

Customer / Supplier Design Partnership

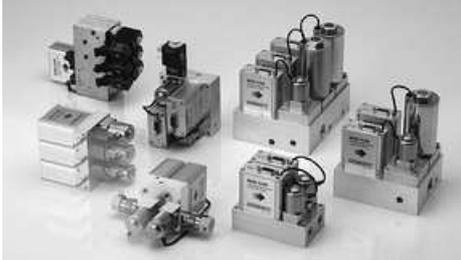
Why be limited by existing design ? The needs of instrumentation specialists across all industries are hugely variable and it is hardly surprising that, sometimes, final design is constrained by what is perceived to be available rather than what the application really needs. The final result can therefore, again sometimes, be something of a compromise – an acceptance of the belief that to be cost effective a designer must avoid anything not yet known, anything bespoke or anything special. In other words, accept what already exists and simply search for a product that almost fits the requirements – but not quite.

Bronkhorst does not follow this philosophy. The best starting point for a new project is not what already exists; it is not a trawl through the standard product catalogue. It is in fact a completely blank piece of paper. It is then possible to focus on what is important – good engineering. Pulling the design process back to basics ensures some often over-looked questions can be considered. What are the space constraints ? What are the optimum materials of construction ? What performance characteristics are most important ultimate accuracy ? repeatability of the reading ? or perhaps reproducibility between devices ? Each of these factors has an influence on the cost : specification balance. In addition, it is important to consider the whole process requirement rather than just individual components. As an example, pressure switches are often included within a process line to warn the user upon low supply pressure, perhaps filter blockage or even catastrophic line failure. In each of these cases an up-to-date digital mass flow controller can provide the answer without the need for additional hardware. This knowledge can therefore have a much greater positive impact on cost saving. The point here is that a simple product feature, often not yet known by the design engineer, can eliminate the need for additional components within a system.

The other important factor, and this brings us back to the cost : specification balance, is that within the world of Bronkhorst, product features are not fixed. Virtually every aspect of an application solution can be changed to meet each set of specific needs. A further example, this time from laboratory analytical instrumentation, results from the need to reduce the physical size of the solution due to the pressures on lab space and the ever increasing cost of laboratory “real estate”. Miniaturization brings all components into close juxtaposition and this often results in an unconventional space envelope within which a flow or pressure controller must fit. For Bronkhorst this is not an issue as the shape of the device can be changed to fit whatever is required. Furthermore, multi-channel devices can further reduce the space required and the surface mounting of other essential components (valves, regulators, sensors) can eliminate the need for inter-connecting pipework. The basic concept is to design the instrument to meet the specifics of the application rather than compromise on the tolerances of the application to accommodate the limitations of a pre-existing instrument.

Bronkhorst offers innovative solutions for many different applications in many different markets. The instruments are made to customers' specification, with configurations that are suitable for use in laboratory, industrial environment, food, pharmaceutical, semiconductor and hazardous areas to name but a few.

The **MANI-FLOW** Series originate from the demand of OEM's to design an economical solution that combines various functions into one compact device.



On a compact manifold one or more mass flow or pressure sensor modules can be combined with control valves, two- or three-way valves, shut-off valves, filters or any other functional module as per customer's request. The system will be assembled, calibrated, tested and packaged to meet the specific requirements of the customer.



changed – without disturbing the integrity of associated tubing and/or fittings.

The **FLOW-SMS** Series, is a compact mounting rail system with one or more mass flow or pressure sensor modules that can be combined with control valves, shut-off valves, mixing chambers, filters or any other functional module as per customer's request. The modular concept, applicable to the need for just one instrument if only that is required, is extremely flexible and opens up a whole new way of thinking for forward planning and future-proofing. As the modules are surface-mount they can very easily be reconfigured within seconds, flow rates, control valve sizing, anything can be



The **IQ+FLOW** Series, as the worlds smallest mass flow controller, is ideal for meeting those needs of space constraint mentioned above. Multi-channel devices are also available and with a single internal PC Board just one communication cable is required.

Previously, conventional Mass Flow and Pressure Meters and Controllers have needed a footprint of 1.5". Due to the use of micro solid state technology (MEMS), Bronkhorst has been able to halve the footprint dimension to 0.75", thereby realizing the ultra compact flow and pressure controllers.

In summary, the design of fluid handling systems will benefit from an open and collaborative approach between all parties. Knowledge exchange, shared experience and the ability to design from concept will result in a solution that not only meets stringent engineering requirements but also meets cost reduction challenges. This approach is a core value for Bronkhorst globally.



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