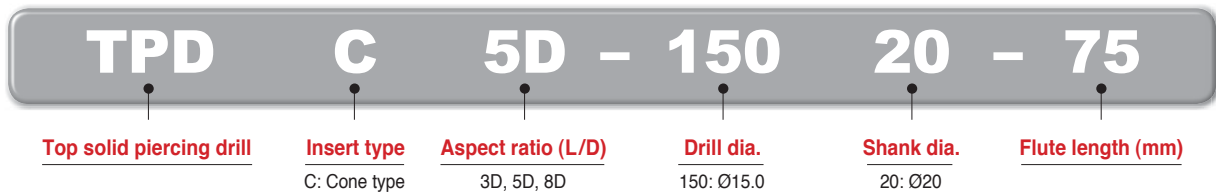


Cone shaped head indexable drill

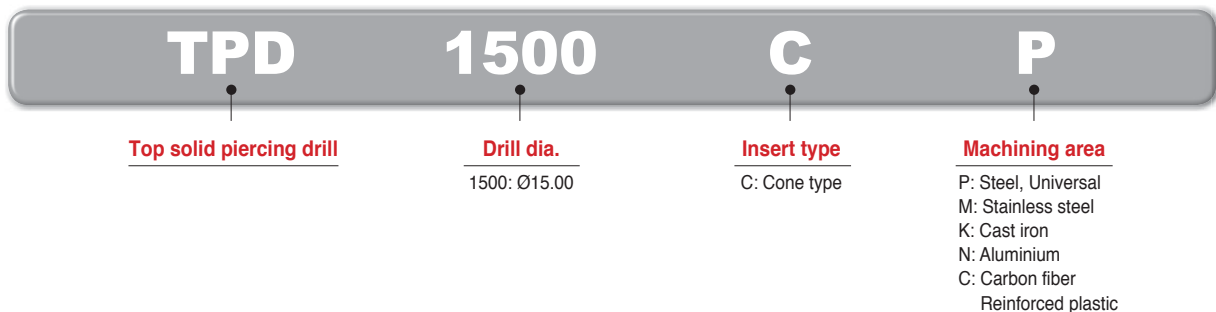
TPDC *new*

- Clamping design
 - One step clamp system → Increased stability
 - Clamping system allowing to change inserts while the holder is attached on the machine → Shortened setting time
- Optimized blade design
 - Excellent chip control → Possibility to use for various types of workpieces
- Helical shaped coolant hole system
 - Wide chip pocket area secured → Better lubrication + chip flow improved
- Material technology
 - Ultra-fine substrate + Multi-layer coating applied → Excellent anti chipping & wear resistance

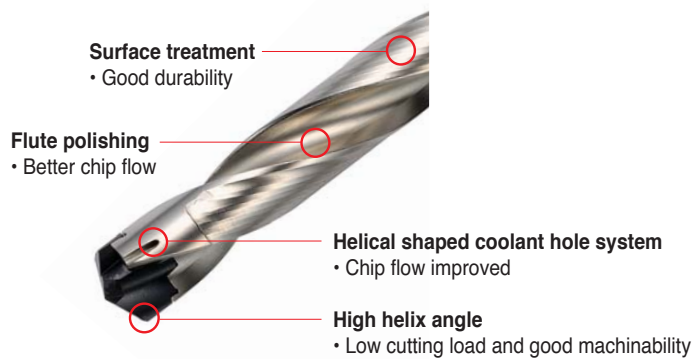
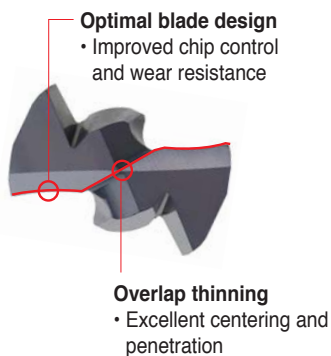
Code system of holder



Code system of insert



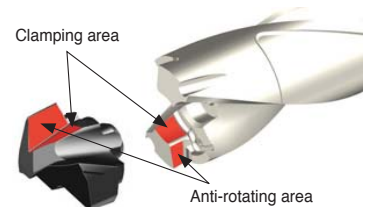
Features



G Technical Information for TPDC

Features of clamping system

- One Step Clamp System → Easy and quick tool change with good repeatability
 - Clamping area: Easy and fast tool change
 - Anti-rotating area: Performs as a stopper
 - Clamping and anti-rotating area make an acute angle to prevent insert rotation while machining



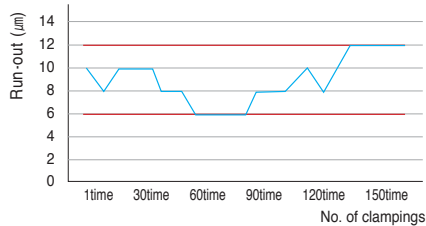
Performance evaluation

Durability test

- **Workpiece** SCM440 (HRC22)
- **Cutting conditions** Drill dia. (mm) = \varnothing 15.0
vc (m/min) = 90, fn (mm/rev) = 0.25
ap (mm) = 60, Wet
- **Tools** Inserts TPD1500CP (PC5335)
Holder TPDC5D-15020-75

After using 40 inserts, the setting run-out remains below 15 μ m

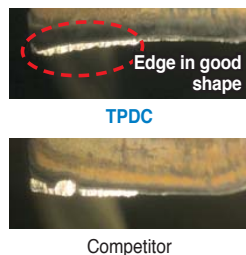
Sustainability test



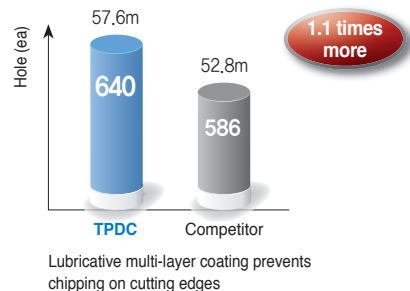
After clamping 150 times, the drill run-out remains below 15 μ m

Application examples

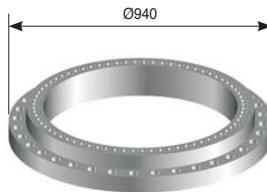
- **Use** Part of machine
- **Workpiece** Alloy steel (SCM440, HRC22)
- **Cutting conditions** Drill dia. (mm) = \varnothing 19.0
vc (m/min) = 100
fn (mm/rev) = 0.3
ap (mm) = 90, Wet
- **Tools** Inserts TPD1900CP (PC5335)
Holder TPDC5D-19025-95



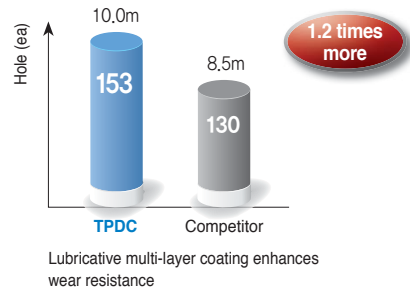
Test result



- **Use** Part of machine
- **Workpiece** Carbon steel (SM45, HRC40)
- **Cutting conditions** Drill dia. (mm) = \varnothing 18.0
vc (m/min) = 60
fn (mm/rev) = 0.15
ap (mm) = 65, Wet
- **Tools** Inserts TPD1800CP (PC5335)
Holder TPDC5D-18025-90



Test result



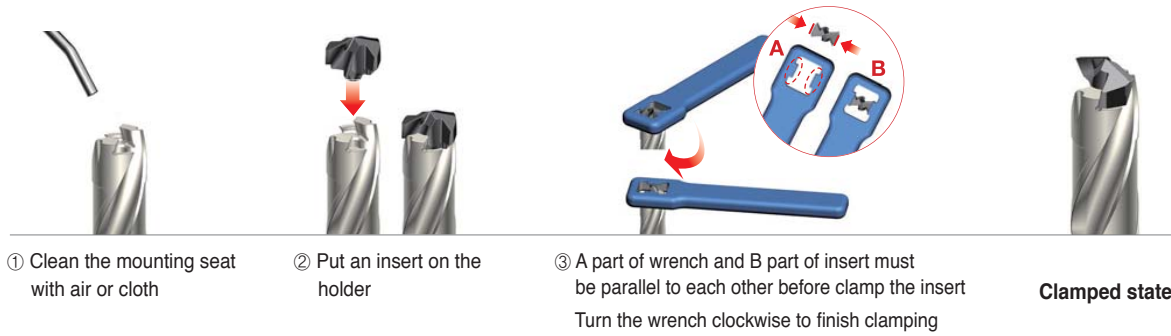
Recommended cutting condition

Workpiece			Grade	vc	Depth of cut = 3D, 5D		
ISO	Workpiece	HB			Feed rate (mm/rev) per drill dia. (mm)		
				m/min	\varnothing 12.00~ \varnothing 15.99	\varnothing 16.00~ \varnothing 25.99	
P	Carbon steel	Low carbon steel	80~120	PC5335	110 (80~140)	0.15~0.30	0.20~0.35
		High carbon steel	180~280	PC5335	100 (70~130)	0.15~0.30	0.20~0.35
	Alloy steel	Low alloy steel	140~260	PC5335	110 (80~140)	0.18~0.35	0.23~0.38
		Low pre-hardened steel	200~400	PC5335	75 (50~100)	0.18~0.35	0.23~0.38
		High alloy steel	260~320	PC5335	70 (50~90)	0.18~0.30	0.20~0.35
		High pre-hardened steel	300~450	PC5335	60 (40~80)	0.18~0.30	0.20~0.35

- In case of 8D, reduce the cutting condition 40~50% lower than above after machining the beginning of hole(1.5D)
- In case of interrupted machining, reduce the feed to 0.1~0.15 around the interrupted part

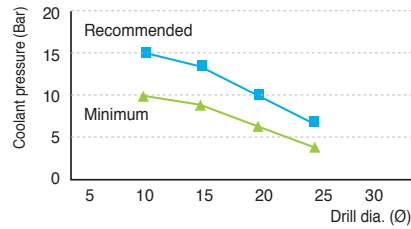
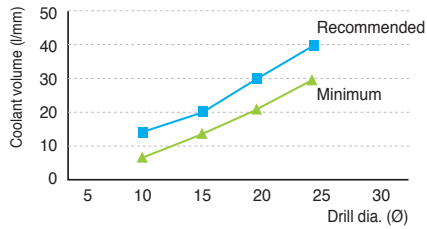


How to make good insert clamping

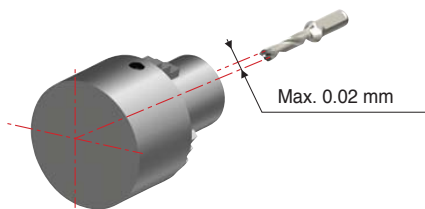


Coolant tip

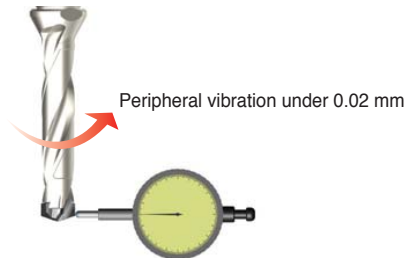
- **Workpiece** SCM440 (HRC22)
- **Cutting conditions** vc (m/min) = 100, Wet



Precautions when setting

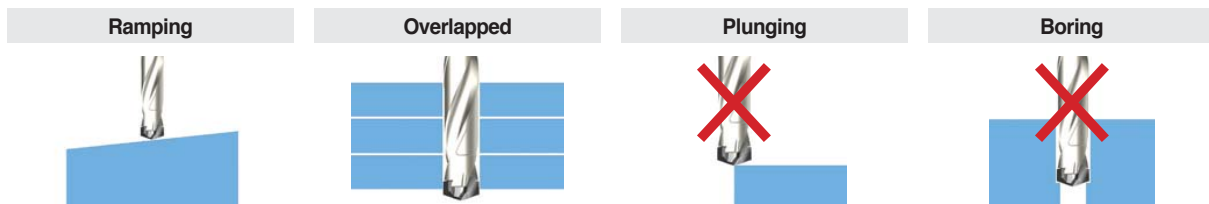


Setting of the horizontal equipment



Setting of the vertical equipment

Precautions when drilling



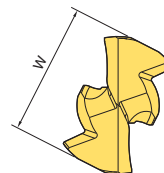
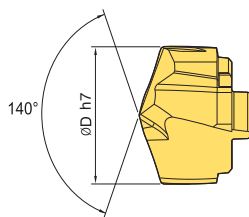
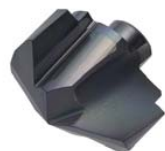
- Ramping**
1. A slope inclined more than 6° is not allowed
 2. When entering, reduce the feed to 30~50%

- Overlapped**
1. Space between panels affects chip evacuation problem
 2. Do not make space between panels

Plunging
Not allowed

Boring
Not allowed

TPDC Insert new



						(mm)
Designation	Drill dia. (ØD)	W	Grade	Holder	Wrench	
TPD	1200CP	12.0	11.4	PC5335	TPDC(3, 5, 8)D-12016-(36, 60, 96)	TPDC-W12
	1220CP	12.2			TPDC(3, 5, 8)D-12516-(38, 63, 100)	
	1250CP	12.5				
	1260CP	12.6	12.3	PC5335	TPDC(3, 5, 8)D-13016-(39, 65, 104)	TPDC-W13
	1300CP	13.0			TPDC(3, 5, 8)D-13516-(41, 68, 108)	
	1350CP	13.5				
	1400CP	14.0	13.4	PC5335	TPDC(3, 5, 8)D-14016-(42, 70, 112)	TPDC-W14
	1420CP	14.2			TPDC(3, 5, 8)D-14516-(44, 73, 116)	
	1430CP	14.3				
	1450CP	14.5	14.3	PC5335	TPDC(3, 5, 8)D-15020-(45, 75, 120)	TPDC-W15
	1500CP	15.0				
	1550CP	15.5				
	1600CP	16.0	15.3	PC5335	TPDC(3, 5, 8)D-16020-(48, 80, 128)	TPDC-W16
	1630CP	16.3				
	1650CP	16.5				
	1670CP	16.7	16.3	PC5335	TPDC(3, 5, 8)D-17020-(51, 85, 136)	TPDC-W17
	1700CP	17.0				
	1750CP	17.5				
	1770CP	17.7	17.3	PC5335	TPDC(3, 5, 8)D-18025-(54, 90, 144)	TPDC-W18
	1800CP	18.0				
	1810CP	18.1				
	1850CP	18.5	18.3	PC5335	TPDC(3, 5, 8)D-19025-(57, 95, 152)	TPDC-W19
	1860CP	18.6				
	1870CP	18.7				
	1900CP	19.0	19.2	PC5335	TPDC(3,5,8)D-20025-(60,100,160)	TPDC-W20
	1920CP	19.2				
	1950CP	19.5				
1970CP	19.7	20.1	PC5335	TPDC(3,5,8)D-21025-(63,105,168)	TPDC-W21	
2000CP	20.0					
2050CP	20.5					
2100CP	21.0	21	PC5335	TPDC(3,5,8)D-22025-(66,110,176)	TPDC-W22	
2150CP	21.5					
2200CP	22.0					
2260CP	22.6	21.9	PC5335	TPDC(3,5,8)D-23025-(69,115,184)	TPDC-W23	
2270CP	22.7					
2250CP	22.5					
2300CP	23.0	22.9	PC5335	TPDC(3,5,8)D-24032-(72,120,192)	TPDC-W24	
2350CP	23.5					
2400CP	24.0					
2450CP	24.5	23.9	PC5335	TPDC(3,5,8)D-25032-(75,125,200)	TPDC-W25	
2500CP	25.0					
2530CP	25.3					
2550CP	25.5					
2580CP	25.8					
2590CP	25.9					

※ Order made items available

Parts (Recommended torque per wrench)

Designation	Drill dia. (ØD)	Torque (Nm)
TPDC-W12	12.00~12.99	2.5
TPDC-W13	13.00~13.99	2.5
TPDC-W14	14.00~14.99	2.5
TPDC-W15	15.00~15.99	2.5
TPDC-W16	16.00~16.99	2.5
TPDC-W17	17.00~17.99	3.5
TPDC-W18	18.00~18.99	3.5

Designation	Drill dia. (ØD)	Torque (Nm)
TPDC-W19	19.00~19.99	3.5
TPDC-W20	20.00~20.99	3.5
TPDC-W21	21.00~21.99	3.5
TPDC-W22	22.00~22.99	3.5
TPDC-W23	23.00~23.99	3.5
TPDC-W24	24.00~24.99	3.5
TPDC-W25	25.00~25.99	3.5



TPDC3D/5D/8D new

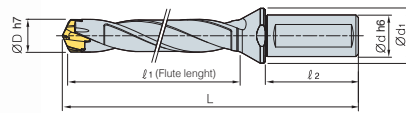


Fig.1

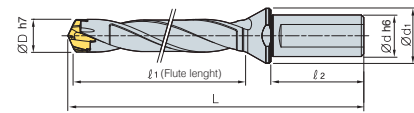


Fig.2

(mm)

	Designation	ØD	Ød	Ød ₁	ℓ ₁	ℓ ₂	L	Insert	Fig.
TPDC	3D-12016-36	12.00~12.49	16	20	36	48	99	TPD1200C□-1249C□	1
	3D-12516-38	12.50~12.99	16	20	38	48	101	TPD1250C□-1299C□	1
	3D-13016-39	13.00~13.49	16	20	39	48	103	TPD1300C□-1349C□	1
	3D-13516-41	13.50~13.99	16	20	41	48	105	TPD1350C□-1399C□	1
	3D-14016-42	14.00~14.49	16	20	42	48	106	TPD1400C□-1449C□	1
	3D-14516-44	14.50~14.99	16	20	44	48	107	TPD1450C□-1499C□	1
	3D-15020-45	15.00~15.99	20	25	45	50	113	TPD1500C□-1599C□	2
	3D-16020-48	16.00~16.99	20	25	48	50	117	TPD1600C□-1699C□	2
	3D-17020-51	17.00~17.99	20	25	51	50	120	TPD1700C□-1799C□	2
	3D-18025-54	18.00~18.99	25	33	54	56	132	TPD1800C□-1899C□	2
	3D-19025-57	19.00~19.99	25	33	57	56	135	TPD1900C□-1999C□	2
	3D-20025-60	20.00~20.99	25	33	60	56	138	TPD2000C□-2099C□	2
	3D-21025-63	21.00~21.99	25	33	63	56	141	TPD2100C□-2199C□	2
	3D-22025-66	22.00~22.99	25	33	66	56	145	TPD2200C□-2299C□	2
	3D-23025-69	23.00~23.99	25	33	69	56	149	TPD2300C□-2399C□	2
	3D-24032-72	24.00~24.99	32	43	72	60	159	TPD2400C□-2499C□	2
	3D-25032-75	25.00~25.99	32	43	75	60	162	TPD2500C□-2599C□	2
	5D-12016-60	12.00~12.49	16	20	60	48	123	TPD1200C□-1249C□	1
	5D-12516-63	12.50~12.99	16	20	63	48	126	TPD1250C□-1299C□	1
	5D-13016-65	13.00~13.49	16	20	65	48	129	TPD1300C□-1349C□	1
	5D-13516-68	13.50~13.99	16	20	68	48	132	TPD1350C□-1399C□	1
	5D-14016-70	14.00~14.49	16	20	70	48	134	TPD1400C□-1449C□	1
	5D-14516-73	14.50~14.99	16	20	73	48	136	TPD1450C□-1499C□	1
	5D-15020-75	15.00~15.99	20	25	75	50	143	TPD1500C□-1599C□	2
	5D-16020-80	16.00~16.99	20	25	80	50	149	TPD1600C□-1699C□	2
	5D-17020-85	17.00~17.99	20	25	85	50	154	TPD1700C□-1799C□	2
	5D-18025-90	18.00~18.99	25	33	90	56	168	TPD1800C□-1899C□	2
	5D-19025-95	19.00~19.99	25	33	95	56	173	TPD1900C□-1999C□	2
	5D-20025-100	20.00~20.99	25	33	100	56	178	TPD2000C□-2099C□	2
	5D-21025-105	21.00~21.99	25	33	105	56	183	TPD2100C□-2199C□	2
	5D-22025-110	22.00~22.99	25	33	110	56	189	TPD2200C□-2299C□	2
	5D-23025-115	23.00~23.99	25	33	115	56	195	TPD2300C□-2399C□	2
	5D-24032-120	24.00~24.99	32	43	120	60	207	TPD2400C□-2499C□	2
	5D-25032-125	25.00~25.99	32	43	125	60	212	TPD2500C□-2599C□	2
	8D-12016-96	12.00~12.49	16	20	96	48	159	TPD1200C□-1249C□	1
	8D-12516-100	12.50~12.99	16	20	100	48	163	TPD1250C□-1299C□	1
	8D-13016-104	13.00~13.49	16	20	104	48	168	TPD1300C□-1349C□	1
	8D-13516-108	13.50~13.99	16	20	108	48	173	TPD1350C□-1399C□	1
	8D-14016-112	14.00~14.49	16	20	112	48	176	TPD1400C□-1449C□	1
	8D-14516-116	14.50~14.99	16	20	116	48	180	TPD1450C□-1499C□	1
8D-15020-120	15.00~15.99	20	25	120	50	188	TPD1500C□-1599C□	2	
8D-16020-128	16.00~16.99	20	25	128	50	197	TPD1600C□-1699C□	2	
8D-17020-136	17.00~17.99	20	25	136	50	205	TPD1700C□-1799C□	2	
8D-18025-144	18.00~18.99	25	33	144	56	222	TPD1800C□-1899C□	2	
8D-19025-152	19.00~19.99	25	33	152	56	230	TPD1900C□-1999C□	2	
8D-20025-160	20.00~20.99	25	33	160	56	238	TPD2000C□-2099C□	2	
8D-21025-168	21.00~21.99	25	33	168	56	246	TPD2100C□-2199C□	2	
8D-22025-176	22.00~22.99	25	33	176	56	255	TPD2200C□-2299C□	2	
8D-23025-184	23.00~23.99	25	33	184	56	264	TPD2300C□-2399C□	2	
8D-24032-192	24.00~24.99	32	43	192	60	279	TPD2400C□-2499C□	2	
8D-25032-200	25.00~25.99	32	43	200	60	287	TPD2500C□-2599C□	2	

※ The shank is based on DIN6535 and ISO9677