

# Microbiology Lab Automation

**2014-2015 Catalog**  
**IUL / WLD-TEC**

자동중량희석기

시료균질기

자동연속희석기

시료자동분주기

억제환측정기

수동균수측정기

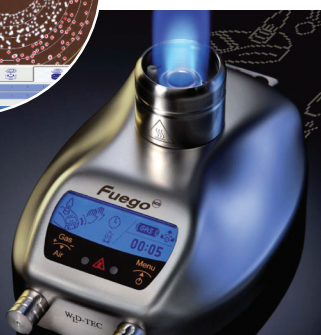
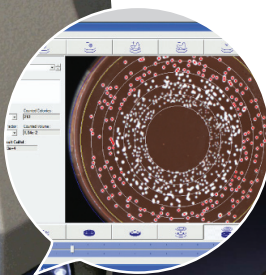
자동균수측정기

부유균측정기

자동그람염색기













가스버너

Sample Loop 멸균기



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### FLASH & GO

자동균수측정기

10 page

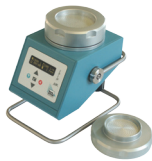


iUL

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WLD-TEC  
GmbH

### GAS BURNER

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WLD-TEC  
GmbH

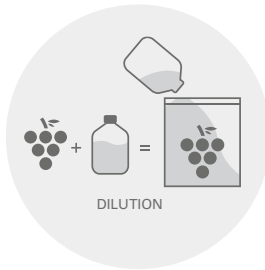
### SAMPLE LOOP STERILIZER

Sample loop 멸균기

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# SMART DILUTOR W

자동중량희석기



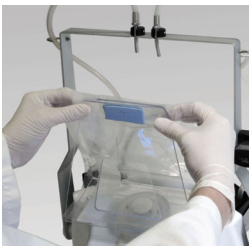
## FEATURES

- 샘플무게 대비 일정비율의 희석액을 자동 분주하는 장치
- Touch panel을 이용한 간단한 제어
- 2point calibration
- 멸균을 위한 튜빙 및 희석제 접촉 부분의 쉬운 분리
- 다양한 장치 연결 - 프린터(RS-232 DB9 port) : 희석기록 인쇄  
- 외부컴퓨터(Ethernet)
- ISO 7218 준수

## TECHNICAL SPECIFICATIONS

Weight range	2400 g. (tare included)
Maximum sample weight	compatible with factor, tare and weight range
Weight resolution SAMPLE	0.01 g
Weight resolution DILUTION	0.1 g
Average Time to perform a 1:10 dilution (25g sample)	16,3 s
Sample weight accuracy (for sample weights > 5g)	>99%
Dilution Accuracy	>99%
Dispensing Accuracy	>99%
Selectable surface vibration compensation levels	0 - 4
Mains	85~264 ACV 50/60 Hz
Printer connection	Serial RS 232 DB 9
Printed records include	Date, Time, Operator ID, Sample ID, Sample Weight, Dilution Factor, Diluent ID, Total Weight, Final Accuracy, Last Calibration Date
Connection to computer for LIMS integration	Ethernet
Calibration interval(two points)	0 and 100 to 2000 g
Power	40 W
Dimensions (WxHxD)	300x365x325 mm
Weight	6.5 Kg

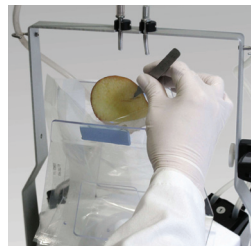
## WORKFLOW



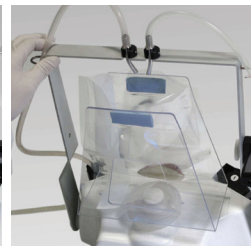
01  
멸균백을 멸균백  
출력에 위치



02  
무게 0.0 설정  
(멸균백 무게 제외)



03  
멸균백 내부에  
샘플을 위치



04  
설정값에 따른  
희석액 자동분주



05  
희석된 샘플 분리



# PINCH DILUTOR

자동중량희석기

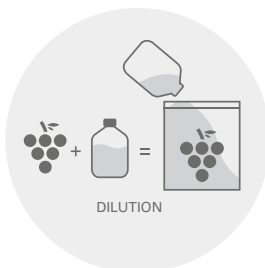


## FEATURES

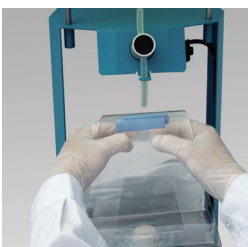
- 샘플무게 대비 일정비율의 희석액을 자동 분주하는 장치
- 쉬운조작방법 : 2버튼 제어
- 멸균을 위한 튜빙 및 희석제 접촉 부분의 쉬운 분리
- 저소음, 경제적인 가격, 유지보수에 용이
- ISO 7218 준수

## TECHNICAL SPECIFICATIONS

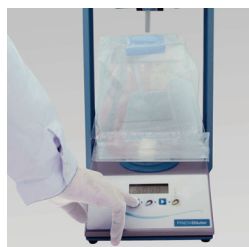
Pinch Valve	24 V, DC
Delivery speed	550 ml/min
Weight resolution	0.1 g
Weighing inaccuracy	< 1 %, ± 1 digit
Working temperature	5~40°C
Mains	230/100 V 50/60 Hz
Maximum sample weight	compatible with factor, tare and weight range
Dilution ratio	1/2 to 1/50
Default value	1/10
Dilution inaccuracy	< 0.2 g
Maximum total weight	2000 g including tare
Power	45 W
Dimensions (WxHxD)	300x810x240 mm (The height can be reduced to 650 mm with the Horizontal Holder)
Weight	6.5 Kg



## WORKFLOW



01  
멸균백을 멸균백  
홀더에 위치



02  
무게 0.0 설정  
(멸균백 무게 제외)



03  
멸균백 내부에  
샘플을 위치



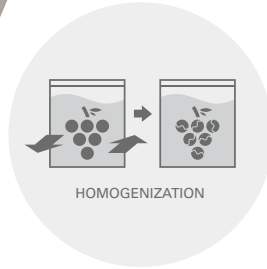
04  
설정값에 따른  
희석액 자동분주



05  
희석된 샘플 분리

# MASTICATOR

시료균질기



## FEATURES

- 고품 및 반고형 시료의 균질 및 시료의 용액 추출
- 균질화 과정 중 교차오염방지
- High quality spring system으로 높은 내구성
- 쉬운 유지보수 : 전면의 Door제거 후 청소
- BASIC, CLASSIC, SILVER & Panoramic ver. : 멸균백 400ml용량 시료균질기
- COMPACT : 멸균백 80ml용량 시료균질기

## TECHNICAL SPECIFICATIONS

Model	Silver/Panoramic	Classic/Panoramic	Basic/Panoramic	Compact
Motor	Induction Type	Induction Type	Induction Type	DC Type
Motor Speed	500-1500 rpm	1500 rpm	1500 rpm	2400 rpm
Reduction	1:6	1:6	1:6	1:8
Strokes/sec	5-6-7-8	8.5 (50Hz) 10 (60Hz)	8.5 (50 Hz) 10 (60Hz)	14
Setting	Keyboard/Display	Digital Timer	Digital Timer	Digital Timer
Timer	5/30/60/90/120/ 150/180/210/240s	15-90s	15-90s	15-90s
Mains	230V 50Hz 110V 60Hz	230V 50Hz 110V 60Hz	230V 50Hz 110V 60Hz	230V 50Hz 110V 60Hz
Power	240W	240W	240W	25W
Dimensions (WxHxD) mm	240x260x400	240x260x400	240x260x400	150x150x300
Weight	20kg	17kg	17kg	7kg

## WORKFLOW



01 샘플이 포함된 멸균백을 시료균질기 내부에 위치



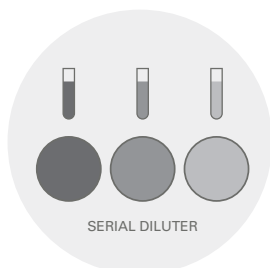
02 작동시간 설정



03 Door를 닫으면 자동으로 작동



04 균질화된 샘플 분리



### FEATURES

- 희석량을 설정하여 다량의 시료를 짧은 시간에 희석
- 정확한 stepper 모터에 의한 작동
- 팁 속에 Air bubble을 생성, 시료와 희석액의 혼합을 방지
- 멸균을 위한 튜빙 및 희석제 접촉 부분의 쉬운 분리

### TECHNICAL SPECIFICATIONS

Syringe volume	10, 5, 2.5 or 1 ml autoclavable
Maximum flow speed	4 ml/s with 10 ml syringe
Minimum volume step	1/1000 of the total volume of syringe
Use of disposable tip	Programmed from the beginning of process
Air bubble volume	Programmable
Sample volume	Programmable Limited to the tip volume (1300 µl)
Min. sample volume	1% of the syringe volume used. Warning message if it is less than 5%
Dilution factor	Programmable from 1:1 to 1: 1000
Reproducibility	Better than 1% even for dilutions using more than one single syringe stroke
Printer communication	Serial RS 232, programmable
Mains	100/240 V, 50/60Hz
Balance communication	Serial RS 232, programmable
Gravimetric dilution	By specific weight of solvent
Linked programs	Up to 9
Power	40 W
Dimensions (WxHxD)	300x300x200 mm
Weight	6 Kg

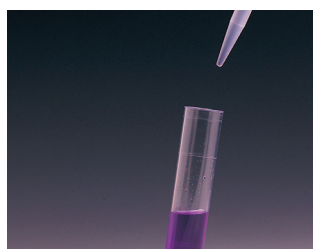
### WORKFLOW



01  
멸균된 팁 장착



02  
샘플흡입



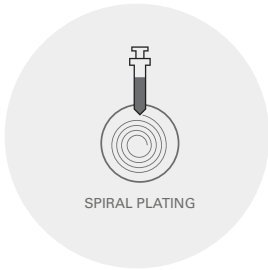
03  
샘플 및 용매 분주



04  
사용한 팁 분리

# EDDY JET 2

시료자동분주기



## FEATURES

- 배지(Petri dish)에 시료를 Spiral형태로 자동 분주
- 정확한 stepper 모터에 의한 작동
- 시료의 양을 구역별에 따라 나선형 분주
- 1회용 멸균 시린지 사용으로 세척 과정이 필요 없음
- 교차 오염의 가능성을 제거
- 희석비율, 접종량 등 데이터 저장가능

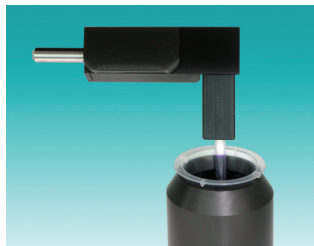
## TECHNICAL SPECIFICATIONS

Reproducibility	> 99%
Time for a full cycle	30 s (disposable syringes make disinfection unnecessary)
Spreading modes stored	22 spread modes (44 counting those for 15mm Petri plates)
Petri plate diameters	100 and 150 mm
Minimum step volume	< 10 nl
Maximum pipeted volume	100 µl
Syringe material	Polypropylene
Plunger material	Polyethylene H.D.
Auto checking	Programmed in 6 regions
Touch screen	5.71 in
Operating system	Windows embedded CE 6.0 R3
External balance connection	Serial RS232 DB9
Printer connection	Serial RS232 DB9
Connection for updates	Ethernet/ USB pendrive
Additional connections for peripherals	2 x USB Host ports
Motion control	Microcontroler regulated stepper motors
Dimensions (WxHxD)	515x420x500 mm
Weight	20 Kg

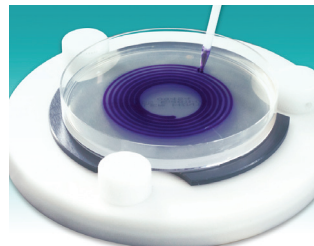
## WORKFLOW



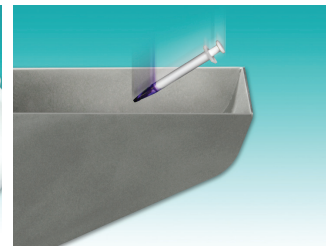
01 멸균된 시린지 장착



02 샘플흡입



03 샘플 및 용매 분주



04 사용한 팁 분리

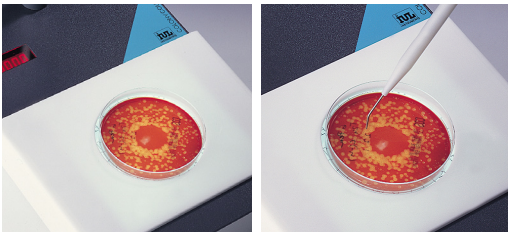


# COLONY COUNTER

수동균수측정기



## WORKFLOW



01  
Petri dish를 장비위에 위치

02  
계수

## FEATURES

- 배지의 세균군락을 계수
- 200mm직경의 확대경 장착
- LED화면에 Colony의 수 표시(~9999까지 가능)
- 아답터를 이용 다양한 plate 계수 가능  
: 60, 70, 80, 90, 100, 120 and 150 mm.

## TECHNICAL SPECIFICATIONS

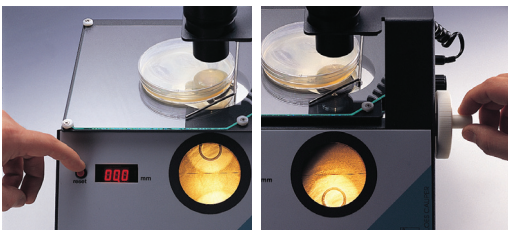
Counter	4 digits, 9 mm LED-Display
Connections	Marker / Marker and Metal Pointer
Magnifying glasses	Biconvex, 100/120 mm Ø, 4 Diopters, DIN x 2
Mains	100/240 V, 50/60 Hz
Power	50 W
Dimensiones (WxHxD)	200x400x300 mm
Weight	3 Kg

# HALOES CALIPER

억제한측정기



## WORKFLOW



01  
측정할 억제환을 위치시킨 후  
리셋 버튼을 누름

02  
Wheel을 움직여 측정

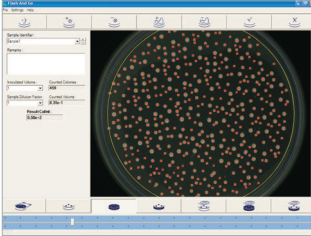
## FEATURES

- 억제환의 크기 측정
- 0.1mm 단위의 크기측정
- 균일한 광원에 의한 측정으로 시차에 의한 오차 최소화

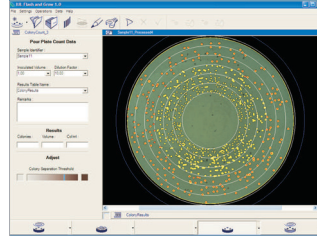
## TECHNICAL SPECIFICATIONS

Magnification	Factor 2.25
Measuring range	0-35mm
Resolution	0.1mm
Mains	100/240V 50/60Hz
Power	40 W
Dimensiones (WxHxD)	270x270x230 mm
Weight	3 Kg

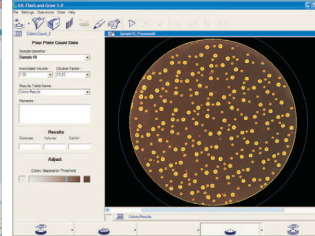
**FEATURES**



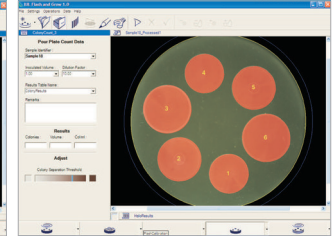
Basic Software(기본제공)  
PC를 이용, One-Click 균수측정,  
계수한 균의 삭제 및 추가 가능,  
특정구역을 삭제 및 추가 가능



Spiral 형태의 배지를  
계수 및 분석



Software option Upgrade  
advanced automatic  
colony counter  
Colony의 크기, 모양, 색을  
구분하여 계수가능



Software option Upgrade  
advanced inhibition zone  
measuring  
억제환의 자동 측정



**TECHNICAL SPECIFICATIONS**

Reflected Lighting	Ring of 54 white
LED Transmitted Lighting	Two High Flux Led Background field : Dark or Bright
Imaging Device	CMOS with fixed focus lens.
Image field	97 x 97 mm
Minimum colony size	0.06 mm
Image capture	True color, 24 bits per pixel
Image resolution	1536 x 1536 pixels.
Operating Temperature	5~40°C
Operating Relative Humidity	10~90%
Mains	100/240V AC, 50/60 Hz
Power	40 W
Dimensions (WxHxD)	180x360x220 mm
Weight	5.4 Kg

**MINIMUM REQUIREMENTS FOR THE PC**

**Hardware**

CPU	Pentium4, 1.7 GHz or higher
USB	Embedded USB2.0 port (PCI/PCMCIA USB2.0 ports are often not compliant)
RAM	512MB or higher ram memory.
HD	500 MB free, after all the operational system updates are installed.

**Software**

OS	Microsoft Windows 2000(SP4), XP(SP3), Vista or 7
DirectX	Version 9 or higher
DotNet	Version 3.0 or higher



# PLATE HANDLER

자동균수측정기 자동화장비



## FEATURES

- FLASH & GO를 장착한 자동화 장비로서 80개의 Petri dish를 20분만에 측정
- 1개의 Carrousel에 Petri dish를 4개 구역, 20개씩 80개를 장착하여 측정 가능
- Petridish를 장착한 Carrousel을 Incubator에서 배양 가능

## TECHNICAL SPECIFICATIONS

Petri dishes	Any model of 90 mm diameter in plastic
Carrousel capacity	From 80 to 96 plates according high
Processing time	20 minutes complete carrousel
Mains	100/240 V, 50/60 Hz
Power	500 W
Dimensions (WxHxD)	350x850x840 mm
Weight	49 Kg

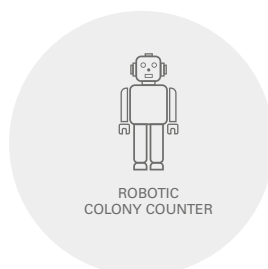


PLATE HANDLER



CARROUSEL

# SPIN AIR

부유균측정기

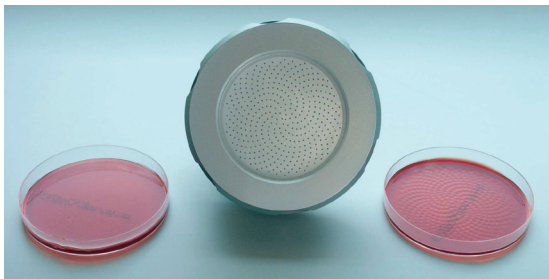


## FEATURES

- 공기를 빨아들여 배지에 분주, 부유세균측정을 위한 장치
- Microprocessor control을 통한 안정적인 공기흐름 유지
- Aluminium Cover를 분리하여 멸균가능
- Calibration kit를 통한 정기적인 교정 가능
- 편리한 Carrying case(Compact한 크기) 기본제공
- USP 797 및 1116 규정을 준수

## TECHNICAL SPECIFICATIONS

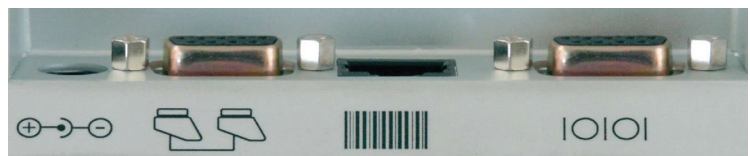
Air flow	100L/m (90mm plate) 60L/m (Rodac plate) Controlled by microprocessor
Air Total Volume	10-9900L
Delay to Start	60 minutes, divided in seconds
Rotation Speed	0, 1, 2, 3 and 4 rpm
Tripod thread	At the bottom
Communication	RS232C to PC/Printer
Format Communication	XML, CSV
Battery Pack	Ni metal Hydride 7,2V
Range	8 hours full charge (without Slave)
Switching adapter	100-240V AC 50/60 Hz 12V CC
Power	15 W
Weight	1.7 Kg Spin Air 1.3 Kg Spin Air Slave 2.2 Kg Carrying case



특별히 디자인된 hole과 plate의 회전을 통해 배지표면 전체로 Sampling



Main unit에 Slave를 연결하여 동시에 2개 작동가능



RS232를 통한 PC / 프린터 연결가능

# POLY STAINER

자동그람염색기



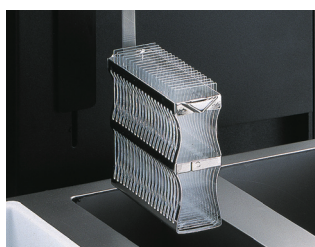
## FEATURES

- 그람염색법을 자동화한 장치
- 20개의 Slide를 동시에 염색
- 4개의 시약용기(Crystal violet, Iodine, Safranin, Ethanol)
- 1개의 수조
- 1개의 건조구역
- 10개의 프로그램 설정 및 저장 가능
- Quick drain system(Optional)을 통한 세척용 물의 순환

## TECHNICAL SPECIFICATIONS

Slides / Basket	20 slides each basket
Basket Lifting Motor	2.6W 12V /c 141:1 /encoder
Carriage Movement Motor	1.65W 12V / 28:1 / encoder
Heater	12~15°C higher that the room temperature
Heater Air Pressure	80 Pa
Air Volume	30 m3/h
Water Control	Electro valve 4W 24V IP65
Water Flow Program	Permanent/Autoinitiated at previous bath
Water Pressure	2bar / 6bar (instrument supplied with three different manifold)
Optional Output	RS232
Reagent Containers	Polyethylene
Basket Holder	Stainless Steel AISI 304
Basket	Stainless Steel AISI 304
Additional connections for peripherals	2 x USB Host ports
Programming Memory	10 programs - 10 steps per program.
Dimensions (WxHxD)	700x400x340 mm
Weight	23Kg

## WORKFLOW



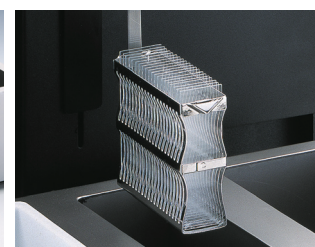
01  
Lift에 Slide를 정렬



02  
프로그램 선택 후 실행



03  
설정된 프로그램에 따라 자동 실행



04  
실행완료 후 건조구역에 위치

# SAFETY LAB GAS BURNER

실험실용 가스버너



Fuego SCS Basic



Fuego SCS



gasprofi 1 SCS Micro school edition

## FEATURES

- 화염멸균을 위한 실험실용 가스버너
- 클린룸 및 클린벤치에 사용하기 적합한 Stainless Steel 소재
- Safety Control System(SCS) with Burner Head Control(BHC) 전 제품 적용

	Fuego SCS Basic	Fuego SCS	gasprofi 1 SCS Micro school edition
Button function	⊙	⊙	⊙
Pedal Standard	⊙	⊙	⊙
IR Sensor Auto-Off		⊙	
IR Sensor Start-Stop		⊙	
Temperature regulation		⊙	
Safety Control System	⊙	⊙	⊙
Animated graphic display		⊙	
Foot pedal included	⊙		
Battery operation with tilt sensor			
Gas inlet filter	⊙	⊙	⊙
Removable & decomposable burner head	⊙	⊙	⊙
Housing, burner head, gas connection & controls made of stainless steel	⊙	⊙	⊙

## TECHNICAL SPECIFICATIONS

Technology	Microprocessor
Button	Start-Stop with timer
Safety Control System (SCS) with gas safety cut off	ignition and flame control, temperature monitor, burner head clogging and assembly monitor
Gas connection	1/4" left with gas filter
Gas types	ll2ELL3B/P: natural gas E/LL,18 - 25 mbar liquid gas, 20 - 50 mbar
Connected load	70 g/h liquid gas
Continuous cartridge operation	CV 360 - 40 min, Express 444 - 50 min, CG 1750 - 150 min, C 206 - 170 min, CP 250 - 210 min, CV 470 - 370 min
Flame temperature	1350 °C on liquid gas, 1300 °C on natural gas (E)
Temperature threshold level	1.0 kW liquid gas, 1.0 kW natural gas
Power consumption	2 VA
Switching power supply	100 - 240 V / 50/60 Hz / max. 0.3 A 9V DC / 1 A
Casing and operating controls	stainless steel / glass, UV and solvent resistant
Burner head	removable and decomposable, stainless steel
Cover of burner shaft	Ø 23 mm, with drains
Dimensions (WxHxD)	Fuego SCS - 103 x 49 x 130 mm gasprofi 1 SCS - 85 x 49 x 86 mm
Weight	700 g



# SAMPLE LOOP STERILIZER

Sample Loop 멸균기



## ▶ FEATURES

- IR센서를 이용한 Sample Loop(백금이) 멸균기
- 작동시간 5~10초에 750~1000℃의 온도로 멸균
- Touchless IR-Sensor: IR센서를 이용, 자동으로 작동
- 멸균 후 Sample Loop의 냉각시간표시
- Warm-up이 필요없이 작동
- 가열하는 퀴츠글래스튜브를 분리하여 간단히 청소가능

## ▶ TECHNICAL SPECIFICATIONS

IR-Sensor	sensor range 8-stage adjustable
Touch operation	ON / OFF, selection for 2 users sterilization timer 5-10s inoculation loop cooling timer 0-25s with audible signal (disengageable)
sterilization timer	5 - 10 s inoculation loop cooling timer 0 - 25 s with audible signal (disengageable)
Thermocontrol	dynamic sterilization timer
Annealing tube	Sterilization temperature
Quartz glass	750 °C - 1000 °C (1382 °F - 1832 °F)
<b>Safety features</b>	
Residual heat display	indicates a hot annealing tube
Automatic unit switch off	15, 30 or 60 min.
Temperature monitor	thermal circuit breaker
<b>Electrical</b>	
Power supply	220 - 240 V or 112 - 128 V, 50/60 Hz
Power consumption	approx. 600 W / short time (5 - 10 s)
Protection class	IP 20
Heat source	IR halogen spot light
<b>Mechanical</b>	
Quartz glass annealing tube	outer-Ø 19 mm, inner-Ø 16 mm, length 112 mm
Casing	heat resistant glass / stainless steel, UV and solvent resistant
Measurements (WxHxD)	110 x 170 x 180 mm
Weight:	approx. 1800 g

# OTHERS

**Fiocchetti**  
SCIENTIFIC REFRIGERATORS

## Refrigerator & Freezer

Origin : Italy



## Incubator

Origin : Germany



**TOMY**

## Autoclaves

Origin : Japan



**PRO Scientific**

## Homogenizer

Origin : USA



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