



# RED METALS ALLOY GUIDE

11 Industry Drive Bedford, Oh. 44146 Toll Free Number: 888-539-5602

CDA NO.	COPPERS			BRASSES		PHOSPHOR BRONZES		NICKEL SILVERS	
	101	102	110	230	260	510	521	752	770
ASTM B	152	152	152	36	36	103	103	122	122
ALLOY NAME AND NOMINAL COMPOSITION	OFE COPPER (CERTIFIED) 99.99 CU MIN .001 OXYGEN MAX	OF COPPER (Certified) 99.9CU MIN .001 Oxygen Max	ETP COPPER 99.9 Cu MIN 05 Oxygen MAX	RED BRASS 85 Cu 15 Zn	CARTRIDGE BRASS 70 Cu 30 Zn	PHOSPHER BRONZE 5% A 94.9 Cu 5Sn 0.1 P	PHOSPHER BRONZE 8% C 91.9 Cu 8 Sn 0.1 P	NICKEL SILVERS 18% 65 Cu 17 Zn 18 Ni	NICKEL SILVERS 18% 55 Cu 27 Zn 18 Ni

MECHANICAL PROPERTIES										
		A	B	C	D	E	F	G	H	I
DENSITY	A	.323	.323	.322	.316	.308	.320	.318	.316	.314
MOD. OF ELAST	B	17	17	17	17	16	16	16	18	18
ELECTRICAL COND	C	101	101	101	37	28	15	13	6	5.5
THERMAL COND.	D	226	226	226	92	70	40	36	19	17
COEF. OF THERM EXP.	E	9.8	9.8	9.8	10.4	11.1	9.9	10.1	9.0	9.3
ANNEALED	TENSILE	26-38	26-38	26-38	39-47	45-61	46-56	56-65	53-63	61-76
	YIELD	6-13	6-13	6-13	8-19	10-33	19-29	23-35	18-32	23-41
	ELONG.	20-50	20-50	20-50	43-48	40-67	48-62	60-67	29-42	39-48
	ROCKWELL	F 75 MAX	F 75 MAX	F 75 MAX	15-44	16-60	34-47	45-57	39-60	39-65
1/4 HARD	TENSILE	34-42	34-42	34-42	44-54	45-61	49-61	63-75	58-72	69-87
	YIELD	26-39	26-39	26-39	23-48	21-46	22-52	35-62	26-64	44-83
	ELONG.	13-33	13-33	13-33	15-39	34-59	32-50	40-60	14-35	11-41
	ROCKWELL	18-51	18-51	18-51	42-57	43-57	43-63	59-71	49-67	63-75
1/2 HARD	TENSILE	37-46	37-46	37-46	51-61	57-67	58-73	69-84	66-80	78-95
	YIELD	30-44	30-44	30-44	43-54	42-60	47-68	51-75	48-78	64-93
	ELONG.	8-32	8-32	8-32	8-21	19-42	10-38	25-49	6-22	5-24
	ROCKWELL	43-47	43-47	43-47	56-64	56-66	53-69	63-75	62-72	71-78
3/4 HARD	TENSILE	41-50	41-50	41-50	57-67	64-74	68-79	80-92	74-86	88-101
	YIELD	39-48	39-48	39-48	51-60	55-69	61-75	70-85	69-82	84-100
	ELONG.	5-24	5-24	5-24	4-12	8-25	10-20	18-32	4-12	3-13
	ROCKWELL	47-49	47-49	47-49	63-68	65-70	66-73	71-78	66-74	73-78
HARD	TENSILE	43-52	43-52	43-52	63-72	71-81	76-91	85-100	78-91	92-107
	YIELD	41-50	41-50	41-50	57-65	67-78	74-88	78-95	75-90	90-106
	ELONG.	3-16	3-16	3-16	5-9	6-14	9-11	12-30	3-7	3-6
	ROCKWELL	54-62	54-62	54-62	67-71	70-73	71-75	66-75	70-76	76-80
EXTRA HARD	TENSILE	47-546	47-546	47-546	72-80	83-92	88-103	97-112	86-98	102-115
	YIELD	46-55	46-55	46-55	65-71	79-87	85-102	92-107	85-97	101-114
	ELONG.	3-5	3-5	3-5	3-5	2-5	2-6	10-17	3-4	1-2
	ROCKWELL	56-64	56-64	56-64	70-74	74-76	74-78	77-82	74-79	79-82
SPRING	TENSILE	50-58	50-58	50-58	78-86	91-100	95-110	105-119	90-101	108-120
	YIELD	48-57	48-57	48-57	69-76	82-91	92-108	100-113	88-99	107-118
	ELONG.	2-4	2-4	2-4	3-4	1-2	1-3	3-9	1-2	1 MAX
	ROCKWELL	60-66	60-66	60-66	74-76	76-78	76-80	78-83	75-80	80 MIN
EXTRA SPRING	TENSILE	52 MIN	52 MIN	52 MIN	82-90	95-104	100-114	110-122	96 MIN	116 MIN
	YIELD	51 MIN	51 MIN	51 MIN	73-80	86-93	98-110	105-116	95 MIN	115 MIN
	ELONG.	3 MAX	3 MAX	3 MAX	2 MIN	1-2	1-3	2-6	2 MAX	1 MAX
	ROCKWELL	61 MIN	61 MIN	61 MIN	75-77	77-79	77-81	79-83	76 MIN	81 MIN

- A Lbs. per cu. In. at 68° F (Annealed) (x27.68 gms./cu. Cm. at 20° C)
- B x 10<sup>6</sup> PSI, tension
- C % IACS at 68° F ( 20° C) as annealed
- D BTU per sq. ft. per hr. per F° at 68° F (20° C)
- E Inches/inch/°F x 10<sup>6</sup> from 68° F to 572° F ( 20° C to 300C)

- F x 1000 PSI
- G x 1000 PSI (0.2% offset)
- H % in 2 inches
- I .020<sup>+</sup> gauge and above (30T scale)

CONTACT COMET FOR SPECIAL 1-GRAIN SIZE 2-FORMABILITY 3-PROPERTIES