Introduction of grades for tungsten carbide rods

Physical and mechanical properties

Class	Grade	Grain size [μm]	Code ISO	Hardness HRA	Transverse rupture strength [GPa]	Specific gravity	Chemical composition [wt%]		
							WC	Co	Other
Ultrafine	NU08	0.3	K05	93.8	4.3	14.6	Bal.	8.0	0.3
	NF08	0.5	K05-K10	93.2	4.5	14.5	Bal.	8.0	0.3
	TF9K	0.5	K05-K15	93.0	3.8	14.5	Bal.	9.0	0.5
	NF10	0.5	K10-K30	92.5	4.6	14.3	Bal.	10.0	0.3
Submicron	TUZ5T	0.6	K05-K10	93.0	3.2	15.0	Bal.	5.0	0.5
	TUZ8	0.6	K10-K20	92.0	4.2	14.3	Bal.	10.0	—
	TUZ20K	0.6	K15-K40	91.2	3.9	14.1	Bal.	13.0	0.5
	NF15	0.8	K20-K40	91.5	4.3	14.4	Bal.	10.0	—
Fine・medium	TK8	0.8 - 2.0	K10	92.0	3.3	14.9	Bal.	5.5	1.0
	TG2	1.5 - 3.5	K20	90.8	3.5	14.8	Bal.	7.0	—
	TG5	1.5 - 3.5	K40	88.0	3.6	14.2	Bal.	12.5	—

*1 Transverse rupture strength shall be the value measured on a ϕ6 rod.

Introduction of grades for tungsten carbide rods

Recommended grades by Application

	Application				Work material									
	End mills	Drills	Reamers	Punches	Mild Steels	Mild Steels	Hardened Steels	Stainless Steels	Titanium Alloys	Inconel	Cast Iron	Aluminum Alloys	Copper Alloys	Graphite
NU08	◎					○	◎							
NF08	◎				○	◎	◎							
TF9K	◎	○	○				○	○	○	○			◎	
NF10	○	◎			◎	◎	○	◎	○	○	○			
TUZ5T			◎					○				○		◎
TUZ8	◎	◎	○		◎	◎	○	◎	○	○	○			
TUZ20K	◎	◎		○	○	○					◎			
NF15	◎	◎			◎	◎		○	◎	◎	◎	○	◎	
TK8			○			○					◎	◎	◎	
TG2	○	○		○	○						○			
TG5				◎	○							○	○	

* According to a survey of user application history, it is significantly affected by applicable product and cutting edge specifications.