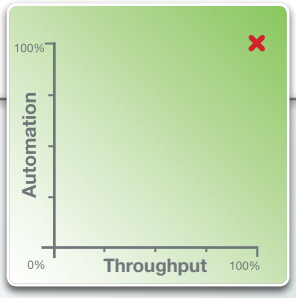
BIOTECON Diagnostics

foodproof® RoboPrep+ HT

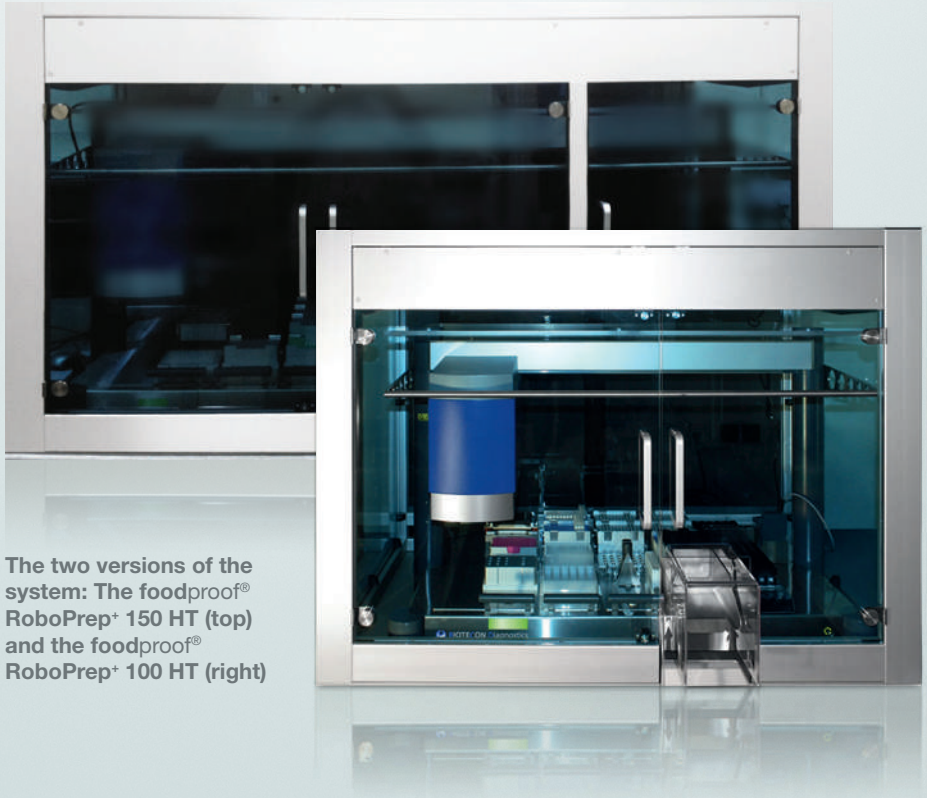
- fully automated DNA extraction and PCR setup
- 96 samples in 2.5 hours
- main application: PATHOGEN DETECTION



The **food**proof® RoboPrep+ HT combines automated DNA extraction and subsequent PCR setup in one system. Advantages of the workstation include fully automated, unattended processing of DNA extraction and PCR setup with high reproducibility and sensitivity.

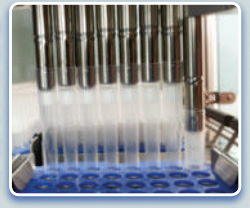
The **food**proof® RoboPrep+ HT is available in two platform sizes (100 HT and 150 HT). Both systems are optimized for timing and throughput, resulting in a total processing time of approximately 2.5 hours for 96 samples (includes DNA extraction and PCR setup).

The system features automated sample tracking by an integrated barcode reader. It can also provide sample data sheets for a selection of real-time PCR cyclers, thus further reducing hands-on time and risk of error.



The two versions of the system: The foodproof® RoboPrep+ 150 HT (top) and the foodproof® RoboPrep+ 100 HT (right)

DETAILS



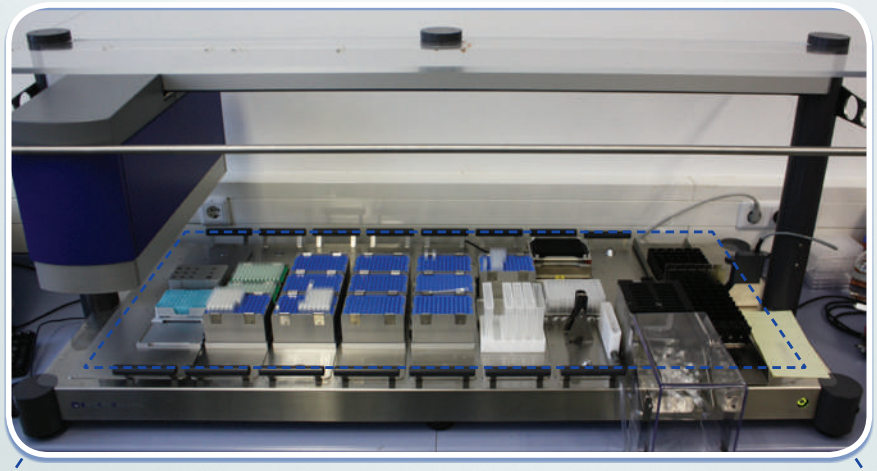
8-independent-channel technology

optional waste

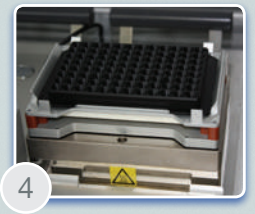
8-channel liquid level detection

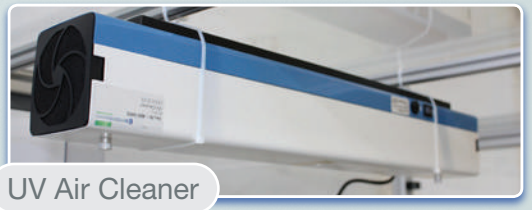
watch the video!

Construction Details foodproof® RoboPrep+ 150 HT



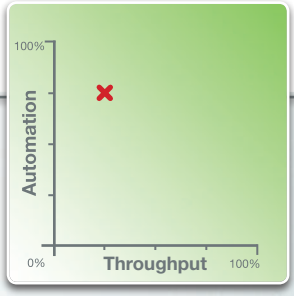
Legend	
1	Sample Tubes in Barcode Reader Rack (6x 16)
2	Camera for Scanning Tube Barcodes
3	Tip Waste
4	Thermo Shaker
5	Magnet (24 pin)
6	Gripper
7	Liquid Waste
8	Process Plate for Purification
9	Purification Reagent Container
10	Disposable Filter Tips (13x 96)
11	Reagent Rack for PCR Setup
12	PCR Plate
13	Elution Plate




UV Air Cleaner

foodproof® RoboPrep® X-Tract

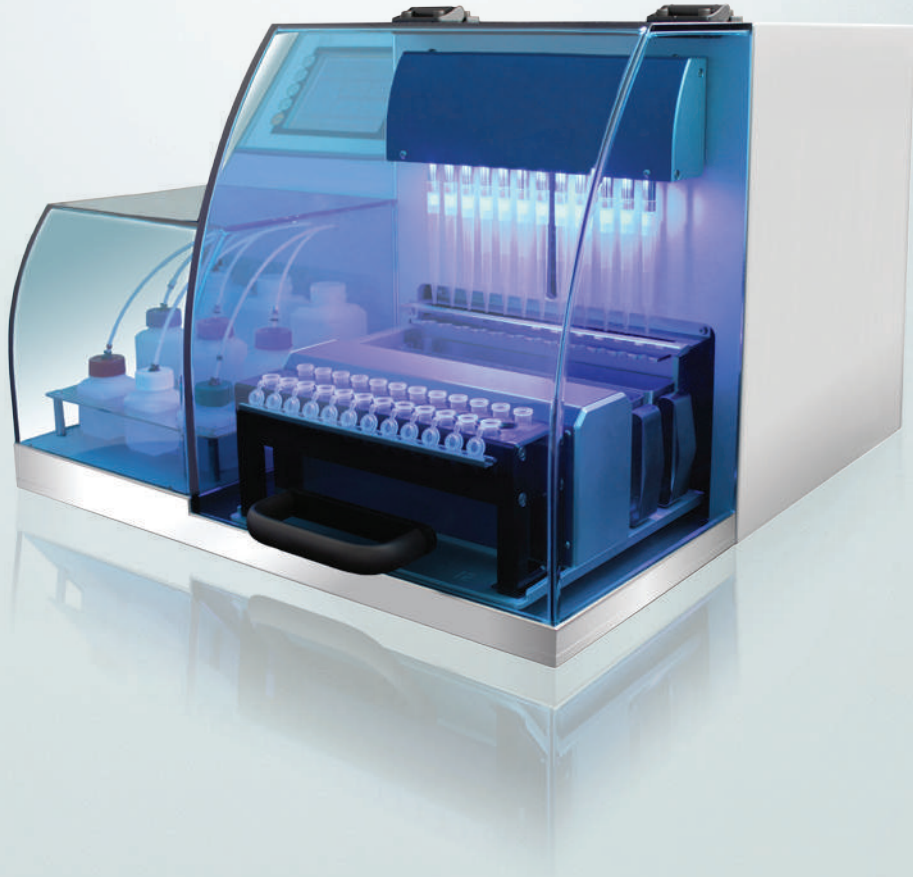
- highly automated DNA extraction
- 12 samples in 50 minutes
- cost-efficient
- main application:
  PATHOGEN DETECTION



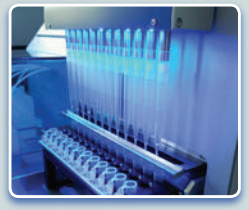
With the **food**proof® RoboPrep® X-Tract BIOTECON Diagnostics is introducing the perfect entry level system for low-throughput molecular testing.

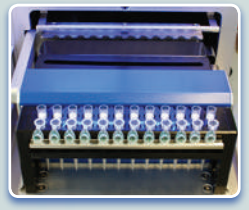
The system allows a fully automated DNA extraction of twelve samples with high precision and reproducibility. The innovative method using magnetic separation of DNA is proven and efficient to extract high-purity DNA.

The **food**proof® RoboPrep® X-Tract requires minimal user effort and is ready to operate in less than one hour including optimized and validated protocols for food safety testing.
Moreover this system is highly cost-efficient, using just one sample tube, eluate tube and one filter tip per sample.



DETAILS


12-channel technology

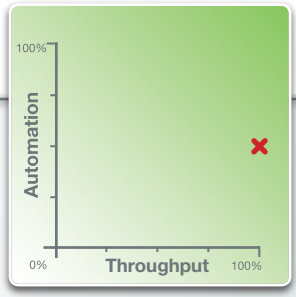

loaded sample rack

detail of connected kit container

watch the video!

KingFisher® Flex

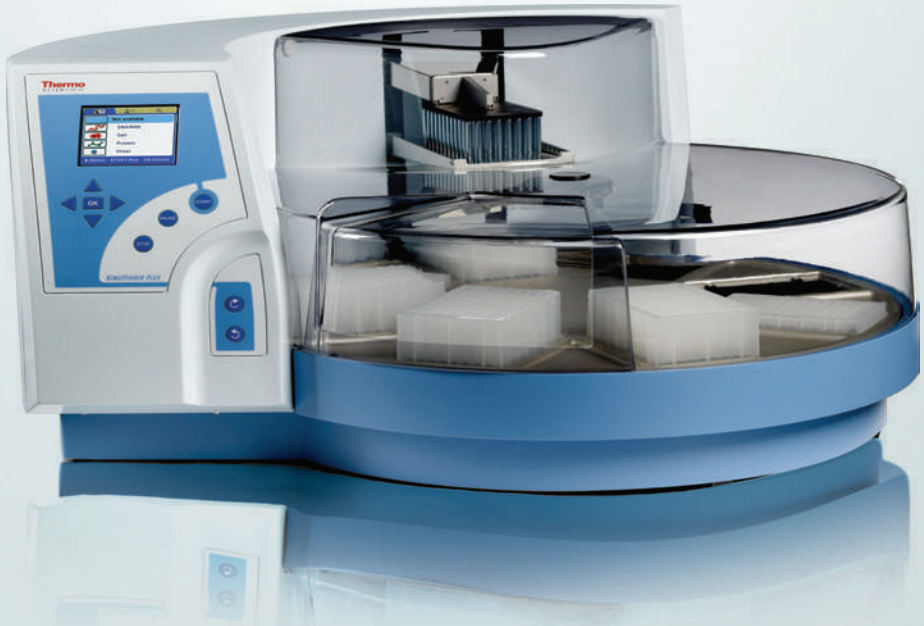
- automated DNA extraction
- 96 samples in 35 minutes
- suitable for all kinds of food matrices
- main application:
  GMO, ALLERGENS, ANIMAL ID & PATHOGEN DETECTION



The KingFisher® Flex achieves the highest throughput of automated DNA extraction in the market – up to 96 samples can be processed in 35 min.

The KingFisher® Flex in combination with the foodproof® Magnetic Preparation Kit III offers highly reliable, automated magnetic bead processing for plant or animal DNA from food, beverages, environmental samples and raw materials.

With the innovative method of transferring magnetic particles instead of liquids, the KingFisher® Flex offers a rapid and reproducible purification of high-quality DNA from various and often difficult starting materials. This method in combination with our foodproof® Magnetic Preparation Kit III result in a reliable and robust purification process.



DETAILS

compact and robust system

magnetic bead transfer

detailed view deep well head

watch the video!

Applications & Consumables

- innovative extraction technology
- high quality of extracted DNA
- optimized and validated kits
- free application support and guarantee

foodproof® Magnetic Preparation Kits

Our **food**proof® **Magnetic Preparation Kits** are based on magnetic bead technology and provide ultra-pure, ready to use genomic DNA of bacteria, plant or animal origin for enhanced performance in sensitive real-time PCR applications.

Overview Magnetic Preparation Kits (MPKs)

Kits	MPK I	MPK II	MPK III
Order Numbers	S 400 11 L Kit, 480 isolations S 400 11 Kit, 96 isolations Z 600 05 Consumable Pack Robo-Prep⁺ HT, 960 isolations Z 600 02 Consumable Pack for Robo-Prep® X-Tract, 480 isolations A 500 12 Reagent P	S 400 12 L Kit, 480 isolations - Z 600 05 Consumable Pack Robo-Prep⁺ HT, 960 isolations - - -	S 400 13 L Kit, 480 isolations S 400 13 Kit, 96 isolations - - - -
Application for	gram-negative bacteria (*Salmonella, Cronobacter, E.coli, Shigella*)	gram-positive bacteria (*Listeria*)	genetically modified organisms (GMO), allergens and animal ID
Additionals	**food**proof® **Consumable Packs** with all consumables for 480/960 isolations	**food**proof® **Consumable Pack** with all consumables for 960 isolations	MPK III includes all necessary consumables for 96 and 480 isolations
	Reagent P (for protein rich matrices, such as salmon, chicken)	**Reagent P** is included in MPK II	**Reagent P** is included in MPK III
Suitable for	**food**proof® RoboPrep⁺ HT, **food**proof® RoboPrep® X-Tract	**food**proof® RoboPrep⁺ HT	KingFisher® Flex

Overview foodproof® RoboPrep® Series

Innovative:

- First automated system for sample preparation and PCR setup in the food market (multiple matrices including confectionary, meat etc.)

Flexible:

- Different instrument sizes and systems are available for all throughput needs and laboratory testings; sample preparation and PCR setup (such as BIOTECON Diagnostics' **food**proof® real-time PCR Detection Kits) may run consecutively in one run or separately

Comprehensive:

- All available through BIOTECON Diagnostics: the complete robot package (on board PC, flat screen, keyboard and mouse), sample preparation and detection kits (pathogen, GMO, allergen, animal ID), plastic consumable sets (tips, plates, tubes, and buffer containers), real-time PCR instruments and service

Automated:

- Reduces manual handling steps by automated processing, delivering reproducible results

Safe:

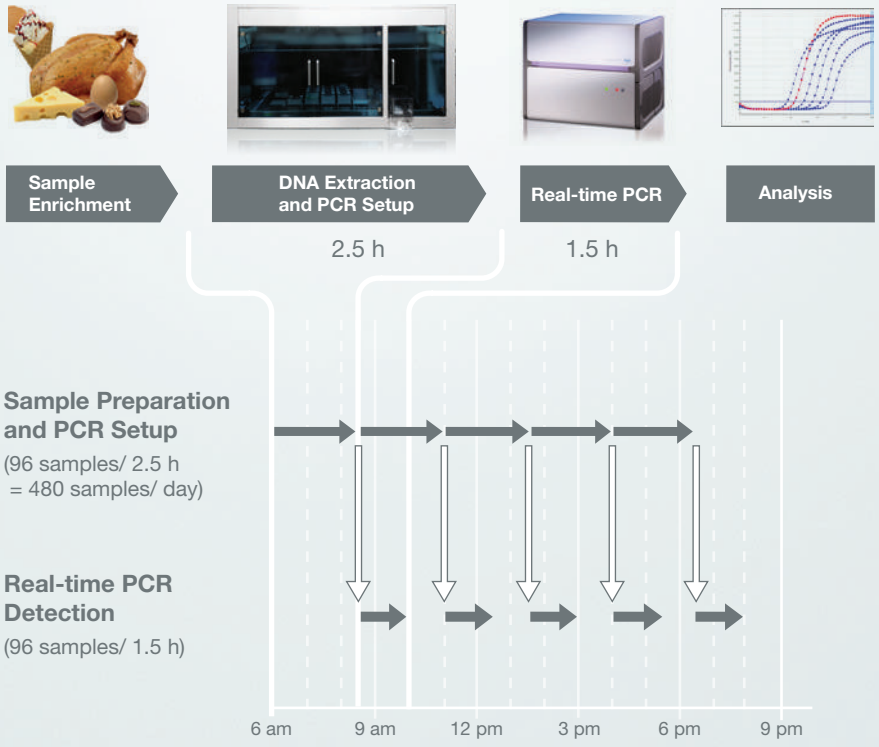
- Samples are traceable by barcode, and instruments are available with hood and UV/Air Cleaner

Convenient:

- Protocols can be started with only a few mouse clicks, and then runs unattended with up to 96 samples at a time

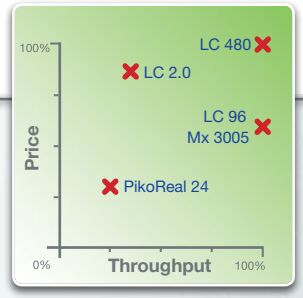
High throughput:

Example for Laboratory Routine foodproof® RoboPrep+ HT



Subsequent Detection Systems

- high standard real-time PCR cyclers
- for every throughput need
- validated performance for BIOTECON Diagnostics detection kits
- application guarantee



BIOTECON Diagnostics offers a set of real-time PCR cyclers for low- to high-throughput. Our products were tested for an optimal performance on these cyclers. Further we provide tools to push your data analysis to the next level (see next page).

Overview Real-time Cycler

Cycler	Roche LightCycler 480 II	Roche LightCycler 2.0	Roche LightCycler 96	Agilent Mx3005P	Thermo Scientific PikoReal® 24
Order Number	D 100 03	D 100 02	D 100 13	D 100 04	D 100 05
Dimensions	60 x 60 x 54.5 cm	28 x 39 x 51 cm	40 x 40 x 53 cm	36 x 51 x 46 cm	30 x 23 x 31 cm
Throughput	96 samples/run (interchangeable 384 block)	32 samples/run	96 samples/run	96 samples/run	24 samples/run
Reaction Volume	10 - 100 µl (96-well), 5 - 20 µl (384-well)	20 µl, 100 µl	10 - 50 µl	10 - 60 µl	10 - 50 µl
Excitation (nm)	440, 465, 498, 533, 618 (broad spectrum LEDs)	470 (high brightness LED)	470, 533, 577, 645 (broad spectrum LEDs)	350 - 740 (quartz tungsten halogen lamp)	475 - 640 (broad spectrum LEDs)
Emission (nm)	488, 510, 580, 610, 640, 660 (CCD camera)	530, 555, 610, 640, 670, 705 (photodiodes)	514, 572, 620, 697 (CCD camera)	350 - 700 (photomultiplier tube)	520 - 740 (CCD camera)
Detection Format	hybridization probes, hydrolysis probes, intercalating dyes	hybridization probes	hydrolysis probes, intercalating dyes	hydrolysis probes, intercalating dyes	hydrolysis probes, intercalating dyes
Melting Curve*	yes	yes	no	no	no

* hybridization probes

Service and Validation/Approval

- two kinds of service contracts
- LIMS integration
- connection to other lab instruments
- tested with a multitude of matrices
- AOAC/MicroVal approvals

Service concept

- BCD offers a basic and a full service contract for the instruments.

Included:	Basic Contract	Full Service Contract
Technical Costs	all labor	all labor, material, hardware, travel
Yearly Maintenance	once a year, including check, cleaning, exchange of parts according to maintenance plan, software updates	
Reaction Time	callback / first proposal for solution: 48 h on-site: 72 h inside Germany / 96 h inside EU	
Helpdesk	Monday - Friday 8:00 - 18:00	

LIMS Integration

- The **food**proof® RoboPrep⁺ HT, the Robo⁺ and the real-time PCR cyclers can be integrated in your lab workflow via LIMS.
  Please contact us for more information.

Matrices

- BCD tested a multitude of different matrices: extraction of bacterial, viral, fungal, plant and animal DNA from food, feed, beverages, environmental samples and raw materials.

Approvals

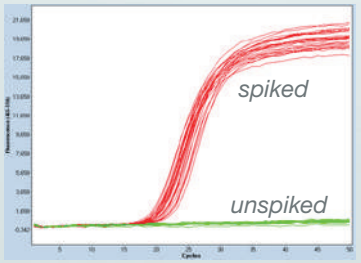
- MicroVal certificate for **food**proof® Magnetic Preparation Kit I plus **food**proof® *Salmonella* Detection Kit using the automated protocol; certificate no.: 2011-LR40.
  Validation according to AOAC-RI was also successfully completed.

Validation

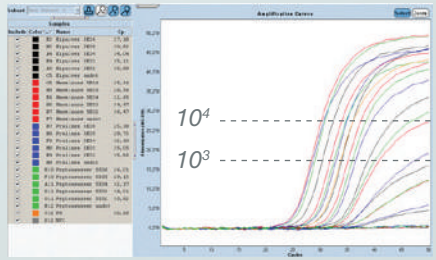
- The **food**proof® Magnetic Preparation Kits were validated successfully on respective systems.
  Example data for MPK I, tested on the **food**proof® RoboPrep⁺ HT:

✓ Specificity for *Salmonella* spp.:
- 35 different strains were detected successfully

✓ Cross contamination:
- No cross contaminations



✓ Sensitivity:
- $5x10^3$ to $5x10^4$ cfu/ml



✓ Robustness
- All tested sample matrices could be processed without inhibition and without loss of sensitivity if higher sample matrix content was used

microproof® Software Suite

- Software Suite: improve convenience of automated liquid handling

Part 1: Food Testing

IMPROVED REAL-TIME PCR DATA ANALYSIS

BIOTECON Diagnostics' **micro**proof® **Software Suite** is designed to meet the needs of modern automation. It is a collection of four specialized programs covering different aspects of automated liquid handling:

- Individual pipetting workflows
- Simplified user control
- Standardized dilutions
- Facilitated data analysis

The aim is to extend the scope of automated sample testing.

The different programs are subdivided into two categories:
Food Testing (Part 1) and **Advanced Liquid Handling** (Part 2).

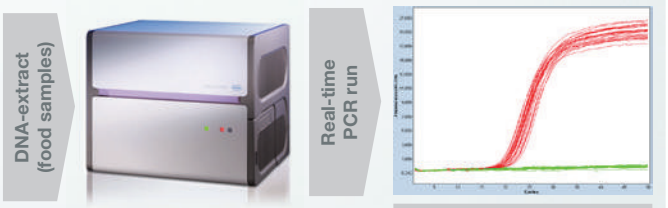
Food Testing

The **micro**proof® **Diagnostic Interpreter** is a tool for the subsequent analysis of extracted DNA from food matrices. It calculates an improved evaluation based on the real-time PCR cycler data after the detection run. As a result, positive and negative samples are identified and presented to the user. Runs marked as "undetermined" can be checked in detail via individual curve analysis.

microproof® Software Suite Part 1: Food Testing

	Program	Compatible with	Order Number
	The **micro**proof® **Diagnostic Interpreter** is an analysis tool available for most real-time PCR cyclers. It processes the imported cycler data to determine positive and negative samples.	most real-time PCR cyclers	D 201 04

Workflow microproof® Diagnostic Interpreter



Analysed data showing identified positive and negative samples

A	pos contro	AK 33	AK 41	AK 49	AK 57	FOF3 5/3	FOF3 5/11
	success	success	success	success	success	success	success
	positive	negative	negative	negative	pos-Entero	negative	negative
B	neg contro	AK 34	AK 42	AK 50	AK 58	FOF3 5/4	FOF3 5/12
	success	success	success	success	success	success	success
	negative	negative	negative	negative	negative	negative	negative
C	AK 27	AK 35	AK 43	AK 51	AK 59	FOF3 5/5	FOF3 5/13
	success	success	success	success	success	success	success
	negative	negative	negative	negative	pos-Entero	negative	negative
D	AK 28	AK 36	AK 44	AK 52	EB 17	FOF3 5/6	FOF3 5/14
	success	success	success	success	success	success	success
	negative	negative	pos-Entero	negative	negative	negative	pos-Entero
E	AK 29	AK 37	AK 45	AK 53	EB 1	FOF3 5/7	FOF3 5/15
	success	success	success	success	success	success	success
	negative	negative	pos-Entero	negative	pos-Entero	negative	negative
F	AK 30	AK 38	AK 46	AK 54	EB 2	FOF3 5/8	FOF3 5/16
	success	success	success	success	success	success	success
	repetition	negative	negative	negative	pos-Entero	negative	negative
G	AK 31	AK 39	AK 47	AK 55	FOF3 5/1	FOF3 5/9	FOF3 5/17
	success	success	success	success	success	success	success
	pos-Entero	negative	negative	negative	negative	negative	negative
H	AK 32	AK 40	AK 48	AK 56	FOF3 5/2	FOF3 5/10	FOF3 5/18
	success	success	success	success	success	success	success
	negative	negative	negative	negative	negative	negative	negative

microproof® Robo+ & microproof® Software Suite

- Robo+: hardware configuration for low-volume pipetting
- Software Suite: easy control of challenging pipetting tasks

Part 2: Advanced Liquid Handling

PCR SETUP, DILUTION & ROBOT CONTROL

Advanced Liquid Handling

Part 2 of the **micro**proof® **Software Suite** consists of tailor-made solutions for automated pipetting with a focus on clinical applications. These programs are developed for the **micro**proof® **Robo+** that is based on the **RoboPrep+ 100 HT**. The main differences are the hardware components of the robot (like pumps and labware) that are optimized to master challenging liquid handling tasks.

microproof® Software Suite Part 2: Advanced Liquid Handling

	Programs	Compatible with	Order Number
	The **micro**proof® **PCR Setup Wizard** enables the pipetting of complex liquid handling steps on a **micro**proof® **Robo+**. The Software considers a multitude of parameters to achieve precise pipetting even down to one microliter.	**micro**proof® **Robo+**	D 201 01
	The **micro**proof® **Lirix User Cockpit** is a custom-made user interface for any "Neon" liquid handling robot (Xiril/Sias). Only most important information is presented to the user and the whole robot can be controlled remotely by a tablet-PC or touch screen.	"Neon" Series from Xiril/Sias (like **RoboPrep+ HT**)	D 201 02
	The **micro**proof® **Nucleic Acid Normalization Tool** allows fully automated dilution of nucleic acid samples. Any concentration can be realized on many robot systems that provide measured 260 nm data.	most automated liquid handling systems	D 201 03

microproof® Robo+

The perfect partner for advanced liquid handling

The **micro**proof® **Robo+** is designed to provide precise and fast liquid handling. Hard- and software are harmonized for routine work with volumes down to a few micro liters.

- Optimized for small volumes
- Fully customizable workflow
- Minimal waste of liquids
- Multisource and multi destination pipetting

Specifications Automation Series

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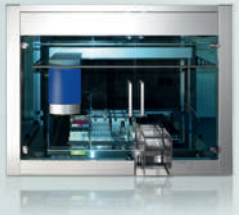

Technical Information

Model	**food**proof® **RoboPrep⁺ 150 HT**	**food**proof® **RoboPrep⁺ 100 HT**	**micro**proof® **Robo⁺**	**food**proof® **RoboPrep® X-Tract**	**KingFisher® Flex**
Order Number	D 21508	D 21008		D 20XT	D 22001
Dimensions (excl./ **incl.** Hood)	162/**178** x 70/**88.5** x 72/**94** cm	108/**125** x 70/**88.5** x 72/**94** cm		57 x 63.5 x 42 cm	68 x 60 x 38 cm
Pipetting Channels	8 channels	8 channels	4 - 8 channels	12 channels	96 channel head
Sample Preparation	96 samples	96 samples*	-	12 samples	96 samples
PCR Setup / ELISA	yes 96 samples	yes 96 samples	multiple of up to 96 samples, ELISA	-	-
Hood	optional	optional	optional	included	included
User Interface	integrated PC, flatscreen monitor, keyboard, mouse			touch screen	keypad
Accessories (optional)	passive PCR plate cooler, barcode scanner for plates, active cooling unit, LightCycler® decktray		custom labware, **micro**proof® Software Suite	barcode scanner	external PC, pipetting head for 24 samples
Technical Service	please inquire for basic and full service contracts				

*tip reload is required during run

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