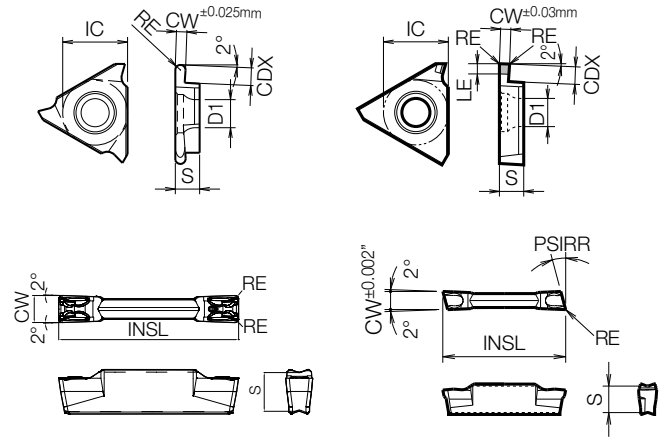


## Grooving & Cut-Off Dimensions

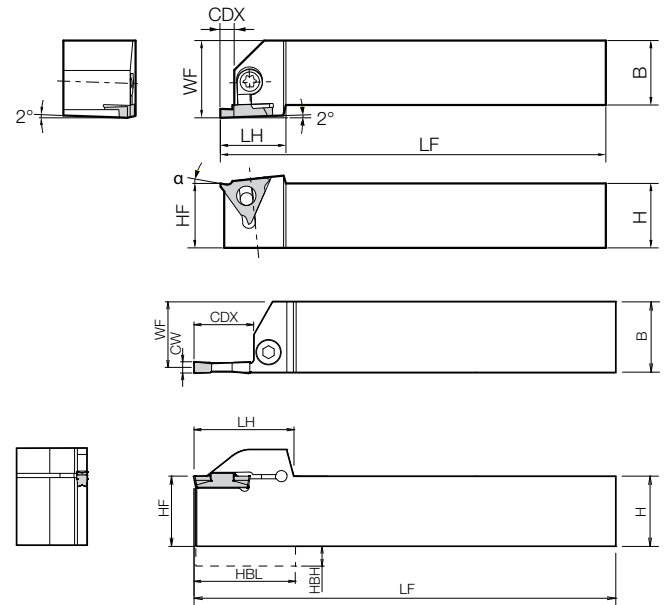
### Grooving & Cut-Off Inserts

| New Symbol                       | Description                 | Previous Symbol |
|----------------------------------|-----------------------------|-----------------|
| IC                               | Inscribed Circle Diameter   | A               |
| BCH                              | Corner Chamfer Length       | C               |
| CDX                              | Maximum Cutting Depth       | B               |
| CW                               | Cutting Edge Width          | W               |
| CUTDIA                           | Maximum Cut-Off Diameter    | ØDmax           |
| LE                               | Edge Length (PCD / CBN Tip) | S               |
| D1                               | Hole Diameter               | Ød              |
| DAXN                             | Face Groove Diameter (Min.) | ØD              |
| DAXX                             | Face Groove Diameter (Max.) | ØD              |
| INSL                             | Insert Length               | L               |
| PSIR <sup>°</sup> / <sub>L</sub> | Lead Angle                  | θ               |
| RE                               | Corner Radius               | rε              |
| S                                | Insert Thickness            | H, T, M         |
| W1                               | Insert Width                | A               |



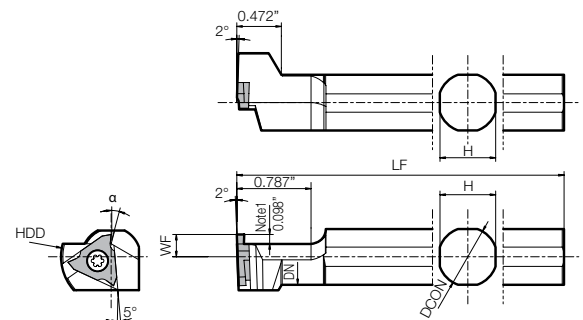
### External Grooving Holders (Square Shank)

| New Symbol | Description                        | Previous Symbol |
|------------|------------------------------------|-----------------|
| B          | Shank Width                        | -               |
| CDX        | Maximum Cutting Depth              | T               |
| H          | Shank Height                       | H1              |
| HF         | Cutting Edge Height                | h               |
| HBL        | Head Bottom Offset Length          | L3              |
| HBH        | Head Bottom Offset Height          | H2              |
| HBKW       | Head Back Offset Width             | F2              |
| LF         | Functional Length                  | L1              |
| LH         | Head Length                        | L2              |
| LN         | Neck Length                        | -               |
| WF         | Cutting Edge Distance              | F1              |
| GAMP       | Axial Rake Angle                   | θ               |
| MHD        | Mounting Hole Distance             | M1              |
| MHD2       | Mounting Hole Distance (Secondary) | M2              |



### External Grooving Holders (Round Shank)

| New Symbol | Description           | Previous Symbol |
|------------|-----------------------|-----------------|
| DCON       | Connection Diameter   | ØD              |
| LF         | Functional Length     | L1              |
| WF         | Cutting Edge Distance | F1              |
| DN         | Neck Diameter         | Ød1             |
| HDD        | Head Diameter         | Ød2             |
| H          | Shank Flat Height     | H1              |

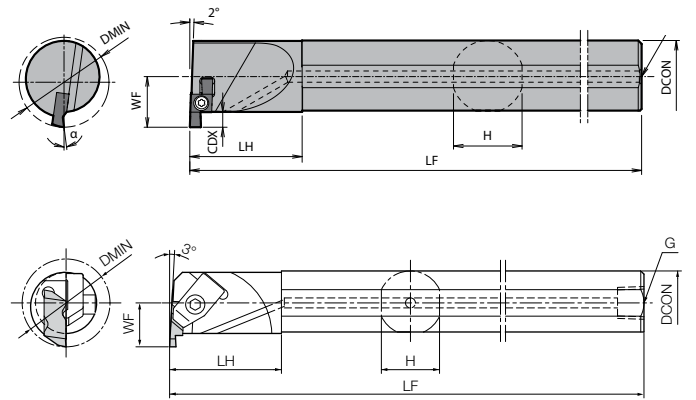


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**Grooving & Cut-Off Dimensions (Continued)**

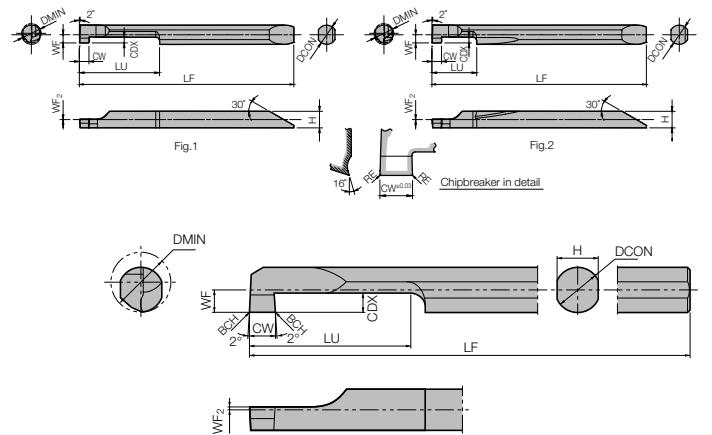
**Internal Grooving Holders**

| New Symbol | Description              | Previous Symbol |
|------------|--------------------------|-----------------|
| DMIN       | Minimum Bore Diameter    | ØA              |
| DCON       | Connection Diameter      | ØD              |
| H          | Shank Flat Height        | H1              |
| LF         | Functional Length        | L1              |
| LH         | Head Length              | L2              |
| LU         | Usable Length            | L2              |
| WF         | Cutting Edge Distance    | F1              |
| CDX        | Maximum Cutting Depth    | T               |
| G          | Coolant Hole Thread Size | -               |



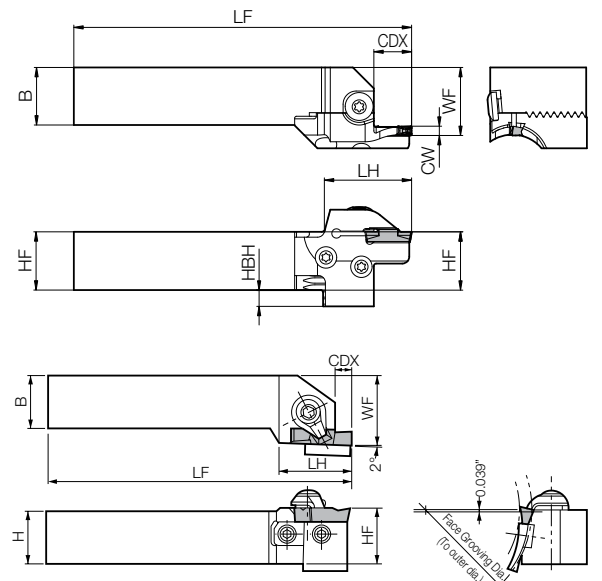
**Micro Grooving Bars**

| New Symbol      | Description                       | Previous Symbol |
|-----------------|-----------------------------------|-----------------|
| DMIN            | Minimum Bore Diameter             | ØA              |
| DCON            | Connection Diameter               | ØD              |
| DAXN            | Face Groove Diameter (Min.)       | ØD              |
| DAXX            | Face Groove Diameter (Max.)       | ØD              |
| CW              | Cutting Edge Width                | W               |
| BCH             | Corner Chamfer Length             | C               |
| H               | Bar Flat Height                   | H1              |
| LF              | Functional Length                 | L1              |
| LU              | Usable Length                     | L2              |
| WF              | Cutting Edge Distance             | F               |
| WF <sub>2</sub> | Cutting Edge Distance (Secondary) | L4              |
| LH              | Head Length                       | L2              |
| CDX             | Maximum Cutting Depth             | T               |
| RE              | Corner Radius                     | rε              |



**Face Grooving Toolholders**

| New Symbol      | Description                       | Previous Symbol |
|-----------------|-----------------------------------|-----------------|
| DAXN            | Face Groove Diameter (Min.)       | ØD              |
| DAXX            | Face Groove Diameter (Max.)       | ØD              |
| H               | Shank Height                      | H1              |
| HF              | Cutting Edge Height               | h               |
| HBH             | Head Bottom Offset Height         | H2              |
| B               | Shank Width                       | -               |
| LF              | Functional Length                 | L1              |
| LH              | Head Length                       | L2              |
| WF              | Cutting Edge Distance             | F, F1           |
| WF <sub>2</sub> | Cutting Edge Distance (Secondary) | S               |
| CDX             | Maximum Cutting Depth             | T               |
| CW              | Cutting Edge Width                | W               |

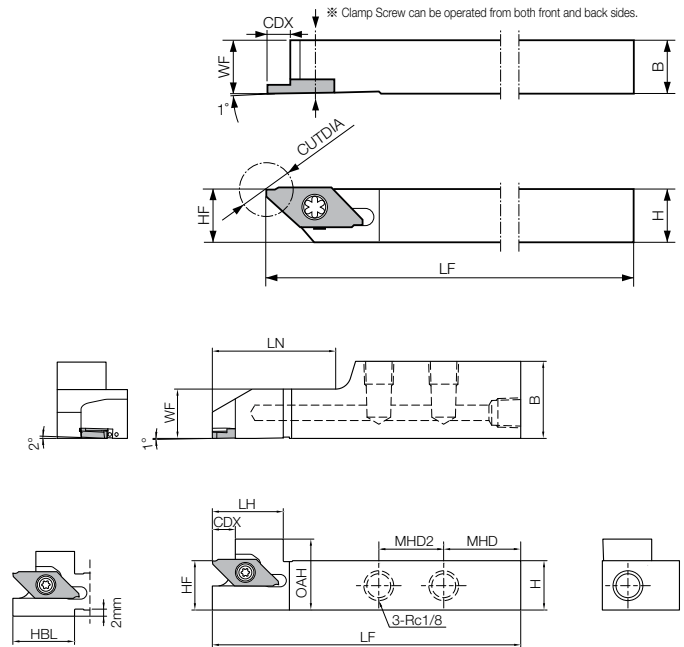


|                      |          |
|----------------------|----------|
| INSERT GRADES        | <b>A</b> |
| TURNING INSERTS      | <b>B</b> |
| GEN/PCD INSERTS      | <b>C</b> |
| TURNING HOLDERS      | <b>D</b> |
| SMALL TOOLS          | <b>E</b> |
| BORING               | <b>F</b> |
| GROOVING             | <b>G</b> |
| CUT-OFF              | <b>H</b> |
| THREADING            | <b>J</b> |
| DRILLING             | <b>K</b> |
| MILLING              | <b>M</b> |
| QUICK CHANGE TOOLING | <b>N</b> |
| SPARE PARTS          | <b>P</b> |
| TECHNICAL            | <b>R</b> |
| INDEX                | <b>T</b> |

**Grooving & Cut-Off Dimensions (Continued)**

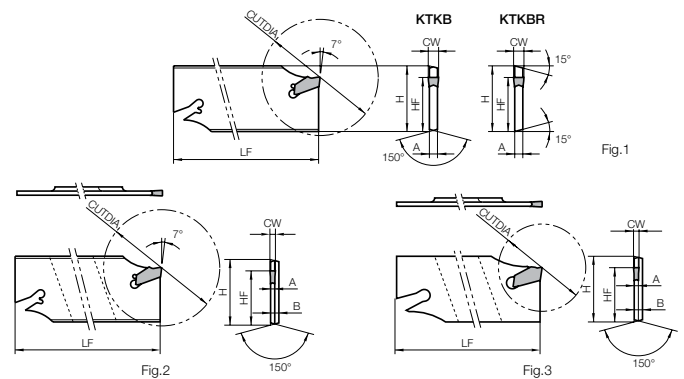
**Cut-Off Toolholders**

| New Symbol | Description                        | Previous Symbol |
|------------|------------------------------------|-----------------|
| CUTDIA     | Maximum Cut-Off Diameter           | ØDmax           |
| H          | Shank Height                       | H1              |
| HF         | Cutting Edge Height                | h               |
| OAL        | Overall Length                     | L1              |
| B          | Shank Width                        | -               |
| LF         | Functional Length                  | L1              |
| LH         | Head Length                        | L2              |
| LN         | Neck Length                        | L3              |
| LN2        | Neck Length (Secondary)            | -               |
| HBL        | Head Bottom Offset Length          | L3              |
| HBH        | Head Bottom Offset Height          | H2              |
| WF         | Cutting Edge Distance              | F1              |
| CDX        | Maximum Cutting Depth              | T               |
| GAMP       | Axial Rake Angle                   | $\theta$        |
| MHD        | Mounting Hole Distance             | M1              |
| MHD2       | Mounting Hole Distance (Secondary) | M2              |



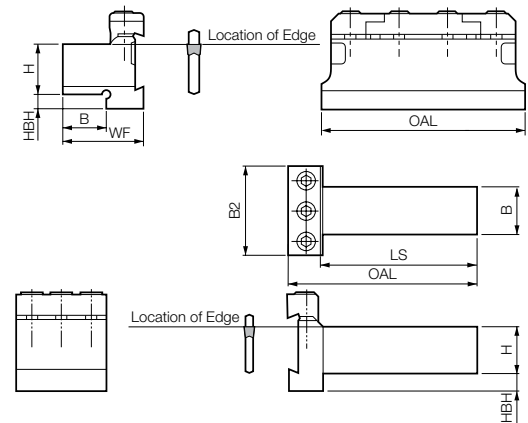
**Cut-Off Blades**

| New Symbol | Description              | Previous Symbol |
|------------|--------------------------|-----------------|
| CUTDIA     | Maximum Cut-Off Diameter | ØDmax           |
| H          | Blade Height             | H1              |
| HF         | Cutting Edge Height      | h               |
| B          | Blade Width              | -               |
| LF         | Functional Length        | L1              |
| A          | Insert Mount Width       | -               |
| CW         | Cutting Edge Width       | W               |



**Cut-Off Tool Blocks**

| New Symbol | Description               | Previous Symbol |
|------------|---------------------------|-----------------|
| H          | Shank Height              | H1              |
| HBH        | Head Bottom Offset Height | H2              |
| B          | Shank Width               | B1              |
| B2         | Blade Mount Width         | -               |
| OAL        | Overall Length            | L1              |
| LS         | Shank Length              | L2              |



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Negative Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.006 ipr | 0.018 ipr |
| Cermet         | 0.001 ipr  | 0.005 ipr            | 0.010 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 1              | CA025P     | 500                  | 650       | 800       |
|                | CA510      | 550                  | 700       | 850       |
|                | CA515      | 550                  | 700       | 850       |
|                | CA525      | 450                  | 600       | 750       |
|                | CA530      | 400                  | 550       | 700       |
|                | PR1425     | 300                  | 450       | 600       |
|                | PR1225     | 300                  | 450       | 600       |
|                | PR930      | 300                  | 450       | 600       |
|                | TN610      | 750                  | 975       | 1200      |
|                | TN620      | 700                  | 925       | 1150      |
|                | PV710      | 800                  | 1050      | 1300      |
|                | PV720      | 750                  | 975       | 1200      |

| Material       | Grade Type | Machining Parameters |           |            |
|----------------|------------|----------------------|-----------|------------|
|                |            | Feed Rate            |           |            |
|                | Carbide    | 0.002 ipr            | 0.007 ipr | 0.0014 ipr |
| Cermet         | 0.001 ipr  | 0.004 ipr            | 0.008 ipr |            |
| Material Group | Grade      | Cutting Speed (sfm)  |           |            |
|                |            | FROM                 | MEDIAN    | TO         |
| 2              | CA025P     | 450                  | 600       | 750        |
|                | CA510      | 550                  | 675       | 800        |
|                | CA515      | 550                  | 675       | 800        |
|                | CA525      | 400                  | 550       | 700        |
|                | CA530      | 400                  | 550       | 700        |
|                | PR1425     | 250                  | 375       | 500        |
|                | PR1225     | 250                  | 375       | 500        |
|                | PR930      | 250                  | 375       | 500        |
|                | TN610      | 600                  | 800       | 1000       |
|                | TN620      | 500                  | 700       | 900        |
|                | PV710      | 650                  | 850       | 1050       |
|                | PV720      | 650                  | 800       | 950        |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.007 ipr | 0.014 ipr |
| Cermet         | 0.001 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 3              | CA025P     | 450                  | 600       | 750       |
|                | CA510      | 550                  | 675       | 800       |
|                | CA515      | 550                  | 675       | 800       |
|                | CA525      | 400                  | 550       | 700       |
|                | CA530      | 400                  | 550       | 700       |
|                | PR1425     | 250                  | 375       | 500       |
|                | PR1225     | 250                  | 375       | 500       |
|                | PR930      | 250                  | 375       | 500       |
|                | TN610      | 600                  | 800       | 1000      |
|                | TN620      | 500                  | 700       | 900       |
|                | PV710      | 650                  | 850       | 1050      |
|                | PV720      | 650                  | 800       | 950       |

Positive Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.001 ipr            | 0.004 ipr | 0.008 ipr |
| Cermet         | 0.001 ipr  | 0.005 ipr            | 0.010 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 1              | CA025P     | 450                  | 600       | 750       |
|                | CA510      | 500                  | 650       | 800       |
|                | CA515      | 500                  | 650       | 800       |
|                | CA525      | 400                  | 550       | 700       |
|                | CA530      | 350                  | 500       | 650       |
|                | PR1425     | 300                  | 450       | 600       |
|                | PR1225     | 300                  | 450       | 600       |
|                | PR930      | 300                  | 450       | 600       |
|                | TN610      | 750                  | 975       | 1200      |
|                | TN620      | 700                  | 925       | 1150      |
|                | PV710      | 800                  | 1050      | 1300      |
|                | PV720      | 750                  | 975       | 1200      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.001 ipr            | 0.004 ipr | 0.008 ipr |
| Cermet         | 0.001 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 2              | CA025P     | 350                  | 475       | 600       |
|                | CA510      | 400                  | 550       | 700       |
|                | CA515      | 400                  | 550       | 700       |
|                | CA525      | 300                  | 425       | 550       |
|                | CA530      | 300                  | 425       | 550       |
|                | PR1425     | 200                  | 350       | 500       |
|                | PR1225     | 200                  | 350       | 500       |
|                | PR930      | 200                  | 350       | 500       |
|                | TN610      | 600                  | 800       | 1000      |
|                | TN620      | 500                  | 700       | 900       |
|                | PV710      | 650                  | 850       | 1050      |
|                | PV720      | 650                  | 800       | 950       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.001 ipr            | 0.004 ipr | 0.008 ipr |
| Cermet         | 0.001 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 3              | CA025P     | 350                  | 450       | 550       |
|                | CA510      | 400                  | 550       | 700       |
|                | CA515      | 400                  | 550       | 700       |
|                | CA525      | 250                  | 375       | 500       |
|                | CA530      | 250                  | 375       | 500       |
|                | PR1425     | 200                  | 350       | 500       |
|                | PR1225     | 200                  | 350       | 500       |
|                | PR930      | 200                  | 350       | 500       |
|                | TN610      | 600                  | 800       | 1000      |
|                | TN620      | 500                  | 700       | 900       |
|                | PV710      | 650                  | 850       | 1050      |
|                | PV720      | 650                  | 800       | 950       |

|                      |   |
|----------------------|---|
| INSERT GRADES        | A |
| TURNING INSERTS      | B |
| GEN/PCD INSERTS      | C |
| TURNING HOLDERS      | D |
| SMALL TOOLS          | E |
| BORING               | F |
| GROOVING             | G |
| CUT-OFF              | H |
| THREADING            | J |
| DRILLING             | K |
| MILLING              | M |
| QUICK CHANGE TOOLING | N |
| SPARE PARTS          | P |
| TECHNICAL            | R |
| INDEX                | T |

Note) Recommended cutting conditions seen above are general machining parameters. For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page R14

Steel Turning

| Material                 |                          | Grade Type               | Machining Parameters |        |           |                  |        |           |                 |        |     |
|--------------------------|--------------------------|--------------------------|----------------------|--------|-----------|------------------|--------|-----------|-----------------|--------|-----|
|                          |                          |                          | Feed Rate            |        |           |                  |        |           |                 |        |     |
|                          |                          |                          | Finishing            |        |           | Finishing-Medium |        |           | Medium-Roughing |        |     |
| Ceramic                  |                          | See Below                |                      |        | See Below |                  |        | See Below |                 |        |     |
| CBN                      |                          | See Below                |                      |        | See Below |                  |        | -         |                 |        |     |
| Material Group           | Hardness                 | Grade                    | Cutting Speed (sfm)  |        |           |                  |        |           |                 |        |     |
|                          |                          |                          | FROM                 | MEDIAN | TO        | FROM             | MEDIAN | TO        | FROM            | MEDIAN | TO  |
| 4                        | 44Rc<br>0.009 ipr<br>MAX | A65                      | 240                  | 800    | 1050      | 240              | 800    | 1050      |                 |        |     |
|                          |                          | A66N                     | 240                  | 800    | 1050      | 240              | 800    | 1050      |                 |        |     |
|                          |                          | PT600M                   | 240                  | 800    | 1050      | 240              | 800    | 1050      |                 |        |     |
|                          |                          | KBN510                   | 240                  | 900    | 1200      |                  |        |           |                 |        |     |
|                          |                          | KBN525                   | 240                  | 900    | 1200      |                  |        |           |                 |        |     |
|                          |                          | KBN900                   |                      |        |           | 300              | 400    | 500       | 300             | 400    | 500 |
|                          |                          | KBN05M                   | 290                  | 1089   | 1450      | 290              | 1089   | 1450      |                 |        |     |
|                          |                          | KBN10M                   | 264                  | 990    | 1320      | 264              | 990    | 1320      |                 |        |     |
|                          |                          | KBN25M                   | 264                  | 990    | 1320      | 264              | 990    | 1320      |                 |        |     |
|                          |                          | KBN30M                   | 240                  | 890    | 1190      | 240              | 890    | 1190      |                 |        |     |
|                          |                          | KBN35M                   | 240                  | 890    | 1190      | 240              | 890    | 1190      |                 |        |     |
|                          |                          | 48Rc<br>0.009 ipr<br>MAX | A65                  | 230    | 750       | 980              | 230    | 750       | 980             |        |     |
|                          | A66N                     |                          | 230                  | 750    | 980       | 230              | 750    | 980       |                 |        |     |
|                          | PT600M                   |                          | 230                  | 750    | 980       | 230              | 750    | 980       |                 |        |     |
|                          | KBN510                   |                          | 230                  | 850    | 1150      |                  |        |           |                 |        |     |
|                          | KBN525                   |                          | 230                  | 850    | 1150      |                  |        |           |                 |        |     |
|                          | KBN900                   |                          |                      |        |           | 300              | 400    | 500       | 300             | 400    | 500 |
|                          | KBN05M                   |                          | 280                  | 1030   | 1400      | 280              | 1030   | 1400      |                 |        |     |
|                          | KBN10M                   |                          | 230                  | 850    | 1140      | 230              | 850    | 1140      |                 |        |     |
|                          | KBN25M                   |                          | 253                  | 935    | 1265      | 253              | 935    | 1265      |                 |        |     |
|                          | KBN30M                   |                          | 230                  | 850    | 1140      | 230              | 850    | 1140      |                 |        |     |
|                          | KBN35M                   |                          | 230                  | 850    | 1140      | 230              | 850    | 1140      |                 |        |     |
|                          | 52Rc<br>0.008 ipr<br>MAX |                          | A65                  | 200    | 660       | 800              | 200    | 660       | 800             |        |     |
|                          |                          | A66N                     | 200                  | 660    | 800       | 200              | 660    | 800       |                 |        |     |
|                          |                          | PT600M                   | 200                  | 660    | 800       | 200              | 660    | 800       |                 |        |     |
|                          |                          | KBN510                   | 200                  | 700    | 1000      |                  |        |           |                 |        |     |
|                          |                          | KBN525                   | 200                  | 700    | 1000      |                  |        |           |                 |        |     |
|                          |                          | KBN900                   |                      |        |           | 250              | 350    | 450       | 250             | 350    | 450 |
|                          |                          | KBN05M                   | 240                  | 850    | 1210      | 240              | 850    | 1210      |                 |        |     |
|                          |                          | KBN10M                   | 220                  | 770    | 1100      | 220              | 770    | 1100      |                 |        |     |
|                          |                          | KBN25M                   | 220                  | 770    | 1100      | 220              | 770    | 1100      |                 |        |     |
|                          |                          | KBN30M                   | 200                  | 700    | 1000      | 200              | 700    | 1000      |                 |        |     |
|                          |                          | KBN35M                   | 200                  | 700    | 1000      | 200              | 700    | 1000      |                 |        |     |
|                          |                          | 56Rc<br>0.006 ipr<br>MAX | A65                  | 175    | 550       | 650              | 175    | 550       | 650             |        |     |
|                          | A66N                     |                          | 175                  | 550    | 650       | 175              | 550    | 650       |                 |        |     |
|                          | PT600M                   |                          | 175                  | 550    | 650       | 175              | 550    | 650       |                 |        |     |
|                          | KBN510                   |                          | 175                  | 600    | 800       |                  |        |           |                 |        |     |
|                          | KBN525                   |                          | 175                  | 600    | 800       |                  |        |           |                 |        |     |
|                          | KBN900                   |                          |                      |        |           | 200              | 300    | 400       | 200             | 300    | 400 |
|                          | KBN05M                   |                          | 240                  | 850    | 1210      | 240              | 850    | 1210      |                 |        |     |
|                          | KBN10M                   |                          | 220                  | 770    | 1100      | 220              | 770    | 1100      |                 |        |     |
|                          | KBN25M                   |                          | 220                  | 770    | 1100      | 220              | 770    | 1100      |                 |        |     |
| KBN30M                   | 200                      |                          | 700                  | 1000   | 200       | 700              | 1000   |           |                 |        |     |
| KBN35M                   | 200                      |                          | 700                  | 1000   | 200       | 700              | 1000   |           |                 |        |     |
| 60Rc<br>0.004 ipr<br>MAX | A65                      |                          | 150                  | 450    | 650       | 150              | 450    | 650       |                 |        |     |
|                          | A66N                     | 150                      | 450                  | 650    | 150       | 450              | 650    |           |                 |        |     |
|                          | PT600M                   | 150                      | 450                  | 650    | 150       | 450              | 650    |           |                 |        |     |
|                          | KBN510                   | 150                      | 500                  | 675    |           |                  |        |           |                 |        |     |
|                          | KBN525                   | 150                      | 500                  | 675    |           |                  |        |           |                 |        |     |
|                          | KBN900                   |                          |                      |        | 150       | 250              | 350    | 150       | 250             | 350    |     |
|                          | KBN05M                   | 180                      | 600                  | 825    | 180       | 600              | 825    |           |                 |        |     |
|                          | KBN10M                   | 165                      | 550                  | 750    | 165       | 550              | 750    |           |                 |        |     |
|                          | KBN25M                   | 165                      | 550                  | 750    | 165       | 550              | 750    |           |                 |        |     |
|                          | KBN30M                   | 150                      | 500                  | 675    | 150       | 500              | 675    |           |                 |        |     |
|                          | KBN35M                   | 150                      | 500                  | 675    | 150       | 500              | 675    |           |                 |        |     |
|                          | 64Rc<br>0.004 ipr<br>MAX | A65                      | 100                  | 400    | 450       | 100              | 400    | 450       |                 |        |     |
| A66N                     |                          | 100                      | 400                  | 450    | 100       | 400              | 450    |           |                 |        |     |
| PT600M                   |                          | 100                      | 400                  | 450    | 100       | 400              | 450    |           |                 |        |     |
| KBN510                   |                          | 100                      | 450                  | 550    |           |                  |        |           |                 |        |     |
| KBN525                   |                          | 100                      | 450                  | 550    |           |                  |        |           |                 |        |     |
| KBN900                   |                          |                          |                      |        | 100       | 200              | 300    | 100       | 200             | 300    |     |
| KBN05M                   |                          | 120                      | 550                  | 660    | 120       | 550              | 660    |           |                 |        |     |
| KBN10M                   |                          | 110                      | 500                  | 600    | 110       | 500              | 600    |           |                 |        |     |
| KBN25M                   |                          | 110                      | 500                  | 600    | 110       | 500              | 600    |           |                 |        |     |
| KBN30M                   |                          | 100                      | 450                  | 540    | 100       | 450              | 540    |           |                 |        |     |
| KBN35M                   |                          | 100                      | 450                  | 540    | 100       | 450              | 540    |           |                 |        |     |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page R14

R TECHNICAL

## Stainless Steel Turning

### Negative Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.008 ipr | 0.014 ipr |
| Cermet         | 0.002 ipr  | 0.004 ipr-           | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 5              | PR1225     | 300                  | 450       | 600       |
|                | PR930      | 250                  | 400       | 550       |
|                | PR1535     | 225                  | 388       | 550       |
|                | CA6515     | 400                  | 575       | 750       |
|                | CA6525     | 300                  | 500       | 700       |
|                | TN620      | 300                  | 400       | 500       |
|                | PV720      | 350                  | 450       | 550       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.008 ipr | 0.014 ipr |
| Cermet         | 0.002 ipr  | 0.003 ipr            | 0.004 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 6              | PR1225     | 250                  | 400       | 550       |
|                | PR930      | 200                  | 350       | 500       |
|                | PR1535     | 200                  | 350       | 500       |
|                | CA6515     | 300                  | 400       | 500       |
|                | CA6525     | 250                  | 325       | 400       |
|                | TN620      | 250                  | 375       | 500       |
|                | PV720      | 300                  | 425       | 550       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.008 ipr | 0.014 ipr |
| Cermet         | 0.002 ipr  | 0.003 ipr            | 0.004 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 7              | PR1225     | 250                  | 400       | 550       |
|                | PR930      | 200                  | 350       | 500       |
|                | PR1535     | 200                  | 350       | 500       |
|                | CA6515     | 300                  | 400       | 500       |
|                | CA6525     | 250                  | 325       | 400       |
|                | TN620      | 250                  | 375       | 500       |
|                | PV720      | 300                  | 425       | 550       |

### Positive Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.001 ipr            | 0.004 ipr | 0.006 ipr |
| Cermet         | 0.002 ipr  | 0.004 ipr-           | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 5              | PR1225     | 250                  | 325       | 400       |
|                | PR930      | 200                  | 263       | 325       |
|                | PR1535     | 200                  | 263       | 325       |
|                | CA6515     | 350                  | 425       | 500       |
|                | CA6525     | 300                  | 375       | 450       |
|                | TN620      | 300                  | 375       | 450       |
|                | PV720      | 350                  | 425       | 500       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.004 ipr | 0.006 ipr |
| Cermet         | 0.002 ipr  | 0.003 ipr            | 0.004 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 6              | PR1225     | 125                  | 213       | 300       |
|                | PR930      | 100                  | 175       | 250       |
|                | PR1535     | 100                  | 175       | 250       |
|                | CA6515     | 150                  | 275       | 400       |
|                | CA6525     | 225                  | 288       | 350       |
|                | TN620      | 200                  | 300       | 400       |
|                | PV720      | 250                  | 350       | 450       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.004 ipr | 0.006 ipr |
| Cermet         | 0.002 ipr  | 0.003 ipr            | 0.004 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 7              | PR1225     | 125                  | 213       | 300       |
|                | PR930      | 100                  | 175       | 250       |
|                | PR1535     | 100                  | 175       | 250       |
|                | CA6515     | 150                  | 275       | 400       |
|                | CA6525     | 225                  | 288       | 350       |
|                | TN620      | 200                  | 300       | 400       |
|                | PV720      | 250                  | 350       | 450       |

|                      |   |
|----------------------|---|
| INSERT GRADES        | A |
| TURNING INSERTS      | B |
| GEN/PCD INSERTS      | C |
| TURNING HOLDERS      | D |
| SMALL TOOLS          | E |
| BORING               | F |
| GROOVING             | G |
| CUT-OFF              | H |
| THREADING            | J |
| DRILLING             | K |
| MILLING              | M |
| QUICK CHANGE TOOLING | N |
| SPARE PARTS          | P |
| TECHNICAL            | R |
| INDEX                | T |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

## Cast Iron Turning

### Negative Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 ipr            | 0.008 ipr | 0.012 ipr |
| Cermet         | 0.004 ipr  | 0.008 ipr            | 0.012 ipr |           |
| Ceramic        | 0.004 ipr  | 0.008 ipr            | 0.012 ipr |           |
| CBN            | 0.002 ipr  | 0.007 ipr            | 0.012 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 8              | CA310      | 650                  | 825       | 1000      |
|                | CA315      | 500                  | 650       | 800       |
|                | CA320      | 500                  | 650       | 800       |
|                | PR905      | 500                  | 650       | 800       |
|                | PV7005     | 1000                 | 1150      | 1300      |
|                | KS6000     | 650                  | 1075      | 1500      |
|                | KS6050     | 800                  | 1200      | 1600      |
|                | CS7050     | 1000                 | 1400      | 1800      |
|                | PT600M     | 1000                 | 1500      | 2000      |
|                | KBN900     | 1600                 | 2800      | 4000      |
|                | KBN60M     | 1100                 | 1650      | 2200      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 ipr            | 0.008 ipr | 0.012 ipr |
| Cermet         | 0.004 ipr  | 0.008 ipr            | 0.012 ipr |           |
| Ceramic        | 0.004 ipr  | 0.006 ipr            | 0.008 ipr |           |
| CBN            | 0.004 ipr  | 0.006 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 9              | CA310      | 500                  | 650       | 800       |
|                | CA315      | 400                  | 600       | 800       |
|                | CA320      | 400                  | 550       | 700       |
|                | PR905      | 400                  | 550       | 700       |
|                | PV7005     | 500                  | 750       | 1000      |
|                | KS6000     | 600                  | 850       | 1100      |
|                | KS6050     | 600                  | 850       | 1100      |
|                | CS7050     | 650                  | 900       | 1150      |
|                | PT600M     | 650                  | 925       | 1200      |
|                | KBN900     | 800                  | 1150      | 1500      |
|                | KBN60M     | 650                  | 975       | 1300      |

### Positive Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.004 ipr | 0.008 ipr |
| Cermet         | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Ceramic        | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| CBN            | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 8              | CA310      | 350                  | 425       | 500       |
|                | CA315      | 300                  | 375       | 450       |
|                | CA320      | 300                  | 350       | 400       |
|                | PR905      | 300                  | 350       | 400       |
|                | PV7005     | 500                  | 750       | 1000      |
|                | KS6000     | 550                  | 875       | 1200      |
|                | KS6050     | 600                  | 1000      | 1400      |
|                | CS7050     | 800                  | 1200      | 1600      |
|                | PT600M     | 800                  | 1300      | 1800      |
|                | KBN900     | 1400                 | 2200      | 3000      |
|                | KBN60M     | 900                  | 1350      | 1800      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.004 ipr | 0.008 ipr |
| Cermet         | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Ceramic        | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| CBN            | 0.002 ipr  | 0.004 ipr            | 0.008 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 9              | CA310      | 350                  | 425       | 500       |
|                | CA315      | 300                  | 375       | 450       |
|                | CA320      | 300                  | 350       | 400       |
|                | PR905      | 300                  | 350       | 400       |
|                | PV7005     | 400                  | 650       | 900       |
|                | KS6000     | 500                  | 750       | 1000      |
|                | KS6050     | 500                  | 750       | 1000      |
|                | CS7050     | 550                  | 800       | 1050      |
|                | PT600M     | 550                  | 850       | 1150      |
|                | KBN900     | 700                  | 1050      | 1400      |
|                | KBN60M     | 550                  | 875       | 1200      |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

## Heat-Resistant Alloy Turning

### Negative Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.006 ipr | 0.012 ipr |
| Ceramic        | 0.004 ipr  | 0.008 ipr            | 0.012 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 12             | PR005S     | 100                  | 200       | 300       |
|                | PR015S     | 80                   | 155       | 230       |
|                | PR1535     | 130                  | 165       | 200       |
|                | PR1305     | 150                  | 205       | 260       |
|                | PR1310     | 130                  | 165       | 200       |
|                | PR1325     | 110                  | 135       | 160       |
|                | PR1225     | 80                   | 115       | 150       |
|                | PR930      | 80                   | 115       | 150       |
|                | CA6515     | 80                   | 120       | 160       |
|                | CA6525     | 80                   | 115       | 150       |
|                | KS6030     | 500                  | 850       | 1200      |
|                | KS6040     | 500                  | 750       | 1000      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 IPT            | 0.005 IPT | 0.006 IPT |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 12             | PR005S     | 100                  | 200       | 300       |
|                | PR015S     | 80                   | 155       | 230       |
|                | CA6515     | 80                   | 120       | 160       |
|                | CA6525     | 80                   | 115       | 150       |
|                | PR1535     | 130                  | 165       | 200       |
|                | SW05       | 130                  | 230       | 330       |
|                | PR1305     | 150                  | 205       | 260       |
|                | PR1310     | 130                  | 165       | 200       |
|                | PR1325     | 110                  | 135       | 160       |
|                | PR1225     | 110                  | 135       | 160       |

### Positive Inserts

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipr            | 0.006 ipr | 0.012 ipr |
| Ceramic        | 0.004 ipr  | 0.008 ipr            | 0.012 ipr |           |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 12             | PR005S     | 100                  | 200       | 300       |
|                | PR015S     | 80                   | 155       | 230       |
|                | PR1535     | 80                   | 140       | 200       |
|                | PR1305     | 150                  | 205       | 260       |
|                | PR1310     | 130                  | 165       | 200       |
|                | PR1325     | 110                  | 135       | 160       |
|                | PR1225     | 80                   | 115       | 150       |
|                | PR930      | 80                   | 115       | 150       |
|                | CA6515     | 80                   | 115       | 150       |
|                | CA6525     | 80                   | 115       | 150       |
|                | KS6030     | 500                  | 850       | 1200      |
|                | KS6040     | 500                  | 750       | 1000      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 IPT            | 0.005 IPT | 0.006 IPT |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 12             | PR005S     | 100                  | 200       | 300       |
|                | PR015S     | 80                   | 155       | 230       |
|                | CA6515     | 80                   | 120       | 160       |
|                | CA6525     | 80                   | 115       | 150       |
|                | PR1535     | 130                  | 165       | 200       |
|                | SW05       | 130                  | 230       | 330       |
|                | PR1305     | 150                  | 205       | 260       |
|                | PR1310     | 125                  | 163       | 200       |
|                | PR1325     | 110                  | 135       | 160       |
|                | PR1225     | 110                  | 135       | 160       |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

|                      |   |
|----------------------|---|
| INSERT GRADES        | A |
| TURNING INSERTS      | B |
| GEN/PCD INSERTS      | C |
| TURNING HOLDERS      | D |
| SMALL TOOLS          | E |
| BORING               | F |
| GROOVING             | G |
| CUT-OFF              | H |
| THREADING            | J |
| DRILLING             | K |
| MILLING              | M |
| QUICK CHANGE TOOLING | N |
| SPARE PARTS          | P |
| TECHNICAL            | R |
| INDEX                | T |



**■ Non-Ferrous Turning**

**● Negative Inserts**

| Material       | Grade Type    | Machining Parameters |           |           |
|----------------|---------------|----------------------|-----------|-----------|
|                |               | Feed Rate            |           |           |
|                | Carbide       | 0.004 ipr            | 0.010 ipr | 0.016 ipr |
| PCD            | 0.002 ipr     | 0.004 ipr            | 0.006 ipr |           |
| Material Group | Grade         | Cutting Speed (sfm)  |           |           |
|                |               | FROM                 | MEDIAN    | TO        |
| 15             | <b>KW10</b>   | 650                  | 1150      | 2300      |
|                | <b>PDL010</b> | 700                  | 1300      | 2600      |
|                | <b>PDL025</b> | 700                  | 1300      | 2600      |
|                | <b>KPD001</b> | 1000                 | 3250      | 6500      |
|                | <b>KPD010</b> | 1000                 | 3250      | 6500      |

| Material       | Grade Type    | Machining Parameters |           |           |
|----------------|---------------|----------------------|-----------|-----------|
|                |               | Feed Rate            |           |           |
|                | Carbide       | 0.004 ipr            | 0.010 ipr | 0.016 ipr |
| PCD            | 0.002 ipr     | 0.004 ipr            | 0.006 ipr |           |
| Material Group | Grade         | Cutting Speed (sfm)  |           |           |
|                |               | FROM                 | MEDIAN    | TO        |
| 16             | <b>KW10</b>   | 600                  | 1100      | 2200      |
|                | <b>PDL010</b> | 650                  | 1250      | 2500      |
|                | <b>PDL025</b> | 650                  | 1250      | 2500      |
|                | <b>KPD001</b> | 950                  | 3200      | 6400      |
|                | <b>KPD010</b> | 950                  | 3200      | 6400      |

**● Positive Inserts**

| Material       | Grade Type    | Machining Parameters |           |           |
|----------------|---------------|----------------------|-----------|-----------|
|                |               | Feed Rate            |           |           |
|                | Carbide       | 0.004 ipr            | 0.010 ipr | 0.016 ipr |
| PCD            | 0.002 ipr     | 0.004 ipr            | 0.006 ipr |           |
| Material Group | Grade         | Cutting Speed (sfm)  |           |           |
|                |               | FROM                 | MEDIAN    | TO        |
| 15             | <b>KW10</b>   | 300                  | 625       | 950       |
|                | <b>PDL010</b> | 350                  | 675       | 1000      |
|                | <b>PDL025</b> | 350                  | 675       | 1000      |
|                | <b>KPD001</b> | 500                  | 850       | 1200      |
|                | <b>KPD010</b> | 500                  | 850       | 1200      |

| Material       | Grade Type    | Machining Parameters |           |           |
|----------------|---------------|----------------------|-----------|-----------|
|                |               | Feed Rate            |           |           |
|                | Carbide       | 0.004 ipr            | 0.010 ipr | 0.016 ipr |
| PCD            | 0.002 ipr     | 0.004 ipr            | 0.006 ipr |           |
| Material Group | Grade         | Cutting Speed (sfm)  |           |           |
|                |               | FROM                 | MEDIAN    | TO        |
| 16             | <b>KW10</b>   | 250                  | 575       | 850       |
|                | <b>PDL010</b> | 300                  | 625       | 900       |
|                | <b>PDL025</b> | 300                  | 625       | 900       |
|                | <b>KPD001</b> | 450                  | 800       | 1100      |
|                | <b>KPD010</b> | 450                  | 800       | 1100      |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page **R14**

Steel Milling

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                |            | 00.004 ipt           | 0.006 ipt | 0.010 ipt |
|                | Carbide    | 00.004 ipt           | 0.006 ipt | 0.010 ipt |
|                | Cermet     | 00.002 ipt           | 0.004 ipt | 0.006 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 1              | PR830      | 350                  | 550       | 650       |
|                | PR1225     | 390                  | 590       | 820       |
|                | PR1230     | 400                  | 600       | 725       |
|                | PR1525     | 390                  | 590       | 820       |
|                | PR1535     | 390                  | 590       | 820       |
|                | TN100M     | 500                  | 900       | 1100      |
|                | TN620M     | 650                  | 820       | 1000      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                |            | 0.002 ipt            | 0.004 ipt | 0.006 ipt |
|                | Carbide    | 0.002 ipt            | 0.004 ipt | 0.006 ipt |
|                | Cermet     | 0.002 ipt            | 0.004 ipt | 0.006 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 2              | PR830      | 350                  | 500       | 600       |
|                | PR1225     | 330                  | 520       | 720       |
|                | PR1230     | 400                  | 600       | 725       |
|                | PR1525     | 390                  | 590       | 820       |
|                | PR1535     | 390                  | 590       | 820       |
|                | TN100M     | 300                  | 650       | 800       |
|                | TN620M     | 590                  | 720       | 820       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                |            | 0.002 ipt            | 0.004 ipt | 0.008 ipt |
|                | Carbide    | 0.002 ipt            | 0.004 ipt | 0.008 ipt |
|                | Cermet     | 0.002 ipt            | 0.004 ipt | 0.005 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 3              | PR830      | 200                  | 425       | 550       |
|                | PR1225     | 260                  | 460       | 590       |
|                | PR1230     | 325                  | 525       | 675       |
|                | PR1525     | 390                  | 590       | 820       |
|                | PR1535     | 390                  | 590       | 820       |
|                | TN100M     | 250                  | 450       | 600       |
|                | TN620M     | 500                  | 590       | 720       |

|                      |   |
|----------------------|---|
| INSERT GRADES        | A |
| TURNING INSERTS      | B |
| GEN/PCD INSERTS      | C |
| TURNING HOLDERS      | D |
| SMALL TOOLS          | E |
| BORING               | F |
| GROOVING             | G |
| CUT-OFF              | H |
| THREADING            | J |
| DRILLING             | K |
| MILLING              | M |
| QUICK CHANGE TOOLING | N |
| SPARE PARTS          | P |
| TECHNICAL            | R |
| INDEX                | T |

Note)  
 Recommended cutting conditions seen above are general machining parameters.  
 For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

**Stainless Steel Milling**

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipt            | 0.004 ipt | 0.006 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 5              | PR1225     | 330                  | 520       | 660       |
|                | PR1525     | 330                  | 520       | 660       |
|                | PR1535     | 330                  | 520       | 660       |
|                | CA6535     | 590                  | 790       | 960       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipt            | 0.005 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 6              | PR1225     | -                    | -         | -         |
|                | PR1525     | -                    | -         | -         |
|                | PR1535     | 490                  | 660       | 820       |
|                | CA6535     | 590                  | 790       | 980       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.003 ipt            | 0.005 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 7              | PR1225     | -                    | -         | -         |
|                | PR1525     | -                    | -         | -         |
|                | PR1535     | 300                  | 390       | 490       |
|                | CA6535     | -                    | -         | -         |

**Cast Iron Milling**

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 ipt            | 0.010 ipt | 0.016 ipt |
|                | Ceramic    | 0.002 ipt            | 0.004 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 8              | PR1210     | 390                  | 590       | 820       |
|                | PR1510     | 390                  | 590       | 820       |
|                | CA420M     | 550                  | 750       | 980       |
|                | KS6000     | 650                  | 2500      | 3300      |
|                | KS6050     | 1900                 | 2950      | 3900      |
|                | CS7050     | 1900                 | 2950      | 3900      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 ipt            | 0.008 ipt | 0.012 ipt |
|                | Ceramic    | 0.002 ipt            | 0.004 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 9              | PR1210     | 330                  | 490       | 660       |
|                | PR1510     | 330                  | 490       | 660       |
|                | CA420M     | 490                  | 660       | 820       |
|                | KS6000     | 500                  | 1200      | 1800      |
|                | KS6050     | 1300                 | 1950      | 2950      |
|                | CS7050     | 1300                 | 1950      | 2950      |

Note)  
Recommended cutting conditions seen above are general machining parameters.  
For more accurate cutting conditions, see specific products in previous sections.

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**Heat-Resistant Alloy Milling**

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.003 ipt            | 0.005 ipt | 0.006 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 12             | PR1535     | 70                   | 100       | 160       |
|                | CA6535     | 70                   | 100       | 160       |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.003 ipt            | 0.006 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 14             | PR1535     | 130                  | 200       | 260       |

**Non-Ferrous Milling**

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.004 ipt            | 0.008 ipt | 0.012 ipt |
|                | PCD        | 0.002 ipt            | 0.004 ipt | 0.008 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 15             | KW10       | 660                  | 1970      | 2950      |
|                | GW25       | 660                  | 1970      | 2950      |
|                | PDL025     | 660                  | 1640      | 2620      |
|                | KPD001     | 1640                 | 3280      | 4920      |
|                | KPD230     | 1640                 | 3280      | 4920      |

| Material       | Grade Type | Machining Parameters |           |           |
|----------------|------------|----------------------|-----------|-----------|
|                |            | Feed Rate            |           |           |
|                | Carbide    | 0.002 ipt            | 0.005 ipt | 0.008 ipt |
|                | PCD        | 0.002 ipt            | 0.004 ipt | 0.006 ipt |
| Material Group | Grade      | Cutting Speed (sfm)  |           |           |
|                |            | FROM                 | MEDIAN    | TO        |
| 16             | KW10       | 660                  | 820       | 980       |
|                | GW25       | 660                  | 820       | 980       |
|                | PDL025     | 660                  | 820       | 980       |
|                | KPD001     | 980                  | 2460      | 3280      |
|                | KPD230     | 980                  | 2460      | 3280      |

Note)  
 Recommended cutting conditions seen above are general machining parameters.  
 For more accurate cutting conditions, see specific products in previous sections.

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|                      |          |
|----------------------|----------|
| INSERT GRADES        | <b>A</b> |
| TURNING INSERTS      | <b>B</b> |
| GEN/PCD INSERTS      | <b>C</b> |
| TURNING HOLDERS      | <b>D</b> |
| SMALL TOOLS          | <b>E</b> |
| BORING               | <b>F</b> |
| GROOVING             | <b>G</b> |
| CUT-OFF              | <b>H</b> |
| THREADING            | <b>J</b> |
| DRILLING             | <b>K</b> |
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