

Fine bubble Technology

Ultra-fine bubbles offer abundance of new benefits

With our breakthrough ultra-fine bubble technology, we are challenged with leading this brand new industry.

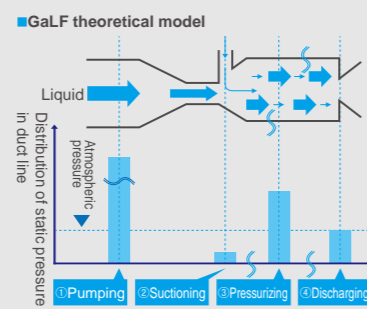


Fine bubbles

Air bubbles 100 micrometers and under are defined as “fine bubbles,” and 1 micrometer and under are “ultra-fine bubbles.” Ultra-fine bubbles saturate and stay in liquid for an extended time, are electrically charged, and are extremely highly pressured, demonstrating unique behavior that has never been seen before. Numerous applications are anticipated using the unique characteristics of ultra-fine bubbles.

IDEC's GaLF (pressure dissolving method) technology

IDEC began researching fine bubbles in 1990. Since then we have improved the pressure dissolving method of ultra-fine bubble generation technology and expanded the range of applications including water treatment. The pressure dissolving GaLF is capable of generating ultra-fine bubbles in larger volume compared with other methods. Currently, we are engaged in the manufacturing and sale of ultra-fine bubble equipment and fine bubble equipment specific to growing plants.



[Fine Bubble Industries Association (FBIA)]

Incorporated in 2012 as a general association, the FBIA has been active in promoting the standardization and commercial/industrial applications of fine bubbles. Its membership includes 63 corporations, including IDEC, and 13 individuals from 11 participating universities and other academic institutes. The FBIA centers its efforts on international standardization of measuring fine bubbles.



Our Technology

Integration of research and development, intellectual property and international standards guides us to global success.

Creating an optimal environment for people and machines is our corporate mission. We innovate with technology and functional capabilities as we respond swiftly to a changing society that embraces IoT, Safety2.0 and other new trends. We are always guided by the company's development philosophy, integrating R&D, intellectual property and international standards.



Ikuo Maeda
Safety & Standardization Team
International Standardization & Intellectual Property Strategy Dept.

International standardization and intellectual property strategy

Participation in setting international standards for safety and fine bubbles

Effectively balancing “open” (disclosure) and “closed” (secrecy) access to our new technology enables us to develop markets, expand our market share and succeed globally. We are participating as a Japanese representative on technical committees of standard-setting organizations such as ISO and IEC and are involved actively in the process of establishing international standards for safety and fine bubble technologies. Similarly, our IP Department is making concentrated and strategic efforts in patent applications while focusing on setting international standards.



Our 3-position enabling switch set an IEC international safety standard.

as of March 31, 2016

IDEC-owned domestic and international intellectual property	
Japanese patent rights, Utility model rights	246
International patent rights, Utility model rights*	85

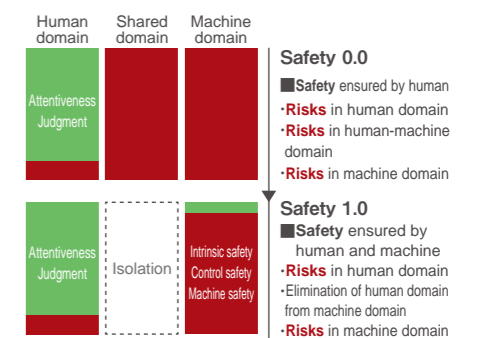
*Total number held outside Japan

Our approach to next generation safety

Advocating Safety 2.0, a next generation safety concept

People, machines and robots increasingly function in concert. IDEC is taking the approach of Safety 2.0 (collaborative safety) in order to elevate safety to a higher dimension, entering into the new business of building manufacturing systems that offer more flexibility, safety and higher productivity, while offering safety consulting services for human-robot collaboration.

*Under Safety 0.0, where safety is secured by human attention and judgment, risks are high both in the machine domain and the human-machine domains. Under Safety 1.0, efforts are made to decrease risks by setting up safety measures for machines while separating the human domain from the machine domain. However, a recent increase in collaboration of humans and robots in shared workplaces for higher productivity brought about the proposal of Safety 2.0, under which safety is ensured more effectively in the human-machine domain by coordinating people, objects and the environment.

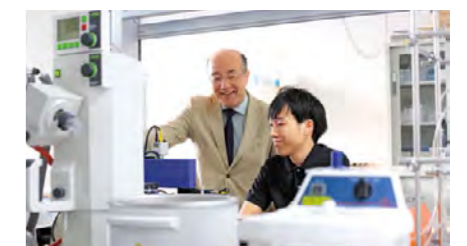


Reference: Nikkei Business Publications, Inc.

Collaboration with corporations, governments and academia

Innovation through cooperation

Our participation in the internationally-renowned “Photonics Advanced Research Center” projects led by Osaka University involves the development of ultra-fine bubble generation, nano-scale measurements and applied technology in collaboration with the university and other corporations. This university-industry collaboration is an incubator for IDEC's new business fields.



IDEC/Osaka University joint laboratory