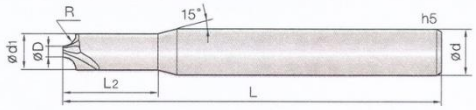
2CRC

2 Flutes Corner Rounding Cutter

VHM 2-Lp. Viertelkreisfräser



- **Endmills for various work materials, hardened steel (HRc ~52), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5㎛) WC grade.

2 | WC 미립자 | TISIN Coating | R ±0.01 (0.1 ~ 2.5R) | R ±0.02 (3 ~ 8R) | 0° Helix Angle | CUTTING DATA 366P

D Size	D Tolerance
ø0.5 ~ 0.9	+0 ~ −0.01mm
ø1.4 ~ 5.9	+0 ~ −0.02mm

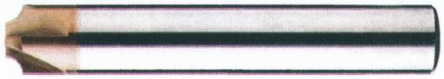
Order Number	Diameter D×R	Length of cut d1	Effective Length L2	Overall Length L	Shank Dia d
2CRC 005 001 S04	0.5 X R0.1	0.8	2.5	45	4
2CRC 005 0015 S04	0.5 X R0.15	0.9	2.5	45	4
2CRC 005 002 S04	0.5 X R0.2	1	2.5	45	4
2CRC 005 0025 S04	0.5 X R0.25	1.1	2.5	45	4
2CRC 005 003 S04	0.5 X R0.3	1.2	2.5	45	4
2CRC 005 0035 S04	0.5 X R0.35	1.3	2.5	45	4
2CRC 005 004 S04	0.5 X R0.4	1.4	2.5	45	4
2CRC 005 0045 S04	0.5 X R0.45	1.5	2.5	45	4
2CRC 005 005 S04	0.5 X R0.5	1.6	2.5	45	4
2CRC 009 005 S04	0.9 X R0.5	2	3	45	4
2CRC 049 005 S06	4.9 X R0.5	6	-	50	6
2CRC 005 0055 S04	0.5 X R0.55	1.7	3	45	4
2CRC 005 006 S04	0.5 X R0.6	1.8	3	45	4
2CRC 005 0065 S04	0.5 X R0.65	1.9	3	45	4
2CRC 005 007 S04	0.5 X R0.7	2	3	45	4
2CRC 009 0075 S04	0.9 X R0.75	2.5	4	45	4
2CRC 009 008 S04	0.9 X R0.8	2.6	4	45	4
2CRC 009 0085 S04	0.9 X R0.85	2.7	4	45	4
2CRC 009 009 S04	0.9 X R0.9	2.8	4	45	4
2CRC 009 0095 S04	0.9 X R0.95	2.9	4	45	4
2CRC 009 010 S06	0.9 X R1	3	5	50	6
2CRC 039 010 S06	3.9 X R1	6	-	50	6
2CRC 059 010 S08	5.9 X R1	8	-	60	8
2CRC 009 0125 S06	0.9 X R1.25	3.5	5	50	6
2CRC 034 0125 S06	3.4 X R1.25	6	-	50	6
2CRC 014 015 S06	1.4 X R1.5	4.5	8	50	6
2CRC 049 015 S08	4.9 X R1.5	8	-	60	8
2CRC 014 020 S06	1.4 X R2	5.5	10	50	6
2CRC 039 020 S08	3.9 X R2	8	-	60	8
2CRC 019 025 S08	1.9 X R2.5	7	13	60	8
2CRC 019 030 S08	1.9 X R3	8	-	60	8
2CRC 019 035 S10	1.9 X R3.5	9	13	70	10
2CRC 019 040 S10	1.9 X R4	10	-	70	10
2CRC 019 045 S12	1.9 X R4.5	11	13	80	12
2CRC 019 050 S12	1.9 X R5	12	-	80	12
2CRC 039 060 S16	3.9 X R6	16	-	90	16
2CRC 059 070 S20	5.9 X R7	20	-	90	20
2CRC 039 080 S20	3.9 X R8	20	-	90	20

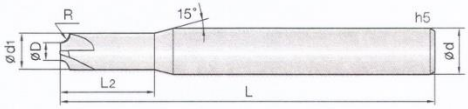
Order Number	Diameter D×R	Length of cut d1	Effective Length L2	Overall Length L	Shank Dia d

4CRC

4 Flutes Corner Rounding Cutter

VHM 4-Lp. Viertelkreisfräser





- **Endmills for various work materials, hardened steel (HRc ~52), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing at high feed by high TRS fine WC grade.

4 | WC 비립자 | TISIN Coating | R ±0.01 (0.5 ~ 2.5R) | R ±0.02 (3 ~ 6R) | 0° Helix Angle | CUTTING DATA 366P

D Size	D Tolerance
ø1.4 ~ 5.9	+0 ~ −0.02mm

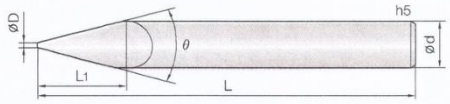
Order Number	Diameter D×R	Length of cut d1	Effective Length L2	Overall Length L	Shank Dia d
4CRC 029 005 S04	2.9 X R0.5	4	-	50	4
4CRC 024 0075 S04	2.4 X R0.75	4	-	50	4
4CRC 019 010 S04	1.9 X R1	4	-	50	4
New 4CRC 014 0125 S06	1.4 X R1.25	4	8	50	6
4CRC 049 005 S06	4.9 X R0.5	6	-	50	6
4CRC 044 0075 S06	4.4 X R0.75	6	-	50	6
4CRC 039 010 S06	3.9 X R1	6	-	50	6
4CRC 059 010 S08	5.9 X R1	8	-	60	8
New 4CRC 054 0125 S08	5.4 X R1.25	8	-	60	8
4CRC 049 015 S08	4.9 X R1.5	8	-	60	8
4CRC 039 020 S08	3.9 X R2	8	-	60	8
4CRC 059 020 S10	5.9 X R2	10	-	70	10
4CRC 049 025 S10	4.9 X R2.5	10	-	70	10
4CRC 039 030 S10	3.9 X R3	10	-	70	10
4CRC 059 030 S12	5.9 X R3	12	-	75	12
4CRC 039 040 S12	3.9 X R4	12	-	75	12
4CRC 059 050 S16	5.9 X R5	16	-	80	16
4CRC 039 060 S16	3.9 X R6	16	-	80	16

Order Number	Diameter D×R	Length of cut d1	Effective Length L2	Overall Length L	Shank Dia d

1STE

1 Flute Straight Flute Taper End Mills

VHM 1-Lp. Stichel gerade genutet



- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for NC engraving by straight type one edge.
- Maximize engraving efficiency by various edge diameter.

1 | WC 미립자 | TISIN Coating | D +0.05 −0 (ø0) | D +0 −0.02 (ø0.05 ~ 0.3) | 0° Helix Angle | CUTTING DATA 366P

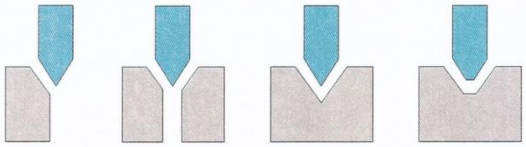
D Size	D Tolerance
ø0	+0.05 ~ −0mm
ø0.05 ~ 0.3	+0 ~ −0.02mm

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
1STE 000 200 S04	0	20°	5	40	4
1STE 000 300 S04	0	30°	5	40	4
1STE 000 900 S04	0	90°	2	40	4
1STE 000 200 S06	0	20°	5	50	6
1STE 000 300 S06	0	30°	5	50	6
1STE 000 900 S06	0	90°	3	50	6
1STE 000 1200 S06	0	120°	1.73	50	6
1STE 0005 200 S04	0.05	20°	5	40	4
1STE 0005 300 S04	0.05	30°	5	40	4
1STE 0005 900 S04	0.05	90°	1.97	40	4
1STE 0005 200 S06	0.05	20°	5	50	6
1STE 0005 300 S06	0.05	30°	5	50	6
1STE 0005 900 S06	0.05	90°	2.97	50	6
1STE 0005 1200 S06	0.05	120°	1.71	50	6
1STE 001 200 S04	0.1	20°	5	40	4
1STE 001 300 S04	0.1	30°	5	40	4
New 1STE 001 600 S04	0.1	60°	3.37	40	4
1STE 001 900 S04	0.1	90°	1.95	40	4
1STE 001 200 S06	0.1	20°	5	50	6
1STE 001 300 S06	0.1	30°	5	50	6
1STE 001 900 S06	0.1	90°	2.95	50	6
1STE 001 1200 S06	0.1	120°	1.7	50	6
1STE 0015 200 S04	0.15	20°	5	40	4
1STE 0015 300 S04	0.15	30°	5	40	4
New 1STE 0015 600 S04	0.15	60°	3.33	40	4
1STE 0015 900 S04	0.15	90°	1.92	40	4
1STE 0015 200 S06	0.15	20°	5	50	6
1STE 0015 300 S06	0.15	30°	5	50	6
1STE 0015 900 S06	0.15	90°	2.92	50	6
1STE 0015 1200 S06	0.15	120°	1.68	50	6
1STE 002 200 S04	0.2	20°	5	40	4
1STE 002 300 S04	0.2	30°	5	40	4
New 1STE 002 600 S04	0.2	60°	3.29	40	4
1STE 002 900 S04	0.2	90°	1.9	40	4
1STE 002 200 S06	0.2	20°	5	50	6
1STE 002 300 S06	0.2	30°	5	50	6
1STE 002 900 S06	0.2	90°	2.9	50	6
1STE 002 1200 S06	0.2	120°	1.67	50	6

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
New 1STE 003 200 S04	0.3	20°	5	40	4
New 1STE 003 300 S04	0.3	30°	5	40	4
New 1STE 003 600 S04	0.3	60°	3.2	40	4
New 1STE 003 900 S04	0.3	90°	1.85	40	4

GENERAL PURPOSE

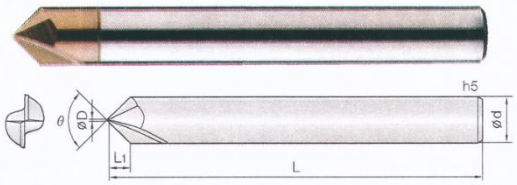
Available Cutting Shape



2STE

2 Flutes Straight Flute Taper End Mills

VHM 2-Lp. Entgratfräser, gerade genutet



- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for NC engraving, chamfering and centering with straight 2flutes.
- Resin, plastic machining applicable witn coated or non coated endmill.

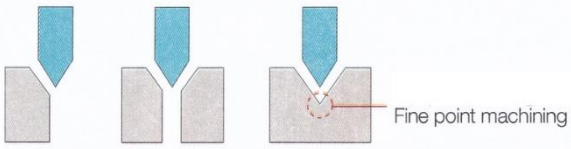
2 | WC 미립자 | TISIN Coating | D +0.05 -0 ø0 | 0° Helix Angle | CUTTING DATA 366P

D Size	D Tolerance
ø0	+0.05 ~ -0mm

Order Number 비코팅 Un coated	코팅 Coated	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d	비코팅 Un coated	코팅 Coated
2STE 000 300 S03	2STEC 000 300 S03	0	30°	5.5	60	3		
2STE 000 600 S03	2STEC 000 600 S03	0	60°	2.5	60	3		
2STE 000 900 S03	2STEC 000 900 S03	0	90°	1.5	60	3		
	2STEC 000 900 080	0	90°	1.5	80	3		
2STE 000 1200 S03	2STEC 000 1200 S03	0	120°	0.86	60	3		
2STE 000 300 S04	2STEC 000 300 S04	0	30°	7.4	60	4		
2STE 000 600 S04	2STEC 000 600 S04	0	60°	3.4	60	4		
2STE 000 900 S04	2STEC 000 900 S04	0	90°	2	60	4		
	2STEC 000 900 100	0	90°	2	100	4		
2STE 000 1200 S04	2STEC 000 1200 S04	0	120°	1.15	60	4		
2STE 000 300 S06	2STEC 000 300 S06	0	30°	11.1	60	6		
2STE 000 600 S06	2STEC 000 600 S06	0	60°	5.1	60	6		
2STE 000 900 S06	2STEC 000 900 S06	0	90°	3	60	6		
	2STEC 000 900 110	0	90°	3	110	6		
2STE 000 1200 S06	2STEC 0001200 S06	0	120°	1.73	60	6		
2STE 000 600 S08	2STEC 000 600 S08	0	60°	6.9	65	8		
2STE 000 900 S08	2STEC 000 900 S08	0	90°	4	65	8		
	2STEC 000 900 120	0	90°	4	120	8		
2STE 000 1200 S08	2STEC 000 1200 S08	0	120°	2.3	65	8		
2STE 000 600 S10	2STEC 000 600 S10	0	60°	8.6	70	10		
2STE 000 900 S10	2STEC 000 900 S10	0	90°	5	70	10		
	2STEC 000 900 150	0	90°	5	150	10		
2STE 000 1200 S10	2STEC 000 1200 S10	0	120°	2.88	70	10		
2STE 000 600 S12	2STEC 000 600 S12	0	60°	10.3	75	12		
2STE 000 900 S12	2STEC 000 900 S12	0	90°	6	75	12		
	2STEC 000 900 160	0	90°	6	160	12		
2STE 000 1200 S12	2STEC 000 1200 S12	0	120°	3.46	75	12		

GENERAL PURPOSE

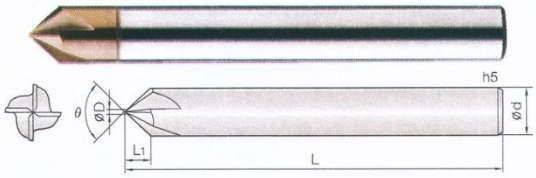
Available Cutting Shape



4STE

4 Flutes Straight Flute Taper End Mills

VHM 4-Lp. Entgratfräser, gerade genutet



- **Endmills for various work materials, hardened steel (HRc ~52), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Optimum for NC engraving, chamfering and centering with straight 4flutes.
- Minimize fracturing at high feed by high TRS fine WC grade.

4 | WC 미립자 | TISIN Coating | D +0.05 −0 ø0 | 0° Helix Angle | CUTTING DATA 366P

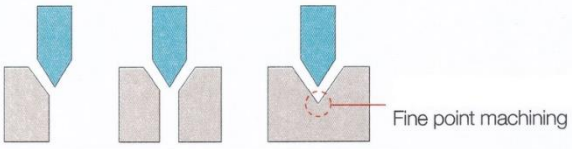
D Size	D Tolerance
ø0	+0.05~ −0mm

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
4STE 000 600 S03	0	60°	2.5	50	3
4STE 000 900 S03	0	90°	1.5	50	3
4STE 000 600 S04	0	60°	3.4	50	4
4STE 000 900 S04	0	90°	2	50	4
4STE 000 600 S06	0	60°	5.1	60	6
4STE 000 900 S06	0	90°	3	60	6
New 4STE 000 900 030	0	90°	3	100	6
4STE 000 600 S08	0	60°	6.9	65	8
4STE 000 900 S08	0	90°	4	65	8
New 4STE 000 900 040	0	90°	4	100	8
4STE 000 600 S10	0	60°	8.6	75	10
4STE 000 900 S10	0	90°	5	75	10
New 4STE 000 900 050	0	90°	5	100	10
4STE 000 600 S12	0	60°	10.3	80	12
4STE 000 900 S12	0	90°	6	80	12
New 4STE 000 900 080	0	90°	8	100	16

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

GENERAL PURPOSE

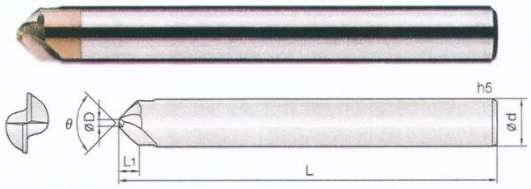
Available Cutting Shape



2CHA

2 Flutes 90° Chamfering Cutter

VHM 2-Lp. Entgratsenker 90°



- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Applied helix 2flutes design for better performance in corner chamfering.
- Minimize fracturing at high feed by high TRS fine WC grade.

2 | WC 미립자 | TISIN Coating | D +0 −0.02 ø0.8~ ø1 | 30° Helix Angle | CUTTING DATA 367P

D Size	D Tolerance
ø0.8 ~ 1	+0 ~ −0.02mm

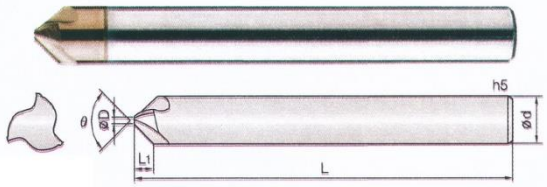
Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
2CHA 008 900 011	0.8	90°	1.1	50	3
2CHA 008 900 016	0.8	90°	1.6	50	4
2CHA 010 900 025	1	90°	2.5	60	6
2CHA 010 900 035	1	90°	3.5	70	8
2CHA 010 900 045	1	90°	4.5	80	10
2CHA 010 900 055	1	90°	5.5	90	12

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

3CHA

3 Flutes 90° Chamfering Cutter

VHM 3-Lp. Entgratsenker 90°



- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- Good wear resistance by Si-based PVD coating.
- Applied helix 2flutes design for better performance in corner chamfering.
- Minimize fracturing at high feed by high TRS fine WC grade.

3 | WC 미립자 | TISIN Coating | D +0 −0.02 ø0.8~ ø2 | 30° Helix Angle | CUTTING DATA 367P

D Size	D Tolerance
ø0.8 ~ 1	+0 ~ −0.02mm

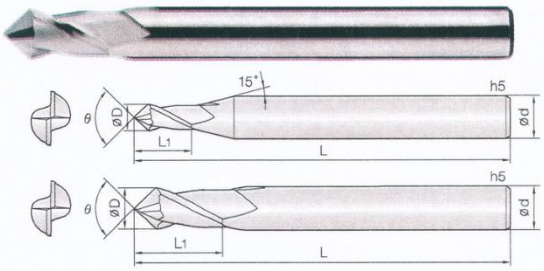
Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
3CHA 008 900 011	0.8	90°	1.1	50	3
3CHA 008 900 016	0.8	90°	1.6	50	4
3CHA 010 900 025	1	90°	2.5	60	6
3CHA 010 900 035	1	90°	3.5	65	8
3CHA 020 900 045	2	90°	4.5	75	10
3CHA 020 900 055	2	90°	5.5	80	12

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

2CEN

2 Flutes Centering End Mills

VHM 2-Lp. Zentrier-Entgratfräser



- **Non coating : acryl, A.B.S, aluminum, non-ferrous and non-metallic materials**
- **Coating : pre-hardened steel, cast iron, non-metallic materials**
- Multi function endmill for corner chamfering, side wall and centering.
- Applied fine WC grade optimized for various non-ferrous and non-metallic work materials.
- Endmills for various work materials, hardened steel(HRc ~50), pre-hardened steel, tool steel and cast iron.

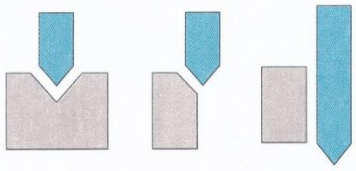
2 | WC 미립자 | JCRO Coating | D +0 −0.01 ø0.2~ø5 | D −0.01 −0.025 ø6~ø12 | D −0.015 −0.03 ø14~ø16 | 30° Helix Angle | CUTTING DATA 368P

D Size	D Tolerance
ø0.2 ~ 5	+0~ −0.01mm
ø6 ~ 12	−0.01 ~ -0.025mm
ø14 ~ 16	−0.015 ~ −0.03mm

Order Number 비코팅 Un coated	Order Number 코팅 Coated	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d	비코팅 Un coated	코팅 Coated
New 2CEN 002 600 S03	New 2CENC 002 600 S03	0.2	60°	0.4	40	3		
New 2CEN 002 900 S03	New 2CENC 002 900 S03	0.2	90°	0.4	40	3		
2CEN 003 600 S03	2CENC 003 600 S03	0.3	60°	0.6	45	3		
2CEN 003 900 S03	2CENC 003 900 S03	0.3	90°	0.6	45	3		
2CEN 005 600 S03	2CENC 005 600 S03	0.5	60°	1	50	3		
2CEN 005 900 S03	2CENC 005 900 S03	0.5	90°	1	50	3		
2CEN 008 600 S03	2CENC 008 600 S03	0.8	60°	1.6	50	3		
2CEN 008 900 S03	2CENC 008 900 S03	0.8	90°	1.6	50	3		
2CEN 010 600 S03	2CENC 010 600 S03	1	60°	2	50	3		
2CEN 010 900 S03	2CENC 010 900 S03	1	90°	2	50	3		
New 2CEN 015 600 S03	New 2CENC 015 600 S03	1.5	60°	3	50	3		
New 2CEN 015 900 S03	New 2CENC 015 900 S03	1.5	90°	3	50	3		
2CEN 020 600 S03	2CENC 020 600 S03	2	60°	4	50	3		
2CEN 020 900 S03	2CENC 020 900 S03	2	90°	4	50	3		
2CEN 030 600 S03	2CENC 030 600 S03	3	60°	6	50	3		
2CEN 030 900 S03	2CENC 030 900 S03	3	90°	6	50	3		
2CEN 030 600 S06	2CENC 030 600 S06	3	60°	6	50	6		
2CEN 030 900 S06	2CENC 030 900 S06	3	90°	6	50	6		
2CEN 040 600 S06	2CENC 040 600 S06	4	60°	8	50	6		
2CEN 040 900 S06	2CENC 040 900 S06	4	90°	8	50	6		
2CEN 050 600 S06	2CENC 050 600 S06	5	60°	10	50	6		
2CEN 050 900 S06	2CENC 050 900 S06	5	90°	10	50	6		
2CEN 060 600 S06	2CENC 060 600 S06	6	60°	12	60	6		
2CEN 060 900 S06	2CENC 060 900 S06	6	90°	12	60	6		
2CEN 080 600 S08	2CENC 080 600 S08	8	60°	16	70	8		
2CEN 080 900 S08	2CENC 080 900 S08	8	90°	16	70	8		
2CEN 100 600 S10	2CENC 100 600 S10	10	60°	18	70	10		
2CEN 100 900 S10	2CENC 100 900 S10	10	90°	18	70	10		
2CEN 120 600 S12	2CENC 120 600 S12	12	60°	20	75	12		
2CEN 120 900 S12	2CENC 120 900 S12	12	90°	20	75	12		
2CEN 140 600 S14	2CENC 140 600 S14	14	60°	26	80	14		
2CEN 140 900 S14	2CENC 140 900 S14	14	90°	26	80	14		
2CEN 160 600 S16	2CENC 160 600 S16	16	60°	32	100	16		
2CEN 160 900 S16	2CENC 160 900 S16	16	90°	32	100	16		

GENERAL PURPOSE

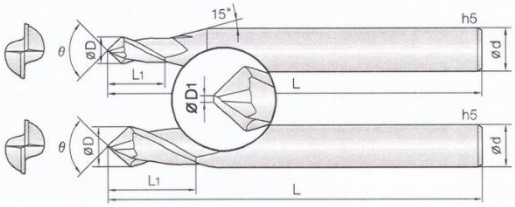
Available Cutting Shape



2CENE

2 Flutes Miniature Chamfering End Mills

VHM 2-Lp. Mini-Entgratfräser



- **pre-hardened steel, cast iron, non-metallic materials**
- Multi function endmill for corner chamfering, side wall and centering.
- Applied fine WC grade optimized for various non-ferrous and non-metallic work materials.
- Endmills for various work materials, hardened steel(HRc ~50), pre-hardened steel, tool steel and cast iron.

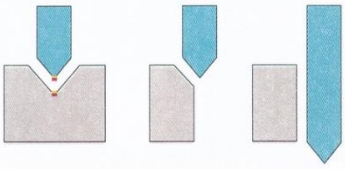
2 | WC 미립자 | JCRO Coating | D +0 −0.01 ø0.5~ ø3 | 30° Helix Angle | CUTTING DATA 368P

D Size	D Tolerance
ø0.5 ~ 3	+0 ~ −0.01mm

Order Number	Diameter D	Front Diameter D1	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
2CENE 005 0005 090	0.5	0.05	90°	1	40	3
2CENE 006 0005 090	0.6	0.05	90°	1.2	40	3
2CENE 007 0005 090	0.7	0.05	90°	1.4	40	3
2CENE 008 0005 090	0.8	0.05	90°	1.6	40	3
2CENE 010 0005 090	1	0.05	90°	2	40	3
2CENE 010 001 090	1	0.1	90°	2	40	3
2CENE 010 001 120	1	0.1	120°	2	40	3
2CENE 012 001 090	1.2	0.1	90°	2.4	40	3
2CENE 015 001 090	1.5	0.1	90°	3	40	3
2CENE 015 001 120	1.5	0.1	120°	3	40	3
2CENE 020 001 090	2	0.1	90°	4	40	3
2CENE 020 002 090	2	0.2	90°	4	40	3
2CENE 020 002 120	2	0.2	120°	4	40	3
2CENE 025 002 090	2.5	0.2	90°	5	40	3
2CENE 030 002 090	3	0.2	90°	6	40	3
2CENE 030 002 120	3	0.2	120°	6	40	3

GENERAL PURPOSE

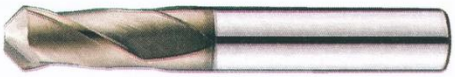
Available Cutting Shape

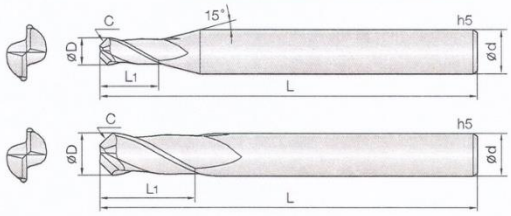


2CCMC

2 Flutes Coner C End Mills

VHM 2-Lp. Eck-Kantenbrecher





- **Pre-hardened steel, Cast iron, Non-metallic materials**
- Multi function endmill for corner chamfering, side wall.
- Minimize edge chipping by applying edge chamfering design.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Endmills for various work materials.

2 | WC 미립자 | JCRO Coating | D +0 −0.01 ø1~ø5 | D −0.01 −0.025 ø6~ ø12 | 30° Helix Angle | CUTTING DATA 368P

D Size	D Tolerance
ø1 ~ 5	+0 ~ −0.01mm
ø6 ~ 12	−0.01 ~ −0.025mm

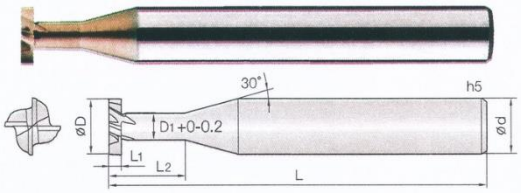
Order Number	Diameter D	Chamfer C	Length of cut L1	Overall Length L	Shank Dia d
2CCMC 010 0002 S04	1	0.02	2.5	45	4
2CCMC 010 0005 S04	1	0.05	2.5	45	4
2CCMC 010 001 S04	1	0.1	2.5	45	4
2CCMC 010 002 S04	1	0.2	2.5	45	4
2CCMC 010 003 S04	1	0.3	2.5	45	4
2CCMC 015 0005 S04	1.5	0.05	4	45	4
2CCMC 015 001 S04	1.5	0.1	4	45	4
2CCMC 015 002 S04	1.5	0.2	4	45	4
2CCMC 015 003 S04	1.5	0.3	4	45	4
2CCMC 015 005 S04	1.5	0.5	4	45	4
2CCMC 020 0005 S04	2	0.05	6	45	4
2CCMC 020 001 S04	2	0.1	6	45	4
2CCMC 020 002 S04	2	0.2	6	45	4
2CCMC 020 003 S04	2	0.3	6	45	4
2CCMC 020 004 S04	2	0.4	6	45	4
2CCMC 020 005 S04	2	0.5	6	45	4
2CCMC 030 0005 S06	3	0.05	8	50	6
2CCMC 030 001 S06	3	0.1	8	50	6
2CCMC 030 002 S06	3	0.2	8	50	6
2CCMC 030 003 S06	3	0.3	8	50	6
2CCMC 030 005 S06	3	0.5	8	50	6
2CCMC 030 010 S06	3	1	8	50	6
2CCMC 040 0005 S06	4	0.05	11	50	6
2CCMC 040 001 S06	4	0.1	11	50	6
2CCMC 040 002 S06	4	0.2	11	50	6
2CCMC 040 003 S06	4	0.3	11	50	6
2CCMC 040 005 S06	4	0.5	11	50	6
2CCMC 040 010 S06	4	1	11	50	6
2CCMC 040 015 S06	4	1.5	11	50	6
2CCMC 050 001 S06	5	0.1	13	60	6
2CCMC 050 002 S06	5	0.2	13	60	6
2CCMC 050 005 S06	5	0.5	13	60	6
2CCMC 050 010 S06	5	1	13	60	6
2CCMC 050 015 S06	5	1.5	13	60	6
2CCMC 050 020 S06	5	2	13	60	6
2CCMC 060 0005 S06	6	0.05	13	60	6
2CCMC 060 001 S06	6	0.1	13	60	6
2CCMC 060 002 S06	6	0.2	13	60	6
2CCMC 060 003 S06	6	0.3	13	60	6
2CCMC 060 005 S06	6	0.5	13	60	6
2CCMC 060 010 S06	6	1	13	60	6
2CCMC 060 015 S06	6	1.5	13	60	6
2CCMC 060 020 S06	6	2	13	60	6
2CCMC 060 025 S06	6	2.5	13	60	6
2CCMC 080 001 S08	8	0.1	19	70	8
2CCMC 080 002 S08	8	0.2	19	70	8
2CCMC 080 005 S08	8	0.5	19	70	8
2CCMC 080 010 S08	8	1	19	70	8
2CCMC 080 015 S08	8	1.5	19	70	8
2CCMC 080 020 S08	8	2	19	70	8

Order Number	Diameter D	Chamfer C	Length of cut L1	Overall Length L	Shank Dia d
2CCMC 080 025 S08	8	2.5	19	70	8
2CCMC 080 030 S08	8	3	19	70	8
2CCMC 100 001 S10	10	0.1	22	75	10
2CCMC 100 002 S10	10	0.2	22	75	10
2CCMC 100 005 S10	10	0.5	22	75	10
2CCMC 100 010 S10	10	1	22	75	10
2CCMC 100 015 S10	10	1.5	22	75	10
2CCMC 100 020 S10	10	2	22	75	10
2CCMC 100 030 S10	10	3	22	75	10
2CCMC 100 040 S10	10	4	22	75	10
2CCMC 120 001 S12	12	0.1	26	80	12
2CCMC 120 002 S12	12	0.2	26	80	12
2CCMC 120 005 S12	12	0.5	26	80	12
2CCMC 120 010 S12	12	1	26	80	12
2CCMC 120 015 S12	12	1.5	26	80	12
2CCMC 120 020 S12	12	2	26	80	12
2CCMC 120 030 S12	12	3	26	80	12
2CCMC 120 040 S12	12	4	26	80	12
2CCMC 120 050 S12	12	5	26	80	12

4TES

4 Flutes T-Slot Cutter

VHM 4-Lp. T-Nutenfräser



- **Endmills for various work materials, hardened steel(HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying 4flutes design.
- Various shapes and length provides optimum efficiency.
- Resin, plastic machining applicable witn coated or non coated endmill.

4 | WC 미립자 | JCRO Coating | D +0 −0.02 (ø2~ ø5) | D −0.01 −0.03 (ø6~ ø10) | L1 ±0.03 (ø2 ~ 5) | L1 ±0.05 (ø6 ~ 10) | 15° Helix Angle | CUTTING DATA 367P

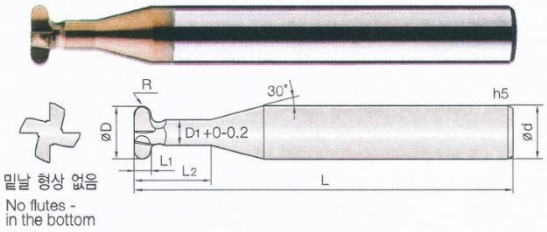
D Size	D Tolerance
ø2 ~ 5	+0 ~ −0.02mm
ø6 ~ 10	−0.01 ~ −0.03mm

Order Number 비코팅 Un coated	Order Number 코팅 Coated	Diameter D	Length of cut L1	Effective Length L2	Neck Diameter D1	Overall Length L	Shank Dia d	비코팅 Un coated	코팅 Coated
4TES 020 003 040	4TESC 020 003 040	2	0.3	4	1	50	6		
4TES 020 005 040	4TESC 020 005 040	2	0.5	4	1	50	6		
4TES 030 003 045	4TESC 030 003 045	3	0.3	4.5	1.5	50	6		
4TES 030 005 045	4TESC 030 005 045	3	0.5	4.5	1.5	50	6		
4TES 030 010 045	4TESC 030 010 045	3	1	4.5	1.5	50	6		
4TES 040 003 050	4TESC 040 003 050	4	0.3	5	2	50	6		
4TES 040 005 050	4TESC 040 005 050	4	0.5	5	2	50	6		
4TES 040 010 050	4TESC 040 010 050	4	1	5	2	50	6		
4TES 050 005 045	4TESC 050 005 045	5	0.5	4.5	2.5	50	6		
4TES 050 010 050	4TESC 050 010 050	5	1	5	2.5	50	6		
4TES 050 015 055	4TESC 050 015 055	5	1.5	5.5	2.5	50	6		
4TES 050 020 060	4TESC 050 020 060	5	2	6	2.5	50	6		
4TES 060 005 045	4TESC 060 005 045	6	0.5	4.5	3	60	6		
4TES 060 010 050	4TESC 060 010 050	6	1	5	3	60	6		
4TES 060 015 055	4TESC 060 015 055	6	1.5	5.5	3	60	6		
4TES 060 020 060	4TESC 060 020 060	6	2	6	3	60	6		
4TES 080 005 045	4TESC 080 005 045	8	0.5	4.5	4	60	8		
4TES 080 010 050	4TESC 080 010 050	8	1	5	4	60	8		
4TES 080 015 055	4TESC 080 015 055	8	1.5	5.5	4	60	8		
4TES 080 020 060	4TESC 080 020 060	8	2	6	4	60	8		
4TES 080 030 070	4TESC 080 030 070	8	3	7	4	60	8		
4TES 100 010 070	4TESC 100 010 070	10	1	7	5	70	10		
4TES 100 020 080	4TESC 100 020 080	10	2	8	5	70	10		
4TES 100 030 090	4TESC 100 030 090	10	3	9	5	70	10		

4TRS

4 Flutes T-R Slot Cutter

VHM 4-Lp. T-Nutenfräser mit Vollradius



- **Endmills for various work materials, hardened steel(HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

4 | WC 미립자 | JCRO Coating | R ±0.02 (0.5R~3R) | L1 ±0.03 (ø5) | L1 ±0.05 (ø6 ~ 12) | 0° Helix Angle | CUTTING DATA 367P

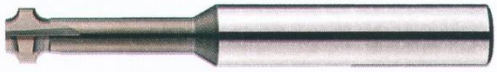
D Size	D Tolerance
ø5 ~ 12	-0.01 ~ -0.025mm

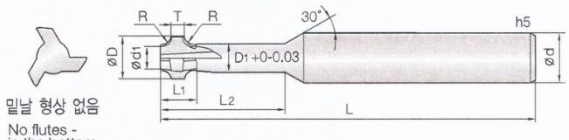
Order Number	Diameter D ×R	Length of cut L1	Effective Length L2	Neck Diameter D1	Overall Length L	Shank Dia d
4TRS 050 010 045	5 X 0.5R	1	4.5	2.5	50	6
4TRS 050 010 070	5 X 0.5R	1	7	2.5	50	6
4TRS 050 020 055	5 X 1R	2	5.5	2.5	50	6
4TRS 060 010 050	6 X 0.5R	1	5	3	50	6
4TRS 060 010 080	6 X 0.5R	1	8	3	50	6
4TRS 060 015 055	6 X 0.75R	1.5	5.5	3	50	6
4TRS 060 020 060	6 X 1R	2	6	3	50	6
4TRS 060 020 100	6 X 1R	2	10	3	50	6
4TRS 080 020 070	8 X 1R	2	7	4	60	8
4TRS 080 020 130	8 X 1R	2	13	4	60	8
4TRS 080 030 080	8 X 1.5R	3	8	4	60	8
4TRS 100 040 100	10 X 2R	4	10	4.5	70	10
4TRS 100 040 160	10 X 2R	4	16	4.5	70	10
4TRS 120 060 150	12 X 3R	6	15	5	75	12
4TRS 120 060 210	12 X 3R	6	21	5	75	12

3TRC

3 Flutes T- Double Corner Rounding Cutter

VHM 3-Lp. T-Nutenfräser - doppelter Eckradius





밑날 형상 없음
No flutes - in the bottom

- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 3flutes design.
- Various shapes and length provides optimum efficiency.

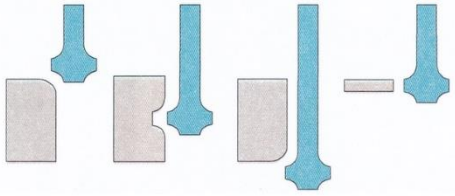
3 | WC 비립자 | JCRO Coating | R ±0.02 (0.2R~3R) | D +0 −0.03 (ø1.9~ ø12) | 0° Helix Angle | CUTTING DATA 367P

D Size	D Tolerance
ø1.9 ~ 12	+0 ~ −0.03mm

Order Number	Diameter D x R	Front Diameter D1	Thickness T	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3TRC 019 002 080	1.9 X R0.2	1.45	0.9	1.45	8	60	4
3TRC 024 003 090	2.4 X R0.3	1.75	1.2	1.95	9	60	4
3TRC 026 004 100	2.6 X R0.4	1.75	1.5	2.5	10	60	4
3TRC 029 005 120	2.9 X R0.5	1.85	1.8	3	12	60	4
3TRC 049 005 150	4.9 X R0.5	3.8	2	3.3	15	80	6
3TRC 068 010 200	6.8 X R1	4.7	2.2	4.3	20	80	8
3TRC 079 015 250	7.9 X R1.5	4.7	2.5	5.8	25	80	8
3TRC 099 020 300	9.9 X R2	5.8	2.8	6.8	30	80	10
3TRC 119 030 350	11.9 X R3	5.8	3	8.8	35	80	12

GENERAL PURPOSE

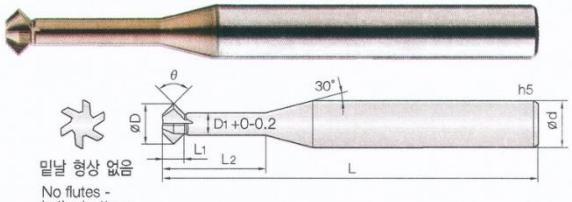
Available Cutting Shape



4&6TDA

4&6 Flutes T-Double Angular Cutter

VHM 4 & 6-Lp. doppelter Winkelfräser



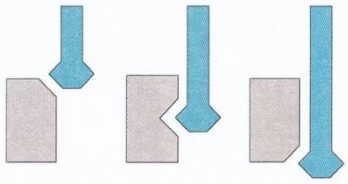
- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

4 | 6 | WC 미립자 | JCRO Coating | D +0 −0.02 ø1.5~ ø5 | D −0.01 −0.03 ø6~ø12 | L1 ±0.03 ø1.5~ø5 | L1 ±0.05 ø6 ~ 12 | 0° Helix Angle | CUTTING DATA 367P

D Size	D Tolerance
ø1.5 ~ 5	+0 ~ −0.02mm
ø6 ~ 12	−0.01 ~ −0.03mm

Order Number	Diameter D	Angle θ	Length of cut L1	Effective Length L2	Neck Diameter D1	Overall Length L	Shank Dia d
4TDA 015 600 030	1.5	60°	0.43	3	0.75	45	4
4TDA 015 900 030	1.5	90°	0.75	3	0.75	45	4
4TDA 020 600 050	2	60°	0.57	5	1	50	4
4TDA 020 900 050	2	90°	1	5	1	50	4
4TDA 025 600 060	2.5	60°	0.75	6	1.2	50	4
4TDA 025 900 060	2.5	90°	1.3	6	1.2	50	4
4TDA 030 600 075	3	60°	0.86	7.5	1.5	50	4
4TDA 030 600 120	3	60°	0.86	12	1.5	50	4
4TDA 030 900 075	3	90°	1.5	7.5	1.5	50	4
4TDA 030 900 120	3	90°	1.5	12	1.5	50	4
4TDA 040 600 100	4	60°	1.15	10	2	50	4
4TDA 040 600 160	4	60°	1.15	16	2	50	4
4TDA 040 900 100	4	90°	2	10	2	50	4
4TDA 040 900 160	4	90°	2	16	2	50	4
4TDA 050 600 125	5	60°	1.44	12.5	2.5	60	6
4TDA 050 600 200	5	60°	1.44	20	2.5	60	6
4TDA 050 900 125	5	90°	2.4	12.5	2.5	60	6
4TDA 050 900 200	5	90°	2.4	20	2.5	60	6
4TDA 060 600 150	6	60°	1.73	15	3	60	6
4TDA 060 600 250	6	60°	1.73	25	3	60	6
4TDA 060 900 150	6	90°	2.8	15	3	60	6
4TDA 060 900 250	6	90°	2.8	25	3	60	6
6TDA 080 600 200	8	60°	2.3	20	4	70	8
6TDA 080 600 280	8	60°	2.3	28	4	70	8
6TDA 080 900 200	8	90°	3.8	20	4	70	8
6TDA 080 900 280	8	90°	3.8	28	4	70	8
6TDA 100 600 250	10	60°	2.8	25	5	75	10
6TDA 100 600 350	10	60°	2.8	35	5	75	10
6TDA 100 900 250	10	90°	4.8	25	6	80	10
6TDA 100 900 350	10	90°	4.8	35	6	80	10
6TDA 120 600 300	12	60°	3.4	30	6	80	12
6TDA 120 600 420	12	60°	3.4	42	6	80	12
6TDA 120 900 300	12	90°	5.8	30	6	80	12
6TDA 120 900 420	12	90°	5.8	42	6	80	12

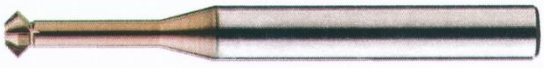
Available Cutting Shape

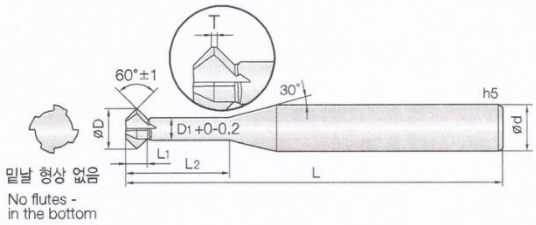


3&4THC

3&4 Flutes Thread Milling Cutter

VHM 3 & 4-Lp. Gewindefräser





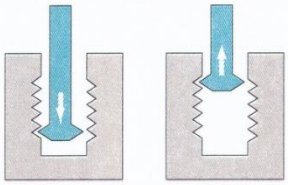
- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping and fracturing by applying straight flutes design which is appropriate to screw groove cutting.
- Various shapes and length provides optimum efficiency.

3 | 4 | WC 미립자 | JCRO Coating | D +0 −0.02 (ø0.57~ø8) | T ±0.01 (ø0.01~ø0.09) | 0° Helix Angle

D Size	D Tolerance
ø0.57 ~ 8	+0 ~ −0.02mm

Order Number	Diameter D	Thickness T	Length of cut L1	Effective Length L2	Neck Diameter D1	Overall Length L	Shank Dia d
3THC 0057 025 M008	0.57	0.01	0.16	2.5	0.3	40	4
3THC 0065 028 M009	0.65	0.01	0.18	2.8	0.35	40	4
3THC 007 030 M01	0.7	0.015	0.19	3	0.4	40	4
3THC 009 036 M012	0.9	0.015	0.2	3.6	0.57	40	4
3THC 0105 045 M014	1.05	0.02	0.24	4.5	0.66	40	4
3THC 012 050 M016	1.2	0.02	0.28	5	0.75	40	4
4THC 015 060 M02	1.5	0.025	0.31	6	1	45	4
4THC 019 070 M025	1.9	0.025	0.34	7	1.35	45	4
4THC 023 090 M03	2.3	0.03	0.43	9	1.6	65	6
4THC 031 120 M04	3.1	0.04	0.56	12	2.2	65	6
4THC 040 150 M05	4	0.05	0.62	15	3	65	6
4THC 048 180 M06	4.8	0.07	0.79	18	3.55	75	6
4THC 065 230 M08	6.5	0.08	0.94	23	5	80	8
4THC 079 260 M10	7.9	0.09	1.13	26	6.1	80	8

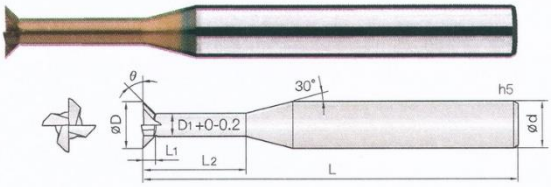
Available Cutting Shape



4&6TAC

4&6 Flutes T-Angular Cutter

VHM 4 & 6-Lp. T-Angular Fräser



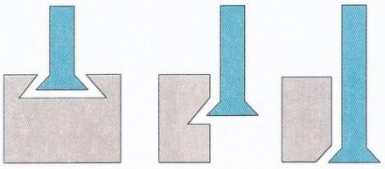
- **Endmills for various work materials, hardened steel (HRc ~50), pre-hardened steel, tool steel and cast iron.**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize edge chipping by applying straight 4flutes design.
- Various shapes and length provides optimum efficiency.

4 | 6 | WC 비밀자 | JCRO Coating | D +0 −0.02 (ø1.5~ ø5) | D −0.01 −0.03 (ø6~ø12) | L1 ±0.03 (ø1.5~ø5) | L1 ±0.05 (ø6 ~ 12) | 0° Helix Angle | CUTTING DATA 367P

D Size	D Tolerance
ø1.5 ~ 5	+0 ~ −0.02mm
ø6 ~ 12	−0.01 ~ −0.03mm

Order Number	Diameter D	Angle θ	Length of cut L1	Effective Length L2	Neck Diameter D1	Overall Length L	Shank Dia d
4TAC 015 300 030	1.5	30°	0.21	3	0.75	45	4
4TAC 015 450 030	1.5	45°	0.37	3	0.75	45	4
4TAC 020 300 050	2	30°	0.28	5	1	50	4
4TAC 020 450 050	2	45°	0.5	5	1	50	4
4TAC 025 300 060	2.5	30°	0.37	6	1.2	50	4
4TAC 025 450 060	2.5	45°	0.65	6	1.2	50	4
4TAC 030 300 075	3	30°	0.43	7.5	1.5	50	4
4TAC 030 300 120	3	30°	0.43	12	1.5	50	4
4TAC 030 450 075	3	45°	0.75	7.5	1.5	50	4
4TAC 030 450 120	3	45°	0.75	12	1.5	50	4
4TAC 040 300 100	4	30°	0.57	10	2	50	4
4TAC 040 300 160	4	30°	0.57	16	2	50	4
4TAC 040 450 100	4	45°	1	10	2	50	4
4TAC 040 450 160	4	45°	1	16	2	50	4
4TAC 050 300 125	5	30°	0.72	12.5	2.5	60	6
4TAC 050 450 125	5	45°	1.25	12.5	2.5	60	6
4TAC 060 300 150	6	30°	0.86	15	3	60	6
4TAC 060 300 240	6	30°	0.86	24	3	60	6
4TAC 060 450 150	6	45°	1.5	15	3	60	6
4TAC 060 450 240	6	45°	1.5	24	3	60	6
6TAC 080 300 200	8	30°	1.15	20	4	70	8
6TAC 080 300 280	8	30°	1.15	28	4	70	8
6TAC 080 450 200	8	45°	2	20	4	70	8
6TAC 080 450 280	8	45°	2	28	4	70	8
6TAC 100 300 250	10	30°	1.44	25	5	75	10
6TAC 100 300 350	10	30°	1.44	35	5	75	10
6TAC 100 450 250	10	45°	2.5	25	5	75	10
6TAC 100 450 350	10	45°	2.5	35	5	75	10
6TAC 120 300 300	12	30°	1.73	30	6	80	12
6TAC 120 300 420	12	30°	1.73	42	6	80	12
6TAC 120 450 300	12	45°	3	30	6	80	12
6TAC 120 450 420	12	45°	3	42	6	80	12

Available Cutting Shape



EC-HK VHM konische Gesenkfräser 2- 4 Lp.

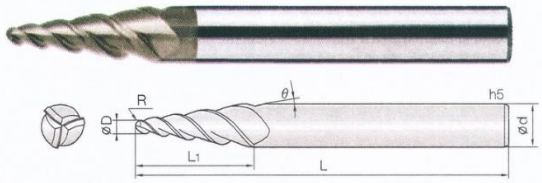
für die allgemeine Anwendung in verschiedensten Materialien bis 55 HRC

Order-No.	Dia	SL	TL	°S	Z	d	Net CHF
HKM010-020-MEGA	2	10	40	1°	2	3	71.40
HK010-040-MEGA	4	20	60	1°	3	5	114.40
HK010-060-MEGA	6	30	75	1°	3	8	124.30
HK010-080-MEGA	8	30	80	1°	4	10	137.50
HK010-100-MEGA	10	30	80	1°	4	12	158.40
HKM020-010-MEGA	1	4	40	2°	2	3	78.80
HKM020-020-MEGA	2	10	40	2°	2	3	75.00
HK020-040-MEGA	4	20	65	2°	3	6	114.40
HK020-050-MEGA	5	30	75	2°	3	8	124.30
HK020-100-MEGA	10	28	80	2°	4	12	158.40
HKM030-010-MEGA	1	4	40	3°	2	3	78.80
HKM030-015-MEGA	1.5	6	40	3°	2	3	78.80
HK030-025-MEGA	2.5	20	65	3°	3	6	114.40
HK030-033-MEGA	3	30	75	3°	3	8	124.30
HK030-065-MEGA	6	55	110	3°	3	12	19580
HK030-083-MEGA	8	30	80	3°	4	12	158.40
HKM050-010-MEGA	1	4	40	5°	2	3	78.80
HKM050-015-MEGA	1.5	6	40	5°	2	3	78.80
HKM050-020-MEGA	2	10	50	5°	2	4	79.40
HKM050-025-MEGA	2.5	10	50	5°	2	5	84.60
HK050-025-MEGA	2.5	20	65	5°	3	6	114.40
HK050-032-MEGA	3	28	70	5°	3	8	121.00
HK050-0420-MEGA	4	22	65	5°	3	8	121.00
HK050-050-MEGA	5	40	100	5°	3	12	199.10
HK050-063-MEGA	6	32	90	5°	3	12	154.00
HK050-065-MEGA	6	55	110	5°	3	16	248.60
HK050-103-MEGA	10	32	90	5°	4	16	220.00
HK050-105-MEGA	10	55	115	5°	4	20	343.20
HK070-025-MEGA	2.5	22	65	7°	3	8	129.80
HK070-050-MEGA	5.0	28	80	7°	3	12	158.40
HK080-083-MEGA	8	35	90	8°	4	18	286.00
HK100-025-MEGA	2.5	20	75	10°	3	10	140.80
HK100-030-MEGA	3	30	90	10°	3	14	196.90
HK100-050-MEGA	5	30	90	10°	3	16	227.70
HK100-080-MEGA	8	32	90	10°	4	20	290.40
HK150-025-MEGA	2.5	20	80	15°	3	14	192.50
HK150-040-MEGA	4	15	65	15°	3	12	154.00
HK150-0651-MEGA	6.5	10	65	15°	3	12	154.00
HK150-0652-MEGA	6.5	25	90	15	3	20	290.40
HK150-080-MEGA	8	20	80	15°	4	20	287.10
HK200-025-MEGA	2.5	10	75	20°	3	10	147.40
HK200-045-MEGA	4.5	15	90	20°	3	16	246.40
HK300-025-MEGA	2.5	10	75	30°	3	10	188.10
HK300-045-MEGA	4.5	16	90	30°	4	16	367.40
HK450-025-MEGA	2.5	10	75	45°	3	12	275.00
HK450-045-MEGA	4.5	16	90	45°	4	16	489.50

3TBIC

3 Flutes Taper Ball End Mills for Impellers

VHM 3-Lp. konischer Kugelfräser, Impeller



- **Pre-hardened steel, Cast iron, Non-metallic materials**
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Suitable for special components with 3 axes and 5 axes sector such as impellers, blisks, tire profiles, turbine blades.
- Available for simultaneous machining of roughing and finishing with only one tool.

3 | WC 미립자 | JCRO Coating | R ±0.005 (0.5R ~ 1R) | R ±0.01 (2R ~ 3R) | 35° Helix Angle | CUTTING DATA 363P

D Size	D Tolerance
ø4 ~ 6	+0.01~ −0.01mm

Order Number	Diameter R×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
3TBIC 010 010 120	R0.5 X 1	1°	12	50	6
3TBIC 010 010 200	R0.5 X 1	1°	20	60	6
3TBIC 010 020 150	R0.5 X 1	2°	15	55	6
3TBIC 010 020 200	R0.5 X 1	2°	20	60	6
3TBIC 010 030 150	R0.5 X 1	3°	15	55	6
3TBIC 010 030 200	R0.5 X 1	3°	20	60	6
3TBIC 010 040 200	R0.5 X 1	4°	20	60	6
3TBIC 010 050 200	R0.5 X 1	5°	20	60	6
3TBIC 010 060 200	R0.5 X 1	6°	20	60	6
3TBIC 010 070 200	R0.5 X 1	7°	20	60	6
3TBIC 010 080 180	R0.5 X 1	8°	18	60	6
3TBIC 020 010 120	R1 X 2	1°	12	50	6
3TBIC 020 010 200	R1 X 2	1°	20	60	6
3TBIC 020 020 150	R1 X 2	2°	15	55	6
3TBIC 020 020 200	R1 X 2	2°	20	60	6
3TBIC 020 030 150	R1 X 2	3°	15	55	6
3TBIC 020 030 200	R1 X 2	3°	20	60	6
3TBIC 020 030 300	R1 X 2	3°	30	70	6
3TBIC 020 040 200	R1 X 2	4°	20	60	6
3TBIC 020 050 200	R1 X 2	5°	20	60	6
3TBIC 020 050 300	R1 X 2	5°	30	75	8
3TBIC 020 060 190	R1 X 2	6°	19	60	6
3TBIC 020 060 290	R1 X 2	6°	29	75	8
3TBIC 020 070 160	R1 X 2	7°	16	60	6
3TBIC 020 070 250	R1 X 2	7°	25	70	8
3TBIC 020 080 150	R1 X 2	8°	15	60	6
3TBIC 020 080 220	R1 X 2	8°	22	70	8
3TBIC 030 010 200	R1.5 X 3	1°	20	60	6
3TBIC 030 010 320	R1.5 X 3	1°	32	75	6
3TBIC 030 020 200	R1.5 X 3	2°	20	60	6
3TBIC 030 030 200	R1.5 X 3	3°	20	60	6
3TBIC 030 030 300	R1.5 X 3	3°	30	70	6
3TBIC 030 030 390	R1.5 X 3	3°	39	80	8
3TBIC 030 040 200	R1.5 X 3	4°	20	65	6
3TBIC 030 050 180	R1.5 X 3	5°	18	60	6
3TBIC 030 050 300	R1.5 X 3	5°	30	75	8
3TBIC 030 060 150	R1.5 X 3	6°	15	60	6
3TBIC 030 060 250	R1.5 X 3	6°	25	70	8
3TBIC 030 070 190	R1.5 X 3	7°	19	70	8
3TBIC 030 070 300	R1.5 X 3	7°	30	80	10
3TBIC 030 080 190	R1.5 X 3	8°	19	70	8
3TBIC 030 080 260	R1.5 X 3	8°	26	75	10
3TBIC 040 010 200	R2 X 4	1°	20	60	6
3TBIC 040 010 320	R2 X 4	1°	32	75	6
3TBIC 040 020 200	R2 X 4	2°	20	60	6
3TBIC 040 020 300	R2 X 4	2°	30	70	6
3TBIC 040 030 210	R2 X 4	3°	21	70	6
3TBIC 040 030 320	R2 X 4	3°	32	80	8
3TBIC 040 030 400	R2 X 4	3°	40	90	8
3TBIC 040 040 200	R2 X 4	4°	20	70	8

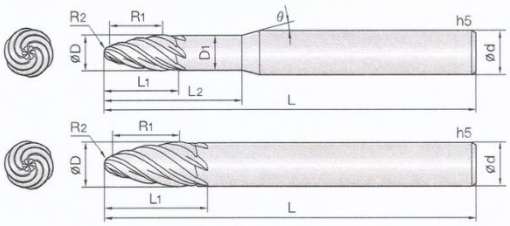
Order Number	Diameter R×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
3TBIC 040 040 300	R2 X 4	4°	30	75	8
3TBIC 040 050 200	R2 X 4	5°	20	70	8
3TBIC 040 050 320	R2 X 4	5°	32	80	10
3TBIC 040 060 200	R2 X 4	6°	20	70	8
3TBIC 040 060 300	R2 X 4	6°	30	80	10
3TBIC 040 070 180	R2 X 4	7°	18	70	8
3TBIC 040 070 260	R2 X 4	7°	26	80	10
3TBIC 040 080 230	R2 X 4	8°	23	75	10
3TBIC 060 010 320	R3 X 6	1°	32	75	8
3TBIC 060 020 300	R3 X 6	2°	30	75	8
3TBIC 060 030 220	R3 X 6	3°	22	75	8
3TBIC 060 030 320	R3 X 6	3°	32	80	10
3TBIC 060 030 400	R3 X 6	3°	40	90	10
3TBIC 060 040 250	R3 X 6	4°	25	75	10
3TBIC 060 040 310	R3 X 6	4°	31	80	10
3TBIC 060 050 210	R3 X 6	5°	21	75	10
3TBIC 060 050 320	R3 X 6	5°	32	80	12
3TBIC 060 060 210	R3 X 6	6°	21	75	10
3TBIC 060 060 310	R3 X 6	6°	31	80	12
3TBIC 060 070 190	R3 X 6	7°	19	75	10
3TBIC 060 070 270	R3 X 6	7°	27	80	12

4&6CTDB

4&6 Flutes 5 Axies Taper Double Ball End Mills

New

VHM 4 & 6-Lp. kon. Doppel-Radius Kugelfräser
für Arbeiten mit 3 und 5-Achsen Einsatz



- **Pre-hardened steel, Cast iron, Non-metallic materials**
- TISIN-R coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Suitable for special components with 3 axes and 5 axes sector such as impellers, blisks, tire profiles, turbine blades.
- Available for simultaneous machining of roughing and finishing with only one tool.

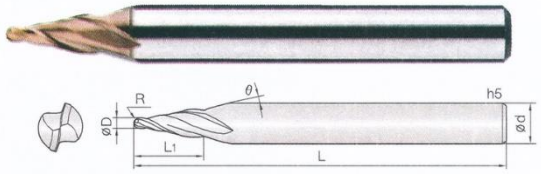
4 | 6 | WC 미립자 | R TISIN-R | R ±0.01 (0.5 ~ 1.5R) | R ±0.015 (2 ~ 4R) | 30° Helix Angle | CUTTING DATA 362P

Order Number	Diameter R ×D	R1	R2	Angle θ	Neck Diameter D1	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
4CTDB 010 013 047	0.5R X 1	13	0.5	10	2.4	4.7	10	50	4
4CTDB 015 020 071	0.75R X 1.5	20	0.75	10	3.6	7.1	15	50	4
4CTDB 020 025 094	1R X 2	25	1	10	4.8	9.4	20	60	6
4CTDB 020 350 116	1R X 2	350	1	15	7	11.6	18	80	8
4CTDB 030 040 141	1.5R X 3	40	1.5	10	7.3	14.1	30	80	8
6CTDB 040 050 187	2R X 4	50	2	10	9.5	18.7	40	100	12
6CTDB 040 750 124	2R X 4	750	2	30	-	12.4	-	110	16
6CTDB 060 075 200	3R X 6	75	3	10	-	20	-	100	12
6CTDB 060 1000 167	3R X 6	1,000	3	20	-	16.7	-	110	16
6CTDB 080 100 268	4R X 8	100	4	5	-	26.8	-	110	12
6CTDB 080 1000 267	4R X 8	1,000	4	10	-	26.7	-	110	16

2CTB

2 Flutes Taper Ball End Mills

VHM 2-Lp. konischer Kugel-Gesenkfräser



- **Endmills for pre-hardened and hardened steel (HRc52~)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5㎛) WC grade.

2 | WC 메탈자 | TISIN Coating | R ±0.005 (0.2 ~ 1.5R) | R ±0.01 (1.5 ~ 3R) | 30° Helix Angle | CUTTING DATA 364P

D Size	D Tolerance
ø0.2 ~ 3	-0.01 ~ -0.025mm
ø4 ~ 6	-0.015 ~ -0.03mm

Order Number	Diameter R×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
New 2CTB 002 010 015	0.1R X 0.2	1°	1.5	40	4
New 2CTB 002 020 015	0.1R X 0.2	2°	1.5	40	4
New 2CTB 002 030 015	0.1R X 0.2	3°	1.5	40	4
New 2CTB 002 050 015	0.1R X 0.2	5°	1.5	40	4
New 2CTB 002 070 015	0.1R X 0.2	7°	1.5	40	4
New 2CTB 002 100 015	0.1R X 0.2	10°	1.5	40	4
New 2CTB 003 010 020	0.15R X 0.3	1°	2	40	4
New 2CTB 003 020 020	0.15R X 0.3	2°	2	40	4
New 2CTB 003 030 020	0.15R X 0.3	3°	2	40	4
New 2CTB 003 050 020	0.15R X 0.3	5°	2	40	4
New 2CTB 003 070 020	0.15R X 0.3	7°	2	40	4
New 2CTB 003 100 020	0.15R X 0.3	10°	2	40	4
New 2CTB 003 150 020	0.15R X 0.3	15°	2	40	4
New 2CTB 004 010 030	0.2R X 0.4	1°	3	40	4
2CTB 004 020 030	0.2R X 0.4	2°	3	40	4
2CTB 004 030 030	0.2R X 0.4	3°	3	40	4
2CTB 004 040 030	0.2R X 0.4	4°	3	40	4
2CTB 004 050 030	0.2R X 0.4	5°	3	40	4
2CTB 004 070 030	0.2R X 0.4	7°	3	40	4
2CTB 004 100 030	0.2R X 0.4	10°	3	40	4
New 2CTB 004 150 030	0.2R X 0.4	15°	3	40	4
New 2CTB 005 010 030	0.25R X 0.5	1°	3	40	4
2CTB 005 020 030	0.25R X 0.5	2°	3	40	4
2CTB 005 030 030	0.25R X 0.5	3°	3	40	4
2CTB 005 040 035	0.25R X 0.5	4°	3.5	40	4
2CTB 005 050 035	0.25R X 0.5	5°	3.5	40	4
2CTB 005 070 035	0.25R X 0.5	7°	3.5	40	4
2CTB 005 100 035	0.25R X 0.5	10°	3.5	40	4
New 2CTB 005 150 035	0.25R X 0.5	15°	3.5	40	4
New 2CTB 006 010 030	0.3R X 0.6	1°	3	40	4
2CTB 006 020 030	0.3R X 0.6	2°	3	40	4
2CTB 006 030 030	0.3R X 0.6	3°	3	40	4
2CTB 006 040 035	0.3R X 0.6	4°	3.5	40	4
2CTB 006 050 035	0.3R X 0.6	5°	3.5	40	4
2CTB 006 070 035	0.3R X 0.6	7°	3.5	40	4
2CTB 006 100 035	0.3R X 0.6	10°	3.5	40	4
New 2CTB 006 150 035	0.3R X 0.6	15°	3.5	40	4
New 2CTB 007 010 030	0.35R X 0.7	1°	3	40	4
New 2CTB 007 020 030	0.35R X 0.7	2°	3	40	4
New 2CTB 007 030 040	0.35R X 0.7	3°	4	40	4
New 2CTB 007 050 040	0.35R X 0.7	5°	4	40	4
New 2CTB 007 070 040	0.35R X 0.7	7°	4	40	4
New 2CTB 007 100 040	0.35R X 0.7	10°	4	40	4
New 2CTB 007 150 040	0.35R X 0.7	15°	4	40	4
New 2CTB 008 010 030	0.4R X 0.8	1°	3	40	4
2CTB 008 020 030	0.4R X 0.8	2°	3	40	4
2CTB 008 030 030	0.4R X 0.8	3°	3	40	4
2CTB 008 040 040	0.4R X 0.8	4°	4	40	4
2CTB 008 050 040	0.4R X 0.8	5°	4	40	4
2CTB 008 070 040	0.4R X 0.8	7°	4	40	4

Order Number	Diameter R×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
2CTB 008 100 040	0.4R X 0.8	10°	4	40	4
New 2CTB 008 150 040	0.4R X 0.8	15°	4	40	4
2CTB 010 003 030	0.5R X 1	0°30	3	40	4
2CTB 010 010 030	0.5R X 1	1°	3	40	4
2CTB 010 013 040	0.5R X 1	1°30	4	40	4
2CTB 010 020 040	0.5R X 1	2°	4	40	4
2CTB 010 030 040	0.5R X 1	3°	4	40	4
2CTB 010 040 060	0.5R X 1	4°	6	45	4
2CTB 010 050 060	0.5R X 1	5°	6	45	4
2CTB 010 070 060	0.5R X 1	7°	6	45	4
2CTB 010 100 060	0.5R X 1	10°	6	45	4
New 2CTB 010 150 056	0.5R X 1	15°	5.6	45	4
New 2CTB 012 003 030	0.6R X 1.2	0°30	3	40	4
New 2CTB 012 010 030	0.6R X 1.2	1°	3	40	4
New 2CTB 012 013 040	0.6R X 1.2	1°30	4	40	4
New 2CTB 012 020 040	0.6R X 1.2	2°	4	40	4
New 2CTB 012 030 040	0.6R X 1.2	3°	4	40	4
New 2CTB 012 040 060	0.6R X 1.2	4°	6	45	4
New 2CTB 012 050 060	0.6R X 1.2	5°	6	45	4
New 2CTB 012 070 060	0.6R X 1.2	7°	6	45	4
New 2CTB 012 100 060	0.6R X 1.2	10°	6	45	4
New 2CTB 012 150 050	0.6R X 1.2	15°	5	45	4
2CTB 015 003 060	0.75R X 1.5	0°30	6	45	4
2CTB 015 010 060	0.75R X 1.5	1°	6	45	4
2CTB 015 013 060	0.75R X 1.5	1°30	6	45	4
2CTB 015 020 060	0.75R X 1.5	2°	6	45	4
2CTB 015 030 060	0.75R X 1.5	3°	6	45	4
2CTB 015 040 060	0.75R X 1.5	4°	6	45	4
2CTB 015 050 060	0.75R X 1.5	5°	6	45	4
2CTB 015 070 060	0.75R X 1.5	7°	6	45	4
New 2CTB 015 100 060	0.75R X 1.5	10°	6	45	4
New 2CTB 015 150 060	0.75R X 1.5	15°	6	50	6
2CTB 020 003 080	1R X 2	0°30	8	45	4
2CTB 020 010 080	1R X 2	1°	8	45	4
2CTB 020 013 080	1R X 2	1°30	8	45	4
2CTB 020 020 080	1R X 2	2°	8	45	4
2CTB 020 030 080	1R X 2	3°	8	45	4
2CTB 020 040 080	1R X 2	4°	8	45	4
2CTB 020 050 080	1R X 2	5°	8	45	4
2CTB 020 070 080	1R X 2	7°	8	45	4
New 2CTB 020 100 080	1R X 2	10°	8	50	6
New 2CTB 020 150 080	1R X 2	15°	8	50	6
2CTB 030 003 120	1.5R X 3	0°30	12	60	6
2CTB 030 010 120	1.5R X 3	1°	12	60	6
2CTB 030 013 120	1.5R X 3	1°30	12	60	6
2CTB 030 020 120	1.5R X 3	2°	12	60	6
2CTB 030 030 120	1.5R X 3	3°	12	60	6
2CTB 030 040 120	1.5R X 3	4°	12	60	6
2CTB 030 050 120	1.5R X 3	5°	12	60	6
2CTB 030 070 120	1.5R X 3	7°	12	60	6

VHM 2-Lp. konischer Kugelgesenkfräser

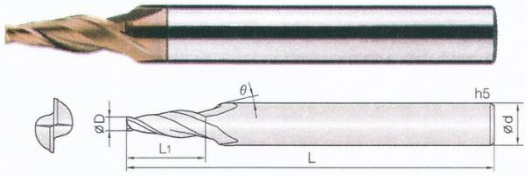
	Order Number	Diameter R ×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
New	2CTB 030 100 120	1.5R X 3	10°	12	60	8
New	2CTB 030 150 120	1.5R X 3	15°	12	70	10
	2CTB 040 003 160	2R X 4	0°30	16	70	8
	2CTB 040 010 160	2R X 4	1°	16	70	8
	2CTB 040 013 160	2R X 4	1°30	16	70	8
	2CTB 040 020 160	2R X 4	2°	16	70	8
	2CTB 040 030 160	2R X 4	3°	16	70	8
	2CTB 040 040 160	2R X 4	4°	16	70	8
	2CTB 040 050 160	2R X 4	5°	16	70	8
	2CTB 040 070 160	2R X 4	7°	16	70	8
New	2CTB 040 100 160	2R X 4	10°	16	70	10
New	2CTB 040 150 160	2R X 4	15°	16	80	12
	2CTB 050 003 200	2.5R X 5	0°30	20	75	8
	2CTB 050 010 200	2.5R X 5	1°	20	75	8
	2CTB 050 013 200	2.5R X 5	1°30	20	75	8
	2CTB 050 020 200	2.5R X 5	2°	20	75	8
	2CTB 050 030 200	2.5R X 5	3°	20	75	8
	2CTB 050 040 200	2.5R X 5	4°	20	75	8
	2CTB 050 050 200	2.5R X 5	5°	20	80	10
	2CTB 050 070 200	2.5R X 5	7°	20	80	10
	2CTB 060 003 240	3R X 6	0°30	24	80	10
	2CTB 060 010 240	3R X 6	1°	24	80	10
	2CTB 060 013 240	3R X 6	1°30	24	80	10
	2CTB 060 020 240	3R X 6	2°	24	80	10
	2CTB 060 030 240	3R X 6	3°	24	80	10
	2CTB 060 040 240	3R X 6	4°	24	80	10
	2CTB 060 050 240	3R X 6	5°	24	90	12
	2CTB 060 070 240	3R X 6	7°	24	90	12

Order Number	Diameter R ×D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

2CTE

2 Flutes Taper End Mills

VHM 2-Lp. konischer Gesenkfräser



- **Endmills for pre-hardened and hardened steel (HRc52~)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5 ㎛) WC grade.

2 | WC 미립자 | TISIN Coating | D +0 −0.01 ø0.3 ~ ø4 | D −0.01 −0.025 ø6 ~ ø8 | 30° Helix Angle | Shield Edge | CUTTING DATA 365P

D Size	D Tolerance
ø0.3 ~ 4	+0 ~ −0.01mm
ø6 ~ 8	−0.01 ~ −0.025mm

	Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
New	2CTE 002 003 010	0.2	0°30	1	40	4
New	2CTE 002 010 010	0.2	1°	1	40	4
New	2CTE 002 013 010	0.2	1°30	1	40	4
New	2CTE 002 020 010	0.2	2°	1	40	4
New	2CTE 002 030 010	0.2	3°	1	40	4
New	2CTE 002 050 010	0.2	5°	1	40	4
New	2CTE 002 070 010	0.2	7°	1	40	4
New	2CTE 002 100 010	0.2	10°	1	40	4
New	2CTE 002 150 010	0.2	15°	1	40	4
	2CTE 003 003 012	0.3	0°30	1.2	40	4
	2CTE 003 010 012	0.3	1°	1.2	40	4
	2CTE 003 013 012	0.3	1°30	1.2	40	4
	2CTE 003 020 012	0.3	2°	1.2	40	4
	2CTE 003 030 012	0.3	3°	1.2	40	4
	2CTE 003 050 012	0.3	5°	1.2	40	4
	2CTE 003 070 015	0.3	7°	1.5	40	4
	2CTE 003 100 015	0.3	10°	1.5	40	4
New	2CTE 003 150 015	0.3	15°	1.5	40	4
	2CTE 004 003 016	0.4	0°30	1.6	40	4
	2CTE 004 010 016	0.4	1°	1.6	40	4
	2CTE 004 013 016	0.4	1°30	1.6	40	4
	2CTE 004 020 016	0.4	2°	1.6	40	4
	2CTE 004 030 016	0.4	3°	1.6	40	4
	2CTE 004 050 016	0.4	5°	1.6	40	4
	2CTE 004 070 020	0.4	7°	2	40	4
	2CTE 004 100 020	0.4	10°	2	40	4
New	2CTE 004 150 020	0.4	15°	2	40	4
	2CTE 005 003 020	0.5	0°30	2	40	4
	2CTE 005 010 020	0.5	1°	2	40	4
	2CTE 005 013 020	0.5	1°30	2	40	4
	2CTE 005 020 020	0.5	2°	2	40	4
	2CTE 005 030 020	0.5	3°	2	40	4
	2CTE 005 050 020	0.5	5°	2	40	4
	2CTE 005 070 025	0.5	7°	2.5	40	4
	2CTE 005 100 025	0.5	10°	2.5	40	4
New	2CTE 005 150 025	0.5	15°	2.5	40	4
New	2CTE 005 200 025	0.5	20°	2.5	40	4
	2CTE 006 003 020	0.6	0°30	2	40	4
	2CTE 006 020 010	0.6	1°	2	40	4
	2CTE 006 013 020	0.6	1°30	2	40	4
	2CTE 006 020 020	0.6	2°	2	40	4
	2CTE 006 030 020	0.6	3°	2	40	4
	2CTE 006 050 020	0.6	5°	2	40	4
	2CTE 006 070 025	0.6	7°	2.5	40	4
	2CTE 006 100 025	0.6	10°	2.5	40	4
New	2CTE 006 150 025	0.6	15°	2.5	40	4
New	2CTE 006 200 025	0.6	20°	2.5	40	4
	2CTE 007 010 025	0.7	1°	2.5	40	4
	2CTE 007 013 025	0.7	1°30	2.5	40	4
	2CTE 007 020 025	0.7	2°	2.5	40	4

	Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
	2CTE 007 030 025	0.7	3°	2.5	40	4
	2CTE 007 050 025	0.7	5°	2.5	40	4
	2CTE 007 070 030	0.7	7°	3	40	4
	2CTE 007 100 030	0.7	10°	3	40	4
New	2CTE 007 150 030	0.7	15°	3	40	4
New	2CTE 007 200 030	0.7	20°	3	40	4
	2CTE 008 003 030	0.8	0°30	3	40	4
	2CTE 008 010 030	0.8	1°	3	40	4
	2CTE 008 013 030	0.8	1°30	3	40	4
	2CTE 008 020 030	0.8	2°	3	40	4
	2CTE 008 030 030	0.8	3°	3	40	4
	2CTE 008 050 030	0.8	5°	3	40	4
	2CTE 008 070 030	0.8	7°	3	40	4
	2CTE 008 100 030	0.8	10°	3	40	4
New	2CTE 008 150 030	0.8	15°	3	40	4
New	2CTE 008 200 030	0.8	20°	3	40	4
	2CTE 010 003 040	1	0°30	4	45	4
	2CTE 010 010 040	1	1°	4	45	4
	2CTE 010 013 040	1	1°30	4	45	4
	2CTE 010 020 040	1	2°	4	45	4
	2CTE 010 030 040	1	3°	4	45	4
	2CTE 010 050 040	1	5°	4	45	4
	2CTE 010 070 040	1	7°	4	45	4
	2CTE 010 100 040	1	10°	4	45	4
New	2CTE 010 150 040	1	15°	4	50	4
New	2CTE 010 200 040	1	20°	4	50	4
	2CTE 015 003 050	1.5	0°30	5	45	4
	2CTE 015 010 050	1.5	1°	5	45	4
	2CTE 015 013 060	1.5	1°30	6	45	4
	2CTE 015 020 070	1.5	2°	7	45	4
	2CTE 015 030 080	1.5	3°	8	45	4
	2CTE 015 050 100	1.5	5°	10	50	4
	2CTE 015 070 100	1.5	7°	10	50	4
	2CTE 015 100 100	1.5	10°	10	50	6
New	2CTE 015 150 060	1.5	15°	6	50	6
New	2CTE 015 200 060	1.5	20°	6	50	6
	2CTE 020 003 060	2	0°30	6	45	4
	2CTE 020 010 060	2	1°	6	45	4
	2CTE 020 013 060	2	1°30	6	45	4
	2CTE 020 020 080	2	2°	8	45	4
	2CTE 020 030 100	2	3°	10	50	4
	2CTE 020 050 100	2	5°	10	50	4
	2CTE 020 070 100	2	7°	10	50	6
	2CTE 020 100 110	2	10°	11	50	6
New	2CTE 020 150 070	2	15°	7	50	6
New	2CTE 020 200 070	2	20°	7	50	8
	2CTE 025 003 080	2.5	0°30	8	45	6
	2CTE 025 010 100	2.5	1°	10	50	6
	2CTE 025 013 100	2.5	1°30	10	50	6
	2CTE 025 020 120	2.5	2°	12	50	6

VHM 2-Lp. konischer Gesenkfräser

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
2CTE 025 030 120	2.5	3°	12	50	6
2CTE 025 050 120	2.5	5°	12	50	6
2CTE 025 070 120	2.5	7°	12	50	6
2CTE 025 100 100	2.5	10°	10	50	6
New 2CTE 025 150 100	2.5	15°	10	60	8
New 2CTE 025 200 100	2.5	20°	10	70	10
2CTE 030 003 120	3	0°30	12	50	6
2CTE 030 010 120	3	1°	12	50	6
2CTE 030 013 120	3	1°30	12	50	6
2CTE 030 020 120	3	2°	12	50	6
2CTE 030 030 120	3	3°	12	50	6
2CTE 030 050 120	3	5°	12	50	6
2CTE 030 070 120	3	7°	12	50	6
2CTE 030 100 080	3	10°	8	50	6
New 2CTE 030 150 090	3	15°	9	60	8
New 2CTE 030 200 090	3	20°	9	70	10
2CTE 040 003 150	4	0°30	15	60	6
2CTE 040 010 150	4	1°	15	60	6
2CTE 040 013 150	4	1°30	15	60	6
2CTE 040 020 150	4	2°	15	60	6
2CTE 040 030 180	4	3°	18	60	6
2CTE 040 050 230	4	5°	23	65	8
New 2CTE 040 070 240	4	7°	24	75	10
New 2CTE 040 100 220	4	10°	22	75	12
2CTE 060 003 200	6	0°30	20	65	8
2CTE 060 010 200	6	1°	20	65	8
2CTE 060 013 200	6	1°30	20	65	8
2CTE 060 020 200	6	2°	20	65	8
2CTE 060 030 190	6	3°	19	65	8
2CTE 060 050 230	6	5°	23	75	10
2CTE 060 070 240	6	7°	24	75	12
2CTE 060 100 170	6	10°	17	75	12
2CTE 070 003 250	7	0°30	25	70	8
2CTE 070 010 250	7	1°	25	70	8
2CTE 070 013 250	7	1°30	25	70	10
2CTE 070 030 280	7	3°	28	80	10
2CTE 070 050 280	7	5°	28	80	12
2CTE 080 003 320	8	0°30	32	90	10
2CTE 080 010 350	8	1°	35	90	10
2CTE 080 013 350	8	1°30	35	90	10
2CTE 080 020 280	8	2°	28	75	10
2CTE 080 030 350	8	3°	35	90	12
2CTE 080 050 450	8	5°	45	100	16
2CTE 080 070 320	8	7°	32	90	16
2CTE 080 100 340	8	10°	34	100	20

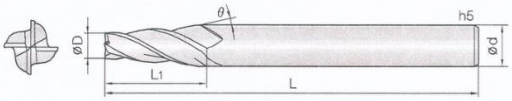
Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

TAPER

4CTE

4 Flutes Taper End Mills

VHM 4-Lp. konischer Gesenkfräser



- **Endmills for pre-hardened and hardened steel (HRc52~)**
- Good wear resistance by high quality Si-based PVD coating.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5 ㎛) WC grade.

4 | WC 미립자 | TISIN Coating | D +0 −0.01 (ø0.3 ~ ø5) | D −0.01 −0.025 (ø6 ~ ø10) | 30° Helix Angle | Shield Edge | CUTTING DATA 365P

D Size	D Tolerance
ø0.3 ~ 5	+0 ~ −0.01mm
ø6 ~ 8	−0.01 ~ −0.025mm

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
4CTE 030 003 110	3	0°30	11	50	6
4CTE 030 010 110	3	1°	11	50	6
4CTE 030 013 110	3	1°30	11	50	6
4CTE 030 020 150	3	2°	15	60	6
4CTE 030 023 150	3	2°30	15	60	6
4CTE 030 030 150	3	3°	15	60	6
4CTE 030 050 150	3	5°	15	60	6
4CTE 030 070 120	3	7°	12	60	6
New 4CTE 030 100 190	3	10°	19	80	10
4CTE 040 003 150	4	0°30	15	60	6
4CTE 040 010 150	4	1°	15	60	6
4CTE 040 013 150	4	1°30	15	60	6
4CTE 040 020 180	4	2°	18	60	6
4CTE 040 023 180	4	2°30	18	60	6
4CTE 040 030 180	4	3°	18	60	6
4CTE 040 050 230	4	5°	23	65	8
4CTE 040 070 250	4	7°	25	75	10
4CTE 050 003 180	5	0°30	18	60	6
4CTE 050 010 180	5	1°	18	60	6
4CTE 050 013 180	5	1°30	18	60	6
4CTE 050 020 150	5	2°	15	60	6
4CTE 050 023 200	5	2°30	20	65	8
4CTE 050 030 210	5	3°	21	65	8
4CTE 050 050 280	5	5°	28	80	10
4CTE 050 070 280	5	7°	28	80	12
New 4CTE 052 0147 120	5.2	1°47	12	60	6
4CTE 060 003 200	6	0°30	20	65	8
4CTE 060 010 200	6	1°	20	65	8
4CTE 060 013 200	6	1°30	20	65	8
4CTE 060 020 200	6	2°	20	65	8
4CTE 060 023 200	6	2°30	20	65	8
4CTE 060 030 260	6	3°	26	75	10
4CTE 060 050 230	6	5°	23	75	10
4CTE 060 070 240	6	7°	24	80	12
New 4CTE 060 100 390	6	10°	39	110	20
4CTE 080 003 250	8	0°30	25	75	10
4CTE 080 010 250	8	1°	25	75	10
4CTE 080 013 250	8	1°30	25	75	10
4CTE 080 020 250	8	2°	25	75	10
4CTE 080 023 230	8	2°30	23	75	10
4CTE 080 030 300	8	3°	30	80	12
4CTE 080 050 230	8	5°	23	85	12
New 4CTE 085 0147 240	8.5	1°47	24	75	10
4CTE 100 003 300	10	0°30	30	80	12
4CTE 100 010 300	10	1°	30	80	12
4CTE 100 013 300	10	1°30	30	80	12
New 4CTE 100 0147 320	10	1°47	32	85	12
4CTE 100 020 280	10	2°	28	80	12
4CTE 100 030 400	10	3°	40	100	16
4CTE 100 050 340	10	5°	34	100	16

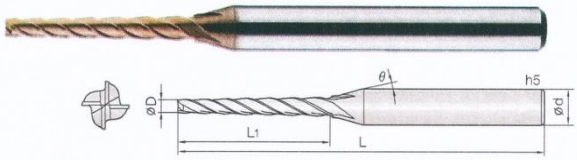
Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d

TAPER

4RTE

4 Flutes Rib Taper End Mills

VHM 4-Lp. konischer Gesenkfräser



- **Endmills for pre-hardened and hardened steel (HRc50~)**
- Good wear resistance by Si-based PVD coating.
- Optimum for deep grooving by 2bottom edge with 4flutes.
- High precise edge tolerance.
- Very nice work surface finish.
- Minimize fracturing by high TRS fine(0.5㎛) WC grade.

4 | WC 미립자 | TISIN Coating | D +0 −0.01 ø0.5~ ø2.5 | 30° Helix Angle | Shield Edge | CUTTING DATA 364P

D Size	D Tolerance
ø0.5 ~ 2.5	+0 ~ −0.01mm

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
4RTE 005 030 040	0.5	0°30	4	45	4
4RTE 005 030 060	0.5	0°30	6	45	4
4RTE 005 045 040	0.5	0°45	4	45	4
4RTE 005 045 060	0.5	0°45	6	45	4
4RTE 005 100 040	0.5	1°	4	45	4
4RTE 005 100 060	0.5	1°	6	45	4
4RTE 006 030 040	0.6	0°30	4	45	4
4RTE 006 030 060	0.6	0°30	6	45	4
4RTE 006 045 040	0.6	0°45	4	45	4
4RTE 006 045 060	0.6	0°45	6	45	4
4RTE 006 100 040	0.6	1°	4	45	4
4RTE 006 100 060	0.6	1°	6	45	4
4RTE 007 030 060	0.7	0°30	6	45	4
4RTE 007 030 080	0.7	0°30	8	45	4
4RTE 007 045 060	0.7	0°45	6	45	4
4RTE 007 045 080	0.7	0°45	8	45	4
4RTE 007 100 060	0.7	1°	6	45	4
4RTE 007 100 080	0.7	1°	8	45	4
4RTE 008 030 060	0.8	0°30	6	45	4
4RTE 008 030 080	0.8	0°30	8	45	4
4RTE 008 030 100	0.8	0°30	10	45	4
4RTE 008 045 060	0.8	0°45	6	45	4
4RTE 008 045 080	0.8	0°45	8	45	4
4RTE 008 045 100	0.8	0°45	10	45	4
4RTE 008 100 060	0.8	1°	6	45	4
4RTE 008 100 080	0.8	1°	8	45	4
4RTE 008 100 100	0.8	1°	10	45	4
4RTE 009 030 060	0.9	0°30	6	45	4
4RTE 009 030 080	0.9	0°30	8	45	4
4RTE 009 030 100	0.9	0°30	10	45	4
4RTE 009 045 060	0.9	0°45	6	45	4
4RTE 009 045 080	0.9	0°45	8	45	4
4RTE 009 045 100	0.9	0°45	10	45	4
4RTE 009 100 060	0.9	1°	6	45	4
4RTE 009 100 080	0.9	1°	8	45	4
4RTE 009 100 100	0.9	1°	10	45	4
4RTE 010 030 080	1	0°30	8	45	4
4RTE 010 030 100	1	0°30	10	45	4
4RTE 010 030 120	1	0°30	12	45	4
4RTE 010 045 080	1	0°45	8	45	4
4RTE 010 045 100	1	0°45	10	45	4
4RTE 010 045 120	1	0°45	12	45	4
4RTE 010 100 080	1	1°	8	45	4
4RTE 010 100 100	1	1°	10	45	4
4RTE 010 100 120	1	1°	12	45	4
4RTE 012 030 080	1.2	0°30	8	45	4
4RTE 012 030 100	1.2	0°30	10	45	4
4RTE 012 030 120	1.2	0°30	12	45	4
4RTE 012 030 160	1.2	0°30	16	50	4
4RTE 012 045 080	1.2	0°45	8	45	4

Order Number	Diameter D	Angle θ	Length of cut L1	Overall Length L	Shank Dia d
4RTE 012 045 100	1.2	0°45	10	45	4
4RTE 012 045 120	1.2	0°45	12	45	4
4RTE 012 045 160	1.2	0°45	16	50	4
4RTE 012 100 080	1.2	1°	8	45	4
4RTE 012 100 100	1.2	1°	10	45	4
4RTE 012 100 120	1.2	1°	12	45	4
4RTE 012 100 160	1.2	1°	16	50	4
4RTE 015 030 060	1.5	0°30	6	45	4
4RTE 015 030 100	1.5	0°30	10	45	4
4RTE 015 030 160	1.5	0°30	16	50	4
4RTE 015 030 200	1.5	0°30	20	60	4
4RTE 015 100 060	1.5	1°	6	45	4
4RTE 015 100 100	1.5	1°	10	45	4
4RTE 015 100 160	1.5	1°	16	50	4
4RTE 015 100 200	1.5	1°	20	60	4
4RTE 015 100 250	1.5	1°	25	60	4
4RTE 015 130 060	1.5	1°30	6	45	4
4RTE 015 130 100	1.5	1°30	10	45	4
4RTE 015 130 160	1.5	1°30	16	50	4
4RTE 015 130 200	1.5	1°30	20	60	4
4RTE 015 130 250	1.5	1°30	25	60	4
4RTE 020 030 100	2	0°30	10	45	4
4RTE 020 030 160	2	0°30	16	50	4
4RTE 020 030 200	2	0°30	20	60	4
4RTE 020 030 250	2	0°30	25	60	4
4RTE 020 100 100	2	1°	10	45	4
4RTE 020 100 160	2	1°	16	50	4
4RTE 020 100 200	2	1°	20	60	4
4RTE 020 100 250	2	1°	25	60	4
4RTE 020 130 100	2	1°30	10	45	4
4RTE 020 130 160	2	1°30	16	50	4
4RTE 020 130 200	2	1°30	20	60	4
4RTE 020 130 250	2	1°30	25	60	4
4RTE 025 030 100	2.5	0°30	10	45	4
4RTE 025 030 160	2.5	0°30	16	50	4
4RTE 025 030 200	2.5	0°30	20	60	4
4RTE 025 030 250	2.5	0°30	25	60	4
4RTE 025 100 100	2.5	1°	10	45	4
4RTE 025 100 160	2.5	1°	16	50	4
4RTE 025 100 200	2.5	1°	20	60	4
4RTE 025 100 250	2.5	1°	25	60	4
4RTE 025 130 100	2.5	1°30	10	45	4
4RTE 025 130 160	2.5	1°30	16	50	4
4RTE 025 130 200	2.5	1°30	20	60	4
4RTE 025 130 250	2.5	1°30	25	60	4

TAPER