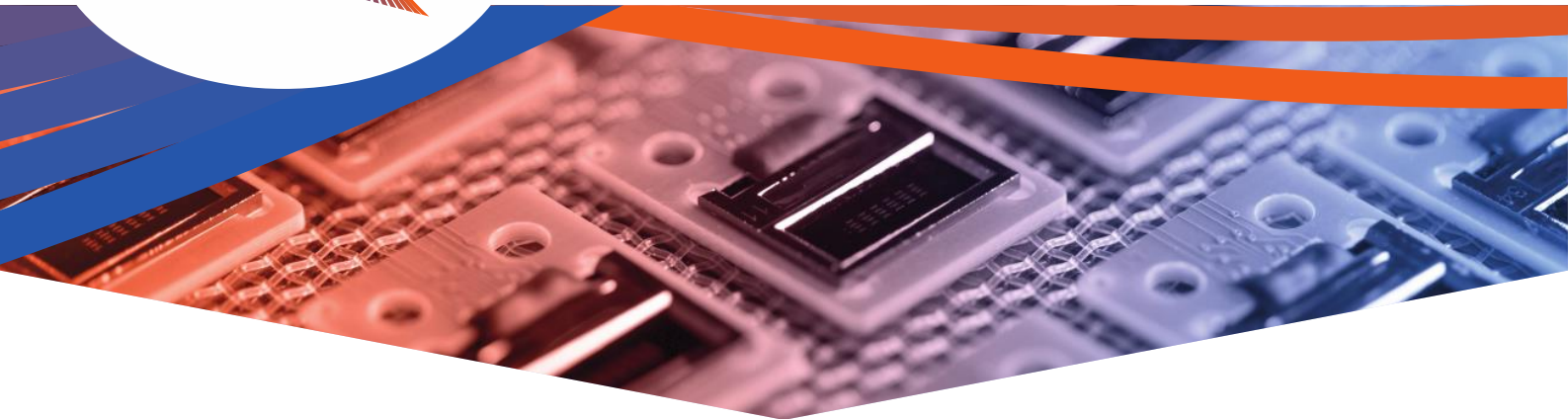




PHOTONICS ASSEMBLY

CONTACT
PHIX B.V.
PO Box 3504
7500 DM Enschede
The Netherlands

PHONE
+31 53 483 6850
E-MAIL
sales@phix.com



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Bronkhorst and PHIX partner to enable volume manufacturing of sensors for mass flow controllers

Dutch photonics packaging foundry PHIX B.V. and Dutch flow meter/controller manufacturer Bronkhorst High-Tech B.V. have combined their expertise in a strategic partnership to enable manufacturing of thermal mass flow sensors using PHIX's assembly know-how and technology. While Bronkhorst's expertise is to develop a highly dedicated chip to measure flow in its mass flow meters and controllers, PHIX is servicing Bronkhorst with process development and contract manufacturing to manufacture these sensors in volume with the highest precision possible. This collaboration between the two companies enables the best of two worlds. Bronkhorst's unique sensor development combined with PHIX's flexible automated assembly services and process knowledge allows for a seamless scale-up to high volumes with an unprecedented accuracy and repeatability.

[PHIX B.V.](#) of Enschede, The Netherlands, is a Dutch packaging foundry that assembles their customers' integrated photonics and MEMS circuits into complete modules. As these modules evolve from initial prototypes into mature products, the manufacturing volumes become much larger, and a higher level of automation is required. This aspect of photonic and MEMS device manufacturing is often unjustifiably overlooked, although assembly and test are undeniably critical steps in product development and, ultimately, in their commercialization.

In order to further enhance the ability to scale up production of the Bronkhorst mass flow sensors with the right quality and repeatability, Bronkhorst is making use of PHIX's knowledge

of packaging of these devices and also using the automated equipment of PHIX to assemble these sensor modules in high quantities and the right volumes. The accuracy and repeatability of the developed assembly processes resulted in a module that can be manufactured with the required quality standards for these precise sensors.

This partnership goes far beyond the cooperation of manufacturing the sensors, as the combination of the know-how of both companies working intimately together to develop an automated production flow proved to be very effective and successful.



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Albert Hasper, CEO of PHIX said: “This kind of cooperation helps us demonstrate our ability to contribute to the scale-up of highly dedicated and precise sensors in a very repeatable way. By using our automated and accurate equipment we were able to develop a production flow for volume production of these sensors. We are very proud that Bronkhorst worked with us closely to enable this development.”

Henk Tappel, Innovation Director of Bronkhorst said: “Business partners like PHIX not only know their trade very well, but also enable us to explore new and uncharted ways in developing novel sensors, both from the point of view of technology pathfinding as well as manufacturability and cost effectiveness. We are enjoying great synergy today and look forward to many future projects.”

About Bronkhorst High-Tech B.V.

[Bronkhorst](#) is leader in low-flow measurement and control technology. Bronkhorst develops and manufactures smart, sustainable and customer-specific low flow fluidics handling solutions from our vibrant base in Ruurlo in the Achterhoek region of the Netherlands. Our precise and reliable flow meters and controllers for liquids and gases find their way in laboratories, test-benches, machinery, and a wide variety of industries. Bronkhorst is a truly worldwide organization with subsidiary offices for sales and support in Great Britain, France, Northern Germany, The Netherlands, Switzerland, Japan, China, Taiwan, South Korea, India, Singapore (for APAC countries) and the USA. In addition, we have built up an extensive complementary network of distributors and service stations across Europe and the rest of the world, whereby local expertise and service is offered.

About PHIX B.V.

PHIX is located at the High-Tech Factory in Enschede, the Netherlands. We offer assembly services for MEMS and all major photonic integrated circuit (PIC) technology platforms (like Indium Phosphide, Silicon Photonics, Silicon Nitride, and Planar Lightwave Circuit) and are specialized in hybrid integration of chip-to-chip and fiber-to-chip modules. PHIX provides a one-stop-shop for PIC and MEMS assembly, from design to volume production.

PHIX offers a state-of-the-art infrastructure in The Netherlands, supporting the global industrial development of PIC-enabled modules.

Press contact

PHIX: Gijs van Ouwkerk – g.vanouwerkerk@phix.com

Bronkhorst: Wout van 't Wel – w.vantwel@bronkhorst.com