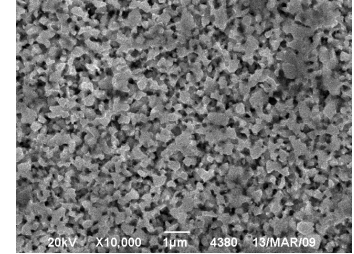


Carbide Mart

High Performance CMR Series Tungsten Carbide Rods - Your Enabler for Durable Precision Machining

Carbide Mart (<http://www.carbidemart.com/tucaro.html>) offers CMR Series tungsten carbide rods that are engineered and manufactured to the highest industry standards for cutting and wear applications. Made with the finest tungsten carbide raw material at ISO 9001:2015 facilities, CMR carbide rods deliver the best-in-class thermal, impact and wear resistance for critical high-precision machining applications. They are widely used for making tools such as end mills, reamers, drills, countersinks, engraving cutters, routers as various types of wear components for machinery applications. This brochure provides general information of CMR Series tungsten carbide rods. Please contact customerservice@carbidemart.com for more information of product, pricing, availability and sampling.



• Grades and Physical Properties

Grade	Co	WC Grain Size (µm)	Hardness		Density (g/cm ³)	TRS (N/mm ² / PSI)	Fract. Tough. (MPa·m ^{1/2})
	(wt.%)		HRA	HV			
CMR-10F	6	0.6	92.9	1,850	14.8	3,300 / 481	9.7
CMR-10UF	6	0.4	94.1	2,040	14.7	3,500 / 510	9.3
CMR-10C	7	1.0	90.7	1,500	14.7	3,100 / 452	11.5
CMR-11F	8	0.6	92.3	1,750	14.6	3,800 / 554	10.3
CMR-12NF	9	<0.2	94.2	2,030	14.3	4,800 / 700	9.0
CMR-12F	9	0.2-0.3	93.8	1,930	14.4	4,500 / 656	9.7
CMR-15F	10	0.6	92.0	1,700	14.3	3,600 / 525	10.6
CMR-20F	10	0.6	91.7	1,680	14.4	4,300 / 627	10.9
CMR-25F	12	0.2-0.3	92.2	1,740	14.1	5,100 / 743	10.0
CMR-25EF	12	0.4	92.0	1,700	14.1	4,800 / 700	10.3

• Application Guide for Grade Selection

Workpiece Material	Rough Milling	End Mill	Drilling	Reaming
Steels	CMR20F	CMR20F CMR25EF	CMR15F	CMR11F CMR12F
Cast Irons	CMR11F CMR20F	CMR10F	CMR20F CMR15F	CMR11F
Hardened Steels	CMR12F	CMR12F	CMR12F	
Stainless Steels	CMR25EF	CMR25F CMR12F CMR15F	CMR15F	CMR15F
High-Temperature Alloys	CMR25EF CMR25F	CMR25F CMR12F	CMR15F	CMR15F CMR25F
Non-Ferrous Metals	CMR11F CMR10F	CMR10UF	CMR11F CMR15F	CMR11F
Plastic/Composite Materials	CMR10UF	CMR10UF	CMR11F CMR15F	

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- Geometry Specifications of CMR Series Carbide Rods**

All carbide rods can be offered in unground, ground, or ground and polished condition to ISO standard diameter tolerance such as H5 or H6.

- Solid Carbide Rods with 330mm (13") Standard Length (tolerances in unground condition)**

Part Number	Diameter (mm)	Length (mm)
SD-20-330	2, +0.20/+0.40	330 +1.0/+6.0
SD-25-330	2.5, +0.20/+0.40	330 +1.0/+6.0
SD-30-330	3, +0.20/+0.40	330 +1.0/+6.0
SD-35-330	3.5, +0.20/+0.40	330 +1.0/+6.0
SD-40-330	4, +0.20/+0.40	330 +1.0/+6.0
SD-45-330	4.5, +0.20/+0.40	330 +1.0/+6.0
SD-50-330	5, +0.20/+0.40	330 +1.0/+6.0
SD-55-330	5.5, +0.20/+0.40	330 +1.0/+6.0
SD-60-330	6, +0.20/+0.40	330 +1.0/+6.0
SD-65-330	6.5, +0.30/+0.55	330 +1.0/+6.0
SD-70-330	7, +0.30/+0.55	330 +1.0/+6.0
SD-75-330	7.5, +0.30/+0.55	330 +1.0/+6.0
SD-80-330	8, +0.30/+0.55	330 +1.0/+6.0
SD-85-330	8.5, +0.30/+0.55	330 +1.0/+6.0
SD-90-330	9, +0.30/+0.55	330 +1.0/+6.0
SD-95-330	9.5, +0.30/+0.55	330 +1.0/+6.0
SD-100-330	10, +0.30/+0.55	330 +1.0/+6.0

Part Number	Diameter (mm)	Length (mm)
SD-105-330	10.5, +0.30/+0.55	330, +1.0/+6.0
SD-110-330	11, +0.30/+0.55	330, +1.0/+6.0
SD-120-330	12, +0.30/+0.55	330, +1.0/+6.0
SD-130-330	13, +0.30/+0.65	330, +1.0/+6.0
SD-140-330	14, +0.30/+0.65	330, +1.0/+6.0
SD-150-330	15, +0.30/+0.65	330, +1.0/+6.0
SD-160-330	16, +0.30/+0.65	330, +1.0/+6.0
SD-170-330	17, +0.30/+0.65	330, +1.0/+6.0
SD-180-330	18, +0.30/+0.65	330, +1.0/+6.0
SD-190-330	19, +0.30/+0.65	330, +1.0/+6.0
SD-200-330	20, +0.40/+0.80	330, +1.0/+6.0
SD-210-330	21, +0.40/+0.80	330, +1.0/+6.0
SD-220-330	22, +0.40/+0.80	330, +1.0/+6.0
SD-230-330	23, +0.40/+0.80	330, +1.0/+6.0
SD-240-330	24, +0.40/+0.80	330, +1.0/+6.0
SD-250-330	25, +0.40/+0.80	330, +1.0/+6.0
SD-280-330	28, +0.40/+0.80	330, +1.0/+6.0

- Solid Carbide Rods with Various Fixed Length (tolerances in unground condition)**

Part Number	Diameter (mm)	Length (mm)
SD-40-50	4, +0.1/+0.2	50 +1.0/+1.5
SD-50-50	5, +0.1/+0.2	50 +1.0/+1.5
SD-60-50	6, +0.1/+0.2	50 +1.0/+1.5
SD-60-60	6, +0.1/+0.2	60 +1.0/+1.5
SD-80-60	8, +0.1/+0.2	60 +1.0/+1.5
SD-100-75	10, +0.2/+0.3	75 +1.0/+1.5
SD-100-100	10, +0.2/+0.3	100 +1.0/+1.5
SD-120-75	12, +0.2/+0.3	75 +1.0/+1.5
SD-120-100	12, +0.2/+0.3	100 +1.0/+1.5
SD-140-100	14, +0.2/+0.3	100 +1.0/+1.5
SD-160-100	16, +0.2/+0.3	100 +1.0/+1.5
SD-200-100	20, +0.2/+0.3	100 +1.0/+1.5

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3. Carbide Rods with 1 Straight Coolant Duct and Up to 330mm (13") Length (tolerances in unground condition)

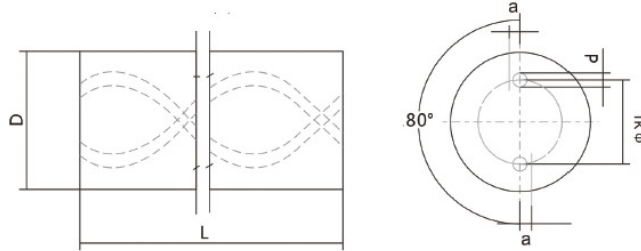
Part Number	OD (mm)	Hole Dia. (mm)	Hole Deviation (mm)
SHD-03-06	3, +0.2/+0.4	0.6, ±0.10	0.15
SHD-04-08	4, +0.2/+0.4	0.8, ±0.10	0.15
SHD-06-10	6, +0.2/+0.4	1, ±0.15	0.15
SHD-08-15	8, +0.3/+0.5	1.5, ±0.15	0.15
SHD-10-20	10, +0.3/+0.5	2, ±0.20	0.2
SHD-12-20	12, +0.3/+0.5	2, ±0.20	0.2
SHD-14-20	14, +0.3/+0.5	2, ±0.20	0.3
SHD-16-20	16, +0.3/+0.5	2, ±0.20	0.3
SHD-18-30	18, +0.3/+0.5	3, ±0.25	0.4
SHD-20-30	20, +0.4/+0.7	3, ±0.25	0.5
SHD-22-30	22, +0.4/+0.7	3, ±0.25	0.5
SHD-25-40	25, +0.4/+0.7	4, ±0.30	0.5
SHD-28-40	28, +0.4/+0.7	4, ±0.30	0.5
SHD-30-50	30, +0.5/+0.8	5, ±0.35	0.5
SHD-32-50	32, +0.5/+0.8	5, ±0.35	0.5

4. Carbide Rods with 2 Straight Coolant Ducts and Up to 330mm (13") Length. (tolerances in unground condition)

Part Number	OD (mm)	Hole Dia. (mm)	Hole Distance (mm)	Deviation (mm)
SDHD-03-06-16	3, +0.2/+0.4	0.6, ±0.10	1.6, -0.15	0.15
SDHD-04-08-18	4, +0.2/+0.4	0.8, ±0.10	1.8, -0.15	0.15
SDHD-06-07-25	6, +0.2/+0.4	0.7, ±0.10	2.5, -0.2	0.15
SDHD-08-10-40	8, +0.3/+0.5	1, ±0.10	4, -0.3	0.15
SDHD-10-14-50	10, +0.3/+0.5	1.4, ±0.15	5, -0.3	0.2
SDHD-12-14-60	12, +0.3/+0.5	1.4, ±0.15	6, -0.3	0.3
SDHD-14-175-70	14, +0.3/+0.5	1.75, ±0.15	7, -0.3	0.37
SDHD-16-175-80	16, +0.3/+0.5	1.75, ±0.15	8, -0.4	0.4
SDHD-18-20-90	18, +0.3/+0.5	2, ±0.20	9, -0.4	0.5
SDHD-20-20-100	20, +0.4/+0.7	2, ±0.20	10, -0.4	0.5
SDHD-22-20-110	22, +0.4/+0.7	2, ±0.20	11, -0.4	0.5
SDHD-25-20-120	25, +0.4/+0.7	2, ±0.20	12, -0.5	0.5
SDHD-28-25-140	28, +0.4/+0.7	2.5, ±0.20	14, -0.5	0.5
SDHD-30-25-140	30, +0.5/+0.8	2.5, ±0.25	14, -0.5	0.5
SDHD-32-30-140	32, +0.5/+0.8	3, ±0.25	14, -0.5	0.5

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5. Carbide Rods with Two 30° Helical Coolant Ducts and Up to 330mm (13") Length (tolerances in unground condition)



Product ID	OD, D (mm)	Hole Spacing (mm)	Hole Size, d (mm)	Deviation (mm)	Thread Pitch (mm)
STHD-63-26-07-32	6.3, +0.3	2.6, -0.4	0.7, ±0.10	0.15	32.65, -0.65/+0.67
STHD-73-37-10-38	7.3, +0.3	3.7, -0.4	1, ±0.15	0.15	38.09, -0.76/+0.78
STHD-83-40-10-43	8.3, +0.3	4.0, -0.4	1, ±0.15	0.15	43.53, -0.86/+0.89
STHD-93-48-14-48	9.3, +0.3	4.8, -0.6	1.4, ±0.15	0.20	48.97, -0.97/+1.00
STHD-103-48-14-54	10.3, +0.4	4.8, -0.6	1.4, ±0.15	0.20	54.41, -1.08/+1.11
STHD-113-53-14-59	11.3, +0.4	5.3, -0.8	1.4, ±0.15	0.28	59.86, -1.19/+1.22
STHD-123-62-14-65	12.3, +0.4	6.25, -0.8	1.4, ±0.15	0.30	65.3, -1.30/+1.34
STHD-133-65-17-70	13.3, +0.4	6.5, -0.8	1.75, ±0.20	0.34	70.74, -1.40/+1.45
STHD-143-71-17-76	14.3, +0.4	7.1, -0.8	1.75, ±0.20	0.37	76.18, -1.51/+1.56
STHD-153-77-17-81	15.3, +0.4	7.7, -0.8	1.75, ±0.20	0.4	81.62, -1.62/+1.67
STHD-163-83-17-87	16.3, +0.4	8.3, -0.8	1.75, ±0.20	0.40	87.06, -1.73/+1.78
STHD-173-89-17-92	17.3, +0.4	8.9, -0.8	1.75, ±0.20	0.47	92.5, -1.84/+1.89
STHD-183-95-20-97	18.3, +0.4	9.55, -0.8	2, ±0.25	0.50	97.95, -1.94/+2.00
STHD-193-101-20-103	19.3, +0.4	10.1, -0.8	2, ±0.25	0.5	103.39, -2.05/+2.12
STHD-204-104-20-108	20.4, +0.5	10.4, -1.0	2, ±0.25	0.50	108.83, -2.16/+2.23

• Customization

- ✓ All rods in all grades can be customized to various in inch and metric lengths up to 330mm and diameters up to 20mm.
- ✓ Surface finishing such as centerless grinding, grinding and polishing to ISO diameter tolerances such as H5 and H6 is available upon request.
- ✓ Preform such as male/female center, ballnose and shaped points can be added on with customer drawings and specifications.

