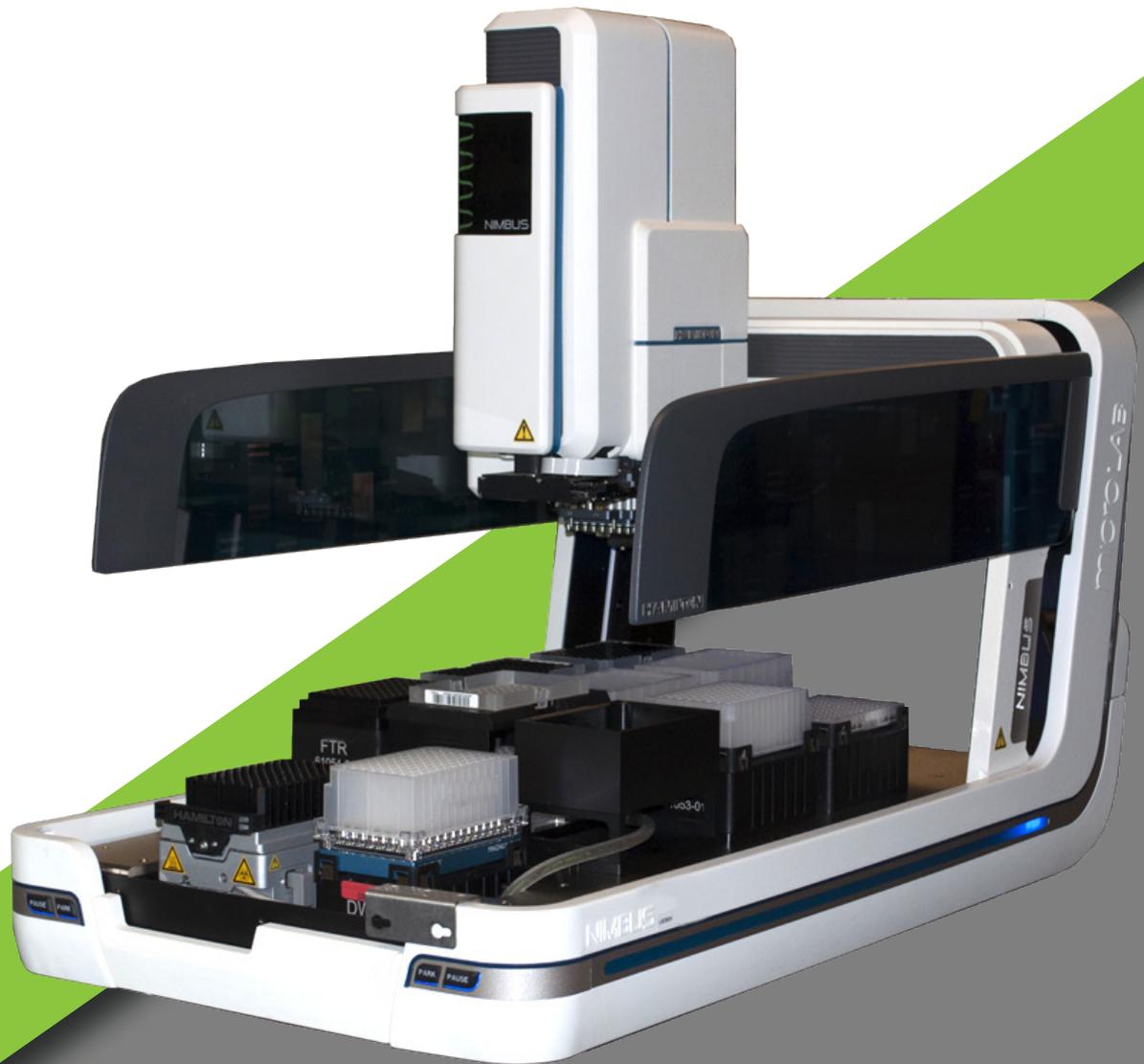




OMEGA
bio-tek

Innovations in Nucleic Acid Purification



HAMILTON FIREFLY NIMBUS[®] 96

Automated Solutions for DNA & RNA Purification

THE OMEGA BIO-TEK DIFFERENCE

High-quality, economical and diverse product range for DNA and RNA purification customized to your requirements

Omega Bio-tek offers highly versatile DNA and RNA extraction kits covering a wide spectrum of sample types, employing either proprietary silica membrane-based or magnetic bead-based technologies, suitable for both manual and automated extractions. Our Mag-Bind® technology provides a flexible and reliable method for isolating nucleic acids using automated liquid handlers.



HAMILTON ROBOTICS

The Firefly NIMBUS 96 is the ideal solution for budget and space constrained laboratories performing DNA or RNA isolation

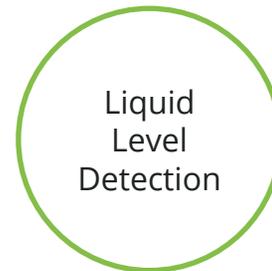
The Firefly NIMBUS 96 workstation is a compact, automated liquid handler specifically configured for utilizing Omega Bio-tek's Mag-Bind® chemistry for nucleic acid purification. The system offers speed, flexibility, ease-of-use and superior pipetting performance at a surprisingly affordable price. It incorporates predefined methods for processing a wide variety of sample types and is backed by Omega Bio-tek's and Hamilton's renowned service and applications support.



Hamilton utilizes proven air displacement pipetting, similar to high precision handheld electronic pipettors.



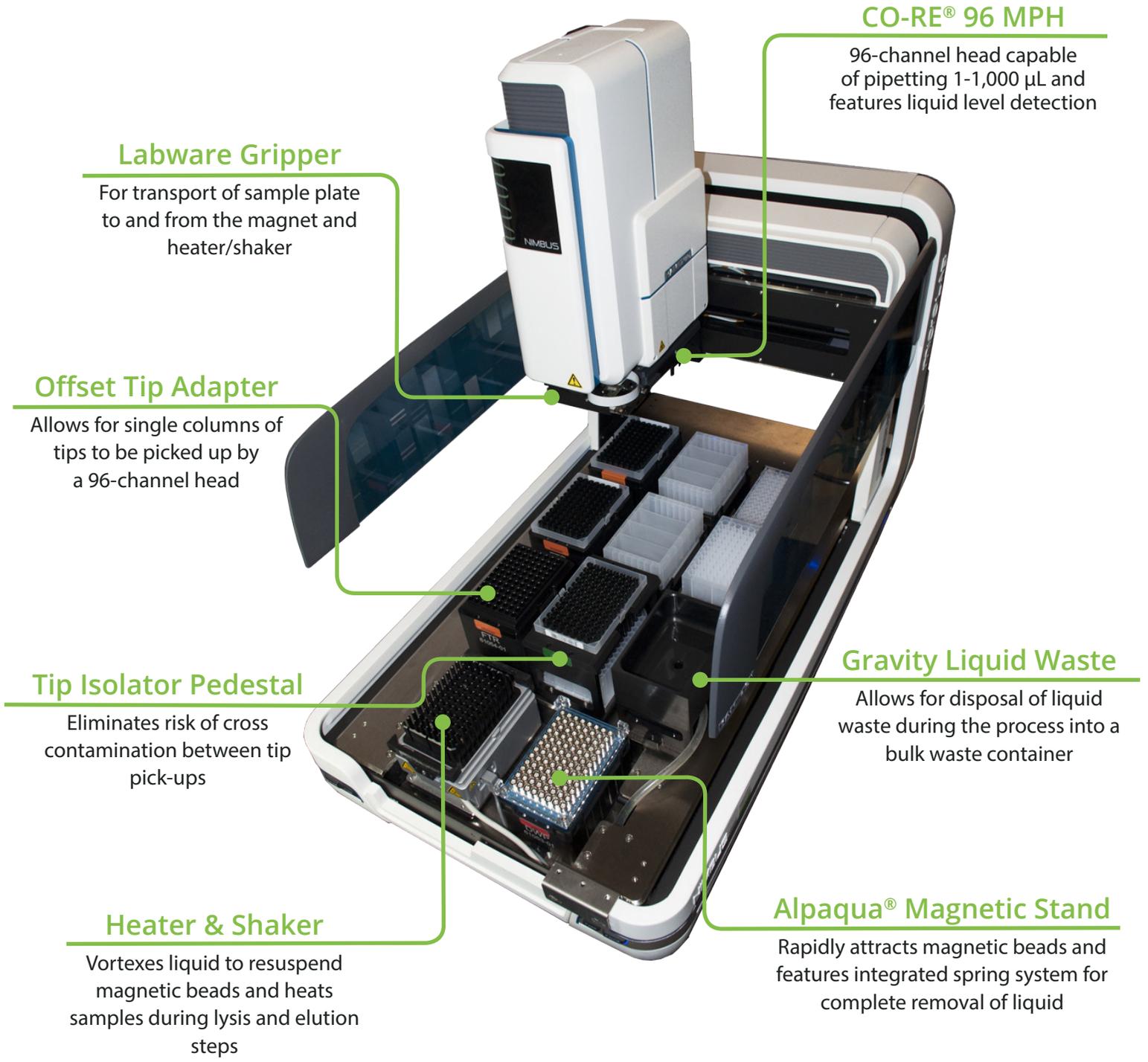
Compressed O-ring expansion (CO-RE) technology attaches disposable tips using a highly robust lock-and-key style mechanism.



Capacitive LLD (c-LLD) can determine liquid levels in plates and reservoirs located on the pipetting deck.



INSTRUMENT CONFIGURATION



Labware Gripper

For transport of sample plate to and from the magnet and heater/shaker

CO-RE® 96 MPH

96-channel head capable of pipetting 1-1,000 µL and features liquid level detection

Offset Tip Adapter

Allows for single columns of tips to be picked up by a 96-channel head

Tip Isolator Pedestal

Eliminates risk of cross contamination between tip pick-ups

Gravity Liquid Waste

Allows for disposal of liquid waste during the process into a bulk waste container

Heater & Shaker

Vortexes liquid to resuspend magnetic beads and heats samples during lysis and elution steps

Alpaqua® Magnetic Stand

Rapidly attracts magnetic beads and features integrated spring system for complete removal of liquid



SOFTWARE & SETUP GUIDE

The Firefly NIMBUS 96 system has predefined methods available for DNA or RNA purification from various samples including buccal swabs, whole blood, stool, plant leaf and seed material, as well as other sample types. Each method includes upfront software prompts that guide the user from the deck setup through protocol completion for increased ease of use.



Step 1: Input sample number & elution volume

Each predefined script can process between 1-96 samples per run. The final elution volume for each method can be set between 50-200 μL , providing flexibility to the end user for adjusting final DNA or RNA concentrations.



Step 2: Load tips and tip isolator plate

The number of samples entered in step 1 will determine how many racks of tips will be required to load onto the system deck. Each method uses the absolute minimum amount of tips to process the number of samples entered by the user to conserve tips and reduce consumable costs.



Step 3: Set up buffers in reagent reservoirs

Four-column reservoirs are used for the methods to maximize deck space. This prompt depicts the amount and location of each reagent relative to the individual reservoir. The volume for each buffer is calculated based on the number of samples being processed.



Step 4: Final checklist for loading all components

This prompt provides a final overview of the deck layout and instructs the user on where to load all other components, including the starting plate, reagent reservoirs, water rinse plate, and final elution plate.





UNMATCHED FLEXIBILITY

DNA and RNA can be purified with minimal hands-on requirements and can easily be adapted for full or partial plate processing. Optimized programming gives you an out-of-the-box solution that allows for successful implementation of your downstream application.

Whether you are performing next-generation sequencing on clinical samples or metagenomics from rare environmental samples, Omega Bio-tek offers a chemistry to fit your evolving application needs.

- Personalized Medicine
- Translational Medicine
- Non-Invasive Prenatal
- Pathogen Detection
- Biomarker Analysis
- Cancer Diagnostics
- Metagenomics
- Agriculture

APPLICATIONS

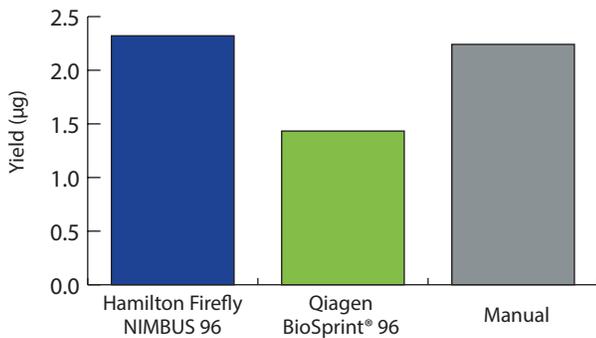
| Sample Type | Target Nucleic Acid | Product | Amount | Offline/Online Processing Time |
|------------------------------------|---|---|------------------------------------|--------------------------------|
| Whole blood, saliva | gDNA | Mag-Bind® Blood & Tissue DNA HDQ 96 Kit | 10-250 µL | 5 min/80 min |
| Buccal swabs | gDNA | Mag-Bind® Blood & Tissue DNA HDQ 96 Kit | 1 swab | 30 min/70 min |
| Serum/plasma | Cell-free DNA | Mag-Bind® cfDNA Kit | 750 µL | 5 min/80 min |
| | Bacterial, fungal, yeast DNA, viral DNA & RNA | Mag-Bind® Universal Pathogen DNA 96 Kit | 10-250 µL | 30 min/60 min |
| | Viral DNA & RNA | Mag-Bind® Viral DNA/RNA Kit | 10-200 µL | 5 min/60 min |
| Cultured cells & soft tissues | gDNA | Mag-Bind® Blood & Tissue DNA HDQ 96 Kit | 1x10 ⁶ or 5-10mg tissue | 5 min/80 min 1-3 hrs/70 min |
| | Total RNA | Mag-Bind® Total RNA 96 Kit | 1x10 ⁶ or 5-10mg tissue | 20 min/70 min |
| FFPE | gDNA | Mag-Bind® FFPE DNA 96 Kit | 3-5 sections | 3-5 hrs/70 min |
| Urine | Bacterial, fungal, yeast DNA, viral DNA & RNA | Mag-Bind® Universal Pathogen DNA 96 Kit | 10-250 µL | 30 min/60 min |
| Soil & environmental samples | Bacteria, yeast, fungal DNA | Mag-Bind® Environmental DNA 96 Kit | 250 mg | 45 min/60 min |
| PCR products & next-gen sequencing | Fragmented DNA | Mag-Bind® TotalPure NGS | 10-50 µL | 5 min/30 min |
| Fecal | Bacterial, fungal, yeast DNA, viral DNA & RNA | Mag-Bind® Universal Pathogen DNA 96 Kit | 10-250 µL | 30 min/60 min |
| Plant tissue | gDNA | Mag-Bind® Plant DNA DS 96 Kit | 50-100 mg | 50 min/85 min |



MAG-BIND® BLOOD & TISSUE DNA HDQ 96 KIT

The Mag-Bind® Blood & Tissue DNA HDQ 96 Kit is designed for high-quality genomic DNA purification from a wide variety of sample types. Predefined Firefly NIMBUS 96 methods are available for using this kit to process whole blood, buccal swabs, tail snips, dried blood spots, tissue, and even cultured cells. E-Z 96™ Spin-Out Baskets can be used in conjunction with this kit to provide a fast and convenient way to process buccal swabs and dried blood spots in a high throughput fashion.

DNA Yield from Buccal Swabs



Average yield from buccal swabs extracted using Mag-Bind® technology on the Firefly NIMBUS 96, BioSprint® 96, and manually.

| Sample | Amount | Yield (µg) |
|-------------------------|---------------------|------------|
| Saliva | 250 µL | 2.0 |
| Whole blood | 250 µL | 6.4 |
| Cultured cells (HEK293) | 1 x 10 ⁶ | 10.6 |

Average yield from different sample types processed on the Firefly NIMBUS 96.

Sample Types Processed



Cultured cells



Buccal swabs



Whole blood



Mouse tail



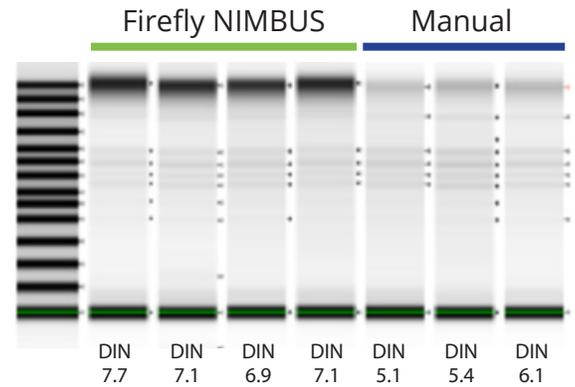
Tissue



The Mag-Bind® Plant DNA DS 96 Kit allows rapid and reliable isolation of high-quality genomic DNA from a variety of plant species containing high amounts of polysaccharides and polyphenols. The system combines robust lysing power of cationic detergent, cetyltrimethylammonium bromide (CTAB) with the rapid response of the Mag-Bind® particles to efficiently purify high-quality DNA.

- No organic extractions
- Robust lysis method to handle diverse plant species
- High yield of DNA suitable for most downstream applications

DNA Quality from Canola



Genomic DNA from canola leaf sample extracted manually and on Firefly NIMBUS 96 analyzed on Agilent's TapeStation® 2200.

MAG-BIND® UNIVERSAL PATHOGEN DNA KIT

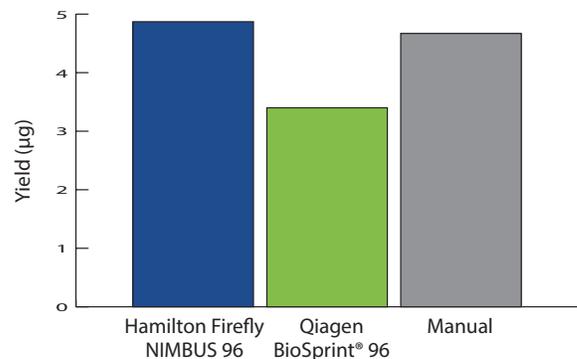
- Inhibitor-free DNA acceptable for various downstream applications
- Ideal for downstream pathogen detection testing
- Pre-filled glass beads in a 96-well Disruptor Plate

The Mag-Bind® Universal Pathogen DNA Kit enables purification of high-quality DNA from bacteria (Gram + and Gram -), fungal spores, and viral DNA and RNA, along with host genomic DNA from a whole range of samples such as tissues, urine, serum, and feces.

| Extraction Method | Average Ct | | |
|-------------------|------------|------|------|
| | 1X | 10X | 100X |
| Firefly NIMBUS 96 | 20.6 | 23.8 | 27.1 |
| BioSprint® 96 | 20.9 | 24.0 | 27.6 |
| Manual extraction | 20.6 | 23.8 | 27.3 |

Real-time PCR with Gram-positive specific bacterial primers performed in triplicate at 1X, 10X and 100X dilutions of DNA isolated using three different extraction methods.

DNA Yield from Fecal Samples



Average yield from 250 µL stool samples spiked in with 20 µL ZymoBIOMICS™ Microbial Community Standard (Zymo Research). (n=3) extracted on the Firefly NIMBUS 96, Qiagen BioSprint® 96 and manually. (n=3).



ORDERING INFORMATION

Omega Bio-tek

| Product Code | Description | Preps |
|--------------|---|----------|
| M6399-00 | Mag-Bind® Blood & Tissue DNA HDQ 96 Kit | 1 x 96 |
| M6399-01 | | 4 x 96 |
| M1130-00 | Mag-Bind® Plant DNA DS 96 Kit | 1 x 96 |
| M1130-01 | | 4 x 96 |
| M4029-00 | Mag-Bind® Universal Pathogen DNA Kit | 1 x 96 |
| M4029-01 | | 4 x 96 |
| M6731-00 | Mag-Bind® Total RNA 96 Kit | 1 x 96 |
| M6731-01 | | 4 x 96 |
| M6246-01 | Mag-Bind® Viral DNA/RNA 96 Kit | 1 x 96 |
| M6246-02 | | 4 x 96 |
| M6246-03 | | 12 x 96 |
| M5645-00 | Mag-Bind® Environmental DNA 96 Kit | 1 x 96 |
| M5645-01 | | 4 x 96 |
| M1378-00 | Mag-Bind® TotalPure NGS | 5 mL |
| M1378-01 | | 50 mL |
| M1378-02 | | 500 mL |
| AC7099 | E-Z 96™ Spin-Out Baskets | 10 x 100 |
| AC7088 | E-Z 96™ Spin-Out Adaptors | 10 x 96 |

Hamilton Company

| Product Code | Description |
|--------------|--|
| 235824 | CO-RE® Tips (1.0 mL) |
| 182040 | CO-RE® Adapter |
| 199034 | Hamilton heater shaker |
| 61054-01 | Framed tip rack pedestal for 1.0 mL tips |
| 64668-01 | Tip isolator pedestal |
| 61053-01 | Deep well microplate pedestal |
| Custom | Gravity-flow, liquid waste module |
| A000400 | Alpaqua® Magnum FLX |



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