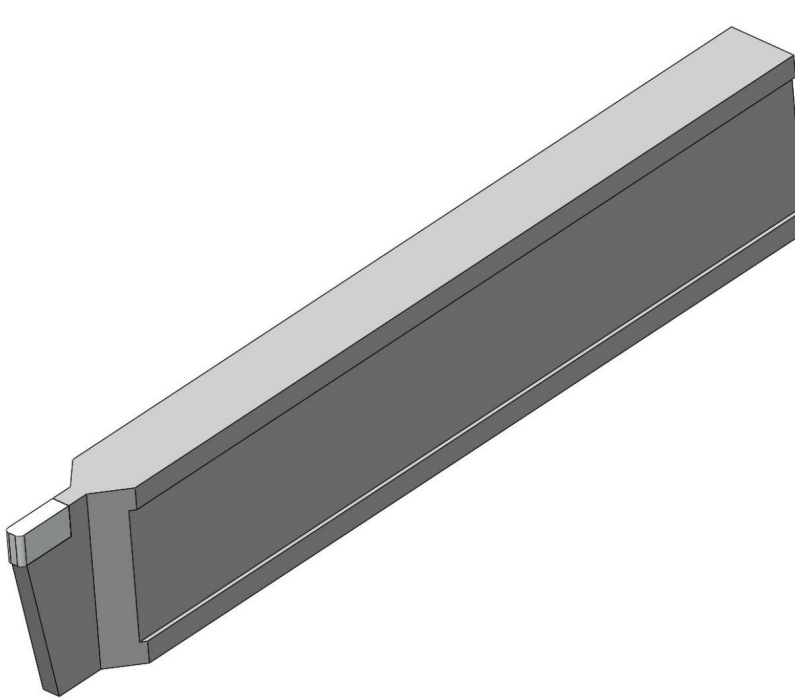
GBCR

GROOVING  
Special  
Carbide

| Shape                                                                               | 3D Image                                                                             | W±0.02 | R    | L  | T   | H    |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|------|----|-----|------|
|  |  | 0.82   | 0.2  | 75 | 9.5 | 3.02 |
|                                                                                     |                                                                                      | 1.02   | 0.25 | 75 | 9.5 | 3.02 |
|                                                                                     |                                                                                      | 2.445  | 0.25 | 75 | 15  | 6.44 |
|                                                                                     |                                                                                      | 4.057  | 0.95 | 75 | 15  | 6    |
|                                                                                     |                                                                                      | 5.1    | 1.0  | 72 | 15  | 8    |

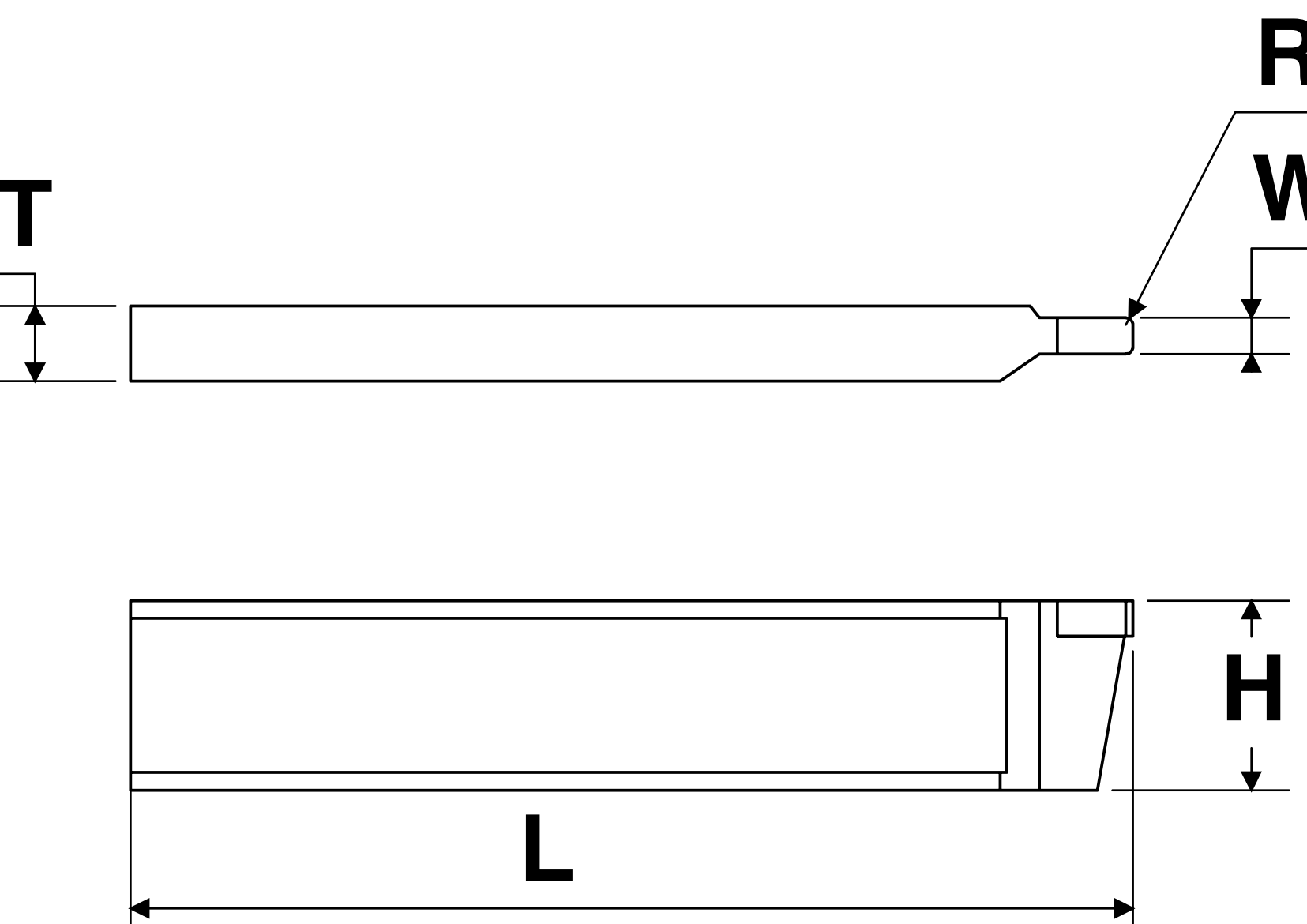
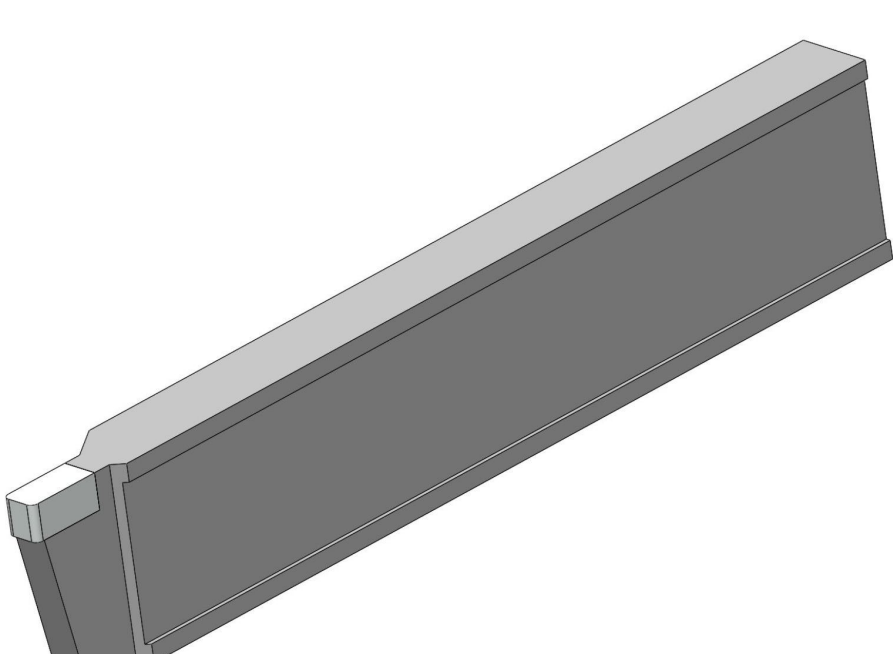
GBCS

GROOVING  
Special  
Carbide

| Shape                                                                             | 3D Image                                                                           | W±0.02 | R     | L  | T     | H |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|-------|----|-------|---|
|  |  | 0.837  | 0.25  | 70 | 3.237 | 8 |
|                                                                                   |                                                                                    | 1.227  | 0.2   | 70 | 4.227 | 8 |
|                                                                                   |                                                                                    | 1.247  | 0.2   | 70 | 4.247 | 8 |
|                                                                                   |                                                                                    | 1.547  | 0.425 | 70 | 4     | 8 |
|                                                                                   |                                                                                    | 1.642  | 0.2   | 70 | 4.042 | 8 |

GBCS

GROOVING  
Special  
Carbide

| Shape                                                                               | 3D Image                                                                             | W±0.02 | R   | L  | T     | H |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|-----|----|-------|---|
|  |  | 1.527  | 0.3 | 70 | 3.18  | 8 |
|                                                                                     |                                                                                      | 2.032  | 0.4 | 70 | 2.232 | 8 |

ZERTIFIKAT • CERTIFICATE • 認證證書 • CERTIFICADO • CERTIFICAT



# CERTIFICATE

Certificate Registration No: 951 24 6031

The Certification Body of  
TÜV SÜD AMERICA INC.

Certifies that the organization

**HARDTEN PRECISION TECHNOLOGIES PVT LTD**  
253, Ground Floor, Bhatpore GIDC, Surat,  
Gujarat 394510 India

for the scope

**Manufacture and Supply of Precision Diamond Tools**

has established and applies a Quality Management System.  
An audit was performed and has furnished proof that the requirements according to

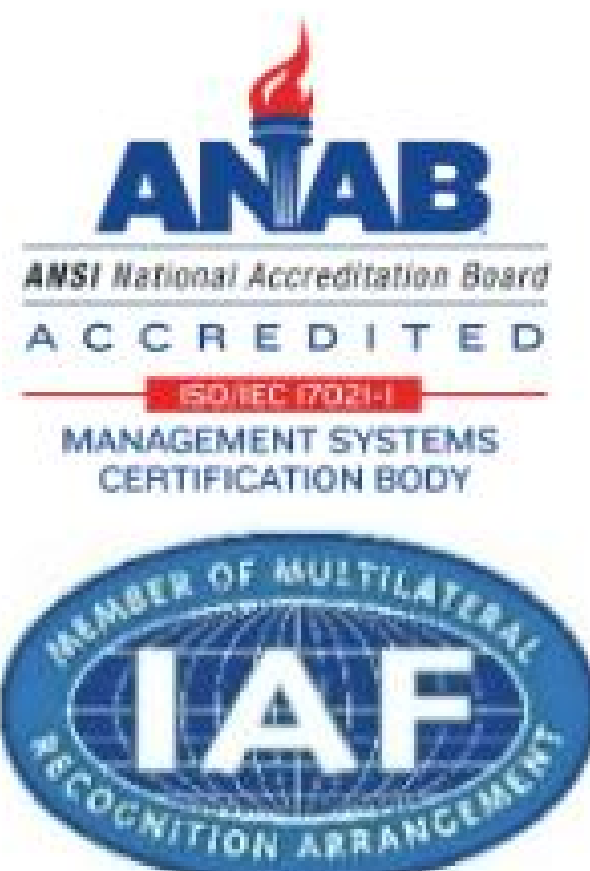
**AS 9100D and ISO 9001:2015**

(technically equivalent to prEN 9100 :2016 and JISQ 9100 – 2016)  
The assessment was performed in accordance with the requirements of AS9104/1:2012-1. TÜV SÜD America Inc.  
is accredited under the International Aerospace Quality Group Industry Controlled Other Party Management System

are fulfilled.

The certificate is valid from June 14, 2024 until June 13, 2027 with a re-issue date on N/A

  
Michael Fernald  
Head of Central Certification Body



TÜV SÜD America Inc • 401 Edgewater Place, Suite 500 • Wakefield, MA 01880 USA • [www.TUVSUD.com](http://www.TUVSUD.com)

The validity of this certificate is contingent on the company maintaining its management system to the requirements of the indicated standard and is subject to regular monitoring by TÜV SÜD America.





Scan to know more



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Surat – 394510



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