Hardness HRB HRC HB	Rm N/mm²	Fe	Ni	Cr	Co	Mo	W	Si	Mn	C	Al	Ti	Li	P	S	Mg	Zn	Cu	Others
HTA Cobalt Based Alloys																			
350HB	1130	2.0	10.0	20.0	52.0		15.0			0.2									
450HB	1490			30.0	52.0		13.0			2.4									
		2.0	15.0	26.0	50.0	6.0				0.5									
			10.0	25.0	56.0		7.0			0.3									
47HRC	1560	3.0	3.0	31.0	53.0		14.0			1.0									
		2.0	10.5	25.0	56.0	0.5	7.5			0.3									
300HB	970	3.0	3.0	26.0	66.0		5.0			1.0									Nb 6.0
				26.0	66.0		5.0			0.4									
				20.0	63.0	6.0				0.2									
		3.0	20.0	25.0	43.2	4.0	2.0	0.4	1.0			0.3							Nb 2.0
		2.0	1.0	21.0	62.6		11.0	0.3	0.3		0.3	0.5							Nb 2.0
		2.0	10.5	25.5	53.0		7.5	0.8	0.8			0.5							
		2.0	10.5	25.5	54.7		7.0		0.7			0.3							B 0.01
		4.0	20.5	22.5	40.3		12.0					0.8							
		1.0	10.0	25.0	57.6	6.0													
HTA Nickel Based Alloys																			
45HRB	310	0.4	99.8					0.35	0.35	0.15					0.01			0.25	
45HRB	310	0.4	99.9					0.35	0.35	0.2					0.01			0.25	
42HRC	1330	9.0	53.0	19.0	9.0	2.8	1	0.01	0.35	0.06	1.6	0.75		0.02	0.01				
85HRB	550		56.0	31.0			2			0.02	0.25	0.25							Nb 0.4
40HRC	1270		55.4	15.0	17.0	5.25				0.06	4	3.5							
			50.0	30.0															
			48.0	28.0	3.0														
	620	10.0	63.3	15.5		5.2		0.4	0.2	0.15	3	2							
	620	4.5	63.0	15.5		5				0.15	3.5	2.5							
90HRB	600	5.0	62.0	1.5	2.5	28		0.05	0.5	0.02									V 0.4
90HRB	600	1.0	81.0	0.5	0.5	16		0.05	0.5	0.01				0.02	0.015				
200HB	660	6.0	54.1	15.0	2.0	17	5			0.04									
94HRB	660	3.0	56.0	22.0	2.5														
191HV	630	5.5	56.0	15.0	2.5														
	750	3.0	58.0	16.0	2.0														
		20.0	46.0	22.0	2.5														
		20.0	40.0	22.0	5.0														
80HRB	510	4.0	72.5	7.0		16.5				0.02									
		10.0	61.0	15.5	2.5	5.5				0.15	2	2.5							
61HRA	780	3.0	67.0	16.0	2.0														
94HRB	660	4.0	66.5	5.0	1.3	24.5				0.02									
80HRB	510	18.5	48.6	21.8	1.5	9	0.6			0.1									
		3.0	22.0	22.0	37.0														
	1000	3.0	10.0	20.0	bal		15		1.5	0.1									
		0.7	51.4	20.0	20.0	6				0.06	1	1.5							
85HRB	550	8.0	72.0	15.5						0.08									
65HRB	430	14.0	60.5	23.0															
95HRB	660	5.0	61.4	21.5		9				0.1									
88HRB	570	9.0	58.0	29.0				0.2	0.2	0.25					0.007				Cu 0.2
		5.0	73.7	20.0						0.12	0.25	0.4							Cu 0.5
		7.0	74.9	16.0						0.08	0.8	0.25							

Material Guide – Key to Recommended Inserts

Material Designation

P Unalloyed Steels | P Alloyed Steels | M Stainless Steels | M PH Stainless | K Cast Irons | N Aluminum & Alloys | S High Temp. Alloys | H Hard Materials