

CARBIDE RODS



Carbide Rods

Tungsten Carbide Grade Properties

Grade	ISO Code	Grain Size (μm)	Co (mass%)	TRS (GPa) *1	Hardness		Fracture Toughness (MPa·m ^{1/2})	Applications			
					HRA *2	HV *3		End Mills	Drills	PCB Drills	Routers
QF10	K01	<0.4	8.0	4.2	93.5	2000	5.5	●			
MF10	K01	<0.6	8.0	4.0	93.0	1900	5.8	●			●
SF10	K01	<0.8	6.0	3.8	92.7	1830	6.6			●	●
MF20	K10	<0.6	12.0	4.4	92.0	1700	6.3	●	●		●
TF15	K20	<0.9	10.0	4.0	91.0	1550	8.7	●	●		
HTi10	K10	<1.0	6.0	3.2	92.0	1700	6.8	●	●		

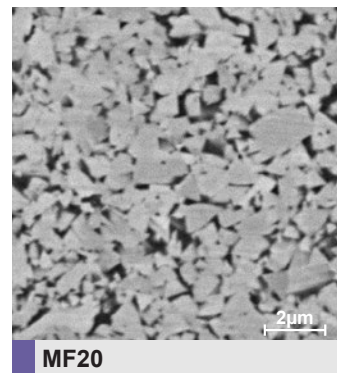
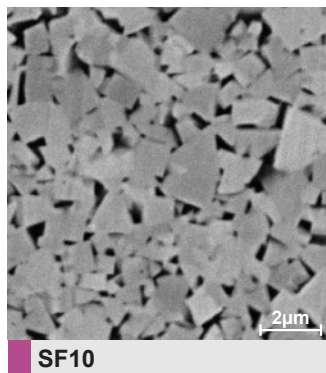
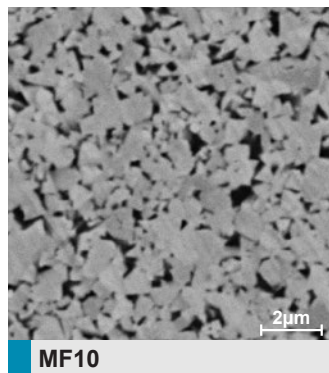
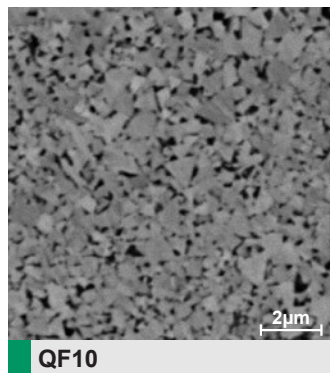
Note) All numbers are after HIP

*1 ISO03327

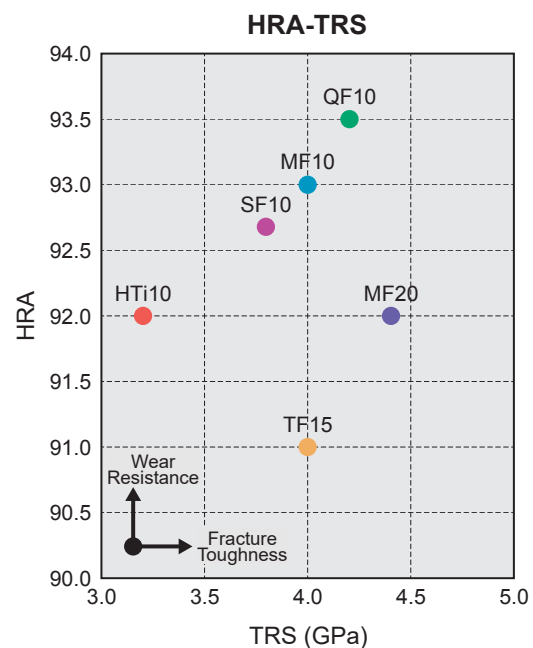
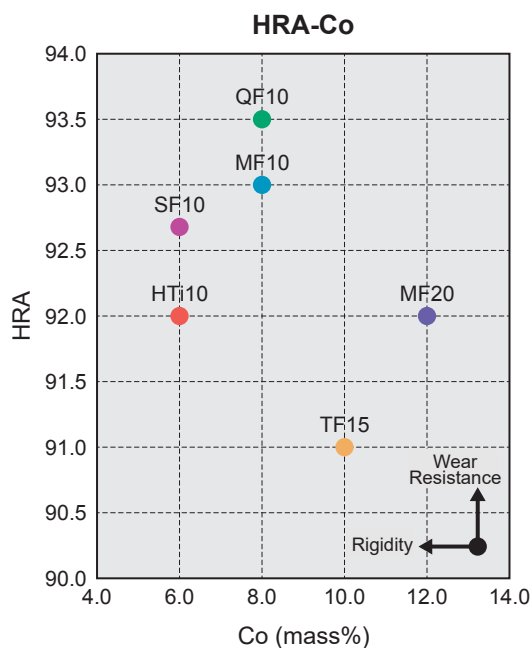
*2 HRA= Typical Value ISO03738

*3 ISO03878

《SEM Pictures》

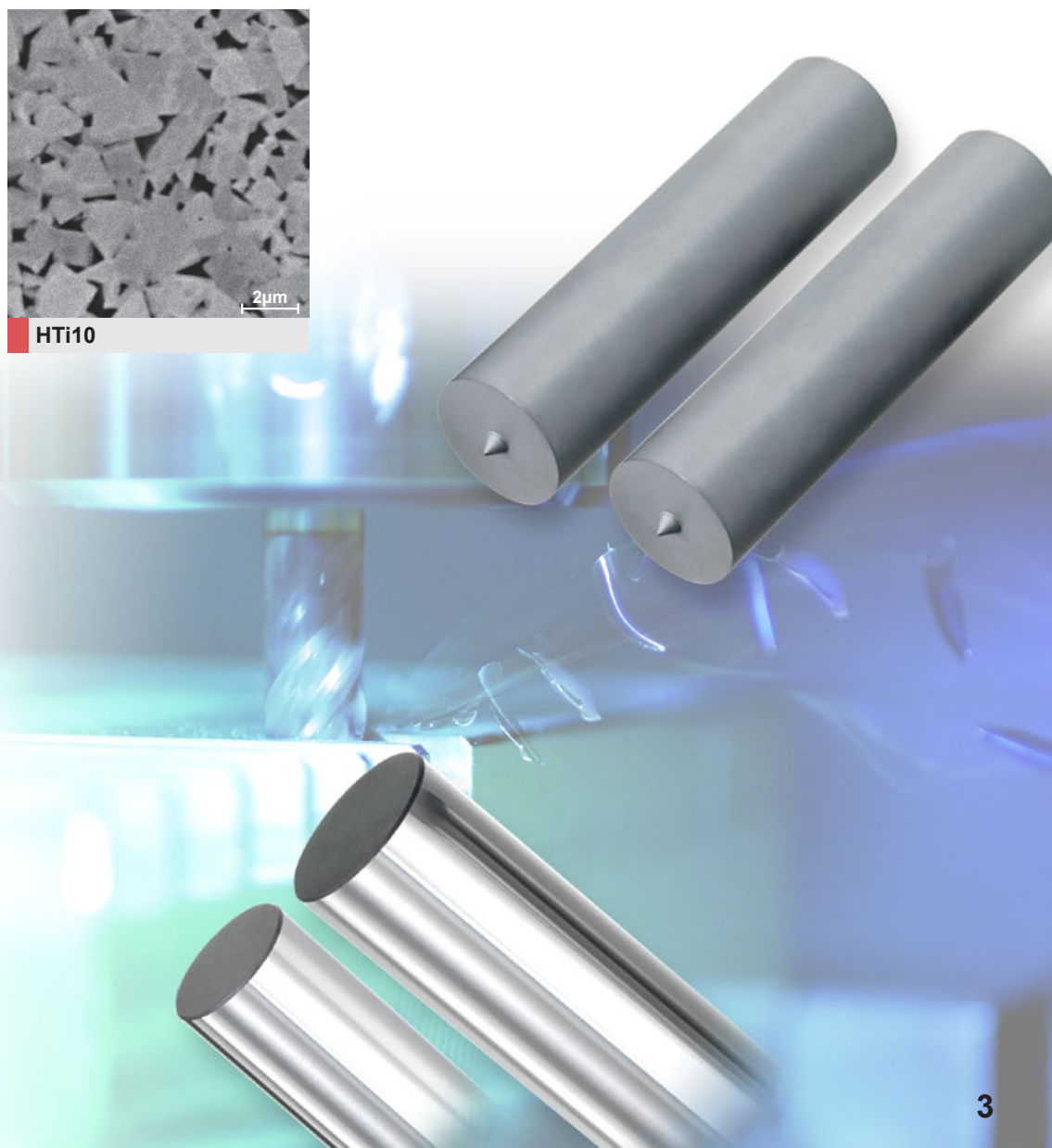
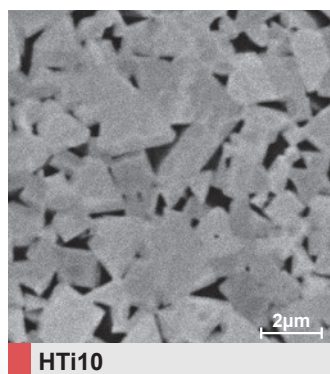
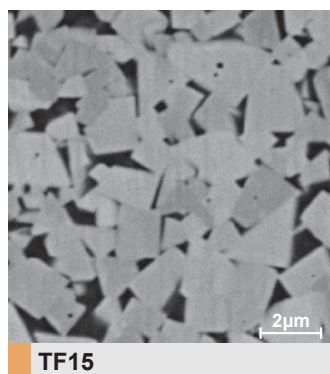


《Properties of Grade》

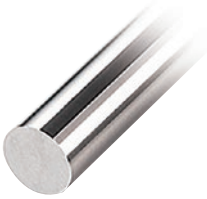


Application

Grade	Work Material							
	General Steel	Stainless Steel	Cast Iron	Hardened Steel	Aluminum Alloy	FRP	Titanium Alloy	Heat Resistant Alloy
QF10				○				
MF10	◎			◎	○	○	◎	◎
SF10	○		○		○	○		
MF20	○	○						
TF15	◎	◎					◎	◎
HTi10			◎		◎	◎	○	○



h6 Ground Blanks



Examples

Diameter (mm)	Tolerance (mm)	Length (mm)	Tolerance (mm)
D3	0, -0.006	40	+1.0, +0.4
		50	
		60	
		70	
D4	0, -0.008	40	+1.0, +0.4
		50	
		60	
		70	
		80	+1.4, +0.4
D6	0, -0.008	40	+1.4, +0.4
		50	
		60	
		70	
		80	

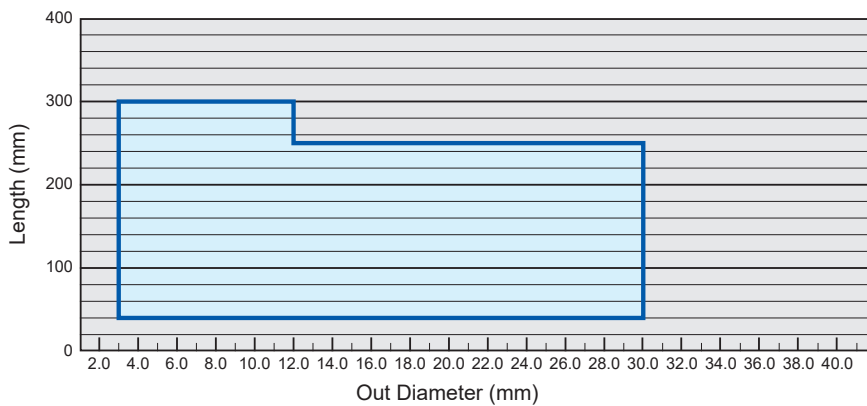
* For more detail, please contact.

Sintered Rods



D	Tolerance (mm)
$3.0 \leq D \leq 10.0$	+0.6 +0.3
$10.0 < D \leq 30.0$	+0.7 +0.3

《Manufacturing Range》

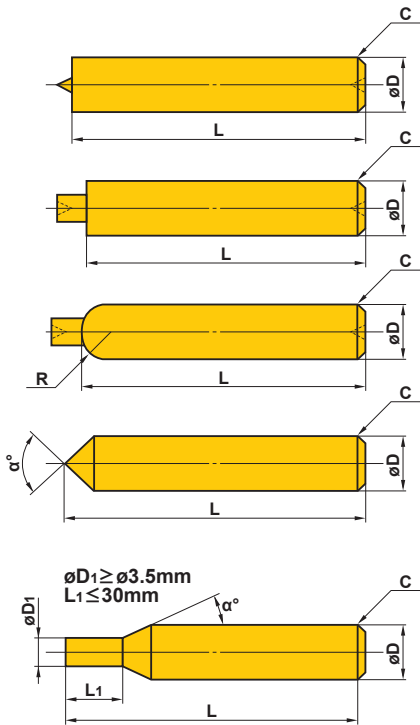


L	Tolerance (mm)	Curvature (mm)
$40 \leq L \leq 60$	+1.4 0	0.15
$60 < L \leq 100$	+2.0 0	0.15
$100 < L \leq 150$	+3.0 0	0.15
$150 < L \leq 200$	+4.0 0	0.2
$200 < L \leq 300$	* +Lx2% 0	0.2

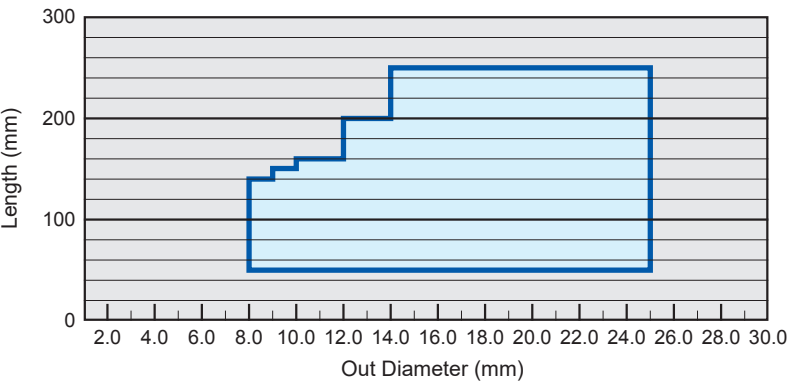
*Exp.) 250x2%=5mm

Special Sintered Rods

《Representative Geometry》



《Manufacturing Range》



Note) Please contact us for other products.

D	Tolerance (mm)
8.0≤D≤10.0	+0.6 +0.3
10.0<D≤25.0	+0.7 +0.3

L	Tolerance (mm)	Curvature (mm)
50≤L≤60	+1.4 0	0.15
60<L≤100	+2.0 0	0.15
100<L≤150	+3.0 0	0.15
150<L≤200	+4.0 0	0.2
200<L≤250	*+Lx2% 0	0.2

*Exp.) 250x2%=5mm



CARBIDE MATERIALS

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