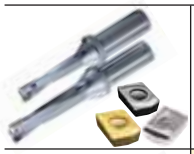
Indexable Drills

		standard							standard range			customized solution range			
		● first choice ○ alternate choice						hole tolerance	diameter range		drilling depth L/D1	diameter range		drilling depth	
		P	M	K	N	S	H		D1 mm min–max	D1 inch min–max		D1 mm min–max	D1 inch min–max		
	**DFR**™ Indexable Drill Body *Short-Hole Drilling*	●	●	●	●	●		IT9-11	12,5–25	.500–1.039	2 x D 3 x D 4 x D	12,5–26	.500–1.023	1–5 x D	
	**DFS**™ Indexable Drill Body *Short-Hole Drilling*	●	●	●	●	●		IT9-11	24–55	.945–2.165	2 x D 3 x D 4 x D 5 x D	18–55	.708–2.165	1–5 x D	
	**DFT**™ Indexable Drill Body *Short-Hole Drilling*	●	●	●	●	●		IT9-11	16–83mm	.625–3.250	2.5 x D 4 x D	15,8–83	.622–3.250	1–5 x D	
	**HTS-C** Indexable Drilling Tool *Deep-Hole Drilling*	●	●	●	●	●		IT9-11	20–45	.750–1.750	5 x D 8 x D	19,05–45	.749–1.750	1–20 x D	
	**HTS-R** Indexable Drilling Tool *Deep-Hole Drilling*	●	●	●	●	●		IT9-11	40–55	1.574–2.165	10 x D	40–55	1.574–2.165	1–10 x D	
	**HTS** Indexable Drilling Tool *Deep-Hole Drilling*	●	●	●	●	●		IT9-11	45–270	1.772–10.630	10 x D	45–540	1.772–21.259	1–10 x D	
	**S2 S Countersinking** Countersinking Tool	●	●	●	●	●		IT9-11	15,1–46,2	.813–3.125	1 x D	11,5–150	.452–5.905	1–5 x D	

In regard to insert and drill coatings, anything is possible. If a specific insert or drill is not suitable for your workpiece material, please contact our Engineered Solutions Department for an offer about special coatings and edge preparations.

*Except for L/D 5 x D.

[1] Other shank styles available as customized solution.

	■ standard capabilities [1]								■ standard and □ customized solution capabilities									
	coolant																	
				 															page(s)
		■		■ ■	■					■	■	■	■	■	□	□			J8–J18
		■		■ ■	■	■				■	■	■	■	■*	□	□		□	J20–J35
		■		■ ■	■	■				■	■	■	■	■	□	□			J37–J49
		■		■ ■						■						□			J53–J61
		■			■		■	■	■	■									J73–J79
		■			■		■	■	■	■									J80–J94
		■	■													■	□		J105–J107

Drill Fix™ DFR™, DFS™, and DFT™

Primary Application

Drill short holes up to 5 x D with DFR, DFS, and DFT indexable drills in steel, cast iron, ductile iron, stainless steel, and non-ferrous materials. The Drill Fix portfolio covers the diameter range .500–3.250" (12,5–82mm).

Apply where speed and economy are prime considerations.

Features and Benefits

Drill Fix DFR

- Diameter range of 12,5–24mm in 2 x D, 3 x D, and 4 x D.
- Rectangular-shaped inserts offer the highest stability and feed rates at smaller sizes.
- Long body tool life due to soft starting cut, short chips, and low cutting forces.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.

Drill Fix DFS

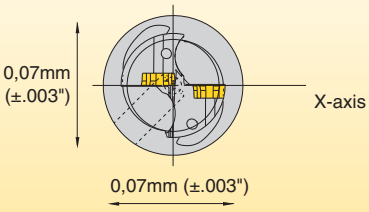
- Combines the benefits of a trigon-style DFT inboard insert and a square-style SP..X outboard insert.
- Standard diameter range from 1.000–2.500" (24–55mm) in 2 x D, 3 x D, 4 x D, and new 5 x D.
- Drill Fix DFT insert has inner insert for best centering capabilities.
- Squared-outboard insert offering four economic cutting edges.
- Highest feed rates and cutting speeds applicable due to highly stable tool body design.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.
- Beyond™ grades to achieve highest productivity, achieving outstanding results in steel, stainless steel, and cast iron.

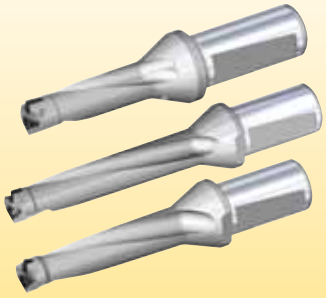
Drill Fix™ DFT™

- One drill system that covers a large diameter range, from 1.000–3.250" (24–82mm) in 2.5 x D and 4 x D.
- Best centering capabilities due to trigon-shaped inserts used as inboard and outboard insert.
- Various insert grades and geometries available.
- Balanced cutting forces in the shank center for highest tool body stability.
- X-offset design to adjust diameter size on turning machines and optimize tolerances on machining centers.

Stationary Applications

Metric Drill Bodies with 2° Whistle Notch™





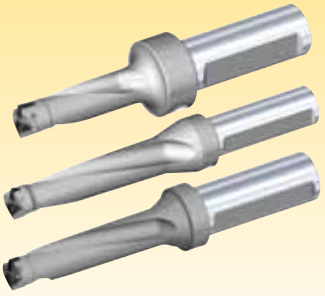
Metric shank drills with a 2° Whistle Notch shank are easily mounted into inch turrets using a WD adaptor. Align the X-axis of the drill with the X-axis of the machine tool as described above. Accurate alignment is absolutely essential for good performance. The drill must be on center within the tolerance shown above. Angularity must not exceed 0,07mm (.003").

Inch Bodies • Flange

Drill Fix™ inch drills, with a flange, were designed for use on lathes or any machine where the tool remains stationary and the workpiece rotates.

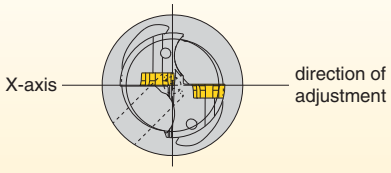
An "x" is marked on the flat of the X-axis of the drill to aid insert orientation on the machine tool.

It is important to align the X-axis of the drill with the X-axis on the machine tool. Accurate alignment is absolutely essential for good performance. The drill must be on center, within the tolerance shown here. Angularity must not exceed 0,07mm (.003") within the designated drill depth.



Drill Fix X-Adjustment

Applications Examples

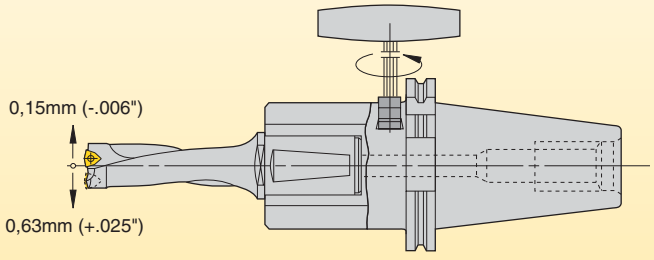


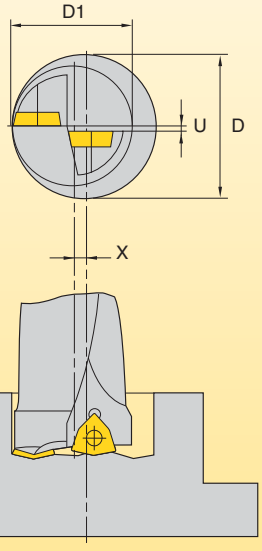
Stationary Tool

The X-adjustment must be made at the outer cutting edge, parallel to the surface of the outer insert when the turret of the turning machine is offset along the X-axis.

Rotating Tool • Straight Shank

Use an adjustable eccentric chuck with a steep taper to help offset the drill along the X-axis when machining with a rotating tool on a machining center.





X-Adjustment Description

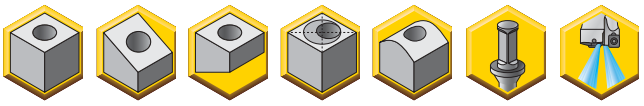
Different diameter holes can be drilled using the same Drill Fix drill. Holes with a diameter greater than the nominal diameter can be drilled directly into a solid. Intermediate dimensions are produced by means of the X-adjustment.

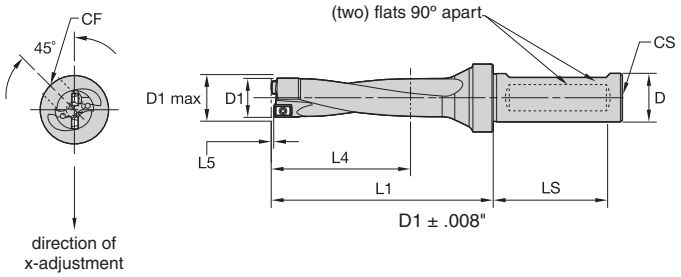
Benefits

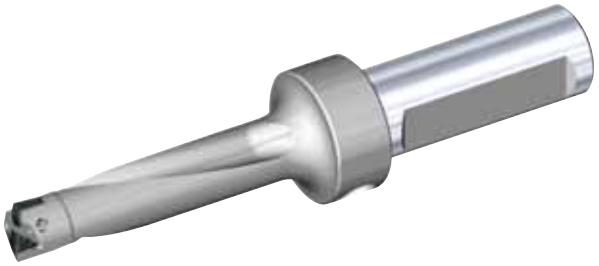
- Eliminates the need for special tools for intermediate dimensions.
- Just a few drills cover a wide application range.
- Once precise adjustment of the desired diameter is made, tolerances of 0,05mm (± .002") are achieved.

Additional information on X-adjustment, as well as additional information to Drill Fix tools, is available on the Kennametal website, www.kennametal.com.

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See page J95 for inserts.







Flange Shank • 4 x D • Inch

D			D1						gage
0.750	1.000	1.250	in	mm	D1 max	L1	L4 max	L5	insert
DFR0500R4SSF075	**–**	**–**	.500	12,70	.540	2.95	2.00	.02	DFR0202..
DFR0531R4SSF075	**–**	**–**	.531	13,49	.571	3.05	2.12	.02	DFR0202..
DFR0563R4SSF075	**–**	**–**	.563	14,30	.603	3.21	2.25	.02	DFR0202..
DFR0594R4SSF075	**–**	**–**	.594	15,09	.633	3.30	2.38	.02	DFR0202..
DFR0625R4SSF075	**DFR0625R4SSF100**	**–**	.625	15,88	.664	3.45	2.50	.02	DFR0202..
–	**DFR0656R4SSF100**	**–**	.656	16,66	.695	3.58	2.62	.02	DFR0302..
–	**DFR0688R4SSF100**	**–**	.688	17,48	.727	3.71	2.75	.02	DFR0302..
–	**DFR0703R4SSF100**	**–**	.703	17,86	.742	3.83	2.81	.02	DFR0302..
–	**DFR0734R4SSF100**	**–**	.734	18,64	.773	3.95	2.94	.02	DFR0302..
–	**DFR0750R4SSF100**	**–**	.750	19,05	.789	4.02	3.00	.02	DFR0302..
–	**DFR0781R4SSF100**	**–**	.781	19,84	.820	4.14	3.12	.02	DFR0302..
–	**DFR0813R4SSF100**	**–**	.813	20,65	.852	4.27	3.25	.03	DFR0403..
–	**DFR0844R4SSF100**	**–**	.844	21,44	.883	4.49	3.38	.03	DFR0403..
–	**DFR0875R4SSF100**	**–**	.875	22,23	.914	4.62	3.50	.03	DFR0403..
–	**DFR0906R4SSF100**	**–**	.906	23,01	.945	4.74	3.62	.03	DFR0403..
–	**DFR0938R4SSF100**	**–**	.938	23,83	.977	4.87	3.75	.03	DFR0403..
–	**DFR0969R4SSF100**	**–**	.969	24,61	1.008	4.99	3.88	.03	DFR0403..
–	**DFR0984R4SSF100**	**–**	.984	24,99	1.023	5.05	3.84	.03	DFR0403..
–	**DFR1000R4SSF100**	**DFR1000R4SSF125**	1.000	25,40	1.039	5.12	4.00	.03	DFR0403..

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.

gage insert	insert screw	Torx wrench	Torx size
DFR0202..	**193.281**	**170.027**	6
DFR0302..	**192.416**	**170.023**	7
DFR0403..	**192.432**	**170.028**	8

D	LS	CF	CS	pipe plug
0.75	2.00	1/8-27 NPT	1/8-27 NPT	**HSFS0125**
1.00	3.00	1/8-27 NPT	1/4-18 NPT	**HSFS0125**
1.25	3.25	1/8-27 NPT	1/4-18 NPT	**HSFS0125**

DFR™ • Metric

Material Group		Condition	Pocket Seat	Geometry	Grade	Cutting Speed — vc Range — m/min			Metric			
									Recommended Feed Rate (f) by Diameter			
						min	Starting Value	max	Ø (mm)	DFR02... 12,50-16,00	DFR03... 16,50-20,00	DFR04 20,50-24,00
P	1	S	O	MD	KCU25	310	**325**	360	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	MD	KC7140							
		U	O	MD	KCU40	200	**215**	230	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	MD	KC7140							
		I	O	MD	KC7140	130	**135**	150	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	MD	KC7140							
	2	S	O	GD	KCPK10	310	**325**	360	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		U	O	GD	KCU40	200	**215**	230	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		I	O	MD	KC7140	130	**135**	150	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
	3	S	O	GD	KCPK10	260	**285**	320	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		U	O	GD	KCU40	180	**195**	220	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		I	O	GD	KC7140	110	**120**	140	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
	4	S	O	GD	KCU25	220	**250**	300	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		U	O	GD	KCU40	150	**180**	220	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
		I	O	GD	KC7140	90	**110**	140	mm/r	0,09 - 0,15	0,11 - 0,18	0,15 - 0,25
			I	LD	KC7140							
	5	S	O	GD	KCU25	180	**200**	220	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
		U	O	GD	KCU40	120	**135**	150	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
		I	O	GD	KC7140	70	**85**	100	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
	6	S	O	GD	KCU25	180	**200**	220	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
		U	O	GD	KCU40	120	**135**	150	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
		I	O	GD	KC7140	70	**85**	100	mm/r	0,07 - 0,13	0,09 - 0,15	0,11 - 0,18
			I	LD	KC7140							
M	1	S	O	MD	KC7140	150	**190**	230	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		U	O	MD	KC7140	100	**130**	160	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		I	O	MD	KC7140	60	**80**	100	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
	2	S	O	MD	KC7140	150	**180**	210	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		U	O	MD	KC7140	100	**130**	160	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		I	O	MD	KC7140	60	**80**	100	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
	3	S	O	MD	KC7140	100	**130**	160	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		U	O	MD	KC7140	80	**110**	140	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							
		I	O	MD	KC7140	50	**70**	90	mm/r	0,07 - 0,13	0,08 - 0,16	0,10 - 0,18
			I	MD	KC7140							

Condition: S = Stable cutting conditions; U = Unstable cutting conditions; I = Interrupted cutting conditions
Pocket seat: I = Inboard insert; O = Outboard insert

DFR™ • Metric

Material Group		Condition	Pocket Seat	Geometry	Grade	Cutting Speed — vc Range — m/min			Metric			
									Recommended Feed Rate (f) by Diameter			
						min	Starting Value	max	Ø (mm)	DFR02... 12,50-16,00	DFR03... 16,50-20,00	DFR04 20,50-24,00
K	1	S	O	GD	KCPK10	200	**240**	300	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KCU40							
		U	O	GD	KCU25	120	**155**	200	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
		I	O	GD	KCU40	80	**100**	125	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
	2	S	O	GD	KCPK10	180	**220**	260	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KCU40							
		U	O	GD	KCU25	110	**140**	170	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
		I	O	GD	KCU40	80	**100**	120	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
	3	S	O	GD	KCPK10	180	**220**	260	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KCU40							
		U	O	GD	KCU25	110	**140**	170	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
		I	O	GD	KCU40	80	**100**	120	mm/r	0,10 - 0,18	0,12 - 0,20	0,14 - 0,24
			I	LD	KC7140							
N	1	S	O	ST	KD1425	400	**600**	800	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	ST	KD1425							
		U	O	LD	KCU40	300	**400**	500	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
		I	O	LD	KCU40	200	**300**	400	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
	2	S	O	ST	KD1425	375	**550**	775	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	**350**	450	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
		I	O	LD	KCU40	175	**250**	325	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
	3	S	O	ST	KD1425	350	**500**	650	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	**350**	450	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
		I	O	LD	KCU40	150	**250**	350	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
	4	S	O	ST	KD1425	400	**600**	800	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	ST	KD1425							
		U	O	LD	KCU40	250	**350**	450	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
		I	O	LD	KCU40	200	**300**	400	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	LD	KCU40							
	5	S	O	ST	KD1425	400	**600**	800	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	ST	KD1425							
		U	O	HP	KCU40	250	**350**	450	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	HP	KCU40							
		I	O	HP	KMF	200	**300**	400	mm/r	0,07 - 0,09	0,10 - 0,14	0,12 - 0,16
			I	HP	KMF							
S	1	S	O	GD	KCU40	60	**70**	75	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	LD	KCU40							
		U	O	GD	KCU40	40	**50**	60	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	LD	KC7140							
		I	O	MD	KC7140	25	**30**	40	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	MD	KC7140							
	2	S	O	GD	KCU40	50	**60**	70	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	LD	KCU40							
		U	O	GD	KCU40	30	**40**	50	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	LD	KC7140							
		I	O	MD	KC7140	25	**30**	40	mm/r	0,04 - 0,06	0,05 - 0,08	0,06 - 0,10
			I	MD	KC7140							
	3	S	O	GD	KCU40	70	**80**	90	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	LD	KCU40							
		U	O	GD	KCU40	50	**60**	70	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	LD	KC7140							
		I	O	MD	KC7140	30	**40**	50	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	MD	KC7140							
	4	S	O	GD	KCU40	70	**80**	90	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	LD	KCU40							
		U	O	GD	KCU40	50	**60**	70	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	LD	KC7140							
		I	O	MD	KC7140	30	**40**	50	mm/r	0,05 - 0,08	0,06 - 0,10	0,06 - 0,10
			I	MD	KC7140							

Condition: S = Stable cutting conditions; U = Unstable cutting conditions; I = Interrupted cutting conditions
Pocket seat: I = Inboard insert; O = Outboard insert

DFR™ • Inch

Material Group		Condition	Pocket Seat	Geometry	Grade	Cutting Speed — vc Range — SFM			Inch			
									Recommended Feed Rate (f) by Diameter			
						min	Starting Value	max	Ø (in)	DFR02... .500-.625	DFR03... .688-.750	DFR04... .813-1.00
P	1	S	O	MD	KCU25	1017	**1066**	1181	IPR	.004 - .006	.004 - .007	.006 - .010
			I	MD	KC7140							
		U	O	MD	KCU40	656	**705**	754	IPR	.004 - .006	.004 - .007	.006 - .010
			I	MD	KC7140							
		I	O	MD	KC7140	426	**443**	492	IPR	.004 - .006	.004 - .007	.006 - .010
			I	MD	KC7140							
	2	S	O	GD	KCPK10	1017	**1066**	979	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		U	O	GD	KCU40	656	**705**	754	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		I	O	MD	KC7140	426	**443**	492	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
	3	S	O	GD	KCPK10	853	**935**	1050	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		U	O	GD	KCU40	590	**640**	722	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		I	O	GD	KC7140	361	**394**	459	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
	4	S	O	GD	KCU25	722	**820**	984	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		U	O	GD	KCU40	492	**590**	722	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		I	O	GD	KC7140	295	**361**	459	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
	5	S	O	GD	KCU25	590	**656**	722	IPR	.003 - .005	.004 - .006	.004 - .007
			I	LD	KC7140							
		U	O	GD	KCU40	394	**443**	492	IPR	.003 - .005	.004 - .006	.004 - .007
			I	LD	KC7140							
		I	O	GD	KC7140	230	**279**	328	IPR	.003 - .005	.004 - .006	.004 - .007
			I	LD	KC7140							
	6	S	O	GD	KCU25	590	**656**	722	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		U	O	GD	KCU40	394	**443**	492	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
		I	O	GD	KC7140	230	**279**	328	IPR	.004 - .006	.004 - .007	.006 - .010
			I	LD	KC7140							
M	1	S	O	MD	KC7140	492	**623**	754	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		U	O	MD	KC7140	328	**426**	525	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		I	O	MD	KC7140	197	**262**	328	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
	2	S	O	MD	KC7140	492	**590**	689	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		U	O	MD	KC7140	328	**426**	525	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		I	O	MD	KC7140	197	**262**	328	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
	3	S	O	MD	KC7140	328	**426**	525	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		U	O	MD	KC7140	262	**361**	459	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							
		I	O	MD	KC7140	164	**230**	295	IPR	.003 - .005	.003 - .006	.004 - .007
			I	MD	KC7140							

Condition: S = Stable cutting conditions; U = Unstable cutting conditions; I = Interrupted cutting conditions
Pocket seat: I = Inboard insert; O = Outboard insert

DFR™ • Inch

Material Group		Condition	Pocket Seat	Geometry	Grade	Cutting Speed — vc Range — SFM			Inch			
									Recommended Feed Rate (f) by Diameter			
						min	Starting Value	max	Ø (in)	DFR02... .500-.625	DFR03... .688-.750	DFR04... .813-1.00
K	1	S	O	GD	KCPK10	656	**787**	984	IPR	.004 - .007	.005 - .008	.006 - .009
			I	LD	KCU40							
		U	O	GD	KCU25	394	**508**	656	IPR	.004 - .007	.005 - .008	.006 - .009
			I	LD	KCU40							
		I	O	GD	KCU40	262	**328**	410	IPR	.004 - .007	.005 - .008	.005 - .009
			I	LD	KC7140							
	2	S	O	GD	KCPK10	590	**722**	853	IPR	.004 - .007	.005 - .008	.006 - .009
			I	LD	KCU40							
		U	O	GD	KCU25	361	**459**	558	IPR	.004 - .007	.005 - .008	.005 - .009
			I	LD	KCU40							
		I	O	GD	KCU40	262	**328**	394	IPR	.004 - .007	.005 - .008	.006 - .009
			I	LD	KC7140							
	3	S	O	GD	KCPK10	590	**722**	853	IPR	.004 - .007	.005 - .008	.005 - .009
			I	LD	KCU40							
		U	O	GD	KCU25	361	**459**	558	IPR	.004 - .007	.005 - .008	.006 - .009
			I	LD	KC7140							
		I	O	GD	KCU40	262	**328**	394	IPR	.004 - .007	.005 - .008	.005 - .009
			I	LD	KC7140							
N	1	S	O	ST	KD1425	1312	**1968**	2624	IPR	.003 - .004	.004 - .006	.005 - .006
			I	ST	KD1425							
		U	O	LD	KCU40	984	**1312**	1640	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
		I	O	LD	KCU40	656	**984**	1312	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
	2	S	O	ST	KD1425	1230	**1804**	2542	IPR	.003 - .004	.004 - .006	.005 - .006
			I	ST	KD1425							
		U	O	LD	KCU40	820	**1148**	1476	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
		I	O	LD	KCU40	574	**820**	1066	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
	3	S	O	ST	KD1425	1148	**1640**	2132	IPR	.003 - .004	.004 - .006	.005 - .006
			I	ST	KD1425							
		U	O	LD	KCU40	820	**1148**	1476	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
		I	O	LD	KCU40	492	**820**	1148	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
	4	S	O	ST	KD1425	1312	**1968**	2624	IPR	.003 - .004	.004 - .006	.005 - .006
			I	ST	KD1425							
		U	O	LD	KCU40	820	**1148**	1476	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
		I	O	LD	KCU40	656	**984**	1312	IPR	.003 - .004	.004 - .006	.005 - .006
			I	LD	KCU40							
S	1	S	O	GD	KCU40	197	**230**	246	IPR	.002 - .002	.002 - .003	.002 - .004
			I	LD	KCU40							
		U	O	GD	KCU40	131	**164**	197	IPR	.002 - .002	.002 - .003	.002 - .004
			I	LD	KC7140							
		I	O	MD	KC7140	82	**98**	131	IPR	.002 - .002	.002 - .003	.002 - .004
			I	MD	KC7140							
	2	S	O	GD	KCU40	164	**197**	230	IPR	.002 - .002	.002 - .003	.002 - .004
			I	LD	KCU40							
		U	O	GD	KCU40	98	**131**	164	IPR	.002 - .002	.002 - .003	.002 - .004
			I	LD	KC7140							
		I	O	MD	KC7140	82	**98**	131	IPR	.002 - .002	.002 - .003	.002 - .004
			I	MD	KC7140							
	3	S	O	GD	KCU40	230	**262**	295	IPR	.002 - .004	.002 - .003	.002 - .004
			I	LD	KCU40							
		U	O	GD	KCU40	164	**197**	230	IPR	.002 - .003	.002 - .004	.002 - .004
			I	LD	KC7140							
		I	O	MD	KC7140	98	**131**	164	IPR	.002 - .003	.002 - .004	.002 - .004
			I	MD	KC7140							
	4	S	O	GD	KCU40	230	**262**	295	IPR	.002 - .003	.002 - .004	.002 - .004
			I	LD	KCU40							
		U	O	GD	KCU40	164	**197**	230	IPR	.002 - .003	.002 - .004	.002 - .004
			I	LD	KC7140							
		I	O	MD	KC7140	98	**131**	164	IPR	.002 - .003	.002 - .004	.002 - .004
			I	MD	KC7140							

Condition: S = Stable cutting conditions; U = Unstable cutting conditions; I = Interrupted cutting conditions; Pocket seat: I = Inboard insert; O = Outboard insert

Drill Fix™ DFS™

Drill Fix DFS combines the economical squared outboard insert with the superior centering capabilities of the trigon inboard insert. The DFS indexable drills offer increased metal removal rates combined with high surface quality and hole straightness.

Available in a diameter range of 24–48mm (1–2.5"), the Drill Fix DFS provides the highest cutting data capabilities, even under difficult conditions, offering long tool body life and excellent chip evacuation. DFS indexable drills are now available as standard up to 5 x D supplementing the portfolio of 2 x D, 3 x D, and 4 x D.

Boost your productivity even further and achieve outstanding results in steel, stainless steel, and cast iron with the new Beyond™ DFS outboard inserts in KCPK10™, KCU25™, and KCU40™.

Features and Benefits

Higher Productivity and Profitability

- Achieve highest metal removal rates and excellent chip evacuation due to advanced chip flutes and non-central and increased cooling channels.
- Make use of squared outboard inserts that offer four economic cutting edges where needed.
- Benefit from a complete product portfolio offering standard L/D ratios up to 5 x D.

Versatility

- Drill holes up to 5 x D in steel, cast iron, ductile iron, stainless steel, and non-ferrous materials.
- Use where speed and economy are prime considerations.
- Apply DFS drills to straight holes, inclined entries and exits, interrupted cuts, and rough or welded entry surfaces.
- Use X-offset on turning machines to adjust the drill diameter, eliminating the need for specials in many applications and on machining centers to reach tolerance optimization.
- Eccentric chuck available as standard.

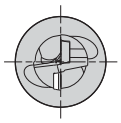
Reliability

- Benefit from high accuracy holes independently from feed rates applied.
- Gain outstanding results by applying the Beyond DFS inserts.
- High wear resistance at interrupted cuts due to squared outboard insert.

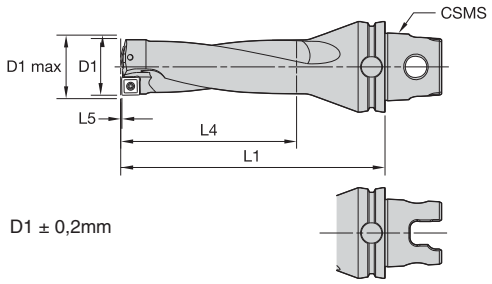
Customization

- Intermediate diameters, multistep drills, and other non-standard shanks are available.
- Smaller and larger diameters available.

- Drill shipped with insert screws and Torx wrench.
- See pages J100–J103 for inserts.



direction of
X-adjustment



D1 ± 0,2mm

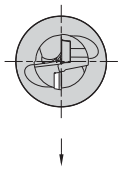
KM40TS, KM50TS, KM63TS, and KM63XMZ Shanks • 3 x D • Metric

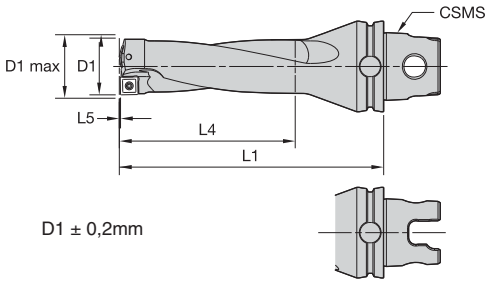
KM40TS	KM50TS	KM63TS	KM63XMZ	D1 mm	D1 in	D1 max	L1	L4 max	gage insert outside	gage insert inside
KM40TSDFS250R3M	**KM50TSDFS250R3M**	**KM63TSDFS250R3M**	**KM63XMZDFS250R3YM**	25,00	.984	26,00	119,0	75,0	SPGX0703..	DFT05T3..
KM40TSDFS270R3M	**KM50TSDFS270R3M**	**KM63TSDFS270R3M**	**KM63XMZDFS270R3YM**	27,00	1.063	28,00	126,0	81,0	SPPX09T3..	DFT05T3..
KM40TSDFS290R3M	**KM50TSDFS290R3M**	**KM63TSDFS290R3M**	**KM63XMZDFS290R3YM**	29,00	1.142	30,00	133,0	87,0	SPPX09T3..	DFT05T3..
KM40TSDFS310R3M	**KM50TSDFS310R3M**	**KM63TSDFS310R3M**	**KM63XMZDFS310R3YM**	31,00	1.221	32,00	140,0	93,0	SPPX09T3..	DFT05T3..
–	**KM50TSDFS330R3M**	**KM63TSDFS330R3M**	**KM63XMZDFS330R3YM**	33,00	1.299	34,00	147,0	99,0	SPPX1204..	DFT06T3..
–	**KM50TSDFS350R3M**	**KM63TSDFS350R3M**	**KM63XMZDFS350R3YM**	35,00	1.378	36,00	154,0	105,0	SPPX1204..	DFT06T3..
–	**KM50TSDFS380R3M**	**KM63TSDFS380R3M**	**KM63XMZDFS380R3YM**	38,00	1.496	39,00	164,0	114,0	SPPX1204..	DFT06T3..
–	–	**KM63TSDFS410R3M**	**KM63XMZDFS410R3YM**	41,00	1.614	42,00	175,0	123,0	SPPX1204..	DFT0704..
–	–	**KM63TSDFS440R3M**	**KM63XMZDFS440R3YM**	44,00	1.732	45,00	185,0	132,0	SPPX15T5..	DFT0704..
–	–	**KM63TSDFS470R3M**	**KM63XMZDFS470R3YM**	47,00	1.850	48,00	196,0	141,0	SPPX15T5..	DFT0704..

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.

D1 mm	 inboard insert screw	 outboard insert screw	 Torx wrench	Torx size
24–25,9	**193.491**	**192.432**	**170.028**	8
26–32,9	**191.924**	**191.924**	**170.024**	9
33–43,9	**191.916**	**191.916**	**170.025**	15
44–49,9	**191.698**	**192.433**	**170.025**	15
50–56	**192.433**	**192.433**	**170.025**	15

- Drill shipped with insert screws, side pipe plug, and Torx wrench.
- See pages J100–J103 for inserts.





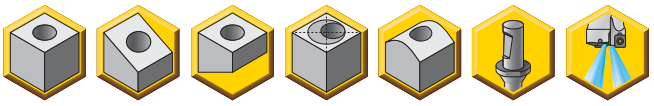
KM40TS, KM50TS, KM63TS, and KM63XMZ Shanks • 3 x D • Inch

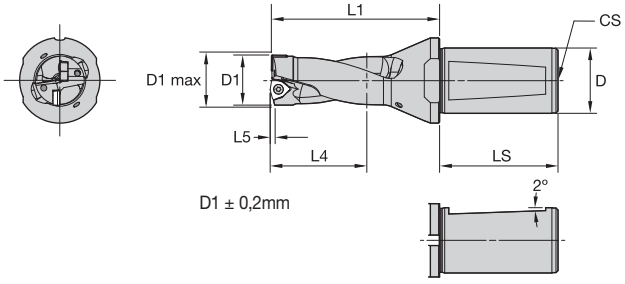
KM40TS	KM50TS	KM63TS	KM63XMZ	D1 in	D1 mm	D1 max	L4 L1	L4 max	L4 L5	gage insert outside	gage insert inside
KM40TSDFS1000R3	**KM50TSDFS1000R3**	**KM63TSDFS1000R3**	**KM63XMZDFS1000R3Y**	1.000	25,40	1.040	4.75	3.00	.02	SPGX0703..	DFT05T3..
KM40TSDFS1125R3	**KM50TSDFS1125R3**	**KM63TSDFS1125R3**	**KM63XMZDFS1125R3Y**	1.125	28,58	1.165	5.25	3.38	.03	SPPX09T3..	DFT05T3..
KM40TSDFS1250R3	**KM50TSDFS1250R3**	**KM63TSDFS1250R3**	**KM63XMZDFS1250R3Y**	1.250	31,75	1.290	5.63	3.75	.03	SPPX09T3..	DFT05T3..
–	**KM50TSDFS1313R3**	**KM63TSDFS1313R3**	**KM63XMZDFS1313R3Y**	1.313	33,35	1.353	5.94	3.94	.03	SPPX1204..	DFT06T3..
–	**KM50TSDFS1375R3**	**KM63TSDFS1375R3**	**KM63XMZDFS1375R3Y**	1.375	34,93	1.415	6.13	4.13	.03	SPPX1204..	DFT06T3..
–	**KM50TSDFS1438R3**	**KM63TSDFS1438R3**	**KM63XMZDFS1438R3Y**	1.438	36,53	1.478	6.31	4.31	.04	SPPX1204..	DFT06T3..
–	**KM50TSDFS1500R3**	**KM63TSDFS1500R3**	**KM63XMZDFS1500R3Y**	1.500	38,10	1.540	6.50	4.50	.04	SPPX1204..	DFT06T3..
–	**KM50TSDFS1563R3**	**KM63TSDFS1563R3**	**KM63XMZDFS1563R3Y**	1.563	39,70	1.603	6.81	4.69	.04	SPPX1204..	DFT06T3..
–	–	**KM63TSDFS1625R3**	**KM63XMZDFS1625R3Y**	1.625	41,28	1.665	7.00	4.88	.04	SPPX1204..	DFT0704..
–	–	**KM63TSDFS1688R3**	**KM63XMZDFS1688R3Y**	1.688	42,88	1.728	7.19	5.06	.04	SPPX1204..	DFT0704..
–	–	**KM63TSDFS1750R3**	**KM63XMZDFS1750R3Y**	1.750	44,45	1.790	7.38	5.25	.04	SPPX15T5..	DFT0704..
–	–	**KM63TSDFS1875R3**	**KM63XMZDFS1875R3Y**	1.875	47,63	1.915	7.88	5.63	.05	SPPX15T5..	DFT0704..

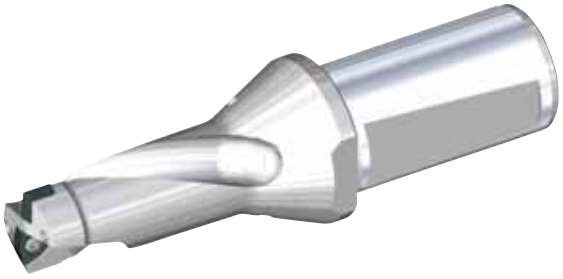
WARNING
During through-hole operations, a slug or disc is produced as the tool breaks through the workpiece. When the drill is stationary and the workpiece is rotating, this slug may be hurled from the chuck by centrifugal force. Provide adequate shielding to protect bystanders.

D1 in	 inboard insert screw	 outboard insert screw	 Torx wrench	Torx size
1–1.030	**193.491**	**192.432**	**170.028**	8
1.031–1.312	**191.924**	**191.924**	**170.024**	9
1.313–1.749	**191.916**	**191.916**	**170.025**	15
1.750–1.937	**191.698**	**192.433**	**170.025**	15
1.938–2.156	**192.433**	**192.433**	**170.025**	15

- Drill shipped with insert screws and Torx wrench.
- See pages J100–J103 for inserts.







WN/WD Shank • 2 x D • Metric

D 32	D 40	D 50	D1 mm	D1 in	D1 max	L4 max	L1	L5	gage insert outside	gage insert inside
DFS240R2WD32M	–	–	24,00	.945	25,00	48,0	80,0	0,5	SPGX0703..	DFT05T3..
DFS250R2WD32M	–	–	25,00	.984	26,00	50,0	83,0	0,6	SPGX0703..	DFT05T3..
DFS310R2WD32M	–	–	25,00	.984	26,00	50,0	83,0	0,6	SPPX09T3..	DFT05T3..
DFS260R2WD32M	–	–	26,00	1.024	27,00	52,0	86,0	0,6	SPPX09T3..	DFT05T3..
DFS270R2WD32M	–	–	27,00	1.063	28,00	54,0	89,0	0,7	SPPX09T3..	DFT05T3..
DFS280R2WD32M	–	–	28,00	1.102	29,00	56,0	91,0	0,7	SPPX09T3..	DFT05T3..
DFS290R2WD32M	–	–	29,00	1.142	30,00	58,0	94,0	0,8	SPPX09T3..	DFT05T3..
DFS300R2WD32M	–	–	30,00	1.181	31,00	60,0	97,0	0,8	SPPX09T3..	DFT05T3..
DFS320R2WD32M	–	–	32,00	1.260	33,00	64,0	103,0	0,9	SPPX09T3..	DFT05T3..
DFS330R2WD32M	–	–	33,00	1.299	34,00	66,0	105,0	0,8	SPPX1204..	DFT06T3..
DFS340R2WD32M	–	–	34,00	1.339	35,00	68,0	108,0	0,8	SPPX1204..	DFT06T3..
DFS350R2WD32M	–	–	35,00	1.378	36,00	70,0	111,0	0,9	SPPX1204..	DFT06T3..
DFS360R2WD32M	–	–	36,00	1.417	37,00	72,0	114,0	0,9	SPPX1204..	DFT06T3..
DFS370R2WD32M	–	–	37,00	1.457	38,00	74,0	117,0	0,9	SPPX1204..	DFT06T3..
DFS380R2WD32M	–	–	38,00	1.496	39,00	76,0	119,0	1,0	SPPX1204..	DFT06T3..
DFS390R2WD32M	–	–	39,00	1.535	40,00	78,0	122,0	1,0	SPPX1204..	DFT06T3..
DFS400R2WD32M	–	–	40,00	1.575	41,00	80,0	125,0	1,0	SPPX1204..	DFT06T3..
DFS410R2WD32M	–	–	41,00	1.614	42,00	82,0	128,0	1,0	SPPX1204..	DFT0704..
DFS420R2WD32M	–	–	42,00	1.654	43,00	84,0	131,0	1,1	SPPX1204..	DFT0704..
DFS430R2WD32M	–	–	43,00	1.693	44,00	86,0	133,0	1,1	SPPX1204..	DFT0704..
DFS440R2WD32M	–	–	44,00	1.732	45,00	88,0	135,0	1,1	SPPX15T5..	DFT0704..
–	**DFS450R2WD40M**	–	45,00	1.772	46,00	90,0	137,0	1,1	SPPX15T5..	DFT0704..
–	**DFS460R2WD40M**	–	46,00	1.811	47,00	92,0	140,0	1,1	SPPX15T5..	DFT0704..
–	**DFS470R2WD40M**	–	47,00	1.850	48,00	94,0	142,0	1,2	SPPX15T5..	DFT0704..
–	**DFS480R2WD40M**	–	48,00	1.890	49,00	96,0	144,0	1,2	SPPX15T5..	DFT0704..
–	**DFS490R2WD40M**	–	49,00	1.929	50,00	98,0	146,0	1,2	SPPX15T5..	DFT0905..
–	**DFS500R2WD40M**	–	50,00	1.969	51,00	100,0	148,0	1,2	SPPX15T5..	DFT0905..
–	**DFS510R2WD40M**	–	51,00	2.008	52,00	102,0	150,0	1,3	SPPX15T5..	DFT0905..
–	**DFS520R2WD40M**	–	52,00	2.047	53,00	104,0	152,0	1,3	SPPX15T5..	DFT0905..
–	**DFS530R2WD40M**	–	53,00	2.087	54,00	106,0	154,0	1,3	SPPX15T5..	DFT0905..
–	**DFS540R2WD40M**	–	54,00	2.126	55,00	108,0	156,0	1,3	SPPX15T5..	DFT0905..
–	–	**DFS550R2WD50M**	55,00	2.165	56,00	110,0	158,0	1,4	SPPX15T5..	DFT0905..

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.

D1 mm	inboard insert screw	outboard insert screw	Torx wrench	Torx size
24–25,9	**193.491**	**192.432**	**170.028**	8
26–32,9	**191.924**	**191.924**	**170.024**	9
33–43,9	**191.916**	**191.916**	**170.025**	15
44–49,9	**191.698**	**192.433**	**170.025**	15
50–56	**192.433**	**192.433**	**170.025**	15

D	LS	CS
32	58	R 1/4 BSP
40	68	R 1/4 BSP
50	68	R 1/4 BSP