

# Carbide Grades for Indexable Drill Inserts





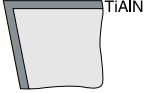
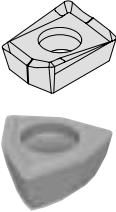


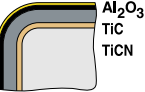





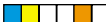




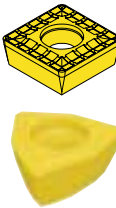

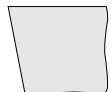
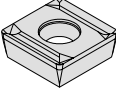


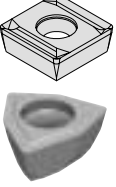
## Kennametal Insert Grade System

|                              | grade  | coating     | insert | composition and application   | ANSI class  | ISO class                     |
|------------------------------|--------|-------------|--------|---|-------------|-------------------------------|
| Solid Carbide Drills         | KC7020 | TiN         |        | <b>composition:</b> PVD TiN-coated grade with a wear- and crater-resistant straight substrate containing 10% cobalt.<br><b>application:</b> Developed for general machining of low- and medium-carbon steel and alloy steel. Used in inserts for DRILL-FIX DFR drill bodies.  | C5-C6       | P10-P25                       |
| Combination Tools            |        |             |        |   |             |                               |
| Modular Drills               | KC7025 | TiN         |        | <b>composition:</b> PVD TiN-coated grade with a wear-resistant straight substrate containing 9.8% cobalt.<br><b>application:</b> Developed for machining materials such as austenitic and ferritic stainless steels and high-temperature alloys. Used in inserts for DRILL-FIX DFR drill bodies.  | C2-C3       | K25-K35<br>P30-P40            |
| Indexable Drills             | KC7140 | TiN<br>TiCN |        | <b>composition:</b> PVD TiN/TiCN-coated alloyed grade on tough substrate containing 11% cobalt.<br><b>application:</b> Ideal for general machining of alloy steel, low- and medium-carbon steel, tool steels, and 400 series stainless steels. Used in inserts for DRILL-FIX DFR and DFT, HTS, and HTS-C drill bodies.  | C5-C6       | M20-M30<br>P25-P40            |
| OPV Drills                   |        |             |        |   |             |                               |
| Twist Drills/<br>Taps & Dies | KC720  | TiN         |        | <b>composition:</b> PVD TiN-coated grade on a tough, durable unalloyed substrate containing 10% cobalt.<br><b>application:</b> Developed for cutting high-temperature alloys, stainless steels, and low-carbon steels at low to moderate speeds. Its unique mechanical and thermal-shock resistant properties and resistance to edge buildup enable grade KC720 to deliver superior performance and reliability on difficult operations like drilling of high-temperature alloys. Used in inserts for DRILL-FIX DFT, HTS, and HTS-C drill bodies. | C1<br>C5    | K25-K35<br>M30-M40<br>P25-P45 |
| Counterboring Tools          |        |             |        |   |             |                               |
| Rotating Boring Tools        | KC7210 | TiAlN       |        | <b>composition:</b> PVD TiAlN-coated grade with a fine grain, straight carbide substrate containing 6% cobalt.<br><b>application:</b> Available in SPHX-21 style inserts for use in HTS-C drills and CTR counterbores. These slightly positive geometries combine with the KC7210 grade for machining gray cast iron. May also be applied on ductile iron and aluminum materials. If build-up occurs on aluminum, switch to a TiN coated grade.   | C2          | K05-K15                       |
| Holemaking Tech Data         | KC7215 | TiAlN       |        | <b>composition:</b> PVD TiAlN-coated grade with a wear-resistant straight substrate containing 9.5% cobalt.<br><b>application:</b> Developed for high-performance drilling of alloy steels, cast irons, stainless steels, and aluminum heat-resistant alloys. Used in inserts for DRILL-FIX DFT, HTS, and HTS-C drill bodies.   | C3-C4<br>C7 | K20-K20<br>M20-M30            |
| Special Tooling/<br>Adapters |        |             |        |   |             |                               |
| Toolholding Systems          |        |             |        |   |             |                               |
| Index                        |        |             |        |   |             |                               |

# Carbide Grades for Indexable Drill Inserts



## Kennametal Insert Grade System (cont'd.)

| grade   | coating   | insert  | composition and application  | ANSI class     | ISO class                     |
|---|---|---|--|----------------|-------------------------------|
| <b>KC7225</b><br><br> |    |    | <b>composition:</b> PVD TiAlN-coated grade with wear- and deformation-resistant straight substrate containing 9.8% cobalt.<br><b>application:</b> Designed for the smaller inscribed circle inserts for maximum strength. Excellent for low- and medium-carbon steels, cast irons, stainless steel, and aluminum. Used in inserts for DRILL-FIX DFR and DFT, HTS, and HTS-C drill bodies.  | C3-C4          | M30-M45<br>P25-P45            |
| <b>KC7845</b><br><br> |    |    | <b>composition:</b> CVD alumina-coated grade with a coarse-grain alloyed substrate.<br><b>application:</b> Provides superior strength in the smaller sized inserts for machining materials such as steel, stainless steel, and cast iron. Used in inserts for DRILL-FIX DFT, HTS, and HTS-C drill bodies.  | C5             | M35-M45<br>P35-P50            |
| <b>KC7935</b><br><br> |    |    | <b>composition:</b> CVD, multi-layer, coated grade over a tough alloyed substrate.<br><b>application:</b> Provides high-performance and wear resistance when drilling alloy steels, stainless steels, and cast irons. Used in inserts for DRILL-FIX DFT, HTS, and HTS-C drill bodies.  | C3<br>C7       | K10-K35<br>M15-M35            |
| <b>KC850</b><br>   |    |    | <b>composition:</b> A CVD tri-phase coating on an extra-strong, cobalt-enriched alloyed substrate.<br><b>application:</b> Designed for heavy cutting of low-, medium-, and high-carbon steels, medium hardness alloy and tool steels, stainless steels, and some high-temperature alloys. Excellent thermal and mechanical shock resistance makes grade KC850 ideally suited for difficult drilling applications. Used in inserts for Kendex/Metcut drill bodies.  | C5-C6          | M30-M45<br>P25-P45            |
| <b>CS5</b><br>   |  |  | <b>composition:</b> A PVD TiN-coated grade over a straight substrate containing 9.5% cobalt.<br><b>application:</b> Designed for excellent performance on a wide range of materials such as ferrous steels, high-temperature alloys, 200 or 300 series stainless steels, and aluminum. The substrate offers superior thermal deformation resistance, depth-of-cut notch resistance, and edge strength. The uniformly dense PVD coating increases wear resistance and reduces edge buildup. Used in inserts for DRILL-FIX DFT, HTS, and HTS-C drill bodies. | C2-C3<br>C5-C6 | K15-K25<br>M25-M35<br>P30-P40 |
| <b>KM1</b><br>   |  |  | <b>composition:</b> A straight, uncoated fine grain 6% cobalt grade.<br><b>application:</b> Designed for use where an uncoated grade is appropriate. Excellent edge wear characteristics makes KM1 ideal for the drilling of aluminum, cast irons, and most non-ferrous materials. Used in inserts for HTS-C drill bodies.   | C3-C4          | K05-K10<br>M10-M20            |
| <b>KMF</b><br>   |  |  | <b>composition:</b> Uncoated, sub micron grain, straight carbide grade containing 9.5% cobalt.<br><b>application:</b> Designed for use where an uncoated grade is appropriate. The sub-micron grain provides wear resistance and the higher cobalt content provides toughness. Available in the DFT-HP high positive inserts primarily for applications on aluminum non-ferrous work piece materials. May also be applied on gray iron in those cases where a high positive insert is desired to reduce cutting pressure.                                  | C3             | K15-K25<br>M20-M35            |

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- Indexable Drills
- OPV Drills
- Twist Drills/Taps & Dies
- Counterboring Tools
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- Special Tooling/Adapters
- Toolholding Systems
- Index