

G Win Drill 기술안내

경제형 초경 코팅 솔리드 드릴

Win Drill new

- 개선된 씨닝 형상에 따른 선단 절삭부하 감소로 절삭성 향상
- 최적의 플루트 설계로 강성 보완 및 칩 배출 우수
- 스테인레스강 가공에서도 탁월한 성능 발휘

형번표기법

WSDP
040
-
5D
-
100L
-
5S

Win Solid Drill Plus

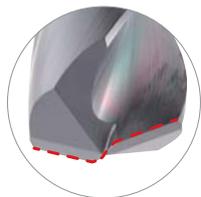
드릴직경(ØD)
040 = Ø4.0mm

절입깊이(L/D)
5D, 7D

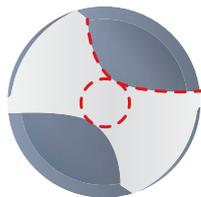
드릴전장
100L : 100mm

상크직경
5S : Ø5.0mm

특징

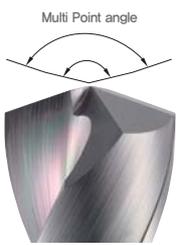


XR 씨닝 형상
- 유선형 씨닝으로 선단 절삭부하 감소
- 칩 절삭력 개선

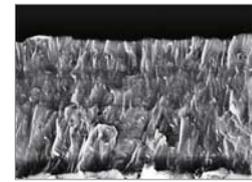
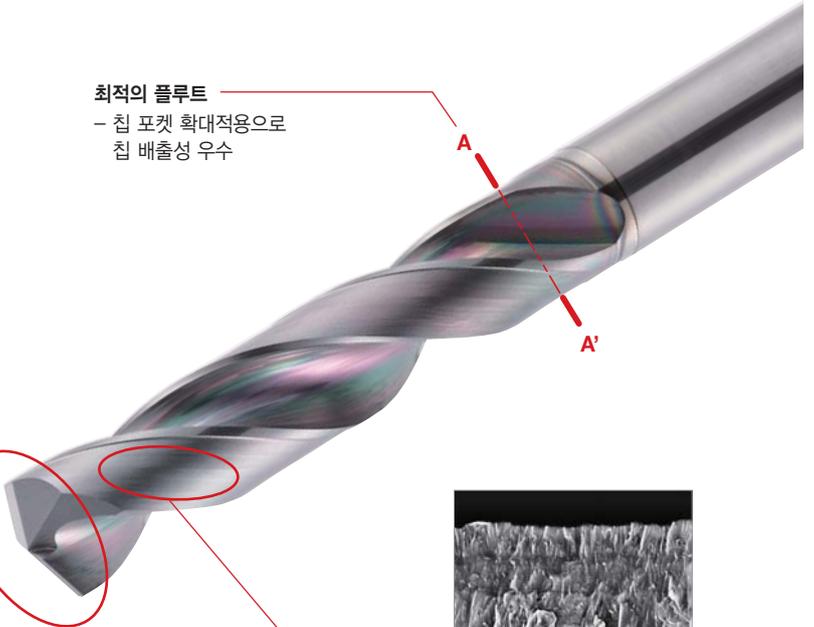


SECTION A-A'

최적의 플루트
- 칩 포켓 확대적용으로 칩 배출성 우수



Multi Point angle
- 최적의 Point angle로 절삭력 분산
- 1차 Point angle을 유선형으로 설계



신규 AlCrN 코팅
- 플루트 윤활성 향상에 따른 칩 배출 향상
- 다층 코팅으로 내마모성과 내산화성 향상

적용영역

◎: 1차 추천 ○: 2차 추천

P			M	K		
탄소강	합금강	프리하든강	열처리강		스테인레스강	주철
			STD61(~HRC55)	STD11(HRC55~63)		
◎	◎	○	-	-	◎	○



추천절삭조건

피삭재 구분			재종	절삭속도 vc(m/min)	드릴직경(mm)에 따른 이송(mm/rev)					
ISO	피삭재질	경도(HB)			Ø2.5-4.0	Ø4.1-8.0	Ø8.1-12.0	Ø12.1-16.0	Ø16.1-20.0	
P	탄소강	저탄소강	80-120	PC320W	72(64-120)	0.08-0.12	0.13-0.19	0.16-0.24	0.20-0.29	0.24-0.32
		고탄소강	250 이상	PC320W	40(32-64)	0.06-0.16	0.06-0.16	0.08-0.20	0.12-0.20	0.12-0.24
	합금강	저합금강	140-260	PC320W	72(64-120)	0.08-0.12	0.13-0.19	0.16-0.24	0.20-0.29	0.24-0.32
		저합금 열처리강	200-400	PC320W	48(40-80)	0.08-0.12	0.13-0.19	0.16-0.24	0.20-0.29	0.24-0.32
		고합금강	50-260	PC320W	40(32-64)	0.06-0.16	0.06-0.16	0.08-0.20	0.12-0.20	0.12-0.24
		고합금 열처리강	250 이상	PC320W	40(32-64)	0.06-0.16	0.06-0.16	0.08-0.20	0.12-0.20	0.12-0.24
M	스테인레스강	오스테 나이트계	135-275	PC320W	36(20-64)	0.04-0.16	0.04-0.16	0.08-0.20	0.08-0.20	0.12-0.24
		페라이트계 마르텐사이트계	135-275	PC320W	40(24-64)	0.04-0.16	0.04-0.16	0.08-0.20	0.08-0.20	0.12-0.24
K	주철	회주철	150-230	PC320W	80(64-120)	0.08-0.12	0.13-0.19	0.16-0.24	0.20-0.29	0.24-0.32
		덕타일주철	160-260	PC320W	72(56-112)	0.08-0.12	0.13-0.19	0.16-0.24	0.20-0.29	0.24-0.32

※ 상기 추천절삭조건은 외부 급유 적용, 가공 깊이 5D 이하일 때의 절삭조건입니다.

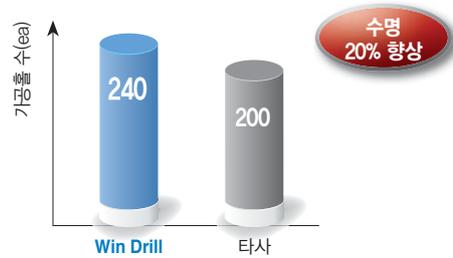
절삭평가 사례

내열 스테인레스강 [1.4848(DIN)]

- 피삭재 자동차 엔진부품
- 절삭조건 $vc(m/min) = 27.3$, $fn(mm/rev) = 0.13$, $ap(mm) = 15$, 습식(wet)
- 공구 WSDP130-5D(PC320W)



■ 절삭결과

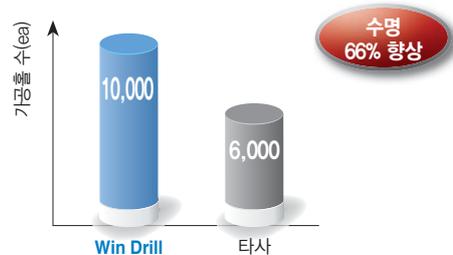


덕타일주철 (GCD600)

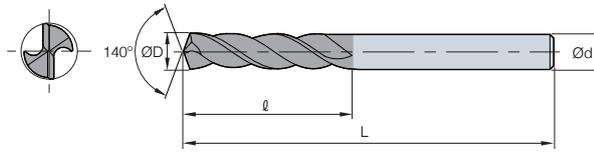
- 피삭재 베드 플레이트
- 절삭조건 $vc(m/min) = 84$, $fn(mm/rev) = 0.15$, $ap(mm) = 60$, 습식(wet)
- 공구 WSDP121-7D(PC320W)



■ 절삭결과



WSDP-□D



구분	P	M	K
재종	PC320W		
드릴직경공차	h7		
상크직경공차	h6		
선단각(θ°)	140°		
비틀림각	유선형		
세닝형상	XR type		
금유방식	외부		

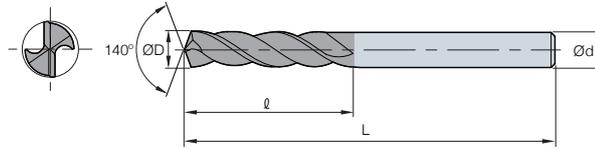
■강 ■스테인레스강 ■주철

(mm)

형번	ØD	Ød	5D		7D	
			ℓ	L	ℓ	L
WSDP 010-□D	1.0	3	8	38	12	60
011-□D	1.1	3	9	42	12	60
012-□D	1.2	3	10	42	12	60
013-□D	1.3	3	10	42	15	60
014-□D	1.4	3	11	42	15	60
015-□D	1.5	3	11	42	15	60
016-□D	1.6	3	12	42	20	60
017-□D	1.7	3	12	42	20	60
018-□D	1.8	3	13	42	20	60
019-□D	1.9	3	13	42	20	60
020-□D	2.0	3	18	50	25	66
021-□D	2.1	3	18	50	25	66
022-□D	2.2	3	18	50	25	66
023-□D	2.3	3	18	50	25	66
024-□D	2.4	3	18	50	30	66
025-□D	2.5	3	18	50	30	66
026-□D	2.6	3	18	50	30	66
027-□D	2.7	3	18	50	30	66
028-□D	2.8	3	18	50	30	66
029-□D	2.9	3	18	50	30	66
030-□D	3.0	3	20	55	45	80
031-□D	3.1	4	20	55	45	80
032-□D	3.2	4	20	55	45	80
033-□D	3.3	4	20	55	45	80
034-□D	3.4	4	20	55	45	80
035-□D	3.5	4	20	55	45	80
036-□D	3.6	4	25	55	45	80
037-□D	3.7	4	25	55	45	80
038-□D	3.8	4	25	55	45	80
039-□D	3.9	4	25	55	45	80
040-□D	4.0	4	25	55	45	80
041-□D	4.1	5	25	55	45	80
042-□D	4.2	5	33	63	45	80
043-□D	4.3	5	33	63	45	80
044-□D	4.4	5	33	63	45	80
045-□D	4.5	5	33	63	45	80
046-□D	4.6	5	33	63	45	80
047-□D	4.7	5	33	63	45	80
048-□D	4.8	5	33	63	45	80
049-□D	4.9	5	33	63	45	80
050-□D	5.0	5	33	63	45	80
051-□D	5.1	6	33	63	45	80
052-□D	5.2	6	36	66	50	83
053-□D	5.3	6	36	66	50	83
054-□D	5.4	6	36	66	50	83
055-□D	5.5	6	36	66	50	83
056-□D	5.6	6	36	66	50	83
057-□D	5.7	6	36	66	50	83



WSDP-□D

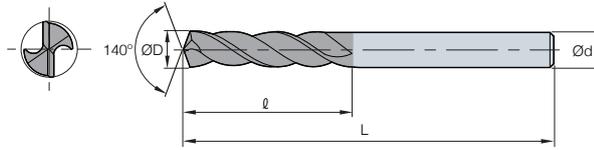


구분	P	M	K
재종	PC320W		
드릴직경공차	h7		
상크직경공차	h6		
선단각(θ°)	140°		
비틀림각	유선형		
세닝형상	XR type		
급유방식	외부		

■ 강 ■ 스테인레스강 ■ 주철

형번	ØD	Ød	5D		7D	
			ℓ	L	ℓ	L
WSDP 058-□D	5.8	6	36	66	50	83
059-□D	5.9	6	36	66	50	83
060-□D	6.0	6	36	66	50	83
061-□D	6.1	7	36	66	50	83
062-□D	6.2	7	42	75	53	85
063-□D	6.3	7	42	75	53	85
064-□D	6.4	7	42	75	53	85
065-□D	6.5	7	42	75	53	85
066-□D	6.6	7	42	75	53	85
067-□D	6.7	7	42	75	53	85
068-□D	6.8	7	42	75	53	85
069-□D	6.9	7	42	75	53	85
070-□D	7.0	7	42	75	53	85
071-□D	7.1	8	42	75	53	85
072-□D	7.2	8	46	80	58	90
073-□D	7.3	8	46	80	58	90
074-□D	7.4	8	46	80	58	90
075-□D	7.5	8	46	80	58	90
076-□D	7.6	8	46	80	58	90
077-□D	7.7	8	46	80	58	90
078-□D	7.8	8	46	80	58	90
079-□D	7.9	8	46	80	58	90
080-□D	8.0	8	46	80	58	90
081-□D	8.1	9	46	80	58	90
082-□D	8.2	9	50	85	64	98
083-□D	8.3	9	50	85	64	98
084-□D	8.4	9	50	85	64	98
085-□D	8.5	9	50	85	64	98
086-□D	8.6	9	50	85	64	98
087-□D	8.7	9	50	85	64	98
088-□D	8.8	9	50	85	64	98
089-□D	8.9	9	50	85	64	98
090-□D	9.0	9	50	85	64	98
091-□D	9.1	10	50	85	64	98
092-□D	9.2	10	55	90	68	105
093-□D	9.3	10	55	90	68	105
094-□D	9.4	10	55	90	68	105
095-□D	9.5	10	55	90	68	105
096-□D	9.6	10	55	90	68	105
097-□D	9.7	10	55	90	68	105
098-□D	9.8	10	55	90	68	105
099-□D	9.9	10	55	90	68	105
100-□D	10.0	10	55	90	68	105
101-□D	10.1	11	55	90	68	105
102-□D	10.2	11	57	95	73	110
103-□D	10.3	11	57	95	73	110
104-□D	10.4	11	57	95	73	110
105-□D	10.5	11	57	95	73	110

WSDP-□D



구분	P	M	K
재종	PC320W		
드릴직경공차	h7		
상크직경공차	h6		
선단각(θ°)	140°		
비틀림각	유선형		
씨닝형상	XR type		
금유방식	외부		

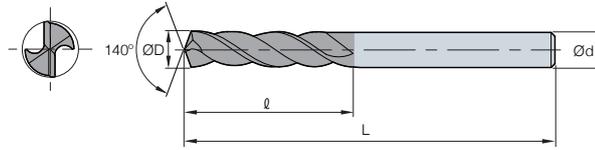
■강 ■스테인레스강 ■주철

(mm)

형번	ØD	Ød	5D		7D	
			ℓ	L	ℓ	L
WSDP 106-□D	10.6	11	57	95	73	110
107-□D	10.7	11	57	95	73	110
108-□D	10.8	11	57	95	73	110
109-□D	10.9	11	57	95	73	110
110-□D	11.0	11	57	95	73	110
111-□D	11.1	12	57	95	73	110
112-□D	11.2	12	63	102	80	120
113-□D	11.3	12	63	102	80	120
114-□D	11.4	12	63	102	80	120
115-□D	11.5	12	63	102	80	120
116-□D	11.6	12	63	102	80	120
117-□D	11.7	12	63	102	80	120
118-□D	11.8	12	63	102	80	120
119-□D	11.9	12	63	102	80	120
120-□D	12.0	12	63	102	80	120
121-□D	12.1	13	63	102	80	120
122-□D	12.2	13	63	102	90	137
123-□D	12.3	13	63	102	90	137
124-□D	12.4	13	63	102	90	137
125-□D	12.5	13	63	102	90	137
126-□D	12.6	13	63	102	90	137
127-□D	12.7	13	63	102	90	137
128-□D	12.8	13	63	102	90	137
129-□D	12.9	13	63	102	90	137
130-□D	13.0	13	63	102	90	137
131-□D	13.1	14	63	102	90	137
132-□D	13.2	14	65	107	96	147
133-□D	13.3	14	65	107	96	147
134-□D	13.4	14	65	107	96	147
135-□D	13.5	14	65	107	96	147
136-□D	13.6	14	65	107	96	147
137-□D	13.7	14	65	107	96	147
138-□D	13.8	14	65	107	96	147
139-□D	13.9	14	65	107	96	147
140-□D	14.0	14	65	107	96	147
141-□D	14.1	15	65	107	96	147
142-□D	14.2	15	67	111	100	153
143-□D	14.3	15	67	111	100	153
144-□D	14.4	15	67	111	100	153
145-□D	14.5	15	67	111	100	153
146-□D	14.6	15	67	111	100	153
147-□D	14.7	15	67	111	100	153
148-□D	14.8	15	67	111	100	153
149-□D	14.9	15	67	111	100	153
150-□D	15.0	15	67	111	100	153
151-□D	15.1	16	67	111	100	153
152-□D	15.2	16	69	115	112	160
153-□D	15.3	16	69	115	112	160



WSDP-□D



구분	P	M	K
재종	PC320W		
드릴직경공차	h7		
상크직경공차	h6		
선단각(θ°)	140°		
비틀림각	유선형		
싸임형상	XR type		
급유방식	외부		

■강 ■스테인레스강 ■주철

형번	ØD	Ød	5D		7D	
			ℓ	L	ℓ	L
WSDP 154-□D	15.4	16	69	115	112	160
155-□D	15.5	16	69	115	112	160
156-□D	15.6	16	69	115	112	160
157-□D	15.7	16	69	115	112	160
158-□D	15.8	16	69	115	112	160
159-□D	15.9	16	69	115	112	160
160-□D	16.0	16	69	115	112	160
161-□D	16.1	17	69	115	112	160
162-□D	16.2	17	71	119	112	160
163-□D	16.3	17	71	119	112	160
164-□D	16.4	17	71	119	112	160
165-□D	16.5	17	71	119	112	160
166-□D	16.6	17	71	119	112	160
167-□D	16.7	17	71	119	112	160
168-□D	16.8	17	71	119	112	160
169-□D	16.9	17	71	119	112	160
170-□D	17.0	17	71	119	112	160
171-□D	17.1	18	71	119	112	160
172-□D	17.2	18	74	123	112	160
173-□D	17.3	18	74	123	112	160
174-□D	17.4	18	74	123	112	160
175-□D	17.5	18	74	123	112	160
176-□D	17.6	18	74	123	112	160
177-□D	17.7	18	74	123	112	160
178-□D	17.8	18	74	123	112	160
179-□D	17.9	18	74	123	112	160
180-□D	18.0	18	74	123	112	160
181-□D	18.1	19	74	123	112	160
182-□D	18.2	19	76	127	112	160
183-□D	18.3	19	76	127	112	160
184-□D	18.4	19	76	127	112	160
185-□D	18.5	19	76	127	112	160
186-□D	18.6	19	76	127	112	160
187-□D	18.7	19	76	127	112	160
188-□D	18.8	19	76	127	112	160
189-□D	18.9	19	76	127	112	160
190-□D	19.0	19	76	127	112	160
191-□D	19.1	20	76	127	112	160
192-□D	19.2	20	80	131	112	160
193-□D	19.3	20	80	131	112	160
194-□D	19.4	20	80	131	112	160
195-□D	19.5	20	80	131	112	160
196-□D	19.6	20	80	131	112	160
197-□D	19.7	20	80	131	112	160
198-□D	19.8	20	80	131	112	160
199-□D	19.9	20	80	131	112	160
200-□D	20.0	20	80	131	112	160

