KORLOY
TECH-NEWS

WPDCH

Large diameter (Ø45 ~ Ø180) Indexable Drill

- Cartridge type with adjustable drill diameter allows for free adjustment of machining depth
- Enhanced wear resistance and durability with a forged and specially surface-treated drill body

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KORLOY has launched WPDCH, an indexable drill for large diameter hole machining (Ø45~Ø180).

Economical and efficient hole making are the crucial factors in the manufacturing industry, and WPDCH, with a wide range of adjustable depth and diameter, meets these demands and provides an optimal machining solution.

One of the biggest features of **WPDCH** is the adoption of a cartridge-type design. This significantly enhances the tool life of the drill body while allowing for machining diameter adjustment. Therefore, a single body can handle drill work of various sizes, reducing maintenance costs. Furthermore, cartridge replacement allows for quick configuration of the optimal combination for the machining environment, maximizing work efficiency.

Based on high durability and flexibility, WPDCH improves machining performance and reduces maintenance costs. It offers a longer tool life than existing drills by extending replacement cycles and reduces the need for additional equipment, as it can machine various of diameters with a single body.

Therefore, WPDCH provides customer satisfaction as an innovative machining solution for precise and economical machining environments.

» Wide machining range

- Optimal for various working environments with flexible adjustment of machining depth (Supports diameters from Ø45 to Ø180)

» High durability and cost reduction

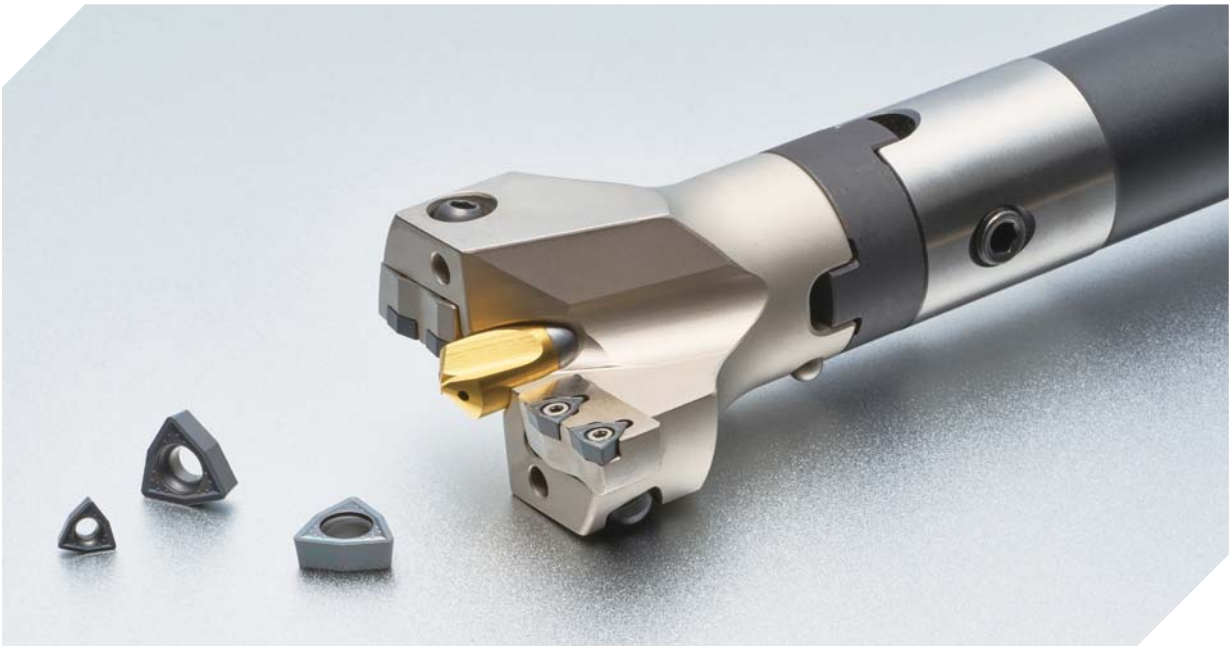
- Improved economic efficiency through reduced maintenance costs and extended holder replacement cycles

» Cartridge type design

- Extended tool life of drill body
- Adjustable machining diameter by simply replacing the cartridge

» Enhanced Productivity

- Maximized work efficiency and convenience by machining various diameters with a single holder



Code system

Head

WPDC	H	045050
Application of W type insert Center drill attachment Indexable drill	Division H : Head	Cutting range Ø45~Ø50 mm

Cartridge

CWP	2	-	045050	C	(-0485)
Cartridge Application of W type insert Center drill attachment	No. of insert		Cutting range Ø45~Ø50 mm	Division C : Central P : Peripheral	Peripheral drill diameter Ø48.5 mm

Holder

WPDC	D	28	13	10
Application of W type insert Center drill attachment Indexable drill	Division D : Drive ring E : Extension R : Reducer A : Adaptor	Connection Moduler Machine Side 28 : Ø28 mm	Connection Diameter Machine Side 13 : Ø13 mm	Available length 10 : 10 mm 115 : 115 mm

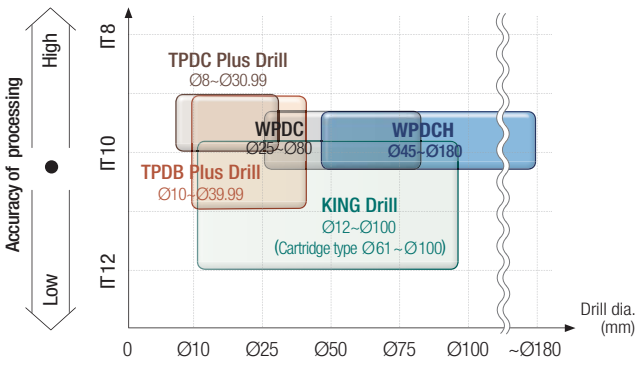
Center drill

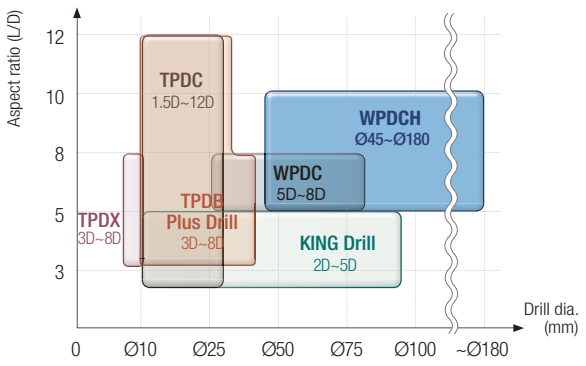
CD	H	1035
Center drill	Oil hole H : O None : X	Diameter × length 0630 : Ø6 × Ø30 mm 0835 : Ø8 × Ø35 mm 1035 : Ø10 × Ø35 mm 1238 : Ø12 × Ø38 mm 1645 : Ø16 × Ø45 mm

Grade

PC	40H
Coated PVD coating	Coating layer 40H : HSS + TiN coating

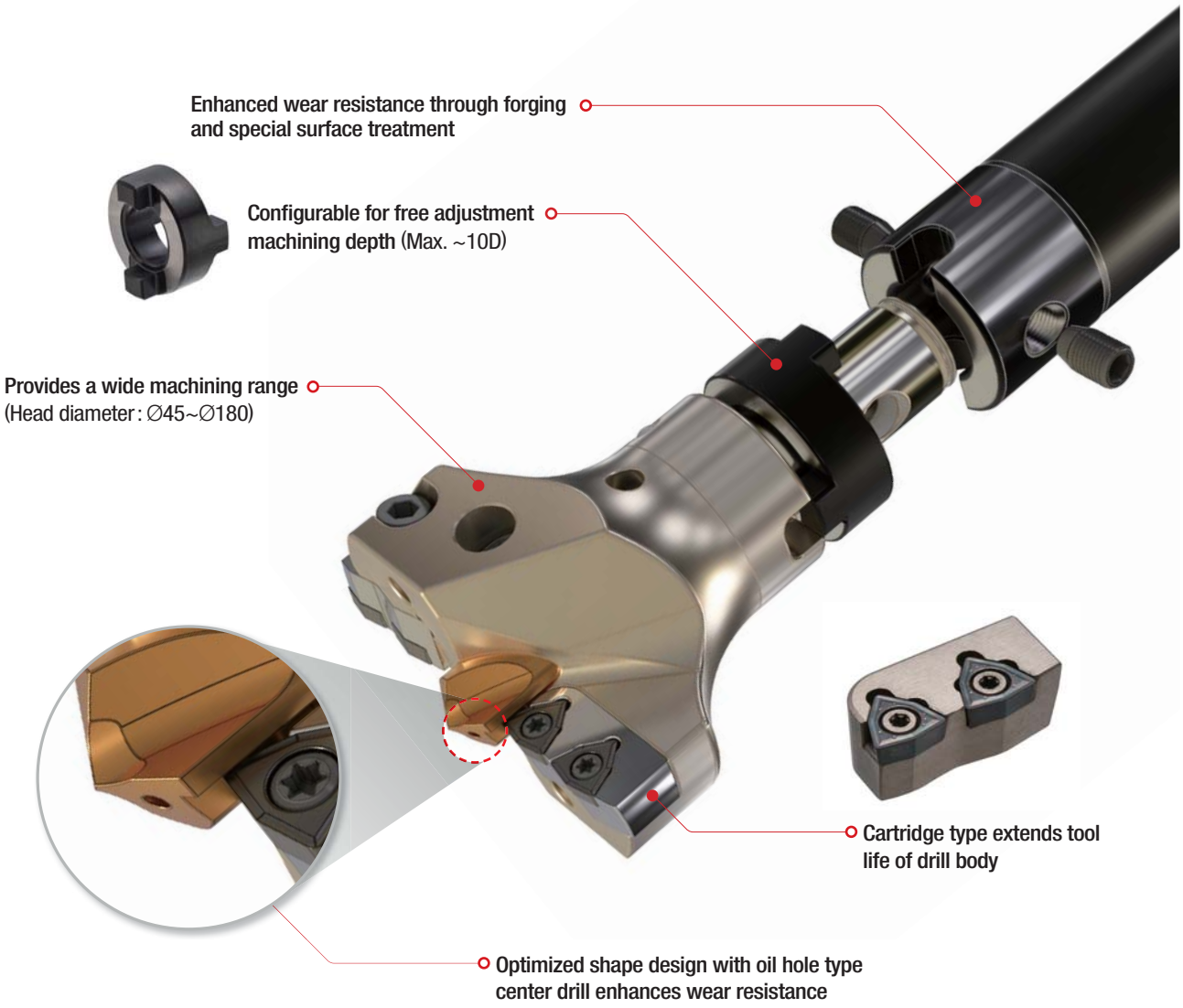
Application range



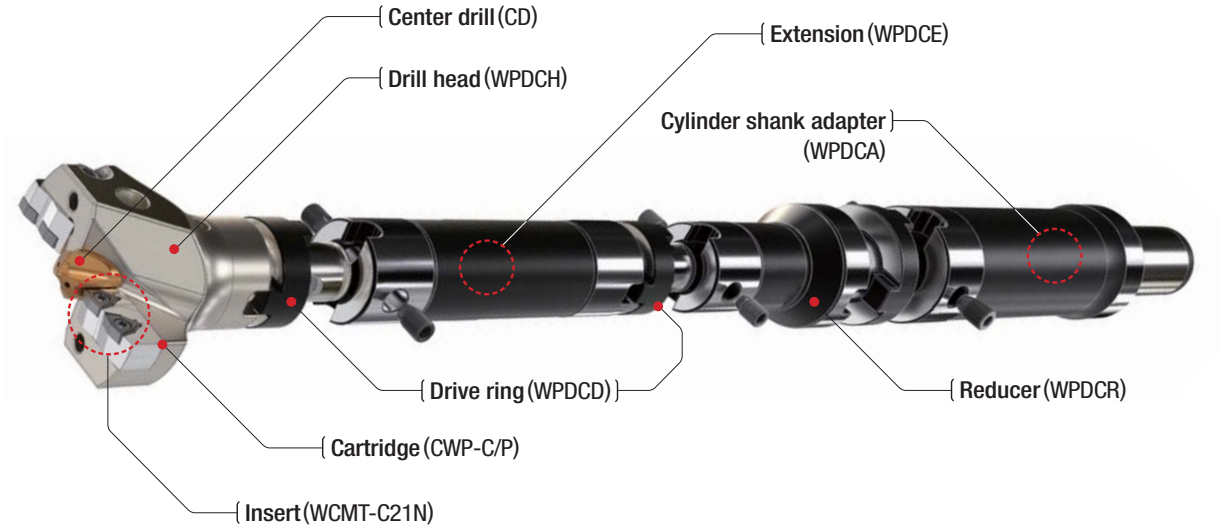


Features

- Cartridge type with adjustable drill diameter allows for free adjustment of machining depth.
- Enhanced wear resistance and durability with a forged and specially surface-treated drill body.



Holder design

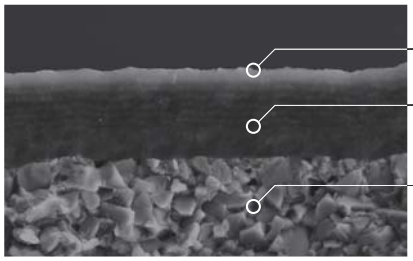


Grade features

PC5335

- Excellent machining stability due to high toughness ultra-fine substrate
- Enhanced cutting due to high lubricated coating layer with welding resistance remove
- Optimal and general grade in various drilling

Applying exclusive PVD coating KROEX-Tech™ and optimal substrate in drilling



Good welding resistance by applying lubricated coating layer

Balance of wear resistance and chipping resistance from high hardness layer and high toughness layer

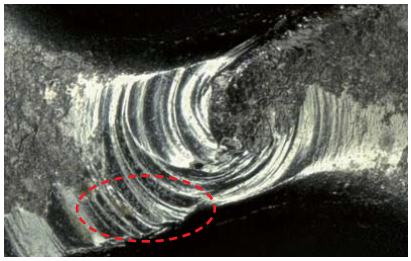
Good fracture resistance and cutting stability due to optimal high toughness substrate in drilling

Point polishing-Tech™

- Cutting stability by point polishing tech, special cutting edge treatment technology

[PC5335]

» Stable shape of cutting edge

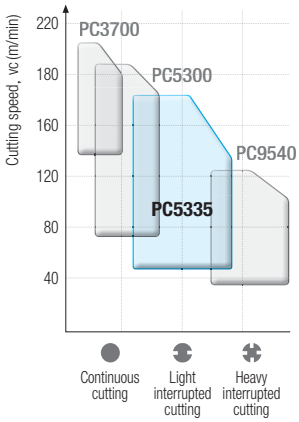


[Competitor]

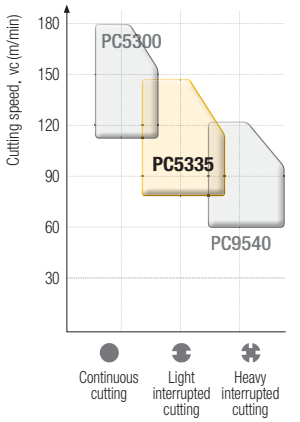
» Fracture of cutting edge due to brittleness wear

Application range

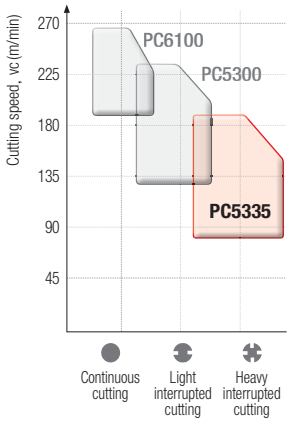
P Steel



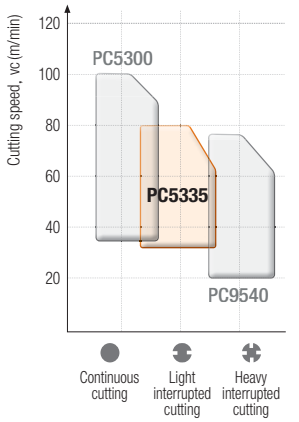
M Stainless steel



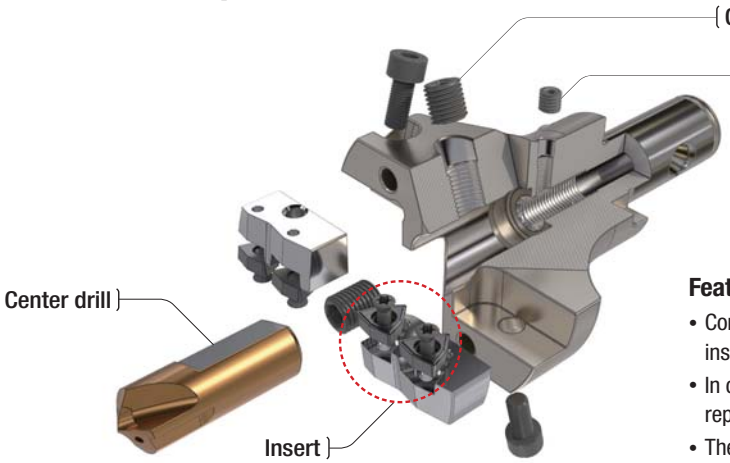
K Cast iron



S HRSA



How to clamp the center drill



Feature of corn-point system

- Convenient and quick adjustable heights when inserting the center drill
- In case the center drill brakes while in usage, it can be replaced with the bolt for adjusting Center drill
- The bolt for adjusting Center drill prevents chattering on the center drill

Clamping sequence of center drill

① Adjust the height of the center drill with the adjustment bolt

② First, insert the center drill, then clamp the cartridge

③ Clamping the insert
- Check the center drill's clamping length
- Tighten the center drill fixing bolt

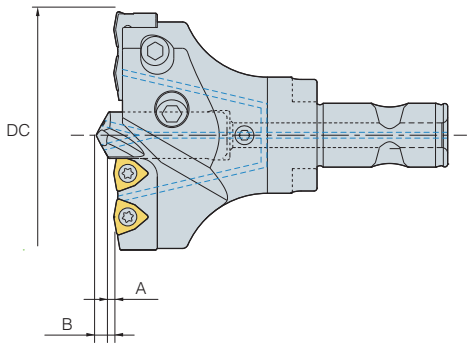
※ **Note:** Be careful to avoid contract damage between the insert and center drill

④ Firmly tighten the center drill with the clamping bolt

※ Use safety covers for your safety when clamping the center drill and insert
※ When machining, be careful of the drill disk

Center drill clamping length

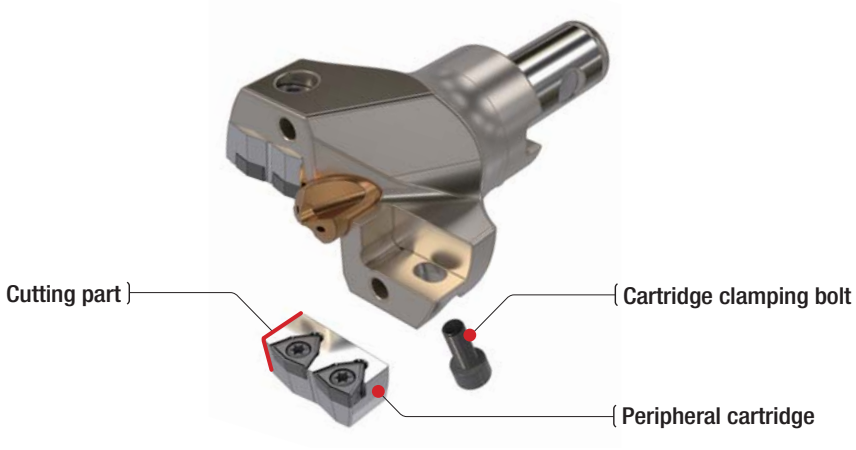
- If the length of the center drill is set too short, issues such as poor surface finish and increased load can occur. If it is set too long, problems like reduced tool life and vibration during through-hole drilling may arise.



DC (mm)	2~4×D		4~6×D		6~8×D	
	A	B	A	B	A	B
Ø45~Ø55	1.6	4	1.8	4.2	2	4.4
Ø55~Ø75	1.8	5.4	2	5.6	2.2	5.8
Ø75~Ø100	2.2	6.5	2.5	6.8	2.8	7.1
Ø100~Ø120	2.4	7.7	2.8	8.1	3.2	8.5
Ø120~Ø170	3.2	9.9	3.6	10.3	4	10.7
Ø170~Ø180	3.5	12.2	3.9	12.6	4.3	13

Adjusting diameter of cartridge type drill

- Disassemble a cartridge from the holder by loosening the bolt fixed for Peripheral cartridge
- Machine after calculating the hole size on the side of the peripheral cartridge
- Trim the sharp part after machining
- Clamp the bolt for fixing cartridge without any gap in between the holder and machined peripheral cartridge

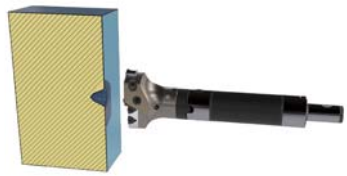
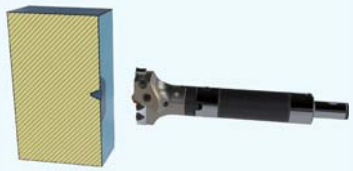
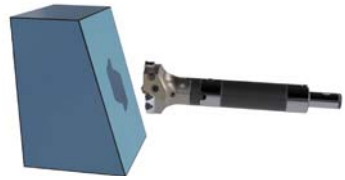
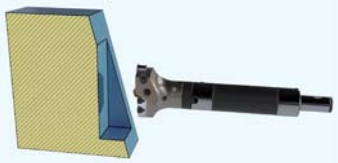
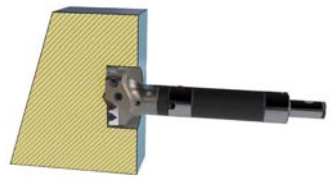
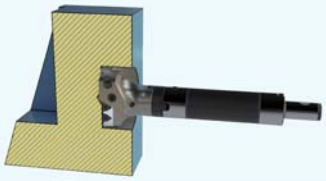


※ When setting WPDCH065070 to Ø66 mm, Since the base diameter is Ø70 mm, the difference is Ø70 mm - Ø66 mm = 4 mm.
Calculated as a radius (4 mm ÷ 2), this means you cut by 2 mm.

Recommended cutting conditions

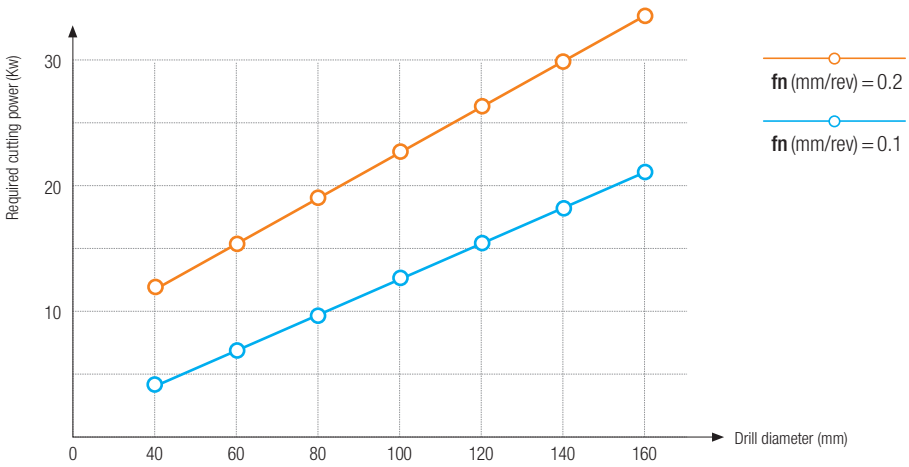
Workpiece		vc (m/min)	fn (mm/rev)						
ISO	Workpiece material		Ø45~Ø55	Ø55~Ø60	Ø60~Ø75	Ø75~Ø100	Ø100~Ø105	Ø105~Ø150	Ø150~Ø180
P	Low carbon steel < 0.25%	120~180	0.06~0.1	0.07~0.11	0.08~0.12	0.08~0.14	0.08~0.18	0.08~0.12	0.1~0.14
	High carbon steel ≥ 0.25%	110~170	0.06~0.1	0.07~0.11	0.08~0.12	0.1~0.14	0.1~0.18	0.1~0.18	0.1~0.14
	Low alloy steel ≤ HB300	90~130	0.06~0.1	0.07~0.11	0.08~0.12	0.1~0.14	0.12~0.18	0.12~0.18	0.1~0.14
	High alloy steel > HB300	60~100	0.05~0.07	0.05~0.07	0.06~0.08	0.06~0.08	0.09~0.13	0.06~0.08	0.06~0.1
M	Stainless steel	60~110	0.04~0.07	0.04~0.11	0.06~0.12	0.08~0.14	0.1~0.18	0.06~0.12	0.08~0.14
K	Gray cast iron	120~180	0.07~0.13	0.07~0.15	0.08~0.16	0.1~0.18	0.12~0.22	0.08~0.16	0.1~0.18
	Ductile cast iron	100~180	0.04~0.13	0.07~0.15	0.08~0.16	0.1~0.25	0.12~0.26	0.08~0.16	0.1~0.25
N	Aluminum forging alloys	180~280	0.04~0.06	0.07~0.12	0.08~0.13	0.09~0.15	0.12~0.2	0.08~0.13	0.09~0.15
	Aluminum casting alloys	120~270	0.04~0.06	0.06~0.12	0.08~0.13	0.09~0.15	0.12~0.2	0.08~0.13	0.09~0.15

Precaution in Drilling

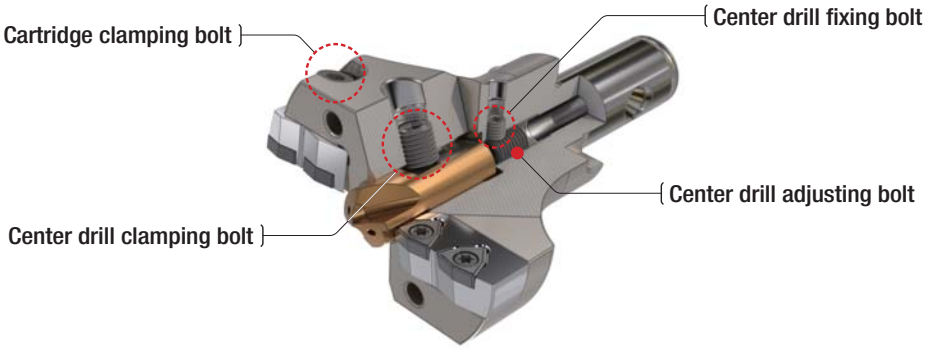
Worn part	How to check	Description
		» In the case that there is bigger hole than center drill diameter, or protruded part, there could be damage to the center drill and insert by hard vibration.
		
		» In the case that there is inclined side, flat the part by millling work and then proceed the drilling work.
		

Incorrect Application Example	Description
	» Stacked plate machining is not supported.

Required cutting power

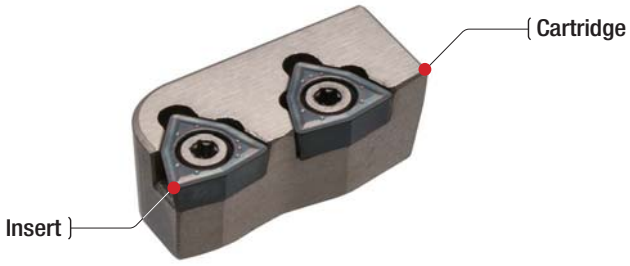


Head Parts Configuration Table



Head designation		Insert			Cartridge		Center drill			
		Designation	Screw	Wrench	Designation	Clamping bolt	Designation	Clamping bolt	Adjusting bolt	Fixing bolt
WPDCH	45050	WCMT030204-C21N	FTKA02206	TW06S	CWP2-045050C/P	M0410BH-W	CDH1035	M0610SS	M0610SS-H	M0408SS
	50055				CWP2-050055C/P					
	55060	WCMT040204-C21N	FTNA02555	TW08S	CWP2-055060C/P	M0512BH-W	CDH1238	M0812SS	M0815SS-H	M0508SS
	60065	WCMT050308-C21N	FTKA0307	TW09S	CWP2-060065C/P					
	65070				CWP2-065070C/P					
	70075				CWP2-070075C/P			M0815SS		M0510SS
	75080	WCMT06T308-C21N	FTKA03508	TW15S	CWP2-075080C/P	M0612HC-W	CDH1645	M1015SS	M1015SS-H	M0610SS
	80085				CWP2-080085C/P	M0614HC-W				
	85090				CWP2-085090C/P	M0616HC-W		M1020SS	M1018SS-H	M0612SS
	90095				CWP2-090095C/P					
	95100				CWP2-095100C/P					
	100105	WCMT050308-C21N	FTKA0307	TW09S	CWP3-100105C/P	M0818HC-W	CDH2045	M1220SS	M1220SS-H	
	105110	WCMT06T308-C21N	FTKA03508	TW15S	CWP3-105110C/P					
	110115				CWP3-110115C/P					
	115120				CWP3-115120C/P	M0820HC-W		M1225SS	M1420SS-H	
	115120				CWP3-120125C/P	M0825HC-W	CDH2556	M1425SS		M0615SS
	125130				CWP3-125130C/P					
	130135				CWP3-130135C/P					
	135140				CWP3-135140C/P					
	140150	WCMT080408-C21N	FTKA0411K		CWP3-140150C/P					
	150160				CWP3-150160C/P					
	160170				CWP3-160170C/P		CDH3068	M1625SS		M0620SS
	170180				CWP3-170180C/P					

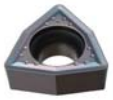
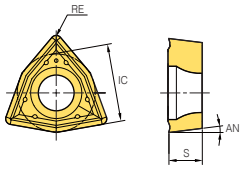
Cartridge Parts Configuration Table



Head diameter (mm)	Cartridge				Insert			Applicable head
	Central	Peripheral	Clamping bolt	No. of Insert	Designation	Screw	Wrench	
45~50	CWP2-045050C	CWP2-045050P	M0410BH-W	2	WCMT030204-C21N	FTKA02206	TW06S	WPDCH045050
50~55	CWP2-050055C	CWP2-050055P						WPDCH050055
55~60	CWP2-055060C	CWP2-055060P	M0512BH-W	2	WCMT040204-C21N	FTNA02555	TW08S	WPDCH055060
60~65	CWP2-060065C	CWP2-060065P		2	WCMT050308-C21N	FTKA0307	TW09S	WPDCH060065
65~70	CWP2-065070C	CWP2-065070P						WPDCH065070
70~75	CWP2-070075C	CWP2-070075P						WPDCH070075
75~80	CWP2-075080C	CWP2-075080P	M0612HC-W	2	WCMT06T308-C21N	FTKA03508	TW15S	WPDCH075080
80~85	CWP2-080085C	CWP2-080085P	M0614HC-W					WPDCH080085
85~90	CWP2-085090C	CWP2-085090P	M0616HC-W					WPDCH085090
90~95	CWP2-090095C	CWP2-090095P						WPDCH090095
95~100	CWP2-095100C	CWP2-095100P						WPDCH095100
100~105	CWP3-100105C	CWP3-100105P	M0818HC-W	3	WCMT050308-C21N	FTKA0307	TW09S	WPDCH100105
105~110	CWP3-105110C	CWP3-105110P		3	WCMT06T308-C21N	FTKA03508	TW15S	WPDCH105110
110~115	CWP3-110115C	CWP3-110115P						WPDCH110115
115~120	CWP3-115120C	CWP3-115120P	M0820HC-W					WPDCH115120
120~125	CWP3-120125C	CWP3-120125P	M0825HC-W					WPDCH120125
125~130	CWP3-125130C	CWP3-125130P						WPDCH125130
130~135	CWP3-130135C	CWP3-130135P						WPDCH130135
135~140	CWP3-135140C	CWP3-135140P						WPDCH135140
140~150	CWP3-140150C	CWP3-140150P		3	WCMT080408-C21N	FTKA0411K		WPDCH140150
150~160	CWP3-150160C	CWP3-150160P						WPDCH150160
160~170	CWP3-160170C	CWP3-160170P						WPDCH160170
170~180	CWP3-170180C	CWP3-170180P						WPDCH170180

* The cartridge extends the tool life of the body and allows for adjustment of the machining diameter (by 5 mm) through milling the peripheral cartridge surface.

Insert

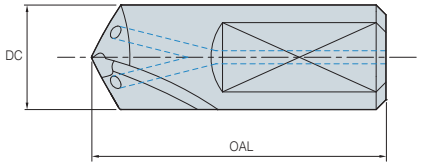
Picture	Designation		Coated	Dimension (mm)					Geomotry
			PC5335	IC	S	RE	AN(°)	CEDC	
	WCMT	030204-C21N	●	5.56	2.38	0.4	7	3	
		040204-C21N	●	6.35	2.38	0.4	7	3	
		040208-C21N	●	6.35	2.38	0.8	7	3	
		050308-C21N	●	7.94	3.18	0.8	7	3	
		06T308-C21N	●	9.525	3.97	0.8	7	3	
		080408-C21N	●	12.7	4.76	0.8	7	3	

* **CEDC** : Cutting edge count

●: Stock item

CDH (Center drill)

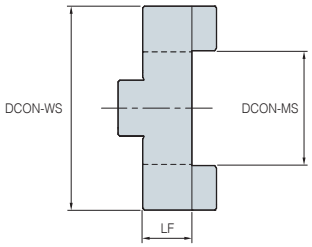
Grade PC40H



(mm)

Designation		DC	OAL
CDH	1035	10	35
	1238	12	38
	1645	16	45
	2045	20	45
	2556	25	56
	3068	30	68

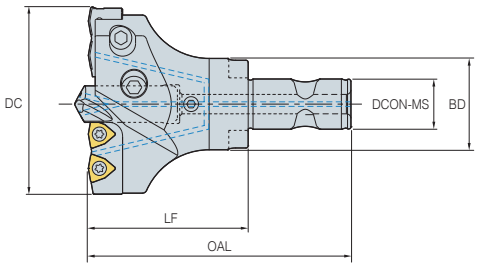
WPDCD (Drive ring)



(mm)

Designation		DCON-MS	DCON-WS	LF
WPDCD	281310	28	13	10
	321610	32	16	10
	402212	40	22	12
	482712	48	27	12
	583214	58	32	14
	704014	70	40	14
	805016	80	50	16

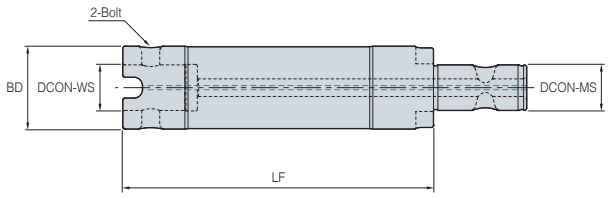
WPDCH (Drill head)



(mm)

Designation		DC	DCON-MS	BD	LF	OAL	Center drill	Cartridge	Insert	Screw	Wrench
WPDCH	**45050**	45~50	13	28	50	85	CDH1035	CWP2-045050C/P	WCMT030204-C21N	FTKA02206	TW06S
	50055	50~55	13	28	50	85		CWP2-050055C/P			
	55060	55~60	16	32	60	100	CDH1238	CWP2-055060C/P	WCMT040204-C21N	FTNA02555	TW08S
	60065	60~65	16	32	60	100		CWP2-060065C/P	WCMT050308-C21N	FTKA0307	TW09S
	65070	65~70	16	32	60	100		CWP2-065070C/P			
	70075	70~75	22	40	70	115		CWP2-070075C/P			
	75080	75~80	22	40	70	115	CDH1645	CWP2-075080C/P	WCMT06T308-C21N	FTKA03508	TW15S
	80085	80~85	22	40	70	115		CWP2-080085C/P			
	85090	85~90	27	48	70	120		CWP2-085090C/P			
	90095	90~95	27	48	70	120		CWP2-090095C/P			
	95100	95~100	27	48	70	120		CWP2-095100C/P			
	100105	100~105	32	58	80	130	CDH2045	CWP3-100105C/P	WCMT050308-C21N	FTKA0307	TW09S
	105110	105~110	32	58	80	130		CWP3-105110C/P	WCMT06T308-C21N	FTKA03508	TW15S
	110115	110~115	32	58	80	130		CWP3-110115C/P			
	115120	115~120	40	70	90	145		CWP3-115120C/P			
	120125	120~125	40	70	90	145	CDH2556	CWP3-120125C/P			
	125130	125~130	40	70	90	145		CWP3-125130C/P			
	130135	130~135	40	70	90	145		CWP3-130135C/P			
	135140	135~140	40	70	90	145		CWP3-135140C/P			
	140150	140~150	50	80	100	160		CWP3-140150C/P	WCMT080408-C21N	FTKA0411K	
	150160	150~160	50	80	100	160		CWP3-150160C/P			
	160170	160~170	50	80	100	160	CDH3068	CWP3-160170C/P			
	170180	170~180	50	80	100	160		CWP3-170180C/P			

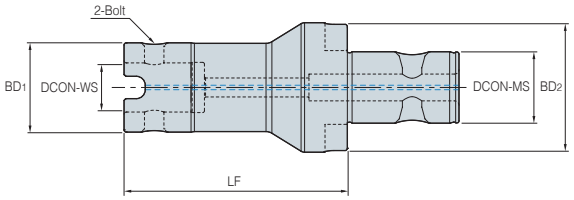
WPDCE (Extension)



(mm)

Designation		BD	DCON-WS	LF	DCON-MS	Fixing bolt	Drive ring
WPDCE	**2813115**	28	13	115	13	MTB-08115	WPDCD281310
	2813150	28	13	150	13		
	2813200	28	13	200	13		
	2813300	28	13	300	13		
	3216115	32	16	115	16		WPDCD321610
	3216200	32	16	200	16		
	3216300	32	16	300	16		
	4022113	40	22	113	22	MTB-10145	WPDCD402212
	4022200	40	22	200	22		
	4022300	40	22	300	22		
	4827113	48	27	113	27	MTB-12175	WPDCD482712
	4827200	48	27	200	27		
	4827300	48	27	300	27		
	5832186	58	32	186	32		WPDCD583214
	5832300	58	32	300	32		
	7040186	70	40	186	40	MTB-16260	WPDCD704014
	7040300	70	40	300	40		
	7040500	70	40	500	40		
	8050204	80	50	204	50		WPDCD805016
	8050300	80	50	300	50		
	8050500	80	50	500	50		

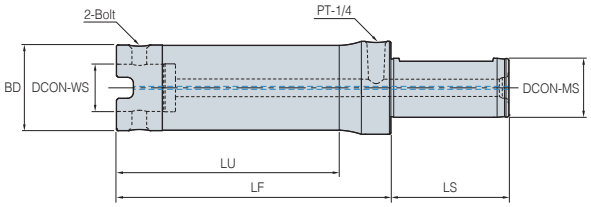
WPDCR (Reducer)



(mm)

Designation		DCON-MS	DCON-WS	LF	BD2	BD1	Fixing bolt	Drive ring	
								DCON-WS	DCON-MS
WPDCR	**1613100**	16	13	100	32	28	MTB-08115	WPDCD281310	WPDCD321610
	2216100	22	16	100	40	32		WPDCD321610	WPDCD402212
	2722100	27	22	100	48	40	MTB-10145	WPDCD402212	WPDCD482712
	3213100	32	13	100	58	28	MTB-08115	WPDCD281310	WPDCD583214
	3216100	32	16	100	58	32		WPDCD321610	WPDCD583214
	3222100	32	22	100	58	40	MTB-10145	WPDCD402212	WPDCD583214
	3227100	32	27	100	58	48	MTB-12175	WPDCD482712	WPDCD583214
	4032100	40	32	100	70	58	MTB-12195	WPDCD583214	WPDCD704014
	5013080	50	13	80	80	28	MTB-08115	WPDCD281310	WPDCD805016
	5016080	50	16	80	80	32		WPDCD321610	WPDCD805016
	5022080	50	22	80	80	40	MTB-10145	WPDCD402212	WPDCD805016
	5027080	50	27	80	80	48	MTB-12175	WPDCD482712	WPDCD805016
	5032080	50	32	80	80	58	MTB-12195	WPDCD583214	WPDCD805016
	5040150	50	40	150	80	70	MTB-16260	WPDCD704014	WPDCD805016

WPDCA (Cylinder shank adapter)

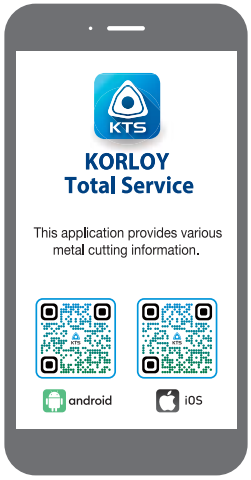


(mm)

Designation		DCON-MS	DCON-WS	LF	LU	BD	LS	Fixing bolt	Drive ring
WPDCA	**3213115**	32	13	115	77	28	70	MTB-08115	WPDCD281310
	3213200	32	13	200	165	28	70		
	3213300	32	13	300	265	28	70		
	4016125	40	16	125	86	32	80		WPDCD321610
	4016200	40	16	200	161	32	80		
	4016300	40	16	300	261	32	80		
	4022148	40	22	148	109	40	80	MTB-10145	WPDCD402212
	4022200	40	22	200	161	40	80		
	4022300	40	22	300	261	40	80		
	4027168	40	27	168	133	48	80	MTB-12175	WPDCD482712
	4027300	40	27	300	265	48	80		
	4032186	40	32	186	151	58	80	MTB-12195	WPDCD583214
	4032300	40	32	300	265	58	80		
WPDCAW	**5040186**	50	40	186	151	70	80	MTB-16260	WPDCD704014
	5040300	50	40	300	265	70	80		
	5050184	50	50	184	149	80	80		WPDCD805016
	5050300	50	50	300	265	80	80		

⚠ For the safe metalcutting

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the tools can be pulled out due to centrifugal force while high speed machining.



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