

## Energy and Environment



### 【New Energy】

Solar Power (Sharp Corporation., KANEKA CORPORATION, SHOWA SHELL SEKIYU K.K., Mitsubishi Heavy Industries, Ltd., System JD Co., Ltd.)	2012, 2009, 2010, 2010, 2016
Direct Currents Server Center (NTT FACILITIES, INC)	2012
Wind Power (Fuji Heavy Industries Ltd., Zephyr Corporation)	2010, 2012
Biomass Power (METAWATER Co., Ltd. / Bureau of Sewerage Tokyo Metropolitan Government, Chugai Ro Co., Ltd.)	2011, 2013
Residential Fuel Cell System“ ENE· FARM” (TOKYO GAS Co., Ltd., Osaka Gas Co., Ltd.)	2011, 2013
Small-scale Onsite Hydrogen Production Equipment (Mitsubishi Kakoki Kaisha, Ltd.)	2014
Innovative Blowers for Fuel Cell Systems (Techno Takatsuki Co., Ltd.)	2016
Bioethanol Production (Yamaguchi University / SAPPORO HOLDINGS LTD. / Iwata Chemical Co., Ltd.)	2018
<b>NEW</b> Lithium-Ion Batteries (Toshiba Corporation)	2019



### 【Energy Conservation】

Residential Heat Pumps (DENSO CORPORATION)	2013
Clean Diesel Engine (Mazda Motor Corporation.)	2013
Continuously Variable Transmission for Vehicles “Belt CVT” (JATCO Ltd)	2013
Hybrid System for Trucks & Buses (Mitsubishi Fuso Truck and Bus Corporation.)	2009
Lithium Ion Battery for EV, PHEV (Hitachi Vehicle Energy, Ltd.)	2009
Hybrid Hydraulic Excavators (Kobelco Construction Machinery Co., Ltd. / Kobe Steel, Ltd.)	2012
Gas Turbine for Thermal Power Generation (Mitsubishi Heavy Industries, Ltd.)	2012
Micro Steam Energy Generator “SteamStar” (Kobe Steel, Ltd.)	2011
Gas Engine Cogeneration System (Mitsui Engineering & Shipbuilding Co., Ltd.)	2013
Refrigerant-based Freezing System for Ultra-low-temperature“ PascalAir” (MAYEKAWA MFG. CO., LTD.)	2013
Energy-Saving Air-Conditioning System (JFE Engineering Corporation.)	2011
Pinch Technology (Chiyoda Corporation)	2014
High Performance Industrial Furnace (Japan Industrial Furnace Manufacturers Association)	2012
Distillation Facilities“ HIDiC” (Kimura Chemical Plants Co., Ltd.)	2013
ECM Cement (Tokyo Institute of Technology / Takenaka Corporation / Kajima Corporation / Nippon Steel & Sumikin Blast Furnace Slag Cement Co., Ltd. / DC Co., Ltd. / Taiheiyo Cement Corporation / Nippon Steel & Sumikin Cement Co., Ltd. / Takemoto Oil & Fat Co., Ltd.)	2017
SiC Power Semiconductor (AIST / Mitsubishi Electric Corporation / Odakyu Electric Railway Co., Ltd.)	2017
<b>NEW</b> Energy-Saving LED Lamp with Ultrahigh Intensity and Ultrahigh Flux (Shikoku Instrumentation Co., Ltd.)	2019



## 【Resolution of Global Environmental Problems】

Sulfur-Free Diesel Fuel (COSMO OIL CO., LTD.)	2008
Device for Gasoline Vapor (Tatsuno Corporation)	2012
Eco-Diesel Engine (UD Trucks)	2008
Measures against Asbestos (JAPAN MATEX CO., LTD, Hokuriku Electric Power Company, TAISEI Corporation)	2010, 2011, 2012
Measures against Fluorocarbons (Panasonic Corporation, Tsukishima Kankyo Engineering Ltd.)	2011, 2012
Alternative for Fluorocarbons (Kanto Denka Kogyo Co., Ltd., TOSOH F-TECH INC.)	2009, 2013
VOC-Free Coating Process (KAMI ELECTRONICS IND, CO., LTD,)	2011
Halogen-free Insulating Film (Showa Denko K.K.)	2010
Epoxy-Urethane Pad for Glass Polishing (KOKONOE ELECTRIC CO.,LTD. / Ritumeikan University)	2013
Double-Arm Construction Machinery (Hitachi Construction Machinery Co., Ltd.)	2012
Clean Waste Disposal Technology“ Stoker Furnace” (JFE Engineering Corporation)	2009
Integrated coal Gasification Combined Cycle (IGCC) (MITSUBISHI HITACHI POWER SYSTEMS,LTD. / JOBAN JOINT POWER CO.,LTD.)	2013
RPF Manufacturing Equipment (EARTHTECHNICA Co., Ltd. / SEKISHOUTEN Co., Ltd.)	2014
Home Appliance Recycling (Hitachi, Ltd. / Tokyo Eco Recycle Co.,Ltd.)	2015
Waste Plastic Recycling (JFE Steel Corporation)	2015
Water Treatment System (GWSTA)	2018

## Industrial Technology



### 【Electronic·Information】

Blue-ray Disk (Sony Corporation)	2010
Home IT System (Toshiba Home Appliances Corporation)	2008
Hard Disk Drive (HGST Japan)	2010
MEMS (OMRON Corporation)	2014
Nonvolatile Memory (FUJITSU LIMITED / FUJITSU SEMICONDUCTOR LIMITED)	2010
Plasma Semiconductor Manufacturing Technology (Tokyo Electron Limited / Tohoku University, NuFlare Technology, Inc.)	2010, 2012
Laser-related Technology for Semiconductor Manufacturing (Gigaphoton Inc., Osaka University/ Kogakugiken Corp.)	2009, 2013
Standard Scale for Semiconductor Inspection (National Institute of Advanced Industrial Science and Technology / Hitachi, Ltd. / Hitachi High-Technologies Corporation.)	2013
Eyewear Device for Low-Vision Aid (QD Laser, Inc.)	2018
<b>NEW</b> EUV Mask Blanks Inspection Technology (Lasertec Corporation)	2019



## 【Material】

Polycrystalline Diamond for Cemented Carbide Tool (Sumitomo Electric Industries, Ltd.)	2013
Visible Light Responsive Photocatalyst (Showa Denko Ceramics Co., Ltd., TOTO LTD., Panasonic Corporation)	2014
Polarizing Films for LCD Displays (ZEON CORPORATION.)	2011
Die Bonding Film for Semiconductor Bonding (Hitachi Chemical Company, Ltd)	2011
Impact Resistance Plastics (Toray Industries, Inc.)	2012
"FORESSE", Organic Solvent-Free Fibers" (Toray Industries, Inc.)	2009
Polymer Simulation (JSOL Corporation)	2009
Ultra-precise Slicer (NACHI-FUJIKOSHI CORP.)	2012
Metallic Glass (ALPS ELECTRIC CO., LTD)	2009
Residential vacuum insulation panel (Panasonic Corporation)	2010
Production of Single-walled Carbon Nanotubes (Zeon Corporation / AIST)	2016
Mass Production Processes Using Microwave Technology (Microwave Chemical Co., Ltd.)	2016
Hair Restorer for Women (NANOEGG Research Laboratories, Inc.)	2018
<b>NEW</b> High-Performance Bio-Resin from Plant Seeds (Hitachi Zosen Corporation / Osaka University)	2019
<b>NEW</b> Cellulose Nanofiber (Nippon Paper Industries Co., Ltd. / The University of Tokyo)	2019



## 【Robot·Welfare Equipment】

Transfer Caring Support Wheelchair"Norisuke-san"(IDEA SYSTEM CO.,LTD.)	2013
Wheelchair and Mattress Washing Machines (ATAM Giken Co., Ltd.)	2013
Short Lower-limb Brace Kawamura Gishi Co.,Ltd.)	2010
Robot suit HAL® (CYBERDYNE Inc.)	2011
Smart Suit (Smart Support Technologies Inc. / Hokkaido University)	2016
Quince (CHIBA INSTITUTE OF TECHNOLOGY)	2013
Three-Dimensional Vision Sensor (3D MEDiA Company Limited)	2016
Establishment of safety requirements and a certification system (AIST / JARI / Nagoya University)	2017
Personal Mobility (WHILL Inc.)	2018
<b>NEW</b> Smart Mobility Vehicle (Tmsuk Company Limited / NTT DOCOMO, Inc. / Kyushu University)	2019



## 【Medical Biotechnology】

Intelligent Operating Theater (Tokyo Women's Medical University)	2009
4D X-ray CT System (Toshiba Medical Systems Corporation)	2011
Laser Scanning Microscope (Olympus Corporation)	2008
Electron Microscope (JEOL Ltd.)	2009
Mass Synthesis of Enzymes for the Study of Sugar Chains (Tokyo Chemical Industry Co., Ltd.)	2010
Confocal Laser Scanner (Yokogawa Electric Corporation)	2011
Next-generation 4D Radiation Therapy System (Mitsubishi Heavy Industries, Ltd / Kyoto University / Foundation for Biomedical Research and Innovation)	2015
Hepatic Fibrosis Glycosylation Marker (Sysmex Corporation / AIST)	2015
Cerebral Infarction Risk Assessment (Amine Pharma Research Institute Co., Ltd.)	2015
Zebrafish for Drug Development Screening (Mie University / HASHIMOTO ELECTRONIC INDUSTRY CO., LTD.)	2016
Breast Cancer Detector (SHIMADZU CORPORATION)	2016
Culture Medium and Cell Culture System for Regenerative Medicine (Kyoto University / Nissan Chemical Industries, Ltd. / Nipro Corporation / TWOCELLS COMPANY, LIMITED / Space Bio-Laboratories Co., Ltd. / Osaka University / Osaka Health Science University / Hiroshima University)	2017, 2018
Random Peptide Integrated Discovery System (The University of Tokyo / PeptiDream Inc.)	2018
<b>NEW</b> Artificial Hip Joint (Teijin Nakashima Medical Co., Ltd. / Kyoto University)	2019