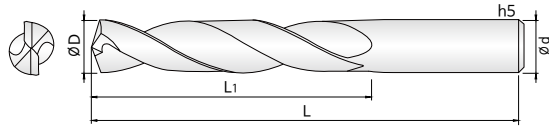


## 초경 2날 두배 V 드릴 [3XD]



- HRc28이하, S45C, SCM, 주강, 주철용 고정밀 드릴
- T-CRO 코팅을 적용하여 드릴 가공 시 발생하는 윤착 현상을 최소화 하였습니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 특수 인선처리와 최적의 형상으로 치핑 및 돌발파손을 방지합니다.
- 우수한 공구의 강성과 칩 배출의 설계를 적용하여 칩 배출성을 향상시켰습니다.

### High-speed drills for materials up to HRc28, S45C, SCM, cast steels, and cast irons

- Minimized adhesion during drilling operations by applying T-CRO coating.
- Adopted point thinning to minimize cutting resistance.
- Prevents chipping and unexpected fractures with special edge treatment and optimal shape.
- Enhanced chip evacuation with the application of a design for superior tool rigidity and chip evacuation.

2

WC  
미립자

TCRO  
COATING

h7  
Diameter  
Tolerance

30°  
Helix Angle

140°

CUTTING  
DATA

514P

단위 : mm

Order Number	날경 Diameter D	홈길이 Flute Length L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	홈길이 Flute Length L1	전장 Overall Length L	샙크 Shank Dia d	비고
2DUBEV 010 080 S03	1	8	40	3		2DUBEV 060 280 S06	6	28	65	6	
2DUBEV 011 080 S03	1.1	8	40	3		2DUBEV 061 340 S08	6.1	34	80	8	
2DUBEV 012 080 S03	1.2	8	40	3		2DUBEV 062 340 S08	6.2	34	80	8	
2DUBEV 013 080 S03	1.3	8	40	3		2DUBEV 063 340 S08	6.3	34	80	8	
2DUBEV 014 080 S03	1.4	8	40	3		2DUBEV 064 340 S08	6.4	34	80	8	
2DUBEV 015 080 S03	1.5	8	50	3		2DUBEV 065 340 S08	6.5	34	80	8	
2DUBEV 016 080 S03	1.6	8	50	3		2DUBEV 066 340 S08	6.6	34	80	8	
2DUBEV 017 100 S03	1.7	10	50	3		2DUBEV 067 340 S08	6.7	34	80	8	
2DUBEV 018 100 S03	1.8	10	50	3		2DUBEV 068 340 S08	6.8	34	80	8	
2DUBEV 019 100 S03	1.9	10	50	3		2DUBEV 069 340 S08	6.9	34	80	8	
2DUBEV 020 160 S04	2	16	50	4		2DUBEV 070 340 S08	7	34	80	8	
2DUBEV 021 160 S04	2.1	16	50	4		2DUBEV 071 410 S08	7.1	41	80	8	
2DUBEV 022 160 S04	2.2	16	50	4		2DUBEV 072 410 S08	7.2	41	80	8	
2DUBEV 023 160 S04	2.3	16	50	4		2DUBEV 073 410 S08	7.3	41	80	8	
2DUBEV 024 160 S04	2.4	16	50	4		2DUBEV 074 410 S08	7.4	41	80	8	
2DUBEV 025 200 S04	2.5	20	50	4		2DUBEV 075 410 S08	7.5	41	80	8	
2DUBEV 026 200 S04	2.6	20	50	4		2DUBEV 076 410 S08	7.6	41	80	8	
2DUBEV 027 200 S04	2.7	20	50	4		2DUBEV 077 410 S08	7.7	41	80	8	
2DUBEV 028 200 S04	2.8	20	50	4		2DUBEV 078 410 S08	7.8	41	80	8	
2DUBEV 029 200 S04	2.9	20	50	4		2DUBEV 079 410 S08	7.9	41	80	8	
2DUBEV 030 200 S06	3	20	60	6		2DUBEV 080 410 S08	8	41	80	8	
2DUBEV 031 200 S06	3.1	20	60	6		2DUBEV 081 470 S10	8.1	47	90	10	
2DUBEV 032 200 S06	3.2	20	60	6		2DUBEV 082 470 S10	8.2	47	90	10	
2DUBEV 033 200 S06	3.3	20	60	6		2DUBEV 083 470 S10	8.3	47	90	10	
2DUBEV 034 200 S06	3.4	20	60	6		2DUBEV 084 470 S10	8.4	47	90	10	
2DUBEV 035 200 S06	3.5	20	60	6		2DUBEV 085 470 S10	8.5	47	90	10	
2DUBEV 036 200 S06	3.6	20	60	6		2DUBEV 086 470 S10	8.6	47	90	10	
2DUBEV 037 200 S06	3.7	20	60	6		2DUBEV 087 470 S10	8.7	47	90	10	
2DUBEV 038 240 S06	3.8	24	65	6		2DUBEV 088 470 S10	8.8	47	90	10	
2DUBEV 039 240 S06	3.9	24	65	6		2DUBEV 089 470 S10	8.9	47	90	10	
2DUBEV 040 240 S06	4	24	65	6		2DUBEV 090 470 S10	9	47	90	10	
2DUBEV 041 240 S06	4.1	24	65	6		2DUBEV 091 470 S10	9.1	47	90	10	
2DUBEV 042 240 S06	4.2	24	65	6		2DUBEV 092 470 S10	9.2	47	90	10	
2DUBEV 043 240 S06	4.3	24	65	6		2DUBEV 093 470 S10	9.3	47	90	10	
2DUBEV 044 240 S06	4.4	24	65	6		2DUBEV 094 470 S10	9.4	47	90	10	
2DUBEV 045 240 S06	4.5	24	65	6		2DUBEV 095 470 S10	9.5	47	90	10	
2DUBEV 046 240 S06	4.6	24	65	6		2DUBEV 096 470 S10	9.6	47	90	10	
2DUBEV 047 240 S06	4.7	24	65	6		2DUBEV 097 470 S10	9.7	47	90	10	
2DUBEV 048 280 S06	4.8	28	65	6		2DUBEV 098 470 S10	9.8	47	90	10	
2DUBEV 049 280 S06	4.9	28	65	6		2DUBEV 099 470 S10	9.9	47	90	10	
2DUBEV 050 280 S06	5	28	65	6		2DUBEV 100 470 S10	10	47	90	10	
2DUBEV 051 280 S06	5.1	28	65	6		2DUBEV 101 550 S12	10.1	55	100	12	
2DUBEV 052 280 S06	5.2	28	65	6		2DUBEV 102 550 S12	10.2	55	100	12	
2DUBEV 053 280 S06	5.3	28	65	6		2DUBEV 103 550 S12	10.3	55	100	12	
2DUBEV 054 280 S06	5.4	28	65	6		2DUBEV 104 550 S12	10.4	55	100	12	
2DUBEV 055 280 S06	5.5	28	65	6		2DUBEV 105 550 S12	10.5	55	100	12	
2DUBEV 056 280 S06	5.6	28	65	6		2DUBEV 106 550 S12	10.6	55	100	12	
2DUBEV 057 280 S06	5.7	28	65	6		2DUBEV 107 550 S12	10.7	55	100	12	
2DUBEV 058 280 S06	5.8	28	65	6		2DUBEV 108 550 S12	10.8	55	100	12	
2DUBEV 059 280 S06	5.9	28	65	6		2DUBEV 109 550 S12	10.9	55	100	12	

단위 : mm

Order Number	날경 Diameter D	홈길이 Flute Length L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D	홈길이 Flute Length L1	전장 Overall Length L	샙크 Dia d	비고
2DUBEV 110 550 S12	11	55	100	12		2DUBEV 160 650 S16	16	65	115	16	
2DUBEV 111 550 S12	11.1	55	100	12		2DUBEV 161 730 S18	16.1	73	125	18	
2DUBEV 112 550 S12	11.2	55	100	12		2DUBEV 162 730 S18	16.2	73	125	18	
2DUBEV 113 550 S12	11.3	55	100	12		2DUBEV 163 730 S18	16.3	73	125	18	
2DUBEV 114 550 S12	11.4	55	100	12		2DUBEV 164 730 S18	16.4	73	125	18	
2DUBEV 115 550 S12	11.5	55	100	12		2DUBEV 165 730 S18	16.5	73	125	18	
2DUBEV 116 550 S12	11.6	55	100	12		2DUBEV 166 730 S18	16.6	73	125	18	
2DUBEV 117 550 S12	11.7	55	100	12		2DUBEV 167 730 S18	16.7	73	125	18	
2DUBEV 118 550 S12	11.8	55	100	12		2DUBEV 168 730 S18	16.8	73	125	18	
2DUBEV 119 550 S12	11.9	55	100	12		2DUBEV 169 730 S18	16.9	73	125	18	
2DUBEV 120 550 S12	12	55	100	12		2DUBEV 170 730 S18	17	73	125	18	
2DUBEV 121 600 S14	12.1	60	100	14		2DUBEV 171 730 S18	17.1	73	125	18	
2DUBEV 122 600 S14	12.2	60	100	14		2DUBEV 172 730 S18	17.2	73	125	18	
2DUBEV 123 600 S14	12.3	60	100	14		2DUBEV 173 730 S18	17.3	73	125	18	
2DUBEV 124 600 S14	12.4	60	100	14		2DUBEV 174 730 S18	17.4	73	125	18	
2DUBEV 125 600 S14	12.5	60	100	14		2DUBEV 175 730 S18	17.5	73	125	18	
2DUBEV 126 600 S14	12.6	60	100	14		2DUBEV 176 730 S18	17.6	73	125	18	
2DUBEV 127 600 S14	12.7	60	100	14		2DUBEV 177 730 S18	17.7	73	125	18	
2DUBEV 128 600 S14	12.8	60	100	14		2DUBEV 178 730 S18	17.8	73	125	18	
2DUBEV 129 600 S14	12.9	60	100	14		2DUBEV 179 730 S18	17.9	73	125	18	
2DUBEV 130 600 S14	13	60	100	14		2DUBEV 180 730 S18	18	73	125	18	
2DUBEV 131 600 S14	13.1	60	100	14		2DUBEV 181 790 S20	18.1	79	130	20	
2DUBEV 132 600 S14	13.2	60	105	14		2DUBEV 182 790 S20	18.2	79	130	20	
2DUBEV 133 600 S14	13.3	60	105	14		2DUBEV 183 790 S20	18.3	79	130	20	
2DUBEV 134 600 S14	13.4	60	105	14		2DUBEV 184 790 S20	18.4	79	130	20	
2DUBEV 135 600 S14	13.5	60	105	14		2DUBEV 185 790 S20	18.5	79	130	20	
2DUBEV 136 600 S14	13.6	60	105	14		2DUBEV 186 790 S20	18.6	79	130	20	
2DUBEV 137 600 S14	13.7	60	105	14		2DUBEV 187 790 S20	18.7	79	130	20	
2DUBEV 138 600 S14	13.8	60	105	14		2DUBEV 188 790 S20	18.8	79	130	20	
2DUBEV 139 600 S14	13.9	60	105	14		2DUBEV 189 790 S20	18.9	79	130	20	
2DUBEV 140 600 S14	14	60	105	14		2DUBEV 190 790 S20	19	79	130	20	
2DUBEV 141 650 S16	14.1	65	110	16		2DUBEV 191 790 S20	19.1	79	130	20	
2DUBEV 142 650 S16	14.2	65	110	16		2DUBEV 192 790 S20	19.2	79	130	20	
2DUBEV 143 650 S16	14.3	65	110	16		2DUBEV 193 790 S20	19.3	79	130	20	
2DUBEV 144 650 S16	14.4	65	110	16		2DUBEV 194 790 S20	19.4	79	130	20	
2DUBEV 145 650 S16	14.5	65	110	16		2DUBEV 195 790 S20	19.5	79	130	20	
2DUBEV 146 650 S16	14.6	65	110	16		2DUBEV 196 790 S20	19.6	79	130	20	
2DUBEV 147 650 S16	14.7	65	110	16		2DUBEV 197 790 S20	19.7	79	130	20	
2DUBEV 148 650 S16	14.8	65	110	16		2DUBEV 198 790 S20	19.8	79	130	20	
2DUBEV 149 650 S16	14.9	65	110	16		2DUBEV 199 790 S20	19.9	79	130	20	
2DUBEV 150 650 S16	15	65	110	16		2DUBEV 200 790 S20	20	79	130	20	
2DUBEV 151 650 S16	15.1	65	110	16							
2DUBEV 152 650 S16	15.2	65	115	16							
2DUBEV 153 650 S16	15.3	65	115	16							
2DUBEV 154 650 S16	15.4	65	115	16							
2DUBEV 155 650 S16	15.5	65	115	16							
2DUBEV 156 650 S16	15.6	65	115	16							
2DUBEV 157 650 S16	15.7	65	115	16							
2DUBEV 158 650 S16	15.8	65	115	16							
2DUBEV 159 650 S16	15.9	65	115	16							

## 2DUBEV(3XD) Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조강/쾌삭강 Mild Steels/Free cutting steels HP/SM		구조용강/탄소강/회주철 Structural steels / Carbon Steels /Gray cast irons SS/SC/FC		공구강/금형강 Tool steels / Mold steels SCM/HPM		덕타일 주철 Ductile cast irons FCD	
경도 Hardness	~ 200HB		~ 30HRc		30~40HRc		-	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
ø1	19,100	840	19,200	430	13,000	360	11,500	385
ø2	9,500	630	9,700	430	6,000	330	6,100	330
ø3	8,500	840	8,200	360	5,900	450	5,950	460
ø4	6,400	770	6,500	430	4,500	450	4,400	440
ø5	5,000	940	5,200	680	3,450	550	3,500	560
ø6	4,250	880	4,500	600	4,000	550	3,000	560
ø8	3,200	740	3,300	580	2,100	440	2,200	460
ø10	2,550	640	2,500	580	1,700	400	1,800	420
ø12	2,200	600	2,100	530	1,400	350	1,500	390
ø16	1,600	580	1,600	470	1,150	340	1,100	330
ø20	1,300	500	1,300	470	950	340	900	330

- 피삭재의 고정시 불안정 할 시 내구성이 떨어지므로, 확실한 클램핑을 하십시오.
- 원활한 칩 배출을 위해 절삭유 사용을 권장하며, 수용성 절삭유가 효과적입니다.
- 상기 절삭 조건은 참고 수치이므로, 실 가공 시 가공 형상, 가공 목적, 적용 기계에 따라 조건 변경 요망합니다.
- 조건표가 기계의 최대 스피들 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피들 속도와 이송 속도를 비례하여 조정하십시오.
- Ensure a stable clamping when fixing the cutting tool, as durability may be compromised if the clamping is unstable.
- For smooth chip evacuation, we recommend using cutting oil, and a soluble cutting fluid is effective as well.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the cutting conditions exceed the maximum spindle speed of the machine or if chattering and thermal phenomena occur, adjust the spindle speed and feed rate proportionally.

## 2DUBEV(5XD) Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조강/쾌삭강 Mild Steels/Free cutting steels HP/SM		구조용강/탄소강/회주철 Structural steels / Carbon Steels /Gray cast irons SS/SC/FC		공구강/금형강 Tool steels / Mold steels SCM/HPM		덕타일 주철 Ductile cast irons FCD	
경도 Hardness	~ 200HB		~ 30HRc		30~40HRc		-	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
ø1	19,100	760	19,200	390	13,000	330	11,500	350
ø2	9,500	570	9,700	390	6,000	300	6,100	300
ø3	8,500	760	8,200	330	5,900	410	5,950	420
ø4	6,400	700	6,500	390	4,500	410	4,400	400
ø5	5,000	850	5,200	620	3,450	500	3,500	510
ø6	4,250	800	4,500	550	4,000	500	3,000	510
ø8	3,200	670	3,300	530	2,100	400	2,200	420
ø10	2,550	580	2,500	530	1,700	360	1,800	380
ø12	2,200	550	2,100	480	1,400	320	1,500	350
ø16	1,600	430	1,600	530	1,150	310	1,100	300
ø20	1,300	450	1,300	430	950	310	900	300

- 피삭재의 고정시 불안정 할 시 내구성이 떨어지므로, 확실한 클램핑을 하십시오.
- 원활한 칩 배출을 위해 절삭유 사용을 권장하며, 수용성 절삭유가 효과적입니다.
- 상기 절삭 조건은 참고 수치이므로, 실 가공 시 가공 형상, 가공 목적, 적용 기계에 따라 조건 변경 요망합니다.
- 절삭하는 피삭재의 따라 구멍깊이 최대 5xDc 이상의 드릴링 시 peck(Q) 절입량을 변경하십시오.
- 조건표가 기계의 최대 스피들 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피들 속도와 이송 속도를 비례하여 조정하십시오.
- Ensure a stable clamping when fixing the cutting tool, as durability may be compromised if the clamping is unstable.
- For smooth chip evacuation, we recommend using cutting oil, and a soluble cutting fluid is effective as well.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- Please adjust the peck (Q) feed rate when drilling with a cutting tool that has a depth of cut (Dc) exceeding 5 times the diameter.
- If the cutting conditions exceed the maximum spindle speed of the machine or if chattering and thermal phenomena occur, adjust the spindle speed and feed rate proportionally.