



Contribution ID: 191

Type: **Poster presentation (105min)**

## **A cryogenic treatment system for treating large rolls**

*Thursday, 10 July 2014 10:30 (2h 15m)*

Cryogenic treatment is a supplementary process of traditional heat treatment which has been acknowledged for many decades as an effective method for increasing wear life, dimensional stability and mechanical properties such as yield strength, hardness et al.

A customized cryogenic treatment system for treating large rolls has been designed, built and tested. Liquid nitrogen has been employed to provided cooling capacities; and the temperature can be controlled from -180 °C to the room temperature with an accuracy of  $\pm 3$  °C by the developed temperature controller. The major problems and the efforts to overcome them in the development process will be described. The performance characteristics of this system and some experimental effects of cryogenic treatment on the large rolls will also be presented in this paper.

**Primary author:** Mr GUO, Jia (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS)

**Co-authors:** Mr ZHANG, Hong (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS); Prof. WANG, Junjie (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS); Mr GU, Kaixuan (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS); Mr CHEN, Liubiao (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS)

**Presenter:** Mr GUO, Jia (Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, CAS)

**Session Classification:** Thu-Mo-Posters Session 3.2

**Track Classification:** C-05: Cryostat technology