

### Advanced Indentation System 3000 HD



## Indentation System for evaluation of Residual Stress and Tensile Properties in nuclear power plant equipment

### Compact equipment

- Size :  $\Phi 90 \times 320\text{mm}$
- Weight : 5 kg
- Max. load : 120 kgf (Resolution: 5.6 gf)
- Stroke : 40 mm (Resolution: 0.1  $\mu\text{m}$ )
- Communication : CAN / Bluetooth

### Powerful functions

- Non-destructive residual stress evaluation
- Seamless integration with IIT
- Application of ISO / TR29381
- Application of KS B0950 / KS B0951 (Korean standards)
- Application of KEPIC MDF A370 code

### Evaluation of tensile strength of bonnet Tube



Object : Evaluation of tensile strength of bonnet and indicator

Location : Kori nuclear power plant

Subject : ASME SA-182 GRAD F316L

### Purpose

The test on yield strength and tensile strength of the surface of bonnet, indicator and disk for materials of a flow control valve for subsidiary water supply for evaluation on material integrity

### Evaluation of residual stress of SG water pipes



Object : Evaluation properties of rotor groove

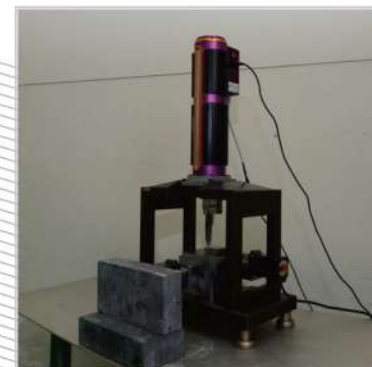
Location : Wolsong nuclear power plant

Subject : SG water pipes

### Purpose

The purpose for evaluation on integrity of before and after PWHT of the welding parts of elbow and nozzle of SG water supply piping that are installed at a nuclear power plant

### Evaluation of properties of block specimen



Object : Evaluation of properties of block specimen

Location : Korea atomic energy research Institute

Subject : Processed block specimen

### Purpose

The purpose for verification on shielding function of radiation of the AIS3000HD equipment through comparison between the equipment that does not have a shielding function of radiation and the AIS3000HD equipment that has a shielding function of radiation at the environment of radiation

### AIS3000 HD



### Wireless communication

- Bluetooth module for convenience on site
- Possible to communicate within 100 m



### Dovetail slider

- Possible to do profile test (X-axis 75mm, Y-axis  $\pm 3\text{mm}$ )



### Portable grinder

- Polishing the surface of the specimen

**More Powerful**



### AIS3000 HD

Indentation System for evaluation of Residual Stress and Tensile Properties in nuclear power plant equipment

**Software**

- Simple and neat screen
- GUI application based on windows
- Easy and Quick test mode conversion
- Software focusing on convenience while classifying progressing test stages
- Possible to check the graph of result data on the result window
- Creating files for analysis result documents automatically

**Items**

- Tensile properties
- Residual stress
- Hardness
- Thickness
- Fracture toughness

**AIS3000HD Features**

- Shielding function of radiation
- Design of vibration isolation structure for high loads and precise tests
- Minimization of noise using CAN communication
- A Built-in temperature sensor for warning overheating of equipment
- OLED LCD (0.96") applied
- A Non-slip plastic cover applied
- Available to measure thickness of test targets using a ultrasound probe



**AIS3000 HD Features**

**Seamless integration with instrumented indentation test (IIT)**

The AIS3000HD is designed to be advantageous for shielding of radiation and is a high-durability indentation tester that is available for measuring properties quantitatively such as tensile property, residual stress, hardness etc. at the operation environment of a nuclear power plant (radiation, radioactivity, temperature, vibration etc.) and various sites. Besides, it is possible to test by using wireless module and a laptop even at a narrow place where it is difficult to supply a power by miniaturization and simplicity of the equipment for convenience.

- Evaluation of residual stress and tensile properties using IIT
- Prompt on-site evaluation using a non-destructive method
- Application of AIS3000 V3.0
- Convenience and portability by using Tablet PC



**Convenience and portability**

- Maximization of weight loss and portability
- Realization of protection degree for product protection in field (IP31)
- Realization of product protection through design minimized of impact

**Equipment organization according to user demands**

- Hybrid-tester of thickness testing module
- Practical design of structure for radiation shield
- CAN communication to minimize noise and data loss



▶ Life assessment in aged water pipe