

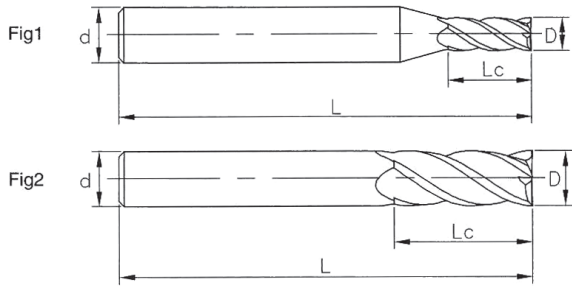
End mills

**VKE**



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## HRC 65 deg Tungsten Steel 4 Flute Square End Mills



- Raw Material: Use Golden Egret GU25UF, high hardness and high toughness.

- Coating: Use nano-tech, the hardness and thermal stability are up to 4000HV and 1200°C, respectively.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Flutes: 4 flutes, high rigidity, widely used in shallow slot, profile milling, and finish machining.

- Cutting Parameters
 

$v_c = 130$ (120-180)m/min
$a_p = 1/3D(1/8-1/2D)$
$a_e = 1/2D(1/4-1D)$
$f_z = 0.15\text{mm}$ (0.02-0.2)

Please adjust the parameters according to the material and hardness of workpieces.

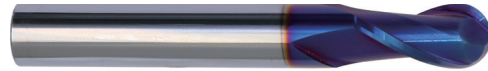
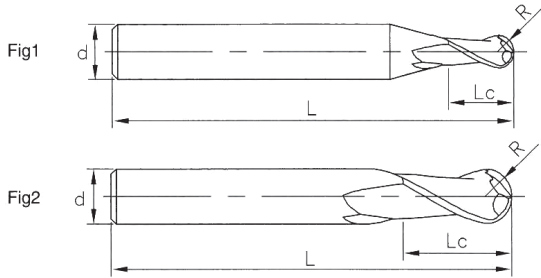
- Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y			Y	Y

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*8*3*50-4F	3	8	3	50	4	2
MTS-3*12*3*75-4F	3	12	3	75	4	2
MTS-3*12*3*100-4F	3	12	3	100	4	2
MTS-1*3*4*50-4F	1	3	4	50	4	1
MTS-1.5*4*4*50-4F	1.5	4	4	50	4	1
MTS-2*5*4*50-4F	2	5	4	50	4	1
MTS-2.5*7*4*50-4F	2.5	7	4	50	4	1
MTS-3*8*4*50-4F	3	8	4	50	4	1
MTS-3.5*10*4*50-4F	3.5	10	4	50	4	1
MTS-4*10*4*50-4F	4	10	4	50	4	2
MTS-4*20*4*75-4F	4	20	4	75	4	2
MTS-4*25*4*100-4F	4	25	4	100	4	2
MTS-5*13*5*50-4F	5	13	5	50	4	2
MTS-5*20*5*75-4F	5	20	5	75	4	2
MTS-5*25*5*100-4F	5	25	5	100	4	2
MTS-2.5*7*6*50-4F	2.5	7	6	50	4	1
MTS-3*8*6*50-4F	3	8	6	50	4	1
MTS-3.5*10*6*50-4F	3.5	10	6	50	4	1
MTS-4*10*6*50-4F	4	10	6	50	4	1
MTS-4.5*12*6*50-4F	4.5	12	6	50	4	1
MTS-5*13*6*50-4F	5	13	6	50	4	1
MTS-6*15*6*50-4F	6	15	6	50	4	2
MTS-6*20*6*75-4F	6	20	6	75	4	2
MTS-6*30*6*100-4F	6	30	6	100	4	2
MTS-6*40*6*150-4F	6	40	6	150	4	2
MTS-7*18*8*60-4F	7	18	8	60	4	1
MTS-8*20*8*60-4F	8	20	8	60	4	2
MTS-8*25*8*75-4F	8	25	8	75	4	2
MTS-8*35*8*100-4F	8	35	8	100	4	2
MTS-8*50*8*150-4F	8	50	8	150	4	2
MTS-9*23*10*75-4F	9	23	10	75	4	1
MTS-10*25*10*75-4F	10	25	10	75	4	2
MTS-10*40*10*100-4F	10	40	10	100	4	2
MTS-10*50*10*150-4F	10	50	10	150	4	2
MTS-11*28*12*75-4F	11	28	12	75	4	1
MTS-12*30*12*75-4F	12	30	12	75	4	2
MTS-12*45*12*100-4F	12	45	12	100	4	2
MTS-12*55*12*150-4F	12	55	12	150	4	2
MTS-14*35*14*80-4F	14	35	14	80	4	2
MTS-14*45*14*100-4F	14	45	14	100	4	2
MTS-14*60*14*150-4F	14	60	14	150	4	2
MTS-16*45*16*100-4F	16	45	16	100	4	2
MTS-16*60*16*150-4F	16	60	16	150	4	2
MTS-18*45*18*100-4F	18	45	18	100	4	2
MTS-18*60*18*150-4F	18	60	18	150	4	2
MTS-20*45*20*100-4F	20	45	20	100	4	2
MTS-20*60*20*150-4F	20	60	20	150	4	2

## HRC 65 deg Tungsten Steel 2 Flute Ball Nose End Mills



- Raw Material: Use Golden Egret GU25UF, high hardness and high toughness.

- Coating: Use nano-tech, the hardness and thermal stability are up to 4000HV and 1200°C, respectively.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Double-edge design improves rigidity and surface finish effectively. Cutting edge over the center reduces the cutting resistance. High capacity of junk slot benefits chip removal and increases machining efficiency. 2 flutes design is good for chip removal, easy for vertical feed processing, widely used in slot and hole processing.

### Cutting Parameters

$$v_c = 130 \text{ (120-180)m/min}$$

$$a_p = 1/3D(1/8-1/2D)$$

$$f_z = 0.15\text{mm}(0.02-0.2)$$

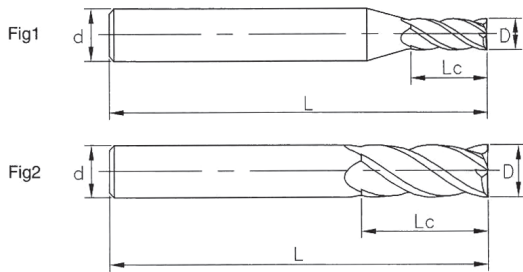
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y			Y	Y

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	R	Lc	d	L		
MTS-R1.5*6*3*50-2F	1.5	6	3	50	2	2
MTS-R1.5*6*3*75-2F	1.5	6	3	75	2	2
MTS-R1.5*6*3*100-2F	1.5	6	3	100	2	2
MTS-R0.5*2*4*50-2F	0.5	2	4	50	2	1
MTS-R0.75*3*4*50-2F	0.75	3	4	50	2	1
MTS-R1*4*4*50-2F	1	4	4	50	2	1
MTS-R1.25*5*4*50-2F	1.25	5	4	50	2	1
MTS-R1.5*6*4*50-2F	1.5	6	4	50	2	1
MTS-R1.75*7*4*50-2F	1.75	7	4	50	2	1
MTS-R2*8*4*50-2F	2	8	4	50	2	2
MTS-R2*8*4*75-2F	2	8	4	75	2	2
MTS-R2*8*4*100-2F	2	8	4	100	2	2
MTS-R2.5*10*5*50-2F	2.5	10	5	50	2	2
MTS-R2.5*10*5*75-2F	2.5	10	5	75	2	2
MTS-R2.5*10*5*100-2F	2.5	10	5	100	2	2
MTS-R2.5*10*6*50-2F	2.5	10	6	50	2	1
MTS-R3*12*6*50-2F	3	12	6	50	2	2
MTS-R3*12*6*75-2F	3	12	6	75	2	2
MTS-R3*12*6*100-2F	3	12	6	100	2	2
MTS-R3*12*6*150-2F	3	12	6	150	2	2
MTS-R3.5*16*8*60-2F	3.5	16	8	60	2	1
MTS-R4*16*8*60-2F	4	16	8	60	2	2
MTS-R4*16*8*75-2F	4	16	8	75	2	2
MTS-R4*16*8*100-2F	4	16	8	100	2	2
MTS-R4*20*8*150-2F	4	20	8	150	2	2
MTS-R4.5*18*10*75-2F	4.5	18	10	75	2	1
MTS-R5*20*10*75-2F	5	20	10	75	2	2
MTS-R5*20*10*100-2F	5	20	10	100	2	2
MTS-R5*30*10*150-2F	5	30	10	150	2	2
MTS-R5.5*24*12*75-2F	5.5	24	12	75	2	1
MTS-R6*24*12*75-2F	6	24	12	75	2	2
MTS-R6*24*12*100-2F	6	24	12	100	2	2
MTS-R6*36*12*150-2F	6	36	12	150	2	2
MTS-R7*28*14*100-2F	7	28	14	100	2	2
MTS-R7*40*14*150-2F	7	40	14	150	2	2
MTS-R8*32*16*100-2F	8	32	16	100	2	2
MTS-R8*50*16*150-2F	8	50	16	150	2	2
MTS-R9*36*18*100-2F	9	36	18	100	2	2
MTS-R9*50*18*150-2F	9	50	18	150	2	2
MTS-R10*40*20*100-2F	10	40	20	100	2	2
MTS-R10*50*20*150-2F	10	50	20	150	2	2

## HRC 55 deg Tungsten Steel 4 Flute Square End Mills



Raw Material: Use Zigong ZK30UF, high hardness and good wear resistance.

Coating: TiSiN, containing silica, very high surface hardness and high thermal resistance.

### Tolerance of End Mill Diameter

$1 < D \leq 6$      $-0.010 \sim -0.030$   
 $6 < D \leq 10$     $-0.015 \sim -0.040$   
 $10 < D \leq 20$     $-0.020 \sim -0.050$

Flutes: 4 flutes, high rigidity, widely used in shallow slot, profile milling, and finish machining.

### Cutting Parameters

$v_c = 150$  (120-180)m/min

$a_p = 1/3D(1/8-1/2D)$

$a_e = 1/2D(1/4-1D)$

$f_z = 0.15\text{mm}$ (0.02-0.2)

Please adjust the parameters according to the material and hardness of workpieces.

Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

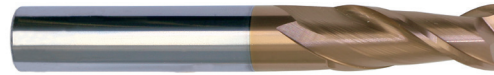
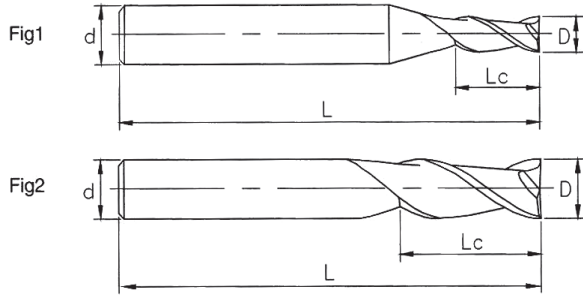
Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				Y

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*8*3*50-4F	3	8	3	50	4	2
MTS-3*12*3*75-4F	3	12	3	75	4	2
MTS-3*12*3*100-4F	3	12	3	100	4	2
MTS-1*3*4*50-4F	1	3	4	50	4	1
MTS-1.5*4*4*50-4F	1.5	4	4	50	4	1
MTS-2*5*4*50-4F	2	5	4	50	4	1
MTS-2.5*7*4*50-4F	2.5	7	4	50	4	1
MTS-3*8*4*50-4F	3	8	4	50	4	1
MTS-3.5*10*4*50-4F	3.5	10	4	50	4	1
MTS-4*10*4*50-4F	4	10	4	50	4	2
MTS-4*20*4*75-4F	4	20	4	75	4	2
MTS-4*25*4*100-4F	4	25	4	100	4	2
MTS-5*13*5*50-4F	5	13	5	50	4	2
MTS-5*20*5*75-4F	5	20	5	75	4	2
MTS-5*25*5*100-4F	5	25	5	100	4	2
MTS-2.5*7*6*50-4F	2.5	7	6	50	4	1
MTS-3*8*6*50-4F	3	8	6	50	4	1
MTS-3.5*10*6*50-4F	3.5	10	6	50	4	1
MTS-4*10*6*50-4F	4	10	6	50	4	1
MTS-4.5*12*6*50-4F	4.5	12	6	50	4	1
MTS-5*13*6*50-4F	5	13	6	50	4	1
MTS-6*15*6*50-4F	6	15	6	50	4	2
MTS-6*20*6*75-4F	6	20	6	75	4	2
MTS-6*30*6*100-4F	6	30	6	100	4	2
MTS-6*40*6*150-4F	6	40	6	150	4	2
MTS-7*18*8*60-4F	7	18	8	60	4	1
MTS-8*20*8*60-4F	8	20	8	60	4	2
MTS-8*25*8*75-4F	8	25	8	75	4	2
MTS-8*35*8*100-4F	8	35	8	100	4	2
MTS-8*50*8*150-4F	8	50	8	150	4	2
MTS-9*23*10*75-4F	9	23	10	75	4	1
MTS-10*25*10*75-4F	10	25	10	75	4	2
MTS-10*40*10*100-4F	10	40	10	100	4	2
MTS-10*50*10*150-4F	10	50	10	150	4	2
MTS-11*28*12*75-4F	11	28	12	75	4	1
MTS-12*30*12*75-4F	12	30	12	75	4	2
MTS-12*45*12*100-4F	12	45	12	100	4	2
MTS-12*55*12*150-4F	12	55	12	150	4	2
MTS-14*35*14*80-4F	14	35	14	80	4	2
MTS-14*45*14*100-4F	14	45	14	100	4	2
MTS-14*60*14*150-4F	14	60	14	150	4	2
MTS-16*45*16*100-4F	16	45	16	100	4	2
MTS-16*60*16*150-4F	16	60	16	150	4	2
MTS-18*45*18*100-4F	18	45	18	100	4	2
MTS-18*60*18*150-4F	18	60	18	150	4	2
MTS-20*45*20*100-4F	20	45	20	100	4	2
MTS-20*60*20*150-4F	20	60	20	150	4	2



## HRC 55 deg Tungsten Steel 2 Flute Square End Mills



- Raw Material: Use Zigong ZK30UF, high hardness and good wear resistance.

- Coating: TiSiN, containing silica, very high surface hardness and high thermal resistance.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Flutes: 2 flutes, good for chip removal, easy for vertical feed processing, widely used in slot and hole processing

- Cutting Parameters
 

$v_c = 130$ (120-180)m/min
$a_p = 1/3D(1/8-1/2D)$
$a_e = 1/2D(1/4-1D)$

- Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

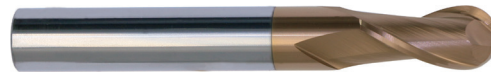
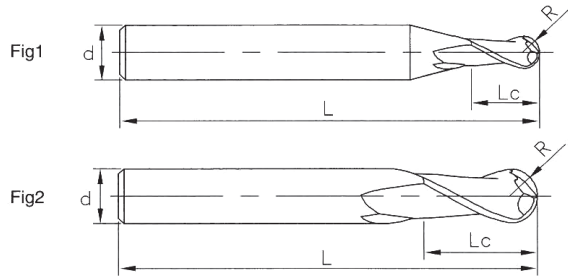
$f_z = 0.15\text{mm}(0.02-0.2)$   
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				Y

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*8*3*50-2F	3	8	3	50	2	2
MTS-3*12*3*75-2F	3	12	3	75	2	2
MTS-3*12*3*100-2F	3	12	3	100	2	2
MTS-1*3*4*50-2F	1	3	4	50	2	1
MTS-1.5*4*4*50-2F	1.5	4	4	50	2	1
MTS-2*5*4*50-2F	2	5	4	50	2	1
MTS-2.5*7*4*50-2F	2.5	7	4	50	2	1
MTS-3*8*4*50-2F	3	8	4	50	2	1
MTS-3.5*10*4*50-2F	3.5	10	4	50	2	1
MTS-4*10*4*50-2F	4	10	4	50	2	2
MTS-4*20*4*75-2F	4	20	4	75	2	2
MTS-4*25*4*100-2F	4	25	4	100	2	2
MTS-5*13*5*50-2F	5	13	5	50	2	2
MTS-5*20*5*75-2F	5	20	5	75	2	2
MTS-5*25*5*100-2F	5	25	5	100	2	2
MTS-2.5*7*6*50-2F	2.5	7	6	50	2	1
MTS-3*8*6*50-2F	3	8	6	50	2	1
MTS-3.5*10*6*50-2F	3.5	10	6	50	2	1
MTS-4*10*6*50-2F	4	10	6	50	2	1
MTS-4.5*12*6*50-2F	4.5	12	6	50	2	1
MTS-5*13*6*50-2F	5	13	6	50	2	1
MTS-6*15*6*50-2F	6	15	6	50	2	2
MTS-6*20*6*75-2F	6	20	6	75	2	2
MTS-6*30*6*100-2F	6	30	6	100	2	2
MTS-6*40*6*150-2F	6	40	6	150	2	2
MTS-7*18*8*60-2F	7	18	8	60	2	1
MTS-8*20*8*60-2F	8	20	8	60	2	2
MTS-8*25*8*75-2F	8	25	8	75	2	2
MTS-8*35*8*100-2F	8	35	8	100	2	2
MTS-8*50*8*150-2F	8	50	8	150	2	2
MTS-9*23*10*75-2F	9	23	10	75	2	1
MTS-10*25*10*75-2F	10	25	10	75	2	2
MTS-10*40*10*100-2F	10	40	10	100	2	2
MTS-10*50*10*150-2F	10	50	10	150	2	2
MTS-11*28*12*75-2F	11	28	12	75	2	1
MTS-12*30*12*75-2F	12	30	12	75	2	2
MTS-12*45*12*100-2F	12	45	12	100	2	2
MTS-12*55*12*150-2F	12	55	12	150	2	2
MTS-14*35*14*80-2F	14	35	14	80	2	2
MTS-14*45*14*100-2F	14	45	14	100	2	2
MTS-14*60*14*150-2F	14	60	14	150	2	2
MTS-16*45*16*100-2F	16	45	16	100	2	2
MTS-16*60*16*150-2F	16	60	16	150	2	2
MTS-18*45*18*100-2F	18	45	18	100	2	2
MTS-18*60*18*150-2F	18	60	18	150	2	2
MTS-20*45*20*100-2F	20	45	20	100	2	2
MTS-20*60*20*150-2F	20	60	20	150	2	2

## HRC 55 deg Tungsten Steel 2 Flutes Ball Nose End Mills



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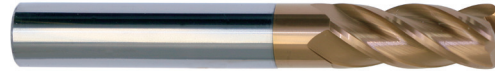
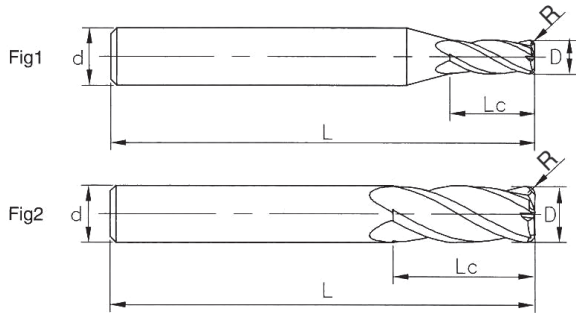
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
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Y	Y	Y				Y

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	R	Lc	d	L		
MTS-R1.5*6*3*50-2F	1.5	6	3	50	2	2
MTS-R1.5*6*3*75-2F	1.5	6	3	75	2	2
MTS-R1.5*6*3*100-2F	1.5	6	3	100	2	2
MTS-R0.5*2*4*50-2F	0.5	2	4	50	2	1
MTS-R0.75*3*4*50-2F	0.75	3	4	50	2	1
MTS-R1*4*4*50-2F	1	4	4	50	2	1
MTS-R1.25*5*4*50-2F	1.25	5	4	50	2	1
MTS-R1.5*6*4*50-2F	1.5	6	4	50	2	1
MTS-R1.75*7*4*50-2F	1.75	7	4	50	2	1
MTS-R2*8*4*50-2F	2	8	4	50	2	2
MTS-R2*8*4*75-2F	2	8	4	75	2	2
MTS-R2*8*4*100-2F	2	8	4	100	2	2
MTS-R2.5*10*5*50-2F	2.5	10	5	50	2	2
MTS-R2.5*10*5*75-2F	2.5	10	5	75	2	2
MTS-R2.5*10*5*100-2F	2.5	10	5	100	2	2
MTS-R2.5*10*6*50-2F	2.5	10	6	50	2	1
MTS-R3*12*6*50-2F	3	12	6	50	2	2
MTS-R3*12*6*75-2F	3	12	6	75	2	2
MTS-R3*12*6*100-2F	3	12	6	100	2	2
MTS-R3*12*6*150-2F	3	12	6	150	2	2
MTS-R3.5*16*8*60-2F	3.5	16	8	60	2	1
MTS-R4*16*8*60-2F	4	16	8	60	2	2
MTS-R4*16*8*75-2F	4	16	8	75	2	2
MTS-R4*16*8*100-2F	4	16	8	100	2	2
MTS-R4*20*8*150-2F	4	20	8	150	2	2
MTS-R4.5*18*10*75-2F	4.5	18	10	75	2	1
MTS-R5*20*10*75-2F	5	20	10	75	2	2
MTS-R5*20*10*100-2F	5	20	10	100	2	2
MTS-R5*30*10*150-2F	5	30	10	150	2	2
MTS-R5.5*24*12*75-2F	5.5	24	12	75	2	1
MTS-R6*24*12*75-2F	6	24	12	75	2	2
MTS-R6*24*12*100-2F	6	24	12	100	2	2
MTS-R6*35*12*150-2F	6	36	12	150	2	2
MTS-R7*28*14*100-2F	7	28	14	100	2	2
MTS-R7*40*14*150-2F	7	40	14	150	2	2
MTS-R8*32*16*100-2F	8	32	16	100	2	2
MTS-R8*50*16*150-2F	8	50	16	150	2	2
MTS-R9*36*18*100-2F	9	36	18	100	2	2
MTS-R9*50*18*150-2F	9	50	18	150	2	2
MTS-R10*40*20*100-2F	10	40	20	100	2	2
MTS-R10*50*20*150-2F	10	50	20	150	2	2

## HRC 55 deg Tungsten Steel 4 Flutes Corner Radius End Mills



- Raw Material: Use Zigong ZK30UF, high hardness and good wear resistance.

- Coating: TiSiN, containing silica, very high surface hardness and high thermal resistance.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Cutting Edge Design: Corner radius, uneasy to cracking, widely used in high speed cutting

- Cutting Parameters
 

$v_c = 130$ (120-180)m/min
$a_p = 1/3D(1/8-1/2D)$
$a_e = 1/2D(1/4-1D)$

- Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

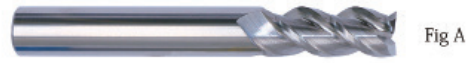
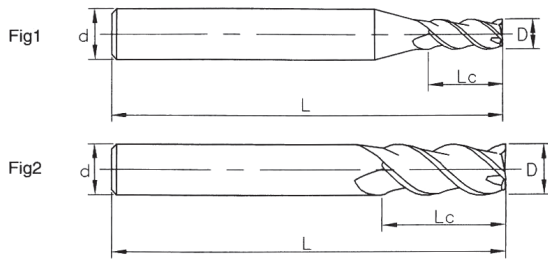
$f_z = 0.15\text{mm}(0.02-0.2)$   
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				Y

Y Suitable

Cat.No	规格 Specifications				Flutes	Figure No.
	D	R	d	L		
MTS-3R0.5*3*50-4F	3	0.5	3	50	4	2
MTS-3R1*3*50-4F	3	1	3	50	4	2
MTS-3R0.5*3*75-4F	3	0.5	3	75	4	2
MTS-3R1*3*75-4F	3	1	3	75	4	2
MTS-3R0.5*3*100-4F	3	0.5	3	100	4	2
MTS-3R1*3*100-4F	3	1	3	100	4	2
MTS-3R0.5*4*50-4F	3	0.5	4	50	4	1
MTS-3R1*4*50-4F	3	1	4	50	4	1
MTS-4R0.5*4*50-4F	4	0.5	4	50	4	2
MTS-4R1*4*50-4F	4	1	4	50	4	2
MTS-4R0.5*4*75-4F	4	0.5	4	75	4	2
MTS-4R1*4*75-4F	4	1	4	75	4	2
MTS-4R0.5*4*100-4F	4	0.5	4	100	4	2
MTS-4R1*4*100-4F	4	1	4	100	4	2
MTS-5R0.5*5*50-4F	5	0.5	5	50	4	2
MTS-5R1*5*50-4F	5	1	5	50	4	2
MTS-5R0.5*6*50-4F	5	0.5	6	50	4	1
MTS-5R1*6*50-4F	5	1	6	50	4	1
MTS-6R0.5*6*50-4F	6	0.5	6	50	4	2
MTS-6R1*6*50-4F	6	1	6	50	4	2
MTS-6R0.5*6*75-4F	6	0.5	6	75	4	2
MTS-6R1*6*75-4F	6	1	6	75	4	2
MTS-6R0.5*6*100-4F	6	0.5	6	100	4	2
MTS-6R1*6*100-4F	6	1	6	100	4	2
MTS-6R0.5*6*150-4F	6	0.5	6	150	4	2
MTS-6R1*6*150-4F	6	1	6	150	4	2
MTS-8R0.5*8*60-4F	8	0.5	8	60	4	2
MTS-8R1*8*60-4F	8	1	8	60	4	2
MTS-8R2*8*60-4F	8	2	8	60	4	2
MTS-8R3*8*60-4F	8	3	8	60	4	2
MTS-8R0.5*8*75-4F	8	0.5	8	75	4	2
MTS-8R1*8*75-4F	8	1	8	75	4	2
MTS-8R0.5*8*100-4F	8	0.5	8	100	4	2
MTS-8R1*8*100-4F	8	1	8	100	4	2
MTS-8R0.5*8*150-4F	8	0.5	8	150	4	2
MTS-8R1*8*150-4F	8	1	8	150	4	2
MTS-10R0.5*10*75-4F	10	0.5	10	75	4	2
MTS-10R1*10*75-4F	10	1	10	75	4	2
MTS-10R0.5*10*100-4F	10	0.5	10	100	4	2
MTS-10R1*10*100-4F	10	1	10	100	4	2
MTS-10R0.5*10*150-4F	10	0.5	10	150	4	2
MTS-10R1*10*150-4F	10	1	10	150	4	2
MTS-12R0.5*12*75-4F	12	0.5	12	75	4	2
MTS-12R1*12*75-4F	12	1	12	75	4	2
MTS-12R0.5*12*100-4F	12	0.5	12	100	4	2
MTS-12R1*12*100-4F	12	1	12	100	4	2
MTS-12R0.5*12*150-4F	12	0.5	12	150	4	2
MTS-12R1*12*150-4F	12	1	12	150	4	2

## HRC 55 deg Tungsten Steel 3 Flute End Mills for Aluminum



- Raw Material: Use Zigong ZK30UF, high hardness and good wear resistance.

- Flutes: 3 flutes, effectively mitigate vibration and stable cutting.

- Tolerance of End Mill Diameter

$1 < D \leq 6$      $-0.010 \sim -0.030$   
 $6 < D \leq 10$     $-0.015 \sim -0.040$   
 $10 < D \leq 20$     $-0.020 \sim -0.050$

- A Type: Double-edge design provides good smooth finish and is suitable for semi-finish and finish machining.

- Cutting Parameters

$v_c = 220$  (100-800)m/min  
 $a_p = 1/2D(1/8-3/4D)$   
 $a_c = 1/2D(1/4-1D)$   
 $f_z = 0.15\text{mm}$ (0.02-0.2)

Please adjust the parameters according to the material and hardness of workpieces.

- B Type: Single-edge design, sharp blade, good for chip removal, high cutting speed, widely used in rough machining.

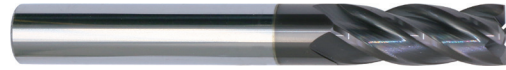
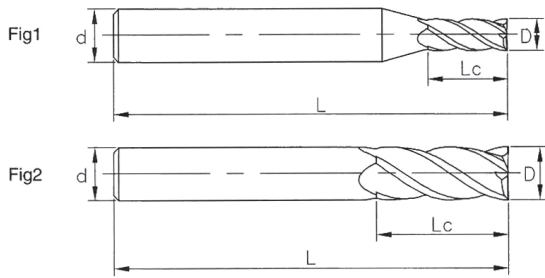
Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
			Y	Y		

Y Suitable

Cat.No		Specifications				Flutes	Figure No.
		D	Lc	d	L		
MTS-3*9*3*50-3FA	MTS-3*9*3*50-3FB	3	9	3	50	3	2
MTS-3*15*3*75-3FA	MTS-3*15*3*75-3FB	3	15	3	75	3	2
MTS-3*15*3*100-3FA	MTS-3*15*3*100-3FB	3	15	3	100	3	2
MTS-1*3*4*50-3FA	MTS-1*3*4*50-3FB	1	3	4	50	3	1
MTS-1.5*5*4*50-3FA	MTS-1.5*5*4*50-3FB	1.5	5	4	50	3	1
MTS-2*6*4*50-3FA	MTS-2*6*4*50-3FB	2	6	4	50	3	1
MTS-2.5*8*4*50-3FA	MTS-2.5*8*4*50-3FB	2.5	8	4	50	3	1
MTS-3*9*4*50-3FA	MTS-3*9*4*50-3FB	3	9	4	50	3	1
MTS-3.5*12*4*50-3FA	MTS-3.5*12*4*50-3FB	3.5	12	4	50	3	1
MTS-4*12*4*50-3FA	MTS-4*12*4*50-3FB	4	12	4	50	3	2
MTS-4*15*4*75-3FA	MTS-4*15*4*75-3FB	4	15	4	75	3	2
MTS-4*20*4*100-3FA	MTS-4*20*4*100-3FB	4	20	5	100	3	2
MTS-5*15*5*50-3FA	MTS-5*15*5*50-3FB	5	15	5	50	3	2
MTS-5*20*5*75-3FA	MTS-5*20*5*75-3FB	5	20	5	75	3	2
MTS-5*25*5*100-3FA	MTS-5*25*5*100-3FB	5	25	6	100	3	2
MTS-2*6*6*50-3FA	MTS-2*6*6*50-3FB	2	6	6	50	3	1
MTS-3*9*6*50-3FA	MTS-3*9*6*50-3FB	3	9	6	50	3	1
MTS-4*12*6*50-3FA	MTS-4*12*6*50-3FB	4	12	6	50	3	1
MTS-5*15*6*50-3FA	MTS-5*15*6*50-3FB	5	15	6	50	3	1
MTS-6*18*6*50-3FA	MTS-6*18*6*50-3FB	6	18	6	50	3	2
MTS-6*25*6*75-3FA	MTS-6*25*6*75-3FB	6	25	6	75	3	2
MTS-6*30*6*100-3FA	MTS-6*30*6*100-3FB	6	30	6	100	3	2
MTS-6*35*6*150-3FA	MTS-6*35*6*150-3FB	6	35	6	150	3	2
MTS-7*21*8*60-3FA	MTS-7*21*8*60-3FB	7	21	8	60	3	1
MTS-8*24*8*60-3FA	MTS-8*24*8*60-3FB	8	24	8	60	3	2
MTS-8*30*8*75-3FA	MTS-8*30*8*75-3FB	8	30	8	75	3	2
MTS-8*40*8*100-3FA	MTS-8*40*8*100-3FB	8	40	8	100	3	2
MTS-8*50*8*150-3FA	MTS-8*50*8*150-3FB	8	50	8	150	3	2
MTS-9*27*10*75-3FA	MTS-9*27*10*75-3FB	9	27	10	75	3	1
MTS-10*30*10*75-3FA	MTS-10*30*10*75-3FB	10	30	10	75	3	2
MTS-10*45*10*100-3FA	MTS-10*45*10*100-3FB	10	45	10	100	3	2
MTS-10*50*10*150-3FA	MTS-10*50*10*150-3FB	10	50	10	150	3	2
MTS-11*33*12*75-3FA	MTS-11*33*12*75-3FB	11	33	12	75	3	1
MTS-12*36*12*75-3FA	MTS-12*36*12*75-3FB	12	36	12	75	3	2
MTS-12*45*100-3FA	MTS-12*45*100-3FB	12	45	12	100	3	2
MTS-12*60*12*150-3FA	MTS-12*60*12*150-3FB	12	60	12	150	3	2
MTS-14*35*14*80-3FA	MTS-14*35*14*80-3FB	14	35	14	80	3	2
MTS-14*45*14*100-3FA	MTS-14*45*14*100-3FB	14	45	14	100	3	2
MTS-14*60*14*150-3FA	MTS-14*60*14*150-3FB	14	60	14	150	3	2
MTS-16*45*16*100-3FA	MTS-16*45*16*100-3FB	16	45	16	100	3	2
MTS-16*60*16*150-3FA	MTS-16*60*16*150-3FB	16	60	16	150	3	2
MTS-18*45*18*100-3FA	MTS-18*45*18*100-3FB	18	45	18	100	3	2
MTS-18*60*18*150-3FA	MTS-18*60*18*150-3FB	18	60	18	150	3	2
MTS-20*45*20*100-3FA	MTS-20*45*20*100-3FB	20	45	20	100	3	2
MTS-20*60*20*150-3FA	MTS-20*60*20*150-3FB	20	60	20	150	3	2



## HRC 45 deg Tungsten Steel 4 Flute Square End Mills



- **Raw Material:** Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- **Coating:** AlTiN, high aluminum content provides excellent hot hardness and oxidation resistance.

- **Tolerance of End Mill Diameter**  
 $1 < D \leq 6$      $-0.010 \sim -0.030$   
 $6 < D \leq 10$     $-0.015 \sim -0.040$   
 $10 < D \leq 20$     $-0.020 \sim -0.050$

- **Flutes:** 4 flutes, high rigidity, widely used in shallow slot, profile milling, and finish machining.

- **Cutting Parameters**  
 $v_c = 220$  (120-180)m/min  
 $a_p = 1/3D(1/8-1/2D)$   
 $a_e = 1/2D(1/4-1D)$   
 $f_z = 0.15\text{mm}$ (0.02-0.2)  
 Please adjust the parameters according to the material and hardness of workpieces.

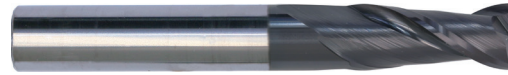
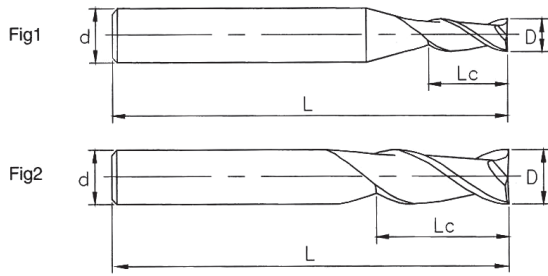
- **Helix Angle:** 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*8*3*50-4F	3	8	3	50	4	2
MTS-3*12*3*75-4F	3	12	3	75	4	2
MTS-3*12*3*100-4F	3	12	3	100	4	2
MTS-1*3*4*50-4F	1	3	4	50	4	1
MTS-1.5*4*4*50-4F	1.5	4	4	50	4	1
MTS-2*5*4*50-4F	2	5	4	50	4	1
MTS-2.5*7*4*50-4F	2.5	7	4	50	4	1
MTS-3*8*4*50-4F	3	8	4	50	4	1
MTS-3.5*10*4*50-4F	3.5	10	4	50	4	1
MTS-4*10*4*50-4F	4	10	4	50	4	2
MTS-4*20*4*75-4F	4	20	4	75	4	2
MTS-4*25*4*100-4F	4	25	4	100	4	2
MTS-5*13*5*50-4F	5	13	5	50	4	2
MTS-5*20*5*75-4F	5	20	5	75	4	2
MTS-5*25*5*100-4F	5	25	5	100	4	2
MTS-2.5*7*6*50-4F	2.5	7	6	50	4	1
MTS-3*8*6*50-4F	3	8	6	50	4	1
MTS-3.5*10*6*50-4F	3.5	10	6	50	4	1
MTS-4*10*6*50-4F	4	10	6	50	4	1
MTS-4.5*12*6*50-4F	4.5	12	6	50	4	1
MTS-5*13*6*50-4F	5	13	6	50	4	1
MTS-6*15*6*50-4F	6	15	6	50	4	2
MTS-6*20*6*75-4F	6	20	6	75	4	2
MTS-6*25*6*100-4F	6	25	6	100	4	2
MTS-6*40*6*150-4F	6	40	6	150	4	2
MTS-7*18*8*60-4F	7	18	8	60	4	1
MTS-8*20*8*60-4F	8	20	8	60	4	2
MTS-8*25*8*75-4F	8	25	8	75	4	2
MTS-8*35*8*100-4F	8	35	8	100	4	2
MTS-8*50*8*150-4F	8	50	8	150	4	2
MTS-9*23*10*75-4F	9	23	10	75	4	1
MTS-10*25*10*75-4F	10	25	10	75	4	2
MTS-10*40*10*100-4F	10	40	10	100	4	2
MTS-10*50*10*150-4F	10	50	10	150	4	2
MTS-11*28*12*75-4F	11	28	12	75	4	1
MTS-12*30*12*75-4F	12	30	12	75	4	2
MTS-12*45*12*100-4F	12	45	12	100	4	2
MTS-12*55*12*150-4F	12	55	12	150	4	2
MTS-14*35*14*80-4F	14	35	14	80	4	2
MTS-14*45*14*100-4F	14	45	14	100	4	2
MTS-14*60*14*150-4F	14	60	14	150	4	2
MTS-16*45*16*100-4F	16	45	16	100	4	2
MTS-16*60*16*150-4F	16	60	16	150	4	2
MTS-18*45*18*100-4F	18	45	18	100	4	2
MTS-18*60*18*150-4F	18	60	18	150	4	2
MTS-20*45*20*100-4F	20	45	20	100	4	2
MTS-20*60*20*150-4F	20	60	20	150	4	2

## HRC 45 deg Tungsten Steel 2 Flute Square End Mills



- Raw Material: Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- Coating: AlTiN, high aluminum content provides excellent hot hardness and oxidation resistance.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Flutes: 2 flutes, good for chip removal, easy for vertical feed processing, widely used in slot and hole processing

- Cutting Parameters
 

$v_c = 130$ (120-180)m/min
$a_p = 1/3D(1/8-1/2D)$
$a_e = 1/2D(1/4-1D)$

- Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

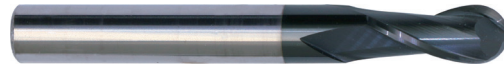
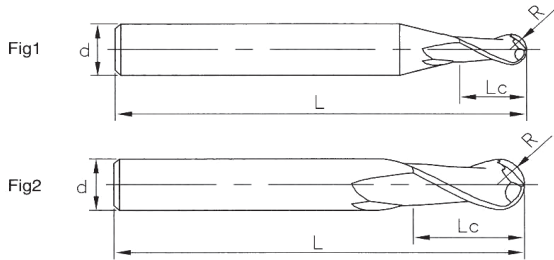
$f_z = 0.15\text{mm}(0.02-0.2)$   
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*8*3*50-2F	3	8	3	50	2	2
MTS-3*12*3*75-2F	3	12	3	75	2	2
MTS-3*12*3*100-2F	3	12	3	100	2	2
MTS-1*3*4*50-2F	1	3	4	50	2	1
MTS-1.5*4*4*50-2F	1.5	4	4	50	2	1
MTS-2*5*4*50-2F	2	5	4	50	2	1
MTS-2.5*7*4*50-2F	2.5	7	4	50	2	1
MTS-3*8*4*50-2F	3	8	4	50	2	1
MTS-3.5*10*4*50-2F	3.5	10	4	50	2	1
MTS-4*10*4*50-2F	4	10	4	50	2	2
MTS-4*20*4*75-2F	4	20	4	75	2	2
MTS-4*25*4*100-2F	4	25	4	100	2	2
MTS-5*13*5*50-2F	5	13	5	50	2	2
MTS-5*20*5*75-2F	5	20	5	75	2	2
MTS-5*25*5*100-2F	5	25	5	100	2	2
MTS-2.5*7*6*50-2F	2.5	7	6	50	2	1
MTS-3*8*6*50-2F	3	8	6	50	2	1
MTS-3.5*10*6*50-2F	3.5	10	6	50	2	1
MTS-4*10*6*50-2F	4	10	6	50	2	1
MTS-4.5*12*6*50-2F	4.5	12	6	50	2	1
MTS-5*13*6*50-2F	5	13	6	50	2	1
MTS-6*15*6*50-2F	6	15	6	50	2	2
MTS-6*20*6*75-2F	6	20	6	75	2	2
MTS-6*25*6*100-2F	6	25	6	100	2	2
MTS-6*40*6*150-2F	6	40	6	150	2	2
MTS-7*18*8*60-2F	7	18	8	60	2	1
MTS-8*20*8*60-2F	8	20	8	60	2	2
MTS-8*25*8*75-2F	8	25	8	75	2	2
MTS-8*35*8*100-2F	8	35	8	100	2	2
MTS-8*50*8*150-2F	8	50	8	150	2	2
MTS-9*23*10*75-2F	9	23	10	75	2	1
MTS-10*25*10*75-2F	10	25	10	75	2	2
MTS-10*40*10*100-2F	10	40	10	100	2	2
MTS-10*50*10*150-2F	10	50	10	150	2	2
MTS-11*28*12*75-2F	11	28	12	75	2	1
MTS-12*30*12*75-2F	12	30	12	75	2	2
MTS-12*45*12*100-2F	12	45	12	100	2	2
MTS-12*55*12*150-2F	12	55	12	150	2	2
MTS-14*35*14*80-2F	14	35	14	80	2	2
MTS-14*45*14*100-2F	14	45	14	100	2	2
MTS-14*60*14*150-2F	14	60	14	150	2	2
MTS-16*45*16*100-2F	16	45	16	100	2	2
MTS-16*60*16*150-2F	16	60	16	150	2	2
MTS-18*45*18*100-2F	18	45	18	100	2	2
MTS-18*60*18*150-2F	18	60	18	150	2	2
MTS-20*45*20*100-2F	20	45	20	100	2	2
MTS-20*60*20*150-2F	20	60	20	150	2	2

## HRC 45 deg Tungsten Steel 2 Flute Ball Nose End Mills



- Raw Material: Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- Coating: AlTiN, high aluminum content provides excellent hot hardness and oxidation resistance.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Double-edge design improves rigidity and surface finish effectively. Cutting edge over the center reduces the cutting resistance. High capacity of junk slot benefits chip removal and increases machining efficiency. 2 flutes design is good for chip removal, easy for vertical feed processing, widely used in slot, profile, and hole processing.

### Cutting Parameters

$$v_c = 130 \text{ (120-180)m/min}$$

$$a_p = 1/3D(1/8-1/2D)$$

$$a_c = 1/2D(1/4-1D)$$

$$f_z = 0.15\text{mm}(0.02-0.2)$$

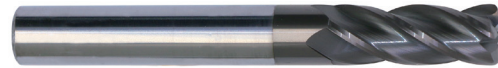
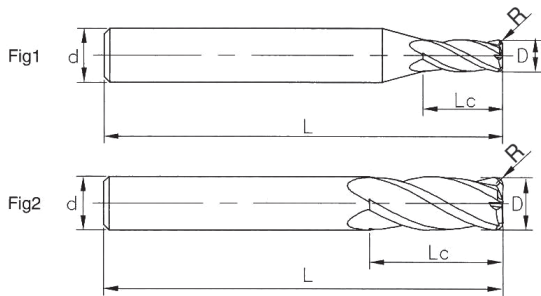
Please adjust the parameters according to the material and hardness of workpieces.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	R	Lc	d	L		
MTS-R1.5*6*3*50-2F	1.5	6	3	50	2	2
MTS-R1.5*6*3*75-2F	1.5	6	3	75	2	2
MTS-R1.5*6*3*100-2F	1.5	6	3	100	2	2
MTS-R0.5*2*4*50-2F	0.5	2	4	50	2	1
MTS-R0.75*3*4*50-2F	0.75	3	4	50	2	1
MTS-R1*4*4*50-2F	1	4	4	50	2	1
MTS-R1.25*5*4*50-2F	1.25	5	4	50	2	1
MTS-R1.5*6*4*50-2F	1.5	6	4	50	2	1
MTS-R1.75*7*4*50-2F	1.75	7	4	50	2	1
MTS-R2*8*4*50-2F	2	8	4	50	2	2
MTS-R2*8*4*75-2F	2	8	4	75	2	2
MTS-R2*8*4*100-2F	2	8	4	100	2	2
MTS-R2.5*10*5*50-2F	2.5	10	5	50	2	2
MTS-R2.5*10*5*75-2F	2.5	10	5	75	2	2
MTS-R2.5*10*5*100-2F	2.5	10	5	100	2	2
MTS-R2.5*10*6*50-2F	2.5	10	6	50	2	1
MTS-R3*12*6*50-2F	3	12	6	50	2	2
MTS-R3*12*6*75-2F	3	12	6	75	2	2
MTS-R3*12*6*100-2F	3	12	6	100	2	2
MTS-R3*12*6*150-2F	3	12	6	150	2	2
MTS-R3.5*16*8*60-2F	3.5	16	8	60	2	1
MTS-R4*16*8*60-2F	4	16	8	60	2	2
MTS-R4*16*8*75-2F	4	16	8	75	2	2
MTS-R4*16*8*100-2F	4	16	8	100	2	2
MTS-R4*20*8*150-2F	4	20	8	150	2	2
MTS-R4.5*18*10*75-2F	4.5	18	10	75	2	1
MTS-R5*20*10*75-2F	5	20	10	75	2	2
MTS-R5*20*10*100-2F	5	20	10	100	2	2
MTS-R5*30*10*150-2F	5	30	10	150	2	2
MTS-R5.5*24*12*75-2F	5.5	24	12	75	2	1
MTS-R6*24*12*75-2F	6	24	12	75	2	2
MTS-R6*24*12*100-2F	6	24	12	100	2	2
MTS-R6*35*12*150-2F	6	36	12	150	2	2
MTS-R7*28*14*100-2F	7	28	14	100	2	2
MTS-R7*40*14*150-2F	7	40	14	150	2	2
MTS-R8*32*16*100-2F	8	32	16	100	2	2
MTS-R8*50*16*150-2F	8	50	16	150	2	2
MTS-R9*36*18*100-2F	9	36	18	100	2	2
MTS-R9*50*18*150-2F	9	50	18	150	2	2
MTS-R10*40*20*100-2F	10	40	20	100	2	2
MTS-R10*50*20*150-2F	10	50	20	150	2	2

## HRC 45 deg Tungsten Steel 4 Flutes Corner Radius End Mills



- Raw Material: Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- Coating: AlTiN, high aluminum content provides excellent hot hardness and oxidation resistance.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- Cutting Edge Design: Corner radius, uneasy to cracking, widely used in high speed cutting

- Cutting Parameters
 

$v_c = 130$ (120-180)m/min
$a_p = 1/3D(1/8-1/2D)$
$a_e = 1/2D(1/4-1D)$

- Helix Angle: 35 deg, high adaptability to the material and hardness of workpieces, widely used to mold and product processing and cost efficient.

$f_z = 0.15\text{mm}(0.02-0.2)$   
Please adjust the parameters according to the material and hardness of workpieces.

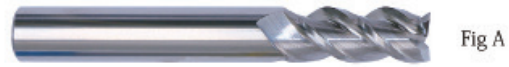
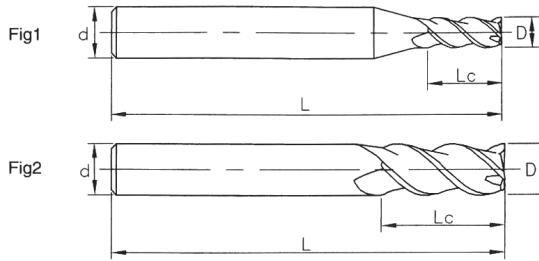
Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
Y	Y	Y				

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	R	d	L		
MTS-3R0.5*3*50-4F	3	0.5	3	50	4	2
MTS-3R1*3*50-4F	3	1	3	50	4	2
MTS-3R0.5*3*75-4F	3	0.5	3	75	4	2
MTS-3R1*3*75-4F	3	1	3	75	4	2
MTS-3R0.5*3*100-4F	3	0.5	3	100	4	2
MTS-3R1*3*100-4F	3	1	3	100	4	2
MTS-3R0.5*4*50-4F	3	0.5	4	50	4	1
MTS-3R1*4*50-4F	3	1	4	50	4	1
MTS-4R0.5*4*50-4F	4	0.5	4	50	4	2
MTS-4R1*4*50-4F	4	1	4	50	4	2
MTS-4R0.5*4*75-4F	4	0.5	4	75	4	2
MTS-4R1*4*75-4F	4	1	4	75	4	2
MTS-4R0.5*4*100-4F	4	0.5	4	100	4	2
MTS-4R1*4*100-4F	4	1	4	100	4	2
MTS-5R0.5*5*50-4F	5	0.5	5	50	4	2
MTS-5R1*5*50-4F	5	1	5	50	4	2
MTS-5R0.5*6*50-4F	5	0.5	6	50	4	1
MTS-5R1*6*50-4F	5	1	6	50	4	1
MTS-6R0.5*6*50-4F	6	0.5	6	50	4	2
MTS-6R1*6*50-4F	6	1	6	50	4	2
MTS-6R0.5*6*75-4F	6	0.5	6	75	4	2
MTS-6R1*6*75-4F	6	1	6	75	4	2
MTS-6R0.5*6*100-4F	6	0.5	6	100	4	2
MTS-6R1*6*100-4F	6	1	6	100	4	2
MTS-6R0.5*6*150-4F	6	0.5	6	150	4	2
MTS-6R1*6*150-4F	6	1	6	150	4	2
MTS-8R0.5*8*60-4F	8	0.5	8	60	4	2
MTS-8R1*8*60-4F	8	1	8	60	4	2
MTS-8R2*8*60-4F	8	2	8	60	4	2
MTS-8R3*8*60-4F	8	3	8	60	4	2
MTS-8R0.5*8*75-4F	8	0.5	8	75	4	2
MTS-8R1*8*75-4F	8	1	8	75	4	2
MTS-8R0.5*8*100-4F	8	0.5	8	100	4	2
MTS-8R1*8*100-4F	8	1	8	100	4	2
MTS-8R0.5*8*150-4F	8	0.5	8	150	4	2
MTS-8R1*8*150-4F	8	1	8	150	4	2
MTS-10R0.5*10*75-4F	10	0.5	10	75	4	2
MTS-10R1*10*75-4F	10	1	10	75	4	2
MTS-10R0.5*10*100-4F	10	0.5	10	100	4	2
MTS-10R1*10*100-4F	10	1	10	100	4	2
MTS-10R0.5*10*150-4F	10	0.5	10	150	4	2
MTS-10R1*10*150-4F	10	1	10	150	4	2
MTS-12R0.5*12*75-4F	12	0.5	12	75	4	2
MTS-12R1*12*75-4F	12	1	12	75	4	2
MTS-12R0.5*12*100-4F	12	0.5	12	100	4	2
MTS-12R1*12*100-4F	12	1	12	100	4	2
MTS-12R0.5*12*150-4F	12	0.5	12	150	4	2
MTS-12R1*12*150-4F	12	1	12	150	4	2



## HRC 45 deg Tungsten Steel 3 Flute End Mills for Aluminum



- Raw Material: Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- Flutes: 3 flutes, effectively mitigate vibration and stable cutting.

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- A Type: Double-edge design provides good smooth finish and is suitable for semi-finish and finish machining

- Cutting Parameters
 

$v_c = 220(100-800) \text{m/min}$
$a_p = 1/2D(1/8-3/4D)$
$a_e = 1/2D(1/4-1D)$
$f_z = 0.15 \text{mm}(0.02-0.2)$

Please adjust the parameters according to the material and hardness of workpieces.

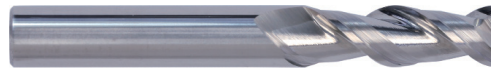
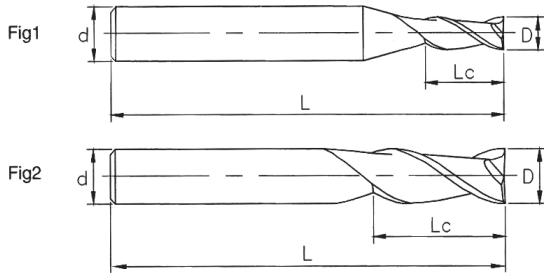
- B Type: Single-edge design, sharp blade, good for chip removal, high cutting speed, widely used in rough machining.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
			Y	Y		

Y Suitable

Cat.No		Specifications				Flutes	Figure No.
		D	Lc	d	L		
MTS-3*9*3*50-3FA	MTS-3*9*3*50-3FB	3	9	3	50	3	2
MTS-3*15*3*75-3FA	MTS-3*15*3*75-3FB	3	15	3	75	3	2
MTS-3*15*3*100-3FA	MTS-3*15*3*100-3FB	3	15	3	100	3	2
MTS-1*3*4*50-3FA	MTS-1*3*4*50-3FB	1	3	4	50	3	1
MTS-1.5*5*4*50-3FA	MTS-1.5*5*4*50-3FB	1.5	5	4	50	3	1
MTS-2*6*4*50-3FA	MTS-2*6*4*50-3FB	2	6	4	50	3	1
MTS-2.5*8*4*50-3FA	MTS-2.5*8*4*50-3FB	2.5	8	4	50	3	1
MTS-3*9*4*50-3FA	MTS-3*9*4*50-3FB	3	9	4	50	3	1
MTS-3.5*12*4*50-3FA	MTS-3.5*12*4*50-3FB	3.5	12	4	50	3	1
MTS-4*12*4*50-3FA	MTS-4*12*4*50-3FB	4	12	4	50	3	2
MTS-4*15*4*75-3FA	MTS-4*15*4*75-3FB	4	15	4	75	3	2
MTS-4*20*4*100-3FA	MTS-4*20*4*100-3FB	4	20	5	100	3	2
MTS-5*15*5*50-3FA	MTS-5*15*5*50-3FB	5	15	5	50	3	2
MTS-5*20*5*75-3FA	MTS-5*20*5*75-3FB	5	20	5	75	3	2
MTS-5*25*5*100-3FA	MTS-5*25*5*100-3FB	5	25	6	100	3	2
MTS-2*6*6*50-3FA	MTS-2*6*6*50-3FB	2	6	6	50	3	1
MTS-3*9*6*50-3FA	MTS-3*9*6*50-3FB	3	9	6	50	3	1
MTS-4*12*6*50-3FA	MTS-4*12*6*50-3FB	4	12	6	50	3	1
MTS-5*15*6*50-3FA	MTS-5*15*6*50-3FB	5	15	6	50	3	1
MTS-6*18*6*50-3FA	MTS-6*18*6*50-3FB	6	18	6	50	3	2
MTS-6*25*6*75-3FA	MTS-6*25*6*75-3FB	6	25	6	75	3	2
MTS-6*30*6*100-3FA	MTS-6*30*6*100-3FB	6	30	6	100	3	2
MTS-6*35*6*150-3FA	MTS-6*35*6*150-3FB	6	35	6	150	3	2
MTS-7*21*8*60-3FA	MTS-7*21*8*60-3FB	7	21	8	60	3	1
MTS-8*24*8*60-3FA	MTS-8*24*8*60-3FB	8	24	8	60	3	2
MTS-8*30*8*75-3FA	MTS-8*30*8*75-3FB	8	30	8	75	3	2
MTS-8*40*8*100-3FA	MTS-8*40*8*100-3FB	8	40	8	100	3	2
MTS-8*50*8*150-3FA	MTS-8*50*8*150-3FB	8	50	8	150	3	2
MTS-9*27*10*75-3FA	MTS-9*27*10*75-3FB	9	27	10	75	3	1
MTS-10*30*10*75-3FA	MTS-10*30*10*75-3FB	10	30	10	75	3	2
MTS-10*45*10*100-3FA	MTS-10*45*10*100-3FB	10	45	10	100	3	2
MTS-10*50*10*150-3FA	MTS-10*50*10*150-3FB	10	50	10	150	3	2
MTS-11*33*12*75-3FA	MTS-11*33*12*75-3FB	11	33	12	75	3	1
MTS-12*36*12*75-3FA	MTS-12*36*12*75-3FB	12	36	12	75	3	2
MTS-12*45*100-3FA	MTS-12*45*100-3FB	12	45	12	100	3	2
MTS-12*60*12*150-3FA	MTS-12*60*12*150-3FB	12	60	12	150	3	2
MTS-14*35*14*80-3FA	MTS-14*35*14*80-3FB	14	35	14	80	3	2
MTS-14*45*14*100-3FA	MTS-14*45*14*100-3FB	14	45	14	100	3	2
MTS-14*60*14*150-3FA	MTS-14*60*14*150-3FB	14	60	14	150	3	2
MTS-16*45*16*100-3FA	MTS-16*45*16*100-3FB	16	45	16	100	3	2
MTS-16*60*16*150-3FA	MTS-16*60*16*150-3FB	16	60	16	150	3	2
MTS-18*45*18*100-3FA	MTS-18*45*18*100-3FB	18	45	18	100	3	2
MTS-18*60*18*150-3FA	MTS-18*60*18*150-3FB	18	60	18	150	3	2
MTS-20*45*20*100-3FA	MTS-20*45*20*100-3FB	20	45	20	100	3	2
MTS-20*60*20*150-3FA	MTS-20*60*20*150-3FB	20	60	20	150	3	2

## HRC 45 deg Tungsten Steel 2 Flute End Mills



- Raw Material: Use Zigong YG10X, high hardness, good wear resistance and corrosion resistance.

- Double-edge design provides good smooth finish and is suitable for semi-finish and finish machining

- Tolerance of End Mill Diameter
 

$1 < D \leq 6$	-0.010 ~ -0.030
$6 < D \leq 10$	-0.015 ~ -0.040
$10 < D \leq 20$	-0.020 ~ -0.050

- 2 Flutes: Large capacity of junk slot and smooth chip evacuation.

- Cutting Parameters
 

$v_c = 220$ (100-800)m/min
$a_p = 1/2D(1/8-3/4D)$
$a_e = 1/2D(1/4-1D)$
$f_z = 0.15$ mm(0.02-0.2)

Please adjust the parameters according to the material and hardness of workpieces.

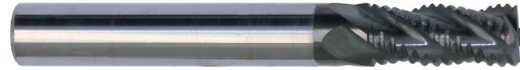
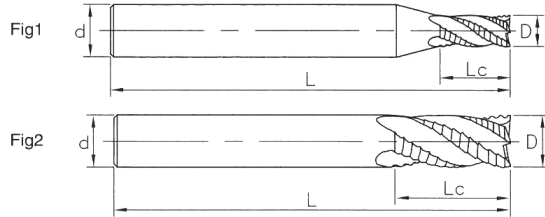
- Edge Design: Cutting edge over the center reduces the cutting resistance and increases the rigidity of tools.

Workpiece Material						
Carbon Steel	Alloy Steel	Cast Iron	Aluminum Alloy	Copper Alloy	Stainless Steel	Hardened Steel
			Y	Y		

Y Suitable

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-3*9*3*50-2F	3	9	3	50	2	2
MTS-3*15*3*75-2F	3	15	3	75	2	2
MTS-3*15*3*100-2F	3	15	3	100	2	2
MTS-1*3*4*50-2F	1	3	4	50	2	1
MTS-1.5*5*4*50-2F	1.5	5	4	50	2	1
MTS-2*6*4*50-2F	2	6	4	50	2	1
MTS-2.5*8*4*50-2F	2.5	8	4	50	2	1
MTS-3*9*4*50-2F	3	9	4	50	2	1
MTS-3.5*12*4*50-2F	3.5	12	4	50	2	1
MTS-4*12*4*50-2F	4	12	4	50	2	2
MTS-4*15*4*75-2F	4	15	4	75	2	2
MTS-4*20*4*100-2F	4	20	5	100	2	2
MTS-5*15*5*50-2F	5	15	5	50	2	2
MTS-5*20*5*75-2F	5	20	5	75	2	2
MTS-5*25*5*100-2F	5	25	6	100	2	2
MTS-2*6*6*50-2F	2	6	6	50	2	1
MTS-3*9*6*50-2F	3	9	6	50	2	1
MTS-4*12*6*50-2F	4	12	6	50	2	1
MTS-5*15*6*50-2F	5	15	6	50	2	1
MTS-6*18*6*50-2F	6	18	6	50	2	2
MTS-6*25*6*75-2F	6	25	6	75	2	2
MTS-6*30*6*100-2F	6	30	6	100	2	2
MTS-6*35*6*150-2F	6	35	6	150	2	2
MTS-7*21*8*60-2F	7	21	8	60	2	1
MTS-8*24*8*60-2F	8	24	8	60	2	2
MTS-8*30*8*75-2F	8	30	8	75	2	2
MTS-8*40*8*100-2F	8	40	8	100	2	2
MTS-8*50*8*150-2F	8	50	8	150	2	2
MTS-9*27*10*75-2F	9	27	10	75	2	1
MTS-10*30*10*75-2F	10	30	10	75	2	2
MTS-10*45*10*100-2F	10	45	10	100	2	2
MTS-10*50*10*150-2F	10	50	10	150	2	2
MTS-11*33*12*75-2F	11	33	12	75	2	1
MTS-12*36*12*75-2F	12	36	12	75	2	2
MTS-12*45*100-2F	12	45	12	100	2	2
MTS-12*60*12*150-2F	12	60	12	150	2	2
MTS-14*35*14*80-2F	14	35	14	80	2	2
MTS-14*45*14*100-2F	14	45	14	100	2	2
MTS-14*60*14*150-2F	14	60	14	150	2	2
MTS-16*45*16*100-2F	16	45	16	100	2	2
MTS-16*60*16*150-2F	16	60	16	150	2	2
MTS-18*45*18*100-2F	18	45	18	100	2	2
MTS-18*60*18*150-2F	18	60	18	150	2	2
MTS-20*45*20*100-2F	20	45	20	100	2	2
MTS-20*60*20*150-2F	20	60	20	150	2	2

## Tungsten Steel 4 Flute Roughing End Mills



- Raw Material: HRC 45 deg tools uses Zigong YG10X, HRC 55 deg uses ZK30UF.

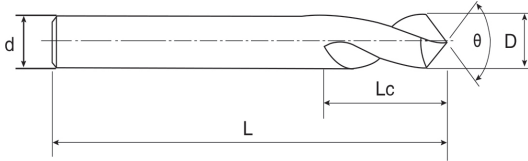
- Coating: Products in stock are uncoated, various coatings available according to your needs.

- Workpiece Material: Die casting steel, general steel, cast iron, mould steel, nickel alloy, aluminum alloy, copper alloy, 45# steel, etc.

- Product Design: Sharp wave and 35 helix angle design improve the chip removal capacity, widely used in slot, profile, rough milling.

Cat.No	Specifications				Flutes	Figure No.
	D	Lc	d	L		
MTS-6*15*6*50-4F	6	15	6	50	4	2
MTS-8*20*8*60-4F	8	20	8	60	4	2
MTS-10*25*10*75-4F	10	25	10	75	4	2
MTS-10*40*10*100-4F	10	40	10	100	4	2
MTS-12*30*12*75-4F	12	30	12	75	4	2
MTS-12*45*12*100-4F	12	45	12	100	4	2
MTS-14*45*14*100-4F	14	45	14	100	4	2
MTS-16*45*16*100-4F	16	45	16	100	4	2
MTS-18*45*18*100-4F	18	45	18	100	4	2
MTS-20*45*20*100-4F	20	45	20	100	4	2

## Tungsten Steel Spotting Drill



- Raw Material: HRC 45 deg tools uses Zigong YG10X, HRC 55 deg uses ZK30UF.

- Coating: Products in stock are uncoated, various coatings available according to your needs.

- Workpiece Material: Suitable for general steels, alloy steels, tempered steels, cast iron, and aluminum alloy, etc.

- Products Design: Spotting drills can perform both centering and chamfering. Precise position the holes and chamfer are accomplished at one time to improve the processing efficiency.

Cat.No	Specifications		Cat.No	Specifications	
	D	L		D	L
MTS-3*50*90°	3	50	MTS-6*75*90°	6	75
MTS-3*75*90°	3	75	MTS-6*100*90°	6	100
MTS-4*50*90°	4	50	MTS-8*60*90°	8	60
MTS-4*75*90°	4	75	MTS-8*75*90°	8	75
MTS-4*100*90°	4	100	MTS-8*100*90°	8	100
MTS-5*50*90°	5	50	MTS-10*75*90°	10	75
MTS-5*75*90°	5	75	MTS-10*100*90°	10	100
MTS-5*100*90°	5	100	MTS-12*75*90°	12	75
MTS-6*50*90°	6	50	MTS-12*100*90°	12	100

## Tungsten Steel twist Drills



- Raw Material: HRC 45 deg tools uses Zigong YG10X, HRC 55 deg uses ZK30UF. HRC 65 deg uses Jinlu GU25UF. The performances of those are as follows.

Raw Material	g/cm <sup>3</sup> Density	HRA Hardness	Co Content	µm Grain Size	N/mm <sup>2</sup> Bending strength
YG10X	14.5	91.5	10	1.0	≥2800
ZK30UF	14.3-14.6	92.0	10	0.6	≥3000
GU25UF	14.3-14.6	93	12	0.4	≥4000

- Tolerance of End Mill Diameter  
Every size: 0.000 ~ -0.050

- Specification:  
Diameter: 1mm-25mm  
Overall Length: 25-150mm  
Customizd: production according to your needs.

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