e-Weldone
www.adorwelding.com
October 2009
Vol. 10

Technical Newsletter from
ADOR WELDING LIMITED
Formerly Advani Oerlikon Ltd.

LOW CARBON NICKEL STEEL WELDING ELECTRODES FOR DEPOSITING WELDS OF IMPROVED IMPACT STRENGTH AT SUB ZERO TEMPERATURES DOWN TO -100°C

A wide range of properties is obtained by the addition of different alloying elements. Low alloy steels have mechanical properties depending on the alloys added, to make them suitable for specific applications. Low alloy steel electrodes are famous for their ability to give weld metal of excellent mechanical properties like low temperature toughness, high temperature creep and higher strength. These electrodes are designed for welding of low alloy steels used in structures, piping, pressure vessels, machinery and castings. They give weld deposits of steel containing small amounts of alloying elements such as Mo, Cr, Ni and V which impart properties to weld metal to match those of base metal as closely as possible.

In this article we will discuss the use of low carbon nickel steel weld metal which gives high impact strengths at sub zero temperatures for applications in many industries like refineries, fertilizer plants, etc.

Product Update

CHOPREC 401

Faster response time through 40khz switching frequency circuits resulting superior welding

Improvement in the protection circuits for superior fool proofing against failures

Improving reliability of key components by a factor of 4 over previous generation which has been done in consultation with component manufacturers

Traditionally, nickel steels with Nickel up to 3.5% are welded with E-8018 C1, C2 and C3 class of electrodes. In 2007 edition of ASME Boiler and Pressure Vessel Code Section II Part C weld metals with lower carbon content i.e. 0.05 max. are also included. Along with the normal E-8018 C1, C2 and C3 new weld metals conforming to E-7018 C1L, C2L and C3L have also been introduced. The 'L' designator in these classifications restricts the carbon content to 0.05, which helps in reducing the cracking tendency of the weld deposit and improves the toughness. With the reduction in carbon level the strength also gets reduced. The low carbon, low nickel deposit ensures excellent impact strengths at temperatures up to minus 100°C.

Ador Welding Limited has developed a range of low carbon nickel steel electrodes in the 7018 classification for welding of 2.5% Ni, 3.5% to 3.75% Ni as well as 1% Ni. To learn more about these electrodes, please click on the links provided below

Products	Classification (AWS A/SFA 5.5 E)	CVN Impact 27J at
Tenalloy 70A L	7018C1L	-75°C
Tenalloy 70B L	7018C2L	-100°C
Tenalloy 70C L	7018C3L	-50°C

These electrodes are low hydrogen iron powder types and have been specially designed for welding of Ni alloy steels which are used for their high ductility, toughness at sub zero temperatures.

Typical applications are for welding of Ni steels mainly for fabrication of parts subjected to low temperature service. For fabrication of cold storage tanks, pressure vessels and heat exchangers used in refineries and fertilizer plants, etc. The electrodes are suitable for joining A, B grades of SA 203/203M and 352 LC3/LC4 where better low temperature notch toughness is required.

Please contact **Technical Marketing at cmo@adorians.com, +91-22-6623 9300/35** for more information and for the right selection of welding consumables for your specific applications.

Project Engineering Solutions

ADOR Institute of Welding Technology

Welding & Cutting Solutions

Centre for Engineering Excellence

Energy Solutions

ador WELDING

WELDERS TO THE NATION

ADOR WELDING LIMITED

www.adorwelding.com

cmo@adorians.com **Contact us**