

6. FILLER METAL OF LOW ALLOY STEELS

.1 Lancaster Alloys Company can offer the following Low Alloy Steel weld wires*:

Table 6.1. Stock List of LAC for Low Alloy Steel weld wire

LAC STOCK #	AMS SPECIFICATIONS	ALLOY NAME	UNS # **
6456	AMS 6456	4340	
6457	AMS 6457	4130	K13147
6458	AMS 6458	17-22	K23015
6461	AMS 6461	6130	K13148

* Other Low Alloy Steel are also available upon request

** SAE/ASTM Unified Numbering System for metals and alloys

6.2 Chemical composition of Low Alloy Steel weld wire.

Table 6.2 gives chemical composition for filler metals of Low Alloy Steels.

6.3 General

These Low Alloy Steels belong to high strength material used for welding primarily steels with similar composition where the weld metal is required to have strength comparable to the parent metal. The weldments made with these filler metals are capable of being heat treated to 180,000 psi tensile strength and higher.

6.4 Filler metals of Carbon Steel

This large group of carbon steels, used for industries other than aircraft and aerospace, also requires high quality filler metal capable of producing welds with strength and other properties matched to those of the base metal. Weld wire of these carbon steels, to the requirements of AWS/ASME specifications (5.18, 5.28), are commonly known and have a tremendous usage and demand. Currently the majority of these weld wires are manufactured with a copper coating to protect the wire from rusting. However, in the last decade, there has been a rapidly growing demand for bare weld wire of carbon steels and custom low alloy steels with a much tighter control of trace elements. Lancaster Alloys Company has the technical experience and the manufacturing capability of producing these weld wires in full compliance with all specification requirements.

Here are just a few examples of the carbon steel and low alloy steel weld wire Lancaster Alloys Company can offer in bare form: ER70S-2, ER70S-3, Along with the ER80, ER100 and ER120 series.

TABLE 6.2
Chemical composition requirements for Low Alloy Steel filler metals

Weight percent (a)

LAC STOCK #	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	O ₂	N ₂	H ₂	V
6456	0.35 to 0.40	0.60 to 0.90	0.15 to 0.35	0.008	0.008	0.70 to 0.90	1.65 to 2.00	0.20 to 0.30	0.30	0.0025	0.0050	0.0010	-
	0.28 to 0.33	0.40 to 0.60	0.15 to 0.35	0.008	0.008	0.80 to 1.10	0.25	0.15 to 0.25	0.10	0.0025	0.0050	0.0010	0.06
6458	0.28 to 0.33	0.45 to 0.65	0.55 to 0.75	0.008	0.008	1.15 to 1.35	0.25	0.40 to 0.60	0.35	0.0025	0.0050	0.0025	0.20 to 0.40
	0.28 to 0.33	0.60 to 0.90	0.15 to 0.35	0.008	0.008	0.80 to 1.0	0.25	0.06	0.35	0.0025	0.0050	0.0025	0.15 to 0.25

a. Single values are maximum.

b. P+S - 0.012