MATERIAL SPECIFICATION FOR ALLOY 440 C (UNS S44000), VACUUM HEAT TREATED

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0	Initial release	09-03-2018	MN	AS	KKD	Released

1.0 **PURPOSE**

1.1 It is the purpose of this material specification to list in concise form of the material requirement for AISI 440C stainless steel for use, wherever specified.

1.2 This material specification is intended to aid the purchasing department in procuring and the vendor in supplying a material which meets the needs of its intended use, and the quality control department in the inspection and release of incoming material.

2.0 **REQUIREMENTS**

2.1 The requirements of specification S.E.S. 26-590 shall apply in addition to the following specific requirements.

3.0 **CHEMICAL COMPOSITION:**

Chemical composition limits are listed below. An analysis of each heat of steel is made by the manufacturer, preferably from a ladle sample taken at or near the time of pouring. The listed elements shall be reported in weight percent.

ELEMENTS	**COMPOSITION RANGE (%)**
Carbon (C)	0.95~1.20 (max.)
Manganese (Mn)	1.0 (max.)
Silicon (Si)	1.0 (max.)
Sulphur (S)	0.03 (max.)
Phosphorus (P)	0.04 (max.)
Chromium (Cr)	16.0~18.0
Molybdenum (Mo)	0.75
Iron (Fe)	Balance

4.0 **HEAT TREATMENT**

4.1 Parts shall be austenitized in a vacuum.

4.2 The austenitizing temperature shall be 1900ºF ± 50ºF. Parts shall be held at temperature for ½ hour minimum.

4.3 Parts shall be quenched in nitrogen.

4.4 Sub-zero treatment at -100ºF ± 20ºF shall be carried out for component cross section larger than 2 inch.

4.5 Temper parts at 300-700ºF for 1 ½ hours minimum.

5.0 **HARDNESS REQUIREMENTS**

After final heat treat, the hardness of the parts shall be in the range 54-58 HRC. A minimum of one hardness test shall be performed for each heat treat lot.