

Fujilloy Technique Open up the Future

FUJILLOY LINE UP

Grade series		Grade	HIP *a	Density (g/cm³)	Hardness		TRS (MPa)	Tensile Strength (MPa)	Comp- ressive Strength (MPa)	*b K _{IC} (MPa· m ^{1/2})	Young's Modulus of Elasticity (GPa)	Poisson ratio	Thermal Conductivity (W/m·K)	Mean thermal Expansion Coefficient (MK ⁻¹ (× 10 ⁻⁶ /°C))			*c Wear Resistance (×10 ⁻⁵ cm ³ /rev.)	*d Rcorr 24hr (Ω/m²)	*e TAS Code
														RT- 400°C	RT- 600°C	RT- 800°C			
Nano grade	Suitable grades for W-EDM process (Corrosion resistant)	TFS06	HIP	14.55	95.0	HRA	4200	2220	6880	4.9	575	0.20	42	5.3	5.6	5.9	0.10	1.0	VF-10
Super & ultra fine grades		TF05	HIP	14.60	95.1	HRA	1470	810	6660	3.3	610	0.21	25	5.0	5.2	5.5	0.04	6.8	VF-10
		F08	HIP	14.30	93.5	HRA	3920	2140	6280	5.2	560	0.22	29	5.5	5.7	6.0	1.1	2.6	VF-10
		F09	HIP	14.00	93.0	HRA	4410	2450	6080	6.5	540	0.22	42	5.7	6.1	6.4	2.1	1.0	VF-10
		F10	HIP	14.40	92.5	HRA	3820	2110	5880	5.4	560	0.22	42	5.1	5.5	5.8	2.6	0.8	VF-20
		F20	HIP	13.90	91.0	HRA	3480	1910	5390	6.5	520	0.23	42	5.8	6.2	6.6	6.1	1.1	VF-30
Fine grades		N05	HIP	14.95	93.5	HRA	2700	1480	5880	6.0	620	0.21	50	4.6	4.9	5.2	0.2	89	VM-10
		N10	HIP	14.95	92.5	HRA	3240	1770	5690	5.1	620	0.22	80	4.6	5.1	5.3	1.5	0.3	VM-20
Medium grades		D10	HIP	15.20	92.0	HRA	2940	1620	5690	4.5	640	0.21	97	4.6	4.9	5.1	1.6	0.8	VM-20
		D20		14.95	91.5	HRA	2890	1570	5400	6.7	620	0.21	95	4.7	5.0	5.2	2.4	1.3	VM-30
		D40		14.55	90.0	HRA	3290	1810	4900	8.9	560	0.22	90	5.1	5.5	5.8	5.8	0.5	VM-40
		D50		14.35	89.0	HRA	3330	1810	4610	11	540	0.22	88	5.4	5.8	6.1	7.8	0.6	VM-40
		D60		14.05	88.0	HRA	3430	1860	4310	(15)	520	0.23	82	5.7	6.1	6.5	14	1.1	VM-50
Medium coarse grades		G55		14.50	88.5	HRA	3140	1720	4610	12	560	0.22	105	5.1	5.5	5.8	12	0.6	VC-50
		G65		14.05	86.5	HRA	3040	1670	3920	(18)	520	0.23	97	5.7	6.1	6.5	18	1.8	VC-60
		G70		13.70	85.0	HRA	2940	1620	3530	(24)	490	0.23	94	6.0	6.5	6.9	21	0.9	VC-60
Coarse grades		G85		13.35	84.0	HRA	3090	1720	3330	(33)	460	0.24	87	6.5	7.0	7.4	23	0.3	VC-70
		C50		14.85	88.5	HRA	2600	1420	4610	10	590	0.21	120	4.8	5.2	5.4	5.1	0.6	VC-50
		C60		14.45	87.0	HRA	2840	1570	4210	(18)	550	0.22	109	5.3	5.7	6.0	13	2.5	VC-50
		C70		14.00	85.5	HRA	2750	1520	3730	(22)	520	0.23	103	5.7	6.1	6.5	20	1.0	VC-60
		TC79		13.60	84.0	HRA	2550	1470	3330	(25)	490	0.23	96	6.2	6.7	7.2	24	0.3	VC-70
		C89		13.30	82.5	HRA	2550	1470	3140	(40)	470	0.24	90	6.6	7.0	7.6	28	0.4	VC-70
		C95		13.00	81.5	HRA	2500	1370	2940	(52)	420	0.24	78	7.2	7.6	8.1	27	0.4	VC-80
Super coarse grades for rolls for hot rolling mill		TUC72	HIP	14.15	86.0	HRA	2500	1180	3530	(25)	560	0.22	96	5.6	5.9	6.4	15	7.1	RC-60
		UC73	HIP	14.25	85.5	HRA	2450	1370	3430	(26)	560	0.22	96	5.7	6.1	6.4	10	1.6	RC-60
		U61	HIP	14.40	85.5	HRA	2060	1130	3430	(19)	580	0.22	105	5.4	5.8	6.1	12	5.9	RU-60
		U77	HIP	14.00	83.0	HRA	2110	1180	2550	(30)	530	0.23	96	5.9	6.4	6.8	16	9.2	RU-70
		U83	HIP	13.80	82.0	HRA	2260	1230	2260	(35)	510	0.23	88	6.2	6.7	7.1	17	1.6	RU-70
Nonmagnetic nickel binder grades		U89	HIP	13.40	80.5	HRA	2260	1230	1860	(55)	480	0.24	71	6.7	7.2	7.7	19	2.9	RU-80
		TMS05	HIP	14.85	95.0	HRA	3100	1690	>8000	4.2	610	0.21	20	4.9	5.2	5.5	0.17	119	NF-10
		MF10	HIP	14.25	92.5	HRA	3240	1770	4510	5.0	510	0.22	29	5.7	6.1	6.5	2.9	95	NF-20
		MN10	HIP	14.35	91.5	HRA	3240	1770	4120	5.3	510	0.22	54	5.3	5.7	6.1	4.1	62	NF-30
		M45	HIP	14.40	89.5	HRA	3240	1770	3330	7.6	500	0.22	59	5.5	5.9	6.2	6.4	36	NM-40
		M70	HIP	13.80	88.0	HRA	3430	1860	2940	12	470	0.23	55	6.3	6.6	7.1	13	188	NM-50
		MG85	HIP	13.45	83.5	HRA	2650	1570	3140	(42)	480	0.23	59	6.8	7.2	7.6	24	154	NC-70
		VF12	HIP	14.45	91.5	HRA	3600	1960	5390	7.6	560	0.22	72	5.4	5.6	5.9	4.3	1.6	VF-30
Suitable grades (improved toughness and corrosion) for W-EDM process		VD15	HIP	14.90	92.0	HRA	3230	1720	5490	6.4	620	0.21	89	4.7	5.0	5.3	1.9	1.2	VM-20
		VD45	▲	14.20	90.0	HRA	3530	2160	4900	9.7	540	0.22	78	5.5	5.8	6.2	6.4	0.7	VM-40
		TVD55	▲	13.80	89.0	HRA	3950	2300	4610	15	500	0.20	77	6.2	6.4	6.7	13.0	3.6	VM-40
		VG60	▲	13.85	88.0	HRA	3400	1860	4410	(18)	520	0.23	90	5.9	6.2	6.6	16	1.6	VC-50
		VG86	HIP	13.25	85.0	HRA	2940	1670	3530	(28)	460	0.23	84	6.5	7.1	7.5	21	1.2	VC-60
Special grades		T15	HIP	7.05	91.0	HRA	2010	1080	3140	4.1	410	0.21	8	7.6	8.2	8.6	11	0.8	-
		BD20		12.50	91.5	HRA	1960	1080	4120	4.9	510	0.22	34	5.7	6.2	6.5	5.2	0.7	(P20)
		UN45	HIP	13.70	90.0	HRA	3240	1770	4000	9.1	490	0.23	42	6.2	6.7	7.0	6.4	202	-
		TJS01	HIP	15.10	2700	HV	2600	1520	>8000	2.6	660	0.19	43	4.6	4.9	5.1	0.03	273	-
		JF03	HIP	15.10	2700	HV	2000	800	4000	2.4	680	0.17	62	4.2	4.5	4.7	1.4	169	VF-10
		J05	HIP	14.65	93.5	HRA	1320	740	3830	2.1	650	0.20	63	4.6	4.8	5.1	3.4	148	VM-10
		Tungsten based alloy		FHR96		17.6	34.5	HRC	1500	880	2400		350	0.28	54	5.4	5.5	5.7	
Cu-W alloy		CE-08		14.0	93.5	HRB	1225	588			224	0.30	180	9.0	9.8	10.1			-
Cera- mics	Al ₂ O ₃	FCA10		3.93	1850	HV	440		2060	3.1	363	0.23	30	7.2	7.7	8.1			-
	ZrO ₂ -Al ₂ O ₃	FCY40A	HIP	5.00	1560	HV	1670		3630	5.3	294	0.28	8.4	8.7	9.1	9.4			-
	ZrO ₂ -Al ₂ O ₃	FCY20A	HIP	5.48	1410	HV	1860		4120	6.2	248	0.29	5.0	9.7	10.0	10.2			-
	Y-TZP	FCY0M		6.07	1270	HV	880		3730	7.1	200	0.31	4.6	10.7	11.1	11.3			-
	Mg-PSZ	FCZ10		5.72	890	HV	540		1370	12	180	0.33	1.7	8.8	8.4	8.3			-
	Si ₃ N ₄	FCS07		3.27	1800	HV	1000		4650	7.6	320	0.25	15	2.4	2.7	3.0			-
	Si ₃ N ₄	FCS60		3.20	1380	HV	880		2630	5.0	291	0.27	15	2.4	2.7	2.95			-
Porous cermet		PT13	-	4.7	(93.5)	HRA	54	-	100	-	-	-	5.5	7.0	7.3	7.4	-	-	-
Porous C.C.		PC20	-	10.9	(91.5)	HRA	190	-	990	-	-	-	43	4.8	5.1	5.4	-	-	-
KF2-alloy	SKH57+VC	KF235ME	HIP	7.8	68	HRC	2740	1770	3680	(26)	215	0.24	18	9.0	9.7	-			-
	SKH57+VC,TiN	KF261ME	HIP	7.6	70	HRC	2260	1670	3920	(19)	222	0.24	19	9.4	9.9	-			-
	SKH57+VC,TiN	KF263ME	HIP	7.3	72	HRC	1960	1570	3380	(6.6)	230	0.23	20	8.8	9.4	-			-

*a ▲ grades are that we apply HIP treatment as your request.

*b Vickers indentation methode on Niihara's formula with our experience factor.

*c Wear resistance testing by ASTM B611-85. This load is 10kg, wheel material is FC20 and alumina slurry.

*d Corrosion resistant. As for the usual solution test, Cl⁻ is 3000ppm, pH3 with sodium citride solution.

*e TAS7000 of Japan Cutting & Wear-resistant Tool Association Standard.

* We might not produce due to shape and dimension of products. We would appreciate that you would ask the inquiry every time.

Especially about the grade whose name starts from T except T15, we would need to discuss with you about the delivery date and etc. before acceptance of orders.

* This document does not show standard values. We would change them without notice.

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