

Data Sheet of Grades for Solid Carbide Rods

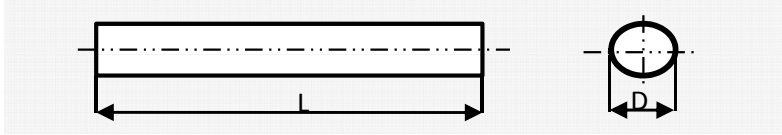
Grade	ISO Code	Grain size Um	Cobalt %	Density g/cm3	Hardness		TRS Sample C	
					HV30	HRA	N/mm2	KPSI
YF06	K05-K10	0.5	6.0	14.90	1850	93.5	3800	553.9
YL10A	K10-K20	0.8	8.0	14.65	1780	92.8	4200	609.5
YL10.2	K20-K30	0.8	10.0	14.42	1600	91.5	4000	580.0
XF30	K30-K40	0.6	12.0	14.10	1700	92.5	4000	580.0

Recommended Application

Grade	Application
YF06	Suitable for machining composite materials, such as aluminum-magnesium alloys, plastics , reinforced plastics and carbon fiber, iron-based alloys, etc. It is recommended for making big PCB drills of $\phi 3.2-6.3\text{mm}$, micro drills of $\phi 0.8-3.2\text{mm}$, micro milling tools and reamers ,etc.
YL10A	It is suitable for machining cast iron, aluminum alloys, etc. also for machining common steels . It is recommended for the drilling of cast iron and aluminum alloys.
YL10.2	It is suitable for machining common steel, cast iron, stainless steel, heat-resistant steel , nickel based alloys and titanium alloys, etc. It is recommended for making conventional tools, such as twist drills, end drills, screw taps, etc.
XF30	It is suitable for machining titanium alloy , heat-resistant alloys, stainless steel, hardened steel, grey cast iron, glass-fiber Reinforced plastics, composite materials, etc. It is recommended to make drills and milling tools, etc.

Carbide Rods Blank
HIP Sintered

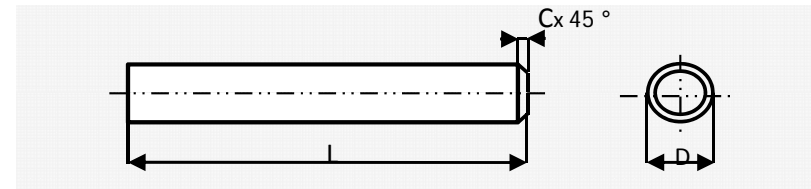
Type specification: Φ D x 330mm(Metric standard)



Diameter (mm)	Tolerance D	Tolerance L	Diameter (mm)	Tolerance D	Tolerance L	Diameter (mm)	Tolerance D	Tolerance L
0.5	+0.20/+0.45	-0.0/+10.0	9.5	+0.20/+0.45	-0.0/+10.0	19.5	+0.20/+0.60	-0.0/+10.0
1.0	+0.20/+0.45	-0.0/+10.0	10.0	+0.20/+0.45	-0.0/+10.0	20.0	+0.20/+0.60	-0.0/+10.0
1.2	+0.20/+0.45	-0.0/+10.0	10.5	+0.20/+0.45	-0.0/+10.0	20.5	+0.20/+0.80	-0.0/+10.0
1.6	+0.20/+0.45	-0.0/+10.0	11.0	+0.20/+0.45	-0.0/+10.0	21.0	+0.20/+0.80	-0.0/+10.0
1.8	+0.20/+0.45	-0.0/+10.0	11.5	+0.20/+0.45	-0.0/+10.0	22.0	+0.20/+0.80	-0.0/+10.0
2.3	+0.20/+0.45	-0.0/+10.0	12.0	+0.20/+0.45	-0.0/+10.0	23.0	+0.20/+0.80	-0.0/+10.0
2.5	+0.20/+0.45	-0.0/+10.0	12.5	+0.20/+0.60	-0.0/+10.0	24.0	+0.20/+0.80	-0.0/+10.0
3.0	+0.20/+0.45	-0.0/+10.0	13.0	+0.20/+0.60	-0.0/+10.0	25.0	+0.20/+0.80	-0.0/+10.0
3.5	+0.20/+0.45	-0.0/+10.0	13.5	+0.20/+0.60	-0.0/+10.0	26.0	+0.20/+0.80	-0.0/+10.0
4.0	+0.20/+0.45	-0.0/+10.0	14.0	+0.20/+0.60	-0.0/+10.0	27.0	+0.20/+0.80	-0.0/+10.0
4.5	+0.20/+0.45	-0.0/+10.0	14.5	+0.20/+0.60	-0.0/+10.0	28.0	+0.20/+0.80	-0.0/+10.0
5.0	+0.20/+0.45	-0.0/+10.0	15.0	+0.20/+0.60	-0.0/+10.0	29.0	+0.20/+0.80	-0.0/+10.0
5.5	+0.20/+0.45	-0.0/+10.0	15.5	+0.20/+0.60	-0.0/+10.0	30.0	+0.20/+0.80	-0.0/+10.0
6.0	+0.20/+0.45	-0.0/+10.0	16.0	+0.20/+0.60	-0.0/+10.0	31.0	+0.20/+0.80	-0.0/+10.0
6.5	+0.20/+0.45	-0.0/+10.0	16.5	+0.20/+0.60	-0.0/+10.0	32.0	+0.20/+0.80	-0.0/+10.0
7.0	+0.20/+0.45	-0.0/+10.0	17.0	+0.20/+0.60	-0.0/+10.0	33.0	+0.20/+0.80	-0.0/+10.0
7.5	+0.20/+0.45	-0.0/+10.0	17.5	+0.20/+0.60	-0.0/+10.0	34.0	+0.20/+0.80	-0.0/+10.0
8.0	+0.20/+0.45	-0.0/+10.0	18.0	+0.20/+0.60	-0.0/+10.0	35.0	+0.20/+0.80	-0.0/+10.0
8.5	+0.20/+0.45	-0.0/+10.0	18.5	+0.20/+0.60	-0.0/+10.0			
9.0	+0.20/+0.45	-0.0/+10.0	19.0	+0.20/+0.60	-0.0/+10.0			

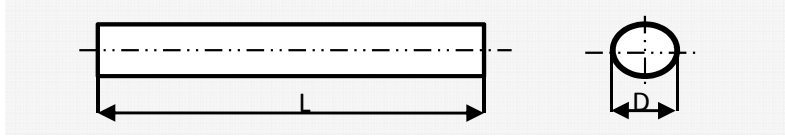
Carbide Rods Ground to h6
 Polished Ra0.2
 One end chamfered 45 °

Type specification: Φ Dh6 x 330mm x C45 (Metric standard)



Diameter(mm)	Tolerance L	Diameter(mm)	Tolerance L	Diameter(mm)	Tolerance L
0.5	-0/+0.50	9.5	-0/+0.50	19.5	-0/+0.50
1.0	-0/+0.50	10.0	-0/+0.50	20.0	-0/+0.50
1.2	-0/+0.50	10.5	-0/+0.50	20.5	-0/+0.50
1.6	-0/+0.50	11.0	-0/+0.50	21.0	-0/+0.50
1.8	-0/+0.50	11.5	-0/+0.50	22.0	-0/+0.50
2.3	-0/+0.50	12.0	-0/+0.50	23.0	-0/+0.50
2.5	-0/+0.50	12.5	-0/+0.50	24.0	-0/+0.50
3.0	-0/+0.50	13.0	-0/+0.50	25.0	-0/+0.50
3.5	-0/+0.50	13.5	-0/+0.50	26.0	-0/+0.50
4.0	-0/+0.50	14.0	-0/+0.50	27.0	-0/+0.50
4.5	-0/+0.50	14.5	-0/+0.50	28.0	-0/+0.50
5.0	-0/+0.50	15.0	-0/+0.50	29.0	-0/+0.50
5.5	-0/+0.50	15.5	-0/+0.50	30.0	-0/+0.50
6.0	-0/+0.50	16.0	-0/+0.50	31.0	-0/+0.50
6.5	-0/+0.50	16.5	-0/+0.50	32.0	-0/+0.50
7.0	-0/+0.50	17.0	-0/+0.50	33.0	-0/+0.50
7.5	-0/+0.50	17.5	-0/+0.50	34.0	-0/+0.50
8.0	-0/+0.50	18.0	-0/+0.50	35.0	-0/+0.50
8.5	-0/+0.50	18.5	-0/+0.50		
9.0	-0/+0.50	19.0	-0/+0.50		

Carbide Rods Blank
 HIP Sintered
Type specification: Φ D x L(Metric standard)



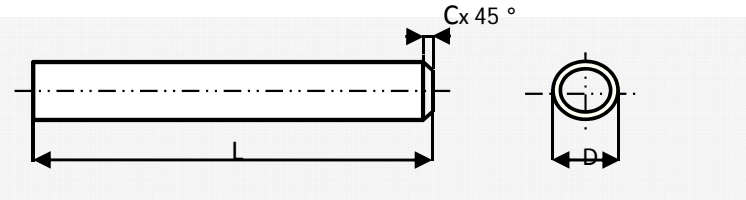
TYPE(mm)	TYPE(mm)	TYPE(mm)
Φ 3.0 X 60	Φ 8.0 X 50	Φ 12.0 X 120
Φ 4.0 X 40	Φ 8.0 X 60	Φ 13.0 X 100
Φ 4.0 X 46	Φ 8.0 X 63	Φ 14.0 X 75
Φ 4.0 X 50	Φ 8.0 X 75	Φ 14.0 X 80
Φ 4.0 X 60	Φ 8.0 X 90	Φ 14.0 X 83
Φ 4.0 X 75	Φ 8.0 X 100	Φ 14.0 X 100
Φ 4.0 X 100	Φ 10.0 X 50	Φ 16.0 X 80
Φ 5.0 X 50	Φ 10.0 X 70	Φ 16.0 X 90
Φ 5.0 X 60	Φ 10.0 X 72	Φ 20.0 X 100
Φ 5.0 X 100	Φ 10.0 X 75	
Φ 6.0 X 40	Φ 10.0 X 80	
Φ 6.0 X 50	Φ 10.0 X 90	
Φ 6.0 X 58	Φ 10.0 X 100	
Φ 6.0 X 60	Φ 12.0 X 70	
Φ 6.0 X 67	Φ 12.0 X 79	
Φ 6.0 X 75	Φ 12.0 X 83	
Φ 6.0 X 100	Φ 12.0 X 100	

Tolerances

Diameter: Same as 330mm

Lengths: As per customer's requirement

Carbide Rods Ground to h6
 Polished Ra0.2
 One end chamfered 45 °

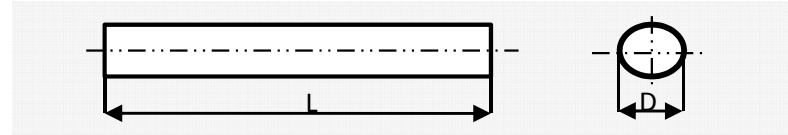


Type specification: Φ Dh6 x L x C45 (Metric standard)

TYPE(mm)	TYPE(mm)	TYPE(mm)
Φ 3.0 X 60	Φ 8.0 X 50	Φ 12.0 X 120
Φ 4.0 X 40	Φ 8.0 X 60	Φ 13.0 X 100
Φ 4.0 X 46	Φ 8.0 X 63	Φ 14.0 X 75
Φ 4.0 X 50	Φ 8.0 X 75	Φ 14.0 X 80
Φ 4.0 X 60	Φ 8.0 X 90	Φ 14.0 X 83
Φ 4.0 X 75	Φ 8.0 X 100	Φ 14.0 X 100
Φ 4.0 X 100	Φ 10.0 X 50	Φ 16.0 X 80
Φ 5.0 X 50	Φ 10.0 X 70	Φ 16.0 X 90
Φ 5.0 X 60	Φ 10.0 X 72	Φ 20.0 X 100
Φ 5.0 X 100	Φ 10.0 X 75	
Φ 6.0 X 40	Φ 10.0 X 80	
Φ 6.0 X 50	Φ 10.0 X 90	
Φ 6.0 X 58	Φ 10.0 X 100	
Φ 6.0 X 60	Φ 12.0 X 70	
Φ 6.0 X 67	Φ 12.0 X 79	
Φ 6.0 X 75	Φ 12.0 X 83	
Φ 6.0 X 100	Φ 12.0 X 100	

Tolerances
 Lengths: As per customer's requirement

Carbide Rods Blank
 HIP Sintered
Type specification: Φ D x L(Inch standard)



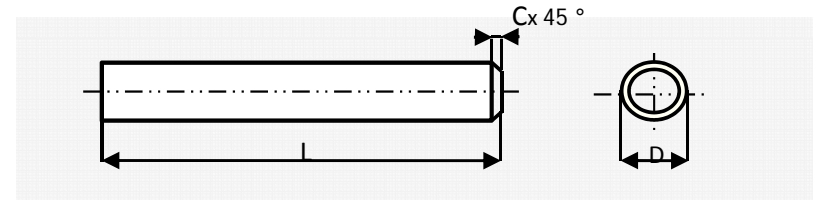
TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)
Φ 1/8 x 1-1/2	0.125	Φ 5/16 x 1-1/4	0.3125	Φ 1/2 x 3-1/2	0.500	Φ 3/4 x 5	0.750
Φ 1/8 x 2	0.125	Φ 5/16 x 2	0.3125	Φ 1/2 x 4	0.500	Φ 3/4 x 6	0.750
Φ 1/8 x 2-1/4	0.125	Φ 5/16 x 2-1/2	0.3125	Φ 1/2 x 5	0.500	Φ 3/4 x 7	0.750
Φ 1/8 x 2-1/2	0.125	Φ 5/16 x 3	0.3125	Φ 1/2 x 6	0.500	Φ 7/8 x 4	0.875
Φ 1/8 x 3	0.125	Φ 5/16 x 4	0.3125	Φ 9/16 x 3	0.5625	Φ 7/8 x 5	0.875
Φ 3/16 x 1-1/2	0.1875	Φ 3/8 x 2	0.375	Φ 9/16 x 3-1/2	0.5625	Φ 7/8 x 6	0.875
Φ 3/16 x 2	0.1875	Φ 3/8 x 2-1/2	0.375	Φ 9/16 x 4	0.5625	Φ 1 x 4	1.0
Φ 3/16 x 2-1/2	0.1875	Φ 3/8 x 3	0.375	Φ 9/16 x 5	0.5625	Φ 1 x 4-1/2	1.0
Φ 3/16 x 3	0.1875	Φ 3/8 x 4	0.375	Φ 9/16 x 6	0.5625	Φ 1 x 5	1.0
Φ 3/16 x 4	0.1875	Φ 3/8 x 6	0.375	Φ 5/8 x 3	0.625	Φ 1 x 6	1.0
Φ 1/4 x 1-1/2	0.250	Φ 7/16 x 2-1/2	0.4375	Φ 5/8 x 3-1/2	0.625	Φ 1 x 8	1.0
Φ 1/4 x 2	0.250	Φ 7/16 x 2-3/4	0.4375	Φ 5/8 x 4	0.625		
Φ 1/4 x 2-1/2	0.250	Φ 7/16 x 3	0.4375	Φ 5/8 x 5	0.625		
Φ 1/4 x 3	0.250	Φ 7/16 x 4	0.4375	Φ 5/8 x 6	0.625		
Φ 1/4 x 3-1/2	0.250	Φ 1/2 x 2-1/2	0.500	Φ 3/4 x 3	0.750		
Φ 1/4 x 4	0.250	Φ 1/2 x 3	0.500	Φ 3/4 x 4	0.750		

Tolerances

Diameter:	All	-0/+0.004"
Lengths:	0.0-2.0	-0/+0.030"
	2.0-2.5	-0/+0.040"
	.5-3.0	-0/+0.050"
	>3.0	-0/+0.060"

Carbide Rods Ground to h6
 Polished Ra0.2
 One end chamfered 45°

Type specification: Φ Dh6 x L x C45 (Metric standard)



TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)	TYPE(D x L)	D(inch)
Φ 1/8 x 1-1/2	0.125	Φ 5/16 x 1-1/4	0.3125	Φ 1/2 x 3-1/2	0.500	Φ 3/4 x 5	0.750
Φ 1/8 x 2	0.125	Φ 5/16 x 2	0.3125	Φ 1/2 x 4	0.500	Φ 3/4 x 6	0.750
Φ 1/8 x 2-1/4	0.125	Φ 5/16 x 2-1/2	0.3125	Φ 1/2 x 5	0.500	Φ 3/4 x 7	0.750
Φ 1/8 x 2-1/2	0.125	Φ 5/16 x 3	0.3125	Φ 1/2 x 6	0.500	Φ 7/8 x 4	0.875
Φ 1/8 x 3	0.125	Φ 5/16 x 4	0.3125	Φ 9/16 x 3	0.5625	Φ 7/8 x 5	0.875
Φ 3/16 x 1-1/2	0.1875	Φ 3/8 x 2	0.375	Φ 9/16 x 3-1/2	0.5625	Φ 7/8 x 6	0.875
Φ 3/16 x 2	0.1875	Φ 3/8 x 2-1/2	0.375	Φ 9/16 x 4	0.5625	Φ 1 x 4	1.0
Φ 3/16 x 2-1/2	0.1875	Φ 3/8 x 3	0.375	Φ 9/16 x 5	0.5625	Φ 1 x 4-1/2	1.0
Φ 3/16 x 3	0.1875	Φ 3/8 x 4	0.375	Φ 9/16 x 6	0.5625	Φ 1 x 5	1.0
Φ 3/16 x 4	0.1875	Φ 3/8 x 6	0.375	Φ 5/8 x 3	0.625	Φ 1 x 6	1.0
Φ 1/4 x 1-1/2	0.250	Φ 7/16 x 2-1/2	0.4375	Φ 5/8 x 3-1/2	0.625	Φ 1 x 8	1.0
Φ 1/4 x 2	0.250	Φ 7/16 x 2-3/4	0.4375	Φ 5/8 x 4	0.625		
Φ 1/4 x 2-1/2	0.250	Φ 7/16 x 3	0.4375	Φ 5/8 x 5	0.625		
Φ 1/4 x 3	0.250	Φ 7/16 x 4	0.4375	Φ 5/8 x 6	0.625		
Φ 1/4 x 3-1/2	0.250	Φ 1/2 x 2-1/2	0.500	Φ 3/4 x 3	0.750		
Φ 1/4 x 4	0.250	Φ 1/2 x 3	0.500	Φ 3/4 x 4	0.750		

Tolerances

Lengths:	0.0-2.0	-0/+0.030"
	2.0-2.5	-0/+0.040"
	2.5-3.0	-0/+0.050"
	>3.0	-0/+0.060"
Chamfer:	1/8	C=0.3mm;
	1/2~3/4	C=0.76mm;

3/16~1/4	C=0.4mm;	1/4~1/2	C=0.6mm
>3/4	C=1.0mm		