



January 20, 2022

Press Release

Ball Wave Inc.  
TRUSVAL Technology Co., Ltd.

TRUSVAL Technology starts marketing the trace moisture sensors by Ball Wave exclusively for the semiconductor industry in Taiwan, China, and surrounding A/P regions.

**Key points of the announcement**

- Ball Wave Inc. (Head office: Sendai City, Miyagi Prefecture, Japan; CEO: Dr. Shingo Akao), and TRUSVAL Technology Co., Ltd. (Head office; Zhunan Township, Miaoli County, Taiwan (R.O.C.); General Manager: Mr. Eric Chien) have agreed on EXCLUSIVE DISTRIBUTOR AGREEMENT of the Ball Wave's trace moisture sensors for the applications in the semiconductor industry in Taiwan, China, and a part of other Asia/ Pacific regions.
- Ball Wave and TRUSVAL Technology have jointly developed a special gas cabinet to deliver bulk and specialty gases in cutting-edge semiconductor factories with the ability to online-monitor the trace moisture in the gases.

**Overview**

Ball Wave has the ball SAW technology with its one of applications in trace moisture sensors. The ball SAW is a special type of surface acoustic waves (SAWs) propagating on solid spheres, that enables the extremely high sensitivity and the exceptionally quick response time (Figure 1). Ball Wave has a family of models of the trace moisture sensors that contain the circuitry and software to determine the amount of trace moisture in various background gases by measuring the characteristic of the ball SAW.

[http://ballwave.jp/english/images/ft\\_catalog\\_en.pdf](http://ballwave.jp/english/images/ft_catalog_en.pdf)

TRUSVAL Technology is a Gas/Chemical facility manufacturer and system integration engineering company specialized in the semiconductor industry (Figure 2). TRUSVAL Technology is marketing the IQC system that is a gas cabinet in which Ball Wave's trace moisture sensor is installed to online-monitor the amount of trace moisture in the bulk gases specialty gases supplied from the gas cylinders.

Both companies agree to expand the business from the IQC to a wider range of gas supply systems that include Ball Wave's trace moisture sensors to ensure the extremely low moisture content in the specialty gases used in cutting-edge semiconductor factories.



The ppb-ppm level of trace moisture in specialty gases and corrosive gases can be monitored inline for the first time in the semiconductor industry. It is unavoidable for stable production of cutting-edge microchips.

Figure 1. Trace moisture sensors by ball SAW technology



Figure 2. Products by TRUSVAL Technology

### Explanation of terms

1. Cutting-edge semiconductor industry: the semiconductor market is expected to grow by more than 17% in 2021, driven by mobile phones, notebooks, servers, automotive, smart home, gaming, wearables, and Wi-Fi access points.
2. Specialty gases for semiconductor industry: thin layers of different materials are added to the surface of the silicon wafer, by way of deposition and etching chemical reactions, each of which requires various reactive gases such as  $AsH_3/H_2$ ,  $Cl_2$ ,  $GeH_4/H_2$  and  $HF$ .
3. Trace moisture in semiconductor industry: it is essential to reduce the impurity, in particular the residual moisture, in the gases used for semiconductor manufacture.
4. Ball SAW sensor: a sensor that uses surface acoustic waves (SAWs), which propagate on the surface of a sphere and repeatedly circle around it without spreading in a lateral direction. The ball SAW sensor comprises of proprietary intellectual properties of Ball Wave.



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