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 Nickel Based Alloys																			
			61.6	10.0	15.0	3				0.18	5.5	4.7							V 1.0
		38.0	34.0	20.0	2.5														Nb 0.6 Cu 3.5
		25.4	41.0	29.5				0.5	0.75	0.06	0.25	0.6							Cu 0.4
80HRB	510	29.5	42.0	21.5			3	0.5	0.65	0.03	0.2	0.9							Cu 2.25
180-300HB	600-970	34.0	44.3	12.5		6.2		0.22	0.48	0.05		2.5							
380HB	1250	41.0	39.0		15.0						0.7	1.4							Nb 3.0
32HRC	1000	25.4	45.0	21.0		3					0.3	2.1							Cu 1.8
36HRC	1130	18.0	50.0	20.0	3.0														
		7.5	66.0	16.0															
90HRB	600	2.5	58.0	22.0															
		1.0	60.0	22.0	1.0														
85HRB	550	8.0	76.0	16.0						0.075									
		8.0	77.0	15.0															
65HRB	400	14.0	61.0	24.0				0.2	0.5	0.05	1.3				0.008				Cu 0.5
77HRB	480	14.0	61.0	24.0															
			73.0	22.0															
		8.0	72.0	16.0				0.2	0.2	0.04									
		1.0	73.0	20.0															
		6.0	76.0	16.0															
180HB	600	1.0	53.0	22.0	13.0	9				0.07	1								
		8.0	74.0	15.0															
100HRB	780	2.5	58.0	22.0		14.2	3.2												
95HRB	690	4.0	61.0	22.0		9				0.05	0.3	0.3							Cb 3.7
		4.0	61.0	22.0															
		0.5	47.5	50.0															
			51.5	48.0															
			54.0	45.0															
90HRB	600	1.0	58.0	21.0															
85HRB	550	9.0	62.0	29.0				0.2	0.2	0.25					0.007				
		9.0	59.0	30.0															
		5.0	60.0	30.0															
		1.0	79.0	16.0				0.2	0.05	0.04	3.4	0.7							
40HRC	1270	37.0	42.0	16.0						0.03		1.8							Cb 2.9
42HRC	1330	18.0	54.0	18.0		3.1				0.02	0.5	0.9							Cb 5.2
40-47HRC	1560	bal	50-55	17-21	1.0	2.8-3.3		0.35	0.35	0.08	.2-.8	.65-1.15		0.015	0.015				Cb+Ta 5-5.5
38HRC	1200	18.0	54.0	18.0		3.1				0.02	0.5	0.9							Cb 5.2
43HRC	1380	14.7	58.0	18.0	14.7	3	1.25				2.5	5							
		7.0	71.0	16.0				0.15	2.25	0.07	0.1	3							Cu 0.2
34HRC	1070	7.0	74.0	16.0						0.04	0.7	2.4							
37HRC	1170	9.0	58.0	21.0		8					0.3	1.5							Nb 3.5
		9.0	58.0	21.0															
		0.5		16.0	8.5	1.8	2.6	0.3	0.2	0.17	3.4	3.4							Nb 0.9 Ta 1.8 Zr 0.1
		1.0	48.0	25.0	20.0														
34HRC	1070	26.0	28.5	3.0	34.0						5.4	0.1							Nb 0.3
86HRB	550	46.0	31.0	21.0															
70HRB	450	44.0	32.0	21.0				0.35	1	0.08	0.4	0.4		0.02	0.01			0.3	

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