

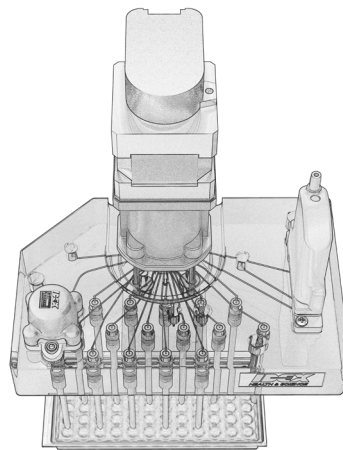
Fluidics for Oligonucleotide Synthesis

Strengthen Your Instrument with IDEX Health & Science Fluidic Components

Ensuring the accuracy of synthesized oligos requires precise cycling of numerous reagents. Fluid management of this nature necessitates a complex, highly accurate instrument architecture. Partnering with IDEX Health & Science on the design of your synthesizer enables next-level reagent handling, allowing you to unlock the full potential of your chemistry. Our integrated approach to fluidic design incorporates valve on manifold subsystems, precision dispense pumps, and pressure sensors to increase throughput, minimize instrument footprint, and guarantee the reliability of your nucleotide output.

Whether your platform utilizes conventional phosphoramidite or enzymatic chemistry, the IDEX Health & Science durable seal pump solution confidently integrates into your instrument for maximum lifetime, handling the harshest reagents. Complemented with fully biocompatible valves and manifolds, a partnership with IDEX Health & Science will deliver system-to-system reproducibility for your platform.

Our 60 years of fluidic engineering expertise, computational modeling and performance testing tools ensure your synthesis system gets to market on schedule, generating high-quality oligonucleotides with minimal interruption.



Pumps



Manifolds



Valves



Sensors



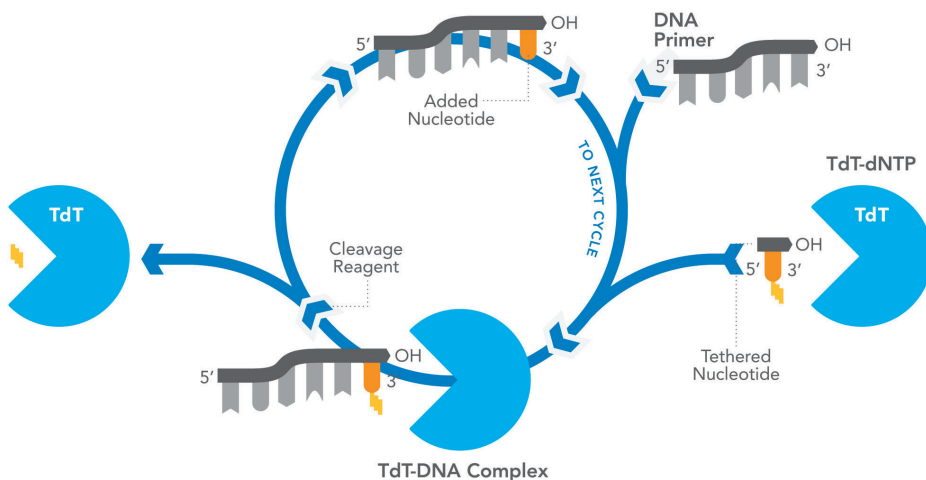
Probes



Tubing

IDEX Health & Science specializes in taking complex concepts to reality. We partner with you to remove the risks in controlling reagents, optimizing samples, and designing fluidic pathways, turning your theory into a working solution that advances science.

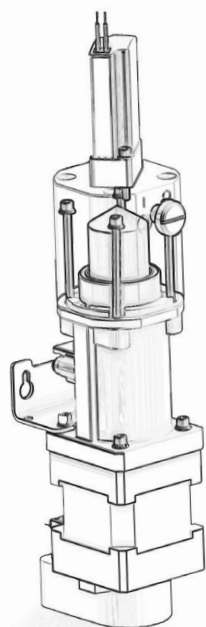
- › We are experts in manipulating fluids, controlling dynamic flow performance, and optimizing the overall user experience for instrument consistency
- › Achieve predictability and minimize project risk through advanced modeling and computational simulation
- › Reliably solve for challenges before they disrupt your instrument development schedule



Standard Enzymatic Synthesis Workflow

QUALITY PERFORMANCE

Accurate and efficient nucleotide assembly is reliant on the performance of your fluidic architecture. Trust IDEX Health & Science solutions to perform consistently and reliably in your Oligo Synthesizer.

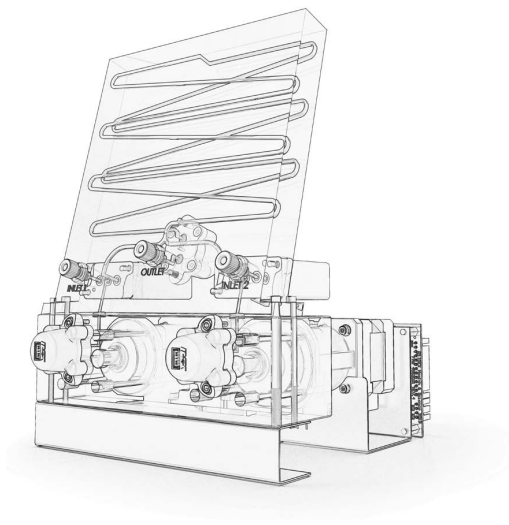


PUMPS

Eliminate Instrument Maintenance

Our long-life positive displacement pumps deliver buffers and reagents with a high degree of fidelity ensuring accurate synthesis of your oligonucleotides. IDEX Health & Science durable seal pumps utilize highly tested, static sealing technology. Guarantee instrument lifetime and performance by replacing a high maintenance syringe pump with an IDEX Health & Science durable seal pumping solution.

[Learn More](https://www.idex-hs.com/pumps)
[idex-hs.com/pumps](https://www.idex-hs.com/pumps)



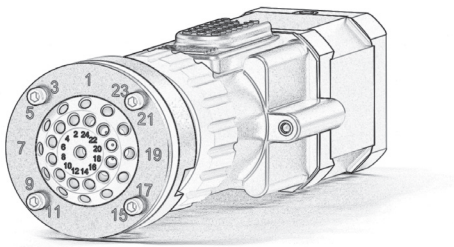
MANIFOLDS & SUBSYSTEMS

Streamline Complex Fluidics

Our design team works with you to develop an optimized manifold for your unique fluidic system. IDEX Health & Science manifolds provide a reliable, easily serviceable, consolidated fluid path. With bonded manifolds and multiple material options, design possibilities are endless. Integration can include tubing & fittings, probes, valving (rotary and solenoid), pumps, degassers, and sensors.

Learn More

idex-hs.com/manifolds-subsystems



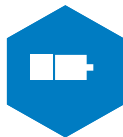
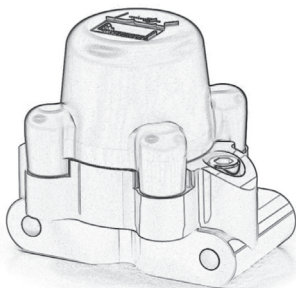
VALVES

Reagent Selection with Certainty

Elevate your complex flow path with a valve customized to your needs. A single rotary valve can control up to 24 reagents with ease and negligible reagent crossover concerns. Valves are fully biocompatible and can be offered as standalone components or integrated onto a manifold assembly to meet the specific needs of your unique design.

Learn More

idex-hs.com/rotary-shear-valves



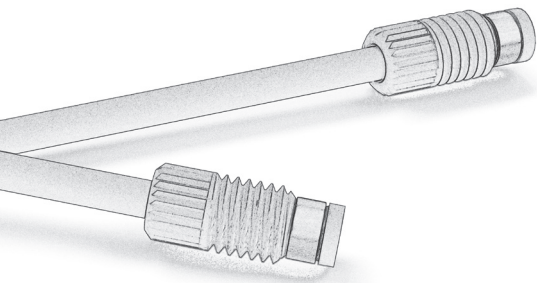
SENSORS

Gain Confidence Under Pressure

Inline pressure sensors monitor system performance, providing real-time diagnostic feedback to flow anomalies. The extremely low internal volume and a fully encapsulated MEMS sensor can be integrated standalone or mounted to a fluidic manifold for front-end or backend flow monitoring inside your system.

Learn More

idex-hs.com/sensors

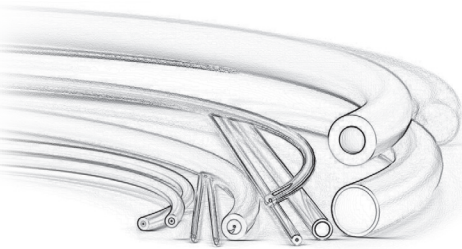


PROBE ASSEMBLIES

Get Peak Performance and Superior Precision

PEEK probes provide both the strength required for repetitive use and the biocompatibility you desire for your system. With several tip geometries available, your sampling and dispensing needs will be fully met with our probes at an economical price point.

Learn More
idex-hs.com/probes

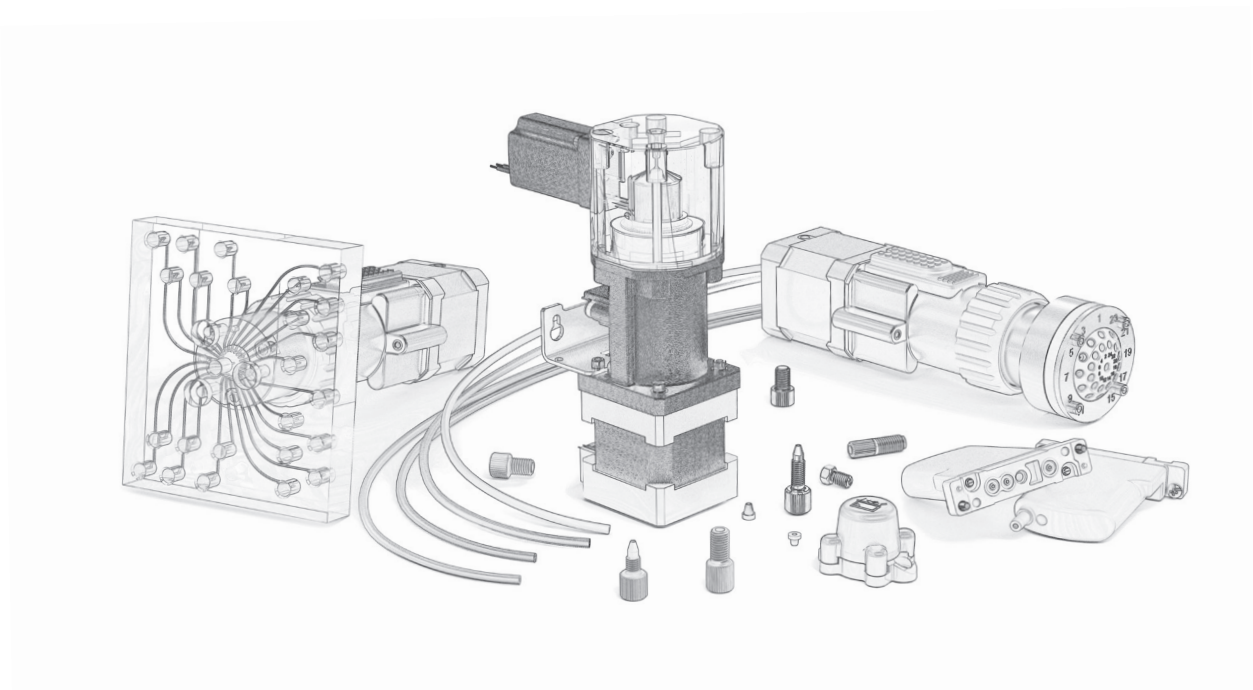


TUBING ASSEMBLIES

Connect Your System Through Versatility

We offer a comprehensive line of custom tubing options that meet the increasingly demanding requirements of today's high-performance analytical fluidic systems. We are the premier provider of intelligently engineered fluidic assemblies providing instrument developers simplified installation and serviceability of their complex fluidics.

Learn More
idex-hs.com/tubing-assemblies



FAQs

When Configuring Fluidics For An Oligo Synthesis Instrument

1. How small can you make your fluidic pathways?

We commonly precision manufacture internal diameters of our components, including valves and manifolds, to $500\mu\text{m} \pm 125\mu\text{m}$ ($0.020'' \pm 0.005''$). Should you need smaller channel IDs we are happy to work with you on your custom needs.

2. What is the advantage of using IDEX Health & Science versus obtaining separate materials and assembling them myself or at a Contract Manufacturer?

Accurate tolerancing of all components along the fluidic path is critical to a robust, reproducible instrument design. At IDEX Health & Science we not only work with you to design a robust fluidic subsystem, we can also simulate your design to mitigate potential fluidic issues prior to embarking on costly and time sensitive manufacturing. We work with you to identify and correct problems before they arise, saving you valuable time in your early stages. Additionally, an integrated subsystem from IDEX helps you consolidate the number of SKUs you have to manage.

3. Do your solutions include a PCB?

Our valve and pump products can include a PCB. We also offer our complimentary access to our Python Library for easy startup of your breadboard solution.

4. Do your fluidics work in positive (push through) or negative (pull through) mode?

Our fluidics can be adapted for either case and what is best suited for your synthesis needs.

5. What functional testing is available to ensure instrument performance?

IDEX offers a range of testing to provide our customers confidence in their fluidic architecture. Typical testing includes pressure decay to guarantee leak free components and subsystems, flow occlusion to test for passage blockages, system pressure to ensure the fluidics function, as well as fluid volumes as specified per your application.

6. What materials are available for manifolds & pumps?

For complex bonded manifolds, IDEX typically utilizes PMMA (Acrylic) and PEI (Ultem 1000). PMMA is recommended for systems with inert reagents; PEI is better suited for applications utilizing more aggressive reagents (i.e. solvents). IDEX can offer a wide variety of polymers (e.g., PEEK, PVC) for simple, cross drilled manifolds. The same holds true for pumps; PEI is more inert, though other materials such as acrylic or PVC present cost benefits.

7. Are there any concerns I should have outside of lifetime for my pumps?

Lifetime is critical in managing the cost and servicing of your instrument, however there are other key aspects to consider. When dispensing precious reagents, precision and accuracy can make or break the cost of your assay. Every pump manufactured at IDEX is functionally tested to guarantee precision and accuracy and confirmed to perform as intended.

Partner with IDEX Health & Science

If you're ready to make your visions a reality, contact us and we'll show you how to take your company to the next level.

www.idex-hs.com/partner



For ordering, technical support, and contact information please visit www.idex-hs.com