

Carbide EndMills

High Precision & High Speed Cutting
Wide range of products

17,583

Your specials are our standards. 당신의 스페셜은 우리의 표준품입니다.



**Double Satisfaction! Custom Coating Dedicated Drill
for Matching the Workpiece.**

2DUBE DRILL series

두배 만족! 피삭재 맞춤 코팅 전용 드릴

Enhance Durability !
뛰어난 내구성!

2DUBES

Reduce Cutting Resistance !
절삭저항 감소!

*TISIN + @ Base for a Wide Range of Cutting Conditions
up to HRC 48! Applied HR Coating for Maximizing Tool Lifespan
with Excellent Wear Resistance and Chipping Resistance!*

*TISIN + @ Base로 HRC 48이하의 광범위한 절삭영역!
우수한 내마모성과 내치핑성으로 공구의 수명을 극대화
시키는 HR코팅 적용!*

**HR
coating**

2DUBEW

**CROSS CUT
coating**

*ALCRN + @ Base for Optimized High-Speed Drilling of SUS and Aluminum!
Applied Cross Cut Coating with Exceptional Wear Uniformity
and Heat Resistance through a Unique Nanostructure!*

*ALCRN + @ Base로 SUS 및 알루미늄 등 강력한 고속 드릴링의 최적화!
독특한 나노구조로 균일 마모의 특성과 내열성이 뛰어난 Cross Cut 코팅 적용!*

2DUBE

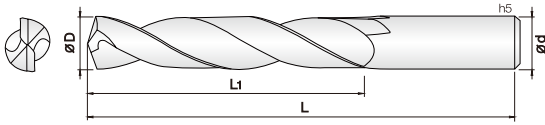
4DUBE

**T-CRO
coating**

*ALCRN + @ Base for Minimizing Chip Adhesion with Excellent
Wear Uniformity and High Surface Finish!
Applied TCRO Coating for Outstanding Chip Evacuation
with a Unique Nanostructure!*

*ALCRN + @ Base로 HRC 28이하의 뛰어난 이형성과 저 마찰로
배출되는 칩의 응착을 최소화!
높은 표면처리로 탁월한 칩 배출의 TCRO 코팅 적용!*

초경 2날 두배 S 드릴



- HRC48이하, NAK, SCM, 열처리강용 강력 드릴
- HR 코팅을 적용하여 내마모성이 뛰어나 장시간 가공이 적합합니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 최적에 플루트 형상 설계를 적용하여 공구강성과 칩배출 성능이 매우 우수합니다.
- 140도 선단각 설계하여 높은 고정밀, 고속 드릴링 작업에 탁월한 성능을 발휘합니다.
- **Powerful drill for materials with HRC48 or below, such as NAK, SCM, and heat-treated steels**
- Excellent wear resistance with HR coating, suitable for long-lasting machining.
- Adopted Point thinning to minimize cutting resistance.
- Excellent tool rigidity and chip evacuation performance achieved by applying an optimal flute design.
- Designed with a 140-degree point angle for outstanding performance in high-precision, high-speed drilling operations.

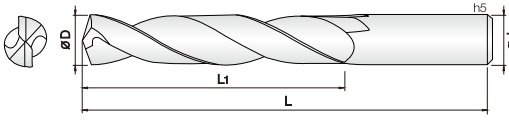


489P

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
2DUBES 010 070 S03	1	7	45	3		2DUBES 060 280 S06	6	28	65	6	
2DUBES 011 070 S03	1.1	7	45	3		2DUBES 061 340 S08	6.1	34	80	8	
2DUBES 012 070 S03	1.2	7	45	3		2DUBES 062 340 S08	6.2	34	80	8	
2DUBES 013 070 S03	1.3	7	45	3		2DUBES 063 340 S08	6.3	34	80	8	
2DUBES 014 070 S03	1.4	7	45	3		2DUBES 064 340 S08	6.4	34	80	8	
2DUBES 015 140 S03	1.5	14	55	3		2DUBES 065 340 S08	6.5	34	80	8	
2DUBES 016 140 S03	1.6	14	55	3		2DUBES 066 340 S08	6.6	34	80	8	
2DUBES 017 140 S03	1.7	14	55	3		2DUBES 067 340 S08	6.7	34	80	8	
2DUBES 018 140 S03	1.8	14	55	3		2DUBES 068 340 S08	6.8	34	80	8	
2DUBES 019 140 S03	1.9	14	55	3		2DUBES 069 340 S08	6.9	34	80	8	
2DUBES 020 200 S04	2	20	55	4		2DUBES 070 340 S08	7	34	80	8	
2DUBES 021 200 S04	2.1	20	55	4		2DUBES 071 410 S08	7.1	41	80	8	
2DUBES 022 200 S04	2.2	20	55	4		2DUBES 072 410 S08	7.2	41	80	8	
2DUBES 023 200 S04	2.3	20	55	4		2DUBES 073 410 S08	7.3	41	80	8	
2DUBES 024 200 S04	2.4	20	55	4		2DUBES 074 410 S08	7.4	41	80	8	
2DUBES 025 200 S04	2.5	20	55	4		2DUBES 075 410 S08	7.5	41	80	8	
2DUBES 026 200 S04	2.6	20	55	4		2DUBES 076 410 S08	7.6	41	80	8	
2DUBES 027 200 S04	2.7	20	55	4		2DUBES 077 410 S08	7.7	41	80	8	
2DUBES 028 200 S04	2.8	20	55	4		2DUBES 078 410 S08	7.8	41	80	8	
2DUBES 029 200 S04	2.9	20	55	4		2DUBES 079 410 S08	7.9	41	80	8	
2DUBES 030 200 S06	3	20	60	6		2DUBES 080 410 S08	8	41	80	8	
2DUBES 031 200 S06	3.1	20	60	6		2DUBES 081 470 S10	8.1	47	90	10	
2DUBES 032 200 S06	3.2	20	60	6		2DUBES 082 470 S10	8.2	47	90	10	
2DUBES 033 200 S06	3.3	20	60	6		2DUBES 083 470 S10	8.3	47	90	10	
2DUBES 034 200 S06	3.4	20	60	6		2DUBES 084 470 S10	8.4	47	90	10	
2DUBES 035 200 S06	3.5	20	60	6		2DUBES 085 470 S10	8.5	47	90	10	
2DUBES 036 200 S06	3.6	20	60	6		2DUBES 086 470 S10	8.6	47	90	10	
2DUBES 037 200 S06	3.7	20	60	6		2DUBES 087 470 S10	8.7	47	90	10	
2DUBES 038 240 S06	3.8	24	65	6		2DUBES 088 470 S10	8.8	47	90	10	
2DUBES 039 240 S06	3.9	24	65	6		2DUBES 089 470 S10	8.9	47	90	10	
2DUBES 040 240 S06	4	24	65	6		2DUBES 090 470 S10	9	47	90	10	
2DUBES 041 240 S06	4.1	24	65	6		2DUBES 091 470 S10	9.1	47	90	10	
2DUBES 042 240 S06	4.2	24	65	6		2DUBES 092 470 S10	9.2	47	90	10	
2DUBES 043 240 S06	4.3	24	65	6		2DUBES 093 470 S10	9.3	47	90	10	
2DUBES 044 240 S06	4.4	24	65	6		2DUBES 094 470 S10	9.4	47	90	10	
2DUBES 045 240 S06	4.5	24	65	6		2DUBES 095 470 S10	9.5	47	90	10	
2DUBES 046 240 S06	4.6	24	65	6		2DUBES 096 470 S10	9.6	47	90	10	
2DUBES 047 240 S06	4.7	24	65	6		2DUBES 097 470 S10	9.7	47	90	10	
2DUBES 048 280 S06	4.8	28	65	6		2DUBES 098 470 S10	9.8	47	90	10	
2DUBES 049 280 S06	4.9	28	65	6		2DUBES 099 470 S10	9.9	47	90	10	
2DUBES 050 280 S06	5	28	65	6		2DUBES 100 470 S10	10	47	90	10	
2DUBES 051 280 S06	5.1	28	65	6		2DUBES 101 550 S12	10.1	55	100	12	
2DUBES 052 280 S06	5.2	28	65	6		2DUBES 102 550 S12	10.2	55	100	12	
2DUBES 053 280 S06	5.3	28	65	6		2DUBES 103 550 S12	10.3	55	100	12	
2DUBES 054 280 S06	5.4	28	65	6		2DUBES 104 550 S12	10.4	55	100	12	
2DUBES 055 280 S06	5.5	28	65	6		2DUBES 105 550 S12	10.5	55	100	12	
2DUBES 056 280 S06	5.6	28	65	6		2DUBES 106 550 S12	10.6	55	100	12	
2DUBES 057 280 S06	5.7	28	65	6		2DUBES 107 550 S12	10.7	55	100	12	
2DUBES 058 280 S06	5.8	28	65	6		2DUBES 108 550 S12	10.8	55	100	12	
2DUBES 059 280 S06	5.9	28	65	6		2DUBES 109 550 S12	10.9	55	100	12	

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

초경 2날 짧은 길이 두배 드릴



- HRC28이하, S45C, SCM, 주강, 주철용 고정밀 드릴
- T-CRO 코팅을 적용하여 드릴 가공 시 발생하는 용착 현상을 최소화하였습니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 최적에 플루트 형상 설계를 적용하여 공구강성과 칩배출 성능이 매우 우수합니다.
- 140도 선단각 설계하여 높은 고정밀, 고속 드릴링 작업에 탁월한 성능을 발휘합니다.

- High-speed drill for materials with HRC28 or below, such as S45C, SCM, cast iron, and cast steel
- Minimized adhesion during drilling operations by applying T-CRO coating.
- Adopted point thinning to minimize cutting resistance.
- Excellent tool rigidity and chip evacuation performance achieved by applying an optimal flute desitn.
- Designed with a 140-degree point angle for outstanding performance in high-precision, high-speed drilling operations.

2
미립자

WC
미립자

TCRO
COATING

h7
Tolerance

30°
Helix Angle

140°

CUTTING
DATA

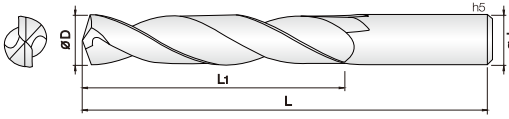
489P

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2DUBE 010 050 S03	1	5	40	3		2DUBE 035 160 S04	3.5	16	55	4	
2DUBE 0105 050 S03	1.05	5	40	3		2DUBE 0355 160 S04	3.55	16	55	4	
2DUBE 011 060 S03	1.1	6	40	3		2DUBE 036 180 S04	3.6	18	55	4	
2DUBE 0115 060 S03	1.15	6	40	3		2DUBE 0365 180 S04	3.65	18	55	4	
2DUBE 012 060 S03	1.2	6	40	3		2DUBE 037 180 S04	3.7	18	55	4	
2DUBE 0125 060 S03	1.25	6	40	3		2DUBE 0375 180 S04	3.75	18	55	4	
2DUBE 013 060 S03	1.3	6	40	3		2DUBE 038 200 S04	3.8	20	55	4	
2DUBE 0135 070 S03	1.35	7	40	3		2DUBE 0385 200 S04	3.85	20	55	4	
2DUBE 014 070 S03	1.4	7	40	3		2DUBE 039 200 S04	3.9	20	55	4	
2DUBE 0145 070 S03	1.45	7	40	3		2DUBE 0395 200 S04	3.95	20	55	4	
2DUBE 015 070 S03	1.5	7	40	3		2DUBE 040 200 S04	4	20	55	4	
2DUBE 0155 080 S03	1.55	8	40	3		2DUBE 0405 200 S05	4.05	20	60	5	
2DUBE 016 080 S03	1.6	8	40	3		2DUBE 041 200 S05	4.1	20	60	5	
2DUBE 0165 080 S03	1.65	8	40	3		2DUBE 0415 200 S05	4.15	20	60	5	
2DUBE 017 080 S03	1.7	8	40	3		2DUBE 042 200 S05	4.2	20	60	5	
2DUBE 0175 090 S03	1.75	9	40	3		2DUBE 0425 200 S05	4.25	20	60	5	
2DUBE 018 090 S03	1.8	9	40	3		2DUBE 043 220 S05	4.3	22	60	5	
2DUBE 0185 090 S03	1.85	9	40	3		2DUBE 0435 220 S05	4.35	22	60	5	
2DUBE 019 090 S03	1.9	9	40	3		2DUBE 044 220 S05	4.4	22	60	5	
2DUBE 0195 100 S03	1.95	10	50	3		2DUBE 0445 220 S05	4.45	22	60	5	
2DUBE 020 100 S03	2	10	50	3		2DUBE 045 220 S05	4.5	22	60	5	
2DUBE 0205 100 S03	2.05	10	50	3		2DUBE 0455 220 S05	4.55	22	60	5	
2DUBE 021 100 S03	2.1	10	50	3		2DUBE 046 220 S05	4.6	22	60	5	
2DUBE 0215 110 S03	2.15	11	50	3		2DUBE 0465 220 S05	4.65	22	60	5	
2DUBE 022 110 S03	2.2	11	50	3		2DUBE 047 220 S05	4.7	22	60	5	
2DUBE 0225 110 S03	2.25	11	50	3		2DUBE 0475 220 S05	4.75	22	60	5	
2DUBE 023 110 S03	2.3	11	50	3		2DUBE 048 240 S05	4.8	24	60	5	
2DUBE 0235 110 S03	2.35	11	50	3		2DUBE 0485 240 S05	4.85	24	60	5	
2DUBE 024 120 S03	2.4	12	50	3		2DUBE 049 240 S05	4.9	24	60	5	
2DUBE 0245 120 S03	2.45	12	50	3		2DUBE 0495 240 S05	4.95	24	60	5	
2DUBE 025 120 S03	2.5	12	50	3		2DUBE 050 240 S05	5	24	60	5	
2DUBE 0255 120 S03	2.55	12	50	3		2DUBE 051 024 S06	5.1	24	60	6	
2DUBE 026 120 S03	2.6	12	50	3		2DUBE 052 028 S06	5.2	24	60	6	
2DUBE 0265 120 S03	2.65	12	50	3		2DUBE 053 028 S06	5.3	24	60	6	
2DUBE 027 140 S03	2.7	14	50	3		2DUBE 053 028 S06	5.4	24	60	6	
2DUBE 0275 140 S03	2.75	14	50	3		2DUBE 055 028 S06	5.5	28	65	6	
2DUBE 028 140 S03	2.8	14	50	3		2DUBE 056 028 S06	5.6	28	65	6	
2DUBE 0285 140 S03	2.85	14	50	3		2DUBE 057 028 S06	5.7	28	65	6	
2DUBE 029 140 S03	2.9	14	50	3		2DUBE 058 028 S06	5.8	28	65	6	
2DUBE 0295 140 S03	2.95	14	50	3		2DUBE 059 028 S06	5.9	28	65	6	
2DUBE 030 140 S03	3	14	50	3		2DUBE 060 028 S06	6	28	65	6	
2DUBE 0305 160 S04	3.05	16	55	4		2DUBE 061 028 S06	6.1	28	65	6	
2DUBE 031 160 S04	3.1	16	55	4		2DUBE 062 028 S07	6.2	32	65	7	
2DUBE 0315 160 S04	3.15	16	55	4		2DUBE 063 028 S07	6.3	32	65	7	
2DUBE 032 160 S04	3.2	16	55	4		2DUBE 064 032 S07	6.4	32	65	7	
2DUBE 0325 160 S04	3.25	16	55	4		2DUBE 065 032 S07	6.5	32	65	7	
2DUBE 033 160 S04	3.3	16	55	4		2DUBE 066 032 S07	6.6	32	65	7	
2DUBE 0335 160 S04	3.35	16	55	4		2DUBE 067 032 S07	6.7	32	65	7	
2DUBE 034 160 S04	3.4	16	55	4		2DUBE 068 032 S07	6.8	32	65	7	
2DUBE 0345 160 S04	3.45	16	55	4		2DUBE 069 032 S07	6.9	32	65	7	

단위: mm

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
2DUBE 070 032 S07	7	32	65	7		2DUBE 120 052 S12	12	52	90	12	
2DUBE 071 032 S07	7.1	32	65	7							
2DUBE 072 036 S08	7.2	36	70	8							
2DUBE 073 036 S08	7.3	36	70	8							
2DUBE 074 036 S08	7.4	36	70	8							
2DUBE 075 036 S08	7.5	36	70	8							
2DUBE 076 036 S08	7.6	36	70	8							
2DUBE 077 036 S08	7.7	36	70	8							
2DUBE 078 036 S08	7.8	36	70	8							
2DUBE 079 036 S08	7.9	36	70	8							
2DUBE 080 036 S08	8	36	70	8							
2DUBE 081 036 S08	8.1	36	70	8							
2DUBE 082 040 S09	8.2	40	75	9							
2DUBE 083 040 S09	8.3	40	75	9							
2DUBE 084 040 S09	8.4	40	75	9							
2DUBE 085 040 S09	8.5	40	75	9							
2DUBE 086 040 S09	8.6	40	75	9							
2DUBE 087 040 S09	8.7	40	75	9							
2DUBE 088 040 S09	8.8	40	75	9							
2DUBE 089 040 S09	8.9	40	75	9							
2DUBE 090 040 S09	9	40	75	9							
2DUBE 091 040 S09	9.1	40	75	9							
2DUBE 092 044 S10	9.2	43	80	10							
2DUBE 093 044 S10	9.3	43	80	10							
2DUBE 094 044 S10	9.4	43	80	10							
2DUBE 095 044 S10	9.5	43	80	10							
2DUBE 096 044 S10	9.6	43	80	10							
2DUBE 097 044 S10	9.7	43	80	10							
2DUBE 098 044 S10	9.8	43	80	10							
2DUBE 099 044 S10	9.9	43	80	10							
2DUBE 100 044 S10	10	43	80	10							
2DUBE 101 044 S10	10.1	43	80	10							
2DUBE 102 048 S11	10.2	45	85	11							
2DUBE 103 048 S11	10.3	45	85	11							
2DUBE 104 048 S11	10.4	45	85	11							
2DUBE 105 048 S11	10.5	45	85	11							
2DUBE 106 048 S11	10.6	45	85	11							
2DUBE 107 048 S11	10.7	45	85	11							
2DUBE 108 048 S11	10.8	45	85	11							
2DUBE 109 048 S11	10.9	45	85	11							
2DUBE 110 048 S11	11	45	85	11							
2DUBE 111 048 S11	11.1	45	85	11							
2DUBE 112 052 S12	11.2	52	90	12							
2DUBE 113 052 S12	11.3	52	90	12							
2DUBE 114 052 S12	11.4	52	90	12							
2DUBE 115 052 S12	11.5	52	90	12							
2DUBE 116 052 S12	11.6	52	90	12							
2DUBE 117 052 S12	11.7	52	90	12							
2DUBE 118 052 S12	11.8	52	90	12							
2DUBE 119 052 S12	11.9	52	90	12							

초경 2날 두베 드릴



- HRC28이하, S45C, SCM, 주강, 주철용 전용 드릴
- T-CRO 코팅을 적용하여 드릴 가공 시 발생하는 용착 현상을 최소화하였습니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 최적에 플루트 형상 설계를 적용하여 공구강성과 칩배출 성능이 매우 우수합니다.
- 140도 선단각 설계하여 높은 고정밀, 고속 드릴링 작업에 탁월한 성능을 발휘합니다.

- High-speed drill for materials with HRC28 or below, such as S45C, SCM, cast iron, and cast steel
- Minimized adhesion during drilling operations by applying T-CRO coating.
- Adopted Point thinning to minimize cutting resistance.
- Excellent tool rigidity and chip evacuation performance achieved by applying optimal flute design.
- Designed with a 140-degree point angle for outstanding performance in high-precision, high-speed drilling operations.

2
미립자

WC
미립자

TCRO
COATING

h7
Tolerance

30°
Helix Angle

140°

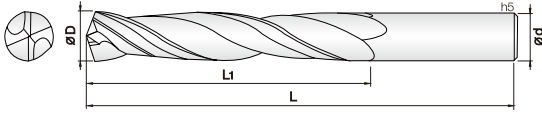
CUTTING
DATA

489P

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
2DUBE 010 080 S03	1	8	40	3		2DUBE 060 360 S06	6	36	65	6	
2DUBE 011 090 S03	1.1	9	40	3		2DUBE 061 360 S06	6.1	36	65	6	
2DUBE 012 100 S03	1.2	10	40	3		2DUBE 062 420 S07	6.2	42	75	7	
2DUBE 013 100 S03	1.3	10	40	3		2DUBE 063 420 S07	6.3	42	75	7	
2DUBE 014 110 S03	1.4	11	40	3		2DUBE 064 420 S07	6.4	42	75	7	
2DUBE 015 110 S03	1.5	11	40	3		2DUBE 065 420 S07	6.5	42	75	7	
2DUBE 016 120 S03	1.6	12	40	3		2DUBE 066 420 S07	6.6	42	75	7	
2DUBE 017 120 S03	1.7	12	40	3		2DUBE 067 420 S07	6.7	42	75	7	
2DUBE 018 130 S03	1.8	13	40	3		2DUBE 068 420 S07	6.8	42	75	7	
2DUBE 019 130 S03	1.9	13	40	3		2DUBE 069 420 S07	6.9	42	75	7	
2DUBE 020 170 S03	2	17	50	3		2DUBE 070 420 S07	7	42	75	7	
2DUBE 021 170 S03	2.1	17	50	3		2DUBE 071 420 S07	7.1	42	75	7	
2DUBE 022 170 S03	2.2	17	50	3		2DUBE 072 460 S08	7.2	46	80	8	
2DUBE 023 170 S03	2.3	17	50	3		2DUBE 073 460 S08	7.3	46	80	8	
2DUBE 024 170 S03	2.4	17	50	3		2DUBE 074 460 S08	7.4	46	80	8	
2DUBE 025 170 S03	2.5	17	50	3		2DUBE 075 460 S08	7.5	46	80	8	
2DUBE 026 170 S03	2.6	17	50	3		2DUBE 076 460 S08	7.6	46	80	8	
2DUBE 027 170 S03	2.7	17	50	3		2DUBE 077 460 S08	7.7	46	80	8	
2DUBE 028 170 S03	2.8	17	50	3		2DUBE 078 460 S08	7.8	46	80	8	
2DUBE 029 170 S03	2.9	17	50	3		2DUBE 079 460 S08	7.9	46	80	8	
2DUBE 030 200 S04	3	20	55	4		2DUBE 080 460 S08	8	46	80	8	
2DUBE 031 200 S04	3.1	20	55	4		2DUBE 081 460 S08	8.1	46	80	8	
2DUBE 032 200 S04	3.2	20	55	4		2DUBE 082 500 S09	8.2	50	85	9	
2DUBE 033 200 S04	3.3	20	55	4		2DUBE 083 500 S09	8.3	50	85	9	
2DUBE 034 200 S04	3.4	20	55	4		2DUBE 084 500 S09	8.4	50	85	9	
2DUBE 035 200 S04	3.5	20	55	4		2DUBE 085 500 S09	8.5	50	85	9	
2DUBE 036 250 S04	3.6	25	55	4		2DUBE 086 500 S09	8.6	50	85	9	
2DUBE 037 250 S04	3.7	25	55	4		2DUBE 087 500 S09	8.7	50	85	9	
2DUBE 038 250 S04	3.8	25	55	4		2DUBE 088 500 S09	8.8	50	85	9	
2DUBE 039 250 S04	3.9	25	55	4		2DUBE 089 500 S09	8.9	50	85	9	
2DUBE 040 250 S04	4	25	55	4		2DUBE 090 500 S09	9	50	85	9	
2DUBE 041 250 S04	4.1	25	55	4		2DUBE 091 500 S09	9.1	50	85	9	
2DUBE 042 320 S05	4.2	32	60	5		2DUBE 092 530 S10	9.2	53	90	10	
2DUBE 043 320 S05	4.3	32	60	5		2DUBE 093 530 S10	9.3	53	90	10	
2DUBE 044 320 S05	4.4	32	60	5		2DUBE 094 530 S10	9.4	53	90	10	
2DUBE 045 320 S05	4.5	32	60	5		2DUBE 095 530 S10	9.5	53	90	10	
2DUBE 046 320 S05	4.6	32	60	5		2DUBE 096 530 S10	9.6	53	90	10	
2DUBE 047 320 S05	4.7	32	60	5		2DUBE 097 530 S10	9.7	53	90	10	
2DUBE 048 320 S05	4.8	32	60	5		2DUBE 098 530 S10	9.8	53	90	10	
2DUBE 049 320 S05	4.9	32	60	5		2DUBE 099 530 S10	9.9	53	90	10	
2DUBE 050 320 S05	5	32	60	5		2DUBE 100 530 S10	10	53	90	10	
2DUBE 051 320 S05	5.1	32	60	5		2DUBE 101 530 S10	10.1	53	90	10	
2DUBE 052 360 S06	5.2	36	65	6		2DUBE 102 550 S11	10.2	55	95	11	
2DUBE 053 360 S06	5.3	36	65	6		2DUBE 103 550 S11	10.3	55	95	11	
2DUBE 054 360 S06	5.4	36	65	6		2DUBE 104 550 S11	10.4	55	95	11	
2DUBE 055 360 S06	5.5	36	65	6		2DUBE 105 550 S11	10.5	55	95	11	
2DUBE 056 360 S06	5.6	36	65	6		2DUBE 106 550 S11	10.6	55	95	11	
2DUBE 057 360 S06	5.7	36	65	6		2DUBE 107 550 S11	10.7	55	95	11	
2DUBE 058 360 S06	5.8	36	65	6		2DUBE 108 550 S11	10.8	55	95	11	
2DUBE 059 360 S06	5.9	36	65	6		2DUBE 109 550 S11	10.9	55	95	11	

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Dia d	비고
2DUBE 110 550 S11	11	55	100	11		2DUBE 160 690 S16	16	69	115	16	
2DUBE 111 550 S11	11.1	55	100	11		2DUBE 161 690 S16	16.1	69	115	16	
2DUBE 112 620 S12	11.2	62	100	12		2DUBE 162 710 S17	16.2	71	120	17	
2DUBE 113 620 S12	11.3	62	100	12		2DUBE 163 710 S17	16.3	71	120	17	
2DUBE 114 620 S12	11.4	62	100	12		2DUBE 164 710 S17	16.4	71	120	17	
2DUBE 115 620 S12	11.5	62	100	12		2DUBE 165 710 S17	16.5	71	120	17	
2DUBE 116 620 S12	11.6	62	100	12		2DUBE 166 710 S17	16.6	71	120	17	
2DUBE 117 620 S12	11.7	62	100	12		2DUBE 167 710 S17	16.7	71	120	17	
2DUBE 118 620 S12	11.8	62	100	12		2DUBE 168 710 S17	16.8	71	120	17	
2DUBE 119 620 S12	11.9	62	100	12		2DUBE 169 710 S17	16.9	71	120	17	
2DUBE 120 620 S12	12	62	100	12		2DUBE 170 710 S17	17	71	120	17	
2DUBE 121 620 S12	12.1	62	100	12		2DUBE 171 710 S17	17.1	71	120	17	
2DUBE 122 620 S13	12.2	62	100	13		2DUBE 172 740 S18	17.2	74	125	18	
2DUBE 123 620 S13	12.3	62	100	13		2DUBE 173 740 S18	17.3	74	125	18	
2DUBE 124 620 S13	12.4	62	100	13		2DUBE 174 740 S18	17.4	74	125	18	
2DUBE 125 620 S13	12.5	62	100	13		2DUBE 175 740 S18	17.5	74	125	18	
2DUBE 126 620 S13	12.6	62	100	13		2DUBE 176 740 S18	17.6	74	125	18	
2DUBE 127 620 S13	12.7	62	100	13		2DUBE 177 740 S18	17.7	74	125	18	
2DUBE 128 620 S13	12.8	62	100	13		2DUBE 178 740 S18	17.8	74	125	18	
2DUBE 129 620 S13	12.9	62	100	13		2DUBE 179 740 S18	17.9	74	125	18	
2DUBE 130 620 S13	13	62	100	13		2DUBE 180 740 S18	18	74	125	18	
2DUBE 131 620 S13	13.1	62	100	13		2DUBE 181 740 S18	18.1	74	125	18	
2DUBE 132 640 S14	13.2	64	105	14		2DUBE 182 760 S19	18.2	76	130	19	
2DUBE 133 640 S14	13.3	64	105	14		2DUBE 183 760 S19	18.3	76	130	19	
2DUBE 134 640 S14	13.4	64	105	14		2DUBE 184 760 S19	18.4	76	130	19	
2DUBE 135 640 S14	13.5	64	105	14		2DUBE 185 760 S19	18.5	76	130	19	
2DUBE 136 640 S14	13.6	64	105	14		2DUBE 186 760 S19	18.6	76	130	19	
2DUBE 137 640 S14	13.7	64	105	14		2DUBE 187 760 S19	18.7	76	130	19	
2DUBE 138 640 S14	13.8	64	105	14		2DUBE 188 760 S19	18.8	76	130	19	
2DUBE 139 640 S14	13.9	64	105	14		2DUBE 189 760 S19	18.9	76	130	19	
2DUBE 140 640 S14	14	64	105	14		2DUBE 190 760 S19	19	76	130	19	
2DUBE 141 640 S14	14.1	64	110	14		2DUBE 191 800 S19	19.1	76	130	19	
2DUBE 142 670 S15	14.2	67	110	15		2DUBE 192 800 S20	19.2	80	130	20	
2DUBE 143 670 S15	14.3	67	110	15		2DUBE 193 800 S20	19.3	80	130	20	
2DUBE 144 670 S15	14.4	67	110	15		2DUBE 194 800 S20	19.4	80	130	20	
2DUBE 145 670 S15	14.5	67	110	15		2DUBE 195 800 S20	19.5	80	130	20	
2DUBE 146 670 S15	14.6	67	110	15		2DUBE 196 800 S20	19.6	80	130	20	
2DUBE 147 670 S15	14.7	67	110	15		2DUBE 197 800 S20	19.7	80	130	20	
2DUBE 148 670 S15	14.8	67	110	15		2DUBE 198 800 S20	19.8	80	130	20	
2DUBE 149 670 S15	14.9	67	110	15		2DUBE 199 800 S20	19.9	80	130	20	
2DUBE 150 670 S15	15	67	110	15		2DUBE 200 800 S20	20	80	130	20	
2DUBE 151 670 S15	15.1	67	110	15							
2DUBE 152 690 S16	15.2	69	115	16							
2DUBE 153 690 S16	15.3	69	115	16							
2DUBE 154 690 S16	15.4	69	115	16							
2DUBE 155 690 S16	15.5	69	115	16							
2DUBE 156 690 S16	15.6	69	115	16							
2DUBE 157 690 S16	15.7	69	115	16							
2DUBE 158 690 S16	15.8	69	115	16							
2DUBE 159 690 S16	15.9	69	115	16							

초경 4날 두배 드릴



- HRC28이하, S45C, SCM, 주강, 주철용 전용 드릴
- T-CRO 코팅을 적용하여 드릴 가공 시 발생하는 윤착 현상을 최소화하였습니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 최적에 플루트 형상 설계를 적용하여 공구강성과 칩배출 성능이 매우 우수합니다.
- 140도 선단각 설계하여 높은 고정밀, 고속 드릴링 작업에 탁월한 성능을 발휘합니다.

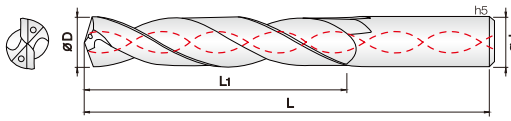
- High-speed drill for materials with HRC28 or below, such as S45C, SCM, cast iron, and cast steel
- Minimized adhesion during drilling operations by applying T-CRO coating.
- Adopted Point thinning to minimize cutting resistance.
- Excellent tool rigidity and chip evacuation performance achieved by applying optimal flute design.
- Designed with a 140-degree point angle for outstanding performance in high-precision, high-speed drilling operations.

4 WC TCRO h7 30° 140° CUTTING DATA

489P

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	생크 Shank Dia d	비고
4DUBE 060 360 S06	6	36	65	6							
4DUBE 080 460 S08	8	46	80	8							
4DUBE 100 530 S10	10	53	90	10							
4DUBE 120 620 S12	12	62	100	12							

DRILL



- SUS Titanium, HRC 28이하 SCM등의 합금용 고속 드릴
- T-CRO 코팅을 적용하여 드릴 가공 시 발생하는 용착 현상을 최소화하였습니다.
- 절삭 저항을 최소화하는 Point thinning을 채택 하였습니다.
- 최적에 플루트 형성 설계와 내부급유 방식을 적용하여 칩배출 성능이 매우 우수합니다.
- 140도 선단각 설계하여 높은 고정밀, 고속 드릴링 작업에 탁월한 성능을 발휘합니다.
- High-speed drill for alloy materials such as SUS Titanium, with HRC 28 or below, and SCM
- Minimized adhesion during drilling operations by applying T-CRO coating. Adopted point thinning to minimize cutting resistance.
- Excellent chip evacuation performance achieved by applying an optimal flute design and internal coolant system.
- Design with a 140-degree point angle for outstanding performance in high-precision, high-speed drilling operations.



490P

Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D	날장 Length of cut L1	전장 Overall Length L	샙크 Shank Dia d	비고
2DUBEW 010 070 S03	1	7	45	3		2DUBEW 060 280 S06	6	28	65	6	
2DUBEW 011 070 S03	1.1	7	45	3		2DUBEW 061 340 S08	6.1	34	80	8	
2DUBEW 012 070 S03	1.2	7	45	3		2DUBEW 062 340 S08	6.2	34	80	8	
2DUBEW 013 070 S03	1.3	7	45	3		2DUBEW 063 340 S08	6.3	34	80	8	
2DUBEW 014 070 S03	1.4	7	45	3		2DUBEW 064 340 S08	6.4	34	80	8	
2DUBEW 015 140 S03	1.5	14	55	3		2DUBEW 065 340 S08	6.5	34	80	8	
2DUBEW 016 140 S03	1.6	14	55	3		2DUBEW 066 340 S08	6.6	34	80	8	
2DUBEW 017 140 S03	1.7	14	55	3		2DUBEW 067 340 S08	6.7	34	80	8	
2DUBEW 018 140 S03	1.8	14	55	3		2DUBEW 068 340 S08	6.8	34	80	8	
2DUBEW 019 140 S03	1.9	14	55	3		2DUBEW 069 340 S08	6.9	34	80	8	
2DUBEW 020 200 S04	2	20	55	4		2DUBEW 070 340 S08	7	34	80	8	
2DUBEW 021 200 S04	2.1	20	55	4		2DUBEW 071 410 S08	7.1	41	80	8	
2DUBEW 022 200 S04	2.2	20	55	4		2DUBEW 072 410 S08	7.2	41	80	8	
2DUBEW 023 200 S04	2.3	20	55	4		2DUBEW 073 410 S08	7.3	41	80	8	
2DUBEW 024 200 S04	2.4	20	55	4		2DUBEW 074 410 S08	7.4	41	80	8	
2DUBEW 025 200 S04	2.5	20	55	4		2DUBEW 075 410 S08	7.5	41	80	8	
2DUBEW 026 200 S04	2.6	20	55	4		2DUBEW 076 410 S08	7.6	41	80	8	
2DUBEW 027 200 S04	2.7	20	55	4		2DUBEW 077 410 S08	7.7	41	80	8	
2DUBEW 028 200 S04	2.8	20	55	4		2DUBEW 078 410 S08	7.8	41	80	8	
2DUBEW 029 200 S04	2.9	20	55	4		2DUBEW 079 410 S08	7.9	41	80	8	
2DUBEW 030 200 S06	3	20	60	6		2DUBEW 080 410 S08	8	41	80	8	
2DUBEW 031 200 S06	3.1	20	60	6		2DUBEW 081 470 S10	8.1	47	90	10	
2DUBEW 032 200 S06	3.2	20	60	6		2DUBEW 082 470 S10	8.2	47	90	10	
2DUBEW 033 200 S06	3.3	20	60	6		2DUBEW 083 470 S10	8.3	47	90	10	
2DUBEW 034 200 S06	3.4	20	60	6		2DUBEW 084 470 S10	8.4	47	90	10	
2DUBEW 035 200 S06	3.5	20	60	6		2DUBEW 085 470 S10	8.5	47	90	10	
2DUBEW 036 200 S06	3.6	20	60	6		2DUBEW 086 470 S10	8.6	47	90	10	
2DUBEW 037 200 S06	3.7	20	60	6		2DUBEW 087 470 S10	8.7	47	90	10	
2DUBEW 038 240 S06	3.8	24	65	6		2DUBEW 088 470 S10	8.8	47	90	10	
2DUBEW 039 240 S06	3.9	24	65	6		2DUBEW 089 470 S10	8.9	47	90	10	
2DUBEW 040 240 S06	4	24	65	6		2DUBEW 090 470 S10	9	47	90	10	
2DUBEW 041 240 S06	4.1	24	65	6		2DUBEW 091 470 S10	9.1	47	90	10	
2DUBEW 042 240 S06	4.2	24	65	6		2DUBEW 092 470 S10	9.2	47	90	10	
2DUBEW 043 240 S06	4.3	24	65	6		2DUBEW 093 470 S10	9.3	47	90	10	
2DUBEW 044 240 S06	4.4	24	65	6		2DUBEW 094 470 S10	9.4	47	90	10	
2DUBEW 045 240 S06	4.5	24	65	6		2DUBEW 095 470 S10	9.5	47	90	10	
2DUBEW 046 240 S06	4.6	24	65	6		2DUBEW 096 470 S10	9.6	47	90	10	
2DUBEW 047 240 S06	4.7	24	65	6		2DUBEW 097 470 S10	9.7	47	90	10	
2DUBEW 048 280 S06	4.8	28	65	6		2DUBEW 098 470 S10	9.8	47	90	10	
2DUBEW 049 280 S06	4.9	28	65	6		2DUBEW 099 470 S10	9.9	47	90	10	
2DUBEW 050 280 S06	5	28	65	6		2DUBEW 100 470 S10	10	47	90	10	
2DUBEW 051 280 S06	5.1	28	65	6		2DUBEW 101 550 S12	10.1	55	100	12	
2DUBEW 052 280 S06	5.2	28	65	6		2DUBEW 102 550 S12	10.2	55	100	12	
2DUBEW 053 280 S06	5.3	28	65	6		2DUBEW 103 550 S12	10.3	55	100	12	
2DUBEW 054 280 S06	5.4	28	65	6		2DUBEW 104 550 S12	10.4	55	100	12	
2DUBEW 055 280 S06	5.5	28	65	6		2DUBEW 105 550 S12	10.5	55	100	12	
2DUBEW 056 280 S06	5.6	28	65	6		2DUBEW 106 550 S12	10.6	55	100	12	
2DUBEW 057 280 S06	5.7	28	65	6		2DUBEW 107 550 S12	10.7	55	100	12	
2DUBEW 058 280 S06	5.8	28	65	6		2DUBEW 108 550 S12	10.8	55	100	12	
2DUBEW 059 280 S06	5.9	28	65	6		2DUBEW 109 550 S12	10.9	55	100	12	

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

2DUBES Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	일반구조강/쾌삭강 HP / SM		합금강/공구강 S45C / SCM440		프리하든강/열처리강 NAK80 / KP4M		고경도 강 SKD	
경도 Hardness	~ 20HRC		20 ~ 30HRC		30 ~ 40HRC		~ 48HRC	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
1mm	15,900	400	11,000	330	9,450	280	8,900	180
2mm	7,900	470	6,000	350	5,000	200	4,500	180
3mm	6,900	700	5,900	410	4,300	230	4,000	210
4mm	5,170	770	4,500	410	3,200	250	3,000	230
5mm	4,140	745	3,450	520	3,000	330	2,450	280
6mm	3,450	760	3,000	520	3,000	300	2,010	280
8mm	2,580	780	2,100	400	1,700	250	1,520	240
10mm	2,070	620	1,700	360	1,300	200	1,210	200
12mm	1,730	510	1,400	320	1,050	180	1,000	180
16mm	1,300	400	1,150	310	800	150	750	150
20mm	1,030	350	950	310	650	150	600	150

2DUBE Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	구조용강/탄소강/회주철 SS / SC / FC		일반강/쾌삭강 HP / SM		합금강/공구강 SCM440 / S45C		덕타일 주철 FCD	
경도 Hardness	~ 200HB		~ 15HRC		25HRc		-	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
1mm	19,100	760	19,200	390	11,000	330	11,500	350
2mm	9,500	570	9,700	390	6,000	300	6,100	300
3mm	8,500	760	8,200	330	5,900	410	5,950	420
4mm	6,400	700	6,500	390	4,500	410	4,400	400
5mm	5,000	850	5,200	620	3,450	520	3,500	510
6mm	4,250	800	4,500	550	4,000	500	3,000	510
8mm	3,200	670	3,300	530	2,100	400	2,200	420
10mm	2,550	850	2,500	530	1,700	360	1,800	380
12mm	2,200	550	2,100	480	1,400	320	1,500	350
16mm	1,600	530	1,600	430	1,150	310	1,100	300
20mm	1,300	450	1,300	430	950	310	900	300

4DUBE Cutting Condition

• RPM : rev./min • Feed : mm/min

피삭재 Material	구조용강/탄소강/회주철 SS / SC / FC		일반강/쾌삭강 HP / SM		합금강/공구강 SCM440 / S45C		덕타일 주철 FCD	
경도 Hardness	~ 200HB		~ 15HRC		~ 25HRC		-	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
6mm	3,600	920	3,400	575	2,550	600	2,550	580
8mm	2,720	770	2,800	610	1,780	460	1,870	485
10mm	2,150	660	2,120	610	1,440	415	1,530	435
12mm	1,870	630	1,780	550	1,190	370	1,275	400

피삭재 Material	일반구조강/쾌삭강 HP /SM		합금강/공구강 S45C / SCM440		덕타일 주철 FCD		스테인레스강 SUS304/SUS316	
경도 Hardness	~ 20HRC		20 ~ 28HRC		-		-	
외경 Outside Diameter	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED	회전수 RPM	이송 속도 FEED
1mm	19,000	480	13,200	390	13,200	420	19,150	750
2mm	9,480	560	7,200	420	7,010	360	9,550	570
3mm	8,280	840	7,080	490	6,840	500	8,400	750
4mm	6,200	920	5,400	490	5,060	500	6,350	700
5mm	4,970	890	4,140	625	4,025	610	5,100	650
6mm	4,140	910	3,600	625	3,450	610	4,200	600
8mm	3,100	940	2,520	480	2,530	500	3,200	670
10mm	2,500	750	2,040	430	2,070	455	2,550	640
12mm	2,100	610	1,680	380	1,725	420	2,100	525
16mm	1,560	480	1,380	370	1,265	360	1,600	460
20mm	1,240	420	1,140	370	1,035	360	1,250	440

- 절삭하는 피삭재의 따라 구멍깊이 최대 5xDc 이상의 드릴링 시 peck(Q) 절입량을 변경하십시오.
- 피삭재의 고정 불안정 할 시 내구성이 떨어지므로, 확실한 클램핑을 하십시오.
- 원활한 칩 배출을 위해 절삭유 사용을 권장하며, 수용성 절삭유가 효과적입니다.
- 진동이 적고 강성이 좋은 공작기계 사용 요망합니다 (Ø1 이하 사용시 진동 허용 관리 5µm이내일것.)
- 상기 절삭 조건의 참고는 수치이므로, 실 가공시 가공 형상, 가공 목적, 적용 기계에 따라 조건 변경 요망합니다.
- 조건표가 기계의 최대 스피드 속도를 초과하거나 버 및 적열 현상이 발생할 때 스피드 속도와 이송 속도를 비례하여 조정하십시오.
- Peck(Q) drilling 간격은 외부 쿨런트 타입 0.2Dc~0.5Dc, 내부 쿨런트 타입 0.2Dc~1.5D를 권장합니다.
- 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.
- 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.
- Please use a machine with low vibration and good rigidity (for Ø1 or below, keep vibration tolerance within 3µm).
- Note: The above cutting conditions are numerical values, so they may need to be adjusted depending on the actual machining shape, machining purpose, and applied machine.
- 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.
- For peck (Q) drilling, we recommend intervals of 0.2Dc to 0.5Dc for external coolant types and 0.2Dc to 1.5Dc for internal coolant types.