SIEESO

CARBIDE END MILL

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ZHUZHOU XINSHUO ADVANCED MATERIALS CO.,LTD

DETAIL INFORMATION






DETAIL DISPLAY

ZHUZHOU XINSHUO ADVANCED MATERIALS CO.,LTD

Carbide Materials

10U 12U K40 K44

HRC of Material to be cut

HRC 45-50 HRC 55-58 HRC 60-62 HRC 65-70

Coating

AlTiN TiAlN TiSiN Nano

Number of flutes

2 Flutes 3 Flutes 4 Flutes 6 Flutes

Helix Angle

30 35 45

Cutting style

Side Side Profile Side Profile slot

Shape of cutting edge

Flat Ballnose Corner Radius

Shank Type

Straight shank Groove shank

Introduction of the carbide materials of the End mill

Carbide Grade	Technical Details of tungsten carbide rod
10U	CO : 10% WC 89% rare element: 1% HRA: 90.5°Grain Size: 0.75um
12U	CO : 12% WC 85% rare element: 3% HRA: 92.5°Grain Size: 0.4um
K40	CO : 12% WC 84% rare element: 4% HRA: 93° Grain Size: 0.4um
K44	CO : 12% WC 84% rare element: 4% HRA: 93.5°Grain Size: 0.4um

The materials to be cut

Carbide Grade	HRC of End mill	Materials to be cut
10U	HRC45-50	For cutting the materials under HRC35
12U	HRC55-58	For cutting the materials under HRC50
K40	HRC60-62	For cutting the materials under HRC55
K44	HRC65-70	For cutting the materials under HRC63

Corresponding Coating

Carbide Grade	HRC of End mill	Corresponding Coating
10U	HRC45-50	AlTiN
12U	HRC55-58	TiAlN
K40	HRC60-62	TiSiN
K44	HRC65-70	Nano

Introduction of the carbide materials of the End mill

	AlTiN	TiAlN	TiSiN	Nano
Hardness(HV)	3200	2800	3600	42(GPA)
Thickness(UM)	2.5-3	2.5-3	3	3
Oxidation Temp(°)	900	800	1000	1200
Friction Coefficient	0.3	0.3	0.45	0.4
Color	Black	Violet	Copper	Blue

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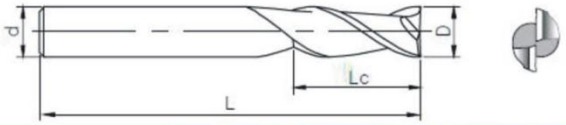
2 flutes Flat End Mill

HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium, alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
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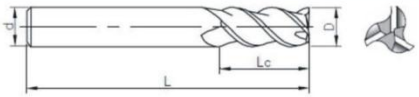
2GW1-01504050	1.5	4	50	4	2
2GW1-02050500	2	5	50	4	2
2GW1-02507050	2.5	7	50	4	2
2GW1-03008050	3	8	50	4	2
2GW1-04010050	4	10	50	4	2
2GW1-04015075	4	15	75	4	2
2GW1-04020100	4	20	100	4	2
2GW1-05012050	5	13	50	6	2
2GW1-06015050	6	15	50	6	2
2GW1-06020075	6	20	75	6	2
2GW1-06020100	6	30	100	6	2
2GW1-06020060	8	20	60	8	2
2GW1-08025075	8	25	75	8	2
2GW1-08025100	8	35	100	8	2
2GW1-010025075	10	25	75	10	2
2GW1-010040100	10	40	100	10	2
2GW1-012030075	12	30	75	12	2
2GW1-012040100	12	40	100	12	2
2GW1-014020080	14	30	80	14	2
2GW1-014100100	14	40	100	14	2
2GW1-016040100	16	40	100	16	2
2GW1-018040100	18	40	100	18	2
2GW1-020040100	20	40	100	20	2
2GW1-06040150	6	40	150	6	2
2GW1-08050150	8	50	150	8	2
2GW1-010050150	10	50	150	10	2
2GW1-012050150	12	50	150	12	2
2GW1-014060150	14	60	150	14	2
2GW1-016060150	16	60	150	16	2
2GW1-018060150	18	60	150	18	2
2GW1-020060150	20	60	150	20	2

3 flutes Flat End Mill

HRC choice : HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice : AITIN, TIAIN, TISIN, NANO
Materials to be cut : original steel, cast iron, Aluminum, copper, graphite, plastics,Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
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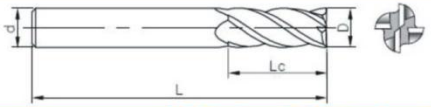
3GW1-01504050	1.5	4	50	4	3
3GW1-02050500	2	5	50	4	3
3GW1-02507050	2.5	7	50	4	3
3GW1-03008050	3	8	50	4	3
3GW1-04010050	4	10	50	4	3
3GW1-04015075	4	15	75	4	3
3GW1-04020100	4	20	100	4	3
3GW1-05013050	5	13	50	6	3
3GW1-06015050	6	15	50	6	3
3GW1-06020075	6	20	75	6	3
3GW1-06030100	6	30	100	6	3
3GW1-06020060	8	20	60	8	3
3GW1-08025075	8	25	75	8	3
3GW1-08035100	8	35	100	8	3
3GW1-010025075	10	25	75	10	3
3GW1-010040100	10	40	100	10	3
3GW1-012030075	12	30	75	12	3
3GW1-012040100	12	40	100	12	3
3GW1-014030080	14	30	80	14	3
3GW1-014100100	14	40	100	14	3
3GW1-016040100	16	40	100	16	3
3GW1-018040100	18	40	100	18	3
3GW1-020040100	20	40	100	20	3
3GW1-06040150	6	40	150	6	3
3GW1-08050150	8	50	150	8	3
3GW1-010050150	10	50	150	10	3
3GW1-012050150	12	50	150	12	3
3GW1-014060150	14	60	150	14	3
3GW1-016060150	16	60	150	16	3
3GW1-018060150	18	60	150	18	3
3GW1-020060150	20	60	150	20	3

4 flutes Flat End Mill

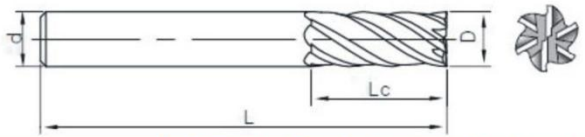
HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
4GW1-01003050	1	3	50	4	4
4GW1-01504050	1.5	4	50	4	4
4GW1-02050500	2	5	50	4	4
4GW1-02507050	2.5	7	50	4	4
4GW1-03008050	3	8	50	4	4
4GW1-04010050	4	10	50	4	4
4GW1-04015075	4	15	75	4	4
4GW1-04020100	4	20	100	4	4
4GW1-05013050	5	13	50	6	4
4GW1-06015050	6	15	50	6	4
4GW1-06020075	6	20	75	6	4
4GW1-06030100	6	30	100	6	4
4GW1-06020060	8	20	60	8	4
4GW1-08025075	8	25	75	8	4
4GW1-08035100	8	35	100	8	4
4GW1-010025075	10	25	75	10	4
4GW1-010040100	10	40	100	10	4
4GW1-012030075	12	30	75	12	4
4GW1-012040100	12	40	100	12	4
4GW1-014030080	14	30	80	14	4
4GW1-014100100	14	40	100	14	4
4GW1-016040100	16	40	100	16	4
4GW1-018040100	18	40	100	18	4
4GW1-020040100	20	40	100	20	4
4GW1-06040150	6	40	150	6	4
4GW1-08050150	8	50	150	8	4
4GW1-010050150	10	50	150	10	4
4GW1-012050150	12	50	150	12	4
4GW1-014060150	14	60	150	14	4
4GW1-016060150	16	60	150	16	4
4GW1-018060150	18	60	150	18	4
4GW1-020060150	20	60	150	20	4

6 flutes Flat End Mill

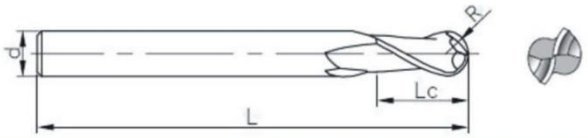
HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
6GW1-06016050	6	16	50	6	6
6GW1-06025075	6	25	75	6	6
6GW1-06036100	6	36	100	6	6
6GW1-0802060	8	20	60	8	6
6GW1-08032075	8	32	75	8	6
6GW1-08042100	8	42	100	8	6
6GW1-10025075	10	25	75	10	6
6GW1-10042100	10	42	100	10	6
6GW1-012030075	12	30	75	12	6
6GW1-012042100	12	42	100	12	6
6GW1-012055155	12	55	155	12	6
6GW1-014040100	14	40	100	14	6
6GW1-014065150	14	65	150	14	6
6GW1-016040100	16	40	100	16	6
6GW1-016065150	16	65	150	16	6
6GW1-020045100	20	45	100	20	6
6GW1-020070150	20	70	150	20	6

2 flutes Ballnose End Mill

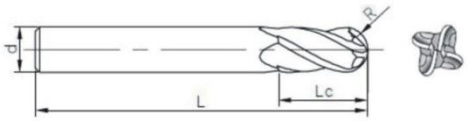
HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
2GW2-01002050	1	2	50	4	2
2GW2-01504050	1.5	3	50	4	2
2GW2-02050500	2	4	50	4	2
2GW2-02507050	2.5	5	50	4	2
2GW2-02008050	3	6	50	4	2
2GW2-04010050	4	8	50	4	2
2GW2-04015075	4	8	75	4	2
2GW2-04020100	4	8	100	4	2
2GW2-05012050	5	10	50	6	2
2GW2-06015050	6	12	50	6	2
2GW2-06020075	6	12	75	6	2
2GW2-06020100	6	12	100	6	2
2GW2-06020060	8	16	60	8	2
2GW2-08025075	8	16	75	8	2
2GW2-08025100	8	16	100	8	2
2GW2-010025075	10	20	75	10	2
2GW2-010040100	10	20	100	10	2
2GW2-012024075	12	24	75	12	2
2GW2-012040100	12	24	100	12	2
2GW2-014020080	14	28	80	14	2
2GW2-014100100	14	28	100	14	2
2GW2-016040100	16	32	100	16	2
2GW2-018040100	18	36	100	18	2
2GW2-020040100	20	40	100	20	2
2GW2-06040150	6	12	150	6	2
2GW2-08050150	8	16	150	8	2
2GW2-010050150	10	20	150	10	2
2GW2-012050150	12	24	150	12	2
2GW2-014060150	14	28	150	14	2
2GW2-016060150	16	32	150	16	2
2GW2-018060150	18	36	150	18	2
2GW2-020060150	20	40	150	20	2

4 flutes Ballnose End Mill

HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
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4GW2-0205050	2	4	50	4	4
4GW2-0308050	3	6	50	4	4
4GW2-04010050	4	8	50	4	4
4GW2-05013050	5	10	50	5	4
4GW2-06015050	6	12	50	6	4
4GW2-08020060	8	16	60	8	4
4GW2-01020075	10	20	75	10	4
4GW2-012030075	12	24	75	12	4
4GW2-06030100	6	12	100	6	4
4GW2-08030100	8	16	100	8	4
4GW2-010040100	10	20	100	10	4
4GW2-012040100	12	24	100	12	4

2 Flutes Corner Radius End Mill

HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
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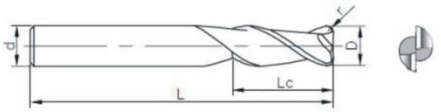
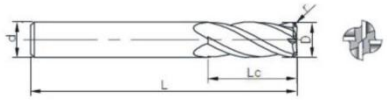


Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z	Radius
2GW3-1350-R01/R02/R03	1	2	50	4	2	R0.1/R0.2/R0.3
2GW3-15450-R..	1.5	3	50	4	2	R0.2/R0.3
2GW3-2550-R..	2	4	50	4	2	R0.2/R0.3/R0.5
2GW3-25750-R..	2.5	5	50	4	2	R0.2/R0.3/R0.5
2GW3-3850-R..	3	6	50	4	2	R0.2/R0.3/R0.5/R1.0
2GW3-41050-R..	4	8	50	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
2GW3-41575-R	4	8	75	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
2GW3-420100-R..	4	8	100	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
2GW3-51350-R..	5	10	50	6	2	R0.2/R0.3/R0.5/R1.0
2GW3-61550-R..	6	12	50	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
2GW3-62075-R..	6	12	75	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
2GW3-630100-R..	6	12	100	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
2GW3-82060-R..	8	16	60	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-82575-R..	8	16	75	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-835100-R..	8	16	100	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-102575-R..	10	20	75	10	2	R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1040100-R..	10	20	100	10	2	R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-123075-R..	12	24	75	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1240100-R..	12	24	100	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-143080-R..	14	28	80	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-14100100-R..	14	28	100	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1640100-R..	16	32	100	16	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1840100-R..	18	36	100	18	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-2040100-R..	20	40	100	20	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-640150-R..	6	12	150	6	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-850150-R..	8	16	150	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1050150-R..	10	20	150	10	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1250150-R..	12	24	150	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-460150-R..	14	28	150	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1660150-R..	16	32	150	16	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
2GW3-1860150-R..	18	36	150	18	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
GW-H45-2060150-R..	20	40	150	20	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0

4 FLutes Corner Radius End Mill

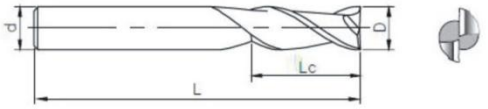
HRC choice: HRC38-45, HRC45-50, HRC55-58, HRC60-62, HRC65-70
Coating choice: AITIN, TIAIN, TISIN, NANO
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z	Radius
4GW3-1350-R01/R02/R03	1	2	50	4	2	R0.1/R0.2/R0.3
4GW3-15450-R..	1.5	3	50	4	2	R0.2/R0.3
4GW3-2550-R..	2	4	50	4	2	R0.2/R0.3/R0.5
4GW3-25750-R..	2.5	5	50	4	2	R0.2/R0.3/R0.5
4GW3-3850-R..	3	6	50	4	2	R0.2/R0.3/R0.5/R1.0
4GW3-41050-R..	4	8	50	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
4GW3-41575-R	4	8	75	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
4GW3-420100-R..	4	8	100	4	2	R0.2/R0.3/R0.5/R1.0/R1.5
4GW3-51350-R..	5	10	50	6	2	R0.2/R0.3/R0.5/R1.0
4GW3-61550-R..	6	12	50	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
4GW3-62075-R..	6	12	75	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
4GW3-630100-R..	6	12	100	6	2	R0.2/R0.3/R0.5/R1.0/R1.5/R2.0
4GW3-82060-R..	8	16	60	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-82575-R..	8	16	75	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-835100-R..	8	16	100	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-102575-R..	10	20	75	10	2	R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1040100-R..	10	20	100	10	2	R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-123075-R..	12	24	75	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1240100-R..	12	24	100	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-143080-R..	14	28	80	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-14100100-R..	14	28	100	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1640100-R..	16	32	100	16	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1840100-R..	18	36	100	18	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-2040100-R..	20	40	100	20	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-640150-R..	6	12	150	6	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-850150-R..	8	16	150	8	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1050150-R..	10	20	150	10	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1250150-R..	12	24	150	12	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-460150-R..	14	28	150	14	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1660150-R..	16	32	150	16	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
4GW3-1860150-R..	18	36	150	18	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0
GW-H45-2060150-R..	20	40	150	20	2	R0.3/R0.5/R1.0/R1.5/R2.0/R2.5/R3.0

2 Flutes Aluminum End Mill

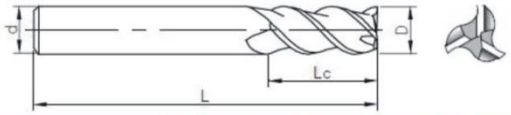
HRC choice: HRC38-45, HRC50-55
※Without polishing ※with polishing
Materials to be cut: Aluminum



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
2GW4-01002050	1	3	50	4	2
2GW4-01504050	1.5	4	50	4	2
2GW4-02050500	2	5	50	4	2
2GW4-02507050	2.5	7	50	4	2
2GW4-03008050	3	8	50	4	2
2GW4-04010050	4	10	50	4	2
2GW4-04015075	4	15	75	4	2
2GW4-04020100	4	20	100	4	2
2GW4-05012050	5	13	50	6	2
2GW4-06015050	6	15	50	6	2
2GW4-06020075	6	20	75	6	2
2GW4-06020100	6	30	100	6	2
2GW4-06020060	8	20	60	8	2
2GW4-08025075	8	25	75	8	2
2GW4-08025100	8	35	100	8	2
2GW4-010025075	10	25	75	10	2
2GW4-010040100	10	40	100	10	2
2GW4-012020075	12	30	75	12	2
2GW4-012040100	12	40	100	12	2
2GW4-014020080	14	30	80	14	2
2GW4-014100100	14	30	100	14	2
2GW4-016040100	16	40	100	16	2
2GW4-018040100	18	40	100	18	2
2GW4-020040100	20	40	100	20	2
2GW4-06040150	6	40	150	6	2
2GW4-08050150	8	50	150	8	2
2GW4-010050150	10	50	150	10	2
2GW4-012050150	12	50	150	12	2
2GW4-014060150	14	60	150	14	2
2GW4-016060150	16	60	150	16	2
2GW4-018060150	18	60	150	18	2
2GW4-020060150	20	60	150	20	2

3 Flutes Aluminum End Mill

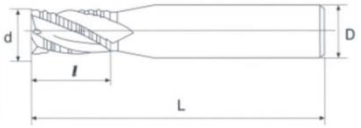
HRC choice: HRC38-45, HRC50-55
※Without polishing ※With polishing
Materials to be cut: Aluminum



Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
3GW4-01002050	1	3	50	4	3
3GW4-01504050	1.5	4	50	4	3
3GW4-02050500	2	5	50	4	3
3GW4-02507050	2.5	7	50	4	3
3GW4-03008050	3	8	50	4	3
3GW4-04010050	4	10	50	4	3
3GW4-04015075	4	15	75	4	3
3GW4-04020100	4	20	100	4	3
3GW4-05012050	5	13	50	6	3
3GW4-06015050	6	15	50	6	3
3GW4-06020075	6	20	75	6	3
3GW4-06020100	6	30	100	6	3
3GW4-06020060	8	20	60	8	3
3GW4-08025075	8	25	75	8	3
3GW4-08025100	8	35	100	8	3
3GW4-010025075	10	25	75	10	3
3GW4-010040100	10	40	100	10	3
3GW4-012020075	12	30	75	12	3
3GW4-012040100	12	40	100	12	3
3GW4-014020080	14	30	80	14	3
3GW4-014100100	14	40	100	14	3
3GW4-016040100	16	40	100	16	3
3GW4-018040100	18	40	100	18	3
3GW4-020040100	20	40	100	20	3
3GW4-06040150	6	40	150	6	3
3GW4-08050150	8	50	150	8	3
3GW4-010050150	10	50	150	10	3
3GW4-012050150	12	50	150	12	3
3GW4-014060150	14	60	150	14	3
3GW4-016060150	16	60	150	16	3
3GW4-018060150	18	60	150	18	3
3GW4-020060150	20	60	150	20	3

3 Flutes Rough Machining End Mill

HRC choice: HRC38-45, HRC55-58
Coating choice: AlTiN, AlTiCrSIN
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.

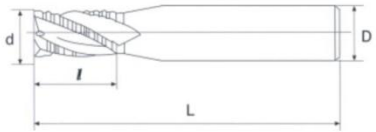


12U | HRC 55-58 | TiAlN | Lat

Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
3GW5-0103050	1	3	50	4	3
3GW5-0205050	2	5	50	4	3
3GW5-0308050	3	8	50	4	3
3GW5-04010050	4	10	50	4	3
3GW5-06015050	6	15	50	6	3
3GW5-08020060	8	20	60	8	3
3GW5-01020075	10	20	75	10	3
3GW5-012030075	12	30	75	12	3
3GW5-014040100	14	40	100	14	3
3GW5-016040100	16	40	100	16	3

4 Flutes Rough Machining End Mill

HRC choice: HRC38-45, HRC55-58
Coating choice: AlTiN, AlTiCrSIN
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,Titanium , alloy, harden steel, stainless steel, HSS etc.



12U | HRC 55-58 | TiAlN | Lat

Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
4GW5-0103050	1	3	50	4	4
4GW5-0205050	2	5	50	4	4
4GW5-0308050	3	8	50	4	4
4GW5-04010050	4	10	50	4	4
4GW5-06015050	6	15	50	6	4
4GW5-08020060	8	20	60	8	4
4GW5-01020075	10	20	75	10	4
4GW5-012030075	12	30	75	12	4
4GW5-014040100	14	40	100	14	4
4GW5-016040100	16	40	100	16	4

End Mill Inch Size

2 Flutes Flat Micro Diameter End Mill

HRC choice: HRC55-58
Coating choice: AlTiCrSIN
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.

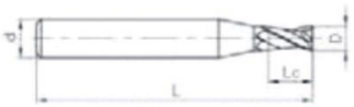


Fig1

12U | HRC 55-58 | TiAlN | Lat

Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
2GW6-***	0.1-1.0	***	50	4	2
2GW6-***	0.1-0.5	***	50	6	2
2GW6-***	1.0-4.9	***	50	6	2

2 Flutes Ballnose Micro Diameter End Mill

HRC choice: HRC55-58
Coating choice: AlTiCrSIN
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics, Titanium , alloy, harden steel, stainless steel, HSS etc.

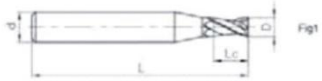


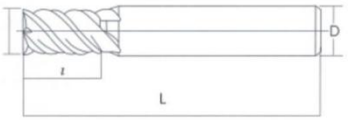
Fig1

12U | HRC 55-58 | TiAlN | Lat

Code No.	Diamter d	Cutting length l	Total length L	Shank D	Flutes Z
2GW6-***	0.1-1.0	***	50	4	2
2GW6-***	0.1-0.5	***	50	6	2
2GW6-***	1.0-4.9	***	50	6	2

Flat end mill in inch size

HRC choice: HRC50, HRC55-58
Coating choice: AlTiN, TiAlN,
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,
Titanium , alloy, harden steel, stainless steel, HSS etc.



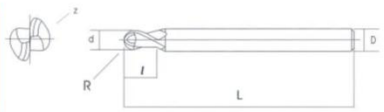
Dia	l	D	L	2FL	3FL	4FL
1/32	3/32	1/8	1-1/2	2GW70132	3GW70132	4GW70132
3/64	1/8	1/8	1-1/2	2GW70364	3GW70364	4GW70364
1/16	1/4	1/8	1-1/2	2GW70116	3GW70116	4GW70116
5/64	1/4	1/8	1-1/2	2GW70564	3GW70564	4GW70564
3/32	3/8	1/8	1-1/2	2GW70332	3GW70332	4GW70332
7/64	3/8	1/8	1-1/2	2GW70764	3GW70764	4GW70764
1/8	1/2	1/8	1-1/2	2GW70018	3GW70018	4GW70018
9/64	9/16	3/16	2	2GW70964	3GW70964	4GW70964
5/32	9/16	3/16	2	2GW70532	3GW70532	4GW70532
11/64	9/16	3/16	2	2GW71164	3GW71164	4GW71164
3/16	5/8	3/16	2	2GW70316	3GW70316	4GW70316
13/64	5/8	1/4	2-1/2	2GW71364	3GW71364	4GW71364
7/32	5/8	1/4	2-1/2	2GW70732	3GW70732	4GW70732
15/64	3/4	1/4	2-1/2	2GW71564	3GW71564	4GW71564
1/4	3/4	1/4	2-1/2	2GW70014	3GW70014	4GW70014
17/64	7/8	5/16	2-1/2	2GW71464	3GW71464	4GW71464
9/32	7/8	5/16	2-1/2	2GW70932	3GW70932	4GW70932
19/64	7/8	5/16	2-1/2	2GW71964	3GW71964	4GW71964
5/16	7/8	5/16	2-1/2	2GW70516	3GW70516	4GW70516
21/64	7/8	3/8	2-1/2	2GW72164	3GW72164	4GW72164
11/32	7/8	3/8	2-1/2	2GW71132	3GW71132	4GW71132
23/64	7/8	3/8	2-1/2	2GW72364	3GW72364	4GW72364
3/8	7/8	3/8	2-1/2	2GW70038	3GW70038	4GW70038
25/64	7/8	7/16	2-1/2	2GW72564	3GW72564	4GW72564
13/32	7/8	7/16	2-1/2	2GW71332	3GW71332	4GW71332
27/64	7/8	7/16	2-1/2	2GW72764	3GW72764	4GW72764
7/16	1	7/16	2-1/2	2GW70716	3GW70716	4GW70716
29/64	1	1/2	3	2GW72964	3GW72964	4GW72964
15/32	1	1/2	3	2GW71532	3GW71532	4GW71532
31/64	1	1/2	3	2GW73164	3GW73164	4GW73164
1/2	1	1/2	3	2GW70013	3GW70013	4GW70012
9/16	1-1/4	9/16	3-1/2	2GW70916	3GW70916	4GW70916
5/8	1-1/4	5/8	3-1/2	2GW70058	3GW70058	4GW70058
11/16	1-1/2	3/4	4	2GW71116	3GW71116	4GW71116
3/4	1-1/2	3/4	4	2GW70034	3GW70034	4GW70034
7/8	1-1/2	7/8	4	2GW70078	3GW70078	4GW70078
1	1-1/2	1	4	2GW70001	3GW70001	4GW70001
1-1/4	2	1-1/4	4-1/2	2GW70114	3GW70114	4GW70114

SIEESO

End Mill Inch Size

Ballnose end mill in inch size

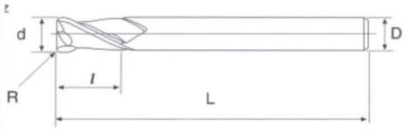
HRC choice: HRC50, HRC55-58
Coating choice: AITIN, TIAIN,
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,
Titanium , alloy, harden steel, stainless steel, HSS etc.



Dia	l	D	L	2FL	4FL
1/32	3/32	1/8	1-1/2	2GW7B0132	4GW7B0132
3/64	1/8	1/8	1-1/2	2GW7B0364	4GW7B 0364
1/16	1/4	1/8	1-1/2	2GW7B0116	4GW7B 0116
5/64	1/4	1/8	1-1/2	2GW7B0564	4GW7B 0564
3/32	3/8	1/8	1-1/2	2GW7B0332	4GW7B 0332
7/64	3/8	1/8	1-1/2	2GW7B0764	4GW7B0764
1/8	1/2	1/8	1-1/2	2GW7B0018	4GW7B0018
9/64	9/16	3/16	2	2GW7B0964	4GW7B0964
5/32	9/16	3/16	2	2GW7B0532	4GW7B0532
11/64	9/16	3/16	2	2GW7B1164	4GW7B1164
3/16	5/8	3/16	2	2GW7B0316	4GW7B0316
13/64	5/8	1/4	2-1/2	2GW7B1364	4GW7B1364
7/32	5/8	1/4	2-1/2	2GW7B0732	4GW7B0732
15/64	3/4	1/4	2-1/2	2GW7B1564	4GW7B1564
1/4	3/4	1/4	2-1/2	2GW7B0014	4GW7B0014
17/64	7/8	5/16	2-1/2	2GW7B1764	4GW7B1764
9/32	7/8	5/16	2-1/2	2GW7B0932	4GW7B0932
19/64	7/8	5/16	2-1/2	2GW7B1964	4GW7B1964
5/16	7/8	5/16	2-1/2	2GW7B0516	4GW7B0516
21/64	7/8	3/8	2-1/2	2GW7B2164	4GW7B2164
11/32	7/8	3/8	2-1/2	2GW7B1132	4GW7B1132
23/64	7/8	3/8	2-1/2	2GW7B2364	4GW7B2364
3/8	7/8	3/8	2-1/2	2GW7B0038	4GW7B0038
25/64	7/8	7/16	2-1/2	2GW7B2564	4GW7B2564
13/32	7/8	7/16	2-1/2	2GW7B1332	4GW7B1332
27/64	7/8	7/16	2-1/2	2GW7B2764	4GW7B2764
7/16	1	7/16	2-1/2	2GW7B0716	4GW7B0716
29/64	1	1/2	3	2GW7B2964	4GW7B2964
15/32	1	1/2	3	2GW7B1532	4GW7B1532
31/64	1	1/2	3	2GW7B3164	4GW7B3164
1/2	1	1/2	3	2GW7B0012	4GW7B0012
9/16	1-1/4	9/16	3-1/2	2GW7B0916	4GW7B0916
5/8	1-1/4	5/8	3-1/2	2GW7B0058	4GW7B0058
11/16	1-1/2	3/4	4	2GW7B1116	4GW7B1116
3/4	1-1/2	3/4	4	2GW7B0037	4GW7B0034
7/8	1-1/2	7/8	4	2GW7B0078	4GW7B0078
1	1-1/2	1	4	2GW7B0001	4GW7B0001
1-1/4	2	1-1/4	4-1/2	2GW7B0114	4GW7B0114

Corner radius end mill in inch size

HRC choice: HRC50, HRC55-58
Coating choice: AITIN, TIAIN,
Materials to be cut: original steel, cast iron, Aluminum, copper, graphite, plastics,
Titanium , alloy, harden steel, stainless steel, HSS etc.



Dia	l	D	L	2FL	3FL	4FL
1/32	3/32	1/8	1-1/2	2GW7R0132	3GW7R0132	4GW7R0132
3/64	1/8	1/8	1-1/2	2GW7R0364	3GW7R0364	4GW7R0364
1/16	1/4	1/8	1-1/2	2GW7R0116	3GW7R0116	4GW7R0116
5/64	1/4	1/8	1-1/2	2GW7R0564	3GW7R0564	4GW7R0564
3/32	3/8	1/8	1-1/2	2GW7R0331	3GW7R0332	4GW7R0332
7/64	3/8	1/8	1-1/2	2GW7R0764	3GW7R0764	4GW7R0764
1/8	1/2	1/8	1-1/2	2GW7R0018	3GW7R0018	4GW7R0018
9/64	9/16	3/16	2	2GW7R0964	3GW7R0964	4GW7R0964
5/32	9/16	3/16	2	2GW7R0532	3GW7R0532	4GW7R0532
11/64	9/16	3/16	2	2GW7R1164	3GW7R1164	4GW7R1164
3/16	5/8	3/16	2	2GW7R0316	3GW7R0316	4GW7R0316
13/64	5/8	1/4	2-1/2	2GW7R1364	3GW7R1364	4GW7R1364
7/32	5/8	1/4	2-1/2	2GW7R0732	3GW7R0732	4GW7R0732
15/64	3/4	1/4	2-1/2	2GW7R1564	3GW7R1564	4GW7R1564
1/4	3/4	1/4	2-1/2	2GW7R0014	3GW7R0017	4GW7R0014
17/64	7/8	5/16	2-1/2	2GW7R1764	3GW7R1764	4GW7R1764
9/32	7/8	5/16	2-1/2	2GW7R0932	3GW7R0932	4GW7R0932
19/64	7/8	5/16	2-1/2	2GW7R1964	3GW7R1964	4GW7R1964
5/16	7/8	5/16	2-1/2	2GW7R0516	3GW7R0516	4GW7R0516
21/64	7/8	3/8	2-1/2	2GW7R2164	3GW7R2164	4GW7R2164
11/32	7/8	3/8	2-1/2	2GW7R1132	3GW7R1132	4GW7R1132
23/64	7/8	3/8	2-1/2	2GW7R2364	3GW7R2364	4GW7R2364
3/8	7/8	3/8	2-1/2	2GW7R0038	3GW7R0038	4GW7R0038
25/64	7/8	7/16	2-1/2	2GW7R2564	3GW7R2564	4GW7R2564
13/32	7/8	7/16	2-1/2	2GW7R1332	3GW7R1332	4GW7R1332
27/64	7/8	7/16	2-1/2	2GW7R2764	3GW7R2764	4GW7R2764
7/16	1	7/16	2-1/2	2GW7R0716	3GW7R0716	4GW7R0716
29/64	1	1/2	3	2GW7R2964	3GW7R2964	4GW7R2964
15/32	1	1/2	3	2GW7R1532	3GW7R1532	4GW7R1532
31/64	1	1/2	3	2GW7R3164	3GW7R3164	4GW7R3164
1/2	1	1/2	3	2GW7R0012	3GW7R0012	4GW7R0012
9/16	1-1/4	9/16	3-1/2	2GW7R0916	3GW7R0916	4GW7R0916
5/8	1-1/4	5/8	3-1/2	2GW7R0058	3GW7R0058	4GW7R0058
11/16	1-1/2	3/4	4	2GW7R1116	3GW7R1116	4GW7R1116
3/4	1-1/2	3/4	4	2GW7R0037	3GW7R0037	4GW7R0037
7/8	1-1/2	7/8	4	2GW7R0078	3GW7R0078	4GW7R0078
1	1-1/2	1	4	2GW7R0001	3GW7R0001	4GW7R0001
1-1/4	2	1-1/4	4-1/2	2GW7R0114	3GW7R0114	4GW7R0114

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Item	Fault	Reason	Solution
Precision of cutting surface	Rough surface	Vibration	▸Fix the working material as well as posible ▸Adjust the failed part of machine ▸Reduce rotating speed ▸Downcut ▸Tools minimum lenght out of fixture
		The heterogeneity in hardness of working material	Measuring the hardness of working material
		The tip was unsuitable	▸Tool rake angle and clearance angle ▸Improve cutting roughness
		Chip lump and fuse attach material	▸Remove chip lump and fuse attach material ▸Check on the degenerative condition of cutting fluids
		Passivation of cutting edge	▸Determine the adequate time to regrinding
		Cutting rate (speed) too fast	▸Reduce the cutting rate (speed)
		Misfit cutting fluids or deficient of cutting fluids	▸Change cutting fluids
	Buckling cracking of the of machined surface	Unbalance friction of cutting edge	▸Regrinding to reduce friction
		Fuse attach material on the cutting edge	▸Remove fuse attach material ▸Change cutting fluids
		Cutting edge deformation	▸To pay attention to use and safekeeping
	The corruga-tion of machined surface	Lesser cutting flute	▸Increase the number of flutes from 2 flutes to 4 flutes and then 6 flutes
		Bigger cutting depth and feed rate	▸To reduce the feed rate of machine
		A larger helix angle	▸Decrease the helix angle
Shape precision	perpendicul-arity	Cutting depth and feed rate is too large	▸Reduce the depth of cutting and feed rate
		Tool stretches out over longer	▸Use the end mill stretches out shortest from chuck
		Perpendicularity of holder not reach	▸Improve the perpendicularity of holder
End mill life	Shprter life for regrinding end mill	Work material hardness too high	▸Improve to suitable hardness by heat treatment process ▸Reduce the feed rate for high hardness work material or change more hardness tool
		Unsuitable feed rate	▸Adjust to suitable feed rate
		Chip lump and fuse attach material	▸Remove chip lump and fuse attach material ▸Use suitable cutting liquid
		Unsuitable cutting liquid	▸Use suitable cutting liquid ▸Use enough cutting liquid
	Huge friction of cutting edge	The fault of work material	▸Uchieve the average of inside form of work material ▸Clear up unbalance hardness
		Unsuitable edge angle	▸Regrind to suitable angle
		End mill cutting function go down	▸Surface treatment
		Unsuitable cutting liquid	▸Adjust to suitable cutting liquid ▸Adjust offer method of liquid
		Unsuitable regrind schedule	▸Manage the regrind schedule
	Flute damage	Vibration	▸Strengthen the install tool of work material
		The fault of work material	▸Achieve the average of working material structure ▸Use suitable hardness, clear up unbalance hardness ▸Check the material may mix other hardness substance or gravel
		Unsuitable feed rate	▸Reduce the feed rate
		Cutter become dull	▸Regrind the tools
		Cutting liquid go off	▸Change the cutting liquid
	Break	Work material unsuitable fixed	▸Indeed fix the work material ▸Improve install tool
		Cutter become dull	▸Regrind process
		End mill with uncorrect operation	▸Be careful of keep and operate
		Chip jam	▸Use cutting liquid in large, during dry milling use air blow to remove chips