Drilling Tool

Drilling Tool - Content structure

- Products are listed in the order of 2 effective drill, indexable drill, then deep hole drill.
- The lists for each item start from the smallest tool diameter.

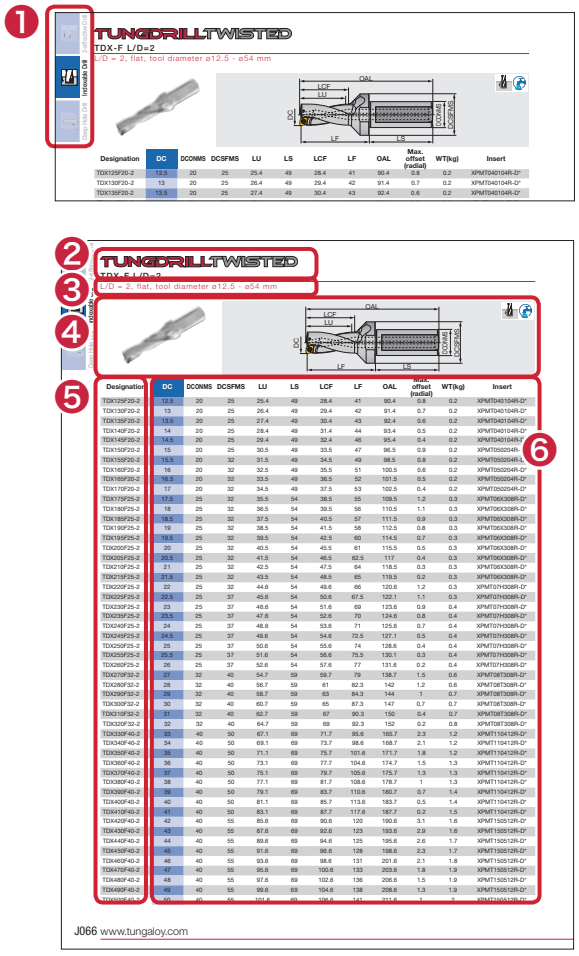
How to use the page

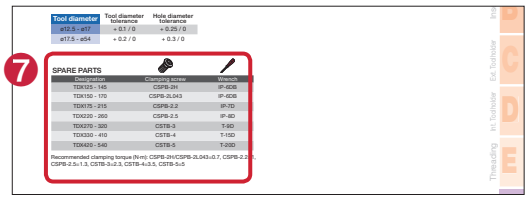
Method ① Select the drill shape described at the left end of each page, jump to the page on the left index, and choose a designation you need (❹) in the dimension table (❸). Applicable inserts are shown in (❻) and (❽).

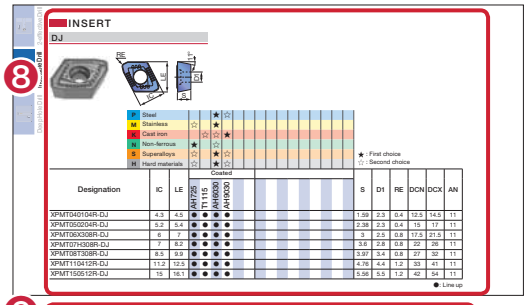
Method ② Select the drill shape on J003 and check the details on the produt page.

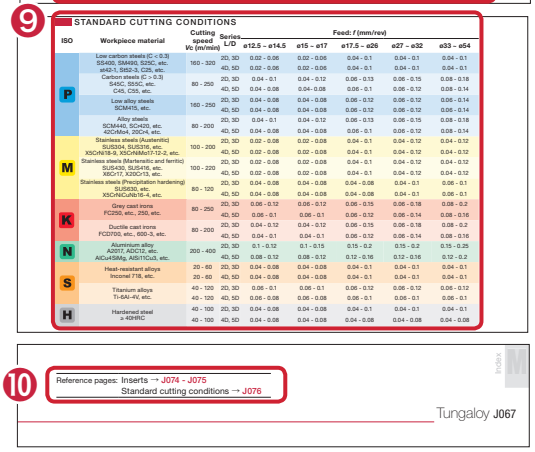
Method ③ Select the drill series name on J004 - J005 and check the details on each page.

Method ④ Select an item from Quick Guide on J006 - J007.







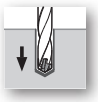


❶ : Drill Shape
❷ : Name of the series
❸ : Feature
❹ : Appearance and dimensions
❺ : Designation
❻ : Dimension

❼ : Spare parts
❽ : Applicable drill diameter
❾ : Standard cutting conditions
❿ : Reference page

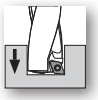
When ordering
- Please specify the designation and quantity for Indexable drills.
  e.g. **TDX160F20-2 ...** 1 (one Indexable drill per package)
- Please specify the designation, grade, and quantity for inserts.
  e.g. **XPMT050204R-DJ AH725 ...** 10 (10 inserts per package)
  *You will find a note if the number per package is not 10.
- Please specify the designation and quantity for solid/brazed drills.
  e.g. **DSW030-014-06DE3 ...** 1 (one solid/brazed drill per package)

Drilling Tool



2 Effective Drill

J006, J009
J010 - J053



Indexable Drill

J006
J055 - J085

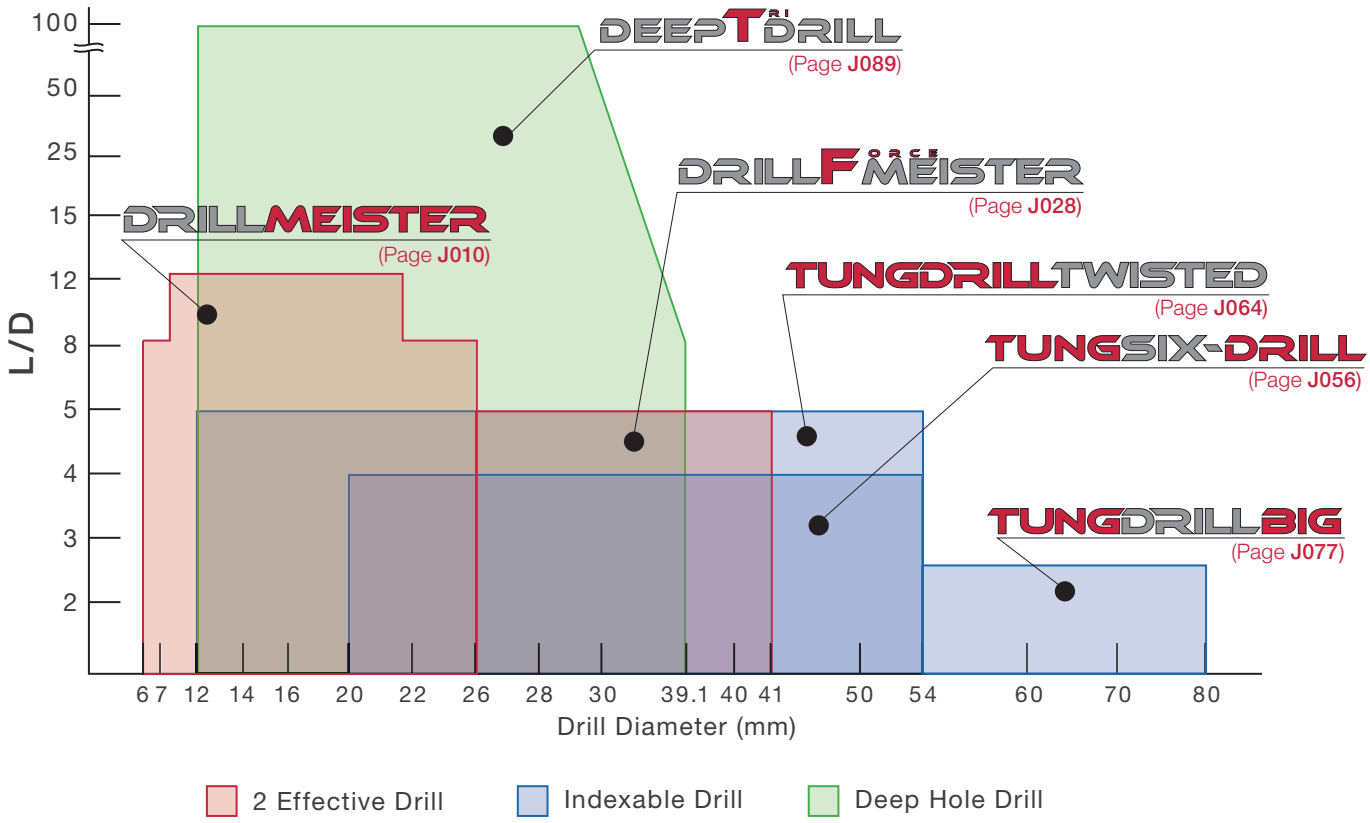
Deep Hole Drill

J007
J087 - J148

Basic Selection of Drilling Tools

Application ranges of drilling tools

Indexable & Head-Changeable Drills



Hole diameter tolerance*

TUNGSIX-DRILL

L/D	Tool diameter	Hole diameter tolerance*
2	ø20 - ø27	+ 0.25 / 0
	ø28 - ø54	+ 0.3 / 0
3	ø20 - ø27	+ 0.25 / 0
	ø28 - ø54	+ 0.3 / 0
4	ø20 - ø27	+ 0.3 / 0
	ø28 - ø54	+ 0.35 / 0

TUNGDRILLTWISTED

L/D	Tool diameter	Hole diameter tolerance*
2	ø12.5 - ø17	+ 0.25 / 0
	ø17.5 - ø54	+ 0.3 / 0
3	ø12.5 - ø17	+ 0.25 / 0
	ø17.5 - ø54	+ 0.3 / 0
4	ø12.5 - ø17	+ 0.4 / 0
	ø17.5 - ø54	+ 0.45 / 0
5	ø12.5 - ø17	+ 0.4 / 0
	ø17.5 - ø54	+ 0.45 / 0

DRILLMEISTER

L/D	Tool diameter	Hole diameter tolerance*
TID 1.5	ø6 - ø25.9	+ 0.05 / 0
TID 3	ø6 - ø25.9	+ 0.05 / 0
TID 5	ø6 - ø17.9	+ 0.06 / 0
	ø18 - ø25.9	+ 0.065 / 0
TID 8	ø7 - ø17.9	+ 0.07 / 0
	ø18 - ø25.9	+ 0.085 / 0
TID 12	ø8 - ø17.9	+ 0.08 / 0
	ø18 - ø25.9	+ 0.095 / 0
TIDC 3	ø10 - ø19.9	+ 0.05 / 0
TIDC 5	ø10 - ø19.9	+ 0.05 / 0

DRILL FORCE MEISTER

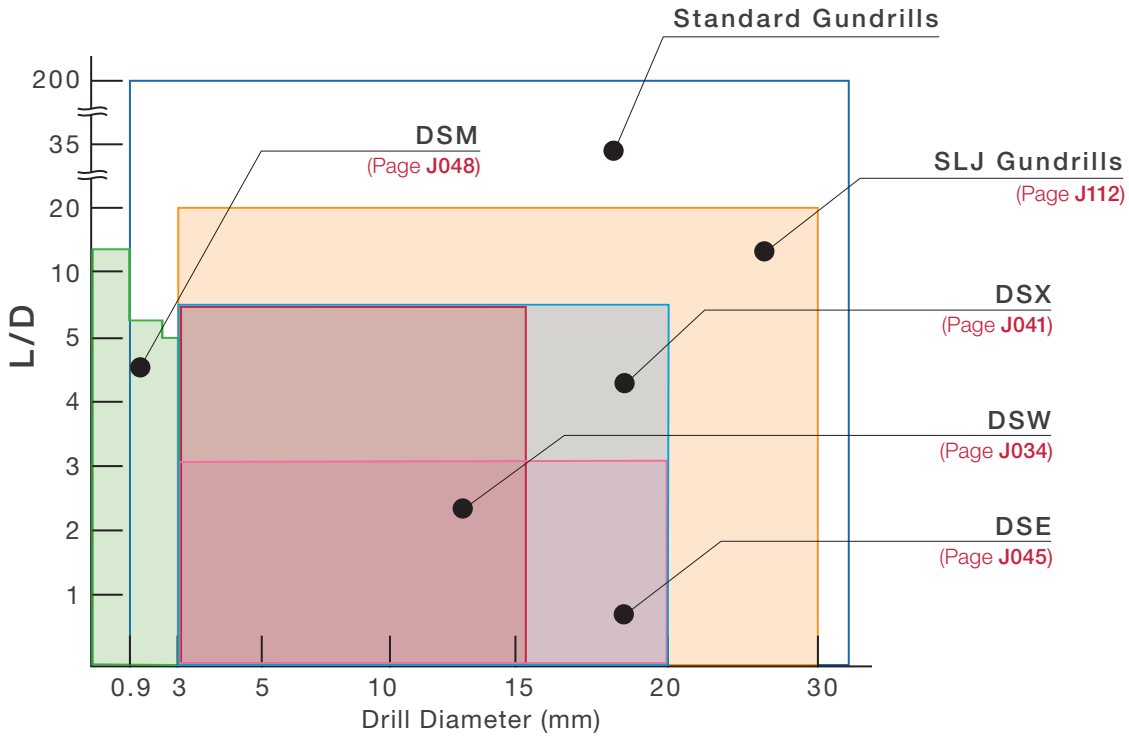
L/D	Tool diameter	Hole diameter tolerance*
3	ø26 - ø29.9	+ 0.05 / 0
	ø30 - ø41	+ 0.06 / 0
5	ø26 - ø29.9	+ 0.08 / 0
	ø30 - ø41	+ 0.09 / 0

DEEP TORI DRILL

L/D	Tool diameter	Hole diameter tolerance*
8	ø33.1 - ø39.1	+ 0.05 / - 0.1
10	ø16 - ø38.1	+ 0.05 / - 0.1
15	ø12 - ø38.1	+ 0.05 / - 0.1
20	ø12 - ø15	+ 0.05 / - 0.1
25	ø12 - ø38.1	+ 0.05 / - 0.1

*Just for reference

Solid Drills, Brazed Carbide Drills



General drilling - Quick Guide

★ : First choice
☆ : Second choice

Application	Tool diameter	L/D	Tool series	Appearance	IT class	Effective Cutting edge	Coolant supply	Workpiece material P	M	K	N	S	H	Page
General drilling	ø6 - ø25.9	1.5 3 5 8 12	DRILLMEISTER Head changeable drill TID/TIDC/TIDCF		9 - 10	2	Int.	★	★	★	☆	★	★	J010 - J027
	ø26 - ø41	3 5	DRILLFMEISTER Head changeable drill TIS		9 - 10	2	Int.	★	★	★	☆	★	★	J028 - J032
	ø3 - ø12	3 5 8	SOLIDDRILL DSW		9 - 10	2	Int. / Ext.	★	★	★	☆	★	☆	J034 - J040
	ø0.1 - ø3	5 10 15	SOLIDDRILL GIGAMINIDRILL DSM/DSM-CP		9 -10	2	Ext.	★	★	★	☆	☆	☆	J048 - J050
	ø3 - ø10	3 5 8	SOLIDDRILL GIGAJETDRILL DSX		9 - 10	2	Int.	★	★	★	☆	☆	☆	J041 - J044
	ø3 - ø10	2 3	SOLIDDRILL GIGAPOWERDRILL DSE		9 - 10	2	Ext.	★	☆	☆	☆	★	☆	J045 - J047
	ø5 - ø16	5 8	SOLIDDRILL FDC		9 - 10	2	Int.			★	★			J051 - J052
	ø0.4 - ø13	5 - 12	SOLIDDRILL CDS		9 - 10	2	Ext.			★	★			J053
	ø20 - ø54	2 3 4	TUNGSIX-DRILL Indexable Drill TDS		11 -	1	Int.	★	★	★	☆	★	★	J056 - J063
	ø12.5 - ø54	2 3 4 5	TUNGDRILLTWISTED Indexable Drill TDX		11 -	1	Int.	★	★	★	☆	★	★	J064 - J076
	ø55 - ø80	2 5	TUNGDRILLBIG Indexable Drill TDB - TDS / TDX		11 -	1	Int.	★	★	★	☆	★	★	J077 - J085

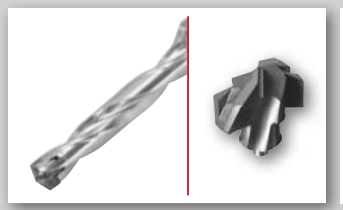
Deep drilling - Quick Guide

★ : First choice
☆ : Second choice

Application	Tool diameter	L/D	Tool series	Appearance	IT class	Effective Cutting edge	Coolant supply	Workpiece material P	M	K	N	S	H	Page
Deep drilling	ø12 - ø39.1	8 10 15 20 25 (for machining centers) Length ≤ 1650 mm (for gundrill machines)	DEEP TDRILL Head changeable deep drill MCTR/MCTRCH TRLG/TRLGCH		10	1	Int.	★	★	★	☆	★	★	J089 - J111
	ø3 - ø12.2	Length ≤ 1650 mm (for gundrill machines)	GUNDRILL Brazed gundrill SLJ		7 - 8	1	Int.	★	★	★	☆	☆	☆	J112
	ø16 - ø28	-	TRI-FINE Indexable BTA drill FNTR		10	1	Int.	★	★	★	☆	★	☆	J118 - J121
	ø25 - ø65	-	FINE-BEAM Indexable BTA drill FNBM		10	1	Int.	★	★	★	☆	★	★	J122 - J127
	ø38 - ø106.99	-	UNIDEX Indexable BTA drill KUSTS/KUDTS		10	1	Int.	★	★	★	☆	★	☆	J128 - J133
	ø8 - ø65	-	Brazed BTA drill MBU/UTE/BTU		9	1	Int.	★	★	★	☆	★	☆	J134 - J146
	ø30 - ø69	6 - 14	**HF** drill Head changeable deep drill HF		10	1	Int.	★	★	★	☆	★	★	J147 - J148

2 Effective Drill

Head changeable drill

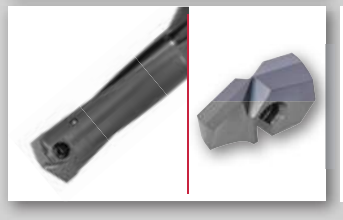


DRILLMEISTER

Head changeable drill series

ø6 mm - ø25.9 mm / L/D = 1.5, 3, 5, 8, 12
※ L/D = 12 : ø8 ~ ø22.9

J010 - J027



DRILLFORCE MEISTER

Two cutting edges functioned for productivity in large diameter drilling

ø26 mm - ø41 mm / L/D = 3, 5

J028 - J032

Solid Drill

SOLIDDRILL

High performance solid carbide drill

J033 - J053

DSW

ø3 mm - ø12 mm / L/D = 3, 5, 8

J034 - J040

DSX

ø3 mm - ø10 mm / L/D = 3, 5, 8

J041 - J044

DSE

ø3 mm - ø10 mm / L/D = 2, 3

J045 - J047

DSM / DSM-CP

ø0.1 mm - ø3 mm / L/D = 5, 10, 15

J048 - J050

FDC

ø5 mm - ø16 mm / L/D = 5, 8

J051 - J052

CDS

ø0.4 mm - ø13 mm / L/D = 5 - 12

J053

DRILLMEISTER

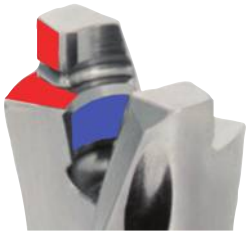
Exchangeable head system for easy operation

High accuracy, rigidity, and productivity

- Unique clamping structure provides high repeatability and reliability
- One-action head changing reduces tool set up time
- No re-grinding cost and reduced tool inventory requirements

Drill head

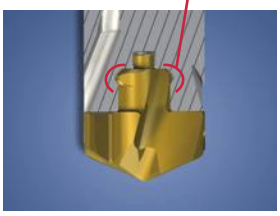
Drill body



Contact area that supports the drill head against cutting force

Contact area that maintains the accurate drill position

Groove to prevent the head from falling off



Increased body durability

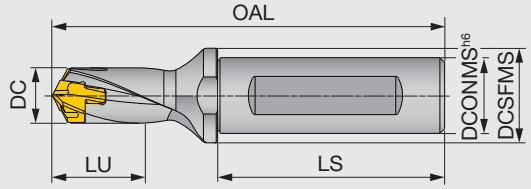
- The new clamping mechanism greatly reduces the damage on cutting edges due to less holding power as seen with the competitors, which leads to long tool life.
- The unique clamping design prevents the head from falling off.

Reference pages: J011 - J027, Technical reference → L073

DRILLMEISTER

TID L/D=1.5

Head changeable drill



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL		Pocket size	Head
						DMP	DMC		
TID060F12-1.5	6 - 6.4	12	16	10.1	45	68	-	6	DMP060 - DMP064
TID065F12-1.5	6.5 - 6.9	12	16	11.2	45	69.1	-	6	DMP065 - DMP069
TID070F12-1.5	7 - 7.4	12	16	12.3	45	70.1	-	7	DMP070 - DMP074
TID075F12-1.5	7.5 - 7.9	12	16	12.7	45	70.9	-	7	DMP075 - DMP079
TID080F12-1.5	8 - 8.9	12	16	13.5	45	72.4	-	8	DMP080 - DMP089
TID090F12-1.5	9 - 9.9	12	16	15.6	45	74.3	-	9	DMP090 - DMP099
TID100F16-1.5	10 - 10.9	16	20	16.8	48	79.2	79.8	10	DM*100 - DM*109
TID110F16-1.5	11 - 11.9	16	20	19	48	81.1	81.7	11	DM*110 - DM*119
TID120F16-1.5	12 - 12.9	16	20	20.2	48	83	83.6	12	DM*120 - DM*129
TID130F16-1.5	13 - 13.9	16	20	22.4	48	85.1	85.9	13	DM*130 - DM*139
TID140F16-1.5	14 - 14.9	16	20	23.5	48	89.1	89.9	14	DM*140 - DM*149
TID150F20-1.5	15 - 15.9	20	25	25.7	50	96.2	97.1	15	DM*150 - DM*159
TID160F20-1.5	16 - 16.9	20	25	26.9	50	99.3	100.3	16	DM*160 - DM*169
TID170F20-1.5	17 - 17.9	20	25	29.1	50	102.4	103.4	17	DM*170 - DM*179
TID180F25-1.5	18 - 18.9	25	32	30.3	56	111.5	112.6	18	DM*180 - DM*189
TID190F25-1.5	19 - 19.9	25	32	32.5	56	114.5	115.6	19	DM*190 - DM*199
TID200F25-1.5	20 - 20.9	25	32	33.6	56	117.6	-	20	DMP200 - DMP209
TID210F25-1.5	21 - 21.9	25	32	35.8	56	120.7	-	21	DMP210 - DMP219
TID220F25-1.5	22 - 22.9	25	32	37	56	123.8	-	22	DMP220 - DMP229
TID230F32-1.5	23 - 23.9	32	42	39.2	60	130.8	-	23	DMP230 - DMP239
TID240F32-1.5	24 - 24.9	32	42	40.4	60	133.9	-	24	DMP240 - DMP249
TID250F32-1.5	25 - 25.9	32	42	42.5	60	137	-	25	DMP250 - DMP259

Tool diameter	Hole diameter tolerance*
ø6 - ø25.9	+0.05 / 0

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

*Just for reference

SPARE PARTS

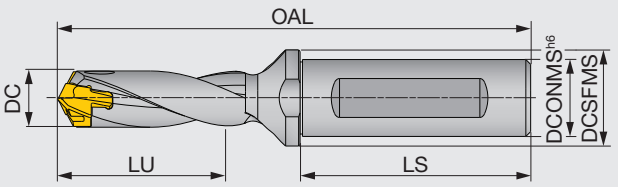
Designation	Clamping key
TID060-090	K-TID6-9.99
TID100-190	K-TID10-19.99
TID200-250	K-TID20-26.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

DRILLMEISTER

TID L/D=3

Head changeable drill



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL		Pocket size	Head
						DMP	DMC		
TID060F12-3	6 - 6.4	12	16	19.1	45	77	-	6	DMP060 - DMP064
TID065F12-3	6.5 - 6.9	12	16	21.2	45	78.8	-	6	DMP065 - DMP069
TID070F12-3	7 - 7.4	12	16	22.3	45	80.6	-	7	DMP070 - DMP074
TID075F12-3	7.5 - 7.9	12	16	24.4	45	82.1	-	7	DMP075 - DMP079
TID080F12-3	8 - 8.4	12	16	25.5	45	84.4	-	8	DMP080 - DMP084
TID085F12-3	8.5 - 8.9	12	16	27.5	45	85.9	-	8	DMP085 - DMP089
TID090F12-3	9 - 9.4	12	16	28.6	45	87.8	-	9	DMP090 - DMP094
TID095F12-3	9.5 - 9.9	12	16	30.7	45	89.3	-	9	DMP095 - DMP099
TID100F16-3	10 - 10.4	16	20	31.8	48	94.2	94.8	10	DM*100 - DM*104
TID105F16-3	10.5 - 10.9	16	20	33.9	48	95.7	96.3	10	DM*105 - DM*109
TID110F16-3	11 - 11.4	16	20	35	48	97.6	98.2	11	DM*110 - DM*114
TID115F16-3	11.5 - 11.9	16	20	37.1	48	99.1	99.7	11	DM*115 - DM*119
TID120F16-3	12 - 12.4	16	20	38.2	48	101	101.6	12	DM*120 - DM*124
TID125F16-3	12.5 - 12.9	16	20	39.3	48	102.5	103.1	12	DM*125 - DM*129
TID130F16-3	13 - 13.4	16	20	41.4	48	104.6	105.4	13	DM*130 - DM*134
TID135F16-3	13.5 - 13.9	16	20	43.5	48	106.1	106.9	13	DM*135 - DM*139
TID140F16-3	14 - 14.4	16	20	44.5	48	110.1	110.9	14	DM*140 - DM*144
TID145F16-3	14.5 - 14.9	16	20	46.6	48	111.6	112.4	14	DM*145 - DM*149
TID150F20-3	15 - 15.9	20	25	47.7	50	118.7	119.6	15	DM*150 - DM*159
TID160F20-3	16 - 16.9	20	25	50.9	50	123.3	124.3	16	DM*160 - DM*169
TID170F20-3	17 - 17.9	20	25	54.1	50	127.9	128.9	17	DM*170 - DM*179
TID180F25-3	18 - 18.9	25	32	57.3	56	138.5	139.6	18	DM*180 - DM*189
TID190F25-3	19 - 19.9	25	32	60.5	56	143	144.1	19	DM*190 - DM*199
TID200F25-3	20 - 20.9	25	32	63.6	56	147.6	-	20	DMP200 - DMP209
TID210F25-3	21 - 21.9	25	32	66.8	56	152.2	-	21	DMP210 - DMP219
TID220F25-3	22 - 22.9	25	32	70	56	156.8	-	22	DMP220 - DMP229
TID230F32-3	23 - 23.9	32	42	73.2	60	165.3	-	23	DMP230 - DMP239
TID240F32-3	24 - 24.9	32	42	76.4	60	169.9	-	24	DMP240 - DMP249
TID250F32-3	25 - 25.9	32	42	79.5	60	174.5	-	25	DMP250 - DMP259

Tool diameter	Hole diameter tolerance*
ø6 - ø25.9	+0.05 / 0

*Just for reference

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

SPARE PARTS

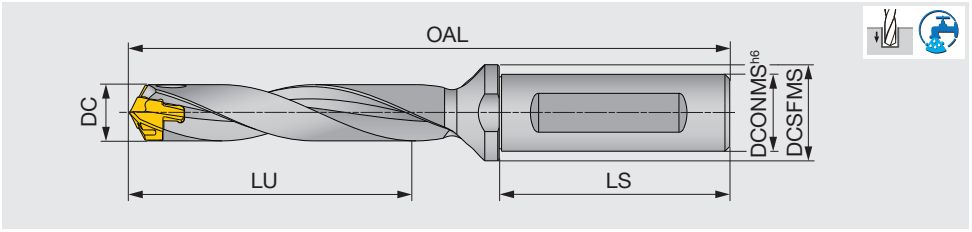
Designation	Clamping key
TID060-095	K-TID6-9.99
TID100-190	K-TID10-19.99
TID200-250	K-TID20-26.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

DRILLMEISTER

TID L/D=5

Head changeable drill



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL		Pocket size	Head
						DMP	DMC		
TID060F12-5	6 - 6.4	12	16	31.1	45	89	-	6	DMP060 - DMP064
TID065F12-5	6.5 - 6.9	12	16	34.2	45	91.8	-	6	DMP065 - DMP069
TID070F12-5	7 - 7.4	12	16	36.3	45	94.6	-	7	DMP070 - DMP074
TID075F12-5	7.5 - 7.9	12	16	39.4	45	97.1	-	7	DMP075 - DMP079
TID080F12-5	8 - 8.4	12	16	41.5	45	100.4	-	8	DMP080 - DMP084
TID085F12-5	8.5 - 8.9	12	16	44.5	45	102.9	-	8	DMP085 - DMP089
TID090F12-5	9 - 9.4	12	16	46.6	45	105.8	-	9	DMP090 - DMP094
TID095F12-5	9.5 - 9.9	12	16	49.7	45	108.3	-	9	DMP095 - DMP099
TID100F16-5	10 - 10.4	16	20	51.8	48	114.2	114.8	10	DM*100 - DM*104
TID105F16-5	10.5 - 10.9	16	20	54.9	48	116.7	117.3	10	DM*105 - DM*109
TID110F16-5	11 - 11.4	16	20	57	48	119.6	120.2	11	DM*110 - DM*114
TID115F16-5	11.5 - 11.9	16	20	60.1	48	122.1	122.7	11	DM*115 - DM*119
TID120F16-5	12 - 12.4	16	20	62.2	48	125	125.6	12	DM*120 - DM*124
TID125F16-5	12.5 - 12.9	16	20	64.3	48	127.5	128.1	12	DM*125 - DM*129
TID130F16-5	13 - 13.4	16	20	67.4	48	130.6	131.4	13	DM*130 - DM*134
TID135F16-5	13.5 - 13.9	16	20	70.5	48	133.1	133.9	13	DM*135 - DM*139
TID140F16-5	14 - 14.4	16	20	72.5	48	138.2	139	14	DM*140 - DM*144
TID145F16-5	14.5 - 14.9	16	20	75.6	48	140.7	141.5	14	DM*145 - DM*149
TID150F20-5	15 - 15.9	20	25	77.7	50	148.7	149.6	15	DM*150 - DM*159
TID160F20-5	16 - 16.9	20	25	82.9	50	155.3	156.3	16	DM*160 - DM*169
TID170F20-5	17 - 17.9	20	25	88.1	50	161.9	162.9	17	DM*170 - DM*179
TID180F25-5	18 - 18.9	25	32	93.3	56	174.5	175.6	18	DM*180 - DM*189
TID190F25-5	19 - 19.9	25	32	98.5	56	181	182.1	19	DM*190 - DM*199
TID200F25-5	20 - 20.9	25	32	103.6	56	187.6	-	20	DMP200 - DMP209
TID210F25-5	21 - 21.9	25	32	108.8	56	194.2	-	21	DMP210 - DMP219
TID220F25-5	22 - 22.9	25	32	114	56	200.8	-	22	DMP220 - DMP229
TID230F32-5	23 - 23.9	32	42	119.2	60	211.3	-	23	DMP230 - DMP239
TID240F32-5	24 - 24.9	32	42	124.4	60	217.9	-	24	DMP240 - DMP249
TID250F32-5	25 - 25.9	32	42	129.5	60	224.5	-	25	DMP250 - DMP259

Tool diameter	Hole diameter tolerance*
ø6 - ø17.9	+0.06 / 0
ø18 - ø25.9	+0.065 / 0

*Just for reference

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

SPARE PARTS

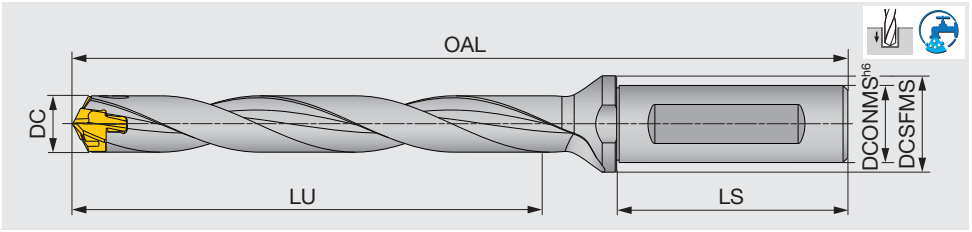
Designation	Clamping key
TID060-095	K-TID6-9.99
TID100-190	K-TID10-19.99
TID200-250	K-TID20-26.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

DRILLMEISTER

TID L/D=8

Head changeable drill



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL		Pocket size	Head
						DMP	DMC		
TID070F12-8	7 - 7.4	12	16	57.3	45	115.6	-	7	DMP070 - DMP074
TID075F12-8	7.5 - 7.9	12	16	61.4	45	119.6	-	7	DMP075 - DMP079
TID080F12-8	8 - 8.4	12	16	65.5	45	124.4	-	8	DMP080 - DMP084
TID085F12-8	8.5 - 8.9	12	16	69.5	45	128.4	-	8	DMP085 - DMP089
TID090F12-8	9 - 9.4	12	16	73.6	45	132.8	-	9	DMP090 - DMP094
TID095F12-8	9.5 - 9.9	12	16	77.7	45	136.8	-	9	DMP095 - DMP099
TID100F16-8	10 - 10.4	16	20	81.8	48	144.2	144.8	10	DM*100 - DM*104
TID105F16-8	10.5 - 10.9	16	20	85.9	48	148.2	148.8	10	DM*105 - DM*109
TID110F16-8	11 - 11.4	16	20	90	48	152.6	153.2	11	DM*110 - DM*114
TID115F16-8	11.5 - 11.9	16	20	94.1	48	156.6	157.2	11	DM*115 - DM*119
TID120F16-8	12 - 12.4	16	20	98.2	48	161	161.6	12	DM*120 - DM*124
TID125F16-8	12.5 - 12.9	16	20	102.3	48	165	165.6	12	DM*125 - DM*129
TID130F16-8	13 - 13.4	16	20	106.4	48	169.6	170.4	13	DM*130 - DM*134
TID135F16-8	13.5 - 13.9	16	20	110.5	48	173.6	174.4	13	DM*135 - DM*139
TID140F16-8	14 - 14.4	16	20	114.5	48	180.1	180.9	14	DM*140 - DM*144
TID145F16-8	14.5 - 14.9	16	20	118.6	48	184.2	185	14	DM*145 - DM*149
TID150F20-8	15 - 15.9	20	25	122.7	50	193.7	194.6	15	DM*150 - DM*159
TID160F20-8	16 - 16.9	20	25	130.9	50	203.3	204.3	16	DM*160 - DM*169
TID170F20-8	17 - 17.9	20	25	139.1	50	212.9	213.9	17	DM*170 - DM*179
TID180F25-8	18 - 18.9	25	32	147.3	56	228.5	229.6	18	DM*180 - DM*189
TID190F25-8	19 - 19.9	25	32	155.5	56	238	239.1	19	DM*190 - DM*199
TID200F25-8	20 - 20.9	25	32	163.6	56	247.6	-	20	DMP200 - DMP209
TID210F25-8	21 - 21.9	25	32	171.8	56	257.2	-	21	DMP210 - DMP219
TID220F25-8	22 - 22.9	25	32	180	56	266.8	-	22	DMP220 - DMP229
TID230F32-8	23 - 23.9	32	42	188.2	60	280.3	-	23	DMP230 - DMP239
TID240F32-8	24 - 24.9	32	42	196.4	60	289.9	-	24	DMP240 - DMP249
TID250F32-8	25 - 25.9	32	42	204.5	60	299.5	-	25	DMP250 - DMP259

Tool diameter	Hole diameter tolerance*
ø7 - ø17.9	+0.07 / 0
ø18 - ø25.9	+0.085 / 0

*Just for reference

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

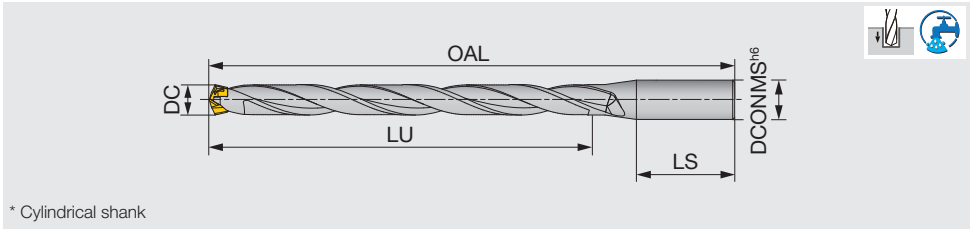
SPARE PARTS

Designation	Clamping key
TID060-095	K-TID6-9.99
TID100-190	K-TID10-19.99
TID200-250	K-TID20-26.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

TID L/D=12

Head changeable drill



* Cylindrical shank

Designation	DC	DCONMS	LU	LS	OAL		Pocket size	Head
					DMP	DMC		
TID080R12-12	8 - 8.4	12	97.5	45	156.4	-	8	DM*080-DM*084
TID085R12-12	8.5 - 8.9	12	103.5	45	162.4	-	8	DM*085-DM*089
TID090R12-12	9 - 9.4	12	109.6	45	168.8	-	9	DM*090-DM*094
TID095R12-12	9.5 - 9.9	12	115.7	45	174.8	-	9	DM*095-DM*099
TID100R16-12	10 - 10.4	16	121.8	48	184.2	184.8	10	DM*100-DM*104
TID105R16-12	10.5 - 10.9	16	127.9	48	190.2	190.8	10	DM*105-DM*109
TID110R16-12	11 - 11.4	16	134.0	48	196.6	197.2	11	DM*110-DM*114
TID115R16-12	11.5 - 11.9	16	140.1	48	202.6	203.2	11	DM*115-DM*119
TID120R16-12	12 - 12.4	16	146.2	48	209	209.6	12	DM*120 - DM*124
TID125R16-12	12.5 - 12.9	16	152.3	48	215	215.6	12	DM*125 - DM*129
TID130R16-12	13 - 13.4	16	158.4	48	221.6	222.4	13	DM*130 - DM*134
TID135R16-12	13.5 - 13.9	16	164.5	48	227.6	228.4	13	DM*135 - DM*139
TID140R16-12	14 - 14.4	16	170.5	48	236.2	237	14	DM*140 - DM*144
TID145R16-12	14.5 - 14.9	16	176.6	48	242.2	243	14	DM*145 - DM*149
TID150R20-12	15 - 15.9	20	182.7	50	253.7	254.6	15	DM*150 - DM*159
TID160R20-12	16 - 16.9	20	194.9	50	267.3	268.3	16	DM*160 - DM*169
TID170R20-12	17 - 17.9	20	207.1	50	280.9	281.9	17	DM*170 - DM*179
TID180R25-12	18 - 18.9	25	219.3	56	300.5	301.6	18	DM*180 - DM*189
TID190R25-12	19 - 19.9	25	231.5	56	314	315.1	19	DM*190 - DM*199
TID200R25-12	20 - 20.9	25	243.6	56	327.6	-	20	DM*200 - DM*209
TID210R25-12	21 - 21.9	25	255.8	56	341.2	-	21	DM*210 - DM*219
TID220R25-12	22 - 22.9	25	268	56	354.8	-	22	DM*220 - DM*229

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

Tool diameter	Hole diameter tolerance*
ø8 - ø17.9	+0.08 / 0
ø18 - ø22.9	+0.095 / 0

*Just for reference

SPARE PARTS

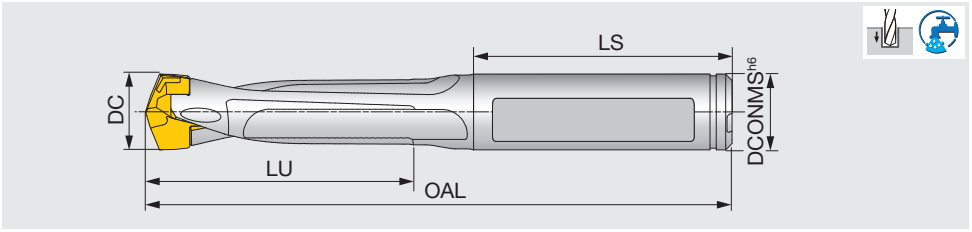
Designation	Clamping key
TID100-190	K-TID10-19.99
TID200-220	K-TID20-26.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

DRILLMEISTER

TIDC L/D=3

Head changeable drill



Designation	DC	DCONMS	LU	LS	OAL		Pocket size	Head
					DMP	DMC		
TIDC100C10-3	10 - 10.4	10	31.8	41	86.1	86.7	10	DM*100 - DM*104
TIDC105C11-3	10.5 - 10.9	11	33.4	41	87.6	88.2	10	DM*105 - DM*109
TIDC110C11-3	11 - 11.4	11	35	41	89.5	90.1	11	DM*110 - DM*114
TIDC115C12-3	11.5 - 11.9	12	36.6	41	91	91.6	11	DM*115 - DM*119
TIDC120C12-3	12 - 12.4	12	38.2	41	92.8	93.4	12	DM*120 - DM*124
TIDC125C13-3	12.5 - 12.9	13	39.8	46	98.3	98.9	12	DM*125 - DM*129
TIDC130C13-3	13 - 13.4	13	41.4	47	102.4	103.2	13	DM*130 - DM*134
TIDC135C14-3	13.5 - 13.9	14	43	43	99.9	100.7	13	DM*135 - DM*139
TIDC140C14-3	14 - 14.4	14	44.5	44	103	103.8	14	DM*140 - DM*144
TIDC145C15-3	14.5 - 14.9	15	46.1	45	105.5	106.3	14	DM*145 - DM*149
TIDC150C15-3	15 - 15.9	15	47.7	45	107.5	108.4	15	DM*150 - DM*159
TIDC160C16-3	16 - 16.9	16	50.9	48	117.5	118.5	16	DM*160 - DM*169
TIDC170C17-3	17 - 17.9	17	54.1	48	119.7	120.7	17	DM*170 - DM*179
TIDC180C18-3	18 - 18.9	18	57.3	48	123.3	124.4	18	DM*180 - DM*189
TIDC190C19-3	19 - 19.9	19	60.5	54	132.4	133.5	19	DM*190 - DM*199

Tool diameter	Hole diameter tolerance*
ø10 - ø19.9	+0.05 / 0

*Just for reference

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

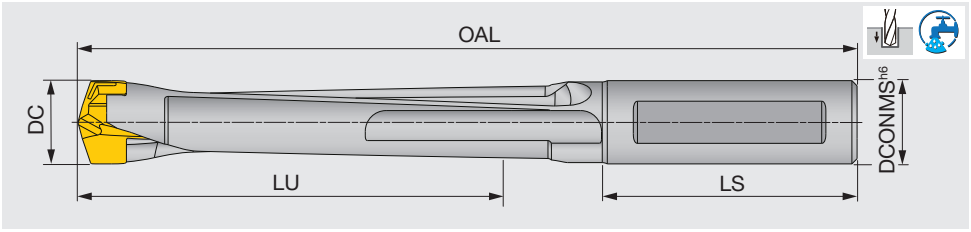
SPARE PARTS

Designation	Clamping key
TIDC100-190	K-TID10-19.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

TIDC L/D=5

Head changeable drill



Designation	DC	DCONMS	LU	LS	OAL		Pocket size	Head
					DMP	DMC		
TIDC100C10-5	10 - 10.4	10	51.8	41	106.1	106.7	10	DM*100 - DM*104
TIDC105C11-5	10.5 - 10.9	11	54.4	41	108.6	109.2	10	DM*105 - DM*109
TIDC110C11-5	11 - 11.4	11	57	41	111.5	112.1	11	DM*110 - DM*114
TIDC115C12-5	11.5 - 11.9	12	59.6	41	114	114.6	11	DM*115 - DM*119
TIDC120C12-5	12 - 12.4	12	62.2	41	116.8	117.4	12	DM*120 - DM*124
TIDC125C13-5	12.5 - 12.9	13	64.8	46	124.3	124.9	12	DM*125 - DM*129
TIDC130C13-5	13 - 13.4	13	67.4	47	128.4	129.2	13	DM*130 - DM*134
TIDC135C14-5	13.5 - 13.9	14	70	43	126.9	127.7	13	DM*135 - DM*139
TIDC140C14-5	14 - 14.4	14	72.5	44	131	131.8	14	DM*140 - DM*144
TIDC145C15-5	14.5 - 14.9	15	75.1	45	134.5	135.3	14	DM*145 - DM*149
TIDC150C15-5	15 - 15.9	15	77.7	45	137.5	138.4	15	DM*150 - DM*159
TIDC160C16-5	16 - 16.9	16	82.9	48	149.5	150.5	16	DM*160 - DM*169
TIDC170C17-5	17 - 17.9	17	88.1	48	153.7	154.7	17	DM*170 - DM*179
TIDC180C18-5	18 - 18.9	18	93.3	48	159.3	160.4	18	DM*180 - DM*189
TIDC190C19-5	19 - 19.9	19	98.5	54	170.4	171.5	19	DM*190 - DM*199

Tool diameter	Hole diameter tolerance*
ø10 - ø19.9	+0.05 / 0

*Just for reference

Note : An overall length (OAL) differs for when the DMP insert is mounted and when the DMC is mounted. (No difference for the drill shoulder)

SPARE PARTS

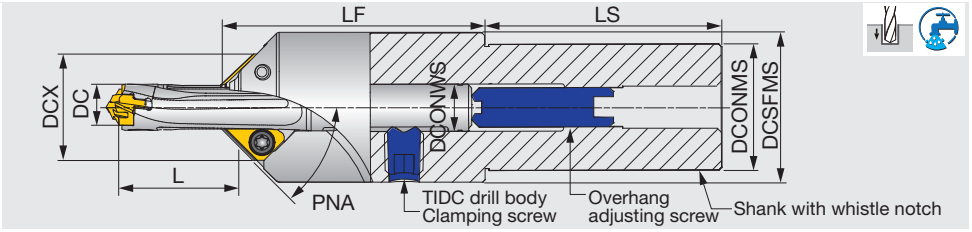
Designation	Clamping key
TIDC100-190	K-TID10-19.99

Reference pages: Head → J020 - J025
Standard cutting conditions → J026

DRILLMEISTER

TIDCF

Chamfering adapter



Designation	DC	DCONMS	DCSFMS	DCX	LF	LS	L* L/D = 3	L* L/D = 5	Drill body	DCONWS
TIDCF100-W32	10 - 10.4	32	38	24.9	67.3	60	14.5 - 31.8	31.7 - 51.8	TIDC100C10-...	10
TIDCF110-W32	10.5 - 10.9	32	38	25.9	67.3	60	15.7 - 33.3	31.2 - 54.2	TIDC105C11-...	11
TIDCF110-W32	11 - 11.4	32	38	25.9	67.3	60	16.2 - 35.3	34.1 - 57.3	TIDC110C11-...	11
TIDCF120-W32	11.5 - 11.9	32	38	26.9	67.3	60	15.1 - 36.7	33.8 - 59.4	TIDC115C12-...	12
TIDCF120-W32	12 - 12.4	32	38	26.9	67.3	60	16.5 - 37.7	36.6 - 61.6	TIDC120C12-...	12
TIDCF130-W32	12.5 - 12.9	32	38	27.9	67.3	60	16.1 - 39.6	39.7 - 64.8	TIDC125C13-...	13
TIDCF130-W32	13 - 13.4	32	38	27.9	67.3	60	17.5 - 41.5	42.7 - 68	TIDC130C13-...	13
TIDCF140-W32	13.5 - 13.9	32	38	28.4	67.3	60	17.7 - 42.9	41.4 - 70.3	TIDC135C14-...	14
TIDCF140-W32	14 - 14.4	32	38	28.4	67.3	60	18.1 - 45	44.8 - 73.1	TIDC140C14-...	14
TIDCF150-W32	14.5 - 14.9	32	38	29.4	67.3	60	19.2 - 44.6	44 - 73.9	TIDC145C15-...	15
TIDCF150-W32	15 - 15.9	32	38	29.4	67.3	60	19.7 - 47.4	47.6 - 80.7	TIDC150C15-...	15
TIDCF160-W32	16 - 16.9	32	38	30.4	67.3	60	19.5 - 55.3	57 - 87.5	TIDC160C16-...	16
TIDCF170-W32	17 - 17.9	32	38	31.4	67.3	60	21.4 - 54.9	55.9 - 88.5	TIDC170C17-...	17
TIDCF180-W32	18 - 18.9	32	38	32.4	67.3	60	24.2 - 65.2	60 - 93	TIDC180C18-...	18
TIDCF190-W32	19 - 19.9	32	38	33.4	75	60	28.5 - 62.3	67 - 100	TIDC190C19-...	19

L* is the dimension when using 45° chamfering insert.

SPARE PARTS



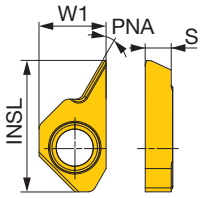



Designation	Clamping screw	Grip	Overhang adjusting screw	Clamping screw of TIDC drill body	Torx bit	Wrench
TIDCF	SR14-544/S	SW6-SD	SRM10X10DIN916	SRM10X1.5S	BT15S	HW5.0

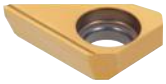
Recommended clamping torque (N·m)：SR14-544/S=4.8

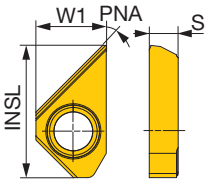
CHAMFERING INSERT

XHGT-30A

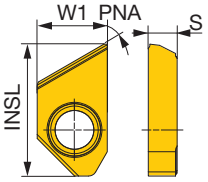


XHGR-45A





XHGR-60A



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

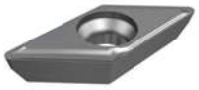
Designation	W1	S	Coated GH730	Chamfering angle PNA	Maximum width of chamfer **
XHGT090300-30A	8.5	3.3	●	30°	1.5
XHGR090300-45A	8.5	3.3	●	45°	6
XHGR090300-60A	8.5	3.3	●	60°	3.5

● : Line up
2 pieces per package

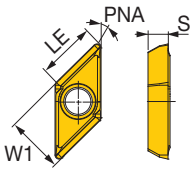
**Please reduce the feed rate to half when chamfering over 60% of maximum width of chamfer.

INSERT FOR SPECIAL CHAMFERING ADAPTERS

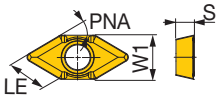
AOMT...



AOMT**-C45



AOMT**-N-**DT



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

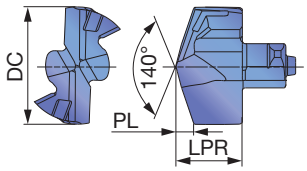
★ : First choice
☆ : Second choice

Designation	W1	S	Coated GH730	LE	Chamfering angle PNA
AOMT060204-C45	5.66	1.96	●	4.5	45°
AOMT030204-N-30DT	4	1.59	●	4	30°
AOMT030204-N-45DT	2.8	1.59	●	4	45°

● : Line up

DRILL HEAD

DMP General purpose



Tool diameter	Head diameter tolerance
ø6 - ø17.9	+0.018 / 0
ø18 - ø25.9	+0.021 / 0

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated	PL	SSC	Pocket Size	Body
			AH725				
DMP060	6	4	●	1.09	6	6	TID*060...
DMP061	6.1	4	●	1.11	6	6	TID*060...
DMP062	6.2	4	●	1.13	6	6	TID*060...
DMP063	6.3	4	●	1.15	6	6	TID*060...
DMP064	6.4	4	●	1.16	6	6	TID*060...
DMP065	6.5	4.3	●	1.18	6	6	TID*065...
DMP066	6.6	4.3	●	1.2	6	6	TID*065...
DMP067	6.7	4.3	●	1.22	6	6	TID*065...
DMP068	6.8	4.3	●	1.24	6	6	TID*065...
DMP069	6.9	4.3	●	1.26	6	6	TID*065...
DMP070	7	4.6	●	1.27	7	7	TID*070...
DMP071	7.1	4.6	●	1.29	7	7	TID*070...
DMP072	7.2	4.6	●	1.31	7	7	TID*070...
DMP073	7.3	4.6	●	1.33	7	7	TID*070...
DMP074	7.4	4.6	●	1.35	7	7	TID*070...
DMP075	7.5	4.6	●	1.36	7	7	TID*075...
DMP076	7.6	4.6	●	1.38	7	7	TID*075...
DMP077	7.7	4.6	●	1.4	7	7	TID*075...
DMP078	7.8	4.6	●	1.42	7	7	TID*075...
DMP079	7.9	4.6	●	1.44	7	7	TID*075...
DMP080	8	5.4	●	1.46	8	8	TID*080...
DMP081	8.1	5.4	●	1.47	8	8	TID*080...
DMP082	8.2	5.4	●	1.49	8	8	TID*080...
DMP083	8.3	5.4	●	1.51	8	8	TID*080...
DMP084	8.4	5.4	●	1.53	8	8	TID*080...
DMP085	8.5	5.4	●	1.55	8	8	TID*085...
DMP086	8.6	5.4	●	1.57	8	8	TID*085...
DMP087	8.7	5.4	●	1.58	8	8	TID*085...
DMP088	8.80	5.4	●	1.6	8	8	TID*085...
DMP089	8.9	5.4	●	1.62	8	8	TID*085...
DMP090	9	5.8	●	1.64	9	9	TID*090...
DMP091	9.1	5.8	●	1.66	9	9	TID*090...
DMP092	9.2	5.8	●	1.67	9	9	TID*090...
DMP093	9.3	5.8	●	1.69	9	9	TID*090...
DMP094	9.4	5.8	●	1.71	9	9	TID*090...
DMP095	9.5	5.8	●	1.73	9	9	TID*095...
DMP096	9.6	5.8	●	1.75	9	9	TID*095...
DMP097	9.7	5.8	●	1.77	9	9	TID*095...
DMP098	9.8	5.8	●	1.78	9	9	TID*095...
DMP099	9.9	5.8	●	1.8	9	9	TID*095...
DMP100	10	6.05	●	6.05	10	10	TID*100...
DMP101	10.1	6.05	●	6.05	10	10	TID*100...
DMP102	10.2	6.05	●	6.05	10	10	TID*100...
DMP103	10.3	6.05	●	6.05	10	10	TID*100...
DMP104	10.4	6.05	●	6.05	10	10	TID*100...

●: Line up

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

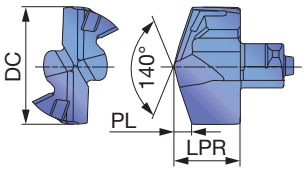
★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated												PL	SSC	Pocket Size	Body
			AH725															
DMP105	10.5	6.05	●												6.05	10	10	TID*105...
DMP106	10.6	6.05	●												6.05	10	10	TID*105...
DMP107	10.7	6.05	●												6.05	10	10	TID*105...
DMP108	10.8	6.05	●												6.05	10	10	TID*105...
DMP109	10.9	6.05	●												6.05	10	10	TID*105...
DMP110	11	6.45	●												6.45	11	11	TID*110...
DMP111	11.1	6.45	●												6.45	11	11	TID*110...
DMP112	11.2	6.45	●												6.45	11	11	TID*110...
DMP113	11.3	6.45	●												6.45	11	11	TID*110...
DMP114	11.4	6.45	●												6.45	11	11	TID*110...
DMP115	11.5	6.45	●												6.45	11	11	TID*115...
DMP116	11.6	6.45	●												6.45	11	11	TID*115...
DMP117	11.7	6.45	●												6.45	11	11	TID*115...
DMP118	11.8	6.45	●												6.45	11	11	TID*115...
DMP119	11.9	6.45	●												6.45	11	11	TID*115...
DMP120	12	6.8	●												6.8	12	12	TID*120...
DMP121	12.1	6.8	●												6.8	12	12	TID*120...
DMP122	12.2	6.8	●												6.8	12	12	TID*120...
DMP123	12.3	6.8	●												6.8	12	12	TID*120...
DMP124	12.4	6.8	●												6.8	12	12	TID*120...
DMP125	12.5	6.8	●												6.8	12	12	TID*125..
DMP126	12.6	6.8	●												6.8	12	12	TID*125..
DMP127	12.7	6.8	●												6.8	12	12	TID*125..
DMP128	12.8	6.8	●												6.8	12	12	TID*125..
DMP129	12.9	6.8	●												6.8	12	12	TID*125..
DMP130	13	7.4	●												7.4	13	13	TID*130...
DMP131	13.1	7.4	●												7.4	13	13	TID*130...
DMP132	13.2	7.4	●												7.4	13	13	TID*130...
DMP133	13.3	7.4	●												7.4	13	13	TID*130...
DMP134	13.4	7.4	●												7.4	13	13	TID*130...
DMP135	13.5	7.4	●												7.4	13	13	TID*135...
DMP136	13.6	7.4	●												7.4	13	13	TID*135...
DMP137	13.7	7.4	●												7.4	13	13	TID*135...
DMP138	13.8	7.4	●												7.4	13	13	TID*135...
DMP139	13.90	7.4	●												7.4	13	13	TID*135...
DMP140	14	7.95	●												2.55	14	14	TID*140...
DMP141	14.1	7.95	●												2.57	14	14	TID*140...
DMP142	14.2	7.95	●												2.58	14	14	TID*140...
DMP143	14.3	7.95	●												2.6	14	14	TID*140...
DMP144	14.4	7.95	●												2.62	14	14	TID*140...
DMP145	14.5	7.95	●												2.64	14	14	TID*145...
DMP146	14.6	7.95	●												2.66	14	14	TID*145...
DMP147	14.7	7.95	●												2.68	14	14	TID*145...
DMP148	14.8	7.95	●												2.69	14	14	TID*145...
DMP149	14.9	7.95	●												2.71	14	14	TID*145...
DMP150	15	8.53	●												2.73	15	15	TID*150...
DMP151	15.1	8.53	●												2.75	15	15	TID*150...
DMP152	15.2	8.53	●												2.77	15	15	TID*150...
DMP153	15.3	8.53	●												2.78	15	15	TID*150...
DMP154	15.4	8.53	●												2.8	15	15	TID*150...
DMP155	15.5	8.53	●												2.82	15	15	TID*150...
DMP156	15.6	8.53	●												2.84	15	15	TID*150...
DMP157	15.7	8.53	●												2.86	15	15	TID*150...
DMP158	15.8	8.53	●												2.88	15	15	TID*150...
DMP159	15.9	8.53	●												2.89	15	15	TID*150...
DMP160	16	9.1	●												2.91	16	16	TID*160...
DMP161	16.1	9.1	●												2.93	16	16	TID*160...

ø6 - ø19.9 = 2 pieces per package
ø20 - ø25.9 = 1 piece per package

●: Line up

DMP General purpose



Tool diameter	Head diameter tolerance
ø6 - ø17.9	+0.018 / 0
ø18 - ø25.9	+0.021 / 0

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated												PL	SSC	Pocket Size	Body
			AH725															
DMP162	16.2	9.1	●												2.95	16	16	TID*160...
DMP163	16.3	9.1	●												2.97	16	16	TID*160...
DMP164	16.4	9.1	●												2.98	16	16	TID*160...
DMP165	16.5	9.1	●												3	16	16	TID*160...
DMP166	16.6	9.1	●												3.02	16	16	TID*160...
DMP167	16.7	9.1	●												3.04	16	16	TID*160...
DMP168	16.8	9.1	●												3.06	16	16	TID*160...
DMP169	16.9	9.1	●												3.08	16	16	TID*160...
DMP170	17	9.7	●												3.09	17	17	TID*170...
DMP171	17.1	9.7	●												3.11	17	17	TID*170...
DMP172	17.2	9.7	●												3.13	17	17	TID*170...
DMP173	17.3	9.7	●												3.15	17	17	TID*170...
DMP174	17.4	9.7	●												3.17	17	17	TID*170...
DMP175	17.5	9.7	●												3.18	17	17	TID*170...
DMP176	17.6	9.7	●												3.2	17	17	TID*170...
DMP177	17.7	9.7	●												3.22	17	17	TID*170...
DMP178	17.8	9.7	●												3.24	17	17	TID*170...
DMP179	17.9	9.7	●												3.26	17	17	TID*170...
DMP180	18	10.3	●												3.28	18	18	TID*180...
DMP181	18.1	10.3	●												3.29	18	18	TID*180...
DMP182	18.2	10.3	●												3.31	18	18	TID*180...
DMP183	18.3	10.3	●												3.33	18	18	TID*180...
DMP184	18.4	10.3	●												3.35	18	18	TID*180...
DMP185	18.5	10.3	●												3.37	18	18	TID*180...
DMP186	18.6	10.3	●												3.38	18	18	TID*180...
DMP187	18.7	10.3	●												3.4	18	18	TID*180...
DMP188	18.8	10.3	●												3.42	18	18	TID*180...
DMP189	18.9	10.3	●												3.44	18	18	TID*180...
DMP190	19	10.8	●												3.46	19	19	TID*190...
DMP191	19.1	10.8	●												3.48	19	19	TID*190...
DMP192	19.2	10.8	●												3.49	19	19	TID*190...
DMP193	19.3	10.8	●												3.51	19	19	TID*190...
DMP194	19.4	10.8	●												3.53	19	19	TID*190...
DMP195	19.5	10.8	●												3.55	19	19	TID*190...
DMP196	19.6	10.8	●												3.57	19	19	TID*190...
DMP197	19.7	10.8	●												3.59	19	19	TID*190...
DMP198	19.8	10.8	●												3.6	19	19	TID*190...
DMP199	19.9	10.8	●												3.62	19	19	TID*190...
DMP200	20	11.4	●												3.64	20	20	TID*200...
DMP201	20.1	11.4	●												3.66	20	20	TID*200...
DMP202	20.2	11.4	●												3.68	20	20	TID*200...
DMP203	20.3	11.4	●												3.69	20	20	TID*200...
DMP204	20.4	11.4	●												3.71	20	20	TID*200...
DMP205	20.5	11.4	●												3.73	20	20	TID*200...

●: Line up

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

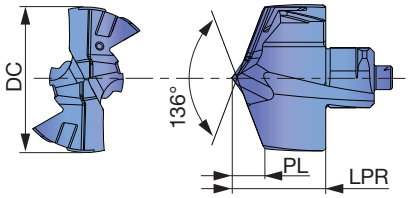
★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated												PL	SSC	Pocket Size	Body
			AH725															
DMP206	20.6	11.4	●												3.75	20	20	TID*200...
DMP207	20.7	11.4	●												3.77	20	20	TID*200...
DMP208	20.8	11.4	●												3.79	20	20	TID*200...
DMP209	20.9	11.4	●												3.8	20	20	TID*200...
DMP210	21	11.98	●												3.82	21	21	TID*210...
DMP211	21.1	11.98	●												3.84	21	21	TID*210...
DMP212	21.2	11.98	●												3.86	21	21	TID*210...
DMP213	21.3	11.98	●												3.88	21	21	TID*210...
DMP214	21.4	11.98	●												3.89	21	21	TID*210...
DMP215	21.5	11.98	●												3.91	21	21	TID*210...
DMP216	21.6	11.98	●												3.93	21	21	TID*210...
DMP217	21.7	11.98	●												3.95	21	21	TID*210...
DMP218	21.8	11.98	●												3.97	21	21	TID*210...
DMP219	21.9	11.98	●												3.99	21	21	TID*210...
DMP220	22	12.56	●												4	22	22	TID*220...
DMP221	22.1	12.56	●												4.02	22	22	TID*220...
DMP222	22.2	12.56	●												4.04	22	22	TID*220...
DMP223	22.3	12.56	●												4.06	22	22	TID*220...
DMP224	22.4	12.56	●												4.08	22	22	TID*220...
DMP225	22.5	12.56	●												4.09	22	22	TID*220...
DMP226	22.6	12.56	●												4.11	22	22	TID*220...
DMP227	22.7	12.56	●												4.13	22	22	TID*220...
DMP228	22.8	12.56	●												4.15	22	22	TID*220...
DMP229	22.9	12.56	●												4.17	22	22	TID*220...
DMP230	23	13.13	●												4.19	23	23	TID*230...
DMP231	23.1	13.13	●												4.2	23	23	TID*230...
DMP232	23.2	13.13	●												4.22	23	23	TID*230...
DMP233	23.3	13.13	●												4.24	23	23	TID*230...
DMP234	23.4	13.13	●												4.26	23	23	TID*230...
DMP235	23.5	13.13	●												4.28	23	23	TID*230...
DMP236	23.6	13.13	●												4.29	23	23	TID*230...
DMP237	23.7	13.13	●												4.31	23	23	TID*230...
DMP238	23.8	13.13	●												4.33	23	23	TID*230...
DMP239	23.9	13.13	●												4.35	23	23	TID*230...
DMP240	24	13.7	●												4.37	24	24	TID*240...
DMP241	24.1	13.7	●												4.39	24	24	TID*240...
DMP242	24.2	13.7	●												4.4	24	24	TID*240...
DMP243	24.3	13.7	●												4.42	24	24	TID*240...
DMP244	24.4	13.7	●												4.44	24	24	TID*240...
DMP245	24.5	13.7	●												4.46	24	24	TID*240...
DMP246	24.6	13.7	●												4.48	24	24	TID*240...
DMP247	24.7	13.7	●												4.5	24	24	TID*240...
DMP248	24.8	13.7	●												4.51	24	24	TID*240...
DMP249	24.9	13.7	●												4.53	24	24	TID*240...
DMP250	25	14.3	●												4.55	25	25	TID*250...
DMP251	25.1	14.3	●												4.57	25	25	TID*250...
DMP252	25.2	14.3	●												4.59	25	25	TID*250...
DMP253	25.3	14.3	●												4.6	25	25	TID*250...
DMP254	25.4	14.3	●												4.62	25	25	TID*250...
DMP255	25.5	14.3	●												4.64	25	25	TID*250...
DMP256	25.6	14.3	●												4.66	25	25	TID*250...
DMP257	25.7	14.3	●												4.68	25	25	TID*250...
DMP258	25.8	14.3	●												4.7	25	25	TID*250...
DMP259	25.9	14.3	●												4.71	25	25	TID*250...

ø10 - ø19.9 = 2 pieces per package

●: Line up

DMC High precision machining



Tool diameter	Head diameter tolerance
ø10 - ø17.9	+0.018 / 0
ø18 - ø19.9	+0.021 / 0

		AH9130
P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated	PL	SSC	Pocket Size	Body
			AH9130				
DMC100	10	6.67	●	2.09	10	10	TID*100...
DMC101	10.1	6.67	●	2.11	10	10	TID*100...
DMC102	10.2	6.67	●	2.13	10	10	TID*100...
DMC103	10.3	6.67	●	2.15	10	10	TID*100...
DMC104	10.4	6.67	●	2.17	10	10	TID*100...
DMC105	10.5	6.67	●	2.19	10	10	TID*105...
DMC106	10.6	6.67	●	2.21	10	10	TID*105...
DMC107	10.7	6.67	●	2.23	10	10	TID*105...
DMC108	10.8	6.67	●	2.25	10	10	TID*105...
DMC109	10.9	6.67	●	2.27	10	10	TID*105...
DMC110	11	7.1	●	2.32	11	11	TID*110...
DMC111	11.1	7.1	●	2.34	11	11	TID*110...
DMC112	11.2	7.1	●	2.36	11	11	TID*110...
DMC113	11.3	7.1	●	2.38	11	11	TID*110...
DMC114	11.4	7.1	●	2.4	11	11	TID*110...
DMC115	11.5	7.1	●	2.42	11	11	TID*115...
DMC116	11.6	7.1	●	2.44	11	11	TID*115...
DMC117	11.7	7.1	●	2.46	11	11	TID*115...
DMC118	11.8	7.1	●	2.48	11	11	TID*115...
DMC119	11.9	7.1	●	2.5	11	11	TID*115...
DMC120	12	7.43	●	2.45	12	12	TID*120...
DMC121	12.1	7.43	●	2.47	12	12	TID*120...
DMC122	12.2	7.43	●	2.49	12	12	TID*120...
DMC123	12.3	7.43	●	2.51	12	12	TID*120...
DMC124	12.4	7.43	●	2.53	12	12	TID*120...
DMC125	12.5	7.43	●	2.55	12	12	TID*125...
DMC126	12.6	7.43	●	2.57	12	12	TID*125...
DMC127	12.7	7.43	●	2.59	12	12	TID*125...
DMC128	12.8	7.43	●	2.61	12	12	TID*125...
DMC129	12.9	7.43	●	2.63	12	12	TID*125...
DMC130	13	8.15	●	2.71	13	13	TID*130...
DMC131	13.1	8.15	●	2.73	13	13	TID*130...
DMC132	13.2	8.15	●	2.75	13	13	TID*130...
DMC133	13.3	8.15	●	2.77	13	13	TID*130...
DMC134	13.4	8.15	●	2.79	13	13	TID*130...
DMC135	13.5	8.15	●	2.81	13	13	TID*135...
DMC136	13.6	8.15	●	2.83	13	13	TID*135...
DMC137	13.7	8.15	●	2.85	13	13	TID*135...
DMC138	13.8	8.15	●	2.87	13	13	TID*135...
DMC139	13.9	8.15	●	2.89	13	13	TID*135...
DMC140	14	8.76	●	2.93	14	14	TID*140...
DMC141	14.1	8.76	●	2.95	14	14	TID*140...
DMC142	14.2	8.76	●	2.97	14	14	TID*140...
DMC143	14.3	8.76	●	2.99	14	14	TID*140...
DMC144	14.4	8.76	●	3.01	14	14	TID*140...

●: Line up

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DC	LPR	Coated														PL	SSC	Pocket Size	Body
			AH9130																	
DMC145	14.5	8.76	●														3.03	14	14	TID*145...
DMC146	14.6	8.76	●														3.05	14	14	TID*145...
DMC147	14.7	8.76	●														3.07	14	14	TID*145...
DMC148	14.8	8.76	●														3.09	14	14	TID*145...
DMC149	14.9	8.76	●														3.11	14	14	TID*145...
DMC150	15	9.44	●														3.18	15	15	TID*150...
DMC151	15.1	9.44	●														3.2	15	15	TID*150...
DMC152	15.2	9.44	●														3.22	15	15	TID*150...
DMC153	15.3	9.44	●														3.24	15	15	TID*150...
DMC154	15.4	9.44	●														3.26	15	15	TID*150...
DMC155	15.5	9.44	●														3.28	15	15	TID*150...
DMC156	15.6	9.44	●														3.3	15	15	TID*150...
DMC157	15.7	9.44	●														3.32	15	15	TID*150...
DMC158	15.8	9.44	●														3.34	15	15	TID*150...
DMC159	15.9	9.44	●														3.36	15	15	TID*150...
DMC160	16	10.07	●														3.39	16	16	TID*160...
DMC161	16.1	10.07	●														3.41	16	16	TID*160...
DMC162	16.2	10.07	●														3.43	16	16	TID*160...
DMC163	16.3	10.07	●														3.45	16	16	TID*160...
DMC164	16.4	10.07	●														3.47	16	16	TID*160...
DMC165	16.5	10.07	●														3.49	16	16	TID*160...
DMC166	16.6	10.07	●														3.51	16	16	TID*160...
DMC167	16.7	10.07	●														3.53	16	16	TID*160...
DMC168	16.8	10.07	●														3.55	16	16	TID*160...
DMC169	16.9	10.07	●														3.57	16	16	TID*160...
DMC170	17	10.68	●														3.57	17	17	TID*170...
DMC171	17.1	10.68	●														3.59	17	17	TID*170...
DMC172	17.2	10.68	●														3.61	17	17	TID*170...
DMC173	17.3	10.68	●														3.63	17	17	TID*170...
DMC174	17.4	10.68	●														3.65	17	17	TID*170...
DMC175	17.5	10.68	●														3.67	17	17	TID*170...
DMC176	17.6	10.68	●														3.69	17	17	TID*170...
DMC177	17.7	10.68	●														3.71	17	17	TID*170...
DMC178	17.8	10.68	●														3.73	17	17	TID*170...
DMC179	17.9	10.68	●														3.75	17	17	TID*170...
DMC180	18	11.35	●														3.78	18	18	TID*180...
DMC181	18.1	11.35	●														3.8	18	18	TID*180...
DMC182	18.2	11.35	●														3.82	18	18	TID*180...
DMC183	18.3	11.35	●														3.84	18	18	TID*180...
DMC184	18.4	11.35	●														3.86	18	18	TID*180...
DMC185	18.5	11.35	●														3.88	18	18	TID*180...
DMC186	18.6	11.35	●														3.9	18	18	TID*180...
DMC187	18.7	11.35	●														3.92	18	18	TID*180...
DMC188	18.8	11.35	●														3.94	18	18	TID*180...
DMC189	18.9	11.35	●														3.96	18	18	TID*180...
DMC190	19	11.91	●														3.99	19	19	TID*190...
DMC191	19.1	11.91	●														4.01	19	19	TID*190...
DMC192	19.2	11.91	●														4.03	19	19	TID*190...
DMC193	19.3	11.91	●														4.05	19	19	TID*190...
DMC194	19.4	11.91	●														4.07	19	19	TID*190...
DMC195	19.5	11.91	●														4.09	19	19	TID*190...
DMC196	19.6	11.91	●														4.11	19	19	TID*190...
DMC197	19.7	11.91	●														4.13	19	19	TID*190...
DMC198	19.8	11.91	●														4.15	19	19	TID*190...
DMC199	19.9	11.91	●														4.17	19	19	TID*190...

●: Line up

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed	Feed: *f* (mm/rev) DC (mm)						
		Vc (m/min)	ø6 - 7.9	ø8 - 9.9	ø10 - ø11.9	ø12 - ø13.9	ø14 - ø15.9	ø16 - ø19.9	ø20 - ø25.9
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. C15E4, E275A, E355D, etc.	80 - 140	0.09 - 0.13	0.12 - 0.25	0.15 - 0.28	0.18 - 0.3	0.20 - 0.35	0.25 - 0.45	0.25 - 0.45
P	High carbon steels (C > 0.3) S45C, S55C, etc. C45, C55, etc.	70 - 120	0.09 - 0.13	0.12 - 0.25	0.15 - 0.28	0.18 - 0.3	0.2 - 0.35	0.25 - 0.45	0.25 - 0.45
P	Low alloy steels SCM415, etc. 18CrMo4, etc.	70 - 120	0.08 - 0.13	0.11 - 0.25	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.4	0.25 - 0.45
P	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	40 - 90	0.08 - 0.13	0.11 - 0.25	0.14 - 0.28	0.16 - 0.32	0.18 - 0.35	0.23 - 0.4	0.25 - 0.45
M	Stainless steels SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-2, etc.	30 - 70	0.08 - 0.1	0.1 - 0.15	0.12 - 0.18	0.14 - 0.2	0.16 - 0.24	0.16 - 0.26	0.18 - 0.3
K	Grey cast irons FC250, etc. GG25, etc.	80 - 180	0.12 - 0.18	0.15 - 0.3	0.20 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.55	0.35 - 0.6
K	Ductile cast irons FCD700, etc. GGG70, etc.	80 - 140	0.12 - 0.18	0.15 - 0.3	0.20 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.55	0.35 - 0.6
N	Aluminium alloys ADC12, etc. AlSi11Cu3, etc.	80 - 220	0.1 - 0.2	0.2 - 0.35	0.25 - 0.4	0.3 - 0.45	0.35 - 0.5	0.4 - 0.6	0.5 - 0.75
S	Titanium alloys Ti-6Al-4V, etc.	20 - 50	0.05 - 0.07	0.06 - 0.12	0.08 - 0.15	0.1 - 0.28	0.12 - 0.2	0.14 - 0.22	0.18 - 0.27
S	Nickel-based alloys	20 - 50	0.05 - 0.07	0.06 - 0.11	0.08 - 0.13	0.1 - 0.15	0.12 - 0.18	0.12 - 0.22	0.14 - 0.22
H	Hardened steel	20 - 50	0.05 - 0.07	0.06 - 0.12	0.08 - 0.15	0.1 - 0.18	0.12 - 0.2	0.14 - 0.22	0.16 - 0.25

- Cutting conditions in the above table show standard cutting conditions.
- Cutting conditions may change due to the rigidity and power of the machine and the workpiece material.
- Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.
- In case of L/D = 8,12 drill, the recommended range of cutting speeds and feeds is between the minimum and median values listed above.

CLAMPING KEY FOR MEASURING UN-CLAMPING TORQUE

To check drill body duration, measure un-clamping torque by using a torque-driver
Recommended value of un-clamping torque that means usable limit of a drill body shown in below table.

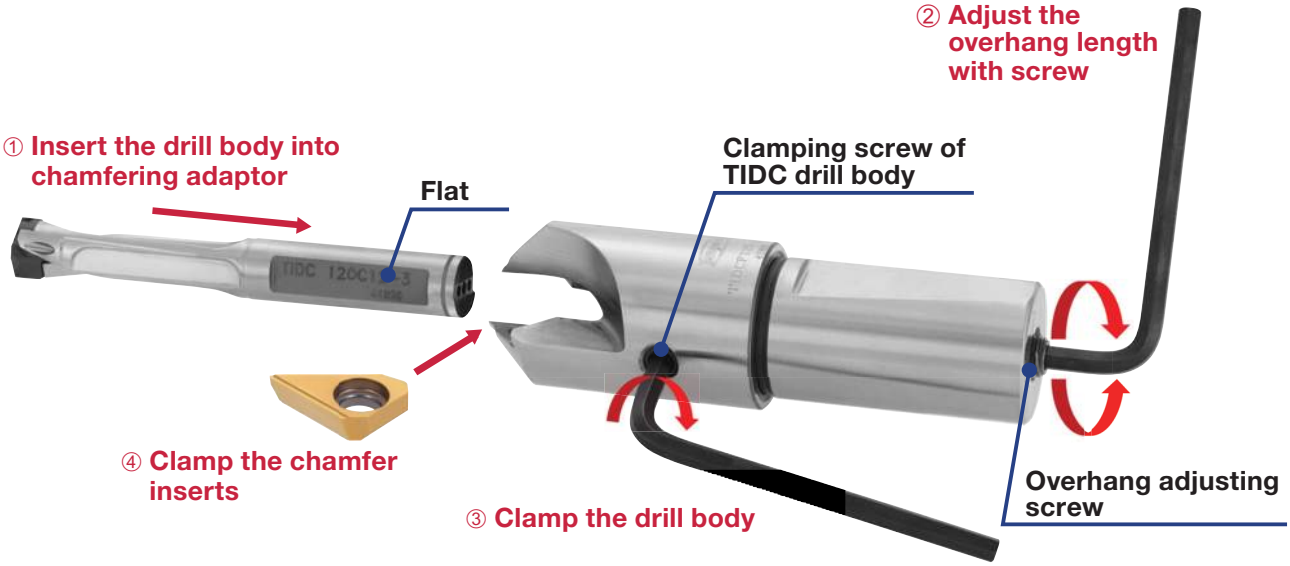
Clamping key for measuring un-clamping torque:
KHS-TID10-19.99

* The clamping key can be connect with general torque drivers.

Head Designation	Recommended value of un-clamping torque that means usable limit of a drill body (N·m)	(cN·m)
DM*100-109	0.2	20
DM*110-119	0.2	20
DM*120-129	0.25	25
DM*130-139	0.25	25
DM*140-149	0.3	30
DM*150-159	0.3	30
DM*160-169	0.35	35
DM*170-179	0.35	35
DM*180-189	0.4	40
DM*190-199	0.4	40

HOW TO MOUNT THE TIDC DRILL BODY INTO THE CHAMFER ADAPTOR

The overhang length of the drill can be changed by the adjusting screw at the bottom of the adaptor.
The rear end of the drill body must be in contact with the adjusting screw as the screw supports the drill against thrust force when drilling.



Procedure

① Place the TIDC drill body into the chamfer adaptor without chamfer inserts.
② Adjust the overhang length of the drill body with the adjusting screw at the bottom of the adaptor.
③ Adjust the position of the drill body so that the drill body is fixed at the flat and tighten the clamping screw of the drill body. This aligns the flutes of the TIDC drill body with the chamfer inserts.
④ To clamp the chamfer inserts, tighten the clamping screw of the insert while pushing the insert into the insert pocket.

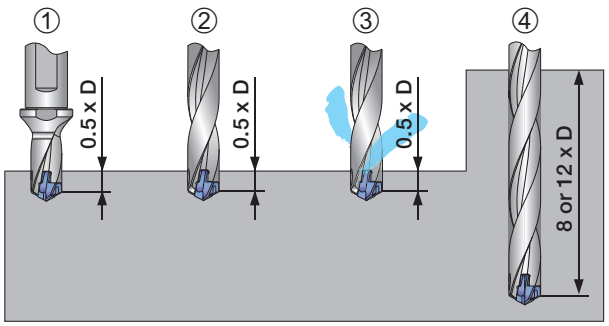
Notice
Before removing the drill body from the adaptor, chamfer inserts must be unclamped. The overhang adjusting screw can be handled from the top of the adaptor with flat blade screwdriver. In this way, the overhang length of the drill body can be adjusted after the adaptor is positioned on the drill shank.

PARTS

Clamping screw of TIDC drill body	Overhang adjusting screw	Wrench	Chamfering Insert screw	Wrench	
				Torx bit	Grip
SRM10x10DIN916	SRM10x1.5S	HW5.0	SR14-544/S ***	BT15S	SW6-SD

*** **SR14-544/S :** 5 pieces per package

CAUTION FOR USING DRILLS WITH L/D = 8 & 12



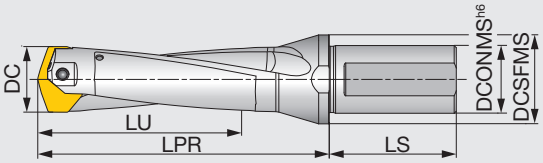
① Drill a pilot hole in the depth of 0.5 x D.
The same head diameter should be used for a pilot hole and a deep hole.
② Rotate the drill at a low speed, such as 100 min^{-1}, and feed it slowly into the pilot hole until the drill reaches several millimeters from the bottom.
③ Supply the coolant and rotate the drill at the recommended speed.
④ Drill the required depth under the recommended cutting conditions.

Note: In case of making L/D= 8 & 12 depth hole without a pilot hole, DMC type head should be used.

DRILL FORCE MEISTER

TIS L/D=3

Head indexable drill



Designation	DC	DCONMS	DCSFMS	LU	LPR	LS	Pocket size	Head
TIS260F32-3	26 - 26.9	32	40	82.7	117	60	26	SMP26*
TIS270F32-3	27 - 27.9	32	40	85.9	120	60	27	SMP27*
TIS280F32-3	28 - 28.9	32	40	89.1	128.4	60	28	SMP28*
TIS290F32-3	29 - 29.9	32	40	92.3	131.4	60	29	SMP29*
TIS300F32-3	30 - 30.9	32	42	95.5	134.7	60	30	SMP30*
TIS310F32-3	31 - 31.9	32	42	98.6	137.7	60	31	SMP31*
TIS320F40-3	32 - 32.9	40	48	101.8	143	68	32	SMP32*
TIS330F40-3	33 - 33.9	40	48	105	146	68	33	SMP33*
TIS340F40-3	34 - 34.9	40	48	108.2	149	68	34	SMP34*
TIS350F40-3	35 - 35.9	40	48	111.4	152.4	68	35	SMP35*
TIS360F40-3	36 - 36.9	40	48	114.6	155.4	68	36	SMP36*
TIS370F40-3	37 - 37.9	40	48	117.7	158.4	68	37	SMP37*
TIS380F40-3	38 - 38.9	40	50	120.9	166.9	68	38	SMP38*
TIS390F40-3	39 - 39.9	40	50	124.1	169.9	68	39	SMP39*
TIS400F40-3	40 - 41	40	50	127.3	172.9	68	40	SMP40*

Tool diameter	Hole diameter tolerance*
ø26 - ø29.9	+0.05 / 0
ø30 - ø41	+0.06 / 0

*Just for reference

SPARE PARTS



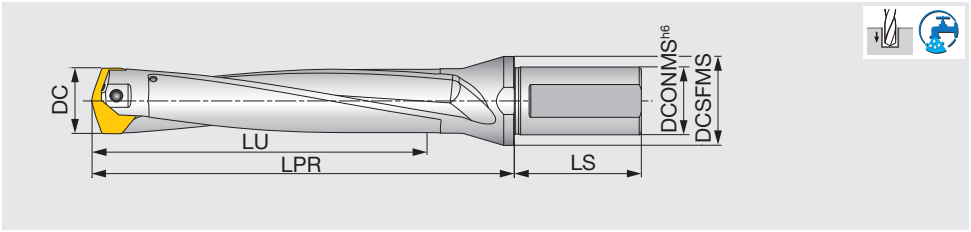
Designation	Clamping screw	Wrench	
		Torx bit	Grip
TIS260F32-*	TS50230D3	BLDT20/S7	H-TB2W
TIS270F32-*	TS50230D3	BLDT20/S7	H-TB2W
TIS280F32-*	TS50250D35	BLDT25/S7	H-TB2W
TIS290F32-*	TS50250D35	BLDT25/S7	H-TB2W
TIS300F32-*	TS60265D4	BLDT25/S7	H-TB2W
TIS310F32-*	TS60265D4	BLDT25/S7	H-TB2W
TIS320F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS330F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS340F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS350F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS360F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS370F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS380F40-*	TS80340D6	BLDT25/S7	H-TB2W
TIS390F40-*	TS80340D6	BLDT25/S7	H-TB2W
TIS400F40-*	TS80340D6	BLDT25/S7	H-TB2W

Recommended clamping torque (N·m): TS50230D3=5, TS50250D35=5.5, TS60265D4=6, TS60285D42=6, TS60320D5=6, TS80340D6=7

Reference pages: Head → J030 - J031
Standard cutting conditions → J031

TIS L/D=5

Head indexable drill



Designation	DC	DCONMS	DCSFMS	LU	LPR	LS	Pocket size	Head
TIS260F32-5	26 - 26.9	32	40	134.7	169	60	26	SMP26*
TIS270F32-5	27 - 27.9	32	40	139.9	174	60	27	SMP27*
TIS280F32-5	28 - 28.9	32	40	145.1	184.4	60	28	SMP28*
TIS290F32-5	29 - 29.9	32	40	150.3	189.4	60	29	SMP29*
TIS300F32-5	30 - 30.9	32	42	155.5	194.7	60	30	SMP30*
TIS310F32-5	31 - 31.9	32	42	160.6	199.7	60	31	SMP31*
TIS320F40-5	32 - 32.9	40	48	165.8	207	68	32	SMP32*
TIS330F40-5	33 - 33.9	40	48	171	212	68	33	SMP33*
TIS340F40-5	34 - 34.9	40	48	176.2	217	68	34	SMP34*
TIS350F40-5	35 - 35.9	40	48	181.4	222.4	68	35	SMP35*
TIS360F40-5	36 - 36.9	40	48	186.6	227.4	68	36	SMP36*
TIS370F40-5	37 - 37.9	40	48	191.7	232.4	68	37	SMP37*
TIS380F40-5	38 - 38.9	40	50	196.9	242.9	68	38	SMP38*
TIS390F40-5	39 - 39.9	40	50	202.1	247.9	68	39	SMP39*
TIS400F40-5	40 - 41	40	50	207.3	252.9	68	40	SMP40*

Tool diameter	Hole diameter tolerance*
ø26 - ø29.9	+0.08 / 0
ø30 - ø41	+0.09 / 0

*Just for reference

SPARE PARTS



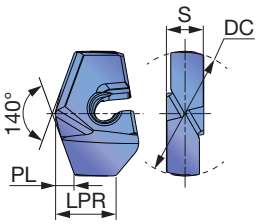
Designation	Clamping screw	Wrench	
		Torx bit	Grip
TIS260F32-*	TS50230D3	BLDT20/S7	H-TB2W
TIS270F32-*	TS50230D3	BLDT20/S7	H-TB2W
TIS280F32-*	TS50250D35	BLDT25/S7	H-TB2W
TIS290F32-*	TS50250D35	BLDT25/S7	H-TB2W
TIS300F32-*	TS60265D4	BLDT25/S7	H-TB2W
TIS310F32-*	TS60265D4	BLDT25/S7	H-TB2W
TIS320F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS330F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS340F40-*	TS60285D42	BLDT25/S7	H-TB2W
TIS350F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS360F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS370F40-*	TS60320D5	BLDT25/S7	H-TB2W
TIS380F40-*	TS80340D6	BLDT25/S7	H-TB2W
TIS390F40-*	TS80340D6	BLDT25/S7	H-TB2W
TIS400F40-*	TS80340D6	BLDT25/S7	H-TB2W

Recommended clamping torque (N·m): TS50230D3=5, TS50250D35=5.5, TS60265D4=6, TS60285D42=6, TS60320D5=6, TS80340D6=7

Reference pages: Head → J030 - J031
Standard cutting conditions → J031

DRILL HEAD

SMP



Tool diameter	Head diameter tolerance
ø26 - ø29.9	-0.006 / -0.026
ø30 - ø41	-0.006 / -0.031

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DC	S	Coated	LPR	PL	Pocket Size	Body
			AH725				
SMP260	26	7.5	●	11.6	4.73	26	TIS260F32-*
SMP261	26.1	7.5	●	11.6	4.75	26	TIS260F32-*
SMP265	26.5	7.5	●	11.6	4.82	26	TIS260F32-*
SMP267	26.7	7.5	●	11.6	4.86	26	TIS260F32-*
SMP270	27	7.5	●	11.1	4.91	27	TIS270F32-*
SMP271	27.1	7.5	●	11.1	4.93	27	TIS270F32-*
SMP272	27.2	7.5	●	11.1	4.95	27	TIS270F32-*
SMP275	27.5	7.5	●	11.1	5	27	TIS270F32-*
SMP280	28	8	●	11.7	5.1	28	TIS280F32-*
SMP281	28.1	8	●	11.7	5.11	28	TIS280F32-*
SMP285	28.5	8	●	11.7	5.19	28	TIS280F32-*
SMP286	28.6	8	●	11.7	5.2	28	TIS280F32-*
SMP290	29	8	●	11.3	5.28	29	TIS290F32-*
SMP291	29.1	8	●	11.3	5.3	29	TIS290F32-*
SMP295	29.5	8	●	11.3	5.37	29	TIS290F32-*
SMP296	29.6	8	●	11.3	5.39	29	TIS290F32-*
SMP300	30	8.5	●	14.1	5.46	30	TIS300F32-*
SMP301	30.1	8.5	●	14.1	5.48	30	TIS300F32-*
SMP302	30.2	8.5	●	14.1	5.5	30	TIS300F32-*
SMP303	30.3	8.5	●	14.1	5.51	30	TIS300F32-*
SMP305	30.5	8.5	●	14.1	5.55	30	TIS300F32-*
SMP308	30.8	8.5	●	14.1	5.61	30	TIS300F32-*
SMP310	31	8.5	●	13.7	5.64	31	TIS310F32-*
SMP311	31.1	8.5	●	13.7	5.66	31	TIS310F32-*
SMP315	31.5	8.5	●	13.7	5.73	31	TIS310F32-*
SMP318	31.8	8.5	●	13.7	5.79	31	TIS310F32-*
SMP320	32	9	●	14.5	5.82	32	TIS320F40-*
SMP321	32.1	9	●	14.5	5.84	32	TIS320F40-*
SMP325	32.5	9	●	14.5	5.91	32	TIS320F40-*
SMP328	32.8	9	●	14.5	5.97	32	TIS320F40-*
SMP330	33	9	●	14.1	6.01	33	TIS330F40-*
SMP331	33.1	9	●	14.1	6.02	33	TIS330F40-*
SMP333	33.3	9	●	14.1	6.06	33	TIS330F40-*
SMP335	33.5	9	●	14.1	6.1	33	TIS330F40-*
SMP340	34	9	●	13.7	6.19	34	TIS340F40-*
SMP341	34.1	9	●	13.7	6.21	34	TIS340F40-*
SMP345	34.5	9	●	13.7	6.28	34	TIS340F40-*
SMP349	34.9	9	●	13.7	6.35	34	TIS340F40-*
SMP350	35	10	●	16.6	6.37	35	TIS350F40-*
SMP351	35.1	10	●	16.6	6.39	35	TIS350F40-*
SMP355	35.5	10	●	16.6	6.46	35	TIS350F40-*
SMP360	36	10	●	16.1	6.55	36	TIS360F40-*
SMP361	36.1	10	●	16.1	6.57	36	TIS360F40-*
SMP365	36.5	10	●	16.1	6.64	36	TIS360F40-*
SMP366	36.6	10	●	16.1	6.66	36	TIS360F40-*
SMP370	37	10	●	15.7	6.73	37	TIS370F40-*
SMP371	37.1	10	●	15.7	6.75	37	TIS370F40-*
SMP375	37.5	10	●	15.7	6.82	37	TIS370F40-*
SMP380	38	10.5	●	17	6.92	38	TIS380F40-*
SMP381	38.1	10.5	●	17	6.93	38	TIS380F40-*
SMP385	38.5	10.5	●	17	7.01	38	TIS380F40-*
SMP388	38.8	10.5	●	17	7.06	38	TIS380F40-*
SMP390	39	10.5	●	16.6	7.1	39	TIS390F40-*

●: Line up

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

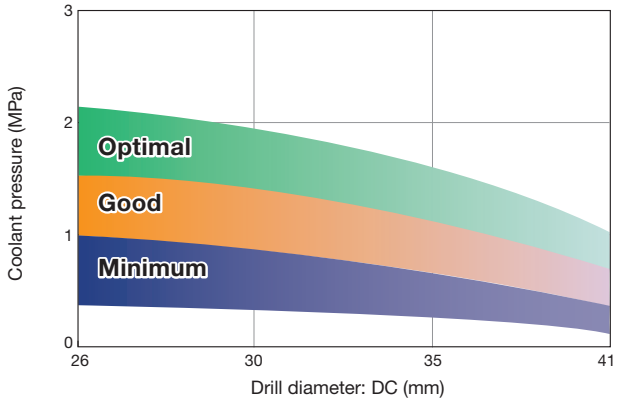
Designation	DC	S	Coated AH725	LPR	PL	Pocket Size	Body
SMP391	39.1	10.5	●	16.6	7.12	39	TIS390F40-*
SMP395	39.5	10.5	●	16.6	7.19	39	TIS390F40-*
SMP397	39.7	10.5	●	16.6	7.22	39	TIS390F40-*
SMP398	39.8	10.5	●	16.6	7.24	39	TIS390F40-*
SMP400	40	10.5	●	16.2	7.28	40	TIS400F40-*
SMP401	40.1	10.5	●	16.2	7.3	40	TIS400F40-*
SMP405	40.5	10.5	●	16.2	7.37	40	TIS400F40-*
SMP410	41	10.5	●	16.2	7.46	40	TIS380F40-*

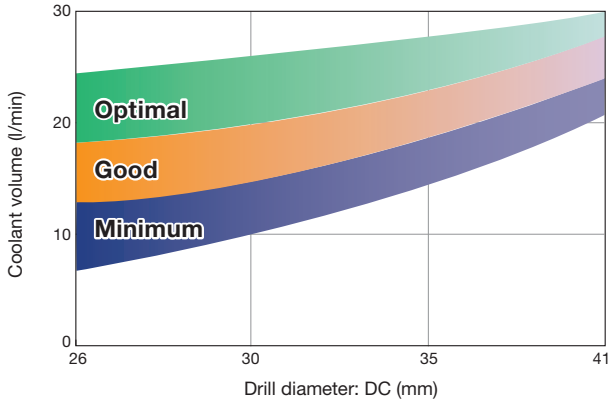
●: Line up

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed *Vc* (m/min)	Feed: *f* (mm/rev) DC (mm) ø26 - ø29.9	ø30 - ø35.9	ø36 - ø41
P	Low carbon steels S15C, S20C, etc. C15, C20, etc.	80 - 140	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
	Carbon steels, Alloy steels S55C, SCM440, etc. C55, 42CrMoS4, etc.	80 - 130	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
	Prehardened steels NAK80, PX5, etc.	50 - 100	0.2 - 0.5	0.2 - 0.5	0.2 - 0.55
M	Stainless steels SUS304, SUS316X5, etc. CrNi18-9, X5CrNiMo17-12-2, etc.	40 - 80	0.15 - 0.3	0.15 - 0.3	0.2 - 0.35
K	Grey cast irons 250, 300, etc.	80 - 180	0.25 - 0.55	0.25 - 0.55	0.3 - 0.6
	Ductile cast irons FCD400, FCD600, etc. 400-15, 600-3, etc.	80 - 140	0.25 - 0.55	0.25 - 0.55	0.3 - 0.6
N	Non ferrous materials	100 - 200	0.4 - 0.6	0.4 - 0.6	0.5 - 0.7
S	Heat-resistant alloy Inconel718, etc.	20 - 50	0.1 - 0.2	0.1 - 0.2	0.1 - 0.25
	Titanium alloys Ti-6Al-4V, etc.	30 - 60	0.1 - 0.3	0.1 - 0.3	0.1 - 0.35
H	Hardened materials	20 - 60	0.1 - 0.2	0.1 - 0.2	0.1 - 0.25

RECOMMENDED COOLANT PRESSURE AND VOLUME

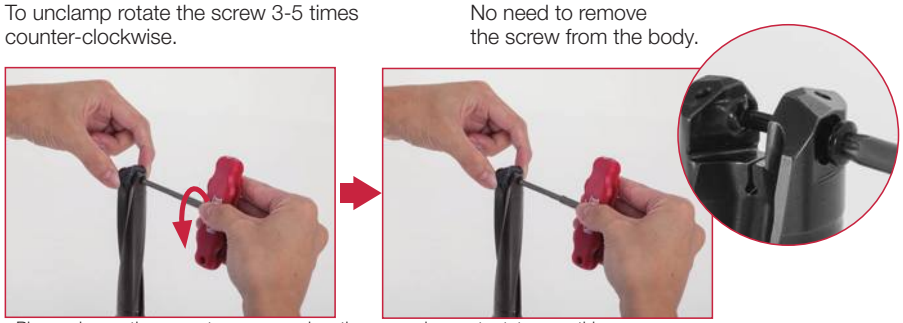




HOW TO CHANGE DRILL HEAD

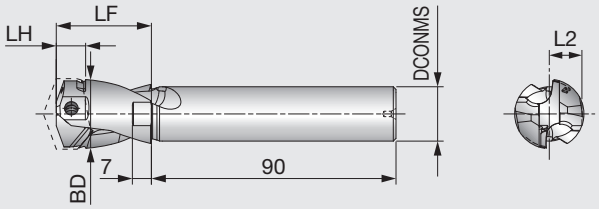
To unclamp rotate the screw 3-5 times counter-clockwise.

No need to remove the screw from the body.



- Please change the screw to new one when the screw does not rotate smoothly

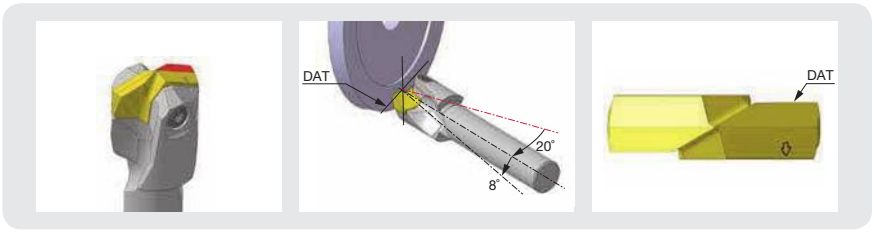
DRILL FORCE MEISTER
Regrinding holder



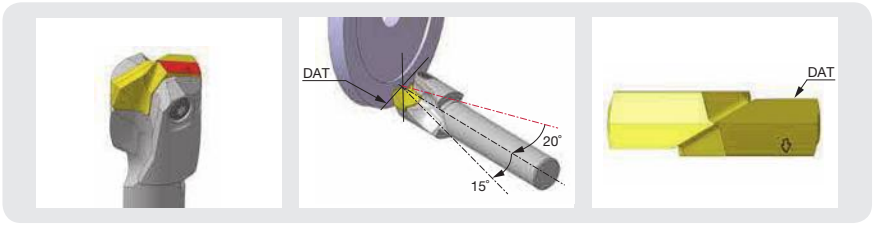
Designation	DCONMS	BD	LF	LH	L2	Head
SMP260-279-GH	20	25.5	35	10.8	12	SMP260-SMP279
SMP280-299-GH	20	27.5	35	10.8	13	SMP280-SMP299
SMP300-319-GH	20	29.5	35	13	14	SMP300-SMP319
SMP320-349-GH	20	31.5	35	13	15	SMP320-SMP349
SMP350-379-GH	20	34.5	40	14.7	16.5	SMP350-SMP379
SMP380-410-GH	20	37.5	40	15.1	18	SMP380-SMP410

1 Clamping
- Assemble the drill head on the regrinding holder or shortest standard holder (3xD)
- Set-up the drill head in the machine : Total run-out must be less than 0.02 mm

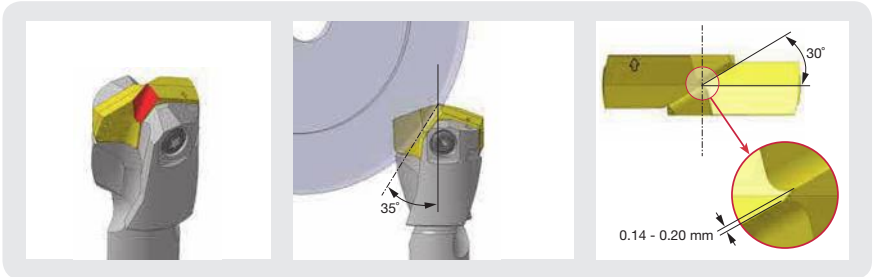
2 Grinding the 1st clearance angle
- Set the drill for point angle (140°) and 1st clearance angle (8°)



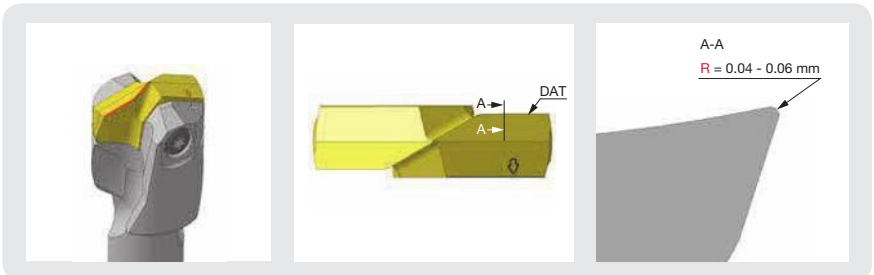
3 Grinding the 2nd clearance angle
- Set the drill for 2nd clearance angle (15°)



4 Grinding the chisel (Thinning)
- Set the drill for thinning angle (35°) with reference to drill axis and angle (30°) with reference to radial axis
- Keep the chisel thickness (0.14 - 0.20) and the thinning point must be over the center line



5 Edge preparation (Honing)
- Cutting edges should have honing by sand or brush (0.04 - 0.06 mm)
- You can also use a diamond hand lapper for edge preparation



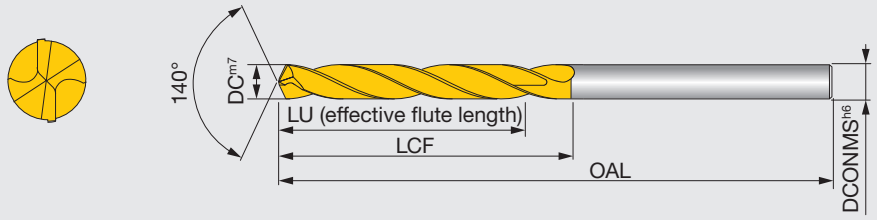
SOLIDDRILL Quick Guide

Series	DC (mm)	L/D	Point angle	Oil hole	Coated	Coated without	Description	P Steel	M Stainless	K Cast iron	N Non-ferrous	S Superalloys	H Hard materials	See page
DSW	ø3 - ø12	3, 5, 8	140	With Without	●		Shank size: DIN Standard	●	●	●	●	●	●	J034 - J040
DSX	ø3 - ø10	3, 5, 8	130	With	●		Shank size: 1 mm increments	●	●	●	●	●	●	J041 - J044
DSE	ø3 - ø10	2, 3	140	Without	●		For drilling thin plates with low cutting force Shank size: Same as the drill diameter	●	●	●	●	●	●	J045 - J047
DSM DSM-CP	ø0.1 - ø3	5, 10, 15	140 90 & 140	Without	●		Micro solid drill with ø3 mm shanks DSM-CP: Centering drill for DSM	●	●	●	●	●	●	J048 - J050
FDC	ø5 - ø16	5, 8	135	With		●	Drills for reaming at high feed with straight flute			●	●			J051 - J052
CDS	ø0.4 - ø13	5 - 12	120	Without		●	Shank size: Same as the drill diameter Hole depth: Up to L/D 12			●	●			J053

SOLIDDRILL

DSW-DE3

Solid drill, 140° point angle, without coolant hole, DIN shank, L/D = 3, ø3 - ø12 mm



Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW030-014-06DE3	3	●	6	14	20	62
DSW031-014-06DE3	3.1	●	6	14	20	62
DSW032-014-06DE3	3.2	●	6	14	20	62
DSW033-014-06DE3	3.3	●	6	14	20	62
DSW034-014-06DE3	3.4	●	6	14	20	62
DSW035-014-06DE3	3.5	●	6	14	20	62
DSW036-014-06DE3	3.6	●	6	14	20	62
DSW037-014-06DE3	3.7	●	6	14	20	62
DSW038-017-06DE3	3.8	●	6	17	24	66
DSW039-017-06DE3	3.9	●	6	17	24	66
DSW040-017-06DE3	4	●	6	17	24	66
DSW041-017-06DE3	4.1	●	6	17	24	66
DSW042-017-06DE3	4.2	●	6	17	24	66
DSW043-017-06DE3	4.3	●	6	17	24	66
DSW044-017-06DE3	4.4	●	6	17	24	66
DSW045-017-06DE3	4.5	●	6	17	24	66
DSW046-017-06DE3	4.6	●	6	17	24	66
DSW047-017-06DE3	4.7	●	6	17	24	66
DSW048-020-06DE3	4.8	●	6	20	28	66
DSW049-020-06DE3	4.9	●	6	20	28	66
DSW050-020-06DE3	5	●	6	20	28	66
DSW051-020-06DE3	5.1	●	6	20	28	66
DSW052-020-06DE3	5.2	●	6	20	28	66
DSW053-020-06DE3	5.3	●	6	20	28	66
DSW054-020-06DE3	5.4	●	6	20	28	66
DSW055-020-06DE3	5.5	●	6	20	28	66
DSW056-020-06DE3	5.6	●	6	20	28	66
DSW057-020-06DE3	5.7	●	6	20	28	66
DSW058-020-06DE3	5.8	●	6	20	28	66
DSW059-020-06DE3	5.9	●	6	20	28	66
DSW060-020-06DE3	6	●	6	20	28	66
DSW061-024-08DE3	6.1	●	8	24	34	79
DSW062-024-08DE3	6.2	●	8	24	34	79
DSW063-024-08DE3	6.3	●	8	24	34	79
DSW064-024-08DE3	6.4	●	8	24	34	79
DSW065-024-08DE3	6.5	●	8	24	34	79
DSW066-024-08DE3	6.6	●	8	24	34	79
DSW067-024-08DE3	6.7	●	8	24	34	79
DSW068-024-08DE3	6.8	●	8	24	34	79
DSW069-024-08DE3	6.9	●	8	24	34	79
DSW070-024-08DE3	7	●	8	24	34	79
DSW071-029-08DE3	7.1	●	8	29	41	79
DSW072-029-08DE3	7.2	●	8	29	41	79
DSW073-029-08DE3	7.3	●	8	29	41	79
DSW074-029-08DE3	7.4	●	8	29	41	79
DSW075-029-08DE3	7.5	●	8	29	41	79
DSW076-029-08DE3	7.6	●	8	29	41	79
DSW077-029-08DE3	7.7	●	8	29	41	79
DSW078-029-08DE3	7.8	●	8	29	41	79
DSW079-029-08DE3	7.9	●	8	29	41	79

Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW080-029-08DE3	8	●	8	29	41	79
DSW081-035-10DE3	8.1	●	10	35	47	89
DSW082-035-10DE3	8.2	●	10	35	47	89
DSW083-035-10DE3	8.3	●	10	35	47	89
DSW084-035-10DE3	8.4	●	10	35	47	89
DSW085-035-10DE3	8.5	●	10	35	47	89
DSW086-035-10DE3	8.6	●	10	35	47	89
DSW087-035-10DE3	8.7	●	10	35	47	89
DSW088-035-10DE3	8.8	●	10	35	47	89
DSW089-035-10DE3	8.9	●	10	35	47	89
DSW090-035-10DE3	9	●	10	35	47	89
DSW091-035-10DE3	9.1	●	10	35	47	89
DSW092-035-10DE3	9.2	●	10	35	47	89
DSW093-035-10DE3	9.3	●	10	35	47	89
DSW094-035-10DE3	9.4	●	10	35	47	89
DSW095-035-10DE3	9.5	●	10	35	47	89
DSW096-035-10DE3	9.6	●	10	35	47	89
DSW097-035-10DE3	9.7	●	10	35	47	89
DSW098-035-10DE3	9.8	●	10	35	47	89
DSW099-035-10DE3	9.9	●	10	35	47	89
DSW100-035-10DE3	10	●	10	35	47	89
DSW101-040-12DE3	10.1	●	12	40	55	102
DSW102-040-12DE3	10.2	●	12	40	55	102
DSW103-040-12DE3	10.3	●	12	40	55	102
DSW104-040-12DE3	10.4	●	12	40	55	102
DSW105-040-12DE3	10.5	●	12	40	55	102
DSW106-040-12DE3	10.6	●	12	40	55	102
DSW107-040-12DE3	10.7	●	12	40	55	102
DSW108-040-12DE3	10.8	●	12	40	55	102
DSW109-040-12DE3	10.9	●	12	40	55	102
DSW110-040-12DE3	11	●	12	40	55	102
DSW111-040-12DE3	11.1	●	12	40	55	102
DSW112-040-12DE3	11.2	●	12	40	55	102
DSW113-040-12DE3	11.3	●	12	40	55	102
DSW114-040-12DE3	11.4	●	12	40	55	102
DSW115-040-12DE3	11.5	●	12	40	55	102
DSW116-040-12DE3	11.6	●	12	40	55	102
DSW117-040-12DE3	11.7	●	12	40	55	102
DSW118-040-12DE3	11.8	●	12	40	55	102
DSW119-040-12DE3	11.9	●	12	40	55	102
DSW120-040-12DE3	12	●	12	40	55	102

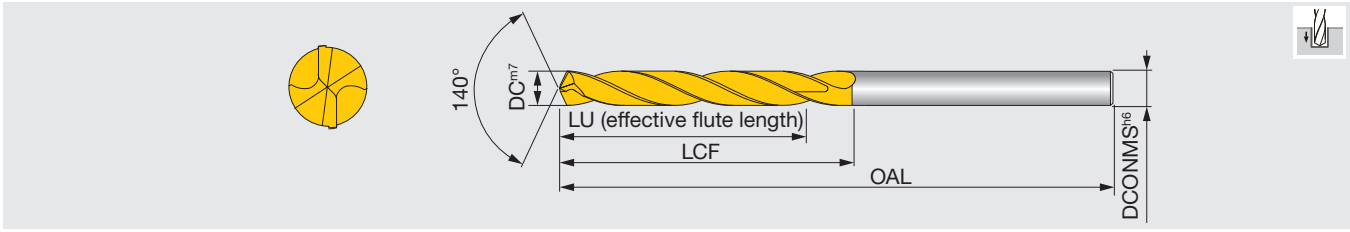
● : Line up

Reference pages: Standard cutting conditions → J039

SOLIDDRILL

DSW-DE5

Solid drill, 140° point angle, without coolant hole, DIN shank, L/D = 5, ø3 - ø12 mm



Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW030-023-06DE5	3	●	6	23	28	66
DSW031-023-06DE5	3.1	●	6	23	28	66
DSW032-023-06DE5	3.2	●	6	23	28	66
DSW033-023-06DE5	3.3	●	6	23	28	66
DSW034-023-06DE5	3.4	●	6	23	28	66
DSW035-023-06DE5	3.5	●	6	23	28	66
DSW036-023-06DE5	3.6	●	6	23	28	66
DSW037-023-06DE5	3.7	●	6	23	28	66
DSW038-029-06DE5	3.8	●	6	29	36	74
DSW039-029-06DE5	3.9	●	6	29	36	74
DSW040-029-06DE5	4	●	6	29	36	74
DSW041-029-06DE5	4.1	●	6	29	36	74
DSW042-029-06DE5	4.2	●	6	29	36	74
DSW043-029-06DE5	4.3	●	6	29	36	74
DSW044-029-06DE5	4.4	●	6	29	36	74
DSW045-029-06DE5	4.5	●	6	29	36	74
DSW046-029-06DE5	4.6	●	6	29	36	74
DSW047-029-06DE5	4.7	●	6	29	36	74
DSW048-035-06DE5	4.8	●	6	35	44	82
DSW049-035-06DE5	4.9	●	6	35	44	82
DSW050-035-06DE5	5	●	6	35	44	82
DSW051-035-06DE5	5.1	●	6	35	44	82
DSW052-035-06DE5	5.2	●	6	35	44	82
DSW053-035-06DE5	5.3	●	6	35	44	82
DSW054-035-06DE5	5.4	●	6	35	44	82
DSW055-035-06DE5	5.5	●	6	35	44	82
DSW056-035-06DE5	5.6	●	6	35	44	82
DSW057-035-06DE5	5.7	●	6	35	44	82
DSW058-035-06DE5	5.8	●	6	35	44	82
DSW059-035-06DE5	5.9	●	6	35	44	82
DSW060-035-06DE5	6	●	6	35	44	82
DSW061-043-08DE5	6.1	●	8	43	53	91
DSW062-043-08DE5	6.2	●	8	43	53	91
DSW063-043-08DE5	6.3	●	8	43	53	91
DSW064-043-08DE5	6.4	●	8	43	53	91
DSW065-043-08DE5	6.5	●	8	43	53	91
DSW066-043-08DE5	6.6	●	8	43	53	91
DSW067-043-08DE5	6.7	●	8	43	53	91
DSW068-043-08DE5	6.8	●	8	43	53	91
DSW069-043-08DE5	6.9	●	8	43	53	91
DSW070-043-08DE5	7	●	8	43	53	91
DSW071-043-08DE5	7.1	●	8	43	53	91
DSW072-043-08DE5	7.2	●	8	43	53	91
DSW073-043-08DE5	7.3	●	8	43	53	91
DSW074-043-08DE5	7.4	●	8	43	53	91
DSW075-043-08DE5	7.5	●	8	43	53	91
DSW076-043-08DE5	7.6	●	8	43	53	91
DSW077-043-08DE5	7.7	●	8	43	53	91
DSW078-043-08DE5	7.8	●	8	43	53	91
DSW079-043-08DE5	7.9	●	8	43	53	91

Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW080-043-08DE5	8	●	8	43	53	91
DSW081-049-10DE5	8.1	●	10	49	61	103
DSW082-049-10DE5	8.2	●	10	49	61	103
DSW083-049-10DE5	8.3	●	10	49	61	103
DSW084-049-10DE5	8.4	●	10	49	61	103
DSW085-049-10DE5	8.5	●	10	49	61	103
DSW086-049-10DE5	8.6	●	10	49	61	103
DSW087-049-10DE5	8.7	●	10	49	61	103
DSW088-049-10DE5	8.8	●	10	49	61	103
DSW089-049-10DE5	8.9	●	10	49	61	103
DSW090-049-10DE5	9	●	10	49	61	103
DSW091-049-10DE5	9.1	●	10	49	61	103
DSW092-049-10DE5	9.2	●	10	49	61	103
DSW093-049-10DE5	9.3	●	10	49	61	103
DSW094-049-10DE5	9.4	●	10	49	61	103
DSW095-049-10DE5	9.5	●	10	49	61	103
DSW096-049-10DE5	9.6	●	10	49	61	103
DSW097-049-10DE5	9.7	●	10	49	61	103
DSW098-049-10DE5	9.8	●	10	49	61	103
DSW099-049-10DE5	9.9	●	10	49	61	103
DSW100-049-10DE5	10	●	10	49	61	103
DSW101-056-12DE5	10.1	●	12	56	71	118
DSW102-056-12DE5	10.2	●	12	56	71	118
DSW103-056-12DE5	10.3	●	12	56	71	118
DSW104-056-12DE5	10.4	●	12	56	71	118
DSW105-056-12DE5	10.5	●	12	56	71	118
DSW106-056-12DE5	10.6	●	12	56	71	118
DSW107-056-12DE5	10.7	●	12	56	71	118
DSW108-056-12DE5	10.8	●	12	56	71	118
DSW109-056-12DE5	10.9	●	12	56	71	118
DSW110-056-12DE5	11	●	12	56	71	118
DSW111-056-12DE5	11.1	●	12	56	71	118
DSW112-056-12DE5	11.2	●	12	56	71	118
DSW113-056-12DE5	11.3	●	12	56	71	118
DSW114-056-12DE5	11.4	●	12	56	71	118
DSW115-056-12DE5	11.5	●	12	56	71	118
DSW116-056-12DE5	11.6	●	12	56	71	118
DSW117-056-12DE5	11.7	●	12	56	71	118
DSW118-056-12DE5	11.8	●	12	56	71	118
DSW119-056-12DE5	11.9	●	12	56	71	118
DSW120-056-12DE5	12	●	12	56	71	118

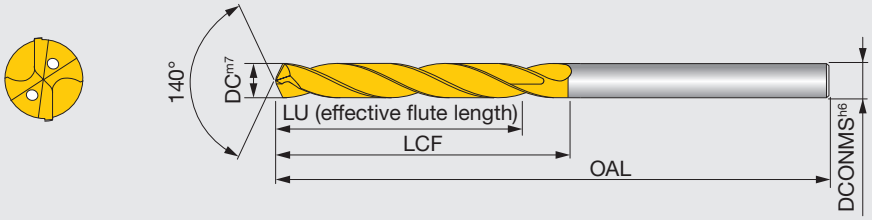
● : Line up

Reference pages: Standard cutting conditions → J039

SOLIDDRILL

DSW-DI5

Solid drill, 140° point angle, with coolant hole, DIN shank, L/D = 5, ø3 - ø12 mm



Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW030-023-06DI5	3	●	6	23	28	66
DSW031-023-06DI5	3.1	●	6	23	28	66
DSW032-023-06DI5	3.2	●	6	23	28	66
DSW033-023-06DI5	3.3	●	6	23	28	66
DSW034-023-06DI5	3.4	●	6	23	28	66
DSW035-023-06DI5	3.5	●	6	23	28	66
DSW036-023-06DI5	3.6	●	6	23	28	66
DSW037-023-06DI5	3.7	●	6	23	28	66
DSW038-029-06DI5	3.8	●	6	29	36	74
DSW039-029-06DI5	3.9	●	6	29	36	74
DSW040-029-06DI5	4	●	6	29	36	74
DSW041-029-06DI5	4.1	●	6	29	36	74
DSW042-029-06DI5	4.2	●	6	29	36	74
DSW043-029-06DI5	4.3	●	6	29	36	74
DSW044-029-06DI5	4.4	●	6	29	36	74
DSW045-029-06DI5	4.5	●	6	29	36	74
DSW046-029-06DI5	4.6	●	6	29	36	74
DSW047-029-06DI5	4.7	●	6	29	36	74
DSW048-035-06DI5	4.8	●	6	35	44	82
DSW049-035-06DI5	4.9	●	6	35	44	82
DSW050-035-06DI5	5	●	6	35	44	82
DSW051-035-06DI5	5.1	●	6	35	44	82
DSW052-035-06DI5	5.2	●	6	35	44	82
DSW053-035-06DI5	5.3	●	6	35	44	82
DSW054-035-06DI5	5.4	●	6	35	44	82
DSW055-035-06DI5	5.5	●	6	35	44	82
DSW056-035-06DI5	5.6	●	6	35	44	82
DSW057-035-06DI5	5.7	●	6	35	44	82
DSW058-035-06DI5	5.8	●	6	35	44	82
DSW059-035-06DI5	5.9	●	6	35	44	82
DSW060-035-06DI5	6	●	6	35	44	82
DSW061-043-08DI5	6.1	●	8	43	53	91
DSW062-043-08DI5	6.2	●	8	43	53	91
DSW063-043-08DI5	6.3	●	8	43	53	91
DSW064-043-08DI5	6.4	●	8	43	53	91
DSW065-043-08DI5	6.5	●	8	43	53	91
DSW066-043-08DI5	6.6	●	8	43	53	91
DSW067-043-08DI5	6.7	●	8	43	53	91
DSW068-043-08DI5	6.8	●	8	43	53	91
DSW069-043-08DI5	6.9	●	8	43	53	91
DSW070-043-08DI5	7	●	8	43	53	91
DSW071-043-08DI5	7.1	●	8	43	53	91
DSW072-043-08DI5	7.2	●	8	43	53	91
DSW073-043-08DI5	7.3	●	8	43	53	91
DSW074-043-08DI5	7.4	●	8	43	53	91
DSW075-043-08DI5	7.5	●	8	43	53	91
DSW076-043-08DI5	7.6	●	8	43	53	91
DSW077-043-08DI5	7.7	●	8	43	53	91
DSW078-043-08DI5	7.8	●	8	43	53	91
DSW079-043-08DI5	7.9	●	8	43	53	91

Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW080-043-08DI5	8	●	8	43	53	91
DSW081-049-10DI5	8.1	●	10	49	61	103
DSW082-049-10DI5	8.2	●	10	49	61	103
DSW083-049-10DI5	8.3	●	10	49	61	103
DSW084-049-10DI5	8.4	●	10	49	61	103
DSW085-049-10DI5	8.5	●	10	49	61	103
DSW086-049-10DI5	8.6	●	10	49	61	103
DSW087-049-10DI5	8.7	●	10	49	61	103
DSW088-049-10DI5	8.8	●	10	49	61	103
DSW089-049-10DI5	8.9	●	10	49	61	103
DSW090-049-10DI5	9	●	10	49	61	103
DSW091-049-10DI5	9.1	●	10	49	61	103
DSW092-049-10DI5	9.2	●	10	49	61	103
DSW093-049-10DI5	9.3	●	10	49	61	103
DSW094-049-10DI5	9.4	●	10	49	61	103
DSW095-049-10DI5	9.5	●	10	49	61	103
DSW096-049-10DI5	9.6	●	10	49	61	103
DSW097-049-10DI5	9.7	●	10	49	61	103
DSW098-049-10DI5	9.8	●	10	49	61	103
DSW099-049-10DI5	9.9	●	10	49	61	103
DSW100-049-10DI5	10	●	10	49	61	103
DSW101-056-12DI5	10.1	●	12	56	71	118
DSW102-056-12DI5	10.2	●	12	56	71	118
DSW103-056-12DI5	10.3	●	12	56	71	118
DSW104-056-12DI5	10.4	●	12	56	71	118
DSW105-056-12DI5	10.5	●	12	56	71	118
DSW106-056-12DI5	10.6	●	12	56	71	118
DSW107-056-12DI5	10.7	●	12	56	71	118
DSW108-056-12DI5	10.8	●	12	56	71	118
DSW109-056-12DI5	10.9	●	12	56	71	118
DSW110-056-12DI5	11	●	12	56	71	118
DSW111-056-12DI5	11.1	●	12	56	71	118
DSW112-056-12DI5	11.2	●	12	56	71	118
DSW113-056-12DI5	11.3	●	12	56	71	118
DSW114-056-12DI5	11.4	●	12	56	71	118
DSW115-056-12DI5	11.5	●	12	56	71	118
DSW116-056-12DI5	11.6	●	12	56	71	118
DSW117-056-12DI5	11.7	●	12	56	71	118
DSW118-056-12DI5	11.8	●	12	56	71	118
DSW119-056-12DI5	11.9	●	12	56	71	118
DSW120-056-12DI5	12	●	12	56	71	118

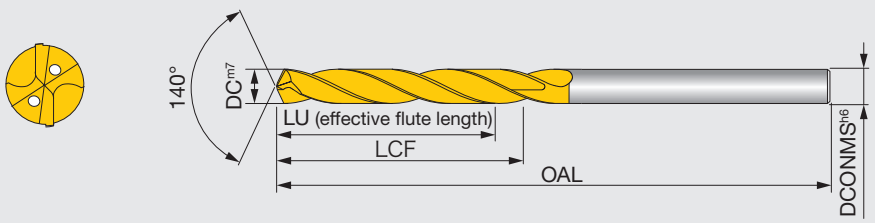
● : Line up

Reference pages: Standard cutting conditions → J040

SOLIDDRILL

DSW-DI8

Solid drill, 140° point angle, with coolant hole, DIN shank, L/D = 8, ø3 - ø10 mm



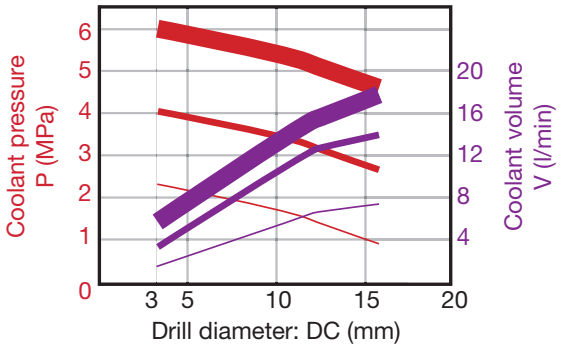
Designation	DC	AH725	DCONMS	LU	LCF	OAL
DSW030-029-06DI8	3	●	6	29	34	72
DSW031-029-06DI8	3.1	●	6	29	34	72
DSW032-029-06DI8	3.2	●	6	29	34	72
DSW033-029-06DI8	3.3	●	6	29	34	72
DSW034-029-06DI8	3.4	●	6	29	34	72
DSW035-029-06DI8	3.5	●	6	29	34	72
DSW036-029-06DI8	3.6	●	6	29	34	72
DSW037-029-06DI8	3.7	●	6	29	34	72
DSW038-036-06DI8	3.8	●	6	36	43	81
DSW039-036-06DI8	3.9	●	6	36	43	81
DSW040-036-06DI8	4	●	6	36	43	81
DSW041-036-06DI8	4.1	●	6	36	43	81
DSW042-036-06DI8	4.2	●	6	36	43	81
DSW043-036-06DI8	4.3	●	6	36	43	81
DSW044-036-06DI8	4.4	●	6	36	43	81
DSW045-036-06DI8	4.5	●	6	36	43	81
DSW046-036-06DI8	4.6	●	6	36	43	81
DSW047-036-06DI8	4.7	●	6	36	43	81
DSW048-048-06DI8	4.8	●	6	48	57	95
DSW049-048-06DI8	4.9	●	6	48	57	95
DSW050-048-06DI8	5	●	6	48	57	95
DSW051-048-06DI8	5.1	●	6	48	57	95
DSW052-048-06DI8	5.2	●	6	48	57	95
DSW053-048-06DI8	5.3	●	6	48	57	95
DSW054-048-06DI8	5.4	●	6	48	57	95
DSW055-048-06DI8	5.5	●	6	48	57	95
DSW056-048-06DI8	5.6	●	6	48	57	95
DSW057-048-06DI8	5.7	●	6	48	57	95
DSW058-048-06DI8	5.8	●	6	48	57	95
DSW059-048-06DI8	5.9	●	6	48	57	95
DSW060-048-06DI8	6	●	6	48	57	95
DSW061-064-08DI8	6.1	●	8	64	76	114
DSW062-064-08DI8	6.2	●	8	64	76	114
DSW063-064-08DI8	6.3	●	8	64	76	114
DSW064-064-08DI8	6.4	●	8	64	76	114
DSW065-064-08DI8	6.5	●	8	64	76	114
DSW066-064-08DI8	6.6	●	8	64	76	114
DSW067-064-08DI8	6.7	●	8	64	76	114
DSW068-064-08DI8	6.8	●	8	64	76	114
DSW069-064-08DI8	6.9	●	8	64	76	114
DSW070-064-08DI8	7	●	8	64	76	114
DSW071-064-08DI8	7.1	●	8	64	76	114
DSW072-064-08DI8	7.2	●	8	64	76	114
DSW073-064-08DI8	7.3	●	8	64	76	114
DSW074-064-08DI8	7.4	●	8	64	76	114
DSW075-064-08DI8	7.5	●	8	64	76	114
DSW076-064-08DI8	7.6	●	8	64	76	114
DSW077-064-08DI8	7.7	●	8	64	76	114
DSW078-064-08DI8	7.8	●	8	64	76	114
DSW079-064-08DI8	7.9	●	8	64	76	114
DSW080-064-08DI8	8	●	8	64	76	114
DSW081-080-10DI8	8.1	●	10	80	95	142
DSW082-080-10DI8	8.2	●	10	80	95	142
DSW083-080-10DI8	8.3	●	10	80	95	142
DSW084-080-10DI8	8.4	●	10	80	95	142
DSW085-080-10DI8	8.5	●	10	80	95	142
DSW086-080-10DI8	8.6	●	10	80	95	142
DSW087-080-10DI8	8.7	●	10	80	95	142
DSW088-080-10DI8	8.8	●	10	80	95	142
DSW089-080-10DI8	8.9	●	10	80	95	142
DSW090-080-10DI8	9	●	10	80	95	142
DSW091-080-10DI8	9.1	●	10	80	95	142
DSW092-080-10DI8	9.2	●	10	80	95	142
DSW093-080-10DI8	9.3	●	10	80	95	142
DSW094-080-10DI8	9.4	●	10	80	95	142
DSW095-080-10DI8	9.5	●	10	80	95	142
DSW096-080-10DI8	9.6	●	10	80	95	142
DSW097-080-10DI8	9.7	●	10	80	95	142
DSW098-080-10DI8	9.8	●	10	80	95	142
DSW099-080-10DI8	9.9	●	10	80	95	142
DSW100-080-10DI8	10	●	10	80	95	142

● : Line up

Reference pages:
Standard cutting conditions → J040

Recommended coolant pressure and volume for internal coolant supply:

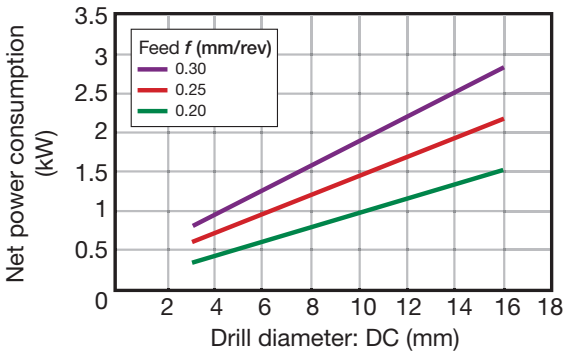
The following graph is a reference guide for pressure and volume. Values should be adjusted according to work material and actual chip evacuation.



: Ideal pressure
: Enough pressure
: Minimum pressure
: Ideal volume
: Enough volume
: Minimum volume

Reference for required spindle power:

The required spindle power may vary depending on the type of work material or hardness. A spindle with sufficient power should be used when referring to the below graph.



Work material : Alloy steel (SNCM439)
Cutting speed : *Vc* = 100 m/min

Designation system

DSW 088 - 035 - 10 - D E 3

(1) (2) (3) (4) (5) (6) (7)

(1) Series

DSW	Series name of solid drill

(2) Drill diameter DC (mm)

088	ø8.8

(3) Effective flute length LU (mm)

035	35

(4) Shank diameter DCONMS (mm)

10	ø10

(5) DIN 6535 - Form HA

(6) Coolant Supply

E	External (without coolant hole)
I	Internal (with coolant hole)

(7) Drilling depth

Approximate value of L/D ratio.
Caution: Code may be different from the actual length. This is dependent upon the tool diameter.

Caution: "Effective flute length" shows the maximum flute length for eff ective chip evacuation. The actual drilling depth may be shorter than described depending on the work material or cutting conditions.

STANDARD CUTTING CONDITIONS

DSW-DE (External supply)

ISO	Workpiece material	Brinell hardness (HB)	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)		
			ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16	ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø12
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. C15E4, E275A, E355D, etc.	~ 180	40 - 100	60 - 120	60 - 130	0.15 - 0.3	0.15 - 0.35	0.2 - 0.5
	Carbon steels (C > 0.3) S45C, S55C, , etc. C45, C55, etc.	180 ~ 300	40 - 90	50 - 120	60 - 130	0.15 - 0.3	0.15 - 0.35	0.2 - 0.4
	High alloy steels SCM440, etc. 42CrMo4, etc.	250 ~ 350	40 - 80	50 - 100	50 - 100	0.1 - 0.2	0.15 - 0.3	0.15 - 0.35
M	Stainless steels SUS304, etc. X5CrNi18-9, etc.	~ 200	20 - 40	30 - 50	30 - 60	0.05 - 0.2	0.1 - 0.25	0.1 - 0.3
K	Grey cast irons FC300, etc. 250, etc.	~ 200	40 - 90	50 - 95	50 - 100	0.15 - 0.3	0.2 - 0.4	0.2 - 0.5
	Ductile cast irons FCD450, etc. 450-10S, etc.	~ 300	30 - 80	40 - 90	45 - 90	0.1 - 0.3	0.2 - 0.4	0.2 - 0.4
N	Aluminium alloys ADC12, etc. AlSi11Cu3, etc.	-	40 - 90	50 - 100	50 - 100	0.15 - 0.3	0.2 - 0.4	0.2 - 0.5
S	Titanium alloys Ti-6Al-4V, etc	-	20 - 40	20 - 40	20 - 40	0.1 - 0.2	0.15 - 0.25	0.15 - 0.4
	Heat-resistant alloys, Inconel Inconel 718, etc.	250 ~	10 - 30	10 - 30	10 - 30	0.03 - 0.07	0.05 - 0.1	0.07 - 0.12
H	High hardened steels SKD11, etc. X153CrMoV12, etc.	~ 40HRC	20 - 40	20 - 40	20 - 40	0.05 - 0.15	0.05 - 0.15	0.05 - 0.2

- The cutting parameters shown in the table are merely a starting guideline for general machining. Values should be varied depending on the power or rigidity of the machine to be used. Optimum conditions should be selected depending on the actual chip control or damage on edges.
- When using the smaller diameter tools in each range, set the feed "*f*" to the lower recommended values.
- The coolant supply is critical for the provision of stable machining conditions and enhanced tool life. A large coolant volume should be supplied, especially when drilling difficult-to-cut materials.
- When drilling stainless steel with low machinability such as austenitic stainless steel with a depth deeper than L/D = 3, a pecking cycle or internal coolant supply is recommended.

DSW-DI (Internal supply)

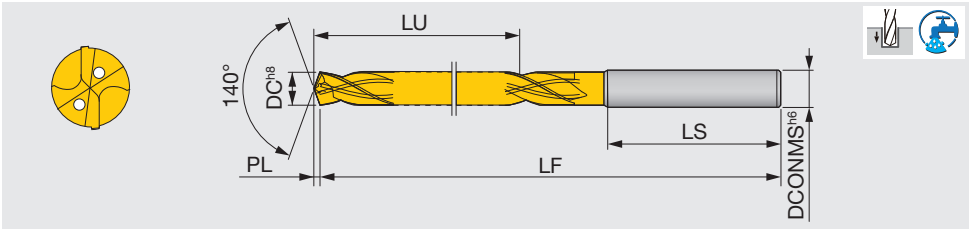
ISO	Workpiece material	Brinell hardness (HB)	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)		
			ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16	ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø12
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. C15E4, E275A, E355D, etc.	~ 180	70 - 140	80 - 160	90 - 190	0.15 - 0.3	0.15 - 0.35	0.2 - 0.5
P	Carbon steels (C > 0.3) S45C, S55C, , etc. C45, C55, etc.	180 ~ 300	50 - 130	70 - 160	80 - 170	0.15 - 0.3	0.15 - 0.35	0.2 - 0.4
P	High alloy steels SCM440, etc. 42CrMo4, etc.	250 ~ 350	40 - 100	60 - 140	60 - 160	0.1 - 0.2	0.15 - 0.3	0.15 - 0.35
M	Stainless steels SUS304, etc. X5CrNi18-9, etc.	~ 200	25 - 75	50 - 100	50 - 120	0.05 - 0.2	0.1 - 0.25	0.1 - 0.3
K	Grey cast irons FC300, etc. 250, etc.	~ 200	80 - 140	100 - 160	100 - 180	0.15 - 0.3	0.2 - 0.4	0.2 - 0.5
K	Ductile cast irons FCD450, etc. 450-10S, etc.	~ 300	70 - 140	80 - 150	80 - 170	0.1 - 0.3	0.2 - 0.4	0.2 - 0.45
N	Aluminium alloys ADC12, etc. AlSi11Cu3, etc.	-	60 - 200	60 - 200	60 - 200	0.15 - 0.3	0.2 - 0.4	0.2 - 0.5
S	Titanium alloys Ti-6Al-4V, etc	-	20 - 60	30 - 80	30 - 80	0.1 - 0.2	0.1 - 0.25	0.15 - 0.4
S	Heat-resistant alloys, Inconel Inconel 718, etc.	250 ~	10 - 30	10 - 40	10 - 40	0.03 - 0.07	0.05 - 0.1	0.07 - 0.15
H	High hardened steels SKD11, etc. X153CrMoV12, etc.	~ 40HRC	20 - 50	30 - 60	30 - 60	0.05 - 0.15	0.05 - 0.15	0.05 - 0.2

- The cutting parameters shown in the table are merely a starting guideline for general machining. Values should be varied depending on the power or rigidity of the machine to be used. Optimum conditions should be selected depending on the actual chip control or damage on edges.
- When using the smaller diameter tools in each range, set the feed "*f*" to the lower recommended values.
- Oil holes that become blocked may cause drill breakages. A filter to prevent the circulation of chips must be used on the coolant supply system.

GIGA JETDRILL

DSX-F03

Solid drill, 140° point angle, with coolant hole, L/D = 3, ø3 - ø10 mm



Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0300F03	3	●	3	15.6	48	68	0.55
DSX0310F03	3.1	●	4	18.6	48	71	0.56
DSX0320F03	3.2	●	4	18.6	48	71	0.58
DSX0330F03	3.3	●	4	18.6	48	71	0.60
DSX0340F03	3.4	●	4	18.6	48	71	0.62
DSX0350F03	3.5	●	4	18.6	48	71	0.64
DSX0360F03	3.6	●	4	20.7	48	73	0.66
DSX0370F03	3.7	●	4	20.7	48	73	0.67
DSX0380F03	3.8	●	4	20.7	48	73	0.69
DSX0390F03	3.9	●	4	20.7	48	73	0.71
DSX0400F03	4	●	4	20.7	48	73	0.73
DSX0410F03	4.1	●	5	23.8	50	78	0.75
DSX0420F03	4.2	●	5	23.8	50	78	0.76
DSX0430F03	4.3	●	5	23.8	50	78	0.78
DSX0440F03	4.4	●	5	23.8	50	78	0.80
DSX0450F03	4.5	●	5	23.8	50	78	0.82
DSX0460F03	4.6	●	5	25.8	50	80	0.84
DSX0470F03	4.7	●	5	25.9	50	80	0.86
DSX0480F03	4.8	●	5	25.9	50	80	0.87
DSX0490F03	4.9	●	5	25.9	50	80	0.89
DSX0500F03	5	●	5	25.9	50	80	0.91
DSX0510F03	5.1	●	6	28.9	52	82	0.93
DSX0520F03	5.2	●	6	29	52	82	0.95
DSX0530F03	5.3	●	6	29	52	82	0.96
DSX0540F03	5.4	●	6	29	52	82	0.98
DSX0550F03	5.5	●	6	29	52	82	1.00
DSX0560F03	5.6	●	6	31	52	82	1.02
DSX0570F03	5.7	●	6	31	52	82	1.04
DSX0580F03	5.8	●	6	31.1	52	82	1.06
DSX0590F03	5.9	●	6	31.1	52	82	1.07
DSX0600F03	6	●	6	31.1	52	82	1.09
DSX0610F03	6.1	●	7	34.1	53	86	1.11
DSX0620F03	6.2	●	7	34.1	53	86	1.13
DSX0630F03	6.3	●	7	34.2	53	86	1.15
DSX0640F03	6.4	●	7	34.2	53	86	1.16
DSX0650F03	6.5	●	7	34.2	53	86	1.18
DSX0660F03	6.6	●	7	36.2	53	88	1.20
DSX0670F03	6.7	●	7	36.2	53	88	1.22
DSX0680F03	6.8	●	7	36.2	53	88	1.24
DSX0690F03	6.9	●	7	36.3	53	88	1.26
DSX0700F03	7	●	7	36.3	53	88	1.27
DSX0710F03	7.1	●	8	39.3	54	92	1.29
DSX0720F03	7.2	●	8	39.3	54	92	1.31
DSX0730F03	7.3	●	8	39.3	54	92	1.33
DSX0740F03	7.4	●	8	39.4	54	92	1.35
DSX0750F03	7.5	●	8	39.4	54	92	1.36
DSX0760F03	7.6	●	8	41.4	54	94	1.38
DSX0770F03	7.7	●	8	41.4	54	94	1.40
DSX0780F03	7.8	●	8	41.4	54	94	1.42
DSX0790F03	7.9	●	8	41.4	54	94	1.44

Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0800F03	8	●	8	41.5	54	94	1.46
DSX0810F03	8.1	●	9	44.5	55	100	1.47
DSX0820F03	8.2	●	9	44.5	55	100	1.49
DSX0830F03	8.3	●	9	44.5	55	100	1.51
DSX0840F03	8.4	●	9	44.5	55	100	1.53
DSX0850F03	8.5	●	9	44.6	55	100	1.55
DSX0860F03	8.6	●	9	46.6	55	100	1.57
DSX0870F03	8.7	●	9	46.6	55	100	1.58
DSX0880F03	8.8	●	9	46.6	55	100	1.60
DSX0890F03	8.9	●	9	46.6	55	100	1.62
DSX0900F03	9	●	9	46.6	55	100	1.64
DSX0910F03	9.1	●	10	49.7	56	106	1.66
DSX0920F03	9.2	●	10	49.7	56	106	1.67
DSX0930F03	9.3	●	10	49.7	56	106	1.69
DSX0940F03	9.4	●	10	49.7	56	106	1.71
DSX0950F03	9.5	●	10	49.7	56	106	1.73
DSX0960F03	9.6	●	10	51.8	56	106	1.75
DSX0970F03	9.7	●	10	51.8	56	106	1.77
DSX0980F03	9.8	●	10	51.8	56	106	1.78
DSX0990F03	9.9	●	10	51.8	56	106	1.80
DSX1000F03	10	●	10	51.8	56	106	1.82

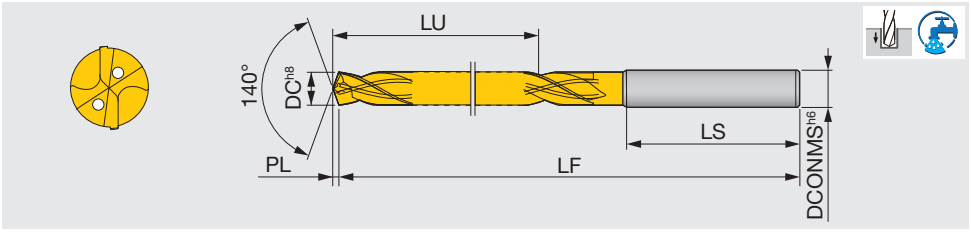
● : Line up

Reference pages: Standard cutting conditions → J044

GIGA JET DRILL

DSX-F05

Solid drill, 140° point angle, with coolant hole, L/D = 5, ø3 - ø10 mm



Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0300F05	3	●	3	24.6	48	77	0.55
DSX0310F05	3.1	●	4	28.6	48	81	0.56
DSX0320F05	3.2	●	4	28.6	48	81	0.58
DSX0330F05	3.3	●	4	28.6	48	81	0.6
DSX0340F05	3.4	●	4	28.6	48	81	0.62
DSX0350F05	3.5	●	4	28.6	48	81	0.64
DSX0360F05	3.6	●	4	32.7	48	85	0.66
DSX0370F05	3.7	●	4	32.7	48	85	0.67
DSX0380F05	3.8	●	4	32.7	48	85	0.69
DSX0390F05	3.9	●	4	32.7	48	85	0.71
DSX0400F05	4	●	4	32.7	48	85	0.73
DSX0410F05	4.1	●	5	36.8	50	91	0.75
DSX0420F05	4.2	●	5	36.8	50	91	0.76
DSX0430F05	4.3	●	5	36.8	50	91	0.78
DSX0440F05	4.4	●	5	36.8	50	91	0.8
DSX0450F05	4.5	●	5	36.8	50	91	0.82
DSX0460F05	4.6	●	5	40.8	50	94	0.84
DSX0470F05	4.7	●	5	40.9	50	94	0.86
DSX0480F05	4.8	●	5	40.9	50	94	0.87
DSX0490F05	4.9	●	5	40.9	50	94	0.89
DSX0500F05	5	●	5	40.9	50	94	0.91
DSX0510F05	5.1	●	6	44.9	52	96	0.93
DSX0520F05	5.2	●	6	45	52	96	0.95
DSX0530F05	5.3	●	6	45	52	96	0.96
DSX0540F05	5.4	●	6	45	52	96	0.98
DSX0550F05	5.5	●	6	45	52	96	1
DSX0560F05	5.6	●	6	49	52	100	1.02
DSX0570F05	5.7	●	6	49	52	100	1.04
DSX0580F05	5.8	●	6	49.1	52	100	1.06
DSX0590F05	5.9	●	6	49.1	52	100	1.07
DSX0600F05	6	●	6	49.1	52	100	1.09
DSX0610F05	6.1	●	7	53.1	53	105	1.11
DSX0620F05	6.2	●	7	53.1	53	105	1.13
DSX0630F05	6.3	●	7	53.2	53	105	1.15
DSX0640F05	6.4	●	7	53.2	53	105	1.16
DSX0650F05	6.5	●	7	53.2	53	105	1.18
DSX0660F05	6.6	●	7	57.2	53	109	1.2
DSX0670F05	6.7	●	7	57.2	53	109	1.22
DSX0680F05	6.8	●	7	57.2	53	109	1.24
DSX0690F05	6.9	●	7	57.3	53	109	1.26
DSX0700F05	7	●	7	57.3	53	109	1.27
DSX0710F05	7.1	●	8	61.3	54	114	1.29
DSX0720F05	7.2	●	8	61.3	54	114	1.31
DSX0730F05	7.3	●	8	61.3	54	114	1.33
DSX0740F05	7.4	●	8	61.4	54	114	1.35
DSX0750F05	7.5	●	8	61.4	54	114	1.36
DSX0760F05	7.6	●	8	65.4	54	118	1.38
DSX0770F05	7.7	●	8	65.4	54	118	1.4
DSX0780F05	7.8	●	8	65.4	54	118	1.42
DSX0790F05	7.9	●	8	65.4	54	118	1.44

Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0800F05	8	●	8	65.5	54	118	1.46
DSX0810F05	8.1	●	9	69.5	55	127	1.47
DSX0820F05	8.2	●	9	69.5	55	127	1.49
DSX0830F05	8.3	●	9	69.5	55	127	1.51
DSX0840F05	8.4	●	9	69.5	55	127	1.53
DSX0850F05	8.5	●	9	69.6	55	127	1.55
DSX0860F05	8.6	●	9	73.6	55	127	1.57
DSX0870F05	8.7	●	9	73.6	55	127	1.58
DSX0880F05	8.8	●	9	73.6	55	127	1.6
DSX0890F05	8.9	●	9	73.6	55	127	1.62
DSX0900F05	9	●	9	73.6	55	127	1.64
DSX0910F05	9.1	●	10	77.7	56	136	1.66
DSX0920F05	9.2	●	10	77.7	56	136	1.67
DSX0930F05	9.3	●	10	77.7	56	136	1.69
DSX0940F05	9.4	●	10	77.7	56	136	1.71
DSX0950F05	9.5	●	10	77.7	56	136	1.73
DSX0960F05	9.6	●	10	81.8	56	136	1.75
DSX0970F05	9.7	●	10	81.8	56	136	1.77
DSX0980F05	9.8	●	10	81.8	56	136	1.78
DSX0990F05	9.9	●	10	81.8	56	136	1.8
DSX1000F05	10	●	10	81.8	56	136	1.82

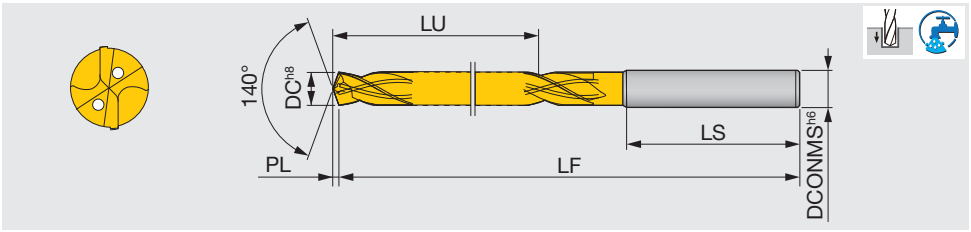
● : Line up

Reference pages: Standard cutting conditions → J044

GIGA JETDRILL

DSX-F08

Solid drill, 140° point angle, with coolant hole, L/D = 8, ø3 - ø10 mm



Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0300F08	3	●	3	33.6	48	86	0.55
DSX0310F08	3.1		4	39.6	48	92	0.56
DSX0320F08	3.2		4	39.6	48	92	0.58
DSX0330F08	3.3		4	39.6	48	92	0.6
DSX0340F08	3.4		4	39.6	48	92	0.62
DSX0350F08	3.5	●	4	39.6	48	92	0.64
DSX0360F08	3.6		4	44.7	48	97	0.66
DSX0370F08	3.7		4	44.7	48	97	0.67
DSX0380F08	3.8		4	44.7	48	97	0.69
DSX0390F08	3.9		4	44.7	48	97	0.71
DSX0400F08	4	●	4	44.7	48	97	0.73
DSX0410F08	4.1		5	50.8	50	105	0.75
DSX0420F08	4.2		5	50.8	50	105	0.76
DSX0430F08	4.3		5	50.8	50	105	0.78
DSX0440F08	4.4		5	50.8	50	105	0.8
DSX0450F08	4.5	●	5	50.8	50	105	0.82
DSX0460F08	4.6		5	55.8	50	110	0.84
DSX0470F08	4.7		5	55.9	50	110	0.86
DSX0480F08	4.8		5	55.9	50	110	0.87
DSX0490F08	4.9		5	55.9	50	110	0.89
DSX0500F08	5	●	5	55.9	50	110	0.91
DSX0510F08	5.1	●	6	61.9	52	113	0.93
DSX0520F08	5.2		6	62	52	113	0.95
DSX0530F08	5.3		6	62	52	113	0.96
DSX0540F08	5.4		6	62	52	113	0.98
DSX0550F08	5.5	●	6	62	52	113	1
DSX0560F08	5.6		6	67	52	118	1.02
DSX0570F08	5.7		6	67	52	118	1.04
DSX0580F08	5.8		6	67.1	52	118	1.06
DSX0590F08	5.9		6	67.1	52	118	1.07
DSX0600F08	6	●	6	67.1	52	118	1.09
DSX0610F08	6.1		7	73.1	53	125	1.11
DSX0620F08	6.2		7	73.1	53	125	1.13
DSX0630F08	6.3		7	73.2	53	125	1.15
DSX0640F08	6.4		7	73.2	53	125	1.16
DSX0650F08	6.5	●	7	73.2	53	125	1.18
DSX0660F08	6.6		7	78.2	53	130	1.2
DSX0670F08	6.7		7	78.2	53	130	1.22
DSX0680F08	6.8		7	78.2	53	130	1.24
DSX0690F08	6.9		7	78.3	53	130	1.26
DSX0700F08	7	●	7	78.3	53	130	1.27
DSX0710F08	7.1		8	84.3	54	137	1.29
DSX0720F08	7.2		8	84.3	54	137	1.31
DSX0730F08	7.3		8	84.3	54	137	1.33
DSX0740F08	7.4		8	84.4	54	137	1.35
DSX0750F08	7.5	●	8	84.4	54	137	1.36
DSX0760F08	7.6		8	89.4	54	142	1.38
DSX0770F08	7.7		8	89.4	54	142	1.4
DSX0780F08	7.8		8	89.4	54	142	1.42
DSX0790F08	7.9		8	89.4	54	142	1.44

Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSX0800F08	8	●	8	89.5	54	142	1.46
DSX0810F08	8.1		9	95.5	55	154	1.47
DSX0820F08	8.2		9	95.5	55	154	1.49
DSX0830F08	8.3	●	9	95.5	55	154	1.51
DSX0840F08	8.4		9	95.5	55	154	1.53
DSX0850F08	8.5	●	9	95.6	55	154	1.55
DSX0860F08	8.6		9	100.6	55	154	1.57
DSX0870F08	8.7		9	100.6	55	154	1.58
DSX0880F08	8.8		9	100.6	55	154	1.6
DSX0890F08	8.9		9	100.6	55	154	1.62
DSX0900F08	9	●	9	100.6	55	154	1.64
DSX0910F08	9.1		10	106.7	56	166	1.66
DSX0920F08	9.2		10	106.7	56	166	1.67
DSX0930F08	9.3		10	106.7	56	166	1.69
DSX0940F08	9.4		10	106.7	56	166	1.71
DSX0950F08	9.5	●	10	106.7	56	166	1.73
DSX0960F08	9.6		10	111.8	56	166	1.75
DSX0970F08	9.7		10	111.8	56	166	1.77
DSX0980F08	9.8		10	111.8	56	166	1.78
DSX0990F08	9.9		10	111.8	56	166	1.8
DSX1000F08	10	●	10	111.8	56	166	1.82

● : Line up

Reference pages: Standard cutting conditions → J044

STANDARD CUTTING CONDITIONS

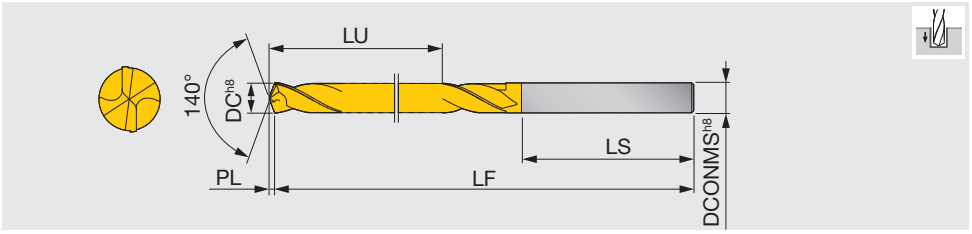
ISO	Workpiece material	Examples JIS, ISO	Hardness	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)		
				ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø20	ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø20
P	Mild steels, Low carbon steels	SS400, S25C, etc. St42-1, C25, etc.	< 180HB	70 - 140	80 - 160	90 - 190	0.15 - 0.25	0.2 - 0.35	0.25 - 0.4
	Carbon steels, Alloy steels	S45C, SCM440, etc. C45, 42CrMo4, etc.	180 ~ 300HB	50 - 130	70 - 160	80 - 170	0.15 - 0.25	0.2 - 0.35	0.25 - 0.4
	High alloy steels, etc.	SCM440H, etc. 42CrMoS4, etc.	250 ~ 350HB	40 - 100	60 - 140	60 - 160	0.1 - 0.2	0.15 - 0.3	0.15 - 0.3
M	Stainless steels	SUS304, etc. X5CrNi18-9, etc.	< 200HB	30 - 70	50 - 100	50 - 120	0.1 - 0.2	0.1 - 0.25	0.15 - 0.35
K	Grey cast irons	FC250, etc. 250, etc.	< 200HB	80 - 140	100 - 160	100 - 180	0.15 - 0.35	0.2 - 0.4	0.25 - 0.5
	Ductile cast irons	FCD450, etc. 450-10S, etc.	< 300HB	70 - 140	80 - 150	80 - 170	0.15 - 0.35	0.2 - 0.4	0.25 - 0.45
N	Aluminium alloys	ADC12, etc. AlSi11Cu3, etc.	-	80 - 160	100 - 180	100 - 190	0.15 - 0.35	0.2 - 0.45	0.25 - 0.6
S	Titanium alloys	Ti-6Al-4V, etc.	-	25 - 60	30 - 80	30 - 80	0.1 - 0.2	0.1 - 0.25	0.15 - 0.35
	Heat-resistant alloys	Inconel, etc.	250HB <	10 - 30	10 - 40	10 - 40	0.02 - 0.1	0.05 - 0.15	0.1 - 0.25
H	High hardened steels	SKD11, etc. X153CrMoV12, etc.	< 40HRC	20 - 50	30 - 60	30 - 60	0.08 - 0.1	0.1 - 0.15	0.12 - 0.2

Note: Cutting conditions in the above table show standard cutting conditions.
Cutting conditions may change due to the rigidity and power of the machine and the workpiece material.
Especially in case of making deep hole drilling (L/D is over 5), the lower cutting speed is better for longer tool life.
The coolant pressure must be 0.5 MPa - 1MPa. Especially for small diameter drill, the higher pressure is recommended.
Oil holes that become blocked may cause drill breakages. A filter to prevent the circulation of chips must be used on the coolant supply system.

GIGAPOWERDRILL

DSE-F02

Solid drill, 140° point angle, without coolant hole, shank diameter = tool diameter, L/D = 2, ø3 - ø10 mm



Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSE0300F02	3	●	3	16.6	30	46	0.55
DSE0310F02	3.1		3.1	18.6	31	49	0.56
DSE0320F02	3.2	●	3.2	18.6	31	49	0.58
DSE0330F02	3.3		3.3	18.6	31	49	0.6
DSE0340F02	3.4	●	3.4	20.6	32	52	0.62
DSE0350F02	3.5	●	3.5	20.6	32	52	0.64
DSE0360F02	3.6		3.6	20.7	32	52	0.66
DSE0370F02	3.7		3.7	20.7	32	52	0.67
DSE0380F02	3.8		3.8	22.7	33	55	0.69
DSE0390F02	3.9		3.9	22.7	33	55	0.71
DSE0400F02	4	●	4	22.7	33	55	0.73
DSE0410F02	4.1		4.1	22.8	33	55	0.75
DSE0420F02	4.2		4.2	22.8	33	55	0.76
DSE0430F02	4.3	●	4.3	24.8	34	58	0.78
DSE0440F02	4.4		4.4	24.8	34	58	0.8
DSE0450F02	4.5	●	4.5	24.8	34	58	0.82
DSE0460F02	4.6		4.6	24.8	34	58	0.84
DSE0470F02	4.7		4.7	24.9	34	58	0.86
DSE0480F02	4.8		4.8	26.9	36	62	0.87
DSE0490F02	4.9		4.9	26.9	36	62	0.89
DSE0500F02	5	●	5	26.9	36	62	0.91
DSE0510F02	5.1	●	5.1	26.9	36	62	0.93
DSE0520F02	5.2		5.2	27	36	62	0.95
DSE0530F02	5.3		5.3	27	36	62	0.96
DSE0540F02	5.4		5.4	29	38	66	0.98
DSE0550F02	5.5	●	5.5	29	38	66	1
DSE0560F02	5.6	●	5.6	29	38	66	1.02
DSE0570F02	5.7		5.7	29	38	66	1.04
DSE0580F02	5.8		5.8	29.1	38	66	1.06
DSE0590F02	5.9		5.9	29.1	38	66	1.07
DSE0600F02	6	●	6	29.1	38	66	1.09
DSE0610F02	6.1		6.1	32.1	39	70	1.11
DSE0620F02	6.2		6.2	32.1	39	70	1.13
DSE0630F02	6.3		6.3	32.2	39	70	1.15
DSE0640F02	6.4	●	6.4	32.2	39	70	1.16
DSE0650F02	6.5	●	6.5	32.2	39	70	1.18
DSE0660F02	6.6		6.6	32.2	39	70	1.2
DSE0670F02	6.7		6.7	32.2	39	70	1.22
DSE0680F02	6.8	●	6.8	35.2	40	74	1.24
DSE0690F02	6.9		6.9	35.3	40	74	1.26
DSE0700F02	7	●	7	35.3	40	74	1.27
DSE0710F02	7.1		7.1	35.3	40	74	1.29
DSE0720F02	7.2		7.2	35.3	40	74	1.31
DSE0730F02	7.3		7.3	35.3	40	74	1.33
DSE0740F02	7.4		7.4	35.4	40	74	1.35
DSE0750F02	7.5	●	7.5	35.4	40	74	1.36
DSE0760F02	7.6		7.6	38.4	42	79	1.38
DSE0770F02	7.7		7.7	38.4	42	79	1.4
DSE0780F02	7.8		7.8	38.4	42	79	1.42
DSE0790F02	7.9		7.9	38.4	42	79	1.44

Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSE0800F02	8	●	8	38.5	42	79	1.46
DSE0810F02	8.1		8.1	38.5	42	79	1.47
DSE0820F02	8.2		8.2	38.5	42	79	1.49
DSE0830F02	8.3		8.3	38.5	42	79	1.51
DSE0840F02	8.4		8.4	38.5	42	79	1.53
DSE0850F02	8.5	●	8.5	38.6	42	79	1.55
DSE0860F02	8.6		8.6	41.6	44	84	1.57
DSE0870F02	8.7		8.7	41.6	44	84	1.58
DSE0880F02	8.8		8.8	41.6	44	84	1.6
DSE0890F02	8.9		8.9	41.6	44	84	1.62
DSE0900F02	9	●	9	41.6	44	84	1.64
DSE0910F02	9.1		9.1	41.7	44	84	1.66
DSE0920F02	9.2		9.2	41.7	44	84	1.67
DSE0930F02	9.3		9.3	41.7	44	84	1.69
DSE0940F02	9.4		9.4	41.7	44	84	1.71
DSE0950F02	9.5	●	9.5	41.7	44	84	1.73
DSE0960F02	9.6		9.6	44.8	46	89	1.75
DSE0970F02	9.7		9.7	44.8	46	89	1.77
DSE0980F02	9.8		9.8	44.8	46	89	1.78
DSE0990F02	9.9		9.9	44.8	46	89	1.8
DSE1000F02	10	●	10	44.8	46	89	1.82

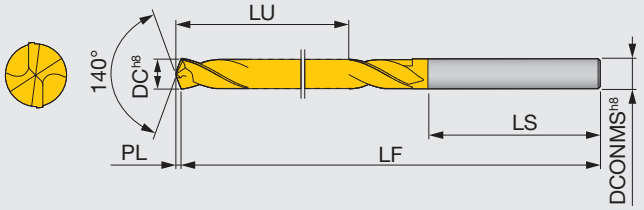
● : Line up

Reference pages: Standard cutting conditions → J047

GIGAPOWERDRILL

DSE-F03

Solid drill, 140° point angle, without coolant hole, shank diameter = tool diameter, L/D = 3, ø3 - ø10 mm



Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSE0300F03	3	●	3	21.6	39	60	0.55
DSE0310F03	3.1		3.1	24.6	36	60	0.56
DSE0320F03	3.2	●	3.2	24.6	36	60	0.58
DSE0330F03	3.3		3.3	24.6	36	60	0.6
DSE0340F03	3.4	●	3.4	24.6	36	60	0.62
DSE0350F03	3.5	●	3.5	24.6	36	60	0.64
DSE0360F03	3.6		3.6	27.7	33	60	0.66
DSE0370F03	3.7		3.7	27.7	33	60	0.67
DSE0380F03	3.8		3.8	27.7	33	60	0.69
DSE0390F03	3.9		3.9	27.7	33	60	0.71
DSE0400F03	4	●	4	27.7	33	60	0.73
DSE0410F03	4.1		4.1	29.8	34	63	0.75
DSE0420F03	4.2		4.2	29.8	34	63	0.76
DSE0430F03	4.3	●	4.3	29.8	34	63	0.78
DSE0440F03	4.4		4.4	29.8	34	63	0.8
DSE0450F03	4.5	●	4.5	29.8	34	63	0.82
DSE0460F03	4.6		4.6	32.8	36	68	0.84
DSE0470F03	4.7		4.7	32.9	36	68	0.86
DSE0480F03	4.8		4.8	32.9	36	68	0.87
DSE0490F03	4.9		4.9	32.9	36	68	0.89
DSE0500F03	5	●	5	32.9	36	68	0.91
DSE0510F03	5.1	●	5.1	34.9	38	72	0.93
DSE0520F03	5.2		5.2	35	38	72	0.95
DSE0530F03	5.3		5.3	35	38	72	0.96
DSE0540F03	5.4		5.4	35	38	72	0.98
DSE0550F03	5.5	●	5.5	35	38	72	1
DSE0560F03	5.6		5.6	37	38	74	1.02
DSE0570F03	5.7		5.7	37	38	74	1.04
DSE0580F03	5.8		5.8	37.1	38	74	1.06
DSE0590F03	5.9		5.9	37.1	38	74	1.07
DSE0600F03	6	●	6	42.1	40	81	1.09
DSE0610F03	6.1		6.1	42.1	40	81	1.11
DSE0620F03	6.2		6.2	42.1	40	81	1.13
DSE0630F03	6.3		6.3	42.2	40	81	1.15
DSE0640F03	6.4		6.4	42.2	40	81	1.16
DSE0650F03	6.5	●	6.5	42.2	40	81	1.18
DSE0660F03	6.6		6.6	44.2	40	83	1.2
DSE0670F03	6.7		6.7	44.2	40	83	1.22
DSE0680F03	6.8	●	6.8	44.2	40	83	1.24
DSE0690F03	6.9		6.9	44.3	40	83	1.26
DSE0700F03	7	●	7	44.3	40	83	1.27
DSE0710F03	7.1		7.1	46.3	42	87	1.29
DSE0720F03	7.2		7.2	46.3	42	87	1.31
DSE0730F03	7.3		7.3	46.3	42	87	1.33
DSE0740F03	7.4	●	7.4	46.4	42	87	1.35
DSE0750F03	7.5	●	7.5	46.4	42	87	1.36
DSE0760F03	7.6		7.6	49.4	42	90	1.38
DSE0770F03	7.7		7.7	49.4	42	90	1.4
DSE0780F03	7.8		7.8	49.4	42	90	1.42
DSE0790F03	7.9		7.9	49.4	42	90	1.44

Designation	DC	AH180	DCONMS	LU	LS	LF	PL
DSE0800F03	8	●	8	49.5	42	90	1.46
DSE0810F03	8.1		8.1	54.5	43	96	1.47
DSE0820F03	8.2		8.2	54.5	43	96	1.49
DSE0830F03	8.3		8.3	54.5	43	96	1.51
DSE0840F03	8.4		8.4	54.5	43	96	1.53
DSE0850F03	8.5	●	8.5	54.6	43	96	1.55
DSE0860F03	8.6	●	8.6	56.6	43	98	1.57
DSE0870F03	8.7		8.7	56.6	43	98	1.58
DSE0880F03	8.8		8.8	56.6	43	98	1.6
DSE0890F03	8.9		8.9	56.6	43	98	1.62
DSE0900F03	9	●	9	56.6	43	98	1.64
DSE0910F03	9.1		9.1	59.7	44	102	1.66
DSE0920F03	9.2		9.2	59.7	44	102	1.67
DSE0930F03	9.3		9.3	59.7	44	102	1.69
DSE0940F03	9.4		9.4	59.7	44	102	1.71
DSE0950F03	9.5	●	9.5	59.7	44	102	1.73
DSE0960F03	9.6		9.6	61.8	45	105	1.75
DSE0970F03	9.7		9.7	61.8	45	105	1.77
DSE0980F03	9.8		9.8	61.8	45	105	1.78
DSE0990F03	9.9		9.9	61.8	45	105	1.8
DSE1000F03	10	●	10	61.8	45	105	1.82

● : Line up

Reference pages: Standard cutting conditions → J047

STANDARD CUTTING CONDITIONS

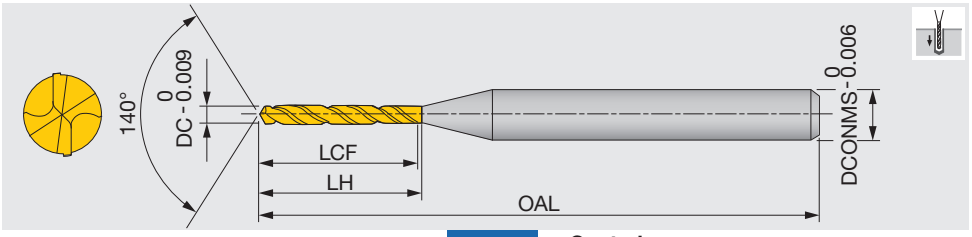
ISO	Workpiece material	Examples	Hardness	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)		
				ø3 ~ ø6	ø6 ~ ø10	ø10 ~ ø16	ø3 ~ ø6	ø5 ~ ø10	ø10 ~ ø16
P	Mild steels, Low carbon steels	SS400, etc. E275A, etc.	< 180HB	40 - 100	60 - 120	60 - 130	0.15 - 0.3	0.15 - 0.35	0.2 - 0.5
P	Carbon steels, Alloy steels	S45C, etc. C45, etc.	180 ~ 300HB	40 - 90	50 - 120	60 - 130	0.15 - 0.3	0.15 - 0.35	0.15 - 0.4
P	High alloy steels, etc.	SCM440, etc. 42CrMo4, etc.	250 ~ 350HB	40 - 80	50 - 100	50 - 100	0.1 - 0.2	0.15 - 0.25	0.15 - 0.35
M	Stainless steels	SUS304, etc. X5CrNi18-9, etc.	< 200HB	10 - 20	10 - 20	10 - 20	0.05 - 0.15	0.05 - 0.15	0.05 - 0.15
K	Grey cast irons	FC300, etc. 300, etc.	< 200HB	40 - 90	50 - 95	50 - 100	0.15 - 0.3	0.2 - 0.4	0.2 - 0.4
K	Ductile cast irons	FCD700, etc. 600-3, etc.	< 300HB	35 - 80	40 - 85	45 - 90	0.15 - 0.3	0.2 - 0.4	0.2 - 0.4
S	Titanium alloys	Ti-6Al-4V, etc.		20 - 40	20 - 40	20 - 40	0.1 - 0.2	0.15 - 0.25	0.15 - 0.4
S	Heat-resistant alloys	Inconel718, etc.	250HB <	10 - 30	10 - 30	10 - 30	0.03 - 0.07	0.05 - 0.1	0.07 - 0.12
H	High hardened steels	SKD11, etc. X153CrMoV12, etc.	< 40HRC	20 - 40	20 - 40	20 - 40	0.05 - 0.15	0.05 - 0.15	0.07 - 0.2

- Because the cutting conditions may be changed depending on the material type, hardness, machinability, machine tool, and coolant, the most appropriate conditions must be decided whilst referring the chip control condition and tool failure mode.
- When using the smaller diameter tools in each range, set the feed "*f*" to the lower recommended values.
- When drilling difficult-to-cut materials, coolant supplying conditions are critical for successful drilling. So, the use of constant and flood coolant is highly recommended.
- When the work material is kind of austenitic stainless steel (e.g. X5CrNi18-9) and the hole depth is over L/D = 2, using step drilling program or using DSX drill with oil hole is recommended.

GIGAMINIDRILL

DSM

Micro solid drill, 140° point angle, without coolant hole, shank diameter ø3 mm, L/D = 5 - 15, tool diameter ø0.1 - ø3 mm



Designation	DC	Coated YH170	Coated YH180	DCONMS	LCF	LH	OAL
DSM0010G10	0.1	●		3	1.15	1.4	38
DSM0011G10	0.11	●		3	1.25	1.5	38
DSM0012G10	0.12	●		3	1.35	1.6	38
DSM0013G10	0.13	●		3	1.55	1.8	38
DSM0014G10	0.14	●		3	1.65	1.9	38
DSM0015G10	0.15	●		3	1.75	2	38
DSM0016G10	0.16	●		3	1.85	2.1	38
DSM0017G10	0.17	●		3	1.95	2.2	38
DSM0018G10	0.18	●		3	2.15	2.4	38
DSM0019G10	0.19	●		3	2.25	2.5	38
DSM0020G10	0.2	●		3	2.35	2.6	38
DSM0021G10	0.21	●		3	2.45	2.7	38
DSM0022G10	0.22	●		3	2.55	2.8	38
DSM0023G10	0.23	●		3	2.75	3	38
DSM0024G10	0.24	●		3	2.85	3.1	38
DSM0025G10	0.25	●		3	3	3.3	38
DSM0026G10	0.26	●		3	3.1	3.4	38
DSM0027G10	0.27	●		3	3.2	3.5	38
DSM0028G10	0.28	●		3	3.4	3.7	38
DSM0029G10	0.29	●		3	3.5	3.8	38
DSM0030G10	0.3	●		3	3.9	4.2	38
DSM0031G15	0.31	●		3	5.6	5.9	38
DSM0032G15	0.32	●		3	5.6	5.9	38
DSM0033G15	0.33	●		3	5.6	5.9	38
DSM0034G15	0.34	●		3	5.6	5.9	38
DSM0035G15	0.35	●		3	5.6	5.9	38
DSM0036G15	0.36	●		3	6.5	6.8	38
DSM0037G15	0.37	●		3	6.5	6.8	38
DSM0038G15	0.38	●		3	6.5	6.8	38
DSM0039G15	0.39	●		3	6.5	6.8	38
DSM0040G15	0.4	●		3	6.5	6.8	38
DSM0041G15	0.41	●		3	7.4	7.7	38
DSM0042G15	0.42	●		3	7.4	7.7	38
DSM0043G15	0.43	●		3	7.4	7.7	38
DSM0044G15	0.44	●		3	7.4	7.7	38
DSM0045G15	0.45	●		3	7.4	7.7	38
DSM0046G15	0.46	●		3	8.1	8.7	38
DSM0047G15	0.47	●		3	8.1	8.7	38
DSM0048G15	0.48	●		3	8.1	8.7	38
DSM0049G15	0.49	●		3	8.1	8.7	38
DSM0050G15	0.5	●		3	8.1	8.7	38
DSM0051G10	0.51			3	6.6	7.2	38
DSM0052G10	0.52			3	6.6	7.2	38
DSM0053G10	0.53			3	6.6	7.2	38
DSM0054G10	0.54			3	6.6	7.2	38
DSM0055G10	0.55	●		3	6.6	7.2	38
DSM0056G10	0.56			3	7.3	7.9	38
DSM0057G10	0.57			3	7.3	7.9	38
DSM0058G10	0.58			3	7.3	7.9	38
DSM0059G10	0.59			3	7.3	7.9	38
DSM0060G10	0.6	●		3	7.3	7.9	38
DSM0061G10	0.61			3	7.9	8.5	38
DSM0062G10	0.62			3	7.9	8.5	38
DSM0063G10	0.63			3	7.9	8.5	38
DSM0064G10	0.64			3	7.9	8.5	38
DSM0065G10	0.65	●		3	7.9	8.5	38
DSM0066G10	0.66			3	8.6	9.2	38
DSM0067G10	0.67			3	8.6	9.2	38
DSM0068G10	0.68			3	8.6	9.2	38
DSM0069G10	0.69			3	8.6	9.2	38
DSM0070G10	0.7	●		3	8.6	9.2	38
DSM0071G10	0.71			3	9.2	9.8	38
DSM0072G10	0.72			3	9.2	9.8	38
DSM0073G10	0.73			3	9.2	9.8	38
DSM0074G10	0.74			3	9.2	9.8	38

Designation	DC	Coated YH170	Coated YH180	DCONMS	LCF	LH	OAL
DSM0075G10	0.75	●		3	9.2	9.8	38
DSM0076G10	0.76			3	9.9	10.5	38
DSM0077G10	0.77			3	9.9	10.5	38
DSM0078G10	0.78			3	9.9	10.5	38
DSM0079G10	0.79			3	9.9	10.5	38
DSM0080G10	0.8	●		3	9.9	10.5	38
DSM0081G10	0.81			3	10.5	11.1	38
DSM0082G10	0.82			3	10.5	11.1	38
DSM0083G10	0.83			3	10.5	11.1	38
DSM0084G10	0.84			3	10.5	11.1	38
DSM0085G10	0.85			3	10.5	11.1	38
DSM0086G10	0.86			3	9.9	10.5	38
DSM0087G10	0.87			3	9.9	10.5	38
DSM0088G10	0.88	●		3	9.9	10.5	38
DSM0089G10	0.89			3	9.9	10.5	38
DSM0090G10	0.9	●		3	9.9	10.5	38
DSM0091G10	0.91			3	10.5	11.1	38
DSM0092G10	0.92			3	10.5	11.1	38
DSM0093G10	0.93			3	10.5	11.1	38
DSM0094G10	0.94			3	10.5	11.1	38
DSM0095G10	0.95			3	10.5	11.1	38
DSM0096G10	0.96			3	11	11.6	38
DSM0097G10	0.97	●		3	11	11.6	38
DSM0098G10	0.98			3	11	11.6	38
DSM0099G10	0.99			3	11	11.6	38
DSM0100G10	1	●		3	11.5	12.1	38
DSM0101G05	1.01			3	8	8.6	38
DSM0102G05	1.02			3	8	8.6	38
DSM0103G05	1.03			3	8	8.6	38
DSM0104G05	1.04			3	8	8.6	38
DSM0105G05	1.05			3	8	8.6	38
DSM0106G05	1.06			3	8	8.6	38
DSM0107G05	1.07			3	8	8.6	38
DSM0108G05	1.08	●		3	8	8.6	38
DSM0109G05	1.09			3	8	8.6	38
DSM0110G05	1.1	●		3	8	8.6	38
DSM0111G05	1.11			3	8.9	9.5	38
DSM0112G05	1.12			3	8.9	9.5	38
DSM0113G05	1.13			3	8.9	9.5	38
DSM0114G05	1.14			3	8.9	9.5	38
DSM0115G05	1.15			3	8.9	9.5	38
DSM0116G05	1.16			3	8.9	9.5	38
DSM0117G05	1.17			3	8.9	9.5	38
DSM0118G05	1.18			3	8.9	9.5	38
DSM0119G05	1.19			3	8.9	9.5	38
DSM0120G05	1.2	●		3	8.9	9.5	38
DSM0121G05	1.21			3	9.7	10.3	38
DSM0122G05	1.22			3	9.7	10.3	38
DSM0123G05	1.23			3	9.7	10.3	38
DSM0124G05	1.24			3	9.7	10.3	38
DSM0125G05	1.25			3	9.7	10.3	38
DSM0126G05	1.26			3	9.7	10.3	38
DSM0127G05	1.27			3	9.7	10.3	38
DSM0128G05	1.28			3	9.7	10.3	38
DSM0129G05	1.29			3	9.7	10.3	38
DSM0130G05	1.3	●		3	9.7	10.3	38
DSM0131G05	1.31			3	10.5	11.1	38
DSM0132G05	1.32			3	10.5	11.1	38
DSM0133G05	1.33			3	10.5	11.1	38
DSM0134G05	1.34			3	10.5	11.1	38
DSM0135G05	1.35			3	10.5	11.1	38
DSM0136G05	1.36			3	10.5	11.1	38
DSM0137G05	1.37			3	10.5	11.1	38
DSM0138G05	1.38			3	10.5	11.1	38
DSM0139G05	1.39			3	10.5	11.1	38

● : Line up

Reference pages: Standard cutting conditions → J050

Designation	DC	Coated YH170	Coated YH180	DCONMS	LCF	LH	OAL
DSM0140G05	1.4	●		3	10.5	11.1	38
DSM0141G05	1.41			3	11.3	11.9	38
DSM0142G05	1.42			3	11.3	11.9	38
DSM0143G05	1.43			3	11.3	11.9	38
DSM0144G05	1.44			3	11.3	11.9	38
DSM0145G05	1.45	●		3	11.3	11.9	38
DSM0146G05	1.46			3	11.3	11.9	38
DSM0147G05	1.47			3	11.3	11.9	38
DSM0148G05	1.48			3	11.3	11.9	38
DSM0149G05	1.49			3	11.3	11.9	38
DSM0150G05	1.5	●		3	11.3	11.9	38
DSM0151G05	1.51			3	12.1	12.7	45
DSM0152G05	1.52			3	12.1	12.7	45
DSM0153G05	1.53	●		3	12.1	12.7	45
DSM0154G05	1.54			3	12.1	12.7	45
DSM0155G05	1.55	●		3	12.1	12.7	45
DSM0156G05	1.56			3	12.1	12.7	45
DSM0157G05	1.57			3	12.1	12.7	45
DSM0158G05	1.58			3	12.1	12.7	45
DSM0159G05	1.59			3	12.1	12.7	45
DSM0160G05	1.6	●		3	12.1	12.7	45
DSM0161G05	1.61			3	12.9	13.6	45
DSM0162G05	1.62			3	12.9	13.6	45
DSM0163G05	1.63			3	12.9	13.6	45
DSM0164G05	1.64			3	12.9	13.6	45
DSM0165G05	1.65	●		3	12.9	13.6	45
DSM0166G05	1.66			3	12.9	13.6	45
DSM0167G05	1.67			3	12.9	13.6	45
DSM0168G05	1.68			3	12.9	13.6	45
DSM0169G05	1.69			3	12.9	13.6	45
DSM0170G05	1.7	●		3	12.9	13.6	45
DSM0171G05	1.71			3	13.7	14.3	45
DSM0172G05	1.72			3	13.7	14.3	45
DSM0173G05	1.73			3	13.7	14.3	45
DSM0174G05	1.74			3	13.7	14.3	45
DSM0175G05	1.75			3	13.7	14.3	45
DSM0176G05	1.76			3	13.7	14.3	45
DSM0177G05	1.77			3	13.7	14.3	45
DSM0178G05	1.78			3	13.7	14.3	45
DSM0179G05	1.79			3	13.7	14.3	45
DSM0180G05	1.8	●		3	13.7	14.3	45
DSM0181G05	1.81			3	14.5	15.1	45
DSM0182G05	1.82	●		3	14.5	15.1	45
DSM0183G05	1.83			3	14.5	15.1	45
DSM0184G05	1.84			3	14.5	15.1	45
DSM0185G05	1.85	●		3	14.5	15.1	45
DSM0186G05	1.86			3	14.5	15.1	45
DSM0187G05	1.87			3	14.5	15.1	45
DSM0188G05	1.88			3	14.5	15.1	45
DSM0189G05	1.89			3	14.5	15.1	45
DSM0190G05	1.9	●		3	14.5	15.1	45
DSM0191G05	1.91			3	15.3	15.9	45
DSM0192G05	1.92			3	15.3	15.9	45
DSM0193G05	1.93			3	15.3	15.9	45
DSM0194G05	1.94			3	15.3	15.9	45
DSM0195G05	1.95	●		3	15.3	15.9	45
DSM0196G05	1.96			3	15.3	15.9	45
DSM0197G05	1.97			3	15.3	15.9	45
DSM0198G05	1.98			3	15.3	15.9	45
DSM0199G05	1.99			3	15.3	15.9	45
DSM0200G05	2		●	3	15.3	15.9	45
DSM0201G05	2.01			3	16.1	16.7	45
DSM0202G05	2.02			3	16.1	16.7	45
DSM0203G05	2.03		●	3	16.1	16.7	45
DSM0204G05	2.04			3	16.1	16.7	45
DSM0205G05	2.05			3	16.1	16.7	45
DSM0206G05	2.06			3	16.1	16.7	45
DSM0207G05	2.07			3	16.1	16.7	45
DSM0208G05	2.08			3	16.1	16.7	45
DSM0209G05	2.09			3	16.1	16.7	45
DSM0210G05	2.1		●	3	16.1	16.7	45
DSM0211G05	2.11			3	16.9	17.5	45
DSM0212G05	2.12			3	16.9	17.5	45
DSM0213G05	2.13			3	16.9	17.5	45
DSM0214G05	2.14			3	16.9	17.5	45
DSM0215G05	2.15			3	16.9	17.5	45
DSM0216G05	2.16			3	16.9	17.5	45
DSM0217G05	2.17			3	16.9	17.5	45
DSM0218G05	2.18			3	16.9	17.5	45

Designation	DC	Coated YH170	Coated YH180	DCONMS	LCF	LH	OAL
DSM0219G05	2.19			3	16.9	17.5	45
DSM0220G05	2.2		●	3	16.9	17.5	45
DSM0221G05	2.21			3	17.7	18.3	45
DSM0222G05	2.22			3	17.7	18.3	45
DSM0223G05	2.23			3	17.7	18.3	45
DSM0224G05	2.24			3	17.7	18.3	45
DSM0225G05	2.25			3	17.7	18.3	45
DSM0226G05	2.26			3	17.7	18.3	45
DSM0227G05	2.27			3	17.7	18.3	45
DSM0228G05	2.28			3	17.7	18.3	45
DSM0229G05	2.29			3	17.7	18.3	45
DSM0230G05	2.3		●	3	17.7	18.3	45
DSM0231G05	2.31			3	18.5	19.1	55
DSM0232G05	2.32			3	18.5	19.1	55
DSM0233G05	2.33			3	18.5	19.1	55
DSM0234G05	2.34			3	18.5	19.1	55
DSM0235G05	2.35			3	18.5	19.1	55
DSM0236G05	2.36			3	18.5	19.1	55
DSM0237G05	2.37			3	18.5	19.1	55
DSM0238G05	2.38			3	18.5	19.1	55
DSM0239G05	2.39			3	18.5	19.1	55
DSM0240G05	2.4		●	3	18.5	19.1	55
DSM0241G05	2.41			3	19.3	19.9	55
DSM0242G05	2.42			3	19.3	19.9	55
DSM0243G05	2.43			3	19.3	19.9	55
DSM0244G05	2.44			3	19.3	19.9	55
DSM0245G05	2.45			3	19.3	19.9	55
DSM0246G05	2.46			3	19.3	19.9	55
DSM0247G05	2.47			3	19.3	19.9	55
DSM0248G05	2.48			3	19.3	19.9	55
DSM0249G05	2.49			3	19.3	19.9	55
DSM0250G05	2.5		●	3	19.3	19.9	55
DSM0251G05	2.51			3	20.1	20.7	55
DSM0252G05	2.52			3	20.1	20.7	55
DSM0253G05	2.53			3	20.1	20.7	55
DSM0254G05	2.54			3	20.1	20.7	55
DSM0255G05	2.55			3	20.1	20.7	55
DSM0256G05	2.56		●	3	20.1	20.7	55
DSM0257G05	2.57			3	20.1	20.7	55
DSM0258G05	2.58			3	20.1	20.7	55
DSM0259G05	2.59			3	20.1	20.7	55
DSM0260G05	2.6		●	3	20.1	20.7	55
DSM0261G05	2.61			3	20.9	21.5	55
DSM0262G05	2.62			3	20.9	21.5	55
DSM0263G05	2.63			3	20.9	21.5	55
DSM0264G05	2.64			3	20.9	21.5	55
DSM0265G05	2.65			3	20.9	21.5	55
DSM0266G05	2.66			3	20.9	21.5	55
DSM0267G05	2.67			3	20.9	21.5	55
DSM0268G05	2.68			3	20.9	21.5	55
DSM0269G05	2.69			3	20.9	21.5	55
DSM0270G05	2.7		●	3	20.9	21.5	55
DSM0271G05	2.71			3	21.7	22.3	55
DSM0272G05	2.72			3	21.7	22.3	55
DSM0273G05	2.73			3	21.7	22.3	55
DSM0274G05	2.74			3	21.7	22.3	55
DSM0275G05	2.75			3	21.7	22.3	55
DSM0276G05	2.76			3	21.7	22.3	55
DSM0277G05	2.77			3	21.7	22.3	55
DSM0278G05	2.78			3	21.7	22.3	55
DSM0279G05	2.79			3	21.7	22.3	55
DSM0280G05	2.8		●	3	21.7	22.3	55
DSM0281G05	2.81			3	22.5	23.1	55
DSM0282G05	2.82			3	22.5	23.1	55
DSM0283G05	2.83			3	22.5	23.1	55
DSM0284G05	2.84			3	22.5	23.1	55
DSM0285G05	2.85			3	22.5	23.1	55
DSM0286G05	2.86			3	22.5	23.1	55
DSM0287G05	2.87			3	22.5	23.1	55
DSM0288G05	2.88			3	22.5	23.1	55
DSM0289G05	2.89			3	22.5	23.1	55
DSM0290G05	2.9		●	3	22.5	23.1	55
DSM0291G05	2.91			3	23.3	23.9	55
DSM0292G05	2.92			3	23.3	23.9	55
DSM0293G05	2.93			3	23.3	23.9	55
DSM0294G05	2.94			3	23.3	23.9	55
DSM0295G05	2.95			3	23.3	23.9	55
DSM0296G05	2.96			3	23.3	23.9	55
DSM0297G05	2.97			3	23.3	23.9	55
DSM0298G05	2.98			3	23.3	23.9	55
DSM0299G05	2.99			3	23.3	23.9	55
DSM0300G05	3		●	3	23.3	23.9	55

Reference pages: Standard cutting conditions → J050

● : Line up

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)				
		ø0.1 ~ ø0.3	ø0.3 ~ ø0.5	ø0.5 ~ ø3	ø0.1 ~ ø0.3	ø0.3 ~ ø0.5	ø0.5 ~ ø1	ø1 ~ ø2	ø2 ~ ø3
P	Carbon steels, Alloy steels	5 - 20	15 - 30	25 - 60	0.001 - 0.004	0.002 - 0.01	0.005 - 0.05	0.03 - 0.09	0.05 - 0.1
M	Stainless steels	2 - 12	6 - 18	10 - 20	0.0005 - 0.004	0.002 - 0.008	0.005 - 0.03	0.01 - 0.04	0.02 - 0.05
K	Grey cast irons	5 - 15	10 - 25	20 - 50	0.0005 - 0.004	0.002- 0.012	0.005 - 0.03	0.01 - 0.06	0.03 - 0.12
	Ductile cast irons	5 - 15	10 - 25	20 - 50	0.001 - 0.003	0.002 - 0.01	0.005 - 0.02	0.01 - 0.05	0.03 - 0.1
N	Aluminium alloys	10 - 20	10 - 30	20 - 50	0.001 - 0.01	0.005 - 0.03	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2
	Copper / Brass	10 - 20	10 - 30	20 - 50	0.001 - 0.01	0.005 - 0.03	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2
S	Heat-resistant alloys	2 - 6	5 - 10	8 - 20	0.0005 - 0.003	0.002 - 0.004	0.002 - 0.004	0.002 - 0.004	※
H	High hardened steels	4 - 8	6 - 10	6 - 16	0.0005 - 0.002	0.001 - 0.005	0.005 - 0.02	0.01 - 0.03	0.02 - 0.06

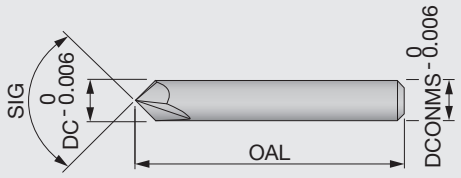
※ Not recommended

Notes: • When the drilling depth is deeper than L/D = 5, use drill pecking every 10 to 50% of the drill diameter.
• The above cutting conditions are applied to when a water soluble cutting fluid is used. For drilling a hole smaller than ø0.3 mm, use of a starting drill is recommended.
• When setting the drill, the drill run out should be within 0.002 mm on the taper. (Especially for the drill diameter smaller than ø0.5 mm)

GIGAMINIDRILL

DSM-CP

Centering drill for DSM drill



Designation	DC	YH170	DCONMS	OAL	SIG
DSM-CP90	3	●	3	38.1	90°
DSM-CP140	3	●	3	38.1	140°

● : Line up

STANDARD CUTTING CONDITIONS

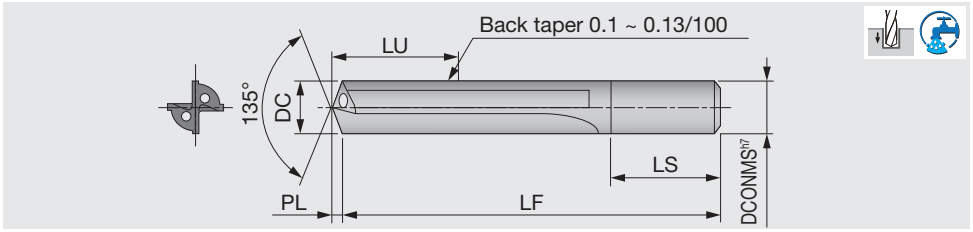
ISO	Workpiece material	Cutting speed: *Vc* (m/min)	Feed: *f* (mm/rev)	
			DSM-CP90	DSM-CP140
P	Carbon, Mild and Alloy steels	30 - 80	0.01 - 0.06	0.03 - 0.08
K	Grey and ductile cast irons	30 - 80	0.02 - 0.06	0.05 - 0.1
N	Aluminium alloys	60 - 120	0.02 - 0.1	0.05 - 0.15
M	Stainless steels	15 - 40	0.01 - 0.03	0.02 - 0.06
H	High hardened steels (~45HRC)	10 - 40	※	0.01 - 0.05

※ Not recommended

Notes: • For hard materials and stainless steels which have work-hardening nature, DSM-CP140 is recommended.
• Above cutting conditions are of using a water-soluble cutting fluid. When using a water-insoluble type, set the cutting speed to lower side.

FDC-S L/D=5

Solid drill for cast iron and Aluminium alloy, with straight flute, 135° point angle, with coolant hole, L/D = 5, ø5 - ø16 mm

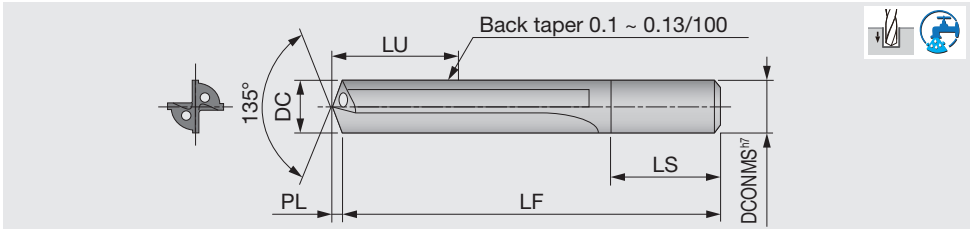


Designation	DC	G1F	DCONMS	LU	LS	LF	PL	Designation	DC	G1F	DCONMS	LU	LS	LF	PL
FDC0510S	5.1	●	6	45.1	40	85	1.06	FDC1250S	12.5	●	13	102.6	50	160	2.59
FDC0600S	6	●	6	49.2	40	90	1.24	FDC1300S	13	●	13	106.7	50	160	2.69
FDC0840S	8.4	●	9	69.7	44	115	1.74	FDC1350S	13.5	●	14	110.8	52	170	2.8
FDC0860S	8.6	●	9	73.8	44	120	1.78	FDC1400S	14	●	14	114.9	52	170	2.9
FDC1050S	10.5	●	11	86.2	46	140	2.17	FDC1450S	14.5	●	15	119	54	180	3
FDC1100S	11	●	11	90.3	46	140	2.28	FDC1500S	15	●	15	123.1	54	180	3.11
FDC1150S	11.5	●	12	94.4	48	150	2.38	FDC1550S	15.5	●	16	127.2	56	190	3.21
FDC1200S	12	●	12	98.5	48	150	2.49	FDC1600S	16	●	16	131.3	56	190	3.31

● : Line up

DC	Tolerance (mm)
5 ≤ DC ≤ 6	+0.02 ~ +0.01
6 < DC ≤ 16	+0.025 ~ +0.015

FDC-L L/D=8



Designation	DC	G1F	DCONMS	LU	LS	LF	PL	Designation	DC	G1F	DCONMS	LU	LS	LF	PL
FDC0500L	5	●	5	56	38	95	1.04	FDC0780L	7.8	●	8	89.6	42	130	1.62
FDC0550L	5.5	●	6	62.1	40	105	1.14	FDC0800L	8	●	8	89.7	42	130	1.66
FDC0600L	6	●	6	67.2	40	110	1.24	FDC0850L	8.5	●	9	95.8	44	140	1.76
FDC0620L	6.2	●	7	73.3	40	115	1.28	FDC0860L	8.6	●	9	100.8	44	145	1.78
FDC0650L	6.5	●	7	73.4	40	115	1.35	FDC0900L	9	●	9	100.9	44	145	1.86
FDC0680L	6.8	●	7	78.4	40	120	1.41	FDC0950L	9.5	●	10	107	44	150	1.97
FDC0700L	7	●	7	78.5	40	120	1.45	FDC1000L	10	●	10	112.1	46	160	2.07
FDC0750L	7.5	●	8	84.6	42	125	1.55								

● : Line up

DC	Tolerance (mm)
5 ≤ DC ≤ 6	+0.02 ~ +0.01
6 < DC < 10	+0.025 ~ +0.015

Coolant

- Supply coolant through the inside of a drill.
- The coolant pressure should be 0.5 to 1 MPa.
- Use water-soluble coolant containing a large amount of extreme pressure additive.

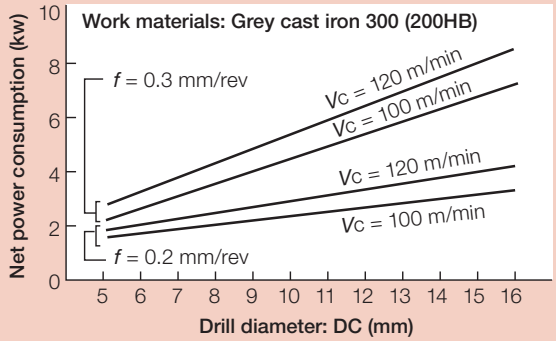
Reference pages: Standard cutting conditions → J052

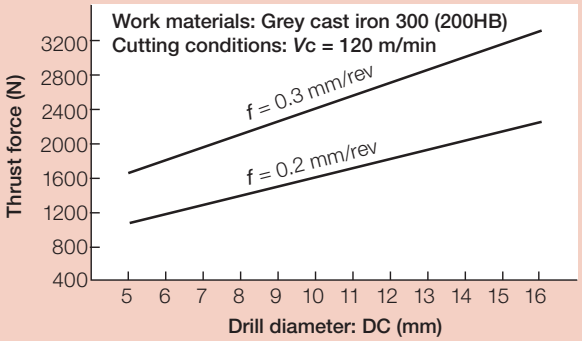
STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed: *Vc* (m/min)			Feed: *f* (mm/rev)		
		ø5 ~ ø8	ø8 ~ ø12	ø12 ~ ø16	ø5 ~ ø8	ø8 ~ ø12	ø12 ~ ø16
N	Aluminium alloys	100 - 140	120 - 160	140 - 180	0.1 - 0.25	0.15 - 0.3	0.15 - 0.3
K	Grey cast irons	90 - 120	110 - 140	130 - 160	0.1 - 0.25	0.2 - 0.3	0.2 - 0.30
	Ductile cast irons	60 - 80	70 - 90	70 - 100	0.1 - 0.25	0.15 - 0.3	0.15 - 0.3

Caution: When changing a tool, completely clean the chips which may be clogging in the collet or adapter.
Note: The cutting conditions shown left may vary depending on the work material, coolant dilution ratio and coolant supply pressure used.

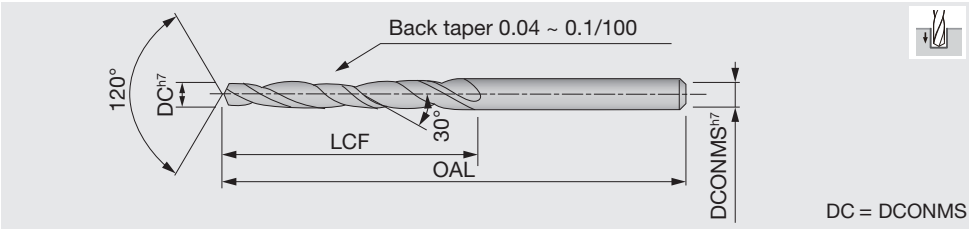
CUTTING PERFORMANCE





CDS

Solid drill for Aluminium alloy and cast iron, with 120°point angle, without coolant hole, shank diameter = tool diameter, Max. L/D = 12, ø4 - ø13 mm



Designation	DC	UM	LCF	OAL
CDS-010	1	●	10	38
CDS-015	1.5	●	10	38
CDS-016	1.6	●	22	45
CDS-019	1.9	●	22	45
CDS-020	2	●	22	45
CDS-021	2.1	●	22	45
CDS-022	2.2	●	22	45
CDS-023	2.3	●	22	45
CDS-025	2.5	●	22	45
CDS-029	2.9	●	25	45
CDS-030	3	●	25	45

Designation	DC	UM	LCF	OAL
CDS-033	3.3	●	27	50
CDS-040	4	●	30	55
CDS-042	4.2	●	34	60
CDS-045	4.5	●	34	60
CDS-050	5	●	34	60
CDS-060	6	●	40	70
CDS-070	7	●	46	80
CDS-080	8	●	50	85
CDS-085	8.5	●	53	85
CDS-090	9	●	53	85

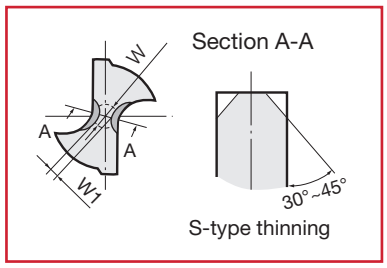
● : Line up

CAUTIONARY NOTES

- To prevent edge chipping, hone cutting edges as follows:
  Honing width: 0.02 ~ 0.05 mm
  Honing angle: -20˚ to -30˚.
  Chipping is likely to occur on edges whilst drilling hard materials, a larger honing width is recommended.
- When drilling into an inclined surface, special care should be taken to prevent drill breakage.
  Use of drill bushing is recommended for such case.

REGRINDING

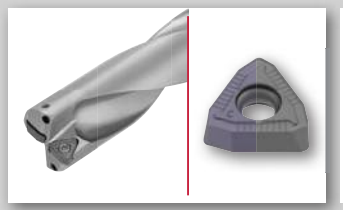
- Carry out regrinding when corner wear reaches the margin width.
- Avoid using silicon carbide grinding wheels or hand grinding whenever possible.
  Use diamond grinding wheels of 200 to 400 mesh.
- Apply web thinning for the drill above ø6 mm. S-type thinning shown in figure at right is recommended.
  Preferable thinning width (W1) is about 1/2 to 1/3 of web thickness (W).



STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed: *Vc* (m/min) ø0.4 ~ ø2	Cutting speed: *Vc* (m/min) ø2 ~ ø13	Feed: *f* (mm/rev) ø0.4 ~ ø1	Feed: *f* (mm/rev) ø1 ~ ø2	Feed: *f* (mm/rev) ø2 ~ ø3	Feed: *f* (mm/rev) ø3 ~ ø5	Feed: *f* (mm/rev) ø5 ~ ø13
K	Grey cast irons (200HB)	20 - 40	30 - 50	0.005 - 0.03	0.01 - 0.06	0.03 - 0.12	0.05 - 0.15	0.1 - 0.4
K	Ductile cast irons (300HB)	20 - 40	30 - 50	0.005 - 0.02	0.01 - 0.05	0.03 - 0.1	0.03 - 0.1	0.07 - 0.25
N	Aluminium alloys	20 - 50	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5
N	Copper alloys	20 - 50	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5
N	Reinforced plastics	20 - 40	30 - 50	0.01 - 0.05	0.04 - 0.15	0.06 - 0.2	0.1 - 0.25	0.15 - 0.5

Indexable drill

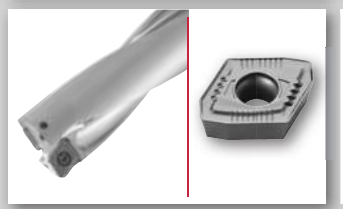


TUNGSIX-DRILL

Indexable drill with 6-corner inserts for high productivity

ø20 mm - ø54 mm / L/D = 2, 3, 4

J006,
J056 - J063

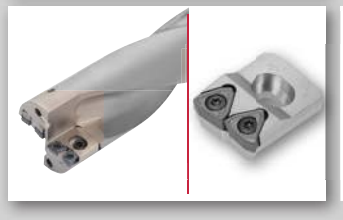


TUNGDRILLTWISTED

Indexable drill with 4-corner inserts for various drilling applications

ø12.5 mm - ø54 mm / L/D = 2, 3, 4, 5

J006,
J064 - J076



TUNGDRILLBIG

Large diameter drill with cartridges for TungSix-Drill and TungDrillTwisted inserts

ø55 mm - ø80 mm / L/D = 2.5

J006,
J077 - J083

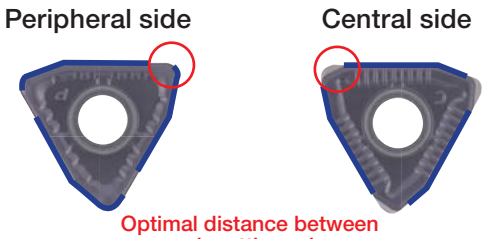
TUNGSIX-DRILL

Indexable drill

6 cornered insert with high performance and high economical solution

Double-sided insert with 6-cutting edges

TungSixDrill is the fi rst indexable drill in the world to adapt double-sided inserts with 6-cutting edges, reducing the insert consumption for the customers.



Optimal distance between each cutting edge

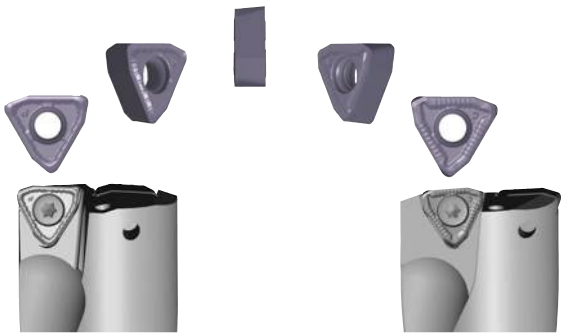
Prevents the overlapping of damaged edges

One insert type for both the central and peripheral pockets

One side has the centrak edeg and other side has the peripheral edge.

Low cutting force even with double sided insert

The cutting forces are almost equal to competitors positive single sided inserts, especially at higher feed rates, thus complementing higher productivity.

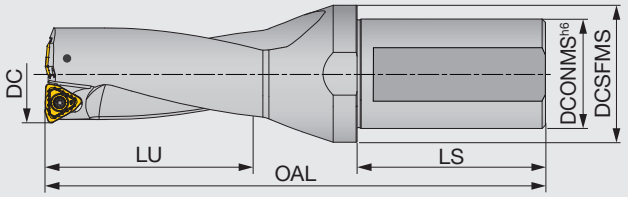


Reference pages: J056 - J063

TUNGSIX-DRILL

TDS-F L/D=2

L/D = 2, flat, tool diameter ø20 - ø54 mm



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL	Max. offset (radial)	WT(kg)	Insert
TDS200F25-2	20	25	32	40.8	54	115.8	1	0.3	WWMU05X205R-D*
TDS205F25-2	20.5	25	32	41.8	54	117.3	0.9	0.3	WWMU05X205R-D*
TDS210F25-2	21	25	32	42.8	54	118.8	0.8	0.3	WWMU05X205R-D*
TDS215F25-2	21.5	25	32	43.8	54	119.8	0.6	0.3	WWMU05X205R-D*
TDS220F25-2	22	25	32	44.8	54	120.8	0.5	0.3	WWMU05X205R-D*
TDS225F25-2	22.5	25	37	45.8	54	122.3	0.4	0.3	WWMU05X205R-D*
TDS230F25-2	23	25	37	46.8	54	123.8	0.3	0.4	WWMU05X205R-D*
TDS235F25-2	23.5	25	37	47.8	54	124.8	0.2	0.4	WWMU05X205R-D*
TDS240F25-2	24	25	37	48.9	54	125.9	1.2	0.4	WWMU060306R-D*
TDS245F25-2	24.5	25	37	49.9	54	127.4	1	0.4	WWMU060306R-D*
TDS250F25-2	25	25	37	50.9	54	128.9	0.8	0.4	WWMU060306R-D*
TDS255F25-2	25.5	25	37	51.9	54	130.4	0.6	0.4	WWMU060306R-D*
TDS260F25-2	26	25	37	52.9	54	131.9	0.5	0.4	WWMU060306R-D*
TDS270F32-2	27	32	40	54.9	59	138.9	0.3	0.6	WWMU060306R-D*
TDS280F32-2	28	32	40	57.1	59	142.1	1.3	0.6	WWMU08X408R-D*
TDS290F32-2	29	32	40	59.1	59	144.1	1.1	0.7	WWMU08X408R-D*
TDS300F32-2	30	32	40	61.1	59	147.1	0.8	0.7	WWMU08X408R-D*
TDS310F32-2	31	32	40	63.1	59	150.1	0.5	0.7	WWMU08X408R-D*
TDS320F32-2	32	32	40	65.1	59	152.1	0.2	0.8	WWMU08X408R-D*
TDS330F40-2	33	40	50	67.3	69	165.3	1.7	1.2	WWMU09X510R-D*
TDS340F40-2	34	40	50	69.3	69	168.3	1.4	1.2	WWMU09X510R-D*
TDS350F40-2	35	40	50	71.3	69	171.3	1.2	1.2	WWMU09X510R-D*
TDS360F40-2	36	40	50	73.3	69	174.3	0.9	1.3	WWMU09X510R-D*
TDS370F40-2	37	40	50	75.3	69	175.3	0.7	1.3	WWMU09X510R-D*
TDS380F40-2	38	40	50	77.3	69	178.3	0.4	1.3	WWMU09X510R-D*
TDS390F40-2	39	40	50	79.6	69	180.6	2.2	1.4	WWMU11X512R-D*
TDS400F40-2	40	40	50	81.6	69	183.6	1.9	1.4	WWMU11X512R-D*
TDS410F40-2	41	40	50	83.6	69	187.6	1.7	1.5	WWMU11X512R-D*
TDS420F40-2	42	40	55	85.6	69	189.6	1.5	1.6	WWMU11X512R-D*
TDS430F40-2	43	40	55	87.6	69	192.6	1.3	1.6	WWMU11X512R-D*
TDS440F40-2	44	40	55	89.6	69	194.6	1	1.7	WWMU11X512R-D*
TDS450F40-2	45	40	55	91.6	69	197.6	0.7	1.7	WWMU11X512R-D*
TDS460F40-2	46	40	55	93.6	69	200.6	0.4	1.8	WWMU11X512R-D*
TDS470F40-2	47	40	55	95.8	69	202.8	2.6	1.9	WWMU13X512R-D*
TDS480F40-2	48	40	55	97.8	69	205.8	2.4	1.9	WWMU13X512R-D*
TDS490F40-2	49	40	55	99.8	69	207.8	2.2	1.9	WWMU13X512R-D*
TDS500F40-2	50	40	55	101.8	69	210.8	2	2	WWMU13X512R-D*
TDS510F40-2	51	40	55	103.8	69	214.8	1.7	2.1	WWMU13X512R-D*
TDS520F40-2	52	40	55	105.8	69	216.8	1.5	2.2	WWMU13X512R-D*
TDS530F40-2	53	40	55	107.8	69	219.8	1.3	2.3	WWMU13X512R-D*
TDS540F40-2	54	40	55	109.8	69	221.8	1	2.4	WWMU13X512R-D*

SPARE PARTS

Designation	Clamping screw	Wrench
TDS200... - TDS235...	CSPB-2.2	IP-7D
TDS240... - TDS270...	CSPB-2.5	IP-8D
TDS280... - TDS320...	CSTB-3	T-9D
TDS330... - TDS380...	CSTB-4	T-15D
TDS390... - TDS540...	CSTB-5	T-20D

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø20 - ø27	+ 0.2 / 0	+ 0.25 / 0
ø28 - ø54	+ 0.2 / 0	+ 0.3 / 0

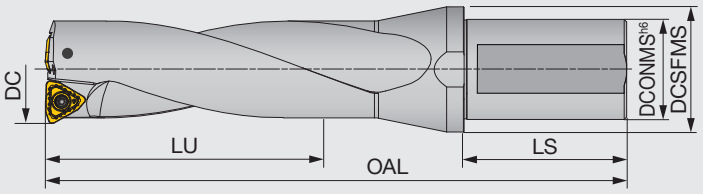
Recommended clamping torque (N·m): CSPB-2.2 = 1, CSPB-2.5 = 1.3, CSTB-3 = 2.3, CSTB-4 = 3.5, CSTB-5 = 5

Reference pages: Inserts, Standard cutting conditions → J060 - J061

TUNGSIX-DRILL

TDS-F L/D=3

L/D = 3, flat, tool diameter ø20 - ø54 mm



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL	Max. offset (radial)	WT(kg)	Insert
TDS200F25-3	20	25	32	60.8	54	135.8	1	0.3	WWMU05X205R-D*
TDS205F25-3	20.5	25	32	62.3	54	136.8	0.9	0.3	WWMU05X205R-D*
TDS209F25-3 (1)	20.9	25	32	63.5	54	138.8	0.8	0.3	WWMU05X205R-D*
TDS210F25-3	21	25	32	63.8	54	138.8	0.8	0.4	WWMU05X205R-D*
TDS215F25-3	21.5	25	32	65.3	54	140.8	0.6	0.4	WWMU05X205R-D*
TDS220F25-3	22	25	32	66.8	54	141.8	0.5	0.4	WWMU05X205R-D*
TDSU0875F25-3 (2)	22.2	25	32	66.8	54	141.8	0.4	0.4	WWMU05X205R-D*
TDS225F25-3	22.5	25	37	68.3	54	144.8	0.4	0.4	WWMU05X205R-D*
TDS230F25-3	23	25	37	69.8	54	145.8	0.3	0.4	WWMU05X205R-D*
TDS235F25-3	23.5	25	37	71.3	54	147.8	0.2	0.4	WWMU05X205R-D*
TDS239F25-3 (1)	23.9	25	37	72.6	54	149.9	1.2	0.4	WWMU060306R-D*
TDS240F25-3	24	25	37	72.9	54	149.9	1.2	0.4	WWMU060306R-D*
TDS245F25-3	24.5	25	37	74.4	54	151.9	1	0.5	WWMU060306R-D*
TDS250F25-3	25	25	37	75.9	54	153.9	0.8	0.5	WWMU060306R-D*
TDS255F25-3	25.5	25	37	77.4	54	154.9	0.6	0.5	WWMU060306R-D*
TDS260F25-3 (1)	26	25	37	78.9	54	156.9	0.5	0.5	WWMU060306R-D*
TDS264F32-3	26.4	32	40	80.1	59	163.4	0.4	0.6	WWMU060306R-D*
TDS265F32-3	26.5	32	40	80.4	59	163.4	0.4	0.6	WWMU060306R-D*
TDS270F32-3	27	32	40	81.9	59	164.9	0.3	0.6	WWMU060306R-D*
TDS275F32-3	27.5	32	40	83.1	59	168.1	0	0.6	WWMU08X408R-D*
TDS280F32-3	28	32	40	85.1	59	169.1	1.3	0.7	WWMU08X408R-D*
TDS285F32-3	28.5	32	40	86.1	59	171.1	1.1	0.7	WWMU08X408R-D*
TDSU1125F32-3 (2)	28.6	32	40	87.1	59	172.1	1.1	0.7	WWMU08X408R-D*
TDS290F32-3	29	32	40	88.1	59	172.1	1.1	0.7	WWMU08X408R-D*
TDS295F32-3	29.5	32	40	89.1	59	176.1	0.8	0.7	WWMU08X408R-D*
TDS300F32-3	30	32	40	91.1	59	177.1	0.8	0.8	WWMU08X408R-D*
TDS305F32-3	30.5	32	40	92.1	59	181.1	0.5	0.8	WWMU08X408R-D*
TDS310F32-3	31	32	40	94.1	59	181.1	0.5	0.8	WWMU08X408R-D*
TDSU1250F32-3 (2)	31.8	32	40	96.1	59	184.1	0.2	0.8	WWMU08X408R-D*
TDS320F32-3	32	32	40	97.1	59	184.1	0.2	0.9	WWMU08X408R-D*
TDS330F40-3	33	40	50	100.3	69	198.3	1.7	1.3	WWMU09X510R-D*
TDS340F40-3	34	40	50	103.3	69	201.3	1.4	1.3	WWMU09X510R-D*
TDS350F40-3	35	40	50	106.3	69	205.3	1.2	1.3	WWMU09X510R-D*
TDS360F40-3	36	40	50	109.3	69	209.3	0.9	1.4	WWMU09X510R-D*
TDS370F40-3	37	40	50	112.3	69	212.3	0.7	1.4	WWMU09X510R-D*
TDS380F40-3	38	40	50	115.3	69	216.3	0.4	1.5	WWMU09X510R-D*
TDS390F40-3	39	40	50	118.6	69	219.6	2.2	1.6	WWMU11X512R-D*
TDS400F40-3	40	40	50	121.6	69	223.6	1.9	1.6	WWMU11X512R-D*
TDS410F40-3	41	40	50	124.6	69	227.6	1.7	1.7	WWMU11X512R-D*
TDS420F40-3	42	40	55	127.6	69	230.6	1.5	1.8	WWMU11X512R-D*
TDS430F40-3	43	40	55	130.6	69	234.6	1.3	1.8	WWMU11X512R-D*
TDS440F40-3	44	40	55	133.6	69	237.6	1	1.9	WWMU11X512R-D*
TDS450F40-3	45	40	55	136.6	69	242.6	0.7	2	WWMU11X512R-D*
TDS460F40-3	46	40	55	139.6	69	246.6	0.4	2.1	WWMU11X512R-D*
TDS470F40-3	47	40	55	142.8	69	249.8	2.6	2.2	WWMU13X512R-D*
TDS480F40-3	48	40	55	145.8	69	253.8	2.4	2.3	WWMU13X512R-D*
TDS490F40-3	49	40	55	148.8	69	256.8	2.2	2.3	WWMU13X512R-D*
TDS500F40-3	50	40	55	151.8	69	260.8	2	2.4	WWMU13X512R-D*
TDS510F40-3	51	40	55	154.8	69	264.8	1.7	2.5	WWMU13X512R-D*
TDS520F40-3	52	40	55	157.8	69	267.8	1.5	2.6	WWMU13X512R-D*
TDS530F40-3	53	40	55	160.8	69	271.8	1.3	2.7	WWMU13X512R-D*
TDS540F40-3	54	40	55	163.8	69	274.8	1	2.9	WWMU13X512R-D*

SPARE PARTS

Designation	Clamping screw	Wrench
TDS200... - TDS235...	CSPB-2.2	IP-7D
TDS240... - TDS270...	CSPB-2.5	IP-8D
TDS280... - TDS320...	CSTB-3	T-9D
TDS330... - TDS380...	CSTB-4	T-15D
TDS390... - TDS540...	CSTB-5	T-20D

Recommended clamping torque (N·m): CSPB-2.2 = 1, CSPB-2.5 = 1.3, CSTB-3 = 2.3, CSTB-4 = 3.5, CSTB-5 = 5

(1) For pre thread hole: DC = 20.9 mm: M24x3, DC = 23.9 mm: M27x3, DC = 26.4 mm: M30x3.5
(2) For inch size: DC: 22.2 mm = 0.875", DC: 28.6 mm = 1.125", DC: 31.8 mm = 1.250"

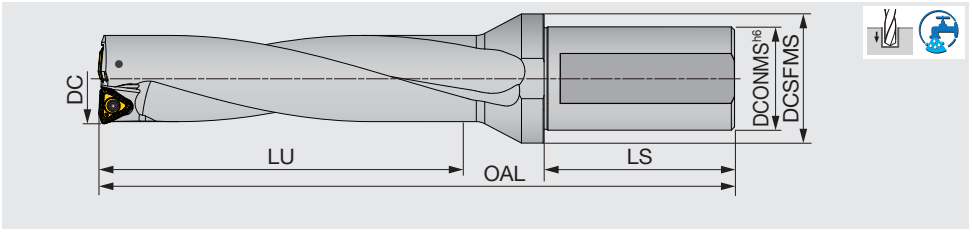
Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø20 - ø27	+ 0.2 / 0	+ 0.25 / 0
ø28 - ø54	+ 0.2 / 0	+ 0.3 / 0

Reference pages: Inserts, Standard cutting conditions → J060 - J061

TUNGSIX-DRILL

TDS-F L/D=4

L/D = 4, flat, tool diameter ø28 - ø54 mm



Designation	DC	DCONMS	DCSFMS	LU	LS	OAL	Max. offset (radial)	WT(kg)	Insert
TDS200F25-4	20	25	32	80.8	54	155.8	1	0.4	WWMU05X205R-D*
TDS205F25-4	20.5	25	32	82.8	54	157.8	0.9	0.4	WWMU05X205R-D*
TDS210F25-4	21	25	32	84.8	54	159.8	0.8	0.4	WWMU05X205R-D*
TDS215F25-4	21.5	25	32	86.8	54	161.8	0.6	0.4	WWMU05X205R-D*
TDS220F25-4	22	25	32	88.8	54	163.8	0.5	0.4	WWMU05X205R-D*
TDS225F25-4	22.5	25	37	90.8	54	166.3	0.4	0.4	WWMU05X205R-D*
TDS230F25-4	23	25	37	92.8	54	168.8	0.3	0.4	WWMU05X205R-D*
TDS235F25-4	23.5	25	37	94.8	54	171.3	0.2	0.5	WWMU05X205R-D*
TDS240F25-4	24	25	37	96.9	54	173.9	1.2	0.5	WWMU060306R-D*
TDS245F25-4	24.5	25	37	98.9	54	176.4	1	0.5	WWMU060306R-D*
TDS250F25-4	25	25	37	100.9	54	178.9	0.8	0.5	WWMU060306R-D*
TDS255F25-4	25.5	25	37	102.9	54	180.9	0.6	0.6	WWMU060306R-D*
TDS260F25-4	26	25	37	104.9	54	182.9	0.5	0.5	WWMU060306R-D*
TDS270F32-4	27	32	40	108.9	59	191.9	0.3	0.7	WWMU060306R-D*
TDS280F32-4	28	32	40	113.1	59	197.1	1.3	0.8	WWMU08X408R-D*
TDS290F32-4	29	32	40	117.1	59	201.1	1.1	0.8	WWMU08X408R-D*
TDS300F32-4	30	32	40	121.1	59	207.1	0.8	0.9	WWMU08X408R-D*
TDS310F32-4	31	32	40	125.1	59	212.1	0.5	0.9	WWMU08X408R-D*
TDS320F32-4	32	32	40	129.1	59	216.1	0.2	1	WWMU08X408R-D*
TDS330F40-4	33	40	50	133.3	69	231.3	1.7	1.4	WWMU09X510R-D*
TDS340F40-4	34	40	50	137.3	69	235.3	1.4	1.4	WWMU09X510R-D*
TDS350F40-4	35	40	50	141.3	69	240.3	1.2	1.4	WWMU09X510R-D*
TDS360F40-4	36	40	50	145.3	69	245.3	0.9	1.5	WWMU09X510R-D*
TDS370F40-4	37	40	50	149.3	69	249.3	0.7	1.5	WWMU09X510R-D*
TDS380F40-4	38	40	50	153.3	69	254.3	0.4	1.7	WWMU09X510R-D*
TDS390F40-4	39	40	50	157.5	69	259	2.2	1.8	WWMU11X512R-D*
TDS400F40-4	40	40	50	161.5	69	264	1.9	1.8	WWMU11X512R-D*
TDS410F40-4	41	40	50	165.5	69	269	1.7	1.9	WWMU11X512R-D*
TDS420F40-4	42	40	55	169.5	69	273	1.5	2	WWMU11X512R-D*
TDS430F40-4	43	40	55	173.5	69	278	1.3	2	WWMU11X512R-D*
TDS440F40-4	44	40	55	177.5	69	282	1	2.1	WWMU11X512R-D*
TDS450F40-4	45	40	55	181.5	69	288	0.7	2.3	WWMU11X512R-D*
TDS460F40-4	46	40	55	185.5	69	293	0.4	2.4	WWMU11X512R-D*
TDS470F40-4	47	40	55	189.8	69	297.3	2.6	2.5	WWMU13X512R-D*
TDS480F40-4	48	40	55	193.8	69	302.3	2.4	2.7	WWMU13X512R-D*
TDS490F40-4	49	40	55	197.8	69	306.3	2.2	2.7	WWMU13X512R-D*
TDS500F40-4	50	40	55	201.8	69	311.3	2	2.8	WWMU13X512R-D*
TDS510F40-4	51	40	55	205.8	69	316.3	1.7	2.9	WWMU13X512R-D*
TDS520F40-4	52	40	55	209.8	69	320.3	1.5	3	WWMU13X512R-D*
TDS530F40-4	53	40	55	213.8	69	325.3	1.3	3.1	WWMU13X512R-D*
TDS540F40-4	54	40	55	217.8	69	329.3	1	3.4	WWMU13X512R-D*

SPARE PARTS

Designation	Clamping screw	Wrench
TDS200... - TDS235...	CSPB-2.2	IP-7D
TDS240... - TDS270...	CSPB-2.5	IP-8D
TDS280... - TDS320...	CSTB-3	T-9D
TDS330... - TDS380...	CSTB-4	T-15D
TDS390... - TDS540...	CSTB-5	T-20D

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø20 - ø27	+ 0.2 / 0	+ 0.3 / 0
ø28 - ø54	+ 0.2 / 0	+ 0.35 / 0

Recommended clamping torque (N·m): CSPB-2.2 = 1, CSPB-2.5 = 1.3, CSTB-3 = 2.3, CSTB-4 = 3.5, CSTB-5 = 5

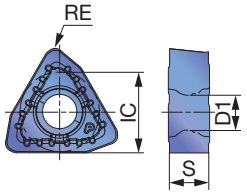
Reference pages: Inserts, Standard cutting conditions → J060 - J061

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Priority	Chip breakers	Grade	Cutting speed *Vc* (m/min)
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. St42-1, St52-3, C25, etc.	First choice	DS	AH6030	160 - 250
		Wear resistance	DJ	AH9030	160 - 320
	Carbon steels (C > 0.3) S45C, S55C, etc. C45, C55, etc.	First choice	DJ	AH9030	80 - 250
		Fracture resistance	DJ	AH3135	80 - 250
	Low alloy steels SCM415, etc.	First choice	DS	AH6030	160 - 250
		Wear resistance	DJ	AH9030	160 - 250
	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	First choice	DJ	AH9030	80 - 200
		Fracture resistance	DJ	AH3135	80 - 200
M	Stainless steels (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-2, etc.	First choice	DS	AH6030	100 - 200
		Fracture resistance	DJ	AH3135	100 - 200
	Stainless steels (Martensitic and ferritic) SUS430, SUS416, etc. X6Cr17, X20Cr13, etc.	First choice	DS	AH6030	100 - 200
		Fracture resistance	DJ	AH3135	100 - 200
	Stainless steels (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	First choice	DS	AH6030	80 - 120
		Fracture resistance	DJ	AH3135	80 - 120
K	Grey cast irons FC250, etc. GG25, etc.	First choice	DJ	AH9030	80 - 250
		Fracture resistance	DJ	AH3135	80 - 200
	Ductile cast irons FCD700, etc. GGG70, etc.	First choice	DJ	AH9030	80 - 200
		Fracture resistance	DJ	AH3135	80 - 150
N	Aluminium alloy	First choice	DS	AH6030	200 - 400
S	Heat resistant alloy Inconel718, etc	First choice	DS	AH6030	20 - 60
		Fracture resistance	DJ	AH3135	20 - 60
	Titanium alloys Ti-6Al-4V, etc.	First choice	DS	AH6030	40 - 120
		Fracture resistance	DJ	AH3135	40 - 120
H	Hardened steel Over 40HRC	First choice	DJ	AH9030	50 - 100
		Fracture resistance	DJ	AH3135	40 - 80

INSERT

DJ



P	Steel	☆	★
M	Stainless	★	☆
K	Cast iron	☆	★
N	Non-ferrous	☆	☆
S	Superalloys	★	☆
H	Hard materials	★	☆

★ : First choice
☆ : Second choice

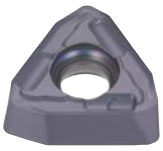
Designation	IC	S	Coated AH3135	Coated AH9030	D1	RE	DCN	DCX
WWMU05X205R-DJ	5.8	2.4	●	●	2.5	0.5	20	23.5
WWMU060306R-DJ	6.7	2.9	●	●	3	0.6	23.9	27
WWMU08X408R-DJ	8	3.9	●	●	3.4	0.8	27.5	32
WWMU09X510R-DJ	9.7	4.9	●	●	4.4	1	33	33.8
WWMU11X512R-DJ	11.3	5.7	●	●	5.5	1.2	39	46
WWMU13X512R-DJ	13	5.7	●	●	5.5	1.2	47	54

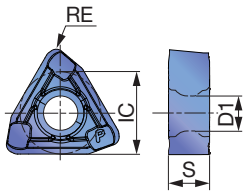
●: Line up

Feed: *f* (mm/rev)

L/D = 2, 3			L/D = 4		
DC (mm)			DC (mm)		
ø20 - ø27.5	ø28 - ø38	ø39 - ø54	ø20 - ø27	ø28 - ø38	ø39 - ø54
0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04- 0.1	0.04 - 0.1	0.04 - 0.1
0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
0.06 - 0.15	0.06 - 0.16	0.08 - 0.18	0.06 - 0.15	0.06 - 0.15	0.08 - 0.17
0.04 - 0.12	0.04 - 0.13	0.04 - 0.15	0.04 - 0.12	0.04 - 0.13	0.04 - 0.15
0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
0.06 - 0.12	0.06 - 0.14	0.06 - 0.14	0.06 - 0.12	0.06 - 0.14	0.06 - 0.14
0.06 - 0.15	0.06 - 0.16	0.08 - 0.18	0.06 - 0.15	0.06 - 0.15	0.08 - 0.17
0.04 - 0.12	0.04 - 0.13	0.04 - 0.15	0.04 - 0.12	0.04 - 0.13	0.04 - 0.15
0.04 - 0.1	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
0.04 - 0.1	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
0.04 - 0.1	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
0.04 - 0.1	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
0.06 - 0.15	0.06 - 0.18	0.08 - 0.2	0.06 - 0.15	0.06 - 0.16	0.08 - 0.18
0.06 - 0.13	0.06 - 0.16	0.08 - 0.18	0.06 - 0.13	0.06 - 0.16	0.08 - 0.18
0.06 - 0.15	0.06 - 0.18	0.08 - 0.2	0.06 - 0.15	0.06 - 0.16	0.08 - 0.18
0.06 - 0.13	0.06 - 0.16	0.08 - 0.18	0.06 - 0.13	0.06 - 0.16	0.08 - 0.18
0.1 - 0.18	0.1 - 0.2	0.1 - 0.25	0.1 - 0.18	0.1 - 0.2	0.1 - 0.2
0.1 - 0.18	0.1 - 0.2	0.1 - 0.25	0.1 - 0.18	0.1 - 0.2	0.1 - 0.2
0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
0.06 - 0.1	0.06 - 0.12	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14
0.06 - 0.1	0.06 - 0.12	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14
0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08
0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08

DS





P	Steel	★	
M	Stainless	★	
K	Cast iron		
N	Non-ferrous	★	
S	Superalloys	★	
H	Hard materials		

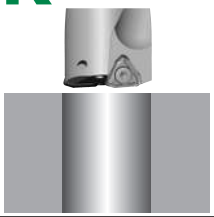
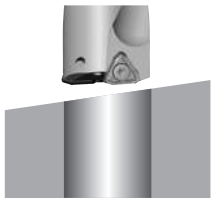
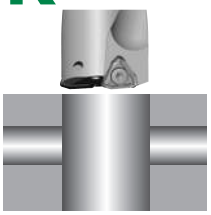
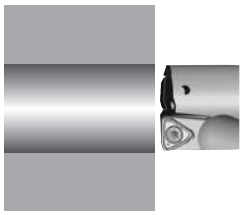
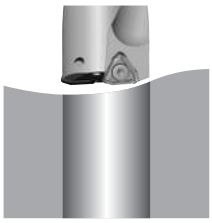
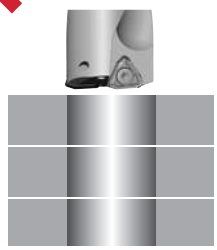
★ : First choice
☆ : Second choice

Designation	IC	S	Coated	D1	RE	DCN	DCX
			AH6030				
WWMU05X205R-DS	5.8	2.4	●	5.8	2.4	5.8	2.4
WWMU060306R-DS	6.7	2.9	●	6.7	2.9	6.7	2.9
WWMU08X408R-DS	8	3.9	●	8	3.9	8	3.9
WWMU09X510R-DS	9.7	4.9	●	9.7	4.9	9.7	4.9
WWMU11X512R-DS	11.3	5.7	●	11.3	5.7	11.3	5.7
WWMU13X512R-DS	13	5.7	●	13	5.7	13	5.7

●: Line up

APPLICATION RANGE

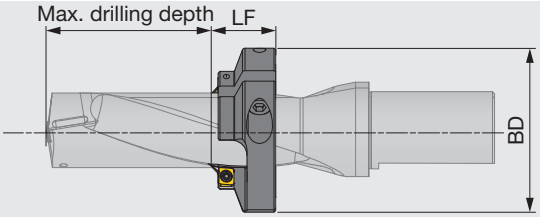
*In case of Interrupted cutting, feed should be decreased.

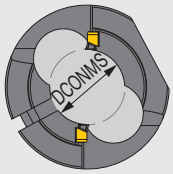
Feed *f* (mm/rev)	Refer to J060 - J061 page	0.05	0.05	0.05
Application range	OK Plane surface 	OK Slant surface 	OK Cross hole 	OK Plunging 
Feed *f* (mm/rev)	**0.1**	**0.05**	**Disapprove**	**Disapprove**
Application range	OK Boring 	OK Round surface 	Stacked plates 	Back boring 

TUNGSIX-DRILL

TDXCF chamfering tool

Chamfering tool for TungDrillTwisted and TungSix-Drill





Designation	DCONMS	BD	LF	Application drill	Max. drilling depth L/D = 2	L/D = 3	L/D = 4
TDXCF200L25	19.1	49	25	TDS200*25-*	15.5	35.5	62.5
TDXCF210L25	20.1	49	25	TDS205*25-*	16.5	37	64.6
TDXCF210L25	20.1	49	25	TDS209F25-3	-	38.5	-
TDXCF210L25	20.1	49	25	TDS210*25-*	17.5	38.5	66.5
TDXCF220L25	21.1	49	25	TDS215*25-*	18.5	40	68.6
TDXCF220L25	21.1	49	25	TDS220*25-*	19.5	41.5	70.5
TDXCF230L25	22.1	49	25	TDS225*25-*	20.5	43	72.6
TDXCF230L25	22.1	49	25	TDS230*25-*	21.5	44.5	74.5
TDXCF240L25	23.1	49	25	TDS235*25-*	22.5	46	76.6
TDXCF240L25	23.1	49	25	TDS239F25-3	-	47.5	-
TDXCF240L25	23.1	49	25	TDS240*25-*	23.5	47.5	78.5
TDXCF250L25	23.95	49	25	TDS245*25-*	24.5	49	80.6
TDXCF250L25	23.95	49	25	TDS250*25-*	25.5	50.5	82.5
TDXCF260L30	24.95	64	30	TDS255*25-*	21.5	47	79.6
TDXCF260L30	24.95	64	30	TDS260*25-*	22.5	48.5	81.5
TDXCF270L30	25.9	64	30	TDS264F32-3	-	50	-
TDXCF270L30	25.9	64	30	TDS265F32-3	-	50	-
TDXCF270L30	25.9	64	30	TDS270*32-*	24.5	51.5	85.5
TDXCF280L30	26.9	64	30	TDS280*32-*	26.5	54.5	89.5
TDXCF290L30	27.9	64	30	TDS290*32-*	28.5	57.5	93.5
TDXCF300L30	28.9	64	30	TDS300*32-*	30.5	60.5	97.5
TDXCF310L30	29.9	64	30	TDS310*32-*	32.5	63.5	101.5
TDXCF320L30	30.9	64	30	TDS320*32-*	34.5	66.5	105.5

SPARE PARTS

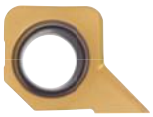



Designation	Screw for insert	Screw for ring	Wrench for insert	Wrench for ring
TDXCF130 - 230	CSPB-4S	CM6X16	IP-15D	P-5
TDXCF260 - 540	CSPB-4S	CM8X1.25X20-A	IP-15D	P-6

Recommended clamping torque (N·m): CSPB-4S = 3.5

INSERT

XHGX-45A



P	Steel	★	
M	Stainless	★	
K	Cast iron	★	
N	Non-ferrous	☆	
S	Superalloys	★	
H	Hard materials	★	

★ : First choice
☆ : Second choice

Designation	PNA	C	Coated
			GH130
XHGX090700R-45A	45	2.5	●

●: Line up

Caution in mounting the chamfering tool on the drill body

① Place the ring on the drill body and match the positions of fl utes 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.

Match the positions of flutes on drill and ring.

(Inserts will be automatically set to the right positions.)

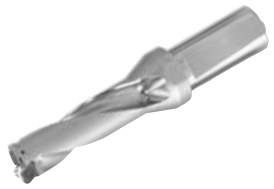
The cutting edge of the insert is in the ring flute.

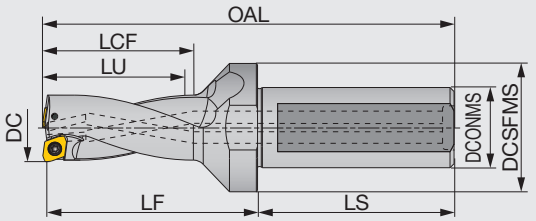
The flutes on drill and ring do not match.

TUNGDRILLTWISTED

TDX-F L/D=2

L/D = 2, flat, tool diameter ø12.5 - ø54 mm





Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX125F20-2	12.5	20	25	25.4	49	28.4	41	90.4	0.8	0.2	XPMT040104R-D*
TDX130F20-2	13	20	25	26.4	49	29.4	42	91.4	0.7	0.2	XPMT040104R-D*
TDX135F20-2	13.5	20	25	27.4	49	30.4	43	92.4	0.6	0.2	XPMT040104R-D*
TDX140F20-2	14	20	25	28.4	49	31.4	44	93.4	0.5	0.2	XPMT040104R-D*
TDX145F20-2	14.5	20	25	29.4	49	32.4	46	95.4	0.4	0.2	XPMT040104R-D*
TDX150F20-2	15	20	25	30.5	49	33.5	47	96.5	0.9	0.2	XPMT050204R-D*
TDX155F20-2	15.5	20	32	31.5	49	34.5	49	98.5	0.8	0.2	XPMT050204R-D*
TDX160F20-2	16	20	32	32.5	49	35.5	51	100.5	0.6	0.2	XPMT050204R-D*
TDX165F20-2	16.5	20	32	33.5	49	36.5	52	101.5	0.5	0.2	XPMT050204R-D*
TDX170F20-2	17	20	32	34.5	49	37.5	53	102.5	0.4	0.2	XPMT050204R-D*
TDX175F25-2	17.5	25	32	35.5	54	38.5	55	109.5	1.2	0.3	XPMT06X308R-D*
TDX180F25-2	18	25	32	36.5	54	39.5	56	110.5	1.1	0.3	XPMT06X308R-D*
TDX185F25-2	18.5	25	32	37.5	54	40.5	57	111.5	0.9	0.3	XPMT06X308R-D*
TDX190F25-2	19	25	32	38.5	54	41.5	58	112.5	0.8	0.3	XPMT06X308R-D*
TDX195F25-2	19.5	25	32	39.5	54	42.5	60	114.5	0.7	0.3	XPMT06X308R-D*
TDX200F25-2	20	25	32	40.5	54	45.5	61	115.5	0.5	0.3	XPMT06X308R-D*
TDX205F25-2	20.5	25	32	41.5	54	46.5	62.5	117	0.4	0.3	XPMT06X308R-D*
TDX210F25-2	21	25	32	42.5	54	47.5	64	118.5	0.3	0.3	XPMT06X308R-D*
TDX215F25-2	21.5	25	32	43.5	54	48.5	65	119.5	0.2	0.3	XPMT06X308R-D*
TDX220F25-2	22	25	32	44.6	54	49.6	66	120.6	1.2	0.3	XPMT07H308R-D*
TDX225F25-2	22.5	25	37	45.6	54	50.6	67.5	122.1	1.1	0.3	XPMT07H308R-D*
TDX230F25-2	23	25	37	46.6	54	51.6	69	123.6	0.9	0.4	XPMT07H308R-D*
TDX235F25-2	23.5	25	37	47.6	54	52.6	70	124.6	0.8	0.4	XPMT07H308R-D*
TDX240F25-2	24	25	37	48.6	54	53.6	71	125.6	0.7	0.4	XPMT07H308R-D*
TDX245F25-2	24.5	25	37	49.6	54	54.6	72.5	127.1	0.5	0.4	XPMT07H308R-D*
TDX250F25-2	25	25	37	50.6	54	55.6	74	128.6	0.4	0.4	XPMT07H308R-D*
TDX255F25-2	25.5	25	37	51.6	54	56.6	75.5	130.1	0.3	0.4	XPMT07H308R-D*
TDX260F25-2	26	25	37	52.6	54	57.6	77	131.6	0.2	0.4	XPMT07H308R-D*
TDX270F32-2	27	32	40	54.7	59	59.7	79	138.7	1.5	0.6	XPMT08T308R-D*
TDX280F32-2	28	32	40	56.7	59	61	82.3	142	1.2	0.6	XPMT08T308R-D*
TDX290F32-2	29	32	40	58.7	59	63	84.3	144	1	0.7	XPMT08T308R-D*
TDX300F32-2	30	32	40	60.7	59	65	87.3	147	0.7	0.7	XPMT08T308R-D*
TDX310F32-2	31	32	40	62.7	59	67	90.3	150	0.4	0.7	XPMT08T308R-D*
TDX320F32-2	32	32	40	64.7	59	69	92.3	152	0.2	0.8	XPMT08T308R-D*
TDX330F40-2	33	40	50	67.1	69	71.7	95.6	165.7	2.3	1.2	XPMT110412R-D*
TDX340F40-2	34	40	50	69.1	69	73.7	98.6	168.7	2.1	1.2	XPMT110412R-D*
TDX350F40-2	35	40	50	71.1	69	75.7	101.6	171.7	1.8	1.2	XPMT110412R-D*
TDX360F40-2	36	40	50	73.1	69	77.7	104.6	174.7	1.5	1.3	XPMT110412R-D*
TDX370F40-2	37	40	50	75.1	69	79.7	105.6	175.7	1.3	1.3	XPMT110412R-D*
TDX380F40-2	38	40	50	77.1	69	81.7	108.6	178.7	1	1.3	XPMT110412R-D*
TDX390F40-2	39	40	50	79.1	69	83.7	110.6	180.7	0.7	1.4	XPMT110412R-D*
TDX400F40-2	40	40	50	81.1	69	85.7	113.6	183.7	0.5	1.4	XPMT110412R-D*
TDX410F40-2	41	40	50	83.1	69	87.7	117.6	187.7	0.2	1.5	XPMT110412R-D*
TDX420F40-2	42	40	55	85.6	69	90.6	120	190.6	3.1	1.6	XPMT150512R-D*
TDX430F40-2	43	40	55	87.6	69	92.6	123	193.6	2.9	1.6	XPMT150512R-D*
TDX440F40-2	44	40	55	89.6	69	94.6	125	195.6	2.6	1.7	XPMT150512R-D*
TDX450F40-2	45	40	55	91.6	69	96.6	128	198.6	2.3	1.7	XPMT150512R-D*
TDX460F40-2	46	40	55	93.6	69	98.6	131	201.6	2.1	1.8	XPMT150512R-D*
TDX470F40-2	47	40	55	95.6	69	100.6	133	203.6	1.8	1.9	XPMT150512R-D*
TDX480F40-2	48	40	55	97.6	69	102.6	136	206.6	1.5	1.9	XPMT150512R-D*
TDX490F40-2	49	40	55	99.6	69	104.6	138	208.6	1.3	1.9	XPMT150512R-D*
TDX500F40-2	50	40	55	101.6	69	106.6	141	211.6	1	2	XPMT150512R-D*

Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX510F40-2	51	40	55	103.6	69	108.6	145	215.6	0.7	2.1	XPMT150512R-D*
TDX520F40-2	52	40	55	105.6	69	110.6	147	217.6	0.5	2.2	XPMT150512R-D*
TDX530F40-2	53	40	55	107.6	69	112.6	150	220.6	-	2.3	XPMT150512R-D*
TDX540F40-2	54	40	55	109.6	69	114.6	152	222.6	-	2.4	XPMT150512R-D*

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.3 / 0

SPARE PARTS


Designation	Clamping screw	Wrench
TDX125 - 145	CSPB-2H	IP-6DB
TDX150 - 170	CSPB-2L043	IP-6DB
TDX175 - 215	CSPB-2.2	IP-7D
TDX220 - 260	CSPB-2.5	IP-8D
TDX270 - 320	CSTB-3	T-9D
TDX330 - 410	CSTB-4	T-15D
TDX420 - 540	CSTB-5	T-20D

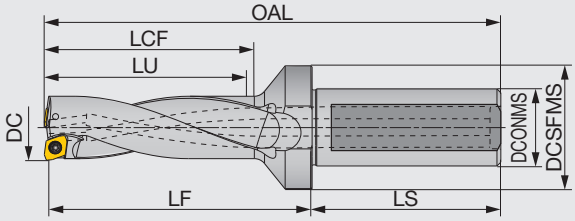
Recommended clamping torque (N·m): CSPB-2H/CSPB-2L043=0.7, CSPB-2.2=1, CSPB-2.5=1.3, CSTB-3=2.3, CSTB-4=3.5, CSTB-5=5

Reference pages: Inserts → J072 - J073
Standard cutting conditions → J074

TUNGDRILLTWISTED

TDX-F L/D=3

L/D = 3, flat, tool diameter ø12.5 - ø54 mm



Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX125F20-3	12.5	20	25	37.9	49	40.9	53	102.4	0.8	0.2	XPMT040104R-D*
TDX130F20-3	13	20	25	39.4	49	42.4	55	104.4	0.7	0.2	XPMT040104R-D*
TDX135F20-3	13.5	20	25	40.9	49	43.9	56	105.4	0.6	0.2	XPMT040104R-D*
TDX140F20-3	14	20	25	42.4	49	45.4	58	107.4	0.5	0.2	XPMT040104R-D*
TDX145F20-3	14.5	20	25	43.9	49	46.9	60	109.4	0.4	0.2	XPMT040104R-D*
TDX150F20-3	15	20	25	45.4	49	48.4	62	111.4	0.9	0.2	XPMT050204R-D*
TDX155F20-3	15.5	20	32	46.9	49	49.9	64	113.4	0.8	0.2	XPMT050204R-D*
TDX160F20-3	16	20	32	48.4	49	51.4	66	115.4	0.6	0.2	XPMT050204R-D*
TDX165F20-3	16.5	20	32	49.9	49	52.9	68	117.4	0.5	0.2	XPMT050204R-D*
TDX170F20-3	17	20	32	51.4	49	54.4	69	118.4	0.4	0.2	XPMT050204R-D*
TDX175F25-3	17.5	25	32	53	54	56	72	126.5	1.2	0.3	XPMT06X308R-D*
TDX180F25-3	18	25	32	54.5	54	57.5	73	127.5	1.1	0.3	XPMT06X308R-D*
TDX185F25-3	18.5	25	32	56	54	59	75	129.5	0.9	0.3	XPMT06X308R-D*
TDX190F25-3	19	25	32	57.5	54	60.5	76	130.5	0.8	0.3	XPMT06X308R-D*
TDX195F25-3	19.5	25	32	59	54	62	79	133.5	0.7	0.3	XPMT06X308R-D*
TDX200F25-3	20	25	32	60.5	54	65.5	81	135.5	0.5	0.3	XPMT06X308R-D*
TDX205F25-3	20.5	25	32	62	54	67	82	136.5	0.4	0.3	XPMT06X308R-D*
TDX210F25-3	21	25	32	63.5	54	68.5	84	138.5	0.3	0.3	XPMT06X308R-D*
TDX215F25-3	21.5	25	32	65	54	70	86	140.5	0.2	0.4	XPMT06X308R-D*
TDX220F25-3	22	25	32	66.6	54	71.6	87	141.6	1.2	0.4	XPMT07H308R-D*
TDX225F25-3	22.5	25	37	68.1	54	73.1	90	144.6	1.1	0.4	XPMT07H308R-D*
TDX230F25-3	23	25	37	69.6	54	74.6	91	145.6	0.9	0.4	XPMT07H308R-D*
TDX235F25-3	23.5	25	37	71.1	54	76.1	93	147.6	0.8	0.4	XPMT07H308R-D*
TDX240F25-3	24	25	37	72.6	54	77.6	95	149.6	0.7	0.4	XPMT07H308R-D*
TDX245F25-3	24.5	25	37	74.1	54	79.1	97	151.6	0.5	0.5	XPMT07H308R-D*
TDX250F25-3	25	25	37	75.6	54	80.6	99	153.6	0.4	0.5	XPMT07H308R-D*
TDX255F25-3	25.5	25	37	77.1	54	82.1	100	154.6	0.3	0.5	XPMT07H308R-D*
TDX260F25-3	26	25	37	78.6	54	83.6	102	156.6	0.2	0.5	XPMT07H308R-D*
TDX270F32-3	27	32	40	81.7	59	86.7	105	164.7	1.5	0.6	XPMT08T308R-D*
TDX280F32-3	28	32	40	84.7	59	89	109.3	169	1.2	0.7	XPMT08T308R-D*
TDX290F32-3	29	32	40	87.7	59	92	112.3	172	1	0.7	XPMT08T308R-D*
TDX300F32-3	30	32	40	90.7	59	95	117.3	177	0.7	0.8	XPMT08T308R-D*
TDX310F32-3	31	32	40	93.7	59	98	121.3	181	0.4	0.8	XPMT08T308R-D*
TDX320F32-3	32	32	40	96.7	59	101	124.3	184	0.2	0.9	XPMT08T308R-D*
TDX330F40-3	33	40	50	100.1	69	104.7	128.6	198.7	2.3	1.3	XPMT110412R-D*
TDX340F40-3	34	40	50	103.1	69	107.7	131.6	201.7	2.1	1.3	XPMT110412R-D*
TDX350F40-3	35	40	50	106.1	69	110.7	135.6	205.7	1.8	1.3	XPMT110412R-D*
TDX360F40-3	36	40	50	109.1	69	113.7	139.6	209.7	1.5	1.4	XPMT110412R-D*
TDX370F40-3	37	40	50	112.1	69	116.7	142.6	212.7	1.3	1.4	XPMT110412R-D*
TDX380F40-3	38	40	50	115.1	69	119.7	146.6	216.7	1	1.5	XPMT110412R-D*
TDX390F40-3	39	40	50	118.1	69	122.7	149.6	219.7	0.7	1.6	XPMT110412R-D*
TDX400F40-3	40	40	50	121.1	69	125.7	153.6	223.7	0.5	1.6	XPMT110412R-D*
TDX410F40-3	41	40	50	124.1	69	128.7	157.6	227.7	0.2	1.7	XPMT110412R-D*
TDX420F40-3	42	40	55	127.6	69	132.6	161	231.6	3.1	1.8	XPMT150512R-D*
TDX430F40-3	43	40	55	130.6	69	135.6	165	235.6	2.9	1.8	XPMT150512R-D*
TDX440F40-3	44	40	55	133.6	69	138.6	168	238.6	2.6	1.9	XPMT150512R-D*
TDX450F40-3	45	40	55	136.6	69	141.6	173	243.6	2.3	2	XPMT150512R-D*
TDX460F40-3	46	40	55	139.6	69	144.6	177	247.6	2.1	2.1	XPMT150512R-D*
TDX470F40-3	47	40	55	142.6	69	147.6	180	250.6	1.8	2.2	XPMT150512R-D*
TDX480F40-3	48	40	55	145.6	69	150.6	184	254.6	1.5	2.3	XPMT150512R-D*
TDX490F40-3	49	40	55	148.6	69	153.6	187	257.6	1.3	2.3	XPMT150512R-D*

Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX500F40-3	50	40	55	151.6	69	156.6	191	261.6	1	2.4	XPMT150512R-D*
TDX510F40-3	51	40	55	154.6	69	159.6	195	265.6	0.7	2.5	XPMT150512R-D*
TDX520F40-3	52	40	55	157.6	69	162.6	198	268.6	0.5	2.6	XPMT150512R-D*
TDX530F40-3	53	40	55	160.6	69	165.6	202	272.6	-	2.7	XPMT150512R-D*
TDX540F40-3	54	40	55	163.6	69	168.6	205	275.6	-	2.9	XPMT150512R-D*

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø12.5 - ø17	+ 0.1 / 0	+ 0.25 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.3 / 0

SPARE PARTS

Designation	Clamping screw	Wrench
TDX125 - 145	CSPB-2H	IP-6DB
TDX150 - 170	CSPB-2L043	IP-6DB
TDX175 - 215	CSPB-2.2	IP-7D
TDX220 - 260	CSPB-2.5	IP-8D
TDX270 - 320	CSTB-3	T-9D
TDX330 - 410	CSTB-4	T-15D
TDX420 - 540	CSTB-5	T-20D

Recommended clamping torque (N·m): CSPB-2H/CSPB-2L043=0.7, CSPB-2.2=1, CSPB-2.5=1.3, CSTB-3=2.3, CSTB-4=3.5, CSTB-5=5

Reference pages: Inserts → J072 - J073, Standard cutting conditions → J074

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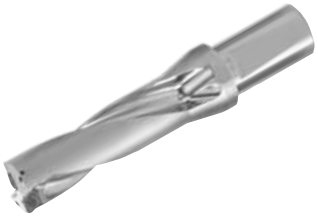
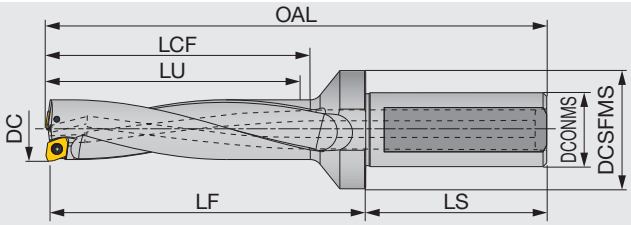
TDX-F L/D=4

L/D = 4, flat, tool diameter ø12.5 - ø54 mm





Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX125F20-4	12.5	20	25	50.4	49	53.4	66	115.4	0.8	0.2	XPMT040104R-D*
TDX130F20-4	13	20	25	52.4	49	55.4	68	117.4	0.7	0.2	XPMT040104R-D*
TDX135F20-4	13.5	20	25	54.4	49	57.4	70	119.4	0.6	0.2	XPMT040104R-D*
TDX140F20-4	14	20	25	56.4	49	59.4	72	121.4	0.5	0.2	XPMT040104R-D*
TDX145F20-4	14.5	20	25	58.4	49	61.4	75	124.4	0.4	0.2	XPMT040104R-D*
TDX150F20-4	15	20	25	60.4	49	63.4	77	126.4	0.9	0.2	XPMT050204R-D*
TDX155F20-4	15.5	20	32	62.4	49	65.4	79	128.4	0.8	0.2	XPMT050204R-D*
TDX160F20-4	16	20	32	64.4	49	67.4	82	131.4	0.6	0.2	XPMT050204R-D*
TDX165F20-4	16.5	20	32	66.4	49	69.4	84	133.4	0.5	0.2	XPMT050204R-D*
TDX170F20-4	17	20	32	68.4	49	71.4	86	135.4	0.4	0.2	XPMT050204R-D*
TDX175F25-4	17.5	25	32	70.5	54	73.5	89	143.5	1.2	0.3	XPMT06X308R-D*
TDX180F25-4	18	25	32	72.5	54	75.5	91	145.5	1.1	0.3	XPMT06X308R-D*
TDX185F25-4	18.5	25	32	74.5	54	77.5	93	147.5	0.9	0.3	XPMT06X308R-D*
TDX190F25-4	19	25	32	76.5	54	79.5	95	149.5	0.8	0.3	XPMT06X308R-D*
TDX195F25-4	19.5	25	32	78.5	54	81.5	99	153.5	0.7	0.4	XPMT06X308R-D*
TDX200F25-4	20	25	32	80.5	54	84.5	101	155.5	0.5	0.4	XPMT06X308R-D*
TDX205F25-4	20.5	25	32	82.5	54	86.5	103	157.5	0.4	0.4	XPMT06X308R-D*
TDX210F25-4	21	25	32	84.5	54	88.5	105	159.5	0.3	0.4	XPMT06X308R-D*
TDX215F25-4	21.5	25	32	86.5	54	90.5	107	161.5	0.2	0.4	XPMT06X308R-D*
TDX220F25-4	22	25	32	88.6	54	92.6	109	163.6	1.2	0.5	XPMT07H308R-D*
TDX225F25-4	22.5	25	37	90.6	54	94.6	111.5	166.1	1.1	0.5	XPMT07H308R-D*
TDX230F25-4	23	25	37	92.6	54	96.6	114	168.6	0.9	0.4	XPMT07H308R-D*
TDX235F25-4	23.5	25	37	94.6	54	98.6	116.5	171.1	0.8	0.4	XPMT07H308R-D*
TDX240F25-4	24	25	37	96.6	54	100.6	119	173.6	0.7	0.4	XPMT07H308R-D*
TDX245F25-4	24.5	25	37	98.6	54	102.6	121.5	176.1	0.5	0.6	XPMT07H308R-D*
TDX250F25-4	25	25	37	100.6	54	104.6	124	178.6	0.4	0.6	XPMT07H308R-D*
TDX255F25-4	25.5	25	37	102.6	54	106.6	126	180.6	0.3	0.6	XPMT07H308R-D*
TDX260F25-4	26	25	37	104.6	54	108.6	128	182.6	0.2	0.6	XPMT07H308R-D*
TDX270F32-4	27	32	40	108.7	59	112.7	132	191.7	1.5	0.6	XPMT08T308R-D*
TDX280F32-4	28	32	40	112.7	59	116.7	137	196.7	1.2	0.8	XPMT08T308R-D*
TDX290F32-4	29	32	40	116.7	59	120.7	141	200.7	1	0.7	XPMT08T308R-D*
TDX300F32-4	30	32	40	120.7	59	124.7	147	206.7	0.7	0.9	XPMT08T308R-D*
TDX310F32-4	31	32	40	124.7	59	128.7	152	211.7	0.4	0.9	XPMT08T308R-D*
TDX320F32-4	32	32	40	128.7	59	132.7	156	215.7	0.2	1	XPMT08T308R-D*
TDX330F40-4	33	40	50	133.1	69	137.1	161	231.1	2.3	1.4	XPMT110412R-D*
TDX340F40-4	34	40	50	137.1	69	141.1	165	235.1	2.1	1.4	XPMT110412R-D*
TDX350F40-4	35	40	50	141.1	69	145.1	170	240.1	1.8	1.4	XPMT110412R-D*
TDX360F40-4	36	40	50	145.1	69	149.1	175	245.1	1.5	1.5	XPMT110412R-D*
TDX370F40-4	37	40	50	149.1	69	153.1	179	249.1	1.3	1.5	XPMT110412R-D*
TDX380F40-4	38	40	50	153.1	69	157.1	184	254.1	1	1.7	XPMT110412R-D*
TDX390F40-4	39	40	50	157.1	69	161.1	188	258.1	0.7	1.8	XPMT110412R-D*
TDX400F40-4	40	40	50	161.1	69	165.1	193	263.1	0.5	1.8	XPMT110412R-D*
TDX410F40-4	41	40	50	165.1	69	169.1	198	268.1	0.2	1.9	XPMT110412R-D*
TDX420F40-4	42	40	55	169.6	69	173.6	202	272.6	3.1	2	XPMT150512R-D*
TDX430F40-4	43	40	55	173.6	69	177.6	207	277.6	2.9	2	XPMT150512R-D*
TDX440F40-4	44	40	55	177.6	69	181.6	211	281.6	2.6	2.1	XPMT150512R-D*
TDX450F40-4	45	40	55	181.6	69	185.6	217	287.6	2.3	2.3	XPMT150512R-D*
TDX460F40-4	46	40	55	185.6	69	189.6	222	292.6	2.1	2.4	XPMT150512R-D*
TDX470F40-4	47	40	55	189.6	69	193.6	226	296.6	1.8	2.5	XPMT150512R-D*
TDX480F40-4	48	40	55	193.6	69	197.6	231	301.6	1.5	2.7	XPMT150512R-D*
TDX490F40-4	49	40	55	197.6	69	201.6	235	305.6	1.3	2.7	XPMT150512R-D*
TDX500F40-4	50	40	55	201.6	69	205.6	240	310.6	1	2.8	XPMT150512R-D*

Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX510F40-4	51	40	55	205.6	69	209.6	245	315.6	0.7	2.9	XPMT150512R-D*
TDX520F40-4	52	40	55	209.6	69	213.6	249	319.6	0.5	3	XPMT150512R-D*
TDX530F40-4	53	40	55	213.6	69	217.6	254	324.6	-	3.1	XPMT150512R-D*
TDX540F40-4	54	40	55	217.6	69	221.6	258	328.6	-	3.4	XPMT150512R-D*

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø12.5 - ø17	+ 0.1 / 0	+ 0.4 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.45 / 0

SPARE PARTS

Designation	Clamping screw	Wrench
TDX125 - 145	CSPB-2H	IP-6DB
TDX150 - 170	CSPB-2L043	IP-6DB
TDX175 - 215	CSPB-2.2	IP-7D
TDX220 - 260	CSPB-2.5	IP-8D
TDX270 - 320	CSTB-3	T-9D
TDX330 - 410	CSTB-4	T-15D
TDX420 - 540	CSTB-5	T-20D

Recommended clamping torque (N·m): CSPB-2H/CSPB-2L043=0.7, CSPB-2.2=1, CSPB-2.5=1.3, CSTB-3=2.3, CSTB-4=3.5, CSTB-5=5

Reference pages: Inserts → J072 - J073, Standard cutting conditions → J074

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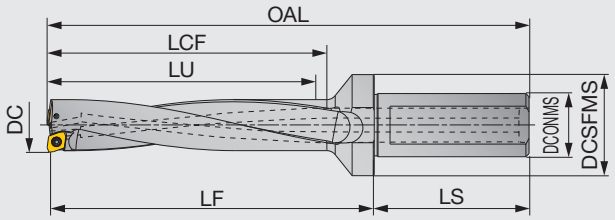
TDX-F L/D=5

L/D = 5, flat, tool diameter ø12.5 - ø54 mm



Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX125F20-5	12.5	20	25	62.9	49	65.9	78.5	127.9	0.8	0.2	XPMT040104R-D*
TDX130F20-5	13	20	25	65.4	49	68.4	81	130.4	0.7	0.2	XPMT040104R-D*
TDX135F20-5	13.5	20	25	67.9	49	70.9	83.5	132.9	0.6	0.2	XPMT040104R-D*
TDX140F20-5	14	20	25	70.4	49	73.4	86	135.4	0.5	0.2	XPMT040104R-D*
TDX145F20-5	14.5	20	25	72.9	49	75.9	89.5	138.9	0.4	0.2	XPMT040104R-D*
TDX150F20-5	15	20	25	75.4	49	78.4	92	141.4	0.9	0.2	XPMT050204R-D*
TDX155F20-5	15.5	20	32	77.9	49	80.9	94.5	143.9	0.8	0.2	XPMT050204R-D*
TDX160F20-5	16	20	32	80.4	49	83.4	98	147.4	0.6	0.2	XPMT050204R-D*
TDX165F20-5	16.5	20	32	82.9	49	85.9	100.5	149.9	0.5	0.2	XPMT050204R-D*
TDX170F20-5	17	20	32	85.4	49	88.4	103	152.4	0.4	0.2	XPMT050204R-D*
TDX175F25-5	17.5	25	32	88	54	91	106.5	161	1.2	0.3	XPMT06X308R-D*
TDX180F25-5	18	25	32	90.5	54	93.5	109	163.5	1.1	0.3	XPMT06X308R-D*
TDX185F25-5	18.5	25	32	93	54	96	111.5	166	0.9	0.4	XPMT06X308R-D*
TDX190F25-5	19	25	32	95.5	54	98.5	114	168.5	0.8	0.4	XPMT06X308R-D*
TDX195F25-5	19.5	25	32	98	54	101	118.5	173	0.7	0.4	XPMT06X308R-D*
TDX200F25-5	20	25	32	100.5	54	104.5	121	175.5	0.5	0.4	XPMT06X308R-D*
TDX205F25-5	20.5	25	32	103	54	107	123.5	178	0.4	0.4	XPMT06X308R-D*
TDX210F25-5	21	25	32	105.5	54	109.5	126	180.5	0.3	0.4	XPMT06X308R-D*
TDX215F25-5	21.5	25	32	108	54	112	128.5	183	0.2	0.4	XPMT06X308R-D*
TDX220F25-5	22	25	32	110.6	54	114.6	131	185.6	1.2	0.6	XPMT07H308R-D*
TDX225F25-5	22.5	25	37	113.1	54	117.1	134	188.6	1.1	0.6	XPMT07H308R-D*
TDX230F25-5	23	25	37	115.6	54	119.6	137	191.6	0.9	0.4	XPMT07H308R-D*
TDX235F25-5	23.5	25	37	118.1	54	122.1	140	194.6	0.8	0.4	XPMT07H308R-D*
TDX240F25-5	24	25	37	120.6	54	124.6	143	197.6	0.7	0.4	XPMT07H308R-D*
TDX245F25-5	24.5	25	37	123.1	54	127.1	146	200.6	0.5	0.7	XPMT07H308R-D*
TDX250F25-5	25	25	37	125.6	54	129.6	149	203.6	0.4	0.7	XPMT07H308R-D*
TDX255F25-5	25.5	25	37	128.1	54	132.1	151.5	206.1	0.3	0.7	XPMT07H308R-D*
TDX260F25-5	26	25	37	130.6	54	134.6	154	208.6	0.2	0.7	XPMT07H308R-D*
TDX270F32-5	27	32	40	135.7	59	139.7	159	218.7	1.5	0.6	XPMT08T308R-D*
TDX280F32-5	28	32	40	140.7	59	144.7	165	224.7	1.2	0.9	XPMT08T308R-D*
TDX290F32-5	29	32	40	145.7	59	149.7	170	229.7	1	0.7	XPMT08T308R-D*
TDX300F32-5	30	32	40	150.7	59	154.7	177	236.7	0.7	1	XPMT08T308R-D*
TDX310F32-5	31	32	40	155.7	59	159.7	183	242.7	0.4	1	XPMT08T308R-D*
TDX320F32-5	32	32	40	160.7	59	164.7	188	247.7	0.2	1.1	XPMT08T308R-D*
TDX330F40-5	33	40	50	166.1	69	170.1	194	264.1	2.3	1.5	XPMT110412R-D*
TDX340F40-5	34	40	50	171.1	69	175.1	199	269.1	2.1	1.5	XPMT110412R-D*
TDX350F40-5	35	40	50	176.1	69	180.1	205	275.1	1.8	1.5	XPMT110412R-D*
TDX360F40-5	36	40	50	181.1	69	185.1	211	281.1	1.5	1.6	XPMT110412R-D*
TDX370F40-5	37	40	50	186.1	69	190.1	216	286.1	1.3	1.6	XPMT110412R-D*
TDX380F40-5	38	40	50	191.1	69	195.1	222	292.1	1	1.9	XPMT110412R-D*
TDX390F40-5	39	40	50	196.1	69	200.1	227	297.1	0.7	2	XPMT110412R-D*
TDX400F40-5	40	40	50	201.1	69	205.1	233	303.1	0.5	2	XPMT110412R-D*
TDX410F40-5	41	40	50	206.1	69	210.1	239	309.1	0.2	2.1	XPMT110412R-D*
TDX420F40-5	42	40	55	211.6	69	215.6	244	314.6	3.1	2.2	XPMT150512R-D*
TDX430F40-5	43	40	55	216.6	69	220.6	250	320.6	2.9	2.2	XPMT150512R-D*
TDX440F40-5	44	40	55	221.6	69	225.6	255	325.6	2.6	2.3	XPMT150512R-D*
TDX450F40-5	45	40	55	226.6	69	230.6	262	332.6	2.3	2.6	XPMT150512R-D*
TDX460F40-5	46	40	55	231.6	69	235.6	268	338.6	2.1	2.7	XPMT150512R-D*
TDX470F40-5	47	40	55	236.6	69	240.6	273	343.6	1.8	2.8	XPMT150512R-D*
TDX480F40-5	48	40	55	241.6	69	245.6	279	349.6	1.5	3.1	XPMT150512R-D*
TDX490F40-5	49	40	55	246.6	69	250.6	284	354.6	1.3	3.1	XPMT150512R-D*
TDX500F40-5	50	40	55	251.6	69	255.6	290	360.6	1	3.2	XPMT150512R-D*

Designation	DC	DCONMS	DCSFMS	LU	LS	LCF	LF	OAL	Max. offset (radial)	WT(kg)	Insert
TDX510F40-5	51	40	55	256.6	69	260.6	296	366.6	0.7	3.3	XPMT150512R-D*
TDX520F40-5	52	40	55	261.6	69	265.6	301	371.6	0.5	3.4	XPMT150512R-D*
TDX530F40-5	53	40	55	266.6	69	270.6	307	377.6	-	3.5	XPMT150512R-D*
TDX540F40-5	54	40	55	271.6	69	275.6	312	382.6	-	3.9	XPMT150512R-D*

Tool diameter	Tool diameter tolerance	Hole diameter tolerance
ø12.5 - ø17	+ 0.1 / 0	+ 0.4 / 0
ø17.5 - ø54	+ 0.2 / 0	+ 0.45 / 0

SPARE PARTS

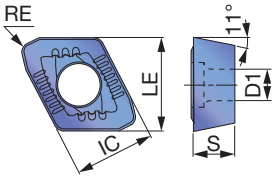
Designation	Clamping screw	Wrench
TDX125 - 145	CSPB-2H	IP-6DB
TDX150 - 170	CSPB-2L043	IP-6DB
TDX175 - 215	CSPB-2.2	IP-7D
TDX220 - 260	CSPB-2.5	IP-8D
TDX270 - 320	CSTB-3	T-9D
TDX330 - 410	CSTB-4	T-15D
TDX420 - 540	CSTB-5	T-20D

Recommended clamping torque (N·m): CSPB-2H/CSPB-2L043=0.7, CSPB-2.2=1, CSPB-2.5=1.3, CSTB-3=2.3, CSTB-4=3.5, CSTB-5=5

Reference pages: Inserts → J072 - J073, Standard cutting conditions → J074

INSERT

DJ



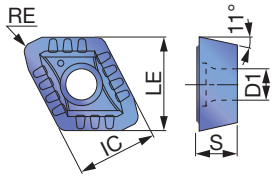
P	Steel			★	☆			
M	Stainless	☆		★				
K	Cast iron		☆	☆	★			
N	Non-ferrous	★		☆				
S	Superalloys	☆		★	☆			
H	Hard materials	☆		★	☆			

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated				S	D1	RE	DCN	DCX	AN
			AH725	T1115	AH6030	AH9030						
XPMT040104R-DJ	4.3	4.5	●	●	●	●	1.59	2.3	0.4	12.5	14.5	11
XPMT050204R-DJ	5.2	5.4	●	●	●	●	2.38	2.3	0.4	15	17	11
XPMT06X308R-DJ	6	7	●	●	●	●	3	2.5	0.8	17.5	21.5	11
XPMT07H308R-DJ	7	8.2	●	●	●	●	3.6	2.8	0.8	22	26	11
XPMT08T308R-DJ	8.5	9.9	●	●	●	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DJ	11.2	12.5	●	●	●	●	4.76	4.4	1.2	33	41	11
XPMT150512R-DJ	15	16.1	●	●	●	●	5.56	5.5	1.2	42	54	11

●: Line up

DS



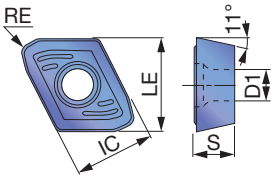
P	Steel	☆	★					
M	Stainless	☆	★					
K	Cast iron							
N	Non-ferrous	☆						
S	Superalloys	☆	★					
H	Hard materials							

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated				S	D1	RE	DCN	DCX	AN
			AH725	AH6030								
XPMT040104R-DS	4.3	4.5	●	●			1.59	2.3	0.4	12.5	14.5	11
XPMT050204R-DS	5.2	5.4	●	●			2.38	2.3	0.4	15	17	11
XPMT06X308R-DS	6	7	●	●			3	2.5	0.8	17.5	21.5	11
XPMT07H308R-DS	7	8.2	●	●			3.6	2.8	0.8	22	26	11
XPMT08T308R-DS	8.5	9.9	●	●			3.97	3.4	0.8	27	32	11
XPMT110412R-DS	11.2	12.5	●	●			4.76	4.4	1.2	33	41	11
XPMT150512R-DS	15	16.1	●	●			5.56	5.5	1.2	42	54	11

●: Line up

DW



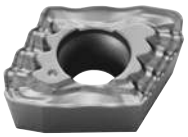
P	Steel	☆	★	☆
M	Stainless	☆	★	☆
K	Cast iron		☆	★
N	Non-ferrous	☆	★	
S	Superalloys	☆	★	☆
H	Hard materials	☆	★	☆

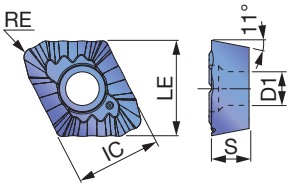
★ : First choice
☆ : Second choice

Designation	IC	LE	Coated			S	D1	RE	DCN	DCX	AN
			AH725	AH6030	AH9030						
XPMT040104R-DW	4.3	4.5	●	●	●	1.59	2.3	0.4	12.5	14.5	11
XPMT050204R-DW	5.2	5.4	●	●	●	2.38	2.3	0.4	15	17	11
XPMT06X308R-DW	6	7	●	●	●	3	2.5	0.8	17.5	21.5	11
XPMT07H308R-DW	7	8.2	●	●	●	3.6	2.8	0.8	22	26	11
XPMT08T308R-DW	8.5	9.9	●	●	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DW	11.2	12.5	●	●	●	4.76	4.4	1.2	33	41	11
XPMT150512R-DW	15	16.1	●	●	●	5.56	5.5	1.2	42	54	11

●: Line up

DG





P	Steel	★	
M	Stainless	☆	
K	Cast iron		
N	Non-ferrous	★	
S	Superalloys	☆	
H	Hard materials		

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated	S	D1	RE	DCN	DCX	AN
			AH725						
XPMT08T308R-DG	8.5	9.9	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DG	11.2	12.5	●	4.76	4.4	1.2	33	41	11
XPMT150512R-DG	15	16.1	●	5.56	5.5	1.2	42	54	11

●: Line up

RECOMMENDED INSERT

ISO	Workpiece material	First choice	High feed	High speed	Troubleshooting			
					Chipping resistance	Wear resistance	Surface finish	Chip control
P	Low carbon steels (C ≤ 0.3%)	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
P	Carbon steels (C > 0.3%) Alloy steels	DJ, AH6030	DW, AH6030	DJ, AH9030	DW, AH725	DJ, AH9030	DW, AH6030	-
P	Low alloy steels	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	-
M	Stainless steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
K	Grey cast irons	DJ, AH9030	DW, AH9030	DJ, T1115	DW, AH725	-	DW, AH9030	-
K	Ductile cast irons	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-
N	Aluminium alloy	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 material	Cutting speed *Vc* (m/min)	Series L/D	Feed: *f* (mm/rev)				
				ø12.5 ~ ø14.5	ø15 ~ ø17	ø17.5 ~ ø26	ø27 ~ ø32	ø33 ~ ø54
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. st42-1, St52-3, C25, etc.	160 - 320	2D, 3D	0.02 - 0.06	0.02 - 0.06	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
			4D, 5D	0.02 - 0.06	0.02 - 0.06	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
P	Carbon steels (C > 0.3) S45C, S55C, etc. C45, C55, etc.	80 - 250	2D, 3D	0.04 - 0.1	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
			4D, 5D	0.04 - 0.08	0.04- 0.08	0.06 - 0.1	0.06 - 0.12	0.08 - 0.14
P	Low alloy steels SCM415, etc.	160 - 250	2D, 3D	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
			4D, 5D	0.04 - 0.08	0.04 - 0.08	0.06 - 0.12	0.06 - 0.12	0.06 - 0.14
P	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	80 - 200	2D, 3D	0.04 - 0.1	0.04 - 0.12	0.06 - 0.13	0.06 - 0.15	0.08 - 0.18
			4D, 5D	0.04 - 0.08	0.04 - 0.08	0.06 - 0.1	0.06 - 0.12	0.08 - 0.14
M	Stainless steels (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-2, etc.	100 - 200	2D, 3D	0.02 - 0.08	0.02 - 0.08	0.04 - 0.1	0.04 - 0.12	0.04 - 0.12
			4D, 5D	0.02 - 0.08	0.02 - 0.08	0.04 - 0.1	0.04 - 0.12	0.04 - 0.12
M	Stainless steels (Martensitic and ferritic) SUS430, SUS416, etc. X6Cr17, X20Cr13, etc.	100 - 220	2D, 3D	0.02 - 0.08	0.02 - 0.08	0.04 - 0.1	0.04 - 0.12	0.04 - 0.12
			4D, 5D	0.02 - 0.08	0.02 - 0.08	0.04 - 0.1	0.04 - 0.12	0.04 - 0.12
M	Stainless steels (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	80 - 120	2D, 3D	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.06 - 0.1
			4D, 5D	0.04 - 0.08	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.06 - 0.1
K	Grey cast irons FC250, etc., 250, etc.	80 - 250	2D, 3D	0.06 - 0.12	0.06 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.2
			4D, 5D	0.06 - 0.1	0.06 - 0.1	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
K	Ductile cast irons FCD700, etc., 600-3, etc.	80 - 200	2D, 3D	0.04 - 0.12	0.04 - 0.12	0.06 - 0.15	0.06 - 0.18	0.08 - 0.2
			4D, 5D	0.04 - 0.1	0.04 - 0.1	0.06 - 0.12	0.06 - 0.14	0.08 - 0.16
N	Aluminium alloy A2017, ADC12, etc. AlCu4SiMg, AlSi11Cu3, etc.	200 - 400	2D, 3D	0.1 - 0.12	0.1 - 0.15	0.15 - 0.2	0.15 - 0.2	0.15 - 0.25
			4D, 5D	0.08 - 0.12	0.08 - 0.12	0.12 - 0.16	0.12 - 0.16	0.12 - 0.2
S	Heat-resistant alloys Inconel 718, etc.	20 - 60	2D, 3D	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
		20 - 60	4D, 5D	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
S	Titanium alloys Ti-6Al-4V, etc.	40 - 120	2D, 3D	0.06 - 0.1	0.06 - 0.1	0.06 - 0.12	0.06 - 0.12	0.06 - 0.12
		40 - 120	4D, 5D	0.06 - 0.08	0.06 - 0.08	0.06 - 0.1	0.06 - 0.1	0.06 - 0.1
H	Hardened steel ≥ 40HRC	40 - 100	2D, 3D	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
		40 - 100	4D, 5D	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

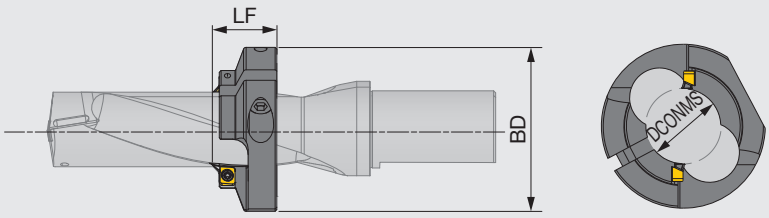
ISO	Workpiece material	Cutting speed *Vc* (m/min)	Series L/D	Feed: *f* (mm/rev)	
				ø27 ~ ø32	ø33 ~ ø54
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. st42-1, St52-3, C25, etc.	60 - 180	2D, 3D 4D, 5D	0.04 - 0.1	

- When using the smaller side of the diameter range, the feed rate should be set lower.
- When using DW insert for work materials of 40 HRC, the feed rate should be set below 50%.
- For difficult-to-cut materials (heat-resistant alloys, etc.), the cutting speed should be set 25% below that of carbon steels.
- High speed machining means cutting speeds over 150 m/min.
- For high-feed machining, apply a feed rate that is approximately 1.5 times the standard feed conditions.
- When using DW insert for troubleshooting, use it within the range of standard cutting conditions.
- DG type chipbreaker is suitable for heavy machines that have low-rpm spindles. If chatter occurs, a lower feed rate is recommended.

TUNGDRILLTWISTED

TDXCF chamfering tool

Chamfering tool for TungDrillTwisted and TungSix-Drill



Designation	DCONMS	BD	LF	Application drill	L/D = 2		L/D = 3		L/D = 4		L/D = 5	
					TDX***F	TDX***W	TDX***F	TDX***W	TDX***F	TDX***W	TDX***F	TDX***W
TDXCF180L25	17.3	49	25	TDX175*25-*	13	18.8	30.5	36.3	48	53.8	65.5	71.3
TDXCF180L25	17.3	49	25	TDX180*25-*	14	19.9	32	37.9	50	55.9	68	73.9
TDXCF190L25	18.1	49	25	TDX185*25-*	15	21.1	33.5	39.6	52	58.1	70.5	76.6
TDXCF190L25	18.1	49	25	TDX190*25-*	16	22.2	35	41.2	54	60.2	73	79.2
TDXCF200L25	19.1	49	25	TDX195*25-*	17	23.4	36.5	42.9	56	62.4	75.5	81.9
TDXCF200L25	19.1	49	25	TDX200*25-*	20	24.5	40	44.5	59	64.5	79	84.5
TDXCF210L25	20.1	49	25	TDX205*25-*	21	25.7	41.5	46.2	61	66.7	81.5	87.2
TDXCF210L25	20.1	49	25	TDX210*25-*	22	26.8	43	47.8	63	68.8	84	89.8
TDXCF220L25	21.1	49	25	TDX215*25-*	23	28	44.5	49.5	65	71	86.5	92.5
TDXCF220L25	21.1	49	25	TDX220*25-*	24	29.1	46	51.1	67	73.1	89	95.1
TDXCF230L25	22.1	49	25	TDX225*25-*	25	30.3	47.5	52.8	69	75.3	91.5	97.8
TDXCF230L25	22.1	49	25	TDX230*25-*	26	31.4	49	54.4	71	77.4	94	100.4
TDXCF240L25	23.1	49	25	TDX235*25-*	27	32.6	50.5	56.1	73	79.6	96.5	103.1
TDXCF240L25	23.1	49	25	TDX240*25-*	28	33.7	52	57.7	75	81.7	99	105.7
TDXCF250L25	23.95	49	25	TDX245*25-*	29	34.9	53.5	59.4	77	83.9	101.5	108.4
TDXCF250L25	23.95	49	25	TDX250*25-*	30	36	55	61	79	86	104	111
TDXCF260L30	24.95	64	30	TDX255*25-*	26	32.2	51.5	57.7	76	83.2	101.5	108.7
TDXCF260L30	24.95	64	30	TDX260*25-*	27	33.3	53	59.3	78	85.3	104	111.3
TDXCF270L30	25.9	64	30	TDX270*32-*	29	35.6	56	62.6	82	89.6	109	116.6
TDXCF280L30	26.9	64	30	TDX280*32-*	30.3	37.9	58.3	65.9	86	93.9	114	121.9
TDXCF290L30	27.9	64	30	TDX290*32-*	32.3	40.2	61.3	69.2	90	98.2	119	127.2
TDXCF300L30	28.9	64	30	TDX300*32-*	34.3	42.5	64.3	72.5	94	102.5	124	132.5
TDXCF310L30	29.9	64	30	TDX310*32-*	36.3	44.8	67.3	75.8	98	106.8	129	137.8
TDXCF320L30	30.9	64	30	TDX320*32-*	38.3	47.1	70.3	79.1	102	111.1	134	143.1

SPARE PARTS

Designation	Screw for insert	Screw for ring	Wrench for insert	Wrench for ring
TDXCF130 - 250	CSPB-4S	CM6X16	IP-15D	P-5
TDXCF260 - 540	CSPB-4S	CM8X1.25X20-A	IP-15D	P-6

Recommended clamping torque (N·m): CSPB-4S = 3.5

INSERT

XHGX-45A

P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	☆
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	PNA	C	Coated GH130
XHGX090700R-45A	45	2.5	●

●: Line up

Caution in mounting the chamfering tool on the drill body

① Place the ring on the drill body and match the positions of fl utes 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.

Match the positions of flutes on drill and ring.

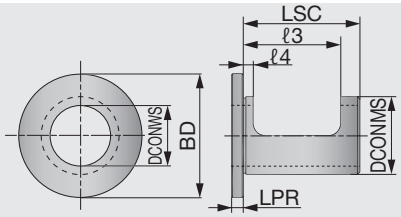
(Inserts will be automatically set to the right positions.)

The cutting edge of the insert is in the ring flute.

The flutes on drill and ring do not match.

EZ sleeve

Eccentric sleeve for TungDrillTwisted and TungSix-Drill



Designation	DCONWS	DCONMS	BD	LSC	LPR	ℓ3	ℓ4	Hole diameter adjustment	Cutting edge height adjustment
EZ2025	20	25	46	49	5	32.5	4	+0.4 ~ - 0.2	+0.2 ~ - 0.15
EZ2532	25	32	51	52	5	38	4	+0.4 ~ - 0.2	+0.2 ~ - 0.15
EZ3240	32	40	54	62	5	43	4	+0.4 ~ - 0.2	+0.2 ~ - 0.15
EZ4050	40	50	69	63	5	55	4	+0.6 ~ - 0.2	+0.3 ~ - 0.2

SPARE PARTS

Designation	Wrench
EZ...	P-2.5

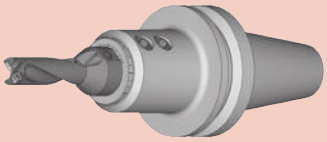
Use EZ sleeves for the following purposes

Hole diameter adjustment on the milling machine

Adjusting the finishing diameter when milling

Adjusting the finishing diameter in tool-rotating applications such as on machining centres and milling machines:

By using EZ sleeve, the finishing diameter can be adjusted in the range from +0.6 mm to -0.2 mm.

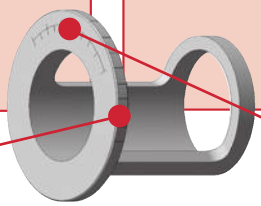


Adjusting cutting edge height on lathe

Lathe

Adjusting of the cutting edge height in work rotating applications such as on lathes:

By using EZ sleeve, the cutting edge height can be adjusted in the range from +0.3 mm to -0.2 mm. It results in eliminating troubles caused by improper cutting-edge height.



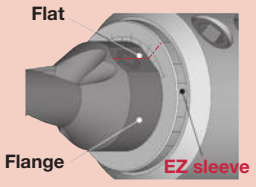
Scale for adjusting finishing diameter in milling (Periphery of sleeve)

Scale for adjusting cutting edge height in turning (Front face of sleeve)

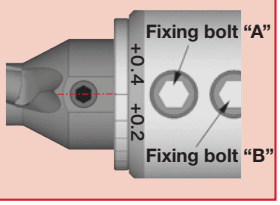
Setting of EZ sleeve

Hole diameter adjustment on the milling machine

As shown in the Figure right, set the EZ sleeve between the drill shank and the toolholder.

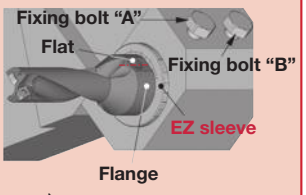


Align the graduated scale on the periphery of the EZ sleeve with the center of the flat of the drill flange.
In the Figure shown right, the sleeve is set so that the finishing diameter will be increased by 0.4 mm.

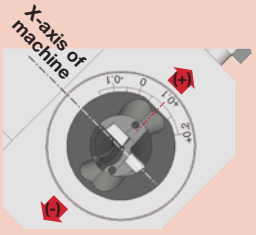


Adjusting cutting edge height on lathe

As shown in the Figure right, set the EZ sleeve between the drill shank and the toolblock.



Align the graduated scale on the front face of the Esleeve with the center of the flat of the drill flange.
In the Figure shown right, the sleeve is set so that the center of the drill will shift by 0.1 mm to the plus (+) direction.



When rotating the EZ sleeve, insert the wrench into the hole at the flange periphery and rotate the EZ sleeve.
Screws A + B have to be loosened.
Secure the drill by screw A.
Secure the EZ sleeve by lightly tightening screw B.
Tighten screw B only lightly otherwise EZ sleeve can be damaged!

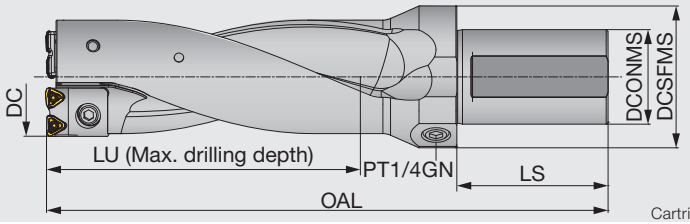
Cautious points

- 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 theadjustment.
- Can not be used for collect chuck holders.
- Over L/D 4 or bigger adjustment, please reduce feed.
- For smaller adjustment, the drill itself will interfere with the hole diameter. It is recommended that hole diameter should be adjusted to a larger diameter than the drill diameter.

TUNGDRILLBIG

TDB, TDS cartridge set

Adjustable tool diameter, L/D = 2.5, tool diameter ø55 - ø80 mm,

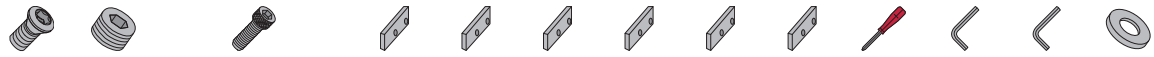


Cartridge set is sold separately.

Body Designation	Cartridge set Designation	DC	DCONMS	DCSFMS	LU	LS	OAL	WT(kg)	Setting plate Designation	Setting plate Thickness (mm)	Insert
TDB55-56F50-2.5	TDSCA55-56	55	50	75	140	80	262	3.2	-	-	WWMU08X408R-D*
TDB55-56F50-2.5	TDSCA55-56	56	50	75	140	80	262	3.2	AP0801	0.5	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	57	50	75	155	80	282	3.6	-	-	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	58	50	75	155	80	282	3.6	AP0801	0.5	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	59	50	75	155	80	282	3.6	AP0802	1	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	60	50	75	155	80	282	3.6	AP0803	1.5	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	61	50	75	155	80	282	3.6	AP0804	2	WWMU08X408R-D*
TDB57-62F50-2.5	TDSCA57-62	62	50	75	155	80	282	3.6	AP0805	2.5	WWMU08X408R-D*
TDB63-66F50-2.5	TDSCA63-66	63	50	75	165	80	297	4.2	-	-	WWMU08X408R-D*
TDB63-66F50-2.5	TDSCA63-66	64	50	75	165	80	297	4.2	AP0801	0.5	WWMU08X408R-D*
TDB63-66F50-2.5	TDSCA63-66	65	50	75	165	80	297	4.2	AP0802	1	WWMU08X408R-D*
TDB63-66F50-2.5	TDSCA63-66	66	50	75	165	80	297	4.2	AP0803	1.5	WWMU08X408R-D*
TDB67-73F50-2.5	TDSCA67-73	67	50	75	183	80	322	5	-	-	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	68	50	75	183	80	322	5	AP1101	0.5	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	69	50	75	183	80	322	5	AP1102	1	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	70	50	75	183	80	322	5	AP1103	1.5	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	71	50	75	183	80	322	5	AP1104	2	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	72	50	75	183	80	322	5	AP1105	2.5	WWMU09X510R-D*
TDB67-73F50-2.5	TDSCA67-73	73	50	75	183	80	322	5	AP1106	3	WWMU09X510R-D*
TDB74-80F50-2.5	TDSCA74-80	74	50	75	200	80	333	5.7	-	-	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	75	50	75	200	80	333	5.7	AP1101	0.5	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	76	50	75	200	80	333	5.7	AP1102	1	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	77	50	75	200	80	333	5.7	AP1103	1.5	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	78	50	75	200	80	333	5.7	AP1104	2	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	79	50	75	200	80	333	5.7	AP1105	2.5	WWMU11X512R-D*
TDB74-80F50-2.5	TDSCA74-80	80	50	75	200	80	333	5.7	AP1106	3	WWMU11X512R-D*

Body

SPARE PARTS

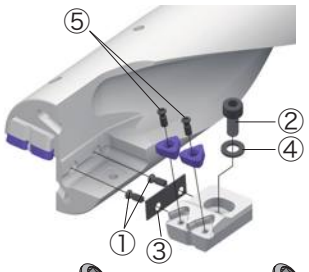


Designation	① Setting plate screw	Plug Screw	② Cartridge screw	③ Setting plate 1	③ Setting plate 2	③ Setting plate 3	③ Setting plate 4	③ Setting plate 5	③ Setting plate 6	Wrench for setting plate	Wrench for cartridge	Wrench for plug	④ Washer
TDB55-56F50-2.5	CSTB-3	PT1/4GN	CM5X0.8X12	AP0801	-	-	-	-	-	T-9D	P-4	P-6	5.3X10X1
TDB57-62F50-2.5	CSTB-3	PT1/4GN	CM5X0.8X12	AP0801	AP0802	AP0803	AP0804	AP0805	-	T-9D	P-4	P-6	5.3X10X1
TDB63-66F50-2.5	CSTB-3	PT1/4GN	CHHM6-15	AP0801	AP0802	AP0803	-	-	-	T-9D	P-5	P-6	6.4X12.5X1.6
TDB67-73F50-2.5	CSTB-3	PT1/4GN	CM6X16	AP1101	AP1102	AP1103	AP1104	AP1105	AP1106	T-9D	P-5	P-6	6.4X12.5X1.6
TDB74-80F50-2.5	CSTB-3	PT1/4GN	CM6X16	AP1101	AP1102	AP1103	AP1104	AP1105	AP1106	T-9D	P-5	P-6	6.4X12.5X1.6

Cartridge set

SPARE PARTS

Designation	⑤ Insert screw	Wrench
TDSCA55 - 56	CSTB-3	T-9F
TDSCA57 - 62	CSTB-3	T-9F
TDSCA63 - 66	CSTB-3	T-9F
TDSCA67 - 73	CSTB-4	T-15F
TDSCA74 - 80	CSTB-5	T-20F



Cartridge

SPARE PARTS

Designation	Insert screw (x2)	Setting plate screw
TDS08CA-C-55-56	CSTB-3	-
TDS08CA-C-57-62	CSTB-3	-
TDS08CA-C-63-66	CSTB-3	-
TDS09CA-C-67-73	CSTB-4	-
TDS11CA-C-74-80	CSTB-5	-

SPARE PARTS

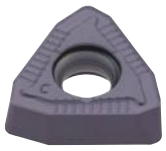
Designation	Insert screw (x2)	Setting plate screw (x2)
TDS08CA-P-55-56	CSTB-3	CSTB-3
TDS08CA-P-57-62	CSTB-3	CSTB-3
TDS08CA-P-63-66	CSTB-3	CSTB-3
TDS09CA-P-67-73	CSTB-4	CSTB-3
TDS11CA-P-74-80	CSTB-5	CSTB-3

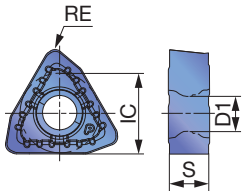
Recommended clamping torque (N·m): CSTB-3 = 2.3, CSTB-4 = 3.5, CSTB-5 = 5

Reference pages: Inserts → J078, Standard cutting conditions → J079

INSERT

DJ





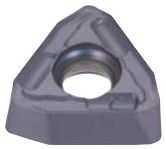
P	Steel	☆	★
M	Stainless	★	☆
K	Cast iron	☆	★
N	Non-ferrous	★	☆
S	Superalloys	★	☆
H	Hard materials	★	☆

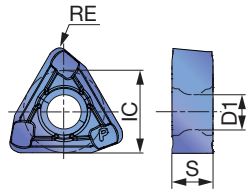
★ : First choice
☆ : Second choice

Designation	IC	S	Coated		D1	RE	DCN	DCX
			AH3135	AH9030				
WWMU05X205R-DJ	5.8	2.4	●	●	2.5	0.5	20	23.5
WWMU060306R-DJ	6.7	2.9	●	●	3	0.6	23.9	27
WWMU08X408R-DJ	8	3.9	●	●	3.4	0.8	27.5	32
WWMU09X510R-DJ	9.7	4.9	●	●	4.4	1	33	33.8
WWMU11X512R-DJ	11.3	5.7	●	●	5.5	1.2	39	46
WWMU13X512R-DJ	13	5.7	●	●	5.5	1.2	47	54

●: Line up

DS





P	Steel	★
M	Stainless	★
K	Cast iron	
N	Non-ferrous	
S	Superalloys	★
H	Hard materials	

★ : First choice
☆ : Second choice

Designation	IC	S	Coated	D1	RE	DCN	DCX
			AH6030				
WWMU05X205R-DS	5.8	2.4	●	5.8	2.4	20	23.5
WWMU060306R-DS	6.7	2.9	●	6.7	2.9	23.9	27
WWMU08X408R-DS	8	3.9	●	8	3.9	28	32
WWMU09X510R-DS	9.7	4.9	●	9.7	4.9	33	38
WWMU11X512R-DS	11.3	5.7	●	11.3	5.7	39	46
WWMU13X512R-DS	13	5.7	●	13	5.7	47	54

●: Line up

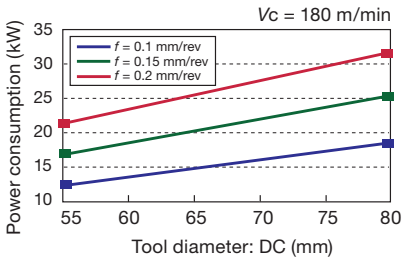
STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Priority	Chip breakers	Grade	Cutting speed	Feed: *f* (mm/rev) DC (mm)		
					Vc (m/min)	ø55 - ø56	ø57 - ø73	ø74 - ø80
P	Low carbon steels (C<0.3) SS400, SM490, S25C, etc. st42-1, St52-3, C25, etc.	First choice	DS	AH6030	160 - 250	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
		Wear resistance	DJ	AH9030	160 - 320	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
	Carbon steels (C>0.3) S45C, S55C, etc. C45, C55, etc	First choice	DJ	AH9030	80 - 250	0.06 - 0.16	0.06 - 0.18	0.08 - 0.2
		Fracture resistance	DJ	AH3135	80 - 250	0.04 - 0.13	0.04 - 0.15	0.04 - 0.16
	Low alloy steels SCM415, etc. 18CrMo4, etc.	First choice	DS	AH6030	160 - 250	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
		Wear resistance	DJ	AH9030	160 -250	0.06 - 0.14	0.06 - 0.14	0.06 - 0.14
	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	First choice	DJ	AH9030	80 - 200	0.06 - 0.16	0.06 - 0.18	0.08 - 0.2
		Fracture resistance	DJ	AH3135	80 - 200	0.04 - 0.13	0.04 - 0.14	0.04 - 0.15
M	Stainless steels (Austenitic) SUS304, SUS316, etc. X5CrNi189, X5CrNiMo17-12-2, etc.	First choice	DS	AH6030	100 - 200	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
		—	DJ	AH3135	100 - 200	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
	Stainless steel (Martensitic and ferritic) SUS430, etc. X6Cr17, X12CrS13, etc.	First choice	DS	AH6030	100 - 200	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
		—	DJ	AH3135	100 - 200	0.04 - 0.12	0.04 - 0.12	0.04 - 0.12
	Stainless steels (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	First choice	DS	AH6030	80 - 120	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
		—	DJ	AH3135	80 - 120	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
K	Grey cast irons FC250, etc. 250, etc.	First choice	DJ	AH9030	80 - 250	0.06 - 0.18	0.08 - 0.2	0.08 - 0.22
		Fracture resistance	DJ	AH3135	80 - 200	0.06 - 0.15	0.08 - 0.16	0.08 - 0.18
	Ductile cast irons FCD700, etc. 700-2, etc.	First choice	DJ	AH9030	80 - 200	0.06 - 0.16	0.06 - 0.18	0.08 - 0.2
		Fracture resistance	DJ	AH3135	80 - 150	0.06 - 0.15	0.08 - 0.16	0.08 - 0.18
N	Aluminium alloy	First choice	DS	AH6030	200 - 400	0.1 - 0.2	0.1 - 0.23	0.1 - 0.25
		—	DJ	AH9030	200 - 400	0.1 - 0.2	0.1 - 0.23	0.1 - 0.25
S	Heat-resistant alloys Inconel718, etc.	First choice	DS	AH6030	20 - 60	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1
		—	DJ	AH3135	20 - 60	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1
	Titanium alloys Ti-6Al-4V, etc.	First choice	DS	AH6030	40 - 120	0.06 - 0.12	0.06 - 0.14	0.06 - 0.14
		—	DJ	AH3135	40 - 120	0.06 - 0.12	0.06 - 0.14	0.06 - 0.14
H	Hardened steel < 40HRC	First choice	DJ	AH9030	50 - 100	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1
		Fracture resistance	DJ	AH3135	40 - 80	0.04 - 0.08	0.04 - 0.1	0.04 - 0.1

Caution

Machine

- Use drills on a fully covered machine to maintain safety.
- Use drills on a high powered machine such as a BT50.
- Figure on right shows reference of required machine power.



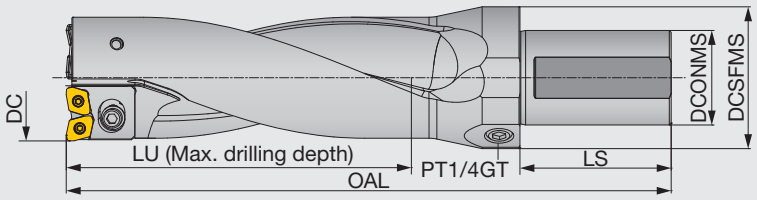
Cutting coolant

- Internal coolant supply is recommended.
- Coolant pressure higher than 1MPa is essential.
- Use water soluble type coolant.

TUNGDRILLBIG

TDB, TDX cartridge set

Adjustable tool diameter, L/D = 2.5, tool diameter ø55 - ø80 mm,



Cartridge set is sold separately.

Body Designation	Cartridge set Designation	DC	DCONMS	DCSFMS	LU	LS	OAL	WT(kg)	Setting plate Designation	Setting plate Thickness (mm)	Insert
TDB55-56F50-2.5	TDXCA55-56	55	50	75	140	80	260	3.2	-	-	XPMT08T308R-D*
TDB55-56F50-2.5	TDXCA55-56	56	50	75	140	80	260	3.2	AP0801	0.5	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	57	50	75	155	80	280	3.6	-	-	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	58	50	75	155	80	280	3.6	AP0801	0.5	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	59	50	75	155	80	280	3.6	AP0802	1	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	60	50	75	155	80	280	3.6	AP0803	1.5	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	61	50	75	155	80	280	3.6	AP0804	2	XPMT08T308R-D*
TDB57-62F50-2.5	TDXCA57-62	62	50	75	155	80	280	3.6	AP0805	2.5	XPMT08T308R-D*
TDB63-66F50-2.5	TDXCA63-66	63	50	75	165	80	295	4.2	-	-	XPMT08T308R-D*
TDB63-66F50-2.5	TDXCA63-66	64	50	75	165	80	295	4.2	AP0801	0.5	XPMT08T308R-D*
TDB63-66F50-2.5	TDXCA63-66	65	50	75	165	80	295	4.2	AP0802	1	XPMT08T308R-D*
TDB63-66F50-2.5	TDXCA63-66	66	50	75	165	80	295	4.2	AP0803	1.5	XPMT08T308R-D*
TDB67-73F50-2.5	TDXCA67-73	67	50	75	183	80	320	5	-	-	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	68	50	75	183	80	320	5	AP1101	0.5	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	69	50	75	183	80	320	5	AP1102	1	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	70	50	75	183	80	320	5	AP1103	1.5	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	71	50	75	183	80	320	5	AP1104	2	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	72	50	75	183	80	320	5	AP1105	2.5	XPMT110412R-D*
TDB67-73F50-2.5	TDXCA67-73	73	50	75	183	80	320	5	AP1106	3	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	74	50	75	200	80	330	5.7	-	-	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	75	50	75	200	80	330	5.7	AP1101	0.5	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	76	50	75	200	80	330	5.7	AP1102	1	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	77	50	75	200	80	330	5.7	AP1103	1.5	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	78	50	75	200	80	330	5.7	AP1104	2	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	79	50	75	200	80	330	5.7	AP1105	2.5	XPMT110412R-D*
TDB74-80F50-2.5	TDXCA74-80	80	50	75	200	80	330	5.7	AP1106	3	XPMT110412R-D*

Body

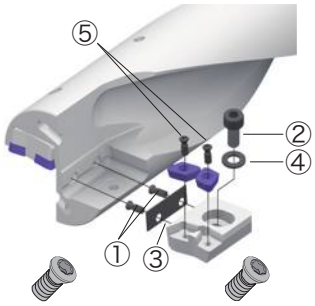
SPARE PARTS

Designation	① Setting plate screw	Plug Screw	② Cartridge screw	③ Setting plate 1	③ Setting plate 2	③ Setting plate 3	③ Setting plate 4	③ Setting plate 5	③ Setting plate 6	Wrench for setting plate	Wrench for cartridge	Wrench for plug	④ Washer
TDB55-56F50-2.5	CSTB-3	PT1/4GN	CM5X0.8X12	AP0801	-	-	-	-	-	T-9D	P-4	P-6	5.3X10X1
TDB57-62F50-2.5	CSTB-3	PT1/4GN	CM5X0.8X12	AP0801	AP0802	AP0803	AP0804	AP0805	-	T-9D	P-4	P-6	5.3X10X1
TDB63-66F50-2.5	CSTB-3	PT1/4GN	CHHM6-15	AP0801	AP0802	AP0803	-	-	-	T-9D	P-5	P-6	6.4X12.5X1.6
TDB67-73F50-2.5	CSTB-3	PT1/4GN	CM6X16	AP1101	AP1102	AP1103	AP1104	AP1105	AP1106	T-9D	P-5	P-6	6.4X12.5X1.6
TDB74-80F50-2.5	CSTB-3	PT1/4GN	CM6X16	AP1101	AP1102	AP1103	AP1104	AP1105	AP1106	T-9D	P-5	P-6	6.4X12.5X1.6

Cartridge set

SPARE PARTS

Designation	⑤ Insert screw	Wrench
TDXCA55 - 56	CSTB-3	T-9F
TDXCA57 - 62	CSTB-3	T-9F
TDXCA63 - 66	CSTB-3	T-9F
TDXCA67 - 73	CSTB-4	T-15F
TDXCA74 - 80	CSTB-4	T-15F



Cartridge

SPARE PARTS

Designation	Insert screw (x2)	Setting plate screw
TDX08CA-C0	CSTB-3	-
TDX08CA-C1	CSTB-3	-
TDX08CA-C2	CSTB-3	-
TDX11CA-C1	CSTB-4	-
TDX11CA-C2	CSTB-4	-

SPARE PARTS

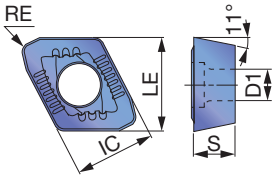
Designation	Insert screw (x2)	Setting plate screw (x2)
TDX08CA-P0	CSTB-3	CSTB-3
TDX08CA-P1	CSTB-3	CSTB-3
TDX08CA-P2	CSTB-3	CSTB-3
TDX11CA-P1	CSTB-4	CSTB-3
TDX11CA-P2	CSTB-4	CSTB-3

Recommended clamping torque (N·m): CSTB-3=2.3, CSTB-4=3.5

Reference pages: Inserts → J081 - J082, Standard cutting conditions → J082 - J083

INSERT

DJ



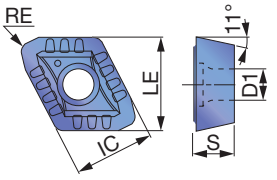
P	Steel			★	☆	
M	Stainless	☆		★		
K	Cast iron		☆	☆	★	
N	Non-ferrous	☆		★		
S	Superalloys	☆		★	☆	
H	Hard materials	☆		★	☆	

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated				S	D1	RE	DCN	DCX	AN
			AH725	T1115	AH6030	AH9030						
XPMT08T308R-DJ	8.5	9.9	●	●	●	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DJ	11.2	12.5	●	●	●	●	4.76	4.4	1.2	33	41	11

●: Line up

DS



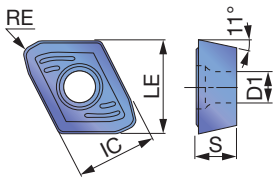
P	Steel	☆	★		
M	Stainless	☆	★		
K	Cast iron				
N	Non-ferrous	☆			
S	Superalloys	☆	★		
H	Hard materials				

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated				S	D1	RE	DCN	DCX	AN
			AH725	AH6030								
XPMT08T308R-DS	8.5	9.9	●	●			3.97	3.4	0.8	27	32	11
XPMT110412R-DS	11.2	12.5	●	●			4.76	4.4	1.2	33	41	11

●: Line up

DW



P	Steel	☆	★	☆		
M	Stainless	☆	★	☆		
K	Cast iron		☆	★		
N	Non-ferrous	☆	★			
S	Superalloys	☆	★	☆		
H	Hard materials	☆	★	☆		

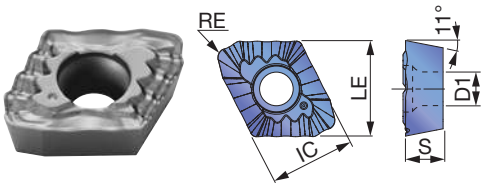
★ : First choice
☆ : Second choice

Designation	IC	LE	Coated			S	D1	RE	DCN	DCX	AN
			AH725	AH6030	AH9030						
XPMT08T308R-DW	8.5	9.9	●	●	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DW	11.2	12.5	●	●	●	4.76	4.4	1.2	33	41	11

●: Line up

INSERT

DG



P	Steel	★
M	Stainless	☆
K	Cast iron	
N	Non-ferrous	★
S	Superalloys	☆
H	Hard materials	

★ : First choice
☆ : Second choice

Designation	IC	LE	Coated	S	D1	RE	DCN	DCX	AN
			AH725						
XPMT08T308R-DG	8.5	9.9	●	3.97	3.4	0.8	27	32	11
XPMT110412R-DG	11.2	12.5	●	4.76	4.4	1.2	33	41	11

●: Line up

RECOMMENDED INSERT

ISO	Workpiece material	First choice	High feed	High speed	Troubleshooting: Chipping resistance	Troubleshooting: Wear resistance	Troubleshooting: Surface finish	Troubleshooting: Chip control
P	Low carbon steels (C ≤ 0.3%)	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
P	Carbon steels (C > 0.3%) Alloy steels	DJ, AH6030	DW, AH6030	DJ, AH9030	DW, AH725	DJ, AH9030	DW, AH6030	-
P	Low alloy steels	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	-
M	Stainless steel	DS, AH6030	-	-	DS, AH725	-	DW, AH6030	DG, AH725
K	Grey cast irons	DJ, AH9030	DW, AH9030	DJ, T1115	DW, AH725	-	DW, AH9030	-
K	Ductile cast irons	DJ, AH9030	DW, AH9030	-	DW, AH725	-	DW, AH9030	-
N	Aluminium alloy	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 material	Cutting speed *Vc* (m/min)	Feed: *f* (mm/rev) ø55 ~ ø62	ø63 ~ ø73	ø74 ~ ø80
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. st42-1, St52-3, C25, etc.	160 - 320	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
P	Carbon steels (C > 0.3) S45C, S55C, etc. C45, C55, etc.	80 - 250	0.08 - 0.18	0.08 - 0.18	0.1 - 0.2
P	Low alloy steels SCM415, etc. 15CrMo5, etc.	160 - 250	0.04 - 0.16	0.04 - 0.16	0.04 - 0.16
P	Alloy steels SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	80 - 200	0.08 - 0.18	0.08 - 0.18	0.08 - 0.2
M	Stainless steels (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-2, etc.	100 - 200	0.04 - 0.12	0.04 - 0.12	0.06 - 0.14
M	Stainless steels (Martensitic and ferritic) SUS430, SUS416, etc. X6Cr17, X20Cr13, etc.	100 - 200	0.04 - 0.12	0.04 - 0.12	0.06 - 0.14
M	Stainless steels (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	80 - 120	0.04 - 0.1	0.04 - 0.1	0.06 - 0.12
K	Grey cast irons FC250, etc. 250, etc.	80 - 250	0.08 - 0.2	0.08 - 0.2	0.1 - 0.22
K	Ductile cast irons FCD600, etc. 600-3, etc.	80 - 200	0.08 - 0.2	0.08 - 0.2	0.1 - 0.22
N	Aluminium alloy A2017, ADC12, etc. AlCu4SiMg, AlSi11Cu3, etc.	200 - 400	0.15 - 0.25	0.15 - 0.25	0.18 - 0.28
S	Heat-resistant alloys	20 - 60	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1
S	Titanium alloys	40 - 120	0.06 - 0.12	0.06 - 0.12	0.06 - 0.12
H	Hardened steel	40 - 100	0.04 - 0.1	0.04 - 0.1	0.04 - 0.1

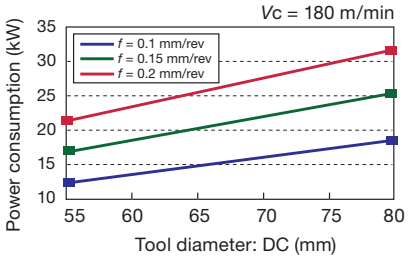
Standard cutting conditions for DG type chipbreaker

ISO	Workpiece material	Cutting speed *Vc* (m/min)	Series L/D	Feed: *f* (mm/rev) ø27 ~ ø32	ø33 ~ ø54
P	Low carbon steels (C < 0.3) SS400, SM490, S25C, etc. st42-1, St52-3, C25, etc.	60 - 180	2D, 3D 4D, 5D	0.04 - 0.1	

Caution

Machine

- Use drills on a fully covered machine to maintain safety.
- Use drills on a high powered machine such as a BT50.
- Figure on right shows reference of required machine power.

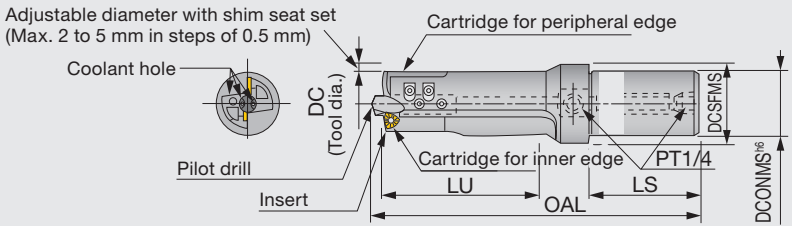


Cutting coolant

- Use water soluble type coolant with internal supply.
- Coolant pressure higher than 1MPa is essential.

TDP L/D=5

Indexable drill with pilot drill



Designation	DC	DCONMS	DCSFMS	OAL	LU	LS	Insert	Pilot drill (included in the package)
TDP30-32	30 ~ 32	32	40	248	150	60	WPMT040208-D3	DP08 (ø8)
TDP37-40	37 ~ 40	40	50	295	185	70	WPMT050308-D3	DP10 (ø10)
TDP40-45	40 ~ 45	40	50	310	200	70	WPMT050308-D3	DP12 (ø12)
TDP45-50	45 ~ 50	40	50	347	225	70	WPMT06T308-D3	DP12 (ø12)
TDP60-65	60 ~ 65	50	58.5	470	300	120	WPMT080412-D3	DP12 (ø12)

Diameter is adjustable with shim seat set. (Max. 2 to 5 mm in steps of 0.5 mm)
Pilot drill is included, but inserts are not.

L/D = Hole depth / Drill diameter

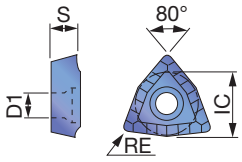
SPARE PARTS

Designation	Cartridge		Clamping screw			Coolant hole plug screw	Wrench				Shim seat set
	for peripheral edge	for inner edge	for insert	Wrench for cartridge	for pilot drill		for insert	Wrench for cartridge	for pilot drill	Coolant hole plug screw	
TDP30-32	CW04A	CW04B	CSTB-2.5S	BHM4-8	SSHM5-10	PT1/4GN	T-8D	P-2.5	Same for cartridge	P-6	SW04
TDP37-40	CW05A	CW05B	CSTB-3S	BHM4-10	SSHM5-10	PT1/4GN	T-9D	P-2.5	Same for cartridge	P-6	SW05
TDP40-45	CW05A	CW05B	CSTB-3S	BHM4-10	SSHM6-12	PT1/4GN	T-9D	P-2.5	P-3	P-6	SW05
TDP45-50	CW06A	CW06B	CSTB-3.5D	BHM5-14	SSHM6-12	PT1/4GN	T-9D	P-3	Same for cartridge	P-6	SW06
TDP60-65	CW08A	CW08B	CSTB-4M	CHHM5-18 (CM5×0.8×18)	SSHM6-20	PT1/4GN	T-15D	P-4	P-3	P-6	SW08

Recommended clamping torque (N·m): CSTB-2.5S = 1.3, CSTB-3S = 2.3, CSTB-3.5D = 2.3, CSTB-4M = 3.5
BHM4-8/BHM4-10 = 2.2, BHM5-14 = 3, CHHM5-18 = 5, SSHM5-10 = 2, SSHM6-12/SSHM6-20 = 3

INSERT

WPMT04/05/06/08-D3

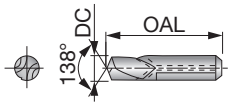


Designation	T313W	IC	S	RE	D1
WPMT040208-D3	●	6.35	2.38	0.8	2.86
WPMT050308-D3	●	7.938	3.18	0.8	3.4
WPMT06T308-D3	●	9.525	3.97	0.8	3.9
WPMT080412-D3	●	12.7	4.76	1.2	4.4

(The chipbreaker shape of WPMT040208-D3 insert is different from the drawing above.)

PILOT DRILL

DP08/10/12



Designation	HSS	DC	OAL
DP08	●	8	42
DP10	●	10	48
DP12	●	12	55

Note : DP08 type drill does not have oil hole.

Package quantity: 1pc
● : Line up

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Carbon steels	60 - 70	0.07 - 0.17
P	Alloy steels	60 - 70	0.07 - 0.17
K	Cast iron	70 - 100	0.1 - 0.2

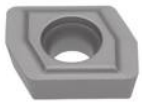
Note: tool Dia. Smaller than ø37 mm, feed should be set less than 0.13 mm/rev for steel, 0.15 mm/rev for cast iron.

Cautionary points in use

- When drilling steel, a water soluble coolant should be used. Coolant pressure of 1MPa or higher and quantity of 10 litter/min or more are essential.
- For tool-rotating applications, side-lock holder with coolant through hole is recommended.
  (For standard TDP60-65 and 65-70, please check the toolholder that will be used because the mounting shank diameter is ø50.)
- Drilling into stacked plates is not recommended.
- Not suitable for low carbon steels and stainless steels, because of chip control issues.

Drilling Insert

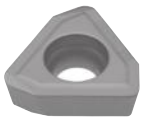
● LPMT03X206R-D4, LPMT05X204-D4

Shape	Designation	Coated					Applicable drill diameter	Applicable drill
		T313W						
	LPMT03X206R-D4	●					ø14 ~ ø17.5	TDJ (Former products)
	LPMT05X204-D4	●					ø14 ~ ø17.5	

● SPMP831DS, SPMP/M**2ERD

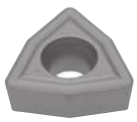
Shape	Designation	ISO Metric Designation	Coated					Applicable drill diameter	Applicable drill
			T313W						
	SPMP831DS	SPMT060204-DS	●					ø18 ~ ø19.5	TDR, for Peripheral side (Former products)
	SPMP042ERD	SPMP080308ER-D	●					ø20 ~ ø28.5	
	SPMM322ERD	SPMT090308ER-D	●					ø29 ~ ø34.5	
	SPMM432ERD	SPMT120408ER-D	●					ø35 ~ ø49	

● TPMP**ZDS, TPMP**ZERD, TPMM**ZERD

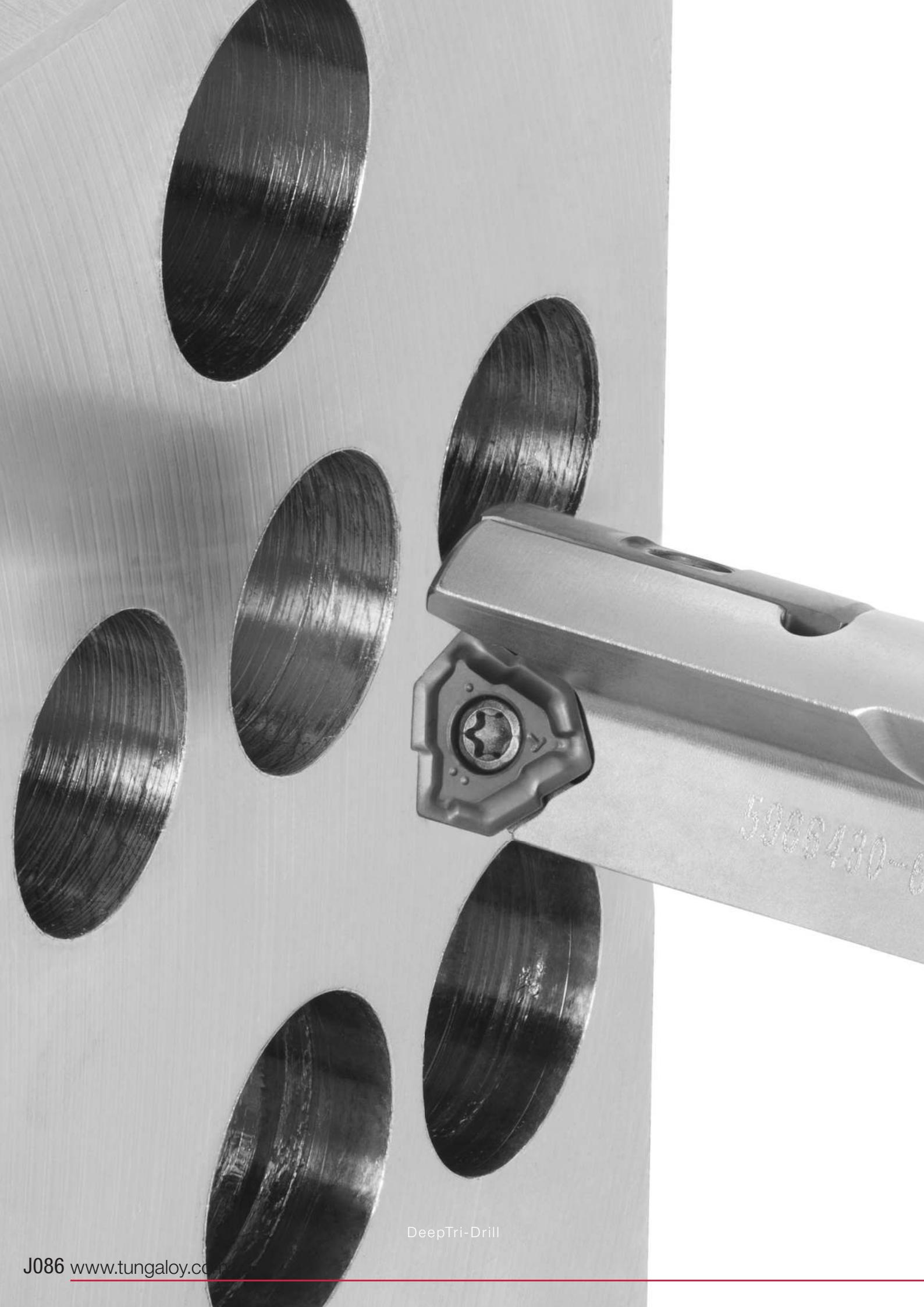
Shape	Designation	Coated					Applicable drill diameter	Applicable drill
		T313W						
	TPMP83ZDS	●					ø18 ~ ø19.5	TDR, for Central side (Former products)
	TPMP04ZERD	●					ø20 ~ ø28.5	
	TPMM32ZERD	●					ø29 ~ ø34.5	
	TPMM43ZERD	●					ø35 ~ ø54	

TPMM43ZERD can be used on the peripheral side.

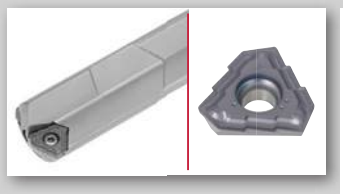
● WCMT**-D...

Shape	Designation	Coated						Applicable drill
		AH120	AH140	T313W				
	WCMT050308-DC			●				for counter boring, and drilling.
	WCMT050308-D4	●	●	●				
	WCMT06T308-DC			●				
	WCMT06T308-D4	●	●	●				
	WCMT080412-DC			●				
	WCMT080412-D4			●				

● : Line up



Deep Hole Drill



DEEP TRI DRILL

Excellent productivity and stability in deep hole drilling

ø12 mm - ø39.1 mm / L/D = 8, 10, 15, 20, 25, for machining centers
OAL < 1650 mm for gundrill machines (standard line-ups)

J007, J088
J089 - J111

GUNDRILL

Brazed gundrills suitable for small diameter deep hole drilling

ø3 mm - ø12.2 mm / OAL ≤ 1650 mm (standard line-ups)

J007, J088
J112 - J113

TRI-FINE

Direct mount drill head with 3-cornered inserts

ø16 mm - ø28 mm

J007, J114
J118 - J121

FINE-BEAM

Direct mount deep hole drilling heads

ø25 mm - ø65 mm

J007, J114
J122 - J127

UNIDEX

Indexable deep hole drilling heads with adjustable diameters

ø38 mm - ø106.99 mm

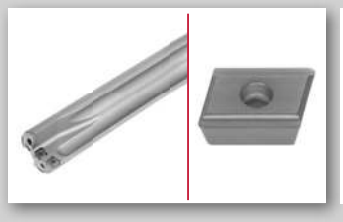
J007, J114
J128 - J133

Brazed BTA tool

New solution for BTA drilling with two types of tools: single tube and double tube

ø8 - ø65

J007, J114
J134 - J146



HF drills for deep hole drilling

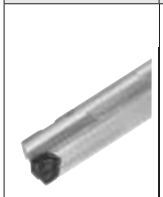
Indexable deep hole drills for large diameter with high productivity

ø30 mm - ø63 mm, hole depth: L/D=14

J007, J147 - J148

Indexable Gundrill guide

Indexable Gundrills & Brazed Gundrills

Drill type		Lathes & machining centers			Gundrill machines			Brazed tool
		MCTR	MCTRCH	MCTR	TRLG	TRLGCH	TRLG	SLJ
Indexable Gundrills Brazed Gundrill								
Drill diameter (mm)		ø12 - ø28	ø14 - ø28	ø28.01 - ø40	ø12 - ø28	ø14 - ø28	ø28.01 - ø40	ø3 - ø12.2
Drilling depth - MCTR Tool over all length - TRLG, SLJ		Max L/D = 25	Max L/D = 25	Max L/D = 25	400 mm - 2400 mm	400 mm - 2400 mm	400 mm - 2400 mm	ø3 - ø4.1 : Max = 800 mm ø4.1 - ø4.9 : Max = 1250 mm ø4.9 - ø12.2 : Max = 2000 mm
Hole tolerance*1		+ 0.05 / - 0.1	+ 0.05 / - 0.12	+ 0.05 / - 0.1	+ 0.05 / - 0.1	+ 0.05 / - 0.12	+ 0.05 / - 0.1	+0.03 / -0.01
Surface finish Ra (µm)*1		1	1	1	1	1	1	3 - 25
Machine	Deep hole drilling machines	-	-	-	-	-	-	-
	NC machines	○	○	○	-	-	-	-
	Lathes	○	○	○	△	△	△	△
	Machining centers M/C	○	○	○	△	△	△	△
	Gundrill machines	-	-	-	○	○	○	○
Workpiece material	P Steel	★★★	★★★	★★★	★★★	★★★	★★★	★★
	M Stainless	★★	★★	★★	★★	★★	★★	★
	K Cast iron	★★★	★★★	★★★	★★★	★★★	★★★	★★★
	N Non-ferrous	★★	★★	★★	★★	★★	★★	★★★
	S Superalloys	★★	★★	★★	★★	★★	★★	★
	H Hard materials (≥40HRC)	★★★	★★★	★★★	★★★	★★★	★★★	★
Insert type		LOGT / TOHT	TOHT	FBH / FBM	LOGT / TOHT	TOHT	FBH / FBM	-
Page		J090 - J093	J094	J095 - J099	J100 - J101	J102	J103 - J111	J112 - J113

*1: Just for reference

★★★(Excellent) ◄► ★(Standard)

DEEP TRI DRILL

Indexable gundrill for extreme productivity and stability

Ultimate efficiency

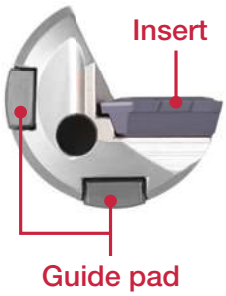
Unique chipbreakers on the cutting edge enable impressive chip control and high feed rates.

Excellent chip control

- Chip splitters breaks chips into smaller segments to facilitate smooth Chip evacuation process
- Its smooth chip evacuation ability allows the use in standard lathes and machining centers

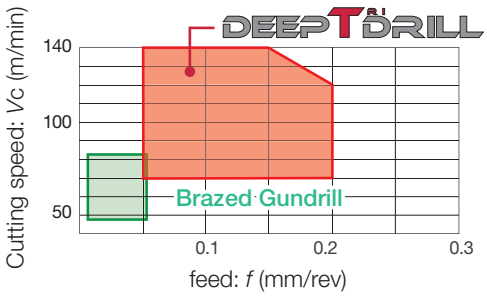
NDJ chipbreaker

- Low cutting force
- For general purpose



Performance comparison with other types of drills

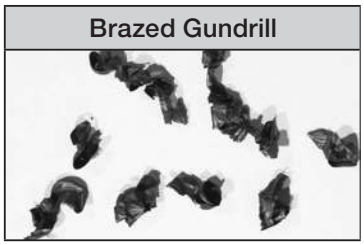
P S55C



Chip control

P S55C Drill diameter : DC = 21 mm

Cutting speed : *Vc* = 100 m/min
feed : *f* = 0.15 mm/rev



Vc = 60 m/min
f = 0.05 mm/rev

Two bodies available for machining centers, lathes, and gundrill machines

MCTR : for machining centers and lathes

Tool dia. : DC = 12 - 39.1 mm
*Max. DC = 40: Available tailor-made tools
L/D : 8, 10, 15, 20, 25

TRLG : for gundrill machines

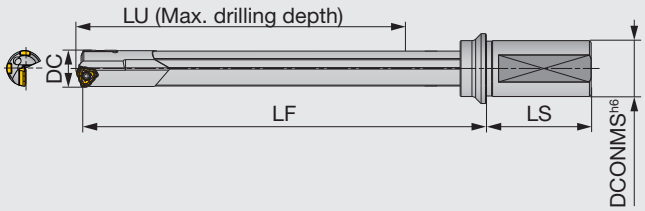
Tool dia. : DC = 12 - 30 mm
*Max. DC = 40: Available tailor-made tools
Overall length: 800, 1000, 1500, 1650 mm
* Can be tailored up to 2400 mm overall length

Reference pages: J090 - J111, Technical references → L086

DEEP TRI DRILL

MCTR L/D=10

Drill body for lathes and machining centers, L/D = 10, tool diameter ø16 - ø28 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR16.00XM25A-10	16	25	172.2	56	209	TOHT08...	GP05-075
MCTR16.50XM25A-10	16.5	25	172.2	56	209	TOHT08...	GP05-075
MCTR17.00XM25A-10	17	25	182.2	56	220	TOHT08...	GP05-075
MCTR18.00XM25A-10	18	25	192.2	56	232	TOHT08...	GP05-075
MCTR19.00XM25-10	19	25	203	56	243	TOHT09...	GP06-085
MCTR20.00XM32-10	20	32	213	60	255	TOHT09...	GP06-085
MCTR21.00XM32-10	21	32	223.2	60	266	TOHT10...	GP06-085
MCTR22.00XM32-10	22	32	233.4	60	278	TOHT11...	GP06-100
MCTR23.00XM32-10	23	32	243.4	60	289	TOHT11...	GP06-100
MCTR24.00XM32-10	24	32	253.4	60	301	TOHT11...	GP06-100
MCTR25.00XM32-10	25	32	263.4	60	312	TOHT11...	GP06-100
MCTR26.00XM40-10	26	40	273.7	70	324	TOHT12...	GP06
MCTR27.00XM40-10	27	40	283.7	70	335	TOHT12...	GP06
MCTR28.00XM40-10	28	40	283.7	70	337	TOHT12...	GP06
MCTR17.45XU25.4A-10	17.45	25.4	182.2	56	220	TOHT08..	GP05-075
MCTR18.24XU25.4-10	18.24	25.4	193	56	232	TOHT09..	GP06-085
MCTR18.64XU25.4-10	18.64	25.4	193	56	232	TOHT09..	GP06-085
MCTR19.05XU25.4-10	19.05	25.4	203	56	243	TOHT09..	GP06-085
MCTR19.94XU31.75-10	19.94	31.75	213	60	255	TOHT09..	GP06-085
MCTR20.62XU31.75-10	20.62	31.75	213.2	60	255	TOHT10..	GP06-085
MCTR22.23XU31.75-10	22.23	31.75	233.4	60	278	TOHT11..	GP06-100
MCTR23.80XU31.75-10	23.8	31.75	253.4	60	301	TOHT11..	GP06-100
MCTR25.40XU31.75-10	25.4	31.75	263.7	60	312	TOHT12..	GP06
MCTR26.97XU31.75X-10	26.97	31.75	283.7	60	335	TOHT12..	GP06

DC	Tool diameter tolerance	Hole diameter tolerance*
16 - 28	0 / - 0.07	+ 0.05 / - 0.1

*Just for reference

SPARE PARTS



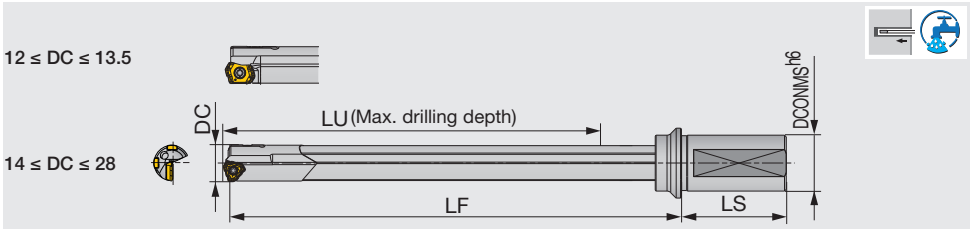

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR16... - MCTR20.00...	SR14-560/S	T-8F	SR34-508	T-7F
MCTR20.62... - MCTR21...	SR34-506	T-9F	SR34-508	T-7F
MCTR22... - MCTR25.00...	SR14-571/S	T-10/5	SR34-508	T-7F
MCTR25.4... - MCTR28...	SR14-506	T-15F	SR34-508	T-7F

Recommended clamping torque (N·m): SR34-506=0.9, SR34-508=0.9, SR14-560/S=1.2, SR14-571/S=3.2, SR14-506=4.8

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

MCTR L/D=15

Drill body for lathes and machining centers, L/D = 15, tool diameter ø12 - ø28 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR12.00XM20-15	12	20	196.8	50	225	LOGT06...	GP04-055
MCTR12.50XM20-15	12.5	20	196.8	50	226	LOGT06...	GP04-055
MCTR13.00XM25-15	13	25	211.8	56	245	LOGT06...	GP04-055
MCTR13.50XM25-15	13.5	25	211.8	56	245	LOGT06...	GP04-055
MCTR14.00XM25-15	14	25	227	56	245	TOHT07...	GP05-060
MCTR14.50XM25-15	14.5	25	227	56	262	TOHT07...	GP05-060
MCTR15.00XM25-15	15	25	242	56	278	TOHT07...	GP05-060
MCTR16.00XM25A-15	16	25	257.2	56	294	TOHT08...	GP05-075
MCTR16.50XM25A-15	16.5	25	257.2	56	294	TOHT08...	GP05-075
MCTR17.00XM25A-15	17	25	272.2	56	310	TOHT08...	GP05-075
MCTR17.50XM25A-15	17.5	25	272.2	56	310	TOHT08...	GP05-075
MCTR18.00XM25A-15	18	25	287.2	56	327	TOHT08...	GP05-075
MCTR18.50XM25-15	18.5	25	288	56	327	TOHT09...	GP06-085
MCTR19.00XM25-15	19	25	303	56	343	TOHT09...	GP06-085
MCTR19.50XM25-15	19.5	25	303	56	343	TOHT09...	GP06-085
MCTR20.00XM32-15	20	32	318	60	360	TOHT09...	GP06-085
MCTR21.00XM32-15	21	32	333.2	60	376	TOHT10...	GP06-085
MCTR22.00XM32-15	22	32	348.4	60	393	TOHT11...	GP06-100
MCTR23.00XM32-15	23	32	363.4	60	409	TOHT11...	GP06-100
MCTR24.00XM32-15	24	32	378.4	60	426	TOHT11...	GP06-100
MCTR25.00XM32-15	25	32	393.4	60	442	TOHT11...	GP06-100
MCTR26.00XM40-15	26	40	408.7	70	459	TOHT12...	GP06
MCTR27.00XM40-15	27	40	423.7	70	475	TOHT12...	GP06
MCTR28.00XM40-15	28	40	423.7	70	477	TOHT12...	GP06
MCTR12.70XU25.4-15	12.7	25.4	196.8	56	229	LOGT06..	GP04-055
MCTR13.49XU25.4-15	13.49	25.4	211.8	56	245	LOGT06..	GP04-055
MCTR14.27XU25.4-15	14.27	25.4	227	56	261	TOHT07..	GP05-060
MCTR15.88XU25.4-15	15.88	25.4	242	56	279	TOHT07..	GP05-060
MCTR17.45XU25.4A-15	17.45	25.4	272.2	56	310	TOHT08..	GP05-075
MCTR18.24XU25.4-15	18.24	25.4	288	56	327	TOHT09..	GP06-085
MCTR18.64XU25.4-15	18.64	25.4	288	56	327	TOHT09..	GP06-085
MCTR19.05XU25.4-15	19.05	25.4	303	56	343	TOHT09..	GP06-085
MCTR19.94XU31.75-15	19.94	31.75	318	60	360	TOHT09..	GP06-085
MCTR20.62XU31.75-15	20.62	31.75	318.2	60	360	TOHT10..	GP06-085
MCTR22.23XU31.75-15	22.23	31.75	348.4	60	393	TOHT11..	GP06-100
MCTR23.80XU31.75-15	23.8	31.75	378.4	60	426	TOHT11..	GP06-100
MCTR25.40XU31.75-15	25.4	31.75	393.7	60	442	TOHT12..	GP06
MCTR26.97XU31.75X-15	26.97	31.75	423.7	60	475	TOHT12..	GP06

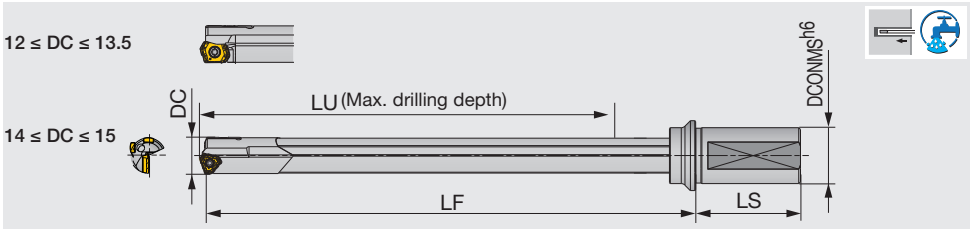
DC	Tool diameter tolerance	Hole diameter tolerance*
12 - 28	0 / - 0.07	+ 0.05 / - 0.1

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DEEP TRI DRILL

MCTR L/D=20

Drill body for lathes and machining centers, L/D = 20, tool diameter ø12 - ø15 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR12.00XM20-20	12	20	261.8	50	290	LOGT06...	GP04-055
MCTR12.50XM20-20	12.5	20	261.8	50	291	LOGT06...	GP04-055
MCTR13.00XM25-20	13	25	281.8	56	315	LOGT06...	GP04-055
MCTR13.50XM25-20	13.5	25	281.8	56	315	LOGT06...	GP04-055
MCTR14.00XM25-20	14	25	302	56	336	TOHT07...	GP05-060
MCTR14.50XM25-20	14.5	25	302	56	337	TOHT07...	GP05-060
MCTR15.00XM25-20	15	25	322	56	358	TOHT07...	GP05-060

øDc	Tool diameter tolerance	Hole diameter tolerance*
12 - 15	0 / - 0.07	+ 0.05 / - 0.1

SPARE PARTS



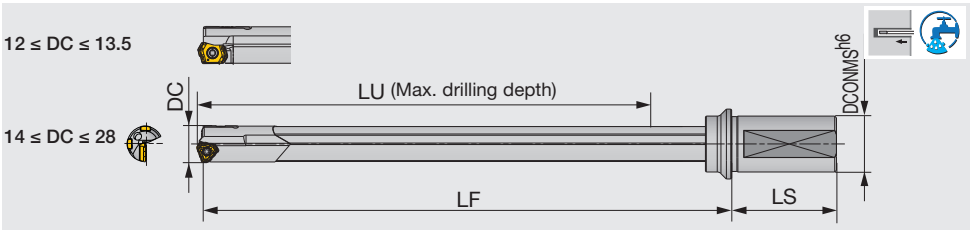

Designation	insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR12...-MCTR13.5...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
MCTR14...-MCTR15...	SR14-560/S	T-8F	SR34-508	T-7F

Recommended clamping torque (N·m): CSPB-2L043=0.7, SR34-508=0.9, SR14-560/S=1.2, SR10503833L040=1.3

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

MCTR L/D=25

Drill body for lathes and machining centers, L/D = 25, tool diameter ø12 - ø28 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR12.00XM20-25	12	20	326.8	50	355	LOGT06...	GP04-055
MCTR12.50XM20-25	12.5	20	326.8	50	356	LOGT06...	GP04-055
MCTR13.00XM25-25	13	25	351.8	56	385	LOGT06...	GP04-055
MCTR13.50XM25-25	13.5	25	351.8	56	385	LOGT06...	GP04-055
MCTR14.00XM25-25	14	25	377	56	411	TOHT07...	GP05-060
MCTR14.50XM25-25	14.5	25	377	56	412	TOHT07...	GP05-060
MCTR15.00XM25-25	15	25	402	56	438	TOHT07...	GP05-060
MCTR16.00XM25A-25	16	25	427.2	56	464	TOHT08...	GP05-075
MCTR16.50XM25A-25	16.5	25	427.2	56	464	TOHT08...	GP05-075
MCTR17.00XM25A-25	17	25	452.2	56	490	TOHT08...	GP05-075
MCTR17.50XM25A-25	17.5	25	452.2	56	490	TOHT08...	GP05-075
MCTR18.00XM25A-25	18	25	477.2	56	517	TOHT08...	GP05-075
MCTR18.50XM25-25	18.5	25	478	56	517	TOHT09...	GP06-085
MCTR19.00XM25-25	19	25	503	56	543	TOHT09...	GP06-085
MCTR19.50XM25-25	19.5	25	503	56	543	TOHT09...	GP06-085
MCTR20.00XM32-25	20	32	528	60	570	TOHT09...	GP06-085
MCTR21.00XM32-25	21	32	553.2	60	596	TOHT10...	GP06-085
MCTR22.00XM32-25	22	32	578.4	60	623	TOHT11...	GP06-100
MCTR23.00XM32-25	23	32	603.4	60	649	TOHT11...	GP06-100
MCTR24.00XM32-25	24	32	628.4	60	676	TOHT11...	GP06-100
MCTR25.00XM32-25	25	32	653.4	60	702	TOHT11...	GP06-100
MCTR26.00XM40-25	26	40	678.7	70	729	TOHT12...	GP06
MCTR27.00XM40-25	27	40	703.7	70	755	TOHT12...	GP06
MCTR28.00XM40-25	28	40	703.7	70	757	TOHT12...	GP06
MCTR12.70XU25.4-25	12.7	25.4	326.8	56	359	LOGT06..	GP04-055
MCTR13.49XU25.4-25	13.49	25.4	351.8	56	385	LOGT06..	GP04-055
MCTR14.27XU25.4-25	14.27	25.4	377	56	411	TOHT07..	GP05-060
MCTR15.88XU25.4-25	15.88	25.4	402	56	439	TOHT07..	GP05-060
MCTR17.45XU25.4A-25	17.45	25.4	452.2	56	490	TOHT08..	GP05-075
MCTR18.24XU25.4-25	18.24	25.4	478	56	517	TOHT09..	GP06-085
MCTR18.64XU25.4-25	18.64	25.4	478	56	517	TOHT09..	GP06-085
MCTR19.05XU25.4-25	19.05	25.4	503	56	543	TOHT09..	GP06-085
MCTR19.94XU31.75-25	19.94	31.75	528	60	570	TOHT09..	GP06-085
MCTR20.62XU31.75-25	20.62	31.75	528.2	60	570	TOHT10..	GP06-085
MCTR22.23XU31.75-25	22.23	31.75	578.4	60	623	TOHT11..	GP06-100
MCTR23.80XU31.75-25	23.8	31.75	628.4	60	676	TOHT11..	GP06-100
MCTR25.40XU31.75-25	25.4	31.75	653.7	60	702	TOHT12..	GP06
MCTR26.97XU31.75X-25	26.97	31.75	703.7	60	755	TOHT12..	GP06

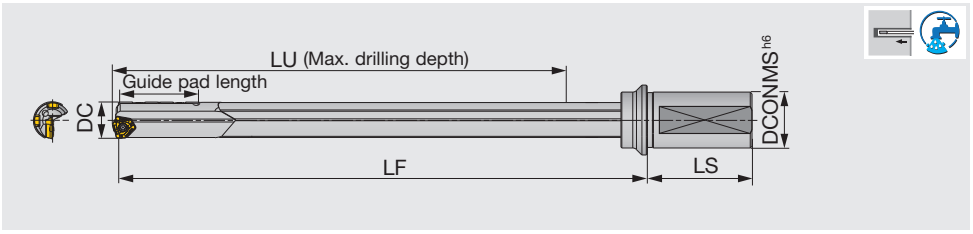
DC	Tool diameter tolerance	Hole diameter tolerance*
12 - 28	0 / - 0.07	+ 0.05 / - 0.1

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DEEP TRI DRILL

MCTRCH L/D=25

Drill body for lathes and machining centers, available for crossed hole, L/D = 25, tool diameter ø14 - ø28 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad	Guide pad length
MCTRCH14.00XM25-25	14	25	377	56	411	TOHT07...	GP05 - 060	32
MCTRCH15.00XM25-25	15	25	402	56	438	TOHT07...	GP05 - 060	32
MCTRCH16.00XM25A-25	16	25	427.2	56	464	TOHT08...	GP05 - 075	32
MCTRCH18.00XM25A-25	18	25	477.2	56	517	TOHT08...	GP05 - 075	32
MCTRCH19.00XM25-25	19	25	503	56	543	TOHT09...	GP06 - 085	40
MCTRCH20.00XM32-25	20	32	528	60	570	TOHT09...	GP06 - 085	40
MCTRCH23.00XM32-25	23	32	603.4	60	649	TOHT11...	GP06 - 100	40
MCTRCH24.00XM32-25	24	32	628.4	60	676	TOHT11...	GP06 - 100	40
MCTRCH28.00XM40-25	28	40	703.7	70	757	TOHT12...	GP06	40
MCTRCH14.68XU25.4-25	14.68	25.4	377	56	412	TOHT07...	GP05 - 060	32
MCTRCH15.06XU25.4-25	15.06	25.4	402	56	438	TOHT07...	GP05 - 060	32
MCTRCH18.24XU25.4-25	18.24	25.4	478	56	517	TOHT09...	GP06 - 085	40
MCTRCH18.64XU25.4-25	18.64	25.4	478	56	517	TOHT09...	GP06 - 085	40
MCTRCH23.80XU31.75-25	23.8	31.75	628.4	60	676	TOHT11...	GP06 - 100	40

DC	Tool diameter tolerance	Hole diameter tolerance*
ø14 - ø28	0 / - 0.09	+ 0.05 / - 0.12

SPARE PARTS



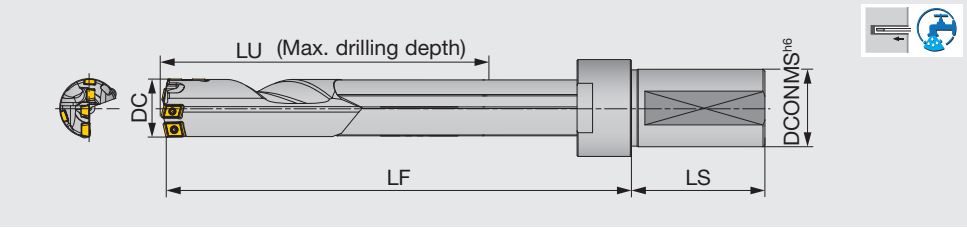

Designation	insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTRCH14... - MCTRCH20...	SR14-560/S	T-8F	SR34-508	T-7F
MCTRCH23... - MCTRCH24...	SR14-571/S	T-10/5	SR34-508	T-7F
MCTRCH28...	SR14-506	T-15F	SR34-508	T-7F

Recommended clamping torque (N·m): SR34-508=0.9, SR14-560/S=1.2, SR14-571/S=3.2, SR14-506=4.8

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

MCTR L/D=8

Drill body for lathes and machining centers, L/D = 8, tool diameter ø33.1, ø39.1 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR33.10XFM40-8	33.1	40	272	69	350	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR39.10XFM40-8	39.1	40	320	69	407	FBM08**-C, FBM06**-I, FBH09**-P	GP08

DC	Tool diameter tolerance	Hole diameter tolerance*
33.1, 39.1	0 / - 0.07	+ 0.05 / - 0.1

*Max. DC = 40: Available tailor-made tools

SPARE PARTS

Designation	insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR33.1..., MCTR39.1...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

Recommended clamping torque (N·m): CSTB-2.5=1.3, CSTB-3S=2.3

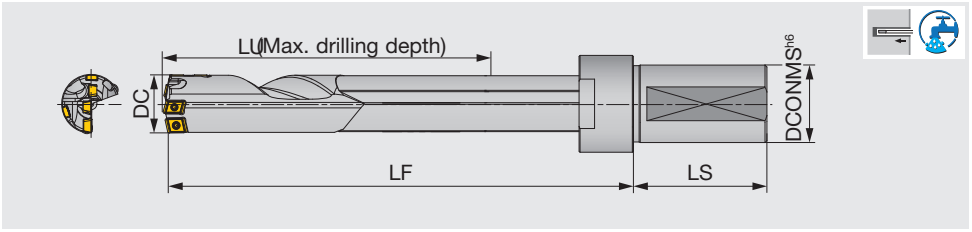
Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven.
This, however, will not affect the performance of the drill.

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DEEP TRI DRILL

MCTR L/D=10

Drill body for lathes and machining centers, L/D = 10, tool diameter ø29 - ø36 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR29.00XFM40-10	29	40	292.6	69	360	FBM06**-C, FBM05**-I, FBH06**-P	GP06
MCTR30.00XFM40-10	30	40	312.9	69	383	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR31.00XFM40-10	31	40	312.9	69	383	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR32.00XFM40-10	32	40	323	69	395	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR33.00XFM40-10	33	40	333.1	69	406	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR34.00XFM40-10	34	40	343	69	418	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR35.00XFM40-10	35	40	353.1	69	428	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR36.00XFM40-10	36	40	363.1	69	441	FBM08**-C, FBM06**-I, FBH07**-P	GP07
MCTR28.58XFU31.75-10	28.58	31.75	292.6	69	360	FBM06**-C, FBM05**-I, FBH06**-P	GP06
MCTR31.75XFU31.75-10	31.75	31.75	323	69	395	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR34.93XFU31.75-10	34.93	31.75	353.1	69	428	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR38.10XFU31.75-10	38.1	31.75	393.4	69	474	FBM08**-C, FBM06**-I, FBH09**-P	GP08

DC	Tool diameter tolerance	Hole diameter tolerance*
28.58 - 38.1	0 / - 0.07	+ 0.05 / - 0.1

*Max. DC = 40: Available tailor-made tools

SPARE PARTS

Designation	insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR28.58... - MCTR29...	CSTB-2.5	T-8F	CSTB-2.2	T-7F	CSTB-2.2	T-7F	SR34-508	T-7F
MCTR30... - MCTR33...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F
MCTR34... - MCTR38.1...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

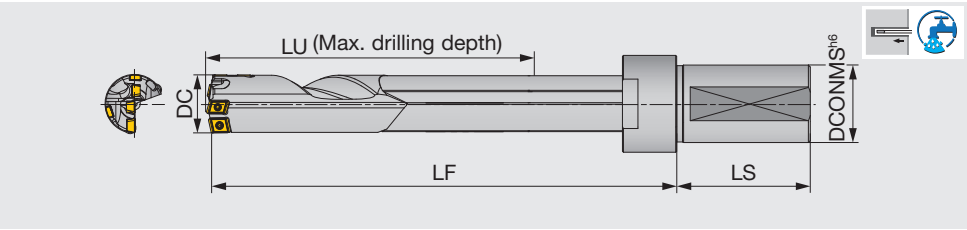
Recommended clamping torque (N·m): SR34-508=0.9, CSTB-2.2=1, CSTB-2.5=1.3, CSTB-3S=2.3,

Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven.
This, however, will not affect the performance of the drill.

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

MCTR L/D=15

Drill body for lathes and machining centers, L/D = 15, tool diameter ø29 - ø36 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR29.00XFM40-15	29	40	437.6	69	505	FBM06**-C, FBM05**-I, FBH06**-P	GP06
MCTR30.00XFM40-15	30	40	467.9	69	538	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR31.00XFM40-15	31	40	467.9	69	538	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR32.00XFM40-15	32	40	483	69	555	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR33.00XFM40-15	33	40	498.1	69	571	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR34.00XFM40-15	34	40	513	69	588	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR35.00XFM40-15	35	40	528.1	69	603	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR36.00XFM40-15	36	40	543.1	69	621	FBM08**-C, FBM06**-I, FBH07**-P	GP07
MCTR28.58XFU31.75-15	28.58	31.75	437.6	69	505	FBM06**-C, FBM05**-I, FBH06**-P	GP06
MCTR31.75XFU31.75-15	31.75	31.75	483	69	555	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR34.93XFU31.75-15	34.93	31.75	528.1	69	603	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR38.10XFU31.75-15	38.1	31.75	588.4	69	669	FBM08**-C, FBM06**-I, FBH09**-P	GP08

DC	Tool diameter tolerance	Hole diameter tolerance*
28.58 - 38.1	0 / - 0.07	+ 0.05 / - 0.1

*Max. DC = 40: Available tailor-made tools

SPARE PARTS

Designation	insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR28.58... - MCTR29...	CSTB-2.5	T-8F	CSTB-2.2	T-7F	CSTB-2.2	T-7F	SR34-508	T-7F
MCTR30... - MCTR33...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F
MCTR34... - MCTR38...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

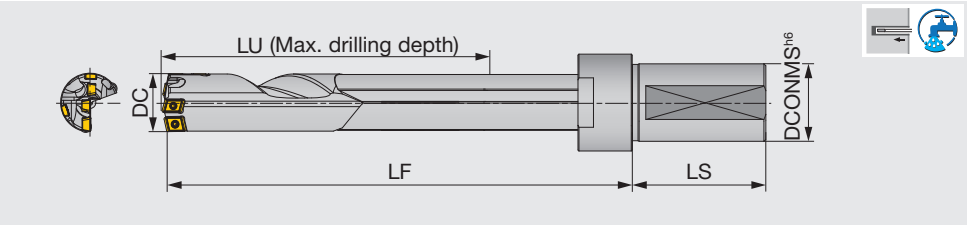
Recommended clamping torque (N·m): SR34-508=0.9, CSTB-2.2=1, CSTB-2.5=1.3, CSTB-3S=2.3,

Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven.
This, however, will not affect the performance of the drill.

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DEEP TRI DRILL
MCTR L/D=25

Drill body for lathes and machining centers, L/D = 25, tool diameter ø29 - ø36 mm



Designation	DC	DCONMS	LU	LS	LF	Insert	Guide pad
MCTR30.00XFM40-25	30	40	777.9	69	848	FBM06**-C/I, FBH07**-P	GP06
MCTR28.58XFU31.75-25*	28.58	31.75	727.6	69	795	FBM06**-C, FBM05**-I, FBH06**-P	GP06
MCTR31.75XFU31.75-25*	31.75	31.75	803	69	875	FBM06**-C, FBM06**-I, FBH07**-P	GP06
MCTR34.93XFU31.75-25*	34.93	31.75	878.1	69	953	FBM06**-C, FBM06**-I, FBH07**-P	GP07
MCTR38.10XFU31.75-25*	38.1	31.75	978.4	69	1059	FBM08**-C, FBM06**-I, FBH09**-P	GP08

will be released in 2019.

DC	Tool diameter tolerance	Hole diameter tolerance*
28.58 - 38.1	0 / - 0.07	+ 0.05 / - 0.1

*Max. DC = 40: Available tailor-made tools

SPARE PARTS

Designation	insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
MCTR28...	CSTB-2.5	T-8F	CSTB-2.2	T-7F	CSTB-2.2	T-7F	SR34-508	T-7F
MCTR30... - MCTR31...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F
MCTR34... - MCTR38...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-3S	T-9F

Recommended clamping torque (N·m): SR34-508=0.9, CSTB-2.2=1, CSTB-2.5=1.3, CSTB-3S=2.3,

Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven.
This, however, will not affect the performance of the drill.

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DESIGNATION FOR TAILOR MADE TOOLS

For tailor-made drills, use the below guide line to make the designation (Cat. No).

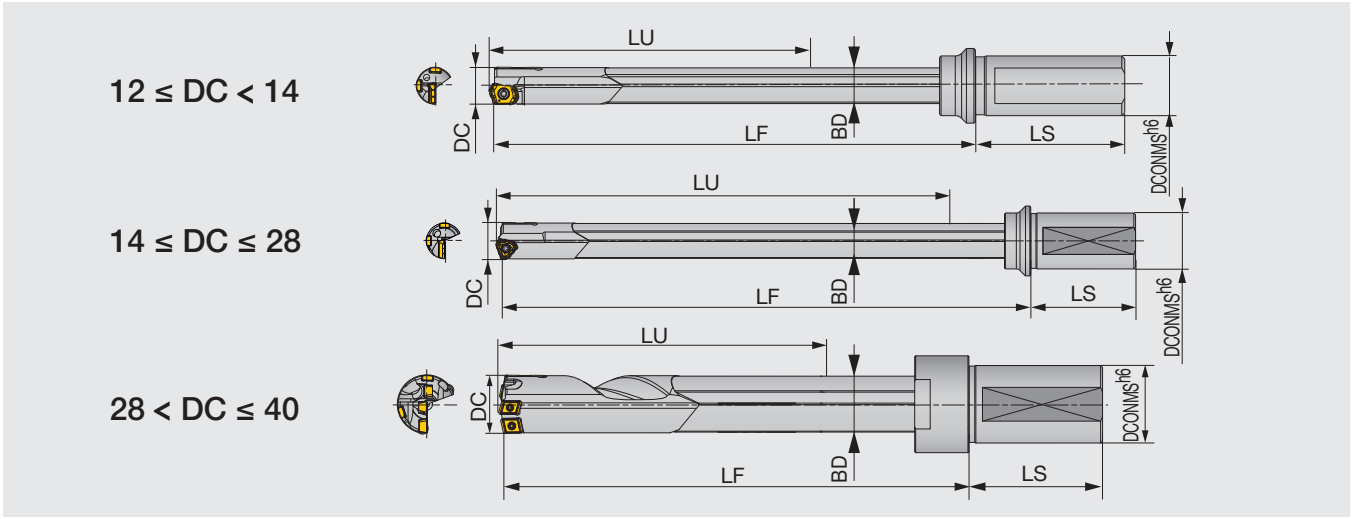
MCTR	18.50	XM	25	-	22
1	2		3		4

1 Series	
MCTR	DeepTri-Drill (For machining centers and lathes)
MCTRCH	DeepTri-Drill (For gundrill machines, cross hole specification)

2 Drill diameter DC (mm)	
18.50	18.50

3 Driver diameter DCONMS (mm)	
25	25

4 L/D ratio



AVAILABLE RANGE OF TAILOR MADE DRILL BODIES

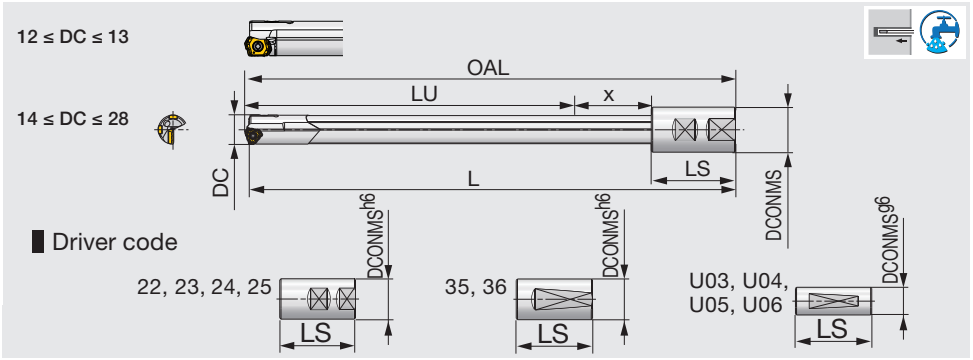
DC	DCONMS	LU	LS	LF
12 - 12.49	20	124.8 - 326.8	50	153 - 225
12.5 - 12.99	20	123.8 - 326.8	50	153 - 226
13 - 13.99	25	122.8 - 351.8	56	156 - 245
14 - 14.49	25	122 - 377	56	156 - 411
14.5 - 14.99	25	122 - 377	56	157 - 412
15 - 15.99	25	130 - 402	56	166 - 438
16 - 16.79	25	138.2 - 427.2	56	175 - 464
16.8 - 17.69	25	146.2 - 452.2	56	184 - 490
17.7 - 18.69	25	154.2 - 478	56	194 - 517
18.7 - 19.69	25	163 - 503	56	203 - 543
19.7 - 20.69	32	171 - 528.2	60	213 - 570
20.7 - 21.69	32	179.2 - 553.2	60	222 - 596
21.7 - 22.69	32	187.2 - 578.4	60	232 - 623
22.7 - 23.69	32	195.4 - 603.4	60	241 - 649
23.7 - 24.69	32	203.4 - 628.4	60	251 - 676
24.7 - 25.69	32	211.4 - 653.7	60	260 - 702

DC	DCONMS	LU	LS	LF
25.7 - 26.69	40	219.7 - 678.7	70	270 - 719
26.7 - 27.69	40	227.7 - 703.7	70	279 - 745
27.7 - 28	40	227.7 - 703.7	70	281 - 747
28.01 - 29	40	148.7 - 728.7	69	215 - 795
29.01 - 29.99	40	153.7 - 753.7	69	222 - 822
30 - 31	40	158.7 - 778.7	69	228 - 848
31.01 - 32	40	163.7 - 803.7	69	235 - 875
32.01 - 33	40	168.7 - 828.7	69	241 - 901
33.01 - 34	40	173.7 - 853.7	69	248 - 928
34.01 - 35	40	178.7 - 878.7	69	253 - 953
35.01 - 36	40	183.7 - 903.7	69	261 - 981
36.01 - 37	40	188.7 - 928.7	69	266 - 1006
37.01 - 38	40	193.7 - 953.7	69	274 - 1034
38.01 - 39	40	198.7 - 978.7	69	279 - 1059
39.01 - 40	40	203.7 - 1003.7	69	287 - 1087

DEEP TRI DRILL

TRLG

Drill body for gundrill machines, tool diameter ø12 - ø28 mm



Designation	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG12.00X800-U03	12	800	19.05	713.8	801.8	70	18	U03	LOGT06...	GP04-055
TRLG12.00X800-22	12	800	20	733.8	801.8	50	18	22	LOGT06...	GP04-055
TRLG12.00X1000-U03	12	1000	19.05	913.8	1001.8	70	18	U03	LOGT06...	GP04-055
TRLG12.00X1000-22	12	1000	20	933.8	1001.8	50	18	22	LOGT06...	GP04-055
TRLG12.00X1650-U03	12	1650	19.05	1563.8	1651.8	70	18	U03	LOGT06...	GP04-055
TRLG12.00X1650-22	12	1650	20	1583.8	1651.8	50	18	22	LOGT06...	GP04-055
TRLG13.00X800-U04	13	800	25.4	711.8	801.8	70	20	U04	LOGT06...	GP04-055
TRLG13.00X800-23	13	800	25	725.8	801.8	56	20	23	LOGT06...	GP04-055
TRLG13.00X1000-U04	13	1000	25.4	911.8	1001.8	70	20	U04	LOGT06...	GP04-055
TRLG13.00X1000-23	13	1000	25	925.8	1001.8	56	20	23	LOGT06...	GP04-055
TRLG13.00X1650-U04	13	1650	25.4	1561.8	1651.8	70	20	U04	LOGT06...	GP04-055
TRLG13.00X1650-23	13	1650	25	1575.8	1651.8	56	20	23	LOGT06...	GP04-055
TRLG14.00X800-23	14	800	25	725	802	56	21	23	TOHT07...	GP05-060
TRLG14.00X800-U04	14	800	25.4	711	802	70	21	U04	TOHT07...	GP05-060
TRLG14.00X1000-23	14	1000	25	925	1002	56	21	23	TOHT07...	GP05-060
TRLG14.00X1000-U04	14	1000	25.4	911	1002	70	21	U04	TOHT07...	GP05-060
TRLG14.00X1650-23	14	1650	25	1575	1652	56	21	23	TOHT07...	GP05-060
TRLG14.00X1650-U04	14	1650	25.4	1561	1652	70	21	U04	TOHT07...	GP05-060
TRLG14.50X800-23	14.5	800	25	724	802	56	22	23	TOHT07...	GP05-060
TRLG14.50X800-U04	14.5	800	25.4	710	802	70	22	U04	TOHT07...	GP05-060
TRLG14.50X1000-23	14.5	1000	25	924	1002	56	22	23	TOHT07...	GP05-060
TRLG14.50X1000-U04	14.5	1000	25.4	910	1002	70	22	U04	TOHT07...	GP05-060
TRLG14.50X1650-23	14.5	1650	25	1574	1652	56	22	23	TOHT07...	GP05-060
TRLG14.50X1650-U04	14.5	1650	25.4	1560	1652	70	22	U04	TOHT07...	GP05-060
TRLG15.00X800-23	15	800	25	723	802	56	23	23	TOHT07...	GP05-060
TRLG15.00X800-U04	15	800	25.4	709	802	70	23	U04	TOHT07...	GP05-060
TRLG15.00X1000-23	15	1000	25	923	1002	56	23	23	TOHT07...	GP05-060
TRLG15.00X1000-U04	15	1000	25.4	909	1002	70	23	U04	TOHT07...	GP05-060
TRLG15.00X1650-23	15	1650	25	1573	1652	56	23	23	TOHT07...	GP05-060
TRLG15.00X1650-U04	15	1650	25.4	1559	1652	70	23	U04	TOHT07...	GP05-060
TRLG16.00X800-23A	16	800	25	722.2	802.2	56	24	23	TOHT08...	GP05-075
TRLG16.00X800-U04A	16	800	25.4	708.2	802.2	70	24	U04	TOHT08...	GP05-075
TRLG16.00X1000-23A	16	1000	25	922.2	1002.2	56	24	23	TOHT08...	GP05-075
TRLG16.00X1000-U04A	16	1000	25.4	908.2	1002.2	70	24	U04	TOHT08...	GP05-075
TRLG16.00X1500-23A	16	1500	25	1422.2	1502.2	56	24	23	TOHT08...	GP05-075
TRLG16.00X1500-U04A	16	1500	25.4	1408.2	1502.2	70	24	U04	TOHT08...	GP05-075
TRLG17.00X800-23A	17	800	25	721.2	802.2	56	25	23	TOHT08...	GP05-075
TRLG17.00X800-U04A	17	800	25.4	707.2	802.2	70	25	U04	TOHT08...	GP05-075
TRLG17.00X1000-23A	17	1000	25	921.2	1002.2	56	25	23	TOHT08...	GP05-075
TRLG17.00X1000-U04A	17	1000	25.4	907.2	1002.2	70	25	U04	TOHT08...	GP05-075
TRLG18.00X800-23A	18	800	25	719.2	802.2	56	27	23	TOHT08...	GP05-075

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

Designation	DC	L	DCONMS	LU	OAL	LS	x	Driver code	Insert	Guide pad
TRLG18.00X800-U04A	18	800	25.4	705.2	802.2	70	27	U04	TOHT08...	GP05-075
TRLG18.00X1000-23A	18	1000	25	919.2	1002.2	56	27	23	TOHT08...	GP05-075
TRLG18.00X1000-U04A	18	1000	25.4	905.2	1002.2	70	27	U04	TOHT08...	GP05-075
TRLG18.00X1500-23A	18	1500	25	1419.2	1502.2	56	27	23	TOHT08...	GP05-075
TRLG18.00X1500-U04A	18	1500	25.4	1405.2	1502.2	70	27	U04	TOHT08...	GP05-075
TRLG18.50X1500-23	18.5	1500	25	1420	1503	56	27	23	TOHT09...	GP06-085
TRLG18.50X1500-U04	18.5	1500	25.4	1406	1503	70	27	U04	TOHT09...	GP06-085
TRLG19.00X800-23	19	800	25	719	803	56	28	23	TOHT09...	GP06-085
TRLG19.00X800-U04	19	800	25.4	705	803	70	28	U04	TOHT09...	GP06-085
TRLG19.00X1000-23	19	1000	25	919	1003	56	28	23	TOHT09...	GP06-085
TRLG19.00X1000-U04	19	1000	25.4	905	1003	70	28	U04	TOHT09...	GP06-085
TRLG20.00X800-24	20	800	32	713	803	60	30	24	TOHT09...	GP06-085
TRLG20.00X800-U05	20	800	31.75	703	803	70	30	U05	TOHT09...	GP06-085
TRLG20.00X1000-24	20	1000	32	913	1003	60	30	24	TOHT09...	GP06-085
TRLG20.00X1000-U05	20	1000	31.75	903	1003	70	30	U05	TOHT09...	GP06-085
TRLG21.00X1000-24	21	1000	32	912.2	1003.2	60	31	24	TOHT10...	GP06-085
TRLG21.00X1000-U05	21	1000	31.75	902.2	1003.2	70	31	U05	TOHT10...	GP06-085
TRLG22.00X1000-24	22	1000	32	910.4	1003.4	60	33	24	TOHT11...	GP06-100
TRLG22.00X1000-U05	22	1000	31.75	900.4	1003.4	70	33	U05	TOHT11...	GP06-100
TRLG22.00X1500-24	22	1500	32	1410.4	1503.4	60	33	24	TOHT11...	GP06-100
TRLG22.00X1500-U05	22	1500	31.75	1400.4	1503.4	70	33	U05	TOHT11...	GP06-100
TRLG23.00X1000-24	23	1000	32	909.4	1003.4	60	34	24	TOHT11...	GP06-100
TRLG23.00X1000-U05	23	1000	31.75	899.4	1003.4	70	34	U05	TOHT11...	GP06-100
TRLG23.00X1500-24	23	1500	32	1409.4	1503.4	60	34	24	TOHT11...	GP06-100
TRLG23.00X1500-U05	23	1500	31.75	1399.4	1503.4	70	34	U05	TOHT11...	GP06-100
TRLG24.00X1000-24	24	1000	32	907.4	1003.4	60	36	24	TOHT11...	GP06-100
TRLG24.00X1000-U05	24	1000	31.75	897.4	1003.4	70	36	U05	TOHT11...	GP06-100
TRLG24.00X1500-24	24	1500	32	1407.4	1503.4	60	36	24	TOHT11...	GP06-100
TRLG24.00X1500-U05	24	1500	31.75	1397.4	1503.4	70	36	U05	TOHT11...	GP06-100
TRLG25.00X1000-24	25	1000	32	906.4	1003.4	60	37	24	TOHT11...	GP06-100
TRLG25.00X1000-U05	25	1000	31.75	896.4	1003.4	70	37	U05	TOHT11...	GP06-100
TRLG26.00X1000-25	26	1000	40	894.7	1003.7	70	39	25	TOHT12...	GP06
TRLG26.00X1000-U06	26	1000	38.1	894.7	1003.7	70	39	U06	TOHT12...	GP06
TRLG27.00X1000-25	27	1000	40	893.7	1003.7	70	40	25	TOHT12...	GP06
TRLG27.00X1000-U06	27	1000	38.1	893.7	1003.7	70	40	U06	TOHT12...	GP06
TRLG28.00X1000-25	28	1000	40	891.7	1003.7	70	42	25	TOHT12...	GP06
TRLG28.00X1000-U06	28	1000	38.1	891.7	1003.7	70	42	U06	TOHT12...	GP06
TRLG12.70X1219-U04	12.7	1219	25.4	1131.8	1220.8	70	19	U04	LOGT06..	GP04-055
TRLG12.70X1524-U04	12.7	1524	25.4	1436.8	1525.8	70	19	U04	LOGT06..	GP04-055
TRLG13.49X1219-U04	13.49	1219	25.4	1130.8	1220.8	70	20	U04	LOGT06..	GP04-055
TRLG13.49X1527-U04	13.49	1527	25.4	1438.8	1528.8	70	20	U04	LOGT06..	GP04-055

DC	Tool diameter tolerance	Hole diameter tolerance*
12 - 28	0 / - 0.07	+ 0.05 / - 0.1

SPARE PARTS




Designation	insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLG12... - TRLG13...	SR10503833L040	T-7F	CSPB-2L043	IP-6F
TRLG14... - TRLG20...	SR14-560/S	T-8F	SR34-508	T-7F
TRLG21...	SR34-506	T-9F	SR34-508	T-7F
TRLG22... - TRLG25...	SR14-571/S	T-10/5	SR34-508	T-7F
TRLG26... - TRLG28...	SR14-506	T-15F	SR34-508	T-7F

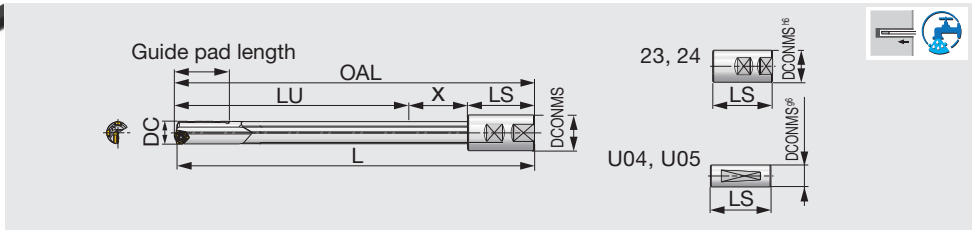
Recommended clamping torque (N·m): CSPB-2L043=0.7, SR34-508=0.9, SR34-506=0.9, SR14-560/S=1.2, SR10503833L040=1.3, SR14-571/S=3.2, SR14-506=4.8

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DEEP TRI DRILL

TRLGCH

Drill body for gundrill machines, available for crossed hole, tool diameter ø12 - ø28 mm



Designation	DC	L	DCONMS	LU	OAL	LS	X	Driver code	Insert	Guide pad	Guide pad length
TRLGCH15.00X1650-U04	15	1650	25.4	1559	1652	70	23	U04	TOHT07...	GP05 - 060	32
TRLGCH18.00X1650-U04A	18	1650	25.4	1555.2	1652.2	70	27	U04	TOHT08...	GP05 - 075	32
TRLGCH23.00X1650-U05	23	1650	31.75	1549.4	1653.4	70	34	U05	TOHT11...	GP06 - 100	40
TRLGCH24.00X1650-U05	24	1650	31.75	1547.4	1653.4	70	36	U05	TOHT11...	GP06 - 100	40
TRLGCH15.00X1650-23	15	1650	25	1573	1652	56	23	23	TOHT07...	GP05 - 060	40
TRLGCH18.00X1650-23A	18	1650	25	1569.2	1652.2	56	27	23	TOHT08...	GP05 - 075	40
TRLGCH23.00X1650-24	23	1650	32	1559.4	1653.4	60	34	24	TOHT11...	GP06 - 100	40
TRLGCH24.00X1650-24	24	1650	32	1557.4	1653.4	60	36	24	TOHT11...	GP06 - 100	40
TRLGCH14.68X1830-U05	14.68	1830	31.75	1740	1832	70	22	U05	TOHT07...	GP05 - 060	40
TRLGCH15.06X1830-U05	15.06	1830	31.75	1739	1832	70	23	U05	TOHT07...	GP05 - 060	40
TRLGCH18.24X1830-U05	18.24	1830	31.75	1736	1833	70	27	U05	TOHT09...	GP06 - 085	40
TRLGCH18.64X1830-U05	18.64	1830	31.75	1736	1833	70	27	U05	TOHT09...	GP06 - 085	40
TRLGCH23.42X1830-U05	23.42	1830	31.75	1729.4	1833.4	70	34	U05	TOHT11...	GP06 - 100	40
TRLGCH23.80X1830-U05	23.8	1830	31.75	1727.4	1833.4	70	36	U05	TOHT11...	GP06 - 100	40

DC	Tool diameter tolerance	Hole diameter tolerance*
ø14.68 - ø24	0 / - 0.09	+ 0.05 / - 0.12

SPARE PARTS



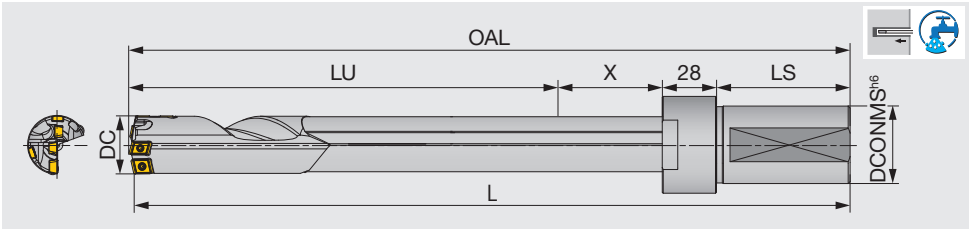

Designation	insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLGCH14... - TRLGCH15...	SR14-560/S	T-8F	SR34-508	T-7F
TRLGCH18.0**A	SR14-560/S	T-8F	SR34-508	T-7F
TRLGCH18.2... - TRLGCH18.6...	SR14-560/S	T-8F	SR34-508	T-7F
TRLGCH23... - TRLGCH24...	SR14-571/S	T-9F	SR34-508	T-7F

Recommended clamping torque (N·m): SR14-560/S=1.2, SR14-571/S=3.2, SR34-508=0.9

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

TRLG

Drill body for gundrill machines, tool diameter ø30 mm



Designation	DC	L	DCONMS	LU	OAL	LS	X	Driver code	Insert	Guide pad
TRLG30.00X1000-FM40	30	1000	40	860.9	1002.9	69	45	FM40	FBM06**-C, FBM06**-I, FBH07**-P	GP06
TRLG30.00X1650-FM40	30	1650	40	1510.9	1652.9	69	45	FM40	FBM06**-C, FBM06**-I, FBH07**-P	GP06
TRLG30.00X1650-FU38.1	30	1650	38.1	1510.9	1652.9	69	45	FU38.1	FBM06**-C, FBM06**-I, FBH07**-P	GP06

DC	Tool diameter tolerance	Hole diameter tolerance*
30	0 / - 0.07	+ 0.05 / - 0.1

*Max. DC = 40: Available tailor-made tools

SPARE PARTS

Designation	insert						Guide pad	
	Central		Intermediate		Peripheral		Screw	Wrench
	Screw	Wrench	Screw	Wrench	Screw	Wrench		
TRLG30...	CSTB-2.5	T-8F	CSTB-2.5	T-8F	CSTB-2.5	T-8F	SR34-508	T-7F

Recommended clamping torque (N·m): CSTB-2.5=1.3, SR34-508=0.9

Caution:
The drill pipe is blackened to increase the resistance to corrosion, and the finished surface may appear uneven.
This, however, will not affect the performance of the drill.

Reference pages: Inserts, Guide pads → J105 - J108, Standard cutting conditions → J109

DESIGNATION FOR TAILOR MADE TOOLS

For tailor-made drills, use the below guide line to make the designation (Cat. No).

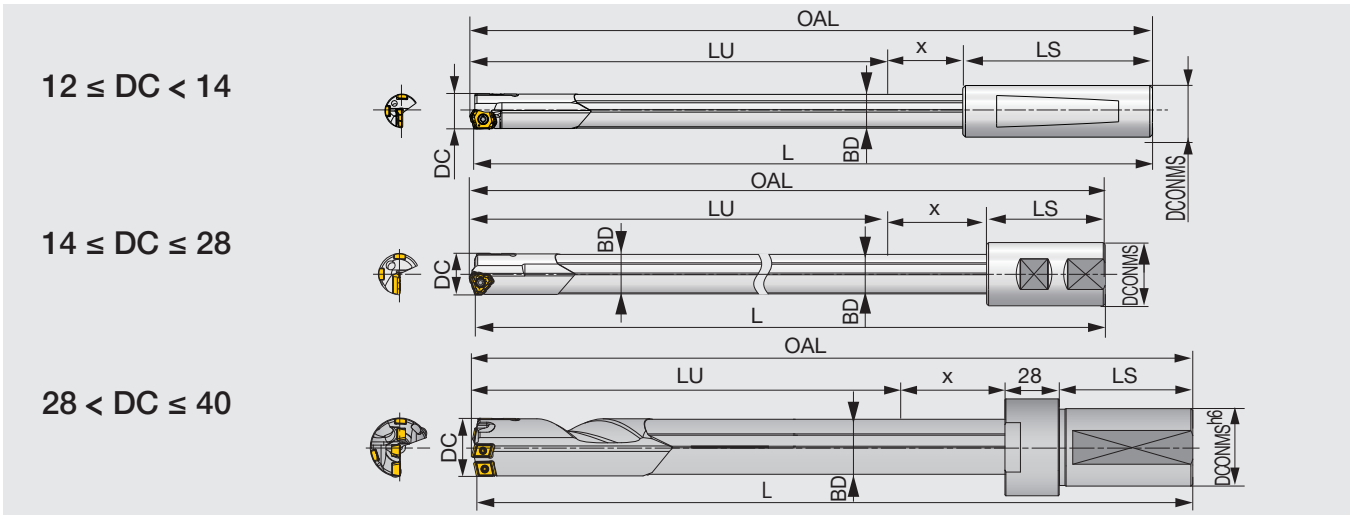
①	②		③		④
TRLG	18.50	X	900	-	23

① Series	
TRLG	DeepTri-Drill (for gundrill machines)
TRLGCH	DeepTri-Drill (For gundrill machines, cross hole specification)

② Drill diameter DC (mm)	
18.50	18.50

③ Overall length: L (mm)	
900	900

④ Driver code	
23	23



AVAILABLE RANGE OF TAILOR MADE DRILL BODIES

DC	L	x
12 - 12.49	400 - 2400	18
12.5 - 12.99	400 - 2400	19
13 - 13.99	400 - 2400	20
14 - 14.49	400 - 2400	21
14.5 - 14.99	400 - 2400	22
15 - 15.99	400 - 2400	23
16 - 16.79	400 - 2400	24
16.8 - 17.69	400 - 2400	25
17.7 - 18.69	400 - 2400	27
18.7 - 19.69	400 - 2400	28
19.7 - 20.69	400 - 2400	30
20.7 - 21.69	400 - 2400	31
21.7 - 22.69	400 - 2400	33
22.7 - 23.69	400 - 2400	34
23.7 - 24.69	400 - 2400	36
24.7 - 25.69	400 - 2400	37

DC	L	x
25.7 - 26.69	400 - 2400	39
26.7 - 27.69	400 - 2400	40
27.7 - 28	400 - 2400	42
28.01 - 29	400 - 2400	42
29.01 - 29.99	400 - 2400	44
30 - 31	400 - 2400	45
31.01 - 32	400 - 2400	47
32.01 - 33	400 - 2400	48
33.01 - 34	400 - 2400	50
34.01 - 35	400 - 2400	50
35.01 - 36	400 - 2400	53
36.01 - 37	400 - 2400	53
37.01 - 38	400 - 2400	56
38.01 - 39	400 - 2400	56
39.01 - 40	400 - 2400	59

Please provide the driver shape depending on your request

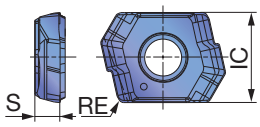
TUBE DIAMETER

DC	BD
12 - 12.49	11.5
12.5 - 12.99	12
13 - 13.49	12.5
13.5 - 13.99	13
14 - 14.49	13.5
14.5 - 14.99	14
15 - 15.99	14.5
16 - 16.79	15.5
16.8 - 17.69	16.2
17.7 - 18.69	17.2
18.7 - 19.69	18.2
19.7 - 20.69	19
20.7 - 21.69	20
21.7 - 22.69	21
22.7 - 23.69	22
23.7 - 24.69	23

DC	BD
24.7 - 25.69	24
25.7 - 26.69	25
26.7 - 27.69	26
27.7 - 28	27
28.01 - 29	27
29.01 - 29.99	28
30 - 31	29
31.01 - 32	30
32.01 - 33	31
33.01 - 34	32
34.01 - 35	32
35.01 - 36	34
36.01 - 37	34
37.01 - 38	36
38.01 - 39	36
39.01 - 40	38

INSERT

LOGT-NDJ



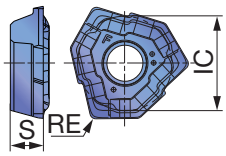
P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

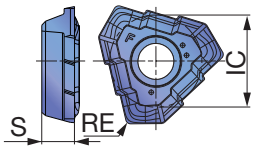
Designation	DCN	DCX	Coated AH725	S	RE
LOGT060204R-NDJ	12	13.99	●	2	0.4

●: Line - up
Package quantity = 10 pcs.

TOHT-NDL (07..., 08...)



TOHT-NDL (09... - 12...)



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

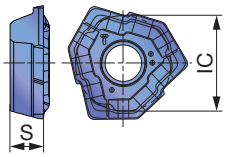
★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated AH725	IC	S	RE
TOHT070304R-NDL	14	15.99	●	7.69	2.3	0.4
TOHT080305R-NDL	16	18	●	8.55	2.8	0.5
TOHT090305R-NDL	18.01	20	●	8.32	3	0.5
TOHT100305R-NDL	20.01	21.99	●	9.23	3.3	0.5
TOHT110405R-NDL	22	25	●	10.4	3.8	0.5
TOHT120405R-NDL	25.01	28	●	11.59	4.3	0.5

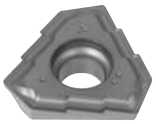
●: Line - up
Package quantity = 10 pcs.

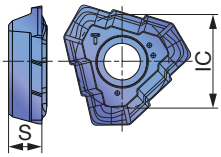
INSERT

TOHT-NDJ (070..., 080...)



TOHT-NDJ (090... - 120...)





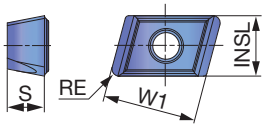
P	Steel	★	
M	Stainless	★	
K	Cast iron	★	
N	Non-ferrous	★	
S	Superalloys	★	
H	Hard materials	★	

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated AH725	IC	S
TOHT070304R-NDJ	14	15.99	●	7.69	2.3
TOHT080305R-NDJ	16	18	●	8.55	2.8
TOHT090305R-NDJ	18.01	20	●	8.32	3
TOHT100305R-NDJ	20.01	21.99	●	9.23	3.3
TOHT110405R-NDJ	22	25	●	10.4	3.8
TOHT120405R-NDJ	25.01	28	●	11.59	4.3

●: Line - up
Package quantity = 10 pcs.

FBM-C(For central)



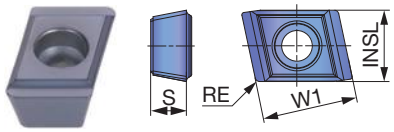
P	Steel	★	
M	Stainless	★	
K	Cast iron	★	
N	Non-ferrous	★	
S	Superalloys	★	
H	Hard materials	★	

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated UC2220	S	DCN	DCX	RE
FBM06504LG-C	6.5	10	●	4	28.01	35	0.8
FBM08004LG-C	8	10	●	4	35.01	40	0.8

●: Line - up
Package quantity = 10 pcs.

FBM-I (For intermediate)



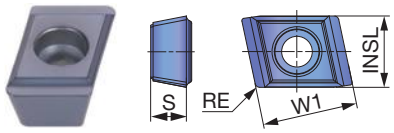
P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated	S	DCN	DCX	RE
			UC2220				
FBM05503RG-I	5.5	8		3	28.01	29.99	0.4
FBM06504RG-I	6.5	10	●	4	30	40	0.4
FBM08004RG-I	8	10	●	4	41.01	51	0.4

●: Line - up
Package quantity = 10 pcs.

FBH-P (For peripheral)



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

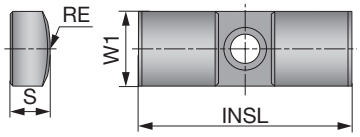
★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated	S	DCN	DCX	RE
			UC2220				
FBH06003RG-P	6	8	●	3	28.01	29.99	0.4
FBH07504RG-P	7.5	10	●	4	30	38	0.4
FBH09004RG-P	9	10	●	4	38.01	40	0.4

●: Line - up
Package quantity = 10 pcs.

GUIDE PAD

GP04, 05, 06, 07, 08



P	Steel	☆	★	☆
M	Stainless	☆	★	☆
K	Cast iron	☆	★	☆
N	Non-ferrous	☆	★	☆
S	Superalloys	☆	★	☆
H	Hard materials	☆	★	☆

★ : First choice
☆ : Second choice

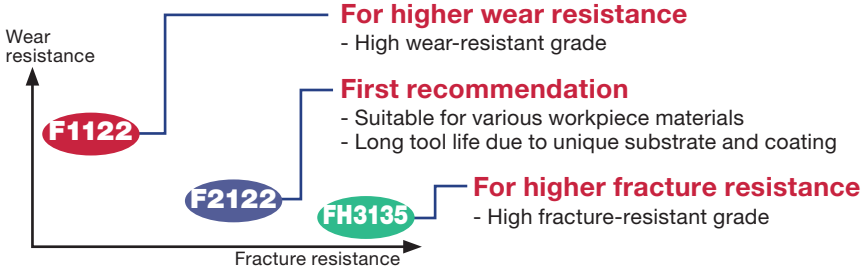
Designation	DCN	DCX	Coated			W1	INSL	S	RE
			F1122	F2122	FH3135				
GP04-055	12	13.99	●	●		4	16	2	5.5
GP04-16-055-DC	12	13.99			●	4	16	2	5.5
GP05-060	14	15.99	●	●		5	18	2.5	6
GP05-18-060-DC	14	15.99			●	5	18	2.5	6
GP05-075	16	18	●	●		5	18	2.5	7.5
GP05-18-075-DC	16	18			●	5	18	2.5	7.5
GP06-085	18.01	21	●	●		6	20	3	8.5
GP06-20-085-DC	18.01	21			●	6	20	3	8.5
GP06-100	21.01	25	●	●		6	20	3	10
GP06-20-100-DC	21.01	25			●	6	20	3	10
GP06	25.01	33	●	●		6	20	3	12
GP06-20-120-DC	25.01	33			●	6	20	3	12
GP07	33.01	38	●	●		7	20	3.5	12
GP07-20-120-DC	33.01	38			●	7	20	3.5	12
GP08	38.01	40	●	●		8	25	4.5	15.5
GP08-25-155-DC	38.01	40			●	8	25	4.5	15.5

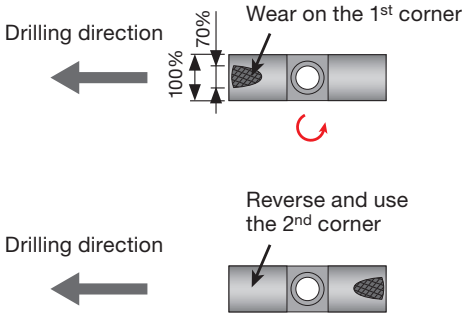
●: Line - up
Package quantity = 5 pcs.

REPLACING GUIDE PADS

Guide pads are subject to wear, like inserts

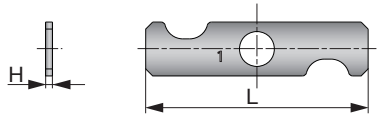
- The guide pad has two corners.
- Each guide pad can be used on two sides. When the first corner wears out a 70% of the width, reverse the guide pad to use the second corner.
- Replace with a new guide pad when the second corner wears out.



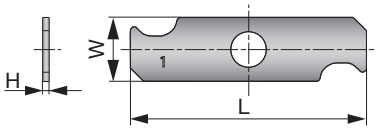


SHIM

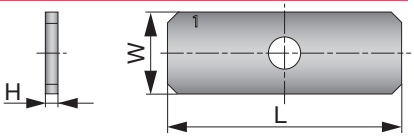
SHIMSET-GP04



SHIMSET-GP05



SHIMSET-GP06



Designation	DC	W	L	H
SHIMSET-GP04	12 - 13.99	4	16	2
SHIMSET-GP05	14 - 15.99	5	18	2.5
SHIMSET-GP06	16 - 18	5	18	2.5

Note: Shim thickness: 0.01 / 0.02 / 0.03 / 0.04 / 0.05 mm
Package quantity = 5 pcs. (1pc per each thickness)
Note: Shim sheets are sold as set.

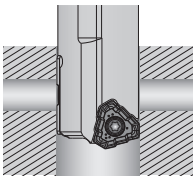
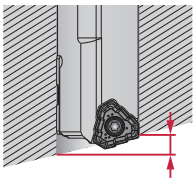
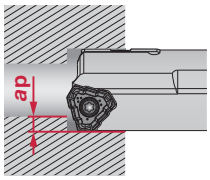
Shim sheet combinations by adjusting diameter

Adjustment diameter	Shim thickness in guide pad of diameter side.	Shim thickness in guide pad of bearing side.	Required number of shim set
+0.01	0.01	-	1
+0.02	0.02	0.01	1
+0.03	0.03	0.01 + 0.02	1
+0.04	0.04	0.01 + 0.03	1
+0.05	0.05	0.02 + 0.03	1
+0.06	0.01 + 0.05	0.02 + 0.04	1
+0.07	0.02 + 0.05	0.03 + 0.04	1
+0.08	0.03 + 0.05	0.04 + 0.04	2
+0.09	0.04 + 0.05	0.04 + 0.05	2
+0.1	0.05 + 0.05	0.04 + 0.04 + 0.02	2

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Priority	Chip breaker	Cutting speed *Vc* (m/min)	feed: *f* (mm/rev) ø12 - ø13.99	ø14 - ø18	ø18.01 - ø28	ø28.01 - ø40
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. E275A, E355D, C25, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.1	0.03 - 0.1	-
		First recommendation	NDJ/G	80 - 140	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.2
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.1	0.03 - 0.12	-
		First recommendation	NDJ/G	80 - 140	0.05 - 0.16	0.05 - 0.16	0.05 - 0.2	0.1 - 0.2
	Low alloy steel (C < 0.3) SCM415, etc. 18CrMo4, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.1	0.03 - 0.1	-
		First recommendation	NDJ/G	80 - 140	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.2
	Alloy steel (C > 0.3) SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.1	0.03 - 0.12	-
		First recommendation	NDJ/G	80 - 120	0.05 - 0.16	0.05 - 0.16	0.05 - 0.2	0.1 - 0.2
M	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.06	0.03 - 0.06	-
		First recommendation	NDJ/G	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.06	0.03 - 0.06	-
		First recommendation	NDJ/G	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15
	Stainless steel (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.06	0.03 - 0.06	-
		First recommendation	NDJ/G	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05 - 0.1	0.1 - 0.15
K	Grey cast iron FC250, etc. 250, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.15	0.05 - 0.18	-
		First recommendation	NDJ/G	80 - 140	0.05 - 0.25	0.05 - 0.25	0.05 - 0.3	0.1 - 0.3
	Ductile cast iron FCD700, etc. 600-3, etc.	Lower feed	NDL	50 - 100	-	0.03 - 0.15	0.05 - 0.18	-
		First recommendation	NDJ/G	80 - 140	0.05 - 0.25	0.05 - 0.25	0.05 - 0.3	0.1 - 0.3
N	Aluminium alloys	Lower feed	NDL	80 - 160	-	0.03 - 0.15	0.03 - 0.15	-
		First recommendation	NDJ/G	100 - 200	0.05 - 0.2	0.05 - 0.2	0.05 - 0.2	0.1 - 0.25
S	Heat resistant alloys Inconel 718, etc.	Lower feed	NDL	20 - 50	-	0.03 - 0.06	0.03 - 0.08	-
		First recommendation	NDJ/G	20 - 50	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.06 - 0.13
	Titanium alloys Ti-6Al-4V, etc.	Lower feed	NDL	30 - 60	-	0.03 - 0.1	0.03 - 0.12	-
		First recommendation	NDJ/G	30 - 60	0.05 - 0.13	0.05 - 0.13	0.05 - 0.15	0.1 - 0.18
H	Hardened steel ≥ 40HRC	Lower feed	NDL	40 - 100	-	0.03 - 0.08	0.03 - 0.08	-
		First recommendation	NDJ/G	50 - 100	0.04 - 0.08	0.04 - 0.08	0.04 - 0.1	0.06 - 0.13

APPLICATION RANGE

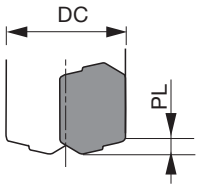
Feed *f* (mm/rev)	0.03 - 0.05	0.03 - 0.05	0.1 - 0.3
Application	OK Cross hole drilling 	OK Inclined exit  16 mm or less (for standard drill)	OK Boring 

Note 1) When drilling cross holes or exiting the inclined surface, make sure the guide-pads are suitable.
Note 2) A pilot hole is needed prior to a boring operation. ap ≥ 1 mm is recommended for boring operations.

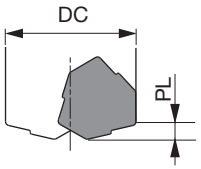
SHAPES OF THE HOLE BOTTOM

DC	Insert	Maximum difference PL
12 - 13.99	LOGT06	1.8
14 - 15.99	TOHT07	2
16 - 18	TOHT08	2.2
18.01 - 20	TOHT09	3
20.01 - 21.99	TOHT10	3.2
22 - 25	TOHT11	3.4
25.01 - 28	TOHT12	3.7

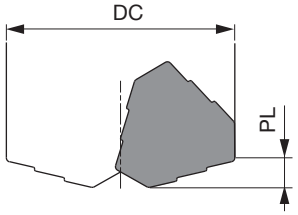
LOGT06...



TOHT07..., 08...

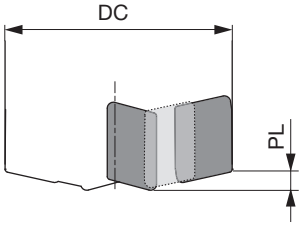


TOHT09... - TOHT12...



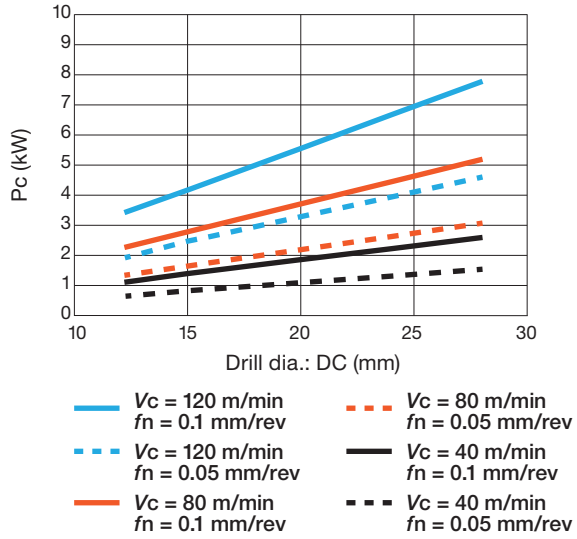
DC	Insert Central	Insert Intermediate	Insert Peripheral	Maximum difference PL
28.01 - 29	FBM06504LG-C	FBM05503RG-I	FBH06003RG-P	2.6
29.01 - 29.99	FBM06504LG-C	FBM05503RG-I	FBH06003RG-P	2.6
30 - 31	FBM06504LG-C	FBM06504RG-I	FBH07504RG-P	2.9
31.01 - 32	FBM06504LG-C	FBM06504RG-I	FBH07504RG-P	3
32.01 - 33	FBM06504LG-C	FBM06504RG-I	FBH07504RG-P	3.1
33.01 - 34	FBM06504LG-C	FBM06504RG-I	FBH07504RG-P	3
34.01 - 35	FBM06504LG-C	FBM06504RG-I	FBH07504RG-P	3.1
35.01 - 36	FBM08004LG-C	FBM06504RG-I	FBH07504RG-P	3.1
36.01 - 37	FBM08004LG-C	FBM06504RG-I	FBH07504RG-P	3
37.01 - 38	FBM08004LG-C	FBM06504RG-I	FBH07504RG-P	3.1
38.01 - 39	FBM08004LG-C	FBM06504RG-I	FBH09004RG-P	3.4
39.01 - 40	FBM08004LG-C	FBM06504RG-I	FBH09004RG-P	3.3

FBM...

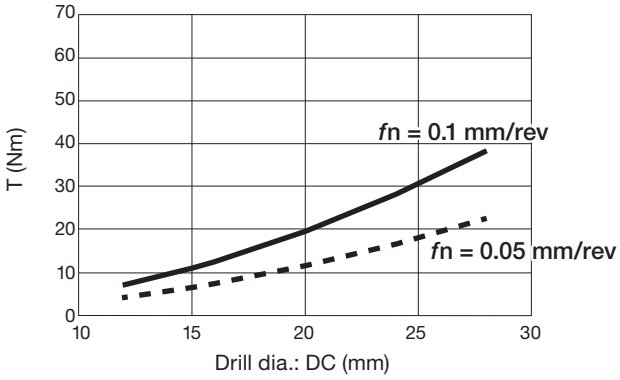


REQUIRED SPINDLE POWER AND COOLANT PRESSURE

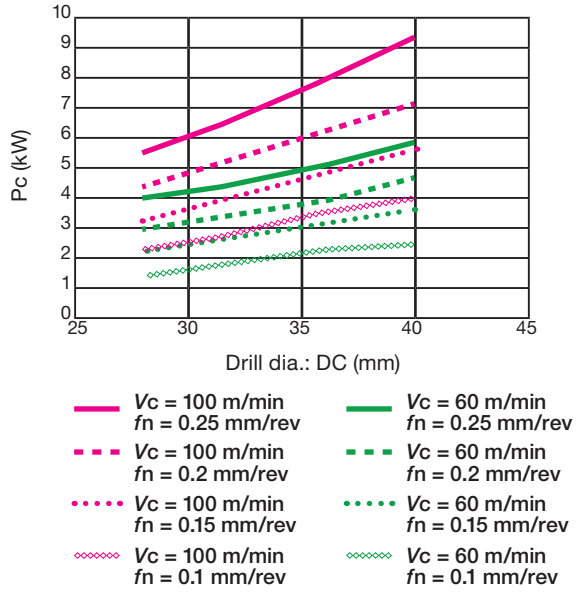
Net power (S45C, C45)



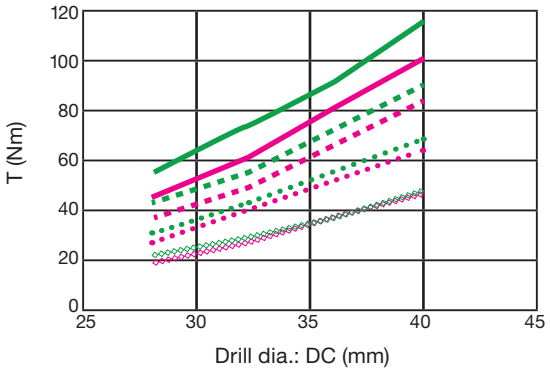
Torque (S45C, C45)



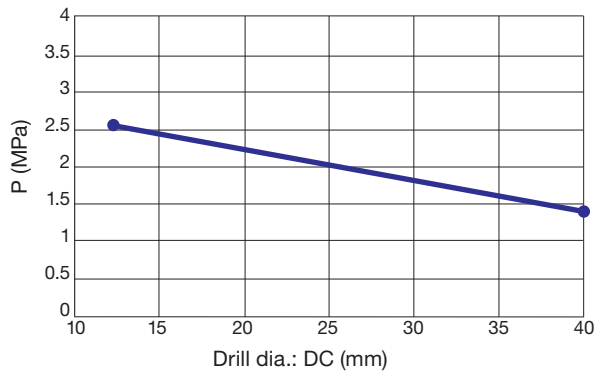
Net power (S45C, C45)



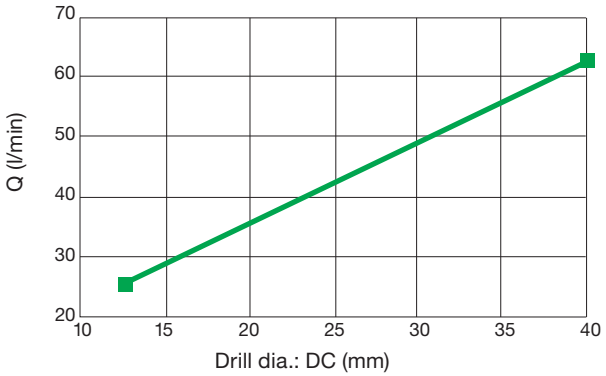
Torque (S45C, C45)



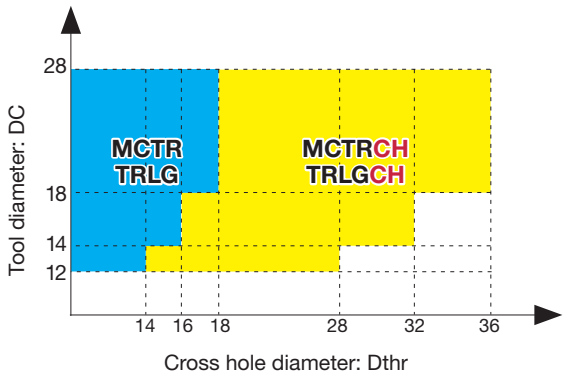
Coolant pressure (Recommended value)

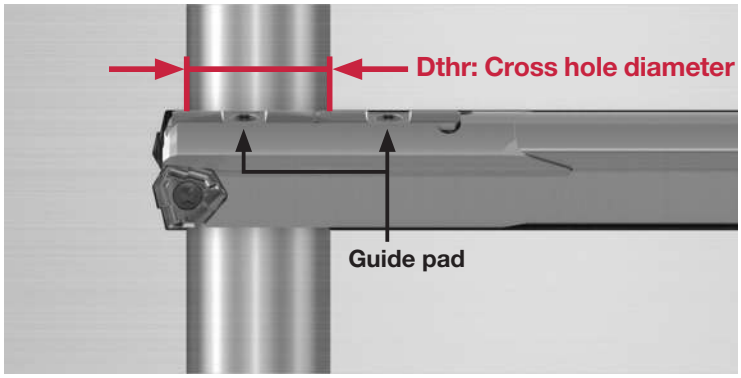


Coolant flow rate (Recommended value)



PROPER DEEPTRI-DRILL MODEL FOR SUITABLE CROSS HOLE DISTANCE.





CAUTIONS FOR CROSS HOLE DRILLING

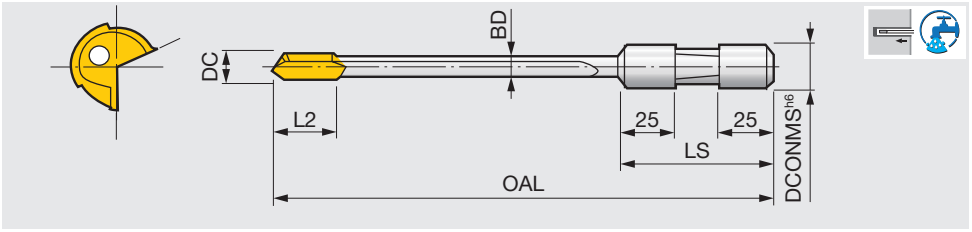
- Decrease the feed rate when the drill head comes in contact with a cross hole. (*f* = 0.03 - 0.05 mm/rev)
- Retract the gundrill with a slow rotation. (*n* = 100 min^{-1}, *V*f = 300 mm/min)
- When the gundrill is rapidly pulled out without rotating, the insert and/or guide pads may come in contact with burrs on the cross holes on the way back, resulting in damages

A tailor-made tool for a cross hole distance over 16 mm

GUNDRILL

GunDrill SLJ

Brazed gundrill, tool diameter ø3 - ø12.2 mm



Designation	DC	DCONMS	L2	OAL
SLJ0300L0400NA	3	12.7	15	400
SLJ0300L0600NA	3	12.7	15	600
SLJ0500L0600NA	5	12.7	25	600
SLJ0550L0600NA	5.5	19.05	25	600
SLJ0600L0600NA	6	19.05	25	600
SLJ0700L0600NA	7	19.05	25	600
SLJ0800L0600NA	8	19.05	25	600
SLJ1000L0600NA	10	19.05	30	600
SLJ0500L1000NA	5	12.7	25	1000
SLJ0600L1000NA	6	19.05	25	1000
SLJ0700L1000NA	7	19.05	25	1000
SLJ0800L1000NA	8	19.05	25	1000
SLJ1000L1000NA	10	19.05	30	1000
SLJ0600L1250NA	6	19.05	25	1250
SLJ0610L1250NA	6.1	19.05	25	1250
SLJ0620L1250NA	6.2	19.05	25	1250
SLJ0700L1250NA	7	19.05	25	1250
SLJ0800L1250NA	8	19.05	25	1250
SLJ0810L1250NA	8.1	19.05	25	1250
SLJ0820L1250NA	8.2	19.05	25	1250
SLJ1000L1250NA	10	19.05	30	1250
SLJ1010L1250NA	10.1	19.05	30	1250
SLJ1020L1250NA	10.2	19.05	30	1250
SLJ1200L1250NA	12	19.05	30	1250
SLJ1210L1250NA	12.1	19.05	30	1250
SLJ1220L1250NA	12.2	19.05	30	1250
SLJ0600L1650NA	6	19.05	25	1650
SLJ0610L1650NA	6.1	19.05	25	1650
SLJ0620L1650NA	6.2	19.05	25	1650
SLJ0700L1650NA	7	19.05	25	1650
SLJ0800L1650NA	8	19.05	25	1650
SLJ0810L1650NA	8.1	19.05	25	1650
SLJ0820L1650NA	8.2	19.05	25	1650
SLJ1000L1650NA	10	19.05	30	1650
SLJ1010L1650NA	10.1	19.05	30	1650
SLJ1020L1650NA	10.2	19.05	30	1650
SLJ1200L1650NA	12	19.05	30	1650
SLJ1210L1650NA	12.1	19.05	30	1650
SLJ1220L1650NA	12.2	19.05	30	1650

TUBE DIAMETER

DC	BD
3 - 3.19	2.9
3.2 - 3.39	3.1
3.4 - 3.59	3.3
3.6 - 3.89	3.5
3.9 - 4.09	3.7
4.1 - 4.29	3.9
4.3 - 4.49	4.1
4.5 - 4.89	4.3
4.9 - 5.19	4.7

DC	BD
5.2 - 5.49	5
5.5 - 5.79	5.3
5.8 - 5.99	5.6
6 - 6.19	5.8
6.2 - 6.59	5.9
6.6 - 7.09	6.4
7.1 - 7.59	6.9
7.6 - 8.09	7.4
8.1 - 8.69	7.9

DC	BD
8.7 - 9.19	8.5
9.2 - 9.69	9
9.7 - 10.39	9.5
10.4 - 10.89	10
10.9 - 11.39	10.6
11.4 - 11.99	11.1
12 - 12.2	11.7

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Heat treatment	Hardness HB	Hardness HRC	Cutting speed *Vc* (m/min)	feed *f* (mm/rev)
P	Free-cutting carbon steel		160 - 190	(5) - (11)	130	Refer to Fig. 1
	C10C ~ C15 S10C ~ S15C	Cold drawn				
	S30C ~ S50C C30 ~ C50	Cold drawn	200 - 230	(12) - 20	100	
	S35C ~ S50C C30 ~ C50	Hardened and tempered	250 - 300	25 - 32	80	
	Carbon steels		110 ~ 120		130	
	S10C ~ S35C C10 ~ C30	Annealed				
	S10C ~ S50C C10 ~ C50	Annealed	120 ~ 185	~ (9)	120	
	S50C ~ C50 ~	Annealed	170 ~ 200	(5) ~ (13)	100	
	S20C ~ S30C C20 ~ C30	Hardened and tempered	210 ~ 250	(16) ~ 24	90	Refer to Fig. 2
	S30C ~ S55C C30 ~ C55	Hardened and tempered	260 ~ 310	26 ~ 33	70	
	S50C ~ C50 ~	Hardened and tempered	320 ~ 375	34 ~ 40	50	
	S50C ~ C55 ~	Hardened and tempered	380 ~ 440	41 ~ 47	40	
	Alloy steels	Annealed	150 ~ 230	~ (20)	90	Refer to Fig. 2
		Annealed or Hardened and tempered	240 ~ 310	23 ~ 33	70	Refer to Fig. 2
			315 ~ 370	34 ~ 40	50	Refer to Fig. 3
			380 ~ 440	40 ~ 47	40	
			450 ~ 500	48 ~ 51	30	
	Cast steels	Hardened and tempered	140 ~ 180	~ (8)	100	Refer to Fig. 2
		Annealed	190 ~ 240	(11) ~ 22	90	
	Tool steels	Annealed	150 ~ 200	~ (13)	70	Refer to Fig. 3
		Annealed	210 ~ 300	(16) ~ 32	50	
M	Stainless steels Ferritic SUS405, 430 X6Cr17	Annealed	150 ~ 200	~ (13)	70	Refer to Fig. 3
	Austenitic SUS304, 305 X5CrNi18-9	Annealed	160 ~ 220	~ (18)	50	
	Martensitic SUS403, 410 X12Cr13	Annealed Hardened and tempered	160 ~ 220	~ (18)	70	
			300 ~ 350	32 ~ 38	50	
K	Grey cast iron		110 ~ 180		90	Refer to Fig. 4
			190 ~ 220		80	
			220 ~ 260		70	
	Ductile cast iron		120 ~ 170		80	Refer to Fig. 5
			180 ~ 240		65	
			240 ~ 280		55	
			260 ~ 320		40	
	Malleable cast irons		110 ~ 180		90	
			190 ~ 220		80	
			220 ~ 260		70	
N	Cast aluminium alloys Aluminium die cast alloys	Annealed	5000load		180	Refer to Fig. 4
			40 ~ 100			
	Copper alloys	Annealed	120 ~ 160		< 150	Refer to Fig. 4
			160 ~ 205		< 150	Refer to Fig. 5
H	Bearing steels		150 ~ 210		70	Refer to Fig. 3
	High-resistant alloys				20	
	High speed steels		210 ~ 285	(16) ~ 30	50	

Fig. 1 Carbon steels

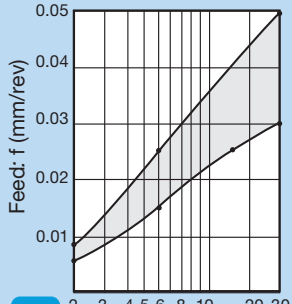


Fig. 2 Alloy steels

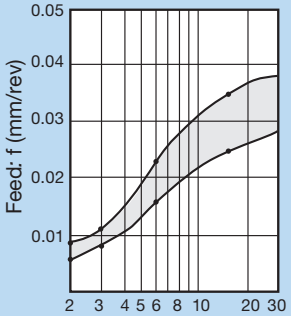


Fig. 3 Tool steels and other special steels

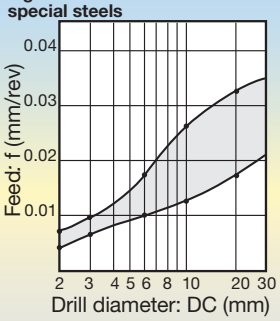


Fig. 4 Cast irons, aluminium alloys

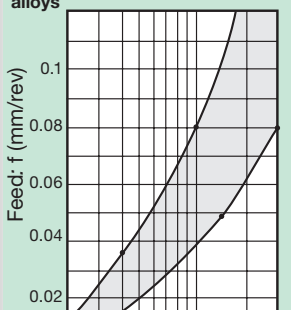
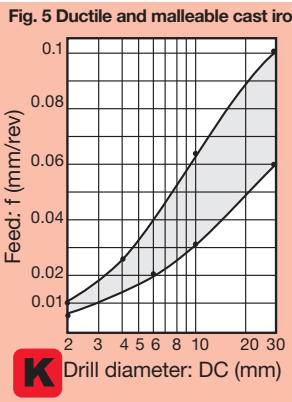
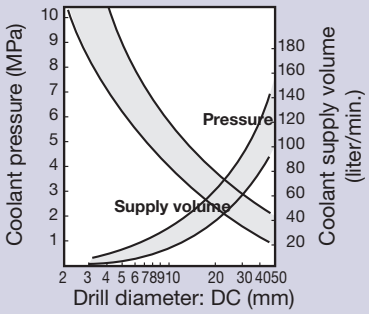


Fig. 5 Ductile and malleable cast irons



Coolant supply pressure and volume



Guidelines for attainable accuracies

Workpiece material	Surface roughness (µm)	Roundness (µm)	Cylindricity (µm)	Oversizing (µm)
Carbon and alloy steels	6 ~ 25	5 ~ 10	10 ~ 15	- 5 ~ 30
Cast irons	3 ~ 15	3 ~ 5	5 ~ 10	- 5 ~ 15
Aluminium alloys, Copper alloys	0.3 ~ 6	3 ~ 5	5 ~ 10	- 10 ~ 5

Note: Over size values given in the table are based on the drill diameter.

Cutting fluid

A water-insoluble fluid is recommended when machining with gun drills.
When using water soluble fluid, use the fluid for heavy duty cutting in higher concentration.
A water-insoluble fluid must be taken care for Fire prevention

Drill Head Category

Solid drilling - Indexable drill heads -

Applications		STS (Single Tube System)			DTS (Double Tube System)		
		TRI-FINE	FINE-BEAM	UNIDEX	TRI-FINE	FINE-BEAM	UNIDEX
		FNTR	FNBM	KUSTS	FNTR-D	FNBM-D	KUDTS
Solid drill head							
Drill diameter (mm)		ø16 - ø28	ø25 - ø65	ø38 - ø293.99	ø18.4 - ø28	ø25 - ø65	ø38 - ø183.99
Thread type	External quadruple thread	○	○	○	○	○	○
	Internal single thread	○	○	○	-	-	-
Hole tolerance*1		IT10	IT10	IT10	IT10	IT10	IT10
Surface finish Ra (μm)*1		2	2	3	2	2	3
Machine	Deep hole drilling machines	○	○	○	○	○	○
	NC machines	-	-	-	○	○	○
	Lathes	-	-	-	○	○	○
	Machining centers M/C	-	-	-	○	○	○
	Gundrill machines	-	-	-	-	-	-
Workpiece material	P Steel	★★★	★★★	★★★	★★★	★★★	★★★
	M Stainless	★★★	★★★	★★★	★★★	★★★	★★★
	K Cast iron	★★★	★★★	★★★	★★★	★★★	★★★
	N Non-ferrous	★★★	★★★	★★★	★★★	★★★	★★★
	S Superalloys	★★	★★	★★	★★	★★	★★
	H Hard materials (≥40HRC)	★★	★★	★★	★★	★★	★★
Insert type		TOHT	FBH / FBM	NPMX / TPMX (508 / 1123)	TOHT	FBH / FBM	NPMX / TPMX (508 / 1123)
Plus Cartridge and Guide pad +1 mm - +5 mm		-	-	○	-	-	○
Page		J118 - J121	J122 - J123 J125 - J127	J128 - J129 J132 - J133	J119 - J121	J124 - J127	J130 - J133

*1: Just for reference

★★★(Excellent) ◄—► ★(Standard)

Solid drilling - Brazed drill heads -

Applications		STS (Single Tube System)			DTS (Double Tube System)
		MBU	UTE	BTU	ETU
Brazed drilling heads					
Drill diameter (mm)		ø8 - ø14.79	ø12.6 - ø20	ø12.6 - ø65	ø18.4 - ø65
Thread type	External single thread	○	-	-	-
	External double thread	-	○*1	○*1	-
	External quadruple thread	-	○*2	○*2	○
	Internal single thread	-	-	-	-
Hole tolerance*3		IT9	IT9	IT9	IT9
Surface finish Ra (μm)*3		2	2	2	2
Machine	Deep hole drilling machines	○	○	○	○
	NC machines	-	-	-	○
	Lathes	-	-	-	○
	Machining centers M/C	-	-	-	○
	Gundrill machines	-	-	-	-
Workpiece material	P Steel	★★★	★★★	★★★	★★★
	M Stainless	★★★	★★★	★★★	★★★
	K Cast iron	★★★	★★★	★★★	★★★
	N Non-ferrous	★★★	★★★	★★★	★★★
	S Superalloys	★★	★★	★★	★★
	H Hard materials (≥40HRC)	★★	★★	★★	★★
Page		J134, J139	J135, J139	J136 - J137, J139	J138 - J139

*1: UTE & BTU Drill head : ø12.6 mm - ø15.59 mm, External double thread
*2: UTE & BTU Drill head : ø15.6 mm -, External quadruple thread
*3: Just for reference

★★★ (Excellent) ◄—► ★ (Standard)

Drill Tube Category

Drill Tubes

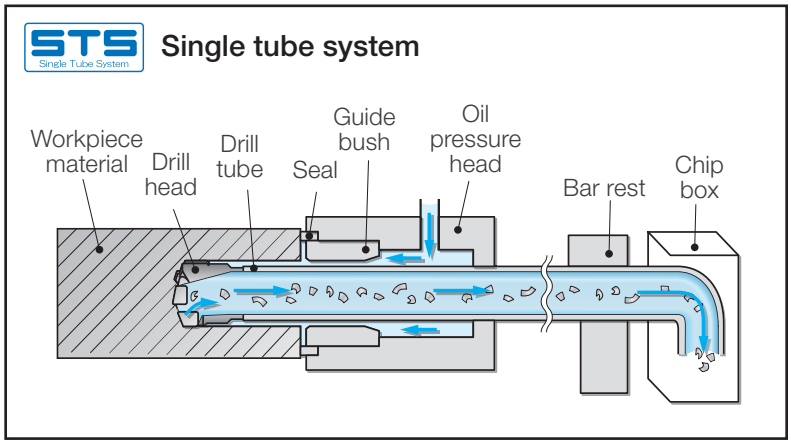
Applications				STS (Single Tube System)				DTS (Double Tube System)	
				UMBB	ST	ST	UB	OT	IT
Drill tubes									
Tube diameter (mm)				ø7.1 - ø12	ø11 - ø13	ø14 - ø274	ø12 - ø274	ø18 - ø166	ø10 - ø130
Thread type				Internal single thread	Internal double thread	Internal quadruple thread	External single thread	Internal quadruple thread	-
Drill Head	Indexable	Solid	FNTR	-	-	○	○	○	○
			FNBM	-	-	○	○	○	○
			KUSTS	-	-	○	○	-	-
			KUDTS	-	-	-	-	○	○
	Brazed	Solid	MBU	○	-	-	-	-	-
			UTE	-	○	○	-	-	-
			BTU	-	○	○	-	-	-
			ETU	-	-	-	-	○	○
Drill diameter (mm)				ø8 - ø14.79	ø12.6 - ø15.59	ø15.6 - ø291.99	ø14.5 - ø293.99	ø18.4 - ø183.99	ø18.4 - ø183.99
Solid				○	○	○	○	○	○
Counter				-	-	○*1	○*1	○*1	○
Trepanning				-	-	○*2	○*2	-	-
Page				J140	J140	J140	J142	J144	J144

*1. Counter : ST / UB / OT Tube - Drill diameter ø25 mm or more
*2. Trepanning : ST / UB Tube - Drill diameter ø100 mm or more

Single Tube System (STS) and Double Tube System (DTS)

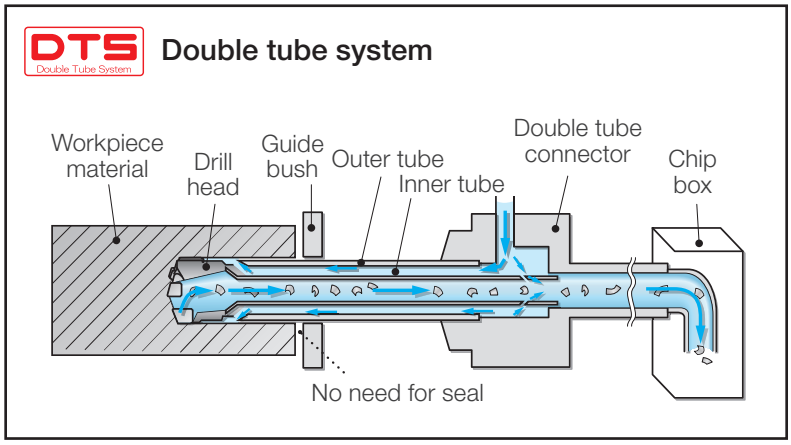
Single Tube System (STS)

The STS may also be referred to as the BTA system in the deep hole drilling process. A large volume of coolant is pumped under high pressure to the cutting area in the workpiece. Chips are then forced out through the drill tube at the back and they do not touch workpiece allowing super surface finish. STS is a very good method to obtain holes of high productivity and high accuracy by using a dedicated drilling machine and a sealing with the workpiece.



Double Tube System (DTS)

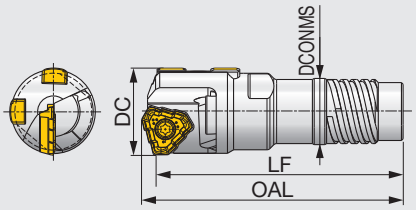
The DTS is characterized by its two tube construction and is therefore known as the double tube system. A sealing system and pressure head, which is required in the Single Tube System (STS) is not necessary for the DTS and it is therefore suitable for conventional general purpose machines such as lathes or machining centers.
In general, because of less efficient chip evacuation than the STS the recommended max drilling depth is 1000mm. However, the unique DTC-R tube connector that is capable of supplying high pressure coolant can successfully achieve drilling depths of up to 2000 mm.



TRI-FINE

TRI-FINE STS-EX

Indexable head with external quadruple thread for single tube system



Designation	DC	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
		Designation	Dia. (mm)					
FNTR-0097S-16.00	16	ST0097	14	57	55	12.6	TOHT080305R	GP06-075
FNTR-0098S-17.00	17	ST0098	15	57	55	13.6	TOHT080305R	GP06-075
FNTR-0000S-20.00	20	ST0000	17	59	56	15.5	TOHT090305R	GP06-085
FNTR-00S-21.00	21	ST00	18	63	60	16	TOHT100305R	GP06-085
FNTR-01S-22.00	22	ST01	20	69	65.5	18	TOHT110405R	GP06-100
FNTR-01S-24.00	24	ST01	20	69	65.5	18	TOHT110405R	GP06-100
FNTR-02S-25.00	25	ST02	22	69	65.5	19.5	TOHT110405R	GP06-100
FNTR-02S-25.40	25.4	ST02	22	69	65.5	19.5	TOHT120405R	GP06
FNTR-02S-26.00	26	ST02	22	69	65.5	19.5	TOHT120405R	GP06
FNTR-03S-28.00	28	ST03	24	69	65.5	21	TOHT120405R	GP06

INSERT SPARE PARTS

Designation	Screw	Wrench
TOHT080305R	CSTB-2.5S	T-8F
TOHT080305R	CSTB-2.5S	T-8F
TOHT090305R	CSTB-2.5S	T-8F
TOHT100305R	CSTB-3S	T-9F
TOHT110405R	CSTB-3.5H	T-15F
TOHT110405R	CSTB-3.5H	T-15F
TOHT110405R	CSTB-3.5H	T-15F
TOHT120405R	CSTB-4S	T-15F
TOHT120405R	CSTB-4S	T-15F
TOHT120405R	CSTB-4S	T-15F

GUIDE PAD SPARE PARTS

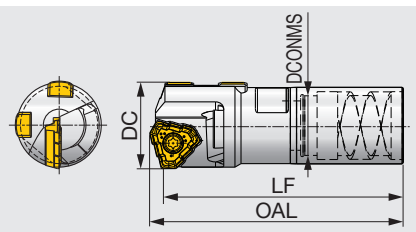
Designation	Screw	Wrench
GP06-075	CSTB-2.2S	T-7F
GP06-075	CSTB-2.2S	T-7F
GP06-085	CSTB-2.2S	T-7F
GP06-085	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F

Recommended clamping torque (N·m): CSTB-2.2S=1, CSTB-2.5S=1.3, CSTB-3S=2.3, CSTB-3.5H=3, CSTB-4S=3

TRI-FINE

TRI-FINE STS-IN

Indexable head with internal single thread for single tube system



Designation	DC	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
		Designation	Dia. (mm)					
FNTR-13N-1-16.00	16	UB13-1	13	55.5	53.5	10.8	TOHT080305R	GP06-075
FNTR-14N-2-18.00	18	UB14-2	14	55.5	53.5	12.1	TOHT080305R	GP06-075
FNTR-18N-20.00	20	UB18	18	61	58	14.5	TOHT090305R	GP06-085
FNTR-20N-22.00	22	UB20	20	63.5	60	16	TOHT110405R	GP06-100
FNTR-20N-24.00	24	UB20	20	63.5	60	16	TOHT110405R	GP06-100
FNTR-22N-25.00	25	UB22	22	63.5	60	17	TOHT110405R	GP06-100
FNTR-22N-26.00	26	UB22	22	68.5	65	17	TOHT120405R	GP06
FNTR-24N-28.00	28	UB24	24	68.5	65	19	TOHT120405R	GP06

INSERT SPARE PARTS

Designation	Screw	Wrench
TOHT080305R	CSTB-2.5S	T-8F
TOHT080305R	CSTB-2.5S	T-8F
TOHT090305R	CSTB-2.5S	T-8F
TOHT110405R	CSTB-3.5H	T-15F
TOHT110405R	CSTB-3.5H	T-15F
TOHT110405R	CSTB-3.5H	T-15F
TOHT120405R	CSTB-4S	T-15F
TOHT120405R	CSTB-4S	T-15F

GUIDE PAD SPARE PARTS

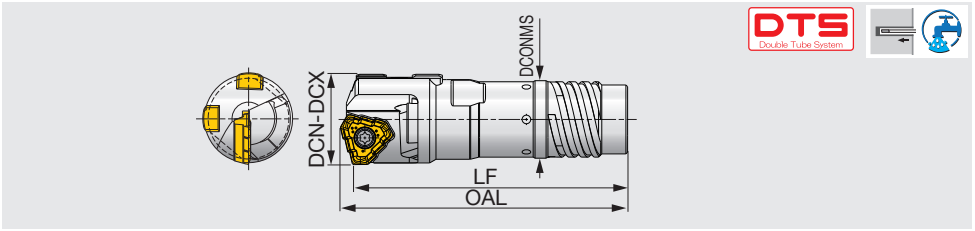
Designation	Screw	Wrench
GP06-075	CSTB-2.2S	T-7F
GP06-075	CSTB-2.2S	T-7F
GP06-085	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F

Recommended clamping torque (N·m): CSTB-2.2S=1, CSTB-2.5S, CSTB-3S=2.3, CSTB-3.5H=3, CSTB-4S=3

TRI-FINE

TRI-FINE DTS

Indexable head with external quadruple thread for double tube system



Designation	DCN	DCX	Outer tube		OAL	LF	DCONMS	Insert	Guide pad
			Designation	Dia. (mm)					
FNTR-00D-xx.xx	18.41	20	OT00	18	62	59	16	TOHT090305R	GP06-085
FNTR-01D-xx.xx	20.01	21	OT01	19.5	66.5	63.5	18	TOHT100305R	GP06-085
FNTR-01D-xx.xx	21.01	21.8	OT01	19.5	66.5	63.5	18	TOHT100305R	GP06-100
FNTR-02D-xx.xx	21.81	21.99	OT02	21.5	66.5	63.5	19.5	TOHT100305R	GP06-100
FNTR-02D-xx.xx	22	24.1	OT02	21.5	69	65.5	19.5	TOHT110405R	GP06-100
FNTR-03D-xx.xx	24.11	25	OT03	23.5	69	65.5	21	TOHT110405R	GP06-100
FNTR-03D-xx.xx	25.01	26.4	OT03	23.5	71	67.5	21	TOHT120405R	GP06
FNTR-04D-xx.xx	26.41	28	OT04	26	74	70.5	23.5	TOHT120405R	GP06

e.g. Designation for tool diameter ø20 mm : FNTR-00D-20.00

INSERT SPARE PARTS

Designation	Screw	Wrench
TOHT090305R	CSTB-2.5S	T-8F
TOHT100305R	CSTB-3S	T-9F
TOHT100305R	CSTB-3S	T-9F
TOHT100305R	CSTB-3S	T-9F
TOHT110405R	CSTB-3.5H	T-15F
TOHT110405R	CSTB-3.5H	T-15F
TOHT120405R	CSTB-4S	T-15F
TOHT120405R	CSTB-4S	T-15F

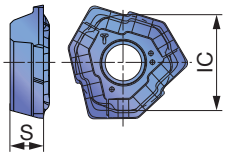
GUIDE PAD SPARE PARTS

Designation	Screw	Wrench
GP06-085	CSTB-2.2S	T-7F
GP06-085	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06-100	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F
GP06	CSTB-2.2S	T-7F

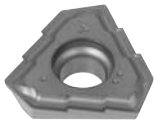
Recommended clamping torque (N·m): CSTB-2.2S=1, CSTB-2.5S, CSTB-3S=2.3, CSTB-3.5H=3, CSTB-4S=3

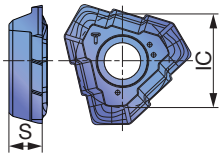
INSERT

TOHT-NDJ (070..., 080...)



TOHT-NDJ (090... - 120...)





P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

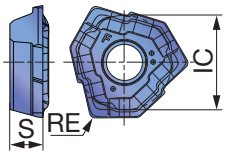
Designation	DCN	DCX	Coated	IC	S
			AH725		
TOHT080305R-NDJ	16	18	●	8.55	2.8
TOHT090305R-NDJ	18.01	20	●	8.32	3
TOHT100305R-NDJ	20.01	21.99	●	9.23	3.3
TOHT110405R-NDJ	22	25	●	10.4	3.8
TOHT120405R-NDJ	25.01	28	●	11.59	4.3

●: Line - up
Package quantity = 10 pcs.

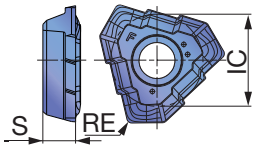
Reference pages: Inserts → J119 - J120, Guide pads → J121,
Drill tube (STS) → J140 -, Drill tube (DTS) → J144

INSERT

TOHT-NDL (07..., 08...)



TOHT-NDL (09... - 12...)



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	★
S	Superalloys	★
H	Hard materials	★

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated AH725	IC	S	RE
TOHT070304R-NDL	14	15.99	●	7.69	2.3	0.4
TOHT080305R-NDL	16	18	●	8.55	2.8	0.5
TOHT090305R-NDL	18.01	20	●	8.32	3	0.5
TOHT100305R-NDL	20.01	21.99	●	9.23	3.3	0.5
TOHT110405R-NDL	22	25	●	10.4	3.8	0.5
TOHT120405R-NDL	25.01	28	●	11.59	4.3	0.5

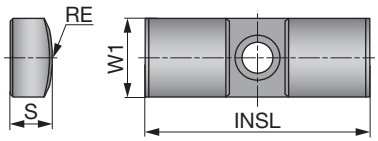
●: Line - up
Package quantity = 10 pcs.

ISO classification for Insert grade

	Grade	ISO area 10	15	20	25	30	35	40
P	AH725		■	■	■	■		
M	AH725			■	■	■		
K	AH725		■	■	■			
S	AH725		■	■	■			
N	AH725		■	■	■			
H	AH725			■	■	■		

GUIDE PAD

GP06



P	Steel	☆	★	☆
M	Stainless	☆	★	☆
K	Cast iron	☆	★	☆
N	Non-ferrous	☆	★	☆
S	Superalloys	☆	★	☆
H	Hard materials	☆	★	☆

★ : First choice
☆ : Second choice

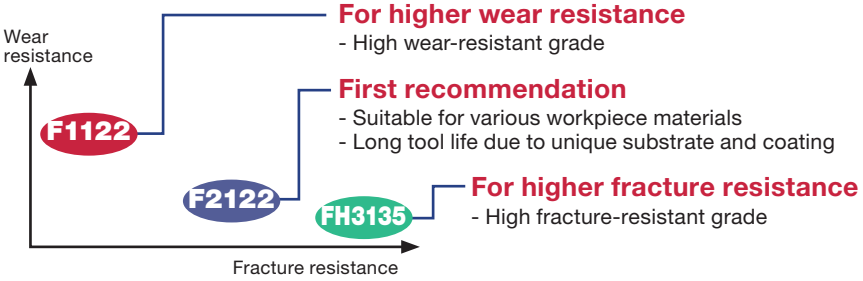
Designation	DCN	DCX	Coated			W1	INSL	S	RE
			F1122	F2122	FH3135				
GP06-075	16	18	●	●		6	20	3	7.5
GP06-085	18.01	21	●	●		6	20	3	8.5
GP06-20-085-DC	18.01	21			●	6	20	3	8.5
GP06-100	21.01	25	●	●		6	20	3	10
GP06-20-100-DC	21.01	25			●	6	20	3	10
GP06	25.01	33	●	●		6	20	3	12
GP06-20-120-DC	25.01	33			●	6	20	3	12

●: Line - up
Package quantity = 5 pcs.

REPLACING GUIDE PADS

Guide pads are subject to wear, like inserts

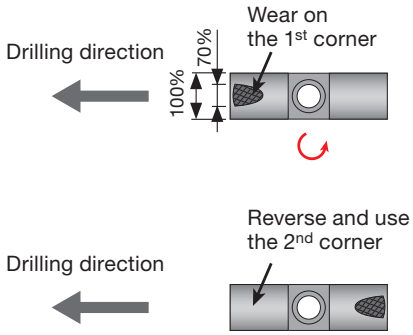
- The guide pad has two corners.
- Each guide pad can be used on two sides. When the first corner wears out a 70% of the width, reverse the guide pad to use the second corner.
- Replace with a new guide pad when the second corner wears out.



For higher wear resistance
- High wear-resistant grade

First recommendation
- Suitable for various workpiece materials
- Long tool life due to unique substrate and coating

For higher fracture resistance
- High fracture-resistant grade

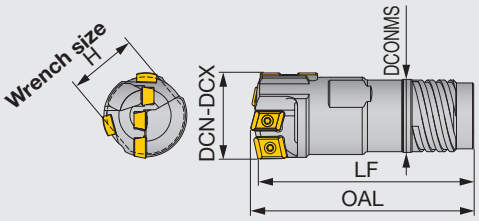


GP	06-075	F2122
Series	Size	Grade

FINE-BEAM

FINE BEAM STS-EX

Direct mount indexable head with external quadruple thread for single tube system (STS), tool diameter: ø25 - ø65 mm



Designation	DCN	DCX	Drill tube		Drill head			
			Designation	Dia. (mm)	OAL	LF	DCONMS	H
FNBM-02S-xx.xx	25	26.4	ST02	22	73	70	19.5	19
FNBM-03S-xx.xx	26.41	28.7	ST03	24	73	70	21	21
FNBM-04S-xx.xx	28.71	31	ST04	26	78	75	23.5	24
FNBM-05S-xx.xx	31.01	33.3	ST05	28	78	75	25.5	26
FNBM-06S-xx.xx	33.31	36.2	ST06	30	83	80	28	28
FNBM-07S-xx.xx	36.21	39.6	ST07	33	93	90	30	30
FNBM-08S-xx.xx	39.61	43	ST08	36	99	95	33	32
FNBM-09S-xx.xx	43.01	47	ST09	39	104	100	36	36
FNBM-10S-xx.xx	47.01	51.7	ST10	43	104	100	39	38
FNBM-11S-xx.xx	51.71	56.2	ST11	47	114	110	43	46
FNBM-12S-xx.xx	56.21	65	ST12	51	120	115	47.5	50
FNBM-13S-xx.xx	60.61	65	ST13	56	120	115	51	54

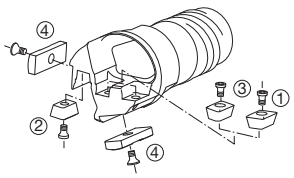
e.g. Designation for tool diameter ø30 mm : FNBM-04S-30.00

SPARE PARTS

Tool diameter DCN - DCX (mm)	Insert									Guide pad		
	①Peripheral			②Intermediate			③Central			④		
	Insert	Screw	Wrench	Insert	Screw	Wrench	Insert	Screw	Wrench	Guide pad	Screw	Wrench
25.00 - 28.00	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM05503LG-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM060308L-HF-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
28.01 - 29.99	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM06504LG-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
30.00 - 35.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM06504LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
35.01 - 38.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
38.01 - 39.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
39.01 - 41.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504R	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
41.01 - 44.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
44.01 - 45.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
45.01 - 47.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
47.01 - 51.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
51.01 - 54.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
54.01 - 57.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
57.01 - 60.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
60.01 - 64.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
64.01 - 65.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM12504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM130404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F

G type chipbreaker	HF type chipbreaker
FBH06003RG-P	FBH060308R-HF-P
FBH07504RG-P	FBH080408R-HF-P
FBH09004RG-P	FBH090408R-HF-P
FBH11004RG-P	FBH110408R-HF-P
FBH13004RG-P	FBH130408R-HF-P
FBM05503RG-I	FBM060304R-HF-I
FBM06504RG-I	FBM070404R-HF-I
FBM08004RG-I	FBM080404R-HF-I
FBM09504RG-I	FBM100404R-HF-I
FBM12504RG-I	FBM130404R-HF-I
FBM05503LG-C	FBM060308L-HF-C
FBM06504LG-C	FBM070408L-HF-C
FBM08004LG-C	FBM080408L-HF-C
FBM09504LG-C	FBM100408L-HF-C
FBM12504LG-C	FBM130408L-HF-C

Please see the page J125 - J127 for the grades of inserts and guide pads.
Drill heads come with clamping screws and wrenches but do not include inserts and guide pads.
Please purchase inserts and guide pads separately.
Recommended clamping torque (N·m): CSTB-2.2/CSTB-2.2S = 1, SR14-560-HG = 1.2, CSTB-3S = 2.3, CSTB-3.5 = 3.5



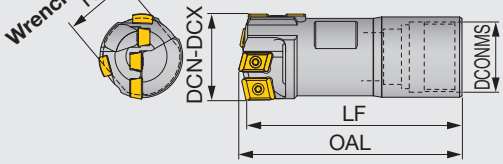
The designation of insert with G type and HF type is different, even in the same shape.
Please refer to the table on the left to check the insert designation. Both inserts can be mounted on the drill head.

Reference pages: Inserts → J125 - J126, Guide pads → J127, Drill tube (STS) → J140

FINE-BEAM

FINE BEAM STS-IN

Direct mount indexable head with internal single thread for single tube system (STS), tool diameter: ø25 - ø65 mm



Designation	DCN	DCX	Drill tube		Drill head			
			Designation	Dia. (mm)	OAL	LF	DCONMS	H
FNBM-22N-xx.xx	25	26.99	UB22	22	73	70	20	19
FNBM-24N-xx.xx	27	29	UB24	24	73	70	22	21
FNBM-24N-xx.xx	29.01	29.99	UB24	24	73	70	22	24
FNBM-26N-xx.xx	30	31.99	UB26	26	78	75	24	24
FNBM-28N-xx.xx	32	33.99	UB28	28	78	75	26	26
FNBM-30N-xx.xx	34	36.99	UB30	30	93	90	27	28
FNBM-33N-xx.xx	37	39.99	UB33	33	98	95	30	30
FNBM-36N-xx.xx	40	43.99	UB36	36	104	100	33	32
FNBM-39N-xx.xx	44	46.99	UB39	39	109	105	37	36
FNBM-43N-xx.xx	47	51.99	UB43	43	109	105	41	38
FNBM-47N-xx.xx	52	56.99	UB47	47	114	110	44	46
FNBM-51N-xx.xx	57	60.99	UB51	51	120	115	49	46
FNBM-56N-xx.xx	61	65	UB56	56	120	115	53	54

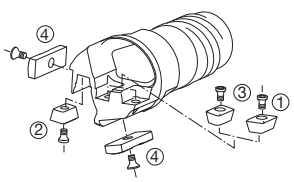
e.g. Designation for tool diameter ø30 mm : FNBM-26N-30.00

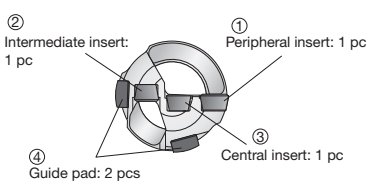
SPARE PARTS

Tool diameter DCN - DCX (mm)	Insert									Guide pad		
	①Peripheral			②Intermediate			③Central			④		
	Insert	Screw	Wrench	Insert	Screw	Wrench	Insert	Screw	Wrench	Guide pad	Screw	Wrench
25.00 - 28.00	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM05503LG-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM060308L-HF-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
28.01 - 29.99	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM06504LG-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
30.00 - 35.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM06504LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
35.01 - 38.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
38.01 - 39.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
39.01 - 41.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504R	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
41.01 - 44.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
44.01 - 45.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
45.01 - 47.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
47.01 - 51.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
51.01 - 54.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
54.01 - 57.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
57.01 - 60.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
60.01 - 64.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
64.01 - 65.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM12504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM130404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F

G type chipbreaker	HF type chipbreaker
FBH06003RG-P	FBH060308R-HF-P
FBH07504RG-P	FBH080408R-HF-P
FBH09004RG-P	FBH090408R-HF-P
FBH11004RG-P	FBH110408R-HF-P
FBH13004RG-P	FBH130408R-HF-P
FBM05503RG-I	FBM060304R-HF-I
FBM06504RG-I	FBM070404R-HF-I
FBM08004RG-I	FBM080404R-HF-I
FBM09504RG-I	FBM100404R-HF-I
FBM12504RG-I	FBM130404R-HF-I
FBM05503LG-C	FBM060308L-HF-C
FBM06504LG-C	FBM070408L-HF-C
FBM08004LG-C	FBM080408L-HF-C
FBM09504LG-C	FBM100408L-HF-C
FBM12504LG-C	FBM130408L-HF-C

Please see the page J125 - J127 for the grades of inserts and guide pads.
Drill heads come with clamping screws and wrenches but do not include inserts and guide pads.
Please purchase inserts and guide pads separately.
Recommended clamping torque (N·m): CSTB-2.2/CSTB-2.2S = 1, SR14-560-HG = 1.2, CSTB-3S = 2.3, CSTB-3.5 = 3.5





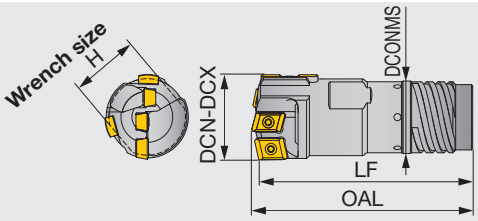
The designation of insert with G type and HF type is different, even in the same shape.
Please refer to the table on the left to check the insert designation. Both inserts can be mounted on the drill head.

Reference pages: Inserts → J125 - J126, Guide pads → J127, Drill tube (STS) → J142

FINE-BEAM

FINE BEAM DTS

Direct mount indexable head with external quadruple thread for double tube system (DTS), tool diameter: ø25 - ø65 mm



DTS Double Tube System

Designation	DCN	DCX	Outer tube		Drill head			
			Designation	Dia. (mm)	OAL	LF	DCONMS	H
FNBM-03D-xx.xx	25	26.4	OT03	23.5	73	70	21	19
FNBM-04D-xx.xx	26.41	28.7	OT04	26	78	75	23.5	21
FNBM-05D-xx.xx	28.71	31	OT05	28	78	75	25.5	24
FNBM-06D-xx.xx	31.01	33.3	OT06	30.5	83	80	28	26
FNBM-07D-xx.xx	33.31	36.2	OT07	33	93	90	30	28
FNBM-08D-xx.xx	36.21	39.6	OT08	35.5	99	95	33	30
FNBM-09D-xx.xx	39.61	43	OT09	39	104	100	36	32
FNBM-10D-xx.xx	43.01	47	OT10	42.5	104	100	39	36
FNBM-11D-xx.xx	47.01	51.7	OT11	46.5	114	110	43	38
FNBM-12D-xx.xx	51.71	56.2	OT12	51	120	115	47.5	46
FNBM-13D-xx.xx	56.21	60.6	OT13	55.5	120	115	51	50
FNBM-13D-xx.xx	60.61	65	OT13	55.5	120	115	51	54

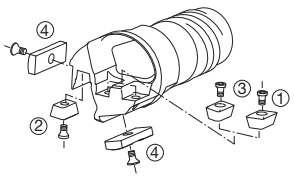
e.g. Designation for tool diameter ø30 mm : FNBM-05D-30.00

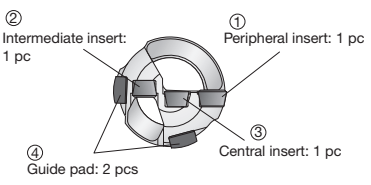
SPARE PARTS

Tool diameter DCN - DCX (mm)	Insert									Guide pad		
	①Peripheral			②Intermediate			③Central			④		
	Insert	Screw	Wrench	Insert	Screw	Wrench	Insert	Screw	Wrench	Guide pad	Screw	Wrench
25.00 - 28.00	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM05503LG-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM060308L-HF-C	CSTB-2.2	T-7F	GP06	CSTB-2.2S	T-7F
28.01 - 29.99	FBH06003RG-P	CSTB-2.2	T-7F	FBM05503RG-I	CSTB-2.2	T-7F	FBM06504LG-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
	FBH060308R-HF-P	CSTB-2.2	T-7F	FBM060304R-HF-I	CSTB-2.2	T-7F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP06	CSTB-2.2S	T-7F
30.00 - 35.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM06504LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM070408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
35.01 - 38.00	FBH07504RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH080408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
38.01 - 39.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP07	CSTB-3S	T-9F
39.01 - 41.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM06504R	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM070404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
41.01 - 44.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM08004LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM080408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
44.01 - 45.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP08	CSTB-3S	T-9F
45.01 - 47.00	FBH09004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH090408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
47.01 - 51.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM08004RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM080404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
51.01 - 54.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM09504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM100408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
54.01 - 57.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP10S	CSTB-3.5	T-15F
57.01 - 60.00	FBH11004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH110408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
60.01 - 64.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM09504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM100404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
64.01 - 65.00	FBH13004RG-P	SR14-560-HG	T-8F	FBM12504RG-I	SR14-560-HG	T-8F	FBM12504LG-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F
	FBH130408R-HF-P	SR14-560-HG	T-8F	FBM130404R-HF-I	SR14-560-HG	T-8F	FBM130408L-HF-C	SR14-560-HG	T-8F	GP12	CSTB-3.5	T-15F

G type chipbreaker	HF type chipbreaker
FBH06003RG-P	FBH060308R-HF-P
FBH07504RG-P	FBH080408R-HF-P
FBH09004RG-P	FBH090408R-HF-P
FBH11004RG-P	FBH110408R-HF-P
FBH13004RG-P	FBH130408R-HF-P
FBM05503RG-I	FBM060304R-HF-I
FBM06504RG-I	FBM070404R-HF-I
FBM08004RG-I	FBM080404R-HF-I
FBM09504RG-I	FBM100404R-HF-I
FBM12504RG-I	FBM130404R-HF-I
FBM05503LG-C	FBM060308L-HF-C
FBM06504LG-C	FBM070408L-HF-C
FBM08004LG-C	FBM080408L-HF-C
FBM09504LG-C	FBM100408L-HF-C
FBM12504LG-C	FBM130408L-HF-C

Please see the page J125 - J127 for the grades of inserts and guide pads.
Drill heads come with clamping screws and wrenches but do not include inserts and guide pads.
Please purchase inserts and guide pads separately.
Recommended clamping torque (N·m): CSTB-2.2/CSTB-2.2S = 1, SR14-560-HG = 1.2, CSTB-3S = 2.3, CSTB-3.5 = 3.5



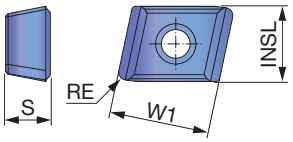


The designation of insert with G type and HF type is different, even in the same shape.
Please refer to the table on the left to check the insert designation. Both inserts can be mounted on the drill head.

Reference pages: Inserts → J125 - J126, Guide pads → J127, Drill tube (DTS) → J144

INSERT

FBM-C (Central insert)



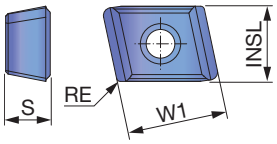
P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	★	☆
H	Hard materials	★	☆

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated		S	DCN	DCX	RE
			UC2220	AH8015				
FBM05503LG-C	5.5	8	●		3	25	28	0.8
FBM060308L-HF-C	5.5	8	●	●	3	25	28	0.8
FBM06504LG-C	6.5	10	●		4	28.1	35	0.8
FBM070408L-HF-C	6.5	10	●	●	4	28.1	35	0.8
FBM08004LG-C	8	10	●		4	35.01	44	0.8
FBM080408L-HF-C	8	10	●	●	4	35.01	44	0.8
FBM09504LG-C	9.5	10	●		4	44.01	54	0.8
FBM100408L-HF-C	9.5	10	●	●	4	44.01	54	0.8
FBM12504LG-C	12.5	10	●		4	54.01	65	0.8
FBM130408L-HF-C	12.5	10	●	●	4	54.01	65	0.8

● : Line-up

FBM-I (Intermediate insert)



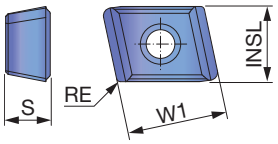
P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	★	☆
H	Hard materials	★	☆

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated		S	DCN	DCX	RE
			UC2220	AH8015				
FBM05503RG-I	5.5	8	●		3	25	29.99	0.4
FBM060304R-HF-I	5.5	8	●	●	3	25	29.99	0.4
FBM06504RG-I	6.5	10	●		4	30	41	0.4
FBM070404R-HF-I	6.5	10	●	●	4	30	41	0.4
FBM08004RG-I	8	10	●		4	41.01	51	0.4
FBM080404R-HF-I	8	10	●	●	4	41.01	51	0.4
FBM09504RG-I	9.5	10	●		4	51.01	64	0.4
FBM100404R-HF-I	9.5	10	●	●	4	51.01	64	0.4
FBM12504RG-I	12.5	10	●		4	64.01	65	0.4
FBM130404R-HF-I	12.5	10	●	●	4	64.01	65	0.4

● : Line-up

FBH-P (Peripheral insert)



P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	★	☆
H	Hard materials	★	☆

★ : First choice
☆ : Second choice

Designation	INSL	W1	Coated		S	DCN	DCX	RE
			UC2220	AH8015				
FBH06003RG-P	6	8	●		3	25	29.99	0.4
FBH060308R-HF-P	6	8	●	●	3	25	29.99	0.8
FBH07504RG-P	7.5	10	●		4	30	38	0.4
FBH080408R-HF-P	7.5	10	●	●	4	30	38	0.8
FBH09004RG-P	9	10	●		4	38.01	47	0.4
FBH090408R-HF-P	9	10	●	●	4	38.01	47	0.8
FBH11004RG-P	11	10	●		4	47.01	60	0.4
FBH110408R-HF-P	11	10	●	●	4	47.01	60	0.8
FBH13004RG-P	13	10	●		4	60.01	65	0.4
FBH130408R-HF-P	13	10	●	●	4	60.01	65	0.8

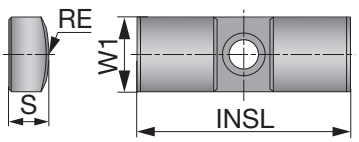
● : Line-up

Insert grade

	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	AH8015	-								
	UC2220	(NLX)								
M	AH8015	-								
	UC2220	(NLX)								
K	AH8015	-								
	UC2220	(NLX)								
N	AH8015	-								
	UC2220	(NLX)								
S	AH8015	-								
	UC2220	(NLX)								

GUIDE PAD

GP06, 07, 08, 10S, 12



P	Steel	☆	★	☆
M	Stainless	☆	★	☆
K	Cast iron	☆	★	☆
N	Non-ferrous	☆	★	☆
S	Superalloys	☆	★	☆
H	Hard materials	☆	★	☆

★ : First choice
☆ : Second choice

Designation	DCN	DCX	Coated F1122	Coated F2122	Coated FH3135	W1	INSL	S	RE
GP06	25	29.99	●	●		6	20	3	12
GP06-20-120-DC	25	29.99			●	6	20	3	12
GP07	30	39	●	●		7	20	3.5	12
GP07-20-120-DC	30	39			●	7	20	3.5	12
GP08	39.01	45	●	●		8	25	4.5	15.5
GP08-25-155-DC	39.01	45			●	8	25	4.5	15.5
GP10S	45.01	57	●	●		10	30	4.5	20
GP10-30-200-DC	45.01	57			●	10	30	4.5	20
GP12	57.01	65	●	●		12	35	5.5	25
GP12-35-250-DC	57.01	65			●	12	35	5.5	25

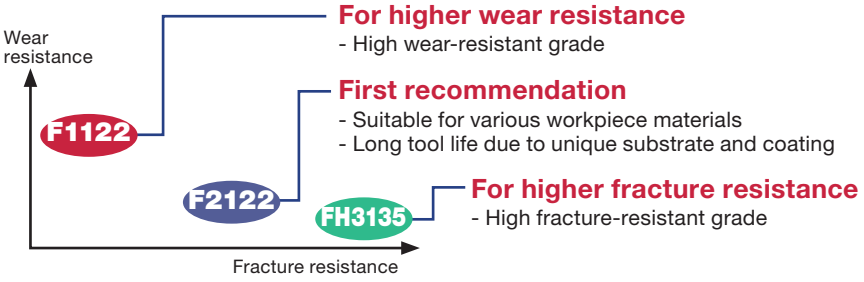
All of the above guide pads are finished with coating.

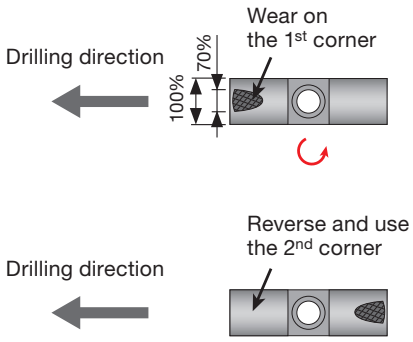
●: Line - up
Package quantity = 5 pcs.

REPLACING GUIDE PADS

Guide pads are subject to wear, like inserts

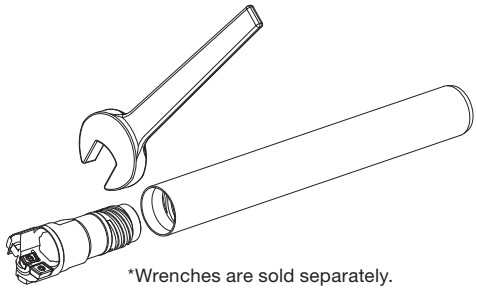
- The guide pad has two corners.
- Each guide pad can be used on two sides. When the first corner wears out a 70% of the width, reverse the guide pad to use the second corner.
- Replace with a new guide pad when the second corner wears out.





NOTE FOR MOUNTING A DRILL HEAD

Please be sure to use a wrench for a drill head to be clamped firmly.

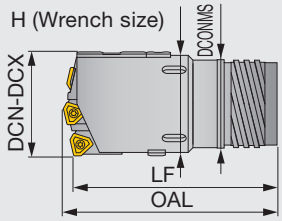


*Wrenches are sold separately.

UNIDEX

UNIDEX STS-EX

Indevable drill head with external quadruple thread for single tube system (STS), diameters adjustable, tool diameter ø38.00 - ø106.99 mm



Designation	DCN	DCX	CICT	Drill tube		Drill head			
				Designation	Dia. (mm)	OAL	LF	DCONMS	H
KUSTS07E-xx.xx	38	39.6	3	ST07	33	90	85	30	37
KUSTS08E-xx.xx	39.61	43	3	ST08	36	91	85	33	40
KUSTS09E-xx.xx	43.01	47	3	ST09	39	101	95	36	43
KUSTS10E-xx.xx	47.01	51.7	3	ST10	43	102	95	39	48
KUSTS11E-xx.xx	51.71	56.2	3	ST11	47	107	100	43	52
KUSTS12E-xx.xx	56.21	60.6	3	ST12	51	118	110	47	57
KUSTS13E-xx.xx	60.61	65	3	ST13	56	119	110	51	61
KUSTS14E-xx.xx	65	66.99	3	ST14	56	159	150	52	63
KUSTS15E-xx.xx	67	72.99	3	ST15	62	159	150	58	69
KUSTS16E-xx.xx	73	79.99	3	ST16	68	160	150	63	76
KUSTS17E-xx.xx	80	86.99	3	ST17	75	191	180	70	83
KUSTS18E-xx.xx	87	99.99	3	ST18	82	193	180	77	96
KUSTS19E-xx.xx	100	106.99	3	ST19	94	193	180	89	102

e.g. Designation for tool diameter ø60 mm: KUSTS12E-60.00

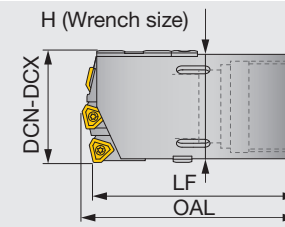
* Drill heads with the diameter ø92 mm or over have a top guide pocket.

* adjusting diameters has to be required before using.

UNIDEX

UNIDEX STS-IN

Indexable drill head with internal single thread for single tube system (STS), diameter adjustablr, tool diameter ø38.00 - ø106.99 mm



Designation	DCN	DCX	CICT	Drill tube		Drill head			
				Designation	Dia. (mm)	OAL	LF	DCONMS	H
KUSTS33-xx.xx	38	39.99	3	UB33	33	85	80	30	37
KUSTS36-xx.xx	40	43.99	3	UB36	36	86	80	33	41
KUSTS39-xx.xx	44	46.99	3	UB39	39	96	90	37	43
KUSTS43-xx.xx	47	51.99	3	UB43	43	97	90	41	48
KUSTS47-xx.xx	52	56.99	3	UB47	47	107	100	44	53
KUSTS51-xx.xx	57	60.99	3	UB51	51	118	110	49	57
KUSTS56-xx.xx	61	67.99	3	UB56	56	119	110	53	64
KUSTS62-xx.xx	68	74.99	3	UB62	62	129	120	59	71
KUSTS68-xx.xx	75	80.99	3	UB68	68	161	150	65	77
KUSTS75-xx.xx	81	90.99	3	UB75	75	162	150	71	87
KUSTS82-xx.xx	91	98.99	3	UB82	82	162	150	79	95
KUSTS94-xx.xx	99	106.99	3	UB94	94	163	150	90	102

e.g. Designation for tool diameter ø60 mm: KUSTS51-60.00

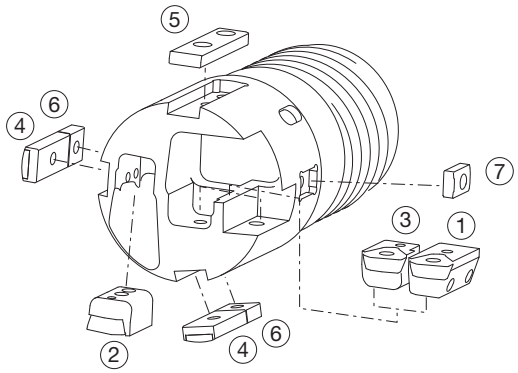
* Drill heads with the diameter ø92 mm or over have a top guide pocket.

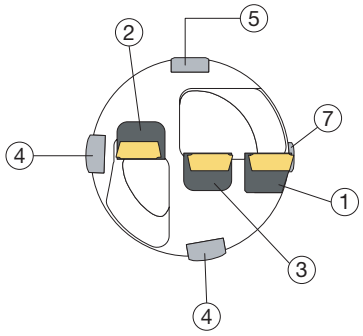
* adjusting diameters has to be required before using.

Reference pages: UNIDEX STS-EX: Inserts → J132, Standard cutting conditions → J133, Drill tube (STS) → J140
UNIDEX STS-IN: Inserts → J132, Standard cutting conditions → J133, Drill tube (STS) → J142
Screw, Guide pad → J131

SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge			Guide pad							
	Peripheral	Intermediate	Central	Guide pad		Filler		Protector		Sub guide pad	
	Cartridge①	Cartridge②	Cartridge③	④	Qty.	⑤	Qty.	⑥	Qty.	⑦	Qty.
38 - 39.99	OZ05R	IOZ05R	IOZ05R	GP08	2	-	-	GPT08	2	CUG08	1
40 - 44.99	OZ402 - 04	IOZ05R	IOZ05R	GP08	2	-	-	GPT08	2	CUG08	1
45 - 47.99	OZ402 - 04	IOZ05R	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
48 - 51.99	OZ402 - 04	IOZ402 - 04	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
52 - 54.99	OZ402 - 32	IOZ402 - 04	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
55 - 57.99	OZ402 - 32	IOZ402 - 04	IOZ402 - 32	GP10	2	-	-	GPT10	2	CUG08	1
58 - 59.99	OZ402 - 32	IOZ402 - 32	IOZ402 - 32	GP10	2	-	-	GPT10	2	CUG08	1
60 - 63.99	OZ402 - 32	IOZ402 - 32	IOZ402 - 32	GP14	2	-	-	GPT14	2	CUG08	1
64 - 67.99	OZ402 - 43	IOZ402 - 32	IOZ402 - 32	GP14	2	-	-	GPT14	2	CUG10	1
68 - 77.99	OZ402 - 32	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
78 - 84.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
85 - 91.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
92 - 98.99	OZ402 - 43	IOZ402 - 63	IOZ402 - 63	GP14	2	FILLER14	1	GPT14	2	CUG10	1
99 - 106.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	GP18	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1





* Depending on tool diameters, parts may not be positioned as shown in the above.

INSERT

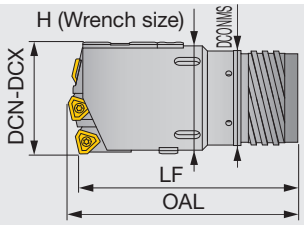
Tool diameter DCN-DCX (mm)	Peripheral insert		Qty.	Intermediate insert		Qty.	Central insert		Qty.
	New	Conventional		**New**	Conventional		**New**	Conventional	
38 - 39.99	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1
40 - 44.99	TPMX14**R...	1123 - 04R	1	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1
45 - 47.99	TPMX14**R...	1123 - 04R	1	NPMX08**R...	508 - 05R	1	TPMX14**R...	1123 - 04R	1
48 - 51.99	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1
52 - 54.99	TPMX17**R...	1123 - 32R	1	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1
55 - 57.99	TPMX17**R...	1123 - 32R	1	TPMX14**R...	1123 - 04R	1	TPMX17**R...	1123 - 32R	1
58 - 59.99	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
60 - 63.99	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
64 - 67.99	TPMX24**R...	1123 - 43R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
68 - 77.99	TPMX17**R...	1123 - 32R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
78 - 84.99	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
85 - 91.99	TPMX28**R...	1123 - 63R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
92 - 98.99	TPMX24**R...	1123 - 43R	1	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1
99 - 106.99	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1

- The tool diameter can be increased up to 5 mm using the plus (+) spare parts. (The expansion allowance depends on tool diameters.)
- Drill heads come with cartridge, guide pad, filler, protector, sub guide pad, and wrench, but do not include inserts.

UNIDEX

UNIDEX DTS

Indexable drill head with external quadruple thread for double tube system (DTS), diameter adjustable, tool diameter ø38 - ø106.99 mm



DTS Double Tube System

Designation	DCN	DCX	CICT	Drill tube		Drill head			
				Designation	Dia. (mm)	OAL	LF	DCONMS	H
KUDTS08E-xx.xx	38	39.6	3	OT08	35.5	90	85	33	37
KUDTS09E-xx.xx	39.61	43	3	OT09	39	91	85	36	40
KUDTS10E-xx.xx	43.01	47	3	OT10	42.5	101	95	39	43
KUDTS11E-xx.xx	47.01	51.7	3	OT11	46.5	102	100	43	48
KUDTS12E-xx.xx	51.71	56.2	3	OT12	51	107	100	47	52
KUDTS13E-xx.xx	56.21	65	3	OT13	55.5	119	110	51	61
KUDTS14E-xx.xx	65	66.99	3	OT14	56	159	150	52	63
KUDTS15E-xx.xx	67	72.99	3	OT15	62	159	150	58	69
KUDTS16E-xx.xx	73	79.99	3	OT16	68	160	150	63	76
KUDTS17E-xx.xx	80	86.99	3	OT17	75	191	180	70	83
KUDTS18E-xx.xx	87	99.99	3	OT18	82	193	180	77	96
KUDTS19E-xx.xx	100	106.99	3	OT19	94	193	180	89	102

e.g. Designation for tool diameter ø60 mm: KUDTS13E-60.00

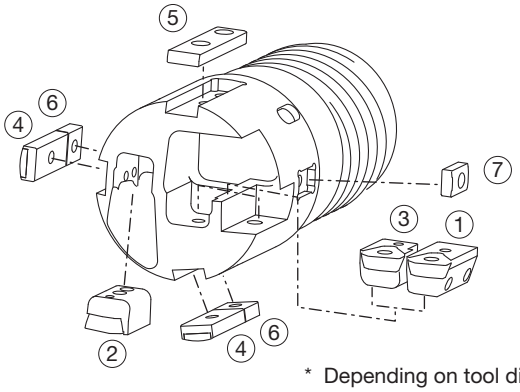
* Drill heads with the diameter ø92 mm or over have a top guide pocket.

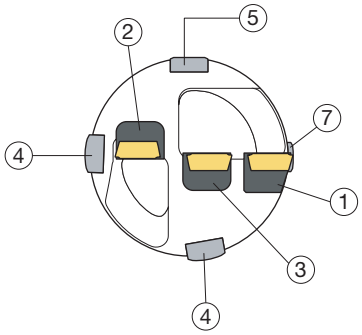
* adjusting diameters has to be required before using.

SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge			Guide pad							
	Peripheral	Intermediate	Central	Guide pad		Filler		Protector		Sub guide pad	
	Cartridge ①	Cartridge ②	Cartridge③	④	Qty.	⑤	Qty.	⑥	Qty.	⑦	Qty.
38 - 39.99	OZ05R	IOZ05R	IOZ05R	GP08	2	-	-	GPT08	2	CUG08	1
40 - 44.99	OZ402 - 04	IOZ05R	IOZ05R	GP08	2	-	-	GPT08	2	CUG08	1
45 - 47.99	OZ402 - 04	IOZ05R	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
48 - 51.99	OZ402 - 04	IOZ402 - 04	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
52 - 54.99	OZ402 - 32	IOZ402 - 04	IOZ402 - 04	GP10	2	-	-	GPT10	2	CUG08	1
55 - 57.99	OZ402 - 32	IOZ402 - 04	IOZ402 - 32	GP10	2	-	-	GPT10	2	CUG08	1
58 - 59.99	OZ402 - 32	IOZ402 - 32	IOZ402 - 32	GP10	2	-	-	GPT10	2	CUG08	1
60 - 63.99	OZ402 - 32	IOZ402 - 32	IOZ402 - 32	GP14	2	-	-	GPT14	2	CUG08	1
64 - 67.99	OZ402 - 43	IOZ402 - 32	IOZ402 - 32	GP14	2	-	-	GPT14	2	CUG10	1
68 - 77.99	OZ402 - 32	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
78 - 84.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
85 - 91.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 43	GP14	2	-	-	GPT14	2	CUG10	1
92 - 98.99	OZ402 - 43	IOZ402 - 63	IOZ402 - 63	GP14	2	FILLER14	1	GPT14	2	CUG10	1
99 - 106.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	GP18	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1

Filler is to protect a top guide pocket and included in the drill heads with ø92 mm or over.





* Depending on tool diameters, parts may not be positioned as shown in the above.

Reference pages: Inserts → J132, Standard cutting conditions → J133, Drill tube (DTS) → J144
Screw, Guide pad → J131

INSERT

Tool diameter DCN-DCX (mm)	Peripheral insert		Qty.	Intermediate insert		Qty.	Central insert		Qty.
	New	Conventional		**New**	Conventional		**New**	Conventional	
38 - 39.99	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1
40 - 44.99	TPMX14**R...	1123 - 04R	1	NPMX08**R...	508 - 05R	1	NPMX08**R...	508 - 05R	1
45 - 47.99	TPMX14**R...	1123 - 04R	1	NPMX08**R...	508 - 05R	1	TPMX14**R...	1123 - 04R	1
48 - 51.99	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1
52 - 54.99	TPMX17**R...	1123 - 32R	1	TPMX14**R...	1123 - 04R	1	TPMX14**R...	1123 - 04R	1
55 - 57.99	TPMX17**R...	1123 - 32R	1	TPMX14**R...	1123 - 04R	1	TPMX17**R...	1123 - 32R	1
58 - 59.99	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
60 - 63.99	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
64 - 67.99	TPMX24**R...	1123 - 43R	1	TPMX17**R...	1123 - 32R	1	TPMX17**R...	1123 - 32R	1
68 - 77.99	TPMX17**R...	1123 - 32R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
78 - 84.99	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
85 - 91.99	TPMX28**R...	1123 - 63R	1	TPMX24**R...	1123 - 43R	1	TPMX24**R...	1123 - 43R	1
92 - 98.99	TPMX24**R...	1123 - 43R	1	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1
99 - 106.99	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1	TPMX28**R...	1123 - 63R	1

- The tool diameter can be increased up to 5 mm using the plus (+) spare parts. (The expansion allowance depends on tool diameters.)
- Drill heads come with cartridge, guide pad, filler, protector, sub guide pad, and wrench, but do not include inserts.

SCREW

Tool diameter DCN - DCX (mm)	Insert						Guide pad					
	Peripheral		Intermediate		Central		Guide pad/Filler		Protector		Sub guide pad	
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	CSTB-2.2	T-7D	CSTB-2.2	T-7D	CSTB-2.2	T-7D	CSTB-3S	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
40 - 44.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.2	T-7D	CSTB-3S	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
45 - 47.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.5	T-8D	CSTB-4S	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
48 - 51.99	CSTB-2.5	T-8D	CSTB-2.5	T-8D	CSTB-2.5	T-8D	CSTB-4S	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
52 - 54.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-2.5	T-8D	CSTB-4S	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
55 - 57.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-3.5D	T-9D	CSTB-4S	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
58 - 59.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-4S	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
60 - 63.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
64 - 67.99	CSTB-4M	T-15D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
68 - 77.99	CSTB-3.5D	T-9D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
78 - 84.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
85 - 91.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
92 - 98.99	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTA-5S	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
99 - 106.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	LS1206S	H3	LS1206S	H3	CSTA-5S	T-15D

Tool diameter DCN - DCX (mm)	Cartridge screws							
	Peripheral				Intermidiate		Central	
	Screw	Wrench	Adjustable screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	LS1803RH	H2	AS0003-5	H1.5	CSTB-3	T-9D	CSTB-3	T-9D
40 - 44.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3	T-9D
45 - 47.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3.5	T-9D
48 - 51.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3.5	T-15D	CSTB-3.5	T-15D
52 - 54.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTB-3.5	T-15D
55 - 57.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTA-5	T-15D
58 - 59.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D
60 - 63.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D
64 - 67.99	LS1806RH	H4	AS0005-15	H2.5	CSTA-5	T-15D	CSTA-5	T-15D
68 - 77.99	LS1805RH	H3	AS0005-10	H2.5	LS1206	H3	LS1206	H3
78 - 84.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206	H3
85 - 91.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206	H3
92 - 98.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3
99 - 106.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206S	H3

Guide pads and protectors

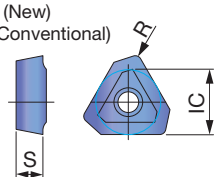
Guide pad				Dimensions (mm)			Lock screw	Wrench	Protector	Dimensions (mm)		Lock screw	Wrench
	F1122	F2122	FH3135	W	H	L				W	H		
GP08	●	●		8	4.5	25	CSTB-3S	T-9D	GPT08	8	4.5	CSTB-3S	T-9D
GP08-25-155-DC			●	8	4.5	25	CSTB-3S	T-9D	GPT08	8	4.5	CSTB-3S	T-9D
GP10	●	●		10	6	35	CSTB-4S	T-15D	GPT10	10	6	CSTB-4S	T-15D
GP10-35-200-DC			●	10	6	35	CSTB-4S	T-15D	GPT10	10	6	CSTB-4S	T-15D
GP14		●		14	7.5	40	CSTA-5S	T-15D	GPT14	14	7.5	CSTA-5S	T-15D
GP14-40-250-DC			●	14	7.5	40	CSTA-5S	T-15D	GPT14	14	7.5	CSTA-5S	T-15D
GP18		●		18	9	40	LS1206S / LS1206SSS ***	H3	GPT18-M	18	9	LS1206S	H3
GP18-40-300-DC			●	18	9	40	LS1206S / LS1206SSS ***	H3	GPT18-M	18	9	LS1206S	H3

***LS1206SSS for dimensional guide pad
(for diameter ø118.00 - ø150.99, ø169.00 - ø208.99 and ø233.00 - ø247.99 mm)

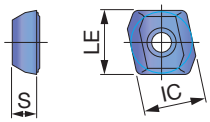
INSERT

NPMX..., TPMX.../508-05R..., 1123_**R...

TPMX type (New)
1123 type (Conventional)



NPMX type (New)
508 type (Conventional)



Right-hand type

Designation		Chipbreaker		AH8015	UC1220 (DLX2)	UC1125 (DLXT)	UC1230 (DLX3)	UC3215 (KLX2)	UC3210 (KLXT3)	UC2220 (NLX)	UC3120 (KLXT)	IC	S	R	LE
New	Conventional	New	Conventional												
NPMX080308R-G	508-05R	G	-				●	●		●		8	3.18	-	8.362
NPMX080304R-B	508-05RBR1	B	BR1			●				●	●	8	3.18	-	8.362
TPMX140308R-G	-	G	-	●								8.45	3.5	0.8	-
TPMX140308R-G	1123-04R	G	-		●		●	●		●		8.45	3.5	0.8	-
TPMX140304R-B	-	B	-	●								8.45	3.5	0.8	-
TPMX140304R-B	1123-04RBR1	B	BR1			●			●	●	●	8.45	3.5	0.4	-
TPMX140308R-DT	1123-04RS	DT	S							●		8.45	3.5	0.8	-
TPMX170408R-G	-	G	-	●								10.3	4	0.8	-
TPMX170408R-G	1123-32R	G	-		●		●	●		●		10.3	4	0.8	-
TPMX170404R-B	-	B	-	●								10.3	4	0.8	-
TPMX170404R-B	1123-32RBR1	B	BR1			●			●	●	●	10.3	4	0.4	-
TPMX170408R-BG	-	BG	-	●								10.3	4	0.8	-
TPMX170408R-BG	1123-32RB	BG	B					●		●		10.3	4	0.8	-
TPMX170408R-DT	1123-32RS	DT	S							●		10.3	4	0.8	-
TPMX240512R-G	-	G	-	●								14.2	5.5	1.2	-
TPMX240512R-G	1123-43R	G	-		●		●	●		●		14.2	5.5	1.2	-
TPMX240504R-B	-	B	-	●								14.2	5.5	1.2	-
TPMX240504R-B	1123-43RBR1	B	BR1			●			●	●	●	14.2	5.5	0.4	-
TPMX240512R-BG	-	BG	-	●								14.2	5.5	1.2	-
TPMX240512R-BG	1123-43RB	BG	B					●		●		14.2	5.5	1.2	-
TPMX240512R-DT	1123-43RS	DT	S							●		14.2	5.5	1.2	-
TPMX280716R-G	-	G	-	●								17	7.5	1.6	-
TPMX280716R-G	1123-63R	G	-		●		●	●		●		17	7.5	1.6	-
TPMX280708R-B	-	B	-	●								17	7.5	1.6	-
TPMX280708R-B	1123-63RBR1	B	BR1			●			●	●	●	17	7.5	0.8	-
TPMX280716R-BG	-	BG	-	●								17	7.5	1.6	-
TPMX280716R-BG	1123-63RB	BG	B					●		●		17	7.5	1.6	-
TPMX280716R-DT	1123-63RS	DT	S							●		17	7.5	1.6	-

● : Line up

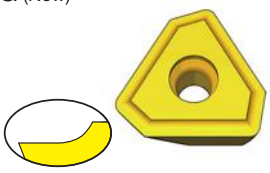
Left-hand type

Designation		Chipbreaker		AH8015	UC1220 (DLX2)	UC1125 (DLXT)	UC1230 (DLX3)	UC3215 (KLX2)	UC3210 (KLXT3)	UC2220 (NLX)	UC3120 (KLXT)	IC	S	R	LE
New	Conventional	New	Conventional												
TPMX140308L-G	1123-04L	G	-				●			●		8.45	3.5	0.8	-
TPMX170408L-G	1123-32L	G	-				●			●		10.3	4	0.8	-
TPMX170408L-BG	1123-32LB	BG	B							●		10.3	4	0.8	-
TPMX170408L-DT	1123-32LS	DT	S							●		10.3	4	0.8	-
TPMX240512L-G	1123-43L	G	-				●			●		14.2	5.5	1.2	-
TPMX240512L-BG	1123-43LB	BG	B							●		14.2	5.5	1.2	-
TPMX240512L-DT	1123-43LS	DT	S							●		14.2	5.5	1.2	-
TPMX280716L-G	1123-63L	G	-				●			●		17	7.5	1.6	-
TPMX280716L-BG	1123-63LB	BG	B							●		17	7.5	1.6	-

● : Line up

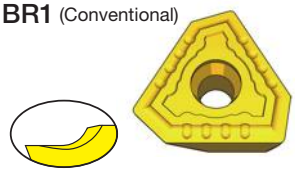
Chipbreaker

G (New)



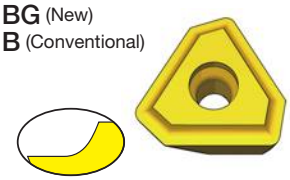
Versatile

B (New)
BR1 (Conventional)



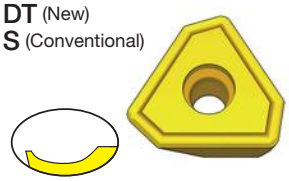
Good chip control for heat-resistant alloy

BG (New)
B (Conventional)



Good chip control for difficult-to-cut steel

DT (New)
S (Conventional)



Reduced cutting force

*Difficult-to-cut steel: Material that tends to produce long chips

Grade

	Grade	(Former name)	ISO area 5	10	15	20	25	30	35	40
P	AH8015	-								
	UC1220	(DLX2)								
	UC2220	(NLX)								
	UC1125	(DLXT)								
	UC1230	(DLX3)								
	UC3120	(KLXT)								
M	AH8015	-								
	UC2220	(NLX)								
	UC1230	(DLX3)								
	UC3120	(KLXT)								
K	AH8015	-								
	UC3215	(KLX2)								
	UC3120	(KLXT)								
N	AH8015	-								
	UC3215	(KLX2)								
	UC2220	(NLX)								
S	AH8015	-								
	UC3210	(KLXT3)								
	UC2220	(NLX)								
	UC3120	(KLXT)								
	UC1230	(DLX3)								

STANDARD CUTTING CONDITIONS

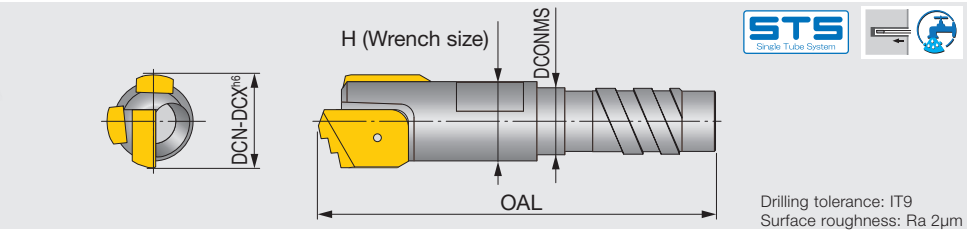
ISO	Workpiece materials				Hardness	Cutting speed	Feed: *f*n (mm/rev) Drill dia. (mm)				
					(HB)	*V*c (m/min)	38.00 - 39.99	40.00 - 51.99	52.00 - 63.99	64.00 - 84.99	85.00 -
P	Carbon steels Casting steels High carbon steels Carbon tool steels	S10C - S25C,SS	0.10 - 0.25%C	Non-hardened	125	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
		S25C - S55C	0.25 - 0.25%C	Non-hardened	190	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
			0.25 - 0.25%C	Hardened and tempered	250	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
		SK	0.55 - 0.80%C	Non-hardened	220	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
			0.55 - 0.80%C	Hardened and tempered	300	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Low alloy steels Casting steels (alloying element < 5%)	SNC,DCr,SNCN SCM,SMn		Non-hardened	200	60 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
				Hardened and tempered	275	60 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
					300	50 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
					350	50 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	High alloy steels Casting steel Tool steels	SNS,SKD,SKT SKH,SK		Non-hardened	200	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
				Hardened and tempered	325	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
M	Stainless steels	SUS430		Ferritic	200	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
		SUS410,420J		Martensite	240	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
		SUS304,SUS316L		Austenite	180	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
K	Ductile cast irons	FCD400 - FCD450		Ferritic / Pearlitic	180	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
		FCD500 - FCD700		Pearlitic	260	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
	Grey cast irons	FC100 - FC200		Low tensile strength	160	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
		FC250 - FC350		High tensile strength	250	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
	Malleable cast irons	FCMB,FCMW		Ferritic	130	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
		FCMWP,FCMP		Pearlitic	230	60 - 100	0.08 - 0.13	0.1 - 0.15	0.13 - 0.18	0.15 - 0.2	0.18 - 0.23
N	Aluminium alloys Forging			Non-aged	60	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
				Soluted, Aged	100	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
	Aluminium alloys Casting		≤12% Si	Non-aged	75	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
				Soluted, Aged	90	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
			>12% Si	High silicon	130	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
	Copper alloys		>1% Pb	Free cutting copper	110	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
				Brass, Red brass	90	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
				Electrolytic copper	100	60 - 130	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
S	Nickel-based alloys		Fe base	Non-aged	200	20 - 65	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
				Soluted, Aged	280	20 - 65	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
			Ni / Co base	Non-aged	250	20 - 65	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
				Soluted, Aged	350	20 - 65	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
				Casted	320	20 - 65	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Titanium alloys		α		Rm400	30 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
			α - β		Rm1050	30 - 100	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3

The above values should not be used as the exact recommendations. They may need modification depending on the machining conditions, materials, etc.

MBU

MBU type drill head

Brazed drill head with external single thread for single tube system (STS), tool diameter ø8 - ø14.79 mm



Drilling tolerance: IT9
Surface roughness: Ra 2µm

Designation	DCN	DCX	Drill tube		OAL	DCONMS	H
			Designation	Dia. (mm)			
MBU-0899-1 xx.xx	8	8.32	UMBB071	7.1	34	6	6
MBU-0899-2 xx.xx	8.33	8.65	UMBB071	7.1	34	6	6
MBU-0899-3 xx.xx	8.66	8.99	UMBB071	7.1	34	6	6
MBU-0999-1 xx.xx	9	9.32	UMBB083	8.3	34	7.2	7
MBU-0999-2 xx.xx	9.33	9.65	UMBB083	8.3	34	7.2	7
MBU-0999-3 xx.xx	9.66	9.99	UMBB083	8.3	34	7.2	7
MBU-1099-1 xx.xx	10	10.32	UMBB090	9	34	7.6	8
MBU-1099-2 xx.xx	10.33	10.65	UMBB090	9	34	7.6	8
MBU-1099-3 xx.xx	10.66	10.99	UMBB090	9	34	7.6	8
MBU-1199-1 xx.xx	11	11.32	UMBB100	10	34	8.6	9
MBU-1199-2 xx.xx	11.33	11.65	UMBB100	10	34	8.6	9
MBU-1199-3 xx.xx	11.66	11.99	UMBB100	10	34	8.6	9
MBU-1349-1 xx.xx	12	12.36	UMBB110	11	34	9.1	10
MBU-1349-2 xx.xx	12.37	12.73	UMBB110	11	34	9.1	10
MBU-1349-3 xx.xx	12.74	13.1	UMBB110	11	34	9.1	10
MBU-1349-4 xx.xx	13.11	13.49	UMBB110	11	34	9.1	10
MBU-1449-1 xx.xx	13.5	13.82	UMBB120	12	34	10.8	11
MBU-1449-2 xx.xx	13.83	14.15	UMBB120	12	34	10.8	11
MBU-1449-3 xx.xx	14.16	14.48	UMBB120	12	34	10.8	11
MBU-1449-4 xx.xx	14.49	14.79	UMBB120	12	34	10.8	11

e.g. Designation for tool diameter ø9 mm: MBU-0899-1 9.00
The interface of the drill tube has a unique shape. Please be sure to use UMBB drill tube.

Grade

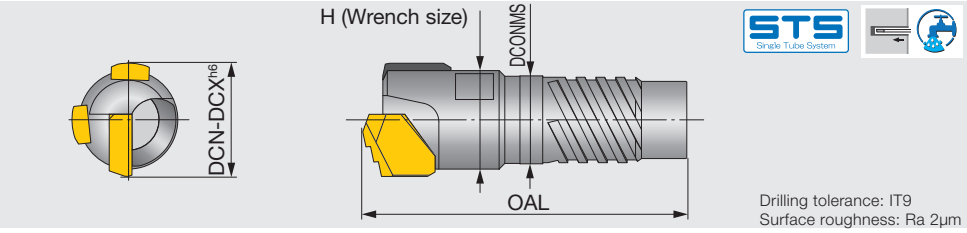
	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	1122	(PC ZAP)								
M	3112	(TF ZAP)								
K	3112	(TF ZAP)								
N	3112	(TF ZAP)								
S	3112	(TF ZAP)								

Reference pages: Standard cutting conditions → J139, Drill tube (STS) → J140

UTE

UTE type drill head

Brazed drill head with external double or quadruple thread for single tube system (STS), tool diameter ø12.6 - ø20 mm



Designation	DCN	DCX	Drill tube		OAL	DCONMS	H
			Designation	Dia. (mm)			
UTE-0094-1 xx.xx	12.6	12.92	ST0094	11	40	9.6	10
UTE-0094-2 xx.xx	12.93	12.99	ST0094	11	40	9.6	10
UTE-0094-3 xx.xx	13	13.25	ST0094	11	40	9.6	10
UTE-0094-4 xx.xx	13.26	13.6	ST0094	11	40	9.6	10
UTE-0095-1 xx.xx	13.61	13.93	ST0095	12	40	10.6	11
UTE-0095-2 xx.xx	13.94	13.99	ST0095	12	40	10.6	11
UTE-0095-3 xx.xx	14	14.26	ST0095	12	40	10.6	11
UTE-0095-4 xx.xx	14.27	14.6	ST0095	12	40	10.6	11
UTE-0096-1 xx.xx	14.61	14.93	ST0096	13	40	11.6	12
UTE-0096-2 xx.xx	14.94	15.26	ST0096	13	40	11.6	12
UTE-0096-3 xx.xx	15.27	15.59	ST0096	13	40	11.6	12
UTE-0097-1 xx.xx	15.6	15.96	ST0097	14	40	12.6	13
UTE-0097-2 xx.xx	15.97	16.32	ST0097	14	40	12.6	13
UTE-0097-3 xx.xx	16.33	16.7	ST0097	14	40	12.6	13
UTE-0098-1 xx.xx	16.71	17.03	ST0098	15	40	13.6	14
UTE-0098-2 xx.xx	17.04	17.36	ST0098	15	40	13.6	14
UTE-0098-3 xx.xx	17.37	17.7	ST0098	15	40	13.6	14
UTE-0099-1 xx.xx	17.71	18.09	ST0099	16	40	14.5	15
UTE-0099-2 xx.xx	18.1	18.48	ST0099	16	40	14.5	15
UTE-0099-3 xx.xx	18.49	18.9	ST0099	16	40	14.5	15
UTE-0000-1 xx.xx	18.91	19.26	ST0000	17	40	15.5	16
UTE-0000-2 xx.xx	19.27	19.62	ST0099	17	40	15.5	16
UTE-0000-3 xx.xx	19.63	20	ST0099	17	40	15.5	16

e.g. Designation for tool diameter ø12.92 mm: UTE-0094-1 12.92

UTE Drill head : ø12.6 mm - ø15.59 mm, External double thread
UTE Drill head : ø15.6 mm - ø20 mm, External quadruple thread

Grade

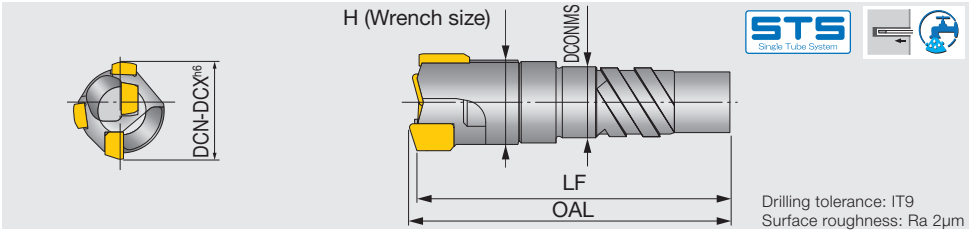
	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	1122	(UP ZAP)								
M	3112	(TF ZAP)								
K	3112	(TF ZAP)								
N	3112	(TF ZAP)								
S	3132	(TFKS ZAP)								

Reference pages: Standard cutting conditions → J139, Drill tube (STS) → J140

BTU

BTU type drill head (Small diameter, 2 edges)

Brazed rill head with external double thread for single tube system (STS), tool diameter ø12.6 - ø15.59 mm



Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)				
BTU-00941 xx.xx	12.6	13.1	ST0094	11	43	41.9	9.6	10
BTU-00942 xx.xx	13.11	13.6	ST0094	11	43	41.9	9.6	10
BTU-00951 xx.xx	13.61	14.1	ST0095	12	43	41.8	10.6	11
BTU-00952 xx.xx	14.11	14.6	ST0095	12	43	41.8	10.6	11
BTU-00961 xx.xx	14.61	15.1	ST0096	13	43	41.7	11.6	12
BTU-00962 xx.xx	15.11	15.59	ST0096	13	43	41.7	11.6	12

e.g. Designation for tool diameter ø13.1 mm: BTU-00941 13.10

Grade

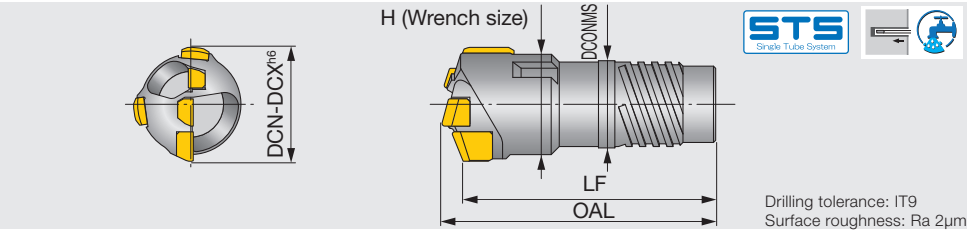
	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	1122	(UP ZAP)								
M	2122	(N3 ZAP)								
K	1122	(UP ZAP)								
N	1122	(UP ZAP)								
S	1122	(UP ZAP)								

Reference pages: Standard cutting conditions → J139, Drill tube (STS) → J140

BTU

BTU type drill head (3 edges)

Brazed drill head with external quadruple thread for single tube system (STS), tool diameter ø15.6 - ø65 mm



Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)				
BTU-00971 xx.xx	15.6	16.2	ST0097	14	43	40.3	12.6	-
BTU-00972 xx.xx	16.21	16.7	ST0097	14	43	40.3	12.6	14
BTU-00981 xx.xx	16.71	17.2	ST0098	15	43	40.3	13.6	15
BTU-00982 xx.xx	17.21	17.7	ST0098	15	43	40.3	13.6	15
BTU-00991 xx.xx	17.71	18.4	ST0099	16	47	44.2	14.5	15
BTU-00992 xx.xx	18.41	18.9	ST0099	16	47	44.1	14.5	-
BTU-001 xx.xx	18.91	19.2	ST0000	17	47	44.1	15.5	17
BTU-002 xx.xx	19.21	20	ST0000	17	47	44	15.5	18
BTU-011 xx.xx	20.01	20.9	ST00	18	52.5	49.4	16	18
BTU-012 xx.xx	20.91	21.8	ST00	18	52.5	49.4	16	19
BTU-021 xx.xx	21.81	22.9	ST01	20	56	52.8	18	20
BTU-022 xx.xx	22.91	24.1	ST01	20	56	52.6	18	21
BTU-031 xx.xx	24.11	25.2	ST02	22	57.5	54	19.5	23
BTU-032 xx.xx	25.21	26.4	ST02	22	57.5	54	19.5	24
BTU-041 xx.xx	26.41	27.5	ST03	24	57.5	53.8	21	25
BTU-042 xx.xx	27.51	28.7	ST03	24	57.5	53.8	21	26
BTU-051 xx.xx	28.71	29.8	ST04	26	63.5	59.5	23.5	27
BTU-052 xx.xx	29.81	31	ST04	26	63.5	59.3	23.5	28
BTU-061 xx.xx	31.01	32.1	ST05	28	63.5	59.4	25.5	29
BTU-062 xx.xx	32.11	33.3	ST05	28	63.5	59.1	25.5	30
BTU-071 xx.xx	33.31	34.8	ST06	30	63.5	59	28	32
BTU-072 xx.xx	34.81	36.2	ST06	30	63.5	58.9	28	33
BTU-081 xx.xx	36.21	37.3	ST07	33	73.5	68.7	30	34
BTU-082 xx.xx	37.31	38.4	ST07	33	73.5	68.5	30	35
BTU-083 xx.xx	38.41	39.6	ST07	33	73.5	68.3	30	36
BTU-091 xx.xx	39.61	40.6	ST08	36	73.5	68.2	33	37
BTU-092 xx.xx	40.61	41.8	ST08	36	73.5	68	33	38
BTU-093 xx.xx	41.81	43	ST08	36	73.5	67.8	33	39
BTU-101 xx.xx	43.01	44.3	ST09	39	75	69.5	36	41
BTU-102 xx.xx	44.31	45.6	ST09	39	75	69.3	36	42
BTU-103 xx.xx	45.61	47	ST09	39	75	69.1	36	43
BTU-111 xx.xx	47.01	48.5	ST10	43	75	68.8	39	44
BTU-112 xx.xx	48.51	50.1	ST10	43	75	68.7	39	46
BTU-113 xx.xx	50.11	51.7	ST10	43	75	68.5	39	47
BTU-121 xx.xx	51.71	53.2	ST11	47	82	75.2	43	49
BTU-122 xx.xx	53.21	54.7	ST11	47	82	75.2	43	50
BTU-123 xx.xx	54.71	56.2	ST11	47	82	75.2	43	51
BTU-131 xx.xx	56.21	58.4	ST12	51	84	77.4	47	54
BTU-132 xx.xx	58.41	60.6	ST12	51	84	76.9	47	55
BTU-133 xx.xx	60.61	62.8	ST12	51	84	76.8	47	57
BTU-134 xx.xx	62.81	65	ST12	51	84	76.5	47	59
BTU-133L xx.xx	60.61	62.8	ST13	56	84	76.8	51	57
BTU-134L xx.xx	62.81	65	ST13	56	84	76.5	51	59

e.g. Designation for tool diameter ø16.2 mm: BTU-00971 16.20

Grade

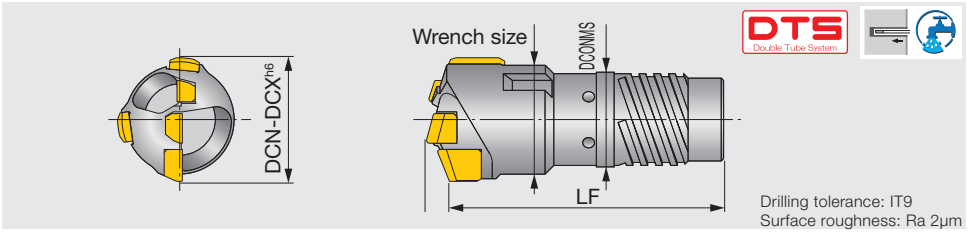
	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	1122	(UP ZAP)		■	■	■				
	1132	(UX-2 ZAP)				■	■	■		
M	1132	(UX-2 ZAP)					■	■	■	
	2122	(N3 ZAP)						■	■	■
K	3132	(TFKS ZAP)			■	■	■			
N	3132	(TFKS ZAP)		■	■	■				
S	3132	(TFKS ZAP)			■	■	■			

Reference pages: Standard cutting conditions → J139, Drill tube (STS) → J140

ETU

ETU type drill head

Brazed drill head with external quadruple thread for double tube system (DTS), tool diameter ø18.4 - ø65 mm



Drilling tolerance: IT9
Surface roughness: Ra 2µm

Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	H
			Designation	Dia. (mm)				
ETU-001 xx.xx	18.4	19.2	OT00	18	50	47.1	16	17
ETU-002 xx.xx	19.21	20	OT00	18	50	47	16	18
ETU-011 xx.xx	20.01	20.9	OT01	20	56	52.8	18	18
ETU-012 xx.xx	20.91	21.8	OT01	20	56	52.7	18	19
ETU-021 xx.xx	21.81	22.9	OT02	22	56	52.8	19.5	20
ETU-022 xx.xx	22.91	24.1	OT02	22	56	52.6	19.5	21
ETU-031 xx.xx	24.11	25.2	OT03	24	57.5	54	21	23
ETU-032 xx.xx	25.21	26.4	OT03	24	57.5	54	21	24
ETU-041 xx.xx	26.41	27.5	OT04	26	60.5	56.8	23.5	25
ETU-042 xx.xx	27.51	28.7	OT04	26	60.5	56.8	23.5	26
ETU-051 xx.xx	28.71	29.8	OT05	28	63.5	59.5	25.5	27
ETU-052 xx.xx	29.81	31	OT05	28	63.5	59.3	25.5	28
ETU-061 xx.xx	31.01	32.1	OT06	31	63.5	59.4	28	29
ETU-062 xx.xx	32.11	33.3	OT06	31	63.5	59.2	28	30
ETU-071 xx.xx	33.31	34.8	OT07	33	70.5	66	30	32
ETU-072 xx.xx	34.81	36.2	OT07	33	70.5	65.8	30	33
ETU-081 xx.xx	36.21	37.3	OT08	36	73.5	68.7	33	34
ETU-082 xx.xx	37.31	38.4	OT08	36	73.5	68.5	33	35
ETU-083 xx.xx	38.41	39.6	OT08	36	73.5	68.3	33	36
ETU-091 xx.xx	39.61	40.6	OT09	39	73.5	68.2	36	37
ETU-092 xx.xx	40.61	41.8	OT09	39	73.5	68	36	38
ETU-093 xx.xx	41.81	43	OT09	39	73.5	67.9	36	39
ETU-101 xx.xx	43.01	44.3	OT10	43	75	69.5	39	41
ETU-102 xx.xx	44.31	45.6	OT10	43	75	69.3	39	42
ETU-103 xx.xx	45.61	47	OT10	43	75	69.1	39	43
ETU-111 xx.xx	47.01	48.5	OT11	47	79	72.9	43	44
ETU-112 xx.xx	48.51	50.1	OT11	47	79	72.8	43	46
ETU-113 xx.xx	50.11	51.7	OT11	47	79	72.5	43	47
ETU-121 xx.xx	51.71	53.2	OT12	51	82	75.3	47	49
ETU-122 xx.xx	53.21	54.7	OT12	51	82	75.5	47	50
ETU-123 xx.xx	54.71	56.2	OT12	51	82	75.3	47	51
ETU-131 xx.xx	56.21	58.4	OT13	56	84	77.4	51	54
ETU-132 xx.xx	58.41	60.6	OT13	56	84	76.9	51	55
ETU-133 xx.xx	60.61	62.8	OT13	56	84	77	51	57
ETU-134 xx.xx	62.81	65	OT13	56	84	76.6	51	59

e.g. Designation for tool diameter ø19.2 mm: ETU-001 19.20

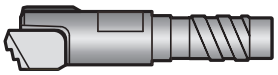
Grade

	Grade	(Former name)	ISO area							
			5	10	15	20	25	30	35	40
P	1122	(UP ZAP)		■	■	■				
	1132	(UX-2 ZAP)				■	■	■		
M	1132	(UX-2 ZAP)					■	■	■	
	2122	(N3 ZAP)						■	■	■
K	3132	(TFKS ZAP)			■	■	■			
N	3132	(TFKS ZAP)		■	■	■				
S	3132	(TFKS ZAP)			■	■	■			

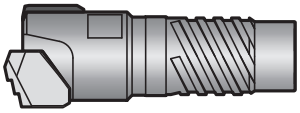
Reference pages: Standard cutting conditions → J139,
Drill tube (DTS) → J144

STANDARD CUTTING CONDITIONS

STS Single Tube System

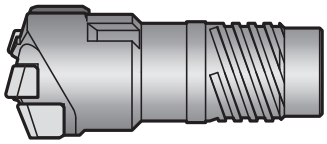


MBU



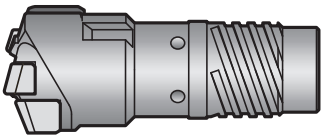
UTE

BTU (2 edges)



BTU (3 edges)

DTS Double Tube System



ETU (3 edges)

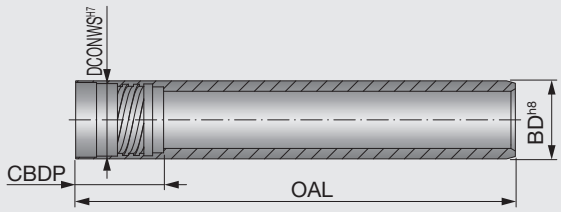
ISO	Workpiece material	JIS	Condition		Hardness	Cutting speed	Feed per revolution: *fn* (mm/rev)				
							Drill dia. (mm)				
							8 - 20	12.6 - 20	20.01 - 31	31.01 - 43	43.01 - 65
					(HB)	*Vc* (m/min)	MBU, UTE	BTU, ETU			
P	Carbon steels Cast steels High carbon steels Carbon tool steels	S10C - S25C,SS	0.1 - 0.25 %C	Non-hardened	125	70 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
		S25C - S55C	0.25 - 0.25 %C	Non-hardened	190	70 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
			0.25 - 0.25 %C	Hardened	250	70 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
		SK	0.55 - 0.80 %C	Non-hardened	220	70 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
			0.55 - 0.80 %C	Hardened	300	70 - 130	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.13 - 0.17	0.15 - 0.28
	Low alloy steels Cast steels (alloying element < 5%)	SNC,DCr,SNCN SCM,SMn		Non-hardened	200	70 - 110	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
				Hardened	275	60 - 110	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.13 - 0.17	0.15 - 0.28
					300	60 - 110	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.13 - 0.17	0.15 - 0.28
					350	60 - 110	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.13 - 0.17	0.15 - 0.28
	High alloy steels, Cast steels Tool steels	SNS,SKD,SKT SKH,SK		Non-hardened	200	70 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
				Hardened	325	70 - 130	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.13 - 0.17	0.15 - 0.28
M	Stainless steels	SUS430		Ferritic	200	40 - 110	0.05 - 0.13	0.08 - 0.15	0.1 - 0.28	0.13 - 0.3	0.16 - 0.35
		SUS410,420J		Martensitic	240	40 - 110	0.05 - 0.13	0.08 - 0.15	0.1 - 0.28	0.13 - 0.3	0.16 - 0.35
		SUS304,SUS316L		Austenitic	180	40 - 110	0.05 - 0.12	0.05 - 0.12	0.08 - 0.25	0.1 - 0.28	0.15 - 0.33
K	Ductile cast iron	FCD400 - FCD450		Ferritic / Pearlitic	180	50 - 110	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
		FCD500 - FCD700		Pearlitic	260	50 - 110	0.05 - 0.13	0.08 - 0.15	0.1 - 0.17	0.13 - 0.2	0.16 - 0.3
	Grey cast iron	FC100 - FC200		Low tensile strength	160	60 - 110	0.05 - 0.13	0.06 - 0.13	0.08 - 0.18	0.1 - 0.2	0.15 - 0.25
		FC250 - FC350		High tensile strength	250	60 - 110	0.05 - 0.13	0.06 - 0.13	0.08 - 0.18	0.1 - 0.2	0.15 - 0.25
	Malleable cast irons	FCMB,FCMW		Ferritic	130	70 - 110	0.05 - 0.13	0.06 - 0.13	0.08 - 0.18	0.1 - 0.2	0.15 - 0.25
		FCMWP,FCMP		Pearlitic	230	70 - 110	0.05 - 0.13	0.06 - 0.13	0.08 - 0.18	0.1 - 0.2	0.15 - 0.25
N	Aluminium alloy Wrought			Non-aged	60	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
				Soluted, Aged	100	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
	Aluminium alloy Cast		<=12% Si	Non-aged	75	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
				Soluted, Aged	90	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
			>12% Si	High silicon content	130	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
	Copper alloys		>1% Pb	Free-cutting copper	110	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
				Brass, Red brass	90	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
				Electrolytic copper	100	65 - 130	0.05 - 0.13	0.08 - 0.15	0.1 - 0.2	0.15 - 0.25	0.16 - 0.3
S	Heat-resistant alloy		Fe based alloys	Non-aged	200	20 - 50	0.05 - 0.12	0.06 - 0.12	0.08 - 0.15	0.12 - 0.18	0.15 - 0.25
				Soluted, Aged	280	20 - 50	0.05 - 0.12	0.06 - 0.12	0.08 - 0.15	0.12 - 0.18	0.15 - 0.25
			Ni / Co based alloys	Non-aged	250	20 - 50	0.05 - 0.12	0.06 - 0.12	0.08 - 0.15	0.12 - 0.18	0.15 - 0.25
				Soluted, Aged	350	20 - 50	0.05 - 0.12	0.06 - 0.12	0.08 - 0.15	0.12 - 0.18	0.15 - 0.25
				Cast	320	20 - 50	0.05 - 0.12	0.06 - 0.12	0.08 - 0.15	0.12 - 0.18	0.15 - 0.25
	Titanium alloys		α		Rm400	30 - 60	0.05 - 0.1	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.12 - 0.2
			α-β		Rm1050	30 - 60	0.05 - 0.1	0.05 - 0.1	0.08 - 0.12	0.1 - 0.15	0.12 - 0.2

The above values may need modification depending on the machining conditions, materials, etc.

ST

ST - for single tube system

Drill tube for single tube system (STS), internal thread type, double thread (tool dia. ≤ ø15.59 mm) or quadruple thread (tool dia. ≥ ø15.6 mm)



Designation	DCN-DCX	OAL 1600	OAL 2600	OAL Special length	BD	DCONWS	CBDP
ST0094	12.6 - 13.6	●		○	11	9.6	22
ST0095	13.61 - 14.6	●		○	12	10.6	22
ST0096	14.61 - 15.59	●		○	13	11.6	22
ST0097	15.6 - 16.7	●		○	14	12.6	21
ST0098	16.71 - 17.7	●	●	○	15	13.6	21
ST0099	17.71 - 18.9	●	●	○	16	14.5	22
ST0000	18.91 - 20	●	●	○	17	15.5	22
ST00	20.01 - 21.8	●	●	○	18	16	27.5
ST01	21.81 - 24.1		●	○	20	18	30
ST02	24.11 - 26.4		●	○	22	19.5	30
ST03	26.41 - 28.7		●	○	24	21	30
ST04	28.71 - 31		●	○	26	23.5	33
ST05	31.01 - 33.3		●	○	28	25.5	33
ST06	33.31 - 36.2		●	○	30	28	33
ST07	36.21 - 39.6		●	○	33	30	40
ST08	39.61 - 43		●	○	36	33	40
ST09	43.01 - 47		●	○	39	36	40
ST10	47.01 - 51.7		●	○	43	39	40
ST11	51.71 - 56.2		●	○	47	43	44
ST12	56.21 - 60.6		●	○	51	47	44
ST13	60.61 - 65			○	56	51	44

Designation	DCN-DCX	OAL Special length	BD	DCONWS	CBDP
ST14	65 - 66.99	○	56	52	75
ST15	67 - 72.99	○	62	58	75
ST16	73 - 79.99	○	68	63	75
ST17	80 - 86.99	○	75	70	97
ST18	87 - 99.99	○	82	77	97
ST19	100 - 111.99	○	94	89	97
ST20	112 - 123.99	○	106	101	118
ST21	124 - 135.99	○	118	113	118
ST22	136 - 147.99	○	130	125	118
ST23	148 - 159.99	○	142	137	139
ST24	160 - 171.99	○	154	149	139
ST25	172 - 183.99	○	166	161	139
ST26	184 - 195.99	○	178	173	144
ST27	196 - 207.99	○	190	185	144
ST28	208 - 219.99	○	202	197	144
ST29	220 - 231.99	○	214	208	164
ST30	232 - 243.99	○	226	220	164
ST31	244 - 255.99	○	238	232	164
ST32	256 - 267.99	○	250	244	184
ST33	268 - 279.99	○	262	256	184
ST34	280 - 291.99	○	274	268	184

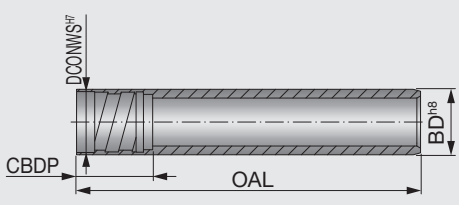
Please specify the length (L) when ordering.
e.g. For ø60 mm drill diameter / 2600 mm drill tube length: ST12X2600
The lengths that are not in the above will be available upon request.

● : Line up
○ : Item to be customized

UMBB

UMBB - for single tube system with MBU

Drill tube with internal single thread for MBU drill head



Designation	DCN-DCX	OAL Special length	BD	DCONWS	CBDP
UMBB071	8 - 8.99	○	7.1	6	13.5
UMBB083	9 - 9.99	○	8.3	7.2	13.5
UMBB090	10 - 10.99	○	9	7.6	13.5
UMBB100	11 - 11.99	○	10	8.6	13.5
UMBB110	12 - 13.49	○	11	9.1	13.5
UMBB120	13.5 - 14.79	○	12	10.8	13.5

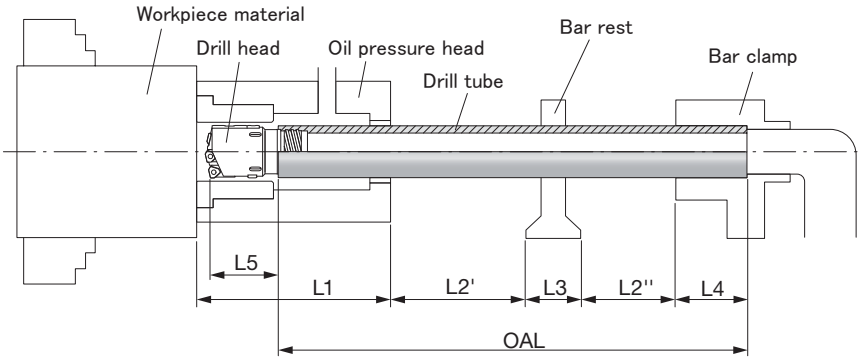
Please specify the length (L) when ordering.
e.g. For ø11 mm drill diameter / 1000 mm drill tube length: UMBB100X1000

○: Item to be customized

Reference pages: ST: Drill head → J118 (FINE-TRI STS-EX), J122 (FINE BEAM STS-EX), J128 (UNIDEX STS-EX), J135 (UTE), J136 - J137 (BTU)
UMBB: Drill head → J134 (MBU)

TUBE LENGTH FOR SPECIAL DRILLS

Drill tubes with the lengths that are not for standard items will be available upon request.
Please use the below guide to calculate the drill tube length.



L = Drill tube whole length
L1 = Oil pressure head length
L2 = Drilli ng depth (L2' + L2'')
L3 = Bar rest length
L4 = Drill tube clamp length
L5 = Length from drill tube tip and peripheral edge tip

Drill tube length OAL = L1 + L2 + L3 + L4 - L5

BTU

DCN-DCX	L5
12.6 - 17.7	20
17.71 - 19.2	23
19.21 - 21.8	22
21.81 - 24.1	23
24.11 - 28.7	24
28.71 - 33.3	27
33.31 - 36.2	26
36.21 - 40.6	29
40.61 - 43	28
43.01 - 47	30
47.01 - 51.7	29
51.71 - 56.2	32
56.21 - 58.4	34
58.41 - 65	33

FINE-BEAM

DCN-DCX	L5
25 - 28.7	40
28.71 - 33.3	42
33.31 - 36.2	47
36.21 - 39.6	50
39.61 - 43	55
43.01 - 51.7	60
51.71 - 56.2	66
56.21 - 65	71

UNIDEX

DCN-DCX	L5
38 - 43	45
43.01 - 51.7	55
51.71 - 56.2	56
56.21 - 65	66
65 - 79.99	75
80 - 111.99	83
112 - 147.99	87
148 - 183.99	86
184 - 255.99	101
256 - 291.99	106

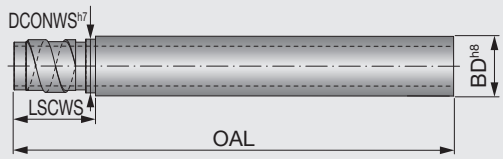
TRI-FINE

DCN-DCX	L5
16 - 16.7	34
16.71 - 17.7	34
17.71 - 18.9	34
18.91 - 20	34
20.01 - 21.8	32.5
21.81 - 21.99	33.5
22 - 24.1	35.5
24.11 - 26.4	35.5
26.41 - 28	35.5

UB

UB - for single tube system

Drill tube for single tube system (STS), external thread type, single thread



Designation	DCN-DCX	OAL Special length	BD	DCONWS	LSCWS
UB12-1	14.5 - 15	○	12	11.5	23
UB12-2	15.01 - 15.5	○	12	11.8	23
UB13-1	15.51 - 16	○	13	12.4	23
UB13-2	16.01 - 16.5	○	13	12.7	23
UB14-1	16.51 - 17.25	○	14	13.4	23
UB14-2	17.26 - 18	○	14	13.7	23
UB15	18.01 - 19	○	15	14.4	23
UB16.5	19.01 - 19.99	○	16.5	15.4	23
UB18	20 - 21.99	○	18	16.5	26
UB20	22 - 24.99	○	20	19	26
UB22	25 - 26.99	○	22	20	26
UB24	27 - 29.99	○	24	22	26
UB26	30 - 31.99	○	26	24	26
UB28	32 - 33.99	○	28	26	26
UB30	34 - 36.99	○	30	27	41
UB33	37 - 39.99	○	33	30	41
UB36	40 - 43.99	○	36	33	41
UB39	44 - 46.99	○	39	37	41
UB43	47 - 51.99	○	43	41	41
UB47	52 - 56.99	○	47	44	41
UB51	57 - 60.99	○	51	49	41

Designation	DCN-DCX	OAL Special length	BD	DCONWS	LSCWS
UB56	61 - 67.99	○	56	53	41
UB62	68 - 74.99	○	62	59	41
UB68	75 - 80.99	○	68	65	71
UB75	81 - 90.99	○	75	71	71
UB82	91 - 98.99	○	82	79	71
UB94	99 - 110.99	○	94	90	71
UB106	111 - 122.99	○	106	102	71
UB118	123 - 134.99	○	118	114	71
UB130	135 - 148.99	○	130	126	71
UB142	149 - 161.99	○	142	139	71
UB154	162 - 173.99	○	154	151	86
UB166	174 - 185.99	○	166	163	86
UB178	186 - 197.99	○	178	175	86
UB190	198 - 209.99	○	190	187	86
UB202	210 - 221.99	○	202	199	86
UB214	222 - 233.99	○	214	211	86
UB226	234 - 245.99	○	226	223	86
UB238	246 - 257.99	○	238	235	86
UB250	258 - 269.99	○	250	247	121
UB262	270 - 281.99	○	262	259	121
UB274	282 - 293.99	○	274	271	121

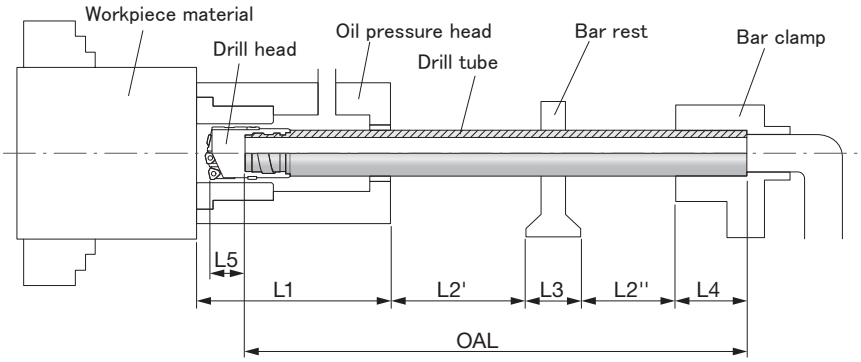
Please specify the length (L) when ordering.
e.g. For ø60 mm drill diameter / 2600 mm drill tube length: UB51X2600

○ : Item to be customized

Reference pages: Drill head → J118 (FINE-TRI STS-IN), J123 (FINE BEAM STS-IN), J128 (UNIDEX STS-IN)

TUBE LENGTH FOR SPECIAL DRILLS

Please use the below guide to calculate the drill tube length.



OAL = Drill tube whole length
L1 = Oil pressure head length
L2 = Drilli ng depth (L2' + L2'')
L3 = Bar rest length
L4 = Drill tube clamp length
L5 = Length from drill tube tip and peripheral edge tip

Drill tube length OAL = L1 + L2 + L3 + L4 - L5

FINE-BEAM

DCN-DCX	L5
25 - 29.99	45
30 - 33.99	50
34 - 36.99	50
37 - 39.99	55
40 - 43.99	60
44 - 51.99	65
52 - 56.99	70
57 - 65	75

UNIDEX

DCN-DCX	L5
38 - 43.99	40
44 - 51.99	50
52 - 56.99	60
57 - 67.99	70
68 - 161.99	80
162 - 257.99	105
258 - 293.99	90

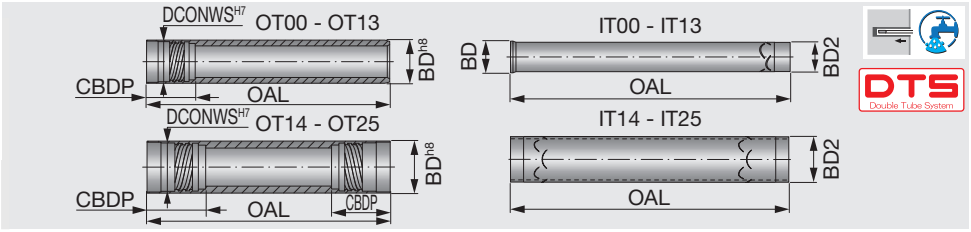
TRI-FINE

DCN-DCX	L5
16 - 16.5	31.5
16.51 - 17.25	31.5
17.26 - 18	31.5
18.01 - 19	31.5
19.01 - 19.99	31.5
20 - 21.99	33
22 - 24.99	35
25	35
25.01 - 26.99	40
27 - 28	40

OT & IT

OT & IT - for double tube system

Outer tube and inner tube for double tube system



Outer tube (OT)

Designation	DCN-DCX	OAL Special length	BD	DCONWS	CBDP
OT00	18.4 - 20	○	18	16	27.5
OT01	20.01 - 21.8	○	19.5	18	30
OT02	21.81 - 24.1	○	21.5	19.5	30
OT03	24.11 - 26.4	○	23.5	21	30
OT04	26.41 - 28.7	○	26	23.5	33
OT05	28.71 - 31	○	28	25.5	33
OT06	31.01 - 33.3	○	30.5	28	33
OT07	33.31 - 36.2	○	33	30	40
OT08	36.21 - 39.6	○	35.5	33	40
OT09	39.61 - 43	○	39	36	40
OT10	43.01 - 47	○	42.5	39	40
OT11	47.01 - 51.7	○	46.5	43	44
OT12	51.71 - 56.2	○	51	47	44
OT13	56.21 - 65	○	55.5	51	44
OT14	65 - 66.99	○	56	52	75
OT15	70 - 72.99	○	62	58	75
OT16	73 - 79.99	○	68	63	75
OT17	80 - 86.99	○	75	70	97
OT18	87 - 99.99	○	82	77	97
OT19	100 - 111.99	○	94	89	97
OT20	112 - 123.99	○	106	101	118
OT21	124 - 135.99	○	118	113	118
OT22	136 - 147.99	○	130	125	118
OT23	148 - 159.99	○	142	137	139
OT24	160 - 171.99	○	154	149	139
OT25	172 - 183.99	○	166	161	139

Inner tube (IT)

Designation	DCN-DCX	OAL Special length	BD	BD2
IT00	18.4 - 20	○	12	10
IT01	20.01 - 21.8	○	14	12
IT02	21.81 - 24.1	○	15	13
IT03	24.11 - 26.4	○	16	14
IT04	26.41 - 28.7	○	18	16
IT05	28.71 - 31	○	20	18
IT06	31.01 - 33.3	○	22	20
IT07	33.31 - 36.2	○	24	22
IT08	36.21 - 39.6	○	26	24
IT09	39.61 - 43	○	29	27
IT10	43.01 - 47	○	32	30
IT11	47.01 - 51.7	○	35	32
IT12	51.71 - 56.2	○	39	36
IT13	56.21 - 65	○	43	40
IT14	65 - 66.99	○	-	40
IT15	70 - 72.99	○	-	44
IT16	73 - 79.99	○	-	48
IT17	80 - 86.99	○	-	54
IT18	87 - 99.99	○	-	60
IT19	100 - 111.99	○	-	70
IT20	112 - 123.99	○	-	80
IT21	124 - 135.99	○	-	80
IT22	136 - 147.99	○	-	95
IT23	148 - 159.99	○	-	100
IT24	160 - 171.99	○	-	120
IT25	172 - 183.99	○	-	130

○ : Item to be customized

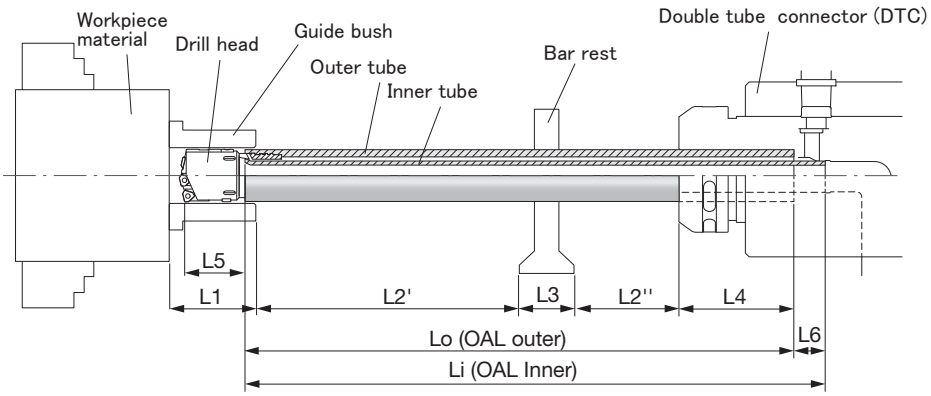
Please specify the length when ordering.
e.g. For ø60 mm drill diameter / 1070 mm drill outer tube length: OT13X1070
Please choose the inner tube length according to the below.

- ▶ tool diameter: ø18.40 - 65.00 mm (OT00 - OT13) ..... Inner tube length = Outer tube length + 30 mm
- ▶ tool diameter: ø65.00 - 123.99 mm (OT14 - OT20) ..... Inner tube length = Outer tube length + 190 mm
- ▶ tool diameter: ø124.00 - 183.99 mm (OT21 - OT25) ..... Inner tube length = Outer tube length + 220 mm

Reference pages: Drill head → J119 (FINE-TRI DTS), J124 (FINE BEAM DTS), J130 (UNIDEX DTS), J138 (ETU)

TUBE LENGTH FOR SPECIAL DRILLS

Please use the below guide to calculate the drill tube length.



Lo = Outer tube whole length
Li = Inner tube whole length
L1 = Guide bush length (or Pilot hole depth)
L2 = Drilling depth (L2' + L2")
L3 = Bar rest length
L4 = Length of outer tube in connector *
L5 = Length from drill tube tip and peripheral edge tip
L6 = Difference between outer tube length and inner tube length

Outer tube length Lo = L1 + L2 + L3 + L4 - L5

Inner tube length Li = Lo + L6

DTC type	L_4 *	L_6 **
DTC 4R type (OT00 – OT13)	120	30
DTC 5R type (OT14 – OT20)	0	190
DTC 6R type (OT21 – OT25)	0	220

(mm)

The outer tube should enter in th e guide bush or the pilot hole with at least 5 mm.

ETU

DCN-DCX	L5
18.4 - 20	20
20.01 - 24.1	23
24.11 - 28.7	24
28.71 - 33.3	27
33.31 - 36.2	26
36.21 - 40.6	29
40.61 - 43	28
43.01 - 47	30
47.01 - 51.7	29
51.71 - 56.2	32
56.21 - 58.4	34
58.41 - 65	33

FINE-BEAM

DCN-DCX	L5
25 - 26.4	40
26.41 - 31	42
31.01 - 33.3	47
33.31 - 36.2	50
36.21 - 39.6	55
39.61 - 47	60
47.01 - 51.7	66
51.71 - 65	71

UNIDEX

DCN-DCX	L5
38 - 43	45
43.01 - 47	55
47.01 - 51.7	51
51.71 - 56.2	56
56.21 - 65	66
65 - 79.99	75
80 - 111.99	83
112 - 147.99	87
148 - 183.99	86

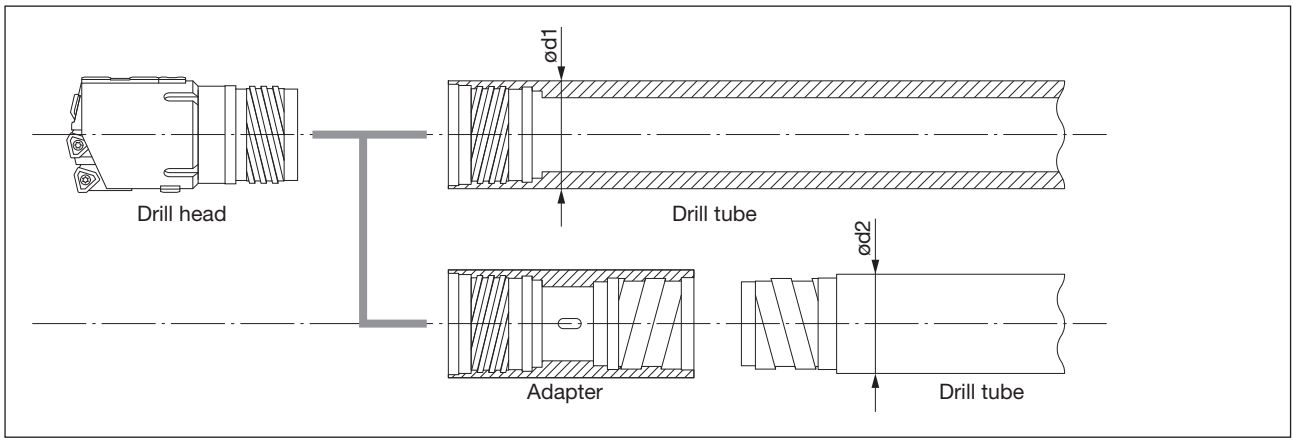
TRI-FINE

DCN-DCX	L5
18.4 - 20	31.5
20.01 - 21.8	33.5
21.81 - 21.99	33.5
22 - 24.1	35.5
24.11 - 25	35.5
25.01 - 26.4	37.5
26.41 - 28	37.5

STS Single Tube System DTS Double Tube System

CONVERSION ADAPTER

Adapter for external thread - internal thread conversion



ADPT- □□□ / □□□

- SS Single thread
- TS Double thread
- FS Quadruple thread
- ød1
- F Internal thread
- M External thread
- SS Single thread
- TS Double thread
- FS Quadruple thread
- ød2
- F Internal thread
- M External thread

ød1 : Outer diameter of the tube that is applicable for the drill head

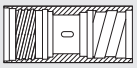
ød2 : Outer diameter of the tube that is connected with the adapter

Designation example

For the conversion from ST11 to UB47

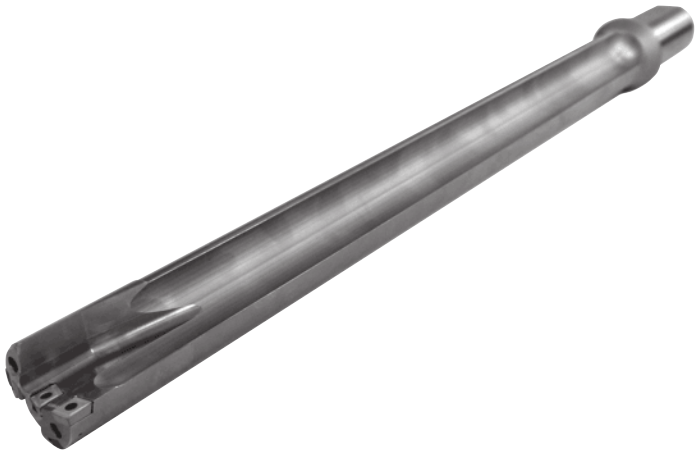
ADPT-F47FS / F47SS

↑ ST11 ↑ UB47



* The adapters to change sizes will be available upon request.

HF Drill : Indexable drill for deep hole



Economical for middle range deep hole drilling

- Tool diameter range: ø30 - ø63 mm (*)
- Drilling depth: 6xD - 14xD
- Shortened drilling time when using conventional machine

* Other diameters are available upon request.

Effective machining on conventional machines

- Recommended for use on Horizontal M/C
- Can also be used on turning machine

Good chip evacuation

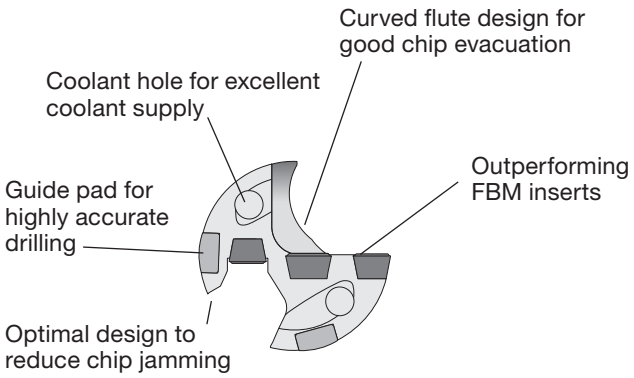
- FBM inserts enable best chip control
- Unique head design eliminates chip jamming
- Curved flute design ensures good chip evacuation

Easy to use, rigid drill body

- Direct mount inserts, no diameter adjustment necessary
- Body is made from heat treated tool steel

High quality surface finish

- Burnishing effect improves surface finish
- Possible to eliminate finish process



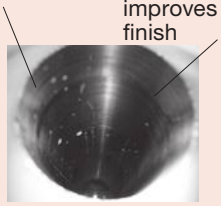
PRACTICAL EXAMPLE

Cutting conditions

Tool diameter DC:	ø30 mm
Drilling depth:	200 mm
Workpiece material:	S45C
Cutting speed *Vc*:	100 m/min
Feed *f*:	0.1 mm/rev
Machine:	BT50 M/C

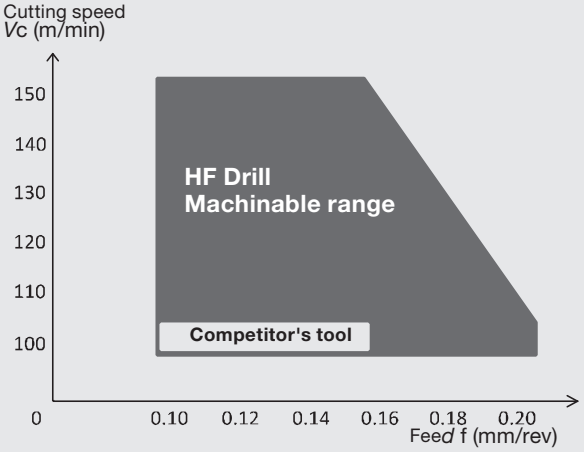
No spiral marks caused by chips

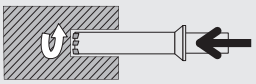
Burnishing effect by guide pads improves surface finish



BT50 M/C Machining data

Excellent chip evacuation ensures the stable drilling on M/C.





■Water-soluble coolant
■Pressure: 1.5 MPa
■Through spindle

Tool diameter DC:	ø30 mm
Drilling depth:	200 mm
Workpiece material:	S45C
Cutting speed *Vc*:	100 - 150 m/min
Feed *f*:	0.1 - 0.2 mm/rev
Machine:	BT50 Horizontal M/C (Max 11 KW)

Cautionary points in use

To start the tool, a pilot hole is required. (tolerance: + 0.1 to 0.15 mm)

Tool diameter DC (mm)	Pilot hole length H (mm)
ø30 ~ ø39	over 10
ø39.01 ~ ø45	over 12.5
ø45.01 ~ ø57	over 15
ø57.01 ~ ø63	over 17.5

- The pilot hole should ideally have a flat bottom, but generally a indexable drill is acceptable to create a pilot hole if the inner insert touches the bottom last.
- DrillForce-Meister series or TDX drills are recommended for a pilot hole drilling.