

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 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.

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

Air
Displacement
Pipetting

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

Compressed
O-Ring
Expansion

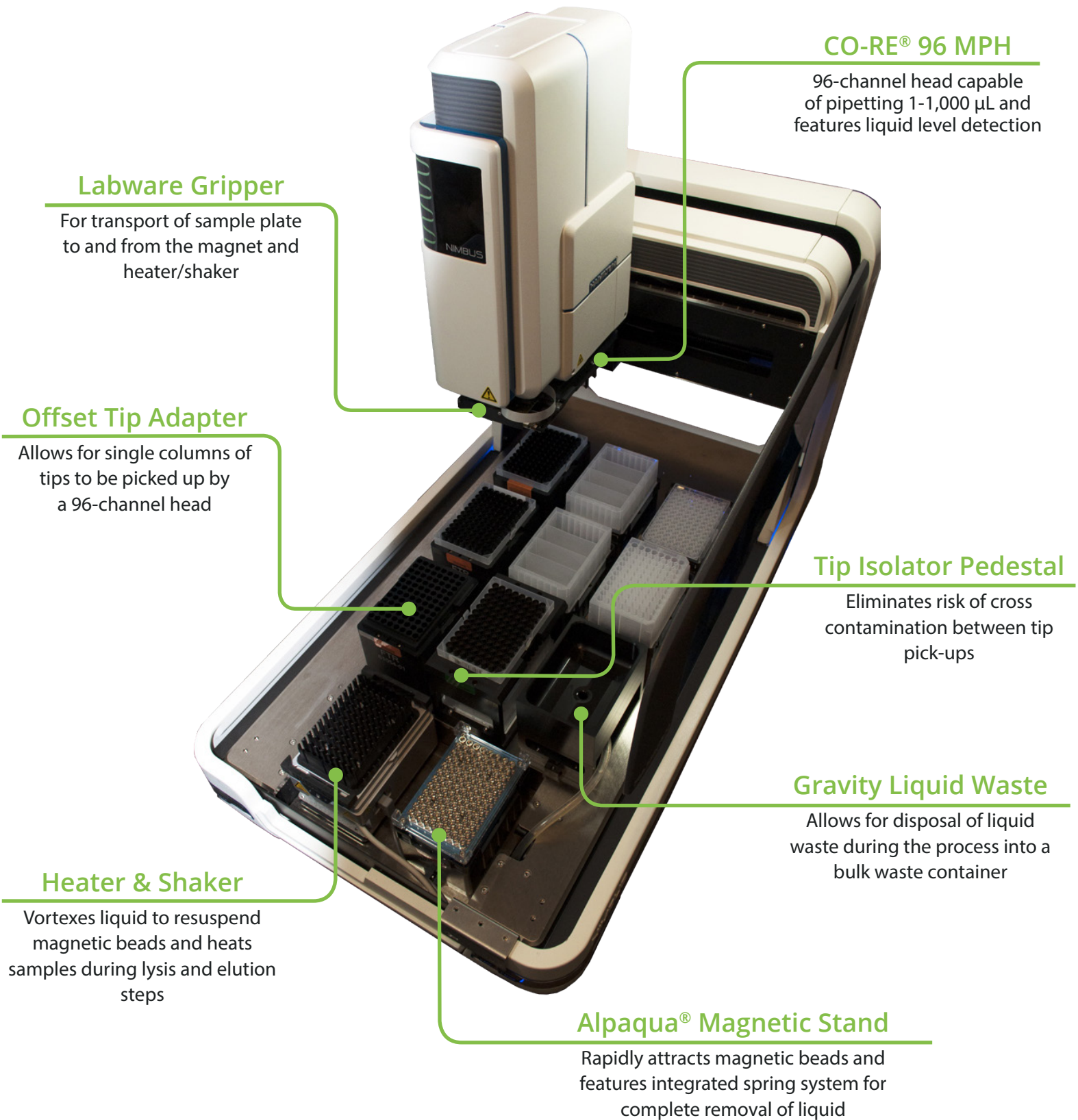
Compressed O-ring expansion (CO-RE) technology attaches disposable tips using a highly robust lock-and-key style mechanism.

Liquid
Level
Detection

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

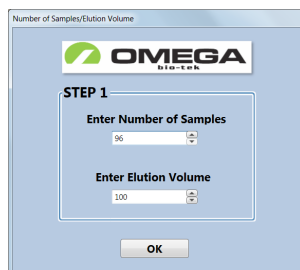


INSTRUMENT CONFIGURATION



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.



Number of Samples/Elution Volume

STEP 1

Enter Number of Samples

96

Enter Elution Volume

100

OK

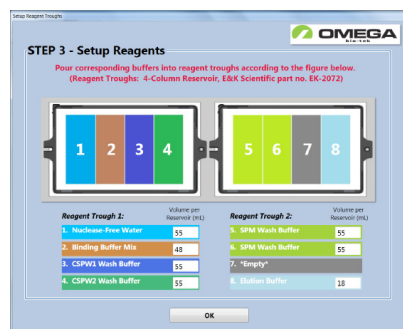
Step 1: Input sample number & elution volume

Each predefined script can process between 1-96 samples per run. The final elution volume for each method can be set between 50-200 μ L, 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 - Setup Reagents

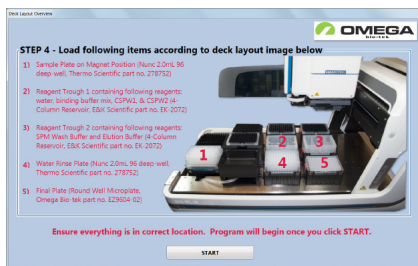
Pour corresponding buffers into reagent troughs according to the figure below.
(Reagent Troughs: 4-Column Reservoir, EBK Scientific part no. EK-2072)

Reagent Trough 1	Volume per Reservoir (mL)	Reagent Trough 2	Volume per Reservoir (mL)
1. Nuclease-Free Water	55	5. SPH Wash Buffer	55
2. Binding Buffer Mix	55	6. SPH Wash Buffer	55
3. CSPW1 Wash Buffer	55	7. "Empty"	
4. CSPW2 Wash Buffer	55	8. Elution Buffer	18

OK

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

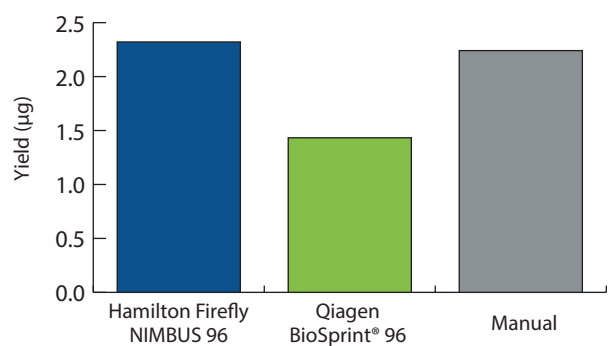
Sample Type	Target Nucleic Acid	Product	Amount	Offline/Online Processing Time
Whole blood, saliva	gDNA	Mag-Bind® Blood & Tissue DNA HDQ 96 Kit	10-250 µL	5 min/80 min
Buccal swabs	gDNA	Mag-Bind® Blood & Tissue DNA HDQ 96 Kit	1 swab	30 min/70 min
Serum/plasma	Cell-free DNA	Mag-Bind® cfDNA Kit	750 µL	5 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

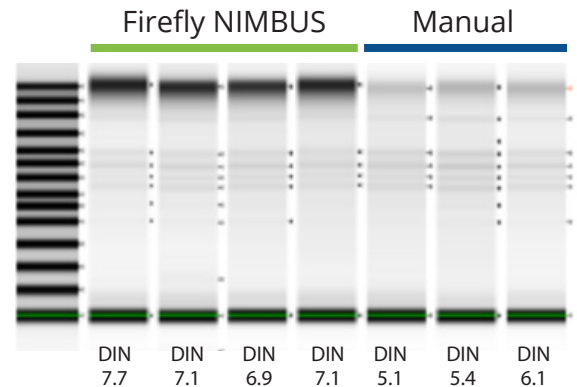


MAG-BIND® PLANT DNA DS 96 KIT

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

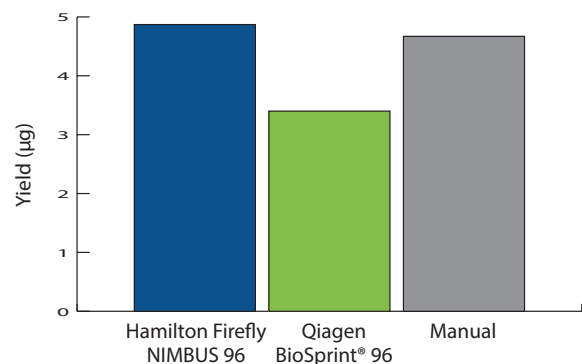
- Inhibitor-free DNA acceptable for various downstream applications
- Ideal for downstream pathogen detection testing
- Pre-filled glass beads in a 96-well Disruptor Plate

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

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

Omega Bio-tek is able to customise pack sizes for bulk orders and chemistry modifications.



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***Alpaqua® is a registered trademark belonging to Alpaqua Engineering, LLC.

****ZymoBIOMICS™ is a trademark of Zymo Research Corp.