

Automated Dispensing



Viewing the dispensing precision of a customer-supplied reagent into a 1536-well microplate on an Innovadyne™ Nanodrop™ II in Rohnert Park, CA.



NEW!

Nanoliter dispensing solutions for laboratories

Dear Customer

We are pleased to present our 2011/2012 catalog, which includes Innovadyne™, Ismatec®, Isolation Technologies™, Rheodyne®, Systemc®, and Upchurch Scientific® products. In this catalog, you will find all the critical fluidic products and high-quality components you've come to expect from IDEX Health & Science.

This catalog has a new 'look and feel', with a new organization to all of our products. Now, you will be able to find all of our fittings in one chapter, with separate chapters for products like tubing, valves, pumps, etc. And, as always, we have many new products – including some very innovative UHPLC fittings and accessories – scattered throughout the catalog that we hope will prove useful to you.

We appreciate your business and continued loyalty to our family of products and services and thank you for trusting IDEX Health & Science with your liquid handling needs. Your feedback is valuable, so please let us know if there are ways we can be of greater service.



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How to Order

Direct from IDEX Health & Science

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For Online orders:

Web: www.idex-hs.com

Please include the following information with your order: Purchase Order Number, Contact Name, Shipping and Billing Address, Telephone Number, Product Number(s) and Quantity(ies). If you are a Purchasing Agent, please include the name of the person for whom the products are ordered.

For your information, our Federal Taxpayer Identification number is 01-0736657.

Order Processing/Shipping

Orders process within one business day and ship within two business days. Requests for earlier shipments can be made — please contact IDEX Health & Science for more details.

All shipments are FCA unless otherwise noted. Shipping charges will be prepaid and added to the invoice. Or, if requested, we will charge your carrier account number.

Terms



Terms of payment are net 30 days. Mastercard®, Visa® and American Express® are accepted.

There is no minimum order. Customers are responsible for C.O.D. charges if they elect this payment method. Terms and prices are subject to change without notice. Visit www.idex-hs.com for complete Terms & Conditions.

Return of Materials

Returns must be authorized in advance. Please contact us within 30 days of purchase for your Returns Material Authorization (RMA) Number. A restocking fee may apply.

Direct from our Global Distribution Network

The IDEX Health & Science brands represented in this catalog (Innovadyne™, Ismatec®, Isolation Technologies™, Rheodyne®, Systec®, and Upchurch Scientific®) have established relationships with a large, global network of Distributors, many of whom can offer the product support and assistance that we cannot, including:

- ▶ Carrying local inventory of commonly-ordered items
- ▶ Understanding YOUR working environment and requirements
- ▶ Providing technical application assistance
- ▶ Answering questions regarding new and existing products
- ▶ Complete availability during your time zone business hours
- ▶ Personal visits as required
- ▶ Access to complementary product lines to provide a “one-stop shopping” experience

We have come to rely on our authorized Distributors to provide value-added service to end-users of our products. So, while we are happy to take your order directly, we encourage you to contact your local Distributor — we feel confident it will be a positive experience!

How to Find A Local Distributor

For a complete distributor listing please visit www.idex-hs.com/distributors or email:

US: CustomerService.hs@idexcorp.com

Europe: CustomerService.hseurope@idexcorp.com

Asia: CustomerService.hsasia@idexcorp.com

Our customer service team will help you contact a distributor in your area.

Return of Materials

Product purchased through a Distributor must be returned directly to that Distributor. Please contact them for Return Material Authorization procedures.

Visit Us At  WWW.IDEX-HS.COM

The products in this catalog are intended for use with analytical, biotechnology and diagnostic equipment and accessories. THE MANUFACTURERS OF THE PRODUCTS IN THIS CATALOG SHALL HAVE NO LIABILITY WHATSOEVER DUE TO ANY MISUSE OF THEIR PRODUCTS. Of course, the safe use of our products depends on our customers, since it is you who select and control the protective gear and safety procedures used, as well as the pressures, temperatures, solvents, samples, ventilation, and other variables. Product and material performance ratings are provided as guides only. Individual field tests should be performed by customers to determine safe operating parameters given your particular procedures and use.

IDEX Health & Science facilities are certified ISO 9001. Some facilities are also certified ISO 13485:2003.

Innovadyne™ Dispensing Instruments

Nanodrop™ II

The Nanodrop II is a complete solution for low volume, high-precision pipetting. The system can be configured with one or two plate positions to enable applications such as assay miniaturization, method development, PCR reaction setup, and protein crystallography. In this model, four of the tips can individually access any well of a standard SBS plate, enabling complex method development and design.



Nanodrop Express

The 16-channel Nanodrop Express is our fastest benchtop system — a complete high-throughput solution for low volume, high-precision pipetting. The Nanodrop Express doubles the dispense capacity and halves the aspiration time of a Nanodrop II. The Nanodrop Express has two plate positions and interchangeable 1X16 or 2X8 tip heads. This allows for flexible configurations for reagent dispensing and sample transfers.



Screenmaker 96+8™

The Screenmaker 96+8 incorporates the company's non-contact dispense technology, coupled with traditional syringe dispensing. The unique combination of a 96-channel, non-contact dispense head coupled to an 8-channel head makes the instrument ideally suited for protein crystallography and for plate replication.



Specifications

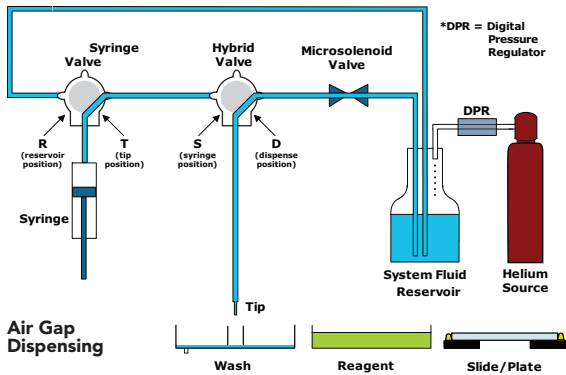
	Nanodrop II	Nanodrop Express	Screenmaker 96+8
Plate Positions	2	2	5
8-Tip Head	Yes	—	Yes
16-Tip Head	—	Yes	—
96-Tip Head	—	—	Yes
Syringe Channels	8	16	16
1, 4 or 8-Tip Bulk Reagent Additions To All Positions	Yes	Yes	Yes
Plate Formats	96/384/1536 std, low profile, Xtal, and deep well	384/1536 std, low profile, Xtal, and deep well	96/384/1536 std, low profile, Xtal, and deep well
Return-To-Spot Accuracy	0.1 mm	0.1 mm	0.1 mm
Aspiration Range, 8-Tip Hd	0.1 – 500 µL	0.1 – 500 µL	0.1 – 500 µL
Aspiration Range 96-Tip Hd	—	—	0.1-125 µL
Disp Range, 8-Tip Non-Contact	0.1 – 40 µL	0.1 – 80 µL	0.1 – 40 µL
Disp Range, 8-Tip Contact	25 – 500 µL	25 – 500 µL	25 – 500 µL
Disp Range (96-Tip Non-Contact)	—	—	0.1-125 µL
Dispensing Precision, 8-Tip Head	CV<10% at 100 nL CV<7% at 200 nL CV<5% at 1 µL	CV<10% at 100 nL CV<7% at 200 nL CV<5% at 1 µL	CV<10% at 100 nL CV<7% at 200 nL CV<5% at 1 µL
Dispensing Precision, 96-Tip Head	—	—	CV<15% at 100 nL CV<10% at 200 nL CV<5% at 1 µL
Dispensing Accuracy, 8-Tip Head	±10% at 100 nL ±7% at 200 nL ±5% at >1 µL	±10% at 100 nL ±7% at 200 nL ±5% at >1 µL	±10% at 100 nL ±7% at 200 nL ±5% at >1 µL
Dispensing Accuracy, 96-Tip Head	—	—	±10% at 100 – 00 nL ±5% at >1 500 nL
Dead Volume, 8-Tip Head	1.5 µL/channel at 1 µL across 384-well plate	1.5 µL/channel at 1 µL across 384-well plate	1.5 µL/channel at 1 µL across 384-well plate
Dead Volume, 96-Tip Head	—	—	<1 µL/channel
Syringe Capacity	500, 1000 µL	500, 1000 µL	500, 1000 µL
Cycle Time, 8-Tip Head	20s/transfer <60s 1 µL reagent addition (1tip/96-well plate) <17s 1 µL reagent addition (8 tips /1536-well plate)	10s/transfer <60s 1 µL reagent addition (1tip/96-well plate) <8s 1 µL reagent addition (8 tips /1536-well plate)	20s/transfer <60s 1 µL reagent addition (1tip/96-well plate) <17s 1 µL reagent addition (8 tips /1536-well plate)
Cycle Time, 96-Tip Head	—	—	180 s/transfer (includes wash)

Related Products

Improve your sample transfer accuracy with online degassing using the Systec® line of degassing products, see pages 174 – 178 for more information.

Simple Flow Path Increases Reliability

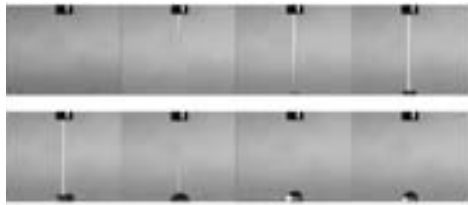
Flow path – A schematic of the Innovadyne™ flow path where no sample or reagents come in contact with moving parts.



Air Gap Dispensing

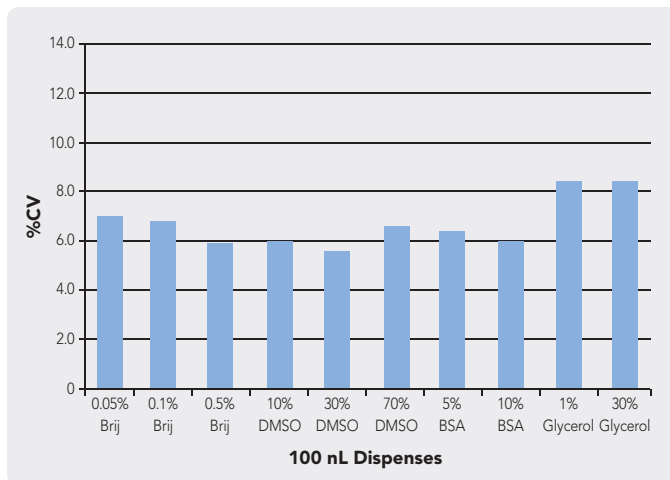
Technology in Action

High-speed photography of a typical dispense. Note the precise initiation and termination of the dispense stream.



Range of Chemistries Dispensed

Third party precision results of a wide range of challenging reagents



Application Note

High Precision Non-Contact Dispensing

From drug screening to crystallography, researchers seek to increase throughput while lowering the use of costly or hard-to-produce samples and reagents. Innovadyne's approach to liquid handling—high-precision, non-contact dispensing (based on advances in solenoid valves and flow path technology)—offers a robust and low-maintenance means of achieving assay volume reduction without compromising precision or accuracy. Precision is improved at all points in the dynamic range (from 100 nanoliters to 500 microliters).

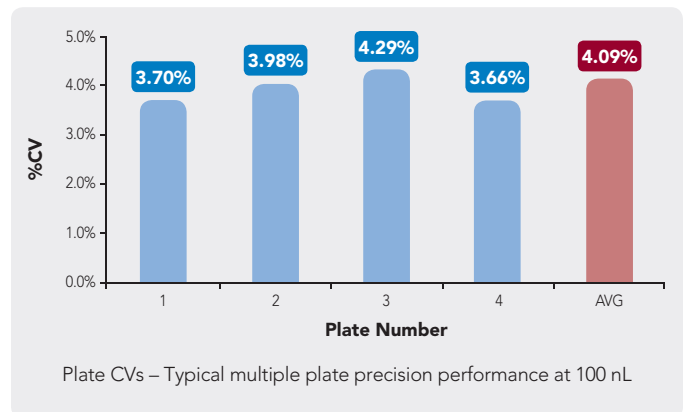
Limitations of Current Approaches

The limiting factor of traditional liquid handling techniques is the fact that they rely on low energy displacement. To perform a reproducible and accurate dispense, the last task of any pipetting action relies on a touch off. Classical displacement techniques do not have enough energy to break the surface tension of the last droplet. So a dragging action — touch off — is employed, either against the solid surface of a vessel or a liquid surface. Consequently, this technique is variable — it varies with liquid properties, temperature, humidity, surface adhesion, and other factors. At larger volumes the variation is small enough to have little impact on the end result. However, when the total volume pipetted is small, this variation has a significant negative impact on precision. The lower the volume, the larger is the contribution of the variation.

Advantages of Non-Contact Dispensing

Non-contact liquid handling relies on the combined use of rapidly actuated solenoid dispense valves, a controlled pressurized liquid source, and flow path control via hybrid valves. The speed and energy of the fluid displacement enables the surface tension of the liquid to break as it leaves the orifice, eliminating the need for a touch-off.

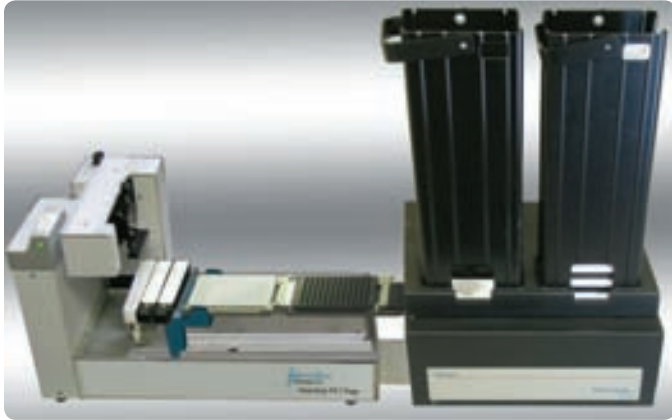
The lack of a touch-off eliminates variability issues. The following bar graph provides a typical example of the precision achieved with Innovadyne dispensing instruments at 100 nL:



Another important benefit of non-contact dispensing is speed. The non-contact technique allows the delivery nozzle to accurately deliver the droplet above the target well, and to rapidly move to the next well. With the non-contact technique, dispensing becomes independent of the plate type or substrate, eliminating many of the reproducibility problems associated with motion control. Plate processing times fall dramatically. Using non-contact dispensing it is possible to deliver to all wells of a 96 well plate in approximately 5 seconds, 384 wells in approximately 7 seconds, and 1536 wells in approximately 14 seconds.

Titertek Titan Plate Stacker

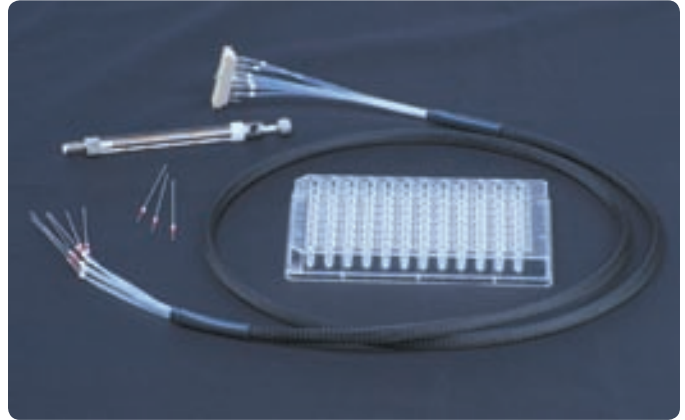
The Titertek Titan Plate Stacker is an integrated benchtop peripheral for use with all Nanodrop™ systems for unattended high-throughput operations.



Titertek Titan with Nanodrop II Stage

Replacement Parts

Innovadyne offers an extensive list of replacement parts for our systems, many of which can also be purchased on our website.



For ordering information for all replacement parts see table below.

Paddle Wheel Stirrer/Reservoir for the Nanodrop

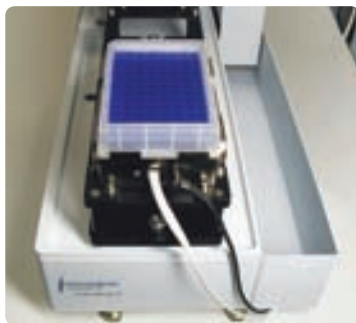
The Paddle Wheel Stirrer/Reservoir is a variable-speed stirring accessory for the Innovadyne™ Nanodrop series instruments that keeps beads, cells, and other particulates in suspension.



Paddle Wheel Stirrer

Orbital Plate Shakers

The Orbital Plate Shaker is a precision electronic shaker peripheral that provides a tight 1 mm orbital shaking pattern for all SBS footprint plates, reagent trays and micro tube holders. The Model 1 shaker, shown opposite, can be placed on any plate nest on any Innovadyne instrument. It is software-controllable from within Nanobuilder sequences or from a control window.



Orbital Plate Shaker

Note

Accessories such as the Paddle Wheel Stirrer and the Orbital Plate Shaker may be ordered by calling IDEX Health & Science.

Part No.	Description	Qty.	Price
AUTOMATED DISPENSING REPLACEMENT PARTS			
12406	Harness with 125 µM Tips, Non-conditioned	ea.	\$ 1,050.00
12407	Harness with 200 µM Tips, Non-conditioned	ea.	1,300.00
11436IN	Tip assembly, 125 micron, red, 2.5" L	ea.	99.00
11978-1IN	Innovaplate SD-2	100-pk	1,090.00
10545-004IN	Syringe, 500 µL	ea.	105.00