

# TURNING TOOLS



# About GESAC

Xiamen Golden Egret Special Alloy Co., Ltd. (GESAC), founded in 1989, is a Sino-foreign joint venture with national high-tech, affiliated with XTC, which is one of six major rare earth groups in China. GESAC is committed to research & development, production and professional solutions providing of high-quality tungsten powder materials, cemented carbide, precision cutting tools and other tungsten products. Up to now, GESAC has become world-famous manufacturer and supplier of tungsten powder, cemented carbide and precision cutting tools products.

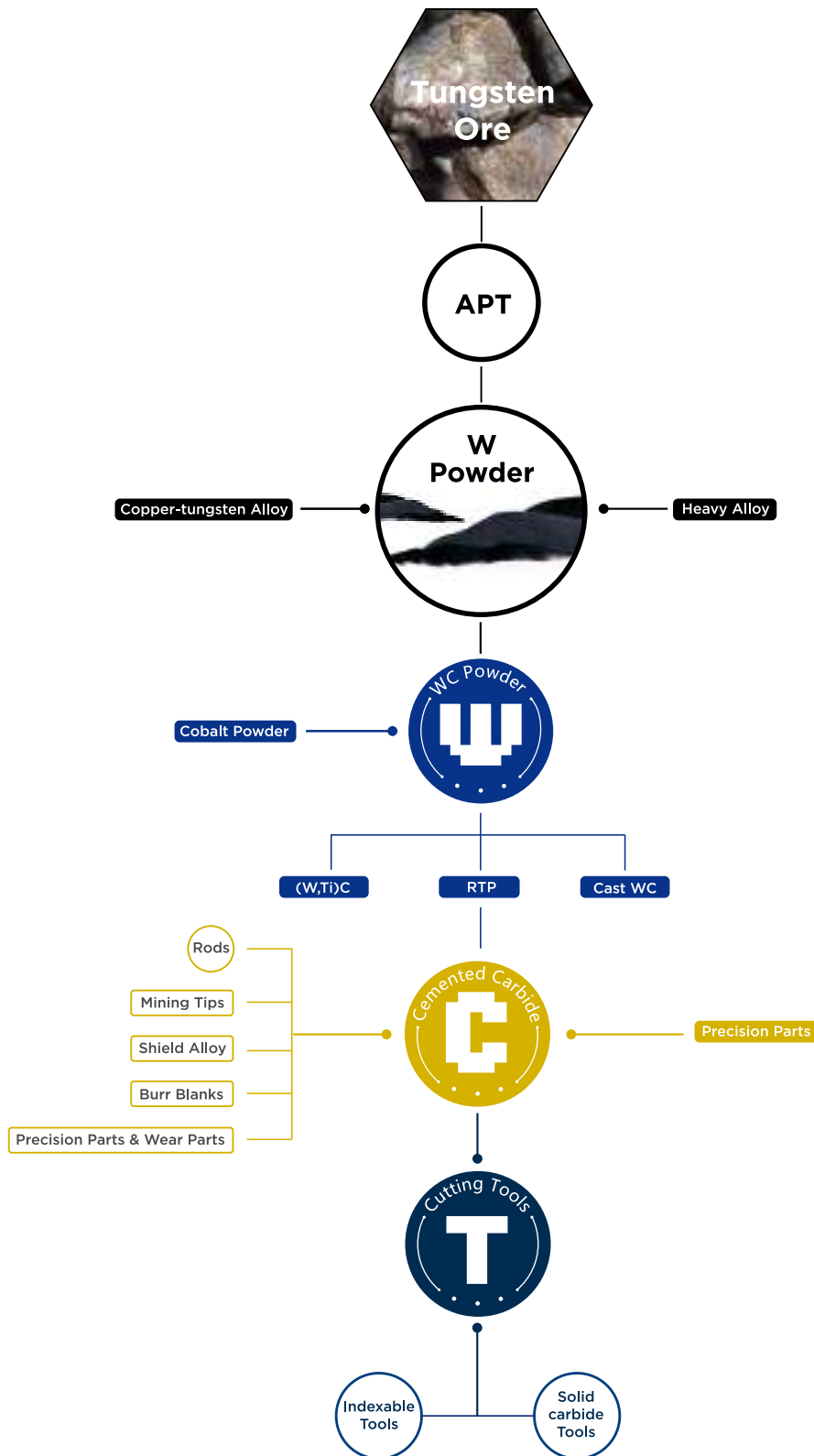
With the Integrated Product Development of complete tungsten industry chain, as well as a pragmatic and innovative management concept, GESAC has always maintained a strong momentum of development, providing the cost effective tungsten powder products and services for global users, offering the excellent products and perfect solutions for solving high hardness, high temperature resistance and wear resistance topics. Our brand "Golden Egret" has become one of the leading brand in the market, enjoying famous reputation in more than 40 countries and regions.

GESAC owns four production headquarters and one national level research center domestically, and three sales branches and one production base overseas. We undertook and completed several development programs independently, including the "National Science and Technology Support Programs", the "National Torch Program Projects", and the "National Key Projects" and so on. GESAC was awarded as "Key Enterprise for Strategic Emerging Industry", "Innovative Enterprise" and "Enterprise with Advanced Technology".



# Product Chain

GESAC has a complete tungsten product chain from tungsten ore to tungsten powder, cemented carbide products and cutting tools.



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A

INSERT MATERIAL




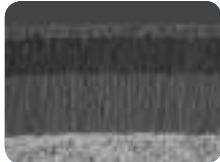
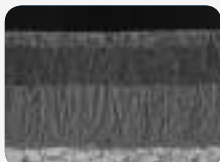
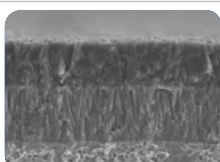
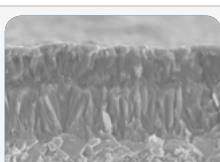


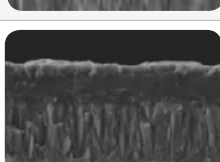
## Application Summary of Turning Grades

| Workpiece | ISO | Coated Carbide |        | Carbide |
|-----------|-----|----------------|--------|---------|
|           |     | CVD            | PVD    |         |
| <b>P</b>  | 01  | GPT6110        |        |         |
|           | 10  | GPT6120        |        |         |
|           | 20  | GPT6130        |        | GA4230  |
|           | 30  | GPT6130        |        |         |
|           | 40  | GPT6130        |        |         |
|           | 50  | GPT6130        |        |         |
| <b>M</b>  | 01  |                |        |         |
|           | 10  | GM1115         | GM3215 |         |
|           | 20  | GM1125         | GM3220 | GA4230  |
|           | 30  | GM1125         | GM3225 |         |
|           | 40  |                |        |         |
|           | 50  |                |        |         |
| <b>K</b>  | 01  |                |        |         |
|           | 10  | GK1115         |        |         |
|           | 20  | GK1120         |        | GA4230  |
|           | 30  | GK1125         |        |         |
|           | 40  |                |        |         |
| <b>N</b>  | 01  |                |        | GN9115  |
|           | 10  |                |        | GN9120  |
|           | 20  |                | GN3125 | GN9130  |
|           | 30  |                |        |         |
|           | 40  |                |        |         |
| <b>S</b>  | 01  |                |        |         |
|           | 10  |                | GS3115 | GS9125  |
|           | 20  |                |        |         |
|           | 30  |                |        |         |
|           | 40  |                |        |         |
| <b>H</b>  | 01  |                |        |         |
|           | 10  |                |        |         |
|           | 20  |                |        |         |
|           | 30  |                |        |         |
|           | 40  |                |        |         |

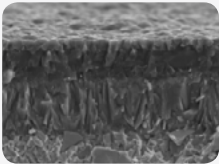
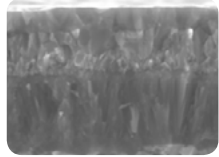
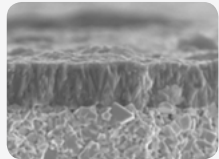
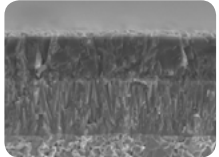
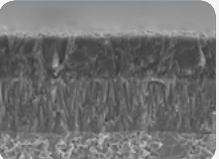
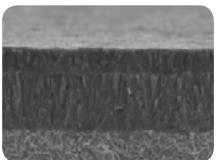
|  | Cermet | Coated Cermet | CBN     | Coated CBN | PCD     |
|--|--------|---------------|---------|------------|---------|
|  | GP91TM | GP31TM        |         |            |         |
|  | GP91TM | GP31TM        |         |            |         |
|  | GP91TM | GP31TM        | BKN115P | BKC120P    |         |
|  |        |               |         |            | DNN125P |
|  |        |               | BSN115P |            |         |
|  |        |               |         | BHC115P    |         |
|  |        |               |         | BHC125P    |         |
|  |        |               |         | BHC135P    |         |

## Turning Grades

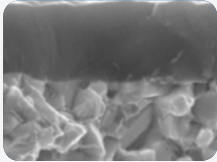
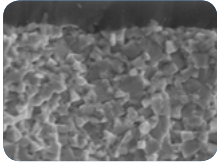

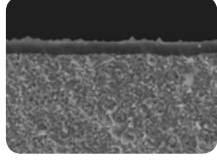

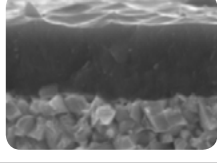
## CVD Coated Carbide

| ISO | Grade   | Grade Color | Grade Microstructure  | Grade Feature  |
|-----|---------|-------------|---|--|
| P   | GPT6110 | Champagne   |    | <ul style="list-style-type: none"> <li>•Brand new CVD coating with special post-treatment technology and high hot hardness cemented carbide substrate, provides the grade with superior adhesion resistance and excellent wear resistance.</li> <li>•Recommended for continuous cutting conditions of carbon steels and alloy steels at high speeds.</li> </ul>          |
|     | GPT6120 | Champagne   |    | <ul style="list-style-type: none"> <li>•Brand new CVD coating with unique low-stress post-treatment, matching cemented carbide substrate with perfect thermo-plastic deformation resistance, guarantees the high wear resistance and toughness.</li> <li>•Recommended for carbon steels and alloy steels in wide cutting conditions at medium to high speeds.</li> </ul> |
|     | GPT6130 | Champagne   |    | <ul style="list-style-type: none"> <li>•New cemented carbide with special cobalt enrichment controlling technology, combined with new CVD coating and advanced post-treatment, greatly improves the edge breakage.</li> <li>•Recommended for most interrupted cutting conditions of carbon steels and alloy steels at medium speeds.</li> </ul>                          |
|     | GP1105  | Ash black   |   | <ul style="list-style-type: none"> <li>•Combining the ultrafine Al<sub>2</sub>O<sub>3</sub> and MT-TiCN coatings with gradient cemented carbide substrate, provides the new grade with excellent wear resistance.</li> <li>•Recommended for stable finishing turning of carbon steels &amp; alloy steels, including steels parting and grooving processing.</li> </ul>   |
|     | GP1115  | Yellow      |  | <ul style="list-style-type: none"> <li>•Ultrafine MT-TiCN and Al<sub>2</sub>O<sub>3</sub> coatings, matching smooth indexed TiN layer and good wear resistant substrate, ensures the grade with long service life.</li> <li>•Recommended for stable finishing to semi-finishing of carbon steels and alloy steels.</li> </ul>  |
|     | GP1120  | Golden      |  | <ul style="list-style-type: none"> <li>•High-strength gradient substrate combined with CVD coating has excellent performance in continuous and light interrupted cutting conditions.</li> <li>•Recommended for semi-finishing and light cutting conditions of carbon steels and alloy steels.</li> </ul>   |
|     | GP1130  | Golden      |  | <ul style="list-style-type: none"> <li>•Fine MT-TiCN and tough Al<sub>2</sub>O<sub>3</sub> in combination with high toughness gradient substrate ensures the good resistance to cutting edge breakage.</li> <li>•Recommended for roughing of carbon steels and alloy steels at low and medium cutting speeds.</li> </ul>   |
|     | GP1135  | Yellow      |  | <ul style="list-style-type: none"> <li>•Well controlled MT-TiCN, Al<sub>2</sub>O<sub>3</sub> and TiN coating with well wear resistance combined with a gradient carbide substrate improves the edge security and high toughness.</li> <li>•Recommended for roughing of carbon steels and alloy steels at high metal removal rates.</li> </ul>                            |


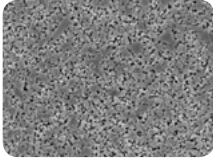
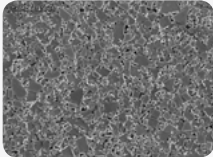
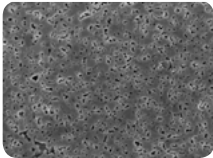


| ISO | Grade  | Grade Color  | Grade Microstructure  | Grade Feature  |
|-----|--------|--------------|---|--|
| P   | GP1225 | Yellow       |    | <ul style="list-style-type: none"> <li>•Combined columnar grain MT-TiCN, Al<sub>2</sub>O<sub>3</sub> and TiN coating with a gradient substrate provides excellent wear resistance and toughness.</li> <li>•Recommended for semi-finishing to medium roughing of steels and alloy steels.</li> </ul>  |
|     | GM1115 | Shiny golden |    | <ul style="list-style-type: none"> <li>•Combined nano-columnar MT-TiCN, thin Al<sub>2</sub>O<sub>3</sub>, bright TiN and a gradient substrate gives excellent wear resistance, low-stress post-treatment provides less built-up-edge and longer tool life.</li> <li>•Recommended for finishing to semi-finishing of stainless steels.</li> </ul>                   |
| M   | GM1125 | Shiny golden |    | <ul style="list-style-type: none"> <li>•Compact TiCN coating with good toughness substrate gives the grade with excellent resistance to heat and mechanical impact.</li> <li>•Recommended for semi-finishing to roughing machining of stainless steels.</li> </ul>   |
| K   | GK1115 | Ash black    |   | <ul style="list-style-type: none"> <li>•High wear resistant substrate with fine grain, combined with thick Al<sub>2</sub>O<sub>3</sub> coating and smoothy post-treatment, provides the grade with outstanding wear resistance and high edge toughness on processing grey cast irons.</li> <li>•Recommended for finishing machining of grey cast irons.</li> </ul> |
|     | GK1120 | Ash black    |  | <ul style="list-style-type: none"> <li>•Thicker Al<sub>2</sub>O<sub>3</sub> coating combined with fine grained substrate provides high edge security and toughness.</li> <li>•Recommended for finishing to semi-finishing of nodular cast irons.</li> </ul>  |
|     | GK1125 | Ash black    |  | <ul style="list-style-type: none"> <li>•Thick MT-TiCN coating and ultrafine Al<sub>2</sub>O<sub>3</sub>, matching high wear resistant cemented carbide substrate with fine grain, helps to improve toughness and great wear resistance.</li> <li>•Recommended for interrupted roughing of nodular cast irons.</li> </ul>   |

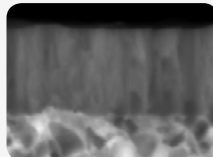
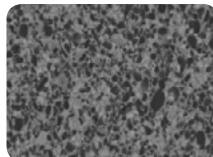
## PVD Coated Carbide

| ISO | Grade  | Grade Color     | Grade Microstructure  | Grade Feature   |
|-----|--------|-----------------|---|---|
| M   | GM3215 | Purplish grey   |    | <ul style="list-style-type: none"> <li>•Brand new PVD TiAlN coating combined with submicron grained WC-Co cemented carbide substrate, provides the new grade with excellent wear resistance and heat resistance.</li> <li>•Recommended for finishing of stainless steels and heat resistant alloys in stable cutting conditions at medium speeds.</li> </ul>        |
|     | GM3220 | Bronze          |    | <ul style="list-style-type: none"> <li>•New nano-structured PVD coating matching high cobalt cemented carbide substrate, gives the grade with excellent wear resistance and high hot hardness.</li> <li>•Recommended for continuous cutting and light or medium interrupted cutting of stainless steels and soft steels at medium to low cutting speeds.</li> </ul> |
|     | GM3225 | Purplish grey   |    | <ul style="list-style-type: none"> <li>•The combination of optimized TiAlN coating and submicron grained carbide substrate with high Co content, provides superior adhesion and toughness.</li> <li>•Recommended for semi-finishing of stainless steels and threading of steels, stainless steels, etc.</li> </ul>  |
| S   | GS3115 | Purplish red    |   | <ul style="list-style-type: none"> <li>•Fine grained cemented carbide substrate, matching PVD coating with high aluminum content, have excellent adhesion and wear resistance.</li> <li>•Recommended for semi-finishing or finishing of stainless steels and heat resistant alloys.</li> </ul>  |
| N   | GN3125 | Purplish bronze |  | <ul style="list-style-type: none"> <li>•New TiB-based PVD coating with fine grained cemented carbide substrate, gives excellent wear resistance and less built-up-edge, which makes it optimal for efficient cutting of non-ferrous metals.</li> <li>•Recommended for general machining of copper, aluminum and other non-ferrous metals.</li> </ul>                |
| /   | GA4230 | Purplish red    |  | <ul style="list-style-type: none"> <li>•PVD TiAlN coating with high toughness substrate provides excellent wear resistance and high edge security for a broad application area.</li> <li>•Recommended as general choice for parting and grooving of steels.</li> </ul>  |

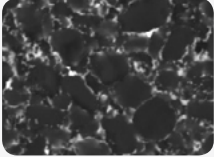
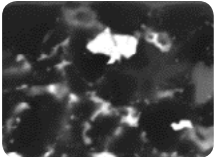
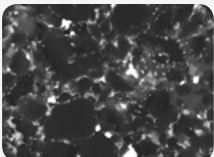
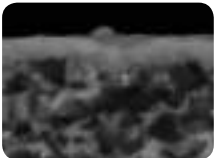

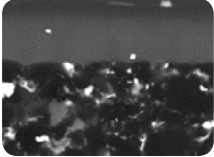
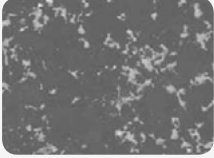
Carbide

| ISO | Grade  | Grade Color | Grade Microstructure   | Grade Feature  |
|-----|--------|-------------|--|--|
| S   | GS9125 | Uncoated    |   | <ul style="list-style-type: none"> <li>•Uncoated fine grain substrate has a good balance of wear resistance and toughness.</li> <li>•Recommended as the first choice for titanium alloys, and even for semi-finishing of titanium alloys grooving.</li> </ul>                          |
|     | GN9115 | Uncoated    |   | <ul style="list-style-type: none"> <li>•Uncoated fine-grained grade has great wear resistance.</li> <li>•Recommended for finishing of aluminum alloys and copper alloys at high cutting speeds.</li> </ul>   |
| N   | GN9120 | Uncoated    |   | <ul style="list-style-type: none"> <li>•Fine-grained substrate with special surface treatment improves the wear resistance and less built-up-edge.</li> <li>•Recommended for finishing to semi-finishing of aluminum alloys, copper alloys and other non-ferrous materials.</li> </ul> |
|     | GN9130 | Uncoated    |  | <ul style="list-style-type: none"> <li>•Uncoated fine-grained substrate grade has quite good wear resistance and toughness.</li> <li>•Recommended for semi-finishing of coppers and aluminum alloys.</li> </ul>  |

Cermet

| ISO | Grade  | Grade Color   | Grade Microstructure  | Grade Feature  |
|-----|--------|---------------|---|--|
| P   | GP31TM | Purplish grey |  | <ul style="list-style-type: none"> <li>•Thin PVD coating and cermet have excellent resistance to built-up-edge and plastic deformation, which ensures the high surface quality.</li> <li>•Recommended for finishing of carbon steels and low alloy steels at high cutting speeds.</li> </ul> |
|     | GP91TM | Uncoated      |  | <ul style="list-style-type: none"> <li>•Uncoated cermet has well wear resistance and toughness, even excellent high surface quality.</li> <li>•Recommended for finishing of carbon steels and low alloy steels when good surface quality is required.</li> </ul>                             |

## PCBN &amp; PCD

| ISO      | Grade   | Grade Color   | Grade Microstructure  | Grade Feature  |
|----------|---------|---------------|---|--|
| <b>K</b> | BKN115P | Uncoated      |    | <ul style="list-style-type: none"> <li>•Uncoated grade with high hardness has excellent wear resistance.</li> <li>•Recommended for finishing of grey cast irons and valve seat machining.</li> </ul>   |
|          | BKC120P | Purplish grey |    | <ul style="list-style-type: none"> <li>•Outstanding PVD coating can reduce the friction between cutting edge and workpiece, which improves the wear resistance dramatically.</li> <li>•Recommended for finishing of nodular cast irons.</li> </ul>   |
| <b>S</b> | BSN115P | Uncoated      |    | <ul style="list-style-type: none"> <li>•Uncoated grade has a high edge toughness and chemical stability</li> <li>•Recommended for finishing of powder metallurgy parts.</li> </ul>   |
| <b>H</b> | BHC115P | Purplish grey |   | <ul style="list-style-type: none"> <li>•New TiAlN coating provides the good resistance to notch wear, which reduces the roughness of the workpiece surface.</li> <li>•Recommended for finishing of quenched steels when high surface quality and close tolerances are required.</li> </ul> |
|          | BHC125P | Purplish grey |  | <ul style="list-style-type: none"> <li>•CBN substrates with TiAlN coating have great toughness and wear resistance, which is capable of longer tool life and more stability.</li> <li>•Recommended for general machining of quenched steels.</li> </ul>                                    |
|          | BHC135P | Purplish grey |  | <ul style="list-style-type: none"> <li>•CBN substrate with high edge toughness matching TiAlN coating greatly improves wear resistance.</li> <li>•Recommended for interrupted processing of quenched steels.</li> </ul>  |
| <b>N</b> | DNN125P | Uncoated      |  | <ul style="list-style-type: none"> <li>•Medium grained diamond has excellent wear resistance and toughness.</li> <li>•Recommended for high efficient finishing of aluminums, coppers, plastics and graphite materials.</li> </ul>  |

B

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## GENERAL TURNING



# ISO Turning Indexable Inserts Identification System

| Symbol | Shape         | Corner Angle | Shape |
|--------|---------------|--------------|-------|
| H      | Hexagon       | 120°         |       |
| O      | Octagon       | 135°         |       |
| P      | Pentagon      | 108°         |       |
| S      | Square        | 90°          |       |
| T      | Triangle      | 60°          |       |
| C      | Rhombic       | 80°          |       |
| D      |               | 55°          |       |
| E      |               | 75°          |       |
| F      |               | 50°          |       |
| M      |               | 86°          |       |
| V      |               | 35°          |       |
| W      | Trigon        | 80°          |       |
| L      | Rectangle     | 90°          |       |
| A      | Parallelogram | 85°          |       |
| B      |               | 82°          |       |
| K      |               | 55°          |       |
| R      | Round         | —            |       |

① Shape Symbol

| Symbol | Relief Angle |
|--------|--------------|
| A      | 3°           |
| B      | 5°           |
| C      | 7°           |
| D      | 15°          |
| E      | 20°          |
| F      | 25°          |
| G      | 30°          |
| N      | 0°           |
| P      | 11°          |
| O      | 其他           |

② Relief Angle Symbol

| Symbol | Tolerance (mm)    |               |               | Tolerance (inch)  |               |               |
|--------|-------------------|---------------|---------------|-------------------|---------------|---------------|
|        | Corner Height (m) | Thickness (s) | I.C.dia. (Ød) | Corner Height (m) | Thickness (s) | I.C.dia. (Ød) |
| A      | ±0.005            | ±0.025        | ±0.025        | ±0.0002           | ±0.001        | ±0.001        |
| F      | ±0.005            | ±0.025        | ±0.013        | ±0.0002           | ±0.001        | ±0.0005       |
| C      | ±0.013            | ±0.025        | ±0.025        | ±0.0005           | ±0.001        | ±0.001        |
| H      | ±0.013            | ±0.025        | ±0.013        | ±0.0005           | ±0.001        | ±0.0005       |
| E      | ±0.025            | ±0.025        | ±0.025        | ±0.001            | ±0.001        | ±0.001        |
| G      | ±0.025            | ±0.13         | ±0.025        | ±0.001            | ±0.005        | ±0.001        |
| J      | ±0.005            | ±0.025        | ±0.05~±0.13   | ±0.0002           | ±0.001        | ±0.002~±0.005 |
| K      | ±0.013            | ±0.025        | ±0.05~±0.13   | ±0.0005           | ±0.001        | ±0.002~±0.005 |
| L      | ±0.025            | ±0.025        | ±0.05~±0.13   | ±0.001            | ±0.001        | ±0.002~±0.005 |
| M      | ±0.08~±0.18       | ±0.13         | ±0.05~±0.13   | ±0.003~±0.007     | ±0.005        | ±0.002~±0.005 |
| N      | ±0.08~±0.18       | ±0.025        | ±0.05~±0.13   | ±0.003~±0.007     | ±0.001        | ±0.002~±0.005 |
| U      | ±0.13~±0.38       | ±0.13         | ±0.08~±0.25   | ±0.005~±0.015     | ±0.005        | ±0.003~±0.01  |

③ Tolerance Symbol

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**T N M G 22**

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| ④ Hole/Chipbreaker Symbol |                                      |                                      |              |       |
|---------------------------|--------------------------------------|--------------------------------------|--------------|-------|
| Symbol                    | Hole                                 | Hole Shape                           | Chlpp-reaker | Shape |
| N                         | With-out                             | —                                    | Without      |       |
| R                         |                                      |                                      | Single-sided |       |
| F                         |                                      |                                      | Double-sided |       |
| A                         | With Hole                            | With Hole                            | Without      |       |
| M                         |                                      |                                      | Single-sided |       |
| G                         |                                      |                                      | Double-sided |       |
| W                         | With Hole and One Countersink 40-60° | With Hole and One Countersink 40-60° | Without      |       |
| T                         |                                      |                                      | Single-sided |       |
| Q                         |                                      |                                      | Without      |       |
| U                         | With Hole and Two Countersink 40-60° | With Hole and Two Countersink 40-60° | Double-sided |       |
| B                         |                                      |                                      | Without      |       |
| H                         | With Hole and One Countersink 70-90° | With Hole and One Countersink 70-90° | Double-sided |       |
| C                         |                                      |                                      | Without      |       |
| J                         | With Hole and Two Countersink 70-90° | With Hole and Two Countersink 70-90° | Double-sided |       |
| X                         |                                      |                                      | —            | —     |

| ⑤ Edge Length Symbol (ISO) |        |        |        |        |        |        |        |        |        |        |        |        |        | I. C. Size (mm) |
|----------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|
| Symbol                     | Length | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length |                 |
| R                          | 03     | S      | 3.97   | C      | 03     | 4.0    | W      | 06     | 6.9    | T      | 4      | D      | 4.8    | 3.97            |
|                            | 04     |        | 4.76   |        | 04     | 4.8    |        | 08     | 8.2    |        | 5      |        | 5.8    | 4.76            |
| 05                         | 5      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 5               |
|                            | 05     | 5.56   | 05     | 5.6    | 03     | 3.8    | 09     | 9.6    | 6      | 6.8    |        |        |        | 5.56            |
| 06                         | 6      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 6               |
|                            | 06     | 6.35   | 06     | 6.5    | 04     | 4.3    | 11     | 11     | 7      | 7.8    | 11     | 11.2   |        | 6.35            |
|                            | 07     | 7.94   | 08     | 8.1    | 05     | 5.4    | 13     | 13.8   | 9      | 9.7    |        |        |        | 7.94            |
| 08                         | 8      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 8               |
| 09                         | 9.525  | 09     | 9.525  | 09     | 9.7    | 06     | 6.5    | 16     | 16.5   | 11     | 11.6   | 16     | 16.6   | 9.525           |
| 10                         | 10     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 10              |
| 12                         | 12     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 12              |
| 12                         | 12.7   | 12     | 12.7   | 12     | 12.9   | 08     | 8.7    | 22     | 22     | 15     | 15.5   | 22     | 22.1   | 12.7            |
| 15                         | 15.875 | 15     | 15.875 | 16     | 16.1   | 10     | 10.9   | 27     | 27.5   | 19     | 19.4   |        |        | 15.875          |
| 16                         | 16     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 16              |
| 19                         | 19.05  | 19     | 19.05  | 19     | 19.3   | 13     | 13     | 33     | 33     | 23     | 23.3   |        |        | 19.05           |
| 20                         | 20     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 20              |
|                            | 22     | 22.225 | 22     | 22.6   |        |        |        | 38     | 38.5   | 27     | 27.1   |        |        | 22.225          |
| 25                         | 25     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 25              |
| 25                         | 25.4   | 25     | 25.4   | 25     | 25.8   |        |        | 44     | 44     | 31     | 31     |        |        | 25.4            |
| 31                         | 31.75  | 31     | 31.75  | 32     | 32.2   |        |        | 55     | 55     | 38     | 38.8   |        |        | 31.75           |
| 31                         | 32     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 32              |

| Insert Shape: H,O,P,S,T,C,E,M,W,R |                                  |       |                                 |       |                   |                                  |         |                                 |         |
|-----------------------------------|----------------------------------|-------|---------------------------------|-------|-------------------|----------------------------------|---------|---------------------------------|---------|
| I. C. Size (mm)                   | Tolerance of I. C. Size(∅d) (mm) |       | Tolerance of Corner Height (mm) |       | I. C. Size (inch) | Tolerance of I. C. Size(∅d) (mm) |         | Tolerance of corner Height (mm) |         |
|                                   | J,K,L, M,N                       | U     | M,N                             | U     |                   | Class J,K, L,M,N                 | Class U | Class J,K, L,M,N                | Class U |
| 6.35                              | ±0.05                            | ±0.08 | ±0.08                           | ±0.13 | 0.250             | ±0.002                           | ±0.003  | ±0.003                          | ±0.005  |
| 9.525                             |                                  |       |                                 |       | 0.375             |                                  |         |                                 |         |
| 12.7                              | ±0.08                            | ±0.13 | ±0.13                           | ±0.2  | 0.500             | ±0.003                           | ±0.005  | ±0.005                          | ±0.008  |
| 15.875                            |                                  |       |                                 |       | 0.625             |                                  |         |                                 |         |
| 19.05                             | ±0.1                             | ±0.18 | ±0.15                           | ±0.27 | 0.750             | ±0.004                           | ±0.007  | ±0.006                          | ±0.011  |
| 25.4                              |                                  |       |                                 |       | 1.000             |                                  |         |                                 |         |
| 31.75                             | ±0.15                            | ±0.25 | ±0.18                           | ±0.38 | 1.250             | ±0.005                           | ±0.010  | ±0.007                          | ±0.015  |
| 32                                |                                  |       |                                 |       | 1.260             |                                  |         |                                 |         |

| Symbol            | Thickness (mm) |
|-------------------|----------------|
| 01                | 1.59           |
| 02                | 2.38           |
| T2                | 2.78           |
| 03                | 3.18           |
| T3                | 3.97           |
| 04                | 4.76           |
| 05                | 5.56           |
| 06                | 6.35           |
| 07                | 7.94           |
| 09                | 9.52           |
| ⑥Thickness Symbol |                |

| Insert Shape: D       |       |                         |        |                            |        |
|-----------------------|-------|-------------------------|--------|----------------------------|--------|
| Inscribed Circle Size |       | Tolerance of I. C. Size |        | Tolerance of Corner Height |        |
| mm                    | in    | mm                      | in     | mm                         | in     |
| 6.35                  | 0.250 | ±0.05                   | ±0.002 | ±0.11                      | ±0.004 |
| 9.525                 | 0.375 | ±0.05                   | ±0.002 | ±0.11                      | ±0.004 |
| 12.7                  | 0.500 | ±0.08                   | ±0.003 | ±0.15                      | ±0.006 |
| 15.875                | 0.625 | ±0.10                   | ±0.004 | ±0.18                      | ±0.007 |
| 19.05                 | 0.750 | ±0.10                   | ±0.004 | ±0.18                      | ±0.007 |

| Insert Shape: V       |       |                         |        |                            |        |
|-----------------------|-------|-------------------------|--------|----------------------------|--------|
| Inscribed Circle Size |       | Tolerance of I. C. Size |        | Tolerance of Corner Height |        |
| mm                    | in    | mm                      | in     | mm                         | in     |
| 6.35                  | 0.250 | ±0.05                   | ±0.002 | ±0.15                      | ±0.006 |
| 9.525                 | 0.375 | ±0.05                   | ±0.002 | ±0.15                      | ±0.006 |
| 12.7                  | 0.500 | ±0.08                   | ±0.003 | ±0.20                      | ±0.008 |
| 15.875                | 0.625 | ±0.10                   | ±0.004 | ±0.27                      | ±0.011 |
| 19.05                 | 0.750 | ±0.10                   | ±0.004 | ±0.27                      | ±0.011 |

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**04 08 - HK**

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Inscribed Circle Size (mm)

Insert Thickness(S)

Corner Height(m)

⑦Corner Ro Symbol

| 代号 | Corner-R (mm) |
|----|---------------|
| 00 | 0.03          |
| 02 | 0.2           |
| 04 | 0.4           |
| 08 | 0.8           |
| 12 | 1.2           |
| 16 | 1.6           |
| 20 | 2.0           |
| 24 | 2.4           |
| 28 | 2.8           |
| 32 | 3.2           |

⑧Chipbreaker Symbol






























Chipbreaker Symbol

# Overview of Turning Inserts

## Turning Inserts (Negative)

| Geometry | Features  | Application Range | Cross Section Geometry |
|----------|---|-------------------|------------------------|
| GF       | <ul style="list-style-type: none"> <li>GF for finishing of general steel and alloy steel.</li> <li>Sharp tool nose and strong cutting edge. Good chip control under small cutting depth.</li> </ul>   |                   |                        |
| QF       | <ul style="list-style-type: none"> <li>QF for finishing of general steel and alloy steel.</li> <li>Curved edge, sharp cutting edge, good chip control and fine surface finish due to curved edge.</li> </ul>  |                   |                        |
| GM       | <ul style="list-style-type: none"> <li>GM for semi-finishing of general steel and alloy steel.</li> <li>Strong flat cutting edge with good strength.</li> </ul>   |                   |                        |
| QM       | <ul style="list-style-type: none"> <li>QM for semi-finishing of general steel and alloy steel.</li> <li>The design of step and waved hump broadens the range of chip breaking applicable geometry range.</li> </ul>   |                   |                        |
| SV       | <ul style="list-style-type: none"> <li>SV for semi-finishing of general steel and alloy steel.</li> <li>Throughout groove and wide chip groove make cutting available in unstable working conditions.</li> <li>Long chip groove allows high depth of cuts.</li> </ul> |                   |                        |








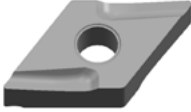

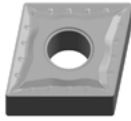
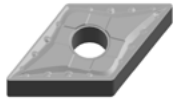
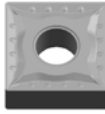

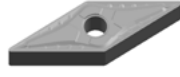
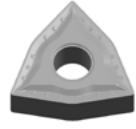

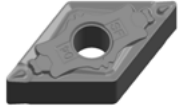

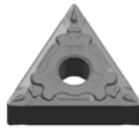
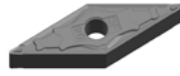
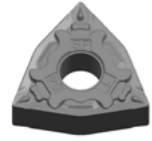


|  | 80°Rhombic  | 55°Rhombic  | 90°Square   | 60°Regular Triangle   | 35°Rhombic  | 80°Trigon   |
|--|---|---|---|---|---|---|
|  |    |    |    |    |    |    |
|  | CNMG-GF<br>P028   | DNMG-GF<br>P032   | SNMG-GF<br>P036   | TNMG-GF<br>P040   | VNMG-GF<br>P044   | WNMG-GF<br>P046   |
|  |    |    |    |    |    |    |
|  | CNMG-QF<br>P028   | DNMG-QF<br>P032   | SNMG-QF<br>P036   | TNMG-QF<br>P040   | VNMG-QF<br>P044   | WNMG-QF<br>P046   |
|  |   |  |   |   |  |   |
|  | CNMG-GM<br>P028   | DNMG-GM<br>P032   | SNMG-GM<br>P036   | TNMG-GM<br>P040   | VNMG-GM<br>P044   | WNMG-GM<br>P046   |
|  |  |  |  |  |  |  |
|  | CNMG-QM<br>P029   | DNMG-QM<br>P033   | SNMG-QM<br>P037   | TNMG-QM<br>P041   | VNMG-QM<br>P044   | WNMG-QM<br>P046   |
|  |  |  |  |  |   |  |
|  | CNMG <sub>R/L</sub> -SV<br>P029   | DNMG <sub>R/L</sub> -SV<br>P033   | SNMG <sub>R/L</sub> -SV<br>P037   | TNMG <sub>R/L</sub> -SV<br>P041   |   | WNMG <sub>R/L</sub> -SV<br>P047   |

# Overview of Turning Inserts

## Turning Inserts (Negative)







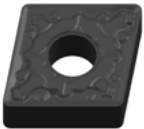
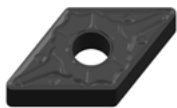
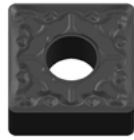
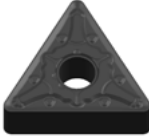
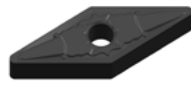
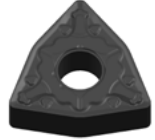
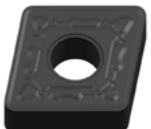
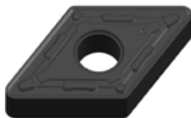


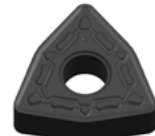
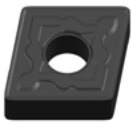
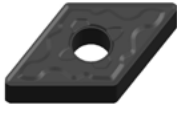

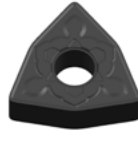
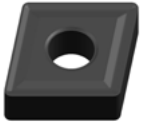
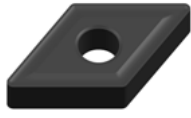


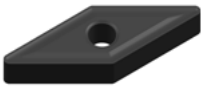

| Geometry | Features   | Application Range | Cross Section Geometry |
|----------|--|-------------------|------------------------|
| QR       | <ul style="list-style-type: none"> <li>• QR for rough cutting action of carbon steel, cast steel and alloy steel.</li> <li>• Variable rake angle and land provides enough edge sharpness and strength at different depth of cut.</li> </ul>  |                   |                        |
| QH       | <ul style="list-style-type: none"> <li>• QH for heavy cutting action of carbon steel, cast steel and alloy steel.</li> <li>• Variable land and progressive chipbreaker space, generating lower cutting force.</li> <li>• Straight edge line with reinforcement balances strength and cutting action.</li> </ul>  |                   |                        |
| TS       | <ul style="list-style-type: none"> <li>• TS for semi-finishing of general steel and alloy steel.</li> <li>• Big rake angle lower cutting force.</li> <li>• Variable groove depth design, with super chip removal.</li> </ul>   |                   |                        |
| TP       | <ul style="list-style-type: none"> <li>• TP for semi-finishing of general steel, alloy steel and cast iron.</li> <li>• Dual rake angle and big cutting edge width design to promote its strength.</li> <li>• Overall pattern design, table and reliable installation.</li> <li>• Arrow chip breaker improves chipbreaking performance during big cutting depth.</li> </ul> |                   |                        |
| SF       | <ul style="list-style-type: none"> <li>• SF for finishing of stainless steel.</li> <li>• Sharp edge due to results in low cutting forces particularly for thin wall structures and extended shafts.</li> </ul>   |                   |                        |

|  | 80°Rhombic  | 55°Rhombic  | 90°Square   | 60°Regular Triangle   | 35°Rhombic  | 80°Trigon   |
|--|---|---|---|---|---|---|
|  |    |    |    |    |   |    |
|  | CNMG-QR<br>P031   | DNMG-QR<br>P034   | SNMG-QR<br>P038   | TNMG-QR<br>P041   |   | WNMG-QR<br>P048   |
|  |    |   |    |   |   |   |
|  | CNMM-QH<br>P031   |   | SNMM-QH<br>P039   |   |   |   |
|  |   |  |   |   |   |   |
|  |   | DNMG <sub>R/L</sub> -TS<br>P033   |   | TNMG <sub>R/L</sub> -TS<br>P041   |   |   |
|  |  |  |  |  |  |  |
|  | CNMG-TP<br>P029   | DNMG-TP<br>P033   | SNMG-TP<br>P037   | TNMG-TP<br>P041   | VNMG-TP<br>P044   | WNMG-TP<br>P047   |
|  |  |  |  |  |  |  |
|  | CNMG-SF<br>P028   | DNMG-SF<br>P032   | SNMG-SF<br>P036   | TNMG-SF<br>P040   | VNMG-SF<br>P044   | WNMG-SF<br>P046   |

# Overview of Turning Inserts

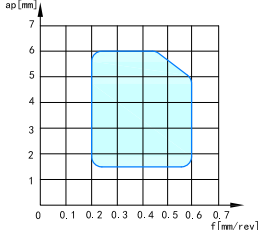
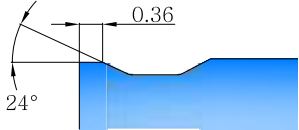
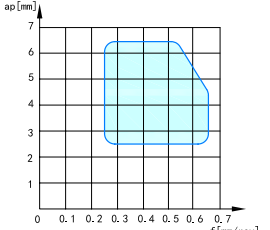

## Turning Inserts (Negative)

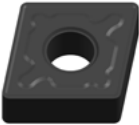
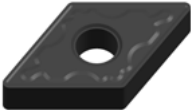



| Geometry | Features   | Application Range | Cross Section Geometry |
|----------|--|-------------------|------------------------|
| SM       | <ul style="list-style-type: none"> <li>• SM for medium cutting of stainless steel and mild steel.</li> <li>• Sharp cutting edge.</li> </ul>  |                   |                        |
| LM       | <ul style="list-style-type: none"> <li>• LM for semi-finishing of stainless steel and high temperature alloy.</li> <li>• Variable rake angle and cutting edge width to ensure its sharpness and strength.</li> <li>• Heart-shaped chip breaker with good chip breaking.</li> </ul> |                   |                        |
| LR       | <ul style="list-style-type: none"> <li>• LR for stainless steel of roughing.</li> <li>• Small rake angle and big cutting edge width with strong corner.</li> <li>• Big chip breaker width and shallow.</li> <li>• chip breaker depth to ensure good chip removal.</li> </ul>       |                   |                        |
| WMV      | <ul style="list-style-type: none"> <li>• WMV for general steel, alloy steel and castiron.</li> <li>• Large chip breaker with low chip removal resistance.</li> <li>• Excellent sharp cutting edge and strength.</li> <li>• Good surface quality.</li> </ul>                        |                   |                        |
| UK       | <ul style="list-style-type: none"> <li>• UK for machining cast iron.</li> <li>• Good Performance After Medium cutting for general conditions.</li> </ul>   |                   |                        |

|  | 80°Rhombic  | 55°Rhombic  | 90°Square   | 60°Regular Triangle   | 35°Rhombic  | 80°Trigon   |
|--|---|---|---|---|---|---|
|  |                    |                    |    |                    |    |                    |
|  | CNMG-SM<br>P029   | DNMG-SM<br>P033   | SNMG-SM<br>P037   | TNMG-SM<br>P041   | VNMG-SM<br>P044   | WNMG-SM<br>P047   |
|  |                    |                    |    |                    |    |                    |
|  | CNMG-LM<br>P030   | DNMG-LM<br>P034   | SNMG-LM<br>P038   | TNMG-LM<br>P041   | VNMG-LM<br>P045   | WNMG-LM<br>P047   |
|  |                  |                  |   |                   |   |                   |
|  | CNMG-LR<br>P030   | DNMG-LR<br>P034   | SNMG-LR<br>P038   | TNMG-LR<br>P042   |   | WNMG-LR<br>P048   |
|  | <br><b>Wiper</b> | <br><b>Wiper</b> |   | <br><b>Wiper</b> |   | <br><b>Wiper</b> |
|  | CNMG-WMV<br>P030  | DNMX-WMV<br>P034  |   | TNMX-WMV<br>P042  |   | WNMG-WMV<br>P047  |
|  |                  |                  |  |                  |  |                  |
|  | CNMG-UK<br>P030   | DNMG-UK<br>P034   | SNMG-UK<br>P038   | TNMG-UK<br>P042   | VNMG-UK<br>P045   | WNMG-UK<br>P048   |

# Overview of Turning Inserts

## Turning Inserts (Negative)

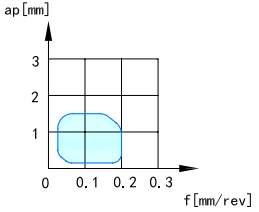
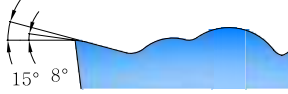
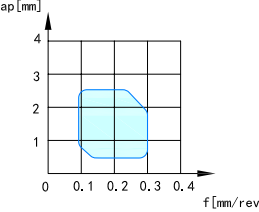
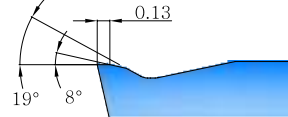
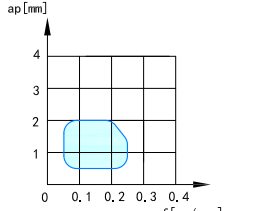
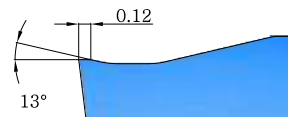
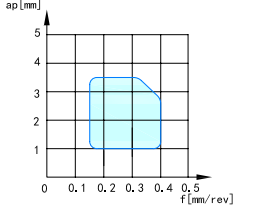
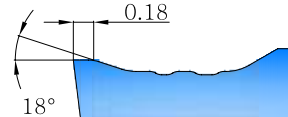
| Geometry           | Features   | Application Range  | Cross Section Geometry  |  |
|--------------------|--|--|---|--|
| <p><b>HK</b></p>   | <ul style="list-style-type: none"> <li>• HK for cast iron heavy cutting.</li> <li>• Strong cutting edge, big chip pocket, good at big cutting depth and width.</li> </ul>        |  |  |  |
| <p><b>Flat</b></p> | <ul style="list-style-type: none"> <li>• Flat-top for cast iron used.</li> <li>• Stable placement.</li> <li>• Strong edge design for intermittent cutting conditions.</li> </ul> |  |  |  |

|  | 80°Rhombic  | 55°Rhombic  | 90°Square   | 60°Regular Triangle   | 35°Rhombic  | 80°Trigon   |
|--|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
|  | CNMG-HK<br>P031   | DNMG-HK<br>P035   | SNMG-HK<br>P039   | TNMG- HK<br>P043  | VNMG- HK<br>P045  | WNMG- HK<br>P048  |
|  |  |  |  |  |   |  |
|  | CNMA<br>P031  | DNMA<br>P035  | SNMA<br>P039  | TNMA<br>P043  |   | WNMA<br>P048  |



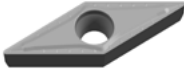

# Overview of Turning Inserts

## Turning Inserts (Positive)

5° Clearance Angle

| Geometry | Features   | Application Range  | Cross Section Geometry  |
|----------|--|--|---|
| MM       | <ul style="list-style-type: none"> <li>• MM for light cutting of general steel, alloy steel and stainless steel.</li> <li>• Sharp cutting edge, enables high surface quality.</li> </ul>   |    |    |
| GP       | <ul style="list-style-type: none"> <li>• GP for light cutting of general steel, alloy steel, stainless steel and cast iron.</li> <li>• Strong tool nose due to flat cutting edge, sharp cutting edge due to double rake angle.</li> </ul>  |    |    |
| TP       | <ul style="list-style-type: none"> <li>• TP for light cutting of general steel, alloy steel and cast iron.</li> <li>• Dual rake angle and big cutting edge width design to promote its strength.</li> <li>• Overall pattern design, table and reliable installation.</li> <li>• Arrow chip breaker improves chip breaking performance during big cutting depth.</li> </ul> |   |   |
| KM       | <ul style="list-style-type: none"> <li>• KM for Semi-finishing and roughing of general steel, alloy steel and cast iron.</li> <li>• Variable land design, combine sharpness with fracture resistance.</li> </ul>   |  |  |













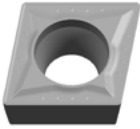
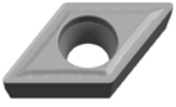


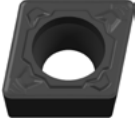
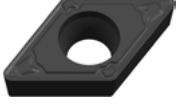



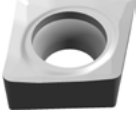
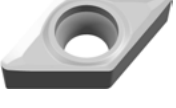


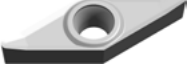
|  | 80°Rhombic | 55°Rhombic | 90°Square | 60°Regular Triangle | 35°Rhombic  | 80°Trigon |
|--|------------|------------|-----------|---------------------|---|-----------|
|  |            |            |           |                     |    |           |
|  |            |            |           |                     | VBMT-MM<br>P057   |           |
|  |            |            |           |                     |    |           |
|  |            |            |           |                     | VBMT-GP<br>P057   |           |
|  |            |            |           |                     |   |           |
|  |            |            |           |                     | VBMT-TP<br>P057   |           |
|  |            |            |           |                     |  |           |
|  |            |            |           |                     | VBMT-KM<br>P057   |           |

# Overview of Turning Inserts

## Turning Inserts (Positive)

7° Clearance Angle

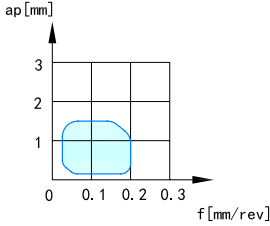
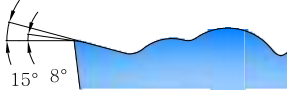
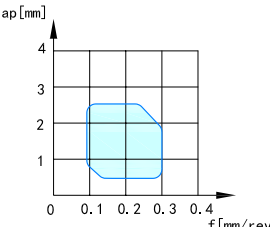
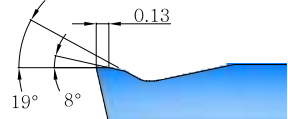
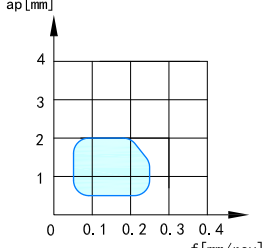
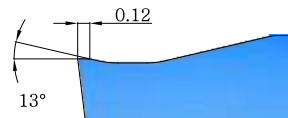
| Geometry | Features   | Application Range | Cross Section Geometry |
|----------|--|-------------------|------------------------|
| MM       | <ul style="list-style-type: none"> <li>• MM for light cutting of general steel, alloy steel and stainless steel.</li> <li>• Sharp cutting edge, enables high surface quality.</li> </ul>   |                   |                        |
| GP       | <ul style="list-style-type: none"> <li>• GP for light cutting of general steel, alloy steel, stainless steel and cast iron.</li> <li>• Strong tool nose due to flat cutting edge And Sharp cutting edge due to double rake angle.</li> </ul>   |                   |                        |
| TP       | <ul style="list-style-type: none"> <li>• TP for light cutting of general steel, alloy steel and cast iron.</li> <li>• Dual rake angle and big cutting edge width design to promote its strength.</li> <li>• Overall pattern design, table and reliable installation.</li> <li>• Arrow chip breaker improves chip breaking performance during big cutting depth.</li> </ul> |                   |                        |
| KM       | <ul style="list-style-type: none"> <li>• KM for Semi-finishing and roughing of general steel, alloy steel and cast iron.</li> <li>• Variable land design, combine sharpness with fracture resistance.</li> </ul>   |                   |                        |
| AL       | <ul style="list-style-type: none"> <li>• AL for aluminum alloy cutting.</li> <li>• Sharp tool nose due to large rake angle.</li> </ul>   |                   |                        |


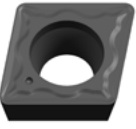


|  | 80°Rhombic  | 55°Rhombic  | 90°Square   | 60°Regular Triangle   | 35°Rhombic  | 80°Trigon   |
|--|---|---|---|---|---|---|
|  |    |    |    |    |   |   |
|  | CCMT-MM<br>P049   | DCMT-MM<br>P051   | SCMT-MM<br>P053   | TCMT-MM<br>P054   |   |   |
|  |    |    |    |    |    |  |
|  | CCMT-GP<br>CCGT-GP<br>P049  | DCMT-GP<br>DCGT-GP<br>P051  | SCMT-GP<br>SCGT-GP<br>P053  | TCMT-GP<br>TCGT-GP<br>P054  | VCMT-GP<br>VCGT-GP<br>P058  | WCMT-GP<br>P059   |
|  |  |  |  |  |   |   |
|  | CCMT-TP<br>P049   | DCMT-TP<br>P051   | SCMT-TP<br>P053   | TCMT-TP<br>P054   |   |   |
|  |  |  |  |  |  |   |
|  | CCMT-KM<br>P050   | DCMT-KM<br>P051   | SCMT-KM<br>P053   | TCMT-KM<br>P054   | VCMT-KM<br>P058   |   |
|  |  |  |  |  |  |   |
|  | CCGX-AL<br>P050   | DCGX-AL<br>P052   | SCGX-AL<br>P053   | TCGX-AL<br>P055   | VCGX-AL<br>P058   |   |

# Overview of Turning Inserts

## Turning Inserts (Positive)

11° Clearance Angle

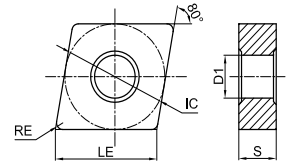
| Geometry | Features   | Application Range   | Cross Section Geometry  |  |
|----------|--|---|---|--|
| MM       | <ul style="list-style-type: none"> <li>• MM for light cutting of general steel, alloy steel and stainless steel.</li> <li>• Sharp cutting edge, enables high surface quality.</li> </ul>   |   |    |  |
| GP       | <ul style="list-style-type: none"> <li>• GP for light cutting of general steel, alloy steel, stainless steel and cast iron.</li> <li>• Strong tool nose due to flat cutting edge and sharp cutting edge due to double rake angle.</li> </ul>   |   |    |  |
| TP       | <ul style="list-style-type: none"> <li>• TP for light cutting of general steel, alloy steel and cast iron.</li> <li>• Dual rake angle and big cutting edge width design to promote its strength.</li> <li>• Overall pattern design, table and reliable installation.</li> <li>• Arrow chip breaker improves chip breaking performance during big cutting depth.</li> </ul> |  |  |  |

|  | 80°Rhombic  | 55°Rhombic | 90°Square | 60°Regular Triangle   | 35°Rhombic | 80°Trigon |
|--|---|------------|-----------|---|------------|-----------|
|  |   |            |           |    |            |           |
|  |   |            |           | TPMT-MM<br>P056   |            |           |
|  |  |            |           |    |            |           |
|  | CPGT-GP<br>P050   |            |           | TPGT-GP<br>P056   |            |           |
|  |   |            |           |  |            |           |
|  |   |            |           | TPMT-TP<br>P056   |            |           |



Turning Insert (Negative)

**CN** □ □  
Rhombic 80° with Hole



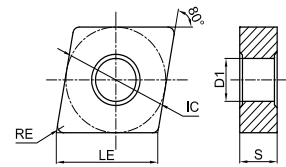
| Ordering Code  | Dimension (mm) |        |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |  |
|----------------|----------------|--------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|                | LE             | IC     | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115   | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
| CNMG090304-QM  | 9.7            | 9.525  | 3.18 | 3.81 | 0.4 |                 |         |         |        | ○      | ●      |        | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG090308-QM  | 9.7            | 9.525  | 3.18 | 3.81 | 0.8 |                 |         |         |        | ●      |        |        | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG120404-QM  | 12.9           | 12.7   | 4.76 | 5.16 | 0.4 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ○      |        |        |        |        | ●      |          |        |        |        |        |        |        |        | ○      | ●      |  |
| CNMG120408-QM  | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      |        |        |        |        | ●        |        |        |        |        |        |        |        |        | ●      |  |
| CNMG120412-QM  | 12.9           | 12.7   | 4.76 | 5.16 | 1.2 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |  |
| CNMG120416-QM  | 12.9           | 12.7   | 4.76 | 5.16 | 1.6 |                 |         |         | ○      | ○      | ●      |        | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG160608-QM  | 16.1           | 15.875 | 6.35 | 6.35 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG160612-QM  | 16.1           | 15.875 | 6.35 | 6.35 | 1.2 | ●               | ●       | ●       | ●      | ●      | ○      | ●      |        | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG190608-QM  | 19.3           | 19.05  | 6.35 | 7.94 | 0.8 |                 |         |         |        | ●      | ○      | ●      |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |  |
| CNMG190612-QM  | 19.3           | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         | ●      | ○      |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG190616-QM  | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         |        | ●      |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG120404-TP  | 12.9           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ●      |  |
| CNMG120408-TP  | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ○      | ○      |  |
| CNMG120408R-SV | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG120408L-SV | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG090304-SM  | 9.7            | 9.525  | 3.18 | 3.81 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ○      |        |        | ●      |          |        |        |        |        |        |        |        |        |        |  |
| CNMG090308-SM  | 9.7            | 9.525  | 3.18 | 3.81 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ●      |        |        | ●      |          |        |        |        |        |        |        |        |        |        |  |
| CNMG120404-SM  | 12.9           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        | ●      | ●      | ○      | ●      | ●      |        |          |        |        | ○      |        |        |        |        |        |        |  |
| CNMG120408-SM  | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        | ●      | ●      | ●      | ●      | ●      |        |          |        |        | ●      |        |        |        |        |        |        |  |
| CNMG120412-SM  | 12.9           | 12.7   | 4.76 | 5.16 | 1.2 |                 |         |         |        |        |        |        |        | ●      | ●      |        | ●      | ●      |        |          |        |        | ●      |        |        |        |        | ○      |        |  |
| CNMG120416-SM  | 12.9           | 12.7   | 4.76 | 5.16 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        | ●      |        |        |        |        | ○      |        |  |
| CNMG160608-SM  | 16.1           | 15.875 | 6.35 | 6.35 | 0.8 |                 |         |         |        |        |        |        |        |        | ●      |        |        | ●      |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG160612-SM  | 16.1           | 15.875 | 6.35 | 6.35 | 1.2 |                 |         |         |        |        |        |        |        |        |        | ○      |        | ●      |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG160616-SM  | 16.1           | 15.875 | 6.35 | 6.35 | 1.6 |                 |         |         |        |        |        |        |        |        | ●      |        |        | ●      |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG190608-SM  | 19.3           | 19.05  | 6.35 | 7.94 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        | ●      |        |        |        |        |        |        |  |
| CNMG190612-SM  | 19.3           | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         |        |        |        |        |        |        |        | ○      |        | ●      |        |          |        |        |        |        |        |        |        |        |        |  |
| CNMG190616-SM  | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         |        |        |        |        |        |        |        | ○      |        | ●      |        |          |        |        |        |        |        |        |        |        |        |  |

● Stock ○ Available Upon Order

Turning Insert (Negative)

**CN** □ □

Rhombic 80° with Hole



| Ordering Code | Dimension (mm) |               |        |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        | Carbides Cermet |        |        |        |        |        |        |        |        |        |        |        |  |  |
|---------------|----------------|---------------|--------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
|               | LE             | IC            | S      | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220          | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |
|               | CNMG120404-LM  | 12.9          | 12.7   | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        | ●      | ●      | ●      | ●               | ●      |        |        |        |        |        |        |        |        |        |        |  |  |
|               | CNMG120408-LM  | 12.9          | 12.7   | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        | ●      | ●      | ●      | ●               | ●      |        |        |        |        |        |        |        |        |        |        |  |  |
|               | CNMG120412-LM  | 12.9          | 12.7   | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        | ●      | ●      | ●      | ●               | ●      |        |        |        |        |        |        |        |        |        |        |  |  |
|               | CNMG120408-WMV | 12.9          | 12.7   | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ○      |        |        |        |        |        |        |        |        |  |  |
|               | CNMG120412-WMV | 12.9          | 12.7   | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        | ○      |        |        |                 |        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | CNMG120404-UK  | 12.9          | 12.7   | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ○      | ●      |        |        |        |        |        |        |        |  |  |
|               | CNMG120408-UK  | 12.9          | 12.7   | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ●      | ●      |        |        |        |        |        |        |        |  |  |
|               | CNMG120412-UK  | 12.9          | 12.7   | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ●      | ●      |        |        |        |        |        |        |        |  |  |
|               | CNMG120416-UK  | 12.9          | 12.7   | 4.76 | 5.16 | 1.6             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ○      | ○      |        |        |        |        |        |        |        |        |  |  |
|               | CNMG160608-UK  | 16.1          | 15.875 | 6.35 | 6.35 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ●      | ●      |        |        |        |        |        |        |        |  |  |
|               | CNMG160612-UK  | 16.1          | 15.875 | 6.35 | 6.35 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ●      | ●      |        |        |        |        |        |        |        |  |  |
|               | CNMG160616-UK  | 16.1          | 15.875 | 6.35 | 6.35 | 1.6             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ○      | ●      |        |        |        |        |        |        |        |        |  |  |
|               | CNMG190612-UK  | 19.3          | 19.05  | 6.35 | 7.94 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ●      |        |        |        |        |        |        |        |        |  |  |
|               | CNMG190616-UK  | 19.3          | 19.05  | 6.35 | 7.94 | 1.6             |         |         |        |        |        |        |        |        |        |        |        |                 |        | ●      | ○      |        |        |        |        |        |        |        |        |  |  |
|               |                | CNMG120408-LR | 12.9   | 12.7 | 4.76 | 5.16            | 0.8     |         |        |        |        |        |        |        |        | ●      |        | ●               | ●      |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG120412-LR |                | 12.9          | 12.7   | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        | ●      |        | ○      | ●               |        |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG120416-LR |                | 12.9          | 12.7   | 4.76 | 5.16 | 1.6             |         |         |        |        |        |        |        |        |        |        | ○      | ○               |        |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG160608-LR |                | 16.1          | 15.875 | 6.35 | 6.35 | 0.8             |         |         |        |        |        |        |        |        | ○      |        | ○      |                 |        |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG160612-LR |                | 16.1          | 15.875 | 6.35 | 6.35 | 1.2             |         |         |        |        |        |        |        |        | ○      |        | ●      |                 |        |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190612-LR |                | 19.3          | 19.05  | 6.35 | 7.94 | 1.2             |         |         |        |        |        |        |        |        | ○      |        | ○      | ●               |        |        |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190616-LR |                | 19.3          | 19.05  | 6.35 | 7.94 | 1.6             |         |         |        |        |        |        |        |        | ●      |        | ●      |                 |        |        |        |        |        |        |        |        |        |        |        |  |  |

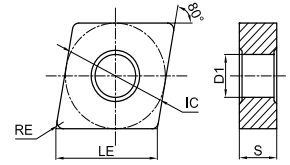
● Stock ○ Available Upon Order



Turning Insert (Negative)

CN□□

Rhombic 80° with Hole



| Ordering Code | Dimension (mm) |        |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |  |  |
|---------------|----------------|--------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
|               | LE             | IC     | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115   | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |
| CNMG120408-QR | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG120412-QR | 12.9           | 12.7   | 4.76 | 5.16 | 1.2 | ●               | ●       | ●       | ○      | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG120416-QR | 12.9           | 12.7   | 4.76 | 5.16 | 1.6 | ●               | ○       | ●       | ●      | ○      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG160608-QR | 16.1           | 15.875 | 6.35 | 6.35 | 0.8 |                 |         |         |        |        | ●      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG160612-QR | 16.1           | 15.875 | 6.35 | 6.35 | 1.2 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG160616-QR | 16.1           | 15.875 | 6.35 | 6.35 | 1.6 | ●               | ●       | ●       | ○      | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190608-QR | 19.3           | 19.05  | 6.35 | 7.94 | 0.8 |                 |         |         |        |        | ●      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190612-QR | 19.3           | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         | ○      | ○      | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190616-QR | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 | ○               | ○       | ○       | ●      | ○      | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG190624-QR | 19.3           | 19.05  | 6.35 | 7.94 | 2.4 | ○               | ○       | ○       |        | ●      |        | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG250924-QR | 25.8           | 25.4   | 9.52 | 9.21 | 2.4 |                 |         |         |        |        | ●      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMG120408-HK | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        | ●      | ●      |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMG120412-HK | 12.9           | 12.7   | 4.76 | 5.16 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMG120416-HK | 12.9           | 12.7   | 4.76 | 5.16 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMG160612-HK | 16.1           | 15.875 | 6.35 | 6.35 | 1.2 |                 |         |         |        | ●      |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMG160616-HK | 16.1           | 15.875 | 6.35 | 6.35 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMG190612-HK | 19.3           | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ○      |        |        |        |        |        |        |        |  |  |
| CNMG190616-HK | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |  |  |
| CNMM190616-QH | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         | ○      |        | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMM190624-QH | 19.3           | 19.05  | 6.35 | 7.94 | 2.4 | ○               | ○       | ○       |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMM250924-QH | 25.8           | 25.4   | 9.52 | 9.21 | 2.4 | ○               | ○       | ○       | ●      | ●      | ●      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |  |
| CNMA120404    | 12.9           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |  |  |
| CNMA120408    | 12.9           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMA120412    | 12.9           | 12.7   | 4.76 | 5.16 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMA120416    | 12.9           | 12.7   | 4.76 | 5.16 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ○      |        |        |        |        |        |        |        |  |  |
| CNMA160612    | 16.1           | 15.875 | 6.35 | 6.35 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ●      |        |        |        |        |        |        |        |  |  |
| CNMA160616    | 16.1           | 15.875 | 6.35 | 6.35 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      | ○      |        |        |        |        |        |        |        |  |  |
| CNMA160620    | 16.1           | 15.875 | 6.35 | 6.35 | 2.0 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |  |  |
| CNMA190612    | 19.3           | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |  |  |
| CNMA190616    | 19.3           | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ○      | ●      |        |        |        |        |        |        |        |  |  |
| CNMA190624    | 19.3           | 19.05  | 6.35 | 7.94 | 2.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ○      | ●      |        |        |        |        |        |        |        |  |  |

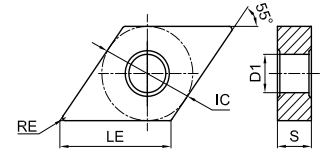
●Stock ○Available Upon Order



Turning Insert (Negative)

**DN** □ □

Rhombic 55° with Hole



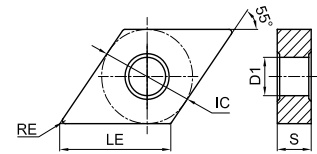
| Ordering Code  | Dimension (mm) |       |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |  |
|----------------|----------------|-------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|                | LE             | IC    | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
| DNMG110404-QM  | 11.6           | 9.525 | 4.76 | 3.81 | 0.4 | ○               | ○       | ○       | ●      | ●      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        | ●      |  |
| DNMG110408-QM  | 11.6           | 9.525 | 4.76 | 3.81 | 0.8 | ●               | ●       | ●       | ○      | ●      | ●      | ●      | ○      |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |  |
| DNMG110412-QM  | 11.6           | 9.525 | 4.76 | 3.81 | 1.2 |                 |         |         |        | ●      | ○      | ○      |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |        |  |
| DNMG150404-QM  | 15.5           | 12.7  | 4.76 | 5.16 | 0.4 | ●               | ●       | ●       | ○      | ○      | ●      | ●      |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        | ●      |  |
| DNMG150408-QM  | 15.5           | 12.7  | 4.76 | 5.16 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |  |
| DNMG150412-QM  | 15.5           | 12.7  | 4.76 | 5.16 | 1.2 | ●               | ●       | ●       |        | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150604-QM  | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 | ●               | ●       | ●       | ●      | ●      |        | ●      | ○      |        |        | ○      |        |        |          |        |        |        |        |        |        |        |        |        | ○      |  |
| DNMG150608-QM  | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ○      |        | ●      |        |        |          | ●      |        |        |        |        |        |        |        |        | ○      |  |
| DNMG150612-QM  | 15.5           | 12.7  | 6.35 | 5.16 | 1.2 | ●               | ●       | ●       | ●      | ●      | ○      | ●      | ○      |        |        |        |        |        |          | ○      |        |        |        |        |        |        |        |        |        |  |
| DNMG150404-TP  | 15.5           | 12.7  | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ○      |  |
| DNMG150408-TP  | 15.5           | 12.7  | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      |  |
| DNMG150604-TP  | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ○      |  |
| DNMG150608-TP  | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      |  |
| DNMG150404R-TS | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ●      |  |
| DNMG150404L-TS | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      |  |
| DNMG150408R-TS | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      |  |
| DNMG150408L-TS | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ●      |  |
| DNMG150404R-SV | 15.5           | 12.7  | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      |        |  |
| DNMG150404L-SV | 15.5           | 12.7  | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      |        |  |
| DNMG150604R-SV | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        | ●      |        |        |        | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150604L-SV | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        | ●      |        |        |        | ●      |        |        |          |        |        |        |        |        |        |        |        | ●      |        |  |
| DNMG150608R-SV | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        | ●      |        |        |        | ●      |        |        |          |        |        |        |        |        |        |        |        | ○      |        |  |
| DNMG150608L-SV | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        | ●      |        |        |        | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG110404-SM  | 11.6           | 9.525 | 4.76 | 3.81 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ○      | ○      | ●      |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG110408-SM  | 11.6           | 9.525 | 4.76 | 3.81 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ●      | ○      | ●      |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG110412-SM  | 11.6           | 9.525 | 4.76 | 3.81 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |        |  |
| DNMG150404-SM  | 15.5           | 12.7  | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ○      | ●      | ●      | ●        |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150408-SM  | 15.5           | 12.7  | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ●      | ●      | ●      |          |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150604-SM  | 15.5           | 12.7  | 6.35 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ○      | ○      | ○      | ●        |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150608-SM  | 15.5           | 12.7  | 6.35 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        | ○      | ●      | ●      | ●      | ●        |        |        |        |        |        |        |        |        |        |        |  |
| DNMG150612-SM  | 15.5           | 12.7  | 6.35 | 5.16 | 1.2 |                 |         |         |        |        |        |        |        |        |        | ○      |        | ○      |          |        |        |        |        |        |        |        |        |        |        |  |

● Stock ○ Available Upon Order

Turning Insert (Negative)

**DN** □ □

Rhombic 55° with Hole



| Ordering Code | Dimension (mm)              |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |  |  |
|---------------|-----------------------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
|               | LE                          | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |
|               | DNMG110404-LM               | 11.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        | ○      | ○      | ○      | ●        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG110408-LM               | 11.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        | ●      | ●      | ●        | ○      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150404-LM               | 15.5 | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        | ○      | ○      | ○      | ●        | ○      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150408-LM               | 15.5 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        | ○      | ●      | ●      | ●        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150412-LM               | 15.5 | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        | ○      |        | ○      | ○        |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150604-LM               | 15.5 | 12.7  | 6.35 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        | ○      |        | ●      | ○        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150608-LM               | 15.5 | 12.7  | 6.35 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        | ○      | ○      | ○      | ●        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150612-LM               | 15.5 | 12.7  | 6.35 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        | ○      |        | ●      | ○        | ●      |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMX150408-WMV              | 15.5 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMX150412-WMV              | 15.5 | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMX150608-WMV              | 15.5 | 12.7  | 6.35 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | <b>Wiper</b> DNMX150612-WMV | 15.5 | 12.7  | 6.35 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150404-UK               | 15.5 | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150408-UK               | 15.5 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150412-UK               | 15.5 | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150604-UK               | 15.5 | 12.7  | 6.35 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150608-UK               | 15.5 | 12.7  | 6.35 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150612-UK               | 15.5 | 12.7  | 6.35 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150616-UK               | 15.5 | 12.7  | 6.35 | 5.16 | 1.6             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150408-LR               | 15.5 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150412-LR               | 15.5 | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150608-LR               | 15.5 | 12.7  | 6.35 | 6.35 | 0.8             |         |         |        |        |        |        |        |        |        | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150612-LR               | 15.5 | 12.7  | 6.35 | 6.35 | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150616-LR               | 15.5 | 12.7  | 6.35 | 6.35 | 1.6             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150408-QR               | 15.5 | 12.7  | 4.76 | 5.16 | 0.8             | ○       | ○       | ○      |        |        |        |        | ○      |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150412-QR               | 15.5 | 12.7  | 4.76 | 5.16 | 1.2             | ○       | ●       | ○      |        |        |        |        | ○      |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150608-QR               | 15.5 | 12.7  | 6.35 | 6.35 | 0.8             | ●       | ●       | ●      |        | ○      |        | ●      | ●      |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150612-QR               | 15.5 | 12.7  | 6.35 | 6.35 | 1.2             | ●       | ○       | ●      | ●      | ●      |        | ●      | ○      |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |
|               | DNMG150616-QR               | 15.5 | 12.7  | 6.35 | 6.35 | 1.6             | ○       | ○       | ○      | ●      | ●      |        | ●      | ○      |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |  |

●Stock ○Available Upon Order

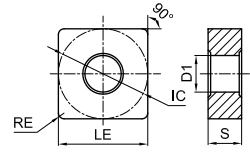




Turning Insert (Negative)

**SN** □ □

Square 90° with Hole



| Ordering Code  | Dimension (mm) |        |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |   |
|----------------|----------------|--------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|                | LE             | IC     | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
| SNMG090304-QM  | 9.525          | 9.525  | 3.18 | 3.81 | 0.4 |                 |         |         |        |        | ○      | ○      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG090308-QM  | 9.525          | 9.525  | 3.18 | 3.81 | 0.8 |                 |         |         |        |        | ○      | ●      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120404-QM  | 12.7           | 12.7   | 4.76 | 5.16 | 0.4 | ○               | ○       | ●       |        | ○      | ○      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120408-QM  | 12.7           | 12.7   | 4.76 | 5.16 | 0.8 | ●               | ●       | ●       | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120412-QM  | 12.7           | 12.7   | 4.76 | 5.16 | 1.2 | ●               | ○       | ●       | ○      | ●      |        | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120416-QM  | 12.7           | 12.7   | 4.76 | 5.16 | 1.6 | ●               |         | ●       | ●      |        |        | ●      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG150608-QM  | 15.875         | 15.875 | 6.35 | 6.35 | 0.8 | ○               | ○       | ○       |        | ○      | ○      | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG150612-QM  | 15.875         | 15.875 | 6.35 | 6.35 | 1.2 | ●               | ○       | ●       | ●      | ○      |        | ●      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG190612-QM  | 19.05          | 19.05  | 6.35 | 7.94 | 1.2 |                 | ●       |         | ○      | ○      |        | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120404-TP  | 12.7           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○ |
| SNMG120408-TP  | 12.7           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○ |
| SNMG120404R-SV | 12.7           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○ |
| SNMG120408R-SV | 12.7           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ● |
| SNMG120408L-SV | 12.7           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○ |
| SNMG090304-SM  | 9.525          | 9.525  | 3.18 | 3.81 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ●      | ●      |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120404-SM  | 12.7           | 12.7   | 4.76 | 5.16 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ●      | ●      | ●      |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120408-SM  | 12.7           | 12.7   | 4.76 | 5.16 | 0.8 |                 |         |         |        |        |        |        | ○      |        | ●      | ●      | ●      | ●      |          |        |        |        | ●      |        |        |        |        |        | ●      |   |
| SNMG120412-SM  | 12.7           | 12.7   | 4.76 | 5.16 | 1.2 |                 |         |         |        |        |        |        |        |        | ●      | ●      | ○      |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG120416-SM  | 12.7           | 12.7   | 4.76 | 5.16 | 1.6 |                 |         |         |        |        |        |        |        |        | ●      | ○      |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG150608-SM  | 15.875         | 15.875 | 6.35 | 6.35 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ●      | ○      | ●      |          |        |        |        | ●      |        |        |        |        |        |        |   |
| SNMG150612-SM  | 15.875         | 15.875 | 6.35 | 6.35 | 1.2 |                 |         |         |        |        |        |        |        |        |        | ○      |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG150616-SM  | 15.875         | 15.875 | 6.35 | 6.35 | 1.6 |                 |         |         |        |        |        |        |        |        | ●      | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG190612-SM  | 19.05          | 19.05  | 6.35 | 7.94 | 1.2 |                 |         |         |        |        |        |        |        |        | ○      | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |   |
| SNMG190616-SM  | 19.05          | 19.05  | 6.35 | 7.94 | 1.6 |                 |         |         |        |        |        |        |        |        | ●      | ●      |        |        |          |        |        |        |        |        |        |        |        |        |        |   |

● Stock ○ Available Upon Order



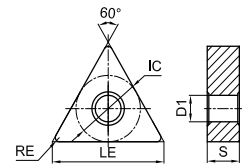




Turning Insert (Negative)

**TN** □ □

Triangle 60° with Hole



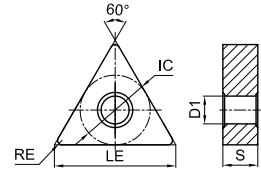
| Ordering Code | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |  |
|---------------|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|               | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115   | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
|               | TNMG160404-GF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160408-GF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ●      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG220404-GF  | 22   | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        | ●      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160404-QF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.4             |         |         | ●      | ●      | ●      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ●      |  |
|               | TNMG160408-QF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.8             |         |         | ●      | ●      | ●      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ○      | ●      |  |
|               | TNMG220404-QF  | 22   | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        | ○      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160404-SF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        | ●      | ●      |        |          |        |        | ●      |        |        |        |        |        |        |  |
|               | TNMG160408-SF  | 16.5 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        | ●      |        |        |          |        |        | ●      |        |        |        |        |        |        |  |
|               | TNMG160308-GM  | 16.5 | 9.525 | 3.18 | 3.81 | 0.8             |         |         |        |        |        | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160312-GM  | 16.5 | 9.525 | 3.18 | 3.81 | 1.2             |         |         |        |        |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160404-GM  | 16.5 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160408-GM  | 16.5 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG160412-GM  | 16.5 | 9.525 | 4.76 | 3.81 | 1.2             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG220404-GM  | 22   | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG220408-GM  | 22   | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |
|               | TNMG220412-GM  | 22   | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        | ○      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |  |

● Stock ○ Available Upon Order

Turning Insert (Negative)

**TN** □ □

Triangle 60° with Hole



| Ordering Code  | Dimension (mm) |       |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |   |
|----------------|----------------|-------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|                | LE             | IC    | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115 | GK1120   | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
|                | TNMG110304-QM  | 11    | 6.35  | 3.18 | 2.26 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG110308-QM  | 11    | 6.35  | 3.18 | 2.26 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160404-QM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ○      |        |        |        |        |          | ●      | ●      |        |        |        |        |        |        |   |
|                | TNMG160408-QM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      |        |        |        |          | ●      |        |        |        |        |        |        |        |   |
|                | TNMG160412-QM  | 16.5  | 9.525 | 4.76 | 3.81 | 1.2             | ●       | ●       | ●      | ●      | ●      | ○      | ●      | ●      | ●      |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |   |
|                | TNMG220408-QM  | 22    | 12.7  | 4.76 | 5.16 | 0.8             | ○       | ○       | ○      |        | ●      |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG220412-QM  | 22    | 12.7  | 4.76 | 5.16 | 1.2             | ○       | ○       | ○      |        | ●      |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG220416-QM  | 22    | 12.7  | 4.76 | 5.16 | 1.6             |         |         |        |        | ○      |        | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160404-TP  | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ○ |
| TNMG160408-TP  | 16.5           | 9.525 | 4.76  | 3.81 | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ○ |
|                | TNMG160404R-TS | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ● |
|                | TNMG160404L-TS | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ● |
|                | TNMG160408R-TS | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ● |
|                | TNMG160408L-TS | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ○      | ○ |
|                | TNMG160404R-SV | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ●      | ●      |        |        | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ● |
|                | TNMG160404L-SV | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ●      | ●      |        |        | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ● |
|                | TNMG160408R-SV | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ○      | ●      |        |        | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ● |
| TNMG160408L-SV | 16.5           | 9.525 | 4.76  | 3.81 | 0.8  |                 |         |         |        |        | ●      |        |        | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ○ |
|                | TNMG160404-SM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        | ●      | ●      | ●      | ●      | ●      |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160408-SM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        | ○      | ●      | ●      | ●      | ●      |        |          |        |        | ●      |        |        |        |        |        |   |
|                | TNMG160412-SM  | 16.5  | 9.525 | 4.76 | 3.81 | 1.2             |         |         |        |        |        |        |        |        | ○      | ○      |        | ●      |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG220408-SM  | 22    | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        | ●      |        | ●      |        |        |          |        |        |        |        |        |        |        |        |   |
| TNMG220412-SM  | 22             | 12.7  | 4.76  | 5.16 | 1.2  |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160404-LM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        | ○      | ○      | ○      | ●      | ●      |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160408-LM  | 16.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        | ●      | ●      | ○      | ●      | ●      |        |          |        |        |        |        |        |        |        |        |   |
|                | TNMG160412-LM  | 16.5  | 9.525 | 4.76 | 3.81 | 1.2             |         |         |        |        |        |        |        |        |        |        |        | ●      | ●      |        |          |        |        |        |        |        |        |        |        |   |

● Stock ○ Available Upon Order

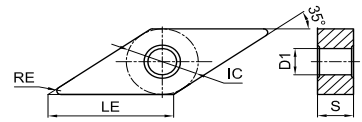




Turning Insert (Negative)

**VN** □ □

Rhombic 35° with Hole



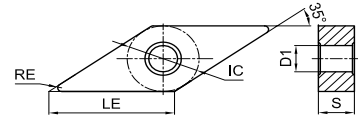
| Ordering Code | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        | Carbides |        | Cermets |        |        |        |        |        |        |        |  |
|---------------|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--|
|               | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115   | GK1120 | GK1125  | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
|               | VNMG160404-GF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ●      | ○      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160408-GF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |  |
|               | VNMG220404-GF  | 22.1 | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        | ○      |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG220408-GF  | 22.1 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160402-QF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.2             |         |         |        |        |        | ●      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160404-QF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             | ●       | ●       | ●      | ●      | ○      | ●      |        |        |        |        |        |        |        |          | ○      |         |        |        |        |        |        | ●      | ○      |  |
|               | VNMG160408-QF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             | ●       | ●       | ●      | ●      | ○      | ●      |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        | ●      | ○      |  |
|               | VNMG220408-QF  | 22.1 | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        | ●      | ○      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160404-SF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        | ●      | ●      |        |          |        |         | ●      |        |        |        |        |        |        |  |
|               | VNMG160408-SF  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        | ●      |        |        |          |        |         | ●      |        |        |        |        |        |        |  |
|               | VNMG160404-GM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160408-GM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160412-GM  | 16.6 | 9.525 | 4.76 | 3.81 | 1.2             |         |         |        |        | ●      | ●      |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160404-QM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             | ●       | ●       | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        | ●      | ●      |  |
|               | VNMG160408-QM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |          | ●      |         |        |        |        |        |        | ○      |        |  |
|               | VNMG160412-QM  | 16.6 | 9.525 | 4.76 | 3.81 | 1.2             | ●       | ●       | ●      | ●      | ●      | ●      | ●      |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |  |
|               | VNMG160404-TP  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        | ●      | ●      |  |
|               | VNMG160408-TP  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        | ○      | ○      |  |
|               | VNMG160404-SM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        | ○      | ○      | ○      | ●      | ●      |          |        |         |        |        |        |        |        |        |        |  |
|               | VNMG160408-SM  | 16.6 | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        | ○      | ○      | ●      | ○      |        |          |        |         |        |        |        |        |        |        |        |  |

● Stock ○ Available Upon Order

Turning Insert (Negative)



Rhombic 35° with Hole



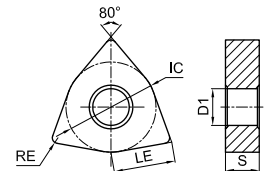
| Ordering Code | Dimension (mm) |       |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |        |        |        |  |
|---------------|----------------|-------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|               | LE             | IC    | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125   | GM3215 | GM3220 | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
| VNMG160404-LM | 16.6           | 9.525 | 4.76 | 3.81 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ○        | ●      | ○      | ●      | ●      |        |        |        |        |        |        |        |        |        |  |
| VNMG160408-LM | 16.6           | 9.525 | 4.76 | 3.81 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ○        | ●      | ○      | ●      | ●      |        |        |        |        |        |        |        |        |        |  |
| VNMG160404-UK | 16.6           | 9.525 | 4.76 | 3.81 | 0.4 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ●      |        |        |        |        |        |        |  |
| VNMG160408-UK | 16.6           | 9.525 | 4.76 | 3.81 | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ●      |        |        |        |        |        |        |  |
| VNMG160412-UK | 16.6           | 9.525 | 4.76 | 3.81 | 1.2 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ●      |        |        |        |        |        |        |  |
| VNMG160408-HK | 16.6           | 9.525 | 4.76 | 3.81 | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ○      |        |        |        |        |        |        |  |
| VNMG160412-HK | 16.6           | 9.525 | 4.76 | 3.81 | 1.2 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      |        |        |        |        |        |        |        |  |

● Stock ○ Available Upon Order

Turning Insert (Negative)

**WN** □ □

Trigon 80° with Hole



| Ordering Code | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |  |
|---------------|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|               | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
|               | WNMG06T304-GF  | 6.5  | 9.525 | 3.97 | 3.81 | 0.4             |         |         |        |        | ●      | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG06T308-GF  | 6.5  | 9.525 | 3.97 | 3.81 | 0.8             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060404-GF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060408-GF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080404-GF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        | ●      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080408-GF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060404-QF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             | ○       | ●       | ●      | ○      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060408-QF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             | ○       | ○       | ●      | ○      | ●      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080404-QF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             | ●       | ●       | ●      | ●      | ○      | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      |  |
|               | WNMG080408-QF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             | ●       | ●       | ●      | ●      | ○      | ●      |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        | ●      | ●      |  |
|               | WNMG060404-SF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      |        |        |        |        |        |  |
|               | WNMG060408-SF  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      |        |        |        |        |        |  |
|               | WNMG080404-SF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        | ●      |        |        |        |        |  |
|               | WNMG080408-SF  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        | ●      |          |        |        |        |        |        | ●      |        |        |        |        |  |
|               | WNMG06T304-GM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.4             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |        |  |
|               | WNMG06T308-GM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.8             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        |        | ●      |        |        |        |        |        |        |        |  |
|               | WNMG06T312-GM  | 6.5  | 9.525 | 3.97 | 3.81 | 1.2             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        |        | ●      |        |        |        |        |        |        |        |  |
|               | WNMG060404-GM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060408-GM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        | ○      | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080404-GM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080408-GM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        | ●      | ●      |        |        |        |        |        |          |        |        | ●      |        |        |        |        |        |        |        |  |
|               | WNMG080412-GM  | 8.7  | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        | ●      | ●      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
| WNMG080416-GM | 8.7            | 12.7 | 4.76  | 5.16 | 1.6  |                 |         |         |        |        | ●      | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060404-QM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             | ○       | ○       | ●      | ○      | ●      | ○      |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |        |  |
|               | WNMG060408-QM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             | ○       | ○       | ●      | ●      | ○      | ●      | ○      |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG060412-QM  | 6.5  | 9.525 | 4.76 | 3.81 | 1.2             | ○       | ○       | ○      | ○      | ○      |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |
|               | WNMG080404-QM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ○      |        |        |          |        |        | ●      |        |        |        |        |        |        | ●      |  |
|               | WNMG080408-QM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      |        |          |        |        | ●      |        |        |        |        |        | ●      | ●      |  |
|               | WNMG080412-QM  | 8.7  | 12.7  | 4.76 | 5.16 | 1.2             | ●       | ●       | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      | ●      |        |          |        |        | ●      |        |        |        |        |        |        |        |  |
|               | WNMG080416-QM  | 8.7  | 12.7  | 4.76 | 5.16 | 1.6             | ●       | ○       | ●      | ○      | ●      | ○      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |  |

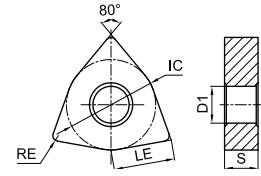
● Stock ○ Available Upon Order




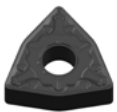



Turning Insert (Negative)

**WN** □ □

Trigon 80° with Hole



| Ordering Code   | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |   |   |
|---|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|
|   | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |   |
|    | WNMG080404-TP  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ● | ● |
|   | WNMG080408-TP  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ● | ○ |
|    | WNMG080408R-SV | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         | ●      |        |        | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG080408L-SV | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         | ●      |        |        | ●      |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG06T304-SM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● |
|   | WNMG06T308-SM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● |
|   | WNMG060404-SM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        | ○      | ●      |        |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG060408-SM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        | ●      | ●      |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG060412-SM  | 6.5  | 9.525 | 4.76 | 3.81 | 1.2             |         |         |        |        |        |        |        |        | ●      |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG080404-SM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        |        | ○      | ●      |        | ●      | ●        |        |        |        |        |        |        |        |        |        |        | ● | ● |
|  | WNMG080408-SM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        | ●      | ●      | ●      | ●      | ●      |          |        |        |        | ●      |        |        |        |        |        | ●      | ○ |   |
|   | WNMG080412-SM  | 8.7  | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        | ○      | ●      |        | ●      | ●      |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG06T304-LM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        | ●      |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG06T308-LM  | 6.5  | 9.525 | 3.97 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        | ○        | ●      |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG060404-LM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.4             |         |         |        |        |        |        |        |        |        |        | ○      | ●      | ○        | ●      |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG060408-LM  | 6.5  | 9.525 | 4.76 | 3.81 | 0.8             |         |         |        |        |        |        |        |        |        |        | ●      | ●      |          | ●      |        |        |        |        |        |        |        |        |        |   |   |
|  | WNMG080404-LM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.4             |         |         |        |        |        |        |        | ●      | ●      | ●      | ●      | ●      |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG080408-LM  | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        | ●      | ●      | ●      | ●      | ●      |          |        |        |        | ●      |        |        |        |        |        |        |   |   |
|   | WNMG080412-LM  | 8.7  | 12.7  | 4.76 | 5.16 | 1.2             |         |         |        |        |        |        |        | ○      | ●      | ○      | ●      | ●      |          |        |        |        |        |        |        |        |        |        |        |   |   |
|   | WNMG080408-WMV | 8.7  | 12.7  | 4.76 | 5.16 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        | ●      | ○      |        |        |        |        |        |        |        |   |   |
| WNMG080412-WMV  | 8.7            | 12.7 | 4.76  | 5.16 | 1.2  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      | ○      |        |        |        |        |        |        |        |        |   |   |

Wiper

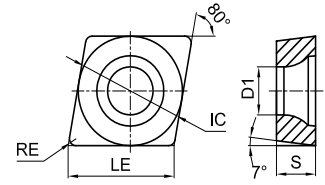
● Stock ○ Available Upon Order



Turning Insert (Positive)



Rhombic 80° with Hole



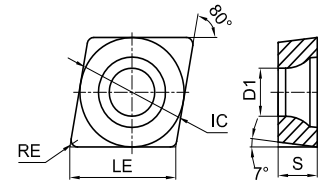
| Ordering Code | Dimension (mm) |       |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |   |   |   |
|---------------|----------------|-------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|---|
|               | LE             | IC    | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |   |   |
|               | CCMT060202-MM  | 6.5   | 6.35  | 2.38 | 2.8  | 0.2             | ○       | ●       | ●      |        |        |        |        |        | ●      |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |        | ○ | ● |   |
|               | CCMT060204-MM  | 6.5   | 6.35  | 2.38 | 2.8  | 0.4             | ●       | ●       | ●      |        |        |        |        |        | ○      |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT060208-MM  | 6.5   | 6.35  | 2.38 | 2.8  | 0.8             | ○       | ●       | ○      |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |        | ○ | ○ |   |
|               | CCMT09T302-MM  | 9.7   | 9.525 | 3.97 | 4.4  | 0.2             | ○       | ●       | ●      |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |        | ○ | ● |   |
|               | CCMT09T304-MM  | 9.7   | 9.525 | 3.97 | 4.4  | 0.4             | ●       | ●       | ●      |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT09T308-MM  | 9.7   | 9.525 | 3.97 | 4.4  | 0.8             | ●       | ●       | ●      |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        | ○      | ● |   |   |
|               | CCMT060202-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        | ○      | ●      |        |        |        |        | ○      |        |        |          | ●      |        |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT060204-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        | ●      | ●      | ●      |        |        | ●      | ●      | ●      | ●      | ●        | ○      | ○      |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT060208-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        | ○      | ●      |        |        |        |        | ●      | ○      | ●      | ●        | ●      | ○      | ○      |        |        |        |        |        |        |        | ○ | ○ |   |
|               | CCMT09T302-GP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        | ●      | ●      |        |        |        |        | ●      |        |        |          | ●      |        |        |        |        |        |        |        |        |        | ○ | ○ |   |
|               | CCMT09T304-GP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        | ●      | ●      | ●      | ○      |        | ●      | ●      | ●      | ●      | ●        | ●      | ●      | ●      | ○      |        |        |        |        |        |        | ● | ● |   |
|               | CCMT09T308-GP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        | ●      | ●      | ●      | ●      |        | ●      | ●      | ○      | ●      | ●        | ●      | ○      | ●      |        |        |        |        |        |        |        | ○ | ● |   |
|               | CCMT120404-GP  | 12.9  | 12.7  | 4.76 | 5.56 | 0.4             |         |         |        | ●      | ●      | ●      |        |        | ●      | ●      | ●      | ○      | ●        | ○      | ●      |        |        |        |        |        |        |        |        | ○ | ○ |   |
|               | CCMT120408-GP  | 12.9  | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        | ●      | ●      | ●      |        |        | ●      | ●      | ●      | ●      | ●        | ○      | ●      |        |        |        |        |        |        |        |        | ○ | ● |   |
|               | CCGT060202-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |
|               | CCGT060204-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |
|               | CCGT060208-GP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |
|               | CCGT09T302-GP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |
| CCGT09T304-GP | 9.7            | 9.525 | 3.97  | 4.4  | 0.4  |                 |         |         |        |        |        |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |   |
| CCGT09T308-GP | 9.7            | 9.525 | 3.97  | 4.4  | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |   |
| CCGT120404-GP | 12.9           | 12.7  | 4.76  | 5.56 | 0.4  |                 |         |         |        |        |        |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |   |   |   |
| CCGT120408-GP | 12.9           | 12.7  | 4.76  | 5.56 | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ○      |        |        |        |        |        |        |        |        |        |   |   |   |
|               | CCMT060202-TP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT060204-TP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ● | ● |   |
|               | CCMT060208-TP  | 6.5   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○ | ○ |   |
|               | CCMT09T302-TP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● | ● |
|               | CCMT09T304-TP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● | ● |
|               | CCMT09T308-TP  | 9.7   | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● | ● |
|               | CCMT120404-TP  | 12.9  | 12.7  | 4.76 | 5.56 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ○ | ● |
|               | CCMT120408-TP  | 12.9  | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ○ | ○ |

● Stock ○ Available Upon Order

Turning Insert (Positive)



Rhombic 80° with Hole

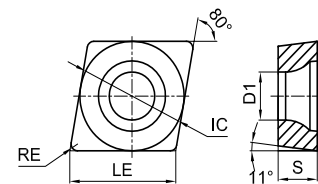


| Ordering Code | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        | Carbides |        | Cermet |        |        |        |        |        |        |        |        |        |        |  |  |  |
|---------------|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|
|               | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215   | GM3220 | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |  |
|               | CCMT060204-KM  | 6.5  | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      | ○      | ○      |        |        |        |        |  |  |  |
|               | CCMT09T304-KM  | 9.7  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      | ●      | ●      |        |        |        |        |  |  |  |
|               | CCMT09T308-KM  | 9.7  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      | ●      | ●      |        |        |        |        |  |  |  |
|               | CCMT120404-KM  | 12.9 | 12.7  | 4.76 | 5.56 | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      |        |        |        |        |        |        |  |  |  |
|               | CCMT120408-KM  | 12.9 | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      | ●      | ●      |        |        |        |        |  |  |  |
|               | CCMT120412-KM  | 12.9 | 12.7  | 4.76 | 5.56 | 1.2             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        | ●      | ●      | ●      |        |        |        |        |  |  |  |
|               | CCGX060202-AL  | 6.5  | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ○      | ○      |        |        |        |  |  |  |
|               | CCGX060204-AL  | 6.5  | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        | ●      | ●      | ●      | ○      |        |  |  |  |
|               | CCGX060208-AL  | 6.5  | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      |        |        |        |  |  |  |
|               | CCGX09T302-AL  | 9.7  | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      | ●      |        |  |  |  |
|               | CCGX09T304-AL  | 9.7  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      | ●      | ●      |  |  |  |
|               | CCGX09T308-AL  | 9.7  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      | ●      |        |  |  |  |
|               | CCGX120402-AL  | 12.9 | 12.7  | 4.76 | 5.5  | 0.2             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ●      |        |        |  |  |  |
|               | CCGX120404-AL  | 12.9 | 12.7  | 4.76 | 5.5  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      | ●      | ○      |  |  |  |
|               | CCGX120408-AL  | 12.9 | 12.7  | 4.76 | 5.5  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ○      | ●      | ●      |  |  |  |

●Stock ○Available Upon Order



菱形80°有孔



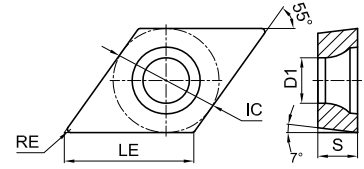
| Ordering Code | Dimension (mm) |      |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        | Carbides |        | Cermet |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|---------------|----------------|------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|--|
|               | LE             | IC   | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215   | GM3220 | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |  |  |
|               | CPGT060204-GP  | 6.5  | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT060208-GP  | 6.5  | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT09T302-GP  | 9.7  | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT09T304-GP  | 9.7  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT09T308-GP  | 9.7  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT120404-GP  | 12.9 | 12.7  | 4.76 | 5.56 | 0.4             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |
|               | CPGT120408-GP  | 12.9 | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |  |  |  |  |

●Stock ○Available Upon Order

Turning Insert (Positive)

**DC** □ □

Rhombic 55° with Hole



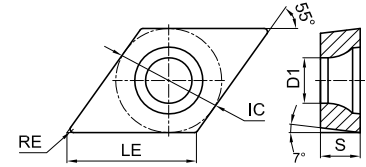
| Ordering Code | Dimension (mm) |       |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides |        | Cermets |        |        |        |        |        |        |        |        |   |
|---------------|----------------|-------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|               | LE             | IC    | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120  | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
|               | DCMT070202-MM  | 7.8   | 6.35  | 2.38 | 2.8  | 0.2             | ○       | ●       | ●      |        |        |        |        |        | ○      |        | ●      | ●      |          |        |         |        |        |        |        |        |        |        | ●      | ● |
|               | DCMT070204-MM  | 7.8   | 6.35  | 2.38 | 2.8  | 0.4             | ○       | ●       | ●      |        |        |        |        |        | ●      |        | ●      | ●      |          |        |         |        |        |        |        |        |        |        | ●      | ● |
|               | DCMT070208-MM  | 7.8   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        | ●      | ●        |        |         |        |        |        |        |        |        |        |        |   |
|               | DCMT11T302-MM  | 11.6  | 9.525 | 3.97 | 4.4  | 0.2             | ○       | ●       | ●      |        |        |        |        |        |        |        |        | ●      | ●        |        |         |        |        |        |        |        |        |        | ●      | ● |
|               | DCMT11T304-MM  | 11.6  | 9.525 | 3.97 | 4.4  | 0.4             | ●       | ●       | ●      |        |        |        |        |        | ●      |        | ●      | ●      |          |        |         |        |        |        |        |        |        |        | ●      | ● |
|               | DCMT11T308-MM  | 11.6  | 9.525 | 3.97 | 4.4  | 0.8             | ●       | ●       | ●      |        |        |        |        |        | ●      |        | ●      | ●      |          |        |         |        |        |        |        |        |        | ○      | ●      |   |
|               | DCMT070202-GP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        | ○      | ●      |        |        |        |        | ●      |        |        |          | ●      |         |        |        |        |        |        |        | ○      | ○      |   |
|               | DCMT070204-GP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        | ●      | ●      |        |        |        | ○      | ●      | ●      | ●      | ●        |        | ○       |        |        |        |        |        |        | ●      | ○      |   |
|               | DCMT070208-GP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        | ●      | ●      |        |        |        |        | ●      | ○      | ●      | ○        | ○      |         |        |        |        |        |        |        | ●      |        |   |
|               | DCMT11T302-GP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        | ●      | ●      |        |        |        |        | ○      |        |        |          | ●      |         |        |        |        |        |        |        | ○      | ●      |   |
|               | DCMT11T304-GP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        | ●      | ●      | ●      |        |        | ●      | ●      | ●      | ●      | ●        | ●      | ●       | ●      |        |        |        |        |        | ○      | ●      |   |
|               | DCMT11T308-GP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        | ●      | ●      | ●      |        |        | ●      | ●      | ○      | ●      | ●        | ●      | ○       |        |        |        |        |        |        | ●      |        |   |
|               | DCMT11T312-GP  | 11.6  | 9.525 | 3.97 | 4.4  | 1.2             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |        |   |
|               | DCMT150404-GP  | 15.5  | 12.7  | 4.76 | 5.56 | 0.4             |         |         |        |        |        | ○      |        |        |        | ●      |        |        |          |        |         |        |        |        |        |        |        |        |        |   |
|               | DCMT150408-GP  | 15.5  | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        |        |        | ●      |        |        |        | ●      |        |        |          | ○      |         |        |        |        |        |        |        |        |        |   |
|               | DCMT150412-GP  | 15.5  | 12.7  | 4.76 | 5.56 | 1.2             |         |         |        |        |        |        |        |        |        | ●      |        |        |          |        |         |        |        |        |        |        |        |        |        |   |
|               | DCGT070202-GP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        | ●       |        |        |        |        |        |        |        |        |   |
|               | DCGT070204-GP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        | ●       |        |        |        |        |        |        |        |        |   |
| DCGT070208-GP | 7.8            | 6.35  | 2.38  | 2.8  | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ○      |         |        |        |        |        |        |        |        |        |   |
| DCGT11T302-GP | 11.6           | 9.525 | 3.97  | 4.4  | 0.2  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |        |   |
| DCGT11T304-GP | 11.6           | 9.525 | 3.97  | 4.4  | 0.4  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |        |   |
| DCGT11T308-GP | 11.6           | 9.525 | 3.97  | 4.4  | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |         |        |        |        |        |        |        |        |        |   |
|               | DCMT070202-TP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        | ○      | ○      |   |
|               | DCMT070204-TP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        | ○      | ○      |   |
|               | DCMT070208-TP  | 7.8   | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        | ○      | ●      |   |
|               | DCMT11T302-TP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        | ●      | ●      |   |
|               | DCMT11T304-TP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        |        | ●      | ●      |   |
|               | DCMT11T308-TP  | 11.6  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |         |        |        |        |        |        | ●      | ○      |        |   |
|               | DCMT11T304-KM  | 11.6  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      | ○       |        |        |        |        |        |        |        |        |   |
|               | DCMT11T308-KM  | 11.6  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      | ●       |        |        |        |        |        |        |        |        |   |

● Stock ○ Available Upon Order

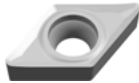
Turning Insert (Positive)



Rhombic 55° with Hole



| Ordering Code | Dimension (mm) |       |      |     |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides |        | Cermet |        |        |        |        |        |        |        |        |  |
|---------------|----------------|-------|------|-----|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|               | LE             | IC    | S    | D1  | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |
| DCGX070202-AL | 7.8            | 6.35  | 2.38 | 2.8 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      |        |        |        |        |  |
| DCGX070204-AL | 7.8            | 6.35  | 2.38 | 2.8 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ●      |        |        |        |  |
| DCGX070208-AL | 7.8            | 6.35  | 2.38 | 2.8 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      | ○      |        |        |        |        |  |
| DCGX11T302-AL | 11.6           | 9.525 | 3.97 | 4.4 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ●      |        |        |        |  |
| DCGX11T304-AL | 11.6           | 9.525 | 3.97 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ●      | ●      |        |        |  |
| DCGX11T308-AL | 11.6           | 9.525 | 3.97 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      |        |        |        |        |  |

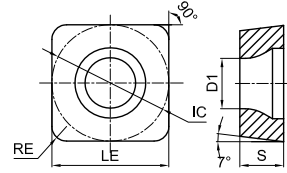
















● Stock ○ Available Upon Order

Turning Insert (Positive)

**SC** □ □

Square 90° with Hole



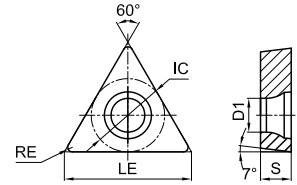
| Ordering Code   | Dimension (mm) |       |      |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |        |        |        |   |
|---|----------------|-------|------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|   | LE             | IC    | S    | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125   | GM3215 | GM3220 | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
|  SCMT09T304-MM   | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 | ○               | ●       | ●       |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCMT09T308-MM   | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 | ○               | ●       | ●       |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        |   |
|  SCMT09T304-GP   | 9.525          | 9.525 | 3.97 | 4.4  | 0.4 |                 |         |         |        | ●      | ●      |        |        |        | ●      | ●        |        |        | ○      | ●      | ○      | ○      |        |        |        |        |        |        |        | ○ |
|  SCMT09T308-GP  | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 |                 |         |         |        | ●      | ●      | ●      |        |        |        | ●        |        |        | ○      | ●      | ○      | ○      |        |        |        |        |        |        |        |   |
|  SCMT120404-GP | 12.7           | 12.7  | 4.76 | 5.56 | 0.4 |                 |         |         |        | ●      | ●      |        |        |        |        | ○        | ○      |        |        | ●      | ○      |        |        |        |        |        |        |        |        | ○ |
|  SCMT120408-GP | 12.7           | 12.7  | 4.76 | 5.56 | 0.8 |                 |         |         |        | ●      | ●      | ●      |        |        |        | ●        | ○      | ○      |        | ●      | ●      | ○      |        |        |        |        |        |        |        | ○ |
|  SCMT09T304-TP | 9.525          | 9.525 | 3.97 | 4.4  | 0.4 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCMT09T308-TP | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ● |
|  SCMT120404-TP | 12.7           | 12.7  | 4.76 | 5.56 | 0.4 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCMT120408-TP | 12.7           | 12.7  | 4.76 | 5.56 | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCMT09T308-KM | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      | ●      |        |        |        |        |        |        |   |
|  SCMT120408-KM | 12.7           | 12.7  | 4.76 | 5.56 | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ○      |        |        |        |        |        |        |   |
|  SCMT120412-KM | 12.7           | 12.7  | 4.76 | 5.56 | 1.2 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      |        |        |        |        |        |        |        |   |
|  SCGX09T304-AL | 9.525          | 9.525 | 3.97 | 4.4  | 0.4 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCGX09T308-AL | 9.525          | 9.525 | 3.97 | 4.4  | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCGX120404-AL | 12.7           | 12.7  | 4.76 | 5.5  | 0.4 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |
|  SCGX120408-AL | 12.7           | 12.7  | 4.76 | 5.5  | 0.8 |                 |         |         |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |        |        |        | ○ |

● Stock ○ Available Upon Order

Turning Insert (Positive)

**TC** □ □

Triangle 60° with Hole



| Ordering Code | Dimension (mm) |       |       |      |      | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |   |   |   |   |
|---------------|----------------|-------|-------|------|------|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|---|---|---|
|               | LE             | IC    | S     | D1   | RE   | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GMI115 | GMI125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |   |   |   |
|               | TCMT110202-MM  | 11    | 6.35  | 2.38 | 2.8  | 0.2             | ○       | ○       | ○      |        |        |        |        |        |        |        |        |        |          | ●      | ●      |        |        |        |        |        |        |        |        | ○ | ○ |   |   |
|               | TCMT110204-MM  | 11    | 6.35  | 2.38 | 2.8  | 0.4             | ○       | ●       | ●      |        |        |        |        |        |        |        |        |        |          | ●      | ●      |        |        |        |        |        |        |        |        | ● | ● |   |   |
|               | TCMT110208-MM  | 11    | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      | ●      |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT16T304-MM  | 16.5  | 9.525 | 3.97 | 4.4  | 0.4             | ○       | ●       | ●      |        |        |        |        |        |        |        |        |        |          | ●      | ●      |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT16T308-MM  | 16.5  | 9.525 | 3.97 | 4.4  | 0.8             | ○       | ●       | ●      |        |        |        |        |        |        | ●      |        |        |          | ●      | ●      |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT090204-GP  | 9.6   | 5.56  | 2.38 | 2.5  | 0.4             |         |         |        | ●      | ●      |        |        |        |        |        |        |        | ●        |        | ○      |        |        |        |        |        |        |        |        | ○ | ○ |   |   |
|               | TCMT110202-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        | ○      |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |   | ○ |   |   |
|               | TCMT110204-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        | ●      | ●      |        |        |        | ○      | ●      | ●      | ●      | ●        |        |        |        |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT110208-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        | ●      | ●      |        |        |        |        | ●      | ●      | ●      | ○        | ●      | ●      | ●      |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT16T304-GP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        | ●      | ●      |        |        |        |        | ●      | ●      | ●      | ●        | ●      | ●      | ●      |        |        |        |        |        |        |        |   | ○ | ● |   |
|               | TCMT16T308-GP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        | ●      | ●      |        |        |        |        | ●      | ●      | ●      | ●        | ●      | ●      | ●      |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT16T312-GP  | 16.5  | 9.525 | 3.97 | 4.4  | 1.2             |         |         |        |        |        | ○      |        |        |        |        |        |        |          | ●      |        | ●      |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT220408-GP  | 22    | 12.7  | 4.76 | 5.56 | 0.8             |         |         |        | ●      | ●      |        |        |        |        |        | ●      |        |          | ●      |        | ○      |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT220412-GP  | 22    | 12.7  | 4.76 | 5.56 | 1.2             |         |         |        | ●      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT090204-GP  | 9.6   | 5.56  | 2.38 | 2.5  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT110202-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT110204-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT110208-GP  | 11    | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT16T304-GP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
|               | TCGT16T308-GP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        | ○      |        |        |        |        |        |        |        |   |   |   |   |
|               | TCMT090202-TP  | 9.6   | 5.56  | 2.38 | 2.5  | 0.2             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT090204-TP  | 9.6   | 5.56  | 2.38 | 2.5  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT090208-TP  | 9.6   | 5.56  | 2.38 | 2.5  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   | ● | ● |
|               | TCMT110204-TP  | 11    | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   | ● | ○ |
|               | TCMT110208-TP  | 11    | 6.35  | 2.38 | 2.8  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   |   | ● | ● |
|               | TCMT16T304-TP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ○ | ○ |   |
|               | TCMT16T308-TP  | 16.5  | 9.525 | 3.97 | 4.4  | 0.8             |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        |   | ● | ○ |   |
|               | TCMT110204-KM  | 11    | 6.35  | 2.38 | 2.8  | 0.4             |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
| TCMT16T304-KM | 16.5           | 9.525 | 3.97  | 4.4  | 0.4  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |
| TCMT16T308-KM | 16.5           | 9.525 | 3.97  | 4.4  | 0.8  |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |   |   |   |

● Stock ○ Available Upon Order

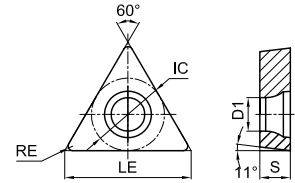




Turning Insert (Positive)

**TP** □ □

Triangle 60° with Hole



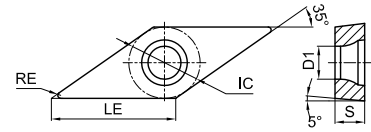
| Ordering Code | Dimension (mm) |       |       |      |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |        |   |
|---------------|----------------|-------|-------|------|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|               | LE             | IC    | S     | D1   | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220   | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
|               | TPMT110202-MM  | 11    | 6.35  | 2.38 | 2.8 | 0.2             | ○       | ○       | ○      |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |        |   |
|               | TPMT110204-MM  | 11    | 6.35  | 2.38 | 2.8 | 0.4             | ○       | ○       | ○      |        |        |        |        |        |        |        |        |          |        | ●      |        |        |        |        |        |        |        |        |        |   |
|               | TPMT110304-MM  | 11    | 6.35  | 3.18 | 3.4 | 0.4             | ●       | ●       | ○      |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ●      | ● |
|               | TPGT110204-GP  | 11    | 6.35  | 2.38 | 2.8 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |        |   |
|               | TPGT110208-GP  | 11    | 6.35  | 2.38 | 2.8 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |        |   |
|               | TPGT16T304-GP  | 16.5  | 9.525 | 3.97 | 4.4 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |        |   |
|               | TPGT16T308-GP  | 16.5  | 9.525 | 3.97 | 4.4 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |        |   |
|               | TPMT090202-TP  | 9.6   | 5.56  | 2.38 | 2.5 | 0.2             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
|               | TPMT090204-TP  | 9.6   | 5.56  | 2.38 | 2.5 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
|               | TPMT090208-TP  | 9.6   | 5.56  | 2.38 | 2.5 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ○ |
|               | TPMT110302-TP  | 11    | 6.35  | 3.18 | 3.4 | 0.2             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
|               | TPMT110304-TP  | 11    | 6.35  | 3.18 | 3.4 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
|               | TPMT110308-TP  | 11    | 6.35  | 3.18 | 3.4 | 0.8             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
|               | TPMT160302-TP  | 16.5  | 9.525 | 3.18 | 4.4 | 0.2             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ●      | ● |
|               | TPMT160304-TP  | 16.5  | 9.525 | 3.18 | 4.4 | 0.4             |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        |        | ○      | ● |
| TPMT160308-TP | 16.5           | 9.525 | 3.18  | 4.4  | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        |        | ●      | ●      |   |







● Stock ○ Available Upon Order

Turning Insert (Positive)

**VB** □ □

Rhombic 35° with Hole



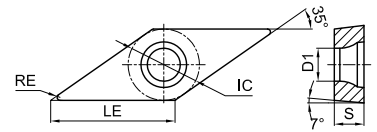
| Ordering Code   | Dimension (mm) |       |      |     |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |   |  |
|---|----------------|-------|------|-----|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|--|
|   | LE             | IC    | S    | D1  | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225 | GK1115   | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |  |
|  VBMT110304-MM   | 11.2           | 6.35  | 3.18 | 2.8 | 0.4 | ●               | ●       | ○       |        |        |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |   |  |
| VBMT110308-MM   | 11.2           | 6.35  | 3.18 | 2.8 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        | ●      |          |        |        |        |        |        |        |        |        |        |   |  |
|  VBMT160402-MM   | 16.6           | 9.525 | 4.76 | 4.4 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |   |  |
| VBMT160404-MM   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 | ●               | ●       | ●       |        |        |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |   |  |
| VBMT160408-MM   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 | ●               | ●       | ●       |        |        |        |        |        |        |        |        |        |        | ●      | ●        |        |        |        |        |        |        |        |        |        |   |  |
|  VBMT160404-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         | ●      | ○      | ●      |        |        |        | ●      | ○      | ●      | ●      | ●      |          | ○      |        |        |        |        |        |        |        | ●      | ○ |  |
| VBMT160408-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         | ●      | ●      | ●      |        |        | ○      | ●      |        | ●      | ●      | ●      |          | ○      |        |        |        |        |        |        |        | ○      | ○ |  |
| VBMT160412-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 1.2 |                 |         |         | ○      | ○      |        |        |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |   |  |
|  VBMT110304-TP | 11.2           | 6.35  | 3.18 | 2.8 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ● |  |
| VBMT110308-TP   | 11.2           | 6.35  | 3.18 | 2.8 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ● |  |
|  VBMT160402-TP | 16.6           | 9.525 | 4.76 | 4.4 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ○ |  |
| VBMT160404-TP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ●      | ● |  |
| VBMT160408-TP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        |        |        |        |        | ○      | ○ |  |
|  VBMT160408-KM | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |        | ●        | ●      |        |        |        |        |        |        |        |        |   |  |





● Stock ○ Available Upon Order

Turning Insert (Positive)

**VC** □ □

Rhombic 35° with Hole



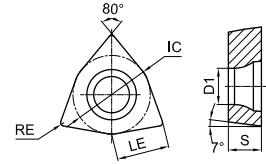
| Ordering Code   | Dimension (mm) |       |      |     |     | Coated Carbides |         |         |        |        |        |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |   |
|---|----------------|-------|------|-----|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
|   | LE             | IC    | S    | D1  | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125 | GM3215 | GM3220 | GM3225   | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |   |
|  VCMT110304-GP   | 11.2           | 6.35  | 3.18 | 2.8 | 0.4 |                 |         |         |        | ○      | ●      |        |        |        | ●      |        |        |        | ●        |        |        |        |        |        |        |        |        |        | ○      | ● |
| VCMT110308-GP   | 11.2           | 6.35  | 3.18 | 2.8 | 0.8 |                 |         |         |        |        |        |        |        |        | ●      |        |        |        |          | ○      |        |        |        |        |        |        |        |        | ○      | ● |
| VCMT160404-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         | ●      | ●      |        |        |        |        | ●      | ●      | ○      | ●      |          |        |        |        |        |        |        |        |        |        | ○      | ● |
|  VCMT160408-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         | ●      | ●      |        |        |        |        | ●      | ●      | ●      | ●      |          |        |        |        |        |        |        |        |        |        | ○      |   |
| VCGT110304-GP   | 11.2           | 6.35  | 3.18 | 2.8 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        | ●      |          |        |        |        |        |        |        |        |        |        |        |   |
| VCGT160404-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        | ●      |          |        |        |        |        |        |        |        |        |        |        |   |
| VCGT160408-GP   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        | ○        |        |        |        |        |        |        |        |        |        |        |   |
| VCMT160404-KM   | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          | ●      |        |        |        |        |        |        |        |        |        |   |
|  VCMT160408-KM   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        | ○      |        |        |        |        |        |        |        |        |   |
| VCGX110302-AL   | 11.2           | 6.35  | 3.18 | 2.8 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ●      |        |        |        |        |   |
| VCGX110304-AL   | 11.2           | 6.35  | 3.18 | 2.8 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ●      | ○      |        |        |   |
| VCGX110308-AL   | 11.2           | 6.35  | 3.18 | 2.8 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      | ○      |        |        |        |        |   |
| VCGX160402-AL   | 16.6           | 9.525 | 4.76 | 4.4 | 0.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ○      |        |        |        |   |
|  VCGX160404-AL | 16.6           | 9.525 | 4.76 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ●      | ●      |        |        |   |
| VCGX160408-AL   | 16.6           | 9.525 | 4.76 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ●      | ○      | ●      | ○      |        |        |   |
| VCGX160412-AL   | 16.6           | 9.525 | 4.76 | 4.4 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      | ●      |        |        |        |        |   |
| VCGX220512-AL   | 22.1           | 12.7  | 5.56 | 5.6 | 1.2 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      |        |        |        |        |        |   |
| VCGX220516-AL   | 22.1           | 12.7  | 5.56 | 5.6 | 1.6 |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      |        |        |        |        |        |   |
| VCGX220530-AL   | 22.1           | 12.7  | 5.56 | 5.6 | 3   |                 |         |         |        |        |        |        |        |        |        |        |        |        |          |        |        |        |        | ○      | ●      |        |        |        |        |   |

● Stock ○ Available Upon Order

Turning Insert (Positive)

**WC** □ □

Trigon 80° with Hole



| Ordering Code | Dimension (mm) |       |      |     |     | Coated Carbides |         |         |        |        |        |        |        |        |        | Carbides | Cermet |        |        |        |        |        |        |        |        |        |        |        |        |  |  |
|---------------|----------------|-------|------|-----|-----|-----------------|---------|---------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
|               | LE             | IC    | S    | D1  | RE  | GPT6110         | GPT6120 | GPT6130 | GP1105 | GP1115 | GP1120 | GP1225 | GP1130 | GP1135 | GM1115 | GM1125   | GM3215 | GM3220 | GM3225 | GK1115 | GK1120 | GK1125 | GS3115 | GN3125 | GN9115 | GN9120 | GN9130 | GP31TM | GP91TM |  |  |
| WCMT06T304-GP | 6.5            | 9.525 | 3.97 | 4.4 | 0.4 |                 |         |         |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |
| WCMT06T308-GP | 6.5            | 9.525 | 3.97 | 4.4 | 0.8 |                 |         |         |        |        |        |        |        |        |        | ●        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |



● Stock ○ Available Upon Order

## Recommended Cutting Datas (Negative Inserts)

| ISO                 | Workpiece Materials | Hardness       | Application Range   | Cutting Mode                              | Chip Breaker                              | Grade          | Min-Optimum-Max         |                      |                        |                |
|---------------------|---------------------|----------------|---------------------|---|---|----------------|-------------------------|----------------------|------------------------|----------------|
|                     |                     |                |                     |   |   |                | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rev) |                |
| P                   | Mild Steel          | ≤HB180         | Finishing Machining | Continuous Cutting<br>Interrupted Cutting | GF  | GP1115         | 200-260-360             | 0.80-1.20-2.50       | 0.10-0.20-0.35         |                |
|                     |                     |                |                     |   |   | GP1225         | 180-240-320             | 0.80-1.20-2.50       | 0.10-0.20-0.35         |                |
|                     |                     |                |                     | Continuous Cutting                        | QF  | GPT6110        | 240-300-400             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     |   |   | GP1105         | 220-280-380             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     |   |   | GP1115         | 200-260-360             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     | General                                   | QF  | GPT6120        | 200-280-380             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     |   |   | GP1120         | 200-260-360             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     | Interrupted Cutting                       | QF  | GPT6130        | 180-240-320             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     |   |   | GP1225         | 180-240-320             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     |   |   | GP1135         | 170-220-300             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|                     |                     |                |                     | Finishing Machining                       | Continuous Cutting<br>Interrupted Cutting | GM             | GP1115                  | 180-230-320          | 1.00-2.00-4.00         | 0.18-0.22-0.40 |
|                     |                     |                |                     |   |   |                | GP1225                  | 160-210-300          | 1.00-2.00-4.00         | 0.18-0.22-0.40 |
|                     |                     |                | Continuous Cutting  |   | QM  | GP31TM         | 210-280-330             | 0.50-1.20-2.50       | 0.10-0.18-0.30         |                |
|                     |                     |                |                     |   |   | GP91TM         | 200-260-330             | 0.50-1.50-3.00       | 0.15-0.22-0.35         |                |
|                     |                     |                |                     |   |   | GPT6110        | 220-280-380             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                |                     |   |   | GP1105         | 200-260-360             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                |                     |   |   | GP1115         | 180-230-320             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                | General             |   | QM  | GPT6120        | 180-250-340             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                |                     |   |   | GP1120         | 180-230-320             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                | Interrupted Cutting |   | QM  | GPT6130        | 160-230-300             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                |                     |   |   | GP1225         | 160-210-300             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                |                     |   |   | GP1130         | 160-210-300             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|                     |                     |                | Continuous Cutting  |   | TP  | GP31TM         | 220-300-380             | 0.30-1.00-3.00       | 0.05-0.12-0.28         |                |
|                     |                     |                |                     |   |   | GP91TM         | 200-280-350             | 0.30-1.20-3.00       | 0.05-0.15-0.28         |                |
|                     |                     |                |                     |   |   | GP31TM         | 200-280-350             | 0.50-1.00-3.00       | 0.10-0.15-0.35         |                |
|                     |                     |                | Continuous Cutting  |   | TS  | GP91TM         | 200-260-330             | 0.50-1.20-3.00       | 0.10-0.20-0.35         |                |
|                     |                     |                |                     |   |   | GP91TM         | 200-260-330             | 0.50-1.20-3.00       | 0.10-0.20-0.35         |                |
|                     |                     |                | Interrupted Cutting |   | SV  | GP1225         | 160-200-300             | 1.00-2.50-4.50       | 0.18-0.25-0.45         |                |
|                     |                     |                | Rough Finishing     | Continuous Cutting                        | QR  | GPT6110        | 150-220-280             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     |   |   | GP1105         | 130-190-270             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     |   |   | GP1115         | 120-180-250             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     | General                                   | QR  | GPT6120        | 140-210-270             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     |   |   | GPT6130        | 120-190-250             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     | Interrupted Cutting                       | QR  | GP1225         | 120-170-250             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                |                     |   |   | GP1130         | 120-170-250             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|                     |                     |                | Heavy Machining     | Continuous Cutting                        | QH  | GP1135         | 110-150-230             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
| GPT6110             | 100-170-230         | 3.00-6.00-12.0 |                     |   |   | 0.35-0.60-1.10 |                         |                      |                        |                |
| GP1105              | 100-150-240         | 3.00-6.00-12.0 |                     |   |   | 0.35-0.60-1.10 |                         |                      |                        |                |
| General             | QH                  | GP1115         |                     | 90-150-210                                | 3.00-6.00-12.0                            | 0.35-0.60-1.10 |                         |                      |                        |                |
|                     |                     | GPT6120        |                     | 100-160-220                               | 3.00-6.00-12.0                            | 0.35-0.60-1.10 |                         |                      |                        |                |
| Interrupted Cutting | QH                  | GPT6130        |                     | 90-150-210                                | 3.00-6.00-12.0                            | 0.35-0.60-1.10 |                         |                      |                        |                |
| GP1225              |                     | 90-140-210     | 3.00-6.00-12.0      | 0.35-0.60-1.10                            |   |                |                         |                      |                        |                |
| GP1135              | 80-130-190          | 3.00-6.00-12.0 | 0.35-0.60-1.10      |   |   |                |                         |                      |                        |                |

## Recommended Cutting Datas (Negative Inserts)

| ISO      | Workpiece Materials       | Hardness       | Application Range   | Cutting Mode        | Chip Breaker        | Grade          | Min-Optimum-Max         |                      |                        |                |
|----------|---------------------------|----------------|---------------------|---------------------|---------------------|----------------|-------------------------|----------------------|------------------------|----------------|
|          |                           |                |                     |                     |                     |                | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rew) |                |
| <b>P</b> | Carbon Steel, Alloy Steel | HB180-280      | Finishing Machining | Continuous Cutting  | GM                  | GP1115         | 140-210-300             | 1.00-2.00-4.00       | 0.18-0.22-0.40         |                |
|          |                           |                |                     | Interrupted Cutting |                     | GP1225         | 120-190-280             | 1.00-2.00-4.00       | 0.18-0.22-0.40         |                |
|          |                           |                |                     | Continuous Cutting  | QF                  | GPT6110        | 220-270-360             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|          |                           |                |                     |                     |                     | GP1105         | 200-250-340             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|          |                           |                |                     |                     |                     | GP1115         | 180-230-320             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|          |                           |                |                     | GPT6120             |                     | 180-250-340    | 0.40-0.80-2.00          | 0.08-0.15-0.35       |                        |                |
|          |                           |                |                     | General             |                     | GP1120         | 180-230-320             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|          |                           |                |                     |                     |                     | GPT6130        | 160-220-300             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |                |
|          |                           |                |                     | Interrupted Cutting | GP1225              | 160-200-300    | 0.40-0.80-2.00          | 0.08-0.15-0.35       |                        |                |
|          |                           |                |                     | GP1135              | 150-200-280         | 0.40-0.80-2.00 | 0.08-0.15-0.35          |                      |                        |                |
|          |                           |                |                     | Finishing Machining | Continuous Cutting  | GM             | GP1115                  | 140-210-300          | 1.00-2.00-4.00         | 0.18-0.22-0.40 |
|          |                           |                |                     |                     | Interrupted Cutting |                | GP1225                  | 120-190-280          | 1.00-2.00-4.00         | 0.18-0.22-0.40 |
|          |                           |                |                     |                     | Continuous Cutting  | QM             | GP31TM                  | 200-250-330          | 0.50-1.20-2.50         | 0.10-0.18-0.30 |
|          |                           |                |                     |                     |                     |                | GP91TM                  | 180-230-310          | 0.50-1.50-3.00         | 0.15-0.20-0.35 |
|          |                           |                | GPT6110             |                     |                     |                | 180-250-340             | 0.80-2.00-4.00       | 0.15-0.22-0.40         |                |
|          |                           |                | GP1105              |                     |                     |                | 160-230-320             | 0.80-2.00-4.00       | 0.15-0.22-0.40         |                |
|          |                           |                | GP1115              |                     |                     |                | 140-210-300             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|          |                           |                | General             |                     | GPT6120             |                | 140-230-320             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|          |                           |                |                     |                     | GP1120              |                | 140-210-300             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|          |                           |                | Interrupted Cutting |                     | GPT6130             |                | 120-210-280             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|          |                           |                |                     |                     | GP1225              |                | 120-190-280             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |                |
|          |                           |                |                     |                     | GP1130              | 120-190-280    | 0.80-2.00-4.00          | 0.15-0.20-0.40       |                        |                |
|          |                           |                |                     |                     | GP1135              | 100-170-260    | 0.80-2.00-4.00          | 0.15-0.20-0.40       |                        |                |
|          |                           |                | Continuous Cutting  |                     | TP                  | GP31TM         | 200-270-350             | 0.30-1.00-2.50       | 0.05-0.12-0.28         |                |
|          |                           |                |                     |                     |                     | GP91TM         | 180-250-330             | 0.30-1.20-2.50       | 0.05-0.15-0.28         |                |
|          |                           |                | Continuous Cutting  |                     | TS                  | GP31TM         | 180-250-330             | 0.50-1.00-3.00       | 0.10-0.15-0.35         |                |
|          |                           |                |                     |                     |                     | GP91TM         | 180-230-310             | 0.50-1.20-3.00       | 0.10-0.20-0.35         |                |
|          |                           |                | Interrupted Cutting |                     | SV                  | GP1225         | 120-180-280             | 1.00-2.50-4.50       | 0.18-0.25-0.45         |                |
|          |                           |                | Rough Finishing     | Continuous Cutting  | QR                  | GPT6110        | 140-210-270             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     |                     |                     | GP1105         | 120-180-260             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     |                     |                     | GP1115         | 110-170-240             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     |                     |                     | GPT6120        | 130-200-260             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     | General             |                     | GPT6130        | 110-180-240             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     |                     |                     | GP1225         | 110-160-240             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     | Interrupted Cutting |                     | GP1130         | 110-160-240             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                |                     |                     |                     | GP1135         | 100-140-220             | 1.50-3.50-6.00       | 0.20-0.30-0.60         |                |
|          |                           |                | Heavy Machining     | Continuous Cutting  | QH                  | GPT6110        | 90-160-220              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
|          |                           |                |                     |                     |                     | GP1105         | 90-140-230              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
|          |                           |                |                     |                     |                     | GP1115         | 80-140-200              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
|          |                           |                |                     | General             |                     | GPT6120        | 90-150-210              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
|          |                           |                |                     |                     |                     | GPT6130        | 80-140-200              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
|          |                           |                |                     | Interrupted Cutting |                     | GP1225         | 80-130-200              | 3.00-6.00-12.0       | 0.35-0.60-1.10         |                |
| GP1135   | 70-120-180                | 3.00-6.00-12.0 | 0.35-0.60-1.10      |                     |                     |                |                         |                      |                        |                |

## Recommended Cutting Datas (Negative Inserts)

| ISO                 | Workpiece Materials       | Hardness       | Application Range   | Cutting Mode        | Chip Breaker       | Grade          | Min-Optimum-Max         |                      |                        |
|---------------------|---------------------------|----------------|---------------------|---------------------|--------------------|----------------|-------------------------|----------------------|------------------------|
|                     |                           |                |                     |                     |                    |                | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rev) |
| <b>P</b>            | Carbon Steel, Alloy Steel | HB280-350      | Finishing Machining | Continuous Cutting  | GF                 | GP1115         | 150-180-250             | 0.80-1.20-2.50       | 0.10-0.20-0.35         |
|                     |                           |                |                     | Interrupted Cutting |                    | GP1225         | 130-150-230             | 0.80-1.20-2.50       | 0.10-0.20-0.35         |
|                     |                           |                |                     | Continuous Cutting  | QF                 | GPT6110        | 180-220-290             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GP1105         | 160-200-270             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GP1115         | 150-180-250             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     | General             | QF                 | GPT6120        | 150-200-270             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GP1120         | 150-180-250             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GPT6130        | 130-170-230             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     | Interrupted Cutting | QF                 | GP1225         | 130-150-230             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GP1130         | 130-150-230             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     |                     |                    | GP1135         | 110-130-210             | 0.40-0.80-2.00       | 0.08-0.15-0.35         |
|                     |                           |                |                     | Finishing Machining | Continuous Cutting | GM             | GP1115                  | 110-170-240          | 1.00-2.00-4.00         |
|                     |                           |                | GP1225              |                     |                    |                | 100-150-220             | 1.00-2.00-4.00       | 0.18-0.22-0.40         |
|                     |                           |                | Continuous Cutting  |                     | QM                 | GP31TM         | 180-230-320             | 0.50-1.20-2.50       | 0.10-0.18-0.30         |
|                     |                           |                |                     |                     |                    | GP91TM         | 160-210-300             | 0.50-1.50-3.00       | 0.15-0.22-0.35         |
|                     |                           |                |                     |                     |                    | GPT6110        | 140-200-270             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                |                     |                     |                    | GP1105         | 120-180-250             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                |                     |                     |                    | GP1115         | 110-170-240             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                | General             |                     | QM                 | GPT6120        | 110-190-260             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                |                     |                     |                    | GP1120         | 110-170-240             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                | Interrupted Cutting |                     | QM                 | GPT6130        | 100-170-220             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                |                     |                     |                    | GP1225         | 100-150-220             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                |                     |                     |                    | GP1130         | 100-150-220             | 0.80-2.00-4.00       | 0.15-0.20-0.40         |
|                     |                           |                | Continuous Cutting  | TP                  | GP31TM             | 180-250-320    | 0.30-1.00-2.50          | 0.05-0.12-0.28       |                        |
|                     |                           |                |                     |                     | GP91TM             | 170-230-300    | 0.30-1.20-2.50          | 0.05-0.15-0.28       |                        |
|                     |                           |                |                     |                     | GP31TM             | 170-230-300    | 0.50-1.00-3.00          | 0.10-0.15-0.35       |                        |
|                     |                           |                | Continuous Cutting  | TS                  | GP91TM             | 150-210-280    | 0.50-1.20-3.00          | 0.10-0.20-0.35       |                        |
|                     |                           |                |                     |                     | GP91TM             | 150-210-280    | 0.50-1.20-3.00          | 0.10-0.20-0.35       |                        |
|                     |                           |                | Interrupted Cutting | SV                  | GP1225             | 100-140-220    | 1.00-2.50-4.50          | 0.18-0.25-0.45       |                        |
|                     |                           |                | Rough Finishing     | Continuous Cutting  | QR                 | GPT6110        | 120-190-230             | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                |                     |                     |                    | GP1105         | 100-150-210             | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                |                     |                     |                    | GP1115         | 90-150-200              | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                |                     | General             | QR                 | GPT6120        | 110-180-220             | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                |                     |                     |                    | GPT6130        | 90-160-200              | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                |                     |                     |                    | GP1225         | 90-140-200              | 2.00-3.50-6.50       | 0.20-0.30-0.60         |
|                     |                           |                | Interrupted Cutting | QR                  | GP1130             | 90-140-200     | 2.00-3.50-6.50          | 0.20-0.30-0.60       |                        |
| GP1135              | 80-120-180                | 2.00-3.50-6.50 |                     |                     | 0.20-0.30-0.60     |                |                         |                      |                        |
| GP1135              | 80-120-180                | 2.00-3.50-6.50 |                     |                     | 0.20-0.30-0.60     |                |                         |                      |                        |
| Heavy Machining     | Continuous Cutting        | QH             | GPT6110             | 80-130-190          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
|                     |                           |                | GP1105              | 80-110-190          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
|                     |                           |                | GP1115              | 70-110-170          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
|                     | General                   | QH             | GPT6120             | 80-120-180          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
|                     |                           |                | GPT6130             | 70-110-170          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
|                     |                           |                | GP1225              | 70-100-170          | 3.00-6.00-12.0     | 0.35-0.60-1.10 |                         |                      |                        |
| Interrupted Cutting | QH                        | GP1135         | 60-90-150           | 3.00-6.00-12.0      | 0.35-0.60-1.10     |                |                         |                      |                        |



## Recommended Cutting Datas (Negative Inserts)

| ISO                                      | Workpiece Materials                         | Hardness            | Application Range   | Cutting Mode        | Chip Breaker   | Grade          | Min-Optimum-Max         |                      |                        |
|--|---|---------------------|---------------------|---------------------|----------------|----------------|-------------------------|----------------------|------------------------|
|  |   |                     |                     |                     |                |                | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rew) |
| <b>M</b>                                 | Martensitic Ferrite<br>SUS410<br>SUS430etc. | ≤HB230              | Finishing Machining | Continuous Cutting  | SF             | GS3115         | 120-190-250             | 0.10-0.80-1.50       | 0.08-0.10-0.30         |
|  |   |                     |                     | General             |                | GM3220         | 100-150-200             | 0.10-0.80-1.50       | 0.08-0.12-0.25         |
|  |   |                     | Finishing Machining | Continuous Cutting  | SM             | GM1115         | 200-250-300             | 0.50-1.20-2.00       | 0.10-0.20-0.40         |
|  |   |                     |                     |                     |                | GM3215         | 120-160-200             | 1.00-2.00-3.00       | 0.15-0.20-0.30         |
|  |   |                     |                     | General             | GM3220         | 60-130-180     | 1.00-2.00-3.00          | 0.15-0.20-0.35       |                        |
|  |   |                     |                     |                     | GM1125         | 180-230-280    | 0.50-1.80-3.00          | 0.10-0.20-0.40       |                        |
|  |   |                     |                     | Interrupted Cutting | GM3225         | 60-130-180     | 1.00-2.00-3.00          | 0.15-0.20-0.35       |                        |
|  |   |                     |                     |                     | GM1115         | 200-250-300    | 0.80-1.80-3.50          | 0.08-0.18-0.40       |                        |
|  |   |                     | General             | LM                  | GM3215         | 120-160-200    | 0.80-1.80-3.50          | 0.08-0.18-0.30       |                        |
|  |   |                     |                     |                     | GM3220         | 60-130-180     | 0.80-1.80-3.50          | 0.08-0.20-0.40       |                        |
|  |   |                     |                     | GM1125              | 180-230-280    | 0.80-1.80-3.50 | 0.08-0.18-0.40          |                      |                        |
|  |   |                     |                     | GM3225              | 60-130-180     | 0.80-1.80-3.50 | 0.08-0.20-0.40          |                      |                        |
|  | Rough Finishing                             | Continuous Cutting  | LR                  | GM1115              | 200-250-300    | 1.50-3.00-5.00 | 0.15-0.30-0.50          |                      |                        |
|  |   |                     |                     | GM3220              | 60-130-180     | 1.50-3.00-5.00 | 0.15-0.30-0.50          |                      |                        |
|  |   | Interrupted Cutting | GM3225              | 60-130-180          | 1.50-3.00-5.00 | 0.15-0.30-0.50 |                         |                      |                        |
|  | Austenite<br>SUS201<br>SUS304<br>SUS316etc. | ≤HB250              | Finishing Machining | Continuous Cutting  | SF             | GS3115         | 100-170-230             | 0.10-0.80-1.50       | 0.08-0.10-0.30         |
|  |   |                     |                     | General             |                | GM3220         | 80-130-180              | 0.10-0.80-1.50       | 0.08-0.12-0.25         |
|  |   |                     | Finishing Machining | Continuous Cutting  | SM             | GM1115         | 180-230-280             | 0.50-1.20-2.00       | 0.10-0.20-0.40         |
|  |   |                     |                     |                     |                | GM3215         | 120-160-200             | 1.00-2.00-3.00       | 0.15-0.20-0.30         |
|  |   |                     |                     | General             | GM3220         | 60-110-150     | 1.00-2.00-3.00          | 0.15-0.20-0.35       |                        |
|  |   |                     |                     |                     | GM1125         | 180-230-280    | 0.50-1.80-3.00          | 0.10-0.20-0.40       |                        |
|  |   |                     |                     | Interrupted Cutting | GM3225         | 60-130-180     | 1.00-2.00-3.00          | 0.15-0.20-0.35       |                        |
|  |   |                     |                     |                     | GM1115         | 200-250-300    | 0.80-1.80-3.50          | 0.08-0.18-0.40       |                        |
|  |   |                     | General             | LM                  | GM3215         | 120-160-200    | 0.80-1.80-3.50          | 0.08-0.18-0.30       |                        |
| GM3220                                   |   |                     |                     |                     | 60-110-150     | 0.80-1.80-3.50 | 0.08-0.20-0.40          |                      |                        |
| GM1125                                   |   |                     |                     | 180-230-280         | 0.80-1.80-3.50 | 0.08-0.18-0.40 |                         |                      |                        |
| GM3225                                   |   |                     |                     | 60-130-180          | 0.80-1.80-3.50 | 0.08-0.20-0.40 |                         |                      |                        |
| Rough Finishing                          | Continuous Cutting                          | LR                  | GM1115              | 180-230-280         | 1.50-3.00-5.00 | 0.15-0.30-0.50 |                         |                      |                        |
|  |   |                     | GM3220              | 60-110-150          | 1.50-3.00-5.00 | 0.15-0.30-0.50 |                         |                      |                        |
|  | Interrupted Cutting                         | GM3225              | 60-110-150          | 1.50-3.00-5.00      | 0.15-0.30-0.50 |                |                         |                      |                        |
| Ferroteel<br>FC200<br>FC250<br>FC300etc. | ≤HB220                                      | Finishing Machining | Continuous Cutting  | WMV                 | GK1115         | 230-350-500    | 0.20-0.40-0.80          | 1.00-2.00-6.00       |                        |
|  |   |                     |                     |                     | GK1125         | 220-320-480    | 0.20-0.40-0.80          | 1.00-2.00-6.00       |                        |
|  |   |                     | General             | UK                  | GK1115         | 230-350-500    | 0.50-1.50-3.00          | 0.10-0.20-0.40       |                        |
|  |   |                     |                     |                     | GK1120         | 230-320-500    | 0.50-1.50-3.00          | 0.10-0.20-0.40       |                        |
|  |   | Interrupted Cutting | HK                  | GK1125              | 220-320-480    | 0.50-1.50-3.00 | 0.10-0.20-0.40          |                      |                        |
|  |   |                     |                     | GK1115              | 220-320-480    | 0.50-2.00-4.00 | 0.10-0.25-0.50          |                      |                        |
|  |   |                     | General             | GK1120              | 220-300-480    | 0.50-2.00-4.00 | 0.10-0.25-0.50          |                      |                        |
|  |   |                     |                     | GK1125              | 210-300-450    | 0.50-2.00-4.00 | 0.10-0.25-0.50          |                      |                        |
|  |   | Heavy Machining     | Continuous Cutting  | Flat                | GK1115         | 210-300-450    | 1.00-2.50-6.00          | 0.20-0.30-0.60       |                        |
|  |   |                     |                     |                     | GK1120         | 210-280-450    | 1.00-2.50-6.00          | 0.20-0.30-0.60       |                        |
|  |   |                     | Interrupted Cutting | GK1125              | 200-280-430    | 1.00-2.50-6.00 | 0.20-0.30-0.60          |                      |                        |

## Recommended Cutting Datas (Negative Inserts)

| ISO      | Workpiece Materials                         | Hardness | Application Range   | Cutting Mode        | Chip Breaker       | Grade  | Min-Optimum-Max         |                      |                        |
|----------|---|----------|---------------------|---------------------|--------------------|--------|-------------------------|----------------------|------------------------|
|          |   |          |                     |                     |                    |        | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rev) |
| <b>K</b> | Ferroteel<br>FCD450<br>FCD500<br>FCD600etc. | ≤HB300   | Finishing Machining | Continuous Cutting  | WMV                | GK1115 | 180-260-380             | 0.20-0.40-0.80       | 1.00-2.00-6.00         |
|          |   |          |                     | Interrupted Cutting |                    | GK1125 | 160-230-350             | 0.20-0.40-0.80       | 1.00-2.00-6.00         |
|          |   |          |                     | Continuous Cutting  | UK                 | GK1115 | 180-260-380             | 0.50-1.50-3.00       | 0.10-0.20-0.40         |
|          |   |          |                     | General             |                    | GK1120 | 180-260-380             | 0.50-1.50-3.00       | 0.10-0.20-0.40         |
|          |   |          |                     | Interrupted Cutting |                    | GK1125 | 160-230-350             | 0.50-1.50-3.00       | 0.10-0.20-0.40         |
|          |   |          |                     | Rough Finishing     | Continuous Cutting | HK     | GK1115                  | 180-240-360          | 0.50-2.00-4.00         |
|          |   |          | General             |                     | GK1120             |        | 180-240-360             | 0.50-2.00-4.00       | 0.10-0.25-0.50         |
|          |   |          | Interrupted Cutting |                     | GK1125             |        | 160-230-350             | 0.50-2.00-4.00       | 0.10-0.25-0.50         |
|          |   |          | Heavy Machining     | Continuous Cutting  | Flat               | GK1115 | 180-220-350             | 1.00-2.50-6.00       | 0.20-0.30-0.60         |
|          |   |          |                     | General             |                    | GK1120 | 180-220-350             | 1.00-2.50-6.00       | 0.20-0.30-0.60         |
|          |   |          |                     | Interrupted Cutting |                    | GK1125 | 160-230-350             | 1.00-2.50-6.00       | 0.20-0.30-0.60         |

## Recommended Cutting Datas (Positive Inserts)

| ISO                            | Workpiece Materials            | Hardness            | Application Range              | Cutting Mode       | Chip Breaker   | Grade          | Min-Optimum-Max         |                      |                        |
|--------------------------------|--------------------------------|---------------------|--------------------------------|--------------------|----------------|----------------|-------------------------|----------------------|------------------------|
|                                |                                |                     |                                |                    |                |                | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rev) |
| <b>P</b>                       | Mild Steel                     | ≤HB180              | Finishing Machining            | Continuous Cutting | MM             | GP31TM         | 220-280-340             | 0.10-0.50-1.00       | 0.03-0.10-0.20         |
|                                |                                |                     |                                |                    |                | GP91TM         | 200-250-310             | 0.10-0.60-1.50       | 0.03-0.12-0.20         |
|                                |                                |                     |                                |                    |                | GPT6110        | 210-260-340             | 0.10-0.60-1.50       | 0.05-0.10-0.20         |
|                                |                                |                     |                                | GPT6120            |                | 180-240-320    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     |                                | GPT6130            |                | 170-220-280    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     |                                | GPT6130            |                | 170-220-280    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     | Semi-Finishing to Rough-Finish | Continuous Cutting | GP             | GP31TM         | 200-250-300             | 0.30-0.80-1.50       | 0.05-0.12-0.22         |
|                                |                                |                     |                                |                    |                | GP91TM         | 180-230-300             | 0.30-1.00-1.80       | 0.05-0.15-0.22         |
|                                |                                |                     |                                |                    |                | GP1115         | 170-200-280             | 0.40-1.00-2.50       | 0.07-0.12-0.30         |
|                                |                                |                     |                                | GP1120             |                | 170-200-280    | 0.40-1.00-2.50          | 0.07-0.12-0.30       |                        |
|                                |                                |                     |                                | GP1225             |                | 150-180-260    | 0.40-1.00-2.50          | 0.07-0.12-0.30       |                        |
|                                |                                |                     |                                | GP1130             |                | 150-180-260    | 0.40-1.00-2.50          | 0.07-0.12-0.30       |                        |
|                                | Finishing Machining            | Continuous Cutting  | TP                             | GP31TM             | 200-250-300    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 180-230-300    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
|                                |                                |                     |                                | GP31TM             | 200-250-300    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 180-230-300    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
|                                |                                |                     |                                | GP31TM             | 200-250-300    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 180-230-300    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
|                                | Carbon Steel, Alloy Steel      | HB180-280           | Finishing Machining            | Continuous Cutting | MM             | GP31TM         | 200-250-330             | 0.10-0.50-1.00       | 0.03-0.10-0.20         |
|                                |                                |                     |                                |                    |                | GP91TM         | 180-230-300             | 0.10-0.60-1.50       | 0.03-0.12-0.20         |
|                                |                                |                     |                                |                    |                | GPT6110        | 180-220-290             | 0.10-0.60-1.50       | 0.05-0.10-0.20         |
|                                |                                |                     |                                | GPT6120            |                | 150-200-280    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     |                                | GPT6130            |                | 140-180-240    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     |                                | GPT6130            |                | 140-180-240    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
| Semi-Finishing to Rough-Finish |                                |                     | Continuous Cutting             | GP                 | GP31TM         | 180-210-280    | 0.30-0.80-1.50          | 0.05-0.12-0.22       |                        |
|                                |                                |                     |                                |                    | GP91TM         | 160-190-270    | 0.30-1.00-1.80          | 0.05-0.15-0.22       |                        |
|                                |                                |                     |                                |                    | GP1115         | 140-160-240    | 0.40-1.00-2.50          | 0.07-0.12-0.30       |                        |
|                                |                                |                     | GP1120                         |                    | 140-160-240    | 0.40-1.00-2.50 | 0.07-0.12-0.30          |                      |                        |
|                                |                                |                     | GP1225                         |                    | 120-140-220    | 0.40-1.00-2.50 | 0.07-0.12-0.30          |                      |                        |
|                                |                                |                     | GP1130                         |                    | 120-140-220    | 0.40-1.00-2.50 | 0.07-0.12-0.30          |                      |                        |
| Finishing Machining            |                                | Continuous Cutting  | TP                             | GP31TM             | 180-210-280    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 160-190-270    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
|                                |                                |                     |                                | GP31TM             | 180-210-280    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 160-190-270    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
|                                |                                |                     |                                | GP31TM             | 180-210-280    | 0.30-1.00-3.00 | 0.05-0.12-0.25          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 160-190-270    | 0.30-1.20-3.00 | 0.05-0.15-0.25          |                      |                        |
| HB280-350                      |                                | Finishing Machining | Continuous Cutting             | MM                 | GP31TM         | 160-220-300    | 0.10-0.50-1.00          | 0.03-0.10-0.20       |                        |
|                                |                                |                     |                                |                    | GP91TM         | 140-200-280    | 0.10-0.60-1.50          | 0.03-0.12-0.20       |                        |
|                                |                                |                     |                                |                    | GPT6110        | 160-200-260    | 0.10-0.60-1.50          | 0.05-0.10-0.20       |                        |
|                                |                                |                     | GPT6120                        |                    | 130-180-250    | 0.10-0.60-1.50 | 0.05-0.10-0.20          |                      |                        |
|                                |                                |                     | GPT6130                        |                    | 120-160-210    | 0.10-0.60-1.50 | 0.05-0.10-0.20          |                      |                        |
|                                |                                |                     | GPT6130                        |                    | 120-160-210    | 0.10-0.60-1.50 | 0.05-0.10-0.20          |                      |                        |
|                                | Semi-Finishing to Rough-Finish | Continuous Cutting  | GP                             | GP31TM             | 160-200-270    | 0.30-0.80-1.50 | 0.05-0.12-0.22          |                      |                        |
|                                |                                |                     |                                | GP91TM             | 130-160-250    | 0.30-1.00-1.80 | 0.05-0.15-0.22          |                      |                        |
|                                |                                |                     |                                | GP1115             | 120-160-210    | 0.40-1.00-2.50 | 0.07-0.12-0.30          |                      |                        |
|                                |                                | GP1120              |                                | 120-160-210        | 0.40-1.00-2.50 | 0.07-0.12-0.30 |                         |                      |                        |
|                                |                                | GP1225              |                                | 100-140-220        | 0.40-1.00-2.50 | 0.07-0.12-0.30 |                         |                      |                        |
|                                |                                | GP1130              |                                | 100-140-220        | 0.40-1.00-2.50 | 0.07-0.12-0.30 |                         |                      |                        |
| Finishing Machining            | Continuous Cutting             | TP                  | GP31TM                         | 160-200-270        | 0.30-1.00-3.00 | 0.05-0.12-0.25 |                         |                      |                        |
|                                |                                |                     | GP91TM                         | 130-160-250        | 0.30-1.20-3.00 | 0.05-0.15-0.25 |                         |                      |                        |
|                                |                                |                     | GP31TM                         | 160-200-270        | 0.30-1.00-3.00 | 0.05-0.12-0.25 |                         |                      |                        |
|                                |                                |                     | GP91TM                         | 130-160-250        | 0.30-1.20-3.00 | 0.05-0.15-0.25 |                         |                      |                        |
|                                |                                |                     | GP31TM                         | 160-200-270        | 0.30-1.00-3.00 | 0.05-0.12-0.25 |                         |                      |                        |
|                                |                                |                     | GP91TM                         | 130-160-250        | 0.30-1.20-3.00 | 0.05-0.15-0.25 |                         |                      |                        |

## Recommended Cutting Datas (Positive Inserts)

| ISO      | Workpiece Materials                                 | Hardness             | Application Range              | Cutting Mode        | Chip Breaker | Grade  | Min-Optimum-Max         |                      |                        |
|----------|---|----------------------|--------------------------------|---------------------|--------------|--------|-------------------------|----------------------|------------------------|
|          |   |                      |                                |                     |              |        | Cutting Speed Vc(m/min) | Cutting Depth ap(mm) | Feeding Rate f(mm/rev) |
| <b>M</b> | Martensitic Ferrite<br>SUS410<br>SUS430             | ≤HB300               | Finishing to Semi-Finishing    | Continuous Cutting  | MM           | GM1115 | 200-250-300             | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      |                                | General             |              | GM3220 | 40-80-140               | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      |                                | Interrupted Cutting |              | GM3225 | 40-80-140               | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      | Semi-Finishing to Rough-Finish | Continuous Cutting  | GP           | GM1115 | 150-200-250             | 0.40-1.00-2.50       | 0.07-0.12-0.30         |
|          |   |                      |                                | General             |              | GM3215 | 60-100-160              | 0.40-1.00-2.50       | 0.07-0.12-0.25         |
|          |   |                      |                                | Interrupted Cutting |              | GM1125 | 120-150-180             | 0.40-1.00-2.50       | 0.07-0.12-0.30         |
|          | Austenite<br>SUS201<br>SUS304<br>SUS316             | ≤HB250               | Finishing to Semi-Finishing    | Continuous Cutting  | MM           | GM1115 | 200-240-300             | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      |                                | General             |              | GM3220 | 40-70-140               | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      |                                | Interrupted Cutting |              | GM3225 | 40-70-140               | 0.50-0.70-1.50       | 0.05-0.10-0.20         |
|          |   |                      | Semi-Finishing to Rough-Finish | Continuous Cutting  | GP           | GM1115 | 150-190-250             | 0.40-1.00-2.50       | 0.07-0.12-0.30         |
|          |   |                      |                                | General             |              | GM3215 | 50-90-150               | 0.40-1.00-2.50       | 0.07-0.12-0.25         |
|          |   |                      |                                | Interrupted Cutting |              | GM1125 | 120-140-180             | 0.40-1.00-2.50       | 0.07-0.12-0.30         |
| <b>K</b> | Ferroteel<br>FC200<br>FC250<br>FC300etc.            | ≤HB250               | Finishing to Semi-Finishing    | Continuous Cutting  | GP           | GK1115 | 180-280-380             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      |                                | General             |              | GK1120 | 180-260-380             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      |                                | Interrupted Cutting |              | GK1125 | 160-250-350             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      | Semi-Finishing to Rough-Finish | Continuous Cutting  | KM           | GK1115 | 180-260-360             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
|          |   |                      |                                | General             |              | GK1120 | 180-240-360             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
|          |   |                      |                                | Interrupted Cutting |              | GK1125 | 160-230-340             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
|          | Nodular Cast Iron<br>FCD450<br>FCD500<br>FCD600etc. | ≤HB270               | Finishing to Semi-Finishing    | Continuous Cutting  | GP           | GK1115 | 160-250-350             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      |                                | General             |              | GK1120 | 160-220-350             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      |                                | Interrupted Cutting |              | GK1125 | 140-230-330             | 0.30-0.80-2.00       | 0.05-0.12-0.25         |
|          |   |                      | Semi-Finishing to Rough-Finish | Continuous Cutting  | KM           | GK1115 | 160-230-330             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
|          |   |                      |                                | General             |              | GK1120 | 160-200-330             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
|          |   |                      |                                | Interrupted Cutting |              | GK1125 | 140-200-310             | 1.00-2.00-4.00       | 0.13-0.20-0.40         |
| <b>N</b> | Aluminum  | Harden<br>HB90-100   | Finishing to Semi-Finishing    | Continuous Cutting  | AL           | GN9115 | 250-700-970             | 0.50-1.20-3.00       | 0.05-0.10-0.30         |
|          |   |                      |                                | General             |              | GN3125 | 250-680-960             | 0.50-1.20-3.50       | 0.05-0.10-0.30         |
|          |   |                      |                                | Interrupted Cutting |              | GN9120 | 250-680-960             | 0.50-1.20-3.50       | 0.05-0.10-0.30         |
|          |   | Untreated<br>HB60-90 |                                | Continuous Cutting  |              | GN9130 | 250-650-950             | 0.50-1.20-4.00       | 0.05-0.10-0.30         |
|          |   |                      |                                | General             |              | GN9115 | 1000-1400-2100          | 0.50-1.20-3.00       | 0.05-0.10-0.30         |
|          |   |                      |                                | Interrupted Cutting |              | GN3125 | 950-1300-2000           | 0.50-1.20-3.50       | 0.05-0.10-0.30         |
|          |   |                      |                                | Continuous Cutting  |              | GN9120 | 950-1300-2000           | 0.50-1.20-3.50       | 0.05-0.10-0.30         |
|          |   |                      |                                | General             |              | GN9130 | 950-1200-1950           | 0.50-1.20-4.00       | 0.05-0.10-0.30         |
|          |   |                      |                                | Interrupted Cutting |              | GN9130 | 950-1200-1950           | 0.50-1.20-4.00       | 0.05-0.10-0.30         |

C

# PCBN/PCD TURNING

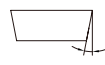


# PCBN/PCD Turning Indexable Inserts Identification System

| Symbol | Shape     | Corner Angle | Figure |
|--------|-----------|--------------|--------|
| H      | Hexagon   | 120°         |        |
| O      | Octagon   | 135°         |        |
| P      | Pentagon  | 108°         |        |
| S      | Square    | 90°          |        |
| T      | Triangle  | 60°          |        |
| C      | Rhombic   | 80°          |        |
| D      |           | 55°          |        |
| V      |           | 35°          |        |
| W      | Trigon    | 80°          |        |
| L      | Rectangle | 90°          |        |
| A      | Rectangle | 85°          |        |
| R      | Round     | --           |        |

① Shape Symbol

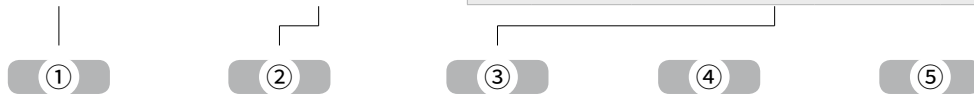
| Symbol | Corner Angle |
|--------|--------------|
| A      | 3°           |
| B      | 5°           |
| C      | 7°           |
| D      | 15°          |
| E      | 20°          |
| F      | 25°          |
| G      | 30°          |
| N      | 0°           |
| P      | 11°          |
| O      | Others       |



② Relief Angle Symbol

| Symbol | Tolerance(mm)    |              |               | Tolerance(inch)  |              |               |
|--------|------------------|--------------|---------------|------------------|--------------|---------------|
|        | Corner Height(m) | Thickness(S) | I.G.dia. (Ød) | Corner Height(m) | Thickness(S) | I.G.dia. (Ød) |
| A      | ±0.005           | ±0.025       | ±0.025        | ±0.0002          | ±0.001       | ±0.001        |
| F      | ±0.005           | ±0.025       | ±0.013        | ±0.0002          | ±0.001       | ±0.0005       |
| C      | ±0.013           | ±0.025       | ±0.025        | ±0.0005          | ±0.001       | ±0.001        |
| H      | ±0.013           | ±0.025       | ±0.013        | ±0.0005          | ±0.001       | ±0.0005       |
| E      | ±0.025           | ±0.025       | ±0.025        | ±0.001           | ±0.001       | ±0.001        |
| G      | ±0.025           | ±0.13        | ±0.025        | ±0.001           | ±0.005       | ±0.001        |
| J      | ±0.005           | ±0.025       | ±0.05~0.13    | ±0.0002          | ±0.001       | ±0.002~0.005  |
| K      | ±0.013           | ±0.025       | ±0.05~0.13    | ±0.0005          | ±0.001       | ±0.002~0.005  |
| L      | ±0.025           | ±0.025       | ±0.05~0.13    | ±0.001           | ±0.001       | ±0.002~0.005  |
| M      | ±0.08~0.18       | ±0.13        | ±0.05~0.13    | ±0.003~0.007     | ±0.005       | ±0.002~0.005  |
| N      | ±0.08~0.18       | ±0.025       | ±0.05~0.13    | ±0.003~0.007     | ±0.001       | ±0.002~0.005  |
| U      | ±0.13~0.38       | ±0.13        | ±0.08~0.25    | ±0.005~0.015     | ±0.005       | ±0.003~0.01   |

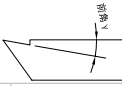
③ Tolerance Symbol



| ④ Hole/Chipbreaker Symbol |  |                                       |              |       |
|---------------------------|--|---------------------------------------|--------------|-------|
| Symbol                    | Hole                                   | Hole Shape                            | Chipbreaker  | Shape |
| N                         | Without                                | —                                     | Without      |       |
| R                         |  |                                       | Single-sided |       |
| F                         |  |                                       | Double-sided |       |
| A                         | With                                   | With Hole                             | Without      |       |
| M                         |  |                                       | Single-sided |       |
| G                         |  |                                       | Double-sided |       |
| W                         |  |                                       | Without      |       |
| T                         |  |                                       | Single-sided |       |
| Q                         |  |                                       | Without      |       |
| U                         | With Hobe and Two Countersinks 40°~60° | With Hobe and One Countersink 70°~90° | Without      |       |
| B                         |  |                                       | Without      |       |
| H                         |  |                                       | Single-sided |       |
| C                         | With Hobe and Two Countersinks 70°~90° | Without                               | Without      |       |
| J                         |  |                                       | Double-sided |       |
| X                         | —                                      | —                                     | —            |       |

| ⑤ Edge Length Symbol (ISO) (mm) |        |        |         |        |        |        |        |        |        |        |        |        |        |        |        |                |
|---------------------------------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------|
| Symbol                          | Length | Symbol | Length  | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length | Symbol | Length | I.C. Size (mm) |
| R                               |        | S      | 03 3.97 | C      | 03 4.0 | W      |        | T      | 06 6.9 | D      | 4 4.8  |        |        |        |        | 3.97           |
|                                 |        |        | 04 4.76 |        | 04 4.8 |        |        |        | 08 8.2 |        | 5 5.8  |        |        |        |        | 4.76           |
| 05                              | 5      | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 5              |
|                                 |        | 05     | 5.56    | 05     | 5.6    | 03     | 3.8    | 09     | 9.6    | 6      | 6.8    |        |        |        |        | 5.56           |
| 06                              | 6      | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 6              |
|                                 |        | 06     | 6.35    | 06     | 6.5    | 04     | 4.3    | 11     | 11     | 7      | 7.8    | 11     | 11.2   |        |        | 6.35           |
|                                 |        | 07     | 7.94    | 08     | 8.1    | 05     | 5.4    | 13     | 13.8   | 9      | 9.7    |        |        |        |        | 7.94           |
| 08                              | 8      | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 8              |
| 09                              | 9.525  | 09     | 9.525   | 09     | 9.7    | 06     | 6.5    | 16     | 16.5   | 11     | 11.6   | 16     | 16.6   | 16     | 19.7   | 9.525          |
| 10                              | 10     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 10             |
| 12                              | 12     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 12             |
| 12                              | 12.7   | 12     | 12.7    | 12     | 12.9   | 08     | 8.7    | 22     | 22     | 15     | 15.5   | 22     | 22.1   |        |        | 12.7           |
| 15                              | 15.875 | 15     | 15.875  | 16     | 16.1   | 10     | 10.9   | 27     | 27.5   | 19     | 19.4   |        |        |        |        | 15.875         |
| 16                              | 16     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 16             |
| 19                              | 19.05  | 19     | 19.05   | 19     | 19.3   | 13     | 13     | 33     | 33     | 23     | 23.3   |        |        |        |        | 19.05          |
| 20                              | 20     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 20             |
|                                 |        | 22     | 22.225  | 22     | 22.6   |        |        | 38     | 38.5   | 27     | 27.1   |        |        |        |        | 22.225         |
| 25                              | 25     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 25             |
| 25                              | 25.4   | 25     | 25.4    | 25     | 25.8   |        |        | 44     | 44     | 31     | 31     |        |        |        |        | 25.4           |
| 31                              | 31.75  | 31     | 31.75   | 32     | 32.2   |        |        | 55     | 55     | 38     | 38.8   |        |        |        |        | 31.75          |
| 31                              | 32     | --     | --      | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | --     | 32             |

# PCBN/PCD Turning Indexable Inserts Identification System

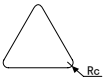


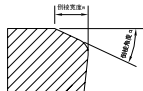
| Symbol | Corner-R (mm) |
|--------|---------------|
| GN     | 0°            |
| GB     | 5°            |
| KB     | 5°            |

⑧PCD Rake Angle

|           |           |           |            |
|-----------|-----------|-----------|------------|
| ⑥         | ⑦         | ⑧         | ⑨          |
| <b>T3</b> | <b>04</b> | <b>GB</b> | <b>- 1</b> |
| <b>04</b> | <b>08</b> | <b>M</b>  | <b>- 3</b> |















| ⑥Thickness |           |
|------------|-----------|
| Symbol     | Thickness |
| 01         | 1.59      |
| 02         | 2.38      |
| T2         | 2.78      |
| 03         | 3.18      |
| T3         | 3.97      |
| 04         | 4.76      |
| 05         | 5.56      |
| 06         | 6.35      |
| 07         | 7.94      |
| 09         | 9.52      |

| ⑦Corner Rc Symbol   |        |
|---|--------|
|  |        |
| Symbol  | CR(mm) |
| 00  | 0.03   |
| 02  | 0.2    |
| 04  | 0.4    |
| 08  | 0.8    |
| 12  | 1.2    |
| 16  | 1.6    |
| 20  | 2.0    |
| 24  | 2.4    |
| 28  | 2.8    |
| 32  | 3.2    |

| ⑧PCBN Edge Type   |                      |
|---|----------------------|
|  |                      |
| Symbol  | Edge Type            |
| L   | Continues Standard   |
| LS  | Continues Others     |
| M   | Continues Gerenal    |
| H   | Interrupted Strength |

| ⑨Number of |           |
|------------|-----------|
| Symbol     | Number of |
| 1          | 1         |
| 2          | 2         |
| 3          | 3         |

## Overview of PCBN/PCD Turning Inserts

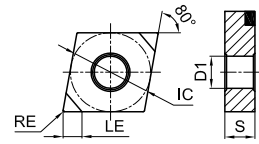
| Type   | Features   |               | Rhombic 80°   | Rhombic 55°   | Triangle 60°  | Rhombic 35°   | Trigon 80°  | Round 360°  |  |
|--------|--|---------------|---|---|---|---|---|---|--|
| Brazed | <ul style="list-style-type: none"> <li>•High precision and longer tool life</li> <li>•Wide range of inserttypes</li> <li>•High cost performance</li> </ul> | Negative PCBN |  |  |  |  |  |   |  |
|        |  |               | CNGA  | DNGA  | TNGA  | VNGA  | WNGA  |   |  |
|        |  |               | P061  | P061  | P062  | P062  | P063  |   |  |
|        |  | Positive PCBN |  |  |  |  |   |   |  |
|        |  |               | CCGW  | DCGW  | TCGW/TPGW   | VBGW/VCGW   |   |   |  |
|        |  |               | P064  | P064  | P065  | P066  |   |   |  |
|        |  | Positive PCD  |  |  |  |  |   |  |  |
|        |  |               | CCGW  | DCGW  | TCGW/TPGW   | VCGW  |   | RDEW  |  |
|        |  |               | P067  | P067  | P068-069  | P070  |   | P070  |  |




## PCBN Insert(Negative)

**CN**□□

Rhombic 80° with Hole

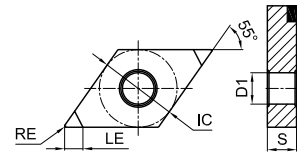



| Ordering code  | Flute | Dimension (mm) |      |      |      |     | PCBN Grade |         | Coating PCBN |         |         |         |
|--|-------|----------------|------|------|------|-----|------------|---------|--------------|---------|---------|---------|
|  |       | LE             | IC   | S    | D1   | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
|  CNGA120404LS-2 | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.4 | ○          | ●       |              | ●       |         |         |
| CNGA120408LS-2   | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.8 |            | ●       |              | ○       |         |         |
| CNGA120404M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.4 |            | ●       | ○            | ○       | ●       | ●       |
| CNGA120408M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.8 | ○          | ○       | ○            | ●       | ●       | ●       |
| CNGA120412M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 1.2 |            |         |              |         | ●       | ●       |
| CNGA120408H-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.8 |            |         |              |         | ●       |         |

●Standard Stock ○Available upon Order

**DN**□□

Rhombic 55° with Hole



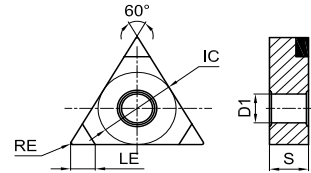
| Ordering code  | Flute | Dimension (mm) |      |      |      |     | PCBN Grade |         | Coating PCBN |         |         |         |
|--|-------|----------------|------|------|------|-----|------------|---------|--------------|---------|---------|---------|
|  |       | LE             | IC   | S    | D1   | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
|  DNGA150404LS-2 | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.4 | ●          |         |              | ●       |         |         |
| DNGA150404M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.4 |            |         |              |         | ●       | ○       |
| DNGA150408M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 0.8 | ●          | ●       | ●            |         | ●       | ●       |
| DNGA150412M-2  | 2     | 2.2            | 12.7 | 4.76 | 5.16 | 1.2 |            | ○       |              |         | ○       | ●       |
| DNGA150608M-2  | 2     | 2.2            | 12.7 | 6.35 | 5.16 | 0.8 |            |         |              |         |         | ○       |
| DNGA150612M-2  | 2     | 2.2            | 12.7 | 6.35 | 5.16 | 1.2 | ○          |         |              |         | ○       |         |

●Standard Stock ○Available upon Order

PCBN Insert(Negative)

**TN**□□

Triangle 60° with hole



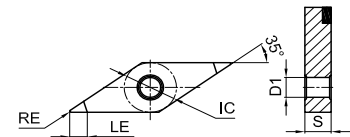
| Ordering code  | Flute | Dimension (mm) |       |      |      |     | PCBN Grade |         | Coating PCBN |         |         |         |  |
|----------------|-------|----------------|-------|------|------|-----|------------|---------|--------------|---------|---------|---------|--|
|                |       | LE             | IC    | S    | D1   | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |  |
| TNGA160404LS-3 | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 0.4 |            |         |              |         | ○       |         |  |
| TNGA160408LS-3 | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 0.8 |            |         |              | ●       |         |         |  |
| TNGA160404M-3  | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 0.4 | ●          |         | ●            | ●       | ●       | ●       |  |
| TNGA160408M-3  | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 0.8 | ○          |         |              | ●       | ●       | ●       |  |
| TNGA160412M-3  | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 1.2 |            |         |              |         | ○       | ○       |  |
| TNGA160408H-3  | 3     | 2.2            | 9.525 | 4.76 | 3.81 | 0.8 |            |         |              |         | ○       | ○       |  |



●Standard Stock ○Available upon Order

**VN**□□

Rhombic 35° with Hole



| Ordering code  | Flute | Dimension (mm) |       |      |      |     | PCBN Grade |         | Coating PCBN |         |         |         |  |
|----------------|-------|----------------|-------|------|------|-----|------------|---------|--------------|---------|---------|---------|--|
|                |       | LE             | IC    | S    | D1   | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |  |
| VNGA160404LS-2 | 2     | 2.2            | 9.525 | 4.76 | 3.81 | 0.4 |            |         |              |         | ●       |         |  |
| VNGA160408LS-2 | 2     | 2.2            | 9.525 | 4.76 | 3.81 | 0.8 |            |         |              | ○       |         |         |  |
| VNGA160404M-2  | 2     | 2.2            | 9.525 | 4.76 | 3.81 | 0.4 |            |         |              | ●       | ●       | ●       |  |
| VNGA160408M-2  | 2     | 2.2            | 9.525 | 4.76 | 3.81 | 0.8 |            |         |              |         | ●       | ●       |  |
| VNGA160412M-2  | 2     | 2.2            | 9.525 | 4.76 | 3.81 | 1.2 |            |         |              | ●       |         |         |  |

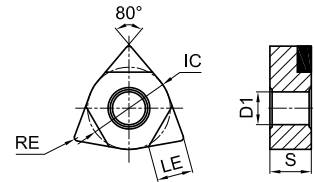


●Standard Stock ○Available upon Order

PCBN Insert(Negative)

**WN** □ □

Trigon 80° with hole



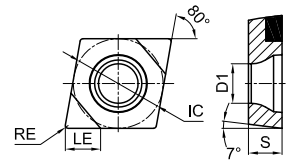
| Ordering code | Flute          | Dimension (mm) |     |      |      |      | PCBNGrade |         | Coating PCBN |         |         |         |   |
|---------------|----------------|----------------|-----|------|------|------|-----------|---------|--------------|---------|---------|---------|---|
|               |                | LE             | IC  | S    | D1   | RE   | BKN115P   | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |   |
|               | WNGA080404LS-3 | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 0.4       |         |              |         | ○       |         |   |
|               | WNGA080408LS-3 | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 0.8       |         |              |         | ●       |         |   |
|               | WNGA080404M-3  | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 0.4       |         |              |         |         | ●       | ● |
|               | WNGA080408M-3  | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 0.8       | ●       | ○            | ○       |         | ●       | ● |
|               | WNGA080412M-3  | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 1.2       |         | ○            |         |         |         | ● |
|               | WNGA080408H-3  | 3              | 2.2 | 12.7 | 4.76 | 3.81 | 0.8       |         | ●            |         |         | ●       |   |

●Standard Stock ○Available upon Order

PCBN Insert (Positive)

**CC** □ □

Rhombic 80° with Hole



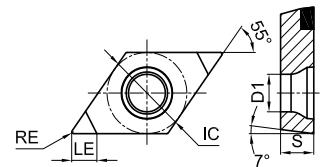
| Ordering code | Flute | Dimension (mm) |       |      |     |     | PCBN Grade |         | Coating PCBN |         |         |         |
|---------------|-------|----------------|-------|------|-----|-----|------------|---------|--------------|---------|---------|---------|
|               |       | LE             | IC    | S    | D1  | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
| CCGW060202L-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.2 |            |         |              |         |         | ○       |
| CCGW060204L-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.4 |            |         | ○            | ●       | ●       |         |
| CCGW060208L-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.8 |            | ○       |              |         |         | ○       |
| CCGW060204M-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.4 |            |         |              |         | ●       |         |
| CCGW060208M-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.8 |            |         |              | ●       |         |         |
| CCGW09T304L-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.4 | ●          |         |              |         | ●       |         |
| CCGW09T308L-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.8 |            |         |              | ○       | ○       |         |
| CCGW09T304M-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.4 | ●          | ○       | ○            |         | ●       | ●       |
| CCGW09T308M-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.8 | ●          | ○       | ○            | ●       | ●       | ●       |
| CCGW09T308H-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.8 |            |         |              |         | ●       | ○       |



● Standard Stock ○ Available upon Order

**DC** □ □

Rhombic 55° with Hole



| Ordering code | Flute | Dimension (mm) |       |      |     |     | PCBN Grade |         | Coating PCBN |         |         |         |
|---------------|-------|----------------|-------|------|-----|-----|------------|---------|--------------|---------|---------|---------|
|               |       | LE             | IC    | S    | D1  | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
| DCGW070202L-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.2 |            |         |              |         |         | ●       |
| DCGW070204L-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.4 |            | ○       |              | ○       | ●       |         |
| DCGW070204M-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.4 |            |         |              |         | ○       |         |
| DCGW070208M-2 | 2     | 2              | 6.35  | 2.38 | 2.8 | 0.8 |            |         |              |         | ○       |         |
| DCGW11T304L-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.4 | ○          |         | ○            |         |         |         |
| DCGW11T308L-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.8 | ○          |         |              | ○       |         |         |
| DCGW11T304M-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.4 | ●          | ●       | ●            | ●       | ●       | ●       |
| DCGW11T308M-2 | 2     | 2              | 9.525 | 3.97 | 4.4 | 0.8 | ●          | ○       | ●            | ●       | ●       | ●       |

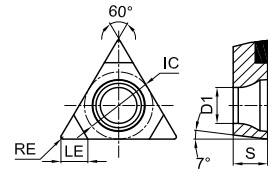



● Standard Stock ○ Available upon Order

PCBN Insert (Positive)

**TC**□□

Triangle 60° with Hole

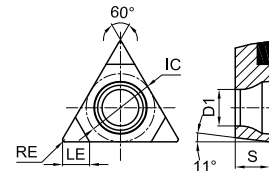



| Ordering code   | Flute         | Dimension (mm) |    |      |      |     | PCBNGrade |         |         | Coating PCBN |         |         |   |
|---|---------------|----------------|----|------|------|-----|-----------|---------|---------|--------------|---------|---------|---|
|   |               | LE             | IC | S    | D1   | RE  | BKN115P   | BSN115P | BKC120P | BHC115P      | BHC125P | BHC135P |   |
|  | TCGW090204L-3 | 3              | 2  | 5.56 | 2.38 | 2.8 | 0.4       | ●       |         |              |         |         |   |
|   | TCGW110304L-3 | 3              | 2  | 6.35 | 3.18 | 3.4 | 0.4       | ○       |         |              |         |         |   |
|   | TCGW110304M-3 | 3              | 2  | 6.35 | 3.18 | 3.4 | 0.4       |         |         |              |         | ●       |   |
|   | TCGW110308M-3 | 3              | 2  | 6.35 | 3.18 | 3.4 | 0.8       |         |         |              |         |         | ○ |

●Standard Stock ○Available upon Order

**TP**□□

Triangle 60° with Hole



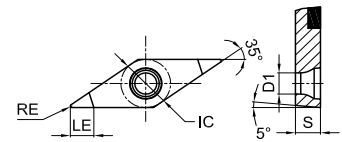
| Ordering code   | Flute         | Dimension (mm) |    |      |      |      | PCBNGrade |         | Coating PCBN |         |         |         |   |
|---|---------------|----------------|----|------|------|------|-----------|---------|--------------|---------|---------|---------|---|
|   |               | LE             | IC | S    | D1   | RE   | BKN115P   | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |   |
|  | TPGW080202L-1 | 1              | 2  | 4.76 | 2.38 | 2.34 | 0.2       |         | ●            |         |         | ○       |   |
|   | TPGW080204L-1 | 1              | 2  | 4.76 | 2.38 | 2.34 | 0.4       |         |              |         |         | ●       |   |
|   | TPGW080208L-1 | 1              | 2  | 4.76 | 2.38 | 2.34 | 0.8       |         |              |         |         | ○       |   |
|   | TPGW090202L-3 | 3              | 2  | 5.56 | 2.38 | 2.8  | 0.2       |         |              |         |         | ○       | ○ |
|   | TPGW090204L-3 | 3              | 2  | 5.56 | 2.38 | 2.8  | 0.4       | ●       | ○            |         |         | ○       | ● |
|   | TPGW090208L-3 | 3              | 2  | 5.56 | 2.38 | 2.8  | 0.8       | ○       |              |         |         |         |   |
|   | TPGW110204L-3 | 3              | 2  | 6.35 | 3.18 | 2.8  | 0.4       |         | ●            |         |         | ○       |   |
|   | TPGW110208L-3 | 3              | 2  | 6.35 | 3.18 | 2.8  | 0.8       |         |              |         |         | ○       |   |
|   | TPGW110304L-3 | 3              | 2  | 6.35 | 3.18 | 3.4  | 0.4       | ●       | ●            | ○       | ●       | ●       |   |
|   | TPGW110308L-3 | 3              | 2  | 6.35 | 3.18 | 3.4  | 0.8       |         |              |         | ●       | ●       |   |
|   | TPGW110304M-3 | 3              | 2  | 6.35 | 3.18 | 3.4  | 0.4       |         |              |         |         | ○       | ○ |
|   | TPGW110308M-3 | 3              | 2  | 6.35 | 3.18 | 3.4  | 0.8       |         |              |         |         | ○       |   |

●Standard Stock ○Available upon Order

PCBN Insert (Positive)

**VB** □ □

Rhombic 35° with Hole



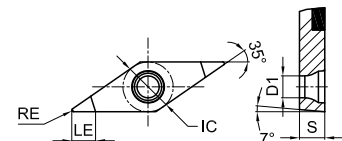
| Ordering code | Flute | Dimension (mm) |       |      |     |     | PCBN Grade |         | Coating PCBN |         |         |         |
|---------------|-------|----------------|-------|------|-----|-----|------------|---------|--------------|---------|---------|---------|
|               |       | LE             | IC    | S    | D1  | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
| VBGW110302L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.2 |            |         | ○            |         | ○       | ○       |
| VBGW110304L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.4 |            |         | ●            | ○       | ●       |         |
| VBGW110308L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.8 |            |         |              |         | ○       | ○       |
| VBGW110304M-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.4 |            |         |              |         | ○       |         |
| VBGW110308M-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.8 |            |         |              |         | ○       |         |
| VBGW160404L-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.4 | ○          |         |              |         | ○       |         |
| VBGW160408L-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.8 | ○          |         |              |         | ○       |         |
| VBGW160404M-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.4 |            |         |              | ○       | ●       | ○       |
| VBGW160408M-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.8 |            |         |              | ●       | ○       | ●       |



●Standard Stock ○Available upon Order

**VC** □ □

Rhombic 35° with Hole



| Ordering code | Flute | Dimension (mm) |       |      |     |     | PCBN Grade |         | Coating PCBN |         |         |         |
|---------------|-------|----------------|-------|------|-----|-----|------------|---------|--------------|---------|---------|---------|
|               |       | LE             | IC    | S    | D1  | RE  | BKN115P    | BSN115P | BKC120P      | BHC115P | BHC125P | BHC135P |
| VCGW110302L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.2 |            |         | ○            |         |         |         |
| VCGW110304L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.4 | ●          |         |              | ○       |         |         |
| VCGW110308L-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.8 |            |         |              | ○       |         |         |
| VCGW110304M-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.4 | ○          |         |              |         |         |         |
| VCGW110308M-2 | 2     | 2              | 6.35  | 3.18 | 2.8 | 0.8 | ○          |         |              |         |         |         |
| VCGW160404L-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.4 |            |         |              |         | ○       |         |
| VCGW160408L-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.8 |            |         |              |         | ○       |         |
| VCGW160404M-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.4 | ●          |         |              |         |         |         |
| VCGW160408M-2 | 2     | 2              | 9.525 | 4.76 | 4.4 | 0.8 |            |         |              |         | ●       |         |

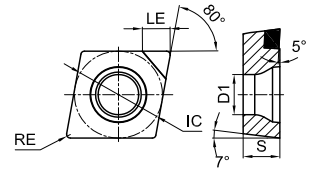


●Standard Stock ○Available upon Order

## PCD Insert (Positive)

**CC** □ □

Rhombic 80° with Hole



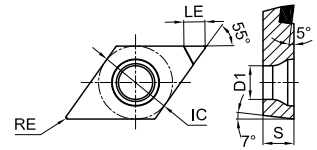
| Ordering code  | Flute | Dimension (mm) |       |      |     |     | PCDGrade |
|----------------|-------|----------------|-------|------|-----|-----|----------|
|                |       | LE             | IC    | S    | D1  | RE  |          |
| CCGW060202GB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.2 | ●        |
| CCGW060204GB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.4 | ○        |
| CCGW09T302GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.2 | ●        |
| CCGW09T304GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.4 | ○        |
| CCGW09T308GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.8 | ○        |
| CCGW120404GB-1 | 1     | 3              | 12.7  | 4.76 | 5.5 | 0.4 | ●        |
| CCGW120408GB-1 | 1     | 3              | 12.7  | 4.76 | 5.5 | 0.8 | ○        |
| CCGW060202KB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.2 | ●        |
| CCGW060204KB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.4 | ○        |
| CCGW09T302KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.2 | ○        |
| CCGW09T304KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.4 | ●        |
| CCGW09T308KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.8 | ○        |



●Standard Stock ○Available upon Order

**DC** □ □

Rhombic 55° with Hole



| Ordering code  | Flute | Dimension (mm) |       |      |     |     | PCDGrade |
|----------------|-------|----------------|-------|------|-----|-----|----------|
|                |       | LE             | IC    | S    | D1  | RE  |          |
| DCGW070202GB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.2 | ○        |
| DCGW070204GB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.4 | ●        |
| DCGW11T302GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.2 | ○        |
| DCGW11T304GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.4 | ○        |
| DCGW11T308GB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.8 | ●        |
| DCGW070202KB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.2 | ○        |
| DCGW070204KB-1 | 1     | 2.5            | 6.35  | 2.38 | 2.8 | 0.4 | ●        |
| DCGW11T302KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.2 | ○        |
| DCGW11T304KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.4 | ●        |
| DCGW11T308KB-1 | 1     | 3              | 9.525 | 3.97 | 4.4 | 0.8 | ○        |

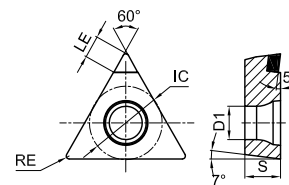


●Standard Stock ○Available upon Order

PCD Insert (Positive)

**TC** □ □

Triangle 60° with hole



| Ordering code  | Flute | Dimension (mm) |      |      |      |     | PCDGrade |
|----------------|-------|----------------|------|------|------|-----|----------|
|                |       | LE             | IC   | S    | D1   | RE  |          |
| TCGW080202GB-1 | 1     | 2.5            | 4.76 | 2.38 | 2.34 | 0.2 | ○        |
| TCGW080204GB-1 | 1     | 2.5            | 4.76 | 2.38 | 2.34 | 0.4 | ●        |
| TCGW090202GB-1 | 1     | 2.5            | 5.56 | 2.38 | 2.8  | 0.2 | ○        |
| TCGW090204GB-1 | 1     | 2.5            | 5.56 | 2.38 | 2.8  | 0.4 | ●        |
| TCGW110302GB-1 | 1     | 2.5            | 6.35 | 3.18 | 3.4  | 0.2 | ○        |
| TCGW110304GB-1 | 1     | 2.5            | 6.35 | 3.18 | 3.4  | 0.4 | ●        |
| TCGW080202KB-1 | 1     | 2.5            | 4.76 | 2.38 | 2.34 | 0.2 | ○        |
| TCGW080204KB-1 | 1     | 2.5            | 4.76 | 2.38 | 2.34 | 0.4 | ●        |
| TCGW090202KB-1 | 1     | 2.5            | 5.56 | 2.38 | 2.8  | 0.2 | ○        |
| TCGW090204KB-1 | 1     | 2.5            | 5.56 | 2.38 | 2.8  | 0.4 | ●        |
| TCGW110302KB-1 | 1     | 2.5            | 6.35 | 3.18 | 3.4  | 0.2 | ○        |
| TCGW110304KB-1 | 1     | 2.5            | 6.35 | 3.18 | 3.4  | 0.4 | ●        |



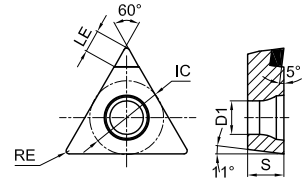
● Standard Stock ○ Available upon Order



## PCD Insert (Positive)

**TP**□□

Triangle 60° with hole



| Ordering code  | Flute | Dimension (mm) |       |      |      |     | PCDGrade |
|----------------|-------|----------------|-------|------|------|-----|----------|
|                |       | LE             | IC    | S    | D1   | RE  |          |
| TPGW080202GB-1 | 1     | 2.5            | 4.76  | 2.38 | 2.34 | 0.2 | ○        |
| TPGW080204GB-1 | 1     | 2.5            | 4.76  | 2.38 | 2.34 | 0.4 | ●        |
| TPGW090202GB-1 | 1     | 2.5            | 5.56  | 2.38 | 2.8  | 0.2 | ○        |
| TPGW090204GB-1 | 1     | 2.5            | 5.56  | 2.38 | 2.8  | 0.4 | ●        |
| TPGW110302GB-1 | 1     | 2.5            | 6.35  | 3.18 | 3.4  | 0.2 | ○        |
| TPGW110304GB-1 | 1     | 2.5            | 6.35  | 3.18 | 3.4  | 0.4 | ●        |
| TPGW160402GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.2 | ○        |
| TPGW160404GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.4 | ○        |
| TPGW160408GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.8 | ●        |
| TPGW080202KB-1 | 1     | 2.5            | 4.76  | 2.38 | 2.34 | 0.2 | ○        |
| TPGW080204KB-1 | 1     | 2.5            | 4.76  | 2.38 | 2.34 | 0.4 | ●        |
| TPGW090202KB-1 | 1     | 2.5            | 5.56  | 2.38 | 2.8  | 0.2 | ○        |
| TPGW090204KB-1 | 1     | 2.5            | 5.56  | 2.38 | 2.8  | 0.4 | ●        |
| TPGW110302KB-1 | 1     | 2.5            | 6.35  | 3.18 | 3.4  | 0.2 | ○        |
| TPGW110304KB-1 | 1     | 2.5            | 6.35  | 3.18 | 3.4  | 0.4 | ●        |
| TPGW160402KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.2 | ○        |
| TPGW160404KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.4 | ●        |
| TPGW160408KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4  | 0.8 | ○        |

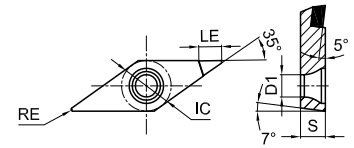
●Standard Stock ○Available upon Order



PCD Insert (Positive)

**VC**□□

Rhombic 35° with Hole



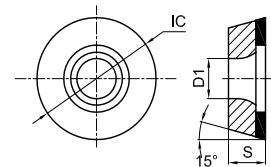
| Ordering code  | Flute | Dimension (mm) |       |      |     |     | PCDGrade |
|----------------|-------|----------------|-------|------|-----|-----|----------|
|                |       | LE             | IC    | S    | D1  | RE  |          |
| VCGW110302GB-1 | 1     | 3              | 6.35  | 3.18 | 2.8 | 0.2 | ○        |
| VCGW110304GB-1 | 1     | 3              | 6.35  | 3.18 | 2.8 | 0.4 | ●        |
| VCGW160402GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.2 | ○        |
| VCGW160404GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.4 | ●        |
| VCGW160408GB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.8 | ○        |
| VCGW110302KB-1 | 1     | 3              | 6.35  | 3.18 | 2.8 | 0.2 | ○        |
| VCGW110304KB-1 | 1     | 3              | 6.35  | 3.18 | 2.8 | 0.4 | ●        |
| VCGW160402KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.2 | ○        |
| VCGW160404KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.4 | ●        |
| VCGW160408KB-1 | 1     | 3              | 9.525 | 4.76 | 4.4 | 0.8 | ○        |



●Standard Stock ○Available upon Order

**RD**□□

Round 360° with hole



| Ordering code  | Flute | Dimension (mm) |      |      | PCDGrade |
|----------------|-------|----------------|------|------|----------|
|                |       | IC             | S    | D1   |          |
| RDEW080300GN-1 | 1     | 8              | 3.18 | 2.94 | ○        |
| RDEW100300GN-1 | 1     | 10             | 3.18 | 4.6  | ●        |
| RDEW120400GN-1 | 1     | 12             | 4.76 | 4.4  | ○        |
| RDEW160400GN-1 | 1     | 16             | 4.76 | 5.5  | ●        |



●Standard Stock ○Available upon Order

## Recommended Cutting Datas

### PCBN insert

| ISO      | Workpiece Material | Hardness    | Cutting Range            | Appli-cation | Grade   | Min-Optimum-Max |                |                |
|----------|--------------------|-------------|--------------------------|--------------|---------|-----------------|----------------|----------------|
|          |                    |             |                          |              |         | Vc(m/min)       | ap(mm)         | f(mm/rev)      |
| <b>K</b> | Gray cast iron     | HB200~230   | Finishing                | General      | BKN115P | 400-600-1500    | 0.05-0.20-0.50 | 0.05-0.20-0.40 |
|          | Alloy cast iron    | ≥HB200      | Finishing                | General      | BKN115P | 200-400-800     | 0.05-0.20-0.50 | 0.05-0.20-0.40 |
|          | Nodular cast iron  | QT450~QT700 | Finishing                | General      | BKC120P | 150-300-500     | 0.10-0.20-0.50 | 0.05-0.12-0.30 |
| <b>H</b> | Hardened Material  | ≥HRC50      | Finishing                | Continous    | BHC115P | 120-150-220     | 0.05-0.10-0.20 | 0.05-0.10-0.20 |
|          | Hardened Material  | ≥HRC50      | Finishing-Rounging       | General      | BHC125P | 100-130-180     | 0.05-0.10-0.50 | 0.05-0.10-0.20 |
|          | Hardened Material  | ≥HRC50      | Finishing-Semi-finishing | interrupt    | BHC135P | 80-100-150      | 0.05-0.10-0.40 | 0.05-0.10-0.20 |
| <b>S</b> | Powder Metallurgy  | HRB50~90    | Finishing                | Continous    | BSN115P | 50-150-300      | 0.05-0.20-0.50 | 0.05-0.12-0.30 |

### PCD insert

| ISO      | Workpiece Material | Cutting Range | Appli-cation | Grade   | Min-Optimum-Max |                |                |
|----------|--------------------|---------------|--------------|---------|-----------------|----------------|----------------|
|          |                    |               |              |         | Vc(m/min)       | ap(mm)         | f(mm/rev)      |
| <b>N</b> | Aluminum Alloy     | Finishing     | General      | DNN125P | 300-1200-3000   | 0.05-0.20-0.50 | 0.05-0.10-0.20 |
|          | Copper Alloy       | Finishing     | General      | DNN125P | 200-500-1000    | 0.05-0.40-2.00 | 0.05-0.10-0.20 |
|          | plastics           | Finishing     | General      | DNN125P | 100-600-1000    | 0.10-0.40-2.00 | 0.05-0.10-0.40 |
|          | Wood and inorganic | Finishing     | General      | DNN125P | 200-2000-4000   | 0.10-0.50-2.00 | 0.05-0.10-0.40 |
|          | Cemented Alloy     | Finishing     | General      | DNN125P | 10-20-30        | 0.05-0.20-0.50 | 0.05-0.10-0.20 |
|          | Graphite           | Finishing     | General      | DNN125P | 100-300-600     | 0.10-0.40-2.00 | 0.10-0.25-1.00 |

D

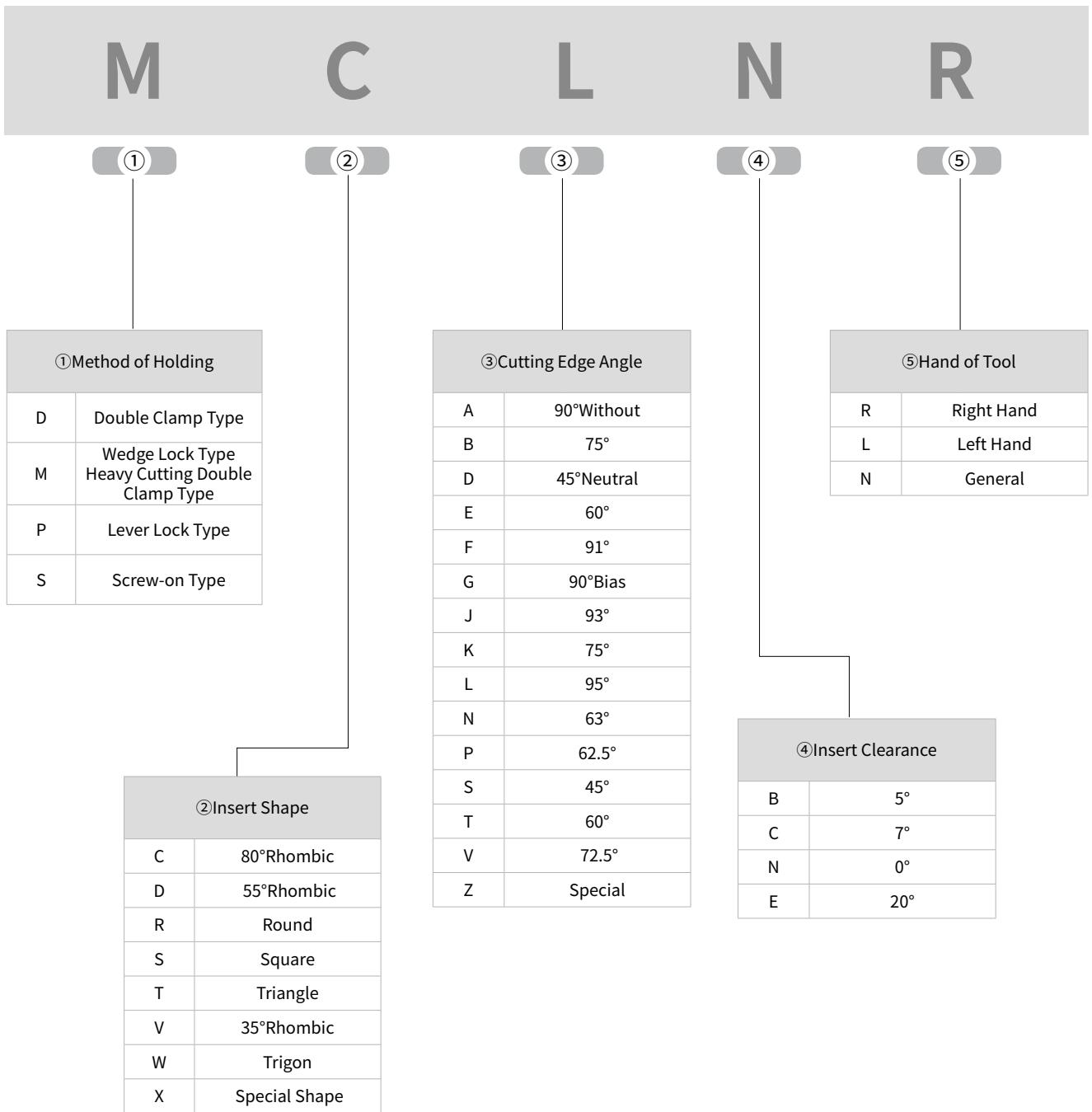
TURNING TOOLHOLDERS



## Overview of Turning Toolholders

|   |   |   |  |   |
|---|---|---|--|---|
| MCBNR/L   | MCLNR/L   | MDJNR/L   | MDPNN  | MDQNR/L   |
| P076  | P076  | P077  | P077   | P078  |
|    |    |    |    |    |
| MSBNR/L   | MSKNR/L   | MSSNR/L   | MTENN  | MTFNR/L   |
| P078  | P079  | P079  | P080   | P080  |
|    |    |    |    |    |
| MTGNR/L   | MTJNR/L   | MVJNR/L   | MVQNR/L  | MWLN/L  |
| P081  | P081  | P082  | P082   | P083  |
|    |    |    |    |    |
| SCLCR/L   | SDJCR/L   | SSDCN   | STGCR/L  | SVJCR/L   |
| P084  | P084  | P085  | P085   | P086  |
|  |  |  |  |  |
| SWLCR/L   | SCLCR/L   | SCKCR/L   | SCLCR/L-A16  | SDUCR/L   |
| P087  | P090  | P090  | P091   | P091  |
|  |  |  |  |  |
| SDQCR/L   | SDXCR/L   | SSKCR/L   | STUCR/L  | STWCR/L   |
| P092  | P092  | P093  | P093   | P094  |
|  |  |  |  |  |
| STFCR/L   | SVUCR/L   | SWLCR/L   | SCLPR/L  | STFPR/L   |
| P094  | P095  | P095  | P096   | P096  |
|  |  |  |  |  |

## External Turning Toolholder Identification System



25      25      M      12

⑥

⑥

⑦

⑧

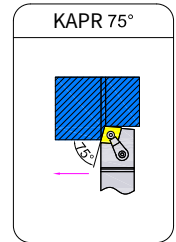
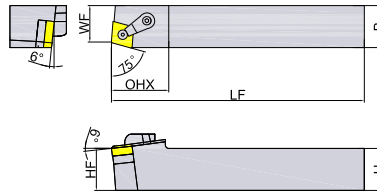
| ⑥ Tool Section |    |
|----------------|----|
| 8              | 8  |
| 10             | 10 |
| 12             | 12 |
| 16             | 16 |
| 20             | 20 |
| 25             | 25 |
| 32             | 32 |

| ⑦ Tool Length |     |
|---------------|-----|
| D             | 60  |
| E             | 70  |
| F             | 80  |
| H             | 100 |
| K             | 125 |
| M             | 150 |
| P             | 170 |
| Q             | 180 |
| R             | 200 |

| ⑧ Cutting Edge Length(mm) |              |          |       |             |             |             |
|---------------------------|--------------|----------|-------|-------------|-------------|-------------|
| Insert IC(mm)             | Insert Shape |          |       |             |             |             |
|                           | Square       | Triangle | Round | 80° Rhombic | 55° Rhombic | 35° Rhombic |
| 6                         | -            | -        | 06    | -           | -           | -           |
| 6.35                      | -            | 11       | -     | 06          | 07          | 11          |
| 7.94                      | -            | 13       | -     | -           | -           | -           |
| 8                         | -            | -        | 08    | -           | -           | -           |
| 9.525                     | 09           | 16       | -     | 09          | 11          | 16          |
| 10                        | -            | -        | 10    | -           | -           | -           |
| 12                        | -            | -        | 12    | -           | -           | -           |
| 12.7                      | -            | 22       | -     | 12          | 15          | -           |
| 15.875                    | 15           | 27       | -     | 16          | -           | -           |
| 16                        | -            | -        | 16    | -           | -           | -           |
| 19.05                     | 19           | -        | 19    | -           | -           | -           |
| 20                        | -            | -        | 20    | -           | -           | -           |
| 25                        | -            | -        | 25    | -           | -           | -           |
| 25.4                      | 25           | -        | -     | -           | -           | -           |
| 32                        | -            | -        | 32    | -           | -           | -           |

External Turning Toolholder (Negative)

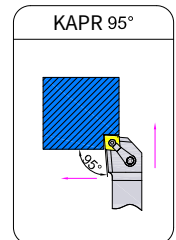
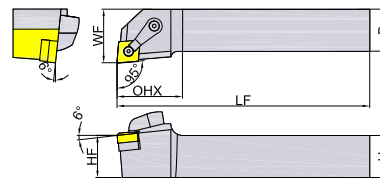
# MCBNR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin        | Clamp | Screw      | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|------------|-------|------------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |            |       |            |                | R     | L |
| MCBNR/L2020K12 | 20             | 20 | 125 | 32  | 20 | 17 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060200  | TH25L<br>TH30L | ●     | ○ |
| MCBNR/L2525M12 | 25             | 25 | 150 | 32  | 25 | 22 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060250  | TH25L<br>TH30L | ●     | ● |
| MCBNR/L3232P12 | 32             | 32 | 170 | 32  | 32 | 27 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060280  | TH25L<br>TH30L | ●     | ● |
| MCBNR/L2525M16 | 25             | 25 | 150 | 42  | 25 | 22 | CN**1606** | DCN1604M | SPM080220F | CAM03 | SDM060250  | TH30L          | ●     | ○ |
| MCBNR/L3232P19 | 32             | 32 | 170 | 42  | 32 | 27 | CN**1906** | DCN1904M | SPM100240F | CAM05 | SDM080350F | TH40L          | ●     | ● |

● Stock ○ Available upon Order

# MCLNR/L



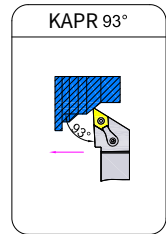
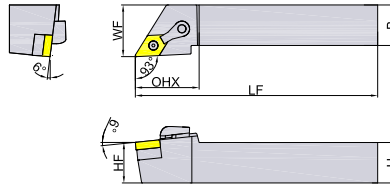
| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin        | Clamp | Screw      | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|------------|-------|------------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |            |       |            |                | R     | L |
| MCLNR/L2020K12 | 20             | 20 | 125 | 32  | 20 | 25 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060200  | TH25L<br>TH30L | ●     | ● |
| MCLNR/L2525M12 | 25             | 25 | 150 | 32  | 25 | 32 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060250  | TH25L<br>TH30L | ●     | ● |
| MCLNR/L3232P12 | 32             | 32 | 170 | 32  | 32 | 40 | CN**1204** | DCN1204M | SPM060170  | CAM02 | SDM060280  | TH25L<br>TH30L | ●     | ● |
| MCLNR/L2525M16 | 25             | 25 | 150 | 42  | 25 | 32 | CN**1606** | DCN1604M | SPM080220F | CAM03 | SDM060250  | TH30L          | ●     | ● |
| MCLNR/L3232P16 | 32             | 32 | 170 | 42  | 32 | 40 | CN**1606** | DCN1604M | SPM080220F | CAM03 | SDM060280  | TH30L          | ●     | ● |
| MCLNR/L3232P19 | 32             | 32 | 170 | 42  | 32 | 40 | CN**1906** | DCN1904M | SPM100240F | CAM05 | SDM080350F | TH40L          | ●     | ● |

● Stock ○ Available upon Order



## External Turning Toolholder (Negative)

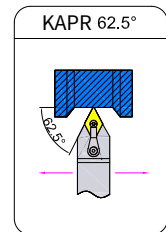
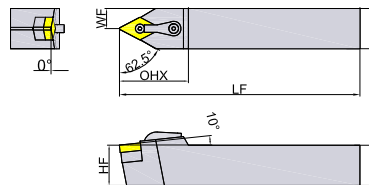
# MDJNR/L



| Ordering Code    | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|------------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                  | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MDJNR/L2020K11   | 20             | 20 | 125 | 32  | 20 | 25 | DN**1104** | DDN1103M | SPM050130 | CAM02 | SDM060200 | TH20L<br>TH30L | ●     | ● |
| MDJNR/L2020K1504 | 20             | 20 | 125 | 38  | 20 | 25 | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060200 | TH25L<br>TH30L | ●     | ● |
| MDJNR/L2525M1504 | 25             | 25 | 150 | 38  | 25 | 32 | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060250 | TH25L<br>TH30L | ●     | ● |
| MDJNR/L2525M1506 | 25             | 25 | 150 | 38  | 25 | 32 | DN**1506** | DDN1504M | SPM060190 | CAM03 | SDM060250 | TH25L<br>TH30L | ●     | ● |
| MDJNR/L3232P1506 | 32             | 32 | 170 | 38  | 32 | 40 | DN**1506** | DDN1504M | SPM060190 | CAM03 | SDM060280 | TH25L<br>TH30L | ●     | ● |

● Stock ○ Available upon Order

# MDPNN

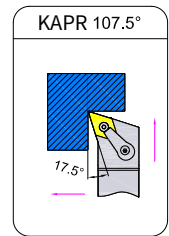
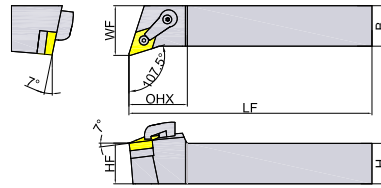


| Ordering Code  | Dimension (mm) |    |     |     |    |      | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |
|----------------|----------------|----|-----|-----|----|------|------------|----------|-----------|-------|-----------|----------------|-------|
|                | H              | B  | LF  | OHX | HF | WF   |            |          |           |       |           |                |       |
| MDPNN2020K11   | 20             | 20 | 125 | 35  | 20 | 10   | DN**1104** | DDN1103M | SPM050130 | CAM02 | SDM060200 | TH20L<br>TH30L | ●     |
| MDPNN2020K1504 | 20             | 20 | 125 | 42  | 20 | 10   | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060200 | TH25L<br>TH30L | ●     |
| MDPNN2525M1504 | 25             | 25 | 150 | 42  | 25 | 12.5 | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060250 | TH25L<br>TH30L | ●     |
| MDPNN2525M1506 | 25             | 25 | 150 | 42  | 25 | 12.5 | DN**1506** | DDN1504M | SPM060190 | CAM03 | SDM060250 | TH25L<br>TH30L | ●     |
| MDPNN3232P1506 | 32             | 32 | 170 | 42  | 32 | 16   | DN**1506** | DDN1504M | SPM060190 | CAM03 | SDM060280 | TH25L<br>TH30L | ●     |

● Stock ○ Available upon Order

External Turning Toolholder (Negative)

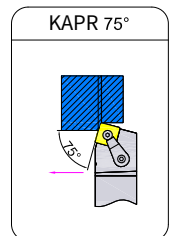
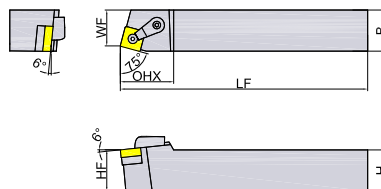
# MDQNR/L



| Ordering Code    | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|------------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                  | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MDQNR/L2020K11   | 20             | 20 | 125 | 32  | 20 | 25 | DN**1104** | DDN1103M | SPM050130 | CAM02 | SDM060200 | TH20L<br>TH30L | ●     | ○ |
| MDQNR/L2020K1504 | 20             | 20 | 125 | 36  | 20 | 25 | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060200 | TH25L<br>TH30L | ●     | ○ |
| MDQNR/L2525M1504 | 25             | 25 | 150 | 36  | 25 | 32 | DN**1504** | DDN1504M | SPM060170 | CAM03 | SDM060250 | TH25L<br>TH30L | ●     | ○ |
| MDQNR/L3232P1506 | 32             | 32 | 170 | 36  | 32 | 40 | DN**1506** | DDN1504M | SPM060190 | CAM03 | SDM060280 | TH25L<br>TH30L | ●     | ○ |

● Stock ○ Available upon Order

# MSBNR/L

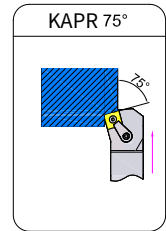
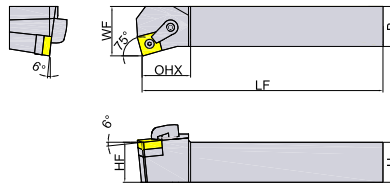


| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin        | Clamp | Screw      | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|------------|-------|------------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |            |       |            |                | R     | L |
| MSBNR/L2020K12 | 20             | 20 | 125 | 32  | 20 | 17 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060200  | TH25L<br>TH30L | ●     | ○ |
| MSBNR/L2525M12 | 25             | 25 | 150 | 32  | 25 | 22 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060250  | TH25L<br>TH30L | ●     | ○ |
| MSBNR/L3232P12 | 32             | 32 | 170 | 32  | 32 | 27 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060280  | TH25L<br>TH30L | ●     | ○ |
| MSBNR/L2525M15 | 25             | 25 | 150 | 42  | 25 | 22 | SN**1506** | DSN1504M | SPM080220F | CAM03 | SDM060250  | TH30L          | ●     | ○ |
| MSBNR/L3232P19 | 32             | 32 | 170 | 42  | 32 | 27 | SN**1906** | DSN1904M | SPM100240F | CAM05 | SDM080350F | TH40L          | ●     | ● |

● Stock ○ Available upon Order

## External Turning Toolholder (Negative)

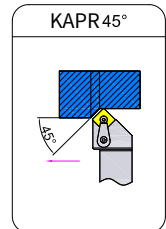
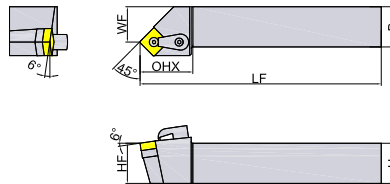
## MSKNR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin        | Clamp | Screw      | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|------------|-------|------------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |            |       |            |                | R     | L |
| MSKNR/L2020K12 | 20             | 20 | 125 | 32  | 20 | 25 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060200  | TH25L<br>TH30L | ●     | ○ |
| MSKNR/L2525M12 | 25             | 25 | 150 | 32  | 25 | 32 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060250  | TH25L<br>TH30L | ●     | ○ |
| MSKNR/L3232P12 | 32             | 32 | 170 | 32  | 32 | 40 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060280  | TH25L<br>TH30L | ●     | ○ |
| MSKNR/L2525M15 | 25             | 25 | 150 | 42  | 25 | 32 | SN**1506** | DSN1504M | SPM080220F | CAM03 | SDM060250  | TH30L          | ●     | ○ |
| MSKNR/L3232P19 | 32             | 32 | 170 | 42  | 32 | 40 | SN**1906** | DSN1904M | SPM100240F | CAM05 | SDM080350F | TH40L          | ●     | ○ |

● Stock ○ Available upon Order

## MSSNR/L

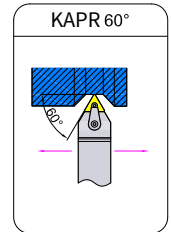
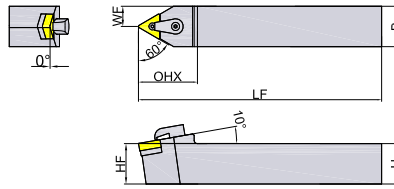


| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin        | Clamp | Screw      | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|------------|-------|------------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |            |       |            |                | R     | L |
| MSSNR/L2020K12 | 20             | 20 | 125 | 32  | 20 | 17 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060200  | TH25L<br>TH30L | ●     | ● |
| MSSNR/L2525M12 | 25             | 25 | 150 | 32  | 25 | 22 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060250  | TH25L<br>TH30L | ●     | ● |
| MSSNR/L3232P12 | 32             | 32 | 170 | 32  | 32 | 27 | SN**1204** | DSN1204M | SPM060170  | CAM02 | SDM060280  | TH25L<br>TH30L | ●     | ○ |
| MSSNR/L2525M15 | 25             | 25 | 150 | 42  | 25 | 22 | SN**1506** | DSN1504M | SPM080220F | CAM03 | SDM060250  | TH30L          | ●     | ○ |
| MSSNR/L3232P19 | 32             | 32 | 170 | 42  | 32 | 27 | SN**1906** | DSN1904M | SPM100240F | CAM05 | SDM080350F | TH40L          | ●     | ● |

● Stock ○ Available upon Order

External Turning Toolholder (Negative)

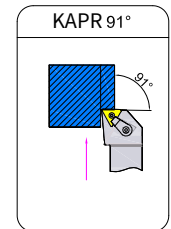
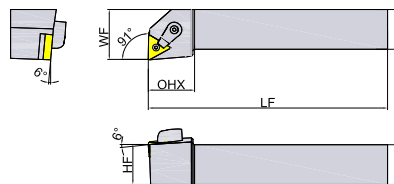
# MTENN



| Ordering Code | Dimension (mm) |    |     |     |    |      | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |
|---------------|----------------|----|-----|-----|----|------|------------|----------|-----------|-------|-----------|----------------|-------|
|               | H              | B  | LF  | OHX | HF | WF   |            |          |           |       |           |                |       |
| MTENN2020K16  | 20             | 20 | 125 | 32  | 20 | 10   | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060200 | TH20L<br>TH30L | ●     |
| MTENN2525M16  | 25             | 25 | 150 | 32  | 25 | 12.5 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     |
| MTENN3232P16  | 32             | 32 | 170 | 32  | 32 | 16   | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060280 | TH20L<br>TH30L | ○     |
| MTENN3232P22  | 32             | 32 | 170 | 38  | 32 | 16   | TN**2204** | DTN2204M | SPM060170 | CAM02 | SDM060280 | TH25L<br>TH30L | ●     |

● Stock ○ Available upon Order

# MTFNR/L

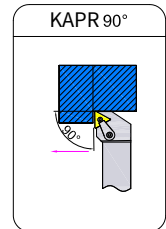
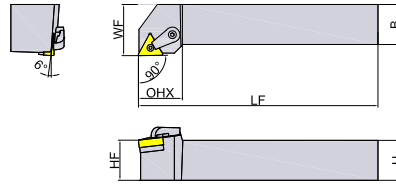


| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MTFNR/L2020K16 | 20             | 20 | 125 | 32  | 20 | 25 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ○ |
| MTFNR/L2525M16 | 25             | 25 | 150 | 32  | 25 | 32 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ○ |
| MTFNR/L3232P16 | 32             | 32 | 170 | 32  | 32 | 40 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060280 | TH20L<br>TH30L | ●     | ○ |
| MTFNR/L3232P22 | 32             | 32 | 170 | 38  | 32 | 40 | TN**2204** | DTN2204M | SPM060170 | CAM02 | SDM060280 | TH25L<br>TH30L | ●     | ○ |

● Stock ○ Available upon Order

## External Turning Toolholder (Negative)

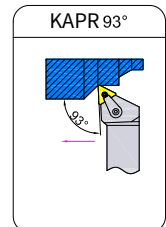
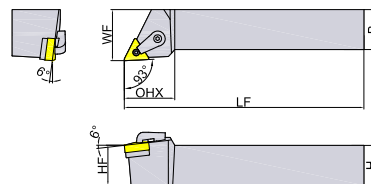
# MTGNR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MTGNR/L2020K16 | 20             | 20 | 125 | 32  | 20 | 25 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ○ |
| MTGNR/L2525M16 | 25             | 25 | 150 | 32  | 25 | 32 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MTGNR/L3232P16 | 32             | 32 | 170 | 32  | 32 | 40 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060280 | TH20L<br>TH30L | ●     | ○ |
| MTGNR/L3232P22 | 32             | 32 | 170 | 38  | 32 | 40 | TN**2204** | DTN2204M | SPM060170 | CAM02 | SDM060280 | TH25L<br>TH30L | ●     | ○ |

●Stock ○Available upon Order

# MTJNR/L

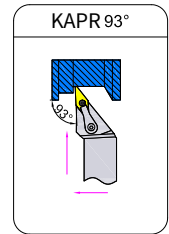
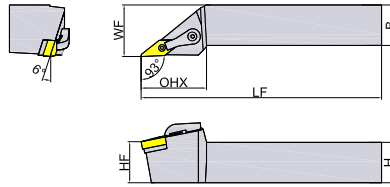


| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MTJNR/L2020K16 | 20             | 20 | 125 | 32  | 20 | 25 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MTJNR/L2525M16 | 25             | 25 | 150 | 32  | 25 | 32 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MTJNR/L3232P16 | 32             | 32 | 170 | 32  | 32 | 40 | TN**1604** | DTN1603M | SPM050130 | CAM02 | SDM060280 | TH20L<br>TH30L | ●     | ○ |
| MTJNR/L3232P22 | 32             | 32 | 170 | 38  | 32 | 40 | TN**2204** | DTN2204M | SPM060170 | CAM02 | SDM060280 | TH25L<br>TH30L | ●     | ● |

●Stock ○Available upon Order

External Turning Toolholder (Negative)

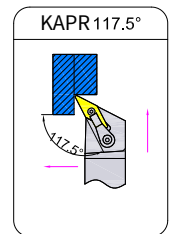
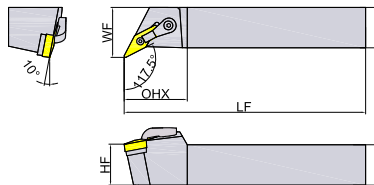
# MVJNR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MVJNR/L2020K16 | 20             | 20 | 125 | 42  | 20 | 25 | VN**1604** | DVN1603M | SPM050130 | CAM04 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MVJNR/L2525M16 | 25             | 25 | 150 | 42  | 25 | 32 | VN**1604** | DVN1603M | SPM050130 | CAM04 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MVJNR/L3232P16 | 32             | 32 | 170 | 42  | 32 | 40 | VN**1604** | DVN1603M | SPM050130 | CAM04 | SDM060280 | TH20L<br>TH30L | ●     | ● |

● Stock ○ Available upon Order

# MVQNR/L

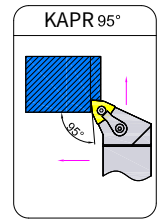
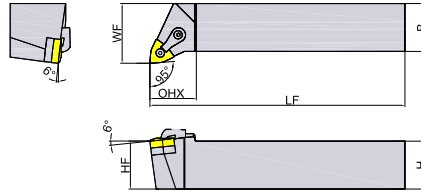


| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MVQNR/L2020K16 | 20             | 20 | 125 | 42  | 20 | 25 | VN**1604** | DVN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MVQNR/L2525M16 | 25             | 25 | 150 | 42  | 25 | 32 | VN**1604** | DVN1603M | SPM050130 | CAM02 | SDM060250 | TH20L<br>TH30L | ●     | ● |
| MVQNR/L3232P16 | 32             | 32 | 170 | 42  | 32 | 40 | VN**1604** | DVN1603M | SPM050130 | CAM02 | SDM060280 | TH20L<br>TH30L | ●     | ● |

● Stock ○ Available upon Order

External Turning Toolholder (Negative)

# MWLNR/L

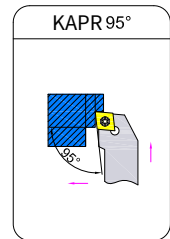
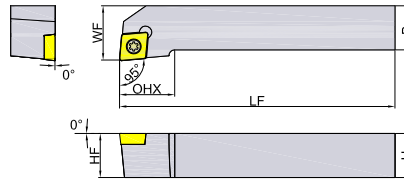
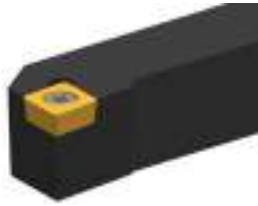


| Ordering Code    | Dimension (mm) |    |     |     |    |    | Insert     | Shim     | Pin       | Clamp | Screw     | Wrench         | Stock |   |
|------------------|----------------|----|-----|-----|----|----|------------|----------|-----------|-------|-----------|----------------|-------|---|
|                  | H              | B  | LF  | OHX | HF | WF |            |          |           |       |           |                | R     | L |
| MWLNR/L2525M06T3 | 25             | 25 | 150 | 28  | 25 | 32 | WN**06T3** | DWN0603M | SPM050130 | CAM01 | SDM050200 | TH20L<br>TH30L | ●     | ● |
| MWLNR/L2020K0604 | 20             | 20 | 125 | 28  | 20 | 25 | WN**0604** | DWN0603M | SPM050130 | CAM01 | SDM050200 | TH20L<br>TH30L | ●     | ● |
| MWLNR2525M0604   | 20             | 20 | 150 | 28  | 25 | 32 | WN**0604** | DWN0603M | SPM050130 | CAM01 | SDM050200 | TH20L<br>TH30L | ●     |   |
| MWLNR/L2020K08   | 20             | 20 | 125 | 32  | 20 | 25 | WN**0804** | DWN0804M | SPM060170 | CAM02 | SDM060200 | TH25L<br>TH30L | ●     | ● |
| MWLNR/L2525M08   | 25             | 25 | 150 | 32  | 25 | 32 | WN**0804** | DWN0804M | SPM060170 | CAM02 | SDM060250 | TH25L<br>TH30L | ●     | ● |
| MWLNR/L3232P08   | 32             | 32 | 170 | 32  | 32 | 40 | WN**0804** | DWN0804M | SPM060170 | CAM02 | SDM060280 | TH25L<br>TH30L | ●     | ● |

● Stock ○ Available upon Order

External Turning Toolholder(Positive)

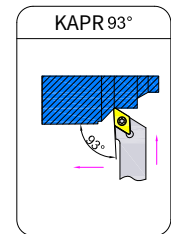
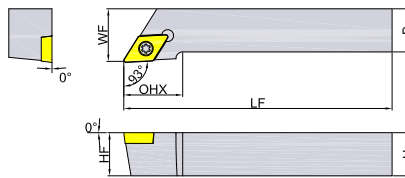
# SCLCR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Screw             | Wrench | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|-------------------|--------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |                   |        | R     | L |
| SCLCR/L1010F06 | 10             | 10 | 80  | 12  | 10 | 12 | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| SCLCR/L1212H09 | 12             | 12 | 100 | 16  | 12 | 16 | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| SCLCR/L1616H09 | 16             | 16 | 100 | 16  | 16 | 20 | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| SCLCR/L2020K09 | 20             | 20 | 125 | 16  | 20 | 25 | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| SCLCR/L2525M12 | 25             | 25 | 150 | 20  | 25 | 32 | CC**1204** | SI60M050120-07012 | TT20P  | ●     | ● |

●Stock ○Available upon Order

# SDJCR/L



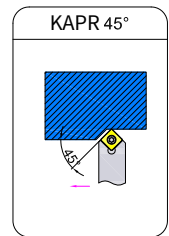
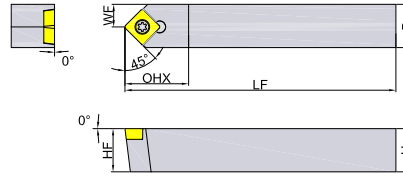
| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Screw             | Wrench | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|-------------------|--------|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |                   |        | R     | L |
| SDJCR/L1010F07 | 10             | 10 | 80  | 15  | 10 | 12 | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ● |
| SDJCR1212H07   | 12             | 12 | 100 | 15  | 12 | 16 | DC**0702** | SI60M025060-03510 | TT08P  | ●     |   |
| SDJCR/L1616H11 | 16             | 16 | 100 | 20  | 16 | 20 | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| SDJCR/L2020K11 | 20             | 20 | 125 | 20  | 20 | 25 | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| SDJCR/L2525M11 | 25             | 25 | 150 | 20  | 25 | 32 | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |



●Stock ○Available upon Order



## External Turning Toolholder(Positive)

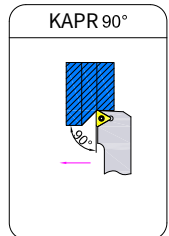
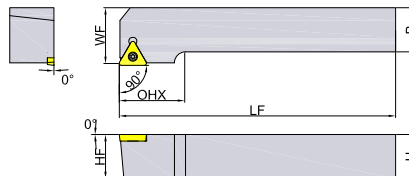
# SSDCN





| Ordering Code | Dimension (mm) |    |     |     |    |      | Insert     | Screw<br> | Wrench<br> | Stock |
|---------------|----------------|----|-----|-----|----|------|------------|--|---|-------|
|               | H              | B  | LF  | OHX | HF | WF   |            |  |   |       |
| SSDCN1212H09  | 12             | 12 | 80  | 15  | 12 | 6    | SC**09T3** | SI60M040100-05812  | TT15P   | ●     |
| SSDCN1616H09  | 16             | 16 | 100 | 15  | 16 | 8    | SC**09T3** | SI60M040100-05812  | TT15P   | ●     |
| SSDCN2020K09  | 20             | 20 | 125 | 15  | 20 | 10   | SC**09T3** | SI60M040100-05812  | TT15P   | ○     |
| SSDCN2525M12  | 25             | 25 | 150 | 20  | 25 | 12.5 | SC**1204** | SI60M050120-07012  | TT20P   | ●     |

●Stock ○Available upon Order

# STGCR/L

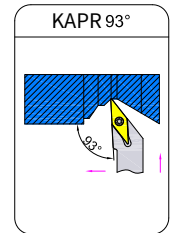
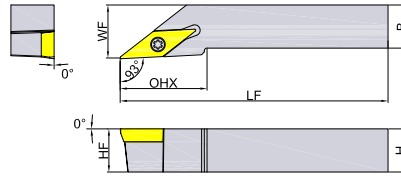




| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Screw<br> | Wrench<br> | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|--|---|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |  |   | R     | L |
| STGCR1010F09   | 10             | 10 | 80  | 12  | 10 | 12 | TC**0902** | SI60M022060-03008  | TT06P   | ●     |   |
| STGCR/L1212H11 | 12             | 12 | 100 | 16  | 12 | 16 | TC**1102** | SI60M025060-03510  | TT08P   | ●     | ○ |
| STGCR/L1616H11 | 16             | 16 | 100 | 20  | 16 | 20 | TC**1102** | SI60M025060-03510  | TT08P   | ●     | ● |
| STGCR/L2020K16 | 20             | 20 | 125 | 25  | 20 | 25 | TC**16T3** | SI60M040100-05812  | TT15P   | ●     | ● |
| STGCR/L2525M16 | 25             | 25 | 150 | 25  | 25 | 32 | TC**16T3** | SI60M040100-05812  | TT15P   | ●     | ● |

●Stock ○Available upon Order

External Turning Toolholder(Positive)

# SVJCR/L

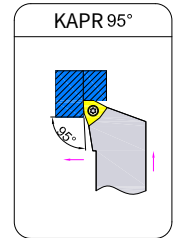
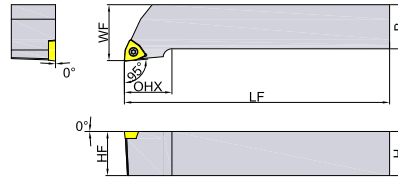




| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Screw<br> | Wrench<br> | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|--|---|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |  |   | R     | L |
| SVJCR1212H11   | 12             | 12 | 100 | 25  | 12 | 16 | VC**1103** | SI60M025060-03510  | TT08P   | ●     |   |
| SVJCR/L1616H11 | 16             | 16 | 100 | 25  | 16 | 20 | VC**1103** | SI60M025060-03510  | TT08P   | ●     | ● |
| SVJCR/L2020K16 | 20             | 20 | 125 | 35  | 20 | 25 | VC**1604** | SI60M040100-05812  | TT15P   | ●     | ● |
| SVJCR/L2525M16 | 25             | 25 | 150 | 35  | 25 | 32 | VC**1604** | SI60M040100-05812  | TT15P   | ●     | ● |

●Stock ○Available upon Order

External Turning Toolholder(Positive)

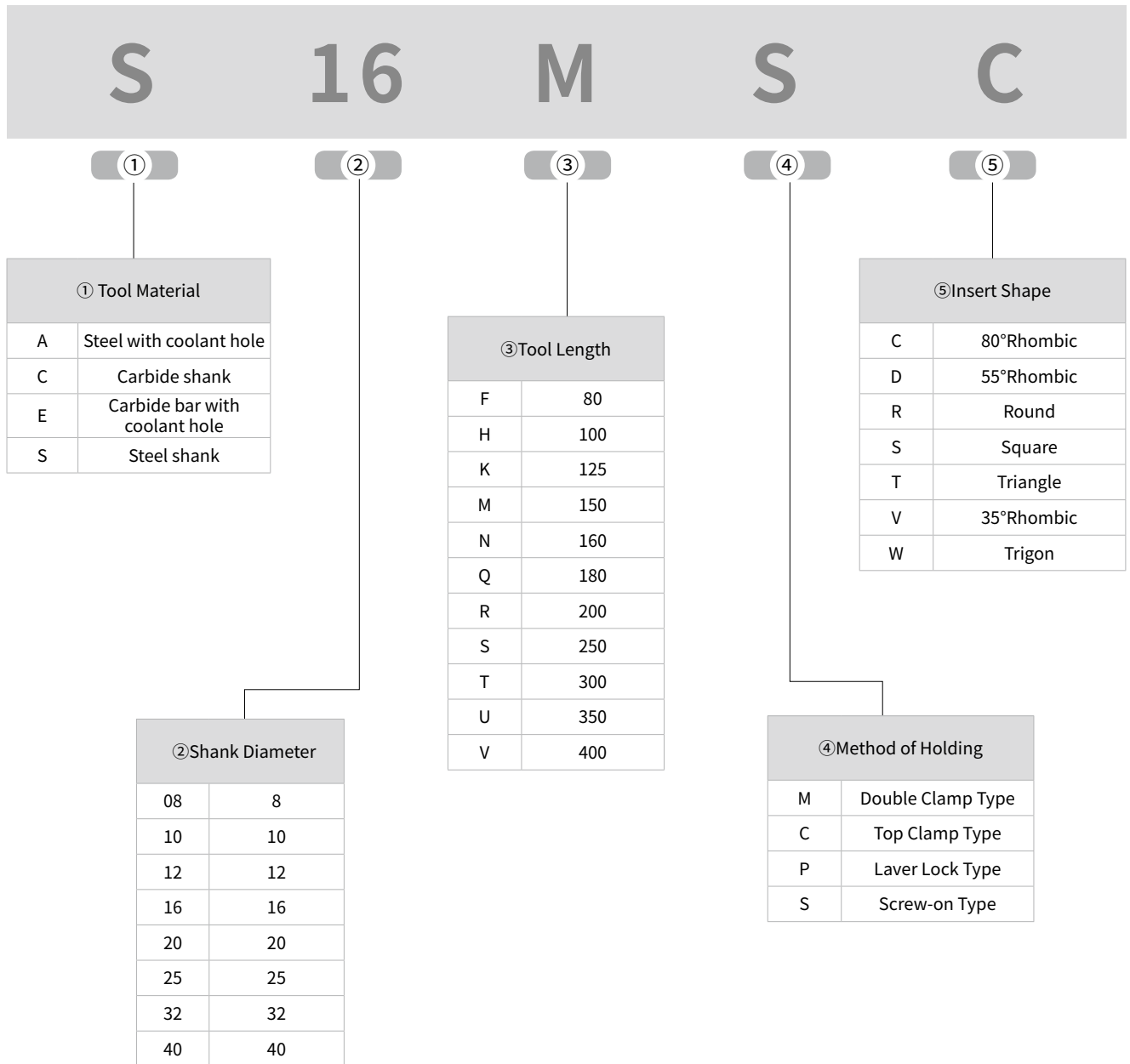
# SWLCR/L



| Ordering Code  | Dimension (mm) |    |     |     |    |    | Insert     | Screw<br> | Wrench<br> | Stock |   |
|----------------|----------------|----|-----|-----|----|----|------------|--|---|-------|---|
|                | H              | B  | LF  | OHX | HF | WF |            |  |   | R     | L |
| SWLCR/L1212H06 | 12             | 12 | 100 | 15  | 12 | 16 | WC**06T3** | SI60M040100-05812  | TT15P   | ●     | ● |
| SWLCR/L1616H06 | 16             | 16 | 100 | 15  | 16 | 20 | WC**06T3** | SI60M040100-05812  | TT15P   | ●     | ● |
| SWLCR/L2020K06 | 20             | 20 | 125 | 15  | 20 | 25 | WC**06T3** | SI60M040100-05812  | TT15P   | ●     | ● |
| SWLCR/L2525M06 | 25             | 25 | 150 | 20  | 25 | 32 | WC**06T3** | SI60M040100-05812  | TT15P   | ●     | ● |

● Stock ○ Available upon Order

## Internal Turning Toolholders Identification System



# L C R 09

⑥

| ⑥Cutting Edge Angle |        |
|---------------------|--------|
| K                   | 75°    |
| L                   | 95°    |
| F                   | 91°    |
| Q                   | 107.5° |
| U                   | 93°    |
| W                   | 60°    |
| X                   | 120°   |

⑦

| ⑦Insert Clearance Angle |     |
|-------------------------|-----|
| C                       | 7°  |
| B                       | 5°  |
| N                       | 0°  |
| P                       | 11° |

⑧

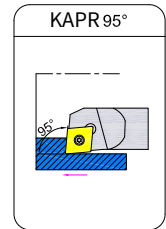
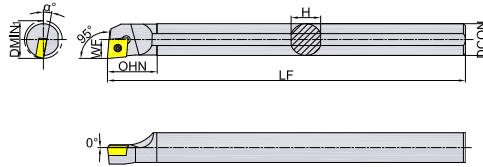
| ⑧Hand of Tool |            |
|---------------|------------|
| R             | Right Hand |
| L             | Left Hand  |

⑨

| ⑨Cutting Edge Length(mm) |              |          |       |             |             |             |
|--------------------------|--------------|----------|-------|-------------|-------------|-------------|
| Insert IC(mm)            | Insert Shape |          |       |             |             |             |
|                          | Square       | Triangle | Round | 80° Rhombic | 55° Rhombic | 35° Rhombic |
| 6                        | -            | -        | 06    | -           | -           | -           |
| 6.35                     | -            | 11       | -     | 06          | 07          | 11          |
| 7.94                     | -            | 13       | -     | -           | -           | -           |
| 8                        | -            | -        | 08    | -           | -           | -           |
| 9.525                    | 09           | 16       | -     | 09          | 11          | 16          |
| 10                       | -            | -        | 10    | -           | -           | -           |
| 12                       | -            | -        | 12    | -           | -           | -           |
| 12.7                     | -            | 22       | -     | 12          | 15          | -           |
| 15.875                   | 15           | 27       | -     | 16          | -           | -           |
| 16                       | -            | -        | 16    | -           | -           | -           |
| 19.05                    | 19           | -        | 19    | -           | -           | -           |
| 20                       | -            | -        | 20    | -           | -           | -           |
| 25                       | -            | -        | 25    | -           | -           | -           |
| 25.4                     | 25           | -        | -     | -           | -           | -           |
| 32                       | -            | -        | 32    | -           | -           | -           |

Internal Turning Toolholder

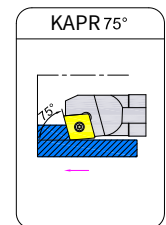
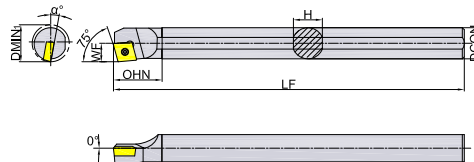
# SCLCR/L



| Ordering Code  | Dimensions (mm) |      |     |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|-----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S08K-SCLCR/L06 | 10              | 8    | 5.5 | 125 | 12  | 7  | 13             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S10K-SCLCR/L06 | 12              | 10   | 6.5 | 125 | 15  | 9  | 12             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SCLCR/L06 | 16              | 12   | 8   | 150 | 18  | 11 | 10             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SCLCR/L09 | 16              | 12   | 8   | 150 | 18  | 11 | 12             | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S16Q-SCLCR/L09 | 20              | 16   | 10  | 180 | 24  | 15 | 10             | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S20R-SCLCR/L09 | 25              | 20   | 12  | 200 | 30  | 18 | 8              | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S25S-SCLCR/L09 | 32              | 25   | 16  | 250 | 38  | 23 | 6              | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S25S-SCLCR/L12 | 32              | 25   | 16  | 250 | 38  | 23 | 8              | CC**1204** | SI60M050120-07012 | TT20P  | ●     | ● |

● Stock ○ Available upon Order

# SCKCR/L

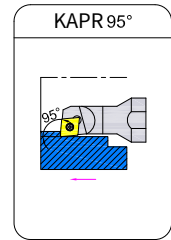
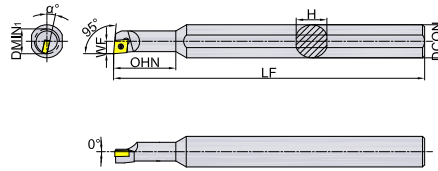


| Ordering Code  | Dimensions (mm) |      |     |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|-----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S08K-SCKCR/L06 | 10              | 8    | 5.5 | 125 | 12  | 7  | 13             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S10K-SCKCR/L06 | 12              | 10   | 6.5 | 125 | 15  | 9  | 12             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S12M-SCKCR/L06 | 16              | 12   | 8   | 150 | 18  | 11 | 10             | CC**0602** | SI60M025060-03510 | TT08P  | ○     | ○ |
| S12M-SCKCR/L09 | 16              | 12   | 8   | 150 | 18  | 11 | 12             | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| S16Q-SCKCR/L09 | 20              | 16   | 10  | 180 | 24  | 15 | 10             | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| S20R-SCKCR/L09 | 25              | 20   | 12  | 200 | 30  | 18 | 8              | CC**09T3** | SI60M040100-05812 | TT15P  | ○     | ○ |
| S25S-SCKCR/L09 | 32              | 25   | 16  | 250 | 38  | 23 | 6              | CC**09T3** | SI60M040100-05812 | TT15P  | ●     | ○ |

● Stock ○ Available upon Order

## Internal Turning Toolholder

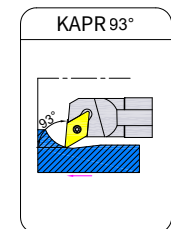
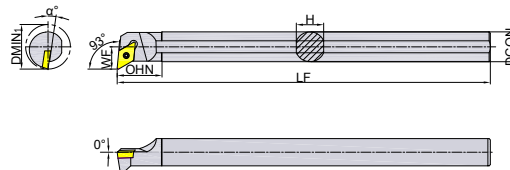
# SCLCR/L-A16



| Ordering Code      | Dimensions (mm) |      |      |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|--------------------|-----------------|------|------|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                    | DMIN1           | DCON | WF   | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S07M-SCLCR/L06-A16 | 9               | 16   | 4.25 | 150 | 18  | 15 | 15             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S08M-SCLCR/L06-A16 | 10              | 16   | 5    | 150 | 20  | 15 | 13             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S10M-SCLCR/L06-A16 | 13              | 16   | 6    | 150 | 26  | 15 | 12             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SCLCR/L06-A16 | 15              | 16   | 7    | 150 | 28  | 15 | 10             | CC**0602** | SI60M025060-03510 | TT08P  | ●     | ○ |

● Stock ○ Available upon Order

# SDUCR/L

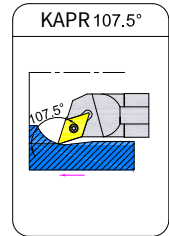
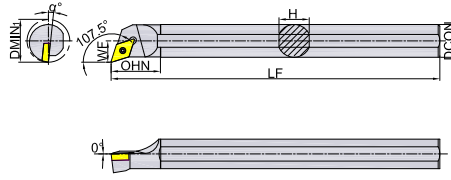


| Ordering Code  | Dimensions (mm) |      |    |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S10K-SDUCR/L07 | 12              | 10   | 7  | 125 | 15  | 9  | 10             | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SDUCR/L07 | 16              | 12   | 9  | 150 | 18  | 11 | 8              | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ● |
| S16Q-SDUCR/L07 | 20              | 16   | 11 | 180 | 24  | 15 | 6              | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ● |
| S16Q-SDUCR/L11 | 20              | 16   | 11 | 180 | 24  | 15 | 6              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S20R-SDUCR/L11 | 25              | 20   | 13 | 200 | 30  | 18 | 6              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S25S-SDUCR/L11 | 32              | 25   | 16 | 250 | 38  | 23 | 4              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |

● Stock ○ Available upon Order

Internal Turning Toolholder

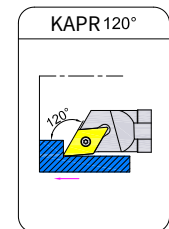
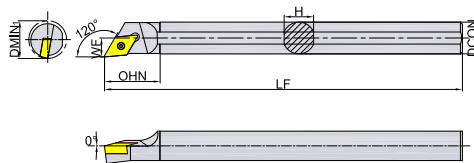
# SDQCR/L



| Ordering Code  | Dimensions (mm) |      |    |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S10K-SDQCR/L07 | 12              | 10   | 7  | 125 | 15  | 9  | 10             | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S12M-SDQCR/L07 | 16              | 12   | 9  | 150 | 18  | 11 | 8              | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S16Q-SDQCR/L07 | 20              | 16   | 11 | 180 | 24  | 15 | 6              | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S16Q-SDQCR/L11 | 20              | 16   | 11 | 180 | 24  | 15 | 6              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S20R-SDQCR/L11 | 25              | 20   | 13 | 200 | 30  | 18 | 6              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| S25S-SDQCR/L11 | 32              | 25   | 16 | 250 | 38  | 23 | 4              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |

●Stock ○Available upon Order

# SDXCR/L



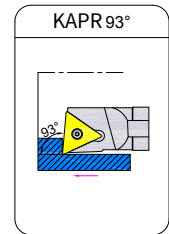
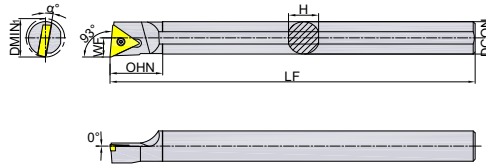
| Ordering Code  | Dimensions (mm) |      |     |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|-----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S08K-SDXCR/L07 | 10              | 8    | 5.5 | 125 | 12  | 7  | 12             | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S10K-SDXCR/L07 | 12              | 10   | 6.5 | 125 | 15  | 9  | 10             | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S12M-SDXCR/L07 | 16              | 12   | 8   | 150 | 18  | 11 | 8              | DC**0702** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S16Q-SDXCR/L07 | 20              | 16   | 10  | 180 | 24  | 15 | 6              | DC**0702** | SI60M040100-05812 | TT08P  | ●     | ○ |
| S20R-SDXCR/L11 | 25              | 20   | 12  | 200 | 30  | 18 | 6              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S25S-SDXCR/L11 | 32              | 25   | 14  | 250 | 38  | 23 | 4              | DC**11T3** | SI60M040100-05812 | TT15P  | ●     | ○ |

●Stock ○Available upon Order



## Internal Turning Toolholder

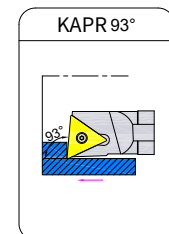
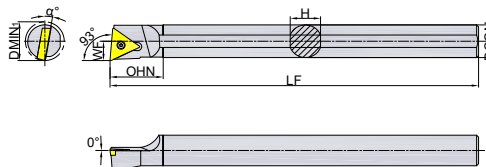
# SSKCR/L



| Ordering Code  | Dimensions (mm) |      |    |     |     |    |                | Insert     | Screw             | Wrench | Stock                            |                       |
|----------------|-----------------|------|----|-----|-----|----|----------------|------------|-------------------|--------|----------------------------------|-----------------------|
|                | DMIN1           | DCON | WF | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R                                | L                     |
| S12M-SSKCR/L09 | 16              | 12   | 9  | 150 | 18  | 11 | 10             | SC**09T3** | SI60M040100-05812 | TT15P  | <input type="radio"/>            | <input type="radio"/> |
| S16Q-SSKCR/L09 | 20              | 16   | 11 | 180 | 24  | 15 | 10             | SC**09T3** | SI60M040100-05812 | TT15P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S20R-SSKCR/L09 | 25              | 20   | 13 | 200 | 30  | 18 | 8              | SC**09T3** | SI60M040100-05812 | TT15P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S25S-SSKCR/L12 | 32              | 25   | 17 | 250 | 38  | 23 | 6              | SC**1204** | SI60M050120-07012 | TT20P  | <input type="radio"/>            | <input type="radio"/> |

● Stock ○ Available upon Order

# STUCR/L

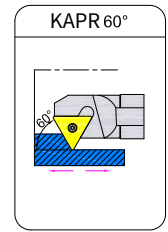
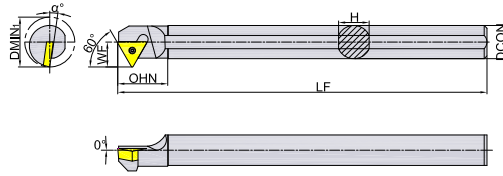


| Ordering Code  | Dimensions (mm) |      |     |     |     |    |                | Insert     | Screw             | Wrench | Stock                            |                       |
|----------------|-----------------|------|-----|-----|-----|----|----------------|------------|-------------------|--------|----------------------------------|-----------------------|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R                                | L                     |
| S08K-STUCR/L09 | 10              | 8    | 5.5 | 125 | 12  | 7  | 15             | TC**0902** | SI60M022060-03008 | TT06P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S10K-STUCR/L09 | 12              | 10   | 6.5 | 125 | 15  | 9  | 13             | TC**0902** | SI60M022060-03008 | TT06P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S10K-STUCR/L11 | 12              | 10   | 6.5 | 125 | 15  | 9  | 12             | TC**1102** | SI60M025060-03510 | TT08P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S12M-STUCR/L11 | 16              | 12   | 8   | 150 | 18  | 11 | 10             | TC**1102** | SI60M025060-03510 | TT08P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S16Q-STUCR/L11 | 20              | 16   | 10  | 180 | 24  | 15 | 8              | TC**1102** | SI60M025060-03510 | TT08P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S20R-STUCR11   | 25              | 20   | 12  | 200 | 30  | 18 | 6              | TC**1102** | SI60M025060-03510 | TT08P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S20R-STUCR/L16 | 25              | 20   | 12  | 200 | 30  | 18 | 4              | TC**16T3** | SI60M040100-05812 | TT15P  | <input checked="" type="radio"/> | <input type="radio"/> |
| S25S-STUCR16   | 32              | 25   | 16  | 250 | 38  | 23 | 6              | TC**16T3** | SI60M040100-05812 | TT15P  | <input checked="" type="radio"/> | <input type="radio"/> |

● Stock ○ Available upon Order

Internal Turning Toolholder

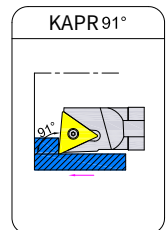
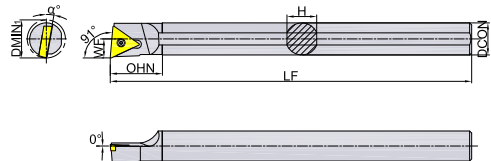
# STWCR/L



| Ordering Code  | Dimensions (mm) |      |    |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S08K-STWCR/L09 | 10              | 8    | 6  | 125 | 12  | 7  | 15             | TC**0902** | SI60M022060-03008 | TT06P  | ●     | ○ |
| S10K-STWCR/L11 | 12              | 10   | 8  | 125 | 15  | 9  | 10             | TC**1102** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S12M-STWCR/L11 | 16              | 12   | 9  | 150 | 18  | 11 | 8              | TC**1102** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S16Q-STWCR/L11 | 20              | 16   | 11 | 180 | 24  | 15 | 6              | TC**1102** | SI60M025060-03510 | TT08P  | ○     | ○ |
| S20R-STWCR11   | 25              | 20   | 13 | 200 | 30  | 18 | 4              | TC**1102** | SI60M025060-03510 | TT08P  | ○     | ○ |
| S20R-STWCR/L16 | 25              | 20   | 15 | 200 | 30  | 18 | 8              | TC**16T3** | SI60M040100-05812 | TT15P  | ○     | ○ |
| S25S-STWCR/L16 | 32              | 25   | 17 | 250 | 38  | 23 | 6              | TC**16T3** | SI60M040100-05812 | TT15P  | ●     | ○ |

● Stock ○ Available upon Order

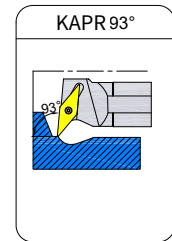
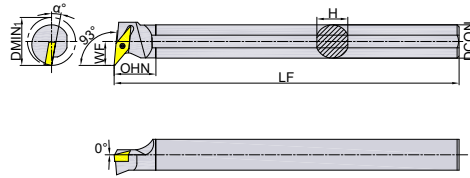
# STFCR/L



| Ordering Code  | Dimensions (mm) |      |     |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|-----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S08K-STFCR/L09 | 10              | 8    | 5.5 | 125 | 12  | 7  | 15             | TC**0902** | SI60M022060-03008 | TT06P  | ●     | ○ |
| S10K-STFCR/L09 | 12              | 10   | 6.5 | 125 | 15  | 9  | 10             | TC**0902** | SI60M022060-03008 | TT06P  | ●     | ● |
| S12M-STFCR/L09 | 16              | 12   | 8   | 150 | 18  | 11 | 8              | TC**0902** | SI60M022060-03008 | TT06P  | ●     | ○ |
| S12M-STFCR/L11 | 16              | 12   | 8   | 150 | 18  | 11 | 6              | TC**1102** | SI60M025060-03510 | TT08P  | ●     | ● |
| S16Q-STFCR/L11 | 20              | 16   | 10  | 180 | 24  | 15 | 4              | TC**1102** | SI60M025060-03510 | TT08P  | ●     | ● |
| S20R-STFCR/L11 | 25              | 20   | 12  | 200 | 30  | 18 | 8              | TC**1102** | SI60M025060-03510 | TT08P  | ●     | ● |
| S20R-STFCR/L16 | 25              | 20   | 12  | 200 | 30  | 18 | 6              | TC**16T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| S25S-STFCR/L16 | 32              | 25   | 16  | 250 | 18  | 23 |                | TC**16T3** | SI60M040100-05812 | TT15P  | ●     | ● |

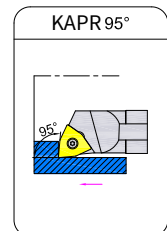
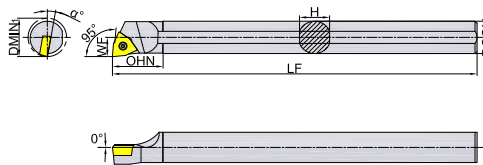
● Stock ○ Available upon Order

## Internal Turning Toolholder

**SVUCR/L**

| Ordering Code  | Dimensions (mm) |      |    |     |     |    |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|----|-----|-----|----|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF | LF  | OHN | H  | $\alpha^\circ$ |            |                   |        | R     | L |
| S16Q-SVUCR/L11 | 20              | 16   | 12 | 180 | 25  | 15 | 10             | VC**1103** | SI60M025060-03510 | TT08P  | ●     | ○ |
| S20R-SVUCR/L11 | 25              | 20   | 16 | 200 | 25  | 18 | 8              | VC**1103** | SI60M025060-03510 | TT08P  | ●     | ● |
| S25S-SVUCR/L16 | 33              | 25   | 20 | 250 | 32  | 23 | 8              | VC**1604** | SI60M040100-05812 | TT15P  | ●     | ● |

● Stock ○ Available upon Order

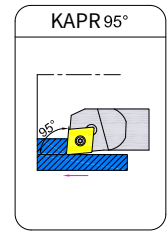
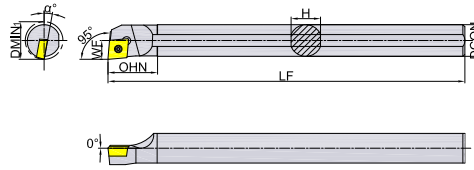
**SWLCR/L**

| Ordering Code  | Dimensions (mm) |      |    |     |     |      |                | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|----|-----|-----|------|----------------|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF | LF  | OHN | H    | $\alpha^\circ$ |            |                   |        | R     | L |
| S12M-SWLCR/L06 | 16              | 12   | 8  | 150 | 18  | 11   | 12             | WC**06T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S16Q-SWLCR/L06 | 20              | 16   | 10 | 180 | 24  | 14.8 | 10             | WC**06T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S20R-SWLCR/L06 | 25              | 20   | 12 | 200 | 30  | 18.4 | 8              | WC**06T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S25S-SWLCR/L06 | 32              | 25   | 16 | 250 | 38  | 23.4 | 6              | WC**06T3** | SI60M040100-05812 | TT15P  | ●     | ● |

● Stock ○ Available upon Order

Internal Turning Toolholder

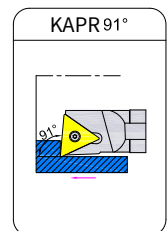
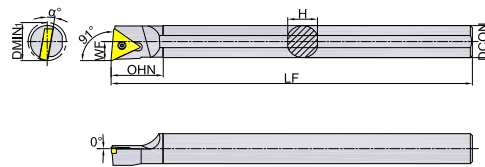
# SCLPR/L



| Ordering Code  | Dimensions (mm) |      |     |     |     |    |    | Insert     | Screw             | Wrench | Stock |   |
|----------------|-----------------|------|-----|-----|-----|----|----|------------|-------------------|--------|-------|---|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | α° |            |                   |        | R     | L |
| S08K-SCLPR/L06 | 10              | 8    | 5.5 | 125 | 12  | 7  | 13 | CP**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S10K-SCLPR/L06 | 12              | 10   | 6.5 | 125 | 15  | 9  | 12 | CP**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SCLPR/L06 | 16              | 12   | 8   | 150 | 18  | 11 | 10 | CP**0602** | SI60M025060-03510 | TT08P  | ●     | ● |
| S12M-SCLPR/L09 | 16              | 12   | 8   | 150 | 18  | 11 | 12 | CP**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S16Q-SCLPR/L09 | 20              | 16   | 10  | 180 | 24  | 15 | 10 | CP**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |
| S20R-SCLPR/L09 | 25              | 20   | 12  | 200 | 30  | 18 | 8  | CP**09T3** | SI60M040100-05812 | TT15P  | ●     | ○ |
| S25S-SCLPR/L09 | 32              | 25   | 16  | 250 | 38  | 23 | 6  | CP**09T3** | SI60M040100-05812 | TT15P  | ●     | ● |

●Stock ○Available upon Order

# STFPR/L



| Ordering Code  | Dimensions (mm) |      |     |     |     |    |    | Insert     | Screw             | Wrench | Stock |
|----------------|-----------------|------|-----|-----|-----|----|----|------------|-------------------|--------|-------|
|                | DMIN1           | DCON | WF  | LF  | OHN | H  | α° |            |                   |        | R     |
| S10K-STFPR1102 | 12              | 10   | 6.5 | 125 | 15  | 9  | 12 | TP**1102** | SI60M025060-03510 | TT08P  | ●     |
| S12M-STFPR1102 | 16              | 12   | 8   | 150 | 18  | 11 | 10 | TP**1102** | SI60M025060-03510 | TT08P  | ●     |
| S16Q-STFPR1102 | 20              | 16   | 10  | 180 | 24  | 15 | 8  | TP**1102** | SI60M025060-03510 | TT08P  | ●     |
| S20R-STFPR1102 | 25              | 20   | 12  | 200 | 30  | 18 | 6  | TP**1102** | SI60M025060-03510 | TT08P  | ○     |
| S20R-STFPR16T3 | 25              | 20   | 12  | 200 | 30  | 18 | 4  | TP**16T3** | SI60M040100-05812 | TT15P  | ●     |
| S25S-STFPR16T3 | 32              | 25   | 16  | 250 | 38  | 23 | 6  | TP**16T3** | SI60M040100-05812 | TT15P  | ○     |

●Stock ○Available upon Order

E

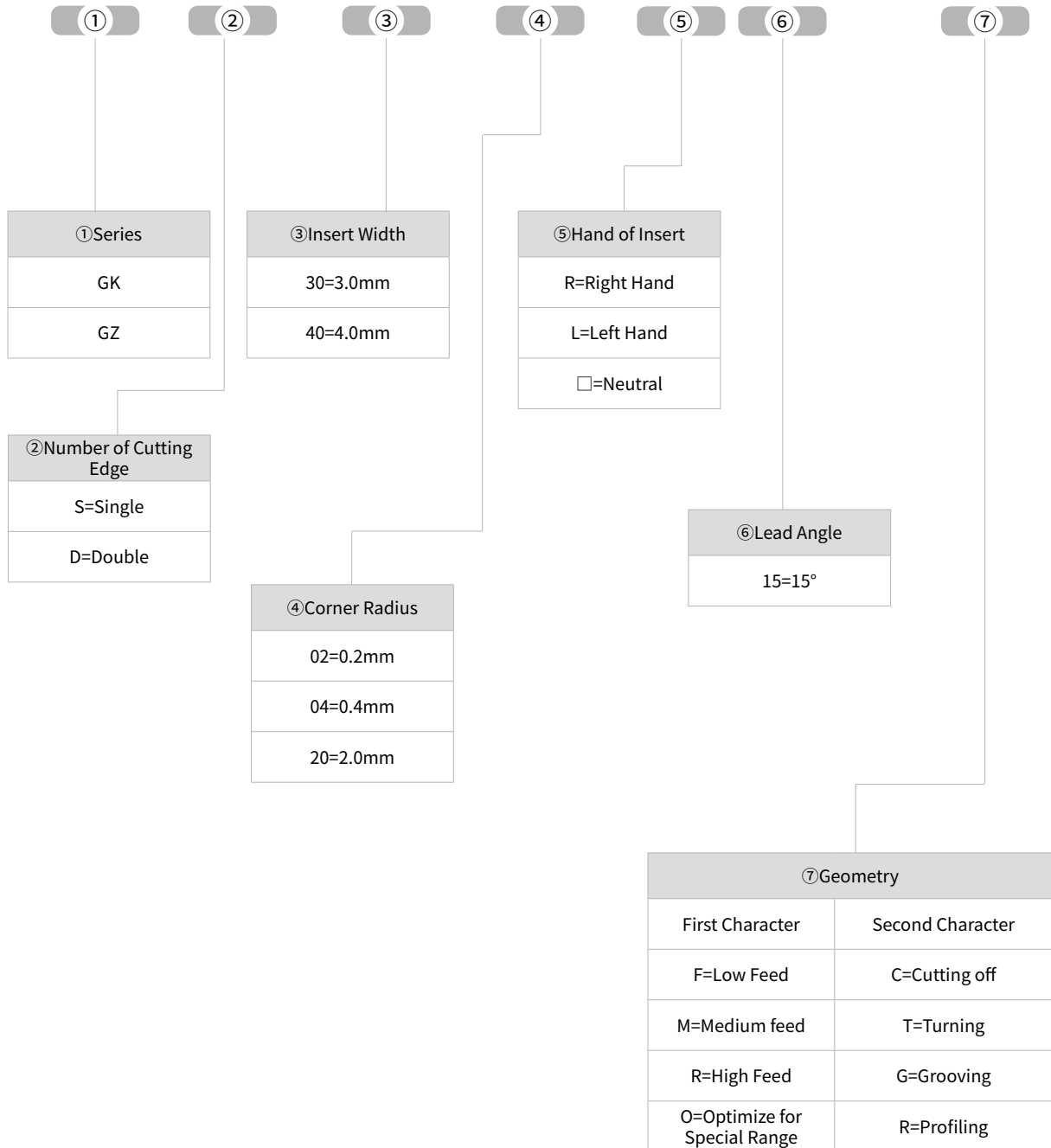
## PARTING AND GROOVING TOOLS



# Parting and Grooving Series Insert Identification System

GZ. GK Series Insert Identification System

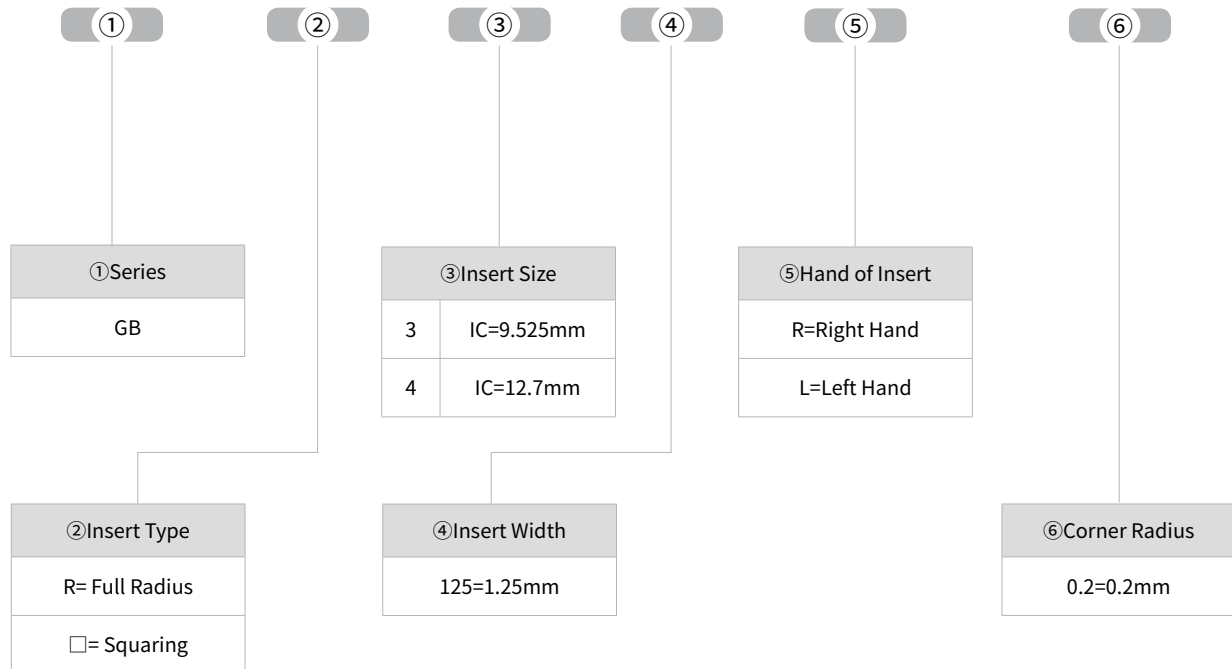
**GZ D 40 02 R 15 - FG**



# Parting and Grooving Series Insert Identification System

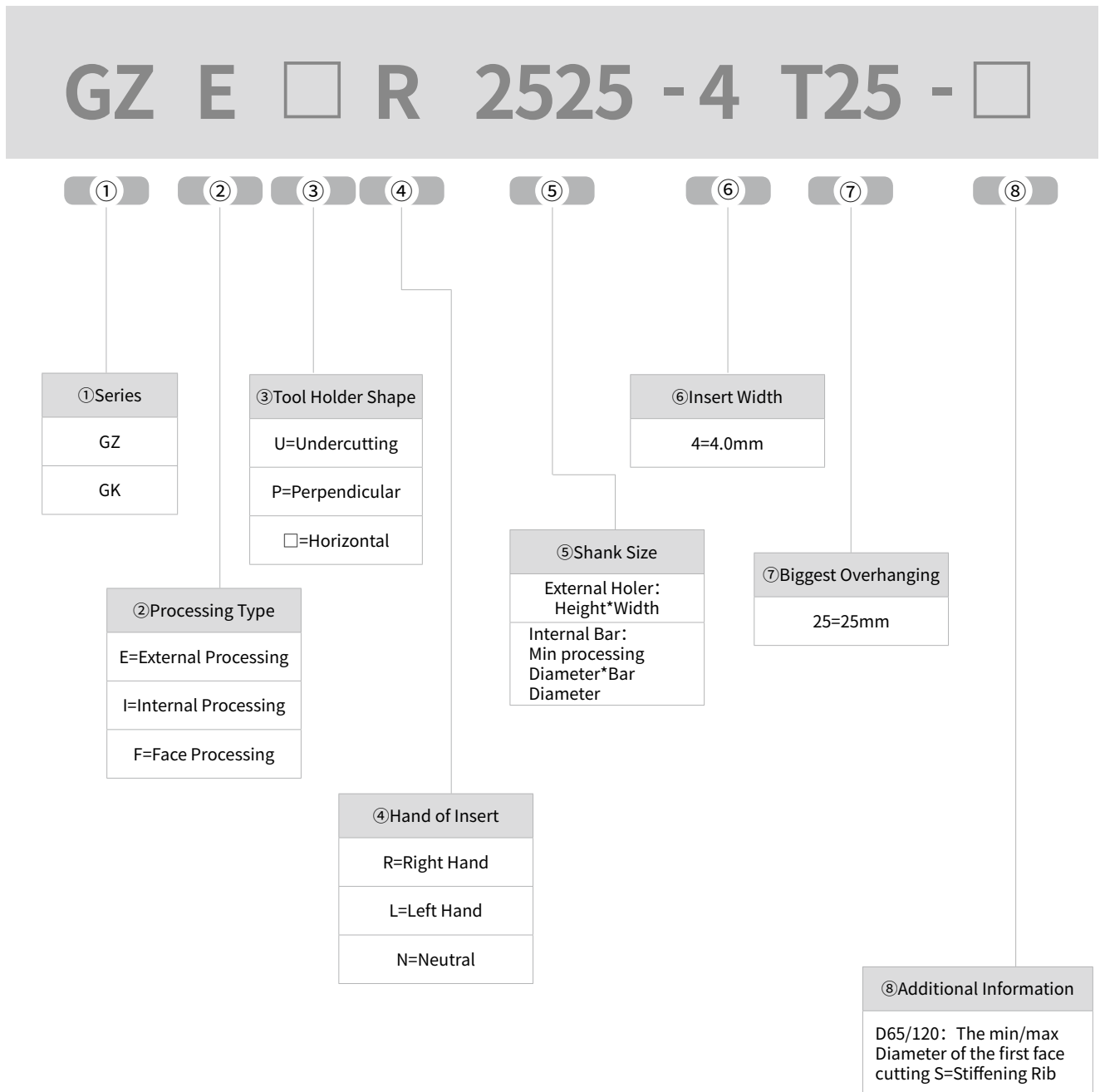
## GB Series Insert Identification System

**GB (R) 4 125 R - 020**



# Parting and Grooving Series Tool holder Identification System

GZ, GK Series Tool Holder Identification System

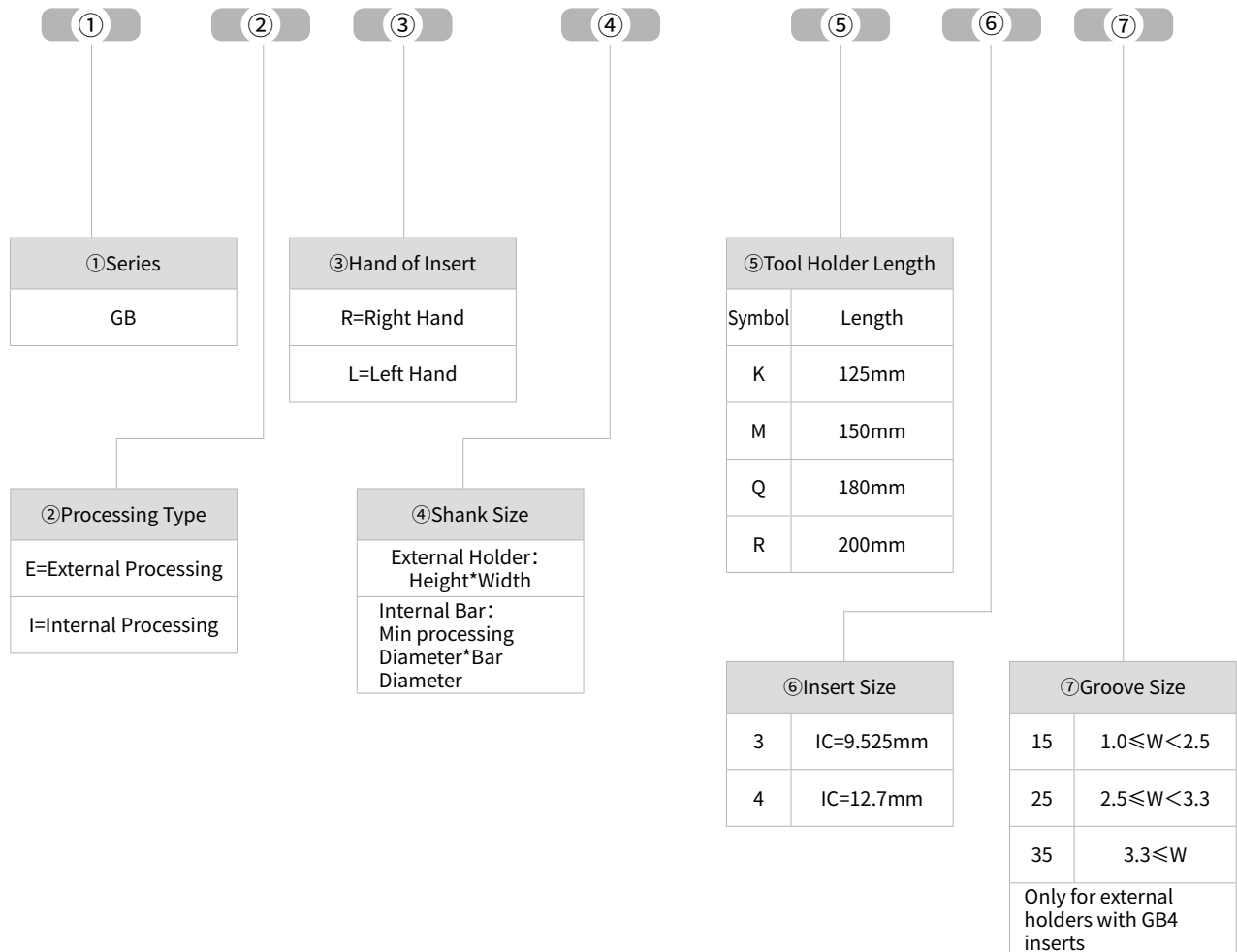





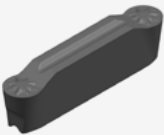
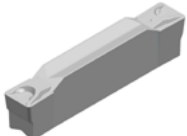
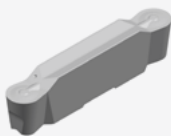
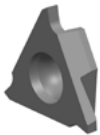
## Parting and Grooving Series Tool holder Identification System

## GB Series Tool Holder Identification System

**GB E R 2525 M 4 - □**



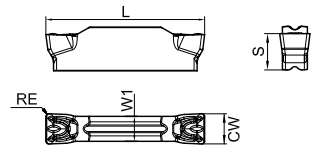
## Overview of Parting and Grooving Inserts

| Shape   | Geometry | Application         | Width        | Page |
|---|----------|---------------------|--------------|------|
|    | MT       | Medium Turning      | 2.0-8.0 (mm) | P113 |
|    | MR       | Medium Profiling    | 2.0-8.0 (mm) | P113 |
|    | FG       | Precision Grooving  | 3.0-6.0 (mm) | P114 |
|   | OR       | Precision Profiling | 3.0-6.0 (mm) | P114 |
|  | GB       | Precision Grooving  | 0.5-4.3 (mm) | P115 |

## Parting and Grooving Inserts

**MT**

## Medium Turning Inserts



| Ordering Code | Dimension (mm) |         |      |      |      | Coated Carbides |        |        |
|---------------|----------------|---------|------|------|------|-----------------|--------|--------|
|               | CW±0.05        | RE±0.05 | L    | W1   | S    | GP1225          | GK1115 | GA4230 |
| GKD2002-MT    | 2.0            | 0.2     | 16.0 | 1.2  | 3.5  | ●               | ●      | ●      |
| GKD2502-MT    | 2.5            | 0.2     | 18.5 | 2.0  | 3.85 | ●               | ●      | ●      |
| GKD3004-MT    | 3.0            | 0.4     | 21.2 | 2.35 | 4.8  | ●               | ●      | ●      |
| GKD4004-MT    | 4.0            | 0.4     | 21.0 | 3.3  | 4.8  | ●               | ●      | ●      |
| GKD5004-MT    | 5.0            | 0.4     | 26.0 | 4.1  | 5.8  | ●               | ●      | ●      |
| GKD5008-MT    | 5.0            | 0.8     | 26.0 | 4.1  | 5.8  | ●               | ●      | ●      |
| GKD6004-MT    | 6.0            | 0.4     | 26.0 | 5.0  | 5.8  | ●               | ●      | ●      |
| GKD6008-MT    | 6.0            | 0.8     | 26.0 | 5.0  | 5.8  | ○               | ●      | ●      |
| GKD8008-MT    | 8.0            | 0.8     | 31.0 | 6.0  | 6.5  | ○               | ●      | ○      |

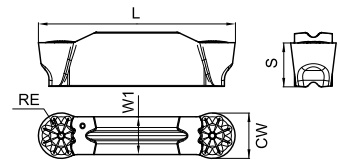


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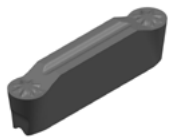
●Stock ○Available upon order

**MR**

## Medium Profiling Inserts



| Ordering Code | Dimension (mm) |         |      |      |     | Coated Carbides |        |        |        |
|---------------|----------------|---------|------|------|-----|-----------------|--------|--------|--------|
|               | CW±0.05        | RE±0.05 | L    | W1   | S   | GP1105          | GP1225 | GK1115 | GA4230 |
| GKD2010-MR    | 2.0            | 1.0     | 16.0 | 1.2  | 3.5 | ○               | ○      | ●      | ●      |
| GKD3015-MR    | 3.0            | 1.5     | 21.2 | 2.35 | 4.8 | ○               | ○      | ●      | ●      |
| GKD4020-MR    | 4.0            | 2.0     | 21.0 | 3.3  | 4.8 | ●               | ○      | ●      | ●      |
| GKD5025-MR    | 5.0            | 2.5     | 26.0 | 4.1  | 5.8 | ○               | ○      | ●      | ●      |
| GKD6030-MR    | 6.0            | 3.0     | 26.0 | 5.0  | 5.8 | ○               | ○      | ●      | ●      |
| GKD8040-MR    | 8.0            | 4.0     | 31.0 | 6.0  | 6.5 | ○               | ○      | ○      | ○      |



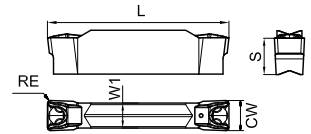
©For tools, see page 118 to page 122.

●Stock ○Available upon order

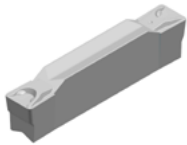
Parting and Grooving Inserts

# FG

Precision Grooving Inserts



| Ordering Code | Dimension (mm) |         |      |     |     | Coated Carbides | Carbide |
|---------------|----------------|---------|------|-----|-----|-----------------|---------|
|               | CW±0.02        | RE±0.05 | L    | W1  | S   | GS3125          | GS9125  |
| GZD3002-FG    | 3.0            | 0.2     | 20.4 | 2.3 | 4.6 | ●               | ○       |
| GZD3004-FG    | 3.0            | 0.4     | 20.4 | 2.3 | 4.6 | ●               | ○       |
| GZD4002-FG    | 4.0            | 0.2     | 24.0 | 3.3 | 4.8 | ○               | ○       |
| GZD4004-FG    | 4.0            | 0.4     | 24.0 | 3.3 | 4.8 | ●               | ●       |
| GZD5002-FG    | 5.0            | 0.2     | 24.0 | 3.3 | 4.8 | ●               | ○       |
| GZD5004-FG    | 5.0            | 0.4     | 24.0 | 3.3 | 4.8 | ○               | ○       |
| GZD6002-FG    | 6.0            | 0.2     | 26.0 | 4.2 | 4.8 | ○               | ●       |
| GZD6004-FG    | 6.0            | 0.4     | 26.0 | 4.2 | 4.8 | ●               | ●       |

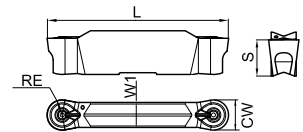


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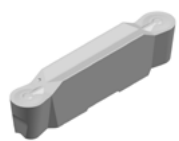
●Stock ○Available upon order

# OR

Precision Profiling Inserts



| Ordering Code | Dimension (mm) |         |      |     |     | Coated Carbides |
|---------------|----------------|---------|------|-----|-----|-----------------|
|               | CW±0.02        | RE±0.05 | L    | W1  | S   | GS3115          |
| GZD3015-OR    | 3.0            | 1.5     | 21.0 | 2.3 | 4.6 | ●               |
| GZD4020-OR    | 4.0            | 2.0     | 24.0 | 3.3 | 4.8 | ●               |
| GZD5025-OR    | 5.0            | 2.5     | 24.0 | 3.3 | 4.8 | ○               |
| GZD6030-OR    | 6.0            | 3.0     | 21.0 | 4.2 | 4.8 | ○               |



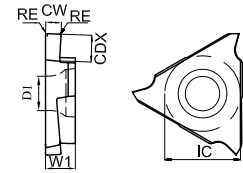
©For tools, see page 123.

●Stock ○Available upon order

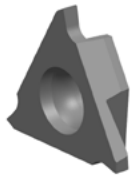
## Parting and Grooving Inserts

**GB**

Precision Grooving Inserts



| Ordering Code | Dimension (mm) |     |      |       |      |     | Coated Carbides |
|---------------|----------------|-----|------|-------|------|-----|-----------------|
|               | CW±0.025       | CDX | RE   | IC    | W1   | D1  | GA4230          |
| GB3050R-005   | 0.50           | 1.0 | 0.05 | 9.525 | 3.18 | 4.4 | ●               |
| GB3075R-010   | 0.75           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ●               |
| GB3080R-005   | 0.80           | 2.0 | 0.05 | 9.525 | 3.18 | 4.4 | ○               |
| GB3095R-010   | 0.95           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3100R-005   | 1.00           | 2.0 | 0.05 | 9.525 | 3.18 | 4.4 | ●               |
| GB3100R-010   | 1.00           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3120R-010   | 1.20           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3120R-020   | 1.20           | 2.0 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |
| GB3125R-010   | 1.25           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ●               |
| GB3140R-010   | 1.40           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3140R-020   | 1.40           | 2.0 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |
| GB3140L-020   | 1.40           | 2.0 | 0.2  | 9.525 | 3.18 | 4.4 | ●               |
| GB3150R-010   | 1.50           | 2.0 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3150R-020   | 1.50           | 2.0 | 0.2  | 9.525 | 3.18 | 4.4 | ●               |
| GB3150L-020   | 1.50           | 2.0 | 0.2  | 9.525 | 3.18 | 4.4 | ●               |
| GB3200R-010   | 2.00           | 2.5 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3200R-020   | 2.00           | 2.5 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |
| GB3200L-020   | 2.00           | 2.5 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |
| GB3250R-010   | 2.50           | 2.5 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3250L-010   | 2.50           | 2.5 | 0.1  | 9.525 | 3.18 | 4.4 | ○               |
| GB3250L-020   | 2.50           | 2.5 | 0.2  | 9.525 | 3.18 | 4.4 | ●               |
| GB3300R-020   | 3.00           | 2.5 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |
| GB3300L-020   | 3.00           | 2.5 | 0.2  | 9.525 | 3.18 | 4.4 | ○               |



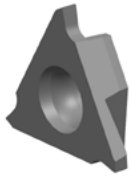
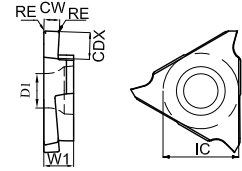
©For tools, see page 124 to page 125.

●Stock ○Available upon order

Parting and Grooving Inserts

# GB

Precision Grooving Inserts



| Ordering Code | Dimension (mm) |     |     |      |      |     | Coated Carbides |
|---------------|----------------|-----|-----|------|------|-----|-----------------|
|               | CW±0.025       | CDX | RE  | IC   | W1   | D1  | GA4230          |
| GB4125R -020  | 1.25           | 2.0 | 0.2 | 12.7 | 4.76 | 5.5 | ○               |
| GB4150R -010  | 1.50           | 3.5 | 0.1 | 12.7 | 4.76 | 5.5 | ●               |
| GB4150R -020  | 1.50           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ●               |
| GB4150L -020  | 1.50           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ○               |
| GB4175R -020  | 1.75           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ○               |
| GB4185R -020  | 1.85           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ○               |
| GB4200R -020  | 2.00           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ●               |
| GB4200L -020  | 2.00           | 3.5 | 0.2 | 12.7 | 4.76 | 5.5 | ●               |
| GB4200R -030  | 2.00           | 3.5 | 0.3 | 12.7 | 4.76 | 5.5 | ●               |
| GB4210R -050  | 2.10           | 4.0 | 0.5 | 12.7 | 4.76 | 5.5 | ○               |
| GB4220R -030  | 2.20           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ●               |
| GB4250R -030  | 2.50           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ○               |
| GB4250L -030  | 2.50           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ○               |
| GB4265R -030  | 2.65           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ○               |
| GB4280R -030  | 2.80           | 5.0 | 0.3 | 12.7 | 4.76 | 5.5 | ○               |
| GB4300R -030  | 3.00           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ●               |
| GB4300L -030  | 3.00           | 4.0 | 0.3 | 12.7 | 4.76 | 5.5 | ●               |
| GB4350R -030  | 3.50           | 5.0 | 0.3 | 12.7 | 4.76 | 5.5 | ○               |
| GB4400R -040  | 4.00           | 5.0 | 0.4 | 12.7 | 4.76 | 5.5 | ○               |
| GB4400L -040  | 4.00           | 5.0 | 0.4 | 12.7 | 4.76 | 5.5 | ○               |
| GB4430R -040  | 4.30           | 5.0 | 0.4 | 12.7 | 4.76 | 5.5 | ○               |

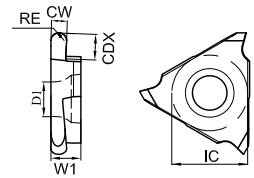
©For tools, see page 124 to page 125.

●Stock ○Available upon order

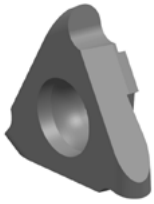
## Parting and Grooving Inserts

**GBR**

Precision Profiling Inserts



| Ordering Code | Dimension (mm) |     |      |      |      |     | Coated Carbides |
|---------------|----------------|-----|------|------|------|-----|-----------------|
|               | CW±0.025       | CDX | RE   | IC   | W1   | D1  | GA4230          |
| GBR4100R -050 | 1.00           | 2.0 | 0.5  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4100L -050 | 1.00           | 2.0 | 0.5  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4150R -075 | 1.50           | 3.5 | 0.75 | 12.7 | 4.76 | 5.5 | ●               |
| GBR4150L -075 | 1.50           | 3.5 | 0.75 | 12.7 | 4.76 | 5.5 | ○               |
| GBR4200R -100 | 2.00           | 3.5 | 1.0  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4200L -100 | 2.00           | 3.5 | 1.0  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4250R -125 | 2.50           | 4.0 | 1.25 | 12.7 | 4.76 | 5.5 | ○               |
| GBR4250L -125 | 2.50           | 4.0 | 1.25 | 12.7 | 4.76 | 5.5 | ○               |
| GBR4300R -150 | 3.00           | 4.0 | 1.5  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4300L -150 | 3.00           | 4.0 | 1.5  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4400R -200 | 4.00           | 5.0 | 2.0  | 12.7 | 4.76 | 5.5 | ○               |
| GBR4400L -200 | 4.00           | 5.0 | 2.0  | 12.7 | 4.76 | 5.5 | ○               |

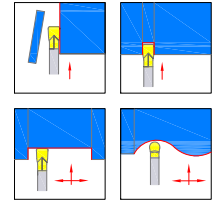
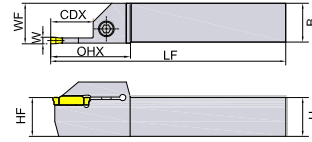


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●Stock ○Available upon order

GK Series

External Holders for Parting and Grooving



The picture is Right Hand Holder

| Ordering Code     | Dimension(mm) |     |      |    |     |    | Insert   | Screw<br> | Wrench<br> | stock |   |
|-------------------|---------------|-----|------|----|-----|----|----------|--|---|-------|---|
|                   | W             | CDX | H=HF | B  | LF  | WF |          |  |   | R     | L |
| GKER/L1616-2T14   | 2.0           | 14  | 16   | 16 | 100 | 17 | GKD20... | SCAM050120H  | TH40LH  | ●     | ● |
| GKER/L2020-2T14   | 2.0           | 14  | 20   | 20 | 125 | 21 | GKD20... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2525-2T14   | 2.0           | 14  | 25   | 25 | 150 | 26 | GKD20... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L1616-2.5T16 | 2.5           | 16  | 16   | 16 | 100 | 17 | GKD25... | SCAM050120H  | TH40LH  | ●     | ○ |
| GKER/L2020-2.5T16 | 2.5           | 16  | 20   | 20 | 125 | 21 | GKD25... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2525-2.5T16 | 2.5           | 16  | 25   | 25 | 150 | 26 | GKD25... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L1616-3T18   | 3.0           | 18  | 16   | 16 | 100 | 17 | GKD30... | SCAM050120H  | TH40LH  | ●     | ● |
| GKER/L1616-3T10   | 3.0           | 10  | 16   | 16 | 100 | 17 | GKD30... | SCAM050200H  | TH40LH  | ●     |   |
| GKER/L2020-3T18   | 3.0           | 18  | 20   | 20 | 125 | 21 | GKD30... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2020-3T10   | 3.0           | 10  | 20   | 20 | 125 | 21 | GKD30... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2525-3T18   | 3.0           | 18  | 25   | 25 | 150 | 26 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2525-3T10   | 3.0           | 10  | 25   | 25 | 150 | 26 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3225-3T18   | 3.0           | 18  | 32   | 25 | 170 | 26 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3232-3T18   | 3.0           | 18  | 32   | 32 | 170 | 33 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2020-4T18   | 4.0           | 18  | 20   | 20 | 125 | 21 | GKD40... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2020-4T10   | 4.0           | 10  | 20   | 20 | 125 | 21 | GKD40... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2525-4T18   | 4.0           | 18  | 25   | 25 | 150 | 26 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2525-4T10   | 4.0           | 10  | 25   | 25 | 150 | 26 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3225-4T18   | 4.0           | 18  | 32   | 25 | 170 | 26 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3232-4T18   | 4.0           | 18  | 32   | 32 | 170 | 33 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |

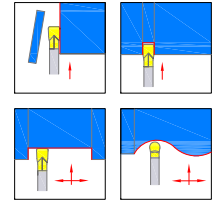
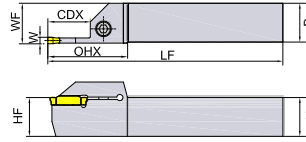
Remark: SCAM060200H Stands for M6X20

●Stock ○Available upon order





## GK Series

## External Holders for Parting and Grooving



The picture is Right Hand Holder

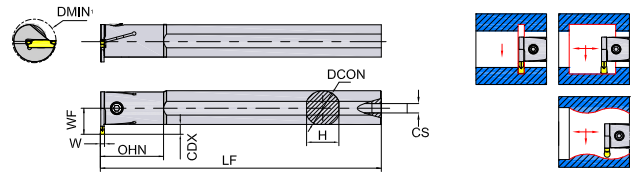
| Ordering Code   | Dimension(mm) |     |      |    |     |      | Insert   | Screw<br> | Wrench<br> | stock |   |
|-----------------|---------------|-----|------|----|-----|------|----------|--|---|-------|---|
|                 | W             | CDX | H=HF | B  | LF  | WF   |          |  |   | R     | L |
| GKER/L2020-5T23 | 5.0           | 23  | 20   | 20 | 125 | 21   | GKD50... | SCAM050200H  | TH40LH  | ●     | ● |
| GKER/L2020-5T15 | 5.0           | 15  | 20   | 20 | 125 | 21   | GKD50... | SCAM050200H  | TH40LH  |       | ○ |
| GKER/L2525-5T23 | 5.0           | 23  | 25   | 25 | 150 | 26   | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2525-5T15 | 5.0           | 15  | 25   | 25 | 150 | 26   | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3225-5T23 | 5.0           | 23  | 32   | 25 | 170 | 26   | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3232-5T23 | 5.0           | 23  | 32   | 32 | 170 | 33   | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3232-5T15 | 5.0           | 15  | 32   | 32 | 170 | 33   | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2020-6T23 | 6.0           | 23  | 20   | 20 | 125 | 21   | GKD60... | SCAM050200H  | TH40LH  | ●     | ○ |
| GKER/L2525-6T23 | 6.0           | 23  | 25   | 25 | 150 | 26   | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2525-6T15 | 6.0           | 15  | 25   | 25 | 150 | 26   | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3225-6T23 | 6.0           | 23  | 32   | 25 | 170 | 26   | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L3232-6T23 | 6.0           | 23  | 32   | 32 | 170 | 33   | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKER/L2525-8T28 | 8.0           | 28  | 25   | 25 | 150 | 26.5 | GKD80... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKER/L2525-8T15 | 8.0           | 15  | 25   | 25 | 150 | 26.5 | GKD80... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKER/L3232-8T28 | 8.0           | 28  | 32   | 32 | 170 | 33.5 | GKD80... | SCAM060200H  | TH50LH  | ●     | ○ |

Remark: SCAM060200H Stands for M6X20



●Stock ○Available upon order

GK Series

# Internal Holders for Grooving



The picture is Right Hand Holder

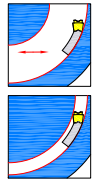
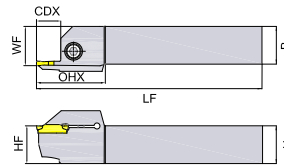
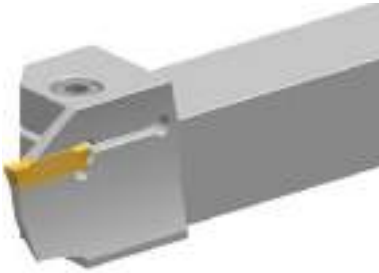
| Ordering Code     | Dimension(mm) |     |       |      |      |     |     |    | Insert   | Screw<br> | Wrench<br> | stock |   |
|-------------------|---------------|-----|-------|------|------|-----|-----|----|----------|--|---|-------|---|
|                   | W             | CDX | DMIN1 | DCON | WF   | LF  | OHN | H  |          |  |   | R     | L |
| GKIR/L2016-2T04   | 2.0           | 4   | 20    | 16   | 12   | 125 | 35  | 15 | GKD20... | SCAM050200H  | TH40LH  | ●     | ● |
| GKIR/L2520-2T05   | 2.0           | 5   | 25    | 20   | 14.5 | 150 | 45  | 18 | GKD20... | SCAM050200H  | TH40LH  | ●     | ● |
| GKIR/L2925-2T05   | 2.0           | 5   | 29    | 25   | 17   | 200 | 45  | 23 | GKD20... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L2520-2.5T05 | 2.5           | 5   | 25    | 20   | 14.5 | 150 | 45  | 18 | GKD25... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKIR/L2925-2.5T05 | 2.5           | 5   | 29    | 25   | 17   | 200 | 45  | 23 | GKD25... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L2520-3T06   | 3.0           | 6   | 25    | 20   | 15.5 | 150 | 45  | 18 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3125-3T06   | 3.0           | 6   | 31    | 25   | 18.5 | 200 | 45  | 23 | GKD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3732-3T06   | 3.0           | 6   | 37    | 32   | 21.5 | 250 | 65  | 30 | GKD30... | SCAM050200H  | TH40LH  | ●     | ● |
| GKIR/L2520-4T06   | 4.0           | 6   | 25    | 20   | 15.5 | 150 | 45  | 18 | GKD40... | SCAM050200H  | TH40LH  | ●     | ● |
| GKIR/L3125-4T06   | 4.0           | 6   | 31    | 25   | 18.5 | 200 | 45  | 23 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3732-4T06   | 4.0           | 6   | 37    | 32   | 21.5 | 250 | 65  | 30 | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3125-5T08   | 5.0           | 8   | 31    | 25   | 19.5 | 200 | 45  | 23 | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3732-5T08   | 5.0           | 8   | 37    | 32   | 21.5 | 250 | 65  | 30 | GKD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3125-6T08   | 6.0           | 8   | 31    | 25   | 19.5 | 200 | 45  | 23 | GKD60... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKIR/L3732-6T08   | 6.0           | 8   | 37    | 32   | 21.5 | 250 | 65  | 30 | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKIR/L3732-8T10   | 8.0           | 10  | 37    | 32   | 23.4 | 250 | 65  | 30 | GKD80... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKIR/L4540-8T10   | 8.0           | 10  | 45    | 40   | 27.2 | 300 | 70  | 37 | GKD80... | SCAM060200H  | TH50LH  | ○     | ○ |

Remark: SCAM060200H Stands for M6X20



●Stock ○Available upon order

## GK Series

## Face Grooving Holders-Horizontal



The picture is Right Hand Holder

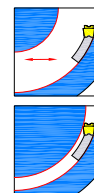
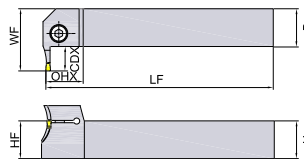
| Ordering Code       | Dimension(mm) |    |     |    |     |       |       | Insert   | Screw<br> | Wrench<br> | stock |   |
|---------------------|---------------|----|-----|----|-----|-------|-------|----------|--|---|-------|---|
|                     | H=HF          | B  | LF  | WF | CDX | DMIN1 | DMAX1 |          |  |   | R     | L |
| GKFR/L2525-2T12D75  | 25            | 25 | 150 | 26 | 12  | 75    | 100   | GKD20... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKFR/L2525-2T12D90  | 25            | 25 | 150 | 26 | 12  | 90    | 150   | GKD20... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKFR/L2525-3T15D68  | 25            | 25 | 150 | 26 | 15  | 68    | 100   | GKD30... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKFR/L2525-3T15D90  | 25            | 25 | 150 | 26 | 15  | 90    | 160   | GKD30... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKFR/L2020-4T15D62  | 20            | 20 | 150 | 26 | 15  | 62    | 120   | GKD40... | SCAM060200H  | TH50LH  | ●     | ○ |
| GKFR/L2525-4T15D62  | 25            | 25 | 150 | 26 | 15  | 62    | 120   | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GKFR/L2525-4T15D112 | 25            | 25 | 150 | 26 | 15  | 112   | 200   | GKD40... | SCAM060200H  | TH50LH  | ●     | ● |
| PGKFR25254T25D62DA  | 25            | 25 | 150 | 26 | 25  | 62    | 120   | GKD40... | SCAM060200H  | TH50LH  | ○     | ○ |
| PGKFL25255T10D150DA | 25            | 25 | 150 | 26 | 10  | 150   | 300   | GKD50... | SCAM060200H  | TH50LH  | ○     | ● |
| GKFR/L2525-5T25D68  | 25            | 25 | 150 | 26 | 25  | 68    | 95    | GKD50... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKFR/L2525-5T25D85  | 25            | 25 | 150 | 26 | 25  | 85    | 130   | GKD50... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKFR/L2525-6T25D68  | 25            | 25 | 150 | 26 | 25  | 68    | 100   | GKD60... | SCAM060200H  | TH50LH  | ○     | ○ |
| GKFR/L2525-6T25D88  | 25            | 25 | 150 | 26 | 25  | 88    | 180   | GKD60... | SCAM060200H  | TH50LH  | ●     | ● |
| GKFR/L2525-8T25D45  | 25            | 25 | 150 | 26 | 25  | 45    | 80    | GKD80... | SCAM060200H  | TH50LH  | ○     | ○ |

Remark: SCAM060200H Stands for M6X20

● Stock ○ Available upon order

GK Series

Face Grooving Holders-Horizontal



The picture is Right Hand Holder

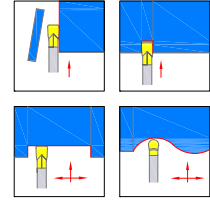
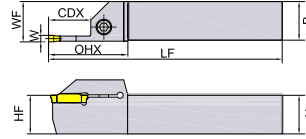
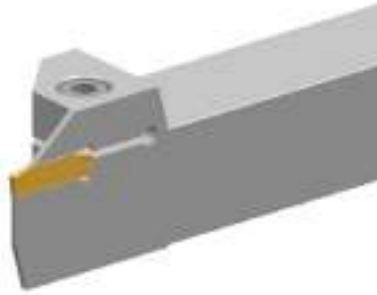
| Ordering Code        | Dimension(mm) |    |     |    |     |       |       | Insert   | Screw       | Wrench | stock |   |
|----------------------|---------------|----|-----|----|-----|-------|-------|----------|-------------|--------|-------|---|
|                      | H=HF          | B  | LF  | WF | CDX | DMIN1 | DMAX1 |          |             |        | R     | L |
| GKFPR/L2525-4T15D60  | 25            | 25 | 150 | 26 | 15  | 75    | 100   | GKD40... | SCAM060200H | TH50LH | ●     | ● |
| GKFPR/L2525-4T15D112 | 25            | 25 | 150 | 26 | 15  | 90    | 150   | GKD40... | SCAM060200H | TH50LH | ●     | ● |

Remark: SCAM060200H Stands for M6X20



● Stock ○ Available upon order

## GZ Series

## External Holders for Parting, Grooving, Turning and Profiling



The picture is Right Hand Holder

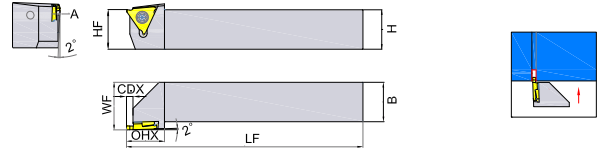
| Ordering Code   | Dimension(mm) |     |      |    |     |      | Insert   | Screw<br> | Wrench<br> | stock |   |
|-----------------|---------------|-----|------|----|-----|------|----------|--|---|-------|---|
|                 | W             | CDX | H=HF | B  | LF  | WF   |          |  |   | R     | L |
| GZER/L2020-3T20 | 3.0           | 20  | 20   | 20 | 125 | 21   | GZD30... | SCAM050200H  | TH40LH  | ●     | ● |
| GZER/L2525-3T20 | 3.0           | 20  | 25   | 25 | 150 | 26   | GZD30... | SCAM060200H  | TH50LH  | ●     | ● |
| GZER/L3225-3T20 | 3.0           | 20  | 32   | 25 | 170 | 26   | GZD30... | SCAM060200H  | TH50LH  | ○     | ○ |
| GZER/L2020-4T25 | 4.0           | 25  | 20   | 20 | 125 | 21   | GZD40... | SCAM050200H  | TH40LH  | ●     | ○ |
| GZER/L2020-4T25 | 5.0           | 25  | 20   | 20 | 125 | 21.5 | GZD50... | SCAM050200H  | TH40LH  | ●     | ○ |
| GZER/L25254T20  | 4.0           | 20  | 25   | 25 | 150 | 26   | GZD40... | SCAM050200H  | TH40LH  | ●     |   |
| GZER/L25254T20  | 5.0           | 20  | 25   | 25 | 150 | 26.5 | GZD50... | SCAM050200H  | TH40LH  | ●     |   |
| GZER/L2525-4T25 | 4.0           | 25  | 25   | 25 | 150 | 26   | GZD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GZER/L2525-4T25 | 5.0           | 25  | 25   | 25 | 150 | 26.5 | GZD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GZER/L3225-4T25 | 4.0           | 25  | 32   | 25 | 170 | 26   | GZD40... | SCAM060200H  | TH50LH  | ●     | ● |
| GZER/L3225-4T25 | 5.0           | 25  | 32   | 25 | 170 | 26.5 | GZD50... | SCAM060200H  | TH50LH  | ●     | ● |
| GZER/L2525-6T32 | 6.0           | 32  | 25   | 25 | 150 | 26   | GZD60... | SCAM060300H  | TH50LH  | ●     | ● |
| GZER/L3225-6T32 | 6.0           | 32  | 32   | 25 | 170 | 26   | GZD60... | SCAM060300H  | TH50LH  | ○     | ○ |

Remark: SCAM060200H Stands for M6X20



●Stock ○Available upon order

GB Series

External Holders for Grooving



The picture is Right Hand Holder

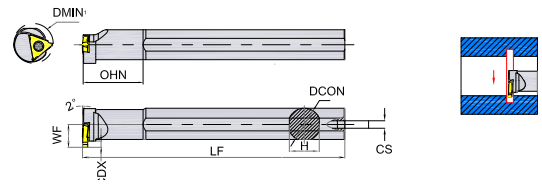
| Ordering Code   | Dimension(mm) |    |     |    |     |     | Insert                    | Screw<br> | Wrench<br> | stock |   |
|-----------------|---------------|----|-----|----|-----|-----|---------------------------|--|---|-------|---|
|                 | H=HF          | B  | LF  | WF | A   | CDX |                           |  |   | R     | L |
| GBER/L2020K3    | 20            | 20 | 125 | 25 | —   | 2.5 | GB3...                    | SI60M 035120-05310   | PTT15PH   | ●     | ○ |
| GBER/L2525M3    | 25            | 25 | 150 | 30 | —   | 2.5 | GB3...                    | SI60M 035120-05310   | PTT15PH   | ●     | ● |
| GBER/L2020K4-15 | 20            | 20 | 125 | 25 | 1.0 | 4.0 | GB4...<br>(1.0 ≤ W < 2.5) | SI60M 050120-07217   | PTT20PH   | ●     | ● |
| GBER/L2525M4-15 | 25            | 25 | 150 | 30 | 1.0 | 4.0 | GB4...<br>(1.0 ≤ W < 2.5) | SI60M 050120-07217   | PTT20PH   | ●     | ● |
| GBER/L2020K4-25 | 20            | 20 | 125 | 25 | 2.0 | 4.5 | GB4...<br>(2.5 ≤ W < 3.3) | SI60M 050120-07217   | PTT20PH   | ●     | ○ |
| GBER/L2525M4-25 | 25            | 25 | 150 | 30 | 2.0 | 4.5 | GB4...<br>(2.5 ≤ W < 3.3) | SI60M 050120-07217   | PTT20PH   | ○     | ○ |
| GBER/L2020K4-35 | 20            | 20 | 125 | 25 | 3.0 | 5.5 | GB4...<br>(3.3 ≤ W < 4.8) | SI60M 050120-07217   | PTT20PH   | ○     | ○ |
| GBER/L2525M4-35 | 25            | 25 | 150 | 30 | 3.0 | 5.5 | GB4...<br>(3.3 ≤ W < 4.8) | SI60M 050120-07217   | PTT20PH   | ●     | ○ |

Remark: SI60M 035120... stands for M3.5X12.



● Stock ○ Available upon order

GB Series

## Internal Bars for Grooving



The picture is Right Hand Holder

| Ordering Code | Dimension(mm) |      |    |     |      |     | Insert | Screw<br> | Wrench<br> | stock |   |
|---------------|---------------|------|----|-----|------|-----|--------|--|---|-------|---|
|               | DMIN1         | DCON | H  | LF  | WF   | CDX |        |  |   | R     | L |
| GBIR/L2620Q3  | 26            | 20   | 18 | 180 | 13   | 3   | GB3... | SI60M035120-05310  | PTT15PH   | ●     | ○ |
| GBIR/L3525R4  | 35            | 25   | 23 | 200 | 17.5 | 4.5 | GB4... | SI60M 050120-07217   | PTT20PH   | ●     | ● |

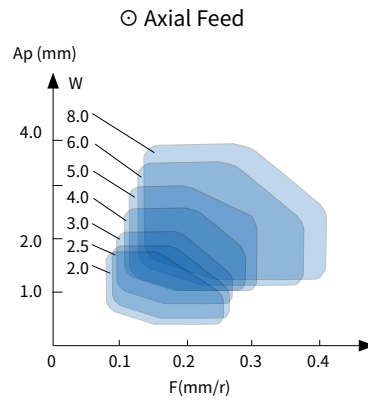
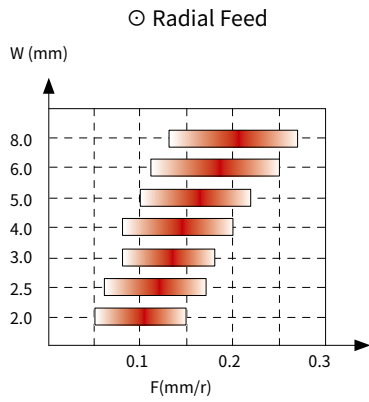
Remark: SI60M 035120... stands for M3.5X12.

● Stock ○ Available upon order

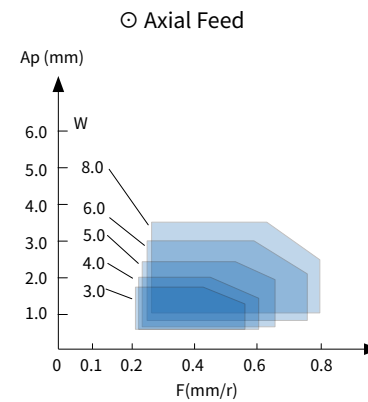
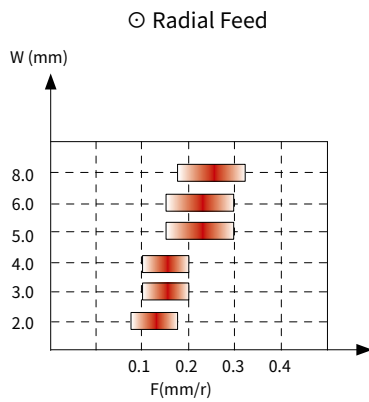
# Recommended Cutting Datas

## Recommend Feed

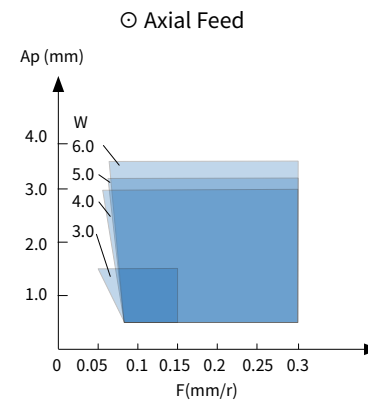
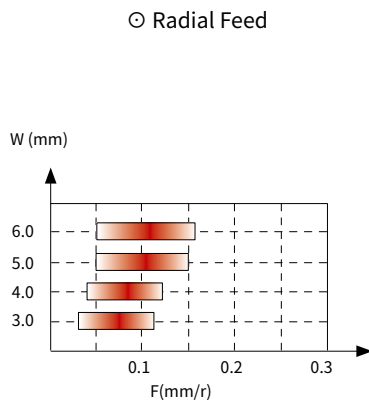
### MT



### MR

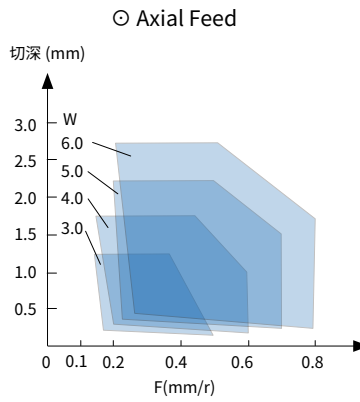
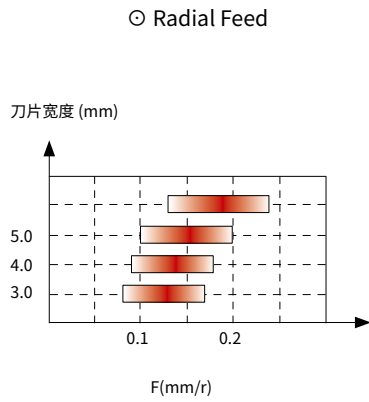


### FG





## OR



## GB

| ISO      | Workpiece Material | Feed (mm/r) |                            |                            |                            |                            |
|----------|--------------------|-------------|----------------------------|----------------------------|----------------------------|----------------------------|
|          |                    | Width (mm)  |                            |                            |                            |                            |
|          |                    | 0.5-1.0     | 1.0-2.0                    | 2.5-3.0                    | 3.3-4.0                    | 4.0-4.3                    |
| <b>P</b> | Carbon Steel       | ①.0.03~0.08 | ①.0.04~0.09<br>②.0.04~0.09 | ①.0.05~0.10<br>②.0.05~0.10 | ①.0.05~0.12<br>②.0.05~0.10 | ①.0.05~0.12<br>②.0.05~0.10 |
|          | Alloy Steel        | ①.0.03~0.07 | ①.0.04~0.08<br>②.0.04~0.08 | ①.0.05~0.90<br>②.0.05~0.90 | ①.0.05~0.10<br>②.0.05~0.10 | ①.0.05~0.10<br>②.0.05~0.10 |
| <b>M</b> | Stainless Steel    | ①.0.03~0.07 | ①.0.04~0.08<br>②.0.04~0.08 | ①.0.05~0.90<br>②.0.05~0.90 | ①.0.05~0.10<br>②.0.05~0.10 | ①.0.05~0.10<br>②.0.05~0.10 |
| <b>K</b> | Cast Iron          | ①.0.03~0.08 | ①.0.04~0.09<br>②.0.04~0.09 | ①.0.05~0.10<br>②.0.05~0.10 | ①.0.05~0.12<br>②.0.05~0.10 | ①.0.05~0.12<br>②.0.05~0.10 |

①Radial Feed ②Axial Feed

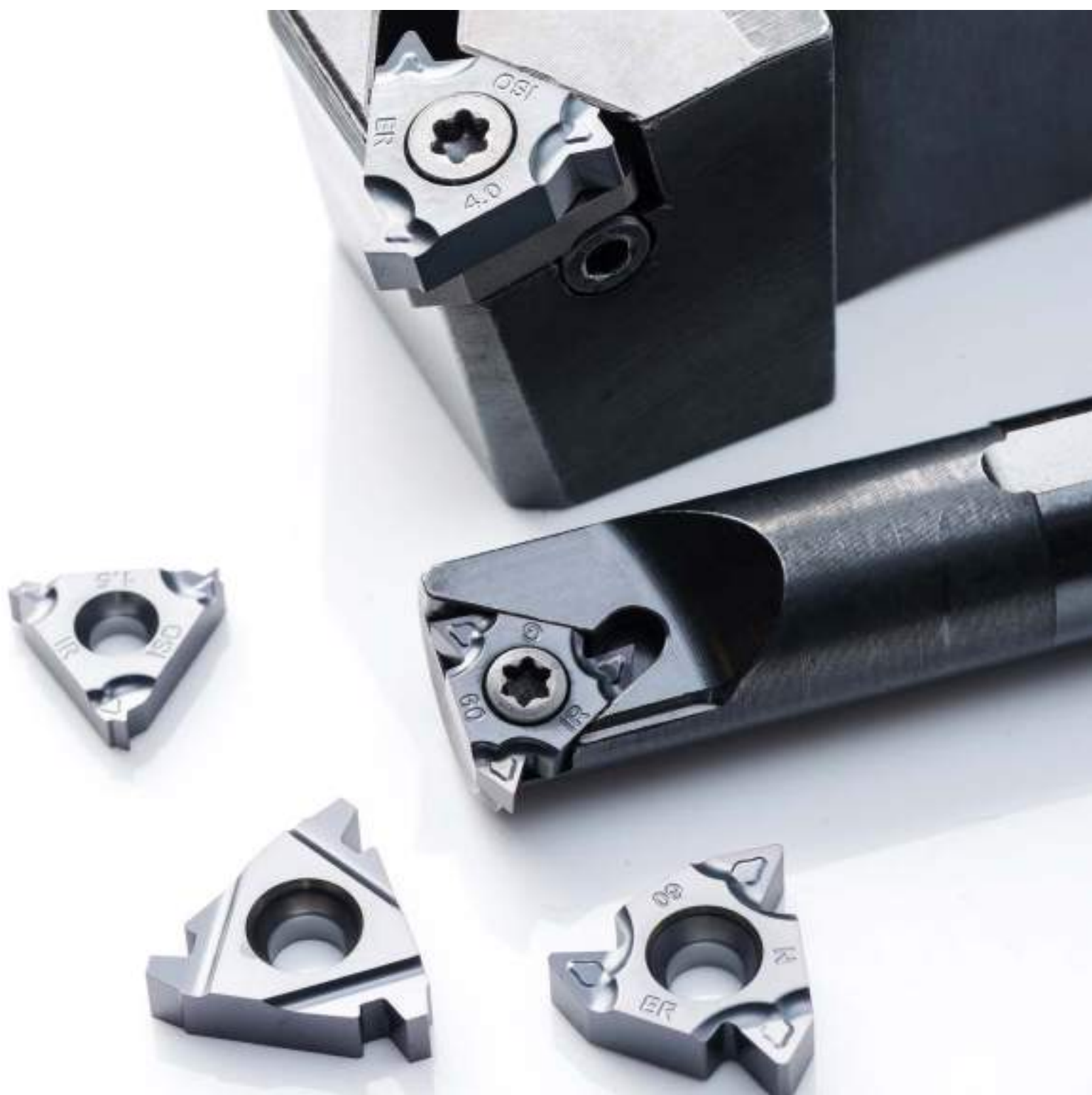
## Recommended Cutting Datas

### Recommended Cutting Speed

| ISO | Workpiece Material       | Hardness (HB) | Cutting Speed Vc (m/min) |                 |                 |                |                |                 |               |
|-----|--------------------------|---------------|--------------------------|-----------------|-----------------|----------------|----------------|-----------------|---------------|
|     |                          |               | GP1105                   | GP1225          | GK1115          | GS3115         | GS3125         | GA4230          | GS9125        |
| P   | Low Carbon Steel         | 80 – 170      | 120<br>(80-220)          | 120<br>(80-220) |                 | 70<br>(50-100) | 70<br>(50-100) | 110<br>(70-180) |               |
|     | High Carbon Steel        | 170 – 250     | 120<br>(80-220)          | 120<br>(80-220) |                 |                |                | 110<br>(70-150) |               |
|     | Low-alloy Steel          | 140 – 260     | 110<br>(60-180)          | 110<br>(60-180) |                 | 70<br>(50-100) | 70<br>(50-100) | 110<br>(40-150) |               |
|     | High-alloy Steel         | 180 – 300     | 110<br>(60-180)          | 110<br>(60-180) |                 |                |                | 110<br>(40-150) |               |
|     | Cast Steel               | 180 – 300     | 110<br>(60-180)          | 110<br>(60-180) |                 |                |                | 110<br>(40-150) |               |
| M   | Ferritic/<br>Martensitic | 150 – 270     |                          |                 |                 | 90<br>(50-150) | 90<br>(30-180) | 110<br>(40-180) |               |
|     | Austenitic               | 150 – 270     |                          |                 |                 | 90<br>(50-150) | 90<br>(30-180) | 110<br>(40-180) |               |
| K   | Malleable<br>Cast Iron   | 150 – 230     |                          |                 | 130<br>(50-200) |                |                | 110<br>(50-180) |               |
|     | Gray Cast Iron           | 150 – 230     |                          |                 | 130<br>(50-200) |                |                | 110<br>(50-180) |               |
|     | Nodular Cast<br>Iron     | 160 – 260     |                          |                 | 100<br>(50-150) |                |                | 100<br>(50-150) |               |
| S   | Heat-resistant<br>Alloy  | 130 – 400     |                          |                 |                 | 35<br>(15-60)  | 35<br>(15-70)  |                 |               |
|     | Titanium<br>Alloys       | 130 – 400     |                          |                 |                 | 35<br>(15-60)  | 35<br>(15-70)  |                 | 35<br>(15-60) |

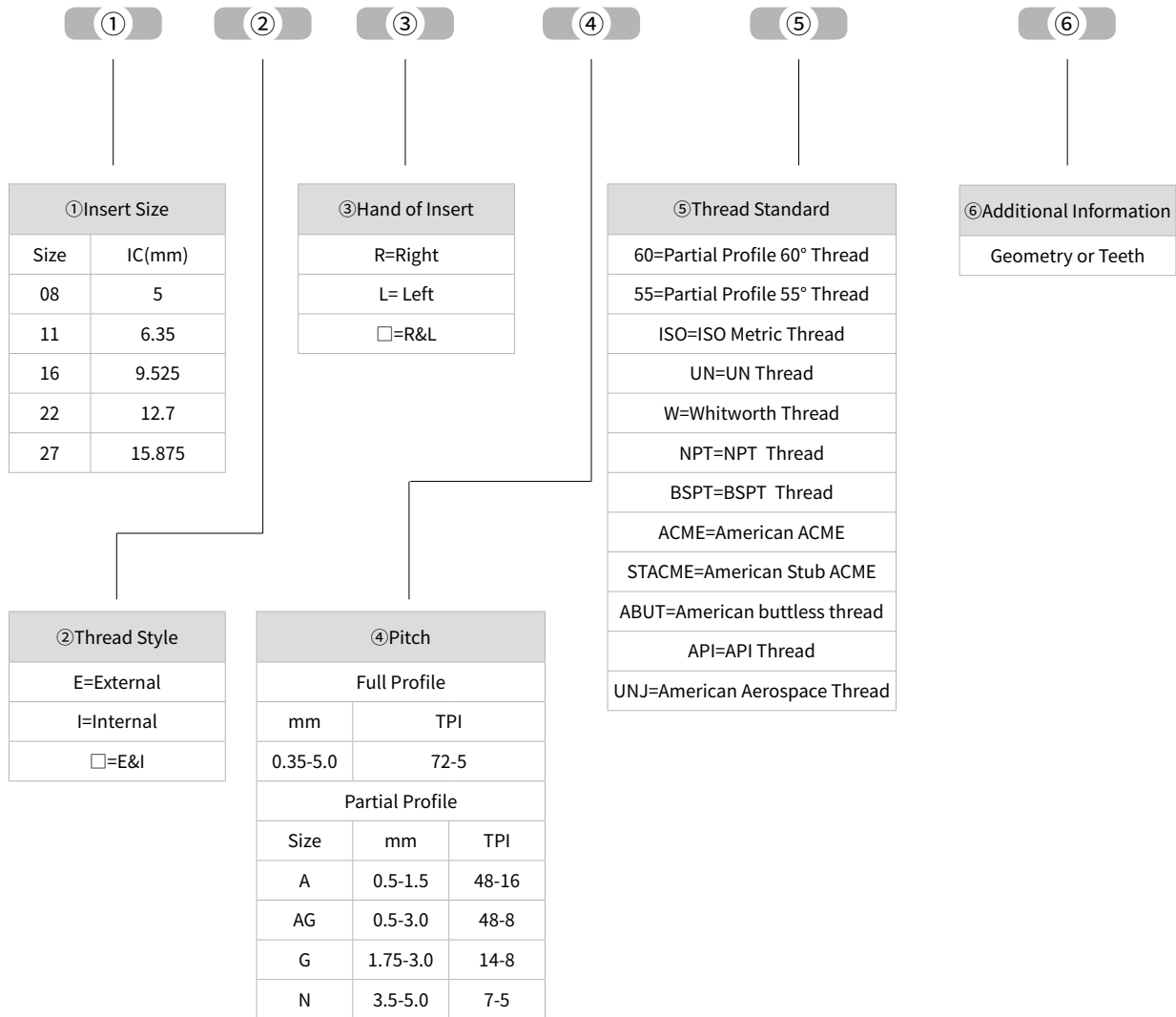
F

# THREADING TOOLS

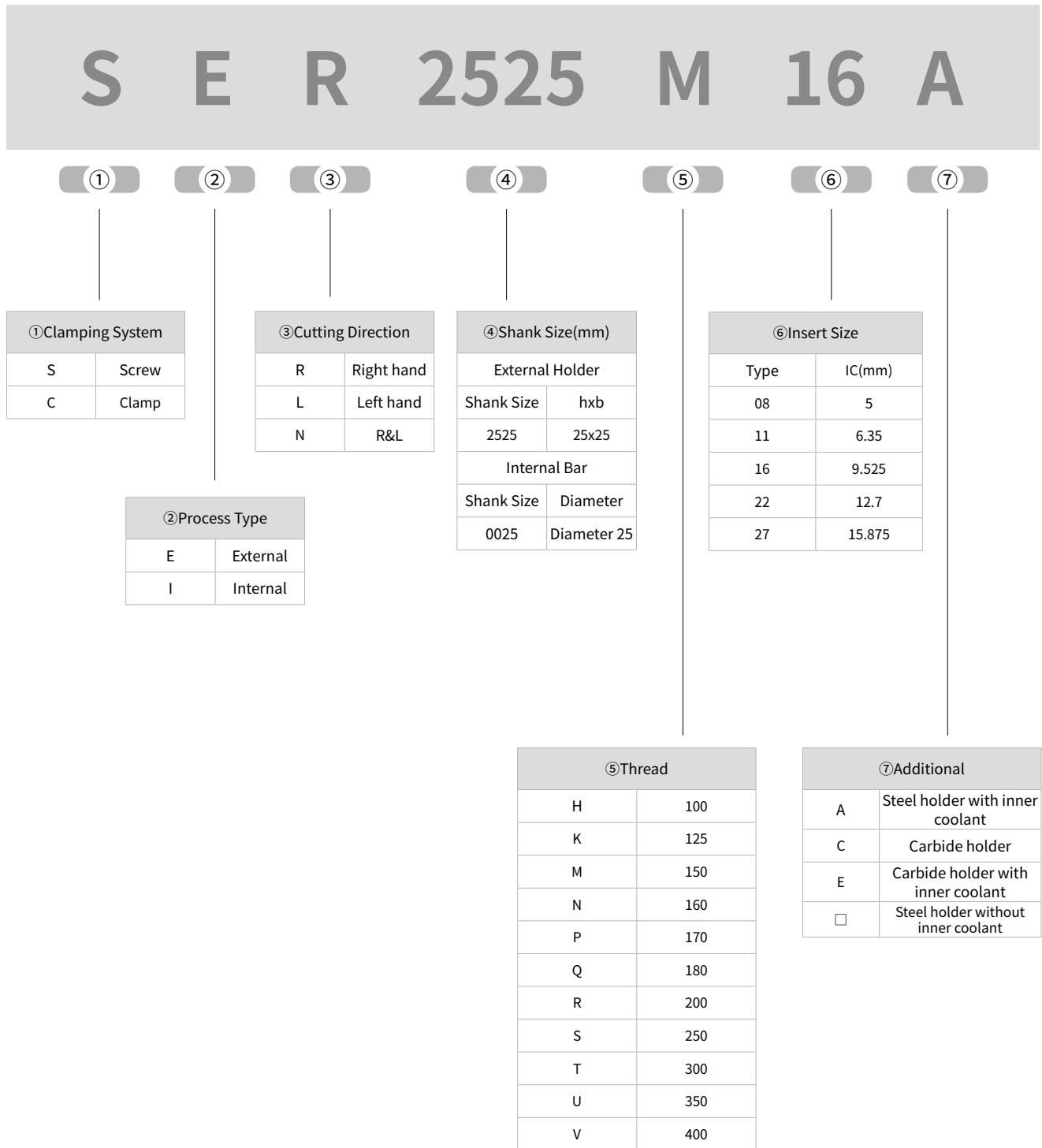


## Threading Insert Identification System

# 16 E R 1.50 ISO - TC



# Threading Holder Identification System

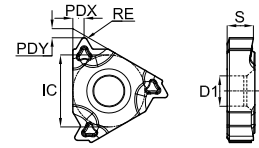



## Overview of Threading Inserts

| Application  | Thread Type                | Thread Sketch   | ThreadCode | Pitch        | Page |
|--|----------------------------|---|------------|--------------|------|
| For general industry   | Partial Profile 60° Thread |    | 60°        | 0.5-5.0 (mm) | P123 |
|  | Partial Profile 55° Thread |    | 55°        | 48-5 (TPI)   | P124 |
|  | ISO Metric Thread          |    | ISO        | 1.0-5.0 (mm) | P126 |
|  | UN Thread                  |   | UN         | 24-8 (TPI)   | P128 |
| Thread for pipe fittings and couplings for gas, water and sewage.      | Whitworth Thread           |  | W          | 19-11 (TPI)  | P129 |
|  | NPT Thread                 |  | NPT        | 27-8 (TPI)   | P130 |
| Thread for pipe fittings and couplings for gas, steam and water lines. | BSPT Thread                |  | BSPT       | 28-11 (TPI)  | P131 |
| Thread for pipe couplings in food and fire fighting industry           | Round Thread (DIN 405)     |  | RD         | 10-4 (TPI)   | P132 |

## Partial Profile 60°

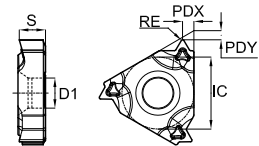
► External




| Ordering Code   | Pitch (mm)   | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|--------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |              | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 16 ERA60-TC  | 0.5-1.5        | 0.8 | 0.9 | 0.08 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ERAG60-TC | 0.5-3.0        | 1.1 | 1.5 | 0.08 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ERG60-TC  | 1.75-3.0       | 1.2 | 1.7 | 0.25 | 9.525 | 3.47 | 4      | ●              |
|   | 22 ERN60-TC  | 3.5-5.0        | 1.7 | 2.5 | 0.51 | 12.7  | 4.71 | 5      | ●              |

● Stock ○ Available Up Order

► Internal

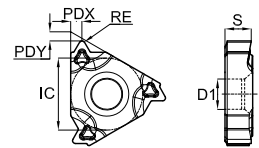



| Ordering Code   | Pitch (mm)   | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|--------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |              | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 08 IRA60-TC  | 0.5-1.5        | 0.6 | 0.7 | 0.08 | 5.00  | 2.25 | 2.68   | ●              |
|   | 11 IRA60-TC  | 0.5-1.5        | 0.8 | 0.9 | 0.08 | 6.35  | 3.00 | 3.2    | ●              |
|   | 16 IRA60-TC  | 0.5-1.5        | 0.8 | 0.9 | 0.08 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IRAG60-TC | 0.5-3.0        | 1.1 | 1.5 | 0.08 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IRG60-TC  | 1.75-3.0       | 1.2 | 1.7 | 0.13 | 9.525 | 3.47 | 4      | ●              |
|   | 22 IRN60-TC  | 3.5-5.0        | 1.7 | 2.5 | 0.25 | 12.7  | 4.71 | 5      | ●              |

● Stock ○ Available Up Order

# Partial Profile 55°

► External

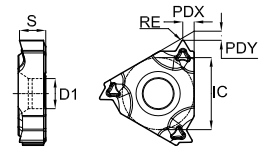


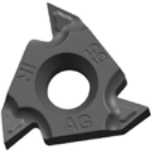
| Ordering Code   | Pitch (mm)   | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|--------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |              | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 16 ERA55-TC  | 48-16          | 0.8 | 0.9 | 0.08 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ERAG55-TC | 48-8           | 1.1 | 1.5 | 0.08 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ERG55-TC  | 14-8           | 1.2 | 1.7 | 0.21 | 9.525 | 3.47 | 4      | ●              |
|   | 22 ERN55-TC  | 7-5            | 1.7 | 2.5 | 0.44 | 12.7  | 4.71 | 5      | ○              |

● Stock ○ Available Up Order



► Internal

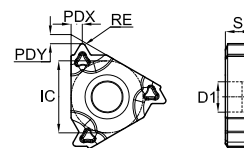


| Ordering Code   | Pitch (mm)   | Dimension (mm) |     |     |      |       |      | Coated Carbide |   |
|---|--------------|----------------|-----|-----|------|-------|------|----------------|---|
|   |              | PDY            | PDX | RE  | IC   | S     | D1   | GM3225         |   |
|  | 11 IRA55-TC  | 48-16          | 0.8 | 0.9 | 0.08 | 6.35  | 3.00 | 3.2            | ● |
|   | 16 IRA55-TC  | 48-16          | 0.8 | 0.9 | 0.08 | 9.525 | 3.47 | 4              | ○ |
|   | 16 IRAG55-TC | 48-8           | 1.1 | 1.5 | 0.08 | 9.525 | 3.47 | 4              | ● |
|   | 16 IRG55-TC  | 14-8           | 1.2 | 1.7 | 0.21 | 9.525 | 3.47 | 4              | ● |
|   | 22 IRN55-TC  | 7-5            | 1.7 | 2.5 | 0.44 | 12.7  | 4.71 | 5              | ○ |

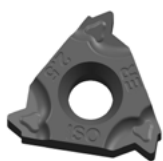
● Stock ○ Available Up Order

## Metric 60°

► External

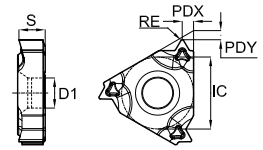


| Ordering Code   | Pitch (mm) | Dimension (mm) |     |      |       |      |    | Coated Carbide |
|-----------------|------------|----------------|-----|------|-------|------|----|----------------|
|                 |            | PDY            | PDX | RE   | IC    | S    | D1 |                |
| 16 ER1.00ISO-TC | 1.00       | 0.8            | 0.7 | 0.14 | 9.525 | 3.47 | 4  | ●              |
| 16 ER1.25ISO-TC | 1.25       | 0.8            | 0.9 | 0.18 | 9.525 | 3.47 | 4  | ●              |
| 16 ER1.50ISO-TC | 1.50       | 0.8            | 1.0 | 0.22 | 9.525 | 3.47 | 4  | ●              |
| 16 ER1.75ISO-TC | 1.75       | 1.2            | 1.2 | 0.25 | 9.525 | 3.47 | 4  | ●              |
| 16 ER2.00ISO-TC | 2.00       | 1.2            | 1.3 | 0.29 | 9.525 | 3.47 | 4  | ●              |
| 16 ER2.50ISO-TC | 2.50       | 1.2            | 1.5 | 0.36 | 9.525 | 3.47 | 4  | ●              |
| 16 ER3.00ISO-TC | 3.00       | 1.2            | 1.5 | 0.43 | 9.525 | 3.47 | 4  | ●              |
| 22 ER3.50ISO-TC | 3.50       | 1.6            | 2.3 | 0.45 | 12.7  | 4.71 | 5  | ○              |
| 22 ER4.00ISO-TC | 4.00       | 1.6            | 2.3 | 0.52 | 12.7  | 4.71 | 5  | ●              |
| 22 ER4.50ISO-TC | 4.50       | 1.7            | 2.4 | 0.58 | 12.7  | 4.71 | 5  | ○              |
| 22 ER5.00ISO-TC | 5.00       | 1.7            | 2.5 | 0.63 | 12.7  | 4.71 | 5  | ●              |
| 22 ER5.50ISO-TC | 5.50       | 1.9            | 2.7 | 0.72 | 12.7  | 4.71 | 5  | ○              |
| 22 ER6.00ISO-TC | 6.00       | 1.9            | 2.7 | 0.78 | 12.7  | 4.71 | 5  | ●              |



● Stock ○ Available Up Order

► Internal

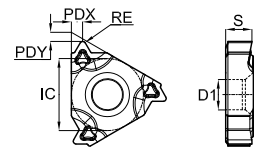


| Ordering Code   | Pitch (mm) | Dimension (mm) |     |      |       |      |     |        | Coated Carbide |
|-----------------|------------|----------------|-----|------|-------|------|-----|--------|----------------|
|                 |            | PDY            | PDX | RE   | IC    | S    | D1  | GM3225 |                |
| 11 IR1.00ISO-TC | 1.00       | 0.8            | 0.7 | 0.07 | 6.35  | 3.00 | 3.2 | ●      |                |
| 11 IR1.25ISO-TC | 1.25       | 0.8            | 0.9 | 0.09 | 6.35  | 3.00 | 3.2 | ●      |                |
| 11 IR1.50ISO-TC | 1.50       | 0.8            | 1.0 | 0.11 | 6.35  | 3.00 | 3.2 | ●      |                |
| 11 IR1.75ISO-TC | 1.75       | 0.9            | 1.1 | 0.13 | 6.35  | 3.00 | 3.2 | ○      |                |
| 11 IR2.00ISO-TC | 2.00       | 0.9            | 1.1 | 0.15 | 6.35  | 3.00 | 3.2 | ●      |                |
| 16 IR1.00ISO-TC | 1.00       | 0.8            | 0.7 | 0.07 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR1.25ISO-TC | 1.25       | 0.8            | 0.9 | 0.09 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR1.50ISO-TC | 1.50       | 0.8            | 1.0 | 0.11 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR1.75ISO-TC | 1.75       | 1.2            | 1.2 | 0.13 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR2.00ISO-TC | 2.00       | 1.2            | 1.3 | 0.15 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR2.50ISO-TC | 2.50       | 1.2            | 1.5 | 0.18 | 9.525 | 3.47 | 4   | ●      |                |
| 16 IR3.00ISO-TC | 3.00       | 1.2            | 1.5 | 0.22 | 9.525 | 3.47 | 4   | ●      |                |
| 22 IR3.50ISO-TC | 3.50       | 1.6            | 2.3 | 0.22 | 12.7  | 4.71 | 5   | ○      |                |
| 22 IR4.00ISO-TC | 4.00       | 1.6            | 2.3 | 0.25 | 12.7  | 4.71 | 5   | ●      |                |
| 22 IR4.50ISO-TC | 4.50       | 1.6            | 2.4 | 0.28 | 12.7  | 4.71 | 5   | ●      |                |
| 22 IR5.00ISO-TC | 5.00       | 1.6            | 2.3 | 0.32 | 12.7  | 4.71 | 5   | ●      |                |
| 22 IR5.50ISO-TC | 5.50       | 1.6            | 2.3 | 0.36 | 12.7  | 4.71 | 5   | ○      |                |
| 22 IR6.00ISO-TC | 6.00       | 1.6            | 2.4 | 0.39 | 12.7  | 4.71 | 5   | ●      |                |

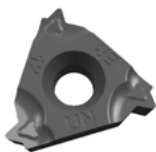
● Stock ○ Available Up Order

# UN 60°

► External

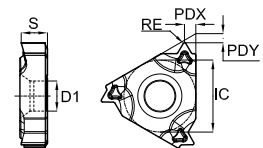


| Ordering Code | Pitch (mm) | Dimension (mm) |     |      |       |      |        | D1 | Coated Carbide |
|---------------|------------|----------------|-----|------|-------|------|--------|----|----------------|
|               |            | PDY            | PDX | RE   | IC    | S    | GM3225 |    |                |
| 16 ER24UN-TC  | 24         | 0.8            | 0.8 | 0.15 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER20UN-TC  | 20         | 0.8            | 0.9 | 0.18 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER18UN-TC  | 18         | 0.8            | 1.0 | 0.20 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER16UN-TC  | 16         | 0.9            | 1.1 | 0.23 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER14UN-TC  | 14         | 1.2            | 1.5 | 0.26 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER12UN-TC  | 12         | 1.2            | 1.5 | 0.31 | 9.525 | 3.47 | 4      | ●  |                |
| 16 ER8UN-TC   | 8          | 1.3            | 1.7 | 0.46 | 9.525 | 3.47 | 4      | ○  |                |

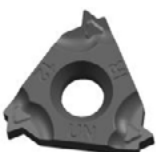


● Stock ○ Available Up Order

► Internal



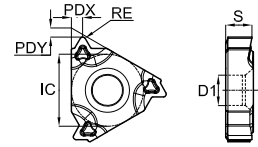
| Ordering Code | Pitch (mm) | Dimension (mm) |     |      |       |      |        | D1 | Coated Carbide |
|---------------|------------|----------------|-----|------|-------|------|--------|----|----------------|
|               |            | PDY            | PDX | RE   | IC    | S    | GM3225 |    |                |
| 11 IR20UN-TC  | 20         | 0.8            | 0.9 | 0.09 | 6.35  | 3.00 | 3.2    | ○  |                |
| 11 IR18UN-TC  | 18         | 0.8            | 1.0 | 0.10 | 6.35  | 3.00 | 3.2    | ●  |                |
| 16 IR24UN-TC  | 24         | 0.8            | 0.8 | 0.08 | 9.525 | 3.47 | 4      | ○  |                |
| 16 IR20UN-TC  | 20         | 0.8            | 0.9 | 0.09 | 9.525 | 3.47 | 4      | ○  |                |
| 16 IR18UN-TC  | 18         | 0.8            | 1.0 | 0.10 | 9.525 | 3.47 | 4      | ○  |                |
| 16 IR16UN-TC  | 16         | 0.9            | 1.1 | 0.12 | 9.525 | 3.47 | 4      | ●  |                |
| 16 IR14UN-TC  | 14         | 1.2            | 1.5 | 0.13 | 9.525 | 3.47 | 4      | ○  |                |
| 16 IR12UN-TC  | 12         | 1.2            | 1.5 | 0.16 | 9.525 | 3.47 | 4      | ●  |                |
| 16 IR8UN-TC   | 8          | 1.3            | 1.7 | 0.23 | 9.525 | 3.47 | 4      | ●  |                |

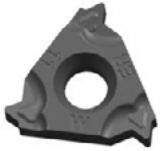


● Stock ○ Available Up Order

# Whitworth 55°

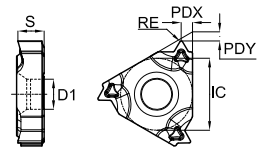
► External

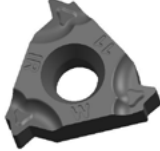


| Ordering Code   | Pitch (mm)  | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|-------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |             | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 16 ER19W-TC | 19             | 0.8 | 1.0 | 0.17 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER18W-TC | 18             | 0.8 | 1.0 | 0.18 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ER16W-TC | 16             | 0.9 | 1.1 | 0.20 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ER14W-TC | 14             | 1.2 | 1.5 | 0.24 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER12W-TC | 12             | 1.2 | 1.5 | 0.28 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ER11W-TC | 11             | 1.2 | 1.5 | 0.30 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER10W-TC | 10             | 1.1 | 1.5 | 0.34 | 9.525 | 3.47 | 4      | ○              |

●Stock ○Available Up Order

► Internal

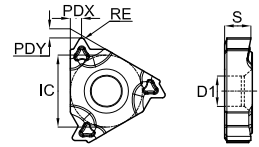



| Ordering Code   | Pitch (mm)  | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|-------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |             | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 11 IR19W-TC | 19             | 0.9 | 1.1 | 0.19 | 6.35  | 3.00 | 3.2    | ●              |
|   | 11 IR14W-TC | 14             | 0.9 | 1.1 | 0.27 | 6.35  | 3.00 | 3.2    | ●              |
|   | 16 IR19W-TC | 19             | 0.8 | 1.0 | 0.17 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR18W-TC | 18             | 0.8 | 1.0 | 0.18 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR16W-TC | 16             | 0.9 | 1.1 | 0.2  | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR14W-TC | 14             | 1.2 | 1.5 | 0.24 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR12W-TC | 12             | 1.2 | 1.5 | 0.28 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR11W-TC | 11             | 1.2 | 1.5 | 0.30 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR8W-TC  | 8              | 1.2 | 1.5 | 0.41 | 9.525 | 3.47 | 4      | ○              |

●Stock ○Available Up Order

## NPT 60°

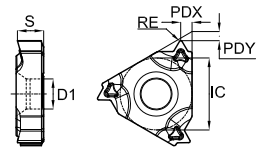
► External

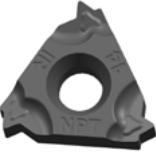


| Ordering Code   | Pitch (mm)      | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|-----------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |                 | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 16 ER27NPT-TC   | 27             | 0.7 | 0.8 | 0.13 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ER18NPT-TC   | 18             | 0.8 | 1.0 | 0.20 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER14NPT-TC   | 14             | 1.2 | 1.5 | 0.22 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER11.5NPT-TC | 11.5           | 1.2 | 1.5 | 0.25 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER8NPT-TC    | 8              | 1.3 | 1.8 | 0.30 | 9.525 | 3.47 | 4      | ○              |

● Stock ○ Available Up Order

► Internal

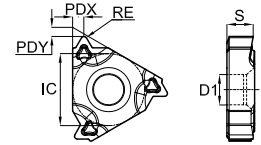


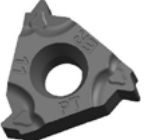
| Ordering Code   | Pitch (mm)      | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|-----------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |                 | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 11 IR18NPT-TC   | 18             | 0.8 | 1.0 | 0.20 | 6.35  | 3.00 | 3.2    | ●              |
|   | 16 IR27NPT-TC   | 27             | 0.7 | 0.8 | 0.13 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR18NPT-TC   | 18             | 0.8 | 1.0 | 0.20 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR14NPT-TC   | 14             | 1.2 | 1.5 | 0.22 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR11.5NPT-TC | 11.5           | 1.2 | 1.5 | 0.25 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR8NPT-TC    | 8              | 1.3 | 1.8 | 0.30 | 9.525 | 3.47 | 4      | ●              |

● Stock ○ Available Up Order

# BSPT 55°

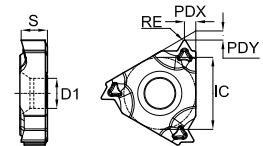
► External

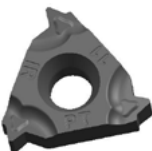


| Ordering Code   | Pitch (mm)     | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|----------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |                | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 16 ER28BSPT-TC | 28             | 0.7 | 0.8 | 0.11 | 9.525 | 3.47 | 4      | ○              |
|   | 16 ER19BSPT-TC | 19             | 0.8 | 1.0 | 0.17 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER14BSPT-TC | 14             | 1.2 | 1.5 | 0.24 | 9.525 | 3.47 | 4      | ●              |
|   | 16 ER11BSPT-TC | 11             | 1.2 | 1.5 | 0.30 | 9.525 | 3.47 | 4      | ●              |

● Stock ○ Available Up Order

► Internal

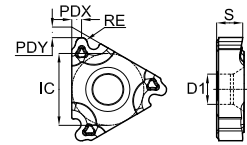



| Ordering Code   | Pitch (mm)     | Dimension (mm) |     |     |      |       |      |        | Coated Carbide |
|---|----------------|----------------|-----|-----|------|-------|------|--------|----------------|
|   |                | PDY            | PDX | RE  | IC   | S     | D1   | GM3225 |                |
|  | 11 IR19BSPT-TC | 19             | 0.8 | 1.0 | 0.18 | 6.35  | 3.00 | 3.2    | ●              |
|   | 11 IR14BSPT-TC | 14             | 0.9 | 1.1 | 0.24 | 6.35  | 3.00 | 3.2    | ○              |
|   | 16 IR28BSPT-TC | 28             | 0.7 | 0.8 | 0.11 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR19BSPT-TC | 19             | 0.8 | 1.0 | 0.17 | 9.525 | 3.47 | 4      | ○              |
|   | 16 IR14BSPT-TC | 14             | 1.2 | 1.5 | 0.24 | 9.525 | 3.47 | 4      | ●              |
|   | 16 IR11BSPT-TC | 11             | 1.2 | 1.5 | 0.30 | 9.525 | 3.47 | 4      | ●              |

● Stock ○ Available Up Order

## Round 30°

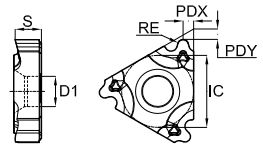
► External



| Ordering Code   | Pitch (mm) | Dimension (mm) |     |      |       |      |    |        | Coated Carbide |
|---|------------|----------------|-----|------|-------|------|----|--------|----------------|
|   |            | PDY            | PDX | RE   | IC    | S    | D1 |        |                |
| <br>16 ER8RD-TC<br>16 ER6RD-TC | 8          | 1.4            | 1.3 | 0.75 | 9.525 | 3.47 | 4  | GM3225 |                |
|   | 6          | 1.4            | 1.5 | 1.00 | 9.525 | 3.47 | 4  | GM3225 |                |

● Stock ○ Available Up Order

► Internal



| Ordering Code   | Pitch (mm) | Dimension (mm) |     |       |       |      |    |        | Coated Carbide |
|---|------------|----------------|-----|-------|-------|------|----|--------|----------------|
|   |            | PDY            | PDX | RE    | IC    | S    | D1 |        |                |
| <br>16 IR8RD-TC<br>16 IR6RD-TC | 8          | 1.4            | 1.3 | 0.70  | 9.525 | 3.47 | 4  | GM3225 |                |
|   | 6          | 1.4            | 1.5 | 0.936 | 9.525 | 3.47 | 4  | GM3225 |                |

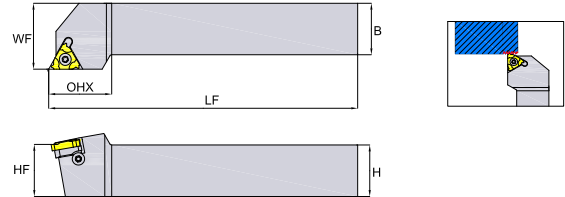
● Stock ○ Available Up Order








Thread Turning Tool holders

SER/LSeries

External Tool Holders



| Ordering Code | Dimension(mm) |    |     |    |    |     | Insert    | Insert screw<br> | Shim<br> | Shim Screw<br> | Wrench<br> | Wrench for Shim Screw<br> | Stock |   |
|---------------|---------------|----|-----|----|----|-----|-----------|---|--|---|---|--|-------|---|
|               | H             | B  | LF  | WF | HF | OHX |           |   |  |   |   |  | R     | L |
| SER/L1212F11  | 12            | 12 | 80  | 14 | 12 | 16  | 11ER/L... | SI60M025080-03510   | \  | \   | TT08PH  | \  | ○     | ○ |
| SER/L1212F16  | 12            | 12 | 80  | 16 | 12 | 21  | 16ER/L... | SI60M035090-05312   | \  | \   | TT15PH  | \  | ○     |   |
| SER/L1616H16  | 16            | 16 | 100 | 20 | 16 | 24  | 16ER/L... | SI60M035120-05316   | DEN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ● |
| SER/L2020K16  | 20            | 20 | 125 | 25 | 20 | 27  | 16ER/L... | SI60M035120-05316   | DEN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ○ |
| SER/L2525M16  | 25            | 25 | 150 | 32 | 25 | 32  | 16ER/L... | SI60M035120-05316   | DEN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ● |
| SER/L3232P16  | 32            | 32 | 170 | 40 | 32 | 31  | 16ER/L... | SI60M035120-05316   | DEN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ○ |
| SER/L2525M22  | 25            | 25 | 150 | 32 | 25 | 31  | 22ER/L... | SI60M040160-07013   | DEN22P25R/LSH  | SSBM030060H   | TT20PH  | TH25LH   | ●     | ○ |
| SER/L3232P22  | 32            | 32 | 170 | 40 | 32 | 32  | 22ER/L... | SI60M040160-07013   | DEN22P25R/LSH  | SSBM040060H   | TT20PH  | TH30LH   | ●     | ○ |
| SER/L4040R22  | 40            | 40 | 200 | 50 | 40 | 32  | 22ER/L... | SI60M040160-07013   | DEN22P25R/LSH  | SSBM040060H   | TT20PH  | TH30LH   | ○     | ○ |
| SER/L3232P27  | 32            | 32 | 170 | 40 | 32 | 33  | 27ER/L... | SI60M050160-07212   | DEN27P25SH   | SSBM040060H   | TT20PH  | TH30LH   | ●     |   |
| SER/L4040R27  | 40            | 40 | 200 | 50 | 40 | 33  | 27ER/L... | SI60M050160-07212   | DEN27P25SH   | SSBM040060H   | TT20PH  | TH30LH   | ○     |   |

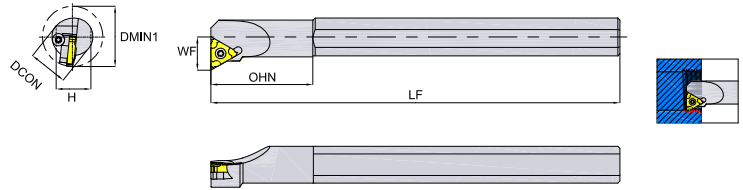
Remark: SI60M035120-05316 is meaning of M3.5X12






●Stock ○Available Up Order

Thread Turning Tool holders

SIR/LSeries

Internal Tool holders



| Ordering Code    | Dimension(mm) |      |    |     |      |     | Insert    | Indert screw<br> | Shim<br> | Shim Screw<br> | Wrench<br> | Wrench for Shim Screw<br> | Stock |   |
|------------------|---------------|------|----|-----|------|-----|-----------|---|--|---|---|--|-------|---|
|                  | DMIN1         | DCON | H  | LF  | WF   | OHN |           |   |  |   |   |  | R     | L |
| SIR/L0008K08     | 9.9           | 8    | 7  | 125 | 4.95 | 20  | 08IR/L... | SI60M022050-03008   | \  | \   | TT06PH  | \  | ●     |   |
| SIR/L0010K11     | 13            | 10   | 9  | 125 | 6.5  | 25  | 11IR/L... | SI60M025060-03510   | \  | \   | TT08PH  | \  | ●     |   |
| SIR/L0010K11-A16 | 13            | 16   | 15 | 125 | 6.5  | 30  | 11IR/L... | SI60M025060-03510   | \  | \   | TT08PH  | \  | ●     | ○ |
| SIR/L0012K11     | 15            | 12   | 11 | 125 | 7.4  | 28  | 11IR/L... | SI60M025060-03510   | \  | \   | TT08PH  | \  | ●     | ○ |
| SIR/L0012K11-A16 | 15            | 16   | 15 | 125 | 7.4  | 36  | 11IR/L... | SI60M025060-03510   | \  | \   | TT08PH  | \  | ○     | ○ |
| SIR/L0013M16     | 19            | 16   | 15 | 150 | 9.4  | 32  | 16IR/L... | SI60M035090-05312   | \  | \   | TT15PH  | \  | ●     | ○ |
| SIR/L0016Q16     | 21            | 16   | 15 | 180 | 10.8 | 40  | 16IR/L... | SI60M035090-05312   | \  | \   | TT15PH  | \  | ●     |   |
| SIR/L0020Q16     | 24            | 20   | 18 | 180 | 13.1 | 40  | 16IR/L... | SI60M035120-05316   | DIN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ○ |
| SIR/L0025R16     | 29            | 25   | 23 | 200 | 15.6 | 45  | 16IR/L... | SI60M035120-05316   | DIN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ○ |
| SIR/L0032S16     | 38            | 32   | 30 | 250 | 19.1 | 50  | 16IR/L... | SI60M035120-05316   | DIN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ●     | ○ |
| SIR/L0040T16     | 44            | 40   | 38 | 300 | 23.1 | 55  | 16IR/L... | SI60M035120-05316   | DIN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ○     | ○ |
| SIR/L0050U16     | 60            | 50   | 48 | 350 | 28.1 | 50  | 16IR/L... | SI60M035120-05316   | DIN16P25SH   | SSBM030060H   | TT15PH  | TH25LH   | ○     | ○ |
| SIR/L0020Q22     | 26            | 20   | 18 | 180 | 13.2 | 40  | 22IR/L... | SI60M040120-07010   | \  | \   | TT15PH  | \  | ●     |   |
| SIR/L0025R22     | 32            | 25   | 23 | 200 | 16.4 | 46  | 22IR/L... | SI60M040160-07013   | DIN22P25R/LSH  | SSBM040060H   | TT15PH  | TH30L  | ●     |   |
| SIR/L0032S22     | 39            | 32   | 30 | 250 | 19.9 | 50  | 22IR/L... | SI60M040160-07013   | DIN22P25R/LSH  | SSBM040060H   | TT15PH  | TH30L  | ●     | ○ |
| SIR/L0040T22     | 47            | 40   | 38 | 300 | 23.9 | 55  | 22IR/L... | SI60M040160-07013   | DIN22P25R/LSH  | SSBM040060H   | TT15PH  | TH30L  | ○     | ○ |
| SIR/L0050U22     | 57            | 50   | 48 | 350 | 28.9 | 70  | 22IR/L... | SI60M040160-07013   | DIN22P25R/LSH  | SSBM040060H   | TT15PH  | TH30L  | ○     | ○ |
| SIR/L0032S27     | 42            | 32   | 30 | 250 | 20.9 | 50  | 27IR/L... | SI60M050160-07212   | DIN27P25SH   | SSBM040060H   | TT20PH  | TH30L  | ○     | ○ |
| SIR/L0040T27     | 50            | 40   | 38 | 300 | 25   | 55  | 27IR/L... | SI60M050160-07212   | DIN27P25SH   | SSBM040060H   | TT20PH  | TH30L  | ○     | ○ |
| SIR/L0050U27     | 60            | 50   | 48 | 350 | 30.1 | 70  | 27IR/L... | SI60M050160-07212   | DIN27P25SH   | SSBM040060H   | TT20PH  | TH30L  | ○     | ○ |

Remark: SI60M035140-05338 is meaning of M3.5×14

●Stock ○Available Up Order

## Cutting Passes and Radial Infeed Recommendation Table

### ► ISO Metric / External

| Pitch (mm)        | 1.00                        | 1.25 | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 | 5.50 | 6.00 |
|-------------------|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total infeed (mm) | 0.65                        | 0.79 | 0.95 | 1.11 | 1.26 | 1.56 | 1.88 | 2.18 | 2.49 | 2.79 | 3.10 | 3.39 | 3.70 |
| Total passes      | 5                           | 6    | 6    | 8    | 8    | 10   | 12   | 12   | 14   | 14   | 14   | 16   | 16   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |      |      |      |      |      |      |      |      |
| 1                 | 0.16                        | 0.17 | 0.20 | 0.17 | 0.20 | 0.20 | 0.20 | 0.24 | 0.24 | 0.27 | 0.29 | 0.27 | 0.30 |
| 2                 | 0.15                        | 0.15 | 0.19 | 0.17 | 0.19 | 0.19 | 0.19 | 0.23 | 0.22 | 0.25 | 0.28 | 0.26 | 0.29 |
| 3                 | 0.14                        | 0.14 | 0.18 | 0.16 | 0.18 | 0.18 | 0.19 | 0.22 | 0.22 | 0.24 | 0.27 | 0.26 | 0.29 |
| 4                 | 0.12                        | 0.13 | 0.16 | 0.15 | 0.17 | 0.17 | 0.18 | 0.21 | 0.21 | 0.23 | 0.26 | 0.25 | 0.28 |
| 5                 | 0.08                        | 0.12 | 0.14 | 0.14 | 0.16 | 0.17 | 0.17 | 0.21 | 0.21 | 0.23 | 0.25 | 0.25 | 0.27 |
| 6                 |                             | 0.08 | 0.08 | 0.13 | 0.15 | 0.16 | 0.17 | 0.20 | 0.20 | 0.22 | 0.25 | 0.24 | 0.26 |
| 7                 |                             |      |      | 0.11 | 0.13 | 0.15 | 0.16 | 0.18 | 0.19 | 0.21 | 0.24 | 0.23 | 0.26 |
| 8                 |                             |      |      | 0.08 | 0.08 | 0.14 | 0.15 | 0.17 | 0.18 | 0.20 | 0.23 | 0.23 | 0.25 |
| 9                 |                             |      |      |      |      | 0.12 | 0.14 | 0.16 | 0.17 | 0.19 | 0.22 | 0.22 | 0.24 |
| 10                |                             |      |      |      |      | 0.08 | 0.13 | 0.15 | 0.16 | 0.18 | 0.20 | 0.21 | 0.23 |
| 11                |                             |      |      |      |      |      | 0.12 | 0.13 | 0.15 | 0.17 | 0.19 | 0.20 | 0.22 |
| 12                |                             |      |      |      |      |      | 0.08 | 0.08 | 0.14 | 0.16 | 0.17 | 0.19 | 0.20 |
| 13                |                             |      |      |      |      |      |      |      | 0.12 | 0.14 | 0.15 | 0.18 | 0.19 |
| 14                |                             |      |      |      |      |      |      |      | 0.18 | 0.10 | 0.10 | 0.16 | 0.17 |
| 15                |                             |      |      |      |      |      |      |      |      |      |      | 0.14 | 0.15 |
| 16                |                             |      |      |      |      |      |      |      |      |      |      | 0.10 | 0.10 |

### ► ISO Metric/ Internal

| Pitch (mm)        | 1.00                        | 1.25 | 1.50 | 1.75 | 2.00 | 2.50 | 3.00 | 3.50 | 4.00 | 4.50 | 5.00 | 5.50 | 6.00 |
|-------------------|-----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Total infeed (mm) | 0.63                        | 0.77 | 0.92 | 1.05 | 1.20 | 1.48 | 1.78 | 2.03 | 2.31 | 2.61 | 2.88 | 3.19 | 3.44 |
| Total passes      | 5                           | 6    | 6    | 8    | 8    | 10   | 12   | 12   | 13   | 14   | 14   | 16   | 16   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |      |      |      |      |      |      |      |      |
| 1                 | 0.15                        | 0.16 | 0.20 | 0.16 | 0.19 | 0.19 | 0.19 | 0.22 | 0.21 | 0.23 | 0.26 | 0.25 | 0.28 |
| 2                 | 0.14                        | 0.15 | 0.18 | 0.15 | 0.18 | 0.18 | 0.18 | 0.21 | 0.21 | 0.23 | 0.26 | 0.25 | 0.27 |
| 3                 | 0.13                        | 0.14 | 0.17 | 0.15 | 0.17 | 0.17 | 0.18 | 0.20 | 0.20 | 0.22 | 0.25 | 0.24 | 0.26 |
| 4                 | 0.12                        | 0.13 | 0.15 | 0.14 | 0.16 | 0.17 | 0.17 | 0.20 | 0.19 | 0.22 | 0.24 | 0.24 | 0.26 |
| 5                 | 0.08                        | 0.11 | 0.13 | 0.13 | 0.15 | 0.16 | 0.16 | 0.19 | 0.19 | 0.21 | 0.24 | 0.23 | 0.26 |
| 6                 |                             | 0.08 | 0.08 | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 | 0.18 | 0.20 | 0.23 | 0.22 | 0.24 |
| 7                 |                             |      |      | 0.11 | 0.12 | 0.14 | 0.15 | 0.17 | 0.18 | 0.20 | 0.22 | 0.22 | 0.24 |
| 8                 |                             |      |      | 0.08 | 0.08 | 0.13 | 0.14 | 0.16 | 0.17 | 0.19 | 0.21 | 0.22 | 0.23 |
| 9                 |                             |      |      |      |      | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 | 0.20 | 0.20 | 0.22 |
| 10                |                             |      |      |      |      | 0.08 | 0.12 | 0.14 | 0.15 | 0.17 | 0.19 | 0.20 | 0.21 |
| 11                |                             |      |      |      |      |      | 0.11 | 0.12 | 0.14 | 0.16 | 0.18 | 0.19 | 0.20 |
| 12                |                             |      |      |      |      |      | 0.08 | 0.08 | 0.13 | 0.15 | 0.16 | 0.18 | 0.19 |
| 13                |                             |      |      |      |      |      |      |      | 0.12 | 0.14 | 0.15 | 0.17 | 0.18 |
| 14                |                             |      |      |      |      |      |      |      | 0.08 | 0.10 | 0.10 | 0.16 | 0.16 |
| 15                |                             |      |      |      |      |      |      |      |      |      |      | 0.14 | 0.15 |
| 16                |                             |      |      |      |      |      |      |      |      |      |      | 0.10 | 0.10 |

## ► UN / External

| Pitch (mm)        | 24                          | 20   | 18   | 16   | 14   | 12   | 10   | 8    |
|-------------------|-----------------------------|------|------|------|------|------|------|------|
| Total infeed (mm) | 0.70                        | 0.84 | 0.92 | 1.04 | 1.17 | 1.35 | 1.62 | 2.02 |
| Total passes      | 5                           | 6    | 6    | 7    | 8    | 8    | 10   | 12   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |      |      |      |
| 1                 | 0.18                        | 0.18 | 0.20 | 0.19 | 0.18 | 0.22 | 0.21 | 0.22 |
| 2                 | 0.16                        | 0.17 | 0.18 | 0.18 | 0.18 | 0.21 | 0.20 | 0.21 |
| 3                 | 0.15                        | 0.15 | 0.17 | 0.17 | 0.17 | 0.20 | 0.19 | 0.20 |
| 4                 | 0.13                        | 0.14 | 0.15 | 0.16 | 0.16 | 0.19 | 0.18 | 0.20 |
| 5                 | 0.08                        | 0.12 | 0.13 | 0.14 | 0.15 | 0.17 | 0.17 | 0.19 |
| 6                 |                             | 0.08 | 0.08 | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 |
| 7                 |                             |      |      | 0.08 | 0.12 | 0.13 | 0.15 | 0.17 |
| 8                 |                             |      |      |      | 0.08 | 0.08 | 0.14 | 0.16 |
| 9                 |                             |      |      |      |      |      | 0.12 | 0.15 |
| 10                |                             |      |      |      |      |      | 0.08 | 0.14 |
| 11                |                             |      |      |      |      |      |      | 0.12 |
| 12                |                             |      |      |      |      |      |      | 0.08 |

## ► UN / Internal

| Pitch (mm)        | 24                          | 20   | 18   | 16   | 14   | 12   | 10   | 8    |
|-------------------|-----------------------------|------|------|------|------|------|------|------|
| Total infeed (mm) | 0.66                        | 0.78 | 0.86 | 0.96 | 1.07 | 1.25 | 1.48 | 2.03 |
| Total passes      | 5                           | 6    | 6    | 7    | 8    | 8    | 10   | 12   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |      |      |      |
| 1                 | 0.16                        | 0.16 | 0.18 | 0.17 | 0.16 | 0.20 | 0.19 | 0.22 |
| 2                 | 0.15                        | 0.16 | 0.17 | 0.16 | 0.16 | 0.19 | 0.18 | 0.21 |
| 3                 | 0.14                        | 0.14 | 0.16 | 0.15 | 0.15 | 0.18 | 0.17 | 0.20 |
| 4                 | 0.12                        | 0.13 | 0.14 | 0.14 | 0.14 | 0.17 | 0.17 | 0.20 |
| 5                 | 0.08                        | 0.12 | 0.13 | 0.13 | 0.14 | 0.16 | 0.16 | 0.19 |
| 6                 |                             | 0.08 | 0.08 | 0.12 | 0.13 | 0.14 | 0.15 | 0.18 |
| 7                 |                             |      |      | 0.08 | 0.11 | 0.13 | 0.14 | 0.17 |
| 8                 |                             |      |      |      | 0.08 | 0.08 | 0.13 | 0.16 |
| 9                 |                             |      |      |      |      |      | 0.12 | 0.15 |
| 10                |                             |      |      |      |      |      | 0.08 | 0.14 |
| 11                |                             |      |      |      |      |      |      | 0.12 |
| 12                |                             |      |      |      |      |      |      | 0.08 |

► Whitworth / External& Internal

| Pitch (mm)        | 19                          | 18   | 16   | 14   | 12   | 11   | 10   | 8    |
|-------------------|-----------------------------|------|------|------|------|------|------|------|
| Total infeed (mm) | 0.90                        | 0.97 | 1.08 | 1.20 | 1.42 | 1.51 | 1.70 | 2.10 |
| Total passes      | 6                           | 7    | 8    | 8    | 8    | 9    | 10   | 12   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |      |      |      |
| 1                 | 0.19                        | 0.17 | 0.17 | 0.19 | 0.23 | 0.22 | 0.22 | 0.23 |
| 2                 | 0.18                        | 0.16 | 0.16 | 0.18 | 0.22 | 0.21 | 0.21 | 0.22 |
| 3                 | 0.17                        | 0.16 | 0.15 | 0.17 | 0.21 | 0.20 | 0.20 | 0.21 |
| 4                 | 0.15                        | 0.15 | 0.15 | 0.16 | 0.19 | 0.19 | 0.19 | 0.21 |
| 5                 | 0.13                        | 0.13 | 0.14 | 0.15 | 0.18 | 0.18 | 0.18 | 0.20 |
| 6                 | 0.08                        | 0.12 | 0.13 | 0.14 | 0.16 | 0.16 | 0.17 | 0.19 |
| 7                 |                             | 0.08 | 0.11 | 0.12 | 0.14 | 0.15 | 0.16 | 0.18 |
| 8                 |                             |      | 0.08 | 0.08 | 0.08 | 0.13 | 0.15 | 0.17 |
| 9                 |                             |      |      |      |      | 0.08 | 0.13 | 0.16 |
| 10                |                             |      |      |      |      |      | 0.08 | 0.14 |
| 11                |                             |      |      |      |      |      |      | 0.12 |
| 12                |                             |      |      |      |      |      |      | 0.08 |

► NPT / External& Internal

| Pitch (mm)        | 27                          | 18   | 14   | 11.5 | 8    |
|-------------------|-----------------------------|------|------|------|------|
| Total infeed (mm) | 0.76                        | 1.11 | 1.42 | 1.73 | 2.48 |
| Total passes      | 6                           | 8    | 10   | 12   | 15   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |      |
| 1                 | 0.15                        | 0.17 | 0.18 | 0.18 | 0.21 |
| 2                 | 0.15                        | 0.17 | 0.17 | 0.17 | 0.21 |
| 3                 | 0.14                        | 0.16 | 0.16 | 0.17 | 0.20 |
| 4                 | 0.13                        | 0.15 | 0.16 | 0.16 | 0.20 |
| 5                 | 0.11                        | 0.14 | 0.15 | 0.16 | 0.19 |
| 6                 | 0.08                        | 0.13 | 0.14 | 0.15 | 0.18 |
| 7                 |                             | 0.11 | 0.14 | 0.15 | 0.18 |
| 8                 |                             | 0.08 | 0.13 | 0.14 | 0.17 |
| 9                 |                             |      | 0.11 | 0.13 | 0.17 |
| 10                |                             |      | 0.08 | 0.12 | 0.16 |
| 11                |                             |      |      | 0.11 | 0.15 |
| 12                |                             |      |      | 0.08 | 0.14 |
| 13                |                             |      |      |      | 0.13 |
| 14                |                             |      |      |      | 0.11 |
| 15                |                             |      |      |      | 0.08 |

## ► BSPT / External&amp; Internal

| Pitch (mm)        | 28                          | 19   | 14   | 11   |
|-------------------|-----------------------------|------|------|------|
| Total infeed (mm) | 0.62                        | 0.90 | 1.20 | 1.51 |
| Total passes      | 5                           | 6    | 8    | 9    |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |
| 1                 | 0.15                        | 0.19 | 0.19 | 0.22 |
| 2                 | 0.14                        | 0.18 | 0.18 | 0.21 |
| 3                 | 0.13                        | 0.17 | 0.17 | 0.20 |
| 4                 | 0.12                        | 0.15 | 0.16 | 0.19 |
| 5                 | 0.08                        | 0.13 | 0.15 | 0.18 |
| 6                 |                             | 0.08 | 0.14 | 0.16 |
| 7                 |                             |      | 0.12 | 0.15 |
| 8                 |                             |      | 0.08 | 0.13 |
| 9                 |                             |      |      | 0.08 |

## ► Round / External

| Pitch (mm)        | 10                          | 8    | 6    | 4    |
|-------------------|-----------------------------|------|------|------|
| Total infeed (mm) | 1.30                        | 1.63 | 2.17 | 2.95 |
| Total passes      | 8                           | 10   | 12   | 14   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |
| 1                 | 0.21                        | 0.21 | 0.24 | 0.30 |
| 2                 | 0.20                        | 0.20 | 0.23 | 0.29 |
| 3                 | 0.19                        | 0.19 | 0.22 | 0.28 |
| 4                 | 0.18                        | 0.19 | 0.21 | 0.27 |
| 5                 | 0.16                        | 0.18 | 0.20 | 0.26 |
| 6                 | 0.15                        | 0.17 | 0.19 | 0.25 |
| 7                 | 0.13                        | 0.15 | 0.18 | 0.24 |
| 8                 | 0.08                        | 0.14 | 0.17 | 0.23 |
| 9                 |                             | 0.12 | 0.16 | 0.22 |
| 10                |                             | 0.08 | 0.15 | 0.21 |
| 11                |                             |      | 0.13 | 0.19 |
| 12                |                             |      | 0.08 | 0.18 |
| 13                |                             |      |      | 0.15 |
| 14                |                             |      |      | 0.10 |

## ► Round/ Internal

| Pitch (mm)        | 10                          | 8    | 6    | 4    |
|-------------------|-----------------------------|------|------|------|
| Total infeed (mm) | 1.34                        | 1.64 | 2.18 | 2.98 |
| Total passes      | 8                           | 10   | 12   | 14   |
| No. of infeed     | Radial infeed per pass (mm) |      |      |      |
| 1                 | 0.22                        | 0.21 | 0.24 | 0.30 |
| 2                 | 0.21                        | 0.20 | 0.23 | 0.29 |
| 3                 | 0.20                        | 0.20 | 0.22 | 0.29 |
| 4                 | 0.18                        | 0.19 | 0.21 | 0.28 |
| 5                 | 0.17                        | 0.18 | 0.21 | 0.27 |
| 6                 | 0.15                        | 0.17 | 0.20 | 0.26 |
| 7                 | 0.13                        | 0.16 | 0.19 | 0.25 |
| 8                 | 0.08                        | 0.14 | 0.17 | 0.24 |
| 9                 |                             | 0.12 | 0.16 | 0.23 |
| 10                |                             | 0.08 | 0.15 | 0.21 |
| 11                |                             |      | 0.13 | 0.20 |
| 12                |                             |      | 0.08 | 0.18 |
| 13                |                             |      |      | 0.16 |
| 14                |                             |      |      | 0.10 |

Attention: Infeeds of less than 0.05mm should be avoided, for austenitic stainless steels not less than 0.08mm.

## Cutting Speed Recommendation Table

| ISO                    | Workpiece Material       |                                | Workpiece Material | Cutting Range             | Cutting way               | Geometry           | Grade  | Cutting Speed Vc (m/min) |                           |
|------------------------|--------------------------|--------------------------------|--------------------|---------------------------|---------------------------|--------------------|--------|--------------------------|---------------------------|
| <b>P</b>               | Carbon Steel             | Low-carbon (C=0.1-0.25%)       | HB125              | Finishing, Semi-finishing | Continuous Cutting        | TC                 | GM3225 | 120-160-230              |                           |
|                        |                          | Medium-carbon (C=0.25-0.55%)   | HB150              |                           |                           |                    |        | 100-150-195              |                           |
|                        |                          | High-carbon (C=0.55-0.80%)     | HB170              |                           |                           |                    |        | 90-140-180               |                           |
|                        | Low-alloy Steel          | Non-hardened                   | HB180              |                           |                           |                    |        | 100-130-180              |                           |
|                        |                          | Hardened and tempered          | HB275              |                           |                           |                    |        | 75-100-140               |                           |
|                        |                          | Hardened and tempered          | HB350              |                           |                           |                    |        | 60-80-130                |                           |
|                        | High-alloy Steel         | Annealed                       | HB200              |                           |                           |                    |        | 80-110-140               |                           |
|                        |                          | Hardened and tempered          | HB325              |                           |                           |                    |        | 70-90-115                |                           |
|                        | Steel Castings           | Unalloyed                      | HB180              |                           |                           |                    |        | 180-200-220              |                           |
|                        |                          | Low-alloy                      | HB200              |                           |                           |                    |        | 70-110-150               |                           |
|                        |                          | High-alloy                     | HB225              |                           |                           |                    |        | 60-100-120               |                           |
|                        |                          | Manganese steel (12-14% Mn)    | HB250              |                           |                           |                    |        | 30-40-50                 |                           |
|                        | <b>M</b>                 | Stainless Steel                | Austenitic         |                           |                           |                    |        | HB180                    | Finishing, Semi-finishing |
| Ferritic/Martensitic   |                          |                                | HB200              | 70-140-170                |                           |                    |        |                          |                           |
| Duplex stainless steel |                          |                                | HB230              | 60-90-120                 |                           |                    |        |                          |                           |
| <b>K</b>               | Malleable Cast Iron      | Ferritic                       | HB130              | Finishing, Semi-finishing | Continuous Cutting        | TC                 | GM3225 | 110-130-170              |                           |
|                        |                          | Pearlitic                      | HB230              |                           |                           |                    |        | 85-100-145               |                           |
|                        | Gray Cast Iron           | Low tensile strength           | HB180              |                           |                           |                    |        | 100-120-160              |                           |
|                        |                          | High tensile strength          | HB260              |                           |                           |                    |        | 80-100-140               |                           |
|                        | Nodular Cast Iron        | Ferritic                       | HB160              |                           |                           |                    |        | 110-125-160              |                           |
| Ferritic               |                          | HB250                          | 80-100-120         |                           |                           |                    |        |                          |                           |
| <b>N</b>               | Wrought Aluminum Alloys  | Non aging                      | HB60               | Finishing, Semi-finishing | Continuous Cutting        | TC                 | GM3225 | 350-500-700              |                           |
|                        |                          | Aged                           | HB100              |                           |                           |                    |        | 300-400-500              |                           |
|                        | Cast Aluminum Alloys     | Non aging                      | HB75               |                           |                           |                    |        | 300-450-500              |                           |
|                        |                          | Aged                           | HB90               |                           |                           |                    |        | 200-290-400              |                           |
|                        |                          | Containing silicon (13-22% Si) | HB130              |                           |                           |                    |        | 100-200-300              |                           |
|                        | Copper and Copper Alloys | Brass                          | HB90               |                           |                           |                    |        | 100-220-300              |                           |
|                        |                          | Bronze and non-leaded copper   | HB100              |                           |                           |                    |        | 80-180-255               |                           |
| <b>S</b>               | Heat-resistant Alloys    | Iron base                      | Annealed           | HB200                     | Finishing, Semi-finishing | Continuous Cutting | TC     | GM3225                   | 35-45-60                  |
|                        |                          |                                | Aged               | HB280                     |                           |                    |        |                          | 25-35-50                  |
|                        |                          | Nickel base and cobalt base    | Annealed           | HB250                     |                           |                    |        |                          | 15-25-30                  |
|                        |                          |                                | Aged               | HB350                     |                           |                    |        |                          | 10-15-25                  |
|                        |                          |                                | Cast               | HB320                     |                           |                    |        |                          | 10-13-20                  |
|                        | Titanium Alloys          | Commercial pure (99.5% Ti)     | 400Rm              | 140-150-170               |                           |                    |        |                          |                           |
|                        |                          | $\alpha+\beta$ alloys          | 1050Rm             | 50-60-70                  |                           |                    |        |                          |                           |
| <b>H</b>               | High Hardness Materials  | Hardened steel                 | HRC55              | Finishing, Semi-finishing | Continuous Cutting        | TC                 | GM3225 | 40-45-50                 |                           |
|                        |                          | Chilled cast iron              | HB400              |                           |                           |                    |        | 30-40-50                 |                           |



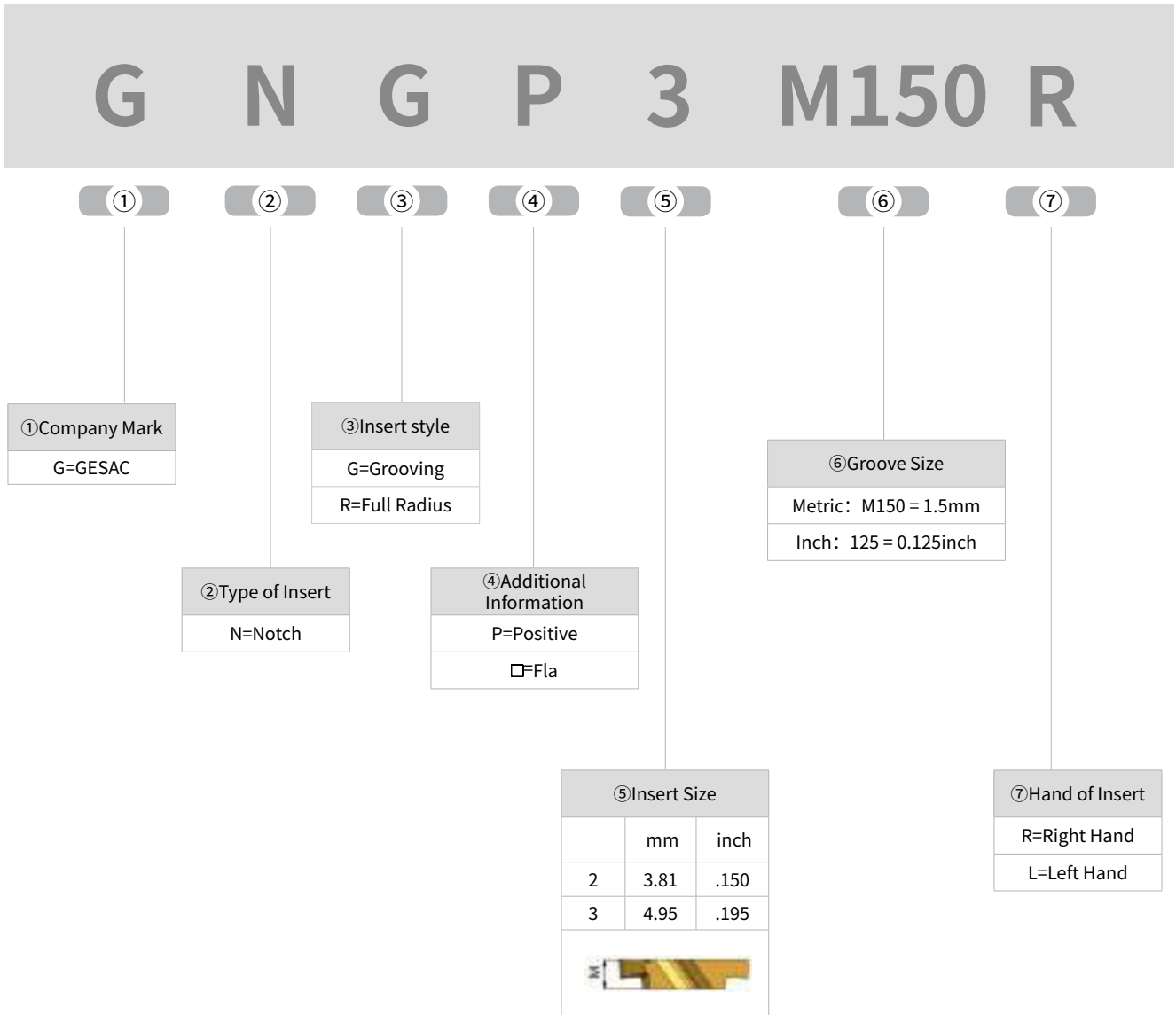
G

G-NOTCH TOOLS



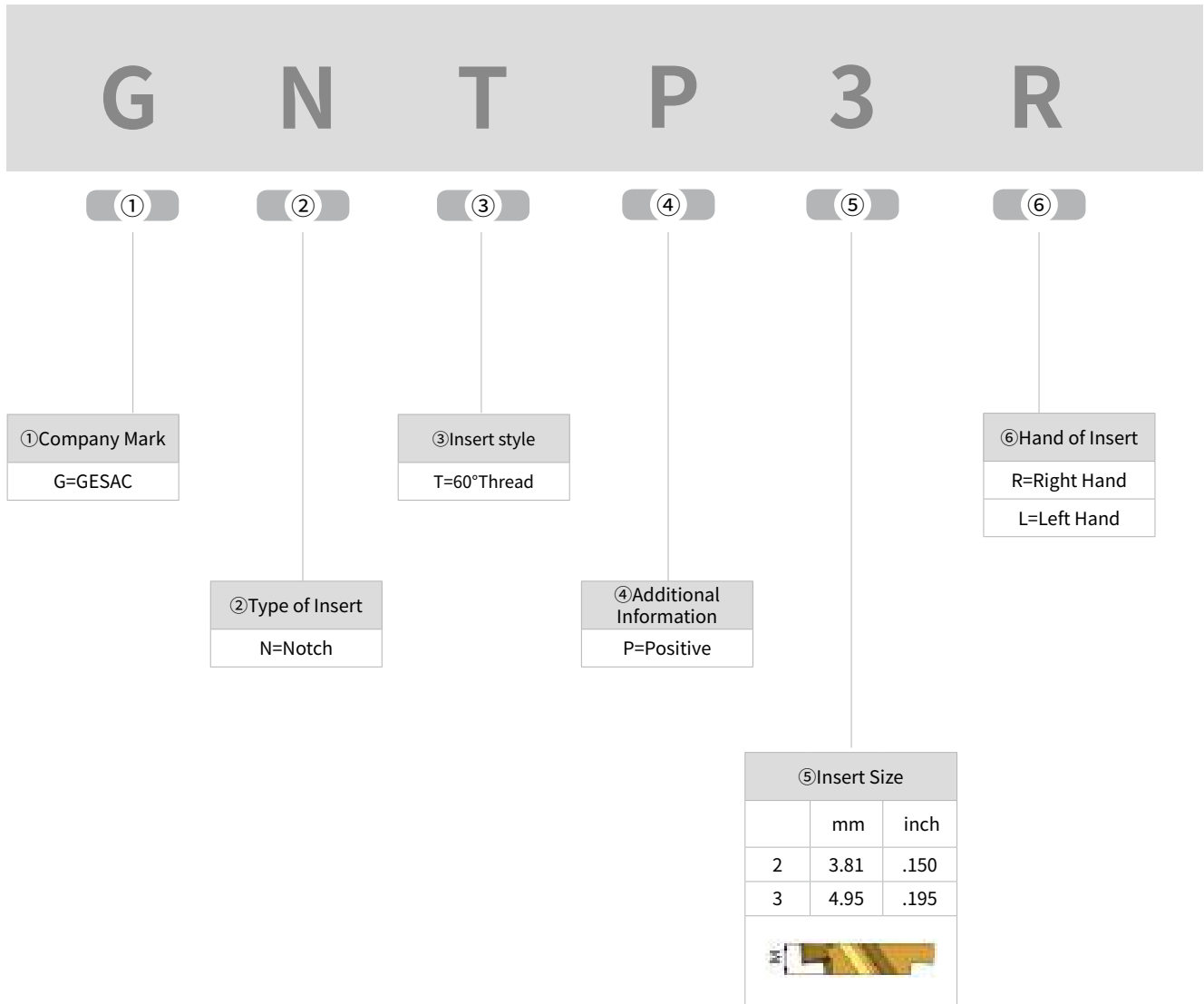
# G-NOTCH Series Inserts Identification System

## G-NOTCH Series Grooving Inserts Identification System



# G-NOTCH Series Inserts Identification System

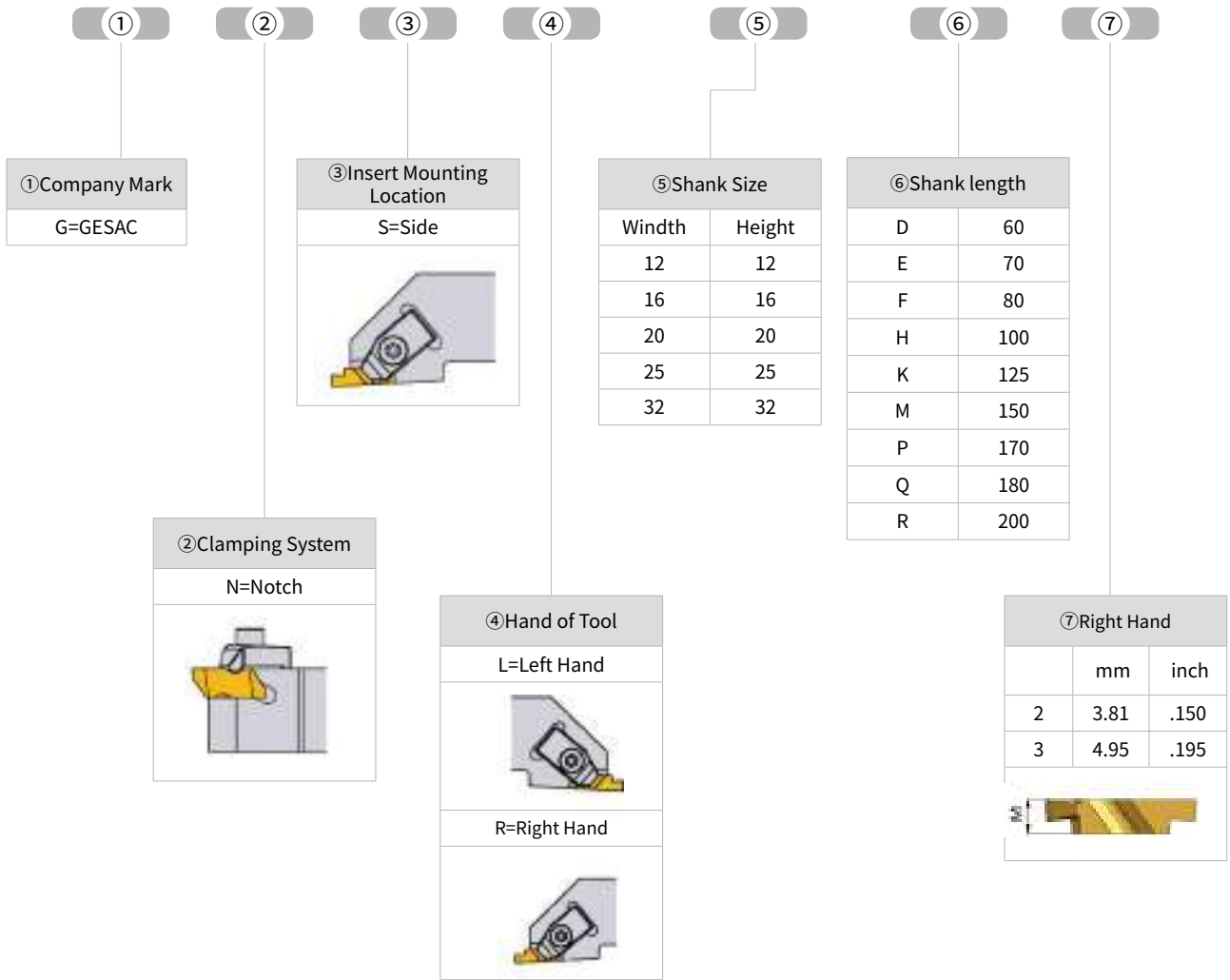
## G-NOTCH Series Threading Inserts Identification System



# G-NOTCH Holder Identification System

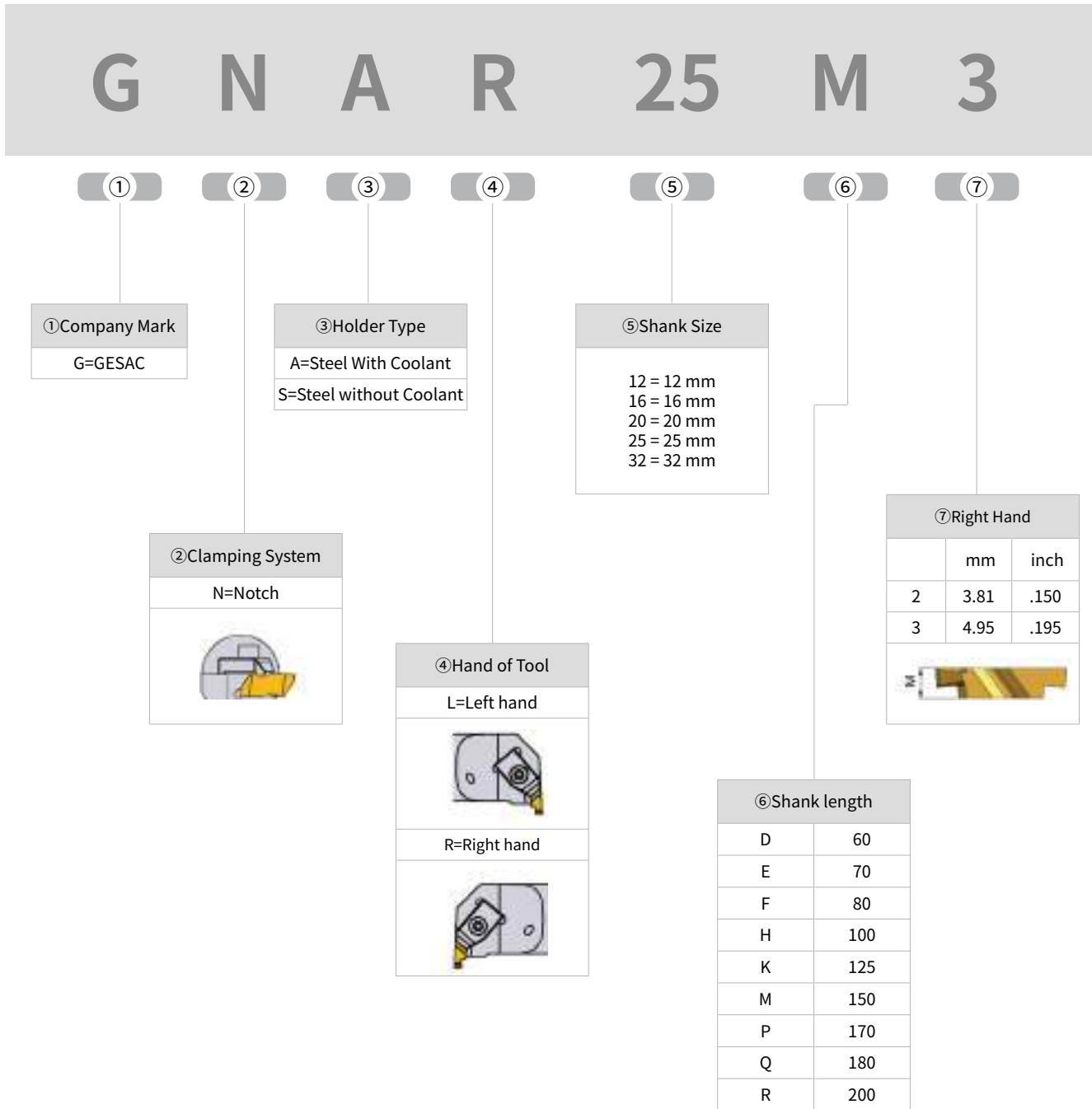
## G-NOTCH External Holder Identification System

G N S R 2525 M 3



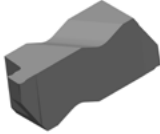
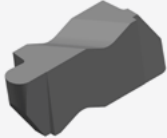

# G-NOTCH Holder Identification System

## G-NOTCH External Holder Identification System



Note: Left hand bars use right hand inserts, Right hand bars use left hand inserts.

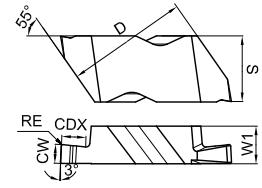
## Overview of G-Notch Series Inserts

| Application         | Type | Shape   | Width/Pitch                | Page |
|---------------------|------|---|----------------------------|------|
| Precision Grooving  | GNGP |  | 1.00-3.50 (mm)             | P147 |
| Precision Profiling | GNR  |  | 2.00-3.18 (mm)             | P149 |
| Threading           | GNTP |  | 0.70-5.00(mm)<br>36-5(TPI) | P149 |

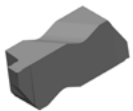
G-Notch Series Insert

# GNGP

Precision Grooving Inserts (positive rake angle)



| Ordering code | Dimension (mm) |      |      |      |      |      | Insert Size | Coating |
|---------------|----------------|------|------|------|------|------|-------------|---------|
|               | CW±0.025       | RE   | CDX  | S    | W1   | D    |             | GM3225  |
| GNGP2M100L    | 1.00           | 0.09 | 1.27 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M100R    | 1.00           | 0.09 | 1.27 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2047L     | 1.19           | 0.09 | 1.27 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2047R     | 1.19           | 0.09 | 1.27 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M150L    | 1.50           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M150R    | 1.50           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2062L     | 1.57           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2062R     | 1.57           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ●       |
| GNGP2M170L    | 1.70           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M170R    | 1.70           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2070L     | 1.78           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2078L     | 1.98           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2078R     | 1.98           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ●       |
| GNGP2M200L    | 2.00           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ●       |
| GNGP2M200R    | 2.00           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M220L    | 2.20           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M220R    | 2.20           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2094L     | 2.38           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2094R     | 2.38           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ●       |
| GNGP2M250L    | 2.50           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2M250R    | 2.50           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2125L     | 3.18           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ○       |
| GNGP2125R     | 3.18           | 0.19 | 2.79 | 5.56 | 3.81 | 8.74 | 2           | ●       |
| GNGP3031L     | 0.79           | 0.09 | 1.27 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3031R     | 0.79           | 0.09 | 1.27 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M100L    | 1.00           | 0.19 | 1.91 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M100R    | 1.00           | 0.19 | 1.91 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3047L     | 1.19           | 0.19 | 1.91 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3047R     | 1.19           | 0.19 | 1.91 | 8.74 | 4.95 | 16.1 | 3           | ○       |

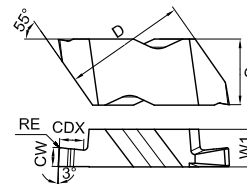


●Stock ○Available Upon Order

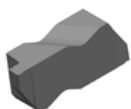
## G-Notch Series Insert

**GNGP**

Precision Grooving Inserts (positive rake angle)



| Ordering code | Dimension (mm) |      |      |      |      |      | Insert Size | Coating |
|---------------|----------------|------|------|------|------|------|-------------|---------|
|               | CW±0.025       | RE   | CDX  | S    | W1   | D    |             |         |
| GNGP3M150L    | 1.50           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M150R    | 1.50           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3062L     | 1.58           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3062R     | 1.58           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3070L     | 1.78           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3078L     | 1.98           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3078R     | 1.98           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3M200L    | 2.00           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M200R    | 2.00           | 0.19 | 2.39 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3094L     | 2.39           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3094R     | 2.39           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3M250L    | 2.50           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M250R    | 2.50           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M300L    | 3.00           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M300R    | 3.00           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3125L     | 3.18           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3125R     | 3.18           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ●       |
| GNGP3M350L    | 3.50           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |
| GNGP3M350R    | 3.50           | 0.19 | 3.81 | 8.74 | 4.95 | 16.1 | 3           | ○       |



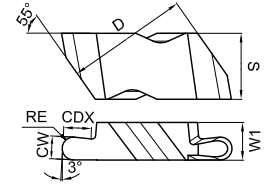
●Stock ○Available Upon Order

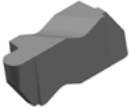


G-Notch Series Insert

# GNR

Precision Profiling Insert



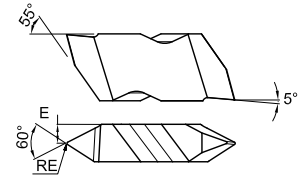
| Ordering code   | Dimension (mm) |      |      |      |      |      | Insert Size | Coating |             |
|---|----------------|------|------|------|------|------|-------------|---------|-------------|
|   | CW±0.025       | RE   | CDX  | S    | W1   | D    |             |         |             |
|  | GNR3M100R      | 2.00 | 1.00 | 2.39 | 8.74 | 4.95 | 16.1        | 3       | GM3225<br>○ |
|   | GNR3M150R      | 3.00 | 1.50 | 3.81 | 8.74 | 4.95 | 16.1        | 3       | ○           |
|   | GNR3047L       | 2.39 | 1.19 | 3.81 | 8.74 | 4.95 | 16.1        | 3       | ○           |
|   | GNR3047R       | 2.39 | 1.19 | 3.81 | 8.74 | 4.95 | 16.1        | 3       | ○           |
|   | GNR3062R       | 3.18 | 1.59 | 3.81 | 8.74 | 4.95 | 16.1        | 3       | ○           |


● Stock ○ Available Upon Order

G-Notch Series Insert

# GNTP

60° Threading insert with rake angle



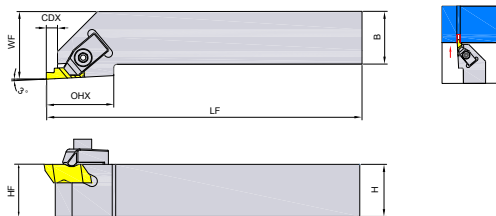
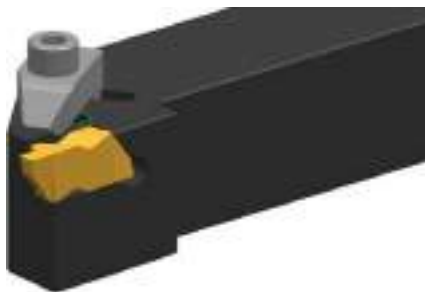
| Ordering code   | Pitch       |             |              |              | Dimension (mm) |      | Insert Size | Coating |             |
|---|-------------|-------------|--------------|--------------|----------------|------|-------------|---------|-------------|
|   | External mm | Internal mm | External TPI | Internal TPI | RE             | E    |             |         |             |
|  | GNTP2L      | 0.70-3.00   | 1.25-3.50    | 8-36         | 7-20           | 0.10 | 1.91        | 2       | GM3225<br>○ |
|   | GNTP2R      | 0.70-3.00   | 1.25-3.50    | 8-36         | 7-20           | 0.10 | 1.91        | 2       | ○           |
|   | GNTP3L      | 1.25-4.00   | 2.00-5.00    | 4-20         | 5-12           | 0.17 | 2.49        | 3       | ○           |
|   | GNTP3R      | 1.25-4.00   | 2.00-5.00    | 4-20         | 5-12           | 0.17 | 2.49        | 3       | ●           |
|   | GNTP3004R   | 1.25-4.00   | 2.00-5.00    | 5-36         | 5-12           | 0.10 | 2.49        | 3       | ○           |

● Stock ○ Available Upon Order

External Holder

G-Notch Series

# GNS



The Picture is Right Hand Holder

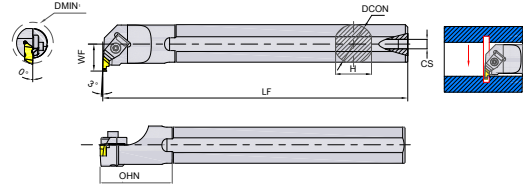
| Ordering code | Dimension (mm) |    |    |     |     |     | Insert | Screw       | Clamp   | Wrench | Stock |
|---------------|----------------|----|----|-----|-----|-----|--------|-------------|---------|--------|-------|
|               | H              | B  | WF | LF  | OHX | CDX |        |             |         |        |       |
| GNSR1616H2    | 16             | 16 | 20 | 100 | 19  | 3.5 | GN.2R  | SCAM040120H | CAN02RH | TH30LH | ●     |
| GNSR2020K2    | 20             | 20 | 25 | 125 | 19  | 3.5 | GN.2R  | SCAM040120H | CAN02RH | TH30LH | ○     |
| GNSR2525M2    | 25             | 25 | 32 | 150 | 19  | 3.5 | GN.2R  | SCAM040120H | CAN02RH | TH30LH | ○     |
| GNSR2020K3    | 20             | 20 | 25 | 125 | 32  | 5.3 | GN.3R  | SCAM050200H | CAN03RH | TH40LH | ●     |
| GNSR2525M3    | 25             | 25 | 32 | 150 | 32  | 5.3 | GN.3R  | SCAM050200H | CAN03RH | TH40LH | ●     |
| GNSL1616H2    | 16             | 16 | 20 | 100 | 19  | 3.5 | GN.2L  | SCAM040120H | CAN02LH | TH30LH | ○     |
| GNSL2020K2    | 20             | 20 | 25 | 125 | 19  | 3.5 | GN.2L  | SCAM040120H | CAN02LH | TH30LH | ○     |
| GNSL2525M2    | 25             | 25 | 32 | 150 | 19  | 3.5 | GN.2L  | SCAM040120H | CAN02LH | TH30LH | ○     |
| GNSL2020K3    | 25             | 20 | 25 | 125 | 32  | 5.3 | GN.3L  | SCAM050200H | CAN03LH | TH40LH | ○     |
| GNSL2525M3    | 25             | 25 | 32 | 150 | 32  | 5.3 | GN.3L  | SCAM050200H | CAN03LH | TH40LH | ●     |

●Stock ○Avaliable Upon Order




Internal Holder

G-Notch Series

# GNA



The Picture is Right Hand Holder

| Ordering code | Dimension (mm) |       |     |    |            | Insert | Screw  | Clamp   | Wrench  | Stock |
|---------------|----------------|-------|-----|----|------------|--------|--|---|---|-------|
|               | DCON           | DMIN1 | LF  | WF | CS         |        |  |  |  |       |
| GNAR20Q2      | 20             | 26    | 180 | 13 | 1/8-27 NPT | GN.2L  | CAN02LH  | SCAM040120H   | TH30LH  | ○     |
| GNAR25R2      | 25             | 34    | 200 | 17 | 1/4-18 NPT | GN.2L  | CAN02LH  | SCAM040120H   | TH30LH  | ○     |
| GNAR25R3      | 25             | 34    | 200 | 17 | 1/4-18 NPT | GN.3L  | CAN03LH  | SCAM050200H   | TH40LH  | ○     |
| GNAL20Q2      | 20             | 26    | 180 | 13 | 1/8-27 NPT | GN.2R  | CAN02RH  | SCAM040120H   | TH30LH  | ●     |
| GNAL25R2      | 25             | 34    | 200 | 17 | 1/4-18 NPT | GN.2R  | CAN02RH  | SCAM040120H   | TH30LH  | ○     |
| GNAL25R3      | 25             | 34    | 200 | 17 | 1/4-18 NPT | GN.3R  | CAN03RH  | SCAM050200H   | TH40LH  | ○     |

Note: Left hand bars use right hand inserts, Right hand bars use left hand inserts

● Stock ○ Available Upon Order

## Recommended Cutting Datas

### Recommend feed

| Width<br>W(mm) | Feed<br>f(mm/r)  |
|----------------|------------------|
| 0.79-1.50      | 0.08 (0.03-0.12) |
| 1.50-2.50      | 0.10 (0.04-0.16) |
| 2.50-3.50      | 0.12 (0.05-0.20) |
| 3.50-4.50      | 0.14 (0.05-0.25) |

### Recommend cutting speed

| ISO      | Workpiece Material   | Hardness<br>(HB) | Cutting Speed<br>Vc (m/min) |
|----------|----------------------|------------------|-----------------------------|
|          |                      |                  | GM3225                      |
| <b>P</b> | Low Carbon Steel     | 80- 170          | 110<br>(70-180)             |
|          | High Carbon Steel    | 170- 250         | 110<br>(70-160)             |
|          | Low-alloy Steel      | 140- 260         | 110<br>(60-160)             |
|          | High-alloy Steel     | 180- 300         | 110<br>(60-160)             |
| <b>M</b> | Ferritic/Martensitic | 150- 270         | 100<br>(40-180)             |
|          | Austenitic           | 150- 270         | 100<br>(40-180)             |
| <b>K</b> | Malleable Cast Iron  | 150- 230         | 180<br>(70-300)             |
|          | Gray Cast Iron       | 150- 230         | 180<br>(70-300)             |
|          | Nodular Cast Iron    | 160- 260         | 160<br>(60-300)             |
| <b>S</b> | Heat-resistant Alloy | 130- 400         |                             |
|          | Titanium Alloys      | 130- 400         |                             |

H



# APPENDIX



## Geometry Comparison Table

| ISO            | Tool Type | Application               | Gesec     | Sandvik        | Seco                   | Iscar           | Kenometal       | Walter         | Mitsubishi           | Sumitomo       | Tungaloy         | Kyocera                    | Taegutec             | Korloy               |
|----------------|-----------|---------------------------|-----------|----------------|------------------------|-----------------|-----------------|----------------|----------------------|----------------|------------------|----------------------------|----------------------|----------------------|
| <b>P</b>       | Negative  | Finishing                 | QF        | PF<br>QF<br>LC | FF1<br>FF2<br>MF2      | NF<br>F3P       | FP<br>FN        | FP5            | LP<br>SA<br>SY<br>SH | LU<br>SU<br>SE | TS<br>TSF<br>ZF  | PP<br>HQ<br>CQ<br>XQ       | FA<br>FG             | VL<br>VF<br>VB       |
|                |           | Semi-finishing (L&R)      | TS        | K              |                        |                 |                 |                |                      | UM<br>HM       | P<br>S           | 25R                        | VF                   |                      |
|                |           | Semi-finishing            | QM<br>TP  | PM<br>QM       | M3<br>MF5              | TF<br>GN<br>M3P | MP<br>MN        | MP3<br>MP5     | MA<br>MP             | GU<br>GE<br>UX | TM<br>DM<br>AM   | PQ<br>PG<br>PS<br>GS<br>PT | MC<br>MP<br>PC<br>MT | VM<br>LP<br>MP<br>GM |
|                |           | Semi-finishing with Wiper | WMV       | WMX<br>WM      | W-M3                   | WG              | MW              | NM             | MW                   | GUW            | SW<br>ASW        | WE<br>WQ                   | WT                   | LW                   |
|                |           | Rough-finish              | QR        | PR             | M5<br>M6<br>MR6<br>MR7 | NR<br>T3P       | RP<br>RN        | RP5<br>RP7     | RP<br>GH             | MU<br>ME<br>MX | TH<br>THS        | GT<br>PH                   | RT                   | GR                   |
|                |           | Heavy Turning             | QH        | HR             | RR9                    | R3P             | RH              | NRR            | HX<br>HV             | HU<br>HW<br>HF | TU<br>TUS        |                            | HT<br>HY<br>HD<br>HZ | VT<br>VH             |
|                | Positive  | Finishing                 | MM        | PF<br>UF       | MF2<br>F1              | PF<br>F3P       | FP<br>LF        | FP4            | FP<br>FV<br>LP       | LU<br>LB<br>SU | PSF<br>PS<br>PSS | PP<br>XQ                   | FA<br>FG             | VF<br>VL             |
|                |           | Semi-finishing            | TP<br>GP  | PM<br>UM       | M3<br>F2               | PP<br>SM<br>14  | MP              | MP4            | MP<br>MV             | SF<br>MU       | PM               | HQ                         | PC<br>MT             | HMP<br>MP<br>C25     |
|                |           | Rough-finish              | KM        | PR<br>UR       | M5                     |                 | MF              | RP4            |                      |                |                  |                            |                      |                      |
|                | <b>M</b>  | Negative                  | Finishing | SF             | MF                     | MF1             | VL<br>SF<br>F3M | FP<br>FS<br>LF | NF4<br>NMS           | FH<br>SH<br>LM | SU<br>EF         | SF                         | MQ<br>GU             | EA                   |
| Semi-finishing |           |                           | SM<br>LM  | 23<br>MM<br>QM | M1<br>MF3<br>MF4       | TF<br>PP<br>M3M | MS<br>MP        | NM4            | MM<br>MS<br>MA       | EX<br>GU       | SM               | MS<br>MU<br>HU             | FG<br>SF<br>EM<br>MP | GS<br>HS<br>MM       |
| Rough-finish   |           |                           | LR        | MR             | M5<br>MF5              | NM<br>R3M       | RP              | NR4<br>NR5     | RM<br>RK<br>GH       | EM<br>MU       | SH               | TK<br>ST                   | ET                   | VM<br>RM             |
| Positive       |           | Finishing                 | MM        | UF<br>MF       | F1                     | PF              | LF              | PM             | FM<br>LM             | SU             | PSF              | GQ                         | FG                   | HFP<br>VP1           |
|                |           | Semi-finishing-Roughing   | MM<br>GP  | UM<br>MM       | MF2                    | SM              | MF              | PM5            | MM<br>MV<br>None     | MU             | PS<br>PM         | MQ                         | SA                   | HMP<br>C25           |

## Geometry Comparison Table

| ISO      | Tool Type | Application               | Gesec    | Sandvik   | Seco     | Iscar    | Kenometal | Walter     | Mitsubishi     | Sumitomo | Tungaloy             | Kyocera                   | Taegutec | Korloy         |
|----------|-----------|---------------------------|----------|-----------|----------|----------|-----------|------------|----------------|----------|----------------------|---------------------------|----------|----------------|
| <b>K</b> | Negative  | Semi-finishing            | UK       | KF<br>KM  | M4       | GN       | FN<br>UN  | MK5        | LK<br>MK<br>GK | UZ<br>UX | CF<br>CM<br>Standard | KQ<br>KG<br>C<br>Standard | KT       | MK<br>GR<br>VR |
|          |           | Semi-finishing with Wiper | WMV      | WMX<br>WM | W-M3     | WG       | MW        | NM         | MW             | GUW      | SW<br>ASW            | WE<br>WQ                  | WT       | LW             |
|          |           | Rough-finish              | HK       | KR        | M5<br>M6 | NR       | UN<br>RP  | RK5<br>RK7 | GH<br>RK       | GZ       | CH                   | KH<br>GC<br>ZS            | RT       | RK             |
|          | Positive  | Finishing-Semi-Finishing  | MM<br>GP | KF<br>KM  |          | 14<br>19 | MF        | FK6<br>MK4 | MK<br>Standard | MU       | CM                   | GK                        |          | HMP            |
|          |           | Rough-finish              | KM       | KM<br>KR  | M5       |          | MP        | RK4<br>RK6 | Flat           | US       | Flat                 |                           | MT       | C25            |
| <b>N</b> | Positive  | General Machining         | AL       | AL        | AL       | AS       | HP        | PM2        | AZ             | AG       | AL                   | AH                        | FL       | AK             |

## Grade comparison table

| ISO | Coating Code | Gesec | Sandvik                      | Seco                                 | Iscar  | Kenametal                                    | Walter                               | Mitsubishi      | Sumitomo                   | Tungaloy                    | Kyocera                                   | Taegutec  | Korloy                               |                  |
|-----|--------------|-------|------------------------------|--------------------------------------|--|--|--------------------------------------|-----------------|----------------------------|-----------------------------|---|---|--------------------------------------|------------------|
| P   | CVD          | P01   | GPT6110                      | GC4205<br>GC4305                     | TP0500<br>TP0501<br>TP1000                     | IC9150<br>IC8150                             | KCP05B<br>KC9105                     | WPP05S<br>WPP05 | UE6105<br>UE6005           | AC810P                      | T9205<br>T9115<br>T9015                   | CA510<br>CA5505   | TT8105<br>TT8115                     | NC3010           |
|     |              | P10   | GPT6110                      | GC4215<br>GC4315<br>GC4415           | TP0500<br>TP0501<br>TP1500<br>TP1501           | IC9150<br>IC8150                             | KCP10B<br>KC9110<br>KC9315           | WPP10S<br>WPP10 | UE6010<br>UE6110<br>MC6015 | AC810P<br>AC8025P<br>AC820P | T9215<br>T9115<br>T9015                   | CA515<br>CA5515   | TT8105<br>TT8115                     | NC3010<br>NC3215 |
|     |              | P20   | GPT6120<br>GPT6130           | GC4225<br>GC4325<br>GC4425           | TP1500<br>TP1501<br>TP2500<br>TP2501<br>TP2000 | IC9250<br>IC8250                             | KCP25B<br>KC9125<br>KC9225<br>KC9325 | WPP20S<br>WPP20 | UE6120<br>UE6020<br>MC6025 | AC820P                      | T9225<br>T9125<br>T9025                   | CA525<br>CA5525   | TT8125<br>TT8115<br>TT5100           | NC3225<br>NC3120 |
|     |              | P30   | GPT6120<br>GPT6130<br>GP1135 | GC4235<br>GC4335                     | TP2500<br>TP2501<br>TP3501<br>TP3500           | IC635<br>IC9350<br>IC8350                    | KCP30B<br>KC9140<br>KC9240           | WPP30S<br>WPP30 | MC6035<br>UE6035           | AC830P<br>AC630M            | T9235<br>T9135                            | CA530<br>CA5535   | TT8125<br>TT5100<br>TT8135<br>TT7100 | NC3030<br>NC5330 |
|     |              | P40   | GP1135                       | GC4240<br>GC4335                     | TP3500<br>TP40                                 | IC635  | KCP40B<br>KC9240                     | WPP30S<br>WPP30 | MC6035<br>UH6400           | AC830P<br>AC630M            | T9235<br>T9135                            | CA530<br>CA5535   | TT5100<br>TT8135<br>TT7100           | NC3030<br>NC5330 |
|     | PVD          | P01   |                              |                                      |  |  |                                      |                 |                            |                             |   | PR1005  |                                      |                  |
|     |              | P10   |                              | GC1525<br>GC1025                     | CP200<br>TH1000<br>TS2000                      | IC250<br>IC507<br>IC570                      | KCU10<br>KC5010<br>KC5510            |                 | MS6015<br>VP10MF           |                             | AH710                                     | PR1005<br>PR1115<br>PR1215                              |                                      | PC8110           |
|     |              | P20   | GM3325                       | GC1525<br>GC1020<br>GC1125<br>GC1025 | CP250<br>TS2500                                | IC908<br>IC928<br>IC1008<br>IC1028<br>IC3028 | KCU25<br>KC5025<br>KC5525            |                 | VP15TF<br>VP20MF           | AC520U                      | AH710<br>AH330                            | PR930<br>PR1025<br>PR1115<br>PR1215<br>PR1425<br>PR1225 | TT9020<br>TT7010<br>TT7220           | PC5300<br>PC8115 |
|     |              | P30   | GM3325                       | GC1125<br>GC1025                     | CP500  | IC928<br>IC1008<br>IC1028<br>IC3028          | KC5525                               |                 | VP15TF<br>VP20MF           | AC530U                      | GH330<br>GH730<br>AH120<br>AH330<br>AH740 | PR1025<br>RR1225<br>PR1535                              | TT8020<br>TT9020<br>TT7220           |                  |
|     |              | P40   | GM3325                       | GC1145<br>GC2145                     | CP500  | IC928<br>IC1008<br>IC1028                    | KC5525                               |                 | VP15TF<br>VP20MF           |                             | AH140                                     |   | TT8020                               |                  |

P

PVD



## Grade comparison table

| ISO      | Coating Code | Gesec | Sandvik          | Seco  | Iscar                                | Kenometal   | Walter                    | Mitsubishi                 | Sumitomo                                      | Tungaloy                             | Kyocera                                    | Taegutec  | Korloy  |                            |                                      |
|----------|--------------|-------|------------------|---|--------------------------------------|---|---------------------------|----------------------------|---|--------------------------------------|--|---|---|----------------------------|--------------------------------------|
| <b>M</b> | PVD          | M10   | GM3315           | GC1105<br>GC1115<br>GC1525<br>G15           |                                      | IC520   | KCS10                     | WXM10                      | VP10RT  | AC510U                               | AH110<br>AH8005                            | PR1025<br>PR1215  | TT5080  | PC8105                     |                                      |
|          |              | M20   | GM3220           | GC1025<br>GC1115<br>GC1125<br>GC1525<br>G30 | TS2000<br>TS2500<br>CP200            | IC520<br>IC507<br>IC807<br>IC907                    | KC5010<br>KC5510<br>KCU10 | WSM10<br>WSM10S            | VP10RT<br>VP15TF<br>VP20MF<br>VP20RT<br>UP20M | AC520U                               | AH120<br>AH630<br>AH8015<br>SH725<br>GH330 | PR930<br>PR1025<br>PR1125<br>PR1215<br>PR1425<br>PR1225 | TT9030<br>TT8010                              | PC8110<br>PC8115           |                                      |
|          |              | M30   | GM3220<br>GM3325 | GC1125<br>GC2035                            | TS2500<br>CP200<br>CP500             | IC520<br>IC507<br>IC807<br>IC907<br>IC308<br>IC3028 | KC5025<br>KC5525<br>KCU25 | WSM20<br>WSM21<br>WSM20S   | VP15TF<br>VP20MF<br>VP20RT<br>UP20M<br>MP7035 | AC530U<br>AC6040M                    | AH630<br>AH725<br>SH725<br>SH730<br>GH730  | PR1125<br>PR1225<br>PR1535                              | TT9080<br>TT8020                              | PC5300<br>PC9030           |                                      |
|          |              | M40   | GM3325           | GC1125<br>GC2035                            | CP500<br>CP600                       | IC3028<br>IC308<br>IC908<br>IC928                   | KC5025<br>KC5525<br>KCU25 | WSM30<br>WSM30S            | MP7035  | AC6040M                              | AH645                                      |   |   |                            | PC5400                               |
|          | CVD          | M10   | GM1115           | GC2015<br>GC2220                            |                                      | IC9250<br>IC520M                                    | KCM15B                    | WAM10                      | MC7015  | AC610M                               |  | CA6515  | TT9215  | NC9115                     |                                      |
|          |              | M20   | GM1115           | GC1515<br>GC2015<br>GC2025<br>GC2220        | TM2000<br>TP200                      | IC9025<br>IC9350<br>IC4050                          | KCM15B<br>KCM25B          | WAM20                      | MC7015<br>US7020<br>MC7025                    | AC6020M<br>AC630M                    | T6120                                      | CA6525  | TT9215<br>TT9225                              | NC9125<br>NC9025<br>NC5330 |                                      |
|          |              | M30   | GM1230           | GC2040<br>GC235                             | TM2000<br>TM4000<br>TP40             | IC9350<br>IC4050<br>IC635                           | KCM25B<br>KCM35B          | WAM20                      | MC7025<br>US735                               | AC6030M<br>AC630M<br>AC830P          | T6130                                      |   | TT9225<br>TT9235                              | NC9135                     |                                      |
|          |              | M40   | GM1230           | GC235                                       | TM4000                               | IC635   | KCM35B<br>KCP40B          |                            | US735   |                                      |  |   | TT9235  |                            |                                      |
|          | <b>K</b>     | CVD   | K01              | GK1215                                      | GC3205                               | TK1001<br>TH1500<br>TK1000                          | IC5005<br>IC8150          | KCP05B<br>KCP10B<br>KCL05B | WKK10S<br>WAK10                               | UC5105<br>MC5005                     | AC4010K<br>AC405K                          | T5105   | CA310<br>CA4010<br>CA4505<br>CA5505           | TT7005                     | NC6205<br>NC6210                     |
|          |              |       | K10              | GK1215<br>GK1220                            | GC3205<br>GC3210<br>GC3215           | TK1001<br>TK2001<br>TK2000<br>TP0500<br>TP1500      | IC5005<br>IC5010          | KCK15B<br>TN5015B          | WKK10S<br>WAK10                               | UC5105<br>UC5115<br>MC5005<br>MC5015 | AC4015K<br>AC405K<br>AC415K                | T515<br>T5105<br>T5115                                  | CA315<br>CA4515<br>CA4010<br>CA4115<br>CA4120 | TT7005<br>TT7015           | NC6205<br>NC6210<br>NC315K           |
|          |              |       | K20              | GK1215<br>GK1220<br>GK1225                  | GC4325<br>GC3215<br>GC3220<br>GC3225 | TK2001<br>TP2500                                    | IC5010                    | KCK20B<br>KCP25B           | WKK10S<br>WKK20S<br>WAK10<br>WAK20            | UC5115<br>MC5015                     | AC4015K<br>AC415K<br>AC420K                | T5115<br>T5125  | CA315<br>CA4515<br>CA4115<br>CA4120<br>CA4515 | TT7015<br>TT7310           | NC6215<br>NC315K<br>NC5330<br>PC5300 |
|          |              |       | K30              | GK1225                                      | GC3040<br>GC4335                     | TK2001<br>TP2500<br>TP200                           |                           |                            | WAK30<br>WKP30S                               | UC5115<br>MC5015                     | AC420K<br>AC820P                           | T5125   | CA320<br>CA4120                               |                            | NC5330<br>PC5300                     |
| <b>N</b> | PVD          | N01   | GN3125           | H10<br>H13A                                 |                                      |   | K605                      |                            |   | H1<br>H2                             | KS05F                                      | KW10  |   | H01                        |                                      |
|          |              | N10   | GN3125           |   | 890<br>H15                           | IC20  | K313<br>K110M<br>THM      | WK10                       | HTi10   | EH10<br>EH510                        | TH10<br>H10T                               | KW10<br>GW15  | K10   |                            |                                      |
|          |              | N20   | GN3125           |   | HX<br>KX<br>883<br>H15<br>H25        | IC20  | K715<br>KMF<br>K600       |                            |   | G10E<br>EH20<br>EH520                | KS15F                                      |   | K20   |                            |                                      |
|          |              | N30   |                  |   | H25<br>883                           |   | G13<br>THR                |                            |   |                                      |  |   |   |                            |                                      |

## Cermet Grade comparison table

| ISO      | Coating | Code    | Gesec  | Sandvik | Seco   | Iscar                   | Kenametal       | Mitsubishi                        | Sumitomo                   | Tungaloy                         | Kyocera        | Taegutec | Korloy                     |
|----------|---------|---------|--------|---------|--------|-------------------------|-----------------|-----------------------------------|----------------------------|----------------------------------|----------------|----------|----------------------------|
| <b>P</b> | None    | P01     |        |         |        | IC20N                   | KT1120          | NX1010                            | T110A<br>T1000A            | NS520                            | TN610          |          | CN20                       |
|          |         | P10     | GP91TM | CT5015  | TP1020 | IC20N<br>IC75T          | KT1120<br>KT175 | NX2525                            | T1200A<br>T1500A           | NS520<br>NS9530                  | TN610<br>TN60  | CT3000   | CN20<br>CN1000<br>CN1500   |
|          |         | P20     | GP91TM | CT5015  | TP1020 | IC20N<br>IC75T<br>IC30N | KT125           | NX2525<br>NX3035                  | T1200A<br>T1500A           | NS9530<br>NS530<br>NS730         | TN620<br>TN90  | CT3000   | CN1000<br>CN1500<br>CN2000 |
|          |         | P30     |        |         |        | IC75T<br>IC30N          |                 | NX3035<br>NX4545                  | T250A                      | NS740                            |                |          | CN2500                     |
|          | PVD     | P01-P20 | GP31TM | GC1525  | TP1030 | IC520N<br>IC530N        | KT315<br>KTP10  | AP25N<br>VP25N<br>MP3025<br>VP45N | T1500Z<br>T2000Z<br>T3000Z | J530<br>GT9530<br>GT530<br>GT730 | PV710<br>PV720 | PV3010   | CC1500<br>CC2500           |

## PCBN&amp;PCD Grade comparison table

| ISO      | Code | Gesec              | Sandvik                            | Seco   | Iscar           | Kenometal                            | Walter | Mitsubishi                 | Sumitomo   | Tungaloy                | Kyocera  | Taegutec       | Korloy                    |
|----------|------|--------------------|------------------------------------|--|-----------------|--------------------------------------|--------|----------------------------|--|-------------------------|--|----------------|---------------------------|
| <b>K</b> | K01  | BKN115P<br>BKC120P | CB7525                             | CBN050C<br>CBN300P                               | IB50<br>IB85    | KB1630<br>KB1345                     | WCB80  | MB710                      | BN500<br>BNC500<br>BN7000                        | BX910<br>BX930<br>BX950 | KBN475   | TB730          | KB370                     |
|          | K10  | BKN115P            | CB50<br>CB7050                     | CBN20<br>CBN200<br>CBN300                        | IB55            | KB9610                               | WCB50  | MB5015<br>MB4020           | BN7000<br>BN500                                  | BX470<br>BX480<br>BX950 | KBN60M<br>KBN900                               | KB90A          | KB350                     |
|          | K20  | BKN115P            |                                    | CBN350<br>CBN500<br>CBN600                       | IB90            | KB9640                               | WCB80  | BC5030<br>MB730<br>MBS140  | BN7000<br>BNS800                                 | BXC90<br>BX90S          | KBN900   |                | DBS800                    |
| <b>H</b> | H01  | BHC115P            | CB20                               | CBN050C<br>CBN010<br>CBN10<br>CBN100             | IB25HC<br>IB20H | KB1610                               | WCB30  | BC8105<br>MB810            | BNC2010<br>BNC100<br>BN1000<br>BN2000<br>BNX10   | BXM10<br>BX310<br>BXC30 | KBN05M<br>KBM10M<br>KBN510                     | TB610<br>KB50  | KB410<br>KB1000           |
|          | H10  | BHC115P<br>BHC125P | CB7105<br>CB7015<br>CB50<br>CB7050 | CBN160C<br>CBN150<br>CBN060K<br>CBN200           | IB50            | KB9610<br>KB5610<br>KB1615<br>KB1625 | WCB50  | BC8110<br>MBC010<br>MB825  | BNC2010<br>BNC2020<br>BNC160<br>BNC200<br>BN2000 | BXM10<br>BX330          | KBN05M<br>KBM10M<br>KBN25M<br>KBN510<br>KBN525 | TB650<br>KB50  | DNC250<br>KB320<br>KB2000 |
|          | H20  | BHC125P            | CB7115<br>CB7025<br>CB7525         | CBN400C<br>CBN300P<br>CH2540<br>CBN350<br>CBN500 | IB25HA<br>IB55  | KB5625<br>KB1340                     | WCB80  | BC8120<br>MBC020<br>MB8025 | BNC2020<br>BNC200<br>BNX20                       | BXM20<br>BXC50<br>BX380 | KBN25M<br>KBN30M<br>KBN35M<br>KBN900           | TB670          | KB420                     |
|          | H30  | BHC135P            | CB7525                             | CH3515   | IB55            | KB9640<br>KB5630                     |        | BC8130<br>MB835            | BNC300<br>BN350<br>BNX25                         | BXM20<br>BXC50<br>BXA20 | KBN30M<br>KBN35M<br>KBN900                     | TB730<br>KB90A | DNC350<br>KB335<br>KB425  |
| <b>S</b> | S01  | BSN115P            |                                    | CBN200   |                 | KB5630                               | WCB80  | MB4020                     | BN7000   | BX470<br>BX480          | KBN65M<br>KBN70M<br>KBN570<br>KBN65B           | KB90<br>KB90A  | KB370                     |
| <b>N</b> | N01  |                    | CD05                               | PCD05  |                 | KD1405<br>PD100                      |        | MD205                      | DA1000<br>DA90                                   | DX180<br>DX160          | KPD001   | TD810          | DP200                     |
|          | N10  | DNN125P            | CD10                               | PCD10  | ID5             | KD1415<br>KD1400                     | WD10   | MD220                      | DA1000<br>DA150                                  | DX140<br>DX110          | KPD001<br>KPD010<br>KPD230<br>KPD250           |                | DP200                     |
|          | N20  | DNN125P            |                                    | PCD20  |                 | KD1425                               |        | MD230                      | DA1000<br>DA2200                                 | DX120                   | KPD001<br>KPD010<br>KPD230<br>KPD250           | KP300          | DP150                     |
|          | N30  |                    |                                    | PCD30<br>PCD30M                                  |                 | KD1400                               |        | MD2030                     | DA1000<br>DA2200                                 | DX110                   |  |                | DP90                      |



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