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For Immediate Release

Growth in Industrial Markets Drives Mass Flow Controller Growth, Finds Flow Research Study

Wakefield, Massachusetts; January 30, 2025 — A new Flow Research study finds that the world market for mass flow controllers totaled \$1.5 billion in 2024 and is projected to grow at a compound annual growth rate (CAGR) of 6.3 percent per year through 2029. In 2029, the mass flow controller market is projected to exceed \$2.0 billion. *The World Market for Mass Flow Controllers, 4th Edition* (www.flowmfc.com), includes both the semiconductor market and the industrial market for mass flow controllers. While the semiconductor market is larger than the industrial market, the study finds that the industrial market is growing faster than the semiconductor market.

The semiconductor market will continue as a major driver of the mass flow controller market. However, the fastest market growth is projected to come from the industrial market segments. Fast growing segments include lab grown diamonds, alternative fuels, solar photovoltaic cells, and gas distribution. The semiconductor market has traditionally been a cyclical one, and market cycles often last between 12 and 18 months. Suppliers are investing in industrial market segments in part to counteract the cyclical nature of the semiconductor industry.

Multiple mass flow controller technologies

Four different technologies are used in mass flow controllers: thermal, Coriolis, differential pressure, and ultrasonic. Thermal technology dominates the mass flow controller market. In most

mass flow controllers, the fluid from a pipe enters the meter and a portion of it is diverted into a bypass capillary tube. The mass flow controller measures the heat dissipation in the bypass capillary tube, using resistance temperature sensors, and uses this value to compute mass flow. Mass flow controllers both measure the mass flow and control it. They have a proportional control valve that opens or closes to allow or stop the flow based on a setpoint or desired flow value. Some mass flow controllers are shipped without a control function, making them pure mass flowmeters.

The Use of Mass Flow Controllers Will Expand in Industrial Segments, Including those Involving Alternative Energy, Solar Power, and Energy Storage

Strong growth areas in industrial markets for mass flow controllers include the adoption of hydrogen as a clean energy source. Uses for hydrogen measurement include controlling hydrogen gas in fuel cells and in electrolyzers. Mass flow controllers are used in solar/photovoltaic cell manufacturing processes. They are also essential to battery production, where they are used for controlling gas flows in battery production and energy storage technologies.

The industrial markets are made up of a wide variety of industrial segments. Industrial markets such as automotive are going through a transitional period as uncertainty in consumer tastes becomes more of a challenge to predict. Others, such as emissions monitoring and the life sciences, are thriving due to environmental regulations and upgrades in manufacturing processes. The need to find alternative energy sources will also drive additional research and development in the foreseeable future. Manufacturers will benefit from these industrial segments as mass flow controllers are relied upon to measure and control gas flows in these segments. Fuel cells, as one example, represent a more recent growth area for mass flow controllers. Fuel cells are part of the broader category of alternative energy.

Demand for Mass Flow Controllers Will Continue to Come from the Emerging Markets, Including China, India, and Southeast Asia

The economies of China, India, and the Southeast Asian countries are continuing to grow at a rapid pace. Even if these economies were affected by a global slowdown, their continued population growth will result in demand growth in a variety of industrial segments including energy consumption, semiconductors, pharmaceuticals, food & beverage, power, and other segments. China and India will also be a focused source of continued demand for computers and

semiconductor products, and the upgrades that consumers in other regions so often seek for these types of devices will develop into a robust secondary and replacement market as well. All these forces will work towards increased use of mass flow controllers during the forecast period. In the Middle East and Africa, expanding oil and gas infrastructure and water treatment plants are driving demands for mass flow controllers. This is a global trend that will also affect other regions.

According to Dr. Jesse Yoder, president of Flow Research:

“Mass flow controllers have a bright future. In the semiconductor industry, increased industrialization will create greater demand for computers, smartphones, wearable technology, and electronic devices. While this trend is especially strong in China and the Asia/Pacific region, it applies to other regions as well. In industrial segments, mass flow controllers are widely used in alternative fuels, solar photovoltaic cells, and fuel cells. The move towards renewable energy will benefit the mass flow controller market. While the industrial market is growing faster than the semiconductor market, all signs point to solid growth in both markets over the forecast period.”

About Flow Research

Flow Research (<https://www.flowresearch.com>) is the only independent market research company whose primary mission is to research flowmeter and other instrumentation products and markets worldwide. Flow Research, founded in 1998 in Wakefield, Massachusetts, specializes in flow measurement devices, and conducts market research studies in a wide variety of instrumentation areas. These studies are developed through interviews with suppliers, distributors, and end users. Topics include all the flowmeter technologies – both new and conventional – as well as temperature sensors, temperature transmitters, level products, and pressure transmitters. The company has a special focus on the energy industries, especially on oil and gas production and measurement, and on renewable energy. For more information, visit www.flowresearch.com or call +1 781-245-3200. For information on the mass flow controller study, visit www.flowmfc.com.

**Total Shipments of All Mass Flow Controllers Worldwide
(Millions of Dollars)**

