



Introduction of FRONTICS

■ What's FRONTICS

FRONTICS is a specialized company in “Material Properties Test Equipment” founded in September, 2000. Based on research results accumulated for a long time, we have developed and supplied assessment devices for property and residual stress of various structures and materials coping with the demand of industrial and public institutions.

■ History of FRONTICS

- 2000. 09 Company founded
- 2000.10 Released AIS2000 (Indenting nondestructive tensile property testing machine) and patent applied
- 2001. 04 AIS2000 obtained NT Certificate (Korean New Technology)
- 2004. 07 AIS3000 (Indenting nondestructive residual stress testing machine) and patent applied
- 2004. 08 Released AIS2100 (Upgraded version of AIS2000)
- 2005. 11 AIS3000 obtained NEP Certificate (Korean New Technology)
- 2006. 03 Completed the development of Nano / Micro Indenter
- 2007. 05 Founded Frontics West for North American market (California)
- 2007. 12 Obtained Award of Minister of Industry and Energy in commercialization of new technologies
- 2008. 04 Selected as Good Product from the Office of Supply
- 2008. 10 ISO/TR29381 approved
- 2009. 01 Released *Micro* –AIS and AIS3000 Compact
- 2009. 08 Organized ASME Code Case TG (Tasking Group) (ASME Sec. IX)
- 2009. 09 Company head office moved for expansion
- 2009. 10 Obtained Quality Management System standard (KSQ ISO9001:2009 / ISO9001:2008)
- 2010. 09 Registered Central Contractor Registration (CCR) vendor of U.S Federal Government
- 2010. 11 Released a new product, AIT-U



※ Awards

President's Medal of Korean Scientific Technology (2002), Top Paper Award of The Korean Institute of Metals and Materials (2004), First Prize of 100 Excellent Patent Products (2006, 2007), ISOPE (2007) Best Paper Award, Commercialization new technology Award of Minister of Industry and Energy (2007)

■ FRONTICS AIS(Advanced Indentation System) Equipment

▲ Overview

Instrumented Indentation Technique (IIT) applied to FRONTICS AIS series is technique to test material properties and characteristics such as tensile properties, residual stress and fracture toughness after getting Indentation load- Displacement Curve with measuring indentation depth by indentation load consecutively and analyzing this. Comparing to other test methods, it has convenient and accurate test result so it has approved as KS and ISO Standard and it was registered as standard in KEPIC.

▲ Features and benefits of AIS series equipment

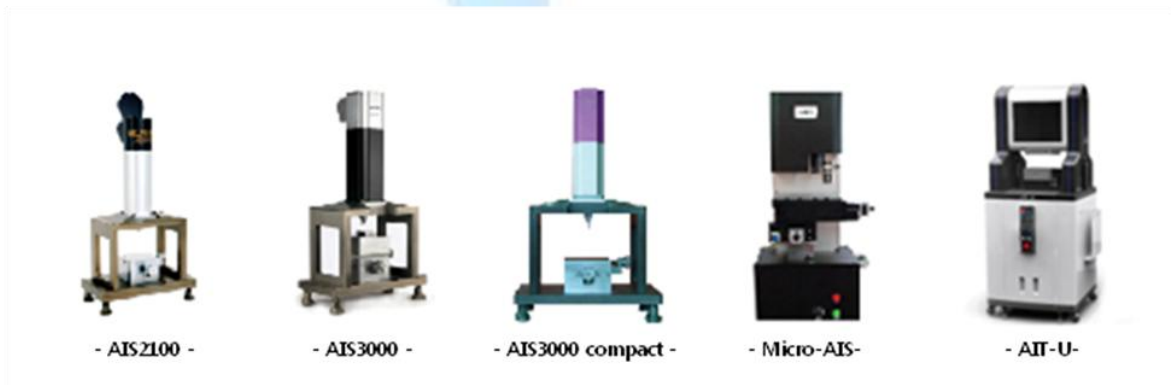
1. It prevents industrial accidents and losses with safety inspection and remaining life prediction of industrial facilities through nondestructive test.
 - It is possible to test general properties including transformation and destruction considering residual stress effect only with non-destructive indentation mark formed on the part which is hard to collect specimen to test mechanical properties.
2. Test cost and time saving with application of indentation test at site
 - Possible to save cost and get test result fast as complicated test specimen preparation is not required.
3. Possible to reduce manufacturing cost and weight of structure according to establishment of reliability, and to select proper time to repair or exchange
 - Contributing to structure operation by presenting prompt countermeasures in case of abnormal condition of the structure
 - Possible to secure safety of the structure by checking changes of properties periodically during operation of the structure
 - Possible to select economical exchanging time through various mechanical property test



▲ Uses of AIS series equipment

- Industrial facilities such as power plant, railway, aviation and shipbuilding
- In-field diagnosis on material degradation and aging of the facilities
- Used as means of verification of PQR (Pre-qualification Record) such as CMTR, CC and WPS
(Check defective material when receiving new material for new construction/ repair)
- Reliability verification of stress removal heat treatment before/after construction, and after repair
- Property test of weak part of power plant plumbing fixtures (welding part, expanding end, curved tube)
- Structure damage assessment (data providing for lifetime assessment)

▲ AIS series



▲ Applications of the AIS series



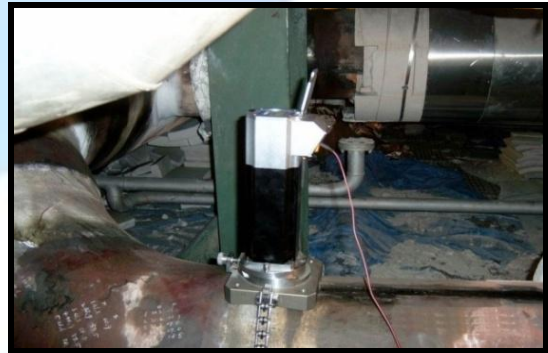
Boryeong thermoelectric power plant



Sancheong pumping-up power plant



Youngheung thermoelectric power plant



Ulsan thermoelectric power plant

▲ Standard of Domestic and Foreign

D O M E S T I C		KS B0950 : Metallic materials – Instrumented indentation - Test for indentation tensile properties	2002. 11
		KS B0951 : Instrumented indentation tests on welds in steel - Measurement of residual stress on welded joints	2005. 05
F O R E I G N		KEPIC(Korea Electric Power Industry Code) proposal	2005. 12
		MDF A370 adoption - Nuclear power plant, thermoelectric power plant	2006. 05
F O R E I G N		Title: “Metallic material - Instrumented indentation test for tensile properties”	2003
		Title; ‘Instrumented Indentation test on weld in steel – Measurement of residual stress on weld joints” ISO/TR29381 approved (2008 published)	2008