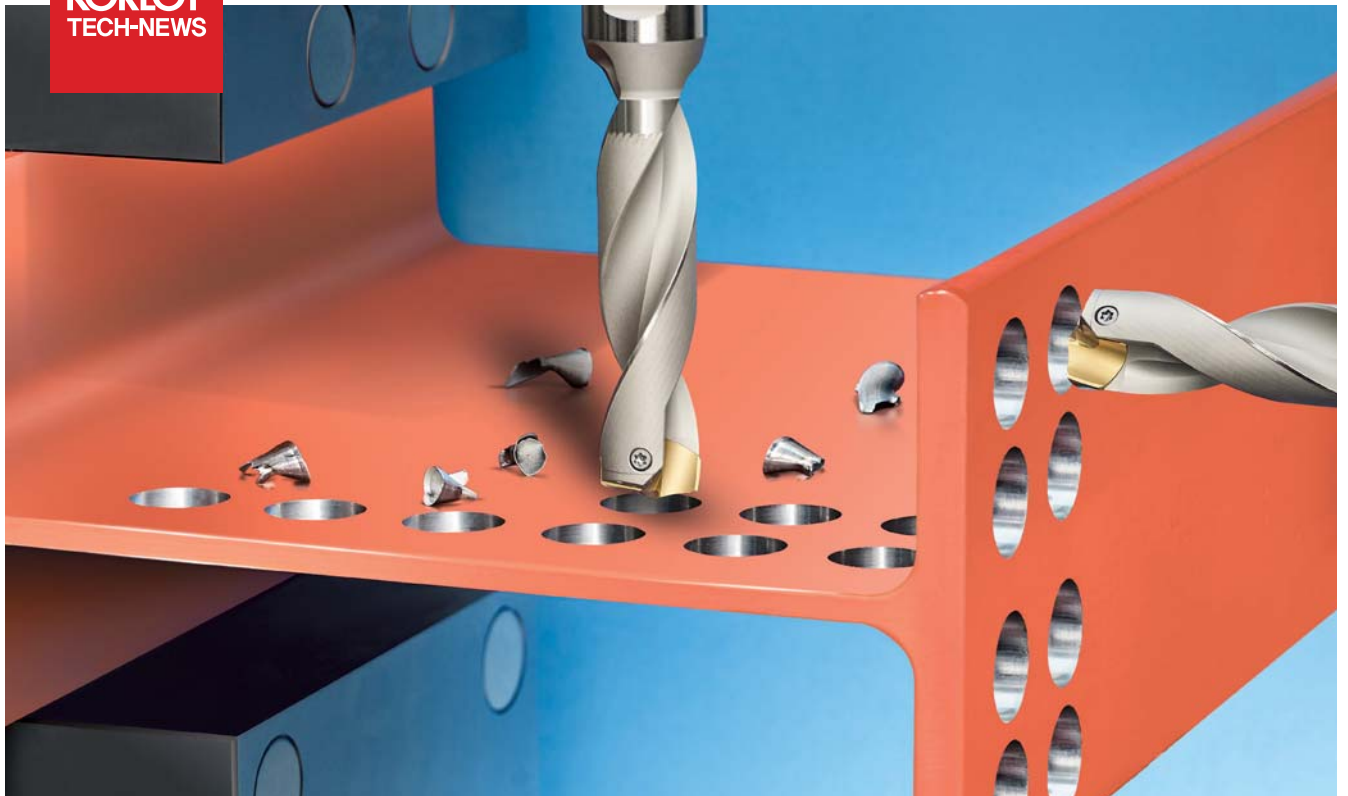


The exclusive top solid indexable drill  
for steel-frame structure, H-Beam

# TPDB-H

**KORLOY**  
TECH-NEWS



- The highly efficient and exclusive top solid indexable drill for steel-frame structures such as H-Beam, steel sheet, etc.
- Excellent centering and quality of hole due to the optimal shape of cutting edge

The exclusive top solid indexable drill  
for steel-frame structure, H-Beam

# TPDB-H

Section shape steel used for constructions including hotels, hospitals, factories, offices and bridges is in demand continuously.

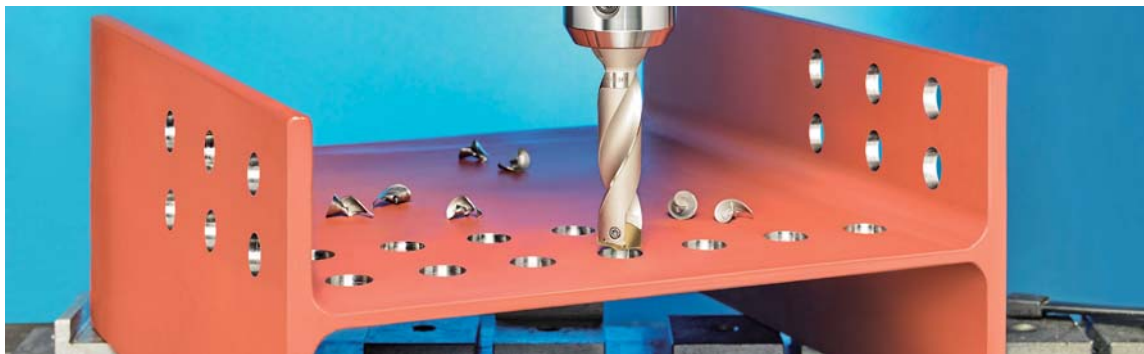
KORLOY launches exclusive top solid indexable drill, TPDB-H for drilling of steel-frame structure such as H-Beam, Angle, and Plate etc. according to the importance of section shape steel in the market.

**TPDB-H** insert with independent shape of double R point cutting edge ensures high quality surface finish even in vibrated machining due to its good centering and less cutting load.

In addition, the exclusive multi-layer PVD coating for drilling of steel-frame structure with high hardness and lubrication and surface treatment technology provide long tool life due to better chip evacuation and less wear on rake face and relief face.

The high helix angled flute of TPDB-H holders increases machining stability and productivity preventing vibration and unexpected fracture from chip blockage in drilling of thick workpieces.

TPDB-H will provide a rising solution for drilling of steel-frame structure.



## Good machinability

- Double R point cutting edge reduces cutting load.
- High helix angle realizes good chip evacuation.

## Improved productivity

- New grade ensures long tool life.
- The special surface treatment improves holder durability.

## Code System

### 【Holder】

<b>TPD</b>	<b>B</b>	<b>220</b>	-	<b>25</b>	-	<b>4</b>	-	<b>H</b>
Top Solid Piercing Drill	Insert type B: Blade type	Drill dia. 220: Ø22.0		Shank dia. 25: Ø25		Aspect ratio (L/D) 3D, 4D, 8D ※ Flange shank (8F) for 8D		H-Beam

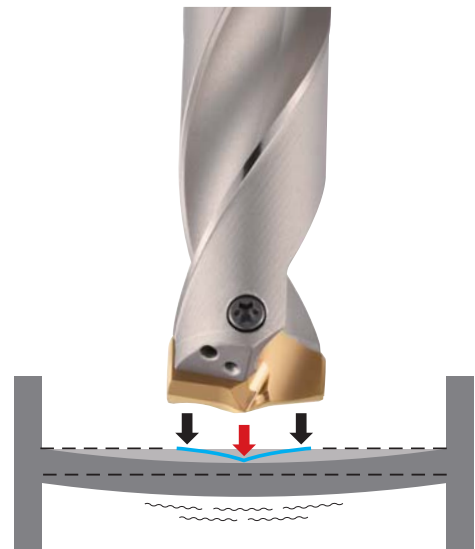
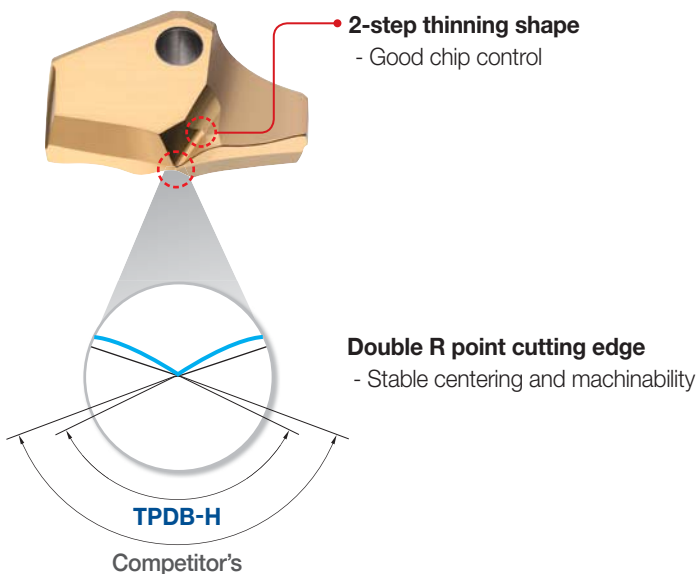
### 【Insert】

<b>TPD</b>	<b>200</b>	<b>B</b>	-	<b>H</b>
Top Solid Piercing Drill	Drill dia. 200: Ø20.0	Insert type B: Blade type		H-Beam

## Features

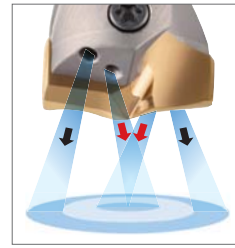
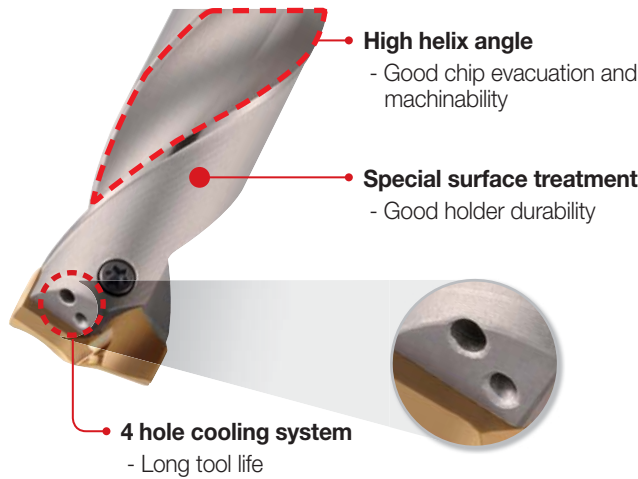
- **High precision clamping system:** High precision clamping due highly precise grinding and auto-centering
- **Screw on clamping system:** Easy to replace insert
- **Edge design with excellent centering:** Low cutting load and good chip control
- **High durability holder:** Improved wear resistance and durability with special surface treatment implementation
- **Holder with good chip evacuation:** Good chip evacuation and reduced cutting load with high helix angle
- **Optimally designed oil hole:** Long tool life

## Features of insert

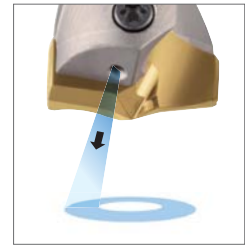


- ↓ Applied Double R point edge design is optimized for excellent centering and stable machinability.
- ↓ Machinability and productivity are improved by minimizing both workpiece's bending and chipping at edge corner section.

## Features of holder



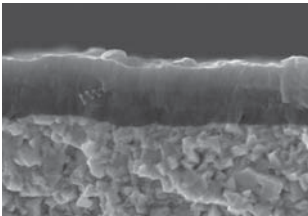
[TPDB-H]



[Competitor's]

Concentrated coolant injection on delicate cutting edge increases tool life.

## Grade selection



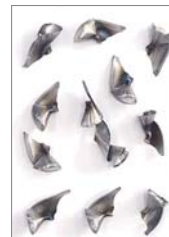
### PC340Q

- Application of high hardness lubricative PVD coating technology with excellent resistance on wear, welding, and chipping.
- The special surface treatment improves chip evacuation and reduces wear on the rake surface and relief face.
- High hardness ultra-fine substrate ensures high rigidity of cutting edge and good chipping resistance.

## Performance evaluation

### Chip control

- **Workpiece** Carbon steel (SS400, SM490A)
- **Cutting conditions** vc (m/min) = 80, fn (mm/rev) = 0.2, ap (mm) = 30, wet
- **Tools**  
**Insert** TPD270B-H (PC340Q)  
**Holder** TPDB270-32-4-H (Drill dia. = Ø27)



[SS400]



[SM490A]

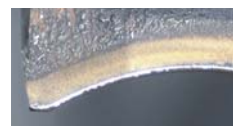
Good chip control

### Wear resistance

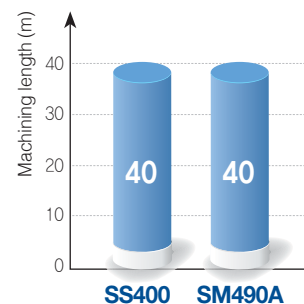
- **Workpiece** Carbon steel (SS400)
- **Cutting conditions** vc (m/min) = 65, fn (mm/rev) = 0.25, ap (mm) = 30, wet
- **Tools**  
**Insert** TPD220B-H (PC340Q)  
**Holder** TPDB220-25-4-H (Drill dia. = Ø22)



[SS400]







[SM490A]



► Normal wear and still usable

## Workpiece and recommended cutting conditions

ISO	Workpiece		Workpiece materials	Grade	vc (m/min)	Aspect ratio (L/D) = 3D, 4D Feed (mm/rev) per drill dia. (mm)	
						Ø14.0-Ø21.0	Ø22.0-Ø30.0
P Carbon steel	H-Beam		SS400 SM490 SHN490	PC340Q	65 (60-75)	0.22 (0.2-0.25)	0.25 (0.2-0.3)
	Angle						
	Plate						
	Plate (Stacked)				60 (55-65)	0.2 (0.15-0.25)	

## How to clamp a TPDB-H insert

### Clamping an insert to a holder



- ① Put an insert on the tip seat of the holder.
- ② As the [pic.1], push the insert to the v-shaped groove of the holder.
- ③ Screw and clamp the insert.

### Changing the used insert to a new one



- ① Unscrew and separate the used insert from the holder.
- ② As the [pic.2], clean the insert seat.
- ③ Put a new insert on the tip seat.
- ④ As the [pic.3], clamp the insert pushing it with a hand not to separate from the holder.

## Precaution in drilling

### Drilling of angled entrance



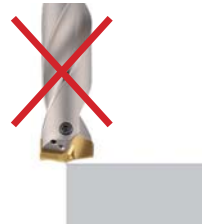
- The approach angle between drill and the workpiece at the beginning should be less than 6°
- Reduce the feed to 30~50% than general cutting conditions at the beginning and the end of angled surface.

### Drilling of stacked plates



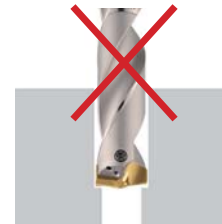
- Gap between the plates could make wrong chip evacuation causing fracture of the drill.
- Place stacked plates without any gap between each.

### Plunging



- Irregular cutting resistance in plunging could cause fracture and deformation of the drill.

### Boring



- Boring is not recommended due to wear and chipping in the corner of the insert.

## Application examples

### Carbon steel (SM490)



- **Cutting conditions**  $vc$  (m/min) = 60,  $fn$  (mm/rev) = 0.25,  $ap$  (mm) = 50, wet
- **Tool**  
**Insert** TPD240B-H (PC340Q)  
**Holder** TPDB270-32-4-H  
(Drill dia. =  $\varnothing 24$ )
- **Tool life** 60 m (Normal wear)

► Stable chip evacuation ensures tool life as 60 m in even machining with over 40 mm thickness.

### Carbon steel (SM490)



- **Cutting conditions**  $vc$  (m/min) = 70,  $fn$  (mm/rev) = 0.25,  $ap$  (mm) = 24, wet
- **Tool**  
**Insert** TPD270B-H (PC340Q)  
**Holder** TPDB270-32-3-H  
(Drill dia. =  $\varnothing 27$ )
- **Tool life** 40 m (Normal wear)

► High speed and high feed machining saves machining hours.

### Carbon steel (SS400)



- **Cutting conditions**  $vc$  (m/min) = 60,  $fn$  (mm/rev) = 0.20,  $ap$  (mm) = 12, wet
- **Tool**  
**Insert** TPD220B-H (PC340Q)  
**Holder** TPDB220-32-3-H  
(Drill dia. =  $\varnothing 22$ )
- **Tool life** 35 m (Normal wear)

► Stable machinability and long tool life are realized in machining various workpieces such as SM490, SS400, SHN490 etc.

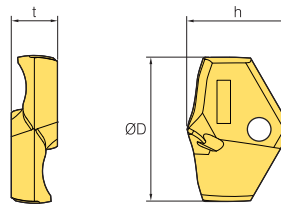
### Carbon steel (SM490)



- **Cutting conditions**  $vc$  (m/min) = 65,  $fn$  (mm/rev) = 0.20,  $ap$  (mm) = 22, wet
- **Tool**  
**Insert** TPD240B-H (PC340Q)  
**Holder** TPDB240-32-3-H  
(Drill dia. =  $\varnothing 24$ )
- **Tool life** 40 m (Normal wear)

► Minimized cutting load in horizontal machining ensures high quality machining.



# Insert



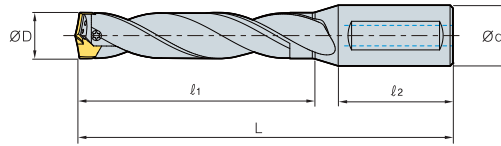
(mm)

Designation		Grade	ØD	h	t
TPD	140B-H~149B-H	PC340Q	14.0-14.9	10.0	4.0
	150B-H~159B-H		15.0-15.9	10.5	4.0
	160B-H~169B-H		16.0-16.9	11.5	5.5
	170B-H~179B-H		17.0-17.9	12.0	5.5
	180B-H~189B-H		18.0-18.9	13.0	6.0
	190B-H~199B-H		19.0-19.9	13.5	6.0
	200B-H~209B-H		20.0-20.9	14.5	6.5
	210B-H~219B-H		21.0-21.9	15.0	6.5
	220B-H~229B-H		22.0-22.9	15.5	7.0
	230B-H~239B-H		23.0-23.9	16.0	7.0
	240B-H~249B-H		24.0-24.9	16.5	7.5
	250B-H~259B-H		25.0-25.9	17.0	7.5
	260B-H~269B-H		26.0-26.9	17.5	8.5
	270B-H~279B-H		27.0-27.9	18.5	8.5
	280B-H~289B-H		28.0-28.9	19.5	9.5
	290B-H~299B-H		29.0-29.9	20.0	9.5
300B-H~309B-H	30.0-30.9	20.5	10.0		

## Parts

Designation		Drill diameter ØD (mm)	Screw 	Wrench 	Torque (N·m)
TPD	140B-H~149B-H	14.0 - 14.9	FTNB02512-P	TW07S	0.8
	150B-H~179B-H	15.0 - 17.9	FTNB02514-P	TW07S	0.8
	180B-H~199B-H	18.0 - 19.9	FTNB0316-P	TW09S	1.2
	200B-H~239B-H	20.0 - 23.9	FTNB0319	TW09S	1.2
	240B-H~259B-H	24.0 - 25.9	FTNB03522	TW15S	3.0
	260B-H~279B-H	26.0 - 27.9	FTNB03524	TW15S	3.0
	280B-H~299B-H	28.0 - 29.9	FTNB0426	TW15S	3.0
	300B-H~309B-H	30.0 - 30.9	FTNB0528	TW20-100	4.0

# TPDB-H (3D)



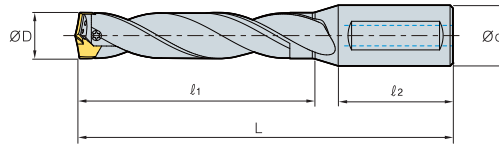
(mm)

Designation	Stock	ØD	Ød	ℓ <sub>1</sub>	ℓ <sub>2</sub>	L	Insert	
TPDB	140-16-3-H	-	14.0 - 14.4	16	42	48	97.5	TPD140B-144B-H
	145-16-3-H	-	14.5 - 14.9	16	43.5	48	99.5	TPD145B-149B-H
	150-20-3-H	-	15.0 - 15.4	20	45	50	103.0	TPD150B-154B-H
	155-20-3-H	-	15.5 - 15.9	20	46.5	50	105.0	TPD155B-159B-H
	160-20-3-H	-	16.0 - 16.4	20	48	50	106.5	TPD160B-164B-H
	165-20-3-H	-	16.5 - 16.9	20	49.5	50	108.5	TPD165B-169B-H
	170-20-3-H	-	17.0 - 17.4	20	51	50	110.0	TPD170B-174B-H
	175-20-3-H	-	17.5 - 17.9	20	52.5	50	112.0	TPD175B-179B-H
	180-20-3-H	-	18.0 - 18.4	20	54	50	113.5	TPD180B-184B-H
	185-20-3-H	-	18.5 - 18.9	20	55.5	50	115.5	TPD185B-189B-H
	190-20-3-H	-	19.0 - 19.4	20	57	50	117.0	TPD190B-194B-H
	195-20-3-H	-	19.5 - 19.9	20	58.5	50	119.0	TPD195B-199B-H
	200-25-3-H	-	20.0 - 20.4	25	60	56	126.5	TPD200B-204B-H
	205-25-3-H	-	20.5 - 20.9	25	61.5	56	128.5	TPD205B-209B-H
	210-25-3-H	-	21.0 - 21.4	25	63	56	130.0	TPD210B-214B-H
	215-25-3-H	-	21.5 - 21.9	25	64.5	56	132.0	TPD215B-219B-H
	220-25-3-H	-	22.0 - 22.4	25	66	56	133.5	TPD220B-224B-H
	225-25-3-H	-	22.5 - 22.9	25	67.5	56	135.5	TPD225B-229B-H
	230-25-3-H	-	23.0 - 23.4	25	69	56	137.0	TPD230B-234B-H
	235-25-3-H	-	23.5 - 23.9	25	70.5	56	139.0	TPD235B-239B-H
	240-32-3-H	-	24.0 - 24.4	32	72	60	144.5	TPD240B-244B-H
	245-32-3-H	-	24.5 - 24.9	32	73.5	60	146.5	TPD245B-249B-H
	250-32-3-H	-	25.0 - 25.4	32	75	60	148.0	TPD250B-254B-H
	255-32-3-H	-	25.5 - 25.9	32	76.5	60	150.0	TPD255B-259B-H
	260-32-3-H	-	26.0 - 26.4	32	78	60	151.5	TPD260B-264B-H
	265-32-3-H	-	26.5 - 26.9	32	79.5	60	153.5	TPD265B-269B-H
	270-32-3-H	-	27.0 - 27.4	32	81	60	155.0	TPD270B-274B-H
	275-32-3-H	-	27.5 - 27.9	32	82.5	60	157.0	TPD275B-279B-H
	280-32-3-H	-	28.0 - 28.4	32	84	60	158.5	TPD280B-284B-H
	285-32-3-H	-	28.5 - 28.9	32	85.5	60	160.5	TPD285B-289B-H
290-32-3-H	-	29.0 - 29.4	32	87	60	162.0	TPD290B-294B-H	
295-32-3-H	-	29.5 - 29.9	32	88.5	60	164.0	TPD295B-299B-H	
300-32-3-H	-	30.0 - 30.9	32	90	60	165.5	TPD300B-309B-H	

● : Stock item



# TPDB-H (4D)

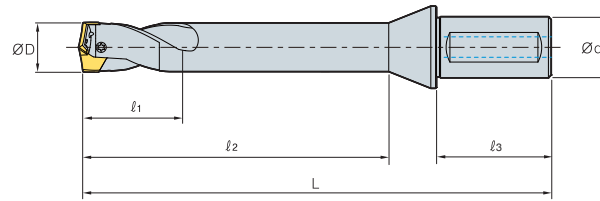


(mm)

Designation	Stock	ØD	Ød	ℓ <sub>1</sub>	ℓ <sub>2</sub>	L	Insert	
TPDB	140-16-4-H	-	14.0 - 14.4	16	56	48	111.5	TPD140B-144B-H
	145-16-4-H	-	14.5 - 14.9	16	58	48	114.0	TPD145B-149B-H
	150-20-4-H	-	15.0 - 15.4	20	60	50	118.0	TPD150B-154B-H
	155-20-4-H	-	15.5 - 15.9	20	62	50	120.5	TPD155B-159B-H
	160-20-4-H	-	16.0 - 16.4	20	64	50	122.5	TPD160B-164B-H
	165-20-4-H	-	16.5 - 16.9	20	66	50	125.0	TPD165B-169B-H
	170-20-4-H	-	17.0 - 17.4	20	68	50	127.0	TPD170B-174B-H
	175-20-4-H	-	17.5 - 17.9	20	70	50	129.5	TPD175B-179B-H
	180-20-4-H	-	18.0 - 18.4	20	72	50	131.5	TPD180B-184B-H
	185-20-4-H	-	18.5 - 18.9	20	74	50	134.0	TPD185B-189B-H
	190-20-4-H	-	19.0 - 19.4	20	76	50	136.0	TPD190B-194B-H
	195-20-4-H	-	19.5 - 19.9	20	78	50	138.5	TPD195B-199B-H
	200-25-4-H	-	20.0 - 20.4	25	80	56	146.5	TPD200B-204B-H
	205-25-4-H	-	20.5 - 20.9	25	82	56	149.0	TPD205B-209B-H
	210-25-4-H	-	21.0 - 21.4	25	84	56	151.0	TPD210B-214B-H
	215-25-4-H	-	21.5 - 21.9	25	86	56	153.5	TPD215B-219B-H
	220-25-4-H	-	22.0 - 22.4	25	88	56	155.5	TPD220B-224B-H
	225-25-4-H	-	22.5 - 22.9	25	90	56	158.0	TPD225B-229B-H
	230-25-4-H	-	23.0 - 23.4	25	92	56	160.0	TPD230B-234B-H
	235-25-4-H	-	23.5 - 23.9	25	94	56	162.5	TPD235B-239B-H
	240-32-4-H	-	24.0 - 24.4	32	96	60	168.5	TPD240B-244B-H
	245-32-4-H	-	24.5 - 24.9	32	98	60	171.0	TPD245B-249B-H
	250-32-4-H	-	25.0 - 25.4	32	100	60	173.0	TPD250B-254B-H
	255-32-4-H	-	25.5 - 25.9	32	102	60	175.5	TPD255B-259B-H
	260-32-4-H	-	26.0 - 26.4	32	104	60	177.5	TPD260B-264B-H
	265-32-4-H	-	26.5 - 26.9	32	106	60	180.0	TPD265B-269B-H
	270-32-4-H	-	27.0 - 27.4	32	108	60	182.0	TPD270B-274B-H
	275-32-4-H	-	27.5 - 27.9	32	110	60	184.5	TPD275B-279B-H
	280-32-4-H	-	28.0 - 28.4	32	112	60	186.5	TPD280B-284B-H
	285-32-4-H	-	28.5 - 28.9	32	114	60	189.0	TPD285B-289B-H
290-32-4-H	-	29.0 - 29.4	32	116	60	191.0	TPD290B-294B-H	
295-32-4-H	-	29.5 - 29.9	32	118	60	193.5	TPD295B-299B-H	
300-32-4-H	-	30.0 - 30.9	32	120	60	195.5	TPD300B-309B-H	

● : Stock item

# TPDB-H (8D)



(mm)

Designation	Stock	ØD	Ød	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	L	Insert	
TPDB	140-16-8F-H	-	14.0 - 14.4	16	50	112	48	175.0	TPD140B-144B-H
	145-16-8F-H	-	14.5 - 14.9	16	50	116	48	179.0	TPD145B-149B-H
	150-20-8F-H	-	15.0 - 15.4	20	50	120	50	186.0	TPD150B-154B-H
	155-20-8F-H	-	15.5 - 15.9	20	50	124	50	190.0	TPD155B-159B-H
	160-20-8F-H	-	16.0 - 16.4	20	50	128	50	195.0	TPD160B-164B-H
	165-20-8F-H	-	16.5 - 16.9	20	50	132	50	199.0	TPD165B-169B-H
	170-20-8F-H	-	17.0 - 17.4	20	50	136	50	204.0	TPD170B-174B-H
	175-20-8F-H	-	17.5 - 17.9	20	50	140	50	208.0	TPD175B-179B-H
	180-20-8F-H	-	18.0 - 18.4	20	50	144	50	214.0	TPD180B-184B-H
	185-20-8F-H	-	18.5 - 18.9	20	50	148	50	218.0	TPD185B-189B-H
	190-20-8F-H	-	19.0 - 19.4	20	50	152	50	222.0	TPD190B-194B-H
	195-20-8F-H	-	19.5 - 19.9	20	50	156	50	226.0	TPD195B-199B-H
	200-25-8F-H	-	20.0 - 20.4	25	50	160	56	236.0	TPD200B-204B-H
	205-25-8F-H	-	20.5 - 20.9	25	50	164	56	240.0	TPD205B-209B-H
	210-25-8F-H	-	21.0 - 21.4	25	50	168	56	244.0	TPD210B-214B-H
	215-25-8F-H	-	21.5 - 21.9	25	50	172	56	248.0	TPD215B-219B-H
	220-25-8F-H	-	22.0 - 22.4	25	50	176	56	252.0	TPD220B-224B-H
	225-25-8F-H	-	22.5 - 22.9	25	50	180	56	261.0	TPD225B-229B-H
	230-25-8F-H	-	23.0 - 23.4	25	50	184	56	265.0	TPD230B-234B-H
	235-25-8F-H	-	23.5 - 23.9	25	50	188	56	269.0	TPD235B-239B-H
	240-32-8F-H	-	24.0 - 24.4	32	50	192	60	277.0	TPD240B-244B-H
	245-32-8F-H	-	24.5 - 24.9	32	50	196	60	281.0	TPD245B-249B-H
	250-32-8F-H	-	25.0 - 25.4	32	50	200	60	285.0	TPD250B-254B-H
	255-32-8F-H	-	25.5 - 25.9	32	50	204	60	289.0	TPD255B-259B-H
	260-32-8F-H	-	26.0 - 26.4	32	50	208	60	293.0	TPD260B-264B-H
	265-32-8F-H	-	26.5 - 26.9	32	50	212	60	297.0	TPD265B-269B-H
	270-32-8F-H	-	27.0 - 27.4	32	50	216	60	301.0	TPD270B-274B-H
	275-32-8F-H	-	27.5 - 27.9	32	50	220	60	305.0	TPD275B-279B-H
	280-32-8F-H	-	28.0 - 28.4	32	50	224	60	311.0	TPD280B-284B-H
	285-32-8F-H	-	28.5 - 28.9	32	50	228	60	315.0	TPD285B-289B-H
290-32-8F-H	-	29.0 - 29.4	32	50	232	60	320.0	TPD290B-294B-H	
295-32-8F-H	-	29.5 - 29.9	32	50	236	60	324.0	TPD295B-299B-H	
300-32-8F-H	-	30.0 - 30.9	32	50	240	60	328.0	TPD300B-309B-H	

※ The maximum length of flute could be  $l_2$ .

● : Stock item

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