



Five Mistakes When Selecting a Flowmeter

Flowmeters play a critical role in today's process world. As technology has advanced through the decades, a variety of flowmeter technologies has expanded the ways customers control and monitor their utilities, steam, fiscal metering, etc. (Figure 1). Today, a few of the **top flowmeters** on the market are the Coriolis, magnetic, vortex, ultrasonic, differential pressure, and variable area meters.

Several other technologies, such as turbine, thermal mass, and positive displacement, are also available. Since each flowmeter has positive and negative attributes, careful consideration is required to avoid purchasing a technology that is inappropriate to the application.



Figure 1: Examples of the various Yokogawa Flowmeter Product Families

Digitalization is the next horizon for many companies as they transition from **Industrial Automation to Industrial Autonomy (IA2IA)**. Experience and Edge Technology often struggle to balance as older generations retire and tech-savvier generations step into place, but flowmeter manufacturers have risen to the challenge. For example, **Yokogawa's Total Insight (TI)** uses advanced diagnostics and tools to monitor products over their lifecycles to help plants reach their goals. These tools bridge the gap between replacing older technology and selecting a suitable flowmeter—not just for today's processes but for tomorrow's digital transformation.

With each manufacturer's various sizing tools and selection guides, it is easy to think **selecting the right flowmeter** is a no-brainer. Unfortunately, that is rarely the case. Although there are many mistakes one can make when choosing a flowmeter, five common mistakes seem to occur regardless of flowmeter technology. Let's look into each of these and explain why they cause so many problems.



5. Selecting the wrong technology for the application

As mentioned before, the older generation is retiring, but that is where the experience with the process resides. Even though several flowmeter technologies could operate in the application, some flowmeters perform better under certain conditions. For example, all flowmeters can measure liquids, but a **magnetic flowmeter** requires conductive fluid. Processes must be reviewed thoroughly, including but not limited to the material safety data sheet (MSDS) of the medium, meter run requirements, hazardous conditions, mounting sizes, I/O, and communication requirements. Most manufacturers provide selection guides to help choose the right technology, but prospective users should always refer to the product's general specifications before making a purchase. In addition, they should reference the manufacturer's website or consult their manufacturer's representatives if confidence in selecting the correct technology is lacking.

4. Buying for today but not for tomorrow

Everyone has done this: We purchase a new product only to find it is incompatible with the manufacturer's next version six months later. Or, we thoughtlessly replace existing products year after year. In today's climate, however, that is wasteful. One must think more about tomorrow than today, and with that in mind, some manufacturers have implemented an on-demand approach in their products. For example, a customer can purchase a Yokogawa **ROTAMASS TI Coriolis flowmeter** with the options necessary for the process today and add additional "Features On-Demand" if requirements change in the future. The customer determines the timeline (Figure 2).

When purchasing a flowmeter, the prospective user should investigate the manufacturer's history in product upgrades and design. The product must be high-quality and capable of operating not only today but tomorrow too. Otherwise, the flowmeter is only as good as those VHS or cassette tape players we all have in our attics at home.



Figure 2: Features on Demand

Features on Demand

Market requirements and process conditions are changing. Features on Demand (FOD) contain valuable functions which can be activated at any time, even after installation and anywhere in the world:

- Concentration measurement functions, Net Oil Computing function
- Batching function
- Viscosity function
- Function for measurement of heat quantity
- Tube Health Check





3. Sizing the meter to the wrong process conditions

This might be the most significant issue seen across all flowmeter technologies. Most manufacturers offer sizing tools for certain flowmeter technologies, but even with these advanced systems, entering the wrong information will still result in incorrectly sizing the meter. The problem is that many customers size the meters for design conditions instead of actual conditions. For example, the process may be designed to run at 800 GPM; however, the process never operates at 800 GPM but runs between 100 and 200 GPM. Such oversizing leads to many inaccurate readings, especially for manufacturers who base accuracy on flow span instead of flat-spec readings. To avoid such issues, the user must size the meter correctly, using actual flow conditions. In addition, once the process conditions have been entered, the manufacturer's sizing printout will specify the device's accuracy throughout the entire flow span.

2. Not shopping around for the best product

Just like shopping for a new car or planning that needed vacation, shopping around for the best product offering needs to be a part of our business practices too. To ensure they choose the best product for the application and the highest quality product for the price, prospective users can take advantage of the Internet and research options. They should ask a manufacturer for an on-site demonstration or challenge a sales representative to prove why this is the best product for the application. They should also evaluate the product's total lifecycle. Since typical flowmeters are expensive, consideration should not be limited to today's investment. It must also extend to ensuring that the manufacturer will be there tomorrow to continue providing support.



1. You get what you pay for, now or later

Every company is looking to reduce costs and increase margins. Sometimes a lower cost flowmeter appears to be sufficient for the process, but its installed cost could be very high, or it could cause excess downtime. Putting quality first will reduce costs and headaches down the road. Proper selection requires researching the manufacturer's quality policy and standards. Knowing a product's lifecycle, maintenance history, and typical service cost will provide an idea of the return on investment (ROI) and operation and maintenance costs. Flowmeter users must keep the cost of a process shutdown in mind when the flowmeter is out of service. Incurring a higher price at the beginning could provide a payback over time.

In summary, the flowmeter purchaser must be very familiar with the application, purchase for today and tomorrow, size the meter for actual conditions, shop around for the best product, and consider the purchase cost vs. the operation and maintenance costs over the product's lifecycle. Avoiding the top five flowmeter selection mistakes will result in resilient, reliable data that allows the company to reach its industrial autonomy goals.

