

# **DKN Research Newsletter**

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(Micro Electronics & Packaging)

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## **M-Tech 2017**

Tokyo Big Sight 21<sup>st</sup> hosted the Mechanical Component & Materials Technology Expo (M-Tech) on June 21<sup>st</sup>. The three day show included the 21<sup>st</sup> *Design Engineering & Manufacturing Solutions Expo (DMS)*, the 25<sup>th</sup> *3D Virtual Reality Expo (IVR)* and the *Medical Device Development Expo (MEDIX)*.

M-Tech is Japan's largest trade show for mechanical parts and plastic processing technologies. The show is huge – well over 2400 companies participate in the show; the entire floor of the East Hall was packed with exhibition booths. The official attendees reached almost one hundred thousand visitors. By my observation, most of them were engineers from smaller companies who were in search of technologies to solve current processing problems.

In my opinion, the show is too big. There were too many exhibitors and visitors in a limited amount of space, so it was impossible to navigate the show's 2000 + booths. My strategy was to be picky, prioritize my time and focus on companies that featured small components and medical devices. One problem I found is most of the exhibitors were from small local companies who did not have the experience to set up and organize a trade show booth, so they relied on local governments from prefectures and towns to reserve large booths and organize them. Products that were on display were from local prefectures and towns – it made for a jumble of products and technologies. If you were interested in specific products or technologies, the booth layout would drive you crazy. You would have to view the entire exhibition to compare similar technologies from different companies.

The original purpose for the exhibition was to showcase all sorts of metallic parts and processing technologies; however, the show evolved and now includes plastic, ceramic and hybrid materials. There are many types of electronic components, and a lot of small subcontracting shops that specialize in the mechanical process participated in the show. These shops don't manufacture their own products; what they do is receive work from manufacturers who need assistance in assembling.

Screws and springs remain the most featured product at the show. One would think "what else can you do to improve a screw?" "Is there any room for

technical improvements for a spring?” Well, the manufacturers of these basic parts continue to introduce new technologies and products. Since screws and springs are not in my business circle, I did not expect to leave there with a surprise new technology to share with my readers. I did discover a couple of new ideas that will create a new process when constructing stretchable devices for use with wearable and medical electronics.

The show was great, but I was exhausted after my first day. Navigating through the unorganized booth layout took its toll on me. Maybe the organizers of this show should use some sort of electronic device to assist in the layout of the booths. I can help them with that.....

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#### Headlines of the week

(Please contact [haverhill@dknresearch.com](mailto:haverhill@dknresearch.com) for further information of the news.)

1. Olympus (Major optical device manufacturer in Japan) 6/27  
Has commercialized a new industrial microscope “MX63/Mx63L” for the inspections in the manufacturing process of semiconductors and FPD. Its table can manage large wafers up to 300 mm.
2. Hitachi Automotive Systems (Manufacturer of automobile devices) 7/3  
Had agreed to make a joint venture with Honda Motors for the development and manufacturing of electric motors for the electric vehicles.
3. LIXIL (Major supplier of housing devices in Japan) 6/29  
Has rolled out a new solar power panel “E Series” with high efficiency photovoltaic cells. It has two choices depend on the house designs.
4. Sharp (Major electronics company in Japan) 7/3  
Has rolled out a new monitoring robot in the U.S. for the security management both of inside and outside of the buildings. It has an auto-driving capability with a 360 degree camera.
5. Toppan Forms (Major printing company in Japan) 7/3

**Has established a 4 micron printing capability with silver ink for see through devices such as touch sensor panels.**

**6. Topcon (Major optical device manufacturer in Japan) 7/7**

**Has started the operation of the new plant in Yamagata Prefecture. The new plant produces precious robotic measurement equipment with a high reliability.**

**7. Rohm (Major device manufacturer in Japan) 7/6**

**Has rolled out a new testing board “BM92AxxMWV-EVK-001” with USB type termination. It covers wide range from mobile devices to 100W class devices.**

**8. Kyoto University and Yamagata University (Japan) 7/7**

**Have co-developed new organic electro-luminescence device without rare earth elements. It has a new lighting mechanism.**

**9. Tokyo University of Agriculture and Technology (Japan) 7/7**

**Has developed a new lead-free perovskite type photovoltaic cell introducing thermally stable organic compound of iodine.**

**10. Toshiba (Major electric and electronics company in Japan) 7/11**

**Has started the sample supply of the world first 3D flash memory “BiCS FLASH” with TSV packaging. It reduced the access time and energy consumption.**

**11. Nippon Paper (Major Paper manufacture in Japan) 7/11**

**Has developed a new visual monitoring system for temperature and vibration of the manufacturing facilities introducing wireless IoT technologies.**

**12.**

**13.**

**14.**

**15.**

**16.**

**17. Renesas Electronics (Major semiconductor manufacturer in Japan) 6/8**

**Has manufactured a new low power consumption SRAM for IoT devices used in home & healthcare equipment introducing SOTB structures.**

**18. Kyoto University (Japan) 6/8**

**Has co-developed a new filtering system to remove carbon dioxide injecting MOF (nano size particles) in PIM-1 (a kind of high polymer).**

**19. Toshiba Materials (Subsidiary of Toshiba) 6/13**

**Has agreed with Kyocera to cooperate for the R&D and commercialization of nitrate ceramic products targeting automobile parts.**

**20. Shimadzu (Major analytical equipment manufacturer in Japan) 6/13**

**Has commercialized a new high resolution scanning probe microscope “SPM-8100FM”. It has nanometer level resolution with high speed data processing.**

**21. Toshiba (Major electric & electronics company in Japan) 6/13**

**Has received an order for large scale hydrogen fuel cell system (100kW) from Showa Denko. The system will be installed in a new hotel in Kawasaki.**

**22. NEC (Major electronics company in Japan) 6/13**

**Has rolled out a new OCR scanner “N6370E”. It is capable to process 210 sheets per minute with a higher resolution.**

**23. Furukawa Electric (Major cable manufacturer in Japan) 6/16**

**The R&D project of carbon nano tube (CNT) wire was accepted by the government. The new CNT wire will realize high efficiency motors for electric automobiles.**

**24. Arakawa Chemical (Specialty chemical supplier in Japan) 6/16**

**Has co-developed a new AD process (Aerosol Deposition) with AIST. The new process enables ultra thin coating of ceramic materials on plastic substrates.**

**25. Tokyo Institute of Technology (Japan) 6/15**

**Has discovered a special conversion phenomenon that increases the efficiency more than 50% by irradiating tera-Hertz radio magnetic wave on a ceramic including Bi and Co.**

**26. Tokyo University (Japan) 6/16**

**Has co-developed a new chemical sensor for agriculture. The new device detects agricultural chemicals in the firm air effectively and quickly.**

**27. NEDO (Major R&D organization in Japan) 6/19**

**Has started a new project to develop cost effective recycling process for rare earth metals utilizing electronic wastes.**

**28. Toshiba (Major electric & electronics company in Japan) 6/19**

**Has developed a new strain gage introducing spintronics technologies. The sensitivity of the new device is more than hundred times higher compared to the traditional semiconductor devices.**

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