



KOREA INSTITUTE OF
MACHINERY & MATERIALS

Press Release

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Strengthening the reliability of the materials, parts and equipment industries and creating synergy through on-offline infrastructure

- KIMM Dept. of Reliability Assessment establishes online and offline infrastructure to strengthen the reliability of the materials, parts, and equipment industries -
 - Development of the Reliability assessment test bed for strategic items in manufactured equipment, and the virtual engineering platform for part manufacturing of future transportations -
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- ☐ The Korea Institute of Machinery and Materials (KIMM, President Sang Jin Park), an institution under the jurisdiction of the Ministry of Science and ICT, has announced its plans to establish online and offline infrastructure to strengthen the reliability of the domestic materials, parts, and equipment industries and to create a synergistic effect.

- ☐ Dr. Jong-won Park, head of the KIMM Department of Reliability Assessment, and his research team have established a new infrastructure for the materials, parts, and equipment industries by 1) building an offline testbed for reliability assessment of strategic items in manufacturing parts and equipment, and 2) developing an online virtual engineering platform for part manufacturing of future transportations.
- ☐ The offline testbed for reliability assessment of strategic items in manufacturing parts and equipment was prepared with the goals to secure quality competitiveness among companies based on reliability and to stabilize the supply of key strategic items for the manufacturing parts and equipment industry.
- ☐ Using this system, the reliability can be assessed for the strategic items for manufactured parts and equipment industries, such as high precision reducers and servo motors for robots, controller in CNC machine tools and LM guides, cutting tools for high hardness materials, active magnetic levitating bearings, ball and roller bearings, and turbo molecular vacuum pumps.
- ☐ From now on, domestic companies can receive reliability assessment of strategic items by using the offline infrastructure established within KIMM. Before this system was introduced, these strategic items had to be certified by foreign companies in order to receive reliability assessments, which often resulted in substantial difficulties in both economic and time management matters. The new system will become a solution for these difficulties, providing quick and stable supply of these strategic items.
- ☐ Another part of this new development is the online establishment of virtual engineering platform for part manufacturing of future transportations. This online virtual platform is

an open source-based, free S/W that tests the performance of parts, predicts relevant processes and productivity, and optimizes the system through the “KIMM Cyber Lab.”

- ☐ Through this platform, the small and medium-sized enterprises can not only receive non-face-to-face technical supports, but also can foster their capacities for virtually testing and manufacturing their own products.
- ☐ Companies that wish to utilize the reliability assessment test bed for strategic items can apply for testing and inspection support after registering as a member at the KIMM website (<http://kimmtest.kimm.re.kr>). Those who wish to receive technical support regarding the virtual engineering platform can apply at the “KIMM Cyber Lab” website (<http://www.kimmcyberlab.com>), operated by the Dept. of Reliability Assessment at KIMM.
- ☐ Dr. Park stated that, in the era of the COVID-19 pandemic, non-face-to-face approaches and digital transformation are being applied to the field of machine technology in the materials, parts, and equipment industries. He then added that the research team will give their best efforts for enhancing reliabilities in these industries using both online and offline infrastructures, to secure the reliability-based quality-competitiveness for products that need urgent localization and to contribute in creating global quality-competitiveness.

[List of Attachments]

- Attachment 1: The Test Bed for Reliability Assessment of Strategic Items in Manufacturing Parts and Equipment (Photos)
- Attachment 2: The Online Virtual Engineering Platform for Part Manufacturing of Future Transportations (Photos)

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The Korea Institute of Machinery and Materials (KIMM) is a non-profit government-funded research institute under the Ministry of Science and ICT. Since its foundation in 1976, KIMM is contributing to economic growth of the nation by performing R&D on key technologies in machinery and materials, conducting reliability test evaluation, and commercializing the developed products and technologies.

Credit : The Korea Institute of Machinery and Materials (KIMM)

Usage Restrictions of Multimedia (Attachment File) : The sources of photos and research results from KIMM must be specified.

- Attachment 1: The Test Bed for Reliability Assessment of Strategic Items in Manufacturing Parts and Equipment (Photos)

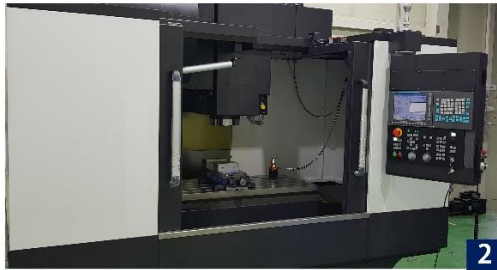
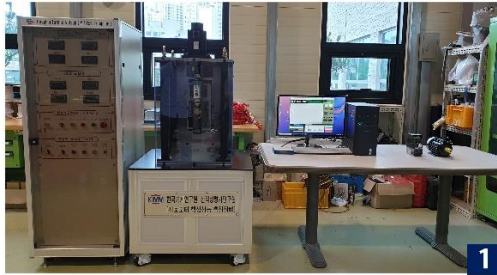


Photo description: The KIMM Department of Reliability Assessment's reliability assessment test bed, built for strategic items in the manufactured parts and equipment industries

- 1) The key performance measuring equipment for servo motors (for robots)
- 2) The reliability assessment mechanism for controller in industrial single-axis machine tools
- 3) The reliability assessment equipment of the high precision reducers (for robots)

- Attachment 2: The Online Virtual Engineering Platform for Part Manufacturing of Future Transportations (Photos)



Photo description: The KIMM Cyber Lab S/Ws developed through the virtual engineering platform development project

- Website: www.kimmcyberlab.com
- Additional example videos and files on the KIMM Cyber Lab will be updated on September 21st.

- 1) KIMM Cyber Lab S/W: *KIMM-Structure v3.0*
- 2) KIMM Cyber Lab S/W: *KIMM-Car*
- 3) KIMM Cyber Lab S/W: *KIMM-Flow v3.0*