NPA

EXPANSION

Member IMC Group Ingersoll Cutting Tools

New Product Announcement

HOLEMAKING

Diameter Range

0.4724-1.0197" NEW
12.0-25.9 mm

Bodies

3xD, 5xD, **8xD** NEW
Universal Flat
Cylindrical

Geometries

3-Flute
FPC (Self-Centering)
FPF (Flat Bottom) NEW

Grade

IN2205

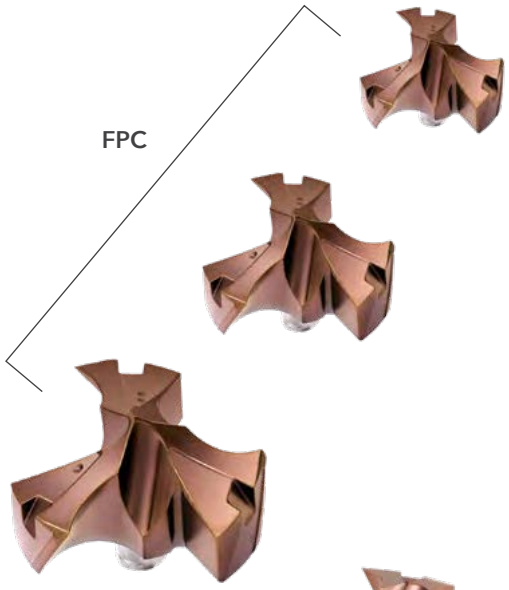
Materials

- Steel
- Cast Iron

TWISTSFEED™

New 8xD Bodies, FPC Diameter Range Expansion, and a Flat Bottom Tip

- New, larger diameter range: 0.4724-1.0197" (12.0-25.9 mm).
- New, 8xD body expansion following existing 3xD and 5xD bodies.
- Self-centering geometry for excellent hole precision and surface finish.
- Quick-change clamping system reduces downtime.
- New FPF Flat Bottom geometry for more efficient production of flat bottom holes.



NEW
FPF

8xD Universal Flat and
8xD Cylindrical Shanks

See it in action! »

WINSFEED™ ADVANCED MACHINING

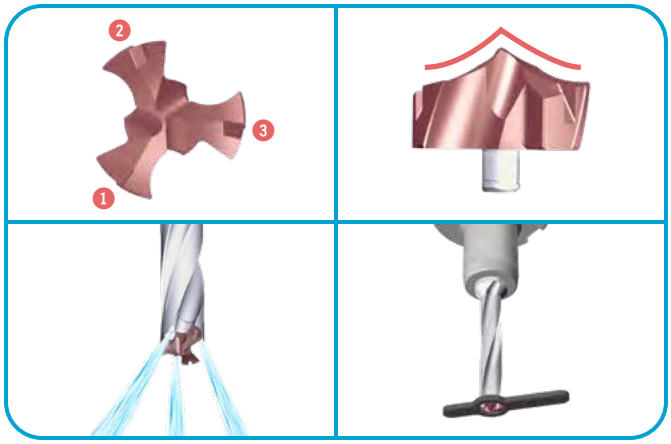
ingersoll-imc.com

3-Flute Quick Change Drill For Increased Productivity!

Ingersoll's **TwistSFeed** product line, that has been meeting customer's needs with outstanding performance and productivity, is proud to introduce a 3-flute quick change drill with upgraded clamping mechanism designed to maximize productivity.

TwistSFeed utilizes a unique, self-centering feature that is unlike conventional 3-flute solid carbide drills to ensure phenomenal performance and stability for all applications. **TwistSFeed** provides optimal solutions for customers by reducing costs by improving tool life as well as achieving higher productivity due to multiple flutes and the latest coating technology.

The clamping mechanism allows for the simple replacement of drill tips, as well as accommodating multiple diameters onto one drill body facilitating economical stock management for end users.



Features & Benefits

- FPC Larger tip diameter range: .4724–1.0197" (D12.0-D25.9 mm)
- Body L/D ratio now includes 8xD (in addition to current 3xD and 5xD offering)
- 3-flute geometry for improved productivity
- Self-centering (FPC) geometry eliminates the need to pilot for 8xD applications
  - » Excellent surface finish
  - » Improved hole tolerance
  - » Simplified tip replacement reduces downtime
- New FPF Flat Bottom geometry for more efficient production of flat bottom holes

FPF flat Bottom tip info on pages 4–5

Self-Centering Tips (FPC)

NEW

ø.4724-.5866"

ø.5906-.8228"

NEW

ø.8267-1.0197"

Bodies - Universal Flat Shank (FD)

3xD

5xD

NEW

8xD

Bodies - Cylindrical Shank (FD)

3xD

5xD

NEW

8xD

New FPF Tip Improves Productivity and Reduces Cycle Times

Ingersoll's new FPF (flat bottom) geometry, for the **TwistSFeed** product family, is designed to improve productivity and reduce costs by reducing the normal two-step process down to one step.

FPF is especially suited for drilling cavities for socket head cap screws and guarantees excellent performance in steel and cast iron applications.

FPF

Features & Benefits

- Phenomenal hole accuracy and surface finish for all flat bottom applications
- Improved productivity and cost reduction by reducing a two-step process to one
- Reduced cycle times with the 3-effective design
- Can be used with existing **TwistSFeed** bodies (3xD, 5xD, and 8xD)
- Centering point geometry for high tolerance hole precision
- IN2205 multi-layer coating provides high wear and chipping resistance equaling increased tool life

Flat Bottom Tips (FPF) – Reduce a Two-Step Process to One

1. DRILLING

2. END MILLING

3. DRILLING

1. DRILLING

FPF GEOMETRY

- Flat bottom hole machining
- **Minimize cycle time**

2. DRILLING

Product Pages

Universal Flat Shank Bodies (Series FD)

- 3xD bodies **6**
- 5xD bodies **7**
- 8xD bodies **8**

Cylindrical Shank Bodies (Series FD)

- 3xD bodies **9**
- 5xD bodies **10**
- 8xD bodies **11**

Self-Centering Tips (Series FPC)

- All dia. ranges **12–14**

Flat Bottom Tips (Series FPF)

- All dia. ranges **15**

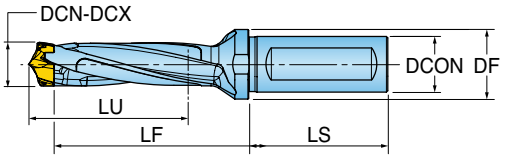
Additional Information

- Operating Guidelines . . . **16**

Drilling Coolant

3xD • Series FD

UNIVERSAL FLAT SHANK

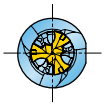


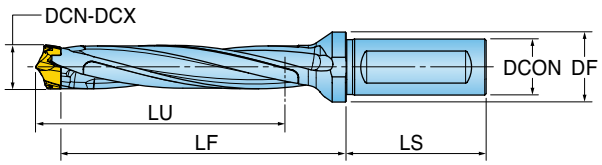
Part Number	DCN Cutting Dia. Min.	DCX Cutting Dia. Max.	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
	INCH (MM)	INCH (MM)							
FD1200036C0R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	1.58	2.13	1.89	0.625	0.79	KFD12-13
FD1250038C0R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	1.63	2.20	1.89	0.625	0.79	KFD12-13
NEW FD130039C0R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	1.69	2.26	1.89	0.625	0.79	KFD12-13
FD1350041C0R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	1.75	2.34	1.89	0.625	0.79	KFD12-13
FD1400042C0R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	1.81	2.40	1.89	0.625	0.79	KFD14-15
FD1450044C0R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	1.87	2.47	1.89	0.625	0.79	KFD14-15
FD150004518R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	1.93	2.58	1.97	0.750	0.98	KFD14-15
FD160004818R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	2.05	2.76	1.97	0.750	0.98	KFD16-17
FD170005118R01	0.6693 (17.00 mm)	0.7047 (17.90 mm)	17	2.17	2.93	1.97	0.750	0.98	KFD16-17
FD1800054C8R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	2.28	3.15	2.20	1.000	1.26	KFD18-19
FD1900057C8R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	2.40	3.31	2.20	1.000	1.26	KFD18-19
FD2000060C8R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	2.52	3.46	2.20	1.000	1.26	KFD20-21
FD2100063C8R01	0.8270 (21.00 mm)	0.8622 (21.90 mm)	21	2.64	3.62	2.20	1.000	1.26	KFD20-21
FD2200066C8R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	2.76	3.78	2.20	1.000	1.26	KFD22-23
NEW FD2300069B7R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	2.87	3.94	2.36	1.250	1.65	KFD22-23
FD2400072B7R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	2.99	4.09	2.36	1.250	1.65	KFD24-25
FD2500075B7R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	3.11	4.25	2.36	1.250	1.65	KFD24-25

Drilling Coolant

5xD • Series FD

UNIVERSAL FLAT SHANK



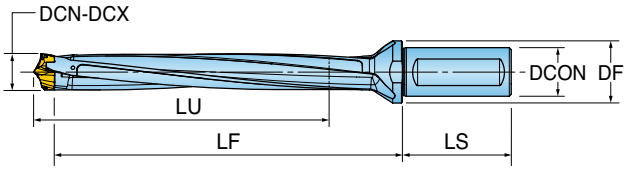


Part Number	DCN Cutting Dia. Min. INCH (MM)	DCX Cutting Dia. Max. INCH (MM)	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
FD1200060C0R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	2.52	3.07	1.89	0.625	0.79	KFD12-13
FD1250063C0R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	2.62	3.18	1.89	0.625	0.79	KFD12-13
NEW FD1300065C0R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	2.72	3.29	1.89	0.625	0.79	KFD12-13
FD1350068C0R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	2.82	3.40	1.89	0.625	0.79	KFD12-13
FD1400070C0R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	2.91	3.50	1.89	0.625	0.79	KFD14-15
FD1450073C0R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	3.01	3.61	1.89	0.625	0.79	KFD14-15
FD150007518R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	3.11	3.76	1.97	0.750	0.98	KFD14-15
FD160008018R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	3.31	4.02	1.97	0.750	0.98	KFD16-17
FD170008518R01	0.6693 (17.00 mm)	0.6693 (17.90 mm)	17	3.50	4.27	1.97	0.750	0.98	KFD16-17
FD1800090C8R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	3.70	4.57	2.20	1.000	1.26	KFD18-19
FD1900095C8R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	3.90	4.80	2.20	1.000	1.26	KFD18-19
FD2000100C8R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	4.09	5.04	2.20	1.000	1.26	KFD20-21
FD2100105C8R01	0.8270 (21.00 mm)	0.8620 (21.90 mm)	21	4.29	5.28	2.20	1.000	1.26	KFD20-21
FD2200110C8R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	4.49	5.51	2.20	1.000	1.26	KFD22-23
NEW FD2300115B7R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	4.69	5.75	2.36	1.250	1.65	KFD22-23
FD2400120B7R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	4.88	5.98	2.36	1.250	1.65	KFD24-25
FD2500125B7R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	5.08	6.22	2.36	1.250	1.65	KFD24-25

Drilling Coolant

8xD • Series FD NEW

UNIVERSAL FLAT SHANK

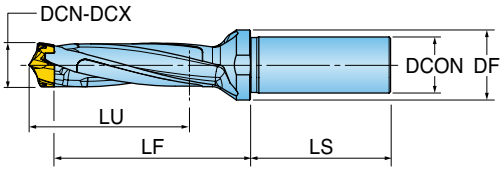


Part Number	DCN Cutting Dia. Min.	DCX Cutting Dia. Max.	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
	INCH (MM)	INCH (MM)							
FD1200096C0R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	3.94	4.49	1.89	0.625	0.79	KFD12-13
FD1250100C0R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	4.09	4.66	1.89	0.625	0.79	KFD12-13
FD1300104C0R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	4.25	4.82	1.89	0.625	0.79	KFD12-13
FD1350108C0R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	4.41	4.99	1.89	0.625	0.79	KFD12-13
FD1400112C0R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	4.57	5.16	1.89	0.625	0.79	KFD14-15
FD1450116C0R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	4.72	5.33	1.89	0.625	0.79	KFD14-15
FD150012018R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	4.88	5.53	1.97	0.750	0.98	KFD14-15
FD160012818R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	5.20	5.91	1.97	0.750	0.98	KFD16-17
FD170013618R01	0.6693 (17.00 mm)	0.6693 (17.90 mm)	17	5.51	6.28	1.97	0.750	0.98	KFD16-17
FD1800144C8R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	5.83	6.69	2.20	1.000	1.26	KFD18-19
FD1900152C8R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	6.14	7.05	2.20	1.000	1.26	KFD18-19
FD2000160C8R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	6.46	7.40	2.20	1.000	1.26	KFD20-21
FD2100168C8R01	0.8270 (21.00 mm)	0.8620 (21.90 mm)	21	6.77	7.76	2.20	1.000	1.26	KFD20-21
FD2200176C8R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	7.09	8.11	2.20	1.000	1.26	KFD22-23
FD2300184B7R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	7.40	8.46	2.36	1.250	1.65	KFD22-23
FD2400192B7R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	7.72	8.82	2.36	1.250	1.65	KFD24-25
FD2500200B7R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	8.03	9.17	2.36	1.250	1.65	KFD24-25

Drilling Coolant

3xD • Series FD

CYLINDRICAL SHANK

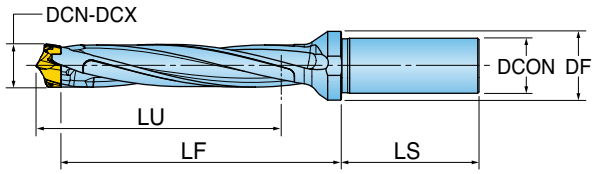


Part Number	DCN Cutting Dia. Min. INCH (MM)	DCX Cutting Dia. Max. INCH (MM)	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
FD1200036S6R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	1.58	2.13	1.89	0.625	0.79	KFD12-13
FD1250038S6R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	1.63	2.20	1.89	0.625	0.79	KFD12-13
NEW FD1300039S6R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	1.69	2.26	1.89	0.625	0.79	KFD12-13
FD1350041S6R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	1.75	2.34	1.89	0.625	0.79	KFD12-13
FD1400042S6R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	1.81	2.40	1.89	0.625	0.79	KFD14-15
FD1450044S6R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	1.87	2.47	1.89	0.625	0.79	KFD14-15
FD1500045S7R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	1.93	2.58	1.97	0.750	0.98	KFD14-15
FD1600048S7R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	2.05	2.76	1.97	0.750	0.98	KFD16-17
FD1700051S7R01	0.6693 (17.00 mm)	0.6693 (17.90 mm)	17	2.17	2.93	1.97	0.750	0.98	KFD16-17
FD1800054S1R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	2.28	3.15	2.20	1.000	1.26	KFD18-19
FD1900057S1R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	2.40	3.31	2.20	1.000	1.26	KFD18-19
FD2000060S1R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	2.52	3.46	2.20	1.000	1.26	KFD20-21
FD2100063S1R01	0.8270 (21.00 mm)	0.8620 (21.90 mm)	21	2.64	3.62	2.20	1.000	1.26	KFD20-21
FD2200066S1R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	2.76	3.78	2.20	1.000	1.26	KFD22-23
NEW FD2300069S9R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	2.87	3.94	2.36	1.250	1.65	KFD22-23
FD2400072S9R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	2.99	4.10	2.36	1.250	1.65	KFD24-25
FD2500075S9R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	3.11	4.25	2.36	1.250	1.65	KFD24-25

Drilling Coolant

5xD • Series FD

CYLINDRICAL SHANK

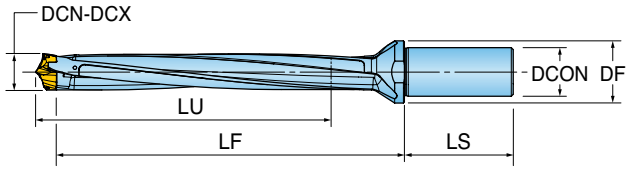


Part Number	DCN Cutting Dia. Min. INCH (MM)	DCX Cutting Dia. Max. INCH (MM)	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
FD1200060S6R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	2.52	3.07	1.89	0.625	0.79	KFD12-13
FD1250063S6R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	2.62	3.18	1.89	0.625	0.79	KFD12-13
NEW FD1300065S6R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	2.72	3.29	1.89	0.625	0.79	KFD12-13
FD1350068S6R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	2.82	3.40	1.89	0.625	0.79	KFD12-13
FD1400070S6R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	2.91	3.5	1.89	0.625	0.79	KFD14-15
FD1450073S6R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	3.01	3.61	1.89	0.625	0.79	KFD14-15
FD1500075S7R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	3.11	3.76	1.97	0.750	0.98	KFD14-15
FD1600080S7R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	3.31	4.02	1.97	0.750	0.98	KFD16-17
FD1700085S7R01	0.6693 (17.00 mm)	0.6693 (17.90 mm)	17	3.50	4.27	1.97	0.750	0.98	KFD16-17
FD1800090S1R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	3.70	4.57	2.20	1.000	1.26	KFD18-19
FD1900095S1R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	3.90	4.8	2.20	1.000	1.26	KFD18-19
FD2000100S1R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	4.09	5.04	2.20	1.000	1.26	KFD20-21
FD2100105S1R01	0.8270 (21.00 mm)	0.8620 (21.90 mm)	21	4.29	5.28	2.20	1.000	1.26	KFD20-21
FD2200110S1R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	4.49	5.51	2.20	1.000	1.26	KFD22-23
NEW FD2300115S9R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	4.69	5.75	2.36	1.250	1.65	KFD22-23
FD2400120S9R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	4.88	5.98	2.36	1.250	1.65	KFD24-25
FD2500125S9R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	5.08	6.22	2.36	1.250	1.65	KFD24-25

Drilling Coolant

8xD • Series FD NEW

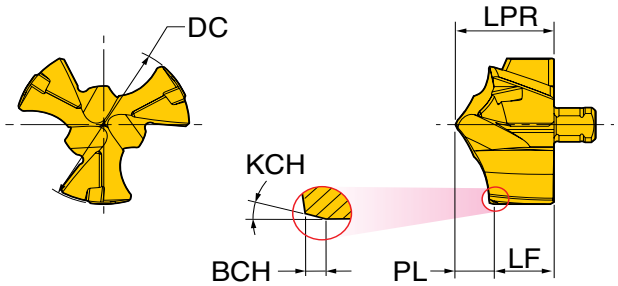
CYLINDRICAL SHANK



Part Number	DCN Cutting Dia. Min. INCH (MM)	DCX Cutting Dia. Max. INCH (MM)	SSC Seat Size Code	LU Usable Length	LF Functional Length	LS Shank Length	DCON Shank Dia.	DF Flange Dia.	Clamping Key
FD1200096S6R01	0.4724 (12.00 mm)	0.4882 (12.40 mm)	12	3.94	4.49	1.89	0.625	0.79	KFD12-13
FD1250100S6R01	0.4921 (12.50 mm)	0.5079 (12.90 mm)	12.5	4.09	4.66	1.89	0.625	0.79	KFD12-13
FD1300104S6R01	0.5118 (13.00 mm)	0.5276 (13.40 mm)	13	4.25	4.82	1.89	0.625	0.79	KFD12-13
FD1350108S6R01	0.5315 (13.50 mm)	0.5472 (13.90 mm)	13.5	4.41	4.99	1.89	0.625	0.79	KFD12-13
FD1400112S6R01	0.5512 (14.00 mm)	0.5669 (14.40 mm)	14	4.57	5.16	1.89	0.625	0.79	KFD14-15
FD1450116S6R01	0.5709 (14.50 mm)	0.5866 (14.90 mm)	14.5	4.72	5.34	1.89	0.625	0.79	KFD14-15
FD1500120S7R01	0.5906 (15.00 mm)	0.6260 (15.90 mm)	15	4.88	5.53	1.97	0.750	0.98	KFD14-15
FD1600128S7R01	0.6299 (16.00 mm)	0.6654 (16.90 mm)	16	5.20	5.91	1.97	0.750	0.98	KFD16-17
FD1700136S7R01	0.6693 (17.00 mm)	0.6693 (17.90 mm)	17	5.51	6.28	1.97	0.750	0.98	KFD16-17
FD1800144S1R01	0.7087 (18.00 mm)	0.7441 (18.90 mm)	18	5.83	6.69	2.20	1.000	1.26	KFD18-19
FD1900152S1R01	0.7480 (19.00 mm)	0.7835 (19.90 mm)	19	6.14	7.05	2.20	1.000	1.26	KFD18-19
FD2000160S1R01	0.7874 (20.00 mm)	0.8228 (20.90 mm)	20	6.46	7.40	2.20	1.000	1.26	KFD20-21
FD2100168S1R01	0.8270 (21.00 mm)	0.8620 (21.90 mm)	21	6.77	7.76	2.20	1.000	1.26	KFD20-21
FD2200176S1R01	0.8661 (22.00 mm)	0.9026 (22.90 mm)	22	7.09	8.11	2.20	1.000	1.26	KFD22-23
FD2300184S9R01	0.9060 (23.00 mm)	0.9410 (23.90 mm)	23	7.40	8.46	2.36	1.250	1.65	KFD22-23
FD2400192S9R01	0.9450 (24.00 mm)	0.9803 (24.90 mm)	24	7.72	8.82	2.36	1.250	1.65	KFD24-25
FD2500200S9R01	0.9843 (25.00 mm)	1.0197 (25.90 mm)	25	8.03	9.17	2.36	1.250	1.65	KFD24-25

Series FPC

3-FLUTE DRILL TIPS • SELF-CENTERING



Part Number	DC Cutting Diameter INCH (MM)	SSC Seat Size Code	PL Point Length	LPR Projection Length	LF Functional Length	BCH Chamfer Length	KCH Chamfer Angle	Grade IN2205
FPC1200R01	0.4724 (12.00 mm)	12	0.108	0.264	0.156	0.016	15	•
FPC1210R01	0.4764 (12.10 mm)	12	0.108	0.264	0.156	0.016	15	•
FPC1220R01	0.4803 (12.20 mm)	12	0.108	0.264	0.156	0.016	15	•
FPC1230R01	0.4843 (12.30 mm)	12	0.108	0.264	0.156	0.016	15	•
FPC1240R01	0.4882 (12.40 mm)	12	0.108	0.264	0.156	0.016	15	•
FPC1250R01	0.4921 (12.50 mm)	12.5	0.109	0.264	0.155	0.016	15	•
FPC1260R01	0.4961 (12.60 mm)	12.5	0.109	0.264	0.155	0.016	15	•
FPC1270R01	0.5000 (12.70 mm)	12.5	0.109	0.264	0.155	0.016	15	•
FPC1280R01	0.5039 (12.80 mm)	12.5	0.109	0.264	0.155	0.016	15	•
FPC1290R01	0.5079 (12.90 mm)	12.5	0.109	0.264	0.155	0.016	15	•
FPC1300R01	0.5118 (13.00 mm)	13	0.115	0.287	0.173	0.016	15	•
FPC1310R01	0.5157 (13.10 mm)	13	0.115	0.287	0.173	0.016	15	•
FPC1320R01	0.5197 (13.20 mm)	13	0.115	0.287	0.173	0.016	15	•
FPC1330R01	0.5236 (13.30 mm)	13	0.115	0.287	0.173	0.016	15	•
FPC1340R01	0.5276 (13.40 mm)	13	0.115	0.287	0.172	0.016	15	•
FPC1350R01	0.5315 (13.50 mm)	13.5	0.115	0.287	0.172	0.016	15	•
FPC1360R01	0.5354 (13.60 mm)	13.5	0.115	0.287	0.172	0.016	15	•
NEW FPC1370R01	0.5394 (13.70 mm)	13.5	0.115	0.287	0.172	0.016	15	•
FPC1380R01	0.5433 (13.80 mm)	13.5	0.115	0.287	0.172	0.016	15	•
FPC1390R01	0.5472 (13.90 mm)	13.5	0.115	0.287	0.172	0.016	15	•
FPC1400R01	0.5512 (14.00 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1410R01	0.5551 (14.10 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1420R01	0.5591 (14.20 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1429R01	0.5625 (14.29 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1430R01	0.5630 (14.30 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1440R01	0.5669 (14.40 mm)	14	0.125	0.311	0.186	0.016	15	•
FPC1450R01	0.5709 (14.50 mm)	14.5	0.125	0.311	0.186	0.016	15	•
FPC1460R01	0.5748 (14.60 mm)	14.5	0.125	0.311	0.186	0.016	15	•
FPC1470R01	0.5787 (14.70 mm)	14.5	0.125	0.311	0.186	0.016	15	•
FPC1480R01	0.5827 (14.80 mm)	14.5	0.125	0.311	0.186	0.016	15	•
FPC1490R01	0.5866 (14.90 mm)	14.5	0.125	0.311	0.186	0.016	15	•
FPC1500R01	0.5906 (15.00 mm)	15	0.130	0.331	0.200	0.020	30	•
FPC1510R01	0.5945 (15.10 mm)	15	0.130	0.331	0.200	0.020	30	•
FPC1520R01	0.5984 (15.20 mm)	15	0.130	0.331	0.200	0.020	30	•
FPC1530R01	0.6024 (15.30 mm)	15	0.130	0.331	0.200	0.020	30	•
FPC1540R01	0.6063 (15.40 mm)	15	0.130	0.331	0.200	0.020	30	•

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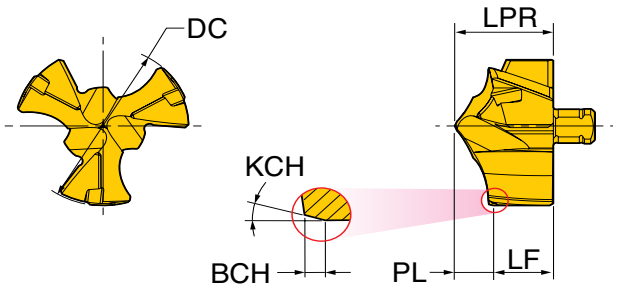
Series FPC (continued)

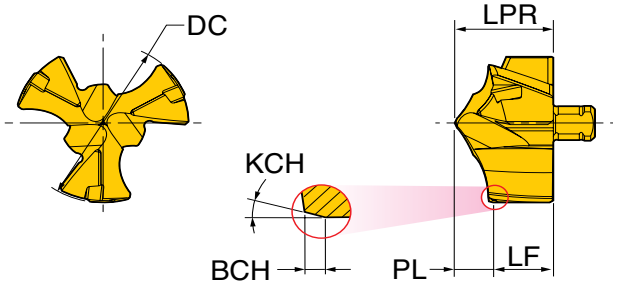
3-FLUTE DRILL TIPS • SELF-CENTERING



Part Number	DC Cutting Diameter INCH (MM)	SSC Seat Size Code	PL Point Length	LPR Projection Length	LF Functional Length	BCH Chamfer Length	KCH Chamfer Angle	Grade IN2205
FPC1550R01	0.6102 (15.50 mm)	15	0.131	0.331	0.200	0.020	30	•
FPC1560R01	0.6142 (15.60 mm)	15	0.131	0.331	0.200	0.020	30	•
NEW FPC1570R01	0.6181 (15.70 mm)	15	0.131	0.331	0.200	0.020	30	•
FPC1580R01	0.6220 (15.80 mm)	15	0.131	0.331	0.200	0.020	30	•
FPC1588R01	0.6250 (15.88 mm)	15	0.131	0.331	0.200	0.020	30	•
FPC1590R01	0.6260 (15.90 mm)	15	0.131	0.331	0.200	0.020	30	•
FPC1600R01	0.6299 (16.00 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1610R01	0.6339 (16.10 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1620R01	0.6378 (16.20 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1630R01	0.6417 (16.30 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1640R01	0.6457 (16.40 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1650R01	0.6496 (16.50 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1660R01	0.6535 (16.60 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1670R01	0.6575 (16.70 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1680R01	0.6614 (16.80 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1690R01	0.6654 (16.90 mm)	16	0.146	0.354	0.208	0.028	30	•
FPC1700R01	0.6693 (17.00 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1710R01	0.6732 (17.10 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1720R01	0.6772 (17.20 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1730R01	0.6811 (17.30 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1740R01	0.6850 (17.40 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1746R01	0.6875 (17.46 mm)	17	0.154	0.374	0.221	0.028	30	•
FPC1750R01	0.6890 (17.50 mm)	17	0.153	0.374	0.221	0.028	30	•
FPC1760R01	0.6929 (17.60 mm)	17	0.153	0.374	0.221	0.028	30	•
FPC1770R01	0.6968 (17.70 mm)	17	0.153	0.374	0.221	0.028	30	•
FPC1780R01	0.7008 (17.80 mm)	17	0.153	0.374	0.221	0.028	30	•
FPC1790R01	0.7047 (17.90 mm)	17	0.153	0.374	0.221	0.028	30	•
FPC1800R01	0.7087 (18.00 mm)	18	0.160	0.398	0.237	0.028	30	•
FPC1810R01	0.7126 (18.10 mm)	18	0.160	0.398	0.237	0.028	30	•
FPC1820R01	0.7165 (18.20 mm)	18	0.160	0.398	0.237	0.028	30	•
FPC1830R01	0.7205 (18.30 mm)	18	0.160	0.398	0.237	0.028	30	•
FPC1840R01	0.7244 (18.40 mmv	18	0.160	0.398	0.237	0.028	30	•
FPC1850R01	0.7283 (18.50 mm)	18	0.161	0.398	0.237	0.028	30	•
FPC1860R01	0.7323 (18.60 mm)	18	0.161	0.398	0.237	0.028	30	•
FPC1870R01	0.7362 (18.70 mm)	18	0.161	0.398	0.237	0.028	30	•
FPC1880R01	0.7402 (18.80 mm)	18	0.161	0.398	0.237	0.028	30	•

Series FPC (continued)

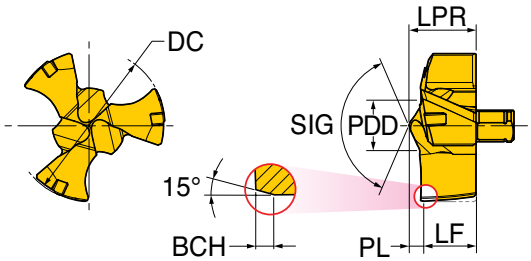
3-FLUTE DRILL TIPS • SELF-CENTERING



Part Number	DC Cutting Diameter INCH (MM)	SSC Seat Size Code	PL Point Length	LPR Projection Length	LF Functional Length	BCH Chamfer Length	KCH Chamfer Angle	Grade IN2205
FPC1890R01	0.7441 (18.90 mm)	18	0.161	0.398	0.237	0.028	30	•
FPC1900R01	0.7480 (19.00 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1905R01	0.7500 (19.05 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1910R01	0.7520 (19.10 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1920R01	0.7559 (19.20 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1930R01	0.7598 (19.30 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1940R01	0.7638 (19.40 mm)	19	0.168	0.421	0.254	0.028	30	•
FPC1950R01	0.7677 (19.50 mm)	19	0.168	0.421	0.253	0.028	30	•
FPC1960R01	0.7717 (19.60 mm)	19	0.168	0.421	0.253	0.028	30	•
FPC1970R01	0.7756 (19.70 mm)	19	0.168	0.421	0.253	0.028	30	•
FPC1980R01	0.7795 (19.80 mm)	19	0.168	0.421	0.253	0.028	30	•
FPC1990R01	0.7835 (19.90 mm)	19	0.168	0.421	0.253	0.028	30	•
FPC2000R01	0.7874 (20.00 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2010R01	0.7913 (20.10 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2020R01	0.7952 (20.20 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2030R01	0.7992 (20.30 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2040R01	0.8031 (20.40 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2050R01	0.8071 (20.50 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2060R01	0.8110 (20.60 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2070R01	0.8150 (20.70 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2080R01	0.8189 (20.80 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2090R01	0.8228 (20.90 mm)	20	0.175	0.445	0.270	0.028	30	•
FPC2100R01	0.8268 (21.00 mm)	21	0.182	0.465	0.283	0.016	15	•
FPC2150R01	0.8465 (21.50 mm)	21	0.182	0.465	0.282	0.016	15	•
FPC2200R01	0.8661 (22.00 mm)	22	0.180	0.488	0.308	0.016	15	•
FPC2222R01	0.8750 (22.22 mm)	22	0.180	0.488	0.308	0.016	15	•
NEW FPC2250R01	0.8858 (22.50 mm)	22	0.181	0.488	0.307	0.016	15	•
FPC2300R01	0.9055 (23.00 mm)	23	0.198	0.504	0.306	0.016	15	•
FPC2350R01	0.9252 (23.50 mm)	23	0.198	0.504	0.306	0.016	15	•
FPC2380R01	0.9370 (23.80 mm)	23	0.198	0.504	0.306	0.016	15	•
FPC2381R01	0.9375 (23.81 mm)	23	0.204	0.528	0.324	0.016	15	•
FPC2400R01	0.9449 (24.00 mm)	24	0.204	0.528	0.323	0.016	15	•
FPC2450R01	0.9646 (24.50 mm)	24	0.208	0.551	0.343	0.016	15	•
FPC2500R01	0.9843 (25.00 mm)	25	0.208	0.551	0.343	0.016	15	•
FPC2540R01	1.0000 (25.40 mm)	25	0.209	0.551	0.342	0.016	15	•
FPC2550R01	1.0039 (25.50 mm)	25	0.2086	0.551	0.342	0.016	15	•

Series FPF NEW

3-FLUTE DRILL TIPS • FLAT BOTTOM



Part Number	DC Cutting Diameter INCH (MM)	SSC Seat Size Code	PL Point Length	LPR Projection Length	LF Functional Length	BCH Chamfer Length	PDD Drill Point Dia.	SIG Point Angle	Grade IN2205
FPF1200R01	0.4724 (12.00 mm)	12	0.046	0.202	0.156	0.016	0.133	133	•
FPF1250R01	0.4921 (12.50 mm)	12.5	0.047	0.202	0.155	0.016	0.133	133	•
FPF1270R01	0.5000 (12.70 mm)	12.5	0.047	0.202	0.155	0.016	0.133	133	•
FPF1300R01	0.5118 (13.00 mm)	13	0.048	0.221	0.173	0.016	0.141	132	•
FPF1350R01	0.5315 (13.50 mm)	13.5	0.049	0.221	0.172	0.016	0.141	132	•
FPF1400R01	0.5512 (14.00 mm)	14	0.050	0.237	0.186	0.016	0.158	133	•
FPF1429R01	0.5625 (14.29 mm)	14	0.050	0.237	0.186	0.016	0.158	133	•
FPF1450R01	0.5709 (14.50 mm)	14.5	0.051	0.237	0.185	0.016	0.158	133	•
FPF1500R01	0.5906 (15.00 mm)	15	0.052	0.251	0.199	0.016	0.164	133	•
FPF1550R01	0.6102 (15.50 mm)	15	0.053	0.251	0.198	0.016	0.164	133	•
FPF1588R01	0.6250 (15.88 mm)	15	0.053	0.251	0.198	0.016	0.164	133	•
FPF1600R01	0.6299 (16.00 mm)	16	0.054	0.270	0.216	0.016	0.178	134	•
FPF1650R01	0.6496 (16.50 mm)	16	0.055	0.270	0.215	0.016	0.178	134	•
FPF1670R01	0.6575 (16.70 mm)	16	0.055	0.270	0.215	0.016	0.178	134	•
FPF1700R01	0.6693 (17.00 mm)	17	0.057	0.284	0.227	0.016	0.189	134	•
FPF1746R01	0.6875 (17.46 mm)	17	0.057	0.284	0.227	0.016	0.189	134	•
FPF1750R01	0.6890 (17.50 mm)	17	0.058	0.284	0.226	0.016	0.189	134	•
FPF1800R01	0.7087 (18.00 mm)	18	0.069	0.312	0.243	0.016	0.235	133	•
FPF1830R01	0.7205 (18.30 mm)	18	0.069	0.312	0.243	0.016	0.235	133	•
FPF1850R01	0.7283 (18.50 mm)	18	0.070	0.312	0.243	0.016	0.235	133	•
FPF1900R01	0.7480 (19.00 mm)	19	0.072	0.331	0.259	0.016	0.249	133	•
FPF1905R01	0.7500 (19.05 mm)	19	0.072	0.331	0.259	0.016	0.249	133	•
FPF1930R01	0.7598 (19.30 mm)	19	0.072	0.331	0.259	0.016	0.249	133	•
FPF1950R01	0.7677 (19.50 mm)	19	0.073	0.331	0.258	0.016	0.249	133	•
FPF2000R01	0.7874 (20.00 mm)	20	0.075	0.350	0.275	0.016	0.260	133	•
FPF2050R01	0.8071 (20.50 mm)	20	0.076	0.350	0.274	0.016	0.260	133	•
FPF2060R01	0.8110 (20.60 mm)	20	0.076	0.350	0.274	0.016	0.260	133	•
FPF2064R01	0.8125 (20.64 mm)	20	0.076	0.350	0.274	0.016	0.260	133	•
FPF2100R01	0.8268 (21.00 mm)	21	0.078	0.361	0.283	0.016	0.276	133	•
FPF2150R01	0.8465 (21.50 mm)	21	0.079	0.361	0.282	0.016	0.276	133	•
FPF2200R01	0.8661 (22.00 mm)	22	0.083	0.383	0.300	0.016	0.287	133	•
FPF2222R01	0.8750 (22.22 mm)	22	0.083	0.383	0.300	0.016	0.287	133	•
FPF2250R01	0.8858 (22.50 mm)	22	0.083	0.383	0.299	0.016	0.287	133	•
FPF2300R01	0.9055 (23.00 mm)	23	0.086	0.392	0.306	0.016	0.295	132	•
FPF2350R01	0.9252 (23.50 mm)	23	0.087	0.392	0.306	0.016	0.295	132	•
FPF2381R01	0.9375 (23.81 mm)	23	0.087	0.392	0.306	0.016	0.295	132	•
FPF2400R01	0.9449 (24.00 mm)	24	0.088	0.412	0.324	0.016	0.307	132	•
FPF2450R01	0.9645 (24.50 mm)	24	0.089	0.412	0.323	0.016	0.307	132	•
FPF2490R01	0.9803 (24.90 mm)	24	0.089	0.412	0.323	0.016	0.307	132	•
FPF2500R01	0.9843 (25.00 mm)	25	0.091	0.434	0.343	0.016	0.321	132	•
FPF2540R01	1.0000 (25.40 mm)	25	0.091	0.434	0.343	0.016	0.321	132	•
FPF2550R01	1.0039 (25.50 mm)	25	0.092	0.434	0.343	0.016	0.321	132	•

Operating Guidelines

ISO	Material		Condition	Tensile Strength (N/mm2)	Hardness HB	Material Group No.	Cutting Speed Vc (SFM)	Feed vs. Drill Diameter (inches/rev)			
								Ø12–Ø13.9 (.472–.547)	Ø14–Ø15.9 (.551–.626)	Ø16–Ø19.9 (.630–.783)	Ø20–Ø25.9 (.787–1.019)
								IPR (inches/rev)			
P	Non-alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	260–460	.010–.018	.012–.020	.014–.022	.016–.024
		≥0.25%C	Annealed	650	190	2	260–430				
		<0.55%C	Quenched and tempered	850	250	3	260–400				
		≥0.55%C	Annealed	750	220	4	230–360				
			Quenched and tempered	1000	300	5	165–300				
	Low alloy steel and cast steel (less than 5% of alloying elements)		Annealed	600	200	6	230–400	.008–.016	.010–.018	.012–.020	.014–.022
			Quenched and tempered	930	275	7	230–360				
				1000	300	8	165–300				
				1200	350	9	130–230				
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	165–300	.008–.014	.010–.016	.012–.018	.014–.020
			Quenched and tempered	1100	325	11	130–260				
K	Grey cast iron (GG)		Ferritic	–	160	15	300–530	.014–.020	.016–.024	.018–.026	.020–.028
			Pearlitic	–	250	16	260–460				
	Cast iron nodular (GGG)		Ferritic	–	180	17	300–595	.012–.018	.014–.022	.016–.024	.018–.026
			Pearlitic	–	260	18	260–460				
	Malleable cast iron		Ferritic	–	130	19	300–530				
			Pearlitic	–	230	20	260–460				

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.