NOTOALLOY Co.,Ltd.

Material Property

Main Material Property Table after Toughness and Strength treatment※1

Material property	JIS classification ※2	Material name ※3 + TS treatment	Hardness		Specific gravity	Deflective strength GPa	Fracture toughness ※5 MPa・m$^{1/2}$	Compression strength GPa	High pressure HIP availability
			HRA	Hv					
Ultrafine particles High abrasion resistance	VF-20	FA14C+TS	92.0	1700	13.9	4.1※4	12 → 13	5.5※4	○
Fine particles Abrasion resistance	VF-30	UR10C+TS	91.5	1630	14.5	4.0	13 → 14	5.3	—
	VF-40	UR13C+TS	90.5	1500	14.2	4.1	16 → 18	4.8	—
Corrosion resistance Abrasion resistance	VM-20	DR05C+TS	92.5	1800	15.0	3.9※4	11 → 12	5.5※4	○
	VM-30	DR07C+TS	91.5	1630	14.8	3.6	13 → 14	5.5	—
	VM-30	DR09C+TS	91.0	1560	14.6	3.7	14 → 15	5.3	—
	VM-40	DR11C+TS	90.0	1450	14.4	3.8	17 → 19	5.2	—
	VM-40	DR14C+TS	89.0	1350	14.1	3.9	20 → 23	4.8	—
	VM-50	DR17C+TS	88.0	1210	13.8	3.8	24 → 28	4.4	—
Corrosion resistance Abrasion resistance Impact resistance	VC-40	TR05C+TS	91.0	1560	15.0	3.4※4	14 → 15	4.6※4	○
	VC-40	TR09C+TS	89.0	1350	14.6	3.3	20 → 21	4.4	—
	VC-50	TR15C+TS	87.0	1100	14.0	3.2 → 3.3	29 → 33	4.0	—
	VC-60	TR20C+TS	85.5	940	13.5	3.1 → 3.2	38 → 46	3.7	—
	VC-70	TR25C+TS	83.5	800	13.0	3.0 → 3.1	55 → 69	3.3 → 3.4	—
Corrosion resistance Impact resistance	VU-50	SR10C+TS	88.0	1210	14.5	3.0	24 → 26	4.0	—
	VU-60	SR13C+TS	86.5	1050	14.2	2.9	32 → 35	3.8	—
	VU-60	SR16C+TS	85.5	940	13.9	2.8	38 → 44	3.6	—
	VU-70	SR19C+TS	84.5	860	13.6	2.7 → 2.8	46 → 54	3.4	—
	VU-70	SR22C+TS	83.5	800	13.3	2.6 → 2.7	55 → 67	3.2	—
	VU-70	SR25C+TS	82.5	750	13.0	2.5 → 2.6	(66) → (83)	3.0 → 3.1	—
	VU-80	SR28C+TS	81.5	710	12.7	2.4 → 2.5	(80) → (103)	2.9 → 3.0	—

※1 Main material property table: Shows representative values, not guaranteed values.
※2 JIS classification: This complies with the JIS B4054:2020 cemented carbide alloy standard for abrasion resistant tools.
※3 Material name: Refer to "Material Name Code"
※4 Deflective strength (compression strength): Values after application of high pressure HIP.
※5 Fracture Toughness: Vickers Indentation Method. Calculated from the recommended formula of TAS 0059:2023.Values in parentheses are reference range.

Material name※3 code key:

Example: DR14C → D (WC1.5～2.0μm) R (Additive①) 14C (14%Co)

1st digit

WC average grain diameter (μm)	Code
0.5≧	F
0.8～1.2	U
1.5～2.0	D
2.5～3.5	T
5.0～7.0	S

2nd digit

Additive	Code
None	–
Additive ①	R
Additive ②	A

3rd and 4th digits

Indicates bonded phase amount

Last digit

Bonded phases	Code
Co	C

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