

COBALT ALLOY CHEMISTRIES											
SPECIFICATIONS	NOMINAL CHEMICAL COMPOSITION (WT%)										RC HARDNESS
	C	Cr	Co	W	Ni	Fe	Si	Mo	Mn	Other	
ERCoCr-C	2.3	30	REM	13	<3	<3	0.8	<1	<1		48 - 56
ERCoCr-A	1.1	28	REM	4	<3	<3	1.1	<1	<1		38 - 46
ERCoCr -B	1.4	29	REM	8	<3	<3	1.5	<1	<1		44 - 50
ERCoCr -E	0.25	27	REM		2.5	<3	<1	5			22 - 26

PRE HEAT / POST HEAT INFORMATION			
BASE METAL	PREHEAT TEMP.		POSTHEAT
	°F	°C	
Low Carbon Steel (up to 40% C) for thin sections only	Not Required	Not Required	Air Cool
Low Carbon Steel (up to 40% C) for thin sections only High Carbon Steel (over 40% C) for thin sections only Low Alloy Steel (up to 10% alloy) for thin sections only	200-600	93-315	Slow - Cool
High Carbon Steel (over 40% C) for thick sections only Low Alloy Steel (up to 10% alloy) for thick sections only	300-600	148-313	Slow - Cool
Air - Quench Steels	1100-1200	593-648	Slow - Cool
High Chromium-Nickel (Austenitic) Stainless Steels (304, 309, 316, etc) thin sections only	Not Required	Not Required	Air Cool
High Chromium-Nickel (Austenitic) Stainless Steels (304, 309, 316, etc) thick sections only	200-500	93-260	Slow - Cool
High Chromium-Nickel (Martensitic) Stainless Steels (410, 416, 420, etc) thick sections only	400-600	204-315	Maintain at 400°-600° for 4 hrs. per 1" thickness, then reduce heat 50°F till cool.
High Chromium-Nickel (Ferritic) Stainless Steels (430, 442, 446, etc) thick sections only	200-600	93-315	Maintain at 200°-600° for 4 hrs. per 1" thickness, then reduce heat 50°F till cool.
High Temperature Nickel Alloys (400, 600, 601, 718, etc)	200-500	93-260	Stress Relieve

TYPICAL WELDING PARAMETERS OF COBALT SMAW (ELECTRODES)

Diameter of Rod		Amperage (A)
Inches	Millimeters	Flat
1/8"	3.2	80-110
5/32"	4	120-150
3/16"	4.8	150-180
1/4"	6.4	190-250

TYPICAL WELDING PARAMETERS OF COBALT OAW

Diameter of Rod		TIP SIZE	FLAME	POSITION
Inches	Millimeters			
1/8"	3.2	4	3X-4X	FLAT
5/32"	4	4	3X-4X	
3/16"	4.8	5	3X-4X	
1/4"	6.4	6	3X-4X	

TYPICAL WELDING PARAMETERS OF COBALT GTAW & GMAW

Process	Diameter of Wire		Voltage (V)	Amperage (A)	Shielding Gas
	Inches	Millimeters			
TIG (GTAW)	1/8"	3.2	20-40	90-120	100% Argon
	5/32"	4.0	20-40	120-140	
	3/16"	4.8	20-40	140-160	
	1/4"	6.4	20-40	160-180	
GMAW	0.045	1.2	25-27	180-200	100% Argon
	0.062	1.6	26-28	280-300	