

I n d e x a b l e

BTA

D e e p H o l e D r i l l i n g





Indexable BTA

Deep Hole Drilling

Page



DEEP-ACE

ø14 mm - ø40 mm

09

DEEP-RAY

ø25 mm - ø89 mm

19

DEEP-LINE

ø38 mm - ø293.99 mm

31

Counterboring, Trepanning

Page



CBSTS-CBTDS

ø25 mm - ø293.99 mm

57

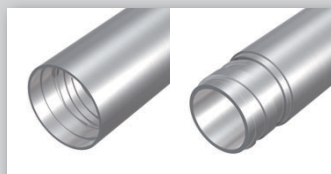
UTT

ø100 mm - ø328 mm

75

Other

Page



TUBES

89

Drill Head Categories

Indexable Drill Heads

Applications		STS (Single Tube System) 			DTS (Double Tube System) 		
		DEEP-ACE	DEEP-RAY	DEEP-LINE	DEEP-ACE	DEEP-RAY	DEEP-LINE
		UACE	URAY	ULINE	UDLINE	UDRAY	UDLINE
Drill heads							
Drill diameter (mm)		ø14 - ø40	ø25 - ø89	ø38 - ø293.99	ø18.4 - ø40	ø25 - ø65	ø38 - ø183.99
Thread types	External 2-start thread	○*1	-	-	-	-	-
	External 4-start thread	○*2	○	○	○	○	○
	Internal single-start thread	○	○	○	-	-	-
Hole tolerance		IT10	IT10	IT10	IT10	IT10	IT10
Surface finish Ra (µm)		2	2	3	2	2	3
Machines	Deep hole drilling machines	○	○	○	○	○	○
	Lathes	-	-	-	○	○	○
	Machining centers M/C	-	-	-	○	○	○
Workpiece materials	P Steel	★★★	★★★	★★★	★★★	★★★	★★★
	M Stainless	★★★	★★★	★★★	★★★	★★★	★★★
	K Cast iron	★★★	★★★	★★★	★★★	★★★	★★★
	N Non-ferrous	★★★	★★★	★★★	★★★	★★★	★★★
	S Superalloys	★★	★★	★★	★★	★★	★★
	H Hard materials (≥40HRC)	★★	★★	★★	★★	★★	★★
Insert type		TOHT	NPMT / NPHT	NPMX / TPMX	TOHT	NPMT / NPHT	NPMX / TPMX
Plus Cartridge and Guide pad +1 mm - +5 mm		-	-	○	-	-	○
Page		012 - 014	022 - 023	034 - 045	015	024	046 - 050

★★★(Excellent) ↔ ★(Standard)

*1: ø14 mm - ø15.59 mm, External 2-start thread

*2: ø15.6 mm - ø40 mm, External 4-start thread

Counterboring Tools

Indexable Counterboring Heads

Applications		STS (Single Tube System) 				DTS (Double Tube System) 	
		CBSTS				CBDTS	
Drill head							
Drill diameter (mm)		ø25 - ø39.99	ø40 - ø291.99	ø25 - ø39.99	ø40 - ø293.99	ø25 - ø39.99	ø40 - ø183.99
Thread type	External 4-start thread	○	○	-	-	○	○
	Internal single-start thread	-	-	○	○	-	-
Hole tolerance		IT10	IT10	IT10	IT10	IT10	IT10
Surface finish Ra (µm)		2	2	2	2	2	2
Machine	Deep hole drilling machines	○	○	○	○	○	○
	Lathes	-	-	-	-	○	○
	Machining centers M/C	-	-	-	-	○	○
Workpiece material	P Steel	★★★	★★★	★★★	★★★	★★★	★★★
	M Stainless	★★★	★★★	★★★	★★★	★★★	★★★
	K Cast iron	★★★	★★★	★★★	★★★	★★★	★★★
	N Non-ferrous	★★★	★★★	★★★	★★★	★★★	★★★
	S Superalloys	★★	★★	★★	★★	★★	★★
	H Hard materials (≥40HRC)	★★	★★	★★	★★	★★	★★
Insert type*		IIS160	TPMX	IIS160	TPMX	IIS160	TPMX
Plus Cartridge and Guide pad +1 mm - +5 mm		-	○	-	○	-	○
Page		061	062	064	065	067	068

★★★(Excellent) ↔ ★(Standard)

Trepanning Tools

Indexable Trepanning Heads

Applications		STS (Single Tube System) 	
Drill head		UTT	
			
Drill diameter (mm)		ø100 - ø328	ø100 - ø305.99
Thread type	External 4-start thread	○	-
	Internal single-start thread	-	○
Hole tolerance		IT10	IT10
Surface finish Ra (µm)		2	2
Machine	Deep hole drilling machines	○	○
	Lathes	-	-
	Machining centers M/C	-	-
Workpiece material	P Steel	★★★	★★★
	M Stainless	★★★	★★★
	K Cast iron	★★★	★★★
	N Non-ferrous	★★★	★★★
	S Superalloys	★★	★★
	H Hard materials (≥40HRC)	★★	★★
Insert type*		TPMX	TPMX
Plus Cartridge and Guide pad +1 mm - +5 mm		-	-
Page		079	081

★★★(Excellent) ↔ ★(Standard)

Drill Tube Categories

Drill Tubes

Applications				STS (Single Tube System)			DTS (Double Tube System)	
				ST	ST	UB	OT	IT
Drill tubes								
Tube diameter (mm)				ø11 - ø13	ø14 - ø274	ø12 - ø274	ø18 - ø166	ø10 - ø130
Thread type				Internal 2-start thread	Internal 4-start thread	External single-start thread	Internal 4-start thread	-
Drill heads	Indexable	For solid drilling	UACE	○	○	○	○	○
			URAY	-	○	○	○	○
			ULINE	-	○	○	-	-
			UDLINE	-	-	-	○	○
	For counterboring		CBSTS	-	○	○	-	-
			CBDTS	-	-	-	○	○
	For trepanning		UTT	-	○	○	-	-
Drill diameter (mm)				ø14 - ø15.59	ø15.6 - ø291.99	ø14.5 - ø293.99	ø18.4 - ø183.99	ø18.4 - ø183.99
Page				089	089	091	093	093

Grade

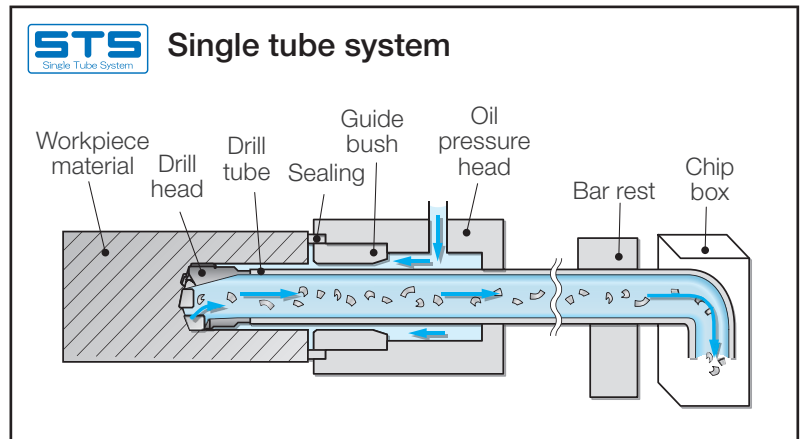
Grade	Coating		Application	Feature	FNBM	FNTR	UNIDEX
	Main composition	Thickness / μm					
New T9225 P15 - P25	Ti compound +Al ₂ O ₃	18	P	- First choice for roughing to medium cuttings - High fracture resistance			●
UT-925 P15 - P30 M15 - M30 K25 - K30 S15 - S25	(Ti, Al)N	2	P M K S	- Good balance between wear and chipping resistance - Suitable for machining steel and stainless steel under general cutting conditions	●	●	
UT-927 M10 - M20 S10 - S20	(Al,Ti)N	3.5	P M K S H	- Good balance between wear and fracture resistance - First choice for machining heat-resistant alloy under general cutting conditions	●		●
New UT-923 P15 - P35 M25 - M35 K10 - K25 S15 - S30	(Ti, Al)N	4.5	P M K S	- High wear resistance - Designed for drilling various materials	●	●	●

Deep hole drilling head series

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

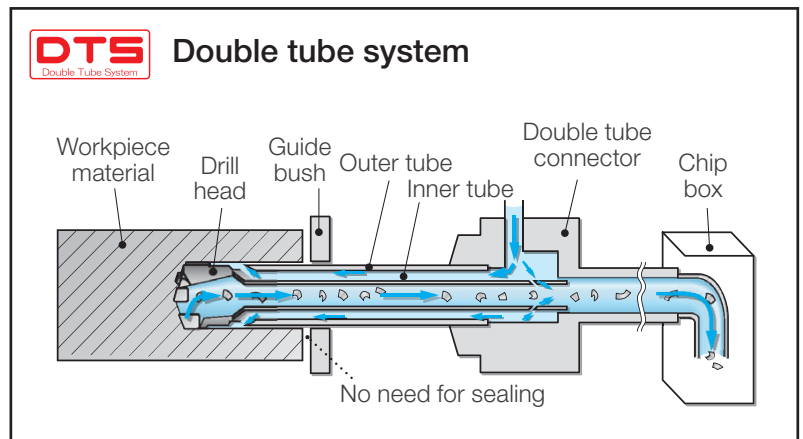
Single Tube System (STS)

The STS is also 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 do not touch the workpiece providing an outstanding surface finish. STS is a stable method to create holes with 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 CNC lathes or machining centers.



DEEP-ACE

ø14 mm - ø40 mm

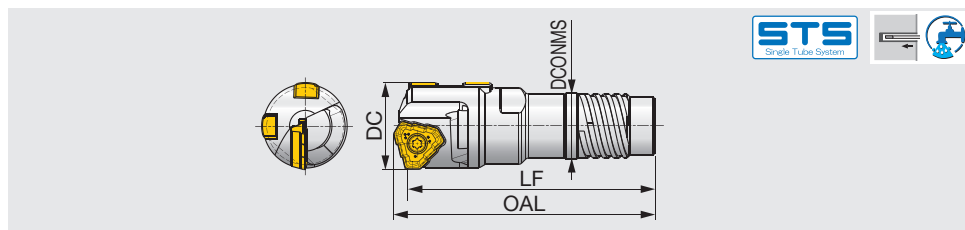


DEEP-ACE



UACE-S

Indexable head with external 4-start thread for single tube system (STS)



Standard products

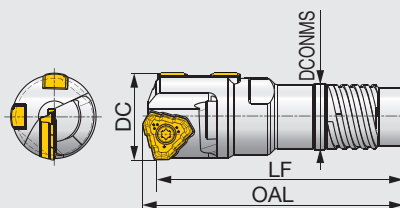
Designation	DC	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
		Designation	Dia. (mm)					
UACE-0097S-16.00A	16.00	ST0097	14	57.2	55	12.6	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0098S-17.00A	17.00	ST0098	15	57.2	55	13.6	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0099S-18.00A	18.00	ST0099	17	58.2	56	14.5	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0000S-20.00	20.00	ST0000	17	59	56	15.5	TOHT09...	GP06-085, GP06-20-085-DC
UACE-00S-21.00	21.00	ST00	18	63.2	60	16	TOHT10...	GP06-085, GP06-20-085-DC
UACE-01S-22.00	22.00	ST01	20	68.9	65.5	18	TOHT11...	GP06-100, GP06-20-100-DC
UACE-01S-24.00	24.00	ST01	20	68.9	65.5	18	TOHT11...	GP06-100, GP06-20-100-DC
UACE-02S-25.00	25.00	ST02	22	68.9	65.5	19.5	TOHT11...	GP06-100, GP06-20-100-DC
UACE-02S-25.40	25.40	ST02	22	69.1	65.5	19.5	TOHT12...	GP06, GP06-20-120-DC
UACE-02S-26.00	26.00	ST02	22	69.1	65.5	19.5	TOHT12...	GP06, GP06-20-120-DC
UACE-03S-28.00	28.00	ST03	24	69.1	65.5	21	TOHT12...	GP06, GP06-20-120-DC
UACE-03S-28.58	28.58	ST03	24	74.6	70	21	TOHT13...	GP06, GP06-20-120-DC
UACE-04S-29.00	29.00	ST04	26	79.6	75	23.5	TOHT13...	GP06, GP06-20-120-DC
UACE-04S-30.00	30.00	ST04	26	79.6	75	23.5	TOHT13...	GP07, GP07-20-120-DC
UACE-04S-31.00	31.00	ST04	26	79.6	75	23.5	TOHT13...	GP07, GP07-20-120-DC
UACE-05S-31.75	31.75	ST05	28	79.6	75	25.5	TOHT13...	GP07, GP07-20-120-DC
UACE-05S-32.00	32.00	ST05	28	79.6	75	25.5	TOHT13...	GP07, GP07-20-120-DC
UACE-05S-33.00	33.00	ST05	28	80.4	75	25.5	TOHT14...	GP07, GP07-20-120-DC
UACE-06S-34.93	34.93	ST06	30	84.9	79.5	28	TOHT14...	GP07, GP07-20-120-DC
UACE-06S-35.00	35.00	ST06	30	84.9	79.5	28	TOHT14...	GP07, GP07-20-120-DC
UACE-07S-37.00	37.00	ST07	33	94.9	89.5	30	TOHT14...	GP07, GP07-20-120-DC
UACE-07S-38.00	38.00	ST07	33	94.9	89.5	30	TOHT14...	GP07, GP07-20-120-DC
UACE-07S-38.10	38.10	ST07	33	94.9	89.5	30	TOHT14...	GP07, GP07-20-120-DC
UACE-08S-40.00	40.00	ST08	36	99.9	94.5	33	TOHT14...	GP08, GP08-25-155-DC

DEEP-ACE



UACE-S

Indexable head with external 2-start or 4-start thread for single tube system (STS)



Non-standard products (to be supplied on request)

When ordering

UACE-**S

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\phi 16.5$ mm: UACE-0097S-16.50

Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
			Designation	Dia. (mm)					
UACE-0095S-xx.xx	14.00	14.60	ST0095	12	59	57	10.6	TOHT07...	GP05-060, GP05-18-060-DC
UACE-0096S-xx.xx	14.61	15.59	ST0096	13	59	57	11.6	TOHT07...	GP05-060, GP05-18-060-DC
UACE-0097S-xx.xx	15.60	15.99	ST0097	14	59	57	12.6	TOHT07...	GP05-060, GP05-18-060-DC
UACE-0097S-xx.xx.A	16.00	16.70	ST0097	14	57.2	55	12.6	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0098S-xx.xx.A	16.71	17.70	ST0098	15	57.2	55	13.6	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0099S-xx.xx.A	17.71	18.00	ST0099	16	58.2	56	14.5	TOHT08...	GP05-075, GP05-18-075-DC
UACE-0099S-xx.xx	18.01	18.90	ST0099	16	59	56	14.5	TOHT09...	GP06-085, GP06-20-085-DC
UACE-0000S-xx.xx	18.91	20.00	ST0000	17	59	56	15.5	TOHT09...	GP06-085, GP06-20-085-DC
UACE-00S-xx.xx	20.01	21.00	ST00	18	63.2	60	16	TOHT10...	GP06-085, GP06-20-085-DC
UACE-00S-xx.xx	21.01	21.80	ST00	18	63.2	60	16	TOHT10...	GP06-100, GP06-20-100-DC
UACE-01S-xx.xx	21.81	21.99	ST01	20	66.7	63.5	18	TOHT10...	GP06-100, GP06-20-100-DC
UACE-01S-xx.xx	22.00	24.10	ST01	20	68.9	65.5	18	TOHT11...	GP06-100, GP06-20-100-DC
UACE-02S-xx.xx	24.11	25.00	ST02	22	68.9	65.5	19.5	TOHT11...	GP06-100, GP06-20-100-DC
UACE-02S-xx.xx	25.01	26.40	ST02	22	69.1	65.5	19.5	TOHT12...	GP06, GP06-20-120-DC
UACE-03S-xx.xx	26.41	28.00	ST03	24	69.1	65.5	21	TOHT12...	GP06, GP06-20-120-DC
UACE-03S-xx.xx	28.01	28.70	ST03	24	74.6	70	21	TOHT13...	GP06, GP06-20-120-DC
UACE-04S-xx.xx	28.71	29.99	ST04	26	79.6	75	23.5	TOHT13...	GP06, GP06-20-120-DC
UACE-04S-xx.xx	30.00	31.00	ST04	26	79.6	75	23.5	TOHT13...	GP07, GP07-20-120-DC
UACE-05S-xx.xx	31.01	32.00	ST05	28	79.6	75	25.5	TOHT13...	GP07, GP07-20-120-DC
UACE-05S-xx.xx	32.01	33.30	ST05	28	80.4	75	25.5	TOHT14...	GP07, GP07-20-120-DC
UACE-06S-xx.xx	33.31	36.20	ST06	30	84.9	79.5	28	TOHT14...	GP07, GP07-20-120-DC
UACE-07S-xx.xx	36.21	39.00	ST07	33	94.9	89.5	30	TOHT14...	GP07, GP07-20-120-DC
UACE-07S-xx.xx	39.01	39.60	ST07	33	94.9	89.5	30	TOHT14...	GP08, GP08-25-155-DC
UACE-08S-xx.xx	39.61	40.00	ST08	36	99.9	94.5	33	TOHT14...	GP08, GP08-25-155-DC

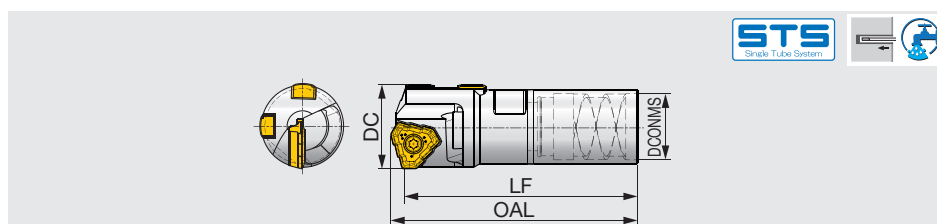
$\phi 14$ mm - $\phi 15.59$ mm, External 2-start thread
 $\phi 15.6$ mm - $\phi 40$ mm, External 4-start thread

DEEP-ACE



UACE-N

Indexable head with internal single-start thread for single tube system (STS)



Standard products

Designation	DC	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
		Designation	Dia. (mm)					
UACE-13N-1-16.00A	16.00	UB13-1	13	56.2	54	12.4	TOHT08...	GP05-075, GP05-18-075-DC
UACE-14N-2-18.00A	18.00	UB14-2	14	56.2	54	13.7	TOHT08...	GP05-075, GP05-18-075-DC
UACE-18N-20.00	20.00	UB18	18	60.5	57.5	16.5	TOHT09...	GP06-085, GP06-20-085-DC
UACE-20N-22.00	22.00	UB20	20	63.9	60.5	19	TOHT11...	GP06-100, GP06-20-100-DC
UACE-20N-24.00	24.00	UB20	20	63.9	60.5	19	TOHT11...	GP06-100, GP06-20-100-DC
UACE-22N-25.00	25.00	UB22	22	63.9	60.5	20	TOHT11...	GP06-100, GP06-20-100-DC
UACE-22N-26.00	26.00	UB22	22	68.6	65	20	TOHT12...	GP06, GP06-20-120-DC
UACE-24N-28.00	28.00	UB24	24	68.6	65	22	TOHT12...	GP06, GP06-20-120-DC
UACE-24N-29.00	29.00	UB24	24	74.6	70	22	TOHT13...	GP06, GP06-20-120-DC
UACE-26N-30.00	30.00	UB26	26	79.6	75	24	TOHT13...	GP07, GP07-20-120-DC
UACE-26N-31.00	31.00	UB26	26	79.6	75	24	TOHT13...	GP07, GP07-20-120-DC
UACE-28N-32.00	32.00	UB28	28	79.6	75	26	TOHT13...	GP07, GP07-20-120-DC

Non-standard products (to be supplied on request)

When ordering

UACE-N (-*) - XX.XX**

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\phi 16.5$ mm: **UACE-13N-2-16.50**

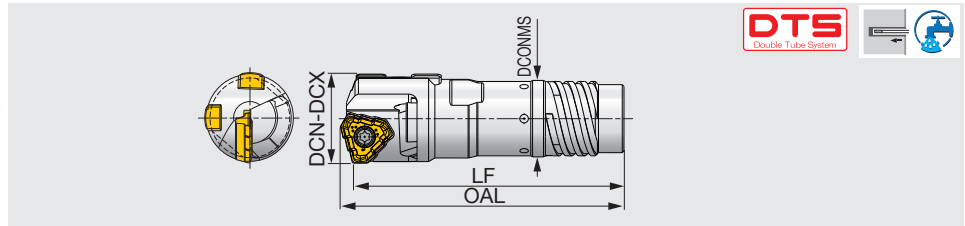
Designation	DCN	DCX	Drill tube		OAL	LF	DCONMS	Insert	Guide pad
			Designation	Dia. (mm)					
UACE-12N-1-xx.xx	14.50	15.00	UB12-1	12	59	57	11.5	TOHT07...	GP05-060, GP05-18-060-DC
UACE-12N-2-xx.xx	15.01	15.50	UB12-2	12	59	57	11.8	TOHT07...	GP05-060, GP05-18-060-DC
UACE-13N-1-xx.xx	15.51	15.99	UB13-1	13	59	57	12.4	TOHT07...	GP05-060, GP05-18-060-DC
UACE-13N-1-xx.xx.A	16.00	16.00	UB13-1	13	56.2	54	12.4	TOHT08...	GP05-075, GP05-18-075-DC
UACE-13N-2-xx.xx.A	16.01	16.50	UB13-2	13	56.2	54	12.7	TOHT08...	GP05-075, GP05-18-075-DC
UACE-14N-1-xx.xx.A	16.51	17.25	UB14-1	14	56.2	54	13.4	TOHT08...	GP05-075, GP05-18-075-DC
UACE-14N-2-xx.xx.A	17.26	18.00	UB14-2	14	56.2	54	13.7	TOHT08...	GP05-075, GP05-18-075-DC
UACE-15N-xx.xx	18.01	19.00	UB15	15	57	54	14.4	TOHT09...	GP06-085, GP06-20-085-DC
UACE-16.5N-xx.xx	19.01	19.99	UB16.5	16.5	57	54	15.4	TOHT09...	GP06-085, GP06-20-085-DC
UACE-18N-xx.xx	20.00	20.00	UB18	18	60.5	57.5	16.5	TOHT09...	GP06-085, GP06-20-085-DC
UACE-18N-xx.xx	20.01	21.00	UB18	18	61.7	58.5	16.5	TOHT10...	GP06-085, GP06-20-085-DC
UACE-18N-xx.xx	21.01	21.99	UB18	18	61.7	58.5	16.5	TOHT10...	GP06-100, GP06-20-100-DC
UACE-20N-xx.xx	22.00	24.99	UB20	20	63.9	60.5	19	TOHT11...	GP06-100, GP06-20-100-DC
UACE-22N-xx.xx	25.00	25.00	UB22	22	63.9	60.5	20	TOHT11...	GP06-100, GP06-20-100-DC
UACE-22N-xx.xx	25.01	26.99	UB22	22	68.6	65	20	TOHT12...	GP06, GP06-20-120-DC
UACE-24N-xx.xx	27.00	28.00	UB24	24	68.6	65	22	TOHT12...	GP06, GP06-20-120-DC
UACE-24N-xx.xx	28.01	29.99	UB24	24	74.6	70	22	TOHT13...	GP06, GP06-20-120-DC
UACE-26N-xx.xx	30.00	31.99	UB26	26	79.6	75	24	TOHT13...	GP07, GP07-20-120-DC
UACE-28N-xx.xx	32.00	32.00	UB28	28	79.6	75	26	TOHT13...	GP07, GP07-20-120-DC
UACE-28N-xx.xx	32.01	33.99	UB28	28	80.4	75	26	TOHT14...	GP07, GP07-20-120-DC
UACE-30N-xx.xx	34.00	36.99	UB30	30	94.9	89.5	27	TOHT14...	GP07, GP07-20-120-DC
UACE-33N-xx.xx	37.00	39.00	UB33	33	99.9	94.5	30	TOHT14...	GP07, GP07-20-120-DC
UACE-33N-xx.xx	39.01	39.99	UB33	33	99.9	94.5	30	TOHT14...	GP08, GP08-25-155-DC
UACE-36N-xx.xx	40.00	40.00	UB36	36	104.9	99.5	33	TOHT14...	GP08, GP08-25-155-DC

DEEP-ACE

DTS
 Double Tube System

UDLINE-D

Indexable head with external 4-start thread for double tube system (DTS)



Non-standard products (to be supplied on request)

When ordering

UDLINE-**

Drill head

XX.XX

Diameter (mm)

 e.g. Designation for tool diameter $\varnothing 20$ mm: **UDLINE-00D-20.00**

Designation	DCN	DCX	Outer tube		OAL	LF	DCONMS	Insert	Guide pad
			Designation	Dia. (mm)					
UDLINE-00D-xx.xx	18.40	20.00	OT00	18	62	59	16	TOHT09...	GP06-085, GP06-20-085-DC
UDLINE-01D-xx.xx	20.01	21.00	OT01	19.5	66.7	63.5	18	TOHT10...	GP06-085, GP06-20-085-DC
UDLINE-01D-xx.xx	21.01	21.80	OT01	19.5	66.7	63.5	18	TOHT10...	GP06-100, GP06-20-100-DC
UDLINE-02D-xx.xx	21.81	21.99	OT02	21.5	66.7	63.5	19.5	TOHT10...	GP06-100, GP06-20-100-DC
UDLINE-02D-xx.xx	22.00	24.10	OT02	21.5	68.9	65.5	19.5	TOHT11...	GP06-100, GP06-20-100-DC
UDLINE-03D-xx.xx	24.11	25.00	OT03	23.5	68.9	65.5	21	TOHT11...	GP06-100, GP06-20-100-DC
UDLINE-03D-xx.xx	25.01	26.40	OT03	23.5	71.1	67.5	21	TOHT12...	GP06, GP06-20-120-DC
UDLINE-04D-xx.xx	26.41	28.00	OT04	26	74.1	70.5	23.5	TOHT12...	GP06, GP06-20-120-DC
UDLINE-04D-xx.xx	28.01	28.70	OT04	26	79.6	75	23.5	TOHT13...	GP06, GP06-20-120-DC
UDLINE-05D-xx.xx	28.71	29.99	OT05	28	79.6	75	25.5	TOHT13...	GP06, GP06-20-120-DC
UDLINE-05D-xx.xx	30.00	31.00	OT05	28	79.6	75	25.5	TOHT13...	GP07, GP07-20-120-DC
UDLINE-06D-xx.xx	31.01	32.00	OT06	30.5	84.6	80	28	TOHT13...	GP07, GP07-20-120-DC
UDLINE-06D-xx.xx	32.01	33.30	OT06	30.5	85.4	80	28	TOHT14...	GP07, GP07-20-120-DC
UDLINE-07D-xx.xx	33.31	36.20	OT07	33	94.9	89.5	30	TOHT14...	GP07, GP07-20-120-DC
UDLINE-08D-xx.xx	36.21	39.00	OT08	35.5	99.9	94.5	33	TOHT14...	GP07, GP07-20-120-DC
UDLINE-08D-xx.xx	39.01	39.60	OT08	35.5	99.9	94.5	33	TOHT14...	GP08, GP08-25-155-DC
UDLINE-09D-xx.xx	39.61	40.00	OT09	39	104.9	99.5	36	TOHT14...	GP08, GP08-25-155-DC

INSERT SPARE PARTS



Designation	Screw	Wrench
TOHT07...	SR 14-560/S	T-8F
TOHT08...	SR 14-560/S	T-8F
TOHT09...	SR 14-560/S	T-8F
TOHT10...	SR34-506	T-9F
TOHT11...	SR14-571/S	T-10/5
TOHT12...	SR14-506	T-15F
TOHT13...	SR 16-212/L10	T-20/5
TOHT14...	SR 16-212/L10	T-20/5

GUIDE PAD SPARE PARTS



Designation	Screw	Wrench
GP05-060, GP05-18-060-DC	SR34-508	T-7F
GP05-075, GP05-18-075-DC	SR34-508	T-7F
GP06-085, GP06-20-085-DC	SR34-508	T-7F
GP06-100, GP06-20-100-DC	SR34-508	T-7F
GP06, GP06-20-120-DC	SR34-508	T-7F
GP07, GP07-20-120-DC	CSTB-3S	T-9F
GP08, GP08-25-155-DC	CSTB-3S	T-9F

Recommended clamping torque: SR 14-560/S = 1.2 N·m, SR 34-506 = 0.9 N·m, SR14-571/S = 3.2 N·m, SR14-506 = 4.8 N·m, SR 16-212/L10 = 9 N·m, SR34-508 = 0.9 N·m, CSTB-3S = 2.3 N·m

Caution

To improve its performance, the Tri-Fine drill head has undergone design changes. The new drill head has a **guide pad protector**, as shown below, that protects the guide pad from being damaged when retrieving the drill from the hole into the guide bushing after completing machining. Accordingly, the guide pad, the guide pad clamping screw and the Insert clamping screw design for drill head diameters of 28 mm or less has also been changed. See the list below for details.

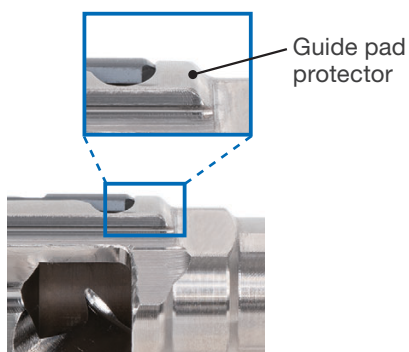
When ordering guide pad clamping screws, below before choosing the screw size, first confirm the drill body design according to the procedure shown.

→ If the drill head has the protector: **Use a screw in the new design**

→ If the drill head has NO protector: **Use a screw in the previous design**

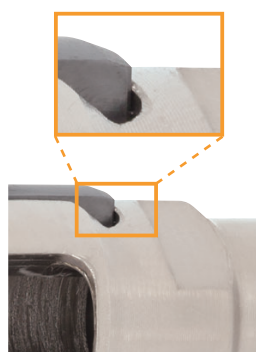
New design

With guide pad protector



Conventional design

Without guide pad protector

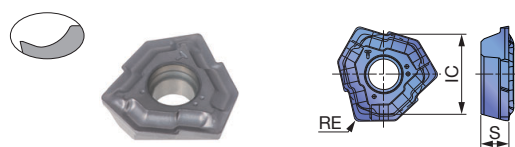


Tool diameter DCN - DCX(mm)	Guide Pad		Guide Pad Screw		Insert Screw	
	New	Conventional	New	Conventional	New	Conventional
16.00-18.00	GP05-18-075-DC	GP06-20-075-DC	SR34-508	CSTB-2.2S	SR 14-560/S	CSTB-2.5S
18.01-20.00	GP06-20-085-DC	GP06-20-085-DC	SR34-508	CSTB-2.2S	SR 14-560/S	CSTB-2.5S
20.01-21.00	GP06-20-085-DC	GP06-20-085-DC	SR34-508	CSTB-2.2S	SR 34-506	CSTB-3S
21.01-21.99	GP06-20-100-DC	GP06-20-100-DC	SR34-508	CSTB-2.2S	SR 34-506	CSTB-3S
22.00-25.00	GP06-20-100-DC	GP06-20-100-DC	SR34-508	CSTB-2.2S	SR 14-571/S	CSTB-3.5H
25.01-28.00	GP06-20-120-DC	GP06-20-120-DC	SR34-508	CSTB-2.2S	SR 14-506	CSTB-4S

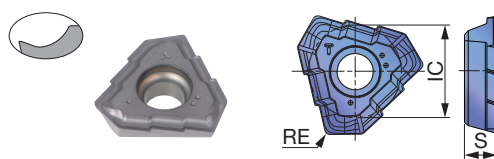
The two types of screws are not interchangeable. A wrong screw will not fit the drill head body.

INSERT

TOHT-NDJ (07..., 08...)(for general purpose)



TOHT-NDJ (09... - 14...)(for general purpose)



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

★ : First choice
☆ : Second choice

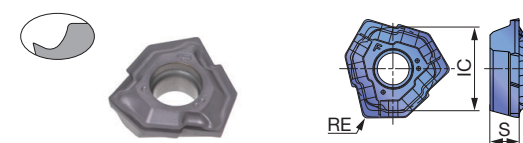
ID on insert



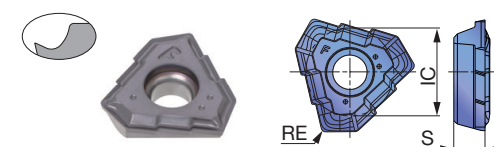
Designation	IC	S	Coated								DCN	DCX	RE
			UT-923	UT-925									
TOHT070304R-NDJ	7.69	2.3	●	●							14	15.99	0.4
TOHT080305R-NDJ	8.55	2.8	●	●							16	18	0.5
TOHT090305R-NDJ	8.32	3	●	●							18.01	20	0.5
TOHT100305R-NDJ	9.23	3.3	●	●							20.01	21.99	0.5
TOHT110405R-NDJ	10.4	3.8	●	●							22	25	0.5
TOHT120405R-NDJ	11.59	4.3	●	●							25.01	28	0.5
TOHT130408R-NDJ	12.85	4.76	●	●							28.01	32	0.8
TOHT140510R-NDJ	16.85	5.26	●	●							32.01	40	1

● : Line up
Package quantity = 10 pcs.

TOHT-NDL (07..., 08...)(good chip control at low feeds)



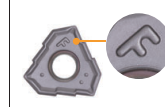
TOHT-NDL (09... - 13...)(good chip control at low feeds)



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

★ : First choice
☆ : Second choice

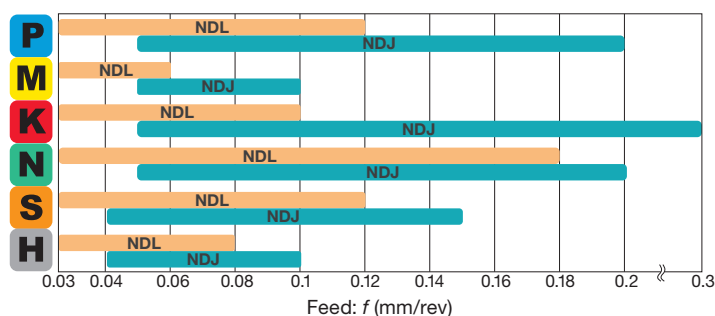
ID on insert



Designation	IC	S	Coated								DCN	DCX	RE
			UT-925										
TOHT070304R-NDL	7.69	2.3	●								14	15.99	0.4
TOHT080305R-NDL	8.55	2.8	●								16	18	0.5
TOHT090305R-NDL	8.32	3	●								18.01	20	0.5
TOHT100305R-NDL	9.23	3.3	●								20.01	21.99	0.5
TOHT110405R-NDL	10.4	3.8	●								22	25	0.5
TOHT120405R-NDL	11.59	4.3	●								25.01	28	0.5
TOHT130408R-NDL	12.85	4.76	●								28.01	32	0.8

● : Line up
Package quantity = 10 pcs.

Recommended feed rates

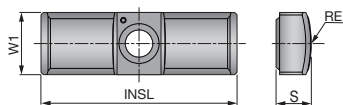
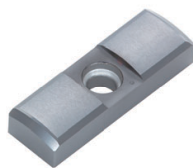


RECOMMENDED INSERT

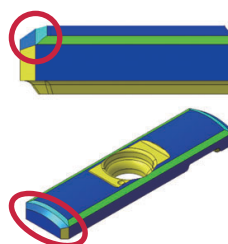
ISO	Workpiece material	Hardness	First choice	Troubleshooting	
				Chipping resistance	Wear resistance
P	Low carbon steels (C ≤ 0.3%)	- 200 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
	Carbon steels (C > 0.3%) Alloy steels	- 300 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
	Low alloy steels	- 300 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
	Alloy steels	- 300 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
M	Stainless steel	- 200 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
K	Grey cast irons	150 - 250 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
	Ductile cast irons	150 - 250 HB	NDJ, UT-923	NDJ, UT-923	NDJ, UT-925
N	Aluminium alloy	-	NDJ, UT-923	NDJ, AH9130	NDJ, UT-925
S	Titanium alloys Heat-resistant alloys	- 40 HRC	NDJ, UT-923	NDJ, UT-923	NDJ, UT-923
H	Hardened steel	- 50 HRC	NDJ, UT-923	NDJ, UT-923	NDJ, UT-923

GUIDE PAD

GP-DC



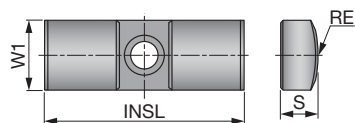
Double chamfer



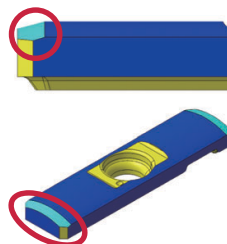
Designation	W1	INSL	Coated									DCN	DCX	S	RE
			UT925	UT925											
GP05-18-060-DC	5	18	●	●								14	15.99	2.5	6
GP05-18-075-DC	5	18	●	●								16	18	2.5	7.5
GP06-20-085-DC	6	20	●	●								18.01	21	3	8.5
GP06-20-100-DC	6	20	●	●								21.01	25	3	10
GP06-20-120-DC	6	20	●	●								25.01	29.99	3	12
GP07-20-120-DC	7	20	●	●								30	39	3.5	12
GP08-25-155-DC	8	25	●	●								39.01	40	4.5	15.5

●: Line up
Package quantity = 5 pcs.

GP



Single chamfer



Designation	W1	INSL	Coated									DCN	DCX	S	RE
GP05-060	5	18										14	15.99	2.5	6
GP05-075	5	18										16	18	2.5	7.5
GP06-085	6	20										18.01	21	3	8.5
GP06-100	6	20										21.01	25	3	10
GP06	6	20										25.01	29.99	3	12
GP07	7	20										30	39	3.5	12
GP08	8	25										39.01	40	4.5	15.5

●: Line up
Package quantity = 5 pcs.

Grade recommendations

ISO	Oil coolant			Water based coolant		
	First choice	Second choice	Third choice	First choice	Second choice	Third choice
P	UT923	-	UT923	UT923	UT923	-
M	UT923	UT923	-	UT923	UT923	-
K	UT923	-	UT923	UT923	UT923	-
N	UT923	-	UT923	UT923	UT923	-
S	UT923	UT925	UT923	UT923	UT923	-
H	UT923	UT925	UT923	UT923	UT923	-

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Priority	Chip-breaker	Cutting speed V _c (m/min)	Feed: f (mm/rev)		
					ø14 - ø18	ø18.01 - ø28	ø28.01 - ø40
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. St42-1, St52-3, C25, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.1	0.03 - 0.1	0.04-0.08
		First choice	NDJ	80 - 140	0.05 - 0.1	0.05 - 0.1	0.08-0.14
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.1	0.03 - 0.12	0.04-0.14
		First choice	NDJ	80 - 140	0.05 - 0.16	0.05 - 0.2	0.06-0.2
	Low alloy steel (C < 0.3) SCM415, etc. 18CrMo4, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.1	0.03 - 0.1	0.04-0.08
		First choice	NDJ	80 - 140	0.05 - 0.1	0.05 - 0.1	0.08-0.14
M	Alloy steel (C > 0.3) SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.1	0.03 - 0.12	0.04-0.14
		First choice	NDJ	80 - 120	0.05 - 0.16	0.05 - 0.2	0.06-0.2
	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.06	0.03 - 0.06	0.03-0.06
		First choice	NDJ	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05-0.1
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.06	0.03 - 0.06	0.03-0.06
		First choice	NDJ	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05-0.1
K	Stainless steel (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.06	0.03 - 0.06	0.03-0.06
		First choice	NDJ	60 - 100	0.05 - 0.1	0.05 - 0.1	0.05-0.1
	Grey cast iron FC250, etc. 250, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.15	0.05 - 0.18	0.05-0.18
		First choice	NDJ	80 - 140	0.05 - 0.25	0.05 - 0.3	0.05-0.3
	Ductile cast iron FCD700, etc. 700-2, etc.	For low feed machines	NDL	50 - 100	0.03 - 0.15	0.05 - 0.18	0.05-0.18
		First choice	NDJ	80 - 140	0.05 - 0.25	0.05 - 0.3	0.05-0.3
N	Aluminium alloys	For low feed machines	NDL	80 - 160	0.03 - 0.15	0.03 - 0.15	0.03-0.15
		First choice	NDJ	100 - 200	0.05 - 0.2	0.05 - 0.2	0.05-0.2
S	Heat-resistant alloys Inconel 718, etc.	For low feed machines	NDL	20 - 50	0.03 - 0.06	0.03 - 0.08	0.06-0.08
		First choice	NDJ	20 - 50	0.04 - 0.08	0.04 - 0.1	0.04-0.1
	Titanium alloys Ti-6Al-4V, etc.	For low feed machines	NDL	30 - 60	0.03 - 0.1	0.03 - 0.12	0.03-0.12
		First choice	NDJ	30 - 60	0.05 - 0.13	0.05 - 0.15	0.05-0.15
H	Hardened steel ≥ 40HRC	For low feed machines	NDL	40 - 100	0.03 - 0.08	0.03 - 0.08	0.03-0.08
		First choice	NDJ	50 - 100	0.04 - 0.08	0.04 - 0.1	0.04-0.1

Cutting parameters shown here are relating to the basic recommendations for cutting materials given.

Cutting conditions, material hardness and other relevant variables must be taken into considerations to determine the actual cutting parameters.

DEEP-RAY

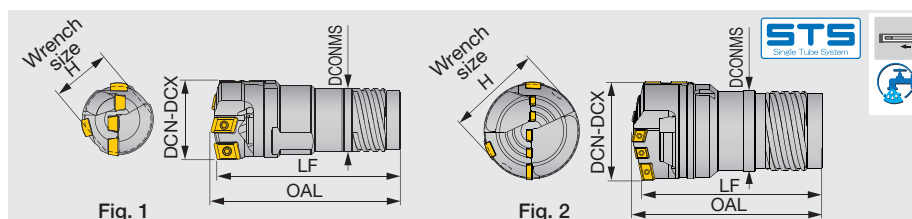
ø25 mm - ø89 mm



DEEP-RAY

URAY-S

Direct mount indexable head with external 4-start thread for single tube system (STS),
tool diameter: $\varnothing 25 - \varnothing 89$ mm



Standard products

Designation	DC	Drill tube			Drill head			Fig.
		Designation	Dia. (mm)	OAL	LF	DCONMS	H	
URAY-02S-25.00	25.00	ST02	22	73	70	19.5	22	1
URAY-02S-25.40	25.40	ST02	22	73	70	19.5	22	1
URAY-03S-28.00	28.00	ST03	24	73	70	21	23	1
URAY-04S-29.00	29.00	ST04	26	78	75	23.5	24	1
URAY-04S-30.00	30.00	ST04	26	78	75	23.5	24	1
URAY-05S-31.75	31.75	ST05	28	78	75	25.5	27	1
URAY-05S-32.00	32.00	ST05	28	78	75	25.5	27	1
URAY-05S-33.00	33.00	ST05	28	78	75	25.5	27	1
URAY-06S-35.00	35.00	ST06	30	83	80	28	29	1
URAY-06S-36.00	36.00	ST06	30	83	80	28	29	1
URAY-07S-37.00	37.00	ST07	33	93	90	30	32	1
URAY-07S-38.00	38.00	ST07	33	93	90	30	32	1
URAY-07S-38.10	38.10	ST07	33	93	90	30	32	1
URAY-08S-40.00	40.00	ST08	36	99	95	33	35	1
URAY-09S-45.00	45.00	ST09	39	104	100	36	38	1
URAY-10S-50.00	50.00	ST10	43	104	100	39	41	1
URAY-11S-55.00	55.00	ST11	47	114	110	43	46	1
URAY-12S-57.15	57.15	ST12	51	120	115	47	50	1
URAY-12S-60.00	60.00	ST12	51	120	115	47	50	1
URAY-13S-65.00	65.00	ST13	56	120	115	51	55	1

Non-standard products (to be supplied on request)

When ordering

URAY-S**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.5$ mm: **URAY-04S-30.50**

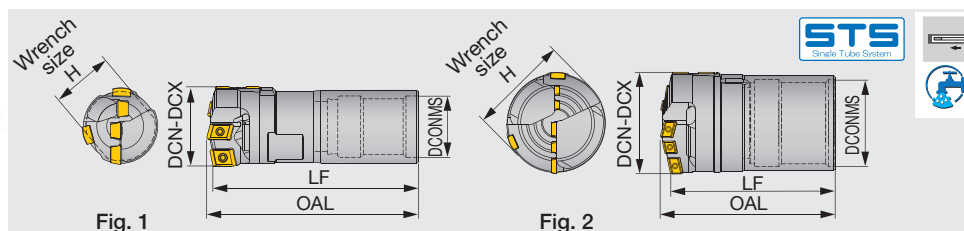
Designation	DCN	DCX	Drill tube			Drill head			Fig.
			Designation	Dia. (mm)	OAL	LF	DCONMS	H	
URAY-02S-xx.xx	25.00	26.40	ST02	22	73	70	19.5	22	1
URAY-03S-xx.xx	26.41	28.70	ST03	24	73	70	21	23	1
URAY-04S-xx.xx	28.71	31.00	ST04	26	78	75	23.5	24	1
URAY-05S-xx.xx	31.01	33.30	ST05	28	78	75	25.5	27	1
URAY-06S-xx.xx	33.31	36.20	ST06	30	83	80	28	29	1
URAY-07S-xx.xx	36.21	39.60	ST07	33	93	90	30	32	1
URAY-08S-xx.xx	39.61	43.00	ST08	36	99	95	33	35	1
URAY-09S-xx.xx	43.01	47.00	ST09	39	104	100	36	38	1
URAY-10S-xx.xx	47.01	51.70	ST10	43	104	100	39	41	1
URAY-11S-xx.xx	51.71	56.20	ST11	47	114	110	43	46	1
URAY-12S-xx.xx	56.21	60.60	ST12	51	120	115	47	50	1
URAY-13S-xx.xx	60.61	65.00	ST13	56	120	115	51	55	1
URAY-14S-xx.xx	65.01	66.99	ST14	56	149	141	52	63	2
URAY-15S-xx.xx	67.00	72.99	ST15	62	149	141	58	69	2
URAY-16S-xx.xx	73.00	79.99	ST16	68	150	141	63	76	2
URAY-17S-xx.xx	80.00	86.99	ST17	75	173	164	70	83	2
URAY-18S-xx.xx	87.00	89.00	ST18	82	173	164	77	86	2

DEEP-RAY

STS
 Single Tube System

URAY-N

Direct mount indexable head with internal single-start thread for single tube system (STS),
 tool diameter: $\varnothing 25$ - $\varnothing 89$ mm



Standard products

Designation	DC	Drill tube			Drill head			Fig.
		Designation	Dia. (mm)	OAL	LF	DCONMS	H	
URAY-22N-25.00	25.00	UB22	22	73	70	20	19	1
URAY-26N-30.00	30.00	UB26	26	78	75	24	24	1
URAY-28N-32.00	32.00	UB28	28	78	75	26	26	1
URAY-30N-35.00	35.00	UB30	30	93	90	27	28	1
URAY-36N-40.00	40.00	UB36	36	104	100	33	32	1

Non-standard products (to be supplied on request)

When ordering

URAY-N**
- XX.XX

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.5$ mm: URAY-26N-30.50

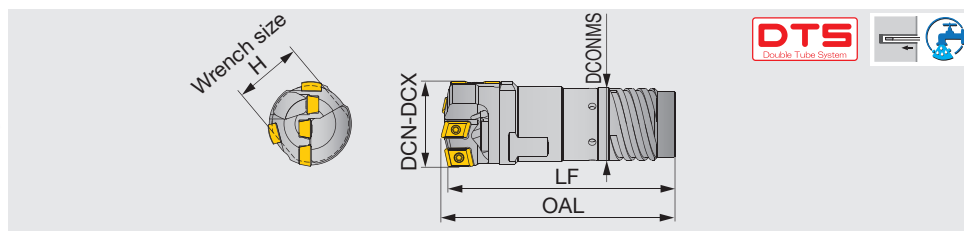
Designation	DCN	DCX	Drill tube		OAL	Drill head			Fig.
			Designation	Dia. (mm)		LF	DCONMS	H	
URAY-22N-xx.xx	25.00	26.99	UB22	22	73	70	20	19	1
URAY-24N-xx.xx	27.00	28.70	UB24	24	73	70	22	21	1
URAY-24N-xx.xx	28.71	29.99	UB24	24	73	70	22	24	1
URAY-26N-xx.xx	30.00	31.99	UB26	26	78	75	24	24	1
URAY-28N-xx.xx	32.00	33.99	UB28	28	78	75	26	26	1
URAY-30N-xx.xx	34.00	36.99	UB30	30	93	90	27	28	1
URAY-33N-xx.xx	37.00	39.99	UB33	33	98	95	30	30	1
URAY-36N-xx.xx	40.00	43.00	UB36	36	104	100	33	32	1
URAY-36N-xx.xx	43.01	43.99	UB36	36	104	100	33	36	1
URAY-39N-xx.xx	44.00	46.99	UB39	39	109	105	37	36	1
URAY-43N-xx.xx	47.00	51.70	UB43	43	109	105	41	36	1
URAY-43N-xx.xx	51.71	51.99	UB43	43	109	105	41	41	1
URAY-47N-xx.xx	52.00	56.99	UB47	47	114	110	44	46	1
URAY-51N-xx.xx	57.00	60.60	UB51	51	120	115	49	46	1
URAY-51N-xx.xx	60.61	60.99	UB51	51	120	115	49	50	1
URAY-56N-xx.xx	61.00	65.00	UB56	56	120	115	53	54	1
URAY-56N-xx.xx	65.01	67.99	UB56	56	112	104	53	64	2
URAY-62N-xx.xx	68.00	74.99	UB62	62	113	104	59	71	2
URAY-68N-xx.xx	75.00	80.99	UB68	68	143	134	65	77	2
URAY-75N-xx.xx	81.00	89.00	UB75	75	143	134	71	86	2

DEEP-RAY



UDRAY-D

Direct mount indexable head with external 4-start thread for double tube system (DTS),
tool diameter: $\varnothing 25$ - $\varnothing 65$ mm



Standard products

Designation	DC	Drill tube		OAL	Drill head		
		Designation	Dia. (mm)		LF	DCONMS	H
UDRAY-11D-50.00	50.00	OT11	46.5	114	110	43	41

Non-standard products (to be supplied on request)

When ordering

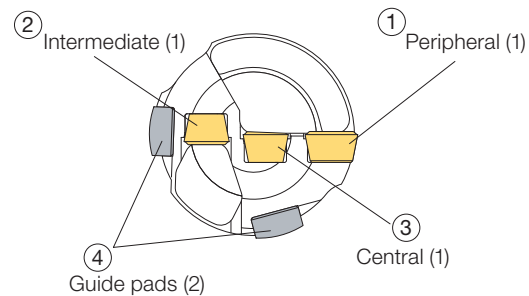
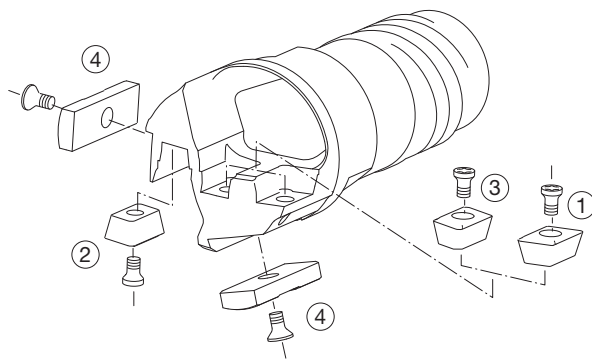
UDRAY-**	-	XX.XX
Drill head		Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.5$ mm: UDRAY-05D-30.50

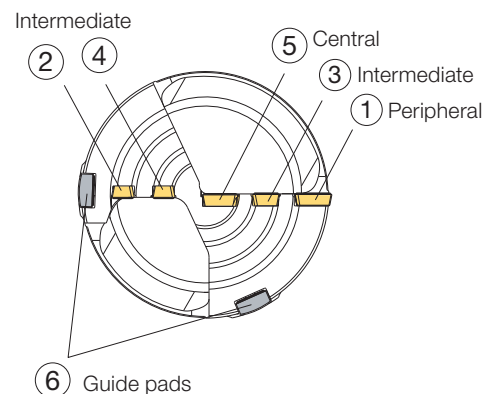
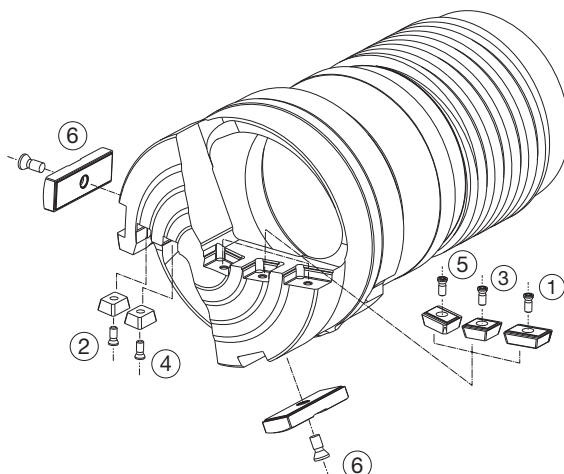
Designation	DCN	DCX	Outer tube		Drill head			
			Designation	Dia. (mm)	OAL	LF	DCONMS	H
UDRAY-03D-xx.xx	25.00	26.40	OT03	23.5	73	70	21	22
UDRAY-04D-xx.xx	26.41	28.70	OT04	26	78	75	23.5	23
UDRAY-05D-xx.xx	28.71	31.00	OT05	28	78	75	25.5	24
UDRAY-06D-xx.xx	31.01	33.30	OT06	30.5	83	80	28	27
UDRAY-07D-xx.xx	33.31	36.20	OT07	33	93	90	30	29
UDRAY-08D-xx.xx	36.21	39.60	OT08	35.5	99	95	33	32
UDRAY-09D-xx.xx	39.61	43.00	OT09	39	104	100	36	35
UDRAY-10D-xx.xx	43.01	47.00	OT10	42.5	104	100	39	38
UDRAY-11D-xx.xx	47.01	51.70	OT11	46.5	114	110	43	41
UDRAY-12D-xx.xx	51.71	56.20	OT12	51	120	115	47	46
UDRAY-13D-xx.xx	56.21	60.99	OT13	55.5	120	115	51	50
UDRAY-13D-xx.xx	61.00	65.00	OT13	55.5	120	115	51	55

SPARE PARTS

Tool diameter DCN - DCX (mm)	Insert									Guide pad		
	① Peripheral			② Intermediate			③ Central			④		
	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Guide pad	Screw	Wrench
25.00 - 28.00	FBH0603**R**-P	CSTB-2.2	T-7F	FBM060304R**-I	CSTB-2.2	T-7F	FBM060308L**-C	CSTB-2.2	T-7F	GP06...	CSTB-2.2S	T-7F
28.01 - 29.99	FBH0603**R**-P	CSTB-2.2	T-7F	FBM060304R**-I	CSTB-2.2	T-7F	FBM070408L**-C	SR14-560-HG	T-8F	GP06...	CSTB-2.2S	T-7F
30.00 - 35.00	FBH0804**R**-P	SR14-560-HG	T-8F	FBM070404R**-I	SR14-560-HG	T-8F	FBM070408L**-C	SR14-560-HG	T-8F	GP07...	CSTB-3S	T-9F
35.01 - 38.00	FBH0804**R**-P	SR14-560-HG	T-8F	FBM070404R**-I	SR14-560-HG	T-8F	FBM080408L**-C	SR14-560-HG	T-8F	GP07...	CSTB-3S	T-9F
38.01 - 39.00	FBH0904**R**-P	SR14-560-HG	T-8F	FBM070404R**-I	SR14-560-HG	T-8F	FBM080408L**-C	SR14-560-HG	T-8F	GP07...	CSTB-3S	T-9F
39.01 - 41.00	FBH0904**R**-P	SR14-560-HG	T-8F	FBM070404R**-I	SR14-560-HG	T-8F	FBM080408L**-C	SR14-560-HG	T-8F	GP08...	CSTB-3S	T-9F
41.01 - 44.00	FBH0904**R**-P	SR14-560-HG	T-8F	FBM080404R**-I	SR14-560-HG	T-8F	FBM080408L**-C	SR14-560-HG	T-8F	GP08...	CSTB-3S	T-9F
44.01 - 45.00	FBH0904**R**-P	SR14-560-HG	T-8F	FBM080404R**-I	SR14-560-HG	T-8F	FBM100408L**-C	SR14-560-HG	T-8F	GP08...	CSTB-3S	T-9F
45.01 - 47.00	FBH0904**R**-P	SR14-560-HG	T-8F	FBM080404R**-I	SR14-560-HG	T-8F	FBM100408L**-C	SR14-560-HG	T-8F	GP10S...	CSTB-3.5	T-15F
47.01 - 51.00	FBH1104**R**-P	SR14-560-HG	T-8F	FBM080404R**-I	SR14-560-HG	T-8F	FBM100408L**-C	SR14-560-HG	T-8F	GP10S...	CSTB-3.5	T-15F
51.01 - 54.00	FBH1104**R**-P	SR14-560-HG	T-8F	FBM100404R**-I	SR14-560-HG	T-8F	FBM100408L**-C	SR14-560-HG	T-8F	GP10S...	CSTB-3.5	T-15F
54.01 - 57.00	FBH1104**R**-P	SR14-560-HG	T-8F	FBM100404R**-I	SR14-560-HG	T-8F	FBM130408L**-C	SR14-560-HG	T-8F	GP10S...	CSTB-3.5	T-15F
57.01 - 60.00	FBH1104**R**-P	SR14-560-HG	T-8F	FBM100404R**-I	SR14-560-HG	T-8F	FBM130408L**-C	SR14-560-HG	T-8F	GP12...	CSTB-3.5	T-15F
60.01 - 64.00	FBH1304**R**-P	SR14-560-HG	T-8F	FBM100404R**-I	SR14-560-HG	T-8F	FBM130408L**-C	SR14-560-HG	T-8F	GP12...	CSTB-3.5	T-15F
64.01 - 65.00	FBH1304**R**-P	SR14-560-HG	T-8F	FBM130404R**-I	SR14-560-HG	T-8F	FBM130408L**-C	SR14-560-HG	T-8F	GP12...	CSTB-3.5	T-15F



Tool diameter DCN - DCX (mm)	Insert												Guide pad		
	① Peripheral			② Intermediate			③ Intermediate			④ Intermediate			⑤ Central		
	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Insert	Screw*	Wrench	Insert	Screw*	Wrench
65.01 - 71.00	FBH1104**R**-P	SR 14-560-HG	T-8F	FBM070404R**-I	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM00408L**-C	SR 14-560-HG	T-8F
71.01 - 83.00	FBH1304**R**-P	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM00408L**-C	SR 14-560-HG	T-8F
83.01 - 89.00	FBH1304**R**-P	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM100404R**-I	SR 14-560-HG	T-8F	FBM080404R**-I	SR 14-560-HG	T-8F	FBM130408L**-C	SR 14-560-HG	T-8F



Caution

To improve its performance, the FineBeam drill head has undergone design changes. The new drill head has a **guide pad protector**, as shown below, that protects the guide pad from being damaged when retrieving the drill from the hole into the guide bushing after completing machining. Accordingly, the insert clamping screw design for drill head diameters of 30 mm or greater has also been changed. See the list below for details.

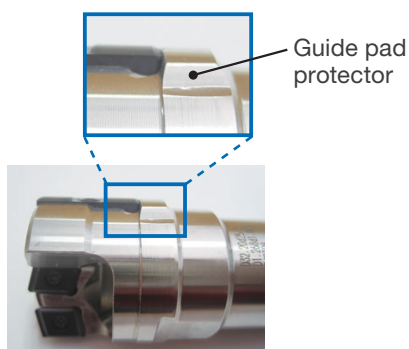
When ordering insert clamping screws, below before choosing the screw size, first confirm the drill body design according to the procedure shown.

→ If the drill head has the protector: **Use a screw in the new design**

→ If the drill head has NO protector: **Use a screw in the previous design**

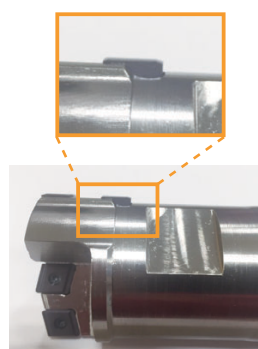
New design

With guide pad protector



Conventional design

Without guide pad protector

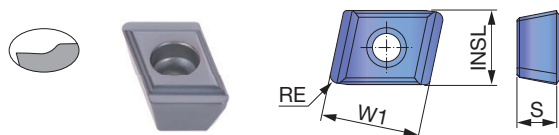


Tool diameter DCN - DCX (mm)	Peripheral insert		Intermediate insert		Central insert	
	Screw		Screw		Screw	
	New	Conventional	New	Conventional	New	Conventional
25.00-28.00	CSTB-2.2	CSTB-2.2	CSTB-2.2	CSTB-2.2	CSTB-2.2	CSTB-2.2
28.01-29.99	CSTB-2.2	CSTB-2.2	CSTB-2.2	CSTB-2.2	SR14-560-HG	CSTB2.5
30.00-35.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
35.01-38.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
38.01-39.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
39.01-41.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
41.01-44.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
44.01-45.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
45.01-47.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
47.01-51.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
51.01-54.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
54.01-57.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
57.01-60.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
60.01-64.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5
64.01-65.00	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5	SR14-560-HG	CSTB2.5

The two types of screws are not interchangeable. A wrong screw will not fit the drill head body.

INSERT

FBM L-G-C (Central insert for general purpose)



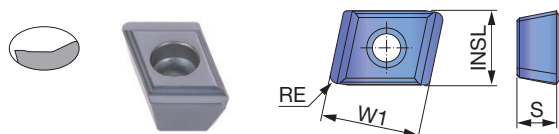
P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	☆	★
H	Hard materials	☆	★

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated			W1	RE
			UT923	UT927	UT925		
FBM060308L-G-C	5.5	3	●	●	●	8	0.8
FBM070408L-G-C	6.5	4	●	●	●	10	0.8
FBM080408L-G-C	8	4	●	●	●	10	0.8
FBM100408L-G-C	9.5	4	●	●	●	10	0.8
FBM130408L-G-C	12.5	4	●	●	●	10	0.8

● : New
● : Line up

FBM L-HF-C (Central insert for high feed rates)

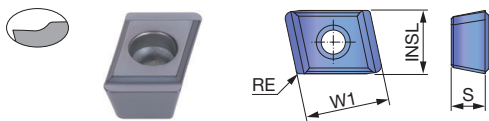


P	Steel	★	☆
M	Stainless	★	☆
K	Cast iron	★	☆
N	Non-ferrous	★	☆
S	Superalloys	☆	★
H	Hard materials	☆	★

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated			W1	RE
			UT923	UT927	UT925		
FBM060308L-HF-C	5.5	3	●	●	●	8	0.8
FBM070408L-HF-C	6.5	4	●	●	●	10	0.8
FBM080408L-HF-C	8	4	●	●	●	10	0.8
FBM100408L-HF-C	9.5	4	●	●	●	10	0.8
FBM130408L-HF-C	12.5	4	●	●	●	10	0.8

● : New
● : Line up

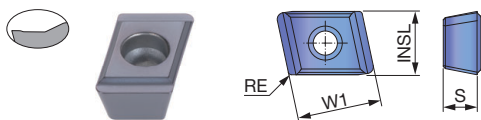
FBM R-G-I (Intermediate insert for general purpose)


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

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated			W1	RE
			UT923	UT927	UT925		
FBM060304R-G-I	5.5	3	●	●	●	8	0.4
FBM070404R-G-I	6.5	4	●	●	●	10	0.4
FBM080404R-G-I	8	4	●	●	●	10	0.4
FBM100404R-G-I	9.5	4	●	●	●	10	0.4
FBM130404R-G-I	12.5	4	●	●	●	10	0.4

● : New
● : Line up

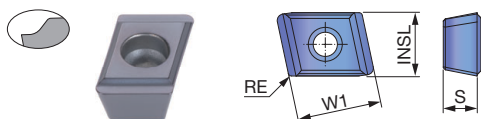
FBM R-HF-I (Intermediate insert for high feed rates)


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

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated			W1	RE
			UT923	UT927	UT925		
FBM060304R-HF-I	5.5	3	●	●	●	8	0.4
FBM070404R-HF-I	6.5	4	●	●	●	10	0.4
FBM080404R-HF-I	8	4	●	●	●	10	0.4
FBM100404R-HF-I	9.5	4	●	●	●	10	0.4
FBM130404R-HF-I	12.5	4	●	●	●	10	0.4

● : New
● : Line up

FBM R-DL-I (Intermediate insert for low power machine)


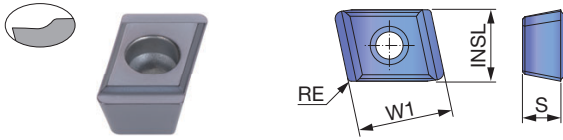
P	Steel	★	☆	
M	Stainless	★	☆	
K	Cast iron	★	☆	
N	Non-ferrous	★	☆	
S	Superalloys	☆	★	
H	Hard materials	☆	★	

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated			W1	RE
			UT923	UT927	UT925		
FBM060304R-DL-I	5.5	3	●			8	0.4
FBM070404R-DL-I	6.5	4	●			10	0.4

● : New
● : Line up

NPHT R-G-P(Peripheral insert for general purpose)



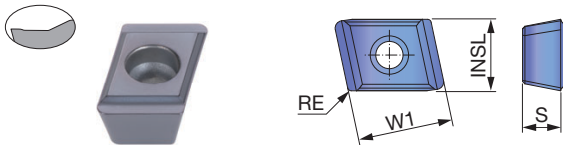
P	Steel	★	☆	
M	Stainless	★	☆	
K	Cast iron	★	☆	
N	Non-ferrous	★	☆	
S	Superalloys		★	
H	Hard materials	☆	★	

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated										W1	RE
			UT923	UT927	UT925									
NPHT060304R-G-P	6	3			●								8	0.4
NPHT060308R-G-P	6	3	●	●	●								8	0.8
NPHT080404R-G-P	7.5	4			●								10	0.4
NPHT080408R-G-P	7.5	4	●	●	●								10	0.8
NPHT090404R-G-P	9	4			●								10	0.4
NPHT090408R-G-P	9	4	●	●	●								10	0.8
NPHT110404R-G-P	11	4			●								10	0.4
NPHT110408R-G-P	11	4	●	●	●								10	0.8
NPHT130404R-G-P	13	4			●								10	0.4
NPHT130408R-G-P	13	4	●	●	●								10	0.8

● : New
● : Line up

NPHT R-HF-P(Peripheral insert for high feed rates)



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

★ : First choice
☆ : Second choice

Designation	INSL	S	Coated										W1	RE
			UT923	UT927	UT925									
NPHT060308R-HF-P	6	3	●	●	●								8	0.8
NPHT080408R-HF-P	7.5	4	●	●	●								10	0.8
NPHT090408R-HF-P	9	4	●	●	●								10	0.8
NPHT110408R-HF-P	11	4	●	●	●								10	0.8
NPHT130408R-HF-P	13	4	●	●	●								10	0.8

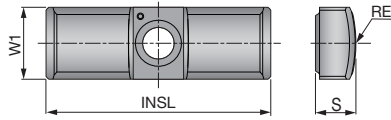
● : New
● : Line up

RECOMMENDED INSERT

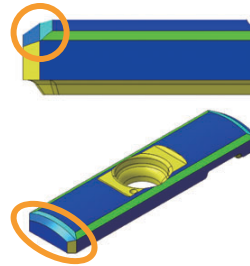
ISO	Workpiece material	Hardness	First choice	Troubleshooting	
				Chipping resistance	Wear resistance
P	Low carbon steels (C ≤ 0.3%)	- 200 HB	G, UT923	G, UT927	G, UT925
	Carbon steels (C > 0.3%) Alloy steels	- 300 HB	G, UT923	G, UT927	G, UT925
	Low alloy steels	- 300 HB	G, UT923	G, UT927	G, UT925
	Alloy steels	- 300 HB	G, UT923	G, UT927	G, UT925
M	Stainless steel	- 200 HB	G, UT923	G, UT927	G, UT925
K	Grey cast irons	150 - 250 HB	G, UT923	G, UT927	G, UT925
	Ductile cast irons	150 - 250 HB	G, UT923	G, UT927	G, UT925
N	Aluminium alloy	-	G, UT923	G, UT927	G, UT925
S	Titanium alloys Heat-resistant alloys	- 40 HRC	G, UT927	G, UT923	G, UT923
H	Hardened steel	- 50 HRC	G, UT927	G, UT923	G, UT923

GUIDE PAD

GP-DC



Double chamfer

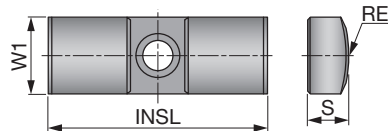


Designation	W1	INSL	Coated								DCN	DCX	S	RE
			UT925	UT925										
GP06-20-120-DC	6	20	●	●							25	29.99	3	12
GP07-20-120-DC	7	20	●	●							30	39	3.5	12
GP08-25-155-DC	8	25	●	●							39.01	45	4.5	15.5
GP10-30-200-DC	10	30	●	●							45.01	57	4.5	20
GP12-35-250-DC	12	35	●	●							57.01	89	5.5	25

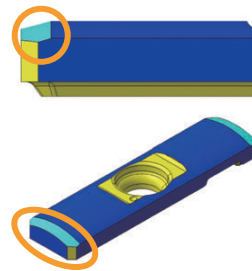
●: Line up

Package quantity = 5 pcs.

GP



Single chamfer



Designation	W1	INSL	Coated								DCN	DCX	S	RE
			F1122											
GP06	6	20	●								25	29.99	3	12
GP07	7	20	●								30	39	3.5	12
GP08	8	25	●								39.01	45	4.5	15.5
GP10S	10	30	●								45.01	57	4.5	20
GP12	12	35	●								57.01	89	5.5	25

●: Line up

Package quantity = 5 pcs.

Grade recommendations

ISO	Oil coolant			Water based coolant		
	First choice	Second choice	Third choice	First choice	Second choice	Third choice
P	UT925	F1122	UT925	UT925	UT925	-
M	UT925	UT925	F1122	UT925	UT925	-
K	UT925	F1122	UT925	UT925	UT925	-
N	UT925	F1122	UT925	UT925	UT925	-
S	UT925	UT925	F1122	UT925	UT925	-
H	UT925	UT925	F1122	UT925	UT925	-

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials				Hardness (HB)	Chip-breaker	Cutting speed Vc (m/min)	Feed : f (mm/rev)				
								ø25.00 - ø43.00	ø43.01 - ø89.00			
P	Carbon steel Casting steel High carbon steel Carbon tool steel	S10C - S25C, SS	0.10 - 0.25%C	Non-hardened	125	HF	70 - 130	0.11 - 0.41	0.14 - 0.45			
					125	G	70 - 130	0.1 - 0.3	0.12 - 0.35			
		S25C - S55C	0.25 - 0.25%C	Non-hardened	190	HF	70 - 130	0.11 - 0.41	0.14 - 0.45			
					190	G	70 - 130	0.1 - 0.3	0.12 - 0.35			
			0.25 - 0.25%C	Hardened and tempered	250	HF	70 - 130	0.11 - 0.41	0.14 - 0.45			
					250	G	70 - 130	0.1 - 0.3	0.12 - 0.35			
		SK	0.55 - 0.80%C	Non-hardened	220	HF	70 - 130	0.11 - 0.41	0.14 - 0.45			
					220	G	70 - 130	0.1 - 0.3	0.12 - 0.35			
			0.55 - 0.80%C	Hardened and tempered	300	HF	70 - 130	0.11 - 0.41	0.14 - 0.45			
					300	G	70 - 130	0.1 - 0.3	0.12 - 0.35			
		Low alloy steel Casting steel (alloying element < 5%)	SNC,DCr,SNCN SCM,SMn	Non-hardened	200	HF	70 - 120	0.11 - 0.41	0.20 - 0.45			
					200	G	70 - 120	0.1 - 0.3	0.12 - 0.35			
	275				HF	55 - 110	0.11 - 0.41	0.20 - 0.45				
	275				G	60 - 120	0.1 - 0.3	0.12 - 0.35				
	Hardened and tempered			300	HF	55 - 110	0.11 - 0.41	0.20 - 0.45				
				300	G	60 - 120	0.1 - 0.3	0.12 - 0.35				
				350	HF	55 - 110	0.11 - 0.41	0.20 - 0.45				
				350	G	60 - 120	0.1 - 0.3	0.12 - 0.35				
	High alloy steel Casting steel Tool steel	SNS,SKD,SKT SKH,SK	Non-hardened	200	HF	55 - 110	0.11 - 0.38	0.20 - 0.40				
				200	G	70 - 130	0.1 - 0.3	0.12 - 0.35				
Hardened and tempered			325	HF	55 - 110	0.11 - 0.38	0.20 - 0.40					
			325	G	70 - 130	0.1 - 0.3	0.12 - 0.35					
M	Stainless steel	SUS430	Ferritic	200	HF	40 - 110	0.11 - 0.41	0.20 - 0.45				
				200	G	70 - 130	0.1 - 0.3	0.12 - 0.35				
		SUS410, 420J	Martensite	240	HF	40 - 110	0.11 - 0.41	0.20 - 0.45				
				240	G	70 - 130	0.1 - 0.3	0.12 - 0.35				
		SUS304, SUS316L	Austenite	180	HF	40 - 110	0.11 - 0.41	0.20 - 0.45				
				180	G	70 - 130	0.1 - 0.3	0.12 - 0.35				
K	Ductile cast iron	FCD400 - FCD450		Ferritic / Pearlitic	180	HF	50 - 110	0.11 - 0.38	0.24 - 0.41			
					180	G	50 - 110	0.1 - 0.25	0.12 - 0.35			
		FCD500 - FCD700		Pearlitic	260	HF	50 - 110	0.11 - 0.38	0.24 - 0.41			
					260	G	50 - 110	0.1 - 0.25	0.12 - 0.35			
	Grey cast iron	FC100 - FC200		Low tensile strength	160	HF	60 - 110	0.11 - 0.38	0.24 - 0.41			
					160	G	60 - 110	0.1 - 0.25	0.12 - 0.35			
		FC250 - FC350		High tensile strength	250	HF	60 - 110	0.11 - 0.38	0.24 - 0.41			
					250	G	60 - 110	0.1 - 0.25	0.12 - 0.35			
	Malleable cast iron	FCMB, FCMW		Ferritic	130	HF	80 - 120	0.11 - 0.38	0.24 - 0.41			
					130	G	70 - 110	0.1 - 0.25	0.12 - 0.35			
		FCMWP, FCMP		Pearlitic	230	HF	80 - 120	0.11 - 0.38	0.24 - 0.41			
					230	G	70 - 110	0.1 - 0.25	0.12 - 0.35			
N	Aluminium alloys Forging		Non-aged	60	HF	65 - 150	0.09 - 0.33	0.24 - 0.35				
				60	G	65 - 130	0.1 - 0.25	0.12 - 0.35				
			Soluted, Aged	100	HF	65 - 150	0.09 - 0.33	0.24 - 0.35				
				100	G	65 - 130	0.08 - 0.23	0.12 - 0.27				
	Aluminium alloys Casting		≤12% Si	Non-aged	75	HF	65 - 150	0.09 - 0.33	0.24 - 0.35			
					75	G	65 - 130	0.08 - 0.23	0.12 - 0.27			
				Soluted, Aged	90	HF	65 - 150	0.09 - 0.33	0.24 - 0.35			
					90	G	65 - 130	0.08 - 0.23	0.12 - 0.27			
			>12% Si	High silicon	130	HF	65 - 150	0.09 - 0.33	0.24 - 0.35			
					130	G	65 - 130	0.08 - 0.23	0.12 - 0.27			
				Copper alloys		>1% Pb	Free cutting copper	110	HF	65 - 150	0.09 - 0.33	0.24 - 0.35
								110	G	65 - 130	0.08 - 0.23	0.12 - 0.27
	Brass, Red brass	90	HF			65 - 150	0.09 - 0.33	0.24 - 0.35				
		90	G			65 - 130	0.08 - 0.23	0.12 - 0.27				
Electrolytic copper	100	HF	65 - 150			0.09 - 0.33	0.24 - 0.35					
	100	G	65 - 130			0.08 - 0.23	0.12 - 0.27					
S	Nickel-based alloys	Fe base	Non-aged	200	HF	20 - 55	0.09 - 0.30	0.20 - 0.33				
				200	G	20 - 50	0.08 - 0.23	0.12 - 0.27				
			Soluted, Aged	280	HF	20 - 55	0.09 - 0.30	0.20 - 0.33				
				280	G	20 - 50	0.08 - 0.23	0.12 - 0.27				
		Ni / Co base	Non-aged	250	HF	20 - 55	0.09 - 0.30	0.20 - 0.33				
				250	G	20 - 50	0.08 - 0.23	0.12 - 0.27				
			Soluted, Aged	350	HF	20 - 55	0.09 - 0.30	0.20 - 0.33				
				350	G	20 - 50	0.08 - 0.23	0.12 - 0.27				
	Titanium alloys		Casted	320	HF	20 - 55	0.09 - 0.30	0.20 - 0.33				
				320	G	20 - 50	0.08 - 0.23	0.12 - 0.27				
			α	Rm400	HF	30 - 60	0.09 - 0.30	0.20 - 0.33				
				Rm400	G	30 - 60	0.08 - 0.23	0.12 - 0.27				
α-β	Rm1050	HF	30 - 60	0.09 - 0.30	0.20 - 0.33							
	Rm1050	G	30 - 60	0.08 - 0.23	0.12 - 0.27							
H	Hardened steel	≥ 40HRC			HF	30 - 60	0.09 - 0.30	0.20 - 0.33				
					G	30 - 60	0.08 - 0.23	0.12 - 0.27				

Cutting parameters shown here are relating to the basic recommendations for cutting materials given.

Cutting conditions, material hardness and other relevant variables must be taken into considerations to determine the actual cutting parameters.

DEEP-LINE

ø38 mm - ø293.99 mm

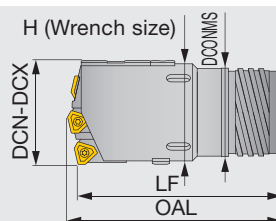


DEEP-LINE

ULINE-E



Indexable drill head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 38.00$ - $\varnothing 106.99$ mm, CICT = 3



Standard products

Designation	DC	CICT	Drill tube		OAL	Drill head		
			Designation	Dia. (mm)		LF	DCONMS	H
ULINE17E-80.00	80.00	3	ST17	75	191	180	70	83
ULINE18E-90.00	90.00	3	ST18	82	193	180	77	96
ULINE19E-100.00	100.00	3	ST19	94	193	180	89	102

Non-standard products (to be supplied on request)

When ordering

ULINEE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 60$ mm: **ULINE12E-60.00**

Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE07E-xx.xx	38.00	39.60	3	ST07	33	90	85	30	37
ULINE08E-xx.xx	39.61	43.00	3	ST08	36	91	85	33	40
ULINE09E-xx.xx	43.01	47.00	3	ST09	39	101	95	36	43
ULINE10E-xx.xx	47.01	51.70	3	ST10	43	102	95	39	48
ULINE11E-xx.xx	51.71	56.20	3	ST11	47	107	100	43	52
ULINE12E-xx.xx	56.21	60.60	3	ST12	51	118	110	47	57
ULINE13E-xx.xx	60.61	65.00	3	ST13	56	119	110	51	61
ULINE14E-xx.xx	65.00	66.99	3	ST14	56	159	150	52	63
ULINE15E-xx.xx	67.00	72.99	3	ST15	62	159	150	58	69
ULINE16E-xx.xx	73.00	79.99	3	ST16	68	160	150	63	76
ULINE17E-xx.xx	80.00	86.99	3	ST17	75	191	180	70	83
ULINE18E-xx.xx	87.00	99.99	3	ST18	82	193	180	77	96
ULINE19E-xx.xx	100.00	106.99	3	ST19	94	193	180	89	102

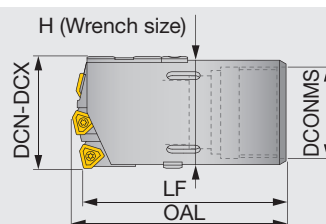
For drill heads in diameters of $\varnothing 92$ mm or larger, a filler is attached in place of guide pad.

DEEP-LINE



ULINE

Indexable drill head with internal single-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 38.00 - \varnothing 106.99$ mm, CICT = 3



Non-standard products (to be supplied on request)

When ordering

ULINE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 60$ mm: **ULINE51-60.00**

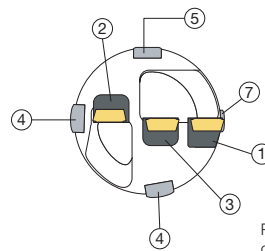
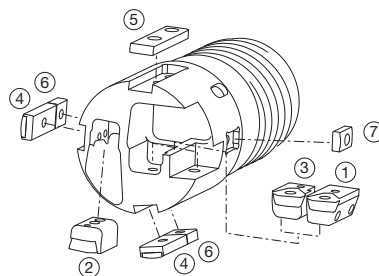
Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE33-xx.xx	38.00	39.99	3	UB33	33	85	80	30	37
ULINE36-xx.xx	40.00	43.99	3	UB36	36	86	80	33	41
ULINE39-xx.xx	44.00	46.99	3	UB39	39	96	90	37	43
ULINE43-xx.xx	47.00	51.99	3	UB43	43	97	90	41	48
ULINE47-xx.xx	52.00	56.99	3	UB47	47	107	100	44	53
ULINE51-xx.xx	57.00	60.99	3	UB51	51	118	110	49	57
ULINE56-xx.xx	61.00	67.99	3	UB56	56	119	110	53	64
ULINE62-xx.xx	68.00	74.99	3	UB62	62	129	120	59	71
ULINE68-xx.xx	75.00	80.99	3	UB68	68	161	150	65	77
ULINE75-xx.xx	81.00	90.99	3	UB75	75	162	150	71	87
ULINE82-xx.xx	91.00	98.99	3	UB82	82	162	150	79	95
ULINE94-xx.xx	99.00	106.99	3	UB94	94	163	150	90	102

INSERTS

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

SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge			Guide pad							
	Peripheral	Intermediate	Central	Guide pad		Filler		Protector		Sub guide pad	
	Cartridge ①	Cartridge ②	Cartridge ③	④	Qty	⑤	Qty	⑥	Qty	⑦	Qty
	OZ05R	IOZ05R	IOZ05R	GP08...	2	-	-	GPT08	2	CUG08	1
38 - 39.99	OZ05R	IOZ05R	IOZ05R	GP08...	2	-	-	GPT08	2	CUG08	1
40 - 44.99	OZ402 - 04	IOZ05R	IOZ05R	GP10...	2	-	-	GPT10	2	CUG08	1
45 - 47.99	OZ402 - 04	IOZ402 - 04	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



Part positions may vary depending on the drill size.

**SCREWS, WRENCHES
(CICT = 3)**

Tool diameter DCN-DCX (mm)	Insert screw					
	Peripheral		Intermediate		Central	
	Cartridge ①		Cartridge ②		Cartridge ③	
	Screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	CSTB-2.2	T-7D	CSTB-2.2	T-7D	CSTB-2.2	T-7D
40 - 44.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.2	T-7D
45 - 47.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.5	T-8D
48 - 51.99	CSTB-2.5	T-8D	CSTB-2.5	T-8D	CSTB-2.5	T-8D
52 - 54.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-2.5	T-8D
55 - 57.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-3.5D	T-9D
58 - 59.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
60 - 63.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
64 - 67.99	CSTB-4M	T-15D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
68 - 77.99	CSTB-3.5D	T-9D	CSTB-4M	T-15D	CSTB-4M	T-15D
78 - 84.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D
85 - 91.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D
92 - 98.99	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D
99 - 106.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

**SCREWS, WRENCHES
(CICT = 3)**

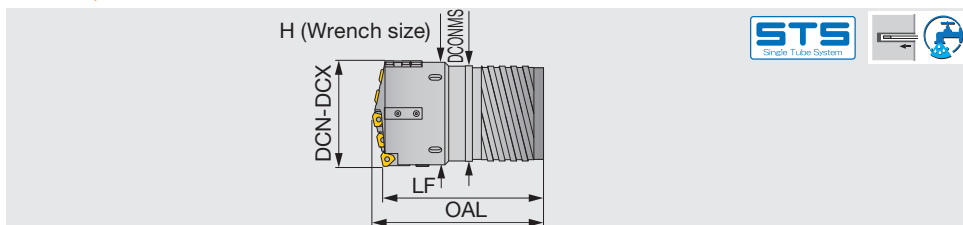
Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate		Central		Guide pad / Filler / Protector		Sub guide pad	
	Cartridge①				Cartridge②		Cartridge③					
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	LS1803RH	H2	AS0003-5	H1.5	CSTB-3	T-9D	CSTB-3	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
40 - 44.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
45 - 47.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3.5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
48 - 51.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3.5	T-15D	CSTB-3.5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
52 - 54.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTB-3.5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
55 - 57.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTA-5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
58 - 59.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
60 - 63.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
64 - 67.99	LS1806RH	H4	AS0005-15	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
68 - 77.99	LS1805RH	H3	AS0005-10	H2.5	LS1206	H3	LS1206	H3	CSTA-5SS	T-15D	CSTB-3S	T-9D
78 - 84.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206	H3	CSTA-5S	T-15D	CSTB-3S	T-9D
85 - 91.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206	H3	CSTA-5S	T-15D	CSTB-3S	T-9D
92 - 98.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	CSTA-5SS	T-15D	CSTB-3S	T-9D
99 - 106.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206S	H3	LS1206S	H3	CSTA-5S	T-15D

DEEP-LINE



ULINE-E

Indexable drill head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 107.00$ - $\varnothing 168.99$ mm, CICT = 5



Non-standard products (to be supplied on request)

When ordering

ULINEE - XX.XX**

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 150$ mm: **ULINE23E-150.00**

Designation	DCN	DCX	CICT	Drill tube			Drill head		
				Designation	Dia. (mm)	OAL	LF	DCONMS	H
ULINE19E-xx.xx	107.00	111.99	5	ST19	94	197	180	89	107
ULINE20E-xx.xx	112.00	123.99	5	ST20	106	221	205	101	119
ULINE21E-xx.xx	124.00	135.99	5	ST21	118	222	205	113	131
ULINE22E-xx.xx	136.00	147.99	5	ST22	130	223	205	125	143
ULINE23E-xx.xx	148.00	159.99	5	ST23	142	245	225	137	155
ULINE24E-xx.xx	160.00	168.99	5	ST24	154	246	225	149	164

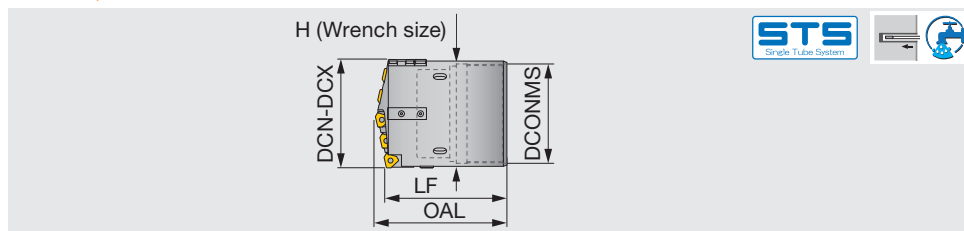
Before drilling operation

DEEP-LINE



ULINE

Indexable drill head with internal single-start thread for single tube system (STS), diameters adjustable, tool diameter $\phi 107.00 - \phi 168.99$ mm, CICT = 5



Non-standard products (to be supplied on request)

When ordering

ULINE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\phi 150$ mm: **ULINE142-150.00**

Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE94-xx.xx	107.00	110.99	5	UB94	94	164	150	90	106
ULINE106-xx.xx	111.00	122.99	5	UB106	106	165	150	102	118
ULINE118-xx.xx	123.00	134.99	5	UB118	118	167	150	114	130
ULINE130-xx.xx	135.00	148.99	5	UB130	130	168	150	126	144
ULINE142-xx.xx	149.00	161.99	5	UB142	142	170	150	139	157
ULINE154-xx.xx	162.00	168.99	5	UB154	154	211	190	151	164

Before drilling operation, please adjust drill diameter.

INSERTS

Tool diameter DCN-DCX (mm)	Peripheral	Qty	Intermediate	Qty	Intermediate	Qty	Central	Qty
107.00 - 117.99	TPMX24**R...	1	TPMX17**R...	3	-		TPMX24**R...	1
118.00 - 135.99	TPMX24**R...	1	TPMX24**R...	3	-		TPMX24**R...	1
136.00 - 144.99	TPMX24**R...	1	TPMX24**R...	3	-		TPMX28**R...	1
145.00 - 150.99	TPMX24**R...	1	TPMX24**R...	2	TPMX28**R...	1	TPMX28**R...	1
151.00 - 156.99	TPMX28**R...	1	TPMX24**R...	2	TPMX28**R...	1	TPMX28**R...	1
157.00 - 162.99	TPMX28**R...	1	TPMX24**R...	1	TPMX28**R...	2	TPMX28**R...	1
163.00 - 168.99	TPMX28**R...	1	TPMX28**R...	3	-		TPMX28**R...	1

⊕ **Plus:** The drill diameter can be increased by up to 5 mm by using the Plus parts. A maximum expandable diameter is determined by the peripheral cartridge size used on the drill.

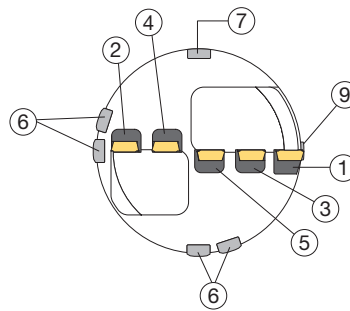
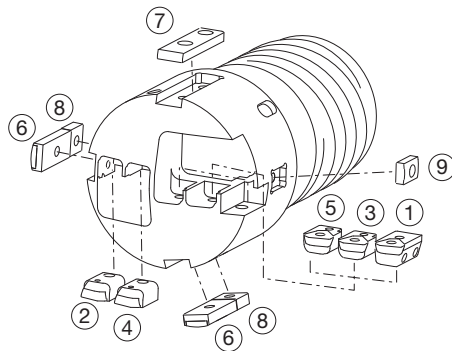
Drill heads come with cartridge, guide pad, filler, protector, sub guide pad and wrench, but do not include inserts.

SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge				
	Peripheral	Intermediate			Central
	Cartridge①	Cartridge②	Cartridge③	Cartridge④	Cartridge⑤
107.00 - 117.99	OZ402 - 43	IOZ402 - 32	IOZ402 - 32	IOZ402 - 32	IOZ402 - 43
118.00 - 135.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43
136.00 - 144.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63
145.00 - 150.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
151.00 - 156.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
157.00 - 162.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
163.00 - 168.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63

SPARE PARTS

Tool diameter DCN-DCX (mm)	Guide pad							
	Guide pad		Filler		Protector		Sub guide pad	
	⑥	Qty	⑦	Qty	⑧	Qty	⑨	Qty
107.00 - 117.99	GP18...	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1
118.00 - 135.99	GP18...	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1
136.00 - 144.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
145.00 - 150.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
151.00 - 156.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
157.00 - 162.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
163.00 - 168.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1



Part positions may vary depending on the drill size.

SCREWS, WRENCHES
(CICT = 5)

Tool diameter DCN-DCX (mm)	Insert screw									
	Peripheral		Intermediate				Central			
	Cartridge①		Cartridge②		Cartridge③		Cartridge④		Cartridge⑤	
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
107.00 - 117.99	CSTB-4M	T-15D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-4M	T-15D
118.00 - 135.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D
136.00 - 144.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D
145.00 - 150.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
151.00 - 156.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
157.00 - 162.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
163.00 - 168.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

SCREWS, WRENCHES
(CICT = 5)

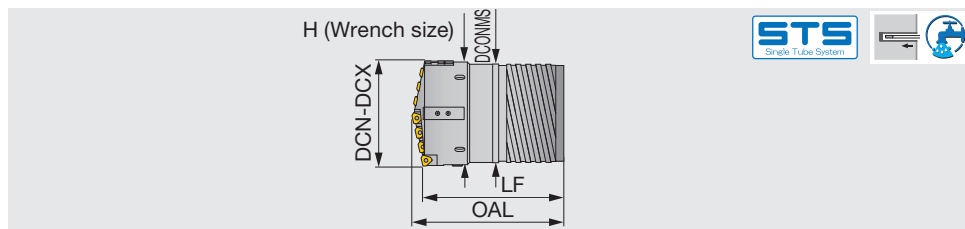
Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate		Central		Guide pad / Filler / Protector		Sub guide pad	
	Cartridge①				Cartridge②-④		Cartridge⑤					
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
107.00 - 117.99	LS1806RH	H4	AS0005-15	H2.5	CSTA-5	T-15D	LS1206	H3	LS1206S	H3	CSTA-5S	T-15D
118.00 - 135.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206	H3	LS1206SSS	H3	CSTA-5S	T-15D
136.00 - 144.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	LS1206SSS	H3	CSTA-5S	T-15D
145.00 - 150.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	LS1206SSS	H3	CSTA-5S	T-15D
151.00 - 156.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
157.00 - 162.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
163.00 - 168.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D

DEEP-LINE

ULINE-E



Indexable drill head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 169.00$ - $\varnothing 232.99$ mm, CICT = 7



Non-standard products (to be supplied on request)

When ordering

ULINEE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 185$ mm: **ULINE26E-185.00**

Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE24E-xx.xx	169.00	171.99	7	ST24	154	246	225	149	167
ULINE25E-xx.xx	172.00	183.99	7	ST25	166	247	225	161	179
ULINE26E-xx.xx	184.00	195.99	7	ST26	178	267	245	173	191
ULINE27E-xx.xx	196.00	207.99	7	ST27	190	270	245	185	203
ULINE28E-xx.xx	208.00	219.99	7	ST28	202	271	245	197	215
ULINE29E-xx.xx	220.00	231.99	7	ST29	214	293	265	208	227
ULINE30E-xx.xx	232.00	232.99	7	ST30	226	293	265	220	228

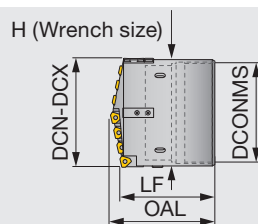
Before drilling operation, please adjust drill diameter.

DEEP-LINE



ULINE

Indexable drill head with internal single-start thread for single tube system (STS), diameters adjustable, tool diameter $\phi 169.00 - \phi 232.99$ mm, CICT = 7



Non-standard products (to be supplied on request)

When ordering

ULINE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\phi 185$ mm: **ULINE166-185.00**

Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE154-xx.xx	169.00	173.99	7	UB154	154	211	190	151	169
ULINE166-xx.xx	174.00	185.99	7	UB166	166	213	190	163	181
ULINE178-xx.xx	186.00	197.99	7	UB178	178	212	190	175	193
ULINE190-xx.xx	198.00	209.99	7	UB190	190	215	190	187	205
ULINE202-xx.xx	210.00	221.99	7	UB202	202	217	190	199	217
ULINE214-xx.xx	222.00	232.99	7	UB214	214	218	190	211	228

Before drilling operation, please adjust drill diameter.

INSERTS

Tool diameter DCN-DCX (mm)	Peripheral	Qty	Intermediate	Qty	Intermediate	Qty	Central	Qty
169.00 - 188.99	TPMX24**R...	1	TPMX24**R...	5	-		TPMX24**R...	1
189.00 - 196.99	TPMX24**R...	1	TPMX24**R...	5	-		TPMX28**R...	1
197.00 - 202.99	TPMX24**R...	1	TPMX24**R...	4	TPMX28**R...	1	TPMX28**R...	1
203.00 - 208.99	TPMX24**R...	1	TPMX24**R...	3	TPMX28**R...	2	TPMX28**R...	1
209.00 - 214.99	TPMX28**R...	1	TPMX24**R...	3	TPMX28**R...	2	TPMX28**R...	1
215.00 - 220.99	TPMX28**R...	1	TPMX24**R...	2	TPMX28**R...	3	TPMX28**R...	1
221.00 - 226.99	TPMX28**R...	1	TPMX24**R...	1	TPMX28**R...	4	TPMX28**R...	1
227.00 - 232.99	TPMX28**R...	1	TPMX28**R...	5	-		TPMX28**R...	1

⊕ **Plus:** The drill diameter can be increased by up to 5 mm by using the Plus parts. A maximum expandable diameter is determined by the peripheral cartridge size used on the drill.

Drill heads come with cartridge, guide pad, filler, protector, sub guide pad and wrench, but do not include inserts.

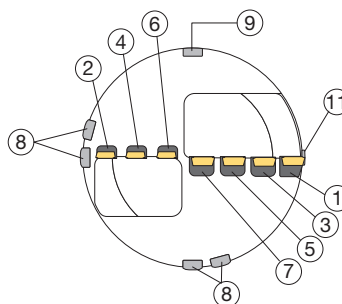
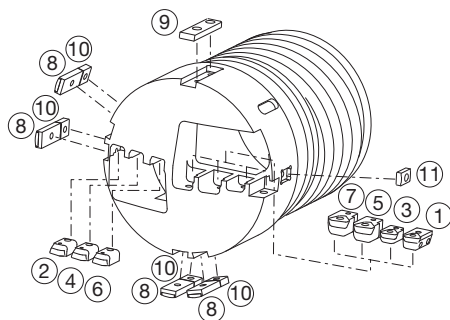
SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge						
	Peripheral	Intermediate					
	Cartridge①	Cartridge②	Cartridge③	Cartridge④	Cartridge⑤	Cartridge⑥	Cartridge⑦
169.00 - 188.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43
189.00 - 196.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63
197.00 - 202.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
203.00 - 208.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
209.00 - 214.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
215.00 - 220.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
221.00 - 226.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
227.00 - 232.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63

SPARE PARTS

Tool diameter DCN-DCX (mm)	Guide pad							
	Guide pad		Filler		Protector		Sub guide pad	
	⑧	Qty	⑨	Qty	⑩	Qty	⑪	Qty
169.00 - 188.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
189.00 - 196.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
197.00 - 202.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
203.00 - 208.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
209.00 - 214.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
215.00 - 220.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
221.00 - 226.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
227.00 - 232.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1

See page 101 on handling of filler.



Part positions may vary depending on the drill size.

SCREWS, WRENCHES
(CICT = 7)

Tool diameter DCN-DCX (mm)	Insert screw													
	Peripheral		Intermediate											
	Cartridge①		Cartridge②		Cartridge③		Cartridge④		Cartridge⑤		Cartridge⑥		Cartridge⑦	
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
169.00 - 188.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D
189.00 - 196.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D
197.00 - 202.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
203.00 - 208.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
209.00 - 214.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
215.00 - 220.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
221.00 - 226.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
227.00 - 232.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

SCREWS, WRENCHES
(CICT = 7)

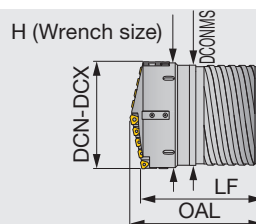
Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate				Central			
	Cartridge①				Cartridge②~⑥				Cartridge⑦			
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
169.00 - 188.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206	H3L	LS1206SSS	H3	CSTA-5S	T-15D
189.00 - 196.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206S	H3L	LS1206SSS	H3	CSTA-5S	T-15D
197.00 - 202.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206S	H3L	LS1206SSS	H3	CSTA-5S	T-15D
203.00 - 208.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206S	H3L	LS1206SSS	H3	CSTA-5S	T-15D
209.00 - 214.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
215.00 - 220.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
221.00 - 226.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
227.00 - 232.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D

DEEP-LINE

ULINE-E



Indexable drill head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 233.00$ - $\varnothing 291.99$ mm, CICT = 9



Non-standard products (to be supplied on request)

When ordering

ULINEE**

Drill head

- XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 240$ mm: **ULINE30E-240.00**

Designation	DCN	DCX	CICT	Drill tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
ULINE30E-xx.xx	233.00	243.99	9	ST30	226	294	265	220	239
ULINE31E-xx.xx	244.00	255.99	9	ST31	238	294	265	232	251
ULINE32E-xx.xx	256.00	267.99	9	ST32	250	322	290	244	263
ULINE33E-xx.xx	268.00	279.99	9	ST33	262	323	290	256	275
ULINE34E-xx.xx	280.00	291.99	9	ST34	274	325	290	268	287

Before drilling operation, please adjust drill diameter.
Larger sizes available upon request.

SPARE PARTS



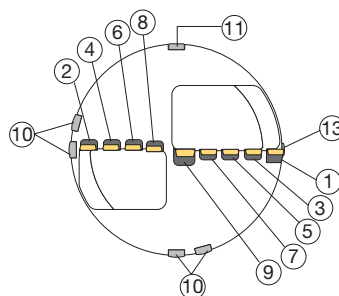
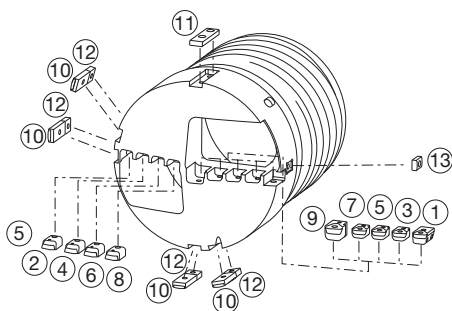
Tool diameter DCN-DCX (mm)	Cartridge							
	Peripheral	Intermediate						
	Cartridge①	Cartridge②	Cartridge③	Cartridge④	Cartridge⑤	Cartridge⑥	Cartridge⑦	Cartridge⑧
233.00 - 247.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43
248.00 - 253.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43
254.00 - 258.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43
259.00 - 264.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43
265.00 - 271.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43
272.00 - 275.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63
276.00 - 284.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
285.00 - 289.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
290.00 - 293.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63

SPARE PARTS



Tool diameter DCN-DCX (mm)	Cartridge	Guide pad							
	Central	Guide pad		Filler		Protector		Sub guide pad	
	Cartridge⑨	⑩	Qty	⑪	Qty	⑫	Qty	⑬	Qty
233.00 - 247.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
248.00 - 253.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
254.00 - 258.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
259.00 - 264.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
265.00 - 271.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
272.00 - 275.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
276.00 - 284.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
285.00 - 289.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
290.00 - 293.99	IOZ402 - 63	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1

See page 101 on handling of filler.



Part positions may vary depending on the drill size.

SCREWS, WRENCHES
(CICT = 9)


Tool diameter DCN-DCX (mm)	Insert screw																			
	Peripheral		Intermediate																Central	
			Cartridge①		Cartridge②		Cartridge③		Cartridge④		Cartridge⑤		Cartridge⑥		Cartridge⑦		Cartridge⑧			
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
233.00 - 247.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D
248.00 - 253.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D
254.00 - 258.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
259.00 - 264.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
265.00 - 271.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D
272.00 - 275.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D
276.00 - 284.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
285.00 - 289.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
290.00 - 293.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

SCREWS, WRENCHES
(CICT = 9)


Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate		Central		Guide pad / Filler / Protector			
	Cartridge①				Cartridge②-⑧		Cartridge⑨		Screw		Wrench	
233.00 - 247.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206S	H3L	LS1206SSS	H3	CSTA-5S	T-15D
248.00 - 253.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
254.00 - 258.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
259.00 - 264.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
265.00 - 271.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
272.00 - 275.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
276.00 - 284.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
285.00 - 289.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
290.00 - 293.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D

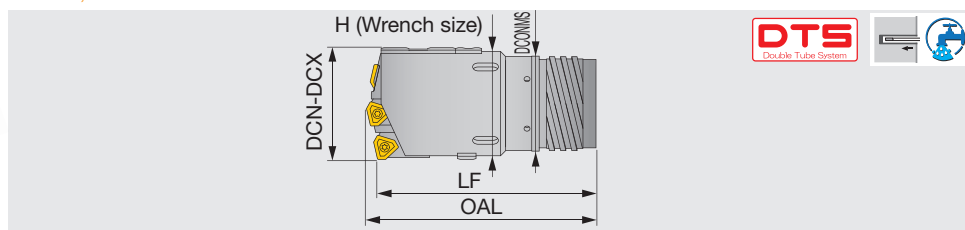
Recommended clamping torque:

DEEP-LINE



UDLINE-E

Indexable drill head with external 4-start thread for double tube system (DTS), diameters adjustable, tool diameter $\varnothing 38.00 - \varnothing 106.99$ mm, CICT = 3



Non-standard products (to be supplied on request)

When ordering

UDLINE**

Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 60$ mm: **UDLINE13E-60.00**

Designation	DCN	DCX	CICT	Outer tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
UDLINE08E-xx.xx	38.00	39.60	3	OT08	35.5	90	85	33	37
UDLINE09E-xx.xx	39.61	43.00	3	OT09	39	91	85	36	40
UDLINE10E-xx.xx	43.01	47.00	3	OT10	42.5	101	95	39	43
UDLINE11E-xx.xx	47.01	51.70	3	OT11	46.5	102	100	43	48
UDLINE12E-xx.xx	51.71	56.20	3	OT12	51	107	100	47	52
UDLINE13E-xx.xx	56.21	65.00	3	OT13	55.5	119	110	51	61
UDLINE14E-xx.xx	65.00	66.99	3	OT14	56	159	150	52	63
UDLINE15E-xx.xx	67.00	72.99	3	OT15	62	159	150	58	69
UDLINE16E-xx.xx	73.00	79.99	3	OT16	68	160	150	63	76
UDLINE17E-xx.xx	80.00	86.99	3	OT17	75	191	180	70	83
UDLINE18E-xx.xx	87.00	99.99	3	OT18	82	193	180	77	96
UDLINE19E-xx.xx	100.00	106.99	3	OT19	94	193	180	89	102

For drill heads in diameters of $\varnothing 92$ mm or larger, a filler is attached in place of guide pad.
Before drilling operation, please adjust drill diameter.

INSERTS

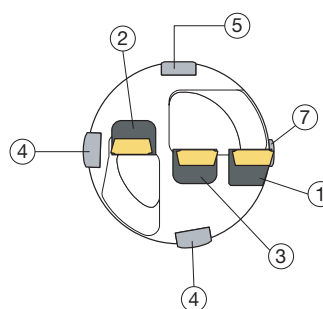
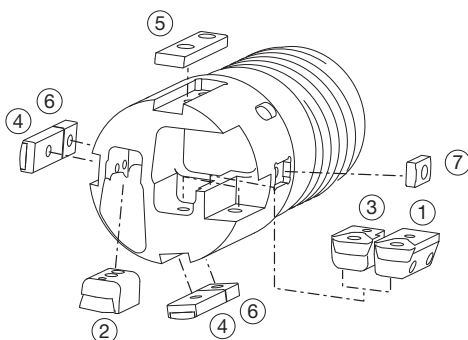
Tool diameter DCN-DCX (mm)	Peripheral insert	Qty	Intermediate insert	Qty	Central insert	Qty
38 - 39.99	NPMX08**R...	1	NPMX08**R...	1	NPMX08**R...	1
40 - 44.99	TPMX14**R...	1	NPMX08**R...	1	NPMX08**R...	1
45 - 47.99	TPMX14**R...	1	NPMX08**R...	1	TPMX14**R...	1
48 - 51.99	TPMX14**R...	1	TPMX14**R...	1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

⊕ **Plus:** The drill diameter can be increased by up to 5 mm by using the Plus parts. A maximum expandable diameter is determined by the peripheral cartridge size used on the drill.

Drill heads come with cartridge, guide pad, filler, protector, sub guide pad and wrench, but do not include inserts.

SPARE PARTS

Tool diameter DCN-DCX (mm)	Cartridge			Guide pad		Guide pad		Guide pad		Guide pad	
	Peripheral	Intermediate	Central	Guide pad		Filler		Protector		Sub guide pad	
	Cartridge①	Cartridge②	Cartridge ③	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



Part positions may vary depending on the drill size.

SCREWS, WRENCHES
(CICT = 3)

Tool diameter DCN-DCX (mm)	Insert screw					
	Peripheral		Intermediate		Central	
	Cartridge①		Cartridge②		Cartridge③	
	Screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	CSTB-2.2	T-7D	CSTB-2.2	T-7D	CSTB-2.2	T-7D
40 - 44.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.2	T-7D
45 - 47.99	CSTB-2.5	T-8D	CSTB-2.2	T-7D	CSTB-2.5	T-8D
48 - 51.99	CSTB-2.5	T-8D	CSTB-2.5	T-8D	CSTB-2.5	T-8D
52 - 54.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-2.5	T-8D
55 - 57.99	CSTB-3.5D	T-9D	CSTB-2.5	T-8D	CSTB-3.5D	T-9D
58 - 59.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
60 - 63.99	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
64 - 67.99	CSTB-4M	T-15D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D
68 - 77.99	CSTB-3.5D	T-9D	CSTB-4M	T-15D	CSTB-4M	T-15D
78 - 84.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D
85 - 91.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-4M	T-15D
92 - 98.99	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D
99 - 106.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

SCREWS, WRENCHES
(CICT = 3)

Tool diameter DCN-DCX (mm)	Cartridge screw						Guide pad screw					
	Peripheral		Intermediate		Central		Guide pad / Filler / Protector		Sub guide pad			
	Cartridge①		Cartridge②		Cartridge③							
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
38 - 39.99	LS1803RH	H2	AS0003-5	H1.5	CSTB-3	T-9D	CSTB-3	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
40 - 44.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3	T-9D	CSTB-3S	T-9D	CSTB-3S	T-9D
45 - 47.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3	T-9D	CSTB-3.5	T-9D	CSTB-4S	T-15D	CSTB-3S	T-9D
48 - 51.99	LS1803.5RH	H2.5	AS0004-8	H2	CSTB-3.5	T-15D	CSTB-3.5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
52 - 54.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTB-3.5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
55 - 57.99	LS1805RH	H3	AS0005-10	H2.5	CSTB-3.5	T-15D	CSTA-5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
58 - 59.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTB-4S	T-15D	CSTB-3S	T-9D
60 - 63.99	LS1805RH	H3	AS0005-10	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
64 - 67.99	LS1806RH	H4	AS0005-15	H2.5	CSTA-5	T-15D	CSTA-5	T-15D	CSTA-5S	T-15D	CSTB-3S	T-9D
68 - 77.99	LS1805RH	H3	AS0005-10	H2.5	LS1206	H3	LS1206	H3	CSTA-5SS	T-15D	CSTB-3S	T-9D
78 - 84.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206	H3	CSTA-5S	T-15D	CSTB-3S	T-9D
85 - 91.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206	H3	CSTA-5S	T-15D	CSTB-3S	T-9D
92 - 98.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	CSTA-5SS	T-15D	CSTB-3S	T-9D
99 - 106.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3	LS1206S	H3	LS1206S	H3	CSTA-5S	T-15D

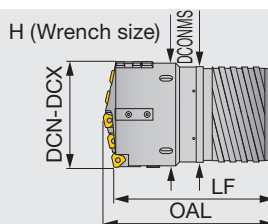
Recommended clamping torque:

DEEP-LINE

UDLINE-E



Indexable drill head with external 4-start thread for double tube system (DTS), diameters adjustable, tool diameter $\varnothing 107.00$ - $\varnothing 168.99$ mm, CICT = 5



Non-standard products (to be supplied on request)

When ordering

UDLINE**

Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 150$ mm: **UDLINE23E-150.00**

Designation	DCN	DCX	CICT	Outer tube		OAL	Drill head		
				Designation	Dia. (mm)		LF	DCONMS	H
UDLINE19E-xx.xx	107.00	111.99	5	OT19	94	197	180	89	107
UDLINE20E-xx.xx	112.00	123.99	5	OT20	106	221	205	101	119
UDLINE21E-xx.xx	124.00	135.99	5	OT21	118	222	205	113	131
UDLINE22E-xx.xx	136.00	147.99	5	OT22	130	223	205	125	143
UDLINE23E-xx.xx	148.00	159.99	5	OT23	142	245	225	137	155
UDLINE24E-xx.xx	160.00	168.99	5	OT24	154	246	225	149	164

Before drilling operation, please adjust drill diameter.

INSERTS

Tool diameter DCN-DCX (mm)	Peripheral	Qty	Intermediate	Qty	Intermediate	Qty	Central	Qty
107.00 - 117.99	TPMX24**R...	1	TPMX17**R...	3	-	-	TPMX24**R...	1
118.00 - 135.99	TPMX24**R...	1	TPMX24**R...	3	-	-	TPMX24**R...	1
136.00 - 144.99	TPMX24**R...	1	TPMX24**R...	3	-	-	TPMX28**R...	1
145.00 - 150.99	TPMX24**R...	1	TPMX24**R...	2	TPMX28**R...	1	TPMX28**R...	1
151.00 - 156.99	TPMX28**R...	1	TPMX24**R...	2	TPMX28**R...	1	TPMX28**R...	1
157.00 - 162.99	TPMX28**R...	1	TPMX24**R...	1	TPMX28**R...	2	TPMX28**R...	1
163.00 - 168.99	TPMX28**R...	1	TPMX28**R...	3	-	-	TPMX28**R...	1

⊕ **Plus:** The drill diameter can be increased by up to 5 mm by using the Plus parts. A maximum expandable diameter is determined by the peripheral cartridge size used on the drill.

Drill heads come with cartridge, guide pad, filler, protector, sub guide pad and wrench, but do not include inserts.

SPARE PARTS

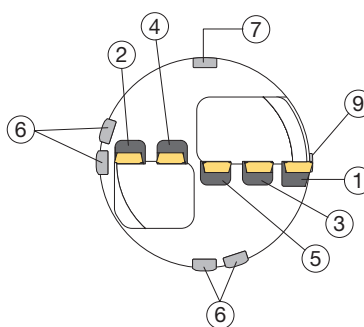
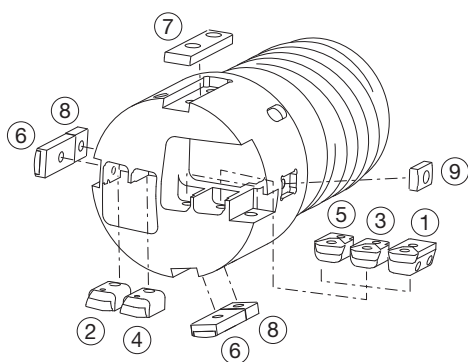


Tool diameter DCN-DCX (mm)	Cartridge				
	Peripheral	Intermediate			Central
	Cartridge①	Cartridge②	Cartridge③	Cartridge④	Cartridge⑤
107.00 - 117.99	OZ402 - 43	IOZ402 - 32	IOZ402 - 32	IOZ402 - 32	IOZ402 - 43
118.00 - 135.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43
136.00 - 144.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 63
145.00 - 150.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
151.00 - 156.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 43	IOZ402 - 63
157.00 - 162.99	OZ402 - 63	IOZ402 - 43	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63
163.00 - 168.99	OZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63	IOZ402 - 63

SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad							
	Guide pad		Filler		Protector		Sub guide pad	
	⑥	Qty	⑦	Qty	⑧	Qty	⑨	Qty
107.00 - 117.99	GP18...	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1
118.00 - 135.99	GP18...	2	FL18 - M	1	GPT18 - M	2	CUG14 - M	1
136.00 - 144.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
145.00 - 150.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
151.00 - 156.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
157.00 - 162.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1
163.00 - 168.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1



Part positions may vary depending on the drill size.

SCREWS, WRENCHES
(CICT = 5)


Tool diameter DCN-DCX (mm)	Insert screw									
	Peripheral		Intermediate				Central			
	Cartridge①		Cartridge②		Cartridge③		Cartridge④		Cartridge⑤	
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
107.00 - 117.99	CSTB-4M	T-15D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-3.5D	T-9D	CSTB-4M	T-15D
118.00 - 135.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D
136.00 - 144.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D
145.00 - 150.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
151.00 - 156.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D
157.00 - 162.99	CSTB-5	T-20D	CSTB-4M	T-15D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D
163.00 - 168.99	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D	CSTB-5	T-20D

SCREWS, WRENCHES
(CICT = 5)

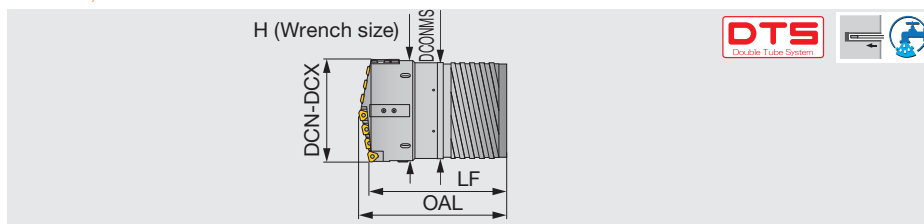

Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate		Central		Guide pad / Filler / Protector		Sub guide pad	
	Cartridge①				Cartridge②-④		Cartridge⑤					
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
107.00 - 117.99	LS1806RH	H4	AS0005-15	H2.5	CSTA-5	T-15D	LS1206	H3	LS1206S	H3	CSTA-5S	T-15D
118.00 - 135.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206	H3	LS1206SSS	H3	CSTA-5S	T-15D
136.00 - 144.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	LS1206SSS	H3	CSTA-5S	T-15D
145.00 - 150.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3	LS1206S	H3	LS1206SSS	H3	CSTA-5S	T-15D
151.00 - 156.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
157.00 - 162.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D
163.00 - 168.99	LS1806RH	H4	AS0006-15	H3	LS1206	H3L	LS1206S	H3L	LS1206S	H3	CSTA-5S	T-15D

DEEP-LINE



UDLINE-E

Indexable drill head with external 4-start thread for double tube system (DTS), diameters adjustable, tool diameter $\varnothing 169.00 - \varnothing 183.99$ mm, CICT = 7



Non-standard products (to be supplied on request)

When ordering

UDLINE**

Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 170$ mm: UDLINE24E-170.00

Designation	DCN	DCX	CICT	Outer tube		Drill head		
				Designation	Dia. (mm)	OAL	LF	DCONMS
UDLINE24E-xx.xx	169.00	171.99	7	OT24	154	246	225	149
UDLINE25E-xx.xx	172.00	183.99	7	OT25	166	247	225	161

Before drilling operation, please adjust drill diameter.

INSERTS

Tool diameter DCN-DCX (mm)	Peripheral insert	Qty	Intermediate insert	Qty	Central insert	Qty
169.00 - 183.99	TPMX24**R...	1	TPMX24**R...	5	TPMX24**R...	1

⊕ **Plus:** The drill diameter can be increased by up to 5 mm by using the Plus parts. A maximum expandable diameter is determined by the peripheral cartridge size used on the drill. Drill heads come with cartridge, guide pad, filler, protector, sub guide pad and wrench, but do not include inserts.

SPARE PARTS

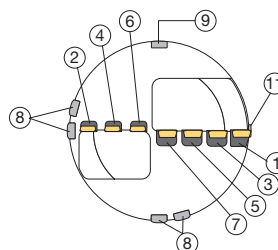
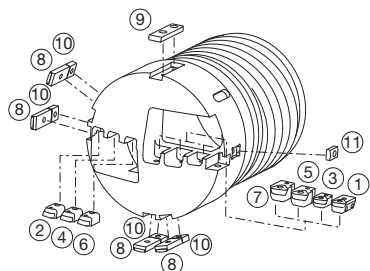


Tool diameter DCN-DCX (mm)	Cartridge						
	Peripheral		Intermediate				Central
	Cartridge①	Cartridge②	Cartridge③	Cartridge④	Cartridge⑤	Cartridge⑥	Cartridge⑦
169.00 - 183.99	OZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43	IOZ402 - 43

SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad							
	Guide pad		Filler		Protector		Sub guide pad	
	⑧	Qty	⑨	Qty	⑩	Qty	⑪	Qty
169.00 - 183.99	GP18...	4	FL18 - M	1	GPT18 - M	4	CUG14 - M	1



Part positions may vary depending on the drill size.

SCREWS, WRENCHES (CICT = 7)

Tool diameter DCN-DCX (mm)	Insert screw													
	Peripheral		Intermediate										Central	
	Cartridge①		Cartridge②		Cartridge③		Cartridge④		Cartridge⑤		Cartridge⑥		Cartridge⑦	
	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
169.00 - 183.99	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D	CSTB-4M	T-15D

SCREWS, WRENCHES (CICT = 7)



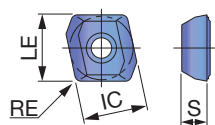
Tool diameter DCN-DCX (mm)	Cartridge screw								Guide pad screw			
	Peripheral				Intermediate				Guide pad / Filler / Protector		Sub guide pad	
	Screw	Wrench	Adj. screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench	Screw	Wrench
169.00 - 183.99	LS1806RH	H4	AS0005-15	H2.5	LS1206	H3L	LS1206	H3L	LS1206SSS	H3	CSTA-5S	T-15D

INSERT

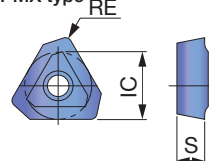
NPMX R-G, TPMX R-G(for general purpose)



NPMX type



TPMX type



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

★ : First choice
☆ : Second choice

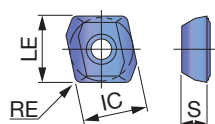
Designation	IC	S	Coated		RE	LE
			UT927	UT923		
NPMX080308R-G	8	3.18	●	●	0.8	8.362
TPMX140308R-G	8.45	3.5	●	●	0.8	-
TPMX170408R-G	10.3	4	●	●	0.8	-
TPMX240512R-G	14.2	5.5	●	●	1.2	-
TPMX280716R-G	17	7.5	●	●	1.6	-

● : New
● : Line up

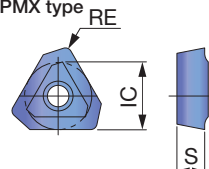
NPMX R-B, TPMX R-B(Provides good chip control in heat-resistant alloys)



NPMX type



TPMX type



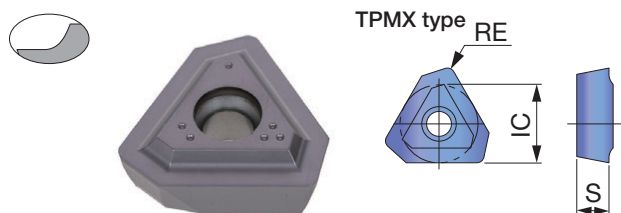
P	Steel	★	☆	
M	Stainless	★	☆	
K	Cast iron	★	☆	
N	Non-ferrous	★	☆	
S	Superalloys	☆	★	
H	Hard materials	☆	★	

★ : First choice
☆ : Second choice

Designation	IC	S	Coated		RE	LE
			UT923	UT927		
NPMX080304R-B	8	3.18	●	●	0.4	8.362
TPMX140304R-B	8.45	3.5	●	●	0.4	-
TPMX140308R-B	8.45	3.5	●	●	0.8	-
TPMX170404R-B	10.3	4	●	●	0.4	-
TPMX170408R-B	10.3	4	●	●	0.8	-
TPMX240504R-B	14.2	5.5	●	●	0.4	-
TPMX240512R-B	14.2	5.5	●	●	1.2	-
TPMX280708R-B	17	7.5	●	●	0.8	-
TPMX280716R-B	17	7.5	●	●	1.6	-

● : New
● : Line up

TPMX R-BG(Provides good chip control in long-chipping steels)



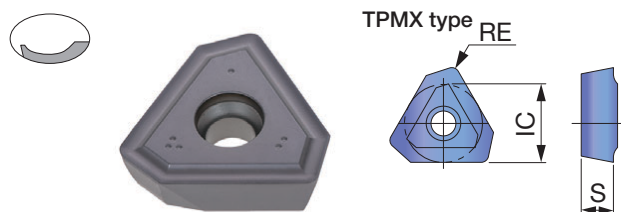
P	Steel	★	☆			
M	Stainless	★	☆			
K	Cast iron	★	☆			
N	Non-ferrous	★	☆			
S	Superalloys	☆	★			
H	Hard materials	☆	★			

★ : First choice
☆ : Second choice

Designation	IC	S	Coated								RE	LE
			UT923	UT927								
TPMX170408R-BG	10.3	4	●	●							0.8	-
TPMX240512R-BG	14.2	5.5	●	●							1.2	-
TPMX280716R-BG	17	7.5	●	●							1.6	-

●: New
●: Line up

TPMX R-DT(Reduced cutting force)



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

★ : First choice
☆ : Second choice

Designation	IC	S	Coated								RE	LE
			UT923									
TPMX140308R-DT	8.45	3.5	●								0.8	-
TPMX170408R-DT	10.3	4	●								0.8	-
TPMX240512R-DT	14.2	5.5	●								1.2	-
TPMX280716R-DT	17	7.5	●								1.6	-

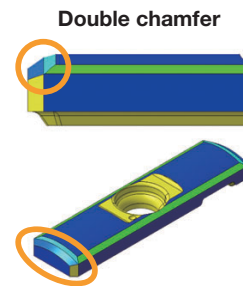
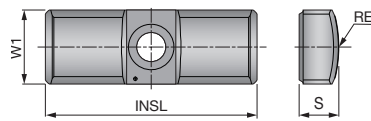
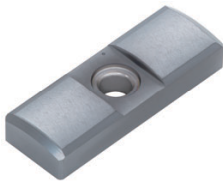
●: New
●: Line up

RECOMMENDED INSERT

ISO	Workpiece material	Hardness	First choice	Troubleshooting	
				Chipping resistance	Wear resistance
P	Low carbon steels (C ≤ 0.3%)	- 200 HB	G, UT923	B, AUT923	G, T9225
	Carbon steels (C > 0.3%) Alloy steels	- 300 HB	G, UT923	G, UT923	G, T9225
	Low alloy steels	- 300 HB	G, UT923	B, UT923	G, T9225
	Alloy steels	- 300 HB	G, UT923	G, UT923	G, T9225
M	Stainless steel	- 200 HB	G, UT923	B, UT923	G, T9225
K	Grey cast irons	150 - 250 HB	G, UT923	G, UT923	G, T9225
	Ductile cast irons	150 - 250 HB	G, UT923	G, UT923	G, T9225
N	Aluminium alloy	-	G, UT923	G, UT923	G, T9225
S	Titanium alloys Heat-resistant alloys	- 40 HRC	B, UT927	B, UT923	G, T9225
H	Hardened steel	- 50 HRC	B, UT927	B, UT923	G, T9225

GUIDE PAD

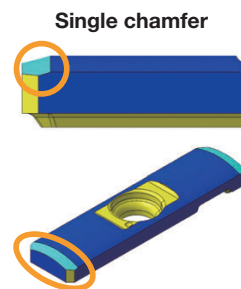
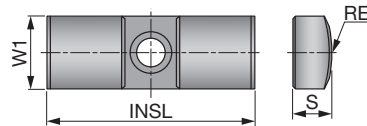
GP-DC



Designation	W1	INSL	Coated								S	RE	DCN	DCX
			UT925	UT925										
GP08-25-155-DC	8	25	●	●							4.5	15.5	38	44.99
GP10-35-200-DC	10	35	●	●							6	20	45	59.99
GP14-40-250-DC	14	40	●	●							7.5	25	60	98.99
GP18-40-300-DC	18	40	●	●							9	30	99	293.99

●: Line up
Package quantity = 5 pcs.

GP



Designation	W1	INSL	Coated								S	RE	DCN	DCX
GP08	8	25									4.5	15.5	38	44.99
GP10	10	35									6	20	45	59.99
GP14	14	40									7.5	25	60	98.99

●: Line up
Package quantity = 5 pcs.

Grade recommendations

ISO	Oil coolant			Water based coolant		
	First choice	Second choice	Third choice	First choice	Second choice	Third choice
P	UT925	-	UT923	UT923	UT925	-
M	UT923	UT925	UT925	UT923	UT925	-
K	UT925	-	UT923	UT923	UT925	-
N	UT925	-	UT923	UT923	UT925	-
S	UT923	UT925	-	UT923	UT925	-
H	UT923	UT925	-	UT923	UT925	-

STANDARD CUTTING CONDITIONS

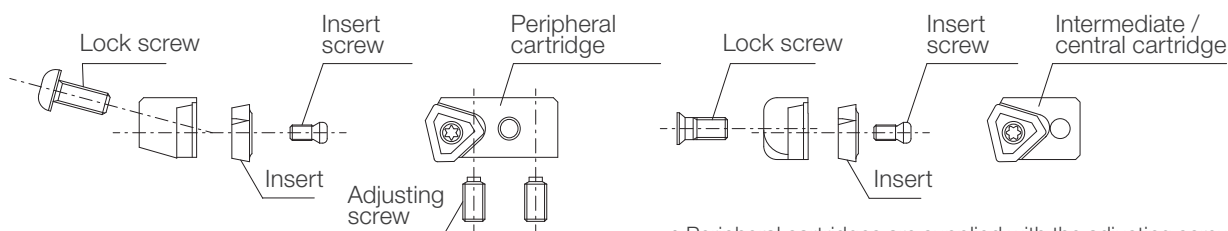
ISO	Workpiece materials	Cutting speed Vc (m/min)	Feed: f (mm/rev)				
			ø38.00 - ø39.99	ø40.00 - ø51.99	ø52.00 - ø63.99	ø64.00 - ø84.99	ø85 -
P	Low carbon steel (C < 0.3) SS400, SM490, S25C, etc. St42-1, St52-3, C25, etc.	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Carbon steel (C > 0.3) S45C, S55C, etc. C45, C55, etc.	60 - 120	0.1 - 0.2	0.15 - 0.25	0.18 - 0.28	0.2 - 0.3	0.2 - 0.35
	Low alloy steel (C < 0.3) SCM415, etc. 18CrMo4, etc.	60 - 120	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Alloy steel (C > 0.3) SCM440, SCr420, etc. 42CrMo4, 20Cr4, etc.	60 - 100	0.1 - 0.2	0.15 - 0.25	0.18 - 0.28	0.2 - 0.3	0.2 - 0.35
M	Stainless steel (Austenitic) SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Stainless steel (Martensitic, Ferritic) SUS430, SUS416, etc. X6Cr17, X12CrS13, etc.	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
	Stainless steel (Precipitation hardening) SUS630, etc. X5CrNiCuNb16-4, etc.	60 - 110	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
K	Grey cast iron FC250, etc. 250, etc.	80 - 140	0.2 - 0.3	0.2 - 0.3	0.24 - 0.32	0.24 - 0.32	0.25 - 0.4
	Ductile cast iron FCD700, etc. 700-2, etc.	80 - 140	0.2 - 0.3	0.2 - 0.3	0.24 - 0.32	0.24 - 0.32	0.25 - 0.4
N	Aluminium alloys	100 - 200	0.08 - 0.2	0.1 - 0.25	0.13 - 0.28	0.15 - 0.3	0.18 - 0.33
S	Heat-resistant alloys Inconel 718, etc.	20 - 50	0.06 - 0.13	0.08 - 0.18	0.13 - 0.23	0.13 - 0.23	0.15 - 0.28
	Titanium alloys Ti-6Al-4V, etc.	30 - 60	0.08 - 0.15	0.1 - 0.2	0.13 - 0.23	0.15 - 0.25	0.18 - 0.3
H	Hardened steel ≥ 40HRC	30 - 80	0.06 - 0.13	0.08 - 0.18	0.13 - 0.23	0.13 - 0.23	0.15 - 0.28

Cutting parameters shown here are relating to the basic recommendations for cutting materials given.

Cutting conditions, material hardness and other relevant variables must be taken into considerations to determine the actual cutting parameters.

Replacement parts

Cartridges and inserts



- Peripheral cartridges are supplied with the adjusting screws and insert screw (inserts, lock screw and wrenches are not included)
- Central and intermediate cartridges are supplied with insert screw (inserts, lock screw and wrenches are not included)

Peripheral inserts and accessories

Cartridge	Insert	Insert screw	Wrench	Adjusting screw	Wrench	Lock screw	Wrench
OZ05R	NPMX080308R-G	CSTB-2.2	T-7D	AS0003-5	H1.5	LS1803RH	H2
OZ402-04	TPMX140308R-G	CSTB-2.5	T-8D	AS0004-8	H2	LS1803.5RH	H2.5
OZ402-32	TPMX170408R-G	CSTB-3.5D	T-9D	AS0005-10	H2.5	LS1805RH	H3
OZ402-43	TPMX240512R-G	CSTB-4M	T-15D	AS0005-15	H2.5	LS1806RH	H4
OZ402-63	TPMX280716R-G	CSTB-5	T-20D	AS0006-15	H3	LS1806RH	H4

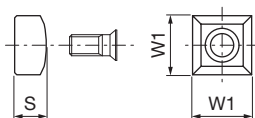
Central and intermediate inserts and accessories

Cartridge	Insert	Insert screw	Wrench	Lock screw	Wrench
IOZ05R	NPMX080308R-G	CSTB-2.2	T-7D	CSTB-3	T-9D
IOZ402-04	TPMX140308R-G	CSTB-2.5	T-8D	CSTB-3.5	T-15D
IOZ402-32	TPMX170408R-G	CSTB-3.5D	T-9D	CSTA-5	T-15D
IOZ402-43	TPMX240512R-G	CSTB-4M	T-15D	LS1206	H3 / H3L**
IOZ402-63	TPMX280716R-G	CSTB-5	T-20D	LS1206 / LS1206S*	H3 / H3L**

*LS1206S for central cartridge

**H3L for $\phi 151.00$ mm - $\phi 320.00$ mm

Guide pads and protectors



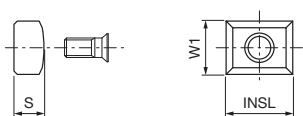
Guide pad	Lock screw	Wrench	Protector	Dimensions (mm)		Lock screw	Wrench
				W1	S		
GP08	CSTB-3S	T-9D	GPT08	8	4.5	CSTB-3S	T-9D
GP08-25-155-DC	CSTB-3S	T-9D	GPT08	8	4.5	CSTB-3S	T-9D
GP10	CSTB-4S	T-15D	GPT10	10	6	CSTB-4S	T-15D
GP10-35-200-DC	CSTB-4S	T-15D	GPT10	10	6	CSTB-4S	T-15D
GP14	CSTA-5S	T-15D	GPT14	14	7.5	CSTA-5S	T-15D
GP14-40-250-DC	CSTA-5S	T-15D	GPT14	14	7.5	CSTA-5S	T-15D
GP18-40-300-DC	LS1206S / LS1206SSS ***	H3	GPT18-M	18	9	LS1206S	H3

***LS1206SSS for dimensional guide pad

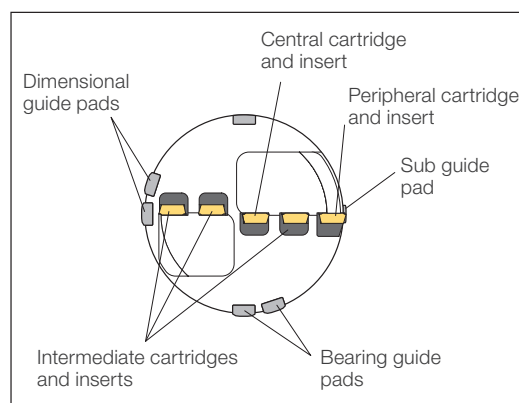
(for diameter $\phi 118.00$ - $\phi 150.99$, $\phi 169.00$ - $\phi 208.99$ and $\phi 233.00$ - $\phi 247.99$ mm)

Replacement parts

Sub guide pad

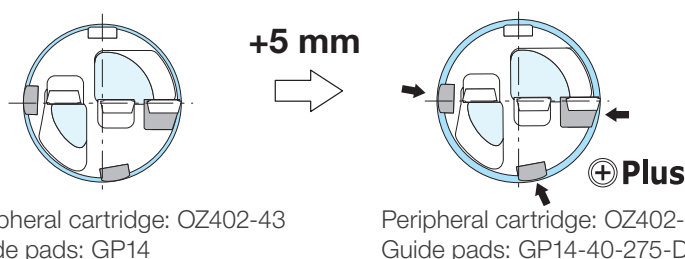


Guide pad	Dimensions (mm)			Lock screw	Wrench
	W1	S	INSL		
CUG08	8	4.5	10	CSTB-3S	T-9D
CUG10	10	5	10	CSTB-3S	T-9D
CUG14-M	14	7	20	CSTA-5S	T-15D



Plus parts

The use of the Plus parts allows the drill diameter to increase by up to 5 mm, in 1 mm increments. The diameter is increased by replacing the peripheral cartridges.
Ex. The drill head diameter with OZ402-32 peripheral cartridge can be increased by up to 4 mm, while the drill head diameter with OZ402-43 can be increased by up to 5 mm.



Note:
When the peripheral cartridge is changed, the guide pads must also be changed to the matching Plus parts.

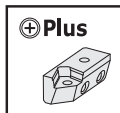
Plus cartridge - OZ type



	+1 mm	+2 mm	+3 mm	+4 mm	+5 mm
OZ05R	OZ05R+1 ●	OZ05R+2 ●	-	-	-
OZ402-04	OZ402-04+1 ●	OZ402-04+2 ●	OZ402-04+3 ●	-	-
OZ402-32	OZ402-32+1 ●	OZ402-32+2 ●	OZ402-32+3 ●	OZ402-32+4 ●	-
OZ402-43	OZ402-43+1 ●	OZ402-43+2 ●	OZ402-43+3 ●	OZ402-43+4 ●	OZ402-43+5 ●
OZ402-63	OZ402-63+1 ●	OZ402-63+2 ●	OZ402-63+3 ●	OZ402-63+4 ●	OZ402-63+5 ●

Ordering example: OZ402-04+2, 10 pcs

Plus cartridge - OX type



	+1 mm	+2 mm	+3 mm	+4 mm	+5 mm
OX04R	OX04R+1 ○	OX04R+2 ○	OX04R+3 ○	-	-
OX32R	OX32R+1 ○	OX32R+2 ○	OX32R+3 ○	OX32R+4 ○	-
OX43R	OX43R+1 ○	OX43R+2 ○	OX43R+3 ○	OX43R+4 ○	OX43R+5 ○
OX63R	OX63R+1 ○	OX63R+2 ○	OX63R+3 ○	OX63R+4 ○	OX63R+5 ○

Ordering example: OX32R+2, 10 pcs

Use OX cartridges when using the UNIDEX series for boring operations. OX has a smaller entry angel than OZ, allowing better hole quality. OX and OZ can be mounted in the same pocket for the peripheral cartridge.

Plus guide pad



	+1 mm	Grade FH3125	+2 mm	Grade FH3125	+3 mm	Grade FH3125	+4 mm	Grade FH3125	+5 mm	Grade FH3125
GP08	GP08-25-160-DC+1 ●		GP08-25-165-DC+2 ●		GP08-25-170-DC+3 ●		-		-	
GP10	GP10-35-205-DC+1 ●		GP10-35-210-DC+2 ●		GP10-35-215-DC+3 ●		GP10-35-220-DC+4 ●		-	
GP14	GP14-40-255-DC+1 ●		GP14-40-260-DC+2 ●		GP14-40-265-DC+3 ●		GP14-40-270-DC+4 ●		GP14-40-275-DC+5 ●	
GP18	GP18-40-305-DC+1 ●		GP18-40-310-DC+2 ●		GP18-40-315-DC+3 ●		GP18-40-320-DC+4 ●		GP18-40-325-DC+5 ●	

Ordering example: GP08-25-165-DC+2 FH3125, 10 pcs

● : New
● : Line up
○ : To be supplied on request

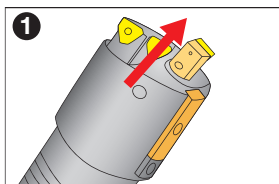
Drill diameter calibration

Please note that inserts must be ordered separately as they are not included in the UNIDEX tool. To achieve successful drilling with UNIDEX deep hole drill, it is critical to set and maintain adequate clearance between the tool diameter and guide pad diameter. After installing inserts, make sure to properly calibrate the tool diameter by following the steps outlined below.

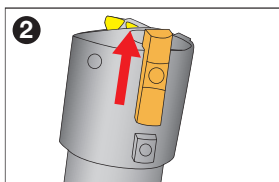
Always proceed with the same calibration procedures when the inserts are indexed or exchanged. This is especially important when using inserts from a new batch as they may greatly deviate the tool diameter.



⚠ Poor hole precision, abnormal wear of inserts or guide pads, or serious tool damage may occur if the insert and guide pad diameters are not properly calibrated.



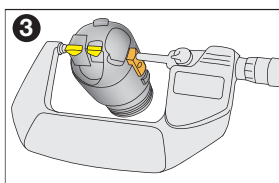
- 1** Remove the intermediate cartridge to avoid interference with the guide screw.



- 2** Move the dimensional guide pad to the measuring position parallel to the peripheral insert.

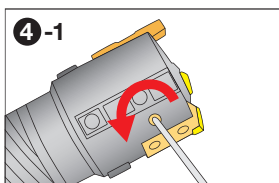
2-1 Unscrew the lock screw of the dimensional guide pad and slide the dimensional guide pad to the measuring position.

2-2 Tighten the lock screw to fix the guide pad.



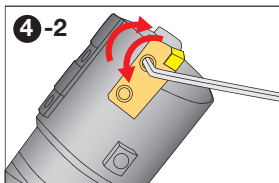
- 3** Measure the diameter with a micrometer.
Use an h8 tolerance for the tool diameter unless otherwise required.

If the diameter at this point is out of tolerance, go to Step **4**.
If the diameter at this point is in tolerance, go to Step **5**.

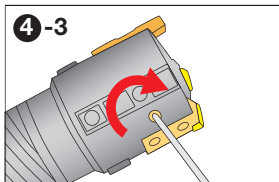


- 4** Adjust the peripheral cartridge

4-1 First loosen the lock screw of the peripheral cartridge and then slightly re-tighten the lock screw.



4-2 Adjust the cartridge by loosening or tightening the two adjusting screws on the cartridge and measure the diameter using a micrometer. Repeat steps until the required diameter is attained.

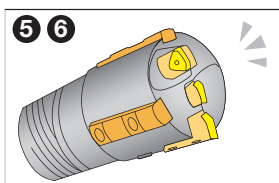


4-3 After attaining the required diameter, securely tighten the lock screw to fix the cartridge.

4-4 Measure the diameter with a micrometer to assure that the required diameter is attained. If not attained, start from Step **4-1**.



Make sure that the two adjusting screws on the peripheral cartridge are tightened. If the tool is used with either of the screws left loosened, the cartridge will move during machining due to cutting forces and may cause damage.



- 5** Return the dimensional guide pad to the original position and tighten the lock screw.

- 6** Replace the intermediate cartridge to the original position and tighten the lock screw.



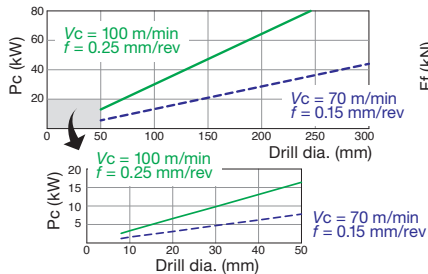
Whenever inserts are indexed or exchanged, always make sure that all the screws on the drill are securely tightened. If chatter occurred during machining, it may cause the screws to be loosened.

Technical guide

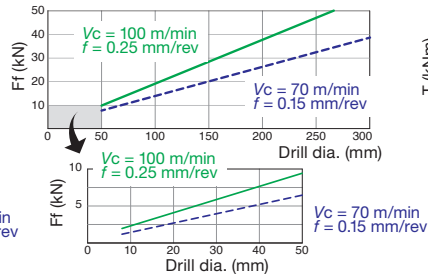
Setting guidelines for cutting loads, fluid pressure and flow rate during STS operation



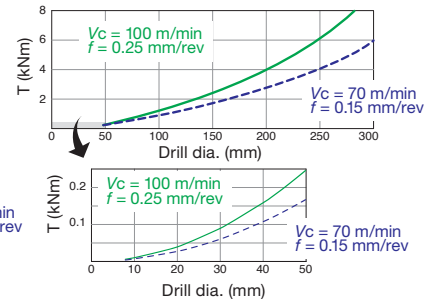
Net power



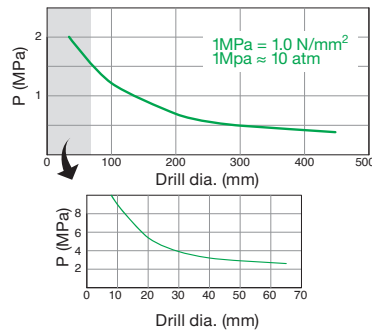
Feed force



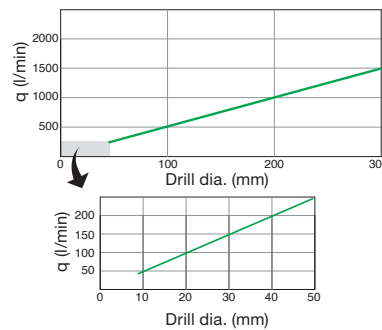
Torque



Coolant pressure



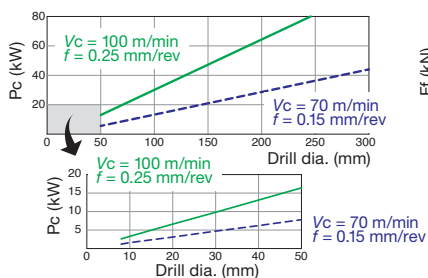
Coolant volume



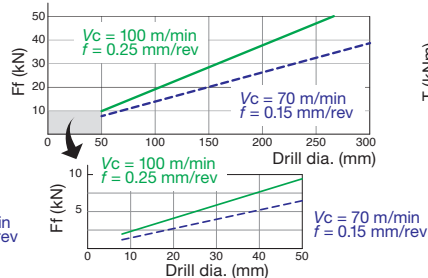
Setting guidelines for cutting loads, fluid pressure and flow rate during DTS operation



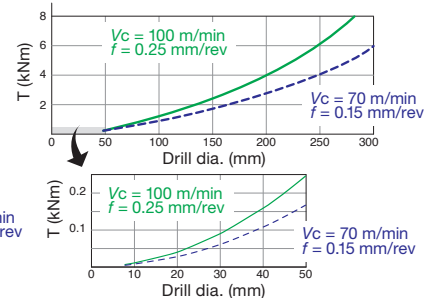
Net power



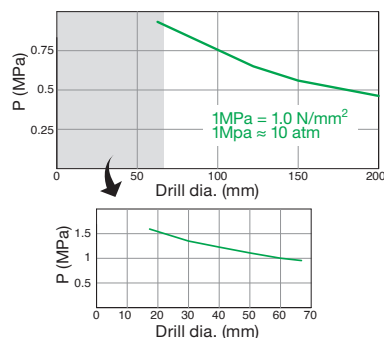
Feed force



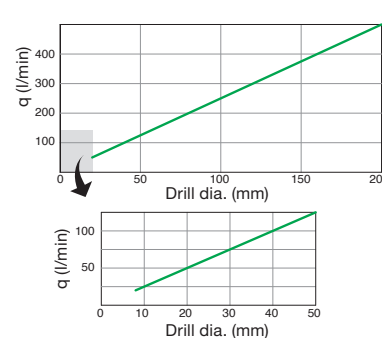
Torque



Coolant pressure



Coolant volume



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

Counterboring

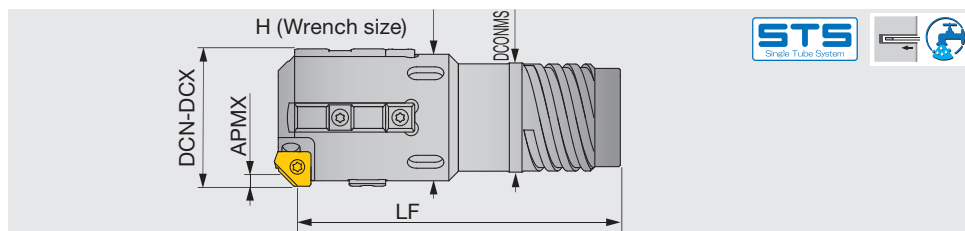


COUNTERBORING HEAD



CBSTS-E

Counterboring head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 25.00$ - $\varnothing 39.99$ mm



Non-standard products (to be supplied on request)

When ordering

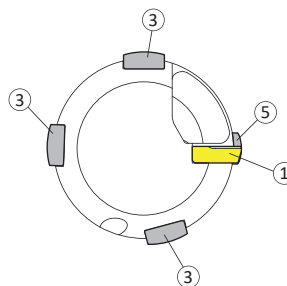
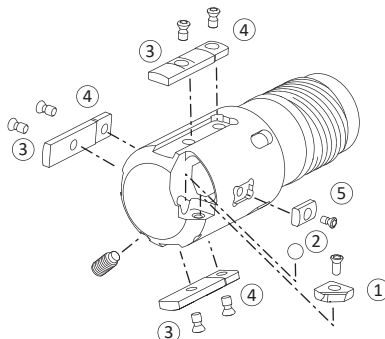
CBSTSE - XX.XX**

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.00$ mm: CBSTS04E-30.00

Designation	DCN	DCX	APMX	Drill tube		LF	Drill head DCONMS	H
				Designation	Dia.(mm)			
CBSTS02E-xx.xx	25.00	26.40	2.8	ST02	22	72.5	19.5	24
CBSTS03E-xx.xx	26.41	28.70	2.8	ST03	24	72.5	21	26
CBSTS04E-xx.xx	28.71	31.00	2.8	ST04	26	72.5	23.5	28
CBSTS05E-xx.xx	31.01	33.30	2.8	ST05	28	75.5	25.5	31
CBSTS06E-xx.xx	33.31	36.20	2.8	ST06	30	75.5	28	34
CBSTS07E-xx.xx	36.21	39.60	2.8	ST07	33	90.5	30	37
CBSTS08E-xx.xx	39.61	39.99	2.8	ST08	36	90.5	33	37



Cartridge, insert SPARE PARTS



Tool diameter DCN-DCX (mm)	Insert		Insert screw			Adjust ball		Adjust screw		
	①	Qty	Qty	Wrench		②	Qty	Qty	Wrench	
25.00 - 29.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5
30.00 - 37.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5
38.00 - 39.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5

Guide pad SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad		Lock screw			Protector		Lock screw			Sub guide			Lock screw		
	③	Qty	Qty	Wrench		④	Qty	Qty	Wrench		⑤	Qty	Qty	Wrench		
25.00 - 29.99	GP06...	2	CSTB2.2S	2	T-7D	-	-	-	-	-	CUG06	1	CSTB2.2S	1	T-7D	
30.00 - 37.99	GP07...	3	CSTB3S	3	T-9D	-	-	-	-	-	CUG06	1	CSTB2.2S	1	T-7D	
38.00 - 39.99	GP08...	3	CSTB3S	3	T-9D	GPT08	3	CSTB3S	3	T-9D	CUG08	1	CSTB3S	1	T-9D	

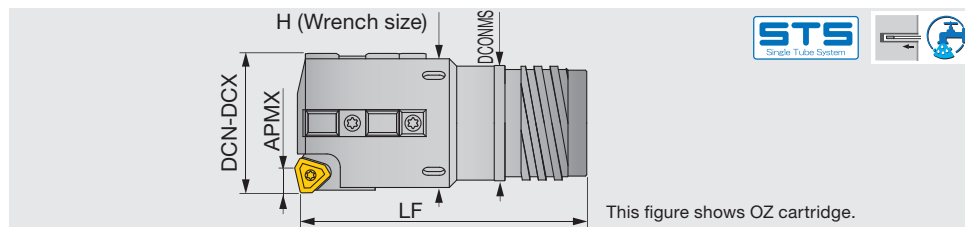
Drill heads come complete with: adjust ball, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING HEAD



CBSTS-E

Counterboring head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 40.00$ - $\varnothing 291.99$ mm



Non-standard products (to be supplied on request)

When ordering

CBSTSE**

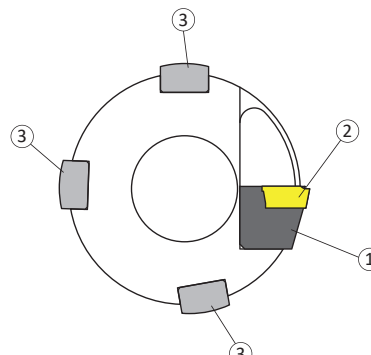
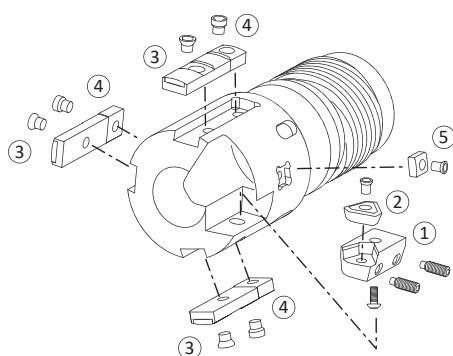
Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 100.00$ mm with OZ cartridge: **CBSTS19E-100.00**, OX cartridge: **CBSTS19E-100.00-OX**

Designation	DCN	DCX	APMX		Drill tube		LF	Drill head DCONMS	H
			OZ	OX	Designation	Dia.(mm)			
CBSTS08E-xx.xx	40.00	43.00	6.4	4	ST08	36	90	33	40
CBSTS09E-xx.xx	43.01	47.00	6.4	4	ST09	39	95	36	43
CBSTS10E-xx.xx	47.01	51.70	6.4	4	ST10	43	100	39	48
CBSTS11E-xx.xx	51.71	51.99	6.4	4	ST11	47	100	43	52
CBSTS11E-xx.xx	52.00	56.20	7.2	4.8	ST11	47	100	43	52
CBSTS12E-xx.xx	56.21	60.60	7.2	4.8	ST12	51	110	47	57
CBSTS13E-xx.xx	60.61	65.00	7.2	4.8	ST13	56	110	51	61
CBSTS14E-xx.xx	65.00	66.99	7.2	4.8	ST14	56	150	52	63
CBSTS15E-xx.xx	67.00	72.99	10.4	6.4	ST15	62	150	58	69
CBSTS16E-xx.xx	73.00	79.99	10.4	6.4	ST16	68	150	63	76
CBSTS17E-xx.xx	80.00	86.99	10.4	6.4	ST17	75	180	70	83
CBSTS18E-xx.xx	87.00	99.99	10.4	6.4	ST18	82	180	77	96
CBSTS19E-xx.xx	100.00	111.99	10.4	6.4	ST19	94	180	89	107
CBSTS20E-xx.xx	112.00	123.99	10.4	6.4	ST20	106	205	101	119
CBSTS21E-xx.xx	124.00	135.99	10.4	6.4	ST21	118	205	113	131
CBSTS22E-xx.xx	136.00	147.99	10.4	6.4	ST22	130	205	125	143
CBSTS23E-xx.xx	148.00	159.99	10.4	6.4	ST23	142	225	137	155
CBSTS24E-xx.xx	160.00	171.99	10.4	6.4	ST24	154	225	149	167
CBSTS25E-xx.xx	172.00	183.99	10.4	6.4	ST25	166	225	161	179
CBSTS26E-xx.xx	184.00	195.99	10.4	6.4	ST26	178	245	173	191
CBSTS27E-xx.xx	196.00	207.99	10.4	6.4	ST27	190	245	185	203
CBSTS28E-xx.xx	208.00	219.99	10.4	6.4	ST28	202	245	197	215
CBSTS29E-xx.xx	220.00	231.99	10.4	6.4	ST29	214	265	208	227
CBSTS30E-xx.xx	232.00	243.99	10.4	6.4	ST30	226	265	220	239
CBSTS31E-xx.xx	244.00	255.99	10.4	6.4	ST31	238	265	232	251
CBSTS32E-xx.xx	256.00	267.99	10.4	6.4	ST32	250	290	244	263
CBSTS33E-xx.xx	268.00	279.99	10.4	6.4	ST33	262	290	256	275
CBSTS34E-xx.xx	280.00	291.99	10.4	6.4	ST34	274	290	268	287



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS

OZ type (For large
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 59.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 99.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 291.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

OX type (For small
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 59.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 99.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 291.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

Guide pad SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad ③	Qty	Lock screw	Qty	Wrench	Protector ④	Qty	Lock screw	Qty	Wrench	Sub guide pad ⑤	Qty	Lock screw	Qty	Wrench
40.00 - 45.99	GP08...	3	CSTB3S	3	T-9D	GPT08	3	CSTB3S	3	T-9D	CUG08	1	CSTB3S	1	T-9D
46.00 - 51.99	GP10...	3	CSTB4S	3	T-15D	GPT10	3	CSTB4S	3	T-15D	CUG08	1	CSTB3S	1	T-9D
52.00 - 59.99	GP10...	3	CSTB4S	3	T-15D	GPT10	3	CSTB4S	3	T-15D	CUG08	1	CSTB3S	1	T-9D
60.00 - 66.99	GP14...	3	CSTA5S	3	T-15D	GPT14	3	CSTA5S	3	T-15D	CUG10	1	CSTB3S	1	T-9D
67.00 - 99.99	GP14...	3	CSTA5S	3	T-15D	GPT14	3	CSTA5S	3	T-15D	CUG10	1	CSTB3S	1	T-9D
100.00 - 135.99	GP18...	3	LS1206S	3	H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D
136.00 - 291.99	GP18...	5	LS1206S	5	H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D

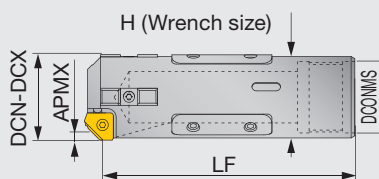
- Plus (+) spare parts will enlarge drill diameter up to 5 mm depending on cartridge size.
- Drill heads come complete with: cartridge, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING HEAD



CBSTS

Counterboring head with internal single start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 25.00$ - $\varnothing 39.99$ mm



Non-standard products (to be supplied on request)

When ordering

CBSTS**

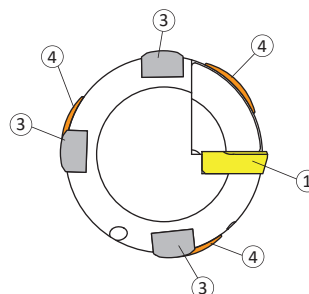
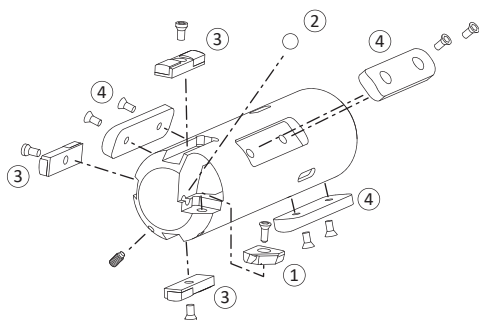
Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.00$ mm: **CBSTS26-30.00**

Designation	DCN	DCX	APMX	Drill tube		LF	Drill head DCONMS	H
				Designation	Dia.(mm)			
CBSTS22-xx.xx	25.00	26.99	2.8	UB22	22	110.5	20	24
CBSTS24-xx.xx	27.00	29.99	2.8	UB24	24	110.5	22	27
CBSTS26-xx.xx	30.00	31.99	2.8	UB26	26	110.5	24	29
CBSTS28-xx.xx	32.00	33.99	2.8	UB28	28	110.5	26	31
CBSTS30-xx.xx	34.00	36.99	2.8	UB30	30	135.5	27	34
CBSTS33-xx.xx	37.00	39.99	2.8	UB33	33	135.5	30	37



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS



Tool diameter DCN-DCX (mm)	Insert ①	Qty	Insert screw Qty	Wrench	Adjust ball ②	Qty	Adjust screw Qty	Wrench
25.00 - 29.99	IIS160-45	1	CSTANO3	1 T-9D	BALL5	1	AS0005-5	1 H2.5
30.00 - 36.99	IIS160-45	1	CSTANO3	1 T-9D	BALL5	1	AS0005-5	1 H2.5
37.00 - 39.99	IIS160-45	1	CSTANO3	1 T-9D	BALL5	1	AS0005-5	1 H2.5

Guide pad SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad ③	Qty	Lock screw Qty	Wrench	Resin guide pad* ④	Qty	Lock screw Qty	Wrench
25.00 - 29.99	GP06...	2	CSTB2.2S	2 T-7D	RRG10	3	LS0902.5-6	6 + No.1
30.00 - 36.99	GP07...	3	CSTB3S	3 T-9D	RRG12	3	LS0903-8	6 H2
37.00 - 39.99	GP08...	3	CSTB3S	3 T-9D	RRG15	3	LS0904-10	6 H2.5

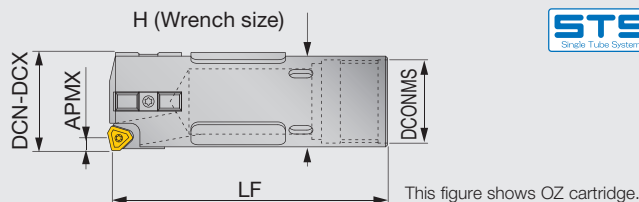
Drill heads come complete with: adjust ball, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING HEAD



CBSTS

Counterboring head with internal single start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 40.00$ - $\varnothing 239.99$ mm



Non-standard products (to be supplied on request)

When ordering

CBSTS**

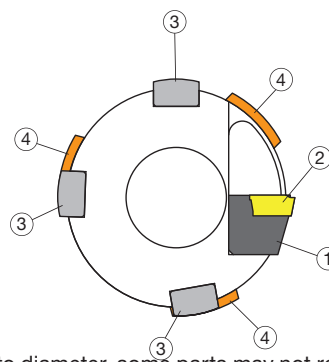
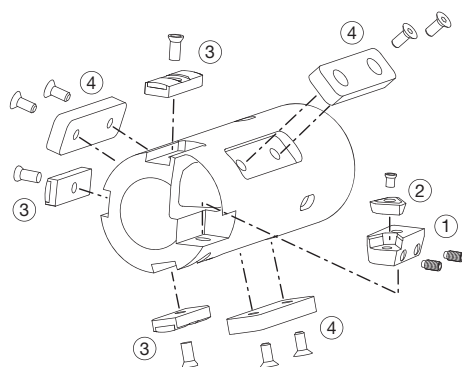
Drill head

XX.XX

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 100.00$ mm with OZ cartridge: **CBSTS94-100.00**, OX cartridge: **CBSTS94-100.00-OX**

Designation	DCN	DCX	APMX		Drill tube		LF	Drill head DCONMS	H
			OZ	OX	Designation	Dia.(mm)			
CBSTS36-xx.xx	40.00	43.99	6.4	4	UB36	36	135	33	41
CBSTS39-xx.xx	44.00	46.99	6.4	4	UB39	39	135	37	43
CBSTS43-xx.xx	47.00	51.99	6.4	4	UB43	43	145	41	48
CBSTS47-xx.xx	52.00	56.99	7.2	4.8	UB47	47	145	44	53
CBSTS51-xx.xx	57.00	60.99	7.2	4.8	UB51	51	170	49	57
CBSTS56-xx.xx	61.00	66.99	7.2	4.8	UB56	56	170	53	64
CBSTS56-xx.xx	67.00	67.99	10.4	6.4	UB56	56	170	53	64
CBSTS62-xx.xx	68.00	74.99	10.4	6.4	UB62	62	170	59	71
CBSTS68-xx.xx	75.00	80.99	10.4	6.4	UB68	68	205	65	77
CBSTS75-xx.xx	81.00	90.99	10.4	6.4	UB75	75	215	71	87
CBSTS82-xx.xx	91.00	98.99	10.4	6.4	UB82	82	225	79	95
CBSTS94-xx.xx	99.00	110.99	10.4	6.4	UB94	94	235	90	106
CBSTS106-xx.xx	111.00	122.99	10.4	6.4	UB106	106	235	102	118
CBSTS118-xx.xx	123.00	134.99	10.4	6.4	UB118	118	265	114	130
CBSTS130-xx.xx	135.00	148.99	10.4	6.4	UB130	130	265	126	144
CBSTS142-xx.xx	149.00	161.99	10.4	6.4	UB142	142	265	139	157
CBSTS154-xx.xx	162.00	173.99	10.4	6.4	UB154	154	285	151	169
CBSTS166-xx.xx	174.00	185.99	10.4	6.4	UB166	166	285	163	181
CBSTS178-xx.xx	186.00	197.99	10.4	6.4	UB178	178	310	175	193
CBSTS190-xx.xx	198.00	209.99	10.4	6.4	UB190	190	310	187	205
CBSTS202-xx.xx	210.00	221.99	10.4	6.4	UB202	202	320	199	217
CBSTS214-xx.xx	222.00	233.99	10.4	6.4	UB214	214	325	211	229
CBSTS226-xx.xx	234.00	245.99	10.4	6.4	UB226	226	325	223	241
CBSTS238-xx.xx	246.00	257.99	10.4	6.4	UB238	238	325	235	253
CBSTS250-xx.xx	258.00	269.99	10.4	6.4	UB250	250	360	245	265
CBSTS262-xx.xx	270.00	281.99	10.4	6.4	UB262	262	360	259	277
CBSTS274-xx.xx	282.00	293.99	10.4	6.4	UB274	274	360	271	289



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS

OZ type (For large
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 56.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
57.00 - 59.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 80.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
81.00 - 90.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
91.00 - 99.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 293.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

OX type (For small
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 56.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
57.00 - 59.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 80.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
81.00 - 90.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
91.00 - 99.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 293.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

Guide pad SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad ③	Qty	Lock screw	Qty	Wrench	Resin guide pad* ④	Qty	Lock screw	Qty	Wrench
40.00 - 45.99	GP08...	3	CSTB3S	3	T-9D	RRG15	3	LS0904-10	6	H2.5
46.00 - 51.99	GP10...	3	CSTB4S	3	T-15D	RRG15	3	LS0904-10	6	H2.5
52.00 - 56.99	GP10...	3	CSTB4S	3	T-15D	RRG15	3	LS0904-10	6	H2.5
57.00 - 59.99	GP10...	3	CSTB4S	3	T-15D	RRG20	3	LS0905-12	6	H3
60.00 - 66.99	GP14...	3	CSTA5S	3	T-15D	RRG20	3	LS0905-12	6	H3
67.00 - 80.99	GP14...	3	CSTA5S	3	T-15D	RRG20	3	LS0905-12	6	H3
81.00 - 90.99	GP14...	3	CSTA5S	3	T-15D	RRG30	3	LS0906-15	6	H4
91.00 - 99.99	GP14...	3	CSTA5S	3	T-15D	RRG35	3	LS0906-15	6	H4
100.00 - 122.99	GP18...	3	LS1206S	3	H3	RRG35	3	LS0906-15	6	H4
123.00 - 135.99	GP18...	3	LS1206S	3	H3	RRG40	3	LS0908-20	6	H5
136.00 - 185.99	GP18...	5	LS1206S	5	H3	RRG40	3	LS0908-20	6	H5
186.00 - 209.99	GP18...	5	LS1206S	5	H3	RRG50	3	LS1810-25	6	H8
210.00 - 245.99	GP18...	5	LS1206S	5	H3	RRG60	3	LS1810-25	6	H8
246.00 - 293.99	GP18...	5	LS1206S	5	H3	RRG70	3	LS1812-25	6	H10

* When ordering extra resin guide pads for your stock:

Please note that these are supplied oversize. To achieve the correct diameter they will have to be turned to size once mounted in the tool.

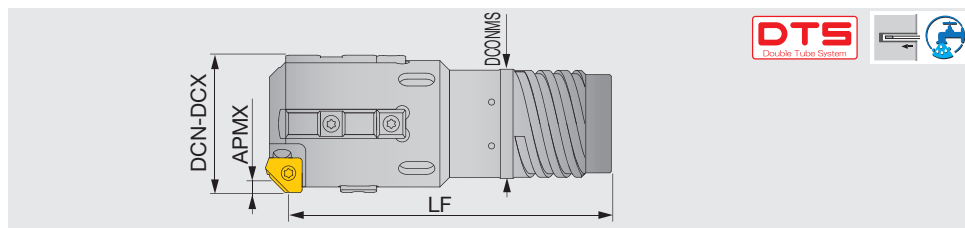
- Plus (+) spare parts will enlarge drill diameter up to 5 mm depending on cartridge size.
- Drill heads come complete with: cartridge, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING HEAD

CBDTS-E



Counterboring head with external 4-start thread for double tube system (DTS), diameters adjustable, tool diameter $\varnothing 25.00$ - $\varnothing 39.99$ mm



Non-standard products (to be supplied on request)

When ordering

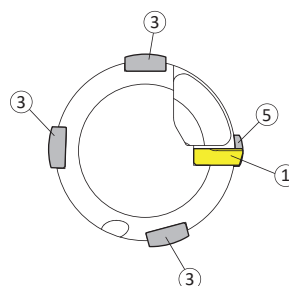
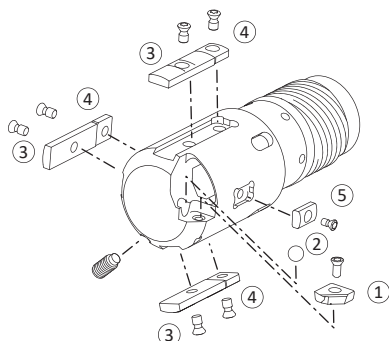
CBDTSE - XX.XX**

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 30.00$ mm: **KUSTR26-30.00**

Designation	DCN	DCX	APMX	Outer tube		LF	DCONMS
				Designation	Dia.(mm)		
CBDTS03E-xx.xx	25.00	26.40	2.8	OT03	23.5	72.5	21
CBDTS04E-xx.xx	26.41	28.70	2.8	OT04	26	72.5	23.5
CBDTS05E-xx.xx	28.71	31.00	2.8	OT05	28	75.5	25.5
CBDTS06E-xx.xx	31.01	33.30	2.8	OT06	30.5	75.5	28
CBDTS07E-xx.xx	33.31	36.20	2.8	OT07	33	75.5	30
CBDTS08E-xx.xx	36.21	39.60	2.8	OT08	35.5	90.5	33
CBDTS09E-xx.xx	39.61	39.99	2.8	OT09	39	90.5	36



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS



Tool diameter DCN-DCX (mm)	Insert		Insert screw			Adjust ball		Adjust screw		
	①	Qty		Qty	Wrench	②	Qty		Qty	Wrench
25.00 - 29.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5
30.00 - 37.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5
38.00 - 39.99	IIS160-45	1	CSTANO3	1	T-9D	BALL5	1	AS0005-5	1	H2.5

Guide pad SPARE PARTS



Tool diameter DCN-DCX (mm)	Guide pad		Lock screw			Protector		Lock screw			Sub guide		Lock screw		
	③	Qty		Qty	Wrench	④	Qty		Qty	Wrench	⑤	Qty		Qty	Wrench
25.00 - 29.99	GP06...	2	CSTB2.2S	2	T-7D	-	-	-	-	-	CUG06	1	CSTB2.2S	1	T-7D
30.00 - 37.99	GP07...	3	CSTB3S	3	T-9D	-	-	-	-	-	CUG06	1	CSTB2.2S	1	T-7D
38.00 - 39.99	GP08...	3	CSTB3S	3	T-9D	GPT08	3	CSTB3S	3	T-9D	CUG08	1	CSTB3S	1	T-9D

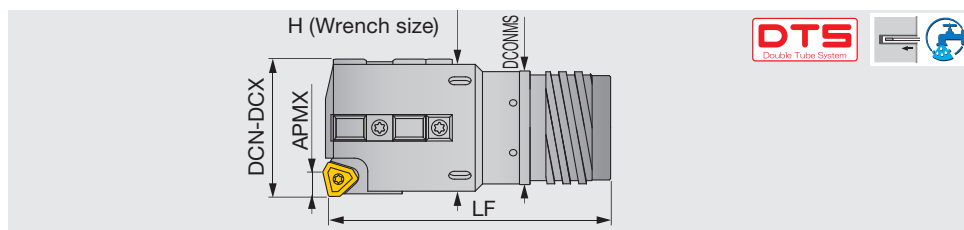
Drill heads come complete with: adjust ball, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING HEAD



CBDTS-E

Counterboring head with external 4-start thread for double tube system (DTS), diameters adjustable, tool diameter $\varnothing 40.00$ - $\varnothing 183.99$ mm



Non-standard products (to be supplied on request)

When ordering

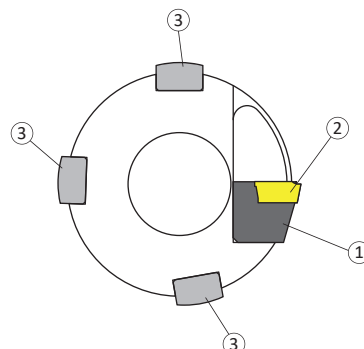
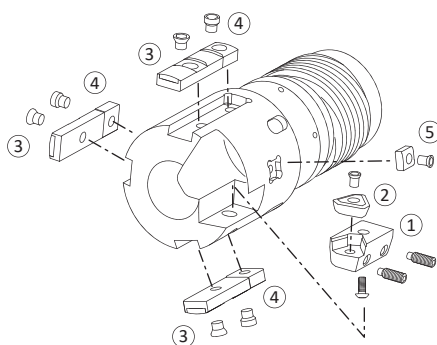
CBDTSE - XX.XX**

Drill head

Diameter (mm)

e.g. Designation for tool diameter $\varnothing 100.00$ mm with OZ cartridge: **CBDTS19E-100.00**, OX cartridge: **CBDTS19E-100.00-OX**

Designation	DCN	DCX	APMX		Outer tube		LF	Drill head DCONMS	H
			OZ	OX	Designation	Dia.(mm)			
CBDTS09E-xx.xx	40.00	43.00	6.4	4	OT09	39	90	36	40
CBDTS10E-xx.xx	43.01	47.00	6.4	4	OT10	42.5	95	39	43
CBDTS11E-xx.xx	47.01	51.70	6.4	4	OT11	46.5	100	43	48
CBDTS12E-xx.xx	51.71	51.99	6.4	4	OT12	51	100	47	53
CBDTS12E-xx.xx	52.00	56.20	7.2	4.8	OT12	51	100	47	53
CBDTS13E-xx.xx	56.21	65.00	7.2	4.8	OT13	55.5	110	51	61
CBDTS14E-xx.xx	65.00	66.99	7.2	4.8	OT14	56	150	52	63
CBDTS15E-xx.xx	67.00	72.99	10.4	6.4	OT15	62	150	58	69
CBDTS16E-xx.xx	73.00	79.99	10.4	6.4	OT16	68	150	63	76
CBDTS17E-xx.xx	80.00	86.99	10.4	6.4	OT17	75	180	70	83
CBDTS18E-xx.xx	87.00	99.99	10.4	6.4	OT18	82	180	77	96
CBDTS19E-xx.xx	100.00	111.99	10.4	6.4	OT19	94	180	89	107
CBDTS20E-xx.xx	112.00	123.99	10.4	6.4	OT20	106	205	101	119
CBDTS21E-xx.xx	124.00	135.99	10.4	6.4	OT21	118	205	113	131
CBDTS22E-xx.xx	136.00	147.99	10.4	6.4	OT22	130	205	125	143
CBDTS23E-xx.xx	148.00	159.99	10.4	6.4	OT23	142	225	137	155
CBDTS24E-xx.xx	160.00	171.99	10.4	6.4	OT24	154	225	149	167
CBDTS25E-xx.xx	172.00	183.99	10.4	6.4	OT25	166	225	161	179



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS

OZ type (For large
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OZ402-04	1	TPMX140308R	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 59.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 99.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 183.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

OX type (For small
depth of cut)



Tool diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
40.00 - 45.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
46.00 - 51.99	OX04R	1	TPMX140308L	1	CSTB2.5	1	T-8D	AS0004-8	2	H2	LS1803.5RH	1	H2.5
52.00 - 59.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
60.00 - 66.99	OX32R	1	TPMX170408L	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
67.00 - 99.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
100.00 - 135.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 183.99	OX43R	1	TPMX240512L	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4

Guide pad SPARE PARTS

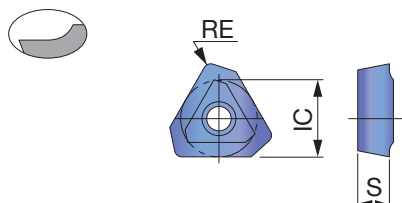


Tool diameter DCN-DCX (mm)	Guide pad ③	Qty	Lock screw	Qty	Wrench	Protector ④	Qty	Lock screw	Qty	Wrench	Sub guide ⑤	Qty	Lock screw	Qty	Wrench
40.00 - 45.99	GP08...	3	CSTB3S	3	T-9D	GPT08	3	CSTB3S	3	T-9D	CUG08	1	CSTB3S	1	T-9D
46.00 - 51.99	GP10...	3	CSTB4S	3	T-15D	GPT10	3	CSTB4S	3	T-15D	CUG08	1	CSTB3S	1	T-9D
52.00 - 59.99	GP10...	3	CSTB4S	3	T-15D	GPT10	3	CSTB4S	3	T-15D	CUG08	1	CSTB3S	1	T-9D
60.00 - 66.99	GP14...	3	CSTA5S	3	T-15D	GPT14	3	CSTA5S	3	T-15D	CUG10	1	CSTB3S	1	T-9D
67.00 - 99.99	GP14...	3	CSTA5S	3	T-15D	GPT14	3	CSTA5S	3	T-15D	CUG10	1	CSTB3S	1	T-9D
100.00 - 135.99	GP18...	3	LS1206S	3	H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D
136.00 - 183.99	GP18...	5	LS1206S	5	H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D

- Plus (+) spare parts will enlarge drill diameter up to 5 mm depending on cartridge size.
- Drill heads come complete with: cartridge, guide pads, protectors, sub guide pad and wrenches - but less inserts.

COUNTERBORING INSERTS

TPMX L-G(for general purpose)



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

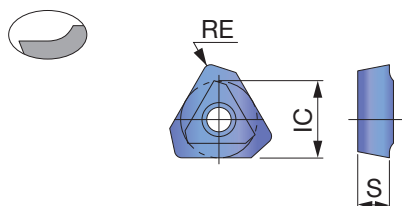
★ : First choice
☆ : Second choice

Designation	IC	S	Coated						RE
			UT923						
TPMX140308L-G	8.45	3.5							0.8
TPMX170408L-G	10.3	4	●						0.8
TPMX240512L-G	14.2	5.5	●						1.2
TPMX280716L-G	17	7.5	●						1.6

Use right-hand toolholders (R) with left-hand inserts (L).

●: New
●: Line up

TPMX L-BG(Provides good chip control in long-chipping steels)



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

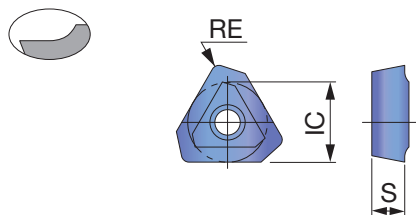
★ : First choice
☆ : Second choice

Designation	IC	S	Coated								RE
TPMX170408L-BG	10.3	4									0.8
TPMX240512L-BG	14.2	5.5									1.2
TPMX280716L-BG	17	7.5									1.6

Use right-hand toolholders (R) with left-hand inserts (L).

●: New
●: Line up

TPMX L-DT(Reduced cutting force)



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

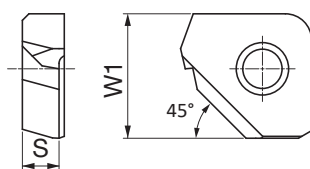
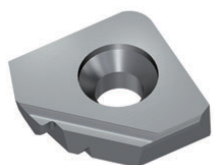
★ : First choice
☆ : Second choice

Designation		IC	S	Coated							RE
TPMX170408L-DT		10.3	4								0.8
TPMX240512L-DT		14.2	5.5								1.2

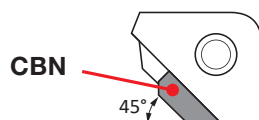
Use right-hand toolholders (R) with left-hand inserts (L).

●: New
●: Line up

IIS



IIS160-45



IIS160-45CBN

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

★ : First choice
☆ : Second choice

[illegible]

○ : To be supplied on request

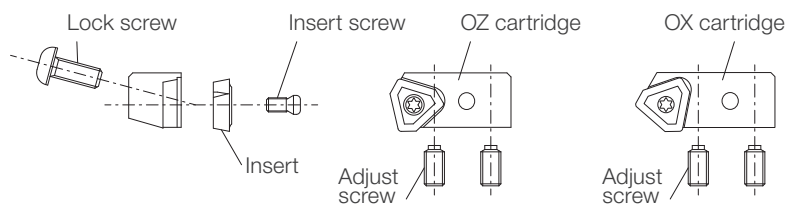
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Vc (m/min)	Feed: f (mm/rev) cutting width: a_p (mm)		
			1.0 - 3.0	3.0 - 8.0	8.0 <
P	Carbon steel Ex: S25C, S50C	60 - 140	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
	Alloy steel Ex: SCr420, SCM440	60 - 130	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
	Tool steel Ex: SKD11, SKH10	50 - 100	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
M	Stainless steel Ex: SUS304, SUS410	60 - 100	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
K	Grey cast iron Ex: FC250, FC350	60 - 120	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
	Nodular cast iron Ex: FCD400, FCD500	50 - 120	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
	Malleable cast iron Ex: FCMB	60 - 120	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
N	Aluminium alloy	60 - 200	0.1 - 0.4	0.1 - 0.4	0.1 - 0.4
	Copper alloy	60 - 200	0.1 - 0.4	0.1 - 0.4	0.1 - 0.4
S	Heat resistant, superalloy	40 - 80	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3
	Titanium alloy	60 - 100	0.1 - 0.3	0.15 - 0.3	0.1 - 0.3

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

Replacement parts

Cartridges and inserts



Cartridges are supplied with adjust screws and insert screw but without inserts, lock screws and wrenchs

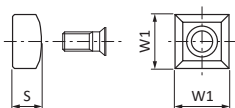
Peripheral inserts and accessories

Cartridge	Insert	Insert screw	Wrench	Adjusting screw	Wrench	Lock screw	Wrench
OZ402-04	TPMX140308R	CSTB2.5	T-8D	AS0004-8	H2	LS1803.5RH	H2.5
OZ402-32	TPMX170408R	CSTB3.5D	T-9D	AS0005-10	H2.5	LS1805RH	H3
OZ402-43	TPMX240512R	CSTB4M	T-15D	AS0005-15	H2.5	LS1806RH	H4

Central and intermediate inserts and accessories

Cartridge	Insert	Insert screw	Wrench	Adjusting screw	Wrench	Lock screw	Wrench
OX4R	TPMX140308L	CSTB2.5	T-8D	AS0004-8	H2	LS1803.5RH	H2.5
OX32R	TPMX170408L	CSTB3.5D	T-9D	AS0005-10	H2.5	LS1805RH	H3
OX43R	TPMX240512L	CSTB4M	T-15D	AS0005-15	H2.5	LS1806RH	H4
OX63R	TPMX280716L	CSTB-5	T-20D	AS0006-15	H3	LS1806RH	H4

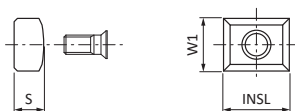
Guide pads and protectors



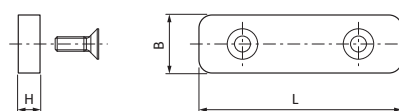
Guide pad	Lock screw	Wrench	Protector	Dimensions (mm)		Lock screw	Wrench
				W1	S		
GP06	CSTB2.2S	T-7D	-				
GP06-20-120-DC	CSTB2.2S	T-7D	-				
GP07	CSTB3S	T-9D	-				
GP07-20-120-DC	CSTB3S	T-9D	-				
GP08	CSTB3S	T-9D	GPT08	8	4.5	CSTB3S	T-9D
GP08-25-155-DC	CSTB3S	T-9D	GPT08	8	4.5	CSTB3S	T-9D
GP10	CSTB4S	T-15D	GPT10	10	6	CSTB4S	T-15D
GP10-35-200-DC	CSTB4S	T-15D	GPT10	10	6	CSTB4S	T-15D
GP14	CSTA5S	T-15D	GPT14	14	7.5	CSTA5S	T-15D
GP14-40-250-DC	CSTA5S	T-15D	GPT14	14	7.5	CSTA5S	T-15D
GP18-40-300-DC	LS1206S	H3	GPT18-M	18	9	LS1206S	H3

Other carbide grades, coating and ceramic are available upon request.

Sub guide pad



Guide pad	Dimensions (mm)			Lock screw	Wrench
	W1	S	INSL		
CUG06	6	3	10	CSTB2.2S	T-7D
CUG08	8	4.5	10	CSTB3S	T-9D
CUG10	10	5	10	CSTB3S	T-9D
CUG14-M	14	7	20	CSTA5S	T-15D



Resin guide	Dimensions (mm)			Lock screw	Wrench
	B	H	L		
RRG10	10	4	40	LS0902.5-6	Plus(+) No1
RRG12	12	5	45	LS0903-8	H2
RRG15	15	5.8	50	LS0904-10	H2.5
RRG20	20	7.5	70	LS0905-12	H3
RRG30	30	12.5	80	LS0906-15	H4
RRG35	35	15.5	100	LS0906-15	H4
RRG40	40	18.5	120	LS0908-20	H5
RRG50	50	22.5	140	LS1810-25	H8
RRG60	60	23.5	150	LS1810-25	H8
RRG70	70	26.5	150	LS1812-25	H10

*H indicates dimension of resin guide before turning operation. When ordering extra resin guide pads for your stock, please note that these are supplied oversize. To achieve the correct diameter they will have to be turned to size once mounted in the tool.

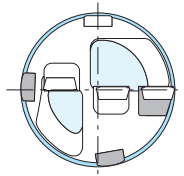
Replacement parts

⊕ Plus Plus parts

The use of the Plus parts allows the drill diameter to increase by up to 5 mm, in 1 mm increments.

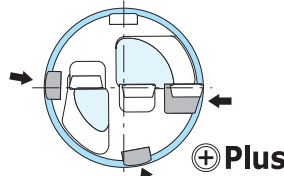
The diameter is increased by replacing the peripheral cartridges.

Ex. The drill head diameter with OZ402-32 peripheral cartridge can be increased by up to 4 mm, while the drill head diameter with OZ402-43 can be increased by up to 5 mm.



Peripheral cartridge: OZ402-43
Guide pads: GP14

+5 mm



Peripheral cartridge: OZ402-43+5
Guide pads: GP14-40-275-DC+5 FH3125

Note:
When the peripheral cartridge is changed, the guide pads must also be changed to the matching Plus parts.

Plus cartridge - OZ type

	+1 mm	+2 mm	+3 mm	+4 mm	+5 mm
OZ05R	OZ05R+1 ●	OZ05R+2 ●	-	-	-
OZ402-04	OZ402-04+1 ●	OZ402-04+2 ●	OZ402-04+3 ●	-	-
OZ402-32	OZ402-32+1 ●	OZ402-32+2 ●	OZ402-32+3 ●	OZ402-32+4 ●	-
OZ402-43	OZ402-43+1 ●	OZ402-43+2 ●	OZ402-43+3 ●	OZ402-43+4 ●	OZ402-43+5 ●
OZ402-63	OZ402-63+1 ●	OZ402-63+2 ●	OZ402-63+3 ●	OZ402-63+4 ●	OZ402-63+5 ●

Ordering example: OZ402-04+2, 10 pcs

Plus cartridge - OX type

	+1 mm	+2 mm	+3 mm	+4 mm	+5 mm
OX04R	OX04R+1 ○	OX04R+2 ○	OX04R+3 ○	-	-
OX32R	OX32R+1 ○	OX32R+2 ○	OX32R+3 ○	OX32R+4 ○	-
OX43R	OX43R+1 ○	OX43R+2 ○	OX43R+3 ○	OX43R+4 ○	OX43R+5 ○
OX63R	OX63R+1 ○	OX63R+2 ○	OX63R+3 ○	OX63R+4 ○	OX63R+5 ○

Ordering example: OX32R+2, 10 pcs

Use OX cartridges when using the UNIDEX series for boring operations. OX has a smaller entry angle than OZ, allowing better hole quality.

OX and OZ can be mounted in the same pocket for the peripheral cartridge.

Plus guide pad

	+1 mm	Grade FH3125	+2 mm	Grade FH3125	+3 mm	Grade FH3125	+4 mm	Grade FH3125	+5 mm	Grade FH3125
GP08	GP08-25-160-DC+1 ●		GP08-25-165-DC+2 ●		GP08-25-170-DC+3 ●		-		-	
GP10	GP10-35-205-DC+1 ●		GP10-35-210-DC+2 ●		GP10-35-215-DC+3 ●		GP10-35-220-DC+4 ●		-	
GP14	GP14-40-255-DC+1 ●		GP14-40-260-DC+2 ●		GP14-40-265-DC+3 ●		GP14-40-270-DC+4 ●		GP14-40-275-DC+5 ●	
GP18	GP18-40-305-DC+1 ●		GP18-40-310-DC+2 ●		GP18-40-315-DC+3 ●		GP18-40-320-DC+4 ●		GP18-40-325-DC+5 ●	

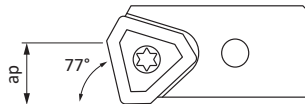
Ordering example: GP08-25-165-DC+2 FH3125, 10 pcs

● : New
● : Line up
○ : To be supplied on request

OZ and OX cartridge

Two types of cartridges are available for Indexable counterboring head.

OZ type for large depth of cut



Cartridge	ap* (mm)	Insert
OZ402-04	6.4	TPMX140308R
OZ402-32	7.2	TPMX170408R
OZ402-43	10.4	TPMX240512R

*Minimum depth of cut is 2 mm for all size

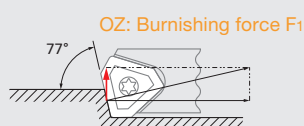
OX type for small depth of cut



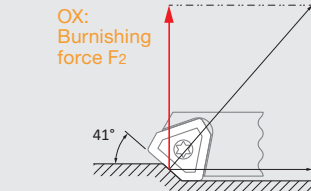
Please use a left hand type insert with a OX cartridge.

Cartridge	ap* (mm)	Insert
OX04R	4.0	TPMX140308L
OX32R	4.8	TPMX170408L
OX43R	6.4	TPMX240512L

*Minimum depth of cut is 2 mm for all size



Due to smaller cutting angle, OX cartridge provides larger burnishing force which results better surface finish.



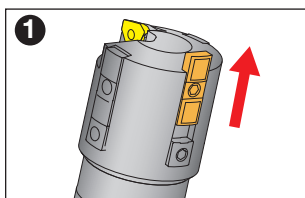
Burnishing force $F_2 > F_1$

Drill diameter calibration

The Drill head diameter is set and inspected with a master insert in our final inspection. However, the inserts in the market have a tolerance fluctuation so each time you change or index the insert, the diameter must be adjusted as per the following method.



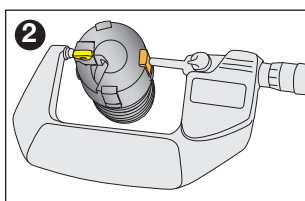
⚠ Poor hole precision, abnormal wear of inserts or guide pads, or serious tool damage may occur if the insert and guide pad diameters are not properly calibrated.



1 The dimensional guide pad must be slid forward to measure the diameter.

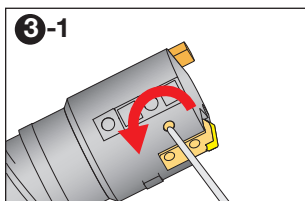
1-1 Loosen the lock screw and slide the guide pad forward.

1-2 Retighten the lock screw at the measuring position.



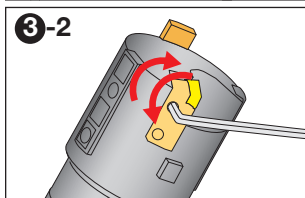
2 Measure the diameter with a micrometer. We recommend setting the Drill diameter at h8 tolerance to the cutting diameter.

If the diameter is incorrect, go to below step **3**
If it's correct, go to below step **4**

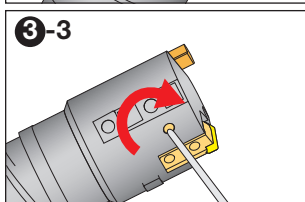


3 Adjust the cartridge

3-1 First loosen the lock screw of the cartridge and then tighten it slightly.



3-2 Proceed to adjust the diameter, using the 2 adjust screws and measure with a micrometer.

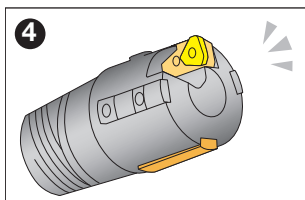


3-3 When set to the size, retighten the lock screw.

3-4 Recheck the diameter with a micrometer. If it is still out of tolerance, repeat the procedure from the step **3-1**



Please make sure to tighten the lock screw firmly before using. If loose, the cartridge may move and cause serious problems during machining.

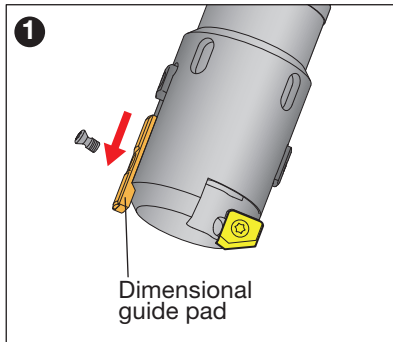


4 Slide the dimensional guide pad back to the original position and tighten the lock screw.

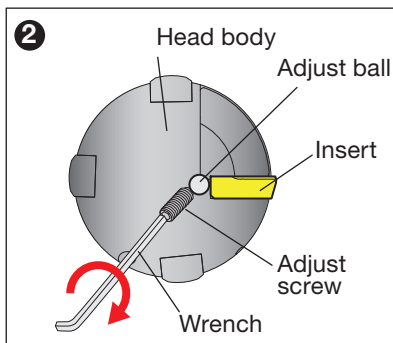


Please check all the lock screws are firmly tightened as they may come loose if vibration occurs during drilling.

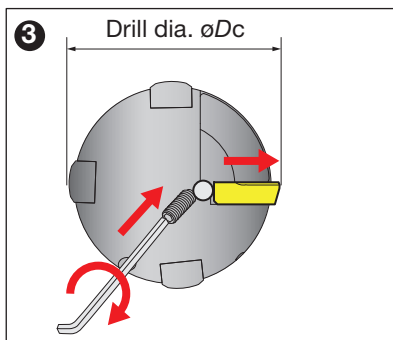
Drill diameter is adjusted with an adjust ball for diameter $\varnothing 25.00$ mm - $\varnothing 39.99$ mm with the following method.



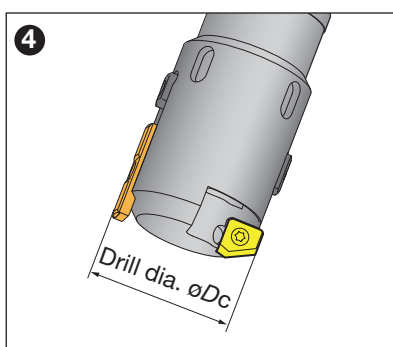
- 1 Slide the dimensional guide pad forward and the retighten the lock screw at the measuring position.



- 2 Tighten the adjust screw.



- 3 As the adjust screw moves forward, insert moves peripheral direction.



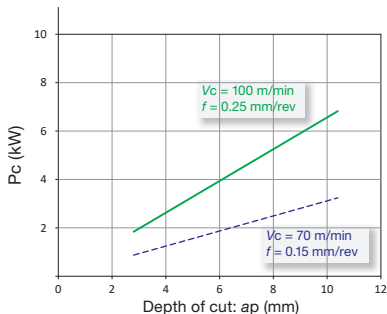
- 4 Measure the diameter with a micrometer. If the diameter is larger than expected, loose the adjust screw and insert screw, then retighten the insert screw. Repeat the procedure from the step 2.

Technical guide

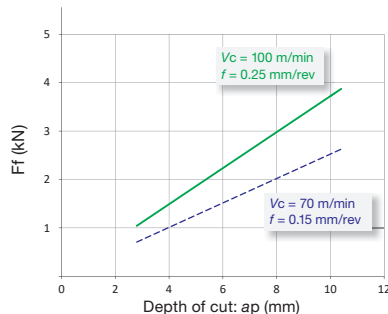
Machine setting for single tube system



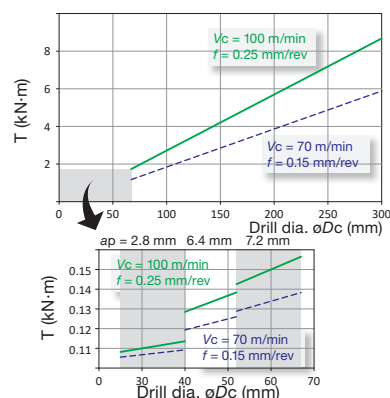
Net power



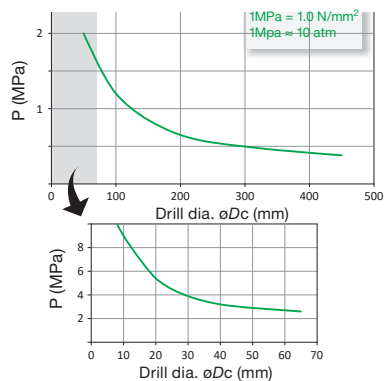
Feed force



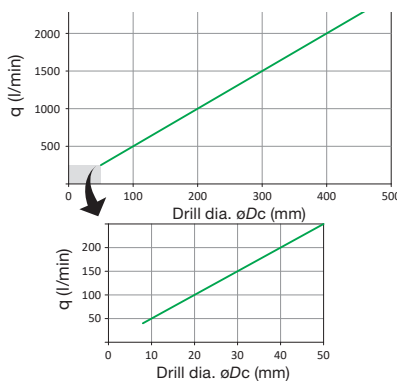
Torque



Coolant pressure



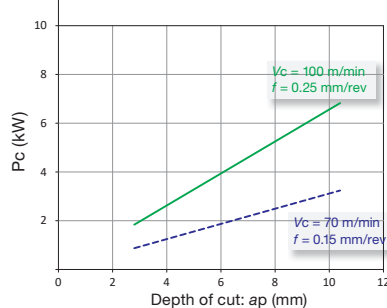
Coolant volume



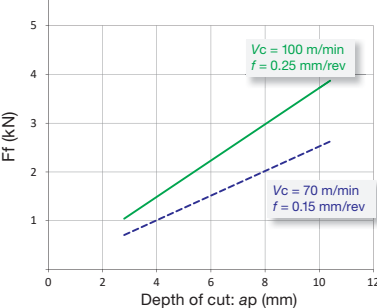
Machine setting for double tube system



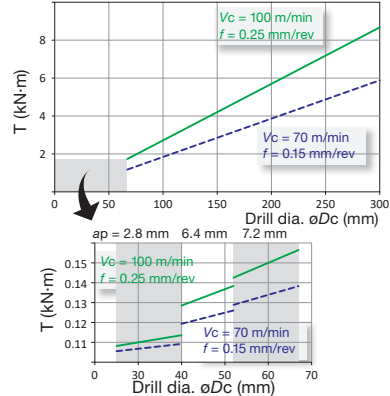
Net power



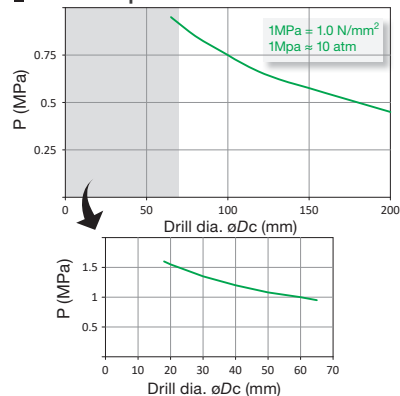
Feed force



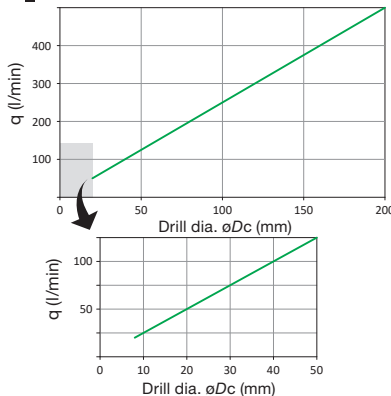
Torque



Coolant pressure



Coolant volume



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

Trepanning

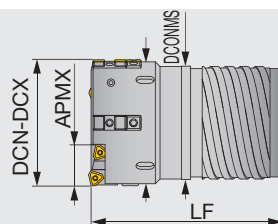


TREPANNING HEAD



UTT-E

Trepaning head with external 4-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 100.00$ - $\varnothing 328.00$ mm



Non-standard products (to be supplied on request)

When ordering

UTTE**

Drill head

XX.XX

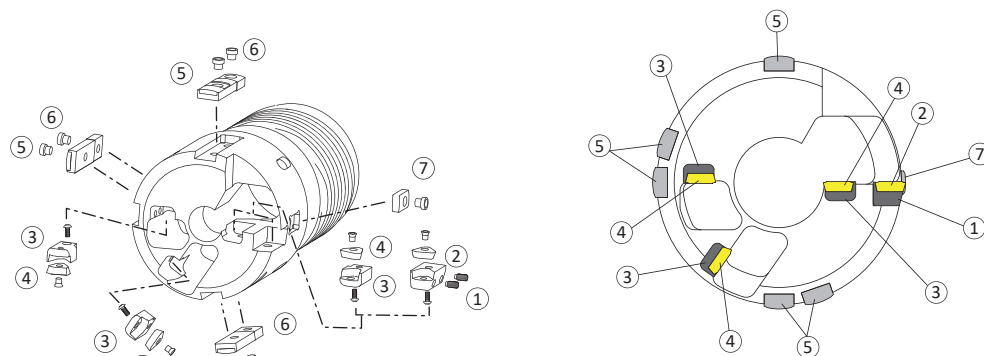
Diameter (mm)

e.g. Designation for tool diameter $\varnothing 200.00$ mm: **UTT27E-200.00**

Designation	DCN	DCX	APMX	Drill tube		LF	Drill head DCONMS	H
				Designation	Dia.(mm)			
UTT19E-xx.xx	100.00	111.99	38	ST19	94	174	89	107
UTT20E-xx.xx	112.00	123.99	38	ST20	106	204	101	119
UTT21E-xx.xx	124.00	135.99	49.5	ST21	118	204	113	131
UTT22E-xx.xx	136.00	147.99	49.5	ST22	130	204	125	143
UTT23E-xx.xx	148.00	159.99	49.5	ST23	142	229	137	155
UTT24E-xx.xx	160.00	171.99	49.5	ST24	154	229	149	167
UTT25E-xx.xx	172.00	183.99	49.5	ST25	166	229	161	179
UTT26E-xx.xx	184.00	195.99	49.5	ST26	178	249	173	191
UTT27E-xx.xx	196.00	207.99	56.5	ST27	190	249	185	203
UTT28E-xx.xx	208.00	219.99	56.5	ST28	202	249	197	215
UTT29E-xx.xx	220.00	231.99	56.5	ST29	214	284	208	227
UTT30E-xx.xx	232.00	243.99	56.5	ST30	226	284	220	239
UTT31E-xx.xx	244.00	255.99	56.5	ST31	238	284	232	251
UTT32E-xx.xx	256.00	267.99	56.5	ST32	250	304	244	263
UTT33E-xx.xx	268.00	279.99	56.5	ST33	262	304	256	275
UTT34E-xx.xx	280.00	291.99	56.5	ST34	274	304	268	287
UTT35E-xx.xx	292.00	303.99	56.5	ST35 ⁽¹⁾	286	324	280	299
UTT36E-xx.xx	304.00	315.99	56.5	ST36 ⁽¹⁾	298	324	292	311
UTT37E-xx.xx	316.00	328.00	56.5	ST37 ⁽¹⁾	310	324	304	323

Before drilling operation please adjust tool diameter.

(1) Please contact us for further information.



Note:
According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS

Peripheral

Drill diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
100.00 - 123.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
124.00 - 135.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 195.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
196.00 - 207.99	OZ402-63	1	TPMX280716R	1	CSTB5	1	T-20D	AS0006-15	2	H3	LS1806RH	1	H4
208.00 - 328.00	OZ402-63	1	TPMX280716R	1	CSTB5	1	T-20D	AS0006-15	2	H3	LS1806RH	1	H4

Inner

Drill diameter DCN-DCX (mm)	Cartridge ③	Qty	Insert ④	Qty	Insert screw	Qty	Wrench	Lock screw	Qty	Wrench
100.00 - 123.99	IOZ402-32L	3	TPMX170408L	3	CSTB3.5D	3	T-9D	CSTA5	3	T-15D
124.00 - 135.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3
136.00 - 195.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L
196.00 - 207.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L
208.00 - 328.00	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L

Guide pad SPARE PARTS

Drill diameter DCN-DCX (mm)	Guide pad ⑤	Qty	Lock screw	Qty	Qty	Wrench	Protector ⑥	Qty	Lock screw	Qty	Wrench	Sub guide pad ⑦	Qty	Lock screw	Qty	Wrench	
100.00 - 123.99	GP18...	3	LS1206S	2	LS1206SSS*	1	H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D
124.00 - 135.99	GP18...	3	LS1206S	3	-		H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D
136.00 - 195.99	GP18...	5	LS1206S	5	-		H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D
196.00 - 207.99	GP18...	5	LS1206S	5	-		H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D
208.00 - 328.00	GP22...	3	LS1206S	3	-		H3	GPT22	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D

*Lock screw for dimensional guide pad

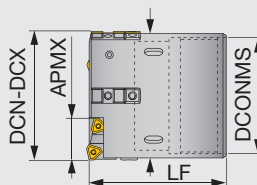
Drill heads come complete with: cartridges, guide pads, protectors, sub guide pad and wrenches, but less inserts.

TREPANNING HEAD



UTT

Trepaning head with internal single-start thread for single tube system (STS), diameters adjustable, tool diameter $\varnothing 100.00$ - $\varnothing 305.99$ mm



Non-standard products (to be supplied on request)

When ordering

UTT**

Drill head

XX.XX

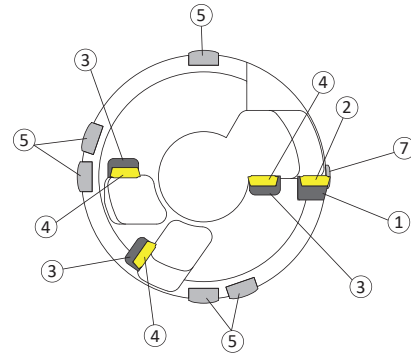
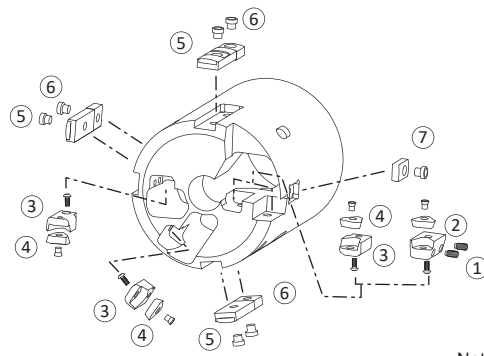
Diameter (mm)

e.g. Designation for tool diameter $\varnothing 200.00$ mm: **UTT190-200.00**

Designation	DCN	DCX	APMX	Drill tube		LF	Drill head DCONMS	H
				Designation	Dia.(mm)			
UTT94-xx.xx	100.00	110.99	38	UB94	94	139	90	106
UTT106-xx.xx	111.00	122.99	38	UB106	106	149	102	118
UTT118-xx.xx	123.00	123.99	38	UB118	118	149	114	119
UTT118-xx.xx	124.00	134.99	49.5	UB118	118	149	114	130
UTT130-xx.xx	135.00	148.99	49.5	UB130	130	149	126	144
UTT142-xx.xx	149.00	161.99	49.5	UB142	142	149	139	157
UTT154-xx.xx	162.00	173.99	49.5	UB154	154	169	151	169
UTT166-xx.xx	174.00	185.99	49.5	UB166	166	169	163	181
UTT178-xx.xx	186.00	195.99	49.5	UB178	178	169	175	191
UTT178-xx.xx	196.00	197.99	56.5	UB178	178	169	175	193
UTT190-xx.xx	198.00	209.99	56.5	UB190	190	169	187	205
UTT202-xx.xx	210.00	221.99	56.5	UB202	202	189	199	217
UTT214-xx.xx	222.00	233.99	56.5	UB214	214	189	211	229
UTT226-xx.xx	234.00	245.99	56.5	UB226	226	189	223	241
UTT238-xx.xx	246.00	257.99	56.5	UB238	238	189	235	253
UTT250-xx.xx	258.00	266.99	56.5	UB250	250	209	245	262
UTT262-xx.xx	267.00	281.99	56.5	UB262	262	209	259	277
UTT274-xx.xx	282.00	293.99	56.5	UB274	274	209	271	289
UTT286-xx.xx	294.00	305.99	56.5	UB286 ⁽¹⁾	286	209	283	301

Before drilling operation please adjust tool diameter.

(1) Please contact us for further information.



Note:

According to diameter, some parts may not reflect the picture above.

Cartridge, insert SPARE PARTS

Peripheral

Drill diameter DCN-DCX (mm)	Cartridge ①	Qty	Insert ②	Qty	Insert screw	Qty	Wrench	Adjust screw	Qty	Wrench	Lock screw	Qty	Wrench
100.00 - 123.99	OZ402-32	1	TPMX170408R	1	CSTB3.5D	1	T-9D	AS0005-10	2	H2.5	LS1805RH	1	H3
124.00 - 135.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
136.00 - 195.99	OZ402-43	1	TPMX240512R	1	CSTB4M	1	T-15D	AS0005-15	2	H2.5	LS1806RH	1	H4
196.00 - 207.99	OZ402-63	1	TPMX280716R	1	CSTB5	1	T-20D	AS0006-15	2	H3	LS1806RH	1	H4
208.00 - 305.99	OZ402-63	1	TPMX280716R	1	CSTB5	1	T-20D	AS0006-15	2	H3	LS1806RH	1	H4

Inner

Drill diameter DCN-DCX (mm)	Cartridge ③	Qty	Insert ④	Qty	Insert screw	Qty	Wrench	Lock screw	Qty	Wrench
100.00 - 123.99	IOZ402-32L	3	TPMX170408L	3	CSTB3.5D	3	T-9D	CSTA5	3	T-15D
124.00 - 135.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3
136.00 - 195.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L
196.00 - 207.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L
208.00 - 305.99	IOZ402-43L	3	TPMX240512L	3	CSTB4M	3	T-15D	LS1206	3	H3L

Guide pad SPARE PARTS

Drill diameter DCN-DCX (mm)	Guide pad ⑤	Qty	Lock screw	Qty	Qty	Wrench	Protector ⑥	Qty	Lock screw	Qty	Wrench	Sub guide pad ⑦	Qty	Lock screw	Qty	Wrench	
100.00 - 123.99	GP18...	3	LS1206S	2	LS1206SSS*	1	H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D
124.00 - 135.99	GP18...	3	LS1206S	3	-	H3	GPT18-M	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D	
136.00 - 195.99	GP18...	5	LS1206S	5	-	H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D	
196.00 - 207.99	GP18...	5	LS1206S	5	-	H3	GPT18-M	5	LS1206S	5	H3	CUG14-M	1	CSTA5S	1	T-15D	
208.00 - 305.99	GP22...	3	LS1206S	3	-	H3	GPT22	3	LS1206S	3	H3	CUG14-M	1	CSTA5S	1	T-15D	

*Lock screw for dimensional guide pad

Drill heads come complete with: cartridges, guide pads, protectors, sub guide pad and wrenches, but less inserts.

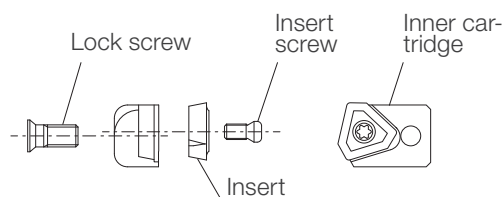
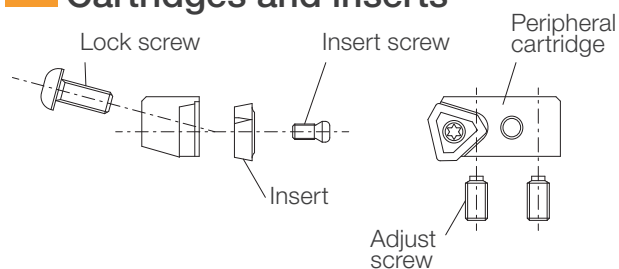
STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed V_c (m/min)	Feed f (mm/rev)
P	Low carbon steel Ex: S10C, S25C, SS400	80 - 100	0.12 - 0.30
	Carbon steel Ex: S45C, S55C	80 - 100	0.12 - 0.30
	Low alloy steel Ex: SNC, DCr, SNCM	60 - 100	0.12 - 0.30
	High alloy steel, Cast steel, Tool-steel Ex: SNS, SKD, SKT	60 - 100	0.12 - 0.30
M	Stainless steels(Ferritic) Ex: SUS430	50 - 90	0.12 - 0.30
	Stainless steels(Martensite) Ex: SUS410, SUS420J	50 - 90	0.12 - 0.30
	Stainless steels(Austenite) Ex: SUS304, SUS316L	50 - 90	0.12 - 0.30
K	Ductile cast iron Ex: FCD400 - FCD450	60 - 100	0.12 - 0.30
	Grey cast iron Ex: FC250, FC350	50 - 100	0.12 - 0.30
	Malleable cast iron Ex: FCMB, FCMW	80 - 100	0.12 - 0.30
N	Aluminium alloys (forged)	65 - 130	0.10 - 0.30
	Aluminium alloys (cast)	65 - 130	0.10 - 0.30
	Copper alloys	65 - 130	0.10 - 0.30
S	Heat-resistant materials, Superalloys	20 - 65	0.10 - 0.20
	Titanium alloys	30 - 100	0.10 - 0.20

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

Replacement parts

Cartridges and inserts



- Outer cartridges are supplied with adjust screws and insert screw but without inserts, lock screws and wrenchs
- Inner cartridges are supplied with insert screw but without inserts, lock screws and wrenchs

Peripheral inserts and accessories

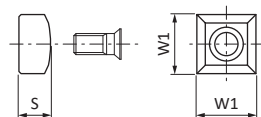
Cartridge	Insert	Insert screw	Wrench	Adjust screw	Wrench	Lock screw	Wrench
OZ402-32	TPMX170408R	CSTB3.5D	T-9D	AS0005-10	H2.5	LS1805RH	H3
OZ402-43	TPMX240512R	CSTB4M	T-15D	AS0005-15	H2.5	LS1806RH	H4
OZ402-63	TPMX280716R	CSTB5	T-20D	AS0006-15	H3	LS1806RH	H4

Central and intermediate inserts and accessories

Cartridge	Insert	Insert screw	Wrench	Lock screw	Wrench
IOZ402-32L	TPMX170408L	CSTB3.5D	T-9D	CSTA5	T-15D
IOZ402-43L	TPMX240512L	CSTB4M	T-15D	LS1206	H3 / H3L*

*H3L is for over $\phi 136.00$ mm

Guide pads and protectors



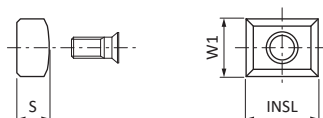
Guide pad	Lock screw	Wrench	Protector	Dimensions (mm)		Lock screw	Wrench
				W1	S		
GP18-40-300-DC	LS1206S / LS1206SSS **	H3	GPT18-M	18	9	LS1206S	H3
GP22...***	LS1206S	H3	GPT22	22	15	LS1206S	H3

**For dimensional guide pad $\phi 100.00$ - $\phi 123.99$ mm

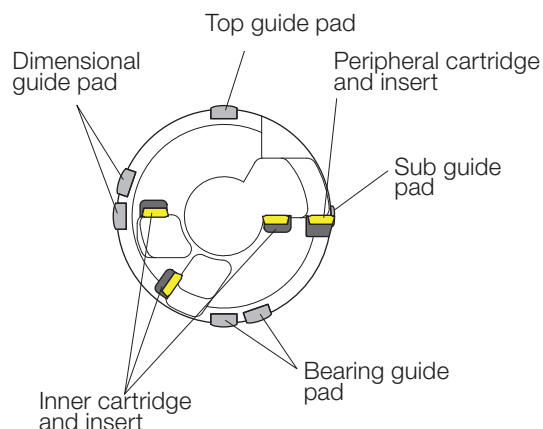
Other carbide grades, coating and ceramic are available upon request.

***Please contact your dealer for further information.

Sub guide pad



Guide pad	Dimensions (mm)			Lock screw	Wrench
	W1	S	INSL		
CUG14-M	14	7	20	CSTA5S	T-15D

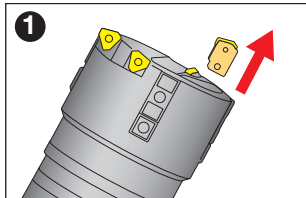


Drill diameter calibration

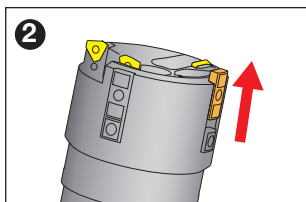
The Drill head diameter is set and inspected with a master insert in our final inspection. However, the inserts in the market have a tolerance fluctuation so each time you change or index the insert, the diameter must be adjusted as per the following method.



⚠ When a corner change is made on the insert, it must be adjusted to correct size or a damage can be caused to the head body or a workpiece material.



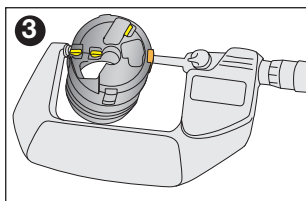
1 Remove the inner cartridge next to the dimensional guide pad to avoid interference with the guide screw.



2 The dimensional guide pad must be slid forward to measure the diameter.

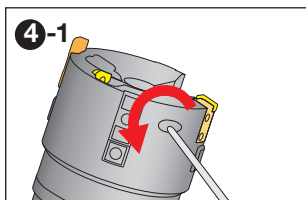
2-1 Loosen the lock screw and slide the guide pad forward.

2-2 Retighten the lock screw at the measuring position.



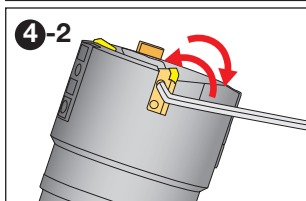
3 Measure the diameter with a micrometer. We recommend setting the Drill diameter at h8 tolerance to the cutting diameter.

If the diameter is incorrect, go to below step **4**
If it's correct, go to below step **5**

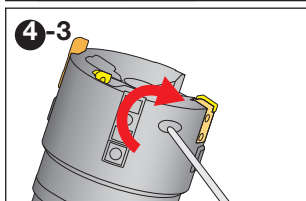


4 Adjust the peripheral cartridge

4-1 First loosen the lock screw of the peripheral cartridge and then tighten it slightly.



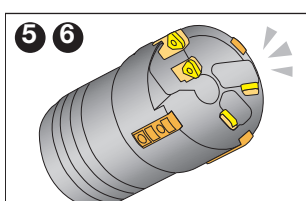
4-2 Proceed to adjust the diameter, using the 2 adjust screws and measure with a micrometer.



4-3 When set to the size, retighten the lock screw.

4-4 Recheck the diameter with a micrometer. If it is still out of tolerance, repeat the procedure from the step **4-1**

⚠ Please make sure to tighten the lock screw firmly before using. If loose, the cartridge may move and cause serious problems during machining.



5 Slide the dimensional guide pad back to the original position and tighten the lock screw.

6 Replace the inner cartridge and tighten the lock screw.

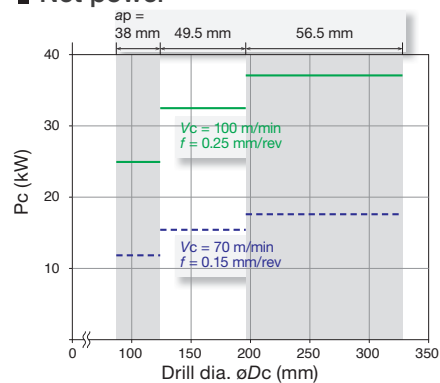
⚠ Please check all the lock screws are firmly tightened as they may come loose if vibration occurs during drilling.

Technical guide

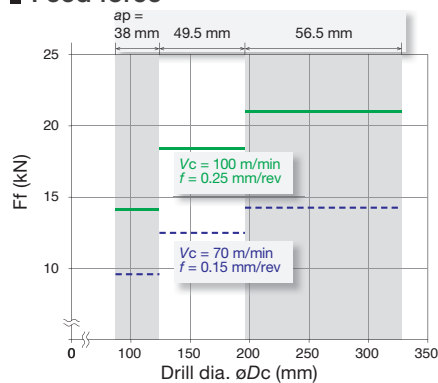
Machine setting for single tube system



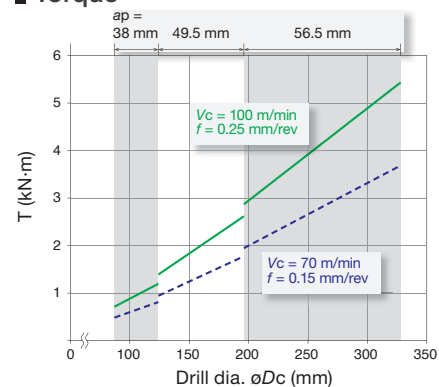
Net power



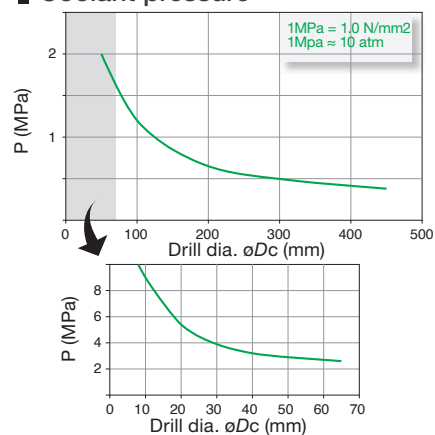
Feed force



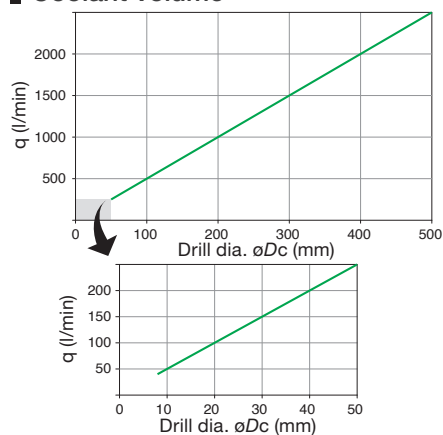
Torque



Coolant pressure

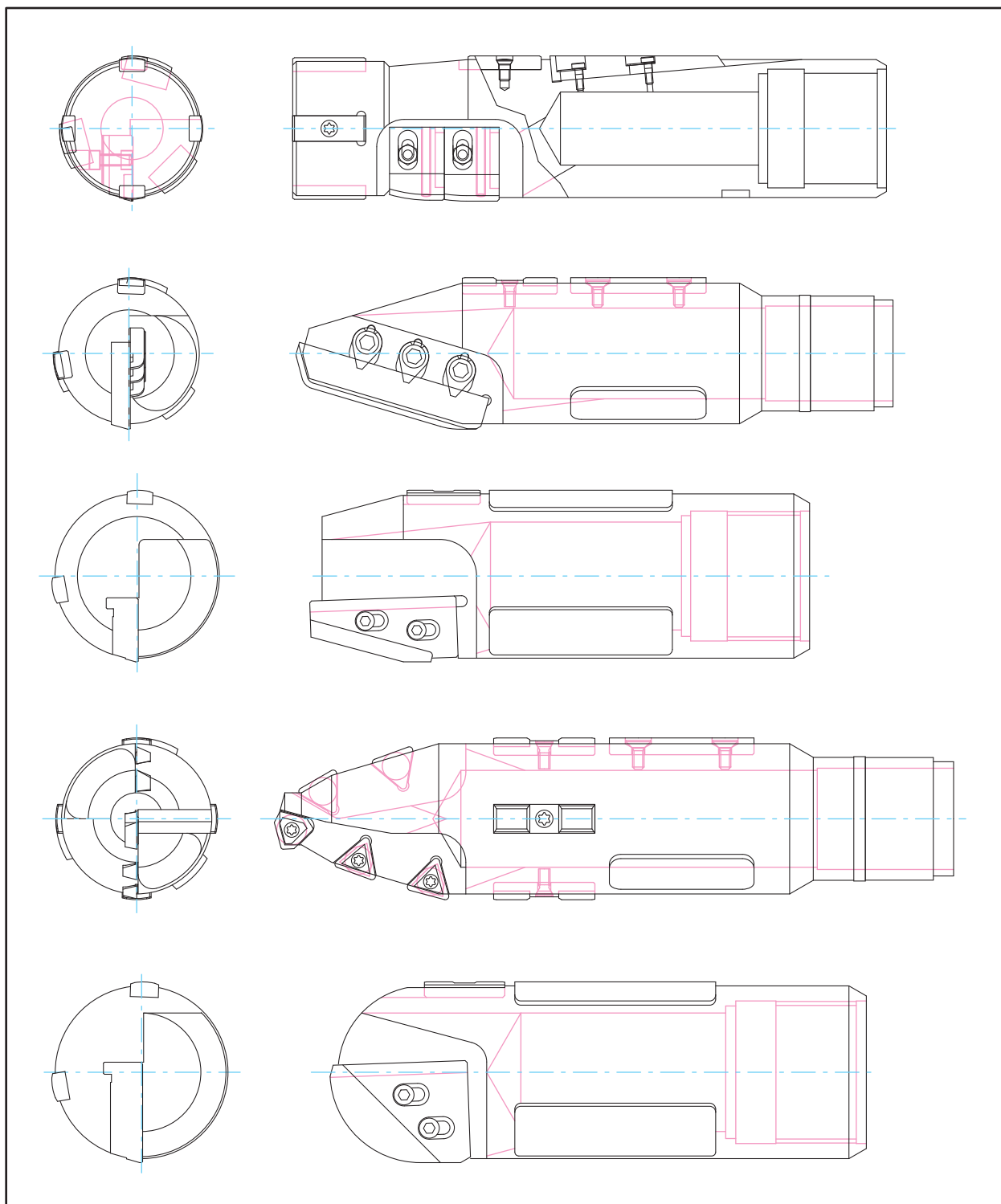


Coolant volume



Special tooling

Various types of special tooling are available upon request.
Some examples are shown below.
Please contact your sales representative for further information.

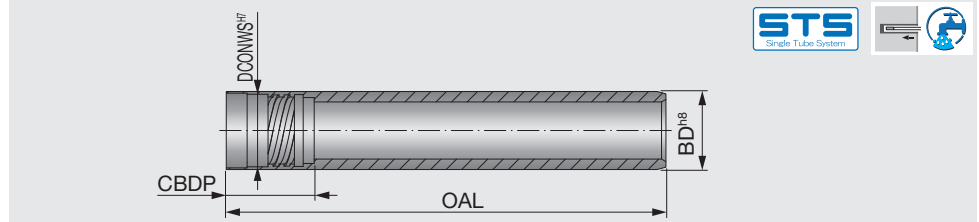


DRILL TUBE



ST

Drill tube for single tube system (STS), internal thread type, 2-start thread (tool dia. $\leq \phi 15.59$ mm) or 4-start thread (tool dia. $\geq \phi 15.6$ mm)



Designation	DCN-DCX	1600	OAL 2600	Special length	BD	DCONWS	CBDP	Designation	DCN-DCX	OAL Special length	BD	DCONWS	CBDP
ST0094	12.6 - 13.6	●		○	11	9.6	22	ST14	65 - 66.99	○	56	52	75
ST0095	13.61 - 14.6	●		○	12	10.6	22	ST15	67 - 72.99	○	62	58	75
ST0096	14.61 - 15.59	●		○	13	11.6	22	ST16	73 - 79.99	○	68	63	75
ST0097	15.6 - 16.7	●		○	14	12.6	21	ST17	80 - 86.99	○	75	70	97
ST0098	16.71 - 17.7	●	●	○	15	13.6	21	ST18	87 - 99.99	○	82	77	97
ST0099	17.71 - 18.9	●	●	○	16	14.5	22	ST19	100 - 111.99	○	94	89	97
ST0000	18.91 - 20	●	●	○	17	15.5	22	ST20	112 - 123.99	○	106	101	118
ST00	20.01 - 21.8	●	●	○	18	16	27.5	ST21	124 - 135.99	○	118	113	118
ST01	21.81 - 24.1		●	○	20	18	30	ST22	136 - 147.99	○	130	125	118
ST02	24.11 - 26.4		●	○	22	19.5	30	ST23	148 - 159.99	○	142	137	139
ST03	26.41 - 28.7		●	○	24	21	30	ST24	160 - 171.99	○	154	149	139
ST04	28.71 - 31		●	○	26	23.5	33	ST25	172 - 183.99	○	166	161	139
ST05	31.01 - 33.3		●	○	28	25.5	33	ST26	184 - 195.99	○	178	173	144
ST06	33.31 - 36.2		●	○	30	28	33	ST27	196 - 207.99	○	190	185	144
ST07	36.21 - 39.6		●	○	33	30	40	ST28	208 - 219.99	○	202	197	144
ST08	39.61 - 43		●	○	36	33	40	ST29	220 - 231.99	○	214	208	164
ST09	43.01 - 47		●	○	39	36	40	ST30	232 - 243.99	○	226	220	164
ST10	47.01 - 51.7		●	○	43	39	40	ST31	244 - 255.99	○	238	232	164
ST11	51.71 - 56.2		●	○	47	43	44	ST32	256 - 267.99	○	250	244	184
ST12	56.21 - 60.6		●	○	51	47	44	ST33	268 - 279.99	○	262	256	184
ST13	60.61 - 65			○	56	51	44	ST34	280 - 291.99	○	274	268	184

Please specify the length (OAL) when ordering.

e.g. For $\phi 60$ mm drill diameter / 2600 mm drill tube length: ST12X2600

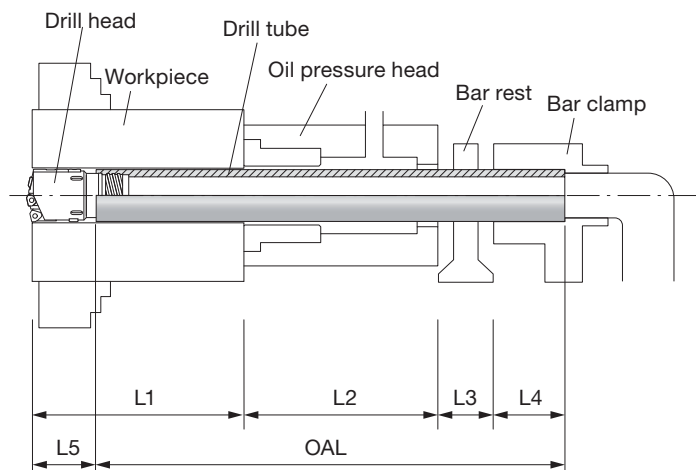
The lengths that are not in the above and larger sizes are available upon request.

● : Line up

○ : Item to be customized

Tube length for special drills

Drill tubes with non-standard lengths will be available upon request. Please use the guide below to calculate the drill tube length.



OAL = Drill tube overall length
L1 = Drilling depth
L2 = Oil pressure head length
L3 = Bar rest length
L4 = Drill tube clamp length
L5 = Length from drill tube tip and peripheral edge tip

$$\text{Drill tube length OAL} \approx L1 + L2 + L3 + L4 - L5$$

DEEP-ACE



DCN-DCX	L5
14 - 15.59	35
15.6 - 15.99	36
16 - 20	34
20.01 - 21.8	32.5
21.81 - 21.99	33.5
22 - 28	35.5
28.01 - 28.7	40
28.71 - 33.3	42
33.31 - 36.2	46.5
36.21 - 39.6	49.5
39.61 - 40	54.5

DEEP-RAY



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
65.01 - 79.99	66
80 - 89	67

DEEP-LINE



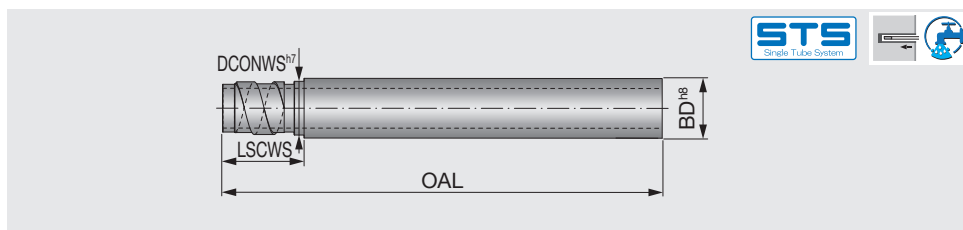
DCN-DCX	L5
38 - 43	45
43.01 - 51.7	55
51.71 - 56.2	56
56.21 - 65	66
65 - 79.99	75
80 - 111.99	83
112 - 147.99	87
148 - 183.99	86
184 - 255.99	101
256 - 291.99	106

DRILL TUBE



UB

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



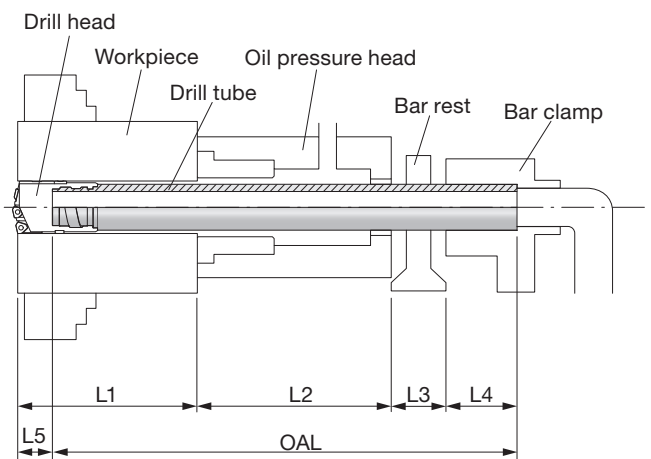
Designation	DCN-DCX	OAL Special length	BD	DCONWS	LSCWS	Designation	DCN-DCX	OAL Special length	BD	DCONWS	LSCWS
UB12-1	14.5 - 15	○	12	11.5	23	UB56	61 - 67.99	○	56	53	41
UB12-2	15.01 - 15.5	○	12	11.8	23	UB62	68 - 74.99	○	62	59	41
UB13-1	15.51 - 16	○	13	12.4	23	UB68	75 - 80.99	○	68	65	71
UB13-2	16.01 - 16.5	○	13	12.7	23	UB75	81 - 90.99	○	75	71	71
UB14-1	16.51 - 17.25	○	14	13.4	23	UB82	91 - 98.99	○	82	79	71
UB14-2	17.26 - 18	○	14	13.7	23	UB94	99 - 110.99	○	94	90	71
UB15	18.01 - 19	○	15	14.4	23	UB106	111 - 122.99	○	106	102	71
UB16.5	19.01 - 19.99	○	16.5	15.4	23	UB118	123 - 134.99	○	118	114	71
UB18	20 - 21.99	○	18	16.5	26	UB130	135 - 148.99	○	130	126	71
UB20	22 - 24.99	○	20	19	26	UB142	149 - 161.99	○	142	139	71
UB22	25 - 26.99	○	22	20	26	UB154	162 - 173.99	○	154	151	86
UB24	27 - 29.99	○	24	22	26	UB166	174 - 185.99	○	166	163	86
UB26	30 - 31.99	○	26	24	26	UB178	186 - 197.99	○	178	175	86
UB28	32 - 33.99	○	28	26	26	UB190	198 - 209.99	○	190	187	86
UB30	34 - 36.99	○	30	27	41	UB202	210 - 221.99	○	202	199	86
UB33	37 - 39.99	○	33	30	41	UB214	222 - 233.99	○	214	211	86
UB36	40 - 43.99	○	36	33	41	UB226	234 - 245.99	○	226	223	86
UB39	44 - 46.99	○	39	37	41	UB238	246 - 257.99	○	238	235	86
UB43	47 - 51.99	○	43	41	41	UB250	258 - 269.99	○	250	247	121
UB47	52 - 56.99	○	47	44	41	UB262	270 - 281.99	○	262	259	121
UB51	57 - 60.99	○	51	49	41	UB274	282 - 293.99	○	274	271	121

Please specify the length (OAL) when ordering.
e.g. For ø60 mm drill diameter / 2600 mm drill tube length: UB51X2600
Larger sizes are available upon request.

○ : Item to be customized

Tube length for special drills

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



OAL = Drill tube overall length
L1 = Drilling depth
L2 = Oil pressure head length
L3 = Bar rest length
L4 = Drill tube clamp length
L5 = Length from drill tube tip and peripheral edge tip

Drill tube length $OAL \approx L1 + L2 + L3 + L4 - L5$

DEEP-ACE



DCN-DCX	L5
14.5 - 15.99	34
16 - 19.99	31
20 - 20	31.5
20.01 - 21.99	32.5
22 - 25	34.5
25.01 - 28	39
28.01 - 29.99	44
30 - 33.99	49
34 - 36.99	48.5
37 - 39.99	53.5
40 - 40	58.5

DEEP-RAY



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

DEEP-LINE



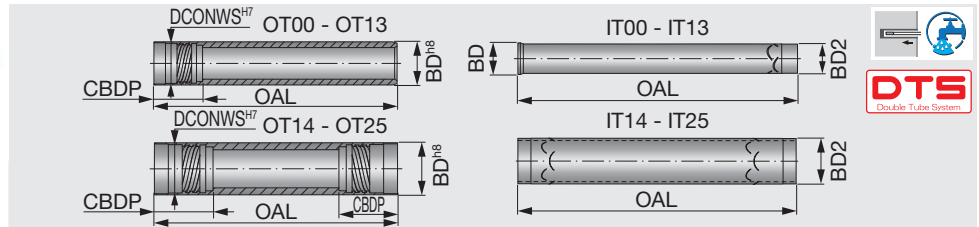
DCN-DCX	L5
38 - 43.99	40
44 - 51.99	50
52 - 56.99	60
57 - 67.99	70
68 - 161.99	80
162 - 257.99	105
258 - 293.99	90

DRILL TUBE



OT & IT

Outer tube and inner tube for double tube system (DTS)



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	67 - 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	67 - 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

Please specify the length (OAL) when ordering.

e.g. For ø60 mm drill diameter / 1070 mm drill outer tube length: OT13X1070

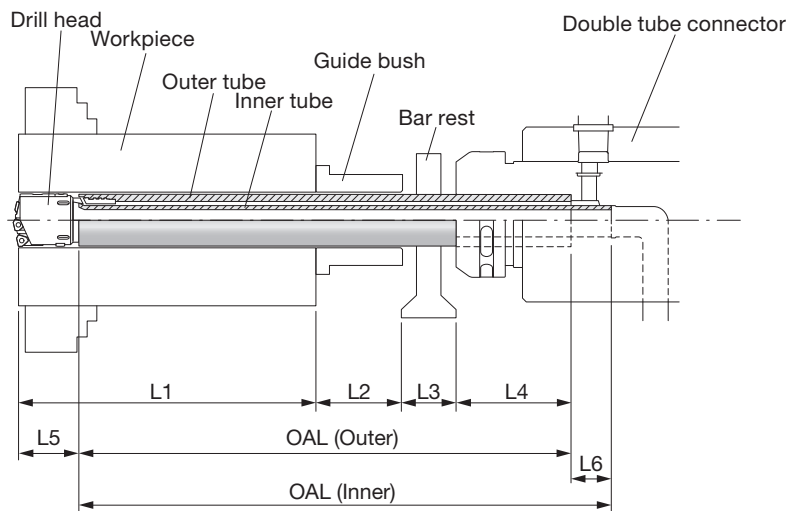
Please choose the inner tube length according to the guide below:

- ▶ tool diameter: ø18.40 - ø65.00 mm (OT00 - OT13) Inner tube length = Outer tube length + 30 mm
- ▶ tool diameter: ø65.00 - ø123.99 mm (OT14 - OT20) Inner tube length = Outer tube length + 190 mm
- ▶ tool diameter: ø124.00 - ø183.99 mm (OT21 - OT25) Inner tube length = Outer tube length + 220 mm

○ : Item to be customized

Tube length for special drills

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



Outer tube overall length $\cong L1 + L2 + L3 + L4 - L5$

Inner tube overall length = Outer tube overall length + L6

L1 = Drilling depth
 L2 = Guide bush length (or pilot hole depth)
 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**

DTC	L4*	L6**
DTC 4R (OT00 - OT13)	120	30
DTC 5R (OT14 - OT20)	0	190
DTC 6R (OT21 - OT25)	0	220

(mm)

For smooth drill entry, make sure that the drill head is inside the guide bushing (or pilot hole) all the way up to 5 mm over the outer tube.

DEEP-ACE



DCN-DCX	L5
18.4 - 20	31.5
20.01 - 21.99	33.5
22 - 25	35.5
25.01 - 28	37.5
28.01 - 31	42
31.01 - 33.3	47
33.31 - 36.2	49.5
36.21 - 39.6	54.5
39.61 - 40	59.5

DEEP-RAY



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

DEEP-LINE



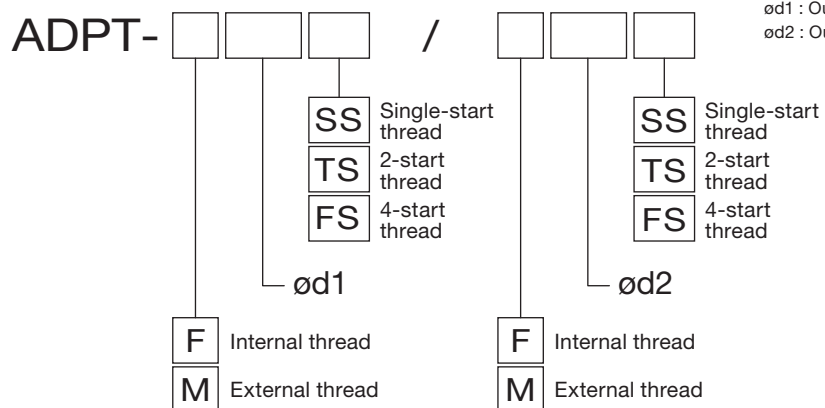
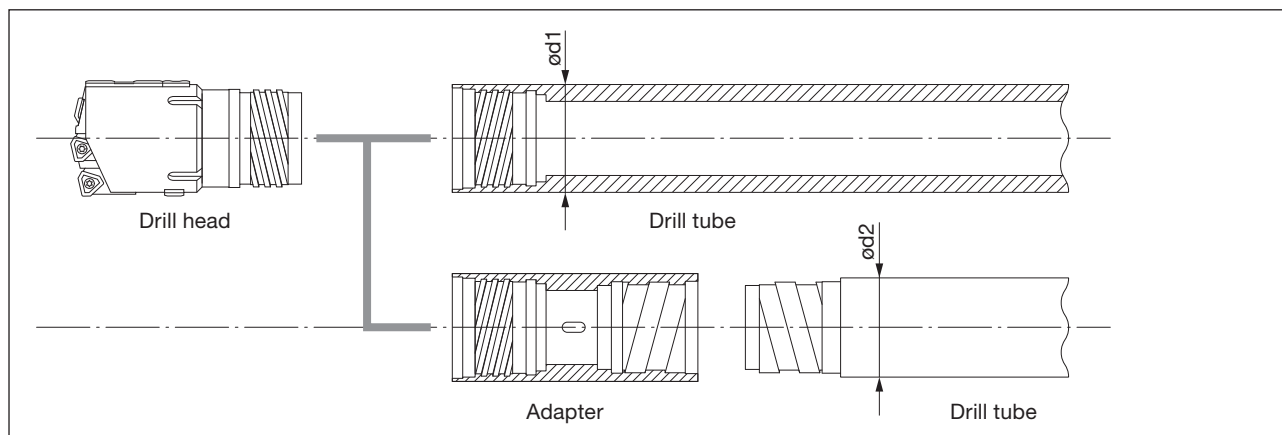
DCN-DCX	L5
38 - 43	45
43.01 - 47	55
47.01 - 51.7	51
51.71 - 56.2	56
56.21 - 65	66
65 - 79.99	75
80 - 111.99	83
112 - 147.99	87
148 - 183.99	86



Conversion adapter

Adapter for external thread - internal thread conversion

An adapter to connect with a smaller tube diameter is also available upon request.



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

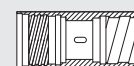
Designation example

For the conversion from ST11 to UB47

ADPT-F47FS/F47SS

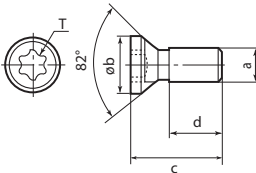
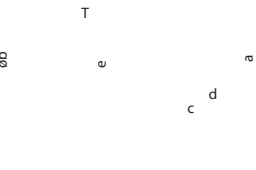
ST11

UB47



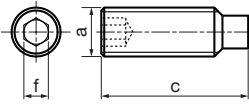
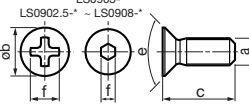
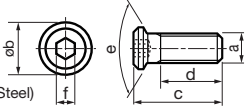
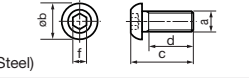
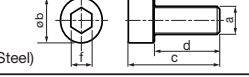
Parts for Tools

Screws

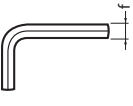
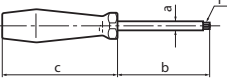
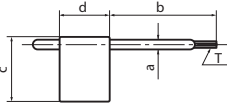
Shape	Designation	Dimension (mm)						Torque (N·m)
		a	øb	c	d	e	T / f	
 (Steel)	CSTA-NO3	#3-48UNC	4.3	7	4	82°	T9	2.3
	CSTANO3-4.5			4.5	1.5			
	CSTA-NO5	#5-40UNC	5	8	5			
	CSTANO5-5.5			5.5	2.5			
	CSTANO5-6.5			6.5	3.5			
	CSTA-4	M4x0.7	7	10	7.7		T15	3.5
	CSTA4-7.5	M4x0.7	7	7.5	5.2			
	CSTA-5	M5x0.8	7.2	15	11			
	CSTA-5S			12	8			
	CSTA-5SS			9.5	5.5			
 (Steel)	CSTB-2.2	M2.2x0.45	3.5	6.1	3.5	60°	T7	1
	CSTB-2.2S			4.6	2		T8	1.3
	CSTB-2.5	M2.5x0.45		6	3.4			
	CSTB-2.5S			4.8	2.2		T9	2.3
	CSTB-3	M3x0.5	4.1	8	4.5		T15	3.5
	CSTB-3S			6	2.5			
	CSTB-3.5H	M3.5x0.6	5.2	6.5	3.1		T9	2.3
	CSTB-3.5		5.5	8.4	4.3			
	CSTB-3.5D		4.7	8.4	4.9		T15	3.5
	CSTB-4	M4x0.7	5.5	11.4	7.4			
	CSTB-4S			8	4		T20	5
	CSTB-4M			9.5	5.5			
	CSTB-5	M5x0.8	7	12	7.5		6IP	0.6
	CSTB-5S			9.5	5			
	CSPB-FL3.1	M2x0.25	2.6	3.1	1.3		T7	-
	CSPB-FL2.7-LH			2.7	1.1			
	CSPB-2L043	M2x0.4	2.7	4.3	2.5			
	SR-M2.5X0.35L3.8	M2.5x0.35	3.25	3.8	2.7	50°		
	SR10503833L040	M2.5x0.45		4	2	60°	T8	1.2
	SR14-506	M4x0.7	5.7	8	4.7			
	SR 14-560-HG	M2.5x0.45	3.5	6.4	3.8	60°	T10	3.2
	SR14-560/S			5.35	2.75			
	SR14-571/S	M3.5x0.6	5.1	7.5	4	43°	T20	5
	SR16-212/L10	M5x0.8	6.4	10	4.7	60°	T9	2
	SR34-506	M3x0.5	4.4	6.5	3.3			
	SR34-508	M2.2x0.45	3.15	4.6	2.67			

Parts for Tools

Screws

Shape	Designation	Dimension (mm)						Torque (N·m)
		a	øb	c	d	e	T / f	
 (Steel)	AS0003-3.5	M3X0.5		3.5			1.5	-
	AS0003-5			5				-
	AS0004-16	M4X0.7		16			2	-
	AS0004-5			5				-
	AS0004-8			8				-
	AS0005-10	M5X0.8		10			2.5	-
	AS0005-15			15				-
	AS0005-20			20				-
	AS0005-5	M6X1.0		5			3	-
	AS0006-15			15				-
	AS0006-25			25				-
 (Steel)	LS0902.5-6	M2.5X0.4	4.7	6			90°	2.9
	LS0903-8	M3X0.5	6	8				2
	LS0904-10	M4X0.7	8	10				2.5
	LS0904-8			8				
	LS0905-12	M5X0.8	10	12				3
	LS0906-15	M6X1.0	12	15				4
	LS0908-20	M8X1.25	16	20				5
 (Steel)	LS1206	M6X1.0	8.5	18	12.5		120°	3
	LS1206S			14	8.5			
	LS1206SS			12.5	7			
	LS1206SSS			10.5	5			
 (Steel)	LS1803RH	M3X0.5	5.7	11.7	9		2	2.2
	LS1805RH	M5X0.8	9.5	14.8	10.4		3	3
	LS1806RH	M6X1.0	10.5	18.3	13		4	5
 (Steel)	LS1803.5RH	M3.5X0.5	6	13	10		2.5	2.2
	LS1810-25	M10X1.5	16	35	25		10	-
	LS1812-25	M12X1.75	18	37	25		14	-

Wrenches and Drivers

Shape	Designation	Dimension (mm)					
		a	b	c	d	f	T
	H1.27					1.27	
	H1.5					1.5	
	H2					2	
	H2.5					2.5	
	H3					3	
	H3L					3	
	H4					4	
	H5					5	
 Handle shape somewhat varies depending on the type number from the above figure.	H8					8	
	T-7D	2	45	70			T7
	T-8D	2.6	61	67.5			T8
	T-9D	3	65	80			T9
	T-15D	3.65	71	100			T15
	T-20D	4.6	90				T20
	T-6F	2	35	14.5	15		T6
	T-7F			19	19		T7
	T-8F	2.5	40	23.5	20		T8
	T-9F	3					T9
	T-10/5	3		24			T10
	T-15F	3.5	45	28	21		T15
	T-20/5	4					T20
	IP-6F	2	35	14.8	14.9		6IP

Surface Roughness

(According to JIS B 0601, 2001 and its explanation.)

Type	Symbol	How to determine	Example (Fig.)
Arithmetic mean roughness	R_a	R_a means the value obtained by the following formula and expressed in micrometer (μm) when sampling only the reference length from the roughness curve in the direction of mean line, taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and the roughness curve is expressed by $y = f(x)$: $R_a = \frac{1}{\ell} \int_0^{\ell} f(x) dx$ where, ℓ : reference length	
Maximum height	R_z	R_z shall be that only the reference length is sampled from the roughness curve in the direction of mean line, the distance between the top of profile peak line and the bottom of profile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve and the obtained value is expressed in micrometer (μm). $R_z = R_p + R_v$	
Ten point mean roughness	R_{zJIS}	R_{zJIS} shall be that only the reference length is sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute values of the heights of five highest profile peaks (Z_p) and the depths of five deepest profile valleys (Z_v) measured in the vertical magnification direction from the mean line of this sampled portion and this sum is expressed in micrometer (μm) $R_{zJIS} = \frac{ Z_{p1} + Z_{p2} + Z_{p3} + Z_{p4} + Z_{p5} + Z_{v1} + Z_{v2} + Z_{v3} + Z_{v4} + Z_{v5} }{5}$	where, $Z_{p1}, Z_{p2}, Z_{p3}, Z_{p4}, Z_{p5}$: altitudes of the heights of five highest profile peaks of the sampled portion corresponding to the reference length ℓ where, $Z_{v1}, Z_{v2}, Z_{v3}, Z_{v4}, Z_{v5}$: altitudes of the depths of five deepest profile valleys of the sampled portion corresponding to the reference length ℓ

International Tolerance

IT (International Tolerance) Grades

IT grades show a tolerance allowable for difference of the diameters of a hole and a shaft. As the number added after IT increases, the tolerance becomes rough. Depending on the basic size, the tolerance value in each grade varies.

In the catalog, IT grades are shown as a guide of dimensional dispersion in the diameters of holes machined with the drill. For information, H8 tolerance for a $\varnothing 8.0$ hole is 0 to + 0.022 mm, the width of the value is the same as that of IT 8.

In the Table shown below, tolerance areas attainable with typical drilling tools are distinguished by using different colors. Solid drills are generally used for machining holes of IT 9 to 12. For machining a hole of better than IT 8, finishing process such as reaming is required. For a hole better than IT 5, high-precision finishing is required. Above description is based on machining of general steel. In practice, the IT grade attained with the tool varies widely depending on the hardness and the composition of the work material.

Basic size (mm)		International tolerance grade																	
		IT1	IT2	IT3	IT4	IT5	IT6	IT7	IT8	IT9	IT10	IT11	IT12	IT13	IT14	IT15	IT16	IT17	IT18
>	≤							(μm)						(mm)					
-	3	0.8	1.2	2	3	4	6	10	14	25	40	60	0.1	0.14	0.25	0.4	0.6	1	1.4
3	6	1	1.5	2.5	4	5	8	12	18	30	48	75	0.12	0.18	0.3	0.48	0.75	1.2	1.8
6	10	1	1.5	2.5	4	6	9	15	22	36	58	90	0.15	0.22	0.36	0.58	0.9	1.5	2.2
10	18	1.2	2	3	5	8	11	18	27	43	70	110	0.18	0.27	0.43	0.7	1.1	1.8	2.7
18	30	1.5	2.5	4	6	9	13	21	33	52	84	130	0.21	0.33	0.52	0.84	1.3	2.1	3.3
30	50	1.5	2.5	4	7	11	16	25	39	62	100	160	0.25	0.39	0.62	1	1.6	2.5	3.9
50	80	2	3	5	8	13	19	30	46	74	120	190	0.3	0.46	0.74	1.2	1.9	3	4.6
80	120	2.5	4	6	10	15	22	35	54	87	140	220	0.35	0.54	0.87	1.4	2.2	3.5	5.4
120	180	3.5	5	8	12	18	25	40	63	100	160	250	0.4	0.63	1	1.6	2.5	4	6.3
180	250	4.5	7	10	14	20	29	46	72	115	185	290	0.46	0.72	1.15	1.85	2.9	4.6	7.2
250	315	6	8	12	16	23	32	52	81	130	210	320	0.52	0.81	1.3	2.1	3.2	5.2	8.1
315	400	7	9	13	18	25	36	57	89	140	230	360	0.57	0.89	1.4	2.3	3.6	5.7	8.9
400	500	8	10	15	20	27	40	63	97	155	250	400	0.63	0.97	1.55	2.5	4	6.3	9.7
500	630	9	11	16	22	32	44	70	110	175	280	440	0.7	1.1	1.75	2.8	4.4	7	11
630	800	10	13	18	25	36	50	80	125	200	320	500	0.8	1.25	2	3.2	5	8	12.5
800	1000	11	15	21	28	40	56	90	140	230	360	560	0.9	1.4	2.3	3.6	5.6	9	14
1000	1250	13	18	24	33	47	66	105	165	260	420	660	1.05	1.65	2.6	4.2	6.6	10.5	16.5
1250	1600	15	21	29	39	55	73	125	195	310	500	780	1.25	1.95	3.1	5	7.8	12.5	19.5
1600	2000	18	25	35	46	65	92	150	230	370	600	920	1.5	2.3	3.7	6	9.2	15	23
2000	2500	22	30	41	55	78	110	175	280	440	700	1100	1.75	2.8	4.4	7	11	17.5	28
2500	3150	26	36	50	68	96	135	210	330	540	860	1350	2.1	3.3	5.4	8.6	13.5	21	33

Tolerance area
requiring finishing
process such as
with a reamer.

Tolerance area at-
tainable with a solid
drill.

Tolerance area
attainable with an
indexable drill.