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DrillLine

TUNGDRILLTWISTED

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DRILLLINE

Tungaloy Report No. 377-E

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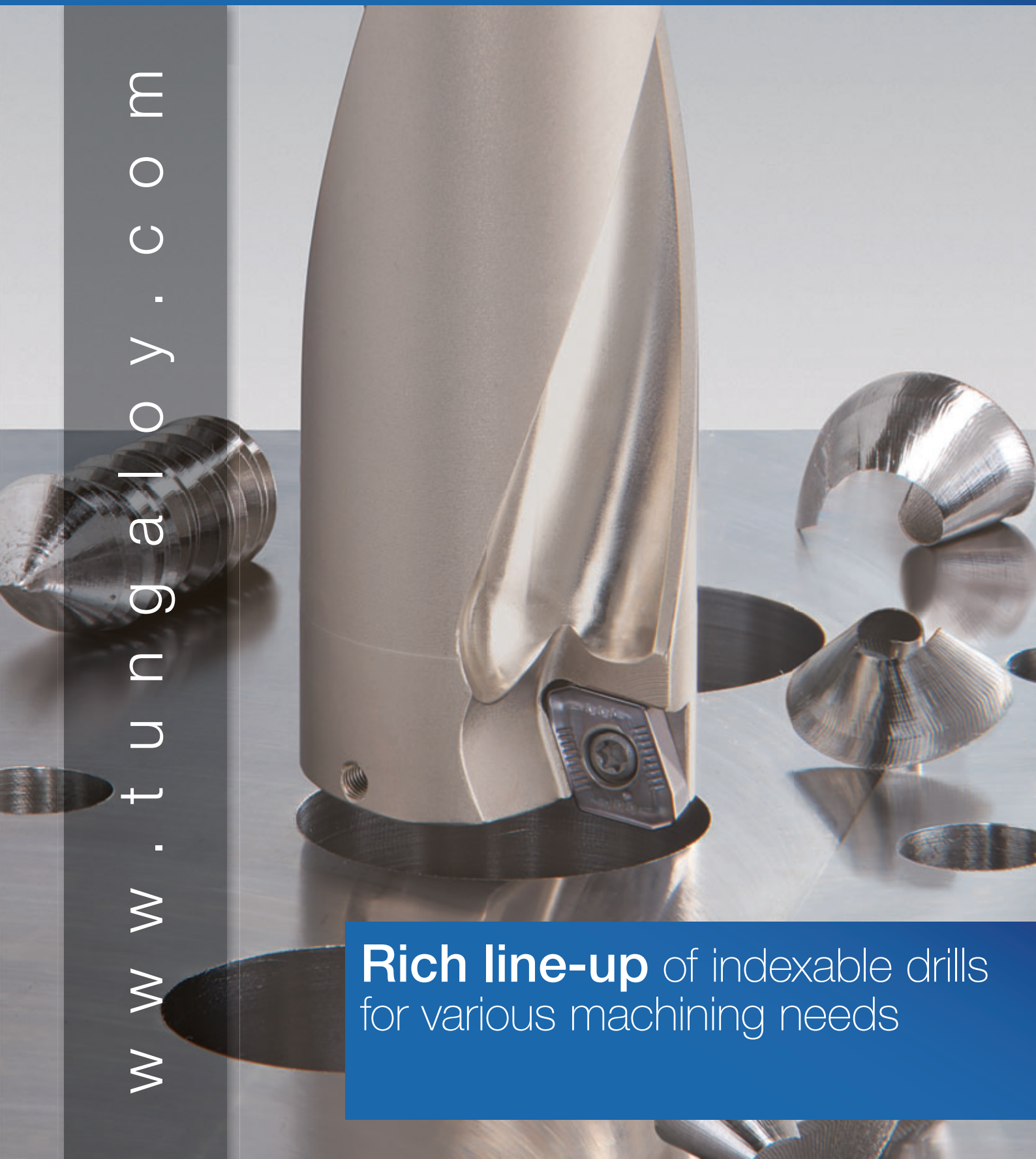

Rich line-up of indexable drills for various machining needs

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DrillLine

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Excellent surface finish and **stable chip evacuation** due to increased coolant flow with twisted drill body

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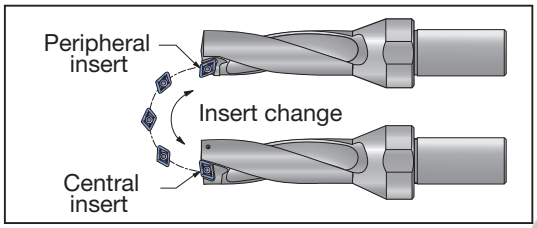
Rich line-up of drills

Drill diameter: ø12.5 - ø 54.0 mm
L/D = 2, 3, 4, 5

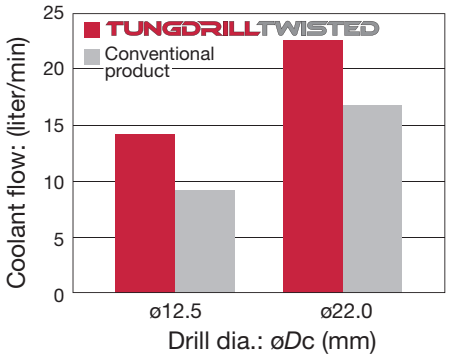
High stability

Stable machining and reduced tool cost due to parallelogram-shaped insert with 4 cutting edges



Excellent chip evacuation

Twisted coolant hole in the drill body increases coolant flow by 1.5 times, which improves chip evacuation, resulting in excellent surface finish.



Machine : Vertical machining center
Coolant pressure : 2 MPa

Suitable for various applications

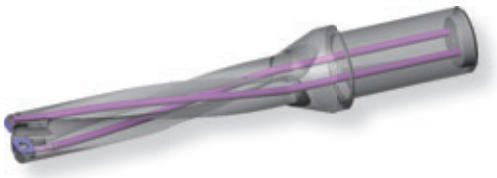
A wide variety of chipbreakers and grades offers high versatility.

DJ type

DS type

DW type

DG type

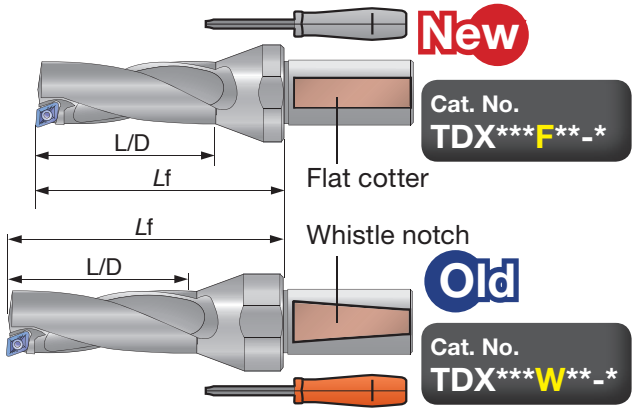


Extremely durable drill body

Special tool steel with high hardness increases durability.

New bodies with high rigidity

Newly designed drill bodies are added to the series.
- Short overhang length drastically improves its rigidity.
- TORX PLUS® screw enhances clamping force. (Available in tool diameter ø12.5 - ø26.0 mm)

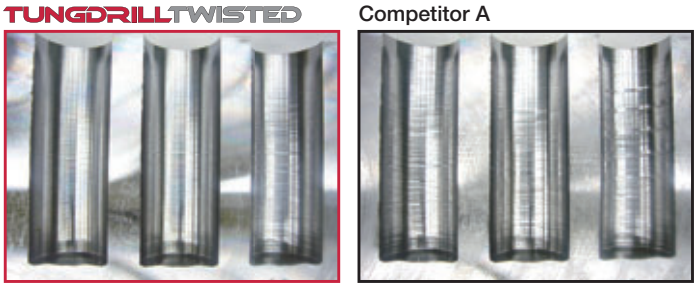


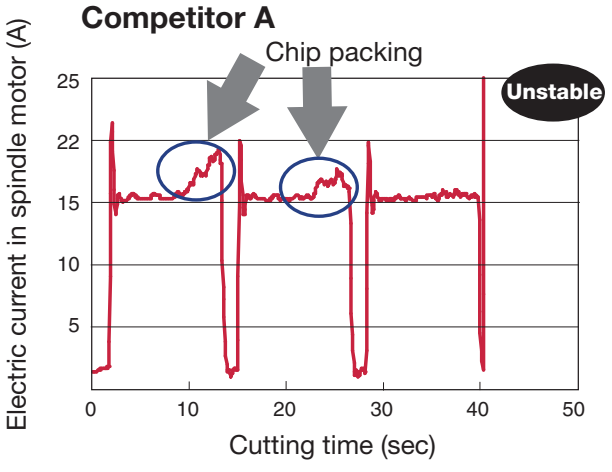
New *Lf*	<	Old *Lf*
New L/D	=	Old L/D

- The overhang length (*Lf*) in the new series is different from the old type. Pay attention when setting on the machine.
- The wrench for the new series is different from the old type. Use the wrench enclosed with the drill body. (Object tool diameter: ø12.5 - ø26.0 mm)

Surface finish with high quality

Drastically increased coolant flow delivers smooth chip evacuation, which improves the stability and efficiency in machining as well as surface finish compared to the conventional products.



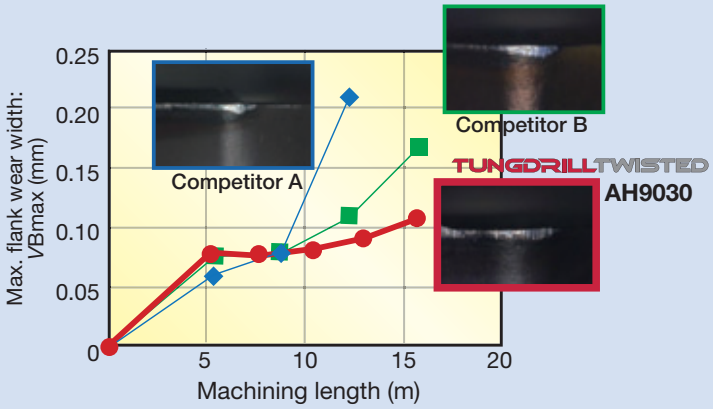


Drill	: ø22 mm, L/D = 3	Drilling depth	: *H* = 66 mm (Blind hole)
Workpiece	: SCM440 / 42CrMo4	Machine	: Vertical M/C
Cutting speed	: *Vc* = 180 m/min	Coolant	: Wet
Feed	: *f* = 0.13 mm/rev		

Cutting performance

Comparison of tool life measured by damages on the peripheral cutting edge

High carbon steel

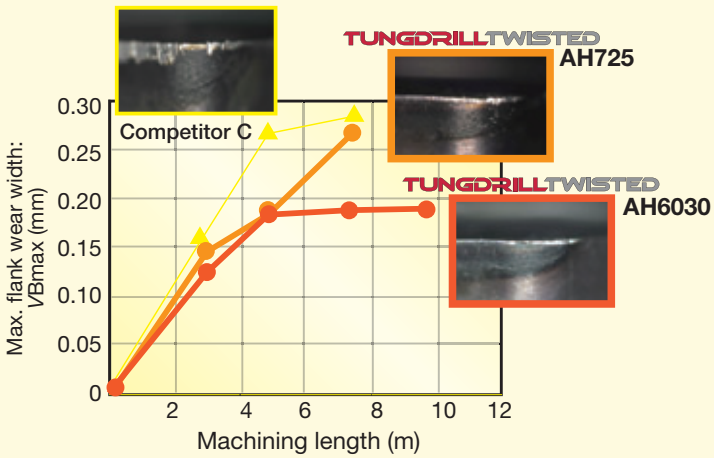


P

Drill	: ø20 mm, L/D = 3
Insert	: XPMT06X308R-DJ
Grade	: AH9030
Workpiece	: S55C / C55
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.08 mm/rev
Drilling depth	: *H* = 60 mm
Coolant	: Wet (Internal supply)

- Dramatically improved wear resistance due to thick coating with oxide layer.
- Chipping caused by wear is prevented.

Stainless steel

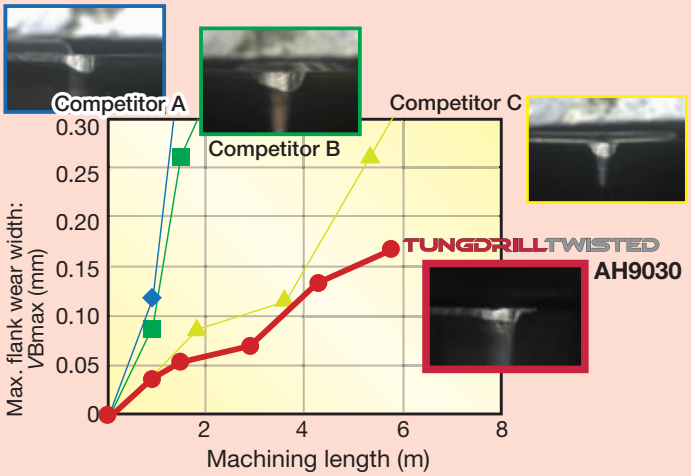


M

Drill	: ø20 mm, L/D = 3
Insert	: XPMT06X308R-DS
Grade	: AH725 / AH6030
Workpiece	: SUS304 / X5CrNi18-10
Cutting speed	: *Vc* = 200 m/min
Feed	: *f* = 0.08 mm/rev
Drilling depth	: *H* = 50 mm
Coolant	: Wet (Internal supply)

- Improved wear resistance even in high-speed machining.
- No chipping on the edge of AH6030 grade insert due to the strong chipping resistance and improved chip evacuation.

Ductile cast iron



K

Drill	: ø20 mm, L/D = 3
Insert	: XPMT06X308R-DJ
Grade	: AH9030
Workpiece	: FCD600 / 600-3
Cutting speed	: *Vc* = 250 m/min
Feed	: *f* = 0.08 mm/rev
Drilling depth	: *H* = 60 mm
Coolant	: Wet (Internal supply)

Long tool life even in high-speed machining due to excellent wear resistance delivered by thick coating with oxide layer.

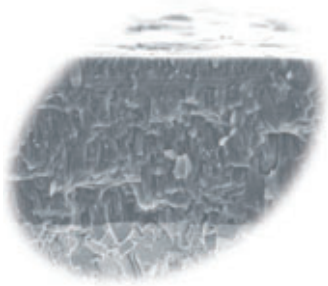
Insert grades

Expansion of new grades for long tool life!

Special Surface Technology

PREMIUMTEC
TUNGALOY

New grades AH9030 and AH6030 achieve long tool life due to thick PVD coating including oxide layer.



New

AH6030 P Steel, M Stainless, S Superalloys, H Hard Materials

- Smooth insert surface prevents chip welding and improves chip control.
- New PVD coating has adhesion strength, which prevents fracture caused by chip welding.
- Fine-grained carbide substrate prevents sudden damage on edges due to high fracture resistance.

New

AH9030 P Steel, K Cast iron

- Smooth insert surface prevents chip welding and provides good chip flow.
- Newly developed PVD coating with strong resistance to wear and oxidation provides stable, long tool life.
- Carbide substrate with high heat resistance prevents crater wear.

Application	Grade	Substrate			Coating layer		Features
	Application code	Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness (μm)	
P M S H	**AH6030** P30 - P40 M30 - M40	14.4	91.5	3.0	Flash-Coating (Ti,Al)N base	5	Versatile grade for various workpiece materials. Well-balanced between wear and fracture resistance.
P K	**AH9030** P15 - P35	14.5	90.8	2.8	Flash-Coating (Ti,Al)N base	5	Suitable for steel and cast iron. Strong resistance to wear, heat, and chipping

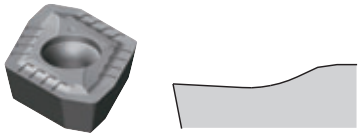
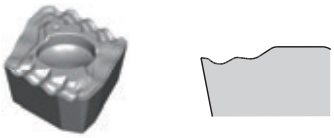
AH725 P Steel, M Stainless

- Excellent wear and fracture resistance delivered by new (Ti, Al)N coating and tough substrate.
- Suitable for steel and stainless steel machining.

T1115 K Cast iron

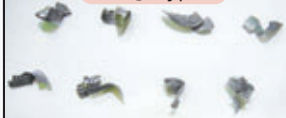
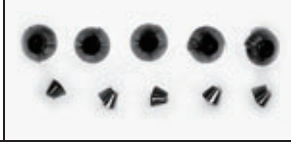
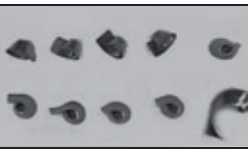
- Strong resistance to wear due to hard carbide substrate and multi-layered compound coating.
- Ideal grade for drilling of cast iron.

Chipbreakers

Chipbreaker Appearance / Cross section	ISO	Features
DJ 	P K N H	Versatile chipbreaker for a wide range of drilling applications. Optimum design reduces cutting force and delivers stable chip control.
DS 	M S	Excellent chip control in machining of gummy materials, such as stainless steel and low carbon steel.
DW 	P K H	Provides better surface finish than conventional inserts even in high-feed machining.
DG 	P M N	Specially designed for chip control in mild steel machining. Prevents long, entangled chips in operations with low cutting speed.

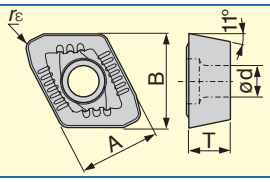
Comparison of chip control for various workpiece materials (Drill dia.: ø 22 mm, Vertical M/C)

TungdrillTwisted with excellent chipbreakers delivers good chip control in machining various workpiece materials.

Workpiece material		P SCM440 / 42CrMo4	M SUS304 / X5CrNi18-10	P SS400 / st42-1	P S55C / C55
Cutting Speed Feed		*Vc* = 100 m/min *f* = 0.1 mm/rev	*Vc* = 150 m/min *f* = 0.12 mm/rev	*Vc* = 80 m/min *f* = 0.08 mm/rev	*Vc* = 200 m/min *f* = 0.2 mm/rev
TUNGDRILLTWISTED	Central	**Good** 			
		DJ type	**DS** type	**DG** type	**DW** type
	Peripheral				
Competitor A	Central		**Unstable** 		
	Peripheral				

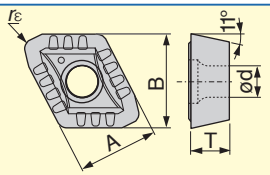
Inserts

DJ



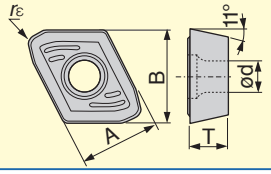
Cat. No.	Grades					Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH9030	PREMIUMTEC AH6030	PREMIUMTEC AH725	PREMIUMTEC T1115	AH740	A	B	T	ød	rε	
XPMT040104R-DJ	●	●	●	●	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DJ	●	●	●	●	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DJ	●	●	●	●	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DJ	●	●	●	●	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DJ	●	●	●	●	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DJ	●	●	●	●	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DJ	●	●	●	●	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

DS



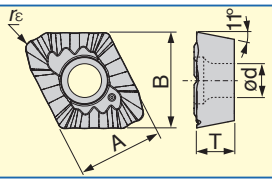
Cat. No.	Grades			Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH6030	PREMIUMTEC AH725	AH120	A	B	T	ød	rε	
XPMT040104R-DS	●	●	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DS	●	●	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DS	●	●	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DS	●	●	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DS	●	●	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DS	●	●	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DS	●	●	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

DW



Cat. No.	Grades					Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH9030	PREMIUMTEC AH6030	PREMIUMTEC AH725	AH740	AH120	A	B	T	ød	rε	
XPMT040104R-DW	●	●	●	▲	▲	4.3	4.5	1.59	2.3	0.4	ø12.5 - ø14.5
XPMT050204R-DW	●	●	●	▲	▲	5.2	5.4	2.38	2.3	0.4	ø15.0 - ø17.0
XPMT06X308R-DW	●	●	●	▲	▲	6.0	7.0	3.00	2.5	0.8	ø17.5 - ø21.5
XPMT07H308R-DW	●	●	●	▲	▲	7.0	8.2	3.60	2.8	0.8	ø22.0 - ø26.0
XPMT08T308R-DW	●	●	●	▲	▲	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DW	●	●	●	▲	▲	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DW	●	●	●	▲	▲	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

DG

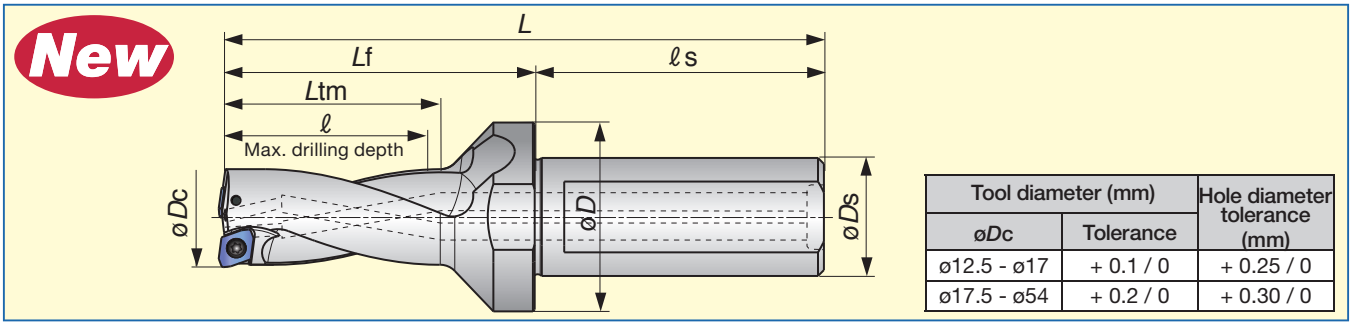


Cat. No.	Grades	Dimensions (mm)					Applicable drill diameters øDc (mm)
	PREMIUMTEC AH725	A	B	T	ød	rε	
XPMT08T308R-DG	●	8.5	9.9	3.97	3.4	0.8	ø27.0 - ø32.0
XPMT110412R-DG	●	11.2	12.5	4.76	4.4	1.2	ø33.0 - ø41.0
XPMT150512R-DG	●	15.0	16.1	5.56	5.5	1.2	ø42.0 - ø54.0

●: Stocked items
▲: Phase-out items

Drills

L/D = 2

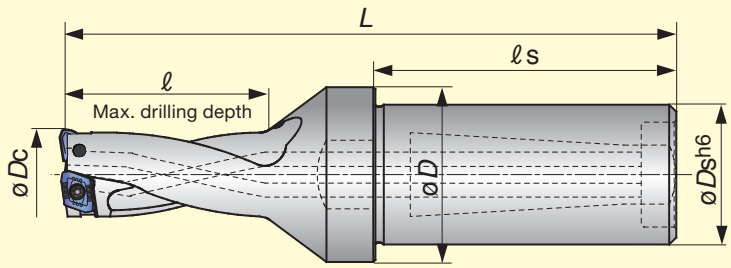


Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.30 / 0

Drill dia. øDc(mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	ℓ	Ltm	Lf	ℓs	L					
12.5	TDX125F20-2	●	20	25	25	28.0	41.0	49	90.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-2	●	20	25	26	29.0	42.0	49	91.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-2	●	20	25	27.	30.0	43.0	49	92.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-2	●	20	25	28	31.0	44.0	49	93.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-2	●	20	25	29	32.0	46.0	49	95.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-2	●	20	25	30	33.0	47.0	49	96.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-2	●	20	32	31	34.0	49.0	49	98.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-2	●	20	32	32	35.0	51.0	49	100.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-2	●	20	32	33	36.0	52.0	49	101.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-2	●	20	32	34	37.0	53.0	49	102.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-2	●	25	32	35	38.0	55.0	54	109.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-2	●	25	32	36	39.0	56.0	54	110.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-2	●	25	32	37	40.0	57.0	54	111.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-2	●	25	32	38	41.0	58.0	54	112.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-2	●	25	32	39	42.0	60.0	54	114.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-2	●	25	32	40	45.0	61.0	54	115.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-2	●	25	32	41	46.0	62.5	54	116.5	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-2	●	25	32	42	47.0	64.0	54	118.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-2	●	25	32	43	48.0	65.0	54	119.0	0.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-2	●	25	32	44	49.0	66.0	54	120.0	1.2	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-2	●	25	37	45	50.0	67.5	54	121.5	1.1	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-2	●	25	37	46	51.0	69.0	54	123.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-2	●	25	37	47	52.0	70.0	54	124.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-2	●	25	37	48	53.0	71.0	54	125.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-2	●	25	37	49	54.0	72.5	54	126.5	0.5	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-2	●	25	37	50	55.0	74.0	54	128.0	0.4	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-2	●	25	37	51	56.0	75.5	54	129.5	0.3	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-2	●	25	37	52	57.0	77.0	54	131.0	0.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-2	●	32	40	54	59.0	79.0	59	138.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-2	●	32	40	56	60.3	82.3	59	141.3	1.2	0.6	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-2	●	32	40	58	62.3	84.3	59	143.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-2	●	32	40	60	64.3	87.3	59	146.3	0.7	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-2	●	32	40	62	66.3	90.3	59	149.3	0.4	0.7	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-2	●	32	40	64	68.3	92.3	59	151.3	0.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330F40-2	●	40	50	66	70.6	95.6	69	164.6	2.3	1.2	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340F40-2	●	40	50	68	72.6	98.6	69	167.6	2.1	1.2	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350F40-2	●	40	50	70	74.6	101.6	69	170.6	1.8	1.2	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360F40-2	●	40	50	72	76.6	104.6	69	173.6	1.5	1.3	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370F40-2	●	40	50	74	78.6	105.6	69	174.6	1.3	1.3	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380F40-2	●	40	50	76	80.6	108.6	69	177.6	1.0	1.3	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390F40-2	●	40	50	78	82.6	110.6	69	179.6	0.7	1.4	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400F40-2	●	40	50	80	84.6	113.6	69	182.6	0.5	1.4	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410F40-2	●	40	50	82	86.6	117.6	69	186.6	0.2	1.5	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420F40-2	●	40	55	84	89.0	120.0	69	189.0	3.1	1.6	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430F40-2	●	40	55	86	91.0	123.0	69	192.0	2.9	1.6	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440F40-2	●	40	55	88	93.0	125.0	69	194.0	2.6	1.7	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450F40-2	●	40	55	90	95.0	128.0	69	197.0	2.3	1.7	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460F40-2	●	40	55	92	97.0	131.0	69	200.0	2.1	1.8	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470F40-2	●	40	55	94	99.0	133.0	69	202.0	1.8	1.9	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480F40-2	●	40	55	96	101.0	136.0	69	205.0	1.5	1.9	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490F40-2	●	40	55	98	103.0	138.0	69	207.0	1.3	1.9	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500F40-2	●	40	55	100	105.0	141.0	69	210.0	1.0	2.0	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510F40-2	●	40	55	102	107.0	145.0	69	214.0	0.7	2.1	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520F40-2	●	40	55	104	109.0	147.0	69	216.0	0.5	2.2	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530F40-2	●	40	55	106	111.0	150.0	69	219.0	-	2.3	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540F40-2	●	40	55	108	113.0	152.0	65	221.0	-	2.4	XPMT150512R-D*	CSTB-5	T-20D

●: Stocked items

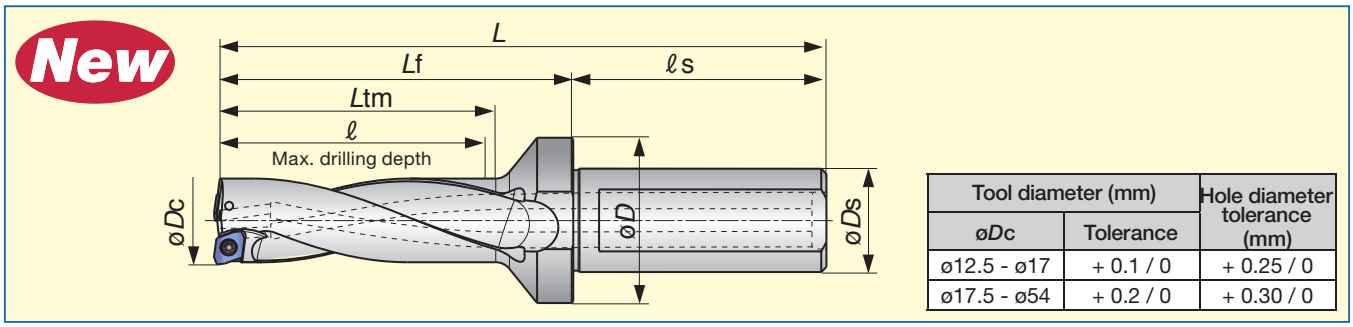
L/D = 2



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm) øDs	øD	ℓ	ℓs	L	Max offset	Applicable inserts	Clamping screw	Torx driver
12.5	TDX125W20-2	▲	20	25	25	43	87.5	0.8	XPMT040104R-D*	CSTB-2	T-6D
13.0	TDX130W20-2	▲	20	25	26	43	89.0	0.7	XPMT040104R-D*	CSTB-2	T-6D
13.5	TDX135W20-2	▲	20	25	27	43	90.5	0.5	XPMT040104R-D*	CSTB-2	T-6D
14.0	TDX140W20-2	▲	20	25	28	43	92.0	0.4	XPMT040104R-D*	CSTB-2	T-6D
14.5	TDX145W20-2	▲	20	25	29	43	93.5	0.3	XPMT040104R-D*	CSTB-2	T-6D
15.0	TDX150W20-2	▲	20	25	30	43	95.0	0.9	XPMT050204R-D*	CSTB-2L040	T-6D
15.5	TDX155W20-2	▲	20	32	31	43	96.5	0.8	XPMT050204R-D*	CSTB-2L040	T-6D
16.0	TDX160W20-2	▲	20	32	32	43	98.0	0.6	XPMT050204R-D*	CSTB-2L040	T-6D
16.5	TDX165W20-2	▲	20	32	33	43	99.5	0.5	XPMT050204R-D*	CSTB-2L040	T-6D
17.0	TDX170W20-2	▲	20	32	34	43	101.0	0.4	XPMT050204R-D*	CSTB-2L040	T-6D
17.5	TDX175W25-2	▲	25	32	35	50	109.5	1.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.0	TDX180W25-2	▲	25	32	36	50	111.0	1.1	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.5	TDX185W25-2	▲	25	32	37	50	112.5	0.9	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.0	TDX190W25-2	▲	25	32	38	50	114.0	0.8	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.5	TDX195W25-2	▲	25	32	39	50	115.5	0.7	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.0	TDX200W25-2	▲	25	32	40	50	117.0	0.5	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.5	TDX205W25-2	▲	25	32	41	50	118.5	0.4	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.0	TDX210W25-2	▲	25	32	42	50	120.0	0.3	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.5	TDX215W25-2	▲	25	32	43	50	121.5	0.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
22.0	TDX220W25-2	▲	25	32	44	50	123.0	1.2	XPMT07H308R-D*	CSTB-2.5	T-8D
22.5	TDX225W25-2	▲	25	37	45	50	124.5	1.1	XPMT07H308R-D*	CSTB-2.5	T-8D
23.0	TDX230W25-2	▲	25	37	46	50	126.0	0.9	XPMT07H308R-D*	CSTB-2.5	T-8D
23.5	TDX235W25-2	▲	25	37	47	50	127.5	0.8	XPMT07H308R-D*	CSTB-2.5	T-8D
24.0	TDX240W25-2	▲	25	37	48	50	129.0	0.7	XPMT07H308R-D*	CSTB-2.5	T-8D
24.5	TDX245W25-2	▲	25	37	49	50	130.5	0.5	XPMT07H308R-D*	CSTB-2.5	T-8D
25.0	TDX250W25-2	▲	25	37	50	50	132.0	0.4	XPMT07H308R-D*	CSTB-2.5	T-8D
25.5	TDX255W25-2	▲	25	37	51	50	133.5	0.3	XPMT07H308R-D*	CSTB-2.5	T-8D
26.0	TDX260W25-2	▲	25	37	52	50	135.0	0.2	XPMT07H308R-D*	CSTB-2.5	T-8D
27.0	TDX270W32-2	▲	32	40	54	55	143.0	1.5	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280W32-2	▲	32	40	56	55	146.0	1.2	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290W32-2	▲	32	40	58	55	149.0	1.0	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300W32-2	▲	32	40	60	55	152.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310W32-2	▲	32	40	62	55	155.0	0.4	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320W32-2	▲	32	40	64	55	158.0	0.2	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330W40-2	▲	40	50	66	65	171.0	2.3	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340W40-2	▲	40	50	68	65	174.0	2.1	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350W40-2	▲	40	50	70	65	177.0	1.8	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360W40-2	▲	40	50	72	65	180.0	1.5	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370W40-2	▲	40	50	74	65	183.0	1.3	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380W40-2	▲	40	50	76	65	186.0	1.0	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390W40-2	▲	40	50	78	65	189.0	0.7	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400W40-2	▲	40	50	80	65	192.0	0.5	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410W40-2	▲	40	50	82	65	195.0	0.2	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420W40-2	▲	40	55	84	65	198.0	3.1	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430W40-2	▲	40	55	86	65	201.0	2.9	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440W40-2	▲	40	55	88	65	204.0	2.6	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450W40-2	▲	40	55	90	65	207.0	2.3	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460W40-2	▲	40	55	92	65	210.0	2.1	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470W40-2	▲	40	55	94	65	213.0	1.8	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480W40-2	▲	40	55	96	65	216.0	1.5	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490W40-2	▲	40	55	98	65	219.0	1.3	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500W40-2	▲	40	55	100	65	222.0	1.0	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510W40-2	▲	40	55	102	65	225.0	0.7	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520W40-2	▲	40	55	104	65	228.0	0.5	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530W40-2	▲	40	55	106	65	231.0	-	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540W40-2	▲	40	55	108	65	234.0	-	XPMT150512R-D*	CSTB-5	T-20D

▲: Phase-out items

L/D = 3

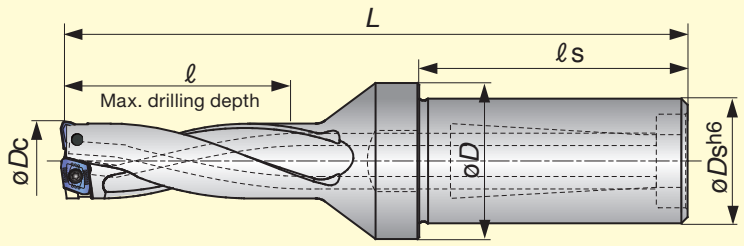


Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.30 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	ℓ	Ltm	Lf	ℓs	L					
12.5	TDX125F20-3	●	20	25	37.5	40.5	53.0	49	102.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-3	●	20	25	39.0	42.0	55.0	49	104.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-3	●	20	25	40.5	43.5	56.0	49	105.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-3	●	20	25	42.0	45.0	58.0	49	107.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-3	●	20	25	43.5	46.5	60.0	49	109.0	0.3	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-3	●	20	25	45.0	48.0	62.0	49	111.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-3	●	20	32	46.5	49.5	64.0	49	113.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-3	●	20	32	48.0	51.0	66.0	49	115.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-3	●	20	32	49.5	52.5	68.0	49	117.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-3	●	20	32	51.0	54.0	69.0	49	118.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-3	●	25	32	52.5	55.5	72.0	54	126.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-3	●	25	32	54.0	57.0	73.0	54	127.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-3	●	25	32	55.5	58.5	75.0	54	129.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-3	●	25	32	57.0	60.0	76.0	54	130.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-3	●	25	32	58.5	61.5	79.0	54	133.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-3	●	25	32	60.0	65.0	81.0	54	135.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-3	●	25	32	61.5	66.5	82.0	54	136.0	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-3	●	25	32	63.0	68.0	84.0	54	138.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-3	●	25	32	64.5	69.5	86.0	54	140.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-3	●	25	32	66.0	71.0	87.0	54	141.0	1.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-3	●	25	37	67.5	72.5	90.0	54	144.0	1.1	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-3	●	25	37	69.0	74.0	91.0	54	145.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-3	●	25	37	70.5	75.5	93.0	54	147.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-3	●	25	37	72.0	77.0	95.0	54	149.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-3	●	25	37	73.5	78.5	97.0	54	151.0	0.5	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-3	●	25	37	75.0	80.0	99.0	54	153.0	0.4	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-3	●	25	37	76.5	81.5	100.0	54	154.0	0.3	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-3	●	25	37	78.0	83.0	102.0	54	156.0	0.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-3	●	32	40	81.0	86.0	105.0	59	164.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-3	●	32	40	84.0	88.3	109.3	59	168.3	1.2	0.7	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-3	●	32	40	87.0	91.3	112.3	59	171.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-3	●	32	40	90.0	94.3	117.3	59	176.3	0.7	0.8	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-3	●	32	40	93.0	97.3	121.3	59	180.3	0.4	0.8	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-3	●	32	40	96.0	100.3	124.3	59	183.3	0.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330F40-3	●	40	50	99.0	103.6	128.6	69	197.6	2.3	1.3	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340F40-3	●	40	50	102.0	106.6	131.6	69	200.6	2.1	1.3	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350F40-3	●	40	50	105.0	109.6	135.6	69	204.6	1.8	1.3	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360F40-3	●	40	50	108.0	112.6	139.6	69	208.6	1.5	1.4	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370F40-3	●	40	50	111.0	115.6	142.6	69	211.6	1.3	1.4	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380F40-3	●	40	50	114.0	118.6	146.6	69	215.6	1.0	1.5	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390F40-3	●	40	50	117.0	121.6	149.6	69	218.6	0.7	1.6	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400F40-3	●	40	50	120.0	124.6	153.6	69	222.6	0.5	1.6	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410F40-3	●	40	50	123.0	127.6	157.6	69	226.6	0.2	1.7	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420F40-3	●	40	55	126.0	131.0	161.0	69	230.0	3.1	1.8	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430F40-3	●	40	55	129.0	134.0	165.0	69	234.0	2.9	1.8	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440F40-3	●	40	55	132.0	137.0	168.0	69	237.0	2.6	1.9	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450F40-3	●	40	55	135.0	140.0	173.0	69	242.0	2.3	2.0	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460F40-3	●	40	55	138.0	143.0	177.0	69	246.0	2.1	2.1	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470F40-3	●	40	55	141.0	146.0	180.0	69	249.0	1.8	2.2	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480F40-3	●	40	55	144.0	149.0	184.0	69	253.0	1.5	2.3	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490F40-3	●	40	55	147.0	152.0	187.0	69	256.0	1.3	2.3	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500F40-3	●	40	55	150.0	155.0	191.0	69	260.0	1.0	2.4	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510F40-3	●	40	55	153.0	158.0	195.0	69	264.0	0.7	2.5	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520F40-3	●	40	55	156.0	161.0	198.0	69	267.0	0.5	2.6	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530F40-3	●	40	55	159.0	164.0	202.0	69	271.0	-	2.7	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540F40-3	●	40		162.0	167.0	205.0	69	274.0	-	2.9	XPMT150512R-D*	CSTB-5	T-20D

●: Stocked items

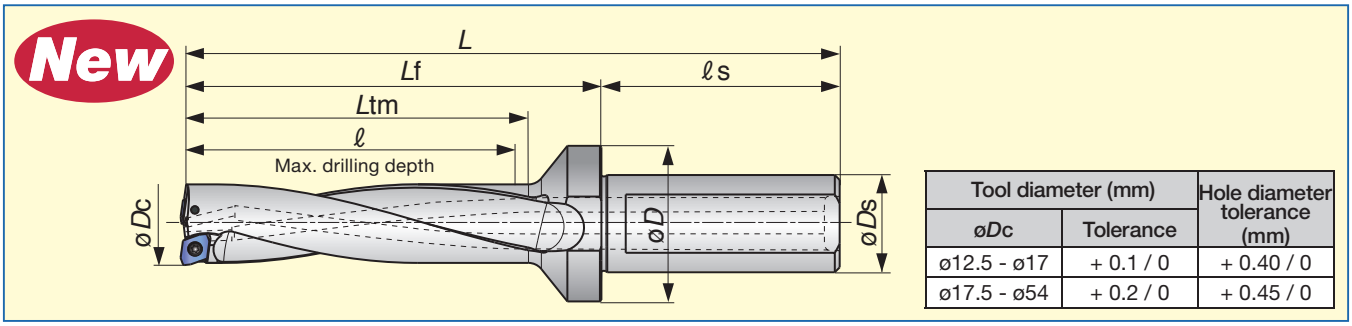
L/D = 3



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm) øDs	øD	ℓ	ℓs	L	Max offset	Applicable inserts	Clamping screw	Torx driver
12.5	TDX125W20-3	▲	20	25	37.5	43	100	0.8	XPMT040104R-D*	CSTB-2	T-6D
13.0	TDX130W20-3	▲	20	25	39.0	43	102	0.7	XPMT040104R-D*	CSTB-2	T-6D
13.5	TDX135W20-3	▲	20	25	40.5	43	104	0.5	XPMT040104R-D*	CSTB-2	T-6D
14.0	TDX140W20-3	▲	20	25	42.0	43	106	0.4	XPMT040104R-D*	CSTB-2	T-6D
14.5	TDX145W20-3	▲	20	25	43.5	43	108	0.3	XPMT040104R-D*	CSTB-2	T-6D
15.0	TDX150W20-3	▲	20	25	45.0	43	110	0.9	XPMT050204R-D*	CSTB-2L040	T-6D
15.5	TDX155W20-3	▲	20	32	46.5	43	112	0.8	XPMT050204R-D*	CSTB-2L040	T-6D
16.0	TDX160W20-3	▲	20	32	48.0	43	114	0.6	XPMT050204R-D*	CSTB-2L040	T-6D
16.5	TDX165W20-3	▲	20	32	49.5	43	116	0.5	XPMT050204R-D*	CSTB-2L040	T-6D
17.0	TDX170W20-3	▲	20	32	51.0	43	118	0.4	XPMT050204R-D*	CSTB-2L040	T-6D
17.5	TDX175W25-3	▲	25	32	52.5	50	127	1.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.0	TDX180W25-3	▲	25	32	54.0	50	129	1.1	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.5	TDX185W25-3	▲	25	32	55.5	50	131	0.9	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.0	TDX190W25-3	▲	25	32	57.0	50	133	0.8	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.5	TDX195W25-3	▲	25	32	58.5	50	135	0.7	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.0	TDX200W25-3	▲	25	32	60.0	50	137	0.5	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.5	TDX205W25-3	▲	25	32	61.5	50	139	0.4	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.0	TDX210W25-3	▲	25	32	63.0	50	141	0.3	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.5	TDX215W25-3	▲	25	32	64.5	50	143	0.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
22.0	TDX220W25-3	▲	25	32	66.0	50	145	1.2	XPMT07H308R-D*	CSTB-2.5	T-8D
22.5	TDX225W25-3	▲	25	37	67.5	50	147	1.1	XPMT07H308R-D*	CSTB-2.5	T-8D
23.0	TDX230W25-3	▲	25	37	69.0	50	149	0.9	XPMT07H308R-D*	CSTB-2.5	T-8D
23.5	TDX235W25-3	▲	25	37	70.5	50	151	0.8	XPMT07H308R-D*	CSTB-2.5	T-8D
24.0	TDX240W25-3	▲	25	37	72.0	50	153	0.7	XPMT07H308R-D*	CSTB-2.5	T-8D
24.5	TDX245W25-3	▲	25	37	73.5	50	155	0.5	XPMT07H308R-D*	CSTB-2.5	T-8D
25.0	TDX250W25-3	▲	25	37	75.0	50	157	0.4	XPMT07H308R-D*	CSTB-2.5	T-8D
25.5	TDX255W25-3	▲	25	37	76.5	50	159	0.3	XPMT07H308R-D*	CSTB-2.5	T-8D
26.0	TDX260W25-3	▲	25	37	78.0	50	161	0.2	XPMT07H308R-D*	CSTB-2.5	T-8D
27.0	TDX270W32-3	▲	32	40	81.0	55	170	1.5	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280W32-3	▲	32	40	84.0	50	174	1.2	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290W32-3	▲	32	40	87.0	50	178	1.0	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300W32-3	▲	32	40	90.0	50	182	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310W32-3	▲	32	40	93.0	50	186	0.4	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320W32-3	▲	32	40	96.0	50	190	0.2	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330W40-3	▲	40	50	99.0	65	204	2.3	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340W40-3	▲	40	50	102.0	65	208	2.1	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350W40-3	▲	40	50	105.0	65	212	1.8	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360W40-3	▲	40	50	108.0	65	216	1.5	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370W40-3	▲	40	50	111.0	65	220	1.3	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380W40-3	▲	40	50	114.0	65	224	1.0	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390W40-3	▲	40	50	117.0	65	228	0.7	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400W40-3	▲	40	50	120.0	65	232	0.5	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410W40-3	▲	40	50	123.0	65	236	0.2	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420W40-3	▲	40	55	126.0	65	240	3.1	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430W40-3	▲	40	55	129.0	65	244	2.9	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440W40-3	▲	40	55	132.0	65	248	2.6	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450W40-3	▲	40	55	135.0	65	252	2.3	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460W40-3	▲	40	55	138.0	65	256	2.1	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470W40-3	▲	40	55	141.0	65	260	1.8	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480W40-3	▲	40	55	144.0	65	264	1.5	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490W40-3	▲	40	55	147.0	65	268	1.3	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500W40-3	▲	40	55	150.0	65	272	1.0	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510W40-3	▲	40	55	153.0	65	276	0.7	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520W40-3	▲	40	55	156.0	65	280	0.5	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530W40-3	▲	40	55	159.0	65	284	-	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540W40-3	▲	40	55	162.0	65	288	-	XPMT150512R-D*	CSTB-5	T-20D

▲: Phase-out items

L/D = 4

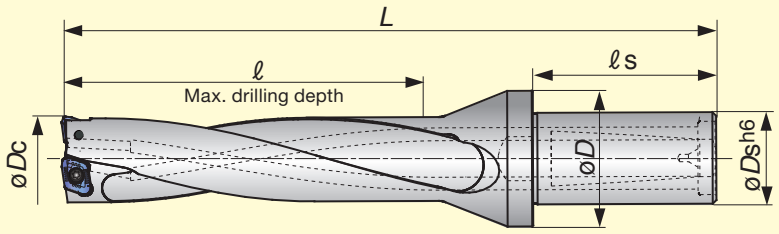


Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.40 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.45 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	ℓ	Ltm	Lf	ℓs	L					
12.5	TDX125F20-4	●	20	25	50	53	66	49	115.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-4	●	20	25	52	55	68	49	117.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-4	●	20	25	54	57	70	49	119.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-4	●	20	25	56	59	72	49	121.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-4	●	20	25	58	61	75	49	124.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-4	●	20	25	60	63	77	49	126.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-4	●	20	32	62	65	79	49	128.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-4	●	20	32	64	67	82	49	131.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-4	●	20	32	66	69.	84	49	133.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-4	●	20	32	68	71	86	49	135.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-4	●	25	32	70	73	89	54	143.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-4	●	25	32	72	75	91	54	145.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-4	●	25	32	74	77	93	54	147.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-4	●	25	32	76	79	95	54	149.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-4	●	25	32	78	81	99	54	153.0	0.7	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-4	●	25	32	80	84	101	54	155.0	0.5	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-4	●	25	32	82	86	103	54	157.0	0.4	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-4	●	25	32	84	88	105	54	159.0	0.3	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-4	●	25	32	86	90	107	54	161.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-4	●	25	32	88	92	109	54	163.0	1.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-4	●	25	37	90	94	111	54	165.5	1.1	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-4	●	25	37	92	96	114	54	168.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-4	●	25	37	94	98	116	54	170.5	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-4	●	25	37	96	100	119	54	173.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-4	●	25	37	98	102	121	54	175.5	0.5	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-4	●	25	37	100	104	124	54	178.0	0.4	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-4	●	25	37	102	106	126	54	180.0	0.3	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-4	●	25	37	104	108	128	54	182.0	0.2	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-4	●	32	40	108	112	132	59	191.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-4	●	32	40	112	116	137	59	196.0	1.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-4	●	32	40	116	120	141	59	200.0	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-4	●	32	40	120	124	147	59	206.0	0.7	0.9	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-4	●	32	40	124	128	152	59	211.0	0.4	0.9	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-4	●	32	40	128	13.0	156	59	215.0	0.2	1.0	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330F40-4	●	40	50	132	136	161	69	230.0	2.3	1.4	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340F40-4	●	40	50	136	140	165	69	234.0	2.1	1.4	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350F40-4	●	40	50	140	144	170	69	239.0	1.8	1.4	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360F40-4	●	40	50	144	148	175	69	244.0	1.5	1.5	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370F40-4	●	40	50	148	152	179	69	248.0	1.3	1.5	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380F40-4	●	40	50	152	156	184	69	253.0	1.0	1.7	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390F40-4	●	40	50	156	160	188	69	257.0	0.7	1.8	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400F40-4	●	40	50	160	164	193	69	262.0	0.5	1.8	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410F40-4	●	40	50	164	168	198	69	267.0	0.2	1.9	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420F40-4	●	40	55	168	172	202	69	271.0	3.1	2.0	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430F40-4	●	40	55	172	176	207	69	276.0	2.9	2.0	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440F40-4	●	40	55	176	18.0	211	69	280.0	2.6	2.1	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450F40-4	●	40	55	180	184	217	69	286.0	2.3	2.3	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460F40-4	●	40	55	184	188	222	69	291.0	2.1	2.4	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470F40-4	●	40	55	188	192	226	69	295.0	1.8	2.5	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480F40-4	●	40	55	192	196.0	231	69	300.0	1.5	2.7	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490F40-4	●	40	55	196	200	235	69	304.0	1.3	2.7	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500F40-4	●	40	55	200	204	240	69	309.0	1.0	2.8	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510F40-4	●	40	55	204	208	245	69	314.0	0.7	2.9	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520F40-4	●	40	55	208	212	249	69	318.0	0.5	3.0	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530F40-4	●	40	55	212	216	254	69	323.0	-	3.1	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540F40-4	●	40	55	216	220	258	69	327.0	-	3.4	XPMT150512R-D*	CSTB-5	T-20D

●: Stocked items

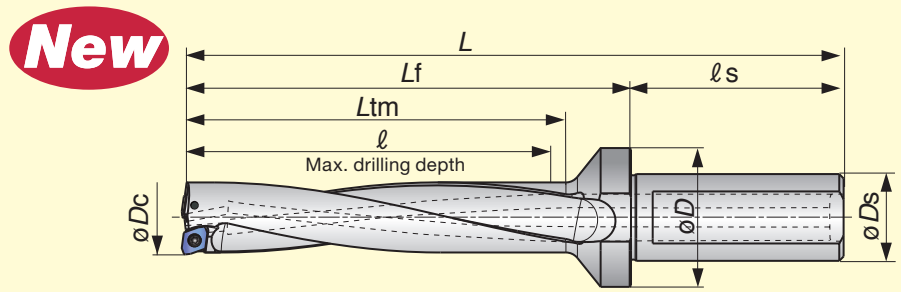
L/D = 4



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm) øDs	øD	ℓ	ℓs	L	Max offset	Applicable inserts	Clamping screw	Torx driver
12.5	TDX125W20-4	▲	20	25	50	43	116	0.8	XPMT040104R-D*	CSTB-2	T-6D
13.0	TDX130W20-4	▲	20	25	52	43	118	0.7	XPMT040104R-D*	CSTB-2	T-6D
13.5	TDX135W20-4	▲	20	25	54	43	121	0.5	XPMT040104R-D*	CSTB-2	T-6D
14.0	TDX140W20-4	▲	20	25	56	43	123	0.4	XPMT040104R-D*	CSTB-2	T-6D
14.5	TDX145W20-4	▲	20	25	58	43	125	0.3	XPMT040104R-D*	CSTB-2	T-6D
15.0	TDX150W20-4	▲	20	25	60	43	128	0.9	XPMT050204R-D*	CSTB-2L040	T-6D
15.5	TDX155W20-4	▲	20	32	62	43	130	0.8	XPMT050204R-D*	CSTB-2L040	T-6D
16.0	TDX160W20-4	▲	20	32	64	43	132	0.6	XPMT050204R-D*	CSTB-2L040	T-6D
16.5	TDX165W20-4	▲	20	32	66	43	135	0.5	XPMT050204R-D*	CSTB-2L040	T-6D
17.0	TDX170W20-4	▲	20	32	68	43	137	0.4	XPMT050204R-D*	CSTB-2L040	T-6D
17.5	TDX175W25-4	▲	25	32	70	50	148	1.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.0	TDX180W25-4	▲	25	32	72	50	150	1.1	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.5	TDX185W25-4	▲	25	32	74	50	152	0.9	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.0	TDX190W25-4	▲	25	32	76	50	154	0.8	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.5	TDX195W25-4	▲	25	32	78	50	157	0.7	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.0	TDX200W25-4	▲	25	32	80	50	160	0.5	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.5	TDX205W25-4	▲	25	32	82	50	162	0.4	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.0	TDX210W25-4	▲	25	32	84	50	164	0.3	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.5	TDX215W25-4	▲	25	32	86	50	166	0.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
22.0	TDX220W25-4	▲	25	32	88	50	169	1.2	XPMT07H308R-D*	CSTB-2.5	T-8D
22.5	TDX225W25-4	▲	25	37	90	50	171	1.1	XPMT07H308R-D*	CSTB-2.5	T-8D
23.0	TDX230W25-4	▲	25	37	92	50	173	0.9	XPMT07H308R-D*	CSTB-2.5	T-8D
23.5	TDX235W25-4	▲	25	37	94	50	175	0.8	XPMT07H308R-D*	CSTB-2.5	T-8D
24.0	TDX240W25-4	▲	25	37	96	50	178	0.7	XPMT07H308R-D*	CSTB-2.5	T-8D
24.5	TDX245W25-4	▲	25	37	98	50	181	0.5	XPMT07H308R-D*	CSTB-2.5	T-8D
25.0	TDX250W25-4	▲	25	37	100	50	183	0.4	XPMT07H308R-D*	CSTB-2.5	T-8D
25.5	TDX255W25-4	▲	25	37	102	50	185	0.3	XPMT07H308R-D*	CSTB-2.5	T-8D
26.0	TDX260W25-4	▲	25	37	104	50	187	0.2	XPMT07H308R-D*	CSTB-2.5	T-8D
27.0	TDX270W32-4	▲	32	40	108	55	198	1.5	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280W32-4	▲	32	40	112	55	203	1.2	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290W32-4	▲	32	40	116	55	208	1.0	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300W32-4	▲	32	40	120	55	213	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310W32-4	▲	32	40	124	55	217	0.4	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320W32-4	▲	32	40	128	55	222	0.2	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330W40-4	▲	40	50	132	65	238	2.3	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340W40-4	▲	40	50	136	65	243	2.1	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350W40-4	▲	40	50	140	65	248	1.8	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360W40-4	▲	40	50	144	65	252	1.5	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370W40-4	▲	40	50	148	65	258	1.3	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380W40-4	▲	40	50	152	65	262	1.0	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390W40-4	▲	40	50	156	65	267	0.7	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400W40-4	▲	40	50	160	65	272	0.5	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410W40-4	▲	40	50	164	65	277	0.2	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420W40-4	▲	40	55	168	65	282	3.1	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430W40-4	▲	40	55	172	65	287	2.9	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440W40-4	▲	40	55	176	65	292	2.6	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450W40-4	▲	40	55	180	65	296	2.3	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460W40-4	▲	40	55	184	65	302	2.1	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470W40-4	▲	40	55	188	65	306	1.8	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480W40-4	▲	40	55	192	65	311	1.5	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490W40-4	▲	40	55	196	65	316	1.3	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500W40-4	▲	40	55	200	65	320	1.0	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510W40-4	▲	40	55	204	65	325	0.7	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520W40-4	▲	40	55	208	65	330	0.5	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530W40-4	▲	40	55	212	65	335	-	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540W40-4	▲	40	55	216	65	339	-	XPMT150512R-D*	CSTB-5	T-20D

▲: Phase-out items

L/D = 5

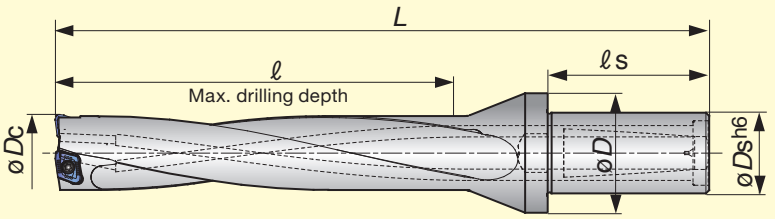


Tool diameter (mm)		Hole diameter tolerance (mm)
øDc	Tolerance	
ø12.5 - ø17	+ 0.1 / 0	+ 0.40 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.45 / 0

Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver
			øDs	øD	ℓ	Ltm	Lf	ℓs	L					
12.5	TDX125F20-5	●	20	25	62.5	65.5	78.5	49	127.5	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.0	TDX130F20-5	●	20	25	65.0	68.0	81.0	49	130.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
13.5	TDX135F20-5	●	20	25	67.5	70.5	83.5	49	132.5	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.0	TDX140F20-5	●	20	25	70.0	73.0	86.0	49	135.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
14.5	TDX145F20-5	●	20	25	72.5	75.5	89.5	49	138.5	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB
15.0	TDX150F20-5	●	20	25	75.0	78.0	92.0	49	141.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
15.5	TDX155F20-5	●	20	32	77.5	80.5	94.5	49	143.5	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.0	TDX160F20-5	●	20	32	80.0	83.0	98.0	49	147.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
16.5	TDX165F20-5	●	20	32	82.5	85.5	100.5	49	149.5	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.0	TDX170F20-5	●	20	32	85.0	88.0	103.0	49	152.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB
17.5	TDX175F25-5	●	25	32	87.5	90.5	106.5	54	160.5	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.0	TDX180F25-5	●	25	32	90.0	93.0	109.0	54	163.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D
18.5	TDX185F25-5	●	25	32	92.5	95.5	111.5	54	165.5	0.9	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.0	TDX190F25-5	●	25	32	95.0	98.0	114.0	54	168.0	0.8	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
19.5	TDX195F25-5	●	25	32	97.5	100.5	118.5	54	172.5	0.7	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.0	TDX200F25-5	●	25	32	100.0	104.0	121.0	54	175.0	0.5	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
20.5	TDX205F25-5	●	25	32	102.5	106.5	123.5	54	177.5	0.4	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.0	TDX210F25-5	●	25	32	105.0	109.0	126.0	54	180.0	0.3	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
21.5	TDX215F25-5	●	25	32	107.5	111.5	128.5	54	182.5	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D
22.0	TDX220F25-5	●	25	32	110.0	114.0	131.0	54	185.0	1.2	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
22.5	TDX225F25-5	●	25	37	112.5	116.5	134.0	54	188.0	1.1	0.6	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.0	TDX230F25-5	●	25	37	115.0	119.0	137.0	54	191.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
23.5	TDX235F25-5	●	25	37	117.5	121.5	140.0	54	194.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.0	TDX240F25-5	●	25	37	120.0	124.0	143.0	54	197.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D
24.5	TDX245F25-5	●	25	37	122.5	126.5	146.0	54	200.0	0.5	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.0	TDX250F25-5	●	25	37	125.0	129.0	149.0	54	203.0	0.4	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
25.5	TDX255F25-5	●	25	37	127.5	131.5	151.5	54	205.5	0.3	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
26.0	TDX260F25-5	●	25	37	130.0	134.0	154.0	54	208.0	0.2	0.7	XPMT07H308R-D*	CSPB-2.5	IP-8D
27.0	TDX270F32-5	●	32	40	135.0	139.0	159.0	59	218.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280F32-5	●	32	40	140.0	144.0	165.0	59	224.0	1.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290F32-5	●	32	40	145.0	149.0	170.0	59	229.0	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300F32-5	●	32	40	150.0	154.0	177.0	59	236.0	0.7	1.0	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310F32-5	●	32	40	155.0	159.0	183.0	59	242.0	0.4	1.0	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320F32-5	●	32	40	160.0	164.0	188.0	59	247.0	0.2	1.1	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330F40-5	●	40	50	165.0	169.0	194.0	69	263.0	2.3	1.5	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340F40-5	●	40	50	170.0	174.0	199.0	69	268.0	2.1	1.5	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350F40-5	●	40	50	175.0	179.0	205.0	69	274.0	1.8	1.5	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360F40-5	●	40	50	180.0	184.0	211.0	69	280.0	1.5	1.6	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370F40-5	●	40	50	185.0	189.0	216.0	69	285.0	1.3	1.6	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380F40-5	●	40	50	190.0	194.0	222.0	69	291.0	1.0	1.9	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390F40-5	●	40	50	195.0	199.0	227.0	69	296.0	0.7	2.0	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400F40-5	●	40	50	200.0	204.0	233.0	69	302.0	0.5	2.0	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410F40-5	●	40	50	205.0	209.0	239.0	69	308.0	0.2	2.1	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420F40-5	●	40	55	210.0	214.0	244.0	69	313.0	3.1	2.2	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430F40-5	●	40	55	215.0	219.0	250.0	69	319.0	2.9	2.2	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440F40-5	●	40	55	220.0	224.0	255.0	69	324.0	2.6	2.3	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450F40-5	●	40	55	225.0	229.0	262.0	69	331.0	2.3	2.6	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460F40-5	●	40	55	230.0	234.0	268.0	69	337.0	2.1	2.7	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470F40-5	●	40	55	235.0	239.0	273.0	69	342.0	1.8	2.8	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480F40-5	●	40	55	240.0	244.0	279.0	69	348.0	1.5	3.1	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490F40-5	●	40	55	245.0	249.0	284.0	69	353.0	1.3	3.1	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500F40-5	●	40	55	250.0	254.0	290.0	69	359.0	1.0	3.2	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510F40-5	●	40	55	255.0	259.0	296.0	69	365.0	0.7	3.3	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520F40-5	●	40	55	260.0	264.0	301.0	69	370.0	0.5	3.4	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530F40-5	●	40	55	265.0	269.0	307.0	69	376.0	-	3.5	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540F40-5	●	40	55	270.0	274.0	312.0	69	381.0	-	3.9	XPMT150512R-D*	CSTB-5	T-20D

●: Stocked items

L/D = 5



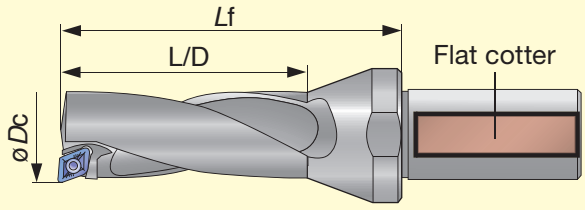
Drill dia. øDc	Cat. No.	Stock	Dimensions (mm) øDs	øD	ℓ	ℓ s	L	Max offset	Applicable inserts	Clamping screw	Torx driver
12.5	TDX125W20-5	▲	20	25	62.5	43	128	0.8	XPMT040104R-D*	CSTB-2	T-6D
13.0	TDX130W20-5	▲	20	25	65.0	43	131	0.7	XPMT040104R-D*	CSTB-2	T-6D
13.5	TDX135W20-5	▲	20	25	67.5	43	134	0.5	XPMT040104R-D*	CSTB-2	T-6D
14.0	TDX140W20-5	▲	20	25	70.0	43	137	0.4	XPMT040104R-D*	CSTB-2	T-6D
14.5	TDX145W20-5	▲	20	25	72.5	43	140	0.3	XPMT040104R-D*	CSTB-2	T-6D
15.0	TDX150W20-5	▲	20	25	75.0	43	143	0.9	XPMT050204R-D*	CSTB-2L040	T-6D
15.5	TDX155W20-5	▲	20	32	77.5	43	146	0.8	XPMT050204R-D*	CSTB-2L040	T-6D
16.0	TDX160W20-5	▲	20	32	80.0	43	148	0.6	XPMT050204R-D*	CSTB-2L040	T-6D
16.5	TDX165W20-5	▲	20	32	82.5	43	152	0.5	XPMT050204R-D*	CSTB-2L040	T-6D
17.0	TDX170W20-5	▲	20	32	85.0	43	154	0.4	XPMT050204R-D*	CSTB-2L040	T-6D
17.5	TDX175W25-5	▲	25	32	87.5	50	165	1.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.0	TDX180W25-5	▲	25	32	90.0	50	168	1.1	XPMT06X308R-D*	CSTB-2.2R	T-7D
18.5	TDX185W25-5	▲	25	32	92.5	50	171	0.9	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.0	TDX190W25-5	▲	25	32	95.0	50	173	0.8	XPMT06X308R-D*	CSTB-2.2R	T-7D
19.5	TDX195W25-5	▲	25	32	97.5	50	176	0.7	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.0	TDX200W25-5	▲	25	32	100.0	50	180	0.5	XPMT06X308R-D*	CSTB-2.2R	T-7D
20.5	TDX205W25-5	▲	25	32	102.5	50	182	0.4	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.0	TDX210W25-5	▲	25	32	105.0	50	185	0.3	XPMT06X308R-D*	CSTB-2.2R	T-7D
21.5	TDX215W25-5	▲	25	32	107.5	50	188	0.2	XPMT06X308R-D*	CSTB-2.2R	T-7D
22.0	TDX220W25-5	▲	25	32	110.0	50	191	1.2	XPMT07H308R-D*	CSTB-2.5	T-8D
22.5	TDX225W25-5	▲	25	37	112.5	50	193	1.1	XPMT07H308R-D*	CSTB-2.5	T-8D
23.0	TDX230W25-5	▲	25	37	115.0	50	196	0.9	XPMT07H308R-D*	CSTB-2.5	T-8D
23.5	TDX235W25-5	▲	25	37	117.5	50	199	0.8	XPMT07H308R-D*	CSTB-2.5	T-8D
24.0	TDX240W25-5	▲	25	37	120.0	50	202	0.7	XPMT07H308R-D*	CSTB-2.5	T-8D
24.5	TDX245W25-5	▲	25	37	122.5	50	205	0.5	XPMT07H308R-D*	CSTB-2.5	T-8D
25.0	TDX250W25-5	▲	25	37	125.0	50	208	0.4	XPMT07H308R-D*	CSTB-2.5	T-8D
25.5	TDX255W25-5	▲	25	37	127.5	50	211	0.3	XPMT07H308R-D*	CSTB-2.5	T-8D
26.0	TDX260W25-5	▲	25	37	130.0	50	213	0.2	XPMT07H308R-D*	CSTB-2.5	T-8D
27.0	TDX270W32-5	▲	32	40	135.0	55	225	1.5	XPMT08T308R-D*	CSTB-3	T-9D
28.0	TDX280W32-5	▲	32	40	140.0	55	231	1.2	XPMT08T308R-D*	CSTB-3	T-9D
29.0	TDX290W32-5	▲	32	40	145.0	55	237	1.0	XPMT08T308R-D*	CSTB-3	T-9D
30.0	TDX300W32-5	▲	32	40	150.0	55	243	0.7	XPMT08T308R-D*	CSTB-3	T-9D
31.0	TDX310W32-5	▲	32	40	155.0	55	248	0.4	XPMT08T308R-D*	CSTB-3	T-9D
32.0	TDX320W32-5	▲	32	40	160.0	55	254	0.2	XPMT08T308R-D*	CSTB-3	T-9D
33.0	TDX330W40-5	▲	40	50	165.0	65	271	2.3	XPMT110412R-D*	CSTB-4	T-15D
34.0	TDX340W40-5	▲	40	50	170.0	65	277	2.1	XPMT110412R-D*	CSTB-4	T-15D
35.0	TDX350W40-5	▲	40	50	175.0	65	283	1.8	XPMT110412R-D*	CSTB-4	T-15D
36.0	TDX360W40-5	▲	40	50	180.0	65	288	1.5	XPMT110412R-D*	CSTB-4	T-15D
37.0	TDX370W40-5	▲	40	50	185.0	65	295	1.3	XPMT110412R-D*	CSTB-4	T-15D
38.0	TDX380W40-5	▲	40	50	190.0	65	300	1.0	XPMT110412R-D*	CSTB-4	T-15D
39.0	TDX390W40-5	▲	40	50	195.0	65	306	0.7	XPMT110412R-D*	CSTB-4	T-15D
40.0	TDX400W40-5	▲	40	50	200.0	65	312	0.5	XPMT110412R-D*	CSTB-4	T-15D
41.0	TDX410W40-5	▲	40	50	205.0	65	318	0.2	XPMT110412R-D*	CSTB-4	T-15D
42.0	TDX420W40-5	▲	40	55	210.0	65	324	3.1	XPMT150512R-D*	CSTB-5	T-20D
43.0	TDX430W40-5	▲	40	55	215.0	65	330	2.9	XPMT150512R-D*	CSTB-5	T-20D
44.0	TDX440W40-5	▲	40	55	220.0	65	336	2.6	XPMT150512R-D*	CSTB-5	T-20D
45.0	TDX450W40-5	▲	40	55	225.0	65	341	2.3	XPMT150512R-D*	CSTB-5	T-20D
46.0	TDX460W40-5	▲	40	55	230.0	65	348	2.1	XPMT150512R-D*	CSTB-5	T-20D
47.0	TDX470W40-5	▲	40	55	235.0	65	353	1.8	XPMT150512R-D*	CSTB-5	T-20D
48.0	TDX480W40-5	▲	40	55	240.0	65	359	1.5	XPMT150512R-D*	CSTB-5	T-20D
49.0	TDX490W40-5	▲	40	55	245.0	65	365	1.3	XPMT150512R-D*	CSTB-5	T-20D
50.0	TDX500W40-5	▲	40	55	250.0	65	370	1.0	XPMT150512R-D*	CSTB-5	T-20D
51.0	TDX510W40-5	▲	40	55	255.0	65	376	0.7	XPMT150512R-D*	CSTB-5	T-20D
52.0	TDX520W40-5	▲	40	55	260.0	65	382	0.5	XPMT150512R-D*	CSTB-5	T-20D
53.0	TDX530W40-5	▲	40	55	265.0	65	388	-	XPMT150512R-D*	CSTB-5	T-20D
54.0	TDX540W40-5	▲	40	55	270.0	65	393	-	XPMT150512R-D*	CSTB-5	T-20D

▲: Phase-out items

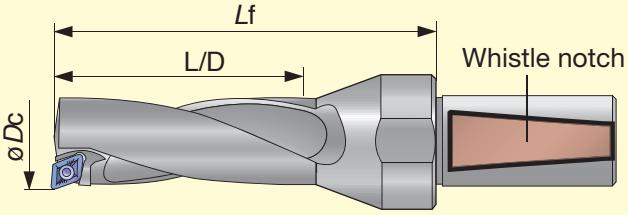
Comparison of overhang length

The overhang length (*L*f) in the new body is shorter than the old type.

New Cat. No. **TDX***F**-***



Old Cat. No. **TDX***W**-***



Drill dia.	Dimensions (mm)											
	*L*f											
	L/D = 2			L/D = 3			L/D = 4			L/D = 5		
ø*D*c (mm)	TDX***F	TDX***W	Difference (New - Old)	TDX***F	TDX***W	Difference (New - Old)	TDX***F	TDX***W	Difference (New - Old)	TDX***F	TDX***W	Difference (New - Old)
12.5	41.0	44.5	- 3.5	53.0	57.0	- 4.0	66.0	73.0	- 7.0	78.5	85.0	- 6.5
13.0	42.0	46.0	- 4.0	55.0	59.0	- 4.0	68.0	75.0	- 7.0	81.0	88.0	- 7.0
13.5	43.0	47.5	- 4.5	56.0	61.0	- 5.0	70.0	78.0	- 8.0	83.5	91.0	- 7.5
14.0	44.0	49.0	- 5.0	58.0	63.0	- 5.0	72.0	80.0	- 8.0	86.0	94.0	- 8.0
14.5	46.0	50.5	- 4.5	60.0	65.0	- 5.0	75.0	82.0	- 7.0	89.5	97.0	- 7.5
15.0	47.0	52.0	- 5.0	62.0	67.0	- 5.0	77.0	85.0	- 8.0	92.0	100.0	- 8.0
15.5	49.0	53.5	- 4.5	64.0	69.0	- 5.0	79.0	87.0	- 8.0	94.5	103.0	- 8.5
16.0	51.0	55.0	- 4.0	66.0	71.0	- 5.0	82.0	89.0	- 7.0	98.0	105.0	- 7.0
16.5	52.0	56.5	- 4.5	68.0	73.0	- 5.0	84.0	92.0	- 8.0	100.5	109.0	- 8.5
17.0	53.0	58.0	- 5.0	69.0	75.0	- 6.0	86.0	94.0	- 8.0	103.0	111.0	- 8.0
17.5	55.0	59.5	- 4.5	72.0	77.0	- 5.0	89.0	98.0	- 9.0	106.5	115.0	- 8.5
18.0	56.0	61.0	- 5.0	73.0	79.0	- 6.0	91.0	100.0	- 9.0	109.0	118.0	- 9.0
18.5	57.0	62.5	- 5.5	75.0	81.0	- 6.0	93.0	102.0	- 9.0	111.5	121.0	- 9.5
19.0	58.0	64.0	- 6.0	76.0	83.0	- 7.0	95.0	104.0	- 9.0	114.0	123.0	- 9.0
19.5	60.0	65.5	- 5.5	79.0	85.0	- 6.0	99.0	107.0	- 8.0	118.5	126.0	- 7.5
20.0	61.0	67.0	- 6.0	81.0	87.0	- 6.0	101.0	110.0	- 9.0	121.0	130.0	- 9.0
20.5	62.5	68.5	- 6.0	82.0	89.0	- 7.0	103.0	112.0	- 9.0	123.5	132.0	- 8.5
21.0	64.0	70.0	- 6.0	84.0	91.0	- 7.0	105.0	114.0	- 9.0	126.0	135.0	- 9.0
21.5	65.0	71.5	- 6.5	86.0	93.0	- 7.0	107.0	116.0	- 9.0	128.5	138.0	- 9.5
22.0	66.0	73.0	- 7.0	87.0	95.0	- 8.0	109.0	119.0	- 10.0	131.0	141.0	- 10.0
22.5	67.5	74.5	- 7.0	90.0	97.0	- 7.0	111.5	121.0	- 9.5	134.0	143.0	- 9.0
23.0	69.0	76.0	- 7.0	91.0	99.0	- 8.0	114.0	123.0	- 9.0	137.0	146.0	- 9.0
23.5	70.0	77.5	- 7.5	93.0	101.0	- 8.0	116.5	125.0	-8.5	140.0	149.0	- 9.0
24.0	71.0	79.0	- 8.0	95.0	103.0	- 8.0	119.0	128.0	- 9.0	143.0	152.0	- 9.0
24.5	72.5	80.5	- 8.0	97.0	105.0	- 8.0	121.5	131.0	- 9.5	146.0	155.0	- 9.0
25.0	74.0	82.0	- 8.0	99.0	107.0	- 8.0	124.0	133.0	- 9.0	149.0	158.0	- 9.0
25.5	75.5	83.5	- 8.0	100.0	109.0	- 9.0	126.0	135.0	- 9.0	151.5	161.0	- 9.5
26.0	77.0	85.0	- 8.0	102.0	111.0	- 9.0	128.0	137.0	- 9.0	154.0	163.0	- 9.0
27.0	79.0	88.0	- 9.0	105.0	115.0	-10.0	132.0	143.0	- 11.0	159.0	170.0	- 11.0
28.0	82.3	91.0	- 8.7	109.3	119.0	- 9.7	137.0	148.0	- 11.0	165.0	176.0	- 11.0
29.0	84.3	94.0	- 9.7	112.3	123.0	-10.7	141.0	153.0	- 12.0	170.0	182.0	- 12.0
30.0	87.3	97.0	- 9.7	117.3	127.0	- 9.7	147.0	158.0	- 11.0	177.0	188.0	- 11.0
31.0	90.3	100.0	- 9.7	121.3	131.0	- 9.7	152.0	162.0	- 10.0	183.0	193.0	- 10.0
32.0	92.3	103.0	- 10.7	124.3	135.0	-10.7	156.0	167.0	- 11.0	188.0	199.0	- 11.0
33.0	95.6	106.0	- 10.4	128.6	139.0	-10.4	161.0	173.0	- 12.0	194.0	206.0	- 12.0
34.0	98.6	109.0	- 10.4	131.6	143.0	-11.4	165.0	178.0	- 13.0	199.0	212.0	- 13.0
35.0	101.6	112.0	- 10.4	135.6	147.0	- 11.4	170.0	183.0	- 13.0	205.0	218.0	- 13.0
36.0	104.6	115.0	- 10.4	139.6	151.0	- 11.4	175.0	187.0	- 12.0	211.0	223.0	- 12.0
37.0	105.6	118.0	- 12.4	142.6	155.0	- 12.4	179.0	193.0	- 14.0	216.0	230.0	- 14.0
38.0	108.6	121.0	- 12.4	146.6	159.0	- 12.4	184.0	197.0	- 13.0	222.0	235.0	- 13.0
39.0	110.6	124.0	- 13.4	149.6	163.0	- 13.4	188.0	202.0	- 14.0	227.0	241.0	- 14.0
40.0	113.6	127.0	- 13.4	153.6	167.0	- 13.4	193.0	207.0	- 14.0	233.0	247.0	- 14.0
41.0	117.6	130.0	- 12.4	157.6	171.0	- 13.4	198.0	212.0	- 14.0	239.0	253.0	- 14.0
42.0	120.0	133.0	- 13.0	161.0	175.0	- 14.0	202.0	217.0	- 15.0	244.0	259.0	- 15.0
43.0	123.0	136.0	- 13.0	165.0	179.0	- 14.0	207.0	222.0	- 15.0	250.0	265.0	- 15.0
44.0	125.0	139.0	- 14.0	168.0	183.0	- 15.0	211.0	227.0	- 16.0	255.0	271.0	- 16.0
45.0	128.0	142.0	- 14.0	173.0	187.0	- 14.0	217.0	231.0	- 14.0	262.0	276.0	- 14.0
46.0	131.0	145.0	- 14.0	177.0	191.0	- 14.0	222.0	237.0	- 15.0	268.0	283.0	- 15.0
47.0	133.0	148.0	- 15.0	180.0	195.0	- 15.0	226.0	241.0	- 15.0	273.0	288.0	- 15.0
48.0	136.0	151.0	- 15.0	184.0	199.0	- 15.0	231.0	246.0	- 15.0	279.0	294.0	- 15.0
49.0	138.0	154.0	- 16.0	187.0	203.0	-16.0	235.0	251.0	- 16.0	284.0	300.0	- 16.0
50.0	141.0	157.0	- 16.0	191.0	207.0	-16.0	240.0	255.0	- 15.0	290.0	305.0	- 15.0
51.0	145.0	160.0	- 15.0	195.0	211.0	-16.0	245.0	260.0	- 15.0	296.0	311.0	- 15.0
52.0	147.0	163.0	- 16.0	198.0	215.0	-17.0	249.0	265.0	- 16.0	301.0	317.0	- 16.0
53.0	150.0	166.0	- 16.0	202.0	219.0	-17.0	254.0	270.0	- 16.0	307.0	323.0	- 16.0
54.0	152.0	169.0	- 17.0	205.0	223.0	-18.0	258.0	274.0	- 16.0	312.0	328.0	- 16.0

Recommended inserts

ISO	Workpiece materials	First choice	High feed	High speed	Troubleshooting			
					Chipping resistance	Wear resistance	Surface finish	Chip control
P	Low carbon steel (C ≤ 0.3%)	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
	Carbon steel (C > 0.3%) Alloy steels	DJ, AH6030	DW, AH6030	DJ, AH9030	DW, AH725	DJ, AH9030	DW, AH6030	-
	Low alloy steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	-
M	Stainless steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
K	Grey cast iron	DJ, AH9030	DW, AH9030	DJ, T1115	DW, AH725	-	DW, AH9030	-
	Ductile cast iron	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-
N	Aluminium alloys	DJ, AH725	DW, AH725	DS, AH6030		-	DW, AH725	DG, AH725
S	Titanium alloys Heat-resistant alloys	DS, AH6030	-	-	DW, AH725	-	DW, AH725	DG, AH725
H	Hardened steel	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-

Standard cutting conditions

ISO	Workpiece materials	Series L/D	Cutting speed *Vc* (m/min)	Feed: *f* (mm/rev)				
				ø12.5 - ø14.5	ø15.0 - ø17.0	ø17.5 - ø26.0	ø27.0 - ø32.0	ø33.0 - ø54.0
P	Low carbon steel (C ≤ 0.3%) SS400, SM490, S25C, etc. (St42-1, St52-3, C25, etc.)	2D, 3D	160 - 320	0.02 - 0.06	0.02 - 0.06	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	160 - 320	0.02 - 0.06	0.02 - 0.06	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
	Carbon steel (C > 0.3%) S45C, S55C, etc. (C45, C55, etc.)	2D, 3D	80 - 250	0.04 - 0.10	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
		4D, 5D	80 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.10	0.06 - 0.12	0.08 - 0.14
	Low alloy steel SCM415, etc.	2D, 3D	160 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
		4D, 5D	160 - 250	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
	Alloy steel SCM440, SCr420, etc. (42CrMo4, 20Cr4, etc.)	2D, 3D	80 - 200	0.04 - 0.10	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
		4D, 5D	80 - 200	0.04 - 0.08	0.04 - 0.08	0.06 - 0.10	0.06 - 0.12	0.08 - 0.14
M	Stainless steel (Austenitic) SUS304, SUS316, etc. (X5CrNi18-9, X5CrNiMo17-12-2, etc.)	2D, 3D	100 - 200	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
		4D, 5D	100 - 200	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. (X5CrNi18-9, X5CrNiMo17-12-2, etc.)	2D, 3D	100 - 220	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
		4D, 5D	100 - 220	0.02 - 0.08	0.02 - 0.08	0.04 - 0.10	0.04 - 0.12	0.04 - 0.12
	Stainless steel (Precipitation hardening) SUS630, etc. (X5CrNiCuNb16-4, etc.)	2D, 3D	80 - 120	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.06 - 0.10
		4D, 5D	80 - 120	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.06 - 0.10
K	Grey cast iron FC250, etc. (GG25, etc.)	2D, 3D	80 - 250	0.06 - 0.12	0.06 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.20
		4D, 5D	80 - 250	0.06 - 0.10	0.06 - 0.10	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
	Ductile cast iron FCD700, etc. (GGG70, etc.)	2D, 3D	80 - 200	0.04 - 0.12	0.04 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.20
		4D, 5D	80 - 200	0.04 - 0.10	0.04 - 0.10	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
N	Aluminium alloys A2017, ADC12, etc.	2D, 3D	200 - 400	0.10 - 0.12	0.10 - 0.15	0.15 - 0.20	0.15 - 0.20	0.15 - 0.25
		4D, 5D	200 - 400	0.08 - 0.12	0.08 - 0.12	0.12 - 0.16	0.12 - 0.16	0.12 - 0.20
S	Heat-resistant alloys Inconel 718, etc.	2D, 3D	20 - 60	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	20 - 60	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
	Titanium alloys Ti-6Al-4V, etc.	2D, 3D	40 - 120	0.06 - 0.10	0.06 - 0.10	0.06 - 0.12	0.06 - 0.12	0.06 - 0.12
		4D, 5D	40 - 120	0.06 - 0.08	0.06 - 0.08	0.06 - 0.10	0.06 - 0.10	0.06 - 0.10
H	Hardened steel ≥ 40HRC	2D, 3D	40 - 100	0.04 - 0.08	0.04 - 0.08	0.04 - 0.10	0.04 - 0.10	0.04 - 0.10
		4D, 5D	40 - 100	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08

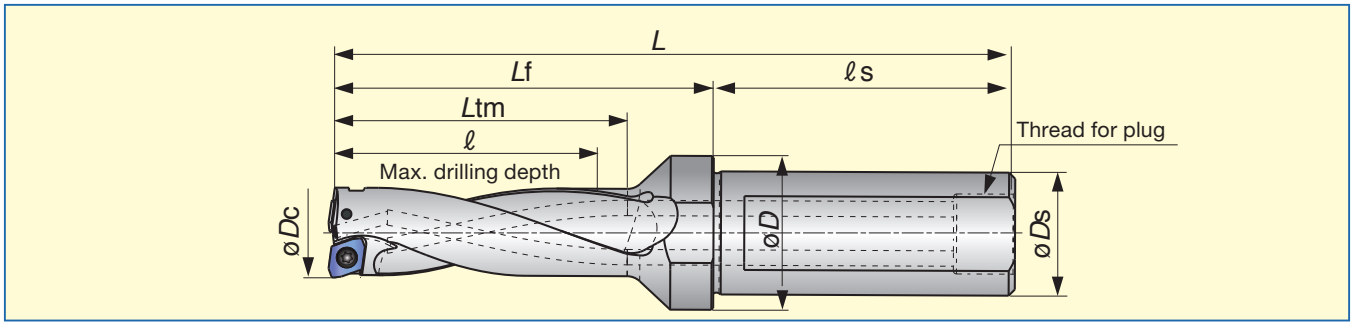
Standard cutting conditions for DG type chipbreaker

ISO	Workpiece materials	Series L/D	Cutting speed *Vc* (m/min)	Feed: *f* (mm/rev)	
				ø27.0 - ø32.0	ø33.0 - ø54.0
P	Low carbon steel (C ≤ 0.3%) SS400, SM490, S25C, etc. (st42-1, St52-3, C25, etc.)	2D, 3D 4D, 5D	60 - 180	0.04 - 0.10	0.04 - 0.10

- For small drill diameters, lower feed rate should be applied.
- In case of workpiece materials with hardness of more than 40 HRC, the feed rate should be less than 50% of the recommended feed.
- For difficult-to-cut materials, such as heat-resistant alloys, that generate high volume of cutting heat during machining, the cutting speed should be less than 20% of the recommended value for carbon steel.
- For high-feed machining with DW type chipbreaker, the feed rate should be approximately 1.5 times higher than the standard rate shown above.
- High-speed machining applies to operation with the cutting speed more than 150 m/min.
- When using DW type chipbreaker for troubleshooting, the operation should be within the range of standard cutting conditions.
- DG type chipbreaker is suitable for large-sized machines with low-RPM spindle. If chattering occurs, the feed rate should be lowered.

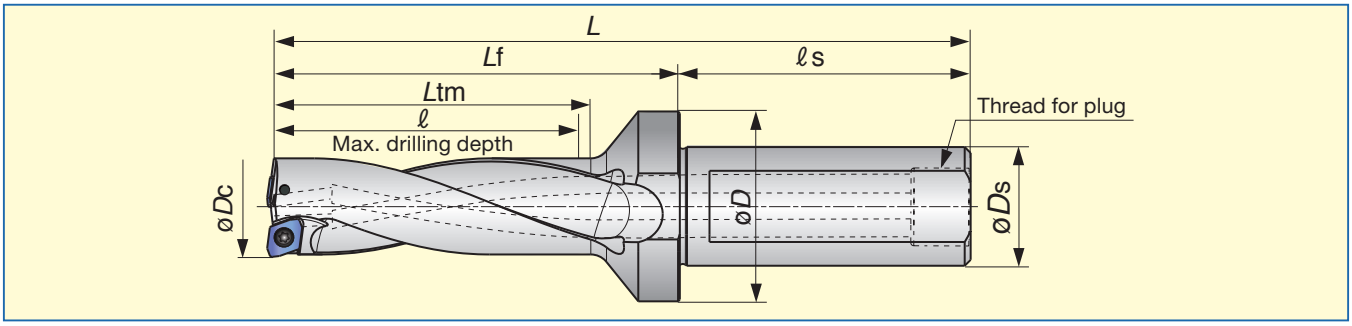
Drills with back-port for automatic lathes

L/D = 2

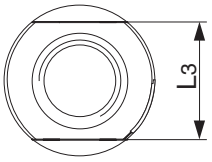


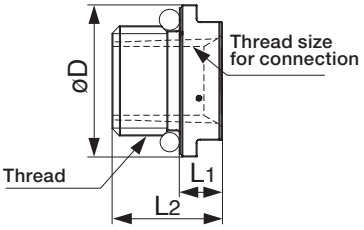
Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm)							Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver	Plug
			øDs	øD	ℓ	Ltm	Lf	ℓs	L						
12.5	TDX125F20J-2		20	25	25.0	28.0	41.0	49	90.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.0	TDX130F20J-2		20	25	26.0	29.0	42.0	49	91.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.5	TDX135F20J-2		20	25	27.0	30.0	43.0	49	92.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.0	TDX140F20J-2		20	25	28.0	31.0	44.0	49	93.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.5	TDX145F20J-2		20	25	29.0	32.0	46.0	49	95.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
15.0	TDX150F20J-2		20	25	30.0	33.0	47.0	49	96.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
15.5	TDX155F20J-2		20	32	31.0	34.0	49.0	49	98.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.0	TDX160F20J-2		20	32	32.0	35.0	51.0	49	100.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.5	TDX165F20J-2		20	32	33.0	36.0	52.0	49	101.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.0	TDX170F20J-2		20	32	34.0	37.0	53.0	49	102.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.5	TDX175F25J-2		25	32	35.0	38.0	55.0	54	109.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.0	TDX180F25J-2		25	32	36.0	39.0	56.0	54	110.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.5	TDX185F25J-2		25	32	37.0	40.0	57.0	54	111.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.0	TDX190F25J-2		25	32	38.0	41.0	58.0	54	112.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.5	TDX195F25J-2		25	32	39.0	42.0	60.0	54	114.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.0	TDX200F25J-2		25	32	40.0	45.0	61.0	54	115.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.5	TDX205F25J-2		25	32	41.0	46.0	62.5	54	116.5	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.0	TDX210F25J-2		25	32	42.0	47.0	64.0	54	118.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.5	TDX215F25J-2		25	32	43.0	48.0	65.0	54	119.0	0.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
22.0	TDX220F25J-2		25	32	44.0	49.0	66.0	54	120.0	1.2	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
22.5	TDX225F25J-2		25	37	45.0	50.0	67.5	54	121.5	1.1	0.3	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.0	TDX230F25J-2		25	37	46.0	51.0	69.0	54	123.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.5	TDX235F25J-2		25	37	47.0	52.0	70.0	54	124.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.0	TDX240F25J-2		25	37	48.0	53.0	71.0	54	125.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.5	TDX245F25J-2		25	37	49.0	54.0	72.5	54	126.5	0.5	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.0	TDX250F25J-2		25	37	50.0	55.0	74.0	54	128.0	0.4	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.5	TDX255F25J-2		25	37	51.0	56.0	75.5	54	129.5	0.3	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
26.0	TDX260F25J-2		25	37	52.0	57.0	77.0	54	131.0	0.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
27.0	TDX270F32J-2		32	40	54.0	59.0	79.0	59	138.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
28.0	TDX280F32J-2		32	40	56.0	60.3	82.3	59	141.3	1.2	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
29.0	TDX290F32J-2		32	40	58.0	62.3	84.3	59	143.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
30.0	TDX300F32J-2		32	40	60.0	64.3	87.3	59	146.3	0.7	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
31.0	TDX310F32J-2		32	40	62.0	66.3	90.3	59	149.3	0.4	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
32.0	TDX320F32J-2		32	40	64.0	68.3	92.3	59	151.3	0.2	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M

L/D = 3



Drill dia. øDc (mm)	Cat. No.	Stock	Dimensions (mm) øDs	øD	ℓ	Ltm	Lf	ℓs	L	Max offset	Weight (kg)	Applicable inserts	Clamping screw	Torx driver	Plug
12.5	TDX125F20J-3		20	25	37.5	40.5	53.0	49	102.0	0.8	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.0	TDX130F20J-3		20	25	39.0	42.0	55.0	49	104.0	0.7	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
13.5	TDX135F20J-3		20	25	40.5	43.5	56.0	49	105.0	0.6	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.0	TDX140F20J-3		20	25	42.0	45.0	58.0	49	107.0	0.5	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
14.5	TDX145F20J-3		20	25	43.5	46.5	60.0	49	109.0	0.4	0.2	XPMT040104R-D*	CSPB-2H	IP-6DB	SL20M
15.0	TDX150F20J-3		20	25	45.0	48.0	62.0	49	111.0	0.9	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
15.5	TDX155F20J-3		20	32	46.5	49.5	64.0	49	113.0	0.8	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.0	TDX160F20J-3		20	32	48.0	51.0	66.0	49	115.0	0.6	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
16.5	TDX165F20J-3		20	32	49.5	52.5	68.0	49	117.0	0.5	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.0	TDX170F20J-3		20	32	51.0	54.0	69.0	49	118.0	0.4	0.2	XPMT050204R-D*	CSPB-2L043	IP-6DB	SL20M
17.5	TDX175F25J-3		25	32	52.5	55.5	72.0	54	126.0	1.2	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.0	TDX180F25J-3		25	32	54.0	57.0	73.0	54	127.0	1.1	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
18.5	TDX185F25J-3		25	32	55.5	58.5	75.0	54	129.0	0.9	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.0	TDX190F25J-3		25	32	57.0	60.0	76.0	54	130.0	0.8	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
19.5	TDX195F25J-3		25	32	58.5	61.5	79.0	54	133.0	0.7	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.0	TDX200F25J-3		25	32	60.0	65.0	81.0	54	135.0	0.5	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
20.5	TDX205F25J-3		25	32	61.5	66.5	82.0	54	136.0	0.4	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.0	TDX210F25J-3		25	32	63.0	68.0	84.0	54	138.0	0.3	0.3	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
21.5	TDX215F25J-3		25	32	64.5	69.5	86.0	54	140.0	0.2	0.4	XPMT06X308R-D*	CSPB-2.2	IP-7D	SL25M
22.0	TDX220F25J-3		25	32	66.0	71.0	87.0	54	141.0	1.2	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
22.5	TDX225F25J-3		25	37	67.5	72.5	90.0	54	144.0	1.1	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.0	TDX230F25J-3		25	37	69.0	74.0	91.0	54	145.0	0.9	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
23.5	TDX235F25J-3		25	37	70.5	75.5	93.0	54	147.0	0.8	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.0	TDX240F25J-3		25	37	72.0	77.0	95.0	54	149.0	0.7	0.4	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
24.5	TDX245F25J-3		25	37	73.5	78.5	97.0	54	151.0	0.5	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.0	TDX250F25J-3		25	37	75.0	80.0	99.0	54	153.0	0.4	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
25.5	TDX255F25J-3		25	37	76.5	81.5	100.0	54	154.0	0.3	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
26.0	TDX260F25J-3		25	37	78.0	83.0	102.0	54	156.0	0.2	0.5	XPMT07H308R-D*	CSPB-2.5	IP-8D	SL25M
27.0	TDX270F32J-3		32	40	81.0	86.0	105.0	59	164.0	1.5	0.6	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
28.0	TDX280F32J-3		32	40	84.0	88.3	109.3	59	168.3	1.2	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
29.0	TDX290F32J-3		32	40	87.0	91.3	112.3	59	171.3	1.0	0.7	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
30.0	TDX300F32J-3		32	40	90.0	94.3	117.3	59	176.3	0.7	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
31.0	TDX310F32J-3		32	40	93.0	97.3	121.3	59	180.3	0.4	0.8	XPMT08T308R-D*	CSTB-3	T-9D	SL32M
32.0	TDX320F32J-3		32	40	96.0	100.3	124.3	59	183.3	0.2	0.9	XPMT08T308R-D*	CSTB-3	T-9D	SL32M





Plug

Applicable drill dia. øDc (mm)	Cat. No.	Stock	Thread size on plug	Thread size for connection	Dimensions (mm) øD	L1	L2	L3
ø12.5 - ø17.0	**SL20M**	●	M13×1.0	Rc 1/8	18	5	13	14
ø17.5 - ø26.0	**SL25M**	●	M16×1.5	Rc 1/8	22	5	17	17
ø27.0 - ø32.0	**SL32M**	●	M22×2.0	Rc 1/4	29	6	21	22

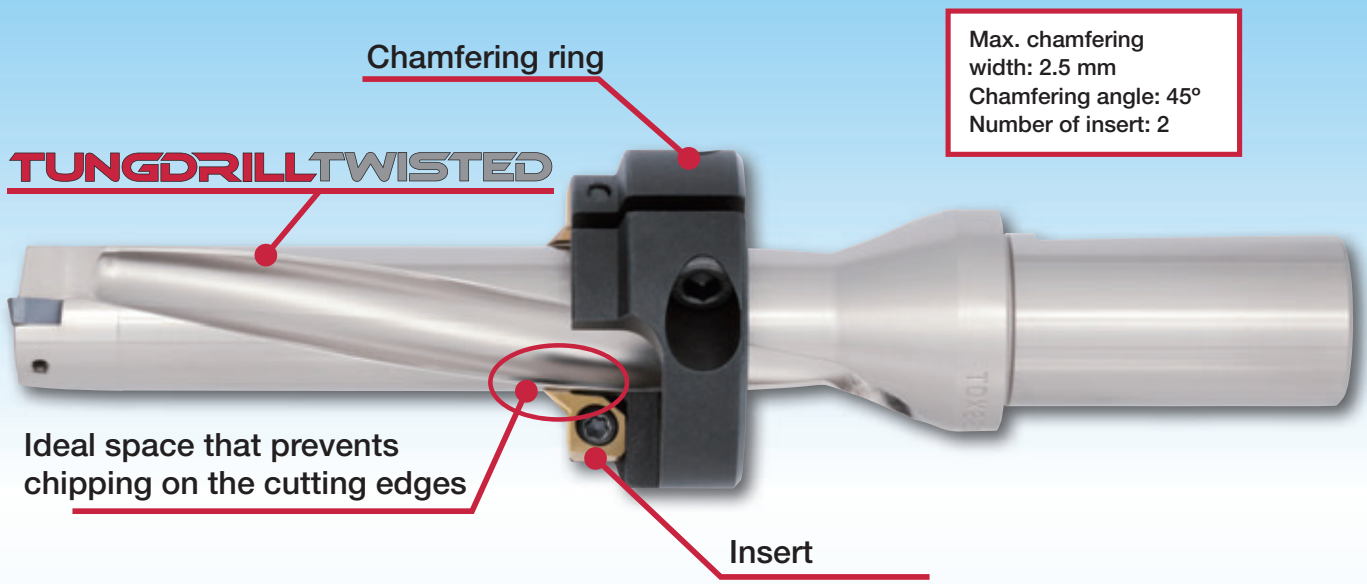
●: Stocked items

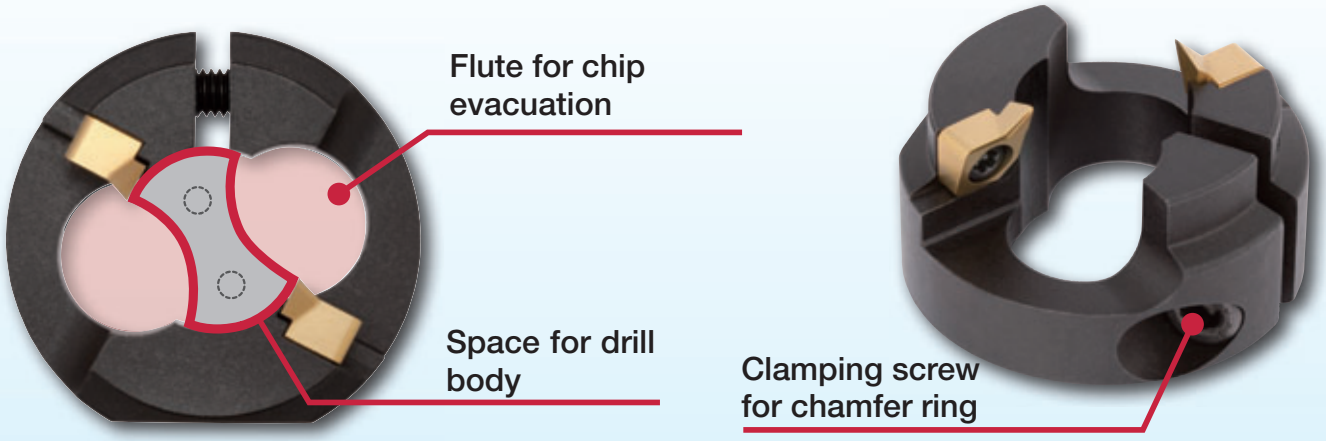
New chamfering tool "TDXCF Series"

- Applicable for all TungdrillTwisted tools
- Simultaneous operation of drilling and chamfering reduces the number of machining processes

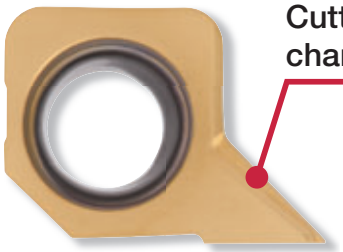
Features

- Operation with two inserts maximizes productivity. (TDXCF can be used with only one insert also.)
- Ideal space between the drill body and chamfering inserts prevents fracture on the cutting edges.



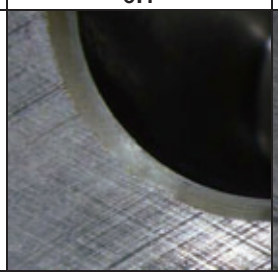
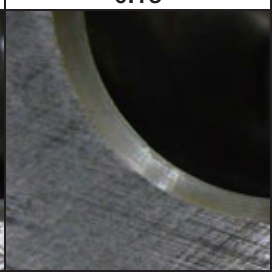


- GH130 grade with TiCNO PVD coating for chamfer insert
- Suitable for steel, stainless steel, and cast iron



Cutting performance

Surface finish

Tool	Feed: *f* (mm/rev) 0.1	0.13
TDX220F25-3 (L/D = 3)		

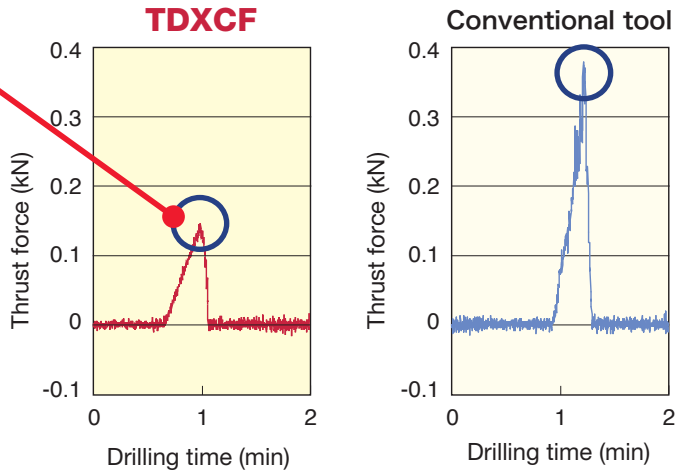
Tool : TDXCF220L25
Workpiece : Carbon steel S55C / C55 (245HB)
Cutting speed : *Vc* = 140 m/min
Chamfering width : C = 2.0 mm
Machine : Vertical M/C, BT40
Coolant : Wet

- Stable machining and excellent surface finish are delivered even at increased feed rate.

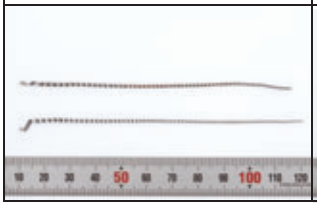
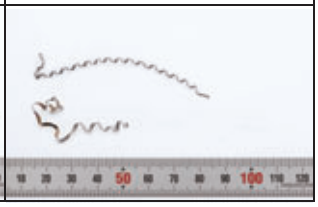
Cutting force

Sharp cutting edge decreases cutting force by 50%!

Tool : TDXCF220L25
Workpiece : Carbon steel S55C / C55 (245HB)
Cutting speed : *Vc* = 140 m/min
Feed : *f* = 0.10 m/rev
Chamfering width : C = 2.0 mm
Machine : Vertical M/C, BT40
Coolant : Wet



Chip control

TDXCF	Conventional product
	

- TDXCF forms stable spiral chips that do not wind around the drill body.

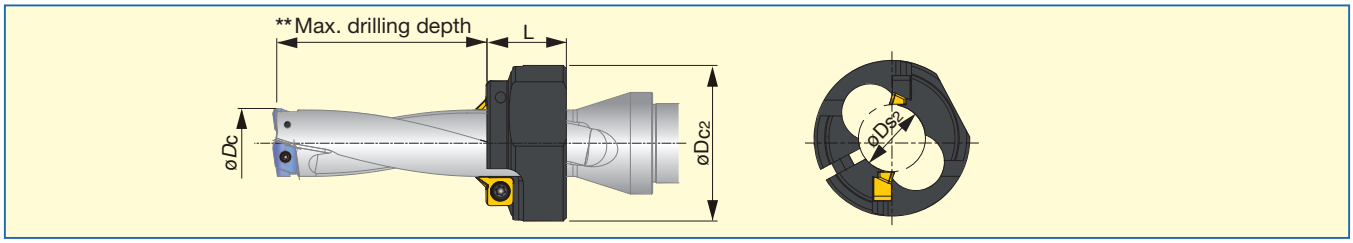
Tool : TDXCF220L25
Workpiece : Carbon steel S55C / C55 (245HB)
Cutting speed : *Vc* = 140 m/min
Chamfering width : C = 2.0 mm
Machine : Vertical M/C, BT40
Coolant : Wet

Insert, spare parts

Cat. No.	Insert	Grade	Clamping screw for insert	Wrench for insert	Torque for insert (N·m)	Clamping screw for ring	Wrench for ring	Torque for ring (N·m)
		GH130						
TDXCF130L25 - TDXCF250L25	XHGX090700R-45A	●	CSPB-4S	T-15D	3.5	CM6X16	P-5	7.0
TDXCF260L30 - TDXCF540L30						CM8 x 20		8.0

● : Stocked items

Tool body (TDXCF series for chamfering)



Cat. No.	Stock	Dimensions (mm)				Applicable drill	**Max. drilling depth (mm)							
							L/D = 2		L/D = 3		L/D = 4		L/D = 5	
		øDs2	øDc2	L	Tool dia. øDc		TDX***F	TDX***W	TDX***F	TDX***W	TDX***F	TDX***W	TDX***F	TDX***W
TDXCF130L25		12.55	49	25	12.5	TDX125*20-*	3.0	7.3	15.5	19.8	28.0	32.3	40.5	44.8
		12.55	49	25	13.0	TDX130*20-*	4.0	8.4	17.0	21.4	30.0	34.4	43.0	47.4
TDXCF140L25		13.25	49	25	13.5	TDX135*20-*	5.0	9.6	18.5	23.1	32.0	36.6	45.5	50.1
		13.25	49	25	14.0	TDX140*20-*	6.0	10.7	20.0	24.7	34.0	38.7	48.0	52.7
TDXCF150L25		14.25	49	25	14.5	TDX145*20-*	7.0	11.9	21.5	26.4	36.0	40.9	50.5	55.4
		14.25	49	25	15.0	TDX150*20-*	8.0	13.0	23.0	28.0	38.0	43.0	53.0	58.0
TDXCF160L25		15.25	49	25	15.5	TDX155*20-*	9.0	14.2	24.5	29.7	40.0	45.2	55.5	60.7
		15.25	49	25	16.0	TDX160*20-*	10.0	15.3	26.0	31.3	42.0	47.3	58.0	63.3
TDXCF170L25		16.25	49	25	16.5	TDX165*20-*	11.0	16.5	27.5	33.0	44.0	49.5	60.5	66.0
		16.25	49	25	17.0	TDX170*20-*	12.0	17.6	29.0	34.6	46.0	51.6	63.0	68.6
TDXCF180L25	●	17.30	49	25	17.5	TDX175*25-*	13.0	18.8	30.5	36.3	48.0	53.8	65.5	71.3
	●	17.30	49	25	18.0	TDX180*25-*	14.0	19.9	32.0	37.9	50.0	55.9	68.0	73.9
TDXCF190L25	●	18.10	49	25	18.5	TDX185*25-*	15.0	21.1	33.5	39.6	52.0	58.1	70.5	76.6
	●	18.10	49	25	19.0	TDX190*25-*	16.0	22.2	35.0	41.2	54.0	60.2	73.0	79.2
TDXCF200L25	●	19.10	49	25	19.5	TDX195*25-*	17.0	23.4	36.5	42.9	56.0	62.4	75.5	81.9
	●	19.10	49	25	20.0	TDX200*25-*	20.0	24.5	40.0	44.5	59.0	64.5	79.0	84.5
TDXCF210L25	●	20.10	49	25	20.5	TDX205*25-*	21.0	25.7	41.5	46.2	61.0	66.7	81.5	87.2
	●	20.10	49	25	21.0	TDX210*25-*	22.0	26.8	43.0	47.8	63.0	68.8	84.0	89.8
TDXCF220L25	●	21.10	49	25	21.5	TDX215*25-*	23.0	28.0	44.5	49.5	65.0	71.0	86.5	92.5
	●	21.10	49	25	22.0	TDX220*25-*	24.0	29.1	46.0	51.1	67.0	73.1	89.0	95.1
TDXCF230L25	●	22.10	49	25	22.5	TDX225*25-*	25.0	30.3	47.5	52.8	69.0	75.3	91.5	97.8
	●	22.10	49	25	23.0	TDX230*25-*	26.0	31.4	49.0	54.4	71.0	77.4	94.0	100.4
TDXCF240L25	●	23.10	49	25	23.5	TDX235*25-*	27.0	32.6	50.5	56.1	73.0	79.6	96.5	103.1
	●	23.10	49	25	24.0	TDX240*25-*	28.0	33.7	52.0	57.7	75.0	81.7	99.0	105.7
TDXCF250L25	●	23.95	49	25	24.5	TDX245*25-*	29.0	34.9	53.5	59.4	77.0	83.9	101.5	108.4
	●	23.95	49	25	25.0	TDX250*25-*	30.0	36.0	55.0	61.0	79.0	86.0	104.0	111.0
TDXCF260L30	●	24.95	64	30	25.5	TDX255*25-*	26.0	32.2	51.5	57.7	76.0	83.2	101.5	108.7
	●	24.95	64	30	26.0	TDX260*25-*	27.0	33.3	53.0	59.3	78.0	85.3	104.0	111.3
TDXCF270L30	●	25.90	64	30	27.0	TDX270*32-*	29.0	35.6	56.0	62.6	82.0	89.6	109.0	116.6
TDXCF280L30	●	26.90	64	30	28.0	TDX280*32-*	30.3	37.9	58.3	65.9	86.0	93.9	114.0	121.9
TDXCF290L30	●	27.90	64	30	29.0	TDX290*32-*	32.3	40.2	61.3	69.2	90.0	98.2	119.0	127.2
TDXCF300L30	●	28.90	64	30	30.0	TDX300*32-*	34.3	42.5	64.3	72.5	94.0	102.5	124.0	132.5
TDXCF310L30	●	29.90	64	30	31.0	TDX310*32-*	36.3	44.8	67.3	75.8	98.0	106.8	129.0	137.8
TDXCF320L30	●	30.90	64	30	32.0	TDX320*32-*	38.3	47.1	70.3	79.1	102.0	111.1	134.0	143.1
TDXCF330L30		31.80	64	30	33.0	TDX330*40-*	40.6	49.4	73.6	82.4	106.0	115.4	139.0	148.4
TDXCF340L30		32.80	64	30	34.0	TDX340*40-*	42.6	51.7	76.6	85.7	110.0	119.7	144.0	153.7
TDXCF350L30		33.80	64	30	35.0	TDX350*40-*	44.6	54.0	79.6	89.0	114.0	124.0	149.0	159.0
TDXCF360L30		34.80	85	30	36.0	TDX360*40-*	46.6	57.3	82.6	93.3	118.0	129.3	154.0	165.3
TDXCF370L30		35.80	85	30	37.0	TDX370*40-*	48.6	58.6	85.6	95.6	122.0	132.6	159.0	169.6
TDXCF380L30		36.80	85	30	38.0	TDX380*40-*	50.6	60.9	88.6	98.9	126.0	136.9	164.0	174.9
TDXCF390L30		37.80	85	30	39.0	TDX390*40-*	52.6	63.2	91.6	102.2	130.0	141.2	169.0	180.2
TDXCF400L30		38.80	85	30	40.0	TDX400*40-*	54.6	65.5	94.6	105.5	134.0	145.5	174.0	185.5
TDXCF410L30		39.80	85	30	41.0	TDX410*40-*	56.6	67.8	97.6	108.8	138.0	149.8	179.0	190.8
TDXCF420L30		40.60	85	30	42.0	TDX420*40-*	59.0	70.1	101.0	112.1	142.0	154.1	184.0	196.1
TDXCF430L30		41.60	85	30	43.0	TDX430*40-*	61.0	72.4	104.0	115.4	146.0	158.4	189.0	201.4
TDXCF440L30		42.60	85	30	44.0	TDX440*40-*	63.0	74.7	107.0	118.7	150.0	162.7	194.0	206.7
TDXCF450L30		43.60	85	30	45.0	TDX450*40-*	65.0	77.0	110.0	122.0	154.0	167.0	199.0	212.0
TDXCF460L30		44.60	85	30	46.0	TDX460*40-*	67.0	80.3	113.0	126.3	158.0	172.3	204.0	218.3
TDXCF470L30		45.60	85	30	47.0	TDX470*40-*	69.0	81.6	116.0	128.6	162.0	175.6	209.0	222.6
TDXCF480L30		46.60	85	30	48.0	TDX480*40-*	71.0	83.9	119.0	131.9	166.0	179.9	214.0	227.9
TDXCF490L30		47.60	85	30	49.0	TDX490*40-*	73.0	86.2	122.0	135.2	170.0	184.2	219.0	233.2
TDXCF500L30		48.60	85	30	50.0	TDX500*40-*	75.0	88.5	125.0	138.5	174.0	188.5	224.0	238.5
TDXCF510L30		49.60	85	30	51.0	TDX510*40-*	77.0	90.8	128.0	141.8	178.0	192.8	229.0	243.8
TDXCF520L30		50.60	85	30	52.0	TDX520*40-*	79.0	93.1	131.0	145.1	182.0	197.1	234.0	249.1
TDXCF530L30		51.60	85	30	53.0	TDX530*40-*	81.0	95.4	134.0	148.4	186.0	201.4	239.0	254.4
TDXCF540L30		52.60	85	30	54.0	TDX540*40-*	83.0	97.7	137.0	151.7	190.0	205.7	244.0	259.7

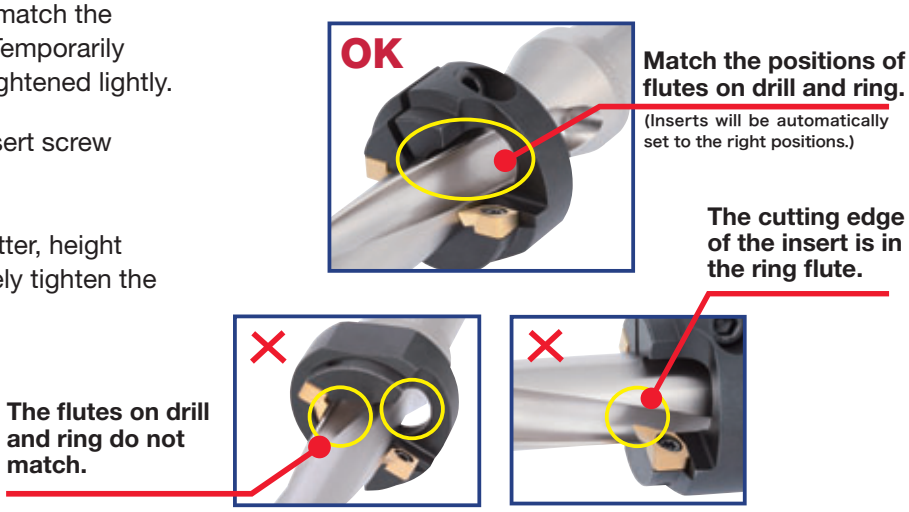
● : Stocked items

Caution in mounting the chamfering tool on the drill body

① Place the ring on the drill body and match the positions of flutes on drill and ring. Temporarily clamp the ring with the ring screw tightened lightly.

② Place the inserts, and tighten the insert screw lightly.

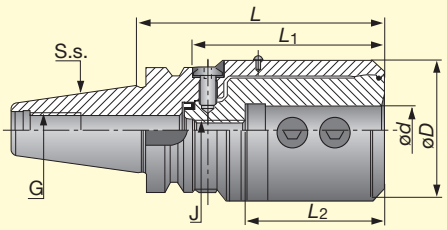
③ Adjust the ring position with a presetter, height gauge, or Vernier caliper, and securely tighten the ring screw, then the insert screw.



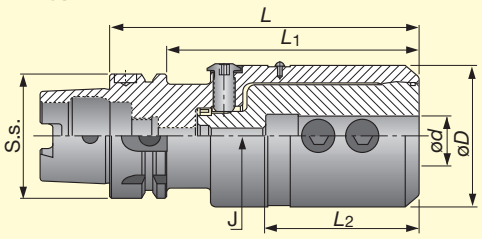
TUNGBORE Holder with adjustable drilling diameter

Easy adjustment for drill diameter of TungdrillTwisted

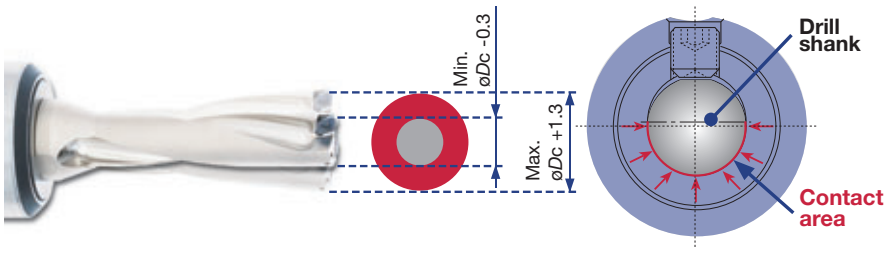
BT / DIN69871 type



HSK type



Cat. No.	Stock	Dimensions (mm)								Tool Dia. (mm)
		S.s.	ød	øD	L	L1	L2	J	G	
TUNGBORE-BT40EM20ADB		40	20.00	72.0	123.50	96.5	71.0	M10	M16	ø12.5 - ø17.0
TUNGBORE-BT40EM25ADB		40	25.00	72.0	123.50	96.5	71.0	M10	M16	ø17.5 - ø26.0
TUNGBORE-BT40EM32ADB		40	32.00	72.0	123.50	96.5	71.0	M10	M16	ø27.0 - ø32.0
TUNGBORE-BT40EM40ADB		40	40.00	72.0	123.50	96.5	71.0	M10	M16	ø33.0 - ø54.0
TUNGBORE-BT50EM20ADB		50	20.00	72.0	134.50	96.5	71.0	M10	M24	ø12.5 - ø17.0
TUNGBORE-BT50EM25ADB		50	25.00	72.0	134.50	96.5	71.0	M10	M24	ø17.5 - ø26.0
TUNGBORE-BT50EM32ADB		50	32.00	72.0	134.50	96.5	71.0	M10	M24	ø27.0 - ø32.0
TUNGBORE-BT50EM40ADB		50	40.00	72.0	134.50	96.5	71.0	M10	M24	ø33.0 - ø54.0
TUNGBORE-SKA40EM20ADB		40	20	72.0	135.6	116.5	71.0	M10	M16	ø12.5 - ø17.0
TUNGBORE-SKA40EM25ADB		40	25	72.0	135.6	116.5	71.0	M10	M16	ø17.5 - ø26.0
TUNGBORE-SKA40EM32ADB		40	32	72.0	135.6	116.5	71.0	M10	M16	ø27.0 - ø32.0
TUNGBORE-SKA40EM40ADB		40	40	72.0	135.6	116.5	71.0	M10	M16	ø33.0 - ø54.0
TUNGBORE-SKA50EM20ADB		50	20	72.0	115.6	96.5	71.0	M10	M24	ø12.5 - ø17.0
TUNGBORE-SKA50EM25ADB		50	25	72.0	115.6	96.5	71.0	M10	M24	ø17.5 - ø26.0
TUNGBORE-SKA50EM32ADB		50	32	72.0	115.6	96.5	71.0	M10	M24	ø27.0 - ø32.0
TUNGBORE-SKA50EM40ADB		50	40	72.0	115.6	96.5	71.0	M10	M24	ø33.0 - ø54.0
TUNGBOREHSKA63EM25		63	25.00	72.0	142.00	116.0	71.0	M10	-	ø17.5 - ø26.0
TUNGBOREHSKA63EM32		63	32.00	72.0	142.00	116.0	71.0	M10	-	ø27.0 - ø32.0
TUNGBOREHSKA63EM40		63	40.00	72.0	142.00	116.0	71.0	M10	-	ø33.0 - ø54.0



Drill chuck has two circular sections. The clamping screw pushes the drill shank through a narrow opening and forces elastic deformation on the holder. Because of this system, contact area between drill shank and chuck is more than half of the circumference, resulting in secure clamping.

TUNGBORE

TUNGDRILLTWISTED

Range of adjustable drill diameter with TungBore

Drill diameter øDc (mm)	Adjustable range (mm)	
	Min. dia. ø	Max. dia. ø
12.5	12.5	13.8
13.0	13.0	14.3
13.5	13.5	14.5
14.0	14.0	14.8
14.5	14.5	15.1
15.0	15.0	16.3
15.5	15.5	16.8
16.0	16.0	17.2
16.5	16.5	17.5
17.0	17.0	17.8
17.5	17.5	18.8
18.0	18.0	19.3
18.5	18.5	19.8
19.0	19.0	20.3
19.5	19.5	20.8
20.0	20.0	21.0
20.5	20.5	21.3
21.0	21.0	21.6
21.5	21.5	21.9

Drill diameter øDc (mm)	Adjustable range (mm)	
	Min. dia. ø	Max. dia. ø
22.0	22.0	23.3
22.5	22.5	23.8
23.0	23.0	24.3
23.5	23.5	24.8
24.0	24.0	25.3
24.5	24.5	25.5
25.0	25.0	25.8
25.5	25.5	26.1
26.0	26.0	26.4
27.0	27.0	28.3
28.0	28.0	29.3
29.0	29.0	30.3
30.0	30.0	31.3
31.0	31.0	31.8
32.0	32.0	32.4
33.0	33.0	34.3
34.0	34.0	35.3
35.0	35.0	36.3
36.0	36.0	37.3

Drill diameter øDc (mm)	Adjustable range (mm)	
	Min. dia. ø	Max. dia. ø
37	37	38.3
38	38	39.3
39	39	40.3
40	40	41.0
41	41	41.4
42	42	43.3
43	43	44.3
44	44	45.3
45	45	46.3
46	46	47.3
47	47	48.3
48	48	49.3
49	49	50.3
50	50	51.3
51	51	52.3
52	52	53.0
53	53	53.0
54	54	54.0

For instructions on adjusting drill diameters with TungBore, please refer to the TungHold brochure (No. 389-E)

EZ sleeve (Eccentric sleeve for TungdrillTwisted)

The function of EZ sleeve

Hole diameter adjustment on the milling machine

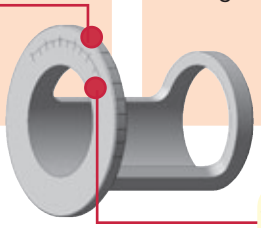
Adjusting the hole diameter in tool-rotating applications on machining centers, milling machines, etc.

Drilling diameter can be adjusted in the range from +0.6 mm to -0.2 mm.

Adjusting the cutting edge height on lathes

Adjusting the cutting edge height in work-rotating applications on lathes.

Height of cutting edge can be adjusted in the range from +0.3 mm to -0.2 mm, which eliminates troubles caused by improper setting.



Scale for adjusting drilling diameter on machining center (on the side of the sleeve)

Scale for adjusting cutting edge height on lathes (on the front face of the sleeve)

Directions on setting EZ sleeve on the machine

Adjusting hole diameter on M/C

Set EZ sleeve between the drill shank and the toolholder. Align the scale on the side of the sleeve to the center of the flat area on the flange. (Fig. 1)

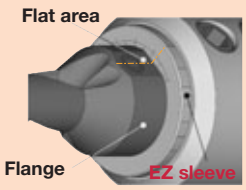


Fig. 1

In Fig.2, the sleeve is set so that the hole diameter will be increased by 0.4 mm.

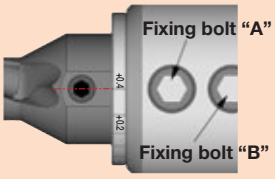


Fig. 2

Adjusting cutting edge height on lathes

Set EZ sleeve between the drill shank and the tool block. Align the scale on the front face of the sleeve to the center of the flat area on the flange. (Fig.3)

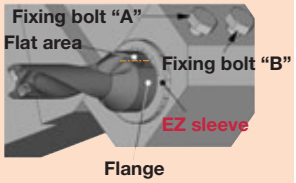


Fig. 3

In Fig.4, the sleeve is set so that the center of the drill will shift by 0.1 mm in the plus (+) direction.

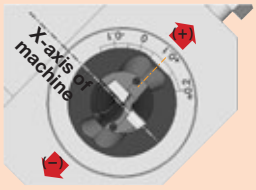


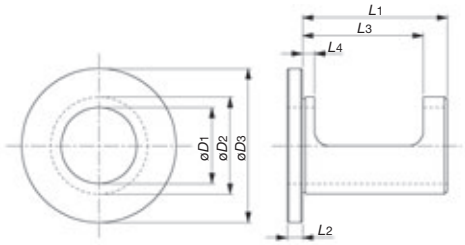
Fig. 4

When rotating EZ sleeve, fixing bolts A and B have to be loosened. After setting the hole diameter, fix the drill body with bolt A. Then, lightly tighten the bolt B to fix the sleeve. If the bolt B is overtightened, EZ sleeve may be damaged.

Caution

- The scale is only a rough guide, so be sure to measure the actual drilling diameter to confirm the result. Especially in turning, test machining is recommended as the drilling diameter will vary according to the adjustment.
- For operations on the machining center, use side-lock holders. Collet chuck holders and milling chucks are not applicable.
- If severe vibration occurs during machining, reduce the feed rate (ex. drilling with L/D = 4 or over, machining with large adjustment, etc.)
- If there is an excessive adjustment of drilling diameter in the minus (-) direction, the drill body may interfere with the machined hole The adjustment in the minus (-) direction should be used only when the drilling diameter is larger than the drill diameter and small changes are needed.

Specifications



Sleeve Cat. No.	Stock	øD1	øD2	øD3	L1	L2	L3	L4	Adjusting range of finishing diameter	Adjusting range of cutting edge height
EZ2025	●	20	25	46	49	5	32.5	4	+0.4 - -0.2	+0.2 - -0.15
EZ2532	●	25	32	51	52	5	38.0	4	+0.4 - -0.2	+0.2 - -0.15
EZ3240	●	32	40	54	62	5	43.0	4	+0.4 - -0.2	+0.2 - -0.15
EZ4050	●	40	50	69	63	5	55.0	4	+0.6 - -0.2	+0.3 - -0.2

※Note: The diameters of the drill body (øDs) and EZ sleeve (øD1) need to be the same.

Caution

Using TungdrillTwisted

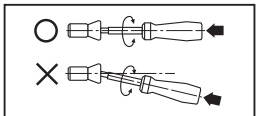
- Use a machine that has enough rigidity and motor output for the operation.
- Do not drill stacked plates as tool may be damaged.
- Proper alignment is necessary in case of work-rotating operations.

Coolant

- Use internal coolant supply.
- Use water-soluble coolant.
- Coolant pressure needs to be over 1 MPa and flow rate around 7 liter/min. For 4D and 5D types, it is recommended to use coolant pressure over 1.5 MPa and flow rate over 10 liter/min.

Setting inserts

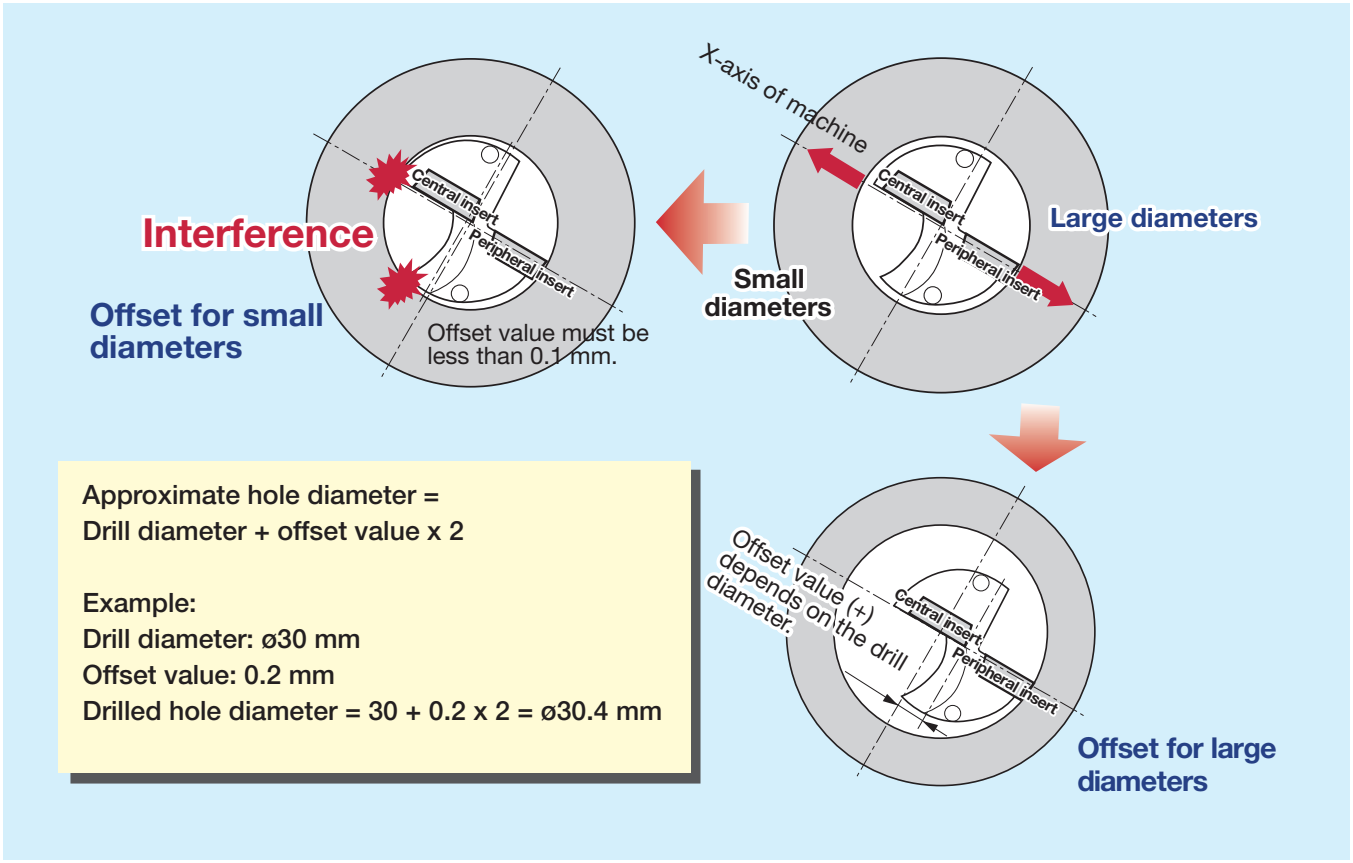
- Clear chips and dust from the pocket before attaching the insert on the drill body.
- Do not leave any gap between the bottom face of the insert and the insert pocket.
- Wrench must be used in line with the screw. Misalignment may result in deformation of the screw or the tip of the wrench.
- If the screw has excessive wear and deformation due to long-term use, replace it with a new one.


Proper handling of wrench

Holes larger than the drill diameter can be machined!

● Drilling with offset

- For work-rotating operations, the hole diameter can be adjusted by offsetting the drill body along the X-axis of the machine.
- Set the drill body so that the cutting edge of the inserts are located parallel to the X-axis of the machine.

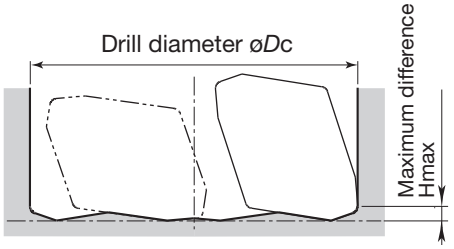


Shape of the hole bottom

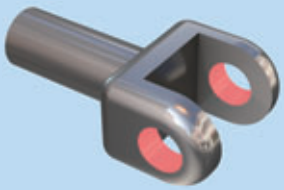
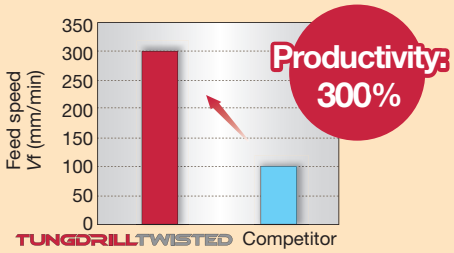
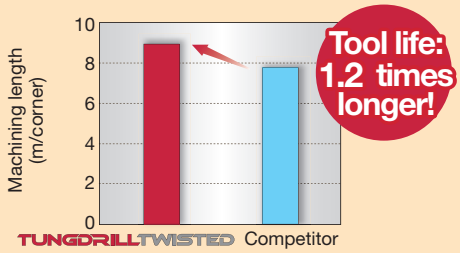
The shape of the hole bottom machined with TungdrillTwisted is closer to being flat compared to the result of HSS drills.

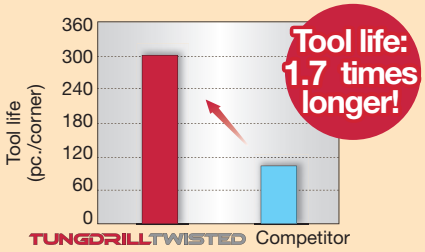
Drill diameter ø*Dc* (mm)	ø12.5 - 14.5	ø15 - 17	ø17.5 - 21.5	ø22 - 26	ø27 - 32	ø33 - 41	ø42 - 52
Insert	XPMT 04...	XPMT 05...	XPMT 06...	XPMT 07...	XPMT 08...	XPMT 11...	XPMT 15...
Hmax (mm)	0.6	0.8	1.0	1.1	1.3	1.9	2.3

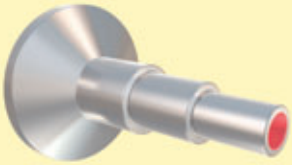
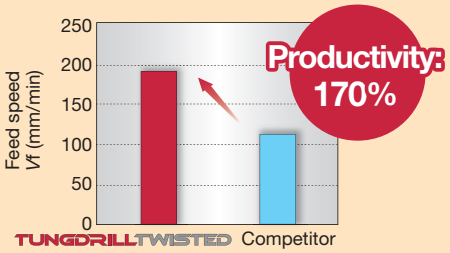
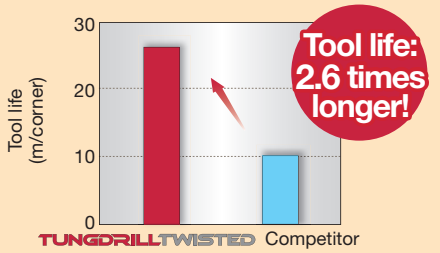
■Bottom shape of the hole machined with TungdrillTwisted

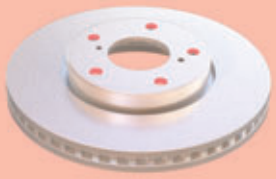
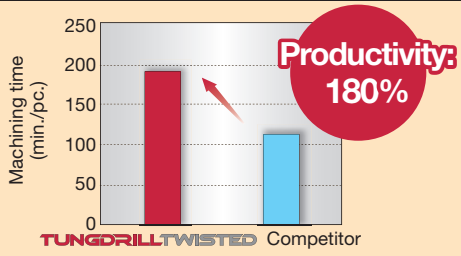
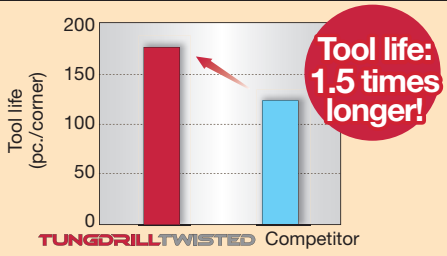


Practical examples

Workpiece type		Pinion	York
Drill		TDX185F25-2	TDX200F25-3
Insert		XPMT06X308R-DW	XPMT06X308R-DJ
Grade		AH9030	AH725
Workpiece material		SCM435 / 34CrMo4	S33C
		 P	 P
Cutting conditions	Cutting speed: *Vc* (m/min)	160	138
	Feed: *f* (mm/rev)	0.11	0.06
	Feed speed: *Vf* (mm/min)	300	132
	Drilling depth: H (mm)	18	25
	Machine	NC lathe	Special-purpose machine
	Coolant	Wet	Wet
Results		 Due to strong resistance against oxidation at high temperature, coating layer prevents damages on tools from expanding even at increased feed. Therefore, productivity is improved without shortening the tool life of cutting edges.	 Competitor's tool had a problem with frequent insert chipping because of low clamping rigidity. However, stable machining is possible with AH725 due to its excellent balance between wear and fracture resistance.

Workpiece type		Connecting rod	Bearing cover
Drill		TDX200F25-3	TDX180F25-2
Insert		XPMT06X308R-DW	XPMT06X308R-DS
Grade		AH725	AH6030
Workpiece material		S55C / C55	S45C /C45
		 P	 P
Cutting conditions	Cutting speed: *Vc* (m/min)	90	140
	Feed: *f* (mm/rev)	0.06	0.06
	Feed speed: *Vf* (mm/min)	86	148
	Drilling depth: H (mm)	22	13
	Machine	Special-purpose machine	Vertical lathe
	Coolant	Wet	Wet
Results		 DW chipbreaker with tough cutting edges provides stability even during interrupted machining upon hole entry and exit. Sudden insert damages are drastically reduced and tool life is 1.7 times longer than the competitor.	 DS chipbreaker's good hole entry enables stable machining of workpiece materials with low rigidity. Even at doubled cutting speed and tripled feed, no problem occurs in the operation and tool life is increased by 3 times.

Workpiece type		Link	Shaft
Drill		TDX230F25-3	TDX190F20-3
Insert		XPMT07H308R-DW	XPMT06X308R-DJ
Grade		AH6030	AH6030
Workpiece material		S45C / C45  P	SUS316L  M
Cutting conditions	Cutting speed: *Vc* (m/min)	150	150
	Feed: *f* (mm/rev)	0.10	0.12
	Feed speed: *Vf* (mm/min)	208	310
	Drilling depth: H (mm)	34	33
	Machine	Vertical M/C	NC lathe
	Coolant	Wet	Wet
Results		 DW chipbreaker with tough cutting edges prevents damages on tools in the operation of casting skin. Compared to the competitor, the feed in machining is increased by 1.7 times, resulting in drastically improved productivity.	 AH6030 with thick coating and oxide layer prevents wear and welding on tools and achieves 2.6 times longer tool life than the competitor.

Workpiece type		Valve	Brake rotor
Drill		TDX230F25-2	TDX235F25-2
Insert		XPMT07H308R-DS	XPMT07H308R-DJ
Grade		AH725	AH9030
Workpiece material		SUS316L  M	FC250 / 250  K
Cutting conditions	Cutting speed: *Vc* (m/min)	140	148
	Feed: *f* (mm/rev)	0.10	0.08
	Feed speed: *Vf* (mm/min)	194	160
	Drilling depth: H (mm)	25	35
	Machine	NC lathe	Vertical M/C
	Coolant	Wet	Wet
Results		 Special surface technology, PremiumTec, and DS chipbreaker extremely improves chip evacuation. Also, lowered cutting force enables the operation with increased speed (1.4 times) and feed (1.25 times), resulting in machining efficiency which is 1.8 times higher than the competitor.	 The combination of highly rigid body and DJ chipbreaker with low cutting force prevents unusual damages on cutting edges. These features lead to long and stable tool life.

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