2. FILLER METAL OF COBALT BASED ALLOYS

2.1 Lancaster Alloys Company can offer the following Cobalt weld wire* :

Table 2.1. Stock List of LAC for Cobalt Weld Wire

LAC STOCK #	AMS SPECIFICATIONS	ALLOY NAME	UNS # * *
5385	AMS 5385* * *	21	R30021
5789	AMS 5789	31	R30031
5796	AMS 5796	L-605	R30605
5801	AMS 5801	HS-188	R30188

* Various *cobalt alloys are also available upon request*
** *SAE/ASTM Unified Numbering System for metals* and alloys
* * * AMS 5385 is not a weld wire specification

2.2 Chemical composition of cobalt based weld wire.

Table 2.2 gives chemical composition for filler metals of cobalt based alloys.

2.3 Selection of filler metal.

5385

Although there is no AMS weld wire specification for this alloy, filler metal of 5385 is to be used for welding and repair of casting parts with similar composition.

5789

Due to its very good stress-rupture and creep properties this filler metal is recommended for welding cobalt-based parts of gas turbines, and jet engines.

5796

This filler metal is used in jet engine components, including turbine blades, combustion chambers, rings and afterburner parts exclusively because of its good corrosion resistance, and resistance to oxidation up to 1900°F.

5801

Due to the addition of a small amount of lanthanum, this alloy, besides its excellent high temperature strength, has extraordinary resistance to oxidation up to 2100°F that allows it to be used successfully for gas turbines, airframe, chemical and nuclear applications.

TABLE 2.2
Chemical composition requirements for cobalt filler metals

Weight percent(a)

LAC STOCK #	C	Mn	Si	P	S	Cr	Ni	Mo	B	Fe	W	La
5385	0.20 to 0.30	1.00	1.00	0.040	0.040	25.00 to 29.00	1.75 to 3.75	5.00 to 6.00	0.007	3.00	-	-
5789	0.45 to 0.55	1.00	1.00	0.040	0.040	24.50 to 26.50	9.50 to 11.50	-	-	2.00	7.00 to 8.00	-
5796	0.05 to 0.15	1.00 to 2.00	1.00	0.040	0.030	19.00 to 21.00	9.00 to 11.00	-	-	3.00	14.00 to 16.00	-
5801	0.05 to 0.15	1.25	0.20 to 0.50	0.020	0.015	20.00 to 24.00	20.00 to 24.00	-	0.015	3.00	13.00 to 16.00	0.02 to 0.12

a. Single values are maximum