



# **2017** Master Catalog

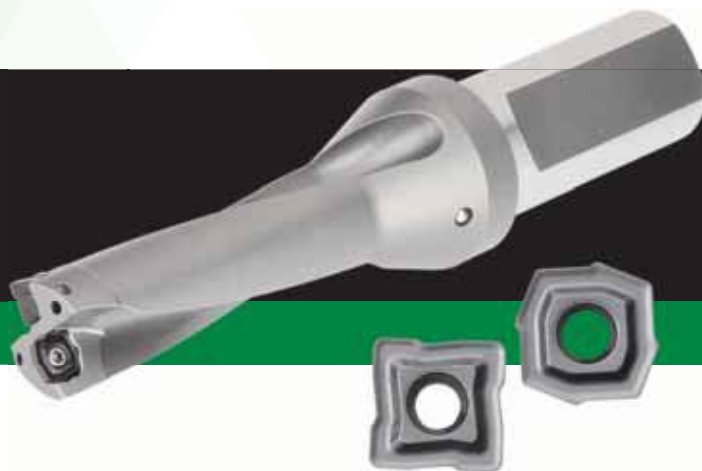
**WIDIA**  TM



## WIDIA™ Top Cut 4™ •

New Generation Indexable Drilling System

# Top Cut 4



The new WIDIA Top Cut 4 (TC4) portfolio is a broad offering for customers looking for a versatile indexable drilling platform.

The newly developed TC4 features improved centering capabilities and inserts with four cutting edges for both pocket seats (central and periphery). This, in combination with the renowned WIDIA grade technology, leads to outstanding flexibility and efficiency.

The TC4 platform offers three easy-to-select grades and two geometries applicable for steel, cast iron, and stainless steel materials. It covers the diameter range from .473–2.5" (12–68mm) within the standard offering in L/D ratios of 2–5 x D.

## One Comprehensive Platform

- Standard diameter range covering .473–2.500" (12–68mm) in 2 x D, 3 x D, 4 x D, and 5 x D.
- Four real cutting edges each for entire platform.
- Eight insert sizes to cover complete diameter range.

## Easy to Apply

- No risk of mixing up inner and outer insert due to clear visual differences.
- Easy-to-change inserts, laser marked with geometries and grades.
- Easy-to-use nomenclature guide enabling the tool body and the related insert selection to avoid order failures.

## Highly Versatile

- Breadth of application capabilities include through and cross holes, inclined entry and exit opportunity, 45° corner, half cylindrical, concave, or chain drilling.
- Various geometries and grades available.

## Highest Performance

- 2x four true cutting edges.
- Cutting edge profile of central and periphery insert work together, leading to high stabilization of the drill, preventing drifting of the tool even on irregular surfaces.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.
- Apply where speed and economy are prime considerations.
- Three grades to achieve higher tool life at accelerated speeds:
  - WU25CH grade for highest metal removal rate in general applications.
  - WU40PH grade for high toughness demands.
  - WPK10CH grade for high-speed applications.



The guide below provides an example of how to select the Top Cut 4 tool body and accompanying inserts for a stable steel drilling application.

## Metric Body

|                          |                                                                                                   |                       |                                            |                                             |            |          |             |
|--------------------------|---------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------|---------------------------------------------|------------|----------|-------------|
| <b>TCF</b>               | <b>250</b>                                                                                        | <b>R</b>              | <b>3</b>                                   | <b>SL</b>                                   | <b>32</b>  | <b>M</b> | <b>D</b>    |
| Tool Family<br>Top Cut 4 | Diameter<br>Metric =<br>3 digits (e.g.<br>250 = 25mm)<br>Inch =<br>4 digits (e.g.<br>2500 = 2.5") | Right-Hand<br>Cutting | Length<br>Diameter<br>Ratio<br>L/D = 3 x D | Shank Style<br>SL =<br>Side Lock<br>Adapter | Shank Size | Metric   | Insert Size |

## Inch Body

|                          |                                                                                                   |                       |                                            |                                                     |            |             |
|--------------------------|---------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------|-----------------------------------------------------|------------|-------------|
| <b>TCF</b>               | <b>1000</b>                                                                                       | <b>R</b>              | <b>3</b>                                   | <b>SSF</b>                                          | <b>100</b> | <b>D</b>    |
| Tool Family<br>Top Cut 4 | Diameter<br>Metric =<br>3 digits (e.g.<br>250 = 25mm)<br>Inch =<br>4 digits (e.g.<br>2500 = 2.5") | Right-Hand<br>Cutting | Length<br>Diameter<br>Ratio<br>L/D = 3 x D | Shank Style<br>SSF =<br>Straight<br>Shank<br>Flange | Shank Size | Insert Size |

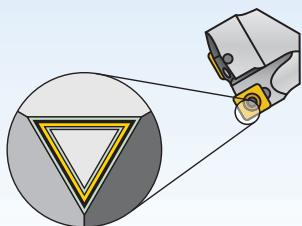
## Periphery Insert

|                          |                      |                     |                            |             |                                                             |                    |               |
|--------------------------|----------------------|---------------------|----------------------------|-------------|-------------------------------------------------------------|--------------------|---------------|
| <b>TCF</b>               | <b>08</b>            | <b>03</b>           | <b>08</b>                  | <b>D</b>    | <b>P</b>                                                    | <b>V34</b>         | <b>WU25CH</b> |
| Tool Family<br>Top Cut 4 | Size<br>In-Circle D1 | Insert<br>Thickness | Insert<br>Corner<br>Radius | Insert Size | Insert<br>Positioning<br>C =<br>Central<br>P =<br>Periphery | Insert<br>Geometry | Grade         |

Insert Geometry – V34 for steel or cast iron or V36 for stainless steel and long chipping steel.

## Insert Guide for Grades

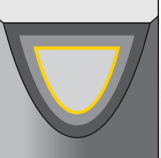
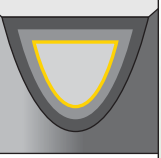
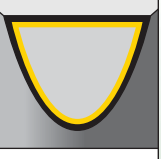
|          |                                                                  |                                                                                                                                                                   |                               |                                  |
|----------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|
| <b>W</b> | <b>U</b>                                                         | <b>25</b>                                                                                                                                                         | <b>C</b>                      | <b>H</b>                         |
| <b>W</b> | <b>U</b>                                                         | <b>40</b>                                                                                                                                                         | <b>P</b>                      | <b>H</b>                         |
| <b>W</b> | <b>PK</b>                                                        | <b>10</b>                                                                                                                                                         | <b>C</b>                      | <b>H</b>                         |
| WIDIA™   | Material<br>Range<br>U = Universal<br>P = Steel<br>K = Cast Iron | Toughness<br>Range<br>Choose high<br>numbers for<br>toughness<br>in stable<br>conditions,<br>low numbers<br>for high wear<br>resistance at<br>continuous<br>cuts. | Coating<br>P = PVD<br>C = CVD | Application<br>H =<br>Holemaking |

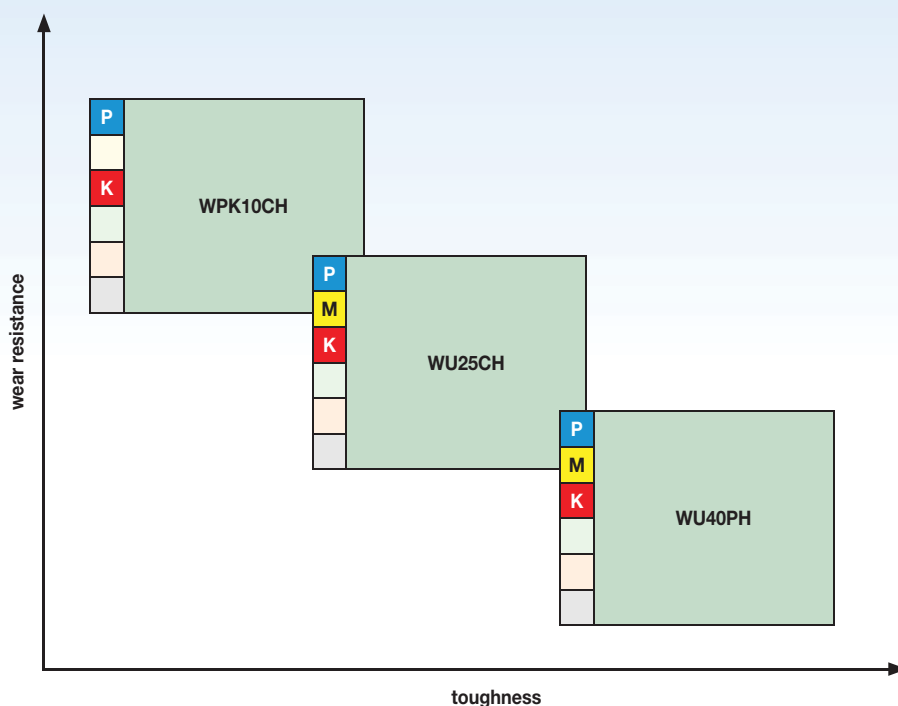


Coatings provide high-speed capability and are engineered for finishing to light roughing.

|   |                    |
|---|--------------------|
| P | Steel              |
| M | Stainless Steel    |
| K | Cast Iron          |
| N | Non-Ferrous        |
| S | High-Temp Alloys   |
| H | Hardened Materials |

wear resistance ← → toughness

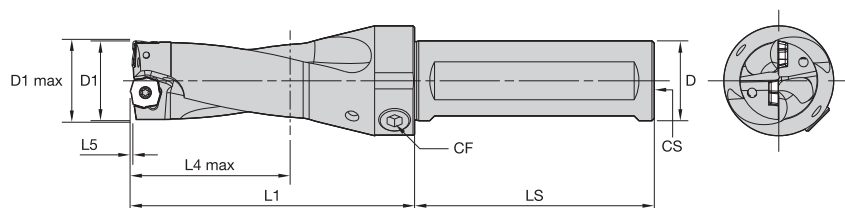
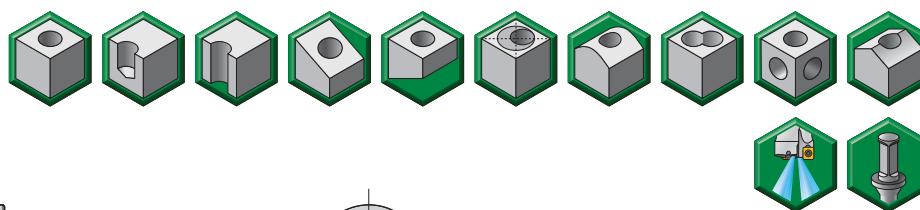
| Coating |         | Grade Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
|---------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|----|----|----|----|----|----|----|
| Grade   | WPK10CH | <br><b>TiCN-Al<sub>2</sub>O<sub>3</sub></b><br><b>Composition:</b> With an advanced CVD TiCN-Al <sub>2</sub> O <sub>3</sub> coating combined with a cobalt-enriched carbide substrate, this grade offers a balanced combination of deformation-resistance and edge toughness.<br><b>Application:</b> Offers outstanding abrasion and crater wear resistance for high-speed machining of steels and cast irons. Use for very high cutting speeds with low to medium feed rates.                                                         | P |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | M |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | K |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | S |    |    |    |    |    |    |    |    |    |
| Grade   | WU25CH  | <br><b>TiCN-Al<sub>2</sub>O<sub>3</sub></b><br><b>Composition:</b> Advanced CVD TiCN-Al <sub>2</sub> O <sub>3</sub> coating together with a newly engineered tough carbide substrate. Ensures adequate deformation resistance and excellent edge strength and offers very good wear resistance over a wide range of machining conditions.<br><b>Application:</b> A high productivity grade with high speeds and feeds. First choice for high productivity with very good reliability in steels, stainless steels, and cast iron rates. | P |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | M |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | K |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | S |    |    |    |    |    |    |    |    |    |
| Grade   | WU40PH  | <br><b>TiCN-Al<sub>2</sub>O<sub>3</sub></b><br><b>Composition:</b> With a multilayered PVD TiN-TiAlN coating and a tough substrate, this grade withstands interruptions and provides high wear resistance for long tool life.<br><b>Application:</b> First choice for high reliability in most materials. This grade should be used at medium speeds and high feeds due to sharper edges and as a grade for high-toughness applications. It covers steel, stainless steel, cast iron, and high-temp alloys under certain conditions.  | P |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | M |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | K |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | N |    |    |    |    |    |    |    |    |    |
|         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | S |    |    |    |    |    |    |    |    |    |



**WPK10CH:**  
High-Speed Grade

**WU25CH:**  
High Metal Removal Rate Grade

**WU40PH:**  
High Toughness Grade



For information on CF, LS, and CS, see the table on page T9.



■ **Top Cut 4 Drill • Inch • 2 x D • SSF Shanks**

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5537879      | TCF0473R2SSF075A | .473  | .493   | .75  | 2.309 | .946   | .017 | A           | TCF040204AP      | TCF040203AC   |
| 5537880      | TCF0500R2SSF075A | .500  | .520   | .75  | 2.372 | 1.000  | .020 | A           | TCF040204AP      | TCF040203AC   |
| 5537881      | TCF0531R2SSF075A | .531  | .551   | .75  | 2.444 | 1.062  | .025 | A           | TCF040204AP      | TCF040203AC   |
| 5578226      | TCF0563R2SSF075B | .563  | .583   | .75  | 2.499 | 1.126  | .017 | B           | TCF050204BP      | TCF060203BC   |
| 5578227      | TCF0594R2SSF075B | .594  | .614   | .75  | 2.571 | 1.188  | .020 | B           | TCF050204BP      | TCF060203BC   |
| 5578228      | TCF0625R2SSF075B | .625  | .645   | .75  | 2.643 | 1.250  | .023 | B           | TCF050204BP      | TCF060203BC   |
| 5578229      | TCF0656R2SSF075B | .656  | .676   | .75  | 2.715 | 1.312  | .028 | B           | TCF050204BP      | TCF060203BC   |
| 5578300      | TCF0688R2SSF075B | .688  | .708   | .75  | 2.856 | 1.367  | .032 | B           | TCF050204BP      | TCF060203BC   |
| 5578301      | TCF0703R2SSF075B | .703  | .723   | .75  | 2.891 | 1.406  | .034 | B           | TCF050204BP      | TCF060203BC   |
| 5578302      | TCF0719R2SSF075B | .719  | .739   | .75  | 2.928 | 1.438  | .036 | B           | TCF050204BP      | TCF060203BC   |
| 5578303      | TCF0734R2SSF075B | .734  | .754   | .75  | 2.963 | 1.468  | .038 | B           | TCF050204BP      | TCF060203BC   |
| 5578379      | TCF0750R2SSF100C | .750  | .770   | 1.00 | 3.037 | 1.500  | .024 | C           | TCF070306CP      | TCF070304CC   |
| 5578400      | TCF0781R2SSF100C | .781  | .801   | 1.00 | 3.109 | 1.562  | .027 | C           | TCF070306CP      | TCF070304CC   |
| 5578401      | TCF0813R2SSF100C | .813  | .833   | 1.00 | 3.183 | 1.626  | .030 | C           | TCF070306CP      | TCF070304CC   |
| 5578402      | TCF0844R2SSF100C | .844  | .864   | 1.00 | 3.255 | 1.688  | .034 | C           | TCF070306CP      | TCF070304CC   |
| 5578403      | TCF0875R2SSF100C | .875  | .895   | 1.00 | 3.328 | 1.750  | .040 | C           | TCF070306CP      | TCF070304CC   |
| 5578404      | TCF0906R2SSF100C | .906  | .926   | 1.00 | 3.400 | 1.812  | .045 | C           | TCF070306CP      | TCF070304CC   |
| 5578405      | TCF0938R2SSF100C | .938  | .958   | 1.00 | 3.473 | 1.876  | .037 | C           | TCF070306CP      | TCF070304CC   |
| 5537845      | TCF0969R2SSF100D | .969  | 1.008  | 1.00 | 3.490 | 1.938  | .032 | D           | TCF080308DP      | TCF090305DC   |
| 5537846      | TCF0984R2SSF100D | .984  | 1.023  | 1.00 | 3.525 | 1.968  | .034 | D           | TCF080308DP      | TCF090305DC   |
| 5537847      | TCF1000R2SSF100D | 1.000 | 1.039  | 1.00 | 3.562 | 2.000  | .036 | D           | TCF080308DP      | TCF090305DC   |
| 5537848      | TCF1031R2SSF125D | 1.031 | 1.070  | 1.25 | 3.634 | 2.062  | .039 | D           | TCF080308DP      | TCF090305DC   |
| 5537849      | TCF1063R2SSF125D | 1.063 | 1.102  | 1.25 | 3.708 | 2.126  | .045 | D           | TCF080308DP      | TCF090305DC   |
| 5537910      | TCF1094R2SSF125D | 1.094 | 1.133  | 1.25 | 3.780 | 2.188  | .050 | D           | TCF080308DP      | TCF090305DC   |
| 5537911      | TCF1125R2SSF125D | 1.125 | 1.164  | 1.25 | 3.852 | 2.250  | .054 | D           | TCF080308DP      | TCF090305DC   |
| 5537912      | TCF1156R2SSF125D | 1.156 | 1.195  | 1.25 | 3.924 | 2.312  | .059 | D           | TCF080308DP      | TCF090305DC   |
| 5537965      | TCF1188R2SSF125E | 1.188 | 1.227  | 1.25 | 4.077 | 2.376  | .026 | E           | TCF100408EP      | TCF120405EC   |
| 5537966      | TCF1210R2SSF125E | 1.210 | 1.249  | 1.25 | 4.128 | 2.420  | .027 | E           | TCF100408EP      | TCF120405EC   |
| 5537967      | TCF1219R2SSF125E | 1.219 | 1.258  | 1.25 | 4.149 | 2.438  | .028 | E           | TCF100408EP      | TCF120405EC   |
| 5537968      | TCF1250R2SSF125E | 1.250 | 1.289  | 1.25 | 4.221 | 2.500  | .031 | E           | TCF100408EP      | TCF120405EC   |
| 5537969      | TCF1280R2SSF125E | 1.280 | 1.319  | 1.25 | 4.291 | 2.560  | .035 | E           | TCF100408EP      | TCF120405EC   |
| 5538060      | TCF1313R2SSF125E | 1.313 | 1.352  | 1.25 | 4.367 | 2.626  | .040 | E           | TCF100408EP      | TCF120405EC   |
| 5538061      | TCF1375R2SSF125E | 1.375 | 1.414  | 1.25 | 4.511 | 2.750  | .050 | E           | TCF100408EP      | TCF120405EC   |
| 5538062      | TCF1406R2SSF150E | 1.406 | 1.445  | 1.50 | 4.583 | 2.812  | .055 | E           | TCF100408EP      | TCF120405EC   |
| 5538063      | TCF1438R2SSF150E | 1.438 | 1.477  | 1.50 | 4.657 | 2.876  | .059 | E           | TCF100408EP      | TCF120405EC   |
| 5578651      | TCF1469R2SSF150F | 1.469 | 1.508  | 1.50 | 4.681 | 2.938  | .048 | F           | TCF120412FP      | TCF150406FC   |

(continued)



(Top Cut 4 Drill • Inch • 2 x D • SSF Shanks — continued)

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5578652      | TCF1500R2SSF150F | 1.500 | 1.539  | 1.50 | 4.752 | 3.000  | .050 | F           | TCF120412FP      | TCF150406FC   |
| 5578653      | TCF1531R2SSF150F | 1.531 | 1.570  | 1.50 | 4.824 | 3.062  | .053 | F           | TCF120412FP      | TCF150406FC   |
| 5578654      | TCF1563R2SSF150F | 1.563 | 1.602  | 1.50 | 4.898 | 3.126  | .056 | F           | TCF120412FP      | TCF150406FC   |
| 5578655      | TCF1625R2SSF150F | 1.625 | 1.664  | 1.50 | 5.042 | 3.250  | .065 | F           | TCF120412FP      | TCF150406FC   |
| 5578656      | TCF1656R2SSF150F | 1.656 | 1.695  | 1.50 | 5.114 | 3.312  | .070 | F           | TCF120412FP      | TCF150406FC   |
| 5578657      | TCF1688R2SSF150F | 1.688 | 1.727  | 1.50 | 5.188 | 3.376  | .077 | F           | TCF120412FP      | TCF150406FC   |
| 5578658      | TCF1750R2SSF150F | 1.750 | 1.789  | 1.50 | 5.332 | 3.500  | .085 | F           | TCF120412FP      | TCF150406FC   |
| 5578765      | TCF1813R2SSF150G | 1.813 | 1.852  | 1.50 | 5.478 | 3.626  | .057 | G           | TCF150512GP      | TCF180508GC   |
| 5578766      | TCF1875R2SSF150G | 1.875 | 1.914  | 1.50 | 5.622 | 3.750  | .063 | G           | TCF150512GP      | TCF180508GC   |
| 5578767      | TCF1938R2SSF150G | 1.938 | 1.977  | 1.50 | 5.768 | 3.876  | .069 | G           | TCF150512GP      | TCF180508GC   |
| 5578768      | TCF2000R2SSF150G | 2.000 | 2.039  | 1.50 | 5.971 | 4.000  | .078 | G           | TCF150512GP      | TCF180508GC   |
| 5578769      | TCF2125R2SSF200G | 2.125 | 2.164  | 2.00 | 6.261 | 4.250  | .100 | G           | TCF150512GP      | TCF180508GC   |
| 5578790      | TCF2219R2SSF200G | 2.219 | 2.258  | 2.00 | 6.479 | 4.438  | .085 | G           | TCF150512GP      | TCF180508GC   |
| 5538500      | TCF2250R2SSF200H | 2.250 | 2.289  | 2.00 | 6.531 | 4.500  | .070 | H           | TCF180614HP      | TCF210608HC   |
| 5538501      | TCF2375R2SSF200H | 2.375 | 2.414  | 2.00 | 6.821 | 4.750  | .084 | H           | TCF180614HP      | TCF210608HC   |
| 5538502      | TCF2500R2SSF200H | 2.500 | 2.539  | 2.00 | 7.111 | 5.000  | .110 | H           | TCF180614HP      | TCF210608HC   |

## Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | 2025073                   | T5        | 2029221                  | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | 1175225                   | T6        | 1138455                  | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | 1021337                   | T7        | 2029266                  | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | 1134385                   | T8        | 2029598                  | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | 2018194                   | T9        | 1138430                  | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | 1756815                   | T15       | 2029596                  | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | 1099645                   | T20       | 2029488                  | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | 1823871                   | T25       | 2585812                  | 8,80                 | 6.490                     |

| D     | LS    |       | CF           | CS           |
|-------|-------|-------|--------------|--------------|
|       | mm    | in    |              |              |
| .750  | 50,8  | 2.000 | 1/8 - 27 NPT | 1/8 - 27 NPT |
| 1.000 | 76,2  | 3.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.250 | 82,6  | 3.250 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.500 | 95,3  | 3.750 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 2.000 | 101,6 | 4.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |

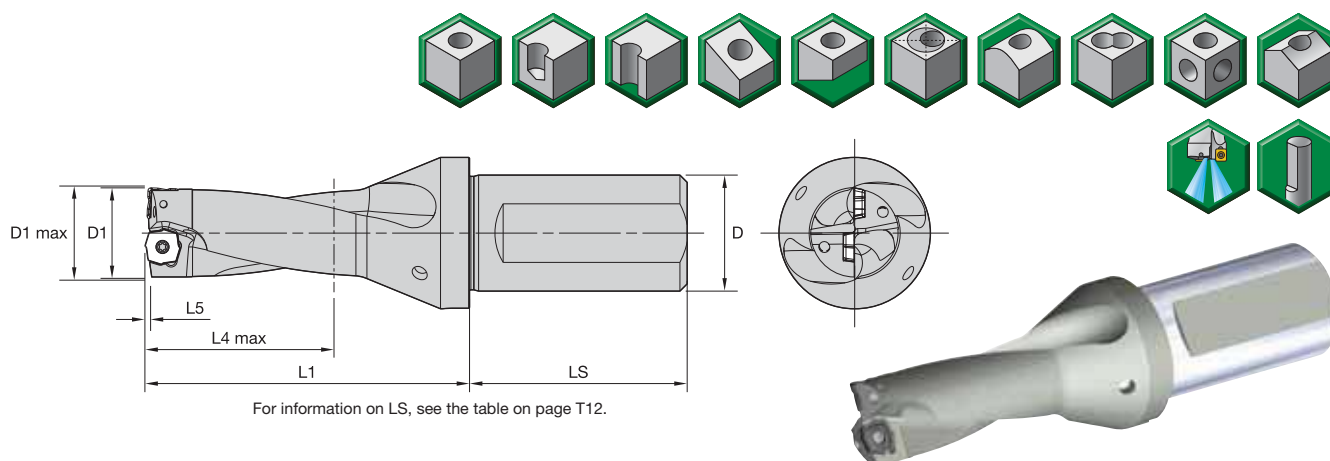
NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SSF = Straight Shank Flange  
 D1 max is an achievable diameter using x-offset.



### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.





■ **Top Cut 4 Drill • Metric • 2 x D • SL Shanks**

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537778      | TCF120R2SL20MA | 12,00 | 12,50  | 20 | 54,6  | 24,0   | 0,41 | A           | TCF040204AP      | TCF040203AC   |
| 5537779      | TCF125R2SL20MA | 12,50 | 13,00  | 20 | 55,8  | 25,0   | 0,48 | A           | TCF040204AP      | TCF040203AC   |
| 5537860      | TCF127R2SL20MA | 12,70 | 13,20  | 20 | 56,2  | 26,0   | 0,51 | A           | TCF040204AP      | TCF040203AC   |
| 5537861      | TCF130R2SL20MA | 13,00 | 13,50  | 20 | 56,9  | 26,0   | 0,56 | A           | TCF040204AP      | TCF040203AC   |
| 5537862      | TCF135R2SL20MA | 13,50 | 14,00  | 20 | 58,1  | 27,0   | 0,64 | A           | TCF040204AP      | TCF040203AC   |
| 5577828      | TCF140R2SL25MB | 14,00 | 14,50  | 25 | 59,8  | 28,0   | 0,42 | B           | TCF050204BP      | TCF060203BC   |
| 5577829      | TCF145R2SL25MB | 14,50 | 15,00  | 25 | 60,9  | 29,0   | 0,45 | B           | TCF050204BP      | TCF060203BC   |
| 5577920      | TCF150R2SL25MB | 15,00 | 15,50  | 25 | 62,1  | 30,0   | 0,49 | B           | TCF050204BP      | TCF060203BC   |
| 5577921      | TCF155R2SL25MB | 15,50 | 16,00  | 25 | 63,3  | 31,0   | 0,54 | B           | TCF050204BP      | TCF060203BC   |
| 5577922      | TCF160R2SL25MB | 16,00 | 16,50  | 25 | 64,4  | 32,0   | 0,60 | B           | TCF050204BP      | TCF060203BC   |
| 5577923      | TCF165R2SL25MB | 16,50 | 17,00  | 25 | 65,6  | 33,0   | 0,68 | B           | TCF050204BP      | TCF060203BC   |
| 5577924      | TCF170R2SL25MB | 17,00 | 17,50  | 25 | 68,4  | 34,0   | 0,74 | B           | TCF050204BP      | TCF060203BC   |
| 5577925      | TCF175R2SL25MB | 17,50 | 18,00  | 25 | 69,6  | 35,0   | 0,79 | B           | TCF050204BP      | TCF060203BC   |
| 5577926      | TCF180R2SL25MB | 18,00 | 18,50  | 25 | 70,8  | 36,0   | 0,86 | B           | TCF050204BP      | TCF060203BC   |
| 5577927      | TCF185R2SL25MB | 18,50 | 19,00  | 25 | 71,9  | 37,0   | 0,83 | B           | TCF050204BP      | TCF060203BC   |
| 5578820      | TCF190R2SL25MC | 19,00 | 19,50  | 25 | 72,1  | 38,0   | 0,60 | C           | TCF070306CP      | TCF070304CC   |
| 5578821      | TCF195R2SL25MC | 19,50 | 20,00  | 25 | 73,2  | 39,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578822      | TCF200R2SL25MC | 20,00 | 20,50  | 25 | 74,4  | 40,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578823      | TCF205R2SL25MC | 20,50 | 21,00  | 25 | 75,6  | 41,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578824      | TCF210R2SL25MC | 21,00 | 21,50  | 25 | 76,7  | 42,0   | 0,80 | C           | TCF070306CP      | TCF070304CC   |
| 5578825      | TCF220R2SL25MC | 22,00 | 22,50  | 25 | 79,0  | 44,0   | 1,00 | C           | TCF070306CP      | TCF070304CC   |
| 5578826      | TCF225R2SL25MC | 22,50 | 23,00  | 25 | 80,2  | 45,0   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5578827      | TCF230R2SL25MC | 23,00 | 23,50  | 25 | 81,4  | 46,0   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5537167      | TCF240R2SL25MD | 24,00 | 25,00  | 25 | 87,2  | 48,0   | 0,78 | D           | TCF080308DP      | TCF090305DC   |
| 5537168      | TCF250R2SL32MD | 25,00 | 26,00  | 32 | 89,6  | 50,0   | 0,86 | D           | TCF080308DP      | TCF090305DC   |
| 5537169      | TCF260R2SL32MD | 26,00 | 27,00  | 32 | 91,9  | 52,0   | 0,97 | D           | TCF080308DP      | TCF090305DC   |
| 5537820      | TCF265R2SL32MD | 26,50 | 27,50  | 32 | 93,0  | 53,0   | 1,05 | D           | TCF080308DP      | TCF090305DC   |
| 5537821      | TCF270R2SL32MD | 27,00 | 28,00  | 32 | 94,2  | 54,0   | 1,15 | D           | TCF080308DP      | TCF090305DC   |
| 5537822      | TCF280R2SL32MD | 28,00 | 29,00  | 32 | 96,5  | 56,0   | 1,30 | D           | TCF080308DP      | TCF090305DC   |
| 5537823      | TCF290R2SL32MD | 29,00 | 30,00  | 32 | 98,8  | 58,0   | 1,45 | D           | TCF080308DP      | TCF090305DC   |
| 5537937      | TCF300R2SL32ME | 30,00 | 31,00  | 32 | 100,2 | 60,0   | 0,63 | E           | TCF100408EP      | TCF120405EC   |
| 5537938      | TCF310R2SL32ME | 31,00 | 32,00  | 32 | 102,5 | 62,0   | 0,72 | E           | TCF100408EP      | TCF120405EC   |

(continued)

(Top Cut 4 Drill • Metric • 2 x D • SL Shanks — continued)

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537939      | TCF320R2SL32ME | 32,00 | 33,00  | 32 | 104,8 | 64,0   | 0,82 | E           | TCF100408EP      | TCF120405EC   |
| 5537940      | TCF330R2SL40ME | 33,00 | 34,00  | 40 | 107,1 | 66,0   | 0,95 | E           | TCF100408EP      | TCF120405EC   |
| 5537941      | TCF340R2SL40ME | 34,00 | 35,00  | 40 | 109,4 | 68,0   | 1,14 | E           | TCF100408EP      | TCF120405EC   |
| 5537942      | TCF350R2SL40ME | 35,00 | 36,00  | 40 | 111,8 | 70,0   | 1,30 | E           | TCF100408EP      | TCF120405EC   |
| 5537943      | TCF360R2SL40ME | 36,00 | 37,00  | 40 | 114,1 | 72,0   | 1,45 | E           | TCF100408EP      | TCF120405EC   |
| 5578539      | TCF370R2SL40MF | 37,00 | 38,00  | 40 | 118,1 | 74,0   | 1,19 | F           | TCF120412FP      | TCF150406FC   |
| 5578600      | TCF375R2SL40MF | 37,50 | 38,50  | 40 | 119,3 | 75,0   | 1,23 | F           | TCF120412FP      | TCF150406FC   |
| 5578601      | TCF380R2SL40MF | 38,00 | 39,00  | 40 | 120,5 | 76,0   | 1,27 | F           | TCF120412FP      | TCF150406FC   |
| 5578602      | TCF390R2SL40MF | 39,00 | 40,00  | 40 | 122,8 | 78,0   | 1,36 | F           | TCF120412FP      | TCF150406FC   |
| 5578603      | TCF400R2SL40MF | 40,00 | 41,00  | 40 | 125,1 | 80,0   | 1,47 | F           | TCF120412FP      | TCF150406FC   |
| 5578604      | TCF410R2SL40MF | 41,00 | 42,00  | 40 | 127,4 | 82,0   | 1,60 | F           | TCF120412FP      | TCF150406FC   |
| 5578605      | TCF420R2SL40MF | 42,00 | 43,00  | 40 | 129,7 | 84,0   | 1,77 | F           | TCF120412FP      | TCF150406FC   |
| 5578606      | TCF430R2SL40MF | 43,00 | 44,00  | 40 | 132,1 | 86,0   | 1,99 | F           | TCF120412FP      | TCF150406FC   |
| 5578607      | TCF440R2SL40MF | 44,00 | 45,00  | 40 | 134,4 | 88,0   | 2,10 | F           | TCF120412FP      | TCF150406FC   |
| 5578608      | TCF450R2SL50MF | 45,00 | 46,00  | 50 | 136,7 | 90,0   | 2,21 | F           | TCF120412FP      | TCF150406FC   |
| 5578694      | TCF460R2SL50MG | 46,00 | 47,00  | 50 | 139,0 | 92,0   | 1,45 | G           | TCF150512GP      | TCF180508GC   |
| 5578695      | TCF470R2SL50MG | 47,00 | 48,00  | 50 | 141,3 | 94,0   | 1,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578696      | TCF480R2SL50MG | 48,00 | 49,00  | 50 | 143,7 | 96,0   | 1,63 | G           | TCF150512GP      | TCF180508GC   |
| 5578697      | TCF490R2SL50MG | 49,00 | 50,00  | 50 | 146,0 | 98,0   | 1,74 | G           | TCF150512GP      | TCF180508GC   |
| 5578698      | TCF500R2SL50MG | 50,00 | 51,00  | 50 | 149,8 | 100,0  | 1,87 | G           | TCF150512GP      | TCF180508GC   |
| 5578699      | TCF505R2SL50MG | 50,50 | 51,50  | 50 | 151,0 | 101,0  | 1,94 | G           | TCF150512GP      | TCF180508GC   |
| 5578710      | TCF510R2SL50MG | 51,00 | 52,00  | 50 | 152,1 | 102,0  | 2,02 | G           | TCF150512GP      | TCF180508GC   |
| 5578711      | TCF520R2SL50MG | 52,00 | 53,00  | 50 | 154,4 | 104,0  | 2,22 | G           | TCF150512GP      | TCF180508GC   |
| 5578712      | TCF530R2SL50MG | 53,00 | 54,00  | 50 | 156,8 | 106,0  | 2,46 | G           | TCF150512GP      | TCF180508GC   |
| 5578713      | TCF540R2SL50MG | 54,00 | 55,00  | 50 | 159,1 | 108,0  | 2,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578714      | TCF550R2SL50MG | 55,00 | 56,00  | 50 | 161,4 | 110,0  | 2,73 | G           | TCF150512GP      | TCF180508GC   |
| 5578715      | TCF560R2SL50MG | 56,00 | 57,00  | 50 | 163,7 | 112,0  | 2,37 | G           | TCF150512GP      | TCF180508GC   |
| 5538613      | TCF570R2SL50MH | 57,00 | 58,00  | 50 | 165,5 | 114,0  | 1,76 | H           | TCF180614HP      | TCF210608HC   |
| 5538614      | TCF580R2SL50MH | 58,00 | 59,00  | 50 | 167,9 | 116,0  | 1,85 | H           | TCF180614HP      | TCF210608HC   |
| 5538615      | TCF590R2SL50MH | 59,00 | 60,00  | 50 | 170,2 | 118,0  | 1,96 | H           | TCF180614HP      | TCF210608HC   |
| 5538616      | TCF600R2SL50MH | 60,00 | 61,00  | 50 | 172,5 | 120,0  | 1,42 | H           | TCF180614HP      | TCF210608HC   |
| 5538617      | TCF610R2SL50MH | 61,00 | 62,00  | 50 | 174,8 | 122,0  | 2,23 | H           | TCF180614HP      | TCF210608HC   |
| 5538618      | TCF620R2SL50MH | 62,00 | 63,00  | 50 | 177,1 | 124,0  | 2,41 | H           | TCF180614HP      | TCF210608HC   |
| 5538619      | TCF630R2SL50MH | 63,00 | 64,00  | 50 | 179,5 | 126,0  | 2,64 | H           | TCF180614HP      | TCF210608HC   |
| 5538630      | TCF640R2SL50MH | 64,00 | 65,00  | 50 | 181,8 | 128,0  | 2,94 | H           | TCF180614HP      | TCF210608HC   |
| 5538631      | TCF650R2SL50MH | 65,00 | 66,00  | 50 | 184,1 | 130,0  | 3,06 | H           | TCF180614HP      | TCF210608HC   |
| 5538632      | TCF660R2SL50MH | 66,00 | 67,00  | 50 | 186,4 | 132,0  | 3,18 | H           | TCF180614HP      | TCF210608HC   |
| 5538633      | TCF670R2SL50MH | 67,00 | 68,00  | 50 | 188,7 | 134,0  | 3,30 | H           | TCF180614HP      | TCF210608HC   |
| 5538634      | TCF680R2SL50MH | 68,00 | 69,00  | 50 | 191,1 | 136,0  | 2,93 | H           | TCF180614HP      | TCF210608HC   |

(continued)

(Top Cut 4 Drill • Metric • 2 x D • SL Shanks — continued)

### ■ Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | <b>2025073</b>            | T5        | <b>2029221</b>           | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | <b>1175225</b>            | T6        | <b>1138455</b>           | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | <b>1021337</b>            | T7        | <b>2029266</b>           | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | <b>1134385</b>            | T8        | <b>2029598</b>           | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | <b>2018194</b>            | T9        | <b>1138430</b>           | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | <b>1756815</b>            | T15       | <b>2029596</b>           | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | <b>1099645</b>            | T20       | <b>2029488</b>           | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | <b>1823871</b>            | T25       | <b>1022519</b>           | 8,80                 | 6.490                     |

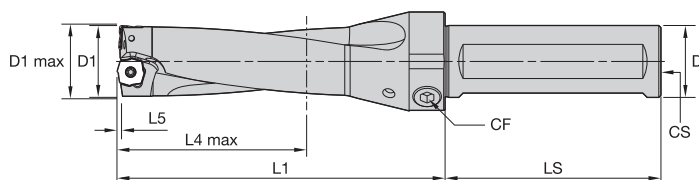
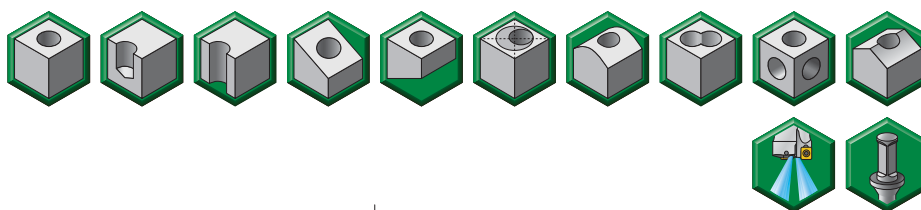
| D     | LS |       |
|-------|----|-------|
|       | mm | in    |
| 20,00 | 50 | 1.969 |
| 25,00 | 56 | 2.205 |
| 32,00 | 60 | 2.362 |
| 40,00 | 70 | 2.756 |
| 50,00 | 80 | 3.150 |

NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SL = Side Lock  
 D1 max is an achievable diameter using x-offset.

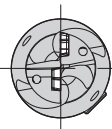


#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



For information on CF, LS, and CS, see the table on page T14.



### ■ Top Cut 4 Drill • Inch • 3 x D • SSF Shanks

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5537882      | TCF0473R3SSF075A | .473  | .493   | .75  | 2.782 | 1.431  | .017 | A           | TCF040204AP      | TCF040203AC   |
| 5537883      | TCF0500R3SSF075A | .500  | .520   | .75  | 2.872 | 1.500  | .020 | A           | TCF040204AP      | TCF040203AC   |
| 5537884      | TCF0531R3SSF075A | .531  | .551   | .75  | 2.975 | 1.593  | .025 | A           | TCF040204AP      | TCF040203AC   |
| 5578304      | TCF0563R3SSF075B | .563  | .583   | .75  | 3.062 | 1.689  | .017 | B           | TCF050204BP      | TCF060203BC   |
| 5578305      | TCF0594R3SSF075B | .594  | .614   | .75  | 3.165 | 1.782  | .020 | B           | TCF050204BP      | TCF060203BC   |
| 5578306      | TCF0625R3SSF075B | .625  | .645   | .75  | 3.268 | 1.875  | .023 | B           | TCF050204BP      | TCF060203BC   |
| 5578307      | TCF0656R3SSF075B | .656  | .676   | .75  | 3.371 | 1.968  | .028 | B           | TCF050204BP      | TCF060203BC   |
| 5578308      | TCF0688R3SSF075B | .688  | .708   | .75  | 3.544 | 2.064  | .032 | B           | TCF050204BP      | TCF060203BC   |
| 5578309      | TCF0703R3SSF075B | .703  | .723   | .75  | 3.594 | 2.109  | .034 | B           | TCF050204BP      | TCF060203BC   |
| 5578310      | TCF0719R3SSF075B | .719  | .739   | .75  | 3.647 | 2.157  | .036 | B           | TCF050204BP      | TCF060203BC   |
| 5578311      | TCF0734R3SSF075B | .734  | .754   | .75  | 3.697 | 2.202  | .038 | B           | TCF050204BP      | TCF060203BC   |
| 5578406      | TCF0750R3SSF100C | .750  | .770   | 1.00 | 3.787 | 2.250  | .024 | C           | TCF070306CP      | TCF070304CC   |
| 5578407      | TCF0781R3SSF100C | .781  | .801   | 1.00 | 3.890 | 2.343  | .027 | C           | TCF070306CP      | TCF070304CC   |
| 5578408      | TCF0813R3SSF100C | .813  | .833   | 1.00 | 3.996 | 2.439  | .030 | C           | TCF070306CP      | TCF070304CC   |
| 5578409      | TCF0844R3SSF100C | .844  | .864   | 1.00 | 4.099 | 2.532  | .034 | C           | TCF070306CP      | TCF070304CC   |
| 5578410      | TCF0875R3SSF100C | .875  | .895   | 1.00 | 4.203 | 2.625  | .040 | C           | TCF070306CP      | TCF070304CC   |
| 5578411      | TCF0906R3SSF100C | .906  | .926   | 1.00 | 4.306 | 2.718  | .045 | C           | TCF070306CP      | TCF070304CC   |
| 5578412      | TCF0938R3SSF100C | .938  | .958   | 1.00 | 4.411 | 2.814  | .037 | C           | TCF070306CP      | TCF070304CC   |
| 5537913      | TCF0969R3SSF100D | .969  | 1.008  | 1.00 | 4.459 | 2.907  | .032 | D           | TCF080308DP      | TCF090305DC   |
| 5537914      | TCF0984R3SSF100D | .984  | 1.023  | 1.00 | 4.509 | 2.952  | .034 | D           | TCF080308DP      | TCF090305DC   |
| 5537915      | TCF1000R3SSF100D | 1.000 | 1.039  | 1.00 | 4.562 | 3.000  | .036 | D           | TCF080308DP      | TCF090305DC   |
| 5537916      | TCF1031R3SSF125D | 1.031 | 1.070  | 1.25 | 4.665 | 3.093  | .039 | D           | TCF080308DP      | TCF090305DC   |
| 5537917      | TCF1063R3SSF125D | 1.063 | 1.102  | 1.25 | 4.771 | 3.189  | .045 | D           | TCF080308DP      | TCF090305DC   |
| 5537918      | TCF1094R3SSF125D | 1.094 | 1.133  | 1.25 | 4.874 | 3.282  | .050 | D           | TCF080308DP      | TCF090305DC   |
| 5537919      | TCF1125R3SSF125D | 1.125 | 1.164  | 1.25 | 4.977 | 3.375  | .054 | D           | TCF080308DP      | TCF090305DC   |
| 5537920      | TCF1156R3SSF125D | 1.156 | 1.195  | 1.25 | 5.080 | 3.468  | .059 | D           | TCF080308DP      | TCF090305DC   |
| 5538064      | TCF1188R3SSF125E | 1.188 | 1.227  | 1.25 | 5.265 | 3.564  | .026 | E           | TCF100408EP      | TCF120405EC   |
| 5538065      | TCF1210R3SSF125E | 1.210 | 1.249  | 1.25 | 5.338 | 3.630  | .027 | E           | TCF100408EP      | TCF120405EC   |
| 5538066      | TCF1219R3SSF125E | 1.219 | 1.258  | 1.25 | 5.368 | 3.657  | .028 | E           | TCF100408EP      | TCF120405EC   |
| 5538067      | TCF1250R3SSF125E | 1.250 | 1.289  | 1.25 | 5.471 | 3.750  | .031 | E           | TCF100408EP      | TCF120405EC   |
| 5538068      | TCF1280R3SSF125E | 1.280 | 1.319  | 1.25 | 5.571 | 3.840  | .035 | E           | TCF100408EP      | TCF120405EC   |
| 5538069      | TCF1313R3SSF125E | 1.313 | 1.352  | 1.25 | 5.680 | 3.939  | .040 | E           | TCF100408EP      | TCF120405EC   |
| 5538080      | TCF1375R3SSF125E | 1.375 | 1.414  | 1.25 | 5.886 | 4.125  | .050 | E           | TCF100408EP      | TCF120405EC   |
| 5538081      | TCF1406R3SSF150E | 1.406 | 1.445  | 1.50 | 5.989 | 4.218  | .055 | E           | TCF100408EP      | TCF120405EC   |
| 5538082      | TCF1438R3SSF150E | 1.438 | 1.477  | 1.50 | 6.095 | 4.314  | .059 | E           | TCF100408EP      | TCF120405EC   |
| 5578659      | TCF1469R3SSF150F | 1.469 | 1.508  | 1.50 | 6.149 | 4.407  | .048 | F           | TCF120412FP      | TCF150406FC   |

(continued)

(Top Cut 4 Drill • Inch • 3 x D • SSF Shanks — continued)

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5578670      | TCF1500R3SSF150F | 1.500 | 1.539  | 1.50 | 6.252 | 4.500  | .050 | F           | TCF120412FP      | TCF150406FC   |
| 5578671      | TCF1531R3SSF150F | 1.531 | 1.570  | 1.50 | 6.355 | 4.593  | .053 | F           | TCF120412FP      | TCF150406FC   |
| 5578672      | TCF1563R3SSF150F | 1.563 | 1.602  | 1.50 | 6.461 | 4.689  | .056 | F           | TCF120412FP      | TCF150406FC   |
| 5578673      | TCF1625R3SSF150F | 1.625 | 1.664  | 1.50 | 6.667 | 4.875  | .065 | F           | TCF120412FP      | TCF150406FC   |
| 5578674      | TCF1656R3SSF150F | 1.656 | 1.695  | 1.50 | 6.770 | 4.968  | .070 | F           | TCF120412FP      | TCF150406FC   |
| 5578675      | TCF1688R3SSF150F | 1.688 | 1.727  | 1.50 | 6.876 | 5.064  | .077 | F           | TCF120412FP      | TCF150406FC   |
| 5578676      | TCF1750R3SSF150F | 1.750 | 1.789  | 1.50 | 7.082 | 5.250  | .085 | F           | TCF120412FP      | TCF150406FC   |
| 5578791      | TCF1813R3SSF150G | 1.813 | 1.852  | 1.50 | 7.291 | 5.439  | .057 | G           | TCF150512GP      | TCF180508GC   |
| 5578792      | TCF1875R3SSF150G | 1.875 | 1.914  | 1.50 | 7.497 | 5.625  | .063 | G           | TCF150512GP      | TCF180508GC   |
| 5578793      | TCF1938R3SSF150G | 1.938 | 1.977  | 1.50 | 7.706 | 5.814  | .069 | G           | TCF150512GP      | TCF180508GC   |
| 5578794      | TCF2000R3SSF150G | 2.000 | 2.039  | 1.50 | 7.971 | 6.000  | .078 | G           | TCF150512GP      | TCF180508GC   |
| 5578795      | TCF2125R3SSF200G | 2.125 | 2.164  | 2.00 | 8.386 | 6.375  | .100 | G           | TCF150512GP      | TCF180508GC   |
| 5578796      | TCF2219R3SSF200G | 2.219 | 2.258  | 2.00 | 8.698 | 6.657  | .085 | G           | TCF150512GP      | TCF180508GC   |
| 5538503      | TCF2250R3SSF200H | 2.250 | 2.289  | 2.00 | 8.781 | 6.750  | .070 | H           | TCF180614HP      | TCF210608HC   |
| 5538504      | TCF2375R3SSF200H | 2.375 | 2.414  | 2.00 | 9.196 | 7.125  | .084 | H           | TCF180614HP      | TCF210608HC   |
| 5538505      | TCF2500R3SSF200H | 2.500 | 2.539  | 2.00 | 9.611 | 7.500  | .110 | H           | TCF180614HP      | TCF210608HC   |

### Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | 2025073                   | T5        | 2029221                  | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | 1175225                   | T6        | 1138455                  | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | 1021337                   | T7        | 2029266                  | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | 1134385                   | T8        | 2029598                  | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | 2018194                   | T9        | 1138430                  | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | 1756815                   | T15       | 2029596                  | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | 1099645                   | T20       | 2029488                  | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | 1823871                   | T25       | 2585812                  | 8,80                 | 6.490                     |

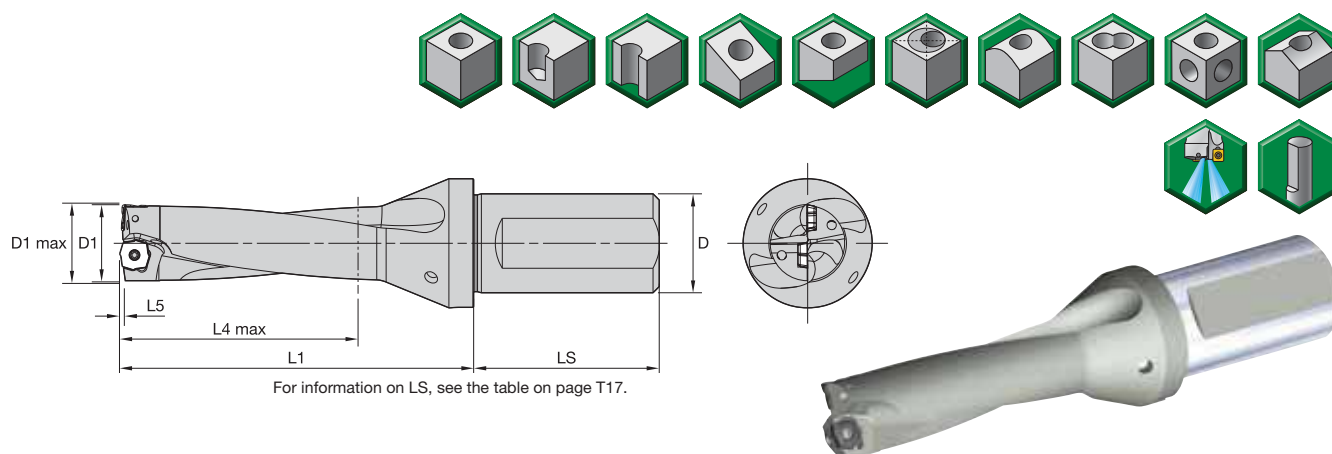
| D     | LS    |       | CF           | CS           |
|-------|-------|-------|--------------|--------------|
|       | mm    | in    |              |              |
| .750  | 50,8  | 2.000 | 1/8 - 27 NPT | 1/8 - 27 NPT |
| 1.000 | 76,2  | 3.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.250 | 82,6  | 3.250 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.500 | 95,3  | 3.750 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 2.000 | 101,6 | 4.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |

NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SSF = Straight Shank Flange  
 D1 max is an achievable diameter using x-offset.



#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



### ■ Top Cut 4 Drill • Metric • 3 x D • SL Shanks

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537863      | TCF120R3SL20MA | 12,00 | 12,50  | 20 | 66,6  | 36,0   | 0,41 | A           | TCF040204AP      | TCF040203AC   |
| 5537864      | TCF125R3SL20MA | 12,50 | 13,00  | 20 | 68,3  | 37,5   | 0,48 | A           | TCF040204AP      | TCF040203AC   |
| 5537866      | TCF127R3SL20MA | 12,70 | 13,20  | 20 | 68,9  | 38,1   | 0,51 | A           | TCF040204AP      | TCF040203AC   |
| 5537867      | TCF130R3SL20MA | 13,00 | 13,50  | 20 | 69,9  | 39,0   | 0,56 | A           | TCF040204AP      | TCF040203AC   |
| 5537868      | TCF135R3SL20MA | 13,50 | 14,00  | 20 | 71,6  | 41,0   | 0,64 | A           | TCF040204AP      | TCF040203AC   |
| 5577928      | TCF140R3SL25MB | 14,00 | 14,50  | 25 | 73,8  | 42,0   | 0,42 | B           | TCF050204BP      | TCF060203BC   |
| 5577929      | TCF145R3SL25MB | 14,50 | 15,00  | 25 | 75,4  | 43,5   | 0,45 | B           | TCF050204BP      | TCF060203BC   |
| 5577930      | TCF150R3SL25MB | 15,00 | 15,50  | 25 | 77,1  | 45,0   | 0,49 | B           | TCF050204BP      | TCF060203BC   |
| 5577931      | TCF155R3SL25MB | 15,50 | 16,00  | 25 | 78,8  | 46,5   | 0,54 | B           | TCF050204BP      | TCF060203BC   |
| 5577932      | TCF160R3SL25MB | 16,00 | 16,50  | 25 | 80,4  | 48,0   | 0,60 | B           | TCF050204BP      | TCF060203BC   |
| 5577933      | TCF165R3SL25MB | 16,50 | 17,00  | 25 | 82,1  | 49,5   | 0,68 | B           | TCF050204BP      | TCF060203BC   |
| 5577934      | TCF170R3SL25MB | 17,00 | 17,50  | 25 | 85,4  | 51,0   | 0,74 | B           | TCF050204BP      | TCF060203BC   |
| 5577935      | TCF175R3SL25MB | 17,50 | 18,00  | 25 | 87,1  | 52,5   | 0,79 | B           | TCF050204BP      | TCF060203BC   |
| 5577936      | TCF180R3SL25MB | 18,00 | 18,50  | 25 | 88,8  | 54,0   | 0,86 | B           | TCF050204BP      | TCF060203BC   |
| 5577937      | TCF185R3SL25MB | 18,50 | 19,00  | 25 | 90,4  | 55,5   | 0,83 | B           | TCF050204BP      | TCF060203BC   |
| 5578828      | TCF190R3SL25MC | 19,00 | 19,50  | 25 | 91,1  | 57,0   | 0,60 | C           | TCF070306CP      | TCF070304CC   |
| 5578829      | TCF195R3SL25MC | 19,50 | 20,00  | 25 | 92,7  | 58,5   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578830      | TCF200R3SL25MC | 20,00 | 20,50  | 25 | 94,4  | 60,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578831      | TCF205R3SL25MC | 20,50 | 21,00  | 25 | 96,1  | 61,5   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578832      | TCF210R3SL25MC | 21,00 | 21,50  | 25 | 97,7  | 63,0   | 0,80 | C           | TCF070306CP      | TCF070304CC   |
| 5578833      | TCF220R3SL25MC | 22,00 | 22,50  | 25 | 101,0 | 66,0   | 1,00 | C           | TCF070306CP      | TCF070304CC   |
| 5578834      | TCF225R3SL25MC | 22,50 | 23,00  | 25 | 102,7 | 67,5   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5578835      | TCF230R3SL25MC | 23,00 | 23,50  | 25 | 104,4 | 69,0   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5537824      | TCF240R3SL25MD | 24,00 | 25,00  | 25 | 111,2 | 72,0   | 0,78 | D           | TCF080308DP      | TCF090305DC   |
| 5537825      | TCF250R3SL32MD | 25,00 | 26,00  | 32 | 114,6 | 75,0   | 0,86 | D           | TCF080308DP      | TCF090305DC   |
| 5537826      | TCF260R3SL32MD | 26,00 | 27,00  | 32 | 117,9 | 78,0   | 0,97 | D           | TCF080308DP      | TCF090305DC   |
| 5537827      | TCF265R3SL32MD | 26,50 | 27,50  | 32 | 119,5 | 79,5   | 1,05 | D           | TCF080308DP      | TCF090305DC   |
| 5537828      | TCF270R3SL32MD | 27,00 | 28,00  | 32 | 121,2 | 81,0   | 1,15 | D           | TCF080308DP      | TCF090305DC   |
| 5537829      | TCF280R3SL32MD | 28,00 | 29,00  | 32 | 124,5 | 84,0   | 1,30 | D           | TCF080308DP      | TCF090305DC   |
| 5537830      | TCF290R3SL32MD | 29,00 | 30,00  | 32 | 127,8 | 87,0   | 1,45 | D           | TCF080308DP      | TCF090305DC   |
| 5537944      | TCF300R3SL32ME | 30,00 | 31,00  | 32 | 130,2 | 90,0   | 0,63 | E           | TCF100408EP      | TCF120405EC   |
| 5537945      | TCF310R3SL32ME | 31,00 | 32,00  | 32 | 133,5 | 93,0   | 0,72 | E           | TCF100408EP      | TCF120405EC   |

(continued)



(Top Cut 4 Drill • Metric • 3 x D • SL Shanks — continued)

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537946      | TCF320R3SL32ME | 32,00 | 33,00  | 32 | 136,8 | 96,0   | 0,82 | E           | TCF100408EP      | TCF120405EC   |
| 5537947      | TCF330R3SL40ME | 33,00 | 34,00  | 40 | 140,1 | 99,0   | 0,95 | E           | TCF100408EP      | TCF120405EC   |
| 5537948      | TCF340R3SL40ME | 34,00 | 35,00  | 40 | 143,4 | 102,0  | 1,14 | E           | TCF100408EP      | TCF120405EC   |
| 5537949      | TCF350R3SL40ME | 35,00 | 36,00  | 40 | 146,8 | 105,0  | 1,30 | E           | TCF100408EP      | TCF120405EC   |
| 5537950      | TCF360R3SL40ME | 36,00 | 37,00  | 40 | 150,1 | 108,0  | 1,45 | E           | TCF100408EP      | TCF120405EC   |
| 5578609      | TCF370R3SL40MF | 37,00 | 38,00  | 40 | 155,1 | 111,0  | 1,19 | F           | TCF120412FP      | TCF150406FC   |
| 5578610      | TCF375R3SL40MF | 37,50 | 38,50  | 40 | 156,8 | 113,0  | 1,23 | F           | TCF120412FP      | TCF150406FC   |
| 5578611      | TCF380R3SL40MF | 38,00 | 39,00  | 40 | 158,5 | 114,0  | 1,27 | F           | TCF120412FP      | TCF150406FC   |
| 5578612      | TCF390R3SL40MF | 39,00 | 40,00  | 40 | 161,8 | 117,0  | 1,36 | F           | TCF120412FP      | TCF150406FC   |
| 5578613      | TCF400R3SL40MF | 40,00 | 41,00  | 40 | 165,1 | 120,0  | 1,47 | F           | TCF120412FP      | TCF150406FC   |
| 5578614      | TCF410R3SL40MF | 41,00 | 42,00  | 40 | 168,4 | 123,0  | 1,60 | F           | TCF120412FP      | TCF150406FC   |
| 5578615      | TCF420R3SL40MF | 42,00 | 43,00  | 40 | 171,7 | 126,0  | 1,77 | F           | TCF120412FP      | TCF150406FC   |
| 5578616      | TCF430R3SL40MF | 43,00 | 44,00  | 40 | 175,1 | 129,0  | 1,99 | F           | TCF120412FP      | TCF150406FC   |
| 5578617      | TCF440R3SL40MF | 44,00 | 45,00  | 40 | 178,4 | 132,0  | 2,10 | F           | TCF120412FP      | TCF150406FC   |
| 5578618      | TCF450R3SL50MF | 45,00 | 46,00  | 50 | 181,7 | 135,0  | 2,21 | F           | TCF120412FP      | TCF150406FC   |
| 5578716      | TCF460R3SL50MG | 46,00 | 47,00  | 50 | 185,0 | 138,0  | 1,45 | G           | TCF150512GP      | TCF180508GC   |
| 5578717      | TCF470R3SL50MG | 47,00 | 48,00  | 50 | 188,3 | 141,0  | 1,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578718      | TCF480R3SL50MG | 48,00 | 49,00  | 50 | 191,7 | 144,0  | 1,63 | G           | TCF150512GP      | TCF180508GC   |
| 5578719      | TCF490R3SL50MG | 49,00 | 50,00  | 50 | 195,0 | 147,0  | 1,74 | G           | TCF150512GP      | TCF180508GC   |
| 5578720      | TCF500R3SL50MG | 50,00 | 51,00  | 50 | 199,8 | 150,0  | 1,87 | G           | TCF150512GP      | TCF180508GC   |
| 5578721      | TCF505R3SL50MG | 50,50 | 51,50  | 50 | 201,5 | 152,0  | 1,94 | G           | TCF150512GP      | TCF180508GC   |
| 5578722      | TCF510R3SL50MG | 51,00 | 52,00  | 50 | 203,1 | 153,0  | 2,02 | G           | TCF150512GP      | TCF180508GC   |
| 5578723      | TCF520R3SL50MG | 52,00 | 53,00  | 50 | 206,4 | 156,0  | 2,22 | G           | TCF150512GP      | TCF180508GC   |
| 5578724      | TCF530R3SL50MG | 53,00 | 54,00  | 50 | 209,8 | 159,0  | 2,46 | G           | TCF150512GP      | TCF180508GC   |
| 5578726      | TCF540R3SL50MG | 54,00 | 55,00  | 50 | 213,1 | 162,0  | 2,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578727      | TCF550R3SL50MG | 55,00 | 56,00  | 50 | 216,4 | 165,0  | 2,73 | G           | TCF150512GP      | TCF180508GC   |
| 5578728      | TCF560R3SL50MG | 56,00 | 57,00  | 50 | 219,7 | 168,0  | 2,37 | G           | TCF150512GP      | TCF180508GC   |
| 5538635      | TCF570R3SL50MH | 57,00 | 58,00  | 50 | 222,5 | 171,0  | 1,76 | H           | TCF180614HP      | TCF210608HC   |
| 5538636      | TCF580R3SL50MH | 58,00 | 59,00  | 50 | 225,9 | 174,0  | 1,85 | H           | TCF180614HP      | TCF210608HC   |
| 5538637      | TCF590R3SL50MH | 59,00 | 60,00  | 50 | 229,2 | 177,0  | 1,96 | H           | TCF180614HP      | TCF210608HC   |
| 5538638      | TCF600R3SL50MH | 60,00 | 61,00  | 50 | 232,5 | 180,0  | 1,42 | H           | TCF180614HP      | TCF210608HC   |
| 5538639      | TCF610R3SL50MH | 61,00 | 62,00  | 50 | 235,8 | 183,0  | 2,23 | H           | TCF180614HP      | TCF210608HC   |
| 5538640      | TCF620R3SL50MH | 62,00 | 63,00  | 50 | 239,1 | 186,0  | 2,41 | H           | TCF180614HP      | TCF210608HC   |
| 5538641      | TCF630R3SL50MH | 63,00 | 64,00  | 50 | 242,5 | 189,0  | 2,64 | H           | TCF180614HP      | TCF210608HC   |
| 5538642      | TCF640R3SL50MH | 64,00 | 65,00  | 50 | 245,8 | 192,0  | 2,94 | H           | TCF180614HP      | TCF210608HC   |
| 5538643      | TCF650R3SL50MH | 65,00 | 66,00  | 50 | 249,1 | 195,0  | 3,06 | H           | TCF180614HP      | TCF210608HC   |
| 5538644      | TCF660R3SL50MH | 66,00 | 67,00  | 50 | 252,4 | 198,0  | 3,18 | H           | TCF180614HP      | TCF210608HC   |
| 5538645      | TCF670R3SL50MH | 67,00 | 68,00  | 50 | 255,7 | 201,0  | 3,30 | H           | TCF180614HP      | TCF210608HC   |
| 5538646      | TCF680R3SL50MH | 68,00 | 69,00  | 50 | 259,1 | 204,0  | 2,93 | H           | TCF180614HP      | TCF210608HC   |

(continued)



(Top Cut 4 Drill • Metric • 3 x D • SL Shanks — continued)

### ■ Spare Parts




| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | <b>2025073</b>            | T5        | <b>2029221</b>           | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | <b>1175225</b>            | T6        | <b>1138455</b>           | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | <b>1021337</b>            | T7        | <b>2029266</b>           | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | <b>1134385</b>            | T8        | <b>2029598</b>           | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | <b>2018194</b>            | T9        | <b>1138430</b>           | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | <b>1756815</b>            | T15       | <b>2029596</b>           | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | <b>1099645</b>            | T20       | <b>2029488</b>           | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | <b>1823871</b>            | T25       | <b>1022519</b>           | 8,80                 | 6.490                     |

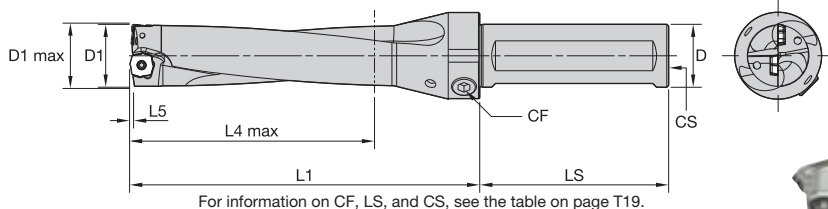
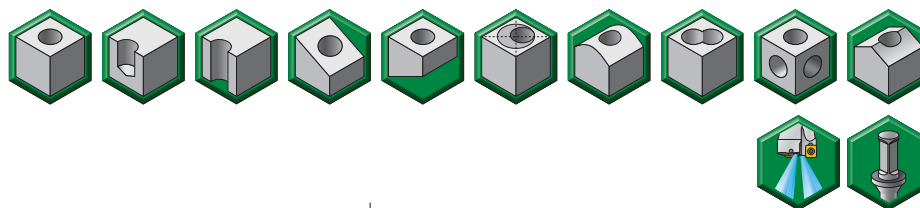
| D     | LS |       |
|-------|----|-------|
|       | mm | in    |
| 20,00 | 50 | 1.969 |
| 25,00 | 56 | 2.205 |
| 32,00 | 60 | 2.362 |
| 40,00 | 70 | 2.756 |
| 50,00 | 80 | 3.150 |

NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SL = Side Lock  
 D1 max is an achievable diameter using x-offset.



#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



■ **Top Cut 4 Drill • Inch • 4 x D • SSF Shanks**

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5537885      | TCF0473R4SSF075A | .473  | .493   | .75  | 3.255 | 1.891  | .017 | A           | TCF040204AP      | TCF040203AC   |
| 5537886      | TCF0500R4SSF075A | .500  | .520   | .75  | 3.372 | 2.000  | .020 | A           | TCF040204AP      | TCF040203AC   |
| 5537887      | TCF0531R4SSF075A | .531  | .551   | .75  | 3.506 | 2.124  | .025 | A           | TCF040204AP      | TCF040203AC   |
| 5578312      | TCF0563R4SSF075B | .563  | .583   | .75  | 3.625 | 2.252  | .017 | B           | TCF050204BP      | TCF060203BC   |
| 5578313      | TCF0594R4SSF075B | .594  | .614   | .75  | 3.759 | 2.376  | .020 | B           | TCF050204BP      | TCF060203BC   |
| 5578314      | TCF0625R4SSF075B | .625  | .645   | .75  | 3.893 | 2.500  | .023 | B           | TCF050204BP      | TCF060203BC   |
| 5578315      | TCF0656R4SSF075B | .656  | .676   | .75  | 4.027 | 2.624  | .028 | B           | TCF050204BP      | TCF060203BC   |
| 5578316      | TCF0688R4SSF075B | .688  | .708   | .75  | 4.232 | 2.752  | .032 | B           | TCF050204BP      | TCF060203BC   |
| 5578317      | TCF0703R4SSF075B | .703  | .723   | .75  | 4.297 | 2.812  | .034 | B           | TCF050204BP      | TCF060203BC   |
| 5578318      | TCF0719R4SSF075B | .719  | .739   | .75  | 4.366 | 2.876  | .036 | B           | TCF050204BP      | TCF060203BC   |
| 5578319      | TCF0734R4SSF075B | .734  | .754   | .75  | 4.431 | 2.936  | .038 | B           | TCF050204BP      | TCF060203BC   |
| 5578413      | TCF0750R4SSF100C | .750  | .770   | 1.00 | 4.537 | 3.000  | .024 | C           | TCF070306CP      | TCF070304CC   |
| 5578414      | TCF0781R4SSF100C | .781  | .801   | 1.00 | 4.671 | 3.124  | .027 | C           | TCF070306CP      | TCF070304CC   |
| 5578415      | TCF0813R4SSF100C | .813  | .833   | 1.00 | 4.809 | 3.252  | .030 | C           | TCF070306CP      | TCF070304CC   |
| 5578416      | TCF0844R4SSF100C | .844  | .864   | 1.00 | 4.943 | 3.376  | .034 | C           | TCF070306CP      | TCF070304CC   |
| 5578417      | TCF0875R4SSF100C | .875  | .895   | 1.00 | 5.078 | 3.500  | .040 | C           | TCF070306CP      | TCF070304CC   |
| 5578418      | TCF0906R4SSF100C | .906  | .926   | 1.00 | 5.212 | 3.624  | .045 | C           | TCF070306CP      | TCF070304CC   |
| 5578419      | TCF0938R4SSF100C | .938  | .958   | 1.00 | 5.349 | 3.752  | .037 | C           | TCF070306CP      | TCF070304CC   |
| 5537921      | TCF0969R4SSF100D | .969  | 1.008  | 1.00 | 5.428 | 3.876  | .032 | D           | TCF080308DP      | TCF090305DC   |
| 5537922      | TCF0984R4SSF100D | .984  | 1.023  | 1.00 | 5.493 | 3.936  | .034 | D           | TCF080308DP      | TCF090305DC   |
| 5537923      | TCF1000R4SSF100D | 1.000 | 1.039  | 1.00 | 5.562 | 4.000  | .036 | D           | TCF080308DP      | TCF090305DC   |
| 5537924      | TCF1031R4SSF125D | 1.031 | 1.070  | 1.25 | 5.696 | 4.124  | .039 | D           | TCF080308DP      | TCF090305DC   |
| 5537925      | TCF1063R4SSF125D | 1.063 | 1.102  | 1.25 | 5.834 | 4.252  | .045 | D           | TCF080308DP      | TCF090305DC   |
| 5537926      | TCF1094R4SSF125D | 1.094 | 1.133  | 1.25 | 5.968 | 4.376  | .050 | D           | TCF080308DP      | TCF090305DC   |
| 5537927      | TCF1125R4SSF125D | 1.125 | 1.164  | 1.25 | 6.102 | 4.500  | .054 | D           | TCF080308DP      | TCF090305DC   |
| 5537928      | TCF1156R4SSF125D | 1.156 | 1.195  | 1.25 | 6.236 | 4.624  | .059 | D           | TCF080308DP      | TCF090305DC   |
| 5538083      | TCF1188R4SSF125E | 1.188 | 1.227  | 1.25 | 6.453 | 4.752  | .026 | E           | TCF100408EP      | TCF120405EC   |
| 5538084      | TCF1210R4SSF125E | 1.210 | 1.249  | 1.25 | 6.548 | 4.840  | .027 | E           | TCF100408EP      | TCF120405EC   |
| 5538085      | TCF1219R4SSF125E | 1.219 | 1.258  | 1.25 | 6.587 | 4.876  | .028 | E           | TCF100408EP      | TCF120405EC   |
| 5538086      | TCF1250R4SSF125E | 1.250 | 1.289  | 1.25 | 6.721 | 5.000  | .031 | E           | TCF100408EP      | TCF120405EC   |
| 5538087      | TCF1280R4SSF125E | 1.280 | 1.319  | 1.25 | 6.851 | 5.120  | .035 | E           | TCF100408EP      | TCF120405EC   |
| 5538088      | TCF1313R4SSF125E | 1.313 | 1.352  | 1.25 | 6.993 | 5.252  | .040 | E           | TCF100408EP      | TCF120405EC   |
| 5538089      | TCF1375R4SSF125E | 1.375 | 1.414  | 1.25 | 7.261 | 5.500  | .050 | E           | TCF100408EP      | TCF120405EC   |
| 5538090      | TCF1406R4SSF150E | 1.406 | 1.445  | 1.50 | 7.395 | 5.624  | .055 | E           | TCF100408EP      | TCF120405EC   |
| 5538091      | TCF1438R4SSF150E | 1.438 | 1.477  | 1.50 | 7.533 | 5.752  | .059 | E           | TCF100408EP      | TCF120405EC   |
| 5578677      | TCF1469R4SSF150F | 1.469 | 1.508  | 1.50 | 7.618 | 5.876  | .048 | F           | TCF120412FP      | TCF150406FC   |

(continued)

(Top Cut 4 Drill • Inch • 4 x D • SSF Shanks — continued)

| order number | catalog number   | D1    | D1 max | D    | L1     | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|--------|--------|------|-------------|------------------|---------------|
| 5578678      | TCF1500R4SSF150F | 1.500 | 1.539  | 1.50 | 7.752  | 6.000  | .050 | F           | TCF120412FP      | TCF150406FC   |
| 5578679      | TCF1531R4SSF150F | 1.531 | 1.570  | 1.50 | 7.886  | 6.124  | .053 | F           | TCF120412FP      | TCF150406FC   |
| 5578680      | TCF1563R4SSF150F | 1.563 | 1.602  | 1.50 | 8.024  | 6.252  | .056 | F           | TCF120412FP      | TCF150406FC   |
| 5578681      | TCF1625R4SSF150F | 1.625 | 1.664  | 1.50 | 8.292  | 6.500  | .065 | F           | TCF120412FP      | TCF150406FC   |
| 5578682      | TCF1656R4SSF150F | 1.656 | 1.695  | 1.50 | 8.426  | 6.624  | .070 | F           | TCF120412FP      | TCF150406FC   |
| 5578683      | TCF1688R4SSF150F | 1.688 | 1.727  | 1.50 | 8.564  | 6.752  | .077 | F           | TCF120412FP      | TCF150406FC   |
| 5578684      | TCF1750R4SSF150F | 1.750 | 1.789  | 1.50 | 8.832  | 7.000  | .085 | F           | TCF120412FP      | TCF150406FC   |
| 5578797      | TCF1813R4SSF150G | 1.813 | 1.852  | 1.50 | 9.104  | 7.252  | .057 | G           | TCF150512GP      | TCF180508GC   |
| 5578798      | TCF1875R4SSF150G | 1.875 | 1.914  | 1.50 | 9.372  | 7.500  | .063 | G           | TCF150512GP      | TCF180508GC   |
| 5578799      | TCF1938R4SSF150G | 1.938 | 1.977  | 1.50 | 9.644  | 7.752  | .069 | G           | TCF150512GP      | TCF180508GC   |
| 5578800      | TCF2000R4SSF150G | 2.000 | 2.039  | 1.50 | 9.971  | 8.000  | .078 | G           | TCF150512GP      | TCF180508GC   |
| 5578801      | TCF2125R4SSF200G | 2.125 | 2.164  | 2.00 | 10.511 | 8.500  | .100 | G           | TCF150512GP      | TCF180508GC   |
| 5578802      | TCF2219R4SSF200G | 2.219 | 2.258  | 2.00 | 10.917 | 8.876  | .085 | G           | TCF150512GP      | TCF180508GC   |
| 5538506      | TCF2250R4SSF200H | 2.250 | 2.289  | 2.00 | 11.031 | 9.000  | .070 | H           | TCF180614HP      | TCF210608HC   |
| 5538507      | TCF2375R4SSF200H | 2.375 | 2.414  | 2.00 | 11.571 | 9.500  | .084 | H           | TCF180614HP      | TCF210608HC   |
| 5538508      | TCF2500R4SSF200H | 2.500 | 2.539  | 2.00 | 12.111 | 10.000 | .110 | H           | TCF180614HP      | TCF210608HC   |

## Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | 2025073                   | T5        | 2029221                  | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | 1175225                   | T6        | 1138455                  | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | 1021337                   | T7        | 2029266                  | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | 1134385                   | T8        | 2029598                  | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | 2018194                   | T9        | 1138430                  | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | 1756815                   | T15       | 2029596                  | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | 1099645                   | T20       | 2029488                  | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | 1823871                   | T25       | 2585812                  | 8,80                 | 6.490                     |

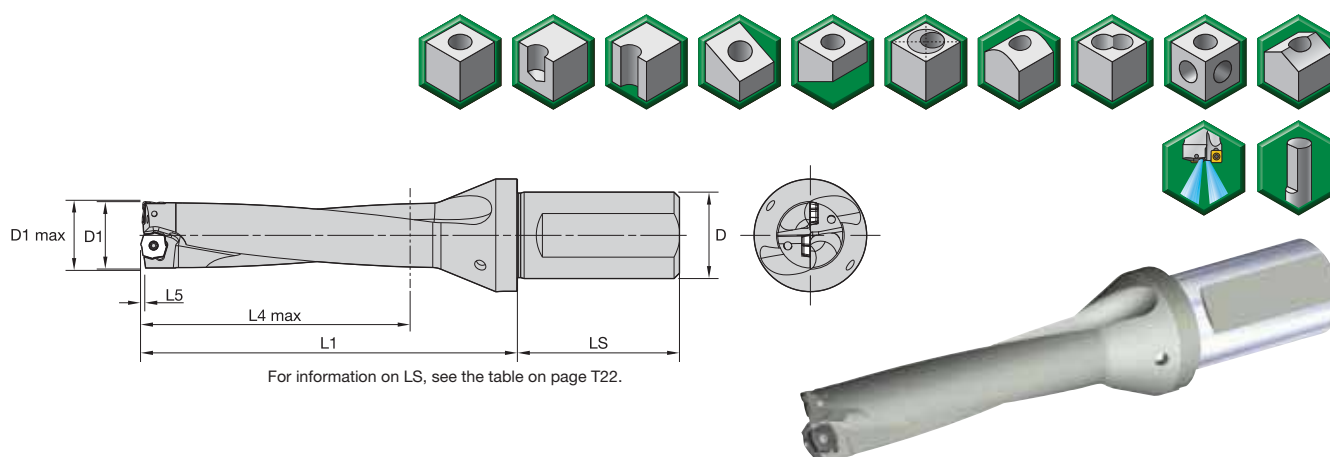
| D     | LS    |       | CF           | CS           |
|-------|-------|-------|--------------|--------------|
|       | mm    | in    |              |              |
| .750  | 50,8  | 2.000 | 1/8 - 27 NPT | 1/8 - 27 NPT |
| 1.000 | 76,2  | 3.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.250 | 82,6  | 3.250 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.500 | 95,3  | 3.750 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 2.000 | 101,6 | 4.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |

NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SSF = Straight Shank Flange  
 D1 max is an achievable diameter using x-offset.



### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



■ **Top Cut 4 Drill • Metric • 4 x D • SL Shanks**

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537869      | TCF120R4SL20MA | 12,00 | 12,50  | 20 | 78,6  | 48,0   | 0,41 | A           | TCF040204AP      | TCF040203AC   |
| 5537870      | TCF125R4SL20MA | 12,50 | 13,00  | 20 | 80,8  | 50,0   | 0,48 | A           | TCF040204AP      | TCF040203AC   |
| 5537871      | TCF127R4SL20MA | 12,70 | 13,20  | 20 | 81,6  | 50,8   | 0,51 | A           | TCF040204AP      | TCF040203AC   |
| 5537872      | TCF130R4SL20MA | 13,00 | 13,50  | 20 | 82,9  | 52,0   | 0,56 | A           | TCF040204AP      | TCF040203AC   |
| 5537873      | TCF135R4SL20MA | 13,50 | 14,00  | 20 | 85,1  | 54,0   | 0,64 | A           | TCF040204AP      | TCF040203AC   |
| 5577938      | TCF140R4SL25MB | 14,00 | 14,50  | 25 | 87,8  | 56,0   | 0,42 | B           | TCF050204BP      | TCF060203BC   |
| 5577939      | TCF145R4SL25MB | 14,50 | 15,00  | 25 | 89,9  | 58,0   | 0,45 | B           | TCF050204BP      | TCF060203BC   |
| 5577940      | TCF150R4SL25MB | 15,00 | 15,50  | 25 | 92,1  | 60,0   | 0,49 | B           | TCF050204BP      | TCF060203BC   |
| 5577941      | TCF155R4SL25MB | 15,50 | 16,00  | 25 | 94,3  | 62,0   | 0,54 | B           | TCF050204BP      | TCF060203BC   |
| 5577942      | TCF160R4SL25MB | 16,00 | 16,50  | 25 | 96,4  | 64,0   | 0,60 | B           | TCF050204BP      | TCF060203BC   |
| 5577943      | TCF165R4SL25MB | 16,50 | 17,00  | 25 | 98,6  | 66,0   | 0,68 | B           | TCF050204BP      | TCF060203BC   |
| 5577944      | TCF170R4SL25MB | 17,00 | 17,50  | 25 | 102,4 | 68,0   | 0,74 | B           | TCF050204BP      | TCF060203BC   |
| 5577945      | TCF175R4SL25MB | 17,50 | 18,00  | 25 | 104,6 | 70,0   | 0,79 | B           | TCF050204BP      | TCF060203BC   |
| 5577946      | TCF180R4SL25MB | 18,00 | 18,50  | 25 | 106,8 | 72,0   | 0,86 | B           | TCF050204BP      | TCF060203BC   |
| 5577947      | TCF185R4SL25MB | 18,50 | 19,00  | 25 | 108,9 | 74,0   | 0,83 | B           | TCF050204BP      | TCF060203BC   |
| 5578836      | TCF190R4SL25MC | 19,00 | 19,50  | 25 | 110,1 | 76,0   | 0,60 | C           | TCF070306CP      | TCF070304CC   |
| 5578837      | TCF195R4SL25MC | 19,50 | 20,00  | 25 | 112,2 | 78,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578838      | TCF200R4SL25MC | 20,00 | 20,50  | 25 | 114,4 | 80,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578839      | TCF205R4SL25MC | 20,50 | 21,00  | 25 | 116,6 | 82,0   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578840      | TCF210R4SL25MC | 21,00 | 21,50  | 25 | 118,7 | 84,0   | 0,80 | C           | TCF070306CP      | TCF070304CC   |
| 5578841      | TCF220R4SL25MC | 22,00 | 22,50  | 25 | 123,0 | 88,0   | 1,00 | C           | TCF070306CP      | TCF070304CC   |
| 5578842      | TCF225R4SL25MC | 22,50 | 23,00  | 25 | 125,2 | 90,0   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5578843      | TCF230R4SL25MC | 23,00 | 23,50  | 25 | 127,4 | 92,0   | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5537831      | TCF240R4SL25MD | 24,00 | 25,00  | 25 | 135,2 | 96,0   | 0,78 | D           | TCF080308DP      | TCF090305DC   |
| 5537832      | TCF250R4SL32MD | 25,00 | 26,00  | 32 | 139,6 | 100,0  | 0,86 | D           | TCF080308DP      | TCF090305DC   |
| 5537833      | TCF260R4SL32MD | 26,00 | 27,00  | 32 | 143,9 | 104,0  | 0,97 | D           | TCF080308DP      | TCF090305DC   |
| 5537834      | TCF265R4SL32MD | 26,50 | 27,50  | 32 | 146,0 | 106,0  | 1,05 | D           | TCF080308DP      | TCF090305DC   |
| 5537835      | TCF270R4SL32MD | 27,00 | 28,00  | 32 | 148,2 | 108,0  | 1,15 | D           | TCF080308DP      | TCF090305DC   |
| 5537836      | TCF280R4SL32MD | 28,00 | 29,00  | 32 | 152,5 | 112,0  | 1,30 | D           | TCF080308DP      | TCF090305DC   |
| 5537837      | TCF290R4SL32MD | 29,00 | 30,00  | 32 | 156,8 | 116,0  | 1,45 | D           | TCF080308DP      | TCF090305DC   |
| 5537951      | TCF300R4SL32ME | 30,00 | 31,00  | 32 | 160,2 | 120,0  | 0,63 | E           | TCF100408EP      | TCF120405EC   |
| 5537952      | TCF310R4SL32ME | 31,00 | 32,00  | 32 | 164,5 | 124,0  | 0,72 | E           | TCF100408EP      | TCF120405EC   |

(continued)

(Top Cut 4 Drill • Metric • 4 x D • SL Shanks — continued)

| order number | catalog number | D1    | D1 max | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|--------|----|-------|--------|------|-------------|------------------|---------------|
| 5537953      | TCF320R4SL32ME | 32,00 | 33,00  | 32 | 168,8 | 128,0  | 0,82 | E           | TCF100408EP      | TCF120405EC   |
| 5537954      | TCF330R4SL40ME | 33,00 | 34,00  | 40 | 173,1 | 132,0  | 0,95 | E           | TCF100408EP      | TCF120405EC   |
| 5537955      | TCF340R4SL40ME | 34,00 | 35,00  | 40 | 177,4 | 136,0  | 1,14 | E           | TCF100408EP      | TCF120405EC   |
| 5537956      | TCF350R4SL40ME | 35,00 | 36,00  | 40 | 181,8 | 140,0  | 1,30 | E           | TCF100408EP      | TCF120405EC   |
| 5537957      | TCF360R4SL40ME | 36,00 | 37,00  | 40 | 186,1 | 144,0  | 1,45 | E           | TCF100408EP      | TCF120405EC   |
| 5578619      | TCF370R4SL40MF | 37,00 | 38,00  | 40 | 192,1 | 148,0  | 1,19 | F           | TCF120412FP      | TCF150406FC   |
| 5578620      | TCF375R4SL40MF | 37,50 | 38,50  | 40 | 194,3 | 150,0  | 1,23 | F           | TCF120412FP      | TCF150406FC   |
| 5578621      | TCF380R4SL40MF | 38,00 | 39,00  | 40 | 196,5 | 152,0  | 1,27 | F           | TCF120412FP      | TCF150406FC   |
| 5578622      | TCF390R4SL40MF | 39,00 | 40,00  | 40 | 200,8 | 156,0  | 1,36 | F           | TCF120412FP      | TCF150406FC   |
| 5578623      | TCF400R4SL40MF | 40,00 | 41,00  | 40 | 205,1 | 160,0  | 1,47 | F           | TCF120412FP      | TCF150406FC   |
| 5578624      | TCF410R4SL40MF | 41,00 | 42,00  | 40 | 209,4 | 164,0  | 1,60 | F           | TCF120412FP      | TCF150406FC   |
| 5578625      | TCF420R4SL40MF | 42,00 | 43,00  | 40 | 213,7 | 168,0  | 1,77 | F           | TCF120412FP      | TCF150406FC   |
| 5578626      | TCF430R4SL40MF | 43,00 | 44,00  | 40 | 218,1 | 172,0  | 1,99 | F           | TCF120412FP      | TCF150406FC   |
| 5578627      | TCF440R4SL40MF | 44,00 | 45,00  | 40 | 222,4 | 176,0  | 2,10 | F           | TCF120412FP      | TCF150406FC   |
| 5578628      | TCF450R4SL50MF | 45,00 | 46,00  | 50 | 226,7 | 180,0  | 2,21 | F           | TCF120412FP      | TCF150406FC   |
| 5578729      | TCF460R4SL50MG | 46,00 | 47,00  | 50 | 231,0 | 184,0  | 1,45 | G           | TCF150512GP      | TCF180508GC   |
| 5578730      | TCF470R4SL50MG | 47,00 | 48,00  | 50 | 235,3 | 188,0  | 1,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578731      | TCF480R4SL50MG | 48,00 | 49,00  | 50 | 239,7 | 192,0  | 1,63 | G           | TCF150512GP      | TCF180508GC   |
| 5578732      | TCF490R4SL50MG | 49,00 | 50,00  | 50 | 244,0 | 196,0  | 1,74 | G           | TCF150512GP      | TCF180508GC   |
| 5578733      | TCF500R4SL50MG | 50,00 | 51,00  | 50 | 249,8 | 200,0  | 1,87 | G           | TCF150512GP      | TCF180508GC   |
| 5578734      | TCF505R4SL50MG | 50,50 | 51,50  | 50 | 252,0 | 202,0  | 1,94 | G           | TCF150512GP      | TCF180508GC   |
| 5578735      | TCF510R4SL50MG | 51,00 | 52,00  | 50 | 254,1 | 204,0  | 2,02 | G           | TCF150512GP      | TCF180508GC   |
| 5578736      | TCF520R4SL50MG | 52,00 | 53,00  | 50 | 258,4 | 208,0  | 2,22 | G           | TCF150512GP      | TCF180508GC   |
| 5578737      | TCF530R4SL50MG | 53,00 | 54,00  | 50 | 262,8 | 212,0  | 2,46 | G           | TCF150512GP      | TCF180508GC   |
| 5578738      | TCF540R4SL50MG | 54,00 | 55,00  | 50 | 267,1 | 216,0  | 2,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578739      | TCF550R4SL50MG | 55,00 | 56,00  | 50 | 271,4 | 220,0  | 2,73 | G           | TCF150512GP      | TCF180508GC   |
| 5578750      | TCF560R4SL50MG | 56,00 | 57,00  | 50 | 275,7 | 224,0  | 2,37 | G           | TCF150512GP      | TCF180508GC   |
| 5538647      | TCF570R4SL50MH | 57,00 | 58,00  | 50 | 279,5 | 228,0  | 1,76 | H           | TCF180614HP      | TCF210608HC   |
| 5538648      | TCF580R4SL50MH | 58,00 | 59,00  | 50 | 283,9 | 232,0  | 1,85 | H           | TCF180614HP      | TCF210608HC   |
| 5538649      | TCF590R4SL50MH | 59,00 | 60,00  | 50 | 288,2 | 236,0  | 1,96 | H           | TCF180614HP      | TCF210608HC   |
| 5538650      | TCF600R4SL50MH | 60,00 | 61,00  | 50 | 292,5 | 240,0  | 1,42 | H           | TCF180614HP      | TCF210608HC   |
| 5538651      | TCF610R4SL50MH | 61,00 | 62,00  | 50 | 296,8 | 244,0  | 2,23 | H           | TCF180614HP      | TCF210608HC   |
| 5538652      | TCF620R4SL50MH | 62,00 | 63,00  | 50 | 301,1 | 248,0  | 2,41 | H           | TCF180614HP      | TCF210608HC   |
| 5538653      | TCF630R4SL50MH | 63,00 | 64,00  | 50 | 305,5 | 252,0  | 2,64 | H           | TCF180614HP      | TCF210608HC   |
| 5538654      | TCF640R4SL50MH | 64,00 | 65,00  | 50 | 309,8 | 256,0  | 2,94 | H           | TCF180614HP      | TCF210608HC   |
| 5538655      | TCF650R4SL50MH | 65,00 | 66,00  | 50 | 314,1 | 260,0  | 3,06 | H           | TCF180614HP      | TCF210608HC   |
| 5538656      | TCF660R4SL50MH | 66,00 | 67,00  | 50 | 318,4 | 264,0  | 3,18 | H           | TCF180614HP      | TCF210608HC   |
| 5538657      | TCF670R4SL50MH | 67,00 | 68,00  | 50 | 322,7 | 268,0  | 3,30 | H           | TCF180614HP      | TCF210608HC   |
| 5538658      | TCF680R4SL50MH | 68,00 | 69,00  | 50 | 327,1 | 272,0  | 2,93 | H           | TCF180614HP      | TCF210608HC   |

(continued)

(Top Cut 4 Drill • Metric • 4 x D • SL Shanks — continued)

### ■ Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | <b>2025073</b>            | T5        | <b>2029221</b>           | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | <b>1175225</b>            | T6        | <b>1138455</b>           | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | <b>1021337</b>            | T7        | <b>2029266</b>           | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | <b>1134385</b>            | T8        | <b>2029598</b>           | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | <b>2018194</b>            | T9        | <b>1138430</b>           | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | <b>1756815</b>            | T15       | <b>2029596</b>           | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | <b>1099645</b>            | T20       | <b>2029488</b>           | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | <b>1823871</b>            | T25       | <b>1022519</b>           | 8,80                 | 6.490                     |

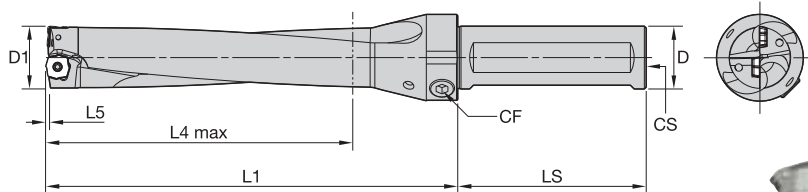
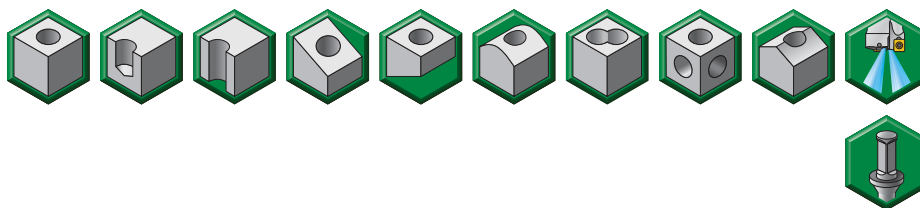
| D     | LS |       |
|-------|----|-------|
|       | mm | in    |
| 20,00 | 50 | 1.969 |
| 25,00 | 56 | 2.205 |
| 32,00 | 60 | 2.362 |
| 40,00 | 70 | 2.756 |
| 50,00 | 80 | 3.150 |

NOTE: Drilling in stacked plates possible in certain applications. Ask for technical support.  
 Drill shipped with insert screws and Torx wrench.  
 See pages T28–T31 for inserts.  
 SL = Side Lock  
 D1 max is an achievable diameter using x-offset.



#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



For information on CF, L3, and CS, see the table on page T24.



### ■ Top Cut 4 Drill • Inch • 5 x D • SSF Shanks

| order number | catalog number   | D1    | D1 max | D    | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|-------|--------|------|-------------|------------------|---------------|
| 5537888      | TCF0473R5SSF075A | .473  | .493   | .75  | 3.543 | 2.364  | .017 | A           | TCF040204AP      | TCF040203AC   |
| 5537889      | TCF0500R5SSF075A | .500  | .520   | .75  | 3.703 | 2.500  | .020 | A           | TCF040204AP      | TCF040203AC   |
| 5537890      | TCF0531R5SSF075A | .531  | .551   | .75  | 3.860 | 2.655  | .025 | A           | TCF040204AP      | TCF040203AC   |
| 5578320      | TCF0563R5SSF075B | .563  | —      | .75  | 4.054 | 2.815  | .017 | B           | TCF050204BP      | TCF060203BC   |
| 5578321      | TCF0594R5SSF075B | .594  | —      | .75  | 4.172 | 2.970  | .020 | B           | TCF050204BP      | TCF060203BC   |
| 5578322      | TCF0625R5SSF075B | .625  | —      | .75  | 4.408 | 3.125  | .023 | B           | TCF050204BP      | TCF060203BC   |
| 5578323      | TCF0656R5SSF075B | .656  | —      | .75  | 4.529 | 3.280  | .028 | B           | TCF050204BP      | TCF060203BC   |
| 5578324      | TCF0688R5SSF075B | .688  | —      | .75  | 4.802 | 3.440  | .032 | B           | TCF050204BP      | TCF060203BC   |
| 5578325      | TCF0703R5SSF075B | .703  | —      | .75  | 4.764 | 3.515  | .034 | B           | TCF050204BP      | TCF060203BC   |
| 5578326      | TCF0719R5SSF075B | .719  | —      | .75  | 4.920 | 3.590  | .036 | B           | TCF050204BP      | TCF060203BC   |
| 5578327      | TCF0734R5SSF075B | .734  | —      | .75  | 4.921 | 3.670  | .038 | B           | TCF050204BP      | TCF060203BC   |
| 5578420      | TCF0750R5SSF100C | .750  | —      | 1.00 | 5.169 | 3.750  | .024 | C           | TCF070306CP      | TCF070304CC   |
| 5578421      | TCF0781R5SSF100C | .781  | —      | 1.00 | 5.334 | 3.905  | .027 | C           | TCF070306CP      | TCF070304CC   |
| 5578422      | TCF0813R5SSF100C | .813  | —      | 1.00 | 5.504 | 4.065  | .030 | C           | TCF070306CP      | TCF070304CC   |
| 5578423      | TCF0844R5SSF100C | .844  | —      | 1.00 | 5.669 | 4.220  | .034 | C           | TCF070306CP      | TCF070304CC   |
| 5578424      | TCF0875R5SSF100C | .875  | —      | 1.00 | 5.846 | 4.375  | .040 | C           | TCF070306CP      | TCF070304CC   |
| 5578425      | TCF0906R5SSF100C | .906  | —      | 1.00 | 5.999 | 4.530  | .045 | C           | TCF070306CP      | TCF070304CC   |
| 5578426      | TCF0938R5SSF100C | .938  | —      | 1.00 | 6.169 | 4.690  | .037 | C           | TCF070306CP      | TCF070304CC   |
| 5537929      | TCF0969R5SSF100D | .969  | —      | 1.00 | 6.319 | 4.845  | .032 | D           | TCF080308DP      | TCF090305DC   |
| 5537930      | TCF0984R5SSF100D | .984  | —      | 1.00 | 6.398 | 4.920  | .034 | D           | TCF080308DP      | TCF090305DC   |
| 5537931      | TCF1000R5SSF100D | 1.000 | —      | 1.00 | 6.484 | 5.000  | .036 | D           | TCF080308DP      | TCF090305DC   |
| 5537932      | TCF1031R5SSF125D | 1.031 | —      | 1.25 | 6.649 | 5.155  | .039 | D           | TCF080308DP      | TCF090305DC   |
| 5537933      | TCF1063R5SSF125D | 1.063 | —      | 1.25 | 6.779 | 5.315  | .045 | D           | TCF080308DP      | TCF090305DC   |
| 5537934      | TCF1094R5SSF125D | 1.094 | —      | 1.25 | 6.944 | 5.470  | .050 | D           | TCF080308DP      | TCF090305DC   |
| 5537935      | TCF1125R5SSF125D | 1.125 | —      | 1.25 | 7.109 | 5.625  | .054 | D           | TCF080308DP      | TCF090305DC   |
| 5537936      | TCF1156R5SSF125D | 1.156 | —      | 1.25 | 7.274 | 5.780  | .059 | D           | TCF080308DP      | TCF090305DC   |
| 5538092      | TCF1188R5SSF125E | 1.188 | —      | 1.25 | 7.440 | 5.940  | .026 | E           | TCF100408EP      | TCF120405EC   |
| 5538093      | TCF1210R5SSF125E | 1.210 | —      | 1.25 | 7.597 | 6.050  | .027 | E           | TCF100408EP      | TCF120405EC   |
| 5538094      | TCF1219R5SSF125E | 1.219 | —      | 1.25 | 7.597 | 6.095  | .028 | E           | TCF100408EP      | TCF120405EC   |
| 5538095      | TCF1250R5SSF125E | 1.250 | —      | 1.25 | 7.814 | 6.250  | .031 | E           | TCF100408EP      | TCF120405EC   |
| 5538096      | TCF1280R5SSF125E | 1.280 | —      | 1.25 | 7.934 | 6.400  | .035 | E           | TCF100408EP      | TCF120405EC   |
| 5538097      | TCF1313R5SSF125E | 1.313 | —      | 1.25 | 8.109 | 6.565  | .040 | E           | TCF100408EP      | TCF120405EC   |
| 5538098      | TCF1375R5SSF125E | 1.375 | —      | 1.25 | 8.423 | 6.875  | .050 | E           | TCF100408EP      | TCF120405EC   |
| 5538099      | TCF1406R5SSF150E | 1.406 | —      | 1.50 | 8.584 | 7.030  | .055 | E           | TCF100408EP      | TCF120405EC   |
| 5538100      | TCF1438R5SSF150E | 1.438 | —      | 1.50 | 8.971 | 7.190  | .059 | E           | TCF100408EP      | TCF120405EC   |
| 5578685      | TCF1469R5SSF150F | 1.469 | —      | 1.50 | 9.087 | 7.345  | .048 | F           | TCF120412FP      | TCF150406FC   |

(continued)



(Top Cut 4 Drill • Inch • 5 x D • SSF Shanks — continued)

| order number | catalog number   | D1    | D1 max | D    | L1     | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|------------------|-------|--------|------|--------|--------|------|-------------|------------------|---------------|
| 5578686      | TCF1500R5SSF150F | 1.500 | —      | 1.50 | 9.252  | 7.500  | .050 | F           | TCF120412FP      | TCF150406FC   |
| 5578687      | TCF1531R5SSF150F | 1.531 | —      | 1.50 | 9.417  | 7.655  | .053 | F           | TCF120412FP      | TCF150406FC   |
| 5578688      | TCF1563R5SSF150F | 1.563 | —      | 1.50 | 9.587  | 7.815  | .056 | F           | TCF120412FP      | TCF150406FC   |
| 5578689      | TCF1625R5SSF150F | 1.625 | —      | 1.50 | 9.917  | 8.125  | .065 | F           | TCF120412FP      | TCF150406FC   |
| 5578690      | TCF1656R5SSF150F | 1.656 | —      | 1.50 | 10.082 | 8.280  | .070 | F           | TCF120412FP      | TCF150406FC   |
| 5578691      | TCF1688R5SSF150F | 1.688 | —      | 1.50 | 10.252 | 8.440  | .077 | F           | TCF120412FP      | TCF150406FC   |
| 5578693      | TCF1750R5SSF150F | 1.750 | —      | 1.50 | 10.582 | 8.750  | .085 | F           | TCF120412FP      | TCF150406FC   |
| 5578803      | TCF1813R5SSF150G | 1.813 | —      | 1.50 | 10.917 | 9.065  | .057 | G           | TCF150512GP      | TCF180508GC   |
| 5578804      | TCF1875R5SSF150G | 1.875 | —      | 1.50 | 11.247 | 9.375  | .063 | G           | TCF150512GP      | TCF180508GC   |
| 5578805      | TCF1938R5SSF150G | 1.938 | —      | 1.50 | 11.582 | 9.690  | .069 | G           | TCF150512GP      | TCF180508GC   |
| 5578806      | TCF2000R5SSF150G | 2.000 | —      | 1.50 | 11.971 | 10.000 | .078 | G           | TCF150512GP      | TCF180508GC   |
| 5578807      | TCF2125R5SSF200G | 2.125 | —      | 2.00 | 12.748 | 10.625 | .100 | G           | TCF150512GP      | TCF180508GC   |
| 5578808      | TCF2219R5SSF200G | 2.219 | —      | 2.00 | 13.293 | 11.095 | .085 | G           | TCF150512GP      | TCF180508GC   |
| 5538509      | TCF2250R5SSF200H | 2.250 | —      | 2.00 | 13.191 | 11.250 | .070 | H           | TCF180614HP      | TCF210608HC   |
| 5538510      | TCF2375R5SSF200H | 2.375 | —      | 2.00 | 13.781 | 11.875 | .084 | H           | TCF180614HP      | TCF210608HC   |
| 5538511      | TCF2500R5SSF200H | 2.500 | —      | 2.00 | 14.218 | 12.500 | .110 | H           | TCF180614HP      | TCF210608HC   |

### ■ Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | 2025073                   | T5        | 2029221                  | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | 1175225                   | T6        | 1138455                  | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | 1021337                   | T7        | 2029266                  | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | 1134385                   | T8        | 2029598                  | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | 2018194                   | T9        | 1138430                  | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | 1756815                   | T15       | 2029596                  | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | 1099645                   | T20       | 2029488                  | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | 1823871                   | T25       | 2585812                  | 8,80                 | 6.490                     |

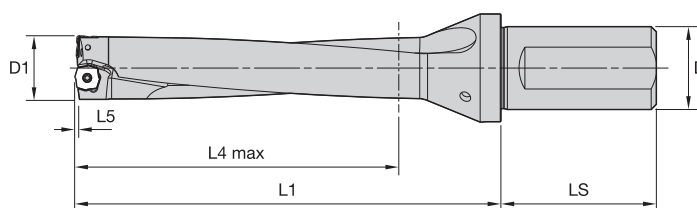
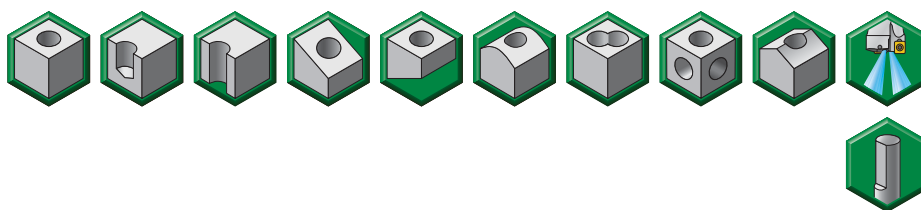
| D     | LS    |       | CF           | CS           |
|-------|-------|-------|--------------|--------------|
|       | mm    | in    |              |              |
| .750  | 50,8  | 2.000 | 1/8 - 27 NPT | 1/8 - 27 NPT |
| 1.000 | 76,2  | 3.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.250 | 82,6  | 3.250 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 1.500 | 95,3  | 3.750 | 1/8 - 27 NPT | 1/4 - 18 NPT |
| 2.000 | 101,6 | 4.000 | 1/8 - 27 NPT | 1/4 - 18 NPT |

NOTE: Drill shipped with insert screws and Torx wrench.  
See pages T28–T31 for inserts.  
SSF = Straight Shank Flange

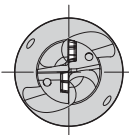


#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



For information on LS, see the table on page T27.


**■ Top Cut 4 Drill • Metric • 5 x D • SL Shanks**

| order number | catalog number | D1    | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|----|-------|--------|------|-------------|------------------|---------------|
| 5537874      | TCF120R5SL20MA | 12,00 | 20 | 86,0  | 60,0   | 0,41 | A           | TCF040204AP      | TCF040203AC   |
| 5537875      | TCF125R5SL20MA | 12,50 | 20 | 89,0  | 63,0   | 0,48 | A           | TCF040204AP      | TCF040203AC   |
| 5537876      | TCF127R5SL20MA | 12,70 | 20 | 90,0  | 63,5   | 0,51 | A           | TCF040204AP      | TCF040203AC   |
| 5537877      | TCF130R5SL20MA | 13,00 | 20 | 90,0  | 65,0   | 0,56 | A           | TCF040204AP      | TCF040203AC   |
| 5537878      | TCF135R5SL20MA | 13,50 | 20 | 94,0  | 68,0   | 0,64 | A           | TCF040204AP      | TCF040203AC   |
| 5577948      | TCF140R5SL25MB | 14,00 | 25 | 99,0  | 70,0   | 0,42 | B           | TCF050204BP      | TCF060203BC   |
| 5577949      | TCF145R5SL25MB | 14,50 | 25 | 100,0 | 72,5   | 0,45 | B           | TCF050204BP      | TCF060203BC   |
| 5577950      | TCF150R5SL25MB | 15,00 | 25 | 103,0 | 75,0   | 0,49 | B           | TCF050204BP      | TCF060203BC   |
| 5577951      | TCF155R5SL25MB | 15,50 | 25 | 104,8 | 77,5   | 0,54 | B           | TCF050204BP      | TCF060203BC   |
| 5577952      | TCF160R5SL25MB | 16,00 | 25 | 108,4 | 80,0   | 0,60 | B           | TCF050204BP      | TCF060203BC   |
| 5577953      | TCF165R5SL25MB | 16,50 | 25 | 111,1 | 82,5   | 0,68 | B           | TCF050204BP      | TCF060203BC   |
| 5577954      | TCF170R5SL25MB | 17,00 | 25 | 115,4 | 85,0   | 0,74 | B           | TCF050204BP      | TCF060203BC   |
| 5577955      | TCF175R5SL25MB | 17,50 | 25 | 118,1 | 87,5   | 0,79 | B           | TCF050204BP      | TCF060203BC   |
| 5577956      | TCF180R5SL25MB | 18,00 | 25 | 120,8 | 90,0   | 0,86 | B           | TCF050204BP      | TCF060203BC   |
| 5577957      | TCF185R5SL25MB | 18,50 | 25 | 122,4 | 92,5   | 0,83 | B           | TCF050204BP      | TCF060203BC   |
| 5578844      | TCF190R5SL25MC | 19,00 | 25 | 129,1 | 95,0   | 0,60 | C           | TCF070306CP      | TCF070304CC   |
| 5578845      | TCF195R5SL25MC | 19,50 | 25 | 131,7 | 97,5   | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578846      | TCF200R5SL25MC | 20,00 | 25 | 132,0 | 100,0  | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578847      | TCF205R5SL25MC | 20,50 | 25 | 134,1 | 102,5  | 0,70 | C           | TCF070306CP      | TCF070304CC   |
| 5578848      | TCF210R5SL25MC | 21,00 | 25 | 137,0 | 105,0  | 0,80 | C           | TCF070306CP      | TCF070304CC   |
| 5578849      | TCF220R5SL25MC | 22,00 | 25 | 142,0 | 110,0  | 1,00 | C           | TCF070306CP      | TCF070304CC   |
| 5578850      | TCF225R5SL25MC | 22,50 | 25 | 144,7 | 112,5  | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5578851      | TCF230R5SL25MC | 23,00 | 25 | 147,0 | 115,0  | 1,10 | C           | TCF070306CP      | TCF070304CC   |
| 5537838      | TCF240R5SL25MD | 24,00 | 25 | 152,0 | 120,0  | 0,78 | D           | TCF080308DP      | TCF090305DC   |
| 5537839      | TCF250R5SL32MD | 25,00 | 32 | 158,0 | 125,0  | 0,86 | D           | TCF080308DP      | TCF090305DC   |
| 5537840      | TCF260R5SL32MD | 26,00 | 32 | 164,0 | 130,0  | 0,97 | D           | TCF080308DP      | TCF090305DC   |
| 5537841      | TCF265R5SL32MD | 26,50 | 32 | 166,5 | 132,5  | 1,05 | D           | TCF080308DP      | TCF090305DC   |
| 5537842      | TCF270R5SL32MD | 27,00 | 32 | 170,0 | 135,0  | 1,15 | D           | TCF080308DP      | TCF090305DC   |
| 5537843      | TCF280R5SL32MD | 28,00 | 32 | 176,5 | 140,0  | 1,30 | D           | TCF080308DP      | TCF090305DC   |
| 5537844      | TCF290R5SL32MD | 29,00 | 32 | 181,0 | 145,0  | 1,45 | D           | TCF080308DP      | TCF090305DC   |
| 5537958      | TCF300R5SL32ME | 30,00 | 32 | 186,0 | 150,0  | 0,63 | E           | TCF100408EP      | TCF120405EC   |
| 5537959      | TCF310R5SL32ME | 31,00 | 32 | 193,0 | 155,0  | 0,72 | E           | TCF100408EP      | TCF120405EC   |

(continued)

(Top Cut 4 Drill • Metric • 5 x D • SL Shanks — continued)

| order number | catalog number | D1    | D  | L1    | L4 max | L5   | insert size | periphery insert | center insert |
|--------------|----------------|-------|----|-------|--------|------|-------------|------------------|---------------|
| 5537960      | TCF320R5SL32ME | 32,00 | 32 | 199,0 | 160,0  | 0,82 | E           | TCF100408EP      | TCF120405EC   |
| 5537961      | TCF330R5SL40ME | 33,00 | 40 | 204,0 | 165,0  | 0,95 | E           | TCF100408EP      | TCF120405EC   |
| 5537962      | TCF340R5SL40ME | 34,00 | 40 | 210,0 | 170,0  | 1,14 | E           | TCF100408EP      | TCF120405EC   |
| 5537963      | TCF350R5SL40ME | 35,00 | 40 | 216,8 | 175,0  | 1,30 | E           | TCF100408EP      | TCF120405EC   |
| 5537964      | TCF360R5SL40ME | 36,00 | 40 | 222,0 | 180,0  | 1,45 | E           | TCF100408EP      | TCF120405EC   |
| 5578629      | TCF370R5SL40MF | 37,00 | 40 | 228,0 | 185,0  | 1,19 | F           | TCF120412FP      | TCF150406FC   |
| 5578640      | TCF375R5SL40MF | 37,50 | 40 | 231,8 | 188,0  | 1,23 | F           | TCF120412FP      | TCF150406FC   |
| 5578641      | TCF380R5SL40MF | 38,00 | 40 | 234,5 | 190,0  | 1,27 | F           | TCF120412FP      | TCF150406FC   |
| 5578642      | TCF390R5SL40MF | 39,00 | 40 | 239,8 | 195,0  | 1,36 | F           | TCF120412FP      | TCF150406FC   |
| 5578643      | TCF400R5SL40MF | 40,00 | 40 | 245,1 | 200,0  | 1,47 | F           | TCF120412FP      | TCF150406FC   |
| 5578644      | TCF410R5SL40MF | 41,00 | 40 | 250,4 | 205,0  | 1,60 | F           | TCF120412FP      | TCF150406FC   |
| 5578645      | TCF420R5SL40MF | 42,00 | 40 | 255,7 | 210,0  | 1,77 | F           | TCF120412FP      | TCF150406FC   |
| 5578646      | TCF430R5SL40MF | 43,00 | 40 | 261,1 | 215,0  | 1,99 | F           | TCF120412FP      | TCF150406FC   |
| 5578647      | TCF440R5SL40MF | 44,00 | 40 | 266,4 | 220,0  | 2,10 | F           | TCF120412FP      | TCF150406FC   |
| 5578648      | TCF450R5SL50MF | 45,00 | 50 | 271,7 | 225,0  | 2,21 | F           | TCF120412FP      | TCF150406FC   |
| 5578751      | TCF460R5SL50MG | 46,00 | 50 | 277,0 | 230,0  | 1,45 | G           | TCF150512GP      | TCF180508GC   |
| 5578752      | TCF470R5SL50MG | 47,00 | 50 | 282,3 | 235,0  | 1,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578753      | TCF480R5SL50MG | 48,00 | 50 | 287,7 | 240,0  | 1,63 | G           | TCF150512GP      | TCF180508GC   |
| 5578754      | TCF490R5SL50MG | 49,00 | 50 | 293,0 | 245,0  | 1,74 | G           | TCF150512GP      | TCF180508GC   |
| 5578755      | TCF500R5SL50MG | 50,00 | 50 | 299,8 | 250,0  | 1,87 | G           | TCF150512GP      | TCF180508GC   |
| 5578756      | TCF505R5SL50MG | 50,50 | 50 | 302,5 | 253,0  | 1,94 | G           | TCF150512GP      | TCF180508GC   |
| 5578757      | TCF510R5SL50MG | 51,00 | 50 | 305,1 | 255,0  | 2,02 | G           | TCF150512GP      | TCF180508GC   |
| 5578758      | TCF520R5SL50MG | 52,00 | 50 | 310,4 | 260,0  | 2,22 | G           | TCF150512GP      | TCF180508GC   |
| 5578759      | TCF530R5SL50MG | 53,00 | 50 | 315,8 | 265,0  | 2,46 | G           | TCF150512GP      | TCF180508GC   |
| 5578760      | TCF540R5SL50MG | 54,00 | 50 | 321,1 | 270,0  | 2,53 | G           | TCF150512GP      | TCF180508GC   |
| 5578761      | TCF550R5SL50MG | 55,00 | 50 | 326,4 | 275,0  | 2,73 | G           | TCF150512GP      | TCF180508GC   |
| 5578762      | TCF560R5SL50MG | 56,00 | 50 | 331,7 | 280,0  | 2,37 | G           | TCF150512GP      | TCF180508GC   |
| 5538659      | TCF570R5SL50MH | 57,00 | 50 | 330,0 | 285,0  | 1,76 | H           | TCF180614HP      | TCF210608HC   |
| 5538680      | TCF580R5SL50MH | 58,00 | 50 | 336,0 | 290,0  | 1,85 | H           | TCF180614HP      | TCF210608HC   |
| 5538681      | TCF590R5SL50MH | 59,00 | 50 | 339,2 | 295,0  | 1,96 | H           | TCF180614HP      | TCF210608HC   |
| 5538682      | TCF600R5SL50MH | 60,00 | 50 | 345,5 | 300,0  | 1,42 | H           | TCF180614HP      | TCF210608HC   |
| 5538683      | TCF610R5SL50MH | 61,00 | 50 | 347,8 | 305,0  | 2,23 | H           | TCF180614HP      | TCF210608HC   |
| 5538684      | TCF620R5SL50MH | 62,00 | 50 | 358,0 | 310,0  | 2,41 | H           | TCF180614HP      | TCF210608HC   |
| 5538685      | TCF630R5SL50MH | 63,00 | 50 | 365,0 | 315,0  | 2,64 | H           | TCF180614HP      | TCF210608HC   |
| 5538686      | TCF640R5SL50MH | 64,00 | 50 | 363,8 | 320,0  | 2,94 | H           | TCF180614HP      | TCF210608HC   |
| 5538687      | TCF650R5SL50MH | 65,00 | 50 | 375,0 | 325,0  | 3,06 | H           | TCF180614HP      | TCF210608HC   |
| 5538688      | TCF660R5SL50MH | 66,00 | 50 | 376,4 | 330,0  | 3,18 | H           | TCF180614HP      | TCF210608HC   |
| 5538689      | TCF670R5SL50MH | 67,00 | 50 | 385,0 | 335,0  | 3,30 | H           | TCF180614HP      | TCF210608HC   |
| 5538700      | TCF680R5SL50MH | 68,00 | 50 | 390,0 | 340,0  | 2,93 | H           | TCF180614HP      | TCF210608HC   |

(continued)

(Top Cut 4 Drill • Metric • 5 x D • SL Shanks — continued)

### ■ Spare Parts



| insert size | periphery insert | center insert | insert screw order number | Torx size | Torx driver order number | tightening torque Nm | tightening torque ft. lbs |
|-------------|------------------|---------------|---------------------------|-----------|--------------------------|----------------------|---------------------------|
| A           | TCF040204AP      | TCF040203AC   | <b>2025073</b>            | T5        | <b>2029221</b>           | 0,40                 | .295                      |
| B           | TCF050204BP      | TCF060203BC   | <b>1175225</b>            | T6        | <b>1138455</b>           | 0,53                 | .390                      |
| C           | TCF070306CP      | TCF070304CC   | <b>1021337</b>            | T7        | <b>2029266</b>           | 0,90                 | .663                      |
| D           | TCF080308DP      | TCF090305DC   | <b>1134385</b>            | T8        | <b>2029598</b>           | 1,10                 | .811                      |
| E           | TCF100408EP      | TCF120405EC   | <b>2018194</b>            | T9        | <b>1138430</b>           | 2,00                 | 1.475                     |
| F           | TCF120412FP      | TCF150406FC   | <b>1756815</b>            | T15       | <b>2029596</b>           | 4,00                 | 2.950                     |
| G           | TCF150512GP      | TCF180508GC   | <b>1099645</b>            | T20       | <b>2029488</b>           | 6,30                 | 4.646                     |
| H           | TCF180614HP      | TCF210608HC   | <b>1823871</b>            | T25       | <b>1022519</b>           | 8,80                 | 6.490                     |

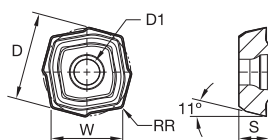
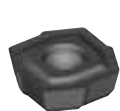
| D     | LS |       |
|-------|----|-------|
|       | mm | in    |
| 20,00 | 50 | 1.969 |
| 25,00 | 56 | 2.205 |
| 32,00 | 60 | 2.362 |
| 40,00 | 70 | 2.756 |
| 50,00 | 80 | 3.150 |

NOTE: Drill shipped with insert screws and Torx wrench.  
See pages T28–T31 for inserts.  
SL = Side Lock



#### WARNING

During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.



● first choice  
○ alternate choice

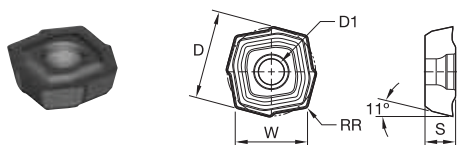
|   |  |  |  |
|---|--|--|--|
| P |  |  |  |
| M |  |  |  |
| K |  |  |  |
| N |  |  |  |
| S |  |  |  |
| H |  |  |  |

■ Top Cut 4 Drill • Center Inserts • V34

| catalog number | D     |      | D1   |      | W     |      | S    |      | RR    |      | insert size | WPK10CH | WU25CH  | WU40PH  |
|----------------|-------|------|------|------|-------|------|------|------|-------|------|-------------|---------|---------|---------|
|                | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm    | in   |             |         |         |         |
| TCF040203ACV34 | 4,47  | .176 | 2,10 | .083 | 3,65  | .144 | 2,00 | .079 | 0,300 | .011 | A           | I       | 5541817 | 5541818 |
| TCF060203BCV34 | 6,00  | .236 | 2,40 | .094 | 4,90  | .193 | 2,40 | .095 | 0,300 | .011 | B           | I       | 5542602 | 5542604 |
| TCF070304CCV34 | 7,59  | .299 | 2,60 | .102 | 6,20  | .244 | 2,80 | .110 | 0,400 | .015 | C           | I       | 5542642 | 5542643 |
| TCF090305DCV34 | 9,55  | .376 | 2,80 | .110 | 7,80  | .307 | 3,00 | .118 | 0,500 | .019 | D           | I       | 5538554 | 5538555 |
| TCF120405ECV34 | 12,00 | .473 | 3,40 | .134 | 9,80  | .386 | 3,60 | .142 | 0,500 | .019 | E           | I       | 5538603 | 5538604 |
| TCF150406FCV34 | 14,94 | .588 | 4,80 | .189 | 12,20 | .480 | 4,20 | .165 | 0,600 | .023 | F           | I       | 5542623 | 5542624 |
| TCF180508GCV34 | 17,88 | .704 | 6,00 | .236 | 14,60 | .575 | 5,40 | .213 | 0,800 | .031 | G           | I       | 5542475 | 5542476 |
| TCF210608HCV34 | 21,68 | .853 | 7,50 | .295 | 17,70 | .697 | 6,50 | .256 | 0,800 | .031 | H           | I       | 5542002 | 5542003 |

NOTE: For application-specific insert selection, please refer to the application data on pages T32–T55.

| Geometry | Application                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------|
| V34      | First choice for machining steel, cast iron, and short chipping materials.<br>Suitable for severe cutting conditions. |
| V36      | First choice for stainless steel.<br>Suitable for long chipping steel and where low power consumption is required.    |



● first choice  
○ alternate choice

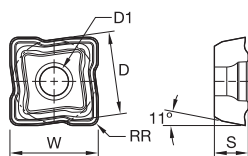
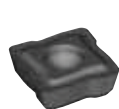
|   |   |   |   |   |
|---|---|---|---|---|
| P | ● | ○ | ○ | ● |
| M | ● | ○ | ○ | ● |
| K | ○ | ○ | ○ | ● |
| N | ○ | ○ | ○ | ○ |
| S | ○ | ○ | ○ | ○ |
| H | ○ | ○ | ○ | ○ |

### ■ Top Cut 4 Drill • Center Inserts • V36

| catalog number | D     |      | D1   |      | W     |      | S    |      | RR    |      | insert size | WPK10CH | WU25CH  | WU40PH  |
|----------------|-------|------|------|------|-------|------|------|------|-------|------|-------------|---------|---------|---------|
|                | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm    | in   |             |         |         |         |
| TCF040203ACV36 | 4,47  | .176 | 2,10 | .083 | 3,65  | .144 | 2,00 | .079 | 0,300 | .011 | A           | I       | 5541819 | 5541840 |
| TCF060203BCV36 | 6,00  | .236 | 2,40 | .094 | 4,90  | .193 | 2,40 | .094 | 0,300 | .011 | B           | I       | 5542606 | 5542607 |
| TCF070304CCV36 | 7,59  | .299 | 2,60 | .102 | 6,20  | .244 | 2,80 | .110 | 0,400 | .015 | C           | I       | 5542644 | 5542645 |
| TCF090305DCV36 | 9,55  | .376 | 2,80 | .110 | 7,80  | .307 | 3,00 | .118 | 0,500 | .019 | D           | I       | 5538556 | 5538557 |
| TCF120405ECV36 | 12,00 | .473 | 3,40 | .134 | 9,80  | .386 | 3,60 | .142 | 0,500 | .019 | E           | I       | 5538606 | 5538607 |
| TCF150406FCV36 | 14,94 | .588 | 4,80 | .189 | 12,20 | .480 | 4,20 | .165 | 0,600 | .023 | F           | I       | 5542625 | 5542626 |
| TCF180508GCV36 | 17,88 | .704 | 6,00 | .236 | 14,60 | .575 | 5,40 | .213 | 0,800 | .031 | G           | I       | 5542477 | 5542478 |
| TCF210608HCV36 | 21,68 | .853 | 7,50 | .295 | 17,70 | .697 | 6,50 | .256 | 0,800 | .031 | H           | I       | 5542004 | 5542005 |

NOTE: For application-specific insert selection, please refer to the application data on pages T32–T55.

| Geometry | Application                                                                                                        |
|----------|--------------------------------------------------------------------------------------------------------------------|
| V34      | First choice for machining steel, cast iron, and short chipping materials. Suitable for severe cutting conditions. |
| V36      | First choice for stainless steel. Suitable for long chipping steel and where low power consumption is required.    |



● first choice  
○ alternate choice

|   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| P |  |  |  |  |
| M |  |  |  |  |
| K |  |  |  |  |
| N |  |  |  |  |
| S |  |  |  |  |
| H |  |  |  |  |

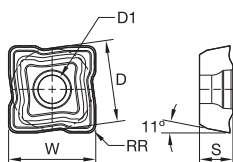
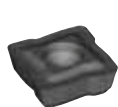
■ Top Cut 4 Drill • Periphery Inserts • V34

| catalog number | D     |      | D1   |      | W     |      | S    |      | RR    |      | insert size | WPK10CH | WU25CH  | WU40PH  |
|----------------|-------|------|------|------|-------|------|------|------|-------|------|-------------|---------|---------|---------|
|                | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm    | in   |             |         |         |         |
| TCF040204APV34 | 4,14  | .163 | 2,10 | .083 | 4,40  | .173 | 2,00 | .079 | 0,400 | .015 | A           | 5541843 | 5541841 | 5541842 |
| TCF050204BPV34 | 5,07  | .200 | 2,40 | .094 | 5,40  | .213 | 2,40 | .094 | 0,400 | .015 | B           | 5542620 | 5542608 | 5542609 |
| TCF070306CPV34 | 6,67  | .263 | 2,60 | .102 | 7,10  | .280 | 2,80 | .110 | 0,600 | .023 | C           | 5542648 | 5542646 | 5542647 |
| TCF080308DPV34 | 8,08  | .318 | 2,80 | .110 | 8,60  | .339 | 3,00 | .118 | 0,800 | .031 | D           | 5538600 | 5538558 | 5538559 |
| TCF100408EPV34 | 9,96  | .392 | 3,40 | .134 | 10,60 | .417 | 3,60 | .142 | 0,800 | .031 | E           | 5538610 | 5538608 | 5538609 |
| TCF120412FPV34 | 12,59 | .496 | 4,80 | .189 | 13,40 | .528 | 4,20 | .165 | 1,200 | .046 | F           | 5542629 | 5542627 | 5542628 |
| TCF150512GPV34 | 15,13 | .596 | 6,00 | .236 | 16,10 | .634 | 5,40 | .213 | 1,200 | .046 | G           | 5542601 | 5542479 | 5542600 |
| TCF180614HPV34 | 18,04 | .710 | 7,50 | .295 | 19,20 | .756 | 6,50 | .256 | 1,400 | .054 | H           | 5542008 | 5542006 | 5542007 |

NOTE: For application-specific insert selection, please refer to the application data on pages T32–T55.

| Geometry | Application                                                                                                           |
|----------|-----------------------------------------------------------------------------------------------------------------------|
| V34      | First choice for machining steel, cast iron, and short chipping materials.<br>Suitable for severe cutting conditions. |
| V36      | First choice for stainless steel.<br>Suitable for long chipping steel and where low power consumption is required.    |





- first choice
- alternate choice

|   |   |   |   |   |
|---|---|---|---|---|
| P | ● | ○ | ○ | ● |
| M | ● | ○ | ○ | ● |
| K | ○ | ○ | ○ | ● |
| N | ○ | ○ | ○ | ○ |
| S | ○ | ○ | ○ | ○ |
| H | ○ | ○ | ○ | ○ |

### ■ Top Cut 4 Drill • Periphery Inserts • V36

| catalog number | D     |      | D1   |      | W     |      | S    |      | RR    |      | insert size | WPK10CH | WU25CH  | WU40PH  |
|----------------|-------|------|------|------|-------|------|------|------|-------|------|-------------|---------|---------|---------|
|                | mm    | in   | mm   | in   | mm    | in   | mm   | in   | mm    | in   |             |         |         |         |
| TCF040204APV36 | 4,14  | .163 | 2,10 | .083 | 4,40  | .173 | 2,00 | .079 | 0,400 | .015 | A           | 5541844 | 5541844 | 5541845 |
| TCF050204BPV36 | 5,07  | .200 | 2,40 | .094 | 5,40  | .213 | 2,40 | .094 | 0,400 | .015 | B           | 5542621 | 5542622 | 5542622 |
| TCF070306CPV36 | 6,67  | .263 | 2,60 | .102 | 7,10  | .280 | 2,80 | .110 | 0,600 | .023 | C           | 5542649 | 5542650 | 5542650 |
| TCF080308DPV36 | 8,08  | .318 | 2,80 | .110 | 8,60  | .339 | 3,00 | .118 | 0,800 | .031 | D           | 5538601 | 5538602 | 5538602 |
| TCF100408EPV36 | 9,96  | .392 | 3,40 | .134 | 10,60 | .417 | 3,60 | .142 | 0,800 | .031 | E           | 5538611 | 5538612 | 5538612 |
| TCF120412FPV36 | 12,59 | .496 | 4,80 | .189 | 13,40 | .528 | 4,20 | .165 | 1,200 | .046 | F           | 5542640 | 5542641 | 5542641 |
| TCF150512GPV36 | 15,13 | .596 | 6,00 | .236 | 16,10 | .634 | 5,40 | .213 | 1,200 | .046 | G           | 5542603 | 5542605 | 5542605 |
| TCF180614HPV36 | 18,04 | .710 | 7,50 | .295 | 19,20 | .756 | 6,50 | .256 | 1,400 | .054 | H           | 5542009 | 5542020 | 5542020 |

NOTE: For application-specific insert selection, please refer to the application data on pages T32–T55.

| Geometry | Application                                                                                                        |
|----------|--------------------------------------------------------------------------------------------------------------------|
| V34      | First choice for machining steel, cast iron, and short chipping materials. Suitable for severe cutting conditions. |
| V36      | First choice for stainless steel. Suitable for long chipping steel and where low power consumption is required.    |

## ■ Top Cut 4 • Steel • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (IPR)                   |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|------------------------------------------------------------|--------|--------|--------|
|                |           |             |          |       | Insert Size A                                             |        |        | Insert Size B                                             |        |        | Insert Size C                                             |        |        | Insert Size D                                              |        |        |        |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |        |        | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |        |        | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |        |        | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |        |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                        | Start  | max    |        |
| P              | 1         | S           | P        | V36   | WU25CH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0051                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0051                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0051                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0047 | 0.0059                                                    | 0.0039 | 0.0051 | 0.0063                                                     | 0.0043 | 0.0055 | 0.0067 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0047 | 0.0059                                                    | 0.0039 | 0.0051 | 0.0063                                                     | 0.0043 | 0.0055 | 0.0067 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0047 | 0.0059                                                    | 0.0039 | 0.0051 | 0.0063                                                     | 0.0043 | 0.0055 | 0.0067 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 0.0031 | 0.0043 | 0.0059                                                    | 0.0039 | 0.0047 | 0.0063                                                    | 0.0043 | 0.0055 | 0.0071                                                     | 0.0047 | 0.0059 | 0.0079 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0031 | 0.0043 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                    | 0.0043 | 0.0055 | 0.0063                                                     | 0.0047 | 0.0059 | 0.0071 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0031 | 0.0043 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                    | 0.0043 | 0.0055 | 0.0063                                                     | 0.0047 | 0.0059 | 0.0071 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 4         | S           | P        | V34   | WPK10CH                                                   | 0.0031 | 0.0043 | 0.0059                                                    | 0.0039 | 0.0047 | 0.0063                                                    | 0.0043 | 0.0055 | 0.0071                                                     | 0.0047 | 0.0059 | 0.0079 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0031 | 0.0043 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                    | 0.0043 | 0.0055 | 0.0063                                                     | 0.0047 | 0.0059 | 0.0071 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0031 | 0.0043 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                    | 0.0043 | 0.0055 | 0.0063                                                     | 0.0047 | 0.0059 | 0.0071 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 5         | S           | P        | V36   | WU25CH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 6         | S           | P        | V36   | WU25CH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0039                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0039 | 0.0047 | 0.0059                                                     | 0.0043 | 0.0051 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions;

U = unstable cutting conditions;

I = interrupted cutting conditions

Pocket Seat: P = periphery insert;

C = center insert

## ■ Top Cut 4 • Steel • 2 x D/3 x D • Speed Chart • Inch

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)               |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|------|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |      |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max  |
| P              | 1         | S           | P        | V36   | 394                                                       | 459   | 525 | 459                                                       | 525   | 787 | 492                                                       | 590   | 853 | 525                                                        | 590   | 853  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V36   | 361                                                       | 394   | 459 | 426                                                       | 492   | 722 | 426                                                       | 558   | 820 | 459                                                        | 558   | 820  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V36   | 295                                                       | 328   | 394 | 426                                                       | 492   | 689 | 426                                                       | 558   | 787 | 459                                                        | 558   | 787  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                | 2         | S           | P        | V34   | 394                                                       | 459   | 525 | 459                                                       | 558   | 853 | 492                                                       | 623   | 918 | 525                                                        | 623   | 918  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V34   | 361                                                       | 394   | 459 | 426                                                       | 558   | 787 | 459                                                       | 590   | 853 | 492                                                        | 590   | 853  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V34   | 295                                                       | 328   | 394 | 426                                                       | 558   | 754 | 426                                                       | 558   | 787 | 459                                                        | 558   | 787  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                | 3         | S           | P        | V34   | 394                                                       | 459   | 590 | 459                                                       | 558   | 886 | 492                                                       | 656   | 951 | 525                                                        | 656   | 1017 |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V34   | 361                                                       | 394   | 525 | 426                                                       | 525   | 853 | 459                                                       | 656   | 918 | 492                                                        | 656   | 918  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V34   | 328                                                       | 361   | 459 | 394                                                       | 492   | 820 | 426                                                       | 590   | 853 | 459                                                        | 590   | 853  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                | 4         | S           | P        | V34   | 394                                                       | 459   | 590 | 459                                                       | 558   | 886 | 492                                                       | 656   | 951 | 525                                                        | 656   | 1017 |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V34   | 361                                                       | 394   | 525 | 426                                                       | 525   | 853 | 459                                                       | 656   | 918 | 492                                                        | 656   | 918  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V34   | 328                                                       | 361   | 459 | 394                                                       | 492   | 820 | 426                                                       | 590   | 853 | 459                                                        | 590   | 853  |
|                |           |             | C        | V34   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                | 5         | S           | P        | V36   | 394                                                       | 459   | 525 | 459                                                       | 558   | 787 | 492                                                       | 590   | 820 | 525                                                        | 590   | 820  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V36   | 361                                                       | 394   | 459 | 426                                                       | 525   | 754 | 459                                                       | 558   | 787 | 492                                                        | 558   | 787  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V36   | 295                                                       | 328   | 394 | 426                                                       | 525   | 754 | 426                                                       | 525   | 722 | 459                                                        | 525   | 722  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                | 6         | S           | P        | V36   | 394                                                       | 459   | 525 | 459                                                       | 558   | 656 | 459                                                       | 558   | 689 | 492                                                        | 558   | 689  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | U           | P        | V36   | 361                                                       | 394   | 459 | 394                                                       | 492   | 623 | 426                                                       | 525   | 656 | 459                                                        | 525   | 656  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |
|                |           | I           | P        | V36   | 295                                                       | 328   | 394 | 361                                                       | 426   | 590 | 394                                                       | 459   | 623 | 394                                                        | 459   | 623  |
|                |           |             | C        | V36   |                                                           |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions;  
U = unstable cutting conditions;  
I = interrupted cutting conditions  
Pocket Seat: P = periphery insert;  
C = center insert

## ■ Top Cut 4 • Steel • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       |         | Recommended Feed Rate by Diameter (IPR)                     |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|----------------|-----------|-------------|----------|-------|---------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|
|                |           |             |          |       |         | Insert Size E                                               |        |        | Insert Size F                                               |        |        | Insert Size G                                               |        |        | Insert Size H                                               |        |        |
|                |           |             |          |       |         | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |        |        | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |        |        | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |        |        | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                       | max    | min    | Start                                                       | max    | min    | Start                                                       | max    | min    | Start                                                       | max    |        |
| P              | 1         | S           | P        | V36   | WU25CH  | 0.0051                                                      | 0.0055 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0106 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0055 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0106 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0055 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0106 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 2         | S           | P        | V34   | WPK10CH | 0.0051                                                      | 0.0059 | 0.0079 | 0.0059                                                      | 0.0071 | 0.0083 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0051                                                      | 0.0059 | 0.0079 | 0.0059                                                      | 0.0071 | 0.0083 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0051                                                      | 0.0059 | 0.0079 | 0.0059                                                      | 0.0071 | 0.0083 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 3         | S           | P        | V34   | WPK10CH | 0.0055                                                      | 0.0063 | 0.0087 | 0.0063                                                      | 0.0079 | 0.0094 | 0.0071                                                      | 0.0098 | 0.0118 | 0.0075                                                      | 0.0102 | 0.0126 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0055                                                      | 0.0063 | 0.0079 | 0.0063                                                      | 0.0079 | 0.0091 | 0.0071                                                      | 0.0098 | 0.0110 | 0.0075                                                      | 0.0102 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0055                                                      | 0.0063 | 0.0079 | 0.0063                                                      | 0.0079 | 0.0087 | 0.0071                                                      | 0.0098 | 0.0110 | 0.0075                                                      | 0.0102 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 4         | S           | P        | V34   | WPK10CH | 0.0055                                                      | 0.0063 | 0.0087 | 0.0063                                                      | 0.0079 | 0.0094 | 0.0071                                                      | 0.0098 | 0.0118 | 0.0075                                                      | 0.0102 | 0.0126 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0055                                                      | 0.0063 | 0.0079 | 0.0063                                                      | 0.0079 | 0.0087 | 0.0071                                                      | 0.0098 | 0.0110 | 0.0075                                                      | 0.0102 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0055                                                      | 0.0063 | 0.0079 | 0.0063                                                      | 0.0079 | 0.0087 | 0.0071                                                      | 0.0098 | 0.0110 | 0.0075                                                      | 0.0102 | 0.0118 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 5         | S           | P        | V36   | WU25CH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0071 | 0.0079 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0071 | 0.0079 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0071 | 0.0079 | 0.0063                                                      | 0.0094 | 0.0110 | 0.0067                                                      | 0.0098 | 0.0118 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 6         | S           | P        | V36   | WU25CH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0110 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0110 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V36   | WU40PH  | 0.0051                                                      | 0.0059 | 0.0071 | 0.0059                                                      | 0.0067 | 0.0079 | 0.0063                                                      | 0.0091 | 0.0110 | 0.0067                                                      | 0.0094 | 0.0114 |
|                |           |             | C        | V36   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions;

U = unstable cutting conditions;

I = interrupted cutting conditions

Pocket Seat: P = periphery insert;

C = center insert

**■ Top Cut 4 • Steel • 2 x D/3 x D • Speed Chart • Inch**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)                 |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|
|                |           |             |          |       | Insert Size E                                               |       |     | Insert Size F                                               |       |     | Insert Size G                                               |       |     | Insert Size H                                               |       |     |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max |
| P              | 1         | S           | P        | V36   | WU25CH                                                      | 525   | 590 | 853                                                         | 525   | 590 | 853                                                         | 525   | 590 | 853                                                         | 525   | 590 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 459   | 558 | 820                                                         | 459   | 558 | 820                                                         | 459   | 558 | 820                                                         | 459   | 558 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 459   | 558 | 787                                                         | 459   | 558 | 787                                                         | 459   | 558 | 787                                                         | 459   | 558 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                     | 525   | 623 | 918                                                         | 525   | 623 | 918                                                         | 525   | 623 | 918                                                         | 525   | 623 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 558 | 787                                                         | 459   | 558 | 787                                                         | 459   | 558 | 787                                                         | 459   | 558 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                     | 525   | 656 | 1017                                                        | 525   | 656 | 1017                                                        | 525   | 656 | 1017                                                        | 525   | 656 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 492   | 656 | 918                                                         | 492   | 656 | 918                                                         | 492   | 656 | 918                                                         | 492   | 656 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 590 | 853                                                         | 459   | 590 | 853                                                         | 459   | 590 | 853                                                         | 459   | 590 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                | 4         | S           | P        | V34   | WPK10CH                                                     | 525   | 656 | 1017                                                        | 525   | 656 | 1017                                                        | 525   | 656 | 1017                                                        | 525   | 656 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 492   | 656 | 918                                                         | 492   | 656 | 918                                                         | 492   | 656 | 918                                                         | 492   | 656 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 590 | 853                                                         | 459   | 590 | 853                                                         | 459   | 590 | 853                                                         | 459   | 590 |
|                |           |             | C        | V34   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                | 5         | S           | P        | V36   | WU25CH                                                      | 525   | 590 | 820                                                         | 525   | 590 | 820                                                         | 525   | 590 | 820                                                         | 525   | 590 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 492   | 558 | 787                                                         | 492   | 558 | 787                                                         | 492   | 558 | 787                                                         | 492   | 558 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 459   | 525 | 722                                                         | 459   | 525 | 722                                                         | 459   | 525 | 722                                                         | 459   | 525 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                | 6         | S           | P        | V36   | WU25CH                                                      | 492   | 558 | 689                                                         | 492   | 558 | 689                                                         | 492   | 558 | 689                                                         | 492   | 558 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 459   | 525 | 656                                                         | 459   | 525 | 656                                                         | 459   | 525 | 656                                                         | 459   | 525 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 394   | 459 | 623                                                         | 394   | 459 | 623                                                         | 394   | 459 | 623                                                         | 394   | 459 |
|                |           |             | C        | V36   |                                                             |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions;  
 U = unstable cutting conditions;  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert;  
 C = center insert

## ■ Top Cut 4 • Steel • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (mm/r)                  |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|------|-----------------------------------------------------------|-------|------|-----------------------------------------------------------|-------|------|------------------------------------------------------------|-------|------|------|
|                |           |             |          |       | Insert Size A                                             |       |      | Insert Size B                                             |       |      | Insert Size C                                             |       |      | Insert Size D                                              |       |      |      |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |      | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |      | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |      | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max  | min                                                       | Start | max  | min                                                       | Start | max  | min                                                        | Start | max  |      |
| P              | 1         | S           | P        | V36   | WU25CH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,13                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,13                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,13                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,12 | 0,15                                                      | 0,10  | 0,13 | 0,16                                                       | 0,11  | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V34   | WU25CH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,12 | 0,15                                                      | 0,10  | 0,13 | 0,16                                                       | 0,11  | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V34   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,12 | 0,15                                                      | 0,10  | 0,13 | 0,16                                                       | 0,11  | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 0,08  | 0,11 | 0,15                                                      | 0,10  | 0,12 | 0,16                                                      | 0,11  | 0,14 | 0,18                                                       | 0,12  | 0,15 | 0,20 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V34   | WU25CH                                                    | 0,08  | 0,11 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                      | 0,11  | 0,14 | 0,16                                                       | 0,12  | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V34   | WU40PH                                                    | 0,08  | 0,11 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                      | 0,11  | 0,14 | 0,16                                                       | 0,12  | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 4         | S           | P        | V34   | WPK10CH                                                   | 0,08  | 0,11 | 0,15                                                      | 0,10  | 0,12 | 0,16                                                      | 0,11  | 0,14 | 0,18                                                       | 0,12  | 0,15 | 0,20 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V34   | WU25CH                                                    | 0,08  | 0,11 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                      | 0,11  | 0,14 | 0,16                                                       | 0,12  | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V34   | WU40PH                                                    | 0,08  | 0,11 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                      | 0,11  | 0,14 | 0,16                                                       | 0,12  | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 5         | S           | P        | V36   | WU25CH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 6         | S           | P        | V36   | WU25CH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,10                                                      | 0,08  | 0,10 | 0,14                                                      | 0,10  | 0,12 | 0,15                                                       | 0,11  | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Steel • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (m/min)             |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |     |     |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max |     |
| P              | 1         | S           | P        | V36   | WU25CH                                                    | 120   | 140 | 160                                                       | 140   | 160 | 240                                                       | 150   | 180 | 260                                                        | 160   | 180 | 260 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 130   | 150 | 220                                                       | 130   | 170 | 250                                                        | 140   | 170 | 250 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 90    | 100 | 120                                                       | 130   | 150 | 210                                                       | 130   | 170 | 240                                                        | 140   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 160                                                       | 140   | 170 | 260                                                       | 150   | 190 | 280                                                        | 160   | 190 | 280 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 140                                                       | 130   | 170 | 240                                                       | 140   | 180 | 260                                                        | 150   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 90    | 100 | 120                                                       | 130   | 170 | 230                                                       | 130   | 170 | 240                                                        | 140   | 170 | 240 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 180                                                       | 140   | 170 | 270                                                       | 150   | 200 | 290                                                        | 160   | 200 | 310 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 160                                                       | 130   | 160 | 260                                                       | 140   | 200 | 280                                                        | 150   | 200 | 280 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 100   | 110 | 140                                                       | 120   | 150 | 250                                                       | 130   | 180 | 260                                                        | 140   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 4         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 180                                                       | 140   | 170 | 270                                                       | 150   | 200 | 290                                                        | 160   | 200 | 310 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 160                                                       | 130   | 160 | 260                                                       | 140   | 200 | 280                                                        | 150   | 200 | 280 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 100   | 110 | 140                                                       | 120   | 150 | 250                                                       | 130   | 180 | 260                                                        | 140   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 5         | S           | P        | V36   | WU25CH                                                    | 120   | 140 | 160                                                       | 140   | 170 | 240                                                       | 150   | 180 | 250                                                        | 160   | 180 | 250 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 130   | 160 | 230                                                       | 140   | 170 | 240                                                        | 150   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 90    | 100 | 120                                                       | 130   | 160 | 230                                                       | 130   | 160 | 220                                                        | 140   | 160 | 220 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 6         | S           | P        | V36   | WU25CH                                                    | 120   | 140 | 160                                                       | 140   | 170 | 200                                                       | 140   | 170 | 210                                                        | 150   | 170 | 210 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 120   | 150 | 190                                                       | 130   | 160 | 200                                                        | 140   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 90    | 100 | 120                                                       | 110   | 130 | 180                                                       | 120   | 140 | 190                                                        | 120   | 140 | 190 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,  
 U = unstable cutting conditions,  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert



## ■ Top Cut 4 • Steel • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       |         | Recommended Feed Rate by Diameter (mm/r)                    |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|----------------|-----------|-------------|----------|-------|---------|-------------------------------------------------------------|------|------|-------------------------------------------------------------|------|------|-------------------------------------------------------------|------|------|-------------------------------------------------------------|------|------|
|                |           |             |          |       |         | Insert Size E                                               |      |      | Insert Size F                                               |      |      | Insert Size G                                               |      |      | Insert Size H                                               |      |      |
|                |           |             |          |       |         | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |      |      | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |      |      | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |      |      | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                       | max  | min  | Start                                                       | max  | min  | Start                                                       | max  | min  | Start                                                       | max  |      |
| P              | 1         | S           | P        | V36   | WU25CH  | 0,13                                                        | 0,14 | 0,18 | 0,15                                                        | 0,17 | 0,20 | 0,16                                                        | 0,23 | 0,27 | 0,17                                                        | 0,24 | 0,29 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,13 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,13 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                | 2         | S           | P        | V34   | WPK10CH | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,12 | 0,15 | 0,10                                                        | 0,13 | 0,16 | 0,11                                                        | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,12 | 0,15 | 0,10                                                        | 0,13 | 0,16 | 0,11                                                        | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,12 | 0,15 | 0,10                                                        | 0,13 | 0,16 | 0,11                                                        | 0,14 | 0,17 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                | 3         | S           | P        | V34   | WPK10CH | 0,08                                                        | 0,11 | 0,15 | 0,10                                                        | 0,12 | 0,16 | 0,11                                                        | 0,14 | 0,18 | 0,12                                                        | 0,15 | 0,20 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,08                                                        | 0,11 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,14 | 0,16 | 0,12                                                        | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,08                                                        | 0,11 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,14 | 0,16 | 0,12                                                        | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                | 4         | S           | P        | V34   | WPK10CH | 0,08                                                        | 0,11 | 0,15 | 0,10                                                        | 0,12 | 0,16 | 0,11                                                        | 0,14 | 0,18 | 0,12                                                        | 0,15 | 0,20 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,08                                                        | 0,11 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,14 | 0,16 | 0,12                                                        | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,08                                                        | 0,11 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,14 | 0,16 | 0,12                                                        | 0,15 | 0,18 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                | 5         | S           | P        | V36   | WU25CH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                | 6         | S           | P        | V36   | WU25CH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V36   | WU40PH  | 0,06                                                        | 0,08 | 0,10 | 0,08                                                        | 0,10 | 0,14 | 0,10                                                        | 0,12 | 0,15 | 0,11                                                        | 0,13 | 0,16 |
|                |           |             | C        | V36   | WU40PH  |                                                             |      |      |                                                             |      |      |                                                             |      |      |                                                             |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Steel • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (m/min)               |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size E                                               |       |     | Insert Size F                                               |       |     | Insert Size G                                               |       |     | Insert Size H                                               |       |     |     |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max |     |
| P              | 1         | S           | P        | V36   | WU25CH                                                      | 160   | 180 | 260                                                         | 160   | 180 | 260                                                         | 160   | 180 | 260                                                         | 160   | 180 | 260 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 140   | 170 | 250                                                         | 140   | 170 | 250                                                         | 140   | 170 | 250                                                         | 140   | 170 | 250 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 140   | 170 | 240                                                         | 140   | 170 | 240                                                         | 140   | 170 | 240                                                         | 140   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                     | 160   | 190 | 280                                                         | 160   | 190 | 280                                                         | 160   | 190 | 280                                                         | 160   | 190 | 280 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 150   | 180 | 260                                                         | 150   | 180 | 260                                                         | 150   | 180 | 260                                                         | 150   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 140   | 170 | 240                                                         | 140   | 170 | 240                                                         | 140   | 170 | 240                                                         | 140   | 170 | 240 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                     | 160   | 200 | 310                                                         | 160   | 200 | 310                                                         | 160   | 200 | 310                                                         | 160   | 200 | 310 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 150   | 200 | 280                                                         | 150   | 200 | 280                                                         | 150   | 200 | 280                                                         | 150   | 200 | 280 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 140   | 180 | 260                                                         | 140   | 180 | 260                                                         | 140   | 180 | 260                                                         | 140   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 4         | S           | P        | V34   | WPK10CH                                                     | 160   | 200 | 310                                                         | 160   | 200 | 310                                                         | 160   | 200 | 310                                                         | 160   | 200 | 310 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 150   | 200 | 280                                                         | 150   | 200 | 280                                                         | 150   | 200 | 280                                                         | 150   | 200 | 280 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 140   | 180 | 260                                                         | 140   | 180 | 260                                                         | 140   | 180 | 260                                                         | 140   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 5         | S           | P        | V36   | WU25CH                                                      | 160   | 180 | 250                                                         | 160   | 180 | 250                                                         | 160   | 180 | 250                                                         | 160   | 180 | 250 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 150   | 170 | 240                                                         | 150   | 170 | 240                                                         | 150   | 170 | 240                                                         | 150   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 140   | 160 | 220                                                         | 140   | 160 | 220                                                         | 140   | 160 | 220                                                         | 140   | 160 | 220 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 6         | S           | P        | V36   | WU25CH                                                      | 150   | 170 | 210                                                         | 150   | 170 | 210                                                         | 150   | 170 | 210                                                         | 150   | 170 | 210 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 140   | 160 | 200                                                         | 140   | 160 | 200                                                         | 140   | 160 | 200                                                         | 140   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 120   | 140 | 190                                                         | 120   | 140 | 190                                                         | 120   | 140 | 190                                                         | 120   | 140 | 190 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,  
 U = unstable cutting conditions,  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert

## ■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (IPR)                   |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|------------------------------------------------------------|--------|--------|--------|
|                |           |             |          |       | Insert Size A                                             |        |        | Insert Size B                                             |        |        | Insert Size C                                             |        |        | Insert Size D                                              |        |        |        |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |        |        | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |        |        | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |        |        | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |        |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                        | Start  | max    |        |
| M              | 1         | S           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0051                                                    | 0.0031 | 0.0039 | 0.0059                                                     | 0.0039 | 0.0047 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0047                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0043                                                    | 0.0028 | 0.0039 | 0.0043                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 2         | S           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0051                                                    | 0.0031 | 0.0039 | 0.0059                                                     | 0.0039 | 0.0047 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0047                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0043                                                    | 0.0028 | 0.0039 | 0.0043                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 3         | S           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0051                                                    | 0.0031 | 0.0039 | 0.0059                                                     | 0.0039 | 0.0047 | 0.0063 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0047                                                    | 0.0028 | 0.0039 | 0.0047                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                    | 0.0024 | 0.0031 | 0.0043                                                    | 0.0028 | 0.0039 | 0.0043                                                    | 0.0031 | 0.0039 | 0.0055                                                     | 0.0039 | 0.0047 | 0.0059 |
|                |           |             | C        | V36   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

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Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Speed Chart • Inch**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)               |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |     |     |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max |     |
| M              | 1         | S           | P        | V36   | WU40PH                                                    | 394   | 459 | 525                                                       | 459   | 525 | 754                                                       | 492   | 558 | 787                                                        | 492   | 558 | 787 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 361   | 394 | 459                                                       | 426   | 492 | 689                                                       | 426   | 525 | 689                                                        | 426   | 525 | 689 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 295   | 328 | 394                                                       | 426   | 492 | 656                                                       | 426   | 525 | 656                                                        | 426   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 2         | S           | P        | V36   | WU40PH                                                    | 394   | 459 | 525                                                       | 459   | 525 | 656                                                       | 492   | 558 | 689                                                        | 492   | 558 | 689 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 361   | 394 | 459                                                       | 426   | 492 | 590                                                       | 426   | 525 | 656                                                        | 426   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 295   | 328 | 394                                                       | 394   | 459 | 558                                                       | 426   | 492 | 590                                                        | 426   | 492 | 590 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 3         | S           | P        | V36   | WU40PH                                                    | 361   | 394 | 459                                                       | 426   | 492 | 590                                                       | 459   | 525 | 656                                                        | 459   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 295   | 361 | 394                                                       | 394   | 426 | 525                                                       | 426   | 459 | 590                                                        | 426   | 459 | 590 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 262   | 328 | 361                                                       | 328   | 394 | 492                                                       | 361   | 426 | 525                                                        | 361   | 426 | 525 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |

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For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

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## ■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (IPR)                     |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|--------|
|                |           |             |          |       | Insert Size E                                               |        |        | Insert Size F                                               |        |        | Insert Size G                                               |        |        | Insert Size H                                               |        |        |        |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |        |        | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |        |        | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |        |        | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |        |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start  | max    | min                                                         | Start  | max    | min                                                         | Start  | max    | min                                                         | Start  | max    |        |
| M              | 1         | S           | P        | V36   | WU40PH                                                      | 0.0047 | 0.0055 | 0.0079                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0063 | 0.0071 | 0.0110                                                      | 0.0063 | 0.0079 | 0.0118 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                | 2         | S           | P        | V36   | WU40PH                                                      | 0.0047 | 0.0055 | 0.0079                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0063 | 0.0071 | 0.0110                                                      | 0.0063 | 0.0079 | 0.0118 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                | 3         | S           | P        | V36   | WU40PH                                                      | 0.0047 | 0.0055 | 0.0079                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0063 | 0.0071 | 0.0110                                                      | 0.0063 | 0.0079 | 0.0118 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | U           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |
|                |           | I           | P        | V36   | WU40PH                                                      | 0.0043 | 0.0051 | 0.0071                                                      | 0.0047 | 0.0055 | 0.0087                                                      | 0.0055 | 0.0063 | 0.0098                                                      | 0.0055 | 0.0071 | 0.0102 |
|                |           |             | C        | V36   | WU40PH                                                      |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |        |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Speed Chart • Inch**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)                 |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size E                                               |       |     | Insert Size F                                               |       |     | Insert Size G                                               |       |     | Insert Size H                                               |       |     |     |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max |     |
| M              | 1         | S           | P        | V36   | WU40PH                                                      | 492   | 558 | 787                                                         | 492   | 558 | 787                                                         | 492   | 558 | 787                                                         | 492   | 558 | 787 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 426   | 525 | 689                                                         | 426   | 525 | 689                                                         | 426   | 525 | 689                                                         | 426   | 525 | 689 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 426   | 525 | 656                                                         | 426   | 525 | 656                                                         | 426   | 525 | 656                                                         | 426   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 2         | S           | P        | V36   | WU40PH                                                      | 492   | 558 | 689                                                         | 492   | 558 | 689                                                         | 492   | 558 | 689                                                         | 492   | 558 | 689 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 426   | 525 | 656                                                         | 426   | 525 | 656                                                         | 426   | 525 | 656                                                         | 426   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 426   | 492 | 590                                                         | 426   | 492 | 590                                                         | 426   | 492 | 590                                                         | 426   | 492 | 590 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 3         | S           | P        | V36   | WU40PH                                                      | 459   | 525 | 656                                                         | 459   | 525 | 656                                                         | 459   | 525 | 656                                                         | 459   | 525 | 656 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 426   | 459 | 590                                                         | 426   | 459 | 590                                                         | 426   | 459 | 590                                                         | 426   | 459 | 590 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 361   | 426 | 525                                                         | 361   | 426 | 525                                                         | 361   | 426 | 525                                                         | 361   | 426 | 525 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

## ■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (mm/r)                  |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|------|-----------------------------------------------------------|-------|------|-----------------------------------------------------------|-------|------|------------------------------------------------------------|-------|------|------|
|                |           |             |          |       | Insert Size A                                             |       |      | Insert Size B                                             |       |      | Insert Size C                                             |       |      | Insert Size D                                              |       |      |      |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |      | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |      | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |      | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max  | min                                                       | Start | max  | min                                                       | Start | max  | min                                                        | Start | max  |      |
| M              | 1         | S           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,13                                                      | 0,08  | 0,10 | 0,15                                                       | 0,10  | 0,12 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,12                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,11                                                      | 0,07  | 0,10 | 0,11                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 2         | S           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,13                                                      | 0,08  | 0,10 | 0,15                                                       | 0,10  | 0,12 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,12                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,11                                                      | 0,07  | 0,10 | 0,11                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                | 3         | S           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,13                                                      | 0,08  | 0,10 | 0,15                                                       | 0,10  | 0,12 | 0,16 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,12                                                      | 0,07  | 0,10 | 0,12                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                    | 0,06  | 0,08 | 0,11                                                      | 0,07  | 0,10 | 0,11                                                      | 0,08  | 0,10 | 0,14                                                       | 0,10  | 0,12 | 0,15 |
|                |           |             | C        | V36   | WU40PH                                                    |       |      |                                                           |       |      |                                                           |       |      |                                                            |       |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert



**■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (m/min)             |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |     |     |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max |     |
| M              | 1         | S           | P        | V36   | WU40PH                                                    | 120   | 140 | 160                                                       | 140   | 160 | 230                                                       | 150   | 170 | 240                                                        | 150   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 130   | 150 | 210                                                       | 130   | 160 | 210                                                        | 130   | 160 | 210 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 90    | 100 | 120                                                       | 130   | 150 | 200                                                       | 130   | 160 | 200                                                        | 130   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 2         | S           | P        | V36   | WU40PH                                                    | 120   | 140 | 160                                                       | 140   | 160 | 200                                                       | 150   | 170 | 210                                                        | 150   | 170 | 210 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 130   | 150 | 180                                                       | 130   | 160 | 200                                                        | 130   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 90    | 100 | 120                                                       | 120   | 140 | 170                                                       | 130   | 150 | 180                                                        | 130   | 150 | 180 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 3         | S           | P        | V36   | WU40PH                                                    | 110   | 120 | 140                                                       | 130   | 150 | 180                                                       | 140   | 160 | 200                                                        | 140   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                    | 90    | 110 | 120                                                       | 120   | 130 | 160                                                       | 130   | 140 | 180                                                        | 130   | 140 | 180 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                    | 80    | 100 | 110                                                       | 100   | 120 | 150                                                       | 110   | 130 | 160                                                        | 110   | 130 | 160 |
|                |           |             | C        | V36   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,  
 U = unstable cutting conditions,  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert

## ■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (mm/r)                    |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|------|-------------------------------------------------------------|-------|------|-------------------------------------------------------------|-------|------|-------------------------------------------------------------|-------|------|------|
|                |           |             |          |       | Insert Size E                                               |       |      | Insert Size F                                               |       |      | Insert Size G                                               |       |      | Insert Size H                                               |       |      |      |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |      | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |      | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |      | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max  | min                                                         | Start | max  | min                                                         | Start | max  | min                                                         | Start | max  |      |
| M              | 1         | S           | P        | V36   | WU40PH                                                      | 0,12  | 0,14 | 0,20                                                        | 0,14  | 0,16 | 0,25                                                        | 0,16  | 0,18 | 0,28                                                        | 0,16  | 0,20 | 0,30 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                | 2         | S           | P        | V36   | WU40PH                                                      | 0,12  | 0,14 | 0,20                                                        | 0,14  | 0,16 | 0,25                                                        | 0,16  | 0,18 | 0,28                                                        | 0,16  | 0,20 | 0,30 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                | 3         | S           | P        | V36   | WU40PH                                                      | 0,12  | 0,14 | 0,20                                                        | 0,14  | 0,16 | 0,25                                                        | 0,16  | 0,18 | 0,28                                                        | 0,16  | 0,20 | 0,30 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | U           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |
|                |           | I           | P        | V36   | WU40PH                                                      | 0,11  | 0,13 | 0,18                                                        | 0,12  | 0,14 | 0,22                                                        | 0,14  | 0,16 | 0,25                                                        | 0,14  | 0,18 | 0,26 |
|                |           |             | C        | V36   | WU40PH                                                      |       |      |                                                             |       |      |                                                             |       |      |                                                             |       |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Stainless Steel • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (m/min)               |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size E                                               |       |     | Insert Size F                                               |       |     | Insert Size G                                               |       |     | Insert Size H                                               |       |     |     |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max |     |
| M              | 1         | S           | P        | V36   | WU40PH                                                      | 150   | 170 | 240                                                         | 150   | 170 | 240                                                         | 150   | 170 | 240                                                         | 150   | 170 | 240 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 130   | 160 | 210                                                         | 130   | 160 | 210                                                         | 130   | 160 | 210                                                         | 130   | 160 | 210 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 130   | 160 | 200                                                         | 130   | 160 | 200                                                         | 130   | 160 | 200                                                         | 130   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 2         | S           | P        | V36   | WU40PH                                                      | 150   | 170 | 210                                                         | 150   | 170 | 210                                                         | 150   | 170 | 210                                                         | 150   | 170 | 210 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 130   | 160 | 200                                                         | 130   | 160 | 200                                                         | 130   | 160 | 200                                                         | 130   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 130   | 150 | 180                                                         | 130   | 150 | 180                                                         | 130   | 150 | 180                                                         | 130   | 150 | 180 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 3         | S           | P        | V36   | WU40PH                                                      | 140   | 160 | 200                                                         | 140   | 160 | 200                                                         | 140   | 160 | 200                                                         | 140   | 160 | 200 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V36   | WU40PH                                                      | 130   | 140 | 180                                                         | 130   | 140 | 180                                                         | 130   | 140 | 180                                                         | 130   | 140 | 180 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V36   | WU40PH                                                      | 110   | 130 | 160                                                         | 110   | 130 | 160                                                         | 110   | 130 | 160                                                         | 110   | 130 | 160 |
|                |           |             | C        | V36   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

## ■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       | Recommended Feed Rate by Diameter (IPR)                   |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|-----------------------------------------------------------|--------|--------|------------------------------------------------------------|--------|--------|--------|
|                |           |             |          |       | Insert Size A                                             |        |        | Insert Size B                                             |        |        | Insert Size C                                             |        |        | Insert Size D                                              |        |        |        |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |        |        | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |        |        | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |        |        | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |        |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                       | Start  | max    | min                                                        | Start  | max    |        |
| K              | 1         | S           | P        | V34   | WPK10CH                                                   | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU25CH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU25CH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU25CH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | U           | P        | V34   | WU25CH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |
|                |           | I           | P        | V34   | WU40PH                                                    | 0.0031 | 0.0039 | 0.0055                                                    | 0.0031 | 0.0039 | 0.0063                                                    | 0.0039 | 0.0051 | 0.0071                                                     | 0.0047 | 0.0063 | 0.0094 |
|                |           |             | C        | V34   | WU40PH                                                    |        |        |                                                           |        |        |                                                           |        |        |                                                            |        |        |        |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Speed Chart • Inch**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)               |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |     |     |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max |     |
| K              | 1         | S           | P        | V34   | WPK10CH                                                   | 394   | 459 | 590                                                       | 459   | 558 | 820                                                       | 492   | 590 | 853                                                        | 525   | 656 | 918 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 361   | 394 | 525                                                       | 426   | 525 | 787                                                       | 459   | 558 | 820                                                        | 492   | 590 | 853 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 328   | 361 | 459                                                       | 394   | 492 | 754                                                       | 426   | 525 | 787                                                        | 459   | 558 | 853 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 394   | 459 | 590                                                       | 426   | 525 | 787                                                       | 459   | 590 | 820                                                        | 492   | 590 | 853 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 361   | 394 | 525                                                       | 394   | 492 | 754                                                       | 426   | 525 | 787                                                        | 459   | 525 | 820 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 328   | 361 | 459                                                       | 394   | 492 | 722                                                       | 426   | 525 | 787                                                        | 459   | 525 | 820 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 394   | 459 | 525                                                       | 426   | 525 | 787                                                       | 459   | 558 | 787                                                        | 492   | 558 | 820 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 361   | 394 | 459                                                       | 394   | 492 | 754                                                       | 426   | 525 | 754                                                        | 459   | 525 | 787 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 295   | 328 | 394                                                       | 394   | 492 | 754                                                       | 426   | 525 | 754                                                        | 459   | 525 | 722 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,  
 U = unstable cutting conditions,  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert

## ■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Feed Chart • Inch

| Top Cut 4      |           |             |          |       |         | Recommended Feed Rate by Diameter (IPR)                     |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|----------------|-----------|-------------|----------|-------|---------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|-------------------------------------------------------------|--------|--------|
|                |           |             |          |       |         | Insert Size E                                               |        |        | Insert Size F                                               |        |        | Insert Size G                                               |        |        | Insert Size H                                               |        |        |
|                |           |             |          |       |         | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |        |        | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |        |        | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |        |        | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |        |        |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                       | max    | min    | Start                                                       | max    | min    | Start                                                       | max    | min    | Start                                                       | max    |        |
| K              | 1         | S           | P        | V34   | WPK10CH | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU25CH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 2         | S           | P        | V34   | WPK10CH | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU25CH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                | 3         | S           | P        | V34   | WPK10CH | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU25CH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | U           | P        | V34   | WU25CH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |
|                |           | I           | P        | V34   | WU40PH  | 0.0055                                                      | 0.0063 | 0.0102 | 0.0063                                                      | 0.0079 | 0.0118 | 0.0071                                                      | 0.0087 | 0.0126 | 0.0079                                                      | 0.0094 | 0.0142 |
|                |           |             | C        | V34   | WU40PH  |                                                             |        |        |                                                             |        |        |                                                             |        |        |                                                             |        |        |

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Condition: S = stable conditions,

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**■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Speed Chart • Inch**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (SFM)                 |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|----------------|-----------|-------------|----------|-------|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size E                                               |       |     | Insert Size F                                               |       |     | Insert Size G                                               |       |     | Insert Size H                                               |       |     |     |
|                |           |             |          |       | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |       |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |       |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |       |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max | min                                                         | Start | max |     |
| K              | 1         | S           | P        | V34   | WPK10CH                                                     | 525   | 656 | 918                                                         | 525   | 656 | 918                                                         | 525   | 656 | 918                                                         | 525   | 656 | 918 |
|                |           |             | C        | V34   | WU25CH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 | 853 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 558 | 853                                                         | 459   | 558 | 853                                                         | 459   | 558 | 853                                                         | 459   | 558 | 853 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                     | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 | 853                                                         | 492   | 590 | 853 |
|                |           |             | C        | V34   | WU25CH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 459   | 525 | 820                                                         | 459   | 525 | 820                                                         | 459   | 525 | 820                                                         | 459   | 525 | 820 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 525 | 820                                                         | 459   | 525 | 820                                                         | 459   | 525 | 820                                                         | 459   | 525 | 820 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                     | 492   | 558 | 820                                                         | 492   | 558 | 820                                                         | 492   | 558 | 820                                                         | 492   | 558 | 820 |
|                |           |             | C        | V34   | WU25CH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                      | 459   | 525 | 787                                                         | 459   | 525 | 787                                                         | 459   | 525 | 787                                                         | 459   | 525 | 787 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                      | 459   | 525 | 722                                                         | 459   | 525 | 722                                                         | 459   | 525 | 722                                                         | 459   | 525 | 722 |
|                |           |             | C        | V34   | WU40PH                                                      |       |     |                                                             |       |     |                                                             |       |     |                                                             |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,  
 U = unstable cutting conditions,  
 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert



## ■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       |         | Recommended Feed Rate by Diameter (mm/r)                  |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|----------------|-----------|-------------|----------|-------|---------|-----------------------------------------------------------|------|------|-----------------------------------------------------------|------|------|-----------------------------------------------------------|------|------|------------------------------------------------------------|------|------|
|                |           |             |          |       |         | Insert Size A                                             |      |      | Insert Size B                                             |      |      | Insert Size C                                             |      |      | Insert Size D                                              |      |      |
|                |           |             |          |       |         | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |      |      | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |      |      | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |      |      | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                     | max  | min  | Start                                                     | max  | min  | Start                                                     | max  | min  | Start                                                      | max  |      |
| K              | 1         | S           | P        | V34   | WPK10CH | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU25CH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                | 2         | S           | P        | V34   | WPK10CH | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU25CH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                | 3         | S           | P        | V34   | WPK10CH | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU25CH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,08                                                      | 0,10 | 0,14 | 0,08                                                      | 0,10 | 0,16 | 0,10                                                      | 0,13 | 0,18 | 0,12                                                       | 0,16 | 0,24 |
|                |           |             | C        | V34   | WU40PH  |                                                           |      |      |                                                           |      |      |                                                           |      |      |                                                            |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       | Recommended Cutting Speed by Diameter (m/min)             |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|----------------|-----------|-------------|----------|-------|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|-----------------------------------------------------------|-------|-----|------------------------------------------------------------|-------|-----|-----|
|                |           |             |          |       | Insert Size A                                             |       |     | Insert Size B                                             |       |     | Insert Size C                                             |       |     | Insert Size D                                              |       |     |     |
|                |           |             |          |       | TCF040203AC<br>TCF040204AP<br>12,00–13,99mm<br>.473–.531" |       |     | TCF060203BC<br>TCF050204BP<br>14,00–18,99mm<br>.563–.734" |       |     | TCF070304CC<br>TCF070306CP<br>19,00–23,99mm<br>.750–.938" |       |     | TCF090305DC<br>TCF080308DP<br>24,00–29,99mm<br>.969–1.156" |       |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min                                                       | Start | max | min                                                       | Start | max | min                                                       | Start | max | min                                                        | Start | max |     |
| K              | 1         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 180                                                       | 140   | 170 | 250                                                       | 150   | 180 | 260                                                        | 160   | 200 | 280 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 160                                                       | 130   | 160 | 240                                                       | 140   | 170 | 250                                                        | 150   | 180 | 260 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 100   | 110 | 140                                                       | 120   | 150 | 230                                                       | 130   | 160 | 240                                                        | 140   | 170 | 260 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 2         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 180                                                       | 130   | 160 | 240                                                       | 140   | 180 | 250                                                        | 150   | 180 | 260 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 160                                                       | 120   | 150 | 230                                                       | 130   | 160 | 240                                                        | 140   | 160 | 250 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 100   | 110 | 140                                                       | 120   | 150 | 220                                                       | 130   | 160 | 240                                                        | 140   | 160 | 250 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                | 3         | S           | P        | V34   | WPK10CH                                                   | 120   | 140 | 160                                                       | 130   | 160 | 240                                                       | 140   | 170 | 240                                                        | 150   | 170 | 250 |
|                |           |             | C        | V34   | WU25CH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | U           | P        | V34   | WU25CH                                                    | 110   | 120 | 140                                                       | 120   | 150 | 230                                                       | 130   | 160 | 230                                                        | 140   | 160 | 240 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |
|                |           | I           | P        | V34   | WU40PH                                                    | 90    | 100 | 120                                                       | 120   | 150 | 230                                                       | 130   | 160 | 230                                                        | 140   | 160 | 220 |
|                |           |             | C        | V34   | WU40PH                                                    |       |     |                                                           |       |     |                                                           |       |     |                                                            |       |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.  
 For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.  
 For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.  
 For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

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 I = interrupted cutting conditions  
 Pocket Seat: P = periphery insert,  
 C = center insert

## ■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Feed Chart • Metric

| Top Cut 4      |           |             |          |       |         | Recommended Feed Rate by Diameter (mm/r)                    |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|----------------|-----------|-------------|----------|-------|---------|-------------------------------------------------------------|------|------|-------------------------------------------------------------|------|-----|-------------------------------------------------------------|------|------|-------------------------------------------------------------|------|------|
|                |           |             |          |       |         | Insert Size E                                               |      |      | Insert Size F                                               |      |     | Insert Size G                                               |      |      | Insert Size H                                               |      |      |
|                |           |             |          |       |         | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |      |      | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |      |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |      |      | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |      |      |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                       | max  | min  | Start                                                       | max  | min | Start                                                       | max  | min  | Start                                                       | max  |      |
| K              | 1         | S           | P        | V34   | WPK10CH | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU25CH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                | 2         | S           | P        | V34   | WPK10CH | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU25CH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                | 3         | S           | P        | V34   | WPK10CH | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU25CH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | U           | P        | V34   | WU25CH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |
|                |           | I           | P        | V34   | WU40PH  | 0,14                                                        | 0,16 | 0,26 | 0,16                                                        | 0,20 | 0,3 | 0,18                                                        | 0,22 | 0,32 | 0,20                                                        | 0,24 | 0,36 |
|                |           |             | C        | V34   | WU40PH  |                                                             |      |      |                                                             |      |     |                                                             |      |      |                                                             |      |      |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

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For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

**■ Top Cut 4 • Cast Iron • 2 x D/3 x D • Speed Chart • Metric**

| Top Cut 4      |           |             |          |       |         | Recommended Cutting Speed by Diameter (m/min)               |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|----------------|-----------|-------------|----------|-------|---------|-------------------------------------------------------------|-----|-----|-------------------------------------------------------------|-----|-----|-------------------------------------------------------------|-----|-----|-------------------------------------------------------------|-----|-----|
|                |           |             |          |       |         | Insert Size E                                               |     |     | Insert Size F                                               |     |     | Insert Size G                                               |     |     | Insert Size H                                               |     |     |
|                |           |             |          |       |         | TCF120405EC<br>TCF100408EP<br>30,00–36,99mm<br>1.188–1.438" |     |     | TCF150406FC<br>TCF120412FP<br>37,00–45,99mm<br>1.469–1.750" |     |     | TCF180508GC<br>TCF150512GP<br>46,00–56,99mm<br>1.813–2.219" |     |     | TCF210608HC<br>TCF180614HP<br>57,00–68,00mm<br>2.250–2.500" |     |     |
| Material Group | Condition | Pocket Seat | Geometry | Grade | min     | Start                                                       | max | min | Start                                                       | max | min | Start                                                       | max | min | Start                                                       | max |     |
| K              | 1         | S           | P        | V34   | WPK10CH | 160                                                         | 200 | 280 | 160                                                         | 200 | 280 | 160                                                         | 200 | 280 | 160                                                         | 200 | 280 |
|                |           |             | C        | V34   | WU25CH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | U           | P        | V34   | WU25CH  | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | I           | P        | V34   | WU40PH  | 140                                                         | 170 | 260 | 140                                                         | 170 | 260 | 140                                                         | 170 | 260 | 140                                                         | 170 | 260 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                | 2         | S           | P        | V34   | WPK10CH | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 | 150                                                         | 180 | 260 |
|                |           |             | C        | V34   | WU25CH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | U           | P        | V34   | WU25CH  | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | I           | P        | V34   | WU40PH  | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 | 140                                                         | 160 | 250 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                | 3         | S           | P        | V34   | WPK10CH | 150                                                         | 170 | 250 | 150                                                         | 170 | 250 | 150                                                         | 170 | 250 | 150                                                         | 170 | 250 |
|                |           |             | C        | V34   | WU25CH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | U           | P        | V34   | WU25CH  | 140                                                         | 160 | 240 | 140                                                         | 160 | 240 | 140                                                         | 160 | 240 | 140                                                         | 160 | 240 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |
|                |           | I           | P        | V34   | WU40PH  | 140                                                         | 160 | 220 | 140                                                         | 160 | 220 | 140                                                         | 160 | 220 | 140                                                         | 160 | 220 |
|                |           |             | C        | V34   | WU40PH  |                                                             |     |     |                                                             |     |     |                                                             |     |     |                                                             |     |     |

NOTE: For 4 x D, it is highly recommended to start with feed and speed values reduced by 10% less than above recommendations.

For 5 x D, diameter range .473–.938" (12–23,99mm) (insert sizes A to C), it is highly recommended to start with feed and speed values reduced by 20% less than above recommendations.

For 5 x D, diameter range .969–2.5" (24–68mm) (insert sizes D to H), it is highly recommended to start with feed and speed values reduced by 15% less than above recommendations.

For 4 x D and 5 x D, it is recommended to reduce the feed rate during entry and exit by 30–50%.

Condition: S = stable conditions,

U = unstable cutting conditions,

I = interrupted cutting conditions

Pocket Seat: P = periphery insert,

C = center insert

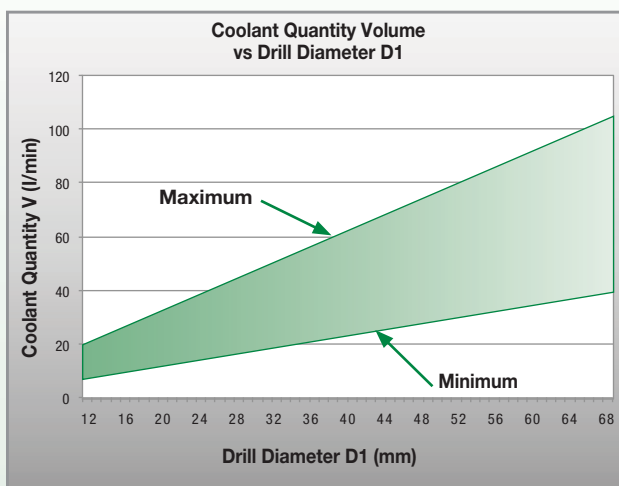
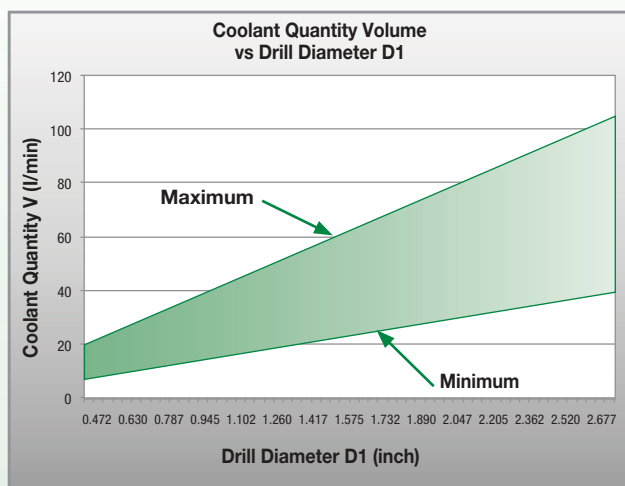
### ■ Top Cut 4 • Drill Depth • 2 x D/3 x D • Hole Tolerance Table

| Insert size | Diameter Range (mm) | Diameter Range (inch) | Hole Tolerance (mm) | Hole Tolerance (inch) |
|-------------|---------------------|-----------------------|---------------------|-----------------------|
| A           | 12,00–13,99         | .473–.531"            | +/- 0,20            | +/- 0.008             |
| B           | 14,00–18,99         | .563–.734"            | +/- 0,20            | +/- 0.008             |
| C           | 19,00–23,99         | .750–.938"            | +/- 0,20            | +/- 0.008             |
| D           | 24,00–29,99         | .969–1.156"           | +/- 0,20            | +/- 0.008             |
| E           | 30,00–36,99         | 1.188–1.438"          | +/- 0,20            | +/- 0.008             |
| F           | 37,00–45,99         | 1.469–1.750"          | +/- 0,25            | +/- 0.010             |
| G           | 46,00–56,99         | 1.813–2.219"          | +/- 0,25            | +/- 0.010             |
| H           | 57,00–68,00         | 2.250–2.500"          | +/- 0,28            | +/- 0.011             |

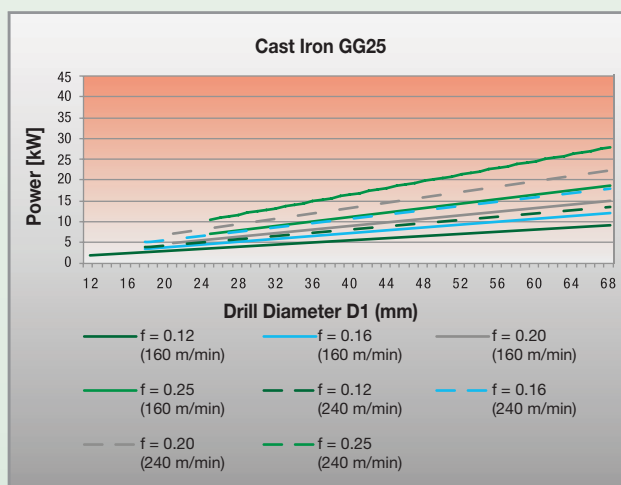
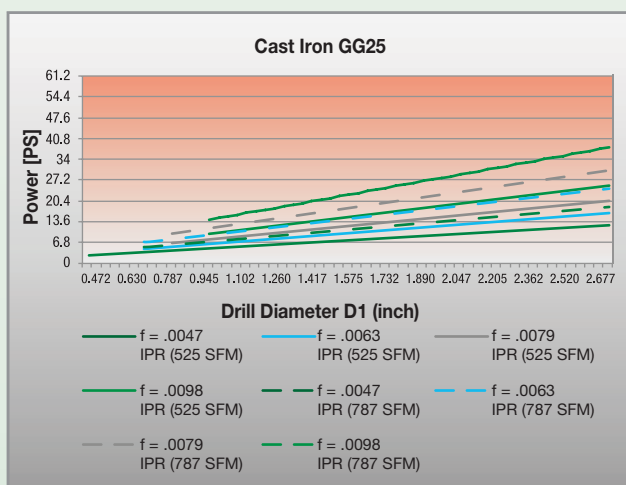
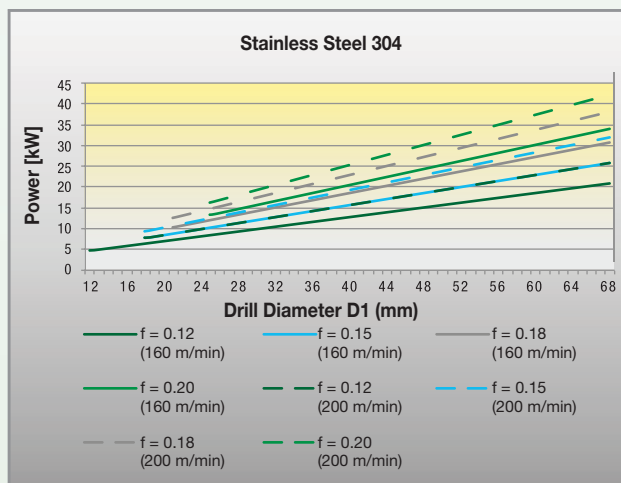
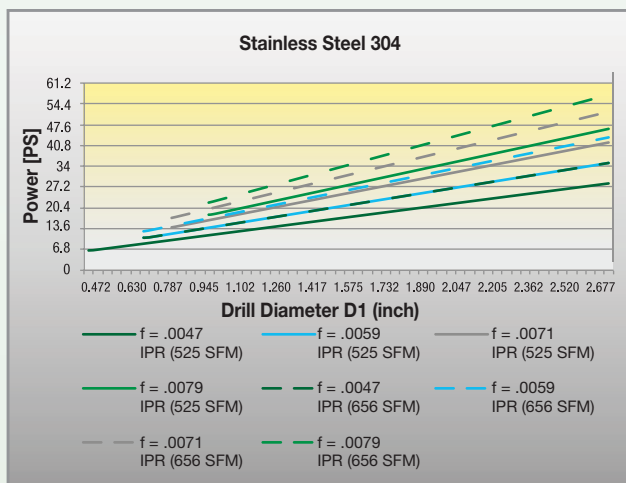
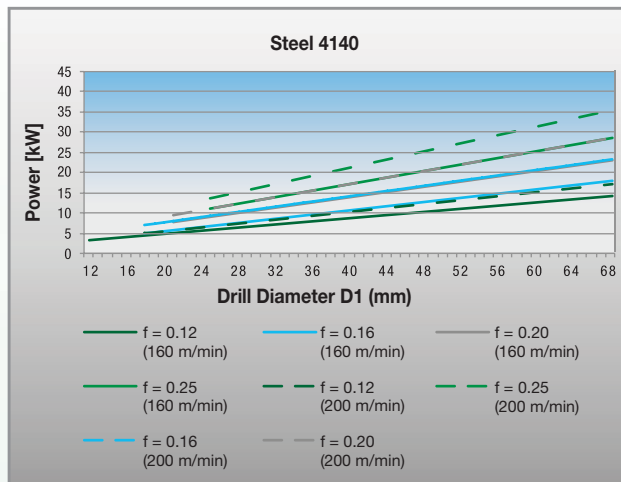
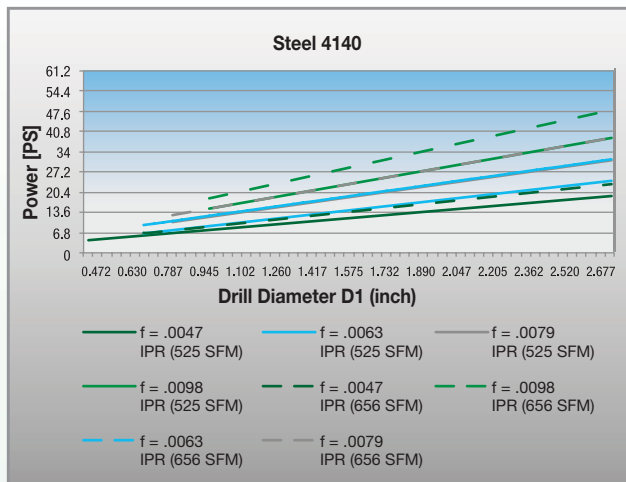
### ■ Top Cut 4 • Drill Depth • 4 x D/5 x D • Hole Tolerance Table

| Insert size | Diameter Range (mm) | Diameter Range (inch) | Hole Tolerance (mm) | Hole Tolerance (inch) |
|-------------|---------------------|-----------------------|---------------------|-----------------------|
| A           | 12,00–13,99         | .473–.531"            | +/- 0,35            | +/- 0.014             |
| B           | 14,00–18,99         | .563–.734"            | +/- 0,35            | +/- 0.014             |
| C           | 19,00–23,99         | .750–.938"            | +/- 0,35            | +/- 0.014             |
| D           | 24,00–29,99         | .969–1.156"           | +/- 0,35            | +/- 0.014             |
| E           | 30,00–36,99         | 1.188–1.438"          | +/- 0,35            | +/- 0.014             |
| F           | 37,00–45,99         | 1.469–1.750"          | +/- 0,38            | +/- 0.015             |
| G           | 46,00–56,99         | 1.813–2.219"          | +/- 0,38            | +/- 0.015             |
| H           | 57,00–68,00         | 2.250–2.500"          | +/- 0,42            | +/- 0.017             |

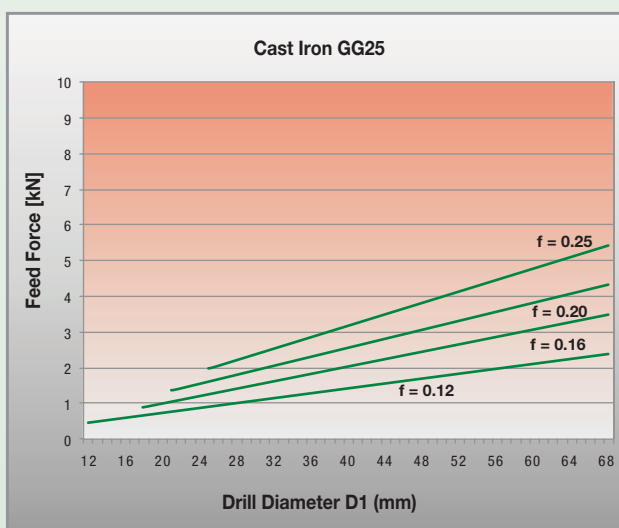
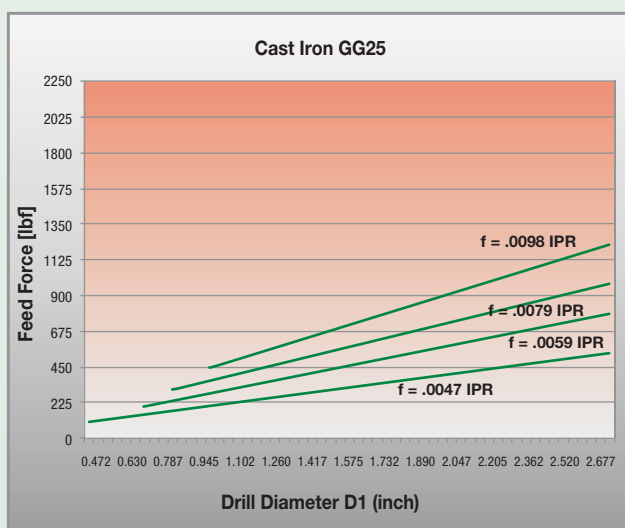
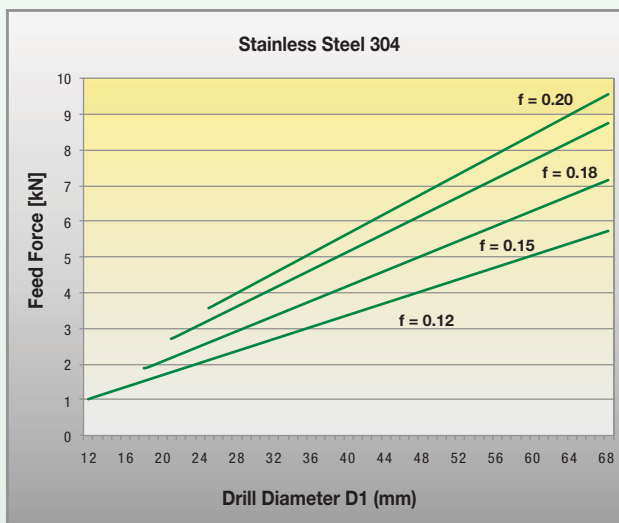
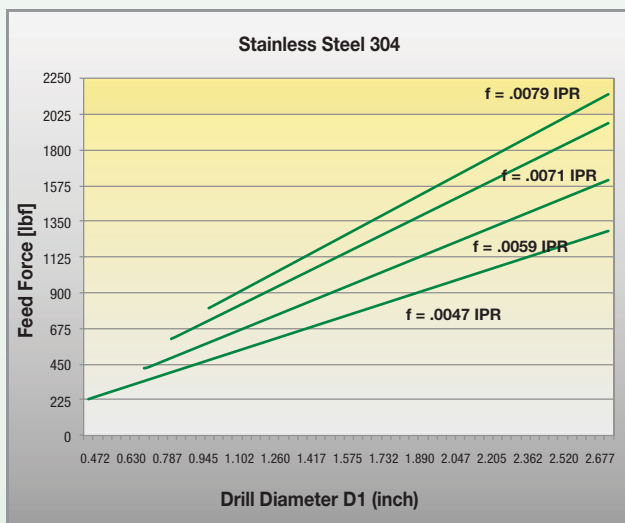
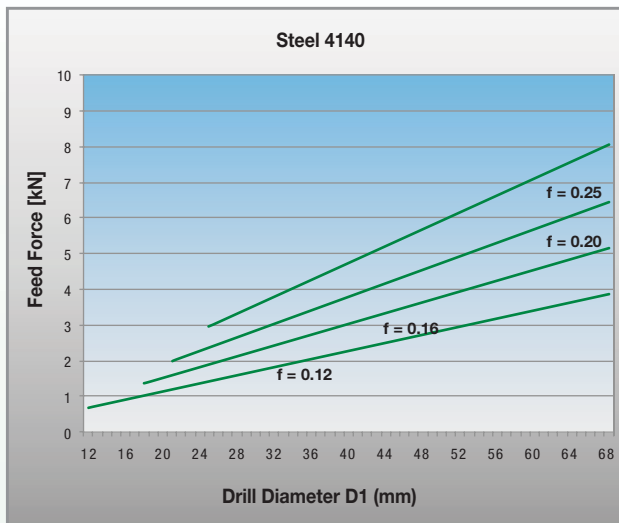
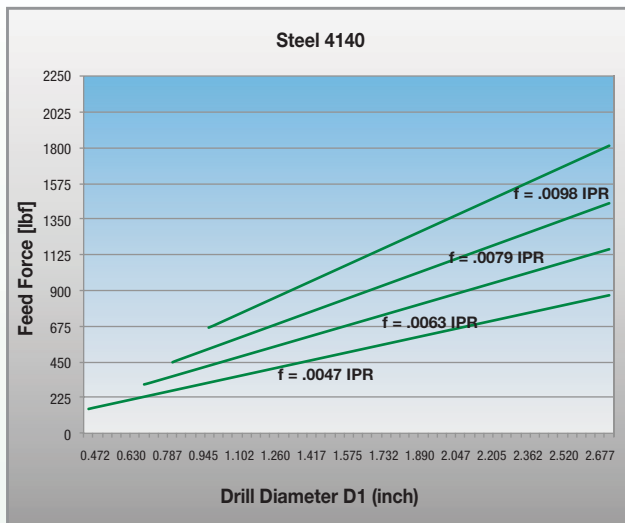
### ■ Coolant Requirement/Recommendation



### Power Requirement

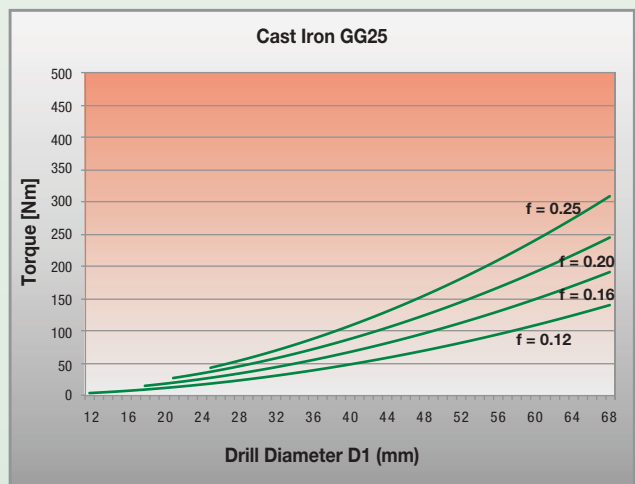
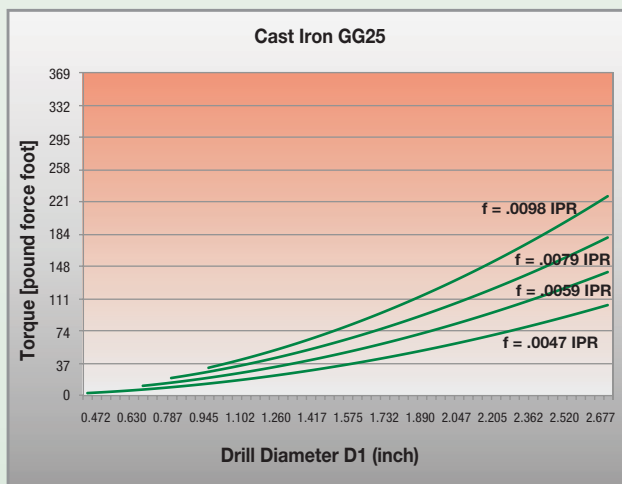
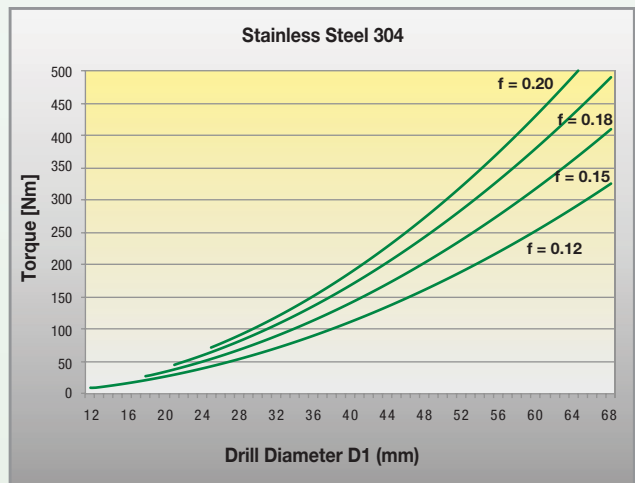
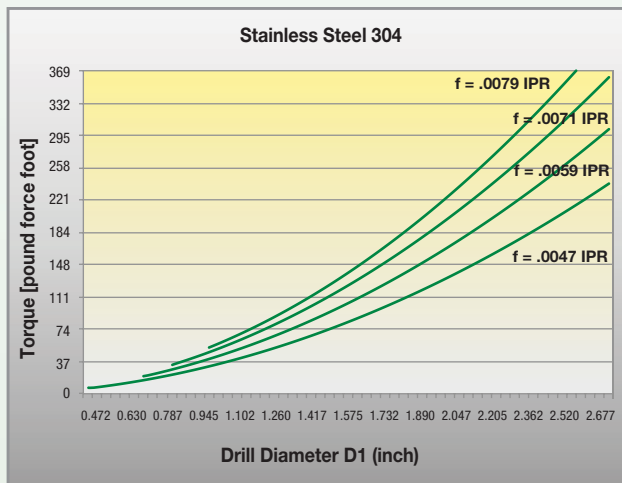
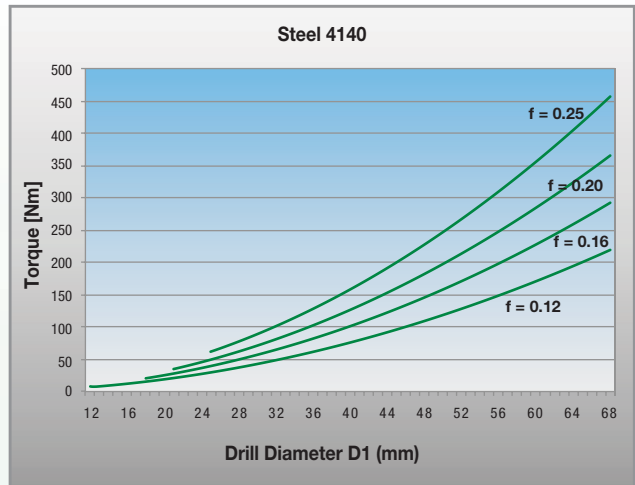
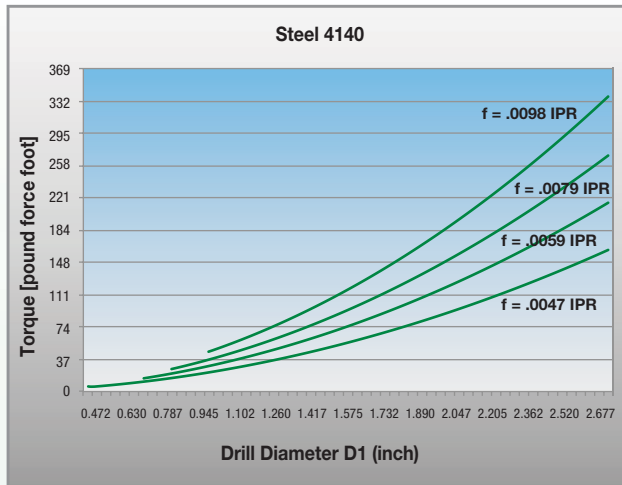


■ Feed Force Requirement





### Torque Requirement



■ X-Offset Capabilities • Inch

| Insert size | Diameter Range (inch) | 2 x D and 3 x D             |              | 4 x D                       |              | 5 x D               |              |
|-------------|-----------------------|-----------------------------|--------------|-----------------------------|--------------|---------------------|--------------|
|             |                       | X-offset value max. in Inch | D1 max value | X-offset value max. in Inch | D1 max value | X-offset value max. | D1 max value |
| A           | .473–.531             | 0.020                       | D1 + 0.039"  | 0.020                       | D1 + 0.039"  | —                   | —            |
| B           | .563–.734             | 0.020                       | D1 + 0.039"  | 0.020                       | D1 + 0.039"  | —                   | —            |
| C           | .750–.938             | 0.020                       | D1 + 0.039"  | 0.020                       | D1 + 0.039"  | —                   | —            |
| D           | .969–1.156            | 0.031                       | D1 + 0.063"  | 0.031                       | D1 + 0.039"  | —                   | —            |
| E           | 1.188–1.438           | 0.031                       | D1 + 0.063"  | 0.031                       | D1 + 0.039"  | —                   | —            |
| F           | 1.469–1.750           | 0.031                       | D1 + 0.063"  | 0.031                       | D1 + 0.039"  | —                   | —            |
| G           | 1.813–2.219           | 0.039                       | D1 + 0.079"  | 0.031                       | D1 + 0.039"  | —                   | —            |
| H           | 2.250–2.500           | 0.039                       | D1 + 0.079"  | 0.031                       | D1 + 0.039"  | —                   | —            |

■ X-Offset Capabilities • Metric

| Insert size | Diameter Range (mm) | 2 x D and 3 x D           |              | 4 x D                     |              | 5 x D               |              |
|-------------|---------------------|---------------------------|--------------|---------------------------|--------------|---------------------|--------------|
|             |                     | X-offset value max. in mm | D1 max value | X-offset value max. in mm | D1 max value | X-offset value max. | D1 max value |
| A           | 12,00–13,99         | 0,5                       | D1 + 1mm     | 0,5                       | D1 + 1mm     | —                   | —            |
| B           | 14,00–18,99         | 0,5                       | D1 + 1mm     | 0,5                       | D1 + 1mm     | —                   | —            |
| C           | 19,00–23,99         | 0,5                       | D1 + 1mm     | 0,5                       | D1 + 1mm     | —                   | —            |
| D           | 24,00–29,99         | 0,8                       | D1 + 1,6mm   | 0,8                       | D1 + 1mm     | —                   | —            |
| E           | 30,00–36,99         | 0,8                       | D1 + 1,6mm   | 0,8                       | D1 + 1mm     | —                   | —            |
| F           | 37,00–45,99         | 0,8                       | D1 + 1,6mm   | 0,8                       | D1 + 1mm     | —                   | —            |
| G           | 46,00–56,99         | 1                         | D1 + 2mm     | 0,8                       | D1 + 1mm     | —                   | —            |
| H           | 57,00–68,00         | 1                         | D1 + 2mm     | 0,8                       | D1 + 1mm     | —                   | —            |

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