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Thermal Coatings

Coating Type	Hardness Bond Strength	Thickness (Max)	Max Operating Temperature	General/Application
420 Stainless Steel	Rc 33-43 4,500 psi	.200"	Melts at 2600 F	Successfully used on machine elements, such as journal surfaces, cylinder liners, pistons, valve stem, pump plungers, hydraulic rams, C/S bearings etc. Use when a hard coating is required.
Aluminum	Rh 95 4,250 psi	.100"	Melts at 1,150 F	Aluminum-silicon alloy produces coatings which are harder than pure aluminum. Use for machine element work, building up worn aluminum parts, repairing blow-hole castings, changing shape of aluminum castings, etc
Austenitic Stainless Steel	Rb 92 4,100 psi	.100"	Melts at 2600 F	Austenitic, low carbon stainless steel. Resists corrosion and has low shrinkage and good machinability. Successfully used on machine elements such as seal rings, gland casings, valve plugs, low pressure stationary blading & Packing sections, etc.
High Carbon Steel	Rc 23 8,400 psi	.050"	Melts at 2,500 F	Great high carbon steel with low shrink and high wear resistance, used commonly for repairing ID of fans. Erosion resistance
Molybdenum	Rc 15-20 7,900 psi	.025"	Melts at 4,700 F	Great for abrasive resistance, excellent adhesion to steel, excellent in molten metal environment in inert atmospheres. Used extensively in the pulp, paper, printing and chemical industries.
Nistelle C	Rc 39-41 >11,400 psi	.050"	Max Service Temp 1,895 F	Primarily used for its excellent corrosion resistance in very aggressive oxidizing media. It is highly resistant to thermal or mechanical shock, particularly at high temperatures. Good Cavitation, metal-to-metal wear and abrasion resistance and are well suited for application in the chemical industry, good on pumps and valves. Used extensively in the pulp, paper, printing and chemical industries.
Sprababbitt	R15T 2,000 psi	.200"	500 F	Produces dense coatings particularly suitable for high speed and heavy duty bearings. Good electrical conductivity
Sprabronze AA	Rb 65-68 6700 psi	0.100"	Melts at 1,615 F	Sprabronze is an aluminum bronze alloy that produces a dense, wear-resistant coating. Successful applications include pump impellers, bronze castings, plungers, armature bushings, etc. Repair cavitation, readily machinable.
Tungsten Carbide/ Cobalt	Rc 66 > 12,000 psi	.015"	Melts at 2,280 F Max Service Temp 1,000 F	Resistant to abrasion, particle erosion, fretting, light impact and corrosion, Can be ground and polished to extremely fine finishes. Machine part upgrade, compressor parts, valve parts, piston rods, seal & bearing areas, pump & turbine shafts, rollers, etc.
Tungsten Carbide/ Cobalt/Chrome	Rc 65-71 > 12,000 psi	.015"	Service Temp 840 F	Similar to Tungsten Carbide/Cobalt the added Chromium adds a corrosion resistance to this hard dense coating. Good for water application. Alternative to Hard chrome plating and Chromium Oxide

Can also spray: Titanium, Copper, Stainless Steels, Carbon Steel, Aluminum, Brass, Monel, Tin, Zinc, etc

Hardness Conversion Table

Approximate Equivalents

VICKERS DPH HV/10	ROCKWELL C	BRINELL BHN 3000kg	ROCKWELL B
1076	70	-	-
1004	69	-	-
940	68	-	-
900	67	-	-
865	66	-	-
832	65	739	-
800	64	722	-
772	63	705	-
746	62	688	-
720	61	670	-
697	60	654	-
674	59	634	-
653	58	615	-
633	57	595	-
613	56	577	-
595	55	560	-
577	54	543	-
560	53	523	-
544	52	512	-
528	51	496	-
513	50	481	-
498	49	469	-
484	48	455	-
471	47	443	-
458	46	432	-
446	45	421	-
434	44	409	-
423	43	400	-
412	42	390	-
402	41	381	-
392	40	371	-
382	39	362	-
372	38	353	-
363	37	344	-
354	36	336	-
345	35	327	-
336	34	319	-
327	33	311	-
318	32	301	-
310	31	294	-
302	30	286	-
294	29	279	-
286	28	271	-
279	27	264	-
272	26	258	-
266	25	253	-
260	24	247	-

VICKERS DPH HV/10	ROCKWELL C	BRINELL BHN 3000kg	ROCKWELL B
254	23	240	-
248	22	234	100
243	21	228	99
238	20	222	98
234	-	218	97
230	-	214	97
226	-	210	96
222	-	208	96
217	-	205	95
213	-	203	95
208	-	200	94
204	-	195	93
200	-	193	92
196	-	190	92
192	-	185	91
188	-	180	90
184	-	176	89
180	-	172	88
176	-	169	87
172	-	165	86
168	-	162	85
164	-	159	84
160	-	156	83
156	-	153	82
152	-	150	81
148	-	147	80
144	-	144	79
141	-	141	78
139	-	139	77
137	-	137	76
135	-	135	75
132	-	132	74
130	-	130	73
127	-	127	72
125	-	125	71
123	-	123	70
120	-	121	69
118	-	119	68
116	-	117	67
115	-	116	66
114	-	114	65
113	-	112	64
112	-	110	63
111	-	108	62
110	-	107	61
108	-	106	60
107	-	104	59

Thermal spraying is an industrial coating process that consists of a heat source and a coating material in a powder or wire form which is literally melted into tiny droplets and Sprayed onto surfaces at high velocity