

**CONTROLTECNICA**

**witeg**  
GERMANY

# Equipos de Laboratorio

## CATÁLOGO GENERAL 2017



**GERMAN ENGINEERING**  
with German Quality Test Certificate

ISO 9001 Certified  
ISO 13485 Certified Products  
CE-Marked Products  
CE-MDD Marked Products  
Validation (IQ & OQ) Service

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## Controltecnica Instrumentación Científica

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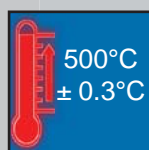
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**CONTROLTECNICA**

# NEW Hotplate

digital, up to 500°C, solid ceramic plate 200x200 mm



HP-500D Set

## HP-500D digital, 500°C

### Ideal for:

- sample drying and general lab heating applications where high temperature is needed

### Features:

- up to 500°C
- digital display with backlight
- high-quality solid ceramic plate 200x200 mm
- heat-, chemical- and acid-resistant
- perfect heat uniformity from the inner to the edge
- no liquid can get into the body
- powder-coated aluminium body
- CE certified and unique serial number for tracing

### Safety mechanism:

- hot top indicator lamp
- high quality insulation (BTU)
- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Dial** controller with touch-button for precise temperature control

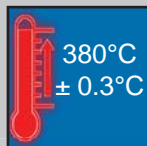
Model	HP-500D
Body	powder-coated aluminium
Plate	solid ceramic plate, 200x200 mm
Temperature range & accuracy	max. 500°C, ±0.3°C
Temperature resolution	0.1°C display, 0.5°C control
Temperature uniformity	specialty designed heating module: temperature difference less than 10%
Heating power / consumption	850W
Timer & alarm	99hr 59min (with continuous run), error status and timer-end
Display	digital LCD with backlight function
Controller	digital feedback controller with Jog-Dial (Turn+Push) and touch-button
Safety circuit	overheat protection, hot top indicator LED lamp
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH
Dimension & weight	205x345xh135 mm, 3.3 kg
Packaging size	400x280xh160 mm, unit: 4.8 kg, set: 5.4 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	Unit: DH.WHP05020   Set: DH.WHP04020
Order number 120V	Unit: DH.WHP05021   Set: DH.WHP04012

Set includes: Unit HP-500D  
 Temperature probe Ø4xL250 mm, cable length: 190 mm  
 Stand rod Ø12xL450 mm with screw, stainless steel  
 Holder / clamp / clip for fixation of temperature probe

Accessories: External temperature probes, stand rod and holder / clamp / clip on page 29

# Hotplate

digital, up to 380°C, ceramic-coated plate



HP-30D

HP-20D Set

## HP-D digital, 380°C

### Ideal for:

- sample drying and general lab heating applications

### Features:

- up to 380°C
- digital display with backlight
- ceramic-coated aluminium plate 180x180 / 260x260 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated body
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Shuttle** controller with touch-button

Model	HP-20D	HP-30D
Body	powder-coated aluminium	powder-coated steel
Plate	ceramic-coated aluminium 180x180 mm	ceramic-coated aluminium 260x260 mm
Temperature range & accuracy	max. 380°C, ±0.3°C	
Temperature resolution	0.1°C display, 0.5°C control	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	600W	1.2kW
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller with Jog-Dial (Turn+Push) and touch-button	
Safety circuit	overheat protection	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	206x307xh99 mm, 2.8 kg	286x387xh99 mm, 3.2 kg
Packaging size	400x280xh200 mm, 5 kg	430x320xh200 mm, 5 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WHP03020   Set: DH.WHP03021	Unit: DH.WHP03022   Set: DH.WHP03023
Order number 120V	Unit: DH.WHP02020   Set: DH.WHP02021	Unit: DH.WHP02022   Set: DH.WHP02023

Set includes: Unit HP-D  
 Temperature probe Ø4xL250 mm, cable length: 190 mm  
 Stand rod Ø12xL450 mm, stainless steel (stand rod for HP-20D with screw)  
 Holder / clamp / clip for fixation of temperature probe

Accessories: External temperature probes, stand rod and holder / clamp / clip on page 29

# Hotplate

analog, up to 380°C, ceramic-coated plate

## HP-A analog, 70°C - 380°C

### Ideal for:

- sample drying and general lab heating applications

### Features:

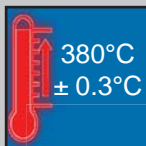
- up to 380°C
- ceramic-coated aluminium plate 180x180 / 260x260 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated body
- CE certified and unique serial number for tracing

### Safety mechanism:

- operation LEDs

### Controller:

- **PWM controller**



HP-20A



HP-30A

Model	HP-20A	HP-30A
Body	powder-coated aluminium	powder-coated steel
Plate	ceramic-coated aluminium 180x180 mm	ceramic-coated aluminium 260x260 mm
Temperature range & accuracy	70°C - 380°C, ±0.3°C	
Temperature resolution	0.5°C control	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	600W	1.2kW
Controller	superior linearity PWM Controller	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	206x307xh99 mm, 2.8 kg	286x387xh99 mm, 3.2 kg
Packaging size	400x280xh200 mm, 5 kg	430x320xh200 mm, 5 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WHP03120	DH.WHP03121
Order number 120V	DH.WHP02120	DH.WHP02121

### Accessories:



Stand rod RD200 Ø12xL450 mm with stainless steel screw

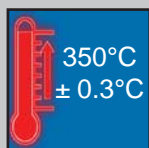
**DH.WHP503036**

Holder, clamp and clip

**DH.WHP503012**

# Hotplate

digital, up to 350°C, large ceramic-coated aluminium surface 310x620 mm



## HPLP large-type, digital, 350°C

### Ideal for:

- sample drying and general lab heating applications where a large surface is needed

### Features:

- up to 350°C
- ceramic-coated aluminium plate 310x260 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- aluminium body
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- HPLP-C-P: **Jog-Shuttle** controller with touch-button
- HPLP-C-R: **Remote controller** with touch-button



HPLP-C-P



HPLP-C-R

Model	HPLP-C-P	HPLP-C-R
Body	aluminium	
Plate	ceramic-coated aluminium 310x620 mm	
Temperature range & accuracy	max. 350°C, ±0.3°C	
Temperature resolution	0.1°C display, 0.5°C control	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	2kW	
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Display	digital LCD with backlight function	
Controller	built-in digital PID controller	digital remote controller
Safety circuit	overheat protection	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	630x360xh150 mm, 16 kg	
Packaging size	750x430xh220 mm, 18 kg	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WHP03024	DH.WHP03025
Order number 120V	DH.WHP02024	DH.WHP02025

# Magnetic stirrer with hotplate

MSH-500D **NEW**

## Highest performance

- powerful: stirring capacity up to 20 l, temperature up to 500 °C, stirring rate up to 1.500 rpm
- protection against corrosion due to the smart design
- superior heat- and chemical-resistant full ceramic plate
- strong but quiet motor, made for a long life time
- precise temperature by digital feedback control

## Highest convenience

- intuitive and very easy to use control elements
- illuminated digital display for easy setting
- easy to clean full ceramic plate

## Highest user safety

- hot top indicator for temperatures over 50°C
- high quality insulation to protect user and device against heat damage
- two independent internal sensors for accurate temperature and overheating protection



### Protection

Two features protect the device from internal corrosion and prolong its life time: the **closed coverage type** and the **intelligent fluid management system**, which leads off accidentally spilled liquids away from the interior of the device.

### Surface

The **superior full ceramic plate** achieves up to 500°C, is **resistant against aggressive chemicals** and **easy to clean**.

### Housing

The **die-cast case** with **high-quality insulation** ensures **user safety** during operation at high temperatures. The **minimized heat transfer** from the plate to the inside also ensures a **longer life time**.

### Temperature control & safety

**Two independent internal temperature sensors** assure **accurate temperature control** and **prevent from malfunction** or danger caused by overheating.

### Accessories

The **external temperature sensor** allows **accurate temperature** due to digital feedback control system.

### Motor

The **brushless shade motor** ensures **strong and precise stirring**, **minimized noise** and a **long life time**. Due to the high-performance magnet, up to 20 l of water can be stirred easily.

### Safety first

**Hot top indicator lamp** illuminates when temperature on the plate is over 50°C.

### Controller

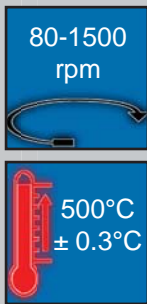
New **Jog-Dial "Turn + Push"** and **touch button** are designed for **intuitive, easy and direct use**.



**NEW**

# Magnetic stirrer with hotplate

digital, up to 500°C, 80-1.500 rpm, solid ceramic plate 200x200 mm



MSH-500D Set

Stirrer bar included

## MSH-500D digital, 500°C

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications where high temperature is needed

### Features:

- up to 500°C
- digital display with backlight
- high-quality solid ceramic plate 200x200 mm
- heat-, chemical- and acid-resistant
- shade motor for 80-1.500 rpm
- enormous strength of magnet
- perfect heat uniformity from the inner to the edge
- no liquid can get into the body
- powder-coated aluminium body
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- hot top indicator lamp
- high quality insulation (BTU)
- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Dial** controller with touch-button for precise temperature control

Model	MSH-500D
Body	powder-coated aluminium
Plate	solid ceramic plate, 200x200 mm
Stirring capacity	max. 20 l
Speed & control resolution	80 ~ 1.500 rpm, 5 rpm
Temperature range & accuracy	max. 500°C, ±0.3°C
Temperature resolution	0.1°C display, 0.5°C control
Temperature uniformity	specially designed heating module: temperature difference less than 10%
Heating power / consumption	850W
Timer & alarm	99hr 59min (with continuous run), error status and timer-end
Display	digital LCD with backlight function
Controller	digital feedback controller with Jog-Dial (Turn+Push) and Touch-button
Safety circuit	overheat protection, hot top indicator LED lamp
Stirring bar	30 mm bar included, usable up to 50 mm bar
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH
Dimension & weight	205x345xh135 mm, 3.3 kg
Packaging size	400x280xh160 mm, unit: 5.4 kg, set: 6.0 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	Unit: DH.WMH05020   Set: DH.WMH04020
Order number 120V	Unit: DH.WMH05021   Set: DH.WMH04021

Set includes: Unit MSH-500D  
 Temperature probe Ø4xL250 mm, cable length: 190 mm  
 Stand rod Ø12xL450 mm with screw, stainless steel  
 Holder / clamp / clip for fixation of temperature probe

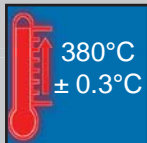
Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30



# Magnetic stirrer with hotplate

digital, up to 380°C, 80-1.500 rpm, ceramic-coated square-type plate

80-1500  
rpm



380°C  
± 0.3°C



MSH-30D

Stirrer bar included

MSH-20D Set

## MSH-D square-type, digital, 380°C

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications

### Features:

- up to 380°C
- shade motor for 80-1.500 rpm
- digital display with backlight
- ceramic-coated aluminium plate 180x180 / 260x260 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated body
- easy to clean
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Shuttle** controller with touch-button

Model	MSH-20D	MSH-30D
Body	powder-coated aluminium	powder-coated steel
Plate	ceramic-coated aluminium 180x180 mm	ceramic-coated aluminium 260x260 mm
Stirring capacity	max. 20 l	
Speed & control resolution	80 ~ 1.500 rpm, 5 rpm	
Temperature range & accuracy	max. 380°C, ±0.3°C	
Temperature resolution	0.1°C display, 0.5°C control	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	600W	1.2kW
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller with Jog-Dial (Turn+Push) and touch button	
Safety circuit	overheat protection	
Stirring bar	30 mm bar included, usable up to 50 mm bar	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	206x307xh99 mm, 3.3 kg	286x387xh99 mm, 3.5 kg
Packaging size	400x280xh200 mm, 5 kg	430x320xh200 mm, 5 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WMH03020   Set: DH.WMH03021	Unit: DH.WMH03022   Set: DH.WMH03023
Order number 120V	Unit: DH.WMH02020   Set: DH.WMH02021	Unit: DH.WMH02022   Set: DH.WMH02023

Set includes: Unit MSH-D  
 Temperature probe Ø4xL250 mm, cable length: 190 mm  
 Stand rod Ø12xL450 mm, stainless steel (stand rod for MSH-20D with screw)  
 Holder / clamp / clip for fixation of temperature probe

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

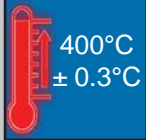
# Magnetic stirrer with hotplate

digital, up to 400°C, 80-1.500 rpm, ceramic-coated round-type plate Ø135 mm

80-1500 rpm



400°C  
± 0.3°C



Stirrer bar included




MSH-50D Set

## MSH-D round-type, digital, 400°C

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications

### Features:

- up to 400°C
- shade motor for 80-1.500 rpm
- digital display with backlight
- ceramic-coated aluminium plate Ø135 mm
- fits perfectly to special witeg beakers with rim
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated aluminium body
- easy to clean
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs
- auto-off at 420°C+

### Controller:

- **Jog-Shuttle** controller with touch-button

Model	MSH-50D
Body	powder-coated aluminium
Plate	ceramic-coated aluminium Ø135 mm
Stirring capacity	max. 20 l
Speed & control resolution	80 ~ 1.500 rpm, 5 rpm
Temperature range & accuracy	max. 400°C, ±0.3°C
Temperature resolution	0.1°C display, 0.5°C control
Temperature uniformity	specially designed heating module: temperature difference less than 10%
Heating power / consumption	600W
Timer & alarm	99hr 59min (with continuous run), error status and timer-end
Display	digital LCD with backlight function
Controller	digital feedback controller with Jog-Dial (Turn+Push) and touch button
Safety circuit	overheat protection
Stirring bar	30 mm bar included, usable up to 50 mm bar
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH
Dimension & weight	160x280xh95 mm, 2.3 kg
Packaging size	400x280x2h200 mm, 4 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	Unit: DH.WMH03050   Set: DH.WMH03051
Order number 120V	Unit: DH.WMH02050   Set: DH.WMH02051

Set includes: Unit MSH-50D  
 Temperature probe Ø4xL250 mm, cable length: 190 mm  
 Stand rod Ø12xL450 mm, stainless steel (stand rod for MSH-20D with screw)  
 Holder / clamp / clip for fixation of temperature probe

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer with hotplate

analog, up to 380°C, up to 1.500 rpm, ceramic-coated square-type plate

up to 1500 rpm



380°C  
± 0.3°C



MSH-20A



MSH-30A



Stirrer bar included

## MSH-A square-type, analog, 380°C

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications

### Features:

- up to 380°C
- up to 1.500 rpm
- ceramic-coated aluminium plate 180x180 / 260x260 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated body
- easy to clean
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- operation LEDs

### Controller:

- **PWM controller**

Model	MSH-20A	MSH-30A
Body	powder-coated aluminium	powder-coated steel
Plate	ceramic-coated aluminium 180x180 mm	ceramic-coated aluminium 260x260 mm
Stirring capacity	max. 20 l	
Speed & control resolution	up to 1.500 rpm	
Temperature range & accuracy	max. 380°C	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	600W	1.2kW
Controller	superior linearity PWM Controller	
Stirring bar	30 mm bar included, usable up to 50 mm bar	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	206x307xh99 mm, 2.8 kg	286x387xh99 mm, 3.3 kg
Packaging size	400x280xh200 mm, 5 kg	430x320xh200 mm, 5 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WMH03120	DH.WMH03121
Order number 120V	DH.WMH02120	DH.WMH02121

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer with hotplate

analog, up to 400°C, up to 1.500 rpm, ceramic-coated round-type plate Ø135 mm

up to 1500 rpm



400°C  
± 0.3°C



MSH-50A



Stirrer bar included

## MSH-A round-type, analog, 400°C

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications

### Features:

- up to 400°C
- up to 1.500 rpm
- ceramic-coated aluminium plate Ø135 mm
- fits perfectly to special witeg beakers with rim
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated body
- easy to clean
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- operation LEDs

### Controller:

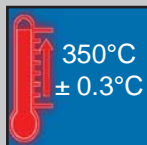
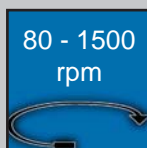
- **PWM controller**

<b>Model</b>	<b>MSH-50A</b>
<b>Body</b>	powder-coated aluminium
<b>Plate</b>	ceramic-coated aluminium Ø135 mm
<b>Stirring capacity</b>	max. 20 l
<b>Speed &amp; control resolution</b>	up to 1.500 rpm
<b>Temperature range</b>	max. 400°C
<b>Temperature uniformity</b>	specially designed heating module: temperature difference less than 10%
<b>Heating power / consumption</b>	400W
<b>Controller</b>	superior linearity PWM Controller
<b>Stirring bar</b>	30 mm bar included, usable up to 50 mm bar
<b>Permissible temperature &amp; RH %</b>	ambient temperature +5 ~ 50°C, 85% RH
<b>Dimension &amp; weight</b>	160x280xh95 mm, 2.3 kg
<b>Packaging size</b>	400x280xh200 mm, 4 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WMH03150</b>

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer with hotplate

analog, multiple places (3 & 6), up to 350°C, 80-1.500 rpm, ceramic-coated plates 140x140 mm



Stirrer bar included

## SMHS multi-type, digital, 350°C

### Ideal for:

- multiple mixing and heating applications at the same time
- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry
- sample drying and general lab heating applications

### Features:

- each place individually adjustable
- digital Jog-Dial controller for each place
- up to 350°C
- up to 1.500 rpm
- ceramic-coated aluminium plate with 3 or 6 places 140x140 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated steel body
- easy to clean
- 30 mm stirrer bar included
- up to 3 temperature probes possible (3 & 6 place-type)
- CE certified and unique serial number for tracing

### Safety mechanism:

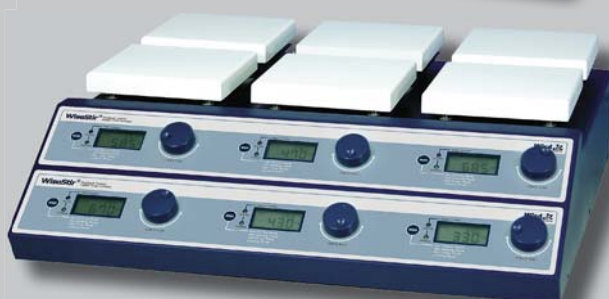
- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Dial** controller with touch-button



SMHS-3



SMHS-6







Model	SMHS-3	SMHS-6
Stirring points	3	6 (2x3)
Body	powder-coated steel	
Plate	ceramic-coated aluminium 140x140 mm (each place)	
Stirring capacity	max. 20 l	
Speed & control resolution	80 ~ 1.500 rpm, 5 rpm	
Temperature range & accuracy	max. 350°C, ±0.3°C	
Temperature resolution	0.1°C display, 0.5°C control	
Temperature uniformity	specially designed heating module: temperature difference less than 10%	
Heating power / consumption	400W x3	400W x6
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller with Jog-Dial (Turn+Push) and touch-button	
Safety circuit	overheat protection	
Stirring bar	30 mm bar included, usable up to 50 mm bar	
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Temperature sensor ports	3	3
Stand rod sockets	3	6
Dimension & weight	510x240xh100 mm, 10 kg	510x410xh180 mm, 18 kg
Packaging size	540x330xh170 mm, 10 kg	570x540xh230 mm, 18 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WMH03503	DH.WMH03506
Order number 120V	DH.WMH02503	DH.WMH02506

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer with hotplate | Hotplate

Accessories: external temperature probe, stand rods, holder/clamp/clip

Temperature probes for hotplates and magnetic stirrer with hotplate

For device(s)	Design	Measurements	Article	Order number	
HP-30D MSH-30D SMHS	Standard	Ø4xL250 mm, cable: 190 mm	SS100	<b>DH.WHP503020</b>	
HP-30D MSH-30D SMHS	PTFE-coated	Ø4xL250 mm, cable: 190 mm	SS110	<b>DH.WHP503021</b>	
HP-20D MSH-20D	Standard	Ø4xL250 mm, cable: 190 mm	SS200	<b>DH.WHP503030</b>	
HP-20D MSH-20D	PTFE-coated	Ø4xL250 mm, cable: 190 mm	SS210	<b>DH.WHP503031</b>	
HP-500D MSH-500D MSH-50D	Standard	Ø4xL250 mm, cable: 190 mm	SS500	<b>DH.WHP503060</b>	
HP-500D MSH-500D MSH-50D	PTFE-coated	Ø4xL250 mm, cable: 190 mm	SS510	<b>DH.WHP503061</b>	

Stand rods for hotplates and magnetic stirrer with hotplate

For device(s)	Design	Measurements	Article	Order number
HP-30A, HP-30D MSH-30A, MSH-30D	without screw	Ø12.7xh450 mm	RD100	<b>DH.WHP503011</b>
HP-20A, HP-20D, HP-500D MSH-20A, MSH-20D MSH-50A, MSH-50D MSH-500D	with screw	Ø12xh450 mm	RD200	<b>DH.WHP503036</b>



Holder, clamp and clip suitable for stand rods RD100 and RD200

For device(s)	Article	Order number
all hotplates and magnetic stirrer with hotplate	CL220	<b>DH.WHP503012</b>



# Magnetic stirrer with hotplate

Accessories: magnet stirrer bars

## Magnetic stirrer bar

- cylindrical
- PTFE
- with permanent magnet



Ø x Length	Order number
Ø 3 x 6 mm	7 211 001
Ø 3 x 8 mm	7 211 002
Ø 4.5 x 12 mm	7 211 003
Ø 4.5 x 15 mm	7 211 004
Ø 6 x 20 mm	7 211 005
Ø 6 x 25 mm	7 211 006
Ø 6 x 30 mm	7 211 007
Ø 6 x 35 mm	7 211 008
Ø 8 x 40 mm	7 211 009
Ø 8 x 45 mm	7 211 010
Ø 8 x 50 mm	7 211 011
Ø 9 x 60 mm	7 211 012
Ø 9 x 70 mm	7 211 013
Ø 10 x 80 mm	7 211 014

## Magnetic stirrer bar

- cylindrical with ring
- PTFE
- with permanent magnet



Ø x Length	Order number
Ø 3 x 8 mm	7 212 001
Ø 5 x 12 mm	7 212 002
Ø 5 x 15 mm	7 212 003
Ø 6 x 20 mm	7 212 004
Ø 6 x 25 mm	7 212 005
Ø 6 x 30 mm	7 212 006
Ø 6 x 35 mm	7 212 007
Ø 7 x 40 mm	7 212 008
Ø 8 x 45 mm	7 212 009
Ø 8 x 50 mm	7 212 010
Ø 9 x 60 mm	7 212 011
Ø 9 x 70 mm	7 212 012

## Magnetic stirrer bar set

- 13 different bars + 1 bar retriever (Ø 10 x 150 mm)
- PTFE
- with permanent magnet

Ø x Length	Shape	Order number
Ø 10 x 6 mm	cylindrical	7 213 112
Ø 4.5 x 15 mm		
Ø 6 x 20 mm		
Ø 6 x 25 mm		
Ø 6 x 30 mm		
Ø 8 x 40 mm		
Ø 8 x 50 mm		
Ø 9 x 60 mm		
Ø 4.5 x 15 mm	cylindrical with ring	
Ø 6 x 25 mm		
Ø 8 x 40 mm		
Ø 8 x 25 mm	oval	
Ø 14 x 40 mm		

## Magnetic stirrer bar

- oval (especially for round bottom flasks)
- PTFE
- with permanent magnet



Ø x Length	Order number
Ø 10.5 x 20 mm	7 214 001
Ø 12 x 25 mm	7 214 002
Ø 15 x 30 mm	7 214 003
Ø 15 x 35 mm	7 214 004
Ø 20 x 40 mm	7 214 005
Ø 20 x 50 mm	7 214 006
Ø 20 x 65 mm	7 214 007
Ø 20 x 71 mm	7 214 008

## Magnetic stirrer bar

- triangular
- PTFE
- with permanent magnet



Ø x Length	Order number
Ø 8 x 12 mm	7 213 001
Ø 8 x 25 mm	7 213 002
Ø 10 x 35 mm	7 213 003
Ø 12 x 50 mm	7 213 004

## Magnetic stirrer bar

- cylindrical
- borosilicate glass coated
- with permanent magnet

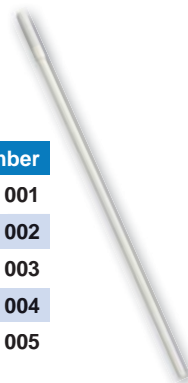


Ø x Length	Order number
Ø 8 x 20 mm	7 211 019 G
Ø 8 x 25 mm	7 211 020 G
Ø 10 x 30 mm	7 211 021 G
Ø 12 x 40 mm	7 211 009 G

## Magnetic stirrer bar retrievers

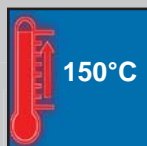
- magnet only at one end
- PTFE

Ø x Length	Order number
Ø 10 x 150 mm	7 218 001
Ø 10 x 250 mm	7 218 002
Ø 10 x 300 mm	7 218 003
Ø 10 x 350 mm	7 218 004
Ø 10 x 400 mm	7 218 005



# Dry bath

one block, up to 150°C, various blocks available



## HB-48 up to 150°C

### Ideal for:

- enzyme reactions, inactivation of sera, incubation and other laboratory procedures
- multifunctional dry block heater

### Features:

- user's self-compensation function to offset between real temperature and indicated temperature ( $\pm 10.0^\circ\text{C}$ )
- ergonomic design and modular block
- molded heater (300W) for temperature accuracy
- internal PPS bath ensures best insulation, block made of anodized aluminium
- precise temperature control
- digital timer function – delay time and operation control
- block extraction tongs "BLE101" & block cover are included
- storage function for the set values of temperature and timer
- various kinds of blocks are offered (optional)
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- overheat and over-current protection
- sensor error detection

### Controller:

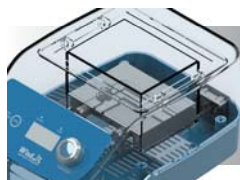
- digital fuzzy controller with **Jog-Dial** and **main touch button**



HB-48 Set with block and tong

<b>Model</b>	<b>HB-48</b>	
<b>Block</b>	interchangeable block (90 x 120 x 60 mm) for various tubes	
<b>Standard block</b>	-	48 holes for 1.5/2 ml centrifuge tubes
<b>Temperature range and accuracy</b>	ambient to $+5^\circ\text{C}$ to $150^\circ\text{C}$ , $\pm 0.1$ at $37^\circ\text{C}$ , $\pm 0.2^\circ\text{C}$ at $90^\circ\text{C}$ , $\pm 0.4^\circ\text{C}$ at $135^\circ\text{C}$	
<b>Heat-up speed &amp; sensor</b>	approx. $5^\circ\text{C}/\text{min}$ , PT100	
<b>Timer with alarm</b>	99hr 59min, alarm (error status and timer end)	
<b>Dimension</b>	unit: 210 x 309 x 144 mm, block: 90 x 120 x 60 mm	
<b>Packing size</b>	400 x 270 x 200 mm, 4 kg	
<b>Power supply</b>	1 Phase AC 120V, 60 Hz or AC 230V, 50/60Hz	
<b>Power consumption</b>	300 W	
<b>Order number 230V</b>	<b>Unit: DH.WHB00348</b>	<b>Set: DH.WHB00349</b>
<b>Order number 120V</b>	<b>Unit: DH.WHB00448</b>	<b>Set: DH.WHB00449</b>

Set includes: Unit HB-48  
Block BLC548 for 48x 1.5/2 ml tubes  
Tong BLE101



High quality molded heater ensures reliable and consistent temperature



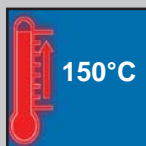
Maximum heat insulation and highest chemical resistance by PPS materials

Accessories: Dry bath blocks and tong on page 35



# Dry bath

two blocks, individual controller for each block, up to 150°C, various blocks available



## HB-96D 2 blocks up to 150°C

### Ideal for:

- enzyme reactions, inactivation of sera, incubation and other laboratory procedures
- multifunctional dry block heater

### Features:

- user's self-compensation function to offset between real temperature and indicated temperature ( $\pm 10.0^{\circ}\text{C}$ )
- unit made of stainless steel and powder-coated steel, block made of anodized aluminium
- digital timer function
- block extraction tongs "BLE101" & block cover are included
- storage function for the set values of temperature and timer
- alarm function: error status and timer end
- various kinds of blocks are offered (optional)
- dual block and 2 molded heater (300W)
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- overheat and over-current protection
- sensor error detection

### Controller:

- dual digital fuzzy controller with *Jog-Shuttle-switch*



HB-96D Set with blocks and tong

<b>Model</b>	<b>HB-96D</b>	
<b>Block</b>	interchangeable block (90 x 120 x 60 mm) for various tubes	
<b>Standard block</b>	-	2x 48 holes for 1.5/2 ml centrifuge tubes
<b>Temperature range and Accuracy</b>	ambient to +5°C to 150°C, $\pm 0.1$ at 37°C, $\pm 0.2^{\circ}\text{C}$ at 90°C, $\pm 0.4^{\circ}\text{C}$ at 135°C	
<b>Heat up speed &amp; sensor</b>	approx. 5°C/min PT 100	
<b>Timer with alarm</b>	99hr 59min, alarm (error status and timer end)	
<b>Dimension</b>	unit: 285 x 250 x 155 mm, 2 x block: 90 x 120 x 60 mm	
<b>Packing size</b>	400 x 270 x 200 mm, 6 kg	
<b>Power supply</b>	1 Phase AC 120V, 60 Hz or AC 230V, 50/60Hz	
<b>Power consumption</b>	600 W	
<b>Order number 230V</b>	<b>Unit: DH.WHB00198</b>	<b>Set: DH.WHB00199</b>
<b>Order number 120V</b>	<b>Unit: DH.WHB02198</b>	<b>Set: DH.WHB02199</b>

Set includes: Unit HB-96D  
Block 2x BLC548 for 48x 1.5/2 ml tubes  
Tong BLE101

Accessories: Dry bath blocks and tong on page 35

# Dry bath

one block, -5°C up to 95°C, various blocks available



HB-R48 Set with block and tong

## HB-R48 -5°C up to 95°C

### Ideal for:

- enzyme reactions, inactivation of sera, incubation and other laboratory procedures

### Features:

- user's self-compensation function to offset between real temperature and indicated temperature ( $\pm 10.0^\circ\text{C}$ )
- 2 peltier cooling modules
- unit made of stainless steel and powder-coated steel, block made of anodized aluminium
- block extraction tongs "BLE101" and block cover are included
- molded heater (300W), PT100 sensor
- storage function for the set values of temperature and timer
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- overheat and over-current protection
- sensor error detection

### Controller:

- digital PID and fuzzy controller with *Jog-Shuttle-switch*

Model	HB-R48	
Block	interchangeable block (90 x 120 x 60 mm) for various tubes	
Standard block	-	48 holes for 1.5/2 ml centrifuge tubes
Temperature range and accuracy	ambient to -5°C to 95°C, $\pm 0.1$ at 37°C, $\pm 0.2^\circ\text{C}$ at 90°C	
Cool-down speed	2.3°C/min. between 95°C to 25°C, 0.5°C/min between 25°C to -5°C	
Heat-up speed	approx. 5°C/min	
Timer with alarm	99hr 59min, alarm (error status and timer end)	
Dimension	unit: 185 x 230 x 220 mm, block: 90 x 120 x 60 mm	
Packing size	350 x 220 x 310 mm, 9 kg	
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60Hz	
Power consumption	450 W	
Order number 230V	Unit: DH.WHB00248	Set: DH.WHB00249
Order number 120V	Unit: DH.WHB02248	Set: DH.WHB02249

Set includes: Unit HB-R48  
Block BLC548 for 48x 1.5/2 ml tubes  
Tong BLE101

Accessories: Dry bath blocks and tong on page 35

## Blocks for dry baths

- anodized aluminium
- 90 x 120 x h60 mm



For	0.2 ml PCR tubes	0.5 ml PCR tubes	1.5/2 ml tubes	Ø12 mm tubes	Ø13 mm tubes
Holes	96 holes Ø: 6 mm depth: 15.5 mm conical bottom	63 holes Ø: 7.7 mm depth: 29.5 mm conical bottom	48 holes Ø: 11 mm depth: 36 mm conical bottom	48 holes Ø: 12 mm depth: 35 mm round bottom	30 holes Ø: 13 mm depth: 47 mm round bottom
Article	BLC596	BLC570	BLC548	BLT248	BLT335
Order number	DH.WHB510596	DH.WHB510570	DH.WHB511548	DH.WHB521248	DH.WHB521335



For	Ø15 mm tubes	Ø16.5 mm tubes	Ø18 mm tubes	15 ml conical tubes	50 ml conical tubes
Holes	30 holes Ø: 15 mm depth: 47 mm round bottom	24 holes Ø: 16.5 mm depth: 47 mm round bottom	24 holes Ø: 18 mm depth: 47 mm round bottom	15 holes Ø: 16 mm depth: 47 mm conical bottom	8 holes Ø: 28.7 mm depth: 47 mm conical bottom
Article	BLT535	BLT628	BLT828	BLC515	BLC008
Order number	DH.WHB521535	DH.WHB521628	DH.WHB521828	DH.WHB531515	DH.WHB535008

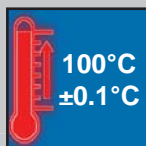
## Tong, for adding and removing blocks

Article	Order number
BLE101	DH.WHB500101



# Bath | water bath

digital, 6 / 11 / 22 l, up to 100°C ±0.1°C, flat lid included



## WB 100°C, digital

### Ideal for:

- water bath for general purpose

### Features:

- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- stainless steel bath & lid for superior durability & high thermal efficiency / consistency, dome lid optional
- digital timer function (99hr 59min): delay time and operation time can be controlled
- storage function for the set values of temperature and timer
- backlight LCD display
- CE-certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- over-temperature and over-current protection
- sensor error protection

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



WB-11 with flat lid (included)

Model	WB-6	WB-11	WB-22
Capacity	6 l	11 l	22 l
Temperature range & accuracy	room temperature +5°C - 100°C, ±0.1°C		
Temperature resolution	0.1°C-display, 0.1°C-control		
Temperature uniformity & probe	±1.0°C, PT100		
Heating power	800 W	1 kW	2 kW
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end		
Drain valve	-		mounted (Ø9.5 - 11 mm)
Effective space	300 x 155 x 110 mm	302 x 240 x 110 mm	500 x 295 x 110 mm
Internal dimensions (W x D x H)	300 x 155 x 150 mm	302 x 240 x 150 mm	500 x 295 x 150 mm
External dimensions (W x D x H)	325 x 180 x 260 mm	325 x 265 x 260 mm	535 x 330 x 260 mm
Packing size & gross weight	350 x 210 x 310 mm, 8 kg	350 x 300 x 310 mm, 10 kg	570 x 360 x 310 mm, 14 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		
Order number 230V	DH.WB000106	DH.WB000111	DH.WB000122
Order number 120V	DH.WB000206	DH.WB000211	DH.WB000222

### Accessories:



Lid with concentric ring, stainless steel

Measurements	Article	Order number
for WB-6, 2 rings, 330x182xh20 mm	BFC106	DH.WB030106
for WB-11, 2 rings, 329x269xh20 mm	BFC111	DH.WB030111
for WB-22, 6 rings, 539x334xh20 mm	BFC122	DH.WB030122



Dome lid for water bath WB, stainless steel

Measurements	Article	Order number
for WB-6, 324x176xh100 mm	BD206	DH.WB010206
for WB-11, 324x263xh100 mm	BD211	DH.WB010211
for WB-22, 533x328xh100 mm	BD222	DH.WB010222



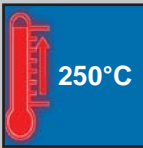
Tube rack, stainless steel

Measurements	Article	Order number
for WB-6, 36x Ø17 mm, 220x125xh79 mm	BTH106	DH.WB020106
for WB-6, 15x Ø32 mm, 220x125xh79 mm	BTH206	DH.WB020206
for WB-11, 63x Ø17 mm, 220x205xh79 mm	BTH111	DH.WB020111
for WB-11, 25x Ø32 mm, 220x205xh79 mm	BTH211	DH.WB020211

for WB-22 please choose between 4x BTH106/206 or 2x BTH111/211

# Bath | oil bath

oil bath, digital, 6 / 11 / 22 l, up to 250°C ±1.5°C, flat lid included



## WHB oil bath, 250°C, digital

### Ideal for:

- oil bath for general purpose with high temperature

### Features:

- user's self-compensation function to control difference between real temperature and indicated temperature
- stainless steel bath & lid for superior durability & high thermal efficiency / consistency
- digital timer function (99hr 59min): delay time and operation time can be controlled
- storage function for the set values of temperature and timer
- backlight LCD display
- CE-certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- over-temperature and over-current protection
- sensor error protection

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



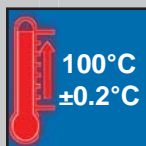
WHB-11

Flat lid (included)

Model	WHB-6	WHB-11	WHB-22
Capacity	6 l	11 l	22 l
Temperature range & accuracy	room temperature +5°C - 250°C, ±1.5°C		
Temperature resolution	0.1°C-display, 0.1°C-control		
Temperature uniformity & probe	±3.0°C, PT100		
Heating power	1.5 kW	2 kW	2.5 kW
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end		
Drain valve	mounted		
Effective space	270 x 170 x 110 mm	300 x 250 x 110 mm	400 x 300 x 140 mm
Internal dimensions (W x D x H)	270 x 180 x 150 mm	300 x 250 x 150 mm	400 x 300 x 180 mm
External dimensions (W x D x H)	425 x 305 x 340 mm	425 x 375 x 340 mm	525 x 425 x 370 mm
Packing size & gross weight	470 x 400 x 500 mm, 23 kg	600 x 490 x 500 mm, 25 kg	600 x 490 x 500 mm, 39 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		
Order number 230V	DH.WHB00106	DH.WHB00111	DH.WHB00122
Order number 120V	DH.WHB00206	DH.WHB00211	DH.WHB00222

# Bath | water bath

extraction water bath, 4 / 6 / 8 places, up to 100°C ±0.2°C, holding frame and covers included



WEB-6 with holding frame (included) and concentric ring covers (included)



WEB-4 with concentric ring covers (included)

## WEB 100°C, 4/6/8 places, digital

### Ideal for:

- gentle extraction, soxhlet extraction and determination of COD

### Features:

- available with 4,6 or 8 extraction places
- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- concentric ring cover set Ø 110 mm and stainless steel holding frame included, drain valve mounted
- stainless steel interior and powder-coated steel body
- storage function for the set values of temperature and timer
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection
- locking mode
- low water level warning and automatic stop function

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)

Model	WEB-4	WEB-6	WEB-8
Temperature range & accuracy	room temperature +5°C - 100°C, ±0.2°C		
Temperature uniformity & sensor	±1.0°C, PT100		
No. of extraction holes	4 places	6 places	8 places
Heating power	1.4 kW	1.8 kW	2 x 1.4 kW
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end		
Internal dimensions (W x D x H)	610 x 160 x 160 mm	910 x 140 x 160 mm	610 x 290 x 160 mm
External dimensions (W x D x H)	720 x 245 x 275 mm	975 x 245 x 275 mm	720 x 375 x 275 mm
Packing size & gross weight	710 x 310 x 300 mm, 18 kg	1,030 x 320 x 370 mm, 25 kg	880 x 420 x 300 mm, 34 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		
Order number 230V	DH.WEB01004	DH.WEB01006	DH.WEB01008
Order number 120V	DH.WEB02004	DH.WEB02006	DH.WEB02008

### Scope of supply:

- WEB water bath
- holding frame
- concentric ring covers

### Accessories:



#### Holding frame set, stainless steel

Measurements	Article	Order number
for WEB-4, 2x800mm pole, 2x700mm pole	EBF100	DH.WEB21004
for WEB-6, 2x800mm pole, 2x1.020mm pole	EBF200	DH.WEB21006
for WEB-8, 4x800mm pole, 4x740mm pole	EBF300	DH.WEB21008

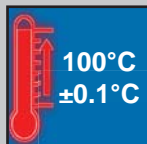


#### Lid with concentric ring, stainless steel

	Article	Order number
for all WEB models	EBC100	DH.WEB11000

# Bath | viscosity bath

viscosity water bath with window, 100°C ±0.1°C, lid with 5 holes included



WVB-30 with lid (included) and viscometer holder WVB02010 (optional)



## WVB viscosity bath, 100°C

### Ideal for:

- precise measurement with capillary viscometers

### Features:

- powerful circulation pump ensures highest temperature uniformity
- stainless steel interior and lid with 5 holes for viscometer holder, powder-coated steel body, vacuum sealed and tempered safety glasses window
- storage function for the set values of temperature and timer
- digital timer function (99hr 59min): delay time and operation time can be controlled
- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- drain valve mounted
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection
- locking mode

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)

Model	WVB-30
Temperature range & accuracy	room temperature +5°C - +100°C, ±0.1°C
Temperature resolution	0.1°C-display, 0.1°C-control
Temperature uniformity & probe	±0.2°C, PT100
Heating Power	2 kW
Pump	magnetic drive, max. flow rate 30 l/min
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end
Viewing window size	230 x 180 mm
Effective space	330 x 300 x 260 mm
Internal dimensions (W x D x H, mm)	350 x 300 x 300 mm
External dimensions (W x D x H, mm)	585 x 375 x 420 mm
Packing size & gross weight	640 x 450 x 500 mm, 24 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	DH.WVB01030
Order number 120V	DH.WVB02030

Accessories:



Spare flat lid, stainless steel

Measurements	Article	Order number
for WVB, 5 holes Ø50mm, suitable for viscometer holder WVB02010/11/12	VBF030	DH.WVB11030

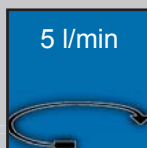
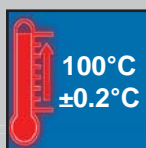


Viscometer holder

For...	Article	Order number
for Ubbelohde, Ostwald, etc.	WVB02010	DH.WVB02010
for Cannon-Fenske Routine / Reverse Flow	WVB02011	DH.WVB02011
for thread-type Ubbelohde	WVB02012	DH.WVB02012

# Bath | circulation water bath

circulation water bath, 6 / 11 / 22l, up to 100°C ±0.1°C, 5 l/min, flat lid included



WCB-22 with flat lid (included)



Stainless steel flat lid (included)

## WCB 100°C, 5 l/min, 6/11/22 l

### Ideal for:

- biotechnology, clinical, environmental, medical, petroleum & food industry, pharmaceutical and industrial applications
- connection with evaporators and viscometers is applicable

### Features:

- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- stainless steel bath & lid for superior durability & high thermal efficiency / consistency
- storage function for the set values of temperature and timer
- powerful circulation pump assures temperature uniformity: internal and external circulation
- storage function for the set values of temperature and timer
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- over-temperature and over-current protection
- sensor error detection
- low water level warning and automatic stop function

### Controller:

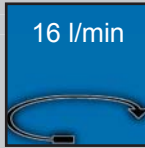
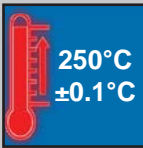
- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)

Model	WCB-6	WCB-11	WCB-22
Capacity	6 l	11 l	22 l
Temperature range & accuracy	room temperature +5°C - 100°C, ±0.1°C		
Temperature resolution, uniformity & probe	0.1°C-display, 0.1°C-control, ±0.2°C, PT100		
Heating power	800 W	1 kW	2 kW
Pump	max. flow rate 5 l/min (internal/external)		
Circulation nozzle	inner Ø 7 x outer Ø 11 mm (inner Ø 9/outer Ø 12 mm silicon tube connection for inner circulation)		
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end		
Drain valve	-		mounted (Ø9.5 - 11 mm)
Effective space	120 x 155 x 150 mm	170 x 240 x 150 mm	372 x 295 x 150 mm
Internal dimensions (W x D x H)	300 x 155 x 150 mm	302 x 240 x 150 mm	500 x 295 x 150 mm
External dimensions (W x D x H)	330 x 185 x 385 mm	335 x 275 x 385 mm	540 x 335 x 410 mm
Packing size & gross weight	350 x 210 x 340 mm, 11 kg	360 x 300 x 420 mm, 13 kg	580 x 380 x 470 mm, 18 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		
Order number 230V	DH.WCB00106	DH.WCB00111	DH.WCB00122
Order number 120V	DH.WCB00206	DH.WCB00211	DH.WCB00222



# Bath | circulation water bath

circulation water bath, 6 / 11 / 22 / 30 l, up to 250°C ±0.1°C, 16 l/min, flat lid included



## WCH 250°C, 16 l/min, 6/12/22/30 l

### Ideal for:

- applications at high temperature
- biotechnology, clinical, environmental, medical, petroleum & food industry, pharmaceutical and industrial applications
- connection with evaporators and viscometers is applicable

### Features:

- corrosion resistant stainless steel bath with 1.2 mm thickness
- ceramic fibre insulator of 50 mm thickness and powder-coated steel body
- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- digital timer function (99hr 59min): delay time and operation time can be controlled
- drain valve mounted and stainless steel flat lid included
- storage function for the set values of temperature and timer
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection
- locking mode

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



Stainless steel flat lid (included)

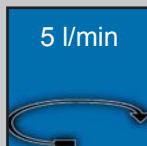
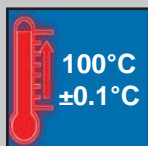


Connection for external circulation Ø12.5mm

Model	WCH-8	WCH-12	WCH-22	WCH-30
Capacity	8 l	12 l	22 l	30 l
Temperature range & accuracy	room temperature +5°C - 250°C, ±0.1°C			
Temperature resolution	0.1°C-display, 0.5°C-control			
Temperature uniformity & probe	±0.2°C, PT100			
Heating Power	1.0 kW	1.5 kW	2.2 kW	2.5 kW
External circulation nozzle	inner Ø10.5 mm, outer Ø12.5 mm			
Pump	max. flow rate: 16l/min, max. pressure: 5 psi, max. lift: 2.8m			
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end			
Effective space	180 x 130 x 155 mm	250 x 130 x 155 mm	340 x 250 x 155 mm	340 x 250 x 200 mm
Internal dimensions (W x D x H)	180 x 320 x 155 mm	250 x 320 x 155 mm	340 x 440 x 155 mm	340 x 440 x 200 mm
External dimensions (W x D x H)	303 x 443 x 569 mm	373 x 443 x 569 mm	463 x 563 x 569 mm	436 x 563 x 614 mm
Packing size & gross weight	470 x 400 x 500 mm, 19 kg	470 x 400 x 500 mm, 21 kg	600 x 490 x 500 mm, 23 kg	600 x 490 x 500 mm, 37 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz			
Order number 230V	DH.WCH00408	DH.WCH00412	DH.WCH00422	DH.WCH00430
Order number 120V	DH.WCH00508	DH.WCH00512	DH.WCH00522	DH.WCH00530

# Bath | circulation water bath

Circulation immersion pump head, 11 / 22 l, up to 100°C ±0.1°C, 5 l/min,



rear



side



WCB-11H



Universal use due to adjustable lug

## WCB-H 100°C, 11/22 l, digital

### Ideal for:

- multi-use digital precise immersion circulator head

### Features:

- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- digital timer function (99hr 59min): delay time and operation time can be controlled
- powerful circulation pump assures temperature uniformity
- storage function for the set values of temperature and timer
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- over-temperature and over-current protection
- sensor error detection
- low water level warning and automatic stop function

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)

Model	WCB-11H	WCB-22H
Capacity	11 l	22 l
Temperature range & sensor	room temperature +5°C - 100°C ±0.1°C; PT100	
Heating power	1 kW	2 kW
Pump	5 l/min	
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end	
External dimensions (W x D x H)	130 x 165 x 320 mm	
Packing size & gross weight	400 x 280 x 200 mm, 8 kg	400 x 280 x 200 mm, 10 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WCB10011	DH.WCB10022
Order number 120V	DH.WCB20011	DH.WCB20022

# Incubator | shaking

front door-type, up to 60°C / 10°C - 60°C (refrigerated), 30-250 rpm, orbital motion



Orbital motion



Wise remote



Jog-Shuttle controller

## WIS-30 front door, 60°C, orbital

### Ideal for:

- biological cultures under various temperatures

### Features:

- front door and sliding platform provides easy loading and handling of samples
- RS232C interface for monitoring and controlling (WireRemote)
- advanced shaking mechanism provides quiet shaking and precise speed control
- stabilized orbital motion, minimum noise and no vibration
- universal platform included
- accommodates flasks up to 1000 ml
- durable and flexible plastic flask holder (optional)
- universal spring rack for various flask shapes/sizes (optional)
- stainless steel interior and powder-coated body
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- leakage breaker
- automatic operation stop when door opens

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



WIS-30 with universal platform (included)



Model	WIS-30	WIS-30R
Temperature range	room temperature +5°C - 60°C	10°C - 60°C (refrigerated)
Temperature accuracy & uniformity	accuracy: ±0.2°C at 37°C, uniformity: ±0.5°C at 37°C	
Temperature sensor	PT100 sensor	
Heater	600 W	800 W
Compressor	none	190 W
Compressor control	none	refrigerator control for preventing overload
Refrigerant	none	CFC-free (134A) refrigeration system
Shaking speed & stroke	30 - 250 rpm, 25 mm orbital motion	
Timer & alarm	99hr 59 min (delay & continuous run), error status and timer end	
Max. capacity of flask holder 50-100 ml	35 pcs. flask holder for 50 - 100 ml flasks	
Max. capacity of flask holder 200-300 ml	16 pcs. flask holder for 200 - 300 ml flasks	
Max. capacity of flask holder 500 - 1000 ml	12 pcs. flask holder for 500 - 1000 ml flasks	
Internal dimensions (W x D x H)	570 x 465 x 470 mm	
External dimensions (W x D x H)	916 x 730 x 683 mm	
Packing size & gross weight	1050 x 900 x 900 mm, 146 kg	1050 x 900 x 900 mm, 156 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Power consumption	600 W	1,3 kW
Order number 230V	DH.WIS00230	DH.WIS01230
Order number 120V	DH.WIS00130	DH.WIS01130

Accessories: Suitable platforms, racks and flask holder can be found on page 79

# Incubator | shaking

bench top-type, up to 60°C / 10°C - 60°C (refrigerated), 30-250 rpm, orbital motion



Orbital motion



Wise remote



Jog-Shuttle controller

## WIS-20 bench top, 60°C, orbital

### Ideal for:

- biological cultures under various temperatures

### Features:

- easy access to bench top by liftable door
- RS232C interface for monitoring and controlling (WireRemote)
- advanced shaking mechanism provides quiet shaking and precise speed control
- stabilized orbital motion, minimum noise and no vibration
- 60W krypton lamp
- universal platform included
- accommodates flasks up to 1000 ml
- durable and flexible plastic flask holder (optional)
- universal spring rack for various flask shapes/sizes (optional)
- stainless steel interior and powder-coated body
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection and leakage breaker
- automatic operation stop when door opens

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



WIS-20 with universal platform (included)

Model	WIS-20	WIS-20R
Temperature range	room temperature +5°C - 60°C	10°C - 60°C (refrigerated)
Temperature accuracy & uniformity	accuracy: ±0.2°C at 37°C, uniformity: ±0.5°C at 37°C	
Temperature sensor	PT100 sensor	
Heater	500 W	700 W
Compressor	none	190 W
Compressor control	none	refrigerator control for preventing overload
Refrigerant	none	CFC-free (134A) refrigeration system
Shaking speed & stroke	30 - 250 rpm, 25 mm orbital motion	
Timer & alarm	99hr 59 min (delay & continuous run), error status and timer end	
Max. capacity of flask holder 50-100 ml	32 pcs. flask holder for 50 - 100 ml flasks	
Max. capacity of flask holder 200-300 ml	20 pcs. flask holder for 200 - 300 ml flasks	
Max. capacity of flask holder 500 - 1000 ml	16 pcs. flask holder for 500 - 1000 ml flasks	
Internal dimensions (W x D x H)	530 x 530 x 350 mm	
External dimensions (W x D x H), net weight	575 x 855 x 850 mm	
Packing size & gross weight	1000 x 800 x 1100 mm, 147 kg	1000 x 800 x 1100 mm, 150 kg
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz	
Power consumption	500 W	1,2 kW
Order number 230V	DH.WIS00220	DH.WIS01220
Order number 120V	DH.WIS00120	DH.WIS01120

Accessories: Suitable platforms, racks and flask holder can be found on page 79

# Incubator | shaking

top door-type, up to 60°C / 10°C - 60°C (refrigerated), 30-250 rpm, orbital motion



Orbital motion



Wise remote



Jog-Shuttle controller

## WIS-10 top door, 60°C, orbital

### Ideal for:

- biological cultures under various temperatures

### Features:

- CFC free refrigerant (R-404A)
- easy access to bench top by liftable door
- RS232C interface for monitoring and controlling (WireRemote)
- advanced shaking mechanism provides quiet shaking and precise speed control
- stabilized orbital motion, minimum noise and no vibration
- 60W krypton lamp (WIS-10, WIS-10R)
- universal platform included
- accommodates flasks up to 1000 ml
- durable and flexible plastic flask holder (optional)
- universal spring rack for various flask shapes/sizes (optional)
- stainless steel interior and powder-coated body
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection and leakage breaker
- automatic operation stop when door opens

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push)



WIS-10 with universal platform (included)

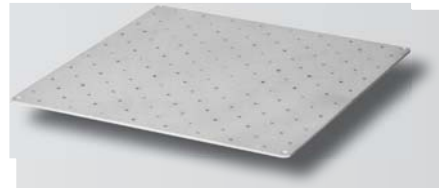
Model	WIS-10	WIS-10R	WIS-10RL
Temperature range	R/T +5°C - 60°C	+10°C - 60°C (refrigerated)	
Temperature accuracy & uniformity	accuracy: ±0.2°C at 37°C, uniformity: ±0.5°C at 37°C		
Temperature sensor	PT100 sensor		
Heater	800 W	1 kW	1.2 kW
Compressor	none	250 W	
Compressor control	none	refrigerator control for preventing overload	
Shaking speed & stroke	30 - 250 rpm, 25 mm orbital motion		
Timer & alarm	99hr 59 min (delay & continuous run), error status and timer end		
Room lamp	Krypton lamp, 60 W		-
Max. capacity of flask holder 50-100 ml	68 pcs. flask holder for 50 - 100 ml flasks		
Max. capacity of flask holder 200-300 ml	36 pcs. flask holder for 200 - 300 ml flasks		
Max. capacity of flask holder 500 - 1000 ml	21 pcs. flask holder for 500 - 1000 ml flasks		
Internal dimensions (W x D x H)	750 x 720 x 400 mm		
External dimensions (W x D x H)	1065 x 900 x 980 mm		
Packing size & gross weight	1220 x 1060 x 1200 mm, 231 kg	1220 x 1060 x 1200 mm, 238 kg	1220 x 1060 x 1200 mm, 238 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		
Power consumption	800 W	1,8 kW	2,1 kW
Order number 230V	DH.WIS00210	DH.WIS04210	DH.WIS05210
Order number 120V	DH.WIS00110	DH.WIS04110	DH.WIS05110

Accessories: Suitable platforms, racks and flask holder can be found on page 79

## Universal platforms

• suitable for shaking incubators **WIS**

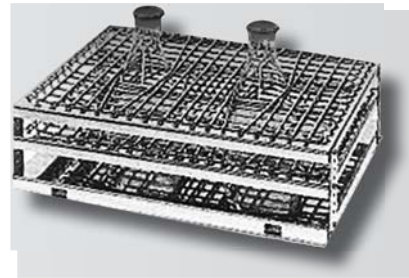
For device...	Measurements	Article	Order number
WIS-30 / WIS-30R	485 x 405 mm	SP630	<b>DH.WIS504630</b>
WIS-20 / WIS-20R	478 x 478 mm	SP600	<b>DH.WIS504600</b>
WIS-10 / WIS-10R / WIS-10RL	688 x 648 mm	SP610	<b>DH.WIS504610</b>
WIS-ML02 / WIS-ML04	645 x 645 mm	SP620	<b>DH.WIS504620</b>



## Universal spring racks

• suitable for shaking incubators **WIS**

For device...	Measurements	Article	Order number
WIS-30 / WIS-30R	498x408xh135 mm	SR530	<b>DH.WIS504530</b>
WIS-20 / WIS-20R	483x483xh135 mm	SR500	<b>DH.WIS504500</b>
WIS-10 / WIS-10R / WIS-10RL	693x653xh135 mm	SR510	<b>DH.WIS504510</b>
WIS-ML02 / WIS-ML04	653x653xh135 mm	SR520	<b>DH.WIS504520</b>



Shaking incubators



## Smart -Easy

*Accesorios de fijación magnética Smart-Clip rápida y sencilla mediante imanes*

# Oven | vacuum oven

Jog-Dial controller, 10 - 750 mmHg (0.63 mbar), up to 200°C, 18.6 / 30 / 70 l



Optimized gas exchange



Wise remote



Jog-Dial controller

## WOV 200°C, 18.6/30/70 l, 750mmHg

### Ideal for:

- drying, baking, conditioning, curing, out-glassing solids and liquids, vacuum embedding, moisture testing, plating and aging test

### Features:

- very easy and convenient for vacuuming and venting, easy to read vacuum gauge
- high quality door sealing: high temperature grade silicone molded gasket
- superior uniformity and stability
- safety window: tempered safety glass 12T & polycarbonate 5T
- RS232C interface for monitoring and controlling (WireRemote)
- stainless steel interior, powder-coated steel body and glass wool insulation
- 2x aluminium shelves included
- storage function for set values of alarm and timer
- backlight LCD display
- CE & UL/CUL certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- overheat and over-current protection
- sensor error detection and leakage breaker

### Controller:

- **Jog-Dial controller (PID)** with 2-way knob (turn and push), digital LCD with backlight, and two durable setting buttons



WOV-30 with 2x aluminium shelves (included)

Model	WOV-20	WOV-30	WOV-70
Capacity	18.6 l	30 l	70 l
Vacuum range, level & rate	10 - 750 mmHg, 0.63 mbar, 0.39 mbar/h		
Temperature range, fluctuation & sensor	room temperature +5°C - 200°C, fluctuation: ±0.5°C at 100°C & 150°C, PT 100 sensor		
Temperature variation	±2.0°C at 100°C, ±3.0°C at 150°C		±2.5°C at 100°C, ±3.5 at 150°C
Heating power	2 x 170 W, 2 x 130 W		2 x 350 W, 2 x 450 W
Heat-up time	60 min. to 100°C 90 min. to 150°C	70 min. to 100°C 100 min. to 150°C	80 min. to 100°C 100 min. to 150°C
Timer & alarm	99hr 59 min (delay & continuous run) and timer end		
Resolution	control: ±1.0°C, display: ±1.0°C		
Height between shelves	87 mm	98 mm	133 mm
Vacuum inlet valve size	outer Ø10 mm		
Internal dimensions (W x D x H)	265 x 290 x 265 mm	300 x 330 x 300 mm	400 x 435 x 400 mm
External dimensions (W x D x H), net weight	480 x 475 x 552 mm, 48 kg	515 x 515 x 587 mm, 55 kg	618 x 620 x 687 mm, 85 kg
Packing size & gross weight	585 x 580 x 795 mm, 59 kg	620 x 620 x 830 mm, 67 kg	725 x 720 x 930 mm, 100 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 HZ		
Power consumption	600 W	600 W	1,6 kW
Order number 230V	DH.WOV03020	DH.WOV03030	DH.WOV03070
Order number 120V	DH.WOV04020	DH.WOV04030	DH.WOV04070

Accessories: Suitable shelves can be found on page 88

# Oven | muffle furnace

up to 1.000°C, Jog-Dial controller, 3 / 4.5 / 12 / 14 / 27 / 63 l, programmable

## FP 1.000°C, programmable

### Ideal for:

- ash-determinations, enameling, fusions, precipitate drying

### Features:

- user's self-compensation function for temperature ( $\pm 50.0^\circ\text{C}$ )
- resolution:  $1^\circ\text{C}$ , 1 min
- ceramic fibre plate included
- powder-coated steel body, ceramic fibre insulation, ceramic fibre exposed heating wire interior with 4-sided heating
- backlight LCD display
- CE certified and unique serial number for tracing



Jog-Dial controller



4-sided heating

up to 1.000 °C  
Jog-Dial  
programmable

### Safety mechanism:

- safety switch for door opening
- overheat and over-current protection
- sensor error detection

### Controller:

- **Jog-Dial controller (PID)** with 2-way knob (turn and push), digital LCD with backlight, and two durable setting buttons
- programmable: 4 patterns with 10 segments



FP-14 with ceramic fibre plate (included)

Model	FP-03	FP-05	FP-12	FP-14	FP-27	FP-63
Capacity	3 l	4.5 l	12 l	14 l	27 l	63 l
Temperature range	300°C - 1000°C					
Heater	Kanthal A1, expose wire heating elements, 4-side heating					
Thermocouple	K-type thermocouple					
Heating power	1.4 kW	1.8 kW	3.6 kW	4.0 kW	4.6 kW	9 kW
Required time to reach 800°C	16 min		20 min		23 min	
Timer & alarm	99hr 59 min (delay & continuous run), error status and timer end					
Internal dimensions (W x D x H mm)	130x250x90	150x300x100	200x300x200	250x350x160	300x300x300	400x400x400
External dimensions (W x D x H mm)	410x480x530	440x530x550	500x550x660	550x580x620	600x590x760	1000x730x920
Packing size (W x D x H mm) & gross weight	630x540x770 47 kg	680x570x780 54 kg	700x630x890 59 kg	740x680x850 73 kg	740x730x990 83 kg	1160x900x1100 225 kg
Power supply	1 Phase AC 120V, 60 HZ or 1 Phase AC 230V, 50/60 HZ			1 Phase AC 120V, 60 HZ or 1 Phase AC 230V, 50/60 HZ or 3 Phase AC 400V, 50/60 HZ		
Order number 230V	DH.WF21.P03	DH.WF21.P05	DH.WF21.P12*	DH.WF21.P14*	DH.WF21.P27*	DH.WF21.63*
Order number 120V	DH.WF20.P03	DH.WF20.P05	DH.WF20.P12*	DH.WF20.P14*	DH.WF20.P27*	DH.WF20.63*
Order number 3 Phase	-	-	DH.WF23.P12	DH.WF23.P14	DH.WF23.P27	DH.WF23.63

\* models not available in Europe

Accessories: Suitable spare fibre plates can be found on page 88  
Suitable crucibles can be found on page 230



# Oven | muffle furnace

up to 1.200°C, Jog-Dial controller, 3 / 4.5 / 12 / 14 / 27 / 63 l, programmable

## FHP 1.200°C, programmable

### Ideal for:

- ash-determinations, enameling, fusions, precipitate drying

### Features:

- user's self-compensation function for temperature ( $\pm 50.0^\circ\text{C}$ )
- resolution:  $1^\circ\text{C}$ , 1 min
- ceramic fibre plate included
- powder-coated steel body, ceramic fibre insulation, ceramic fibre exposed heating wire interior with 4-sided heating
- backlight LCD display
- CE certified and unique serial number for tracing



Jog-Dial controller



4-sided heating

up to 1.200 °C  
Jog-Dial  
programmable

### Safety mechanism:

- safety switch for door opening
- overheat and over-current protection
- sensor error detection

### Controller:

- **Jog-Dial controller (PID)** with 2-way knob (turn and push), digital LCD with backlight, and two durable setting buttons
- programmable: 4 patterns with 10 segments



FHP-14 with ceramic fibre plate (included)

Model	FHP-03	FHP-05	FHP-12	FHP-14	FHP-27	FHP-63
Capacity	3 l	4.5 l	12 l	14 l	27 l	63 l
Temperature range	300°C - 1200°C					
Heater	Kanthal A1, expose wire heating elements, 4-side heating					
Thermocouple	K-type thermocouple					
Heating power	1.4 kW	1.8 kW	3.6 kW	4.0 kW	4.6 kW	9 kW
Required time to reach 800°C	16 min		20 min		23 min	
Timer & alarm	99hr 59 min (delay & continuous run), error status and timer end					
Internal dimensions (W x D x H mm)	130x250x90	150x300x100	200x300x200	250x350x160	300x300x300	400x400x400
External dimensions (W x D x H mm)	410x480x530	440x530x550	500x550x660	550x580x620	600x590x760	1000x730x920
Packing size (W x D x H mm) & gross weight	630x540x770 47 kg	680x570x780 54 kg	700x630x890 59 kg	740x680x850 73 kg	740x730x990 83 kg	1160x900x1100 225 kg
Power supply	1 Phase AC 120V, 60 HZ or 1 Phase AC 230V, 50/60 HZ		1 Phase AC 120V, 60 HZ or 1 Phase AC 230V, 50/60 Hz or 3 Phase AC 400V, 50/60 Hz			
Order number 230V	DH.WFH22.P03	DH.WFH22.P05	DH.WFH22.P12*	DH.WFH22.P14*	DH.WFH22.P27*	DH.WFH22.P63*
Order number 120V	DH.WFH20.P03	DH.WFH20.P05	DH.WFH20.P12*	DH.WFH20.P14*	DH.WFH20.P27*	DH.WFH20.P63*
Order number 3 Phase	-	-	DH.WFH23.P12	DH.WFH23.P14	DH.WFH23.P27	DH.WFH23.P63

\* models not available in Europe

Accessories: Suitable spare fibre plates can be found on page 88  
Suitable crucibles can be found on page 230

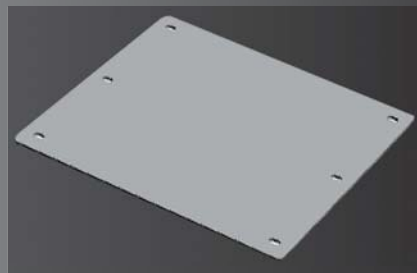
# Oven

Accessories: shelves and plates

## Shelves, aluminium

• suitable for vacuum ovens **WOV, SWOV**

For device...	Measurements	Article	Order number
WOV-20 / SWOV-20	260 x 245 x 3 mm	OVSN020	<b>DH.WOV12020</b>
WOV-30 / SWOV-30	290 x 285 x 3mm	OVSN030	<b>DH.WOV12030</b>
WOV-70 / SWOV-70	390 x 390 x3 mm	OVSN070	<b>DH.WOV12070</b>



Vacuum ovens  
**WOV | SWOV**

## Ceramic fibre plates

• suitable for ovens / muffle furnaces **FP, FHP**

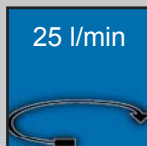
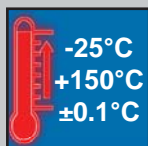
For device...	Article	Order number
FP-03 / FHP-03	FS1103	<b>DH.WF211.03</b>
FP-05 / FHP-05	FS1105	<b>DH.WF211.05</b>
FP-12 / FHP-12	FS1112	<b>DH.WF211.12</b>
FP-14 / FHP-14	FS1114	<b>DH.WF211.14</b>
FP-27 / FHP-27	FS1127	<b>DH.WF211.27</b>
FP-63 / FHP-63	FS1163	<b>DH.WF211.63</b>



Ovens | Muffle furnaces  
**FP | FHP**

# Bath | circulation water bath

circulation water bath, 8 / 12 / 22 / 30 l, -25°C - +150°C ±0.1°C, 25 l/min, flat lid included



## WCR -25°C - +150°C, digital

### Ideal for:

- connection with evaporator

### Features:

- stainless steel bath, polyurethane insulation of 40 mm thickness and body made of powder-coated steel
- innovated refrigeration system ensures temperature performance, includes intelligent control for preventing compressor overload, CFC-free (R-404A)
- innovated powerful circulation pump ensures temperature uniformity: internal and external circulation and 5 steps circulation speed
- stainless steel flat lid & valve ball included, dome lid optional
- RS232C interface: remote monitoring and controlling with PC
- proper liquid level tag in bath
- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection and leakage breaker
- low liquid level warning and automatic stop function
- locking mode

### Controller:

- digital fuzzy controller with **Jog-Dial-switch** (turn + push) & capacitive **touch button**



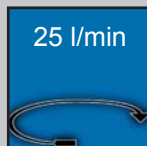
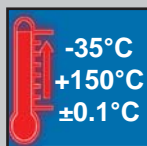
Stainless steel flat lid (included)

Connection for external circulation Ø12.5mm

Model	WCR-8	WCR-12	WCR-22	WCR-30
Capacity	8 l	12 l	22 l	30 l
Temperature range & accuracy	-25°C - +150°C, ±0.1°C			
Temperature resolution	0.1°C-display, 0.1°C-control			
Temperature uniformity & probe	±0.2°C at -10°C, PT100			
Heating Power	1.0 kW	1.5 kW	2 kW	2.2 kW
External circulation nozzle	inner Ø10.5 mm, outer Ø12.5 mm, for inner circulating: connect directly the in-/outlet nozzles			
Pump	max. flow rate: 25l/min, max. pressure: 7.5 psi, max. lift: 4 m			
Refrigerator	250 W	250 W	370 W	560 W
Cooling capacity at +20°C	300 W	380 W	680 W	850 W
Cooling capacity at 0°C	200 W	250 W	500 W	620 W
Cooling capacity at -20°C	110 W	130 W	300 W	400 W
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end			
Effective space	175 x 153 x 150 mm	230 x 181 x 150 mm	290 x 220 x 200 mm	330 x 290 x 200 mm
Internal dimensions (W x D x H, mm)	175 x 320 x 150 mm	230 x 350 x 150 mm	290 x 390 x 200 mm	330 x 460 x 200 mm
External dimensions (W x D x H, mm)	330 x 474 x 752 mm	400 x 523 x 807 mm	483 x 563 x 850 mm	494 x 633 x 906 mm
Packing size & gross weight	560 x 420 x 922 mm, 45 kg	630 x 530 x 972 mm, 54 kg	670 x 615 x 1022 mm, 63 kg	740 x 625 x 1072 mm, 70 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz			
Order number 230V	DH.WCR00408	DH.WCR00412	DH.WCR00422	DH.WCR00430
Order number 120V	DH.WCR00508	DH.WCR00512	DH.WCR00522	DH.WCR00530

# Bath | circulation water bath

circulation water bath, 8 / 12 / 22 / 30 l, -35°C - +150°C ±0.1°C, 25 l/min, flat lid included



Wise remote

## WCL -35°C - +150°C, digital

### Ideal for:

- connection with evaporator

### Features:

- stainless steel bath, polyurethane insulation of 40 mm thickness and body made of powder-coated steel
- innovated refrigeration system ensures temperature performance, includes intelligent control for preventing compressor overload, CFC-free (R-404A)
- innovated powerful circulation pump ensures temperature uniformity: internal and external circulation and 5 steps circulation speed
- stainless steel flat lid & valve ball included, dome lid optional
- RS232C interface: remote monitoring and controlling with PC
- proper liquid level tag in bath
- user's self-compensation function to control difference between real temperature and indicated temperature (±10.0°C)
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- sensor error detection and leakage breaker
- low liquid level warning and automatic stop function
- locking mode

### Controller:

- digital fuzzy controller with **Jog-Dial-switch** (turn + push) & capacitive **touch button**



Stainless steel flat lid (included)

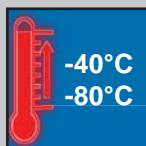


Connection for external circulation Ø12.5mm

Model	WCL-8	WCL-12	WCL-22	WCL-30
Capacity	8 l	12 l	22 l	30 l
Temperature range & accuracy	-35°C - +150°C, ±0.1°C			
Temperature resolution	0.1°C-display, 0.1°C-control			
Temperature uniformity & probe	±0.2°C at -20°C, PT100			
Heating Power	1.0 kW	1.5 kW	2 kW	2.2 kW
External circulation nozzle	inner Ø10 mm, outer Ø12 mm, for inner circulating: connect directly the in-/outlet nozzles			
Pump	max. flow rate: 25l/min, max. pressure: 7.5 psi, max. lift: 4 m			
Refrigerator	370 W	370 W	650 W	750 W
Cooling capacity at +20°C	500 W	530 W	860 W	1030 W
Cooling capacity at 0°C	340 W	370 W	620 W	760 W
Cooling capacity at -20°C	200 W	210 W	400 W	500 W
Timer & alarm	99hr 59 min (delay & continuous run), error status & timer end			
Effective space	175 x 153 x 150 mm	230 x 181 x 150 mm	290 x 220 x 200 mm	330 x 290 x 200 mm
Internal dimensions (W x D x H, mm)	175 x 320 x 150 mm	230 x 350 x 150 mm	290 x 390 x 200 mm	330 x 460 x 200 mm
External dimensions (W x D x H, mm)	400 x 523 x 807 mm	400 x 523 x 807 mm	483 x 563 x 850 mm	494 x 633 x 906 mm
Packing size & gross weight	630 x 530 x 972 mm, 50 kg	630 x 530 x 972 mm, 55 kg	670 x 615 x 1022 mm, 65 kg	740 x 625 x 1072 mm, 78 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz			
Order number 230V	DH.WCL00408	DH.WCL00412	DH.WCL00422	DH.WCL00430
Order number 120V	DH.WCL00508	DH.WCL00512	DH.WCL00522	DH.WCL00530

# Cold trap

cold trap bath, -40 / -80°C, 2 glass cold traps included



WCT-40 with 2x glass cold trap (included)

## WCT cold trap bath, -40/-80°C

### Ideal for:

- collecting evaporation vapor or hazardous vapor from vacuum line

### Features:

- stainless steel bath
- powder-coated steel, double painted & baked, 20 mm polyurethane-insulation
- digital timer function (99hr 59min): delay time and operation time can be controlled
- user's self-compensation function to control difference between real temperature and indicated temperature
- drain valve mounted
- backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- locking mode
- over-current protection
- sensor error detection and leakage breaker

### Controller:

- digital PID controller with **Jog-Shuttle-switch** (turn + push)

Model	WCT-40	WCT-80
Capacity	10 l	
Temperature range	-20°C up to -40°C	-65°C up to -80°C
Cold trap type	2 x glass trap	
Refrigerator	370 W	750 W
Refrigerant	R-404A	HFC
Internal dimensions (W x D x H, mm)	220 x 220 x 210 mm	
External dimensions (W x D x H, mm)	377 x 453 x 705 mm	
Packing size & gross weight	560 x 550 x 1010 mm, 67 kg	680 x 640 x 1130 mm, 90 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WCT00140	DH.WCT00180
Order number 120V	DH.WCT00240	DH.WCT00280

Accessories:



Spare glass cold trap for WCT

Measurements	Article	Order number
Ø106 x h249 mm, pressure resistance 1.5bar at 250°C, borosilicate glass 3.3	CTG1000	DH.WCT11000

# Freeze dryer

**NEW**

-60° down to -90°C, many accessories available



FD-8 with 12 port T-type manifold (not included)

## FD-8 -60° down to -90°C

### Ideal for:

- wide range from pharmaceuticals, biology, food industry to petrol-chemistry and semiconductor industry, etc.

### Features:

- ergonomic design and compact body size for all laboratory tables
- allows automatic or manual process control
- temperature, vacuum and timer can be controlled at automatic mode
- rapid integrated hot gas defrost function for quick next cycle turn-around
- LED indication light in case of suitable temperature and vacuum
- homogeneous temperature distribution across all shelves in dry chamber
- made of stainless steel
- backlight LCD display indicates temperature and vacuum
- CE certified and unique serial number for tracing

### Controller:

- digital fuzzy controller with **Jog-Shuttle-switch** (turn + push) and touch button

Model	FD-8
Chamber & max. condenser capacity	chamber: 8 l, max. condenser: 10 l
Air flow velocity	3 l/day
HEPA filter	cold trap: -90°C, condenser: -40°C
Pre-filter	-60°C to -90°C
Lamp	10 - 0.01 torr
Utility device	compressor: 1/2 HP, defrost type: manual
Internal dimensions (W x D x H)	400 x 530 x 415 mm, condenser: Ø 300 x 150 mm, 55 kg
Packing size & gross weight	560 x 760 x 675 mm, 60 kg
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz
Order number 230V	DH.Frd00208
Order number 120V	DH.Frd00108

### Special Characteristics:

- high pumping speed
- quiet running, minimized vibration
- KF small flange connection
- separator with built-in oil mist filter on the pressure side
- low weight
- high reliability
- compact dimensions
- long service intervals
- user-friendly
- easy to clean

### Recommended vacuum pump: P6Z ILMVAC

**P6Z Package Order-  
No.: 330026**



**NEW**

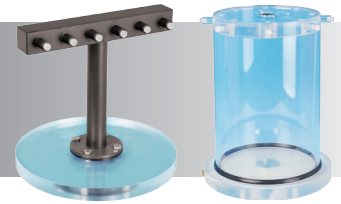
# Freeze dryer

Accessories



## Accessories

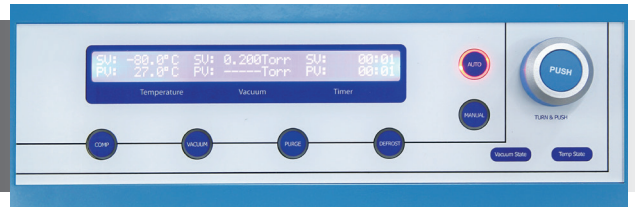
Various accessories available such as manifolds, dry chambers or shelves.



## Controller

Intuitive capacitive touch-button controller (Jog-Dial).

Indication LEDs for temperature and vacuum.



## Freezing system

Quick freezing and defrosting function.



made of Duran® tubing

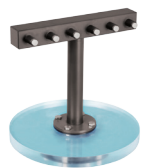


Description	Order number
40ml flask, Ø40/2.3t x h80mm	DH.GL12041
80ml flask, Ø40/2.3t x h120mm	DH.GL12042
200ml flask, Ø65/2.2t x h100mm	DH.GL12043
300ml flask, Ø65/2.2t x h140mm	DH.GL12044
500ml flask, Ø90/2.5t x h125mm	DH.GL12045
700ml flask, Ø90/2.5t x h165mm	DH.GL12046
1000ml flask, Ø90/2.5t x h225mm	DH.GL12047



Description	Order number
Table cart, 2 stages, for FD-8 and pump	DH.Ca1002

Description	Order number
T-type manifold, 12 ports, 3/4" vacuum handle valve, incl. 10x silicone stopper	DH.Frd01034



Description	Order number
Dry chamber, acrylic, 8 ports, 3/4" vacuum handle valve, incl. 10x silicone stopper	DH.Frd02010



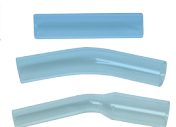
Description	Order number
Shelve, 3 stages, stainless steel, for dry chamber DH.Frd02010	DH.Frd02020



Description	Order number
Vacuum handle valve, 3/4", neoprene rubber and PP	DH.Frd03010



Description	Order number
Glass tube adapter, 3/4", Ø19/1.8t x L80mm	DH.GL28091
Glass tube adapter bent-type, 3/4", Ø19/1.8t x L80mm	DH.GL28092
PP tube adapter bent-type, 3/4", Ø19/1.8t x L80mm	DH.Frd04010



Description	Order number
Flask top, silicone, 3/4", for 40/80 ml flasks	DH.Frd05010
Flask top, silicone, 3/4", for 200/300 ml flasks	DH.Frd05020
Flask top, silicone, 3/4", for 500/700/1000 ml flasks	DH.Frd05030



# Magnetic stirrer

MS-500D

**NEW**

## Highest performance

- powerful: stirring capacity up to 20 l, stirring rate up to 1.500 rpm
- protection against corrosion due to the smart design
- strong but quiet motor, made for a long life time

## Highest convenience

- intuitive and very easy to use control elements
- illuminated digital display for easy setting
- easy to clean full ceramic plate



### Protection

Two features protect the device from internal corrosion and prolong its life time: the **closed coverage type** and the **intelligent fluid management system**, which leads off accidentally spilled liquids away from the interior of the device.

### Surface

The superior full ceramic plate is resistant against aggressive chemicals and easy to clean.



### Motor

The brushless shade motor ensures strong and precise stirring, minimized noise and a long life time. Due to the high-performance magnet, up to 20 l of water can be stirred easily.

### Controller

New Jog-Dial "Turn + Push" and touch button are designed for intuitive, easy and direct use.





**NEW**

# Magnetic stirrer

digital display, 80-1.500 rpm, solid ceramic plate 200x200 mm

80-1500  
rpm

Stirrer bar included



## MS-500D digital

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials

### Features:

- digital display with backlight
- shade motor for 80-1.500 rpm
- enormous strength of magnet
- high-quality solid ceramic plate 200x200 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated aluminium body
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Dial** controller with touch-button for precise speed control

<b>Model</b>	<b>MS-500D</b>
<b>Body</b>	powder-coated aluminium
<b>Plate</b>	solid ceramic plate, 200x200 mm
<b>Stirring capacity</b>	max. 20 l
<b>Speed &amp; control resolution</b>	80 ~ 1.500 rpm, 5 rpm
<b>Timer &amp; alarm</b>	99hr 59min (with continuous run), error status and timer-end
<b>Display</b>	digital LCD with backlight function
<b>Controller</b>	digital feedback controller with Jog-Dial (Turn+Push) and touch-button
<b>Stirring bar</b>	30 mm bar included, usable up to 50 mm bar
<b>Permissible temperature &amp; RH %</b>	ambient temperature +5 ~ 50°C, 85% RH
<b>Dimension &amp; weight</b>	205x345xh135 mm, 3.3 kg
<b>Packaging size</b>	400x280xh160 mm, 5.2 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WMS04022</b>
<b>Order number 120V</b>	<b>DH.WMS05022</b>

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 &amp; 30

# Magnetic stirrer

digital, 80-1.500 rpm, ceramic-coated plate 180x180 mm

## MS-20D digital

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials

### Features:

- digital display with backlight
- shade motor for 80-1.500 rpm
- ceramic-coated aluminium plate 180x180 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated aluminium body
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Shuttle** controller with touch-button



Stirrer bar included

<b>Model</b>	<b>MS-20D</b>
<b>Body</b>	powder-coated aluminium
<b>Plate</b>	ceramic-coated aluminium (heat-, chemical- and acid-resistant), 180x180 mm
<b>Stirring capacity</b>	max. 20 l
<b>Speed &amp; control resolution</b>	80 ~ 1.500 rpm, 5 rpm
<b>Timer &amp; alarm</b>	99hr 59min (with continuous run), error status and timer-end
<b>Display</b>	digital LCD with backlight function
<b>Controller</b>	digital feedback controller with Jog-Shuttle Switch (Turn+Push)
<b>Stirring bar</b>	30 mm bar included, usable up to 50 mm bar
<b>Permissible temperature &amp; RH %</b>	ambient temperature +5 ~ 50°C, 85% RH
<b>Dimension &amp; weight</b>	206x307xh99 mm, 3.1 kg
<b>Packaging size</b>	400x280xh200 mm, 5 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WMS03022</b>
<b>Order number 120V</b>	<b>DH.WMS02022</b>

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer

analog, up to 1.5000 rpm, ceramic-coated plate 180x180 mm

up to 1500  
rpm



## MS-20A analog

### Ideal for:

- mixing of chemical, laboratory and pharmaceutical materials
- heat-sensitive procedures in microbiology and biochemistry

### Features:

- up to 1.500 rpm
- ceramic-coated aluminium plate 180x180 mm
- heat-, chemical- and acid-resistant
- no liquid can get into the body
- powder-coated aluminium body
- 30 mm stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- operation LEDs

### Controller:

- **PWM controller**



Stirrer bar included

<b>Model</b>	<b>MS-20A</b>
<b>Body</b>	powder-coated aluminium
<b>Plate</b>	ceramic-coated aluminium (heat-, chemical- and acid-resistant), 180x180 mm
<b>Stirring capacity</b>	max. 20 l
<b>Speed</b>	up to 1.500 rpm
<b>Timer &amp; alarm</b>	99hr 59min (with Continuous run), error status and timer-end
<b>Controller</b>	superior linearity PWM Controller
<b>Stirring bar</b>	30 mm bar included, usable up to 50 mm bar
<b>Permissible temperature &amp; RH %</b>	ambient temperature +5 ~ 50°C, 85% RH
<b>Dimension &amp; weight</b>	206x307xh99 mm, 3.1 kg
<b>Packaging size</b>	400x280xh200 mm, 5 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WMS03122</b>
<b>Order number 120V</b>	<b>DH.WMS02122</b>

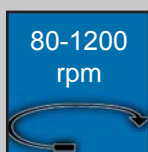
Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Magnetic stirrer

digital, multi-point (4 and 8 places), 80-1.200 rpm, stainless steel plate



MS-MP4



Stirrer bar included



MS-MP8

## MS-MP multi-type digital

### Ideal for:

- multiple mixing applications at the same time
- mixing of chemical, laboratory and pharmaceutical materials

### Features:

- 80-1.200 rpm
- aluminium plate with 2x2 or 4x2 places
- heat-, chemical- and acid-resistant
- easy to clean
- powder-coated steel body
- stirrer bar included
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- operation LEDs

### Controller:

- **Jog-Shuttle** controller with touch-button


Model	MS-MP4	MS-MP8
Stirring points	4 (2x2)	8 (4x2)
Body	powder-coated steel (heat-, chemical- and acid-resistant)	
Plate	stainless steel (#304)	
Plate size	210x300 mm	210x500 mm
Distance between points	100 mm	
Stirring capacity	0.5 l per point	
Speed & control resolution	80 ~ 1,200 rpm, 5 rpm	
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller with Jog-Shuttle Switch (Turn+Push)	
Stirring bar	4x 30 mm bar included, usable up to 30 mm bar	8x 30 mm bar included, usable up to 30 mm bar
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH	
Dimension & weight	210x300x65 mm, 2.5 kg	210x500x65 mm, 3.5 kg
Packaging size	330x300x180 mm, 6 kg	540x330x180 mm, 6 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WMS03036	DH.WMS03038
Order number 120V	DH.WMS02036	DH.WMS02038

Accessories: External temperature probes, stand rod, stirring bars and holder / clamp / clip on page 29 & 30

# Overhead stirrer | high-speed

digital, up to 10 / 20 liter, 10.000 / 50.000 mPas, 200 - 3.000 rpm

200-3.000 rpm  
10.000 mPas  
50.000 mPas




HS-100D Set

## HS-D high-speed digital

### Ideal for:

- all mixing applications in the laboratory
- specialized for low- to medium-viscosity materials

### Features:

- maximal 10 / 20 liter
- 200 - 3.000 rpm
- maximal viscosity 10.000 / 50.000 mPas
- direct driven motor
- digital LCD display
- smooth start and change of stirring speed while operation
- storage function for timer and speed
- impeller height adjustable
- chrome-plated stainless steel chuck
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- overload protection
- overheat protection
- operation LEDs

### Controller:

- **Jog-Shuttle** controller with touch-button

Model	HS-30D	HS-100D
Design	high-speed	
Controller-type	digital, integrated, Jog-Shuttle	
Stirring capacity (H <sub>2</sub> O)	max. 10 l	max. 20 l
Max. viscosity (mPas)	10.000 mPas	50.000 mPas
Max. torque (N cm) at chuck	85 N cm	145 N cm
Max. impeller shaft	Ø 8 mm	
Speed range	200 - 3.000 rpm	
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Controller	digital Feedback Controller with Jog-Shuttle (Turn+Push)	
Display	digital LCD with backlight function	
Permissible temperature & RH %	ambient temperature 0 ~ 40°C, 80% RH	
Safety device	overheat & overload protection	
Dimension & weight	90x145xh180 mm, 4.5 kg	90x145xh180 mm, 5.3 kg
Packaging size	320x300xh180 mm, 5 kg	320x300xh180 mm, 8 kg
Material	ABS & Aluminium	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WOS01015   Set: DH.WOS01016	Unit: DH.WOS01025   Set: DH.WOS01026
Order number 120V	Unit: DH.WOS02015   Set: DH.WOS02016	Unit: DH.WOS02025   Set: DH.WOS02026


Set includes: Unit HS-D  
Impeller HS-30D: PL010 3-bladed Ø50 mm, HS-100D: PL015 4-bladed Ø70 mm  
Clamp CL200  
Plate stand HS-30D: ST110 20x35 cm, HS-100D: ST120 30x40 cm

Accessories: Impellers and plate stands on page 124 & 125

# Overhead stirrer | high-speed

analog, up to 10 / 20 liter, 10.000 / 50.000 mPas, 0 - 3.000 rpm

200-3.000 rpm  
10.000 mPas  
50.000 mPas




HS-50A Set

## HS-A high-speed analog

### Ideal for:

- all mixing applications in the laboratory
- specialized for low- to medium-viscosity materials

### Features:

- maximal 10 / 20 liter
- up to 3.000 rpm
- maximal viscosity 10.000 / 50.000 mPas
- direct driven motor
- smooth start and change of stirring speed while operation
- impeller height adjustable
- chrome-plated stainless steel chuck
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat protection
- operation LED

### Controller:

- **Analog phase** controller with control knob

Model	HS-50A	HS-120A
Design	high-speed	
Controller-type	analog, integrated, phase controller	
Stirring capacity (H <sub>2</sub> O)	max. 10 l	max. 20 l
Max. viscosity (mPas)	10.000 mPas	50.000 mPas
Max. torque (N cm) at chuck	85 N cm	145 N cm
Max. impeller shaft	Ø 8 mm	
Speed range	up to 3.000 rpm	
Controller	analog phase controller with control knob	
Permissible temperature & RH %	ambient temperature 0 ~ 40°C, 80% RH	
Safety device	overheat protection	
Dimension & weight	90x145x180 mm, 4.5 kg	90x145x180 mm, 5.3 kg
Packaging size	320x300x180 mm, 5 kg	320x300x180 mm, 8 kg
Material	ABS & Aluminium	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WOS01210   Set: DH.WOS01211	Unit: DH.WOS01215   Set: DH.WOS01216
Order number 120V	Unit: DH.WOS02210   Set: DH.WOS02211	Unit: DH.WOS02215   Set: DH.WOS02216

Set includes: Unit HS-A  
Impeller HS-50A: PL010 3-bladed Ø50 mm, HS-120A: PL015 4-bladed Ø70 mm  
Clamp CL200  
Plate stand KA1177 34x29 cm

Accessories: Impellers and plate stands on page 124 & 125

# Overhead stirrer | high-torque

digital remote controller, up to 40 / 60 liter, 100.000 / 150.000 mPas, 50 - 1.000 rpm

50-1.000 rpm  
100.000 mPas  
150.000 mPas



HT-50T Set



## HT-T high-torque digital

### Ideal for:

- all mixing applications in the laboratory
- specialized for light watery solutions up to high-viscosity fluids
- convenient for applications where remote control is needed

### Features:

- maximal 40 / 60 liter
- 50 - 1.000 rpm
- maximal viscosity 100.000 / 150.000 mPas
- worm-gear motor (ratio 3.5:1)
- digital LCD display on remote controller
- smooth start and change of stirring speed while operation
- storage function for timer and speed
- impeller height adjustable
- chrome-plated stainless steel chuck
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 99h 59min with timer-end signal
- error status
- locking mode
- overload protection
- overheat protection
- operation LEDs

### Controller:

- **Jog-Shuttle** remote controller with touch-button

Model	HT-50T	HT-120T
Design	high-torque	
Controller-type	digital, remote, Jog-Shuttle	
Stirring capacity (H <sub>2</sub> O)	max. 40 l	max. 60 l
Max. viscosity (mPas)	100.000 mPas	150.000 mPas
Max. torque (N cm) at chuck	300 N cm	500 N cm
Max. impeller shaft	Ø 10 mm	
Speed range	50 - 1.000 rpm	
Timer & alarm	99hr 59min (with continuous run), error status and timer-end	
Controller	remote digital feedback controller with Jog-Shuttle (Turn+Push)	
Display	digital LCD with backlight function	
Permissible temperature & RH %	ambient temperature 0 ~ 40°C, 80% RH	
Safety device	overheat & overload protection	
Dimension & weight	155x180xh110 mm, 3.5 kg	155x230xh110 mm, 4 kg
Packaging size	580x340xh230 mm, 5 kg	580x340xh230 mm, 8 kg
Material	ABS & Aluminium	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WOS01065   Set: DH.WOS01066	Unit: DH.WOS01075   Set: DH.WOS01076
Order number 120V	Unit: DH.WOS02065   Set: DH.WOS02066	Unit: DH.WOS02075   Set: DH.WOS02076

Set includes: Unit HT-T  
Impeller PL020 4-bladed Ø90 mm  
Clamp CL200  
Plate stand HT-50T: ST120 30x40 cm, HT-120T: ST200 39x up to 75 cm

Accessories: Impellers and plate stands on page 124 & 125

# Overhead stirrer | high-torque

analog, up to 40 / 60 liter, 100.000 / 150.000 mPas, up to 1.000 rpm

up to 1.000 rpm  
100.000 mPas  
150.000 mPas



HT-50AX Set



## HT-AX high-torque analog

### Ideal for:

- all mixing applications in the laboratory
- specialized for light watery solutions up to high-viscosity fluids

### Features:

- maximal 40 / 60 liter
- up to 1.000 rpm
- maximal viscosity 100.000 / 150.000 mPas
- worm-gear motor (ratio 3.5:1)
- smooth start and change of stirring speed while operation
- impeller height adjustable
- chrome-plated stainless steel chuck
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat protection
- operation LED

### Controller:

- **Analog phase** controller with control knob

Model	HT-50AX	HT-120AX
Design	high-torque	
Controller-type	analog, integrated, phase controller	
Stirring capacity (H <sub>2</sub> O)	max. 40 l	max. 60 l
Max. viscosity (mPas)	100.000 mPas	150.000 mPas
Max. torque (N cm) at chuck	300 N cm	500 N cm
Max. impeller shaft	Ø 10 mm	
Speed range	up to 1.000 rpm	
Controller	analog phase controller with control knob	
Permissible temperature & RH %	ambient temperature 0 ~ 40°C, 80% RH	
Safety device	overheat protection	
Dimension & weight	90x180xh130 mm, 3.5 kg	90x210xh130 mm, 4 kg
Packaging size	320x300xh180 mm, 5 kg	320x300xh180 mm, 8 kg
Material	ABS & Aluminium	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	Unit: DH.WOS01251   Set: DH.WOS01252	Unit: DH.WOS01271   Set: DH.WOS01272
Order number 120V	Unit: DH.WOS02251   Set: DH.WOS02252	Unit: DH.WOS02271   Set: DH.WOS02272

Set includes: Unit HT-AX  
Impeller PL020 4-bladed Ø90 mm  
Clamp CL200  
Plate stand KA1177 34x29 cm

Accessories: Impellers and plate stands on page 124 & 125



# Overhead stirrer | Jar tester

Accessories: Stirring impellers and plate stands

## Stirring impellers for high-speed and high-torque overhead stirrer - Ø8mm

- universal-types and wide-range-types
- shaft made of stainless steel, blades made of stainless steel or PTFE-coated
- excellent resistance to acids, chemicals, corrosion and high temperature

Type	Blades	Rod	Article	Order number
Propeller-type	3-bladed Ø50 x h15mm	Ø8 x L500 mm	PL010	DH.WOS501010
Propeller-type	3-bladed Ø60 x h15 mm	Ø8 x L500 mm	PL011	DH.WOS501011
Propeller-type	3-bladed Ø80 x h20 mm	Ø8 x L650 mm	PL012	DH.WOS501012
Propeller-type	3-bladed Ø100 x h24 mm	Ø8 x L650 mm	PL013	DH.WOS501013
Propeller-type	4-bladed Ø50 x h20 mm	Ø8 x L500 mm	PL014	DH.WOS501014
Propeller-type	4-bladed Ø70 x h25 mm	Ø8 x L500 mm	PL015	DH.WOS501015
Propeller-type	4-bladed Ø90 x h35 mm	Ø8 x L650 mm	PL016	DH.WOS501016
Propeller-type	4-bladed Ø110 x h35 mm	Ø8 x L650 mm	PL017	DH.WOS501017
Diamond-type	4-bladed Ø70 x h20 mm	Ø8 x L500 mm	PL019	DH.WOS501019
Diamond-type	4-bladed Ø90 x h25 mm	Ø8 x L500 mm	PL020	DH.WOS501020
Diamond-type	4-bladed Ø100 x h25 mm	Ø8 x L650 mm	PL021	DH.WOS501021
Centrifugal-type PTFE-coated	2-bladed Ø50 x h14 mm	Ø8 x L500 mm	PL029	DH.WOS501029
Centrifugal-type PTFE-coated	2-bladed Ø70 x h17 mm	Ø8 x L500 mm	PL030	DH.WOS501030
Centrifugal-type PTFE-coated	2-bladed Ø100 x h24 mm	Ø8 x L650 mm	PL031	DH.WOS501031
Anchor-type	2-bladed Ø70 x h14 mm	Ø8 x L500 mm	PL035	DH.WOS501035
Anchor-type	2-bladed Ø90 x h16 mm	Ø8 x L650 mm	PL036	DH.WOS501036



Propeller-type 3-bladed



Propeller-type 4-bladed

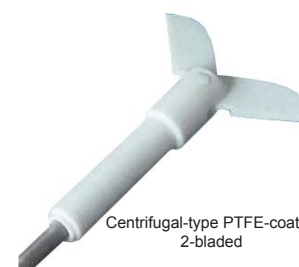


Diamond-type 4-bladed

## Stirring impellers for high-torque overhead stirrer - Ø10mm

- universal-types and wide-range-types
- shaft made of stainless steel, blades made of stainless steel or PTFE-coated
- excellent resistance to acids, chemicals, corrosion and high temperatures

Type	Blades	Rod	Article	Order number
Propeller-type	3-bladed Ø60 x h15 mm	Ø10 x L500 mm	PL111	DH.WOS501111
Propeller-type	3-bladed Ø80 x h20 mm	Ø10 x L650 mm	PL112	DH.WOS501112
Propeller-type	3-bladed Ø100 x h24 mm	Ø10 x L800 mm	PL113	DH.WOS501113
Propeller-type	4-bladed Ø90 x h35 mm	Ø10 x L650 mm	PL116	DH.WOS501116
Propeller-type	4-bladed Ø110 x h40 mm	Ø10 x L800 mm	PL117	DH.WOS501117
Propeller-type	4-bladed Ø110 x h40 mm	Ø10 x L1000 mm	PL118	DH.WOS501118
Diamond-type	4-bladed Ø110 x h25 mm	Ø10 x L650 mm	PL121	DH.WOS501121
Centrifugal-type PTFE-coated	2-bladed Ø100 x h24 mm	Ø10 x L650 mm	PL130	DH.WOS501130
Anchor-type	2-bladed Ø90 x h16 mm	Ø10 x L650 mm	PL135	DH.WOS501135
Anchor-type	2-bladed Ø140 x h25 mm	Ø10 x L800 mm	PL136	DH.WOS501136
Anchor-type	2-bladed Ø160 x h30 mm	Ø10 x L1000 mm	PL137	DH.WOS501137



Centrifugal-type PTFE-coated 2-bladed



Anchor-type 2-bladed

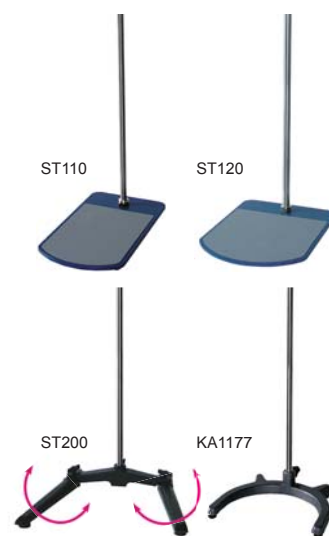
# Overhead stirrer | Jar tester

Accessories: Stirring impellers and plate stands

## Plate stand with stainless steel rod

- suitable for all overhead stirrer and homogenizer
- plate with silicone rubber pad (ST110, ST120) or heavy duty safety stand (ST200, KA1177)

Type	Rod	Plate	Article	Order number
Silicone rubber pad	Ø16xh800 mm with screw	20 x 35 cm	ST110	DH.WOS501510
Silicone rubber pad	Ø23xh1000 mm with screw	30 x 40 cm	ST120	DH.WOS501515
Heavy duty safety stand	Ø23xh1200 mm	39 x up to 75 cm adjustable	ST200	DH.WOS501520
Heavy duty safety stand	Ø23xh800 mm	34 x 29 cm	KA1177	DH.WOS1177



## Universal jumbo clamp holder for plate stand

- suitable for all overhead stirrer and homogenizer plate stands

Type	Material	Mounting	Article	Order number
Jumbo clamp holder	cast aluminium	for Ø23 mm rod	CL200	DH.WOS502020



## Rods for plate stands

- with and without screw
- made of stainless steel

Type	Rod	Article	Order number
without screw	Ø16 x h800 mm	RD501	DH.WOS502001
without screw	Ø16 x h1000 mm	RD502	DH.WOS502002
without screw	Ø16 x h1200 mm	RD503	DH.WOS502003
without screw	Ø23 x h800 mm	RD531	DH.WOS502031
without screw	Ø23 x 1200 mm	RD533	DH.WOS502033
with screw	Ø16 x h800 mm	RD511	DH.WOS502011
with screw	Ø16 x h1000 mm	RD512	DH.WOS502012
with screw	Ø16 x h1200 mm	RD513	DH.WOS502013
with screw	Ø23 x h800 mm	RD521	DH.WOS502021
with screw	Ø23 x h1000 mm	RD522	DH.WOS502022
with screw	Ø23 x h1200 mm	RD523	DH.WOS502023



## Flexible couplings for safety stirring

Type	for shafts	Article	Order number
basic rubber / metal	Ø6-8 mm	W1-COR-6	1 445 000
basic rubber / metal	Ø8-10 mm	W1-COR-8	1 445 010
PTFE / Polyamid	Ø8mm		1 445 500
PTFE / Polyamid	Ø10mm		1 445 510
PTFE / Polyamid	Ø14mm		1 445 514
PTFE / Polyamid	Ø16mm		1 445 516
heavy-duty stainless steel	Ø6-8 mm	PKK-10	KG.40477
heavy-duty stainless steel	Ø12-14 mm	PKK-16	KG.40478



# Homogenizer

digital remote controller, 2.000 - 27.000 rpm, up to 2.500 ml

2.000-27.000 rpm  
up to 2.500 ml



HG-15D Set



## HG-15D digital, 2000-27000rpm

### Ideal for:

- all dispersing and homogenizing applications
- designed for liquid and tissue samples

### Features:

- 2.000 - 27.000 rpm
- working range 1 - 2.500 ml
- digital LCD display on remote controller
- timer from 10sec up to 15min
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer-end alarm
- overload protection
- overheat protection

### Controller:

- **Jog-Shuttle** remote controller with touch-button

Model	HG-15D
Speed range & resolution	2.000 - 27.000 rpm, 10 rpm
Working range	1 - 2.500 ml
Motor rating	input: 300W, output: 160W
Timer & alarm	10sec - 15min, timer-end alarm
Display	digital LCD with backlight function
Controller	digital Feedback Controller (remote)
Safety device	overload & overheat protection
Material	aluminium die-casting and ABS unit
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH
Extension arm size	Ø12.7 x L250 mm
Dimension & weight	60x75xh215 mm, 2.5 kg
Packaging size	580x340xh230 mm, 6 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	Unit: DH.WHG02018   Set A: DH.WHG02019   Set B: DH.WHG02020
Order number 120V	Unit: DH.WHG01018   Set A: DH.WHG01019   Set B: DH.WHG01020

Set A includes:	Unit	HG-15D
	Dispersing tool	HT1018 rotor Ø12.5 mm, stator Ø18 mm, for 10-1.000 ml
	Clamp	CL200 for stirrer and homogenizer
	Plate stand with rod	ST110 plate 20x35 cm, rod Ø16 x h800 mm
Set B includes:	Unit	HG-15D
	Dispersing tool	HT1026 rotor Ø20 mm, stator Ø25 mm, for 50-2.500 ml
	Clamp	CL200 for stirrer and homogenizer
	Plate stand with rod	ST110 plate 20x35 cm, rod Ø16 x h800 mm

Accessories: Dispersing tools, tissue grinder, pestles and plate stands on page 129

# Homogenizer

analog, up to 27.000 rpm, up to 2.500 ml

up to 27.000 rpm  
up to 2.500 ml



HG-15A Set

## HG-15A analog, up to 27000rpm

### Ideal for:

- all dispersing and homogenizing applications
- designed for liquid and tissue samples

### Features:

- up to 27.000 rpm
- working range 1 - 2.500 ml
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat protection

### Controller:

- analog stepless controller with touch-button

Model	HG-15A
Speed range & resolution	up to 27.000 rpm, stepless
Working range	1 - 2.500 ml
Motor rating	input: 300W, output: 160W
Controller	analog phase controller
Safety device	overheat protection
Material	aluminium die-casting and ABS unit
Permissible temperature & RH %	ambient temperature +5 ~ 50°C, 85% RH
Extension arm size	Ø12.7 x L250 mm
Dimension & weight	60x75xh215 mm, 2.5 kg
Packaging size	320x300xh190 mm, 5 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
Order number 230V	Unit: DH.WHG02015   Set A: DH.WHG02016   Set B: DH.WHG02017
Order number 120V	Unit: DH.WHG01015   Set A: DH.WHG01016   Set B: DH.WHG01017

Set A includes:	Unit	HG-15A
	Dispersing tool	HT1018 rotor Ø12.5 mm, stator Ø18 mm, for 10-1.000 ml
	Clamp	CL200 for stirrer and homogenizer
	Plate stand with rod	ST110 plate 20x35 cm, rod Ø16 x h800 mm
Set B includes:	Unit	HG-15A
	Dispersing tool	HT1026 rotor Ø20 mm, stator Ø25 mm, for 50-2.500 ml
	Clamp	CL200 for stirrer and homogenizer
	Plate stand with rod	ST110 plate 20x35 cm, rod Ø16 x h800 mm

Accessories: Dispersing tools, tissue grinder, pestles and plate stands on page 129

# Homogenizer

analog, 200 - 5.000 rpm, up to 10.000 ml

200-5.000 rpm  
up to 10.000 ml



HS-30E Set  
(tissue grinder not included)



## HS-30E analog, 200-5000rpm

### Ideal for:

- all dispersing and homogenizing applications
- designed for tissue grinders

### Features:

- 200 - 5.000 rpm
- working range up to 10.000 ml
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat protection

### Controller:

- analog stepless controller with touch-button

<b>Model</b>	<b>HS-30E</b>
<b>Speed range &amp; resolution</b>	200 - 5.000 rpm, 85 N cm
<b>Working range</b>	up to 10.000 ml
<b>Motor rating</b>	input: 83W, output: 75W, 1/10 HP
<b>Controller</b>	analog phase controller
<b>Safety device</b>	overheat protection
<b>Material</b>	aluminium die-casting and ABS unit
<b>Permissible temperature &amp; RH %</b>	ambient temperature +5 ~ 50°C, 85% RH
<b>Dimension &amp; weight</b>	90x145xh180 mm, 3.5 kg
<b>Packaging size</b>	320x300xh190 mm, 5 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>Unit: DH.WOS01010   Set: DH.WOS01011</b>
<b>Order number 120V</b>	<b>Unit: DH.WOS02010   Set: DH.WOS02011</b>

Set includes: Unit HS-30E  
Clamp CL200 for stirrer and homogenizer  
Plate stand with rod ST110 plate 20x35 cm, rod Ø16 x h800 mm  
**NOTE: No tissue grinder included!**

Accessories: Dispersing tools, tissue grinder, pestles and plate stands on page 129

# Homogenizer

Accessories: Dispersing tools, tissue grinder and plate stands

## Dispersing tools for homogenizer

• stator and rotor made of stainless steel

Model	HT1008	HT1010	HT1018	HT1025
Working range	1 - 50 ml	1 - 100 ml	10 - 1.000 ml	50 - 2.500 ml
Stator	Ø8 mm	Ø10 mm	Ø18 mm	Ø25 mm
Rotor	Ø6 mm	Ø7.96 mm	Ø12.8 mm	Ø20 mm
Gap stator <-> rotor	0.25 mm	0.2 mm	0.25 mm	0.35 mm
Maximal speed	27.000 rpm		20.000 rpm	15.000 rpm
Immersion depth min	35 mm		60 mm	
Immersion depth max.	70 mm		130 mm	
Shaft length	138 mm		225 mm	
Bearing material	PTFE			
Suitable for solvent	Yes			
Maximal temperature	180°C			
Sterilization method	all methods			
Suspension and emulsions	suspension: 10-50µm, emulsion: 1-10µm			
Order number	DH.WHG02108	DH.WHG02110	DH.WHG02118	DH.WHG02125



## Tissue grinders and pestles for homogenizers

Material	for capacity	working Ø	height	Order number
Tissue grinder borosilicate glass clearance 0.15 - 0.25 mm pestle shaft 6.5 mm	2 ml	8 mm	120 mm	5 553 800
	5 ml	12 mm	135 mm	5 553 801
	10 ml	15 mm	150 mm	5 553 802
	15 ml	16 mm	155 mm	5 553 803
	30 ml	25 mm	175 mm	5 553 804
	50 ml	32 mm	195 mm	5 553 805
Pestle PTFE head, serrated stainless steel shaft	2 ml		230 mm	5 553 850
	5 ml		235 mm	5 553 851
	10 ml		270 mm	5 553 852
	15 ml		270 mm	5 553 853
	30 ml		270 mm	5 553 854
	50 ml		270 mm	5 553 855



## Plate stand with stainless steel rod

• plate with silicone rubber pad (ST110, ST120) or heavy duty safety stand (ST200, KA1177)

Type	Rod (included)	Plate	Article	Order number
Silicone rubber pad	Ø16xh800 mm with screw	20 x 35 cm	ST110	DH.WOS501510
Silicone rubber pad	Ø23xh1000 mm with screw	30 x 40 cm	ST120	DH.WOS501515
Heavy duty safety stand	Ø23xh1200 mm	39 x up to 75 cm adjustable	ST200	DH.WOS501520
Heavy duty safety stand	Ø23xh800 mm	34 x 29 cm	KA1177	DH.WOS1177



## Universal jumbo clamp holder for plate stand

• suitable for all overhead stirrer and homogenizer plate stands

Type	Material	Mounting	Article	Order number
Jumbo clamp holder	cast aluminium	for Ø23 mm rod	CL200	DH.WOS502020



# Vortex mixer

up to 3.300 rpm, orbital shaking motion, multiple heads available

VM-10  
with platform head



## VM-10 orbital motion

### Ideal for:

- mixing solutions in test tubes or small flasks with circular, oscillating movement

### Features:

- 0 - 3.300 rpm
- orbital motion
- inclusive platform head Ø76 mm and pop-off cup head
- 3-position power switch for continuous run or „touch-on“
- stepless adjustable speed by turning the dial-knob
- tough metal housing and reliable suction cups ensure stable motion, low noise and safe working
- various shapes, sizes and materials of the head allow mixing of almost all common tubes and containers
- CE certified and unique serial number for tracing

### Controller:

- **analog phase** controller
- 3-position switch for start, stop and „touch-on“
- dial-knob for stepless speed setting

<b>Model</b>	<b>VM-10</b>
<b>Design</b>	vortex mixer
<b>Speed range</b>	0-3.300 rpm
<b>Shaking motion</b>	orbital
<b>Controller</b>	analog phase controller
<b>Material</b>	aluminium die-casting with powder-coating
<b>Head</b>	included pop-off cup head and Ø76 mm platform
<b>Max. load</b>	5 kg
<b>Dimension &amp; weight</b>	160x128xh145 mm, 3 kg
<b>Packaging size</b>	260x200xh220 mm, 4 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WVM00010</b>
<b>Order number 120V</b>	<b>DH.WVM00020</b>

### Scope of supply:

- Vortex mixer VM-10
- platform head PM110 Ø76mm
- pop-off cup head PM210
- removing tool for heads



Platform head PM110



Removing tool



Pop-off cup head PM210

### Accessories:



Microtube platform head for 0.5 - 2.0 ml

Article	Order number
PM310	DH.WVM00310



Individual heads upon request!

# Shaker

orbital motion, 10 - 300 rpm, programmable



## SHO orbital motion



SHO-1D with optional rubber mat platform



SHO-2D with optional universal platform and flask holder

### Ideal for:

- culturing cells to hybridization, staining and destaining gels, and combinatorial chemistry
- hybridization, washing blots, culturing microbes

### Features:

- 10 - 300 rpm
- 230x230 mm or 350x350 mm
- digital LCD display
- smooth start and change of shaking speed while operation
- minimum noise
- timer for 0-60min
- multiple platforms and flask holder available
- brushless DC motor
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 59h 59min with timer-end signal
- operation LEDs
- overload protection
- locking mode

### Controller:

- programmable **Jog-Shuttle** controller with touch-button

Model	SHO-1D	SHO-2D
Design	shaker orbital motion	
Platform	230x230 mm	350x350 mm
Speed range	10-300 rpm	
Max. load	8 kg	10 kg
Amplitude	10 mm	20 mm
Programs	6 programs, 10 steps	
Permissible temperature & RH %	ambient temp. +5 ~ 50°C, 85% RH	
Timer & alarm	99hr 59min, error status timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller (Jog-Shuttle)	
Safety circuit	overload protection	
Dimension & weight	250x330xh150 mm, 14 kg	400x480xh160 mm, 20 kg
Packaging size	450x350xh250 mm, 18 kg	580x500xh250 mm, 23 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WSO04010	DH.WSO04012
Order number 120V	DH.WSO05010	DH.WSO05012

please note: no platform included - please order separately

maximal amount of flask holder depends on platform and flask holder size - more information on 134

Accessories: Universal platform, rubber mat platform, platform for flasks, flask holder and spring rack on page 134



# Shaker

reciprocating motion, 10 - 300 rpm, programmable

## SHR reciprocating motion



SHR-1D with optional rubber mat platform



SHR-2D with optional universal platform and flask holder

### Ideal for:

- culturing cells to hybridization, staining and destaining gels, and combinatorial chemistry
- hybridization, washing blots, culturing microbes

### Features:

- 10 - 300 rpm
- 230x230 mm or 350x350 mm
- digital LCD display
- smooth start and change of shaking speed while operation
- minimum noise
- timer for 0-60min
- multiple platforms and flask holder available
- brushless DC motor
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 59h 59min with timer-end signal
- operation LEDs
- overload protection
- locking mode

### Controller:

- programmable **Jog-Shuttle** controller with touch-button

Model	SHR-1D	SHR-2D
<b>Design</b>	shaker reciprocating motion	
<b>Platform</b>	230x230 mm	350x350 mm
<b>Speed range</b>	10-300 rpm	
<b>Max. load</b>	8 kg	10 kg
<b>Amplitude</b>	10 mm	20 mm
<b>Programs</b>	6 programs, 10 steps	
<b>Permissible temperature &amp; RH %</b>	ambient temp. +5 ~ 50°C, 85% RH	
<b>Timer &amp; alarm</b>	99hr 59min, error status timer-end	
<b>Display</b>	digital LCD with backlight function	
<b>Controller</b>	digital feedback controller (Jog-Shuttle)	
<b>Safety circuit</b>	overload protection	
<b>Dimension &amp; weight</b>	250x330xh150 mm, 14 kg	400x480xh160 mm, 20 kg
<b>Packaging size</b>	450x350xh250 mm, 18 kg	580x500xh250 mm, 23 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
<b>Order number 230V</b>	DH.WSR04020	DH.WSR04022
<b>Order number 120V</b>	DH.WSR05020	DH.WSR05022

please note: no platform included - please order separately

maximal amount of flask holder depends on platform and flask holder size - more information on 134

Accessories: Universal platform, rubber mat platform, platform for flasks, flask holder and spring rack on page 134

# Shaker

Accessories: Platforms, spring rack and flask holder

## Platforms

- suitable for Shaker SHO and SHR
- available in different types

Type	For device...	Plate	Article	Order number
Universal platform *	SHO-1D, SHR-1D	230x230 mm	SP100	<b>DH.WSO504100</b>
Universal platform **	SHO-2D, SHR-2D	350x350 mm	SP200	<b>DH.WSO504200</b>
Rubber mat platform	SHO-1D, SHR-1D	230x230 mm	SP110	<b>DH.WSO504110</b>
Rubber mat platform	SHO-2D, SHR-2D	370x370 mm	SP210	<b>DH.WSO504210</b>

\* max. 9x FH100 / FHS100, max. 7x FH250 / FHS250, max. 4x FH500 / FHS500

\*\* max. 20x FH100 / FHS100, max. 16x FH250 / FHS250, max. 9x FH500 / FHS500



## Platforms for flasks and separatory funnels

- suitable for Shaker SHO and SHR
- available in different types

Type	For device...	Dimension	Article	Order number
Platform for flasks	SHO-1D, SHR-1D	350x230x153 mm	SP120	<b>DH.WSO504120</b>
Platform for flasks	SHO-2D, SHR-2D	350x350x153 mm	SP220	<b>DH.WSO504220</b>
Platform for separatory funnels	SHO-1D, SHR-1D	350x235x174 mm	SP130	<b>DH.WSO504130</b>
Platform for separatory funnels	SHO-2D, SHR-2D	351x355x174 mm	SP230	<b>DH.WSO504230</b>

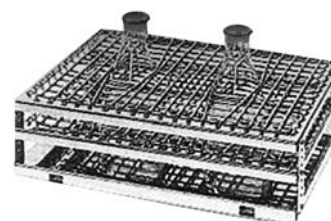
suitable separatory funnels can be found on page 221



## Universal spring rack

- suitable for Shaker SHO and SHR

Type	For device...	Dimension	Article	Order number
Universal spring rack	SHO-1D, SHR-1D	270x270x100 mm	SP120	<b>DH.WSO504140</b>
Universal spring rack	SHO-2D, SHR-2D	370x370x100 mm	SP220	<b>DH.WSO504240</b>



### Smart -Easy

Accesorios de fijación magnética Smart-Clip rápida y sencilla mediante imanes

5 - 50 rpm, tilt angle  $\pm 6^\circ$  /  $\pm 9^\circ$ , platform included



RK-1D



RK-1D with optional stackable second platform

## RK 5 - 50 rpm, settable angle

### Ideal for:

- gel staining, destaining, blotting, cell culture, hybridization and washing

### Features:

- 5 - 50 rpm
- 290x200 mm or 300x300 mm
- tilt angle can be set to  $\pm 6^\circ$  and  $\pm 9^\circ$
- digital LCD display
- smooth start and change of rocking speed while operation
- timer for 0-60min
- stainless steel platform with non-slip rubber pad included
- optional stackable second platform available
- 14W geared DC motor
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 59h 59min with timer-end signal
- operation LEDs
- overload protection
- locking mode

### Controller:

- programmable **Jog-Shuttle** controller with touch-button

Model	RK-1D	RK-2D
Design	rocker	
Platform	290x200 mm (included)	300x300 mm (included)
Speed range	5-50 rpm	
Angle	$+6^\circ$ or $+9^\circ$ ( $+9^\circ$ factory default)	
Programs	6 programs, 10 steps	
Max. load	8 kg	10 kg
Timer & alarm	99hr 59min, error status timer-end	
Display	digital LCD with backlight function	
Controller	digital feedback controller (Jog-Shuttle)	
Safety circuit	overload protection	
Dimension	290x240x150 mm	300x360x155 mm
Packaging size	450x350xh250 mm, 7 kg	450x350xh250 mm, 8 kg
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz	
Order number 230V	DH.WRK01010	DH.WRK01020
Order number 120V	DH.WRK02010	DH.WRK02020

### Accessories:



Second platform with 4 pillars and non-slip rubber pad

RK5011 for RK-1D	RK5021 for RK-2D
290x200 mm	300x300 mm
DH.WRK05011	DH.WRK05021

# Rotator

5 - 60 rpm, 0 - 90° angle, multiple discs available



RT-10 with disk WRT120

## RT-10 5 - 60 rpm, 0 - 90° angle

### Ideal for:

- general mixing, diffusing, dialyzing, hybridization and aerating culture
- keeping biological samples in suspension

### Features:

- 5 - 60 rpm
- 0-90° angle adjustable
- tilt angle can be set to  $\pm 6^\circ$  and  $\pm 9^\circ$
- digital LCD display
- smooth start and change of stirring speed while operation
- timer for 0-60min
- 5 different disks available
- durable construction for long life time
- CE certified and unique serial number for tracing

### Safety mechanism:

- timer 59h 59min with timer-end signal
- operation LEDs
- overload protection
- locking mode

### Controller:

- programmable **Jog-Shuttle** controller with touch-button

<b>Model</b>	RT-10
<b>Design</b>	rotator reciprocating motion
<b>Speed range</b>	5-60 rpm
<b>Angle range</b>	0-90°
<b>Programs</b>	6 programs, 10 steps
<b>Timer &amp; alarm</b>	99hr 59min, error status timer-end
<b>Display</b>	digital LCD with backlight function
<b>Controller</b>	digital feedback controller (Jog-Shuttle)
<b>Temperature resistance</b>	lower than 65°C (dry air)
<b>Safety circuit</b>	overload protection
<b>Dimension &amp; weight</b>	200x250xh260 mm, 6 kg
<b>Packaging size</b>	370x240xh430 mm, 8.5 kg
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz

<b>Order number 230V</b>	DH.WRT00010
<b>Order number 120V</b>	DH.WRT00020

please note: no disks included - please order separately

### Scope of supply:

- Rotator RT-10
- 4x knobs, 4x posts WRT300



4x knobs, 4x posts for installing disks (included in scope of supply)

<b>Article</b>	<b>Order number</b>
WRT300	DH.WRT00300

### Accessories:



Rotator disc for 8x 50ml conical tubes

<b>Article</b>	<b>Order number</b>
WRT100	DH.WRT00100



Rotator disc for 16x 15ml conical tubes

<b>Article</b>	<b>Order number</b>
WRT110	DH.WRT00110



Rotator disc for 32x 1.5ml conical/centrifuge tubes

<b>Article</b>	<b>Order number</b>
WRT120	DH.WRT00120



Rotator disc for 60x 1.5ml conical/centrifuge tubes

<b>Article</b>	<b>Order number</b>
WRT130	DH.WRT00130



Rotator disc for 4x 250ml flasks

<b>Article</b>	<b>Order number</b>
WRT140	DH.WRT00140

# Ultrasonic cleaner

analog, with lid, 1.2 l - 22 l, integrated controller, HF frequency 40 kHz

## WUC-A analog, with lid

### Ideal for:

- cleaning to remove dirt, grease, waxes and oil from all lab instruments by ultrasonic frequency

### Features:

- made of stainless steel, finished surface
- convenient preset function of heating and timer
- HF frequency 40 kHz
- bottom-mounted drain valve (WUC-A10H and WUC-A22H)
- maximum 30 minutes cleaning time
- CE certified and unique serial number for tracing

### Controller:

- **analog** controller for timer, temperature and output control



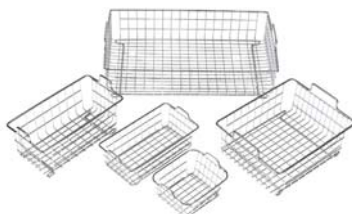
WUC-A06H with lid and valve



Model	WUC-A01H*	WUC-A02H*	WUC-A03H	WUC-A06H	WUC-A10H	WUC-A22H
Capacity	1.2 l	1.8 l	3.3 l	6 l	10 l	22 l
HF-peak-out	72 W	75 W	124 W	168 W	265 W	379 W
Heating temperature & power	65°C fixed, 86 W		ambient to 85°C, 172 W		ambient to 85°C, 258 W	ambient to 85°C, 275 W
Timer	-	0 - 30 min.				
Drain-valve	-				1/2" NPT	
Inner tank size (WxDxH)	150 x 135 x 60 mm	150 x 135 x 100 mm	240 x 140 x 100 mm	290 x 150 x 150 mm	290 x 240 x 150 mm	500 x 300 x 150 mm
Weight	1.8 kg	2.5 kg	4 kg	5.3 kg	7 kg	11 kg
Packing size & gross weight	20 x 20 x 19 cm 3 kg	20 x 20 x 24 cm 4 kg	32 x 20 x 29 cm 5 kg	37 x 22 x 35 cm 6 kg	434 x 32 x 36 cm 7 kg	64 x 38 x 37 cm 11 kg
Power consumption	158 W	161 W	296 W	340 W	523 W	654 W
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz					
Order number 230V	DH.WUC.A01H	DH.WUC.A02H	DH.WUC.A03H	DH.WUC.A06H	DH.WUC.A10H	DH.WUC.A22H
Order number 120V	DH.WUC.A101H	DH.WUC.A102H	DH.WUC.A103H	DH.WUC.A106H	DH.WUC.A110H	DH.WUC.A122H

Note: no basket included, please order separately.

\* WUC-A01H and WUC-A02H with flip switch



Stainless steel wire baskets for ultrasonic cleaner WUC-A

For device	Capacity	Measurements	Article	Order number
WUC-A02H	1.8 l	120x105xh65 mm	B02	DH.WUC.B02
WUC-A03H	3.3 l	215x115xh65 mm	B03	DH.WUC.B03
WUC-A06H	6 l	247x123xh96 mm	B06	DH.WUC.B06
WUC-A10H	10 l	262x206xh93 mm	B10	DH.WUC.B10
WUC-A22H	22 l	452x263xh93 mm	B22	DH.WUC.B22

# Ultrasonic cleaner

digital, with lid and basket, 3.3 l - 22 l, integrated controller, HF frequency 40 kHz

## WUC-D digital, with lid & basket

### Ideal for:

- cleaning to remove dirt, grease, waxes and oil from all laboratory instruments by ultrasonic frequency

### Features:

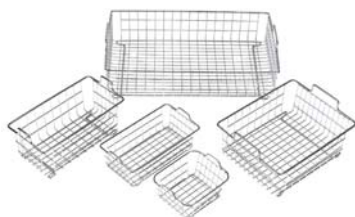
- convenient preset function of heating and timer
- HF frequency 40 kHz
- multi frequency sonication body
- temperature range from ambient to 80°C
- bottom-mounted drain valve (WUC-D10H and WUC-D22H)
- maximum 60 minutes cleaning time
- microprocessor control: timer, temperature and output control
- FND display
- CE certified and unique serial number for tracing
- WUC-D03H model includes degassing function for very strong cleansing

### Controller:

- **digital** controller for timer, temperature and output control



Model	WUC-D03H	WUC-D06H	WUC-D10H	WUC-D22H
Capacity	3.3 l	6 l	10 l	22 l
HF-peak-out	100 W	253 W	407 W	528 W
Heating temperature & power	ambient to 80°C, 172 W		ambient to 80°C, 258 W	ambient to 80°C, 344 W
Timer	0 - 30 min.	0 - 60 min.		
Drain-valve	-		1/2" NPT	
Inner tank size (WxDxH)	240 x 140 x 100 mm	290 x 150 x 150 mm	240 x 140 x 150 mm	500 x 300 x 150 mm
Weight	3.4 kg	5.8 kg	8 kg	12.9 kg
Packing size & gross weight	320 x 200 x 290 mm, 3.7 kg	360 x 220 x 350 mm, 6.3 kg	440 x 320 x 360 mm, 8.5 kg	640 x 380 x 370 mm, 13.4 kg
Power consumption	290 W	425 W	665 W	872 W
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz			
Order number 230V	DH.WUC.D03H	DH.WUC.D06H	DH.WUC.D10H	DH.WUC.D22H
Order number 120V	DH.WUC.D103H	DH.WUC.D106H	DH.WUC.D110H	DH.WUC.D122H



Stainless steel wire baskets for ultrasonic cleaner WUC-D

For device	Capacity	Measurements	Article	Order number
WUC-D03H	3.3 l	215x115xh65 mm	B03	DH.WUC.B03
WUC-D06H	6 l	247x123xh96 mm	B06	DH.WUC.B06
WUC-D10H	10 l	262x206xh93 mm	B10	DH.WUC.B10
WUC-D22H	22 l	452x263xh93 mm	B22	DH.WUC.B22

# Ultrasonic cleaner

digital, with lid and external controller, 30 l - 74 l, HF frequency 40 kHz



WUC-N47H with basket (not included) and remote controller

## WUC-N digital, large, with lid

### Ideal for:

- cleaning to remove dirt, grease, waxes and oil from all laboratory instruments by ultrasonic frequency

### Features:

- remote generator: power control and timer function with LCD display
- BTL sonicator installed: robust and stable running
- sweep function can realize complete cleaning by the dispersion of ultrasound
- auto optimization of frequency as various water level and temperature
- foot switch control
- temperature range from ambient to 105°C
- full set with lid, foot switch and generator
- drain mounted in the bottom
- HF frequency 40 kHz
- maximum 99 minutes cleaning time
- CE certified and unique serial number for tracing

### Controller:

- **digital** remote controller for timer, temperature and output control

Model	WUC-N30H	WUC-N47H	WUC-N60H	WUC-N74H
Capacity	30 l	47 l	60 l	74 l
HF-peak-out	704 W	990 W	1,210 W	1,430 W
Heating temperature & power	ambient to 105°C, 990 W			
Timer	0 - 99 min.			
Outer tank size (WxDxH)	480 x 380 x 400 mm	530 x 430 x 450 mm		580 x 480 x 450 mm
Inner tank size (WxDxH)	400 x 300 x 250 mm	450 x 350 x 300 mm	500 x 400 x 300 mm	550 x 450 x 300 mm
Weight	26 kg	31 kg	36 kg	41 kg
Packing size & gross weight	620 x 520 x 640 mm, 32 kg	670 x 570 x 710 mm, 37 kg	720 x 620 x 710 mm, 42 kg	770 x 670 x 710 mm, 47 kg
Power consumption	4.694 W	1.980 W	2.200 W	2.420 W
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz			
Remote generator power	600 W	900 W	1,200 W	1,500 W
Remote generator weight	9 kg	10 kg		
Order number 230V	DH.WUC.N30H	DH.WUC.D47H	DH.WUC.D60H	DH.WUC.N74H
Order number 120V	DH.WUC.N130H	DH.WUC.N147H	DH.WUC.N160H	DH.WUC.N174H

Note: no basket included, please order separately.



Stainless steel wire baskets for ultrasonic cleaner WUC-N

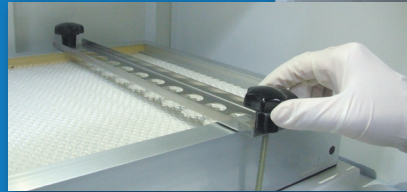
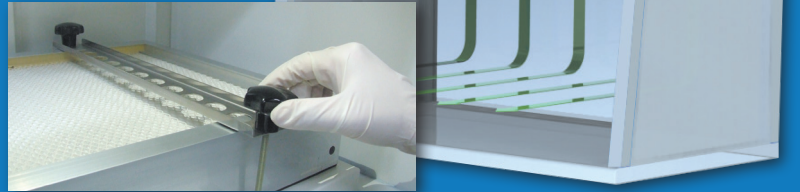
For device	Capacity	Measurements	Article	Order number
WUC-N30H	30 l	340x240xh150 mm	Ba7021	DH.Ba7021
WUC-N47H	47 l	390x290xh200 mm	Ba7022	DH.Ba7022
WUC-N60H	60 l	440x340xh200 mm	Ba7023	DH.Ba7023
WUC-N74H	74 l	490x390xh200 mm	Ba7024	DH.Ba7024

# Clean bench

## WLC-V

### Class 100 HEPA filter & vertical air flow

The laminar flow clean bench provides reliable protection for samples and work processes against particulate contamination. The air from above the cabinet vertically goes through a pre-filter and a class 100 HEPA filter with an efficiency up to 99.97% & 0.3 micron size.



### UV lamp

The built-in UV lamp contributes to a better sterilization. The UV lamp automatically turns off when the front door is opened.



### Door

Easy to open tempered glass sliding door ensures safe operation and protection against UV radiation.



Operation of different types of devices within the clean bench due to two built-in power connections.



Connection of two different gas types possible.

### Connections

### Controller

Intuitive capacitive touch-button controller. 8-step control of air-flow speed. Timer function for UV lamp.





# Clean bench

integrated HEPA filter, vertical air flow, UV lamp, built-in gas and power connections



WLC-V1200

## WLC-V with HEPA filter

### Ideal for:

- protection of samples and work processes against dust and particulate contamination

### Features:

- class 100 HEPA filter of efficiency up to 99.97% & 0.3 micron size (easy to exchange)
- mesh guard for HEPA filter protection
- vertical air flow-type
- optimized air flow system for uniform air flow/velocity
- 8 steps air velocity control
- UV and fluorescent lamp, external gas connection valve, internal electrical outlet
- silent and vibration-free blower (under 65 dB)
- corrosion resistant 304 stainless steel working table interior, powder-coated body and tempered safety glass sliding door for protection from UV radiation
- 99hr 59min Timer
- high-quality backlight LCD display
- CE certified and unique serial number for tracing

### Safety mechanism:

- UV protection system: UV lamp is only activated when safety glass door is completely closed

### Controller:

- microprocessor digital controller
- high performance touch input

Model	WLC-V1200	WLC-V1500	WLC-V1800
Air volume	1.350 m <sup>3</sup> /h	1.700 m <sup>3</sup> /h	2.020 m <sup>3</sup> /h
Air flow velocity	8 steps, 0.3 - 0.6 m/s		
HEPA filter	Class 100 0.3 µm particle removal 99.97%		
Pre-filter	3-30 µm particle removal		
Lamp	1 x UV 20 W, 1 x FL 36 W	1 UV 30 W, 1 x FL 55 W	
Utility device	1 x air cock, 1 x gas cock, 2 x 230V outlet		
Internal dimensions (W x D x H)	1.200 x 660 x 610 mm	1.500 x 660 x 610 mm	1.800 x 660 x 610 mm
External dimensions (W x D x H)	1.280 x 735 x 1.895 mm	1.580 x 735 x 1.895 mm	1.880 x 735 x 1.895 mm
Power supply	1 Phase AC 120V, 60 Hz or AC 230V, 50/60 Hz		
Order number 230V	DH.WLCV1200	DH.WLCV1500	DH.WLCV1800
Order number 120V	DH.WLCV1201	DH.WLCV1501	DH.WLCV1801

Spare HEPA filter for clean bench WLC-V

For device	Order number
WLC-V1200	DH.MXCB.S003
WLC-V1500	DH.MXCB.S004
WLC-V1800	DH.MXCB.S005



## WAC / WAC-R



WAC-R80 with built-in recorder

### Ideal for:

- biotechnology, clinical, environmental, medical and food industry

### Features:

- stainless steel wire basket (2 pcs. included) and pressure vessel
- powder-coated steel body
- top loading sterilizer for loading of large working volume
- thermal printer (record paper roll w58/ Ø 40 mm) (WAC-R)
- solid and liquid mode
- with casters for excellent mobility
- digital backlight LCD display
- digital timer function – delay time and operation time can be controlled
- built-in recorder: print sterilization data (only WAC-R)
- CE certified and unique serial number for tracing

### Safety mechanism:

- overheat and over-current protection
- automatic over pressure release valve & heat-protective lid
- error alarm, power failure and temperature error
- water low level detection
- electronic door lock sensing system (locks the door over 80°C)

### Controller

- digital fuzzy controller (fully automatic)

Model	WAC-47 / WAC-R47	WAC-60 / WAC-R60	WAC-80 / WAC-R80	
Capacity	47 l	60 l	80 l	
Temperature range & accuracy	room temperature + 5°C to 132°C, ±5°C at 121°C			
Pressure & gauge	1.2 kgf/ cm <sup>2</sup> at 121°C / 2.0 kgf/ cm <sup>2</sup> at 132°C, 0 - 3 kgf/ cm <sup>2</sup>			
Heating power (consumption)	2 kW	3 kW	3 x 1.5 kW	
Door & closing system	lever type sliding door/ safety electronic door closing system			
Basket dimensions	Ø 270 x 240 mm	Ø 320 x 240 mm	Ø 370 x 240 mm	
Internal dimensions (W x D x H)	Ø 300 x 670 mm	Ø 350 x 650 mm	Ø 400 x 650 mm	
Outer dimensions (W x D x H)	680 x 470 x 880 mm	680 x 470 x 900 mm	780 x 580 x 900 mm	
Packing size & gross weight	840 x 610 x 1,252 mm, 117 kg	840 x 610 x 1,252 mm, 120 kg	950 x 730 x 1,352 mm, 170 kg	
Power supply	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz		3 Phase AC400V, 50/60Hz	
Order number WAC	230V	DH.WAC05047	DH.WAC05060	-
	120V	DH.WAC06047	DH.WAC06060	-
	3 Phase	-	-	DH.WAC07080
Order number WAC-R*	230V	DH.WACR2047	DH.WACR2060	-
	120V	DH.WACR1047	DH.WACR1060	-
	3 Phase	-	-	DH.WACR3080

\* Recorder-type: built-in recorder printer, sterilization cycle data (date, temperature, pressure, time, error status, etc.)

Spare paper roll	5 pcs./pack	DH.WACR5005
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Spare wire basket for autoclave, stainless steel

For device	Measurement	Article	Order number
WAC-47/-R47	Ø270xh240 mm	Ba7011	DH.Ba7011
WAC-60/-R60	Ø320xh240mm	Ba7012	DH.Ba7012
WAC-80/-R80	Ø370xh240mm	Ba7013	DH.Ba7013



Spare basket, perforated bottom, stainless steel

For device	Measurement	Article	Order number
WAC-47/-R47	Ø270xh250 mm	WAC20047	DH.WAC20047
WAC-60/-R60	Ø320xh250mm	WAC20060	DH.WAC20060
WAC-80/-R80	Ø370xh250mm	WAC20080	DH.WAC20080

# Centrifuge

small size, up to 5.500 rpm, different rotors included

up to 5.500 rpm



CF-5 with circular fixed angle rotor



Operation LEDs

## CF-5 Mini centrifuge 5.500 rpm

### Ideal for:

- plasmid, DNA and RNA work, miniprep kit, and many other applications

### Features:

- quick spin down from walls or caps of centrifuge tubes
- complete set with circular fixed-angle rotor and fixed strip rotor
- smooth opening of the lid by simply pressing
- body and rotor made of ABS
- clear and transparent lid (polycarbonate)
- CE/GMP certified and unique serial number for tracing

### Safety mechanism:

- lid-activated on/off safety switch: close the clear lid to start and open to stop

### Controller:

- superior linearity for the control of stirring speed by specially designed control circuit (PWM control)

<b>Model</b>	<b>CF-5</b>
<b>RPM &amp; max. RCF</b>	5.500 rpm, 1,775 g
<b>Max. capacity</b>	6 x 0.5-/1.5-/2.0- ml tubes, 2 x 0.2 ml PCR 8-tube strip or 16 x 0.2 ml PCR 8 tubes
<b>Angle rotor (included)</b>	6 holes circular fixed-angle rotor for 0.5-/1.5-/2.0- ml tubes
<b>Strip rotor (included)</b>	16 holes strip rotor for 0.2 ml PCR 8-tube strip or individual tubes
<b>Adapter (included)</b>	6 x 0.2-/0.5- ml tube adapter included
<b>Dimension</b>	178 x 150 x 109 mm
<b>Packing size</b>	200 x 180 x 175 mm, 2 kg
<b>Power consumption</b>	8 W
<b>Power supply</b>	1 Phase AC 120V, 60 HZ or AC 230V, 50/60 Hz
<b>Order number 230V</b>	<b>DH.WCF00005</b>
<b>Order number 120V</b>	<b>DH.WCF00025</b>



**Circular fixed angle rotor (included)**  
for 6x 0.2/0.5/1.5/2.0ml tubes

Article	Order number
CFAR1512M	DH.WCF00105



**Tube adapter (6 pieces)**  
for circular fixed angle rotor

	Article	Order number
for 0.2ml tubes	CFTA3	DH.WCF00201
for 0.5ml tubes	CFTA5	DH.WCF00301



**Fixed strip rotor (included)**  
for 2x 0.2ml PCR8-tube strips or 16x 0.2ml PCR tubes

Article	Order number
CFPR8	DH.WCF00205

Accessories: Centrifuge tubes and reaction vessels on page 225

# Evaporator, greaseless

Rotary vacuum evaporator with greaseless joints, diagonal or vertical model



## witegvapor greaseless joints

### Ideal for:

- all distilling applications with high vacuum pressure

### Features:

- diagonal and vertical model
- digital display
- for flasks from 50 - 3.000 ml
- speed range from 20 - 280 rpm
- easy height control by accurate motor with up/down buttons
- double-binding PTFE and NBR nitrile vacuum seal
- anti-abrasion, anti-aging, anti-chemical
- leaning angle can be adjusted
- included water bath is made of stainless steel
- special glassware for greaseless usage

### Safety mechanism:

- insulated heater
- double-jacketed bath body
- low water level detection and automatic stop function

### Controller:

- built-in digital controller with LCD display

Model	diagonal	vertical
Speed range	20 - 280 rpm	
Flask types suitable	50 - 3.000 ml	
Bath size	Ø 245 mm x h120 mm	
Bath temperature	up to 180°C	
Bath material	stainless steel SUS304	
Dimension	730 x 410 x 630 mm, 19.5 kg	620 x 410 x 870 mm, 19.5 kg
Packing size	800 x 600 x 600 mm, 25 kg	
Power supply	1 Phase AC 230V, 50/60 Hz	
Order number	2 600 000	2 610 000

### Scope of supply:

- evaporator
- water bath
- 1.000 ml evaporating flask with ground joint socket ST 24/29
- 500 ml receiver flask round bottom with spherical joint socket KS 35
- clamps and connections
- condenser
- power cable
- manual

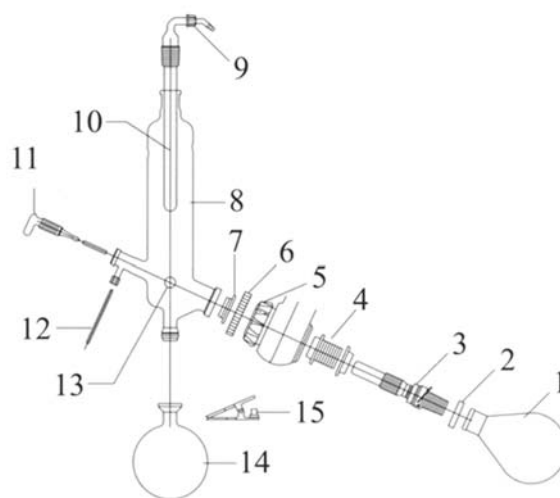
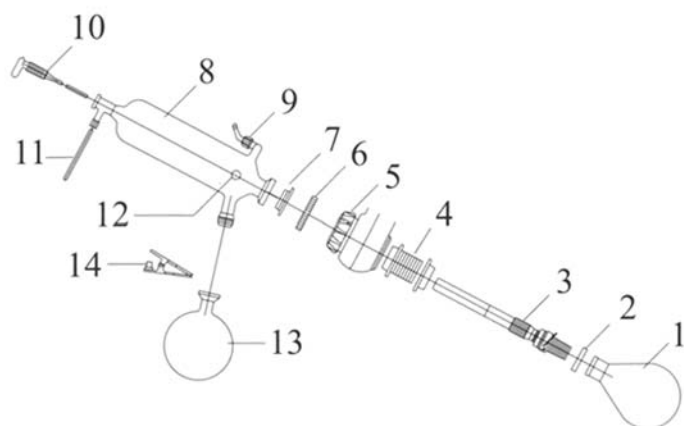
### Recommended vacuum pump: Rocker 400



Model	Rocker 400	
Voltage	110V / 60Hz	230V / 50Hz
Max. vacuum	-680 mmHg (80mbar)	
Max. flow rate	37 l/min	34 l/min
Motor rotation	1750 rpm	1450 rpm
Horse power	1/6 HP	
Noise level	52 dB	
Port thread	5/16 inch (8 mm)	
Order number	00829 167400-11	00829 167400-22

more information on page 185

## Spare parts witegvapor



Spare parts for diagonal evaporator witegvapor

Item	Article	Order number
1	evaporating flask	0 654 001 FCH-V
2	joint clamp	0 131 329
3	witegvapor duct	2 600 0072
4	dust screw cap	2 600 040
5	condenser screw coupling	2 600 041
6	condenser holder spring	2 600 042
7	vacuum seal	2 600 018
8	assembly condenser	2 600 009
9	vacuum connector	2 600 044
10	vacuum stopcock	2 600 010
11	drawing PTFE hose	2 660 019
12	vapor sensor	2 660 020
13	receiving flask 500 ml KS 35	0 644 500 ROT
14	receiving flask clamp	0 133 035

Spare parts for vertical evaporator witegvapor

Item	Article	Order number
1	evaporating flask	0 654 001 FCH-V
2	joint clamp	0 131 329
3	witegvapor duct	2 600 0072
4	dust screw cap	2 600 040
5	condenser screw coupling	2 600 041
6	condenser holder spring	2 600 042
7	vacuum seal	2 600 018
8	assembly condenser	2 600 009
9	vacuum connector	2 600 044
10	vacuum adapter	2 600 045
11	vacuum stopcock	2 600 010
12	drawing PTFE hose	2 660 019
13	vapor sensor	2 660 020
14	receiving flask 500 ml KS 35	0 644 500 ROT
15	receiving flask clamp	0 133 035

witegvapor duct ST 24/29 (Item 3)

Material	Length	Order number
PTFE	312 mm	2 600 0071 TEF
PTFE	200 mm	2 600 0072 TEF
glass	312 mm	2 600 0071
glass	200 mm	2 600 0072



Four neckbulbs for flasks

Connectors	Order number
ST 24 socket 4x ST 14 cone	1 430 400



Connection adapter

Size	Order number
ST 14 -> ST 24	0 510 002
ST 24 -> ST 29	0 510 006



Bulbs for flasks

Size	Order number
ST 24, l=100 mm	1 430 224
ST 25, l=250 mm	1 430 230
ST 29, l=100 mm	1 430 190
ST 29, l=250 mm	1 430 200



Receiver flask KS 25 Rotulex

Capacity	Order number
100 ml	0 644 100 ROT
250 ml	0 644 250 ROT
500 ml	0 644 500 ROT
1.000 ml	0 644 001 ROT
2.000 ml	0 644 002 ROT
3.000 ml	0 644 003 ROT



Evaporating flask ST 24/29 FCH-V

Capacity	Order number
50 ml	0 654 050 FCH-V
100 ml	0 654 100 FCH-V
250 ml	0 654 250 FCH-V
500 ml	0 654 500 FCH-V
1.000 ml	0 654 001 FCH-V
2.000 ml	0 654 002 FCH-V
3.000 ml	0 654 003 FCH-V



# Miscellaneous

## Plate stand with stainless steel rod

- plate with silicone rubber pad (ST110, ST120) or heavy duty safety stand (ST200, KA1177)

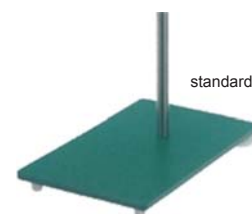
Type	Rod (included)	Plate	Article	Order number
Silicone rubber pad	Ø16xh800 mm with screw	20 x 35 cm	ST110	DH.WOS501510
Silicone rubber pad	Ø23xh1000 mm with screw	30 x 40 cm	ST120	DH.WOS501515
Heavy duty safety stand	Ø23xh1200 mm	39 x up to 75 cm adjustable	ST200	DH.WOS501520
Heavy duty safety stand	Ø23xh800 mm	34 x 29 cm	KA1177	DH.WOS1177



## Standard plate stand, thread M10

- with 1 adjustable foot, green painted steel, delivered without rod

Plate	Order number
210 x 130 mm	7 400 012
250 x 160 mm	7 400 014
315 x 200 mm	7 400 017



## Rods for plate stands

- with screw or without screw
- made of stainless steel

Type	Rod	Article	Order number
without screw	Ø12 x h500 mm		7 400 180
without screw	Ø12 x h600 mm		7 400 181
without screw	Ø12 x h750 mm		7 400 182
without screw	Ø12 x h1000 mm		7 400 183
without screw	Ø12 x h1250 mm		7 400 184
without screw	Ø12 x h1500 mm		7 400 185
without screw	Ø16 x h800 mm	RD501	DH.WOS502001
without screw	Ø16 x h1000 mm	RD502	DH.WOS502002
without screw	Ø16 x h1200 mm	RD503	DH.WOS502003
without screw	Ø23 x h800 mm	RD531	DH.WOS502031
without screw	Ø23 x 1200 mm	RD533	DH.WOS502033
with screw M10	Ø12 x h500 mm		7 400 160
with screw M10	Ø12 x h600 mm		7 400 161
with screw M10	Ø12 x h750 mm		7 400 162
with screw M10	Ø12 x h1000 mm		7 400 163
with screw M10	Ø12 x h1250 mm		7 400 164
with screw M10	Ø12 x h1500 mm		7 400 165
with screw M8	Ø16 x h800 mm	RD511	DH.WOS502011
with screw M8	Ø16 x h1000 mm	RD512	DH.WOS502012
with screw M8	Ø16 x h1200 mm	RD513	DH.WOS502013
with screw M8	Ø23 x h800 mm	RD521	DH.WOS502021
with screw M8	Ø23 x h1000 mm	RD522	DH.WOS502022
with screw M8	Ø23 x h1200 mm	RD523	DH.WOS502023



## Stand rods for hotplates and magnetic stirrer with hotplate

For device(s)	Design	Measurements	Article	Order number
HP-30A, HP-30D MSH-30A, MSH-30D	without screw	Ø12.7xh450 mm	RD100	DH.WHP503011
HP-20A, HP-20D, HP-500D MSH-20A, MSH-20D MSH-50A, MSH-50D MSH-500D	with screw	Ø12xh450 mm	RD200	DH.WHP503036



## Bosshead

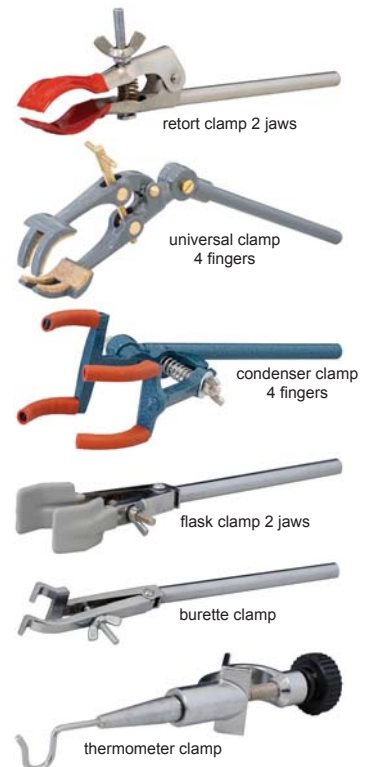
• suitable for all rods from Ø12mm - Ø23mm

Type	Material	Mounting	Order number
hook-type 90°	stainless steel	for rods up to Ø12mm	7 400 470
DIN12985, 90°, with screw	aluminium	for rods up to Ø16mm	7 400 500
DIN12985, 90°, with screw	cast iron	for rods up to Ø16mm	7 400 502
double-cross 90° & 180°	stainless steel	for rods up to Ø16mm	7 400 511
heavy-duty	cast aluminium	for rods up to Ø23mm	7 400 440



## Clamp

Type	Material	Opening	Measurement	Order number
retort clamp 2 jaws PVC-coated	stainless steel	30mm		7 400 660
retort clamp 2 jaws PVC-coated	stainless steel	40mm		7 400 661
retort clamp 2 jaws PVC-coated	stainless steel	60mm		7 400 662
retort clamp 4 fingers silicone-coated	stainless steel	30-100 mm	190 x Ø12 mm	7 400 712
retort clamp 4 fingers silicone-coated	stainless steel	50-150 mm	190 x Ø12 mm	7 400 413
universal clamp 4 fingers silicone-coated cork-liner, hinge 180°	aluminium	0-80 mm	270 x Ø10 mm	7 400 720
condenser clamp 4 fingers PVC-coated	cast iron	50-100 mm	150 x Ø10 mm	7 400 730
flask clamp 2 jaws PVC-coated	chromed	12-45 mm	130 x Ø10 mm	7 400 830
burette clamp	chromed	4-20 mm	130 x Ø10mm	7 400 800
thermometer clamp with hook and bosshead	chromed	6-16 mm		7 400 810



## Ring

Type	Material	Ring Ø	Length	Order number
closed	stainless steel	50 mm	160 mm	7 400 900
		70 mm	200 mm	7 400 901
		100 mm	220 mm	7 400 902
		120 mm	220 mm	7 400 903
		140 mm	220 mm	7 400 904
closed with bosshead	stainless steel	50 mm	70 mm	7 400 925
		70 mm	70 mm	7 400 926
		100 mm	70 mm	7 400 927
		120 mm	70 mm	7 400 928
		140 mm	70 mm	7 400 929





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