

# Industrial Evaporation



## Hei-VAP Industrial Large-Scale Rotary Evaporators

Leading Safety Standards

Superior Ease of Use

Reduced Cost of Ownership



 **heidolph**  
research made easy



Do you require safe and quick flask removal by one person with industry leading safety standards?

## Industrial Evaporation

With the Hei-VAP Industrial series you are always on the safe side with the safety enclosure protecting you and your glassware! You can operate the Hei-VAP Industrial just by yourself, change flasks in seconds and operate the unit with ease.



## Leading **Safety Standards**

- The **EASY LOCK** flask attachment allows for safe flask change
- **An emergency off button** brings the entire unit to a complete stop
- To promote a safe use of the Hei-VAP Industrial evaporator the interface panel not only has all parameters for operation but also **5 key safety functions that require operator action prior to resuming process**
- Features **water level regulation system** to prevent water spilling over bath and potentially flooding your lab
- Safety sensor **stops rotation if bath guard hood is opened** during operation thus providing user safety
- **A temperature sensor** powers off the bath in case of any uncontrolled heat-up
- To effectively prevent accidents while monitoring parameters the speed, bath temperature and vacuum setting must be confirmed on **separate on/off buttons in order to start operation**
- **Automatic safety cut-off** in an **overpressure situation** caused by glassware breakage or defective vacuum circuit
- Receiving cassette system **protects glassware** while providing superior flask support. Easy access to receiving cassettes via two latching high-impact transparent PMMA doors
- **Ultimate safety** is provided with the Hei-VAP Industrial model which comes standard with: a guard hood consisting of a metal frame and safety glass completely covering the bath. This prevents any operator contact with steam, splashing bath fluid and splinters of glass in case of implosion
- **Excellent user safety** is achieved by a transparent high impact PMMA door on a metal condenser housing covering the main glassware assembly

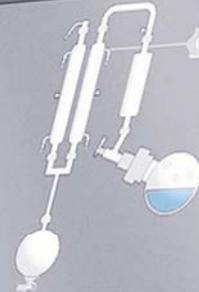


09:55

Set Pressure Auto Accurate



Timer...



980 mbar

$\Delta p$

500

5

Vacuum



20 rpm

20

Rotation



53.0 °C

80

Water Bath



25.0 °C

Vapor



Stop All



Warm Up



Start All

Manual Vacuum Override



## Superior **Ease of Use**

- **Intuitive touch screen control** for easy operation
- Touch screen with glass surface for **chemical resistance** and **easy cleaning**
- **EASY LOCK** flask attachment for **quick and easy flask changes**
- Illuminated bath and evaporation flask allows for **superior visual control**
- Integrated heating coils guarantee the most **convenient and fastest cleaning of the bath**
- Receiver cassettes guard against glassware breakage while providing a self-standing flask support and **quick removal** of receiving vessels
- Save time with up to 250 **pre-programmed steps** of up to 999 process ramps
- Unique self-aligning flask support system allows for immediate **one-person operation**
- Reduce your process times by using the exclusive AUTO<sub>accurate</sub> program which automates your distillation using a vapor temperature system that **takes the guesswork out** of finding the correct vacuum setting every time
- No hassle and safety concern due to low fluid levels: **self-filling water bath** takes the worry out of running dry
- Receiving flasks feature **reinforced bottom drain valves** as standard and are protected by cassettes
- To prevent steam from building up within the guard hood, two strong blowers effectively ventilate the entire area to give you a **clear view of the evaporating flask**
- Now you can manage even the **most demanding applications** easily and eliminate foaming, excessive bubbling or bumping of solutions
- The **automatic process timer** turns off your evaporation at a pre-programmed time
- The optional automatic module Distimatic Industrial allows for **continuous and unattended automatic operations**
- Optional Base Cart provides you with a **fully-maneuverable rotary evaporator** while offering a storage space for vacuum pump, glassware, solvents or accessories

## Reduced **Cost** of Ownership

- **Universal heating bath** for water or other bath fluids allows for temperature settings up to 180 °C
- Utilize the **pre-heating option** for your bath and **start your application without any loss of time**
- The water bath refill system allows you to step away from your evaporator at any moment and **reduce your supervision responsibility to zero** for baths that run dry or overheat
- **No hidden cost:** all components to control vacuum are included as a standard. This includes vacuum valve, vacuum controller, vacuum sensor and vapor temperature sensor
- AUTO<sub>accurate</sub>-evaporations drive your solution to a variable quantity or dryness, then shut off vacuum, heating bath and rotation, and ventilates the system to give you semi-automated capabilities at **significant cost savings**
- **Spend your working hours more effectively** on other challenges which require your attention and evaporate large quantities continuously with the automatic module Distimatic Industrial
- Maximize your initial investment significantly: the automatic module Distimatic Industrial is an **affordable and more flexible alternative** to common 50 or 100-liter evaporators
- **Increased throughput at reduced energy consumption** due to an industry leading leak-proof vacuum seal:
  - final pressure below 1 mbar
  - pressure increase below 1 mbar/min

## ➤ Hei-VAP Industrial control panel



## ➤ Two Programs for Process Control

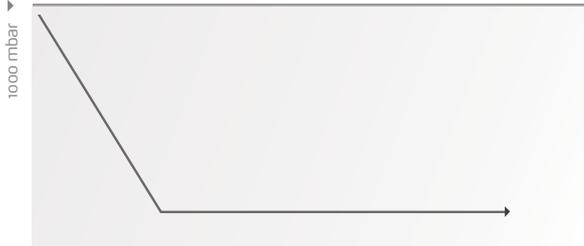
### SET<sub>pressure</sub>

#### Program for solvent separations

- This program holds a set vacuum constant and uses a hysteresis
- Optionally, the process can be predefined via programmable ramps

#### Program: SET<sub>pressure</sub>

Control parameter: manually set pressure



Manually set vacuum

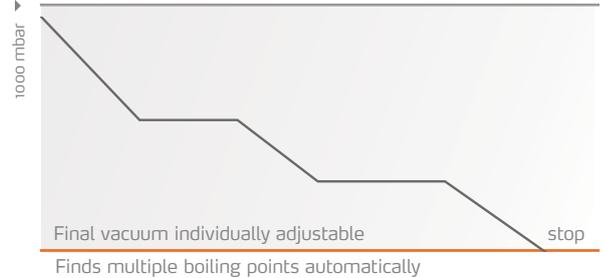
### AUTO<sub>accurate</sub>

#### Supports very precise automatic pressure control for solvent evaporation and separations

- This program identifies multiple boiling points automatically by reducing vacuum

#### Program: AUTO<sub>accurate</sub>

Control parameter: vapor temperature



Final vacuum individually adjustable

Finds multiple boiling points automatically

# Industrial Evaporation



Leading Safety Standards

Superior Ease of Use

Reduced Cost of Ownership

The average operational **lifespan of 10 years** is backed by a **3 year warranty** and makes your purchase a worthwhile investment.

Illuminated bath and evaporation flask allows for superior **visual control**

The **EASY LOCK** flask attachment allows for single-user safe flask exchange

**Excellent user safety:** condenser and receiving flasks are protected by high-impact transparent PMMA doors

Receiver cassettes **guard against glassware breakage** while providing a self-standing support

A guard hood consisting of a metal frame and safety glass covers the bath completely while providing **clear visible monitoring**

**Increased throughput at reduced energy consumption** due to an industry leading vacuum leakproof

Features **level regulation system** to prevent from spilling over and potential floods in lab

Unique self-aligning flask support system allows for immediate **"one-person operation"**

Non-visible heating coils guarantee the most convenient and **fastest cleaning of the bath**

**Intuitive touch screen** control for ease of operation

Unit **powers off all relevant functions** in case of a bath overtemperature situation, overpressure and glassware breakage

**No hassle or safety concerns due to low bath fluid levels:** the self-filling water bath takes the worry out of running dry

**Automatic module Distimatic Industrial - For batch and continuous evaporation without limits** - an affordable and more flexible alternative to common 50 or 100-liter evaporators

Save time with up to 250 pre-programmed profiles of **up to 999 process gradients**



## ➤ Hei-VAP Industrial

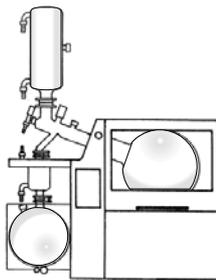
### Highest safety and integrated vacuum control capabilities

Includes leading safety standards and features for superior ease of use and reduced cost of ownership, plus:



**Hei-VAP Industrial with glassware set RC**  
(without Base Cart)  
P/N 518-12100-00

## ➤ Glassware – Hei-VAP Industrial

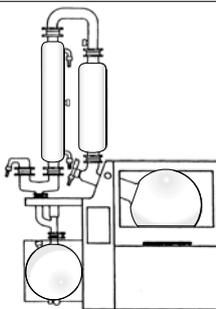


### Glassware Shorty R

- Identical to glassware R, but features a condenser that is 320 mm shorter
- Distillation capacity remains the same. This assembly is ideal in laboratories for hood applications or where height is restricted

### Glassware Shorty RC

- Identical to glassware assembly Shorty R, but features two receiving flasks

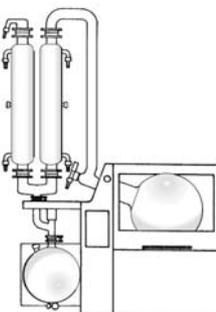


### Glassware A

- This glassware assembly includes one descending condenser, one expansion vessel, one 20-l evaporating flask, one 10-l receiving flask and is recommended **for solvents that tend to splash and foam**

### Glassware AC

- Identical to glassware assembly A, but features two receiving flasks

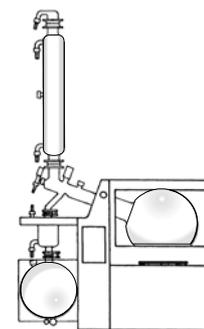


### Glassware A1

- This glassware assembly includes one ascending, one descending condenser, one ascent pipe, one 20-l evaporating flask and one 10-l receiving flask
- **For low-boiling solvents and highest recovery rates**

### Glassware A1C

- Identical to glassware assembly A1, but features two receiving flasks

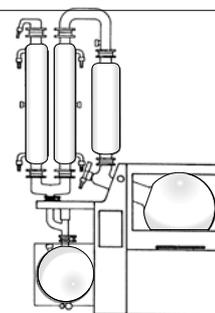


### Glassware R

- This glassware assembly includes one ascending condenser, one 20-l evaporating flask, one 10-l receiving flask and is recommended **for all standard distillations**

### Glassware RC

- Identical to glassware assembly R, but features two receiving flasks

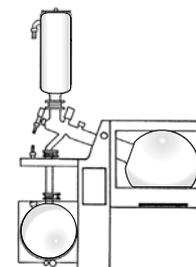


### Glassware A2

- This glassware assembly includes one ascending, one descending condenser and one expansion vessel, one 20-l evaporating flask, one 10-l receiving flask
- **For low-boiling solvents and highest recovery rates**

### Glassware A2C

- Identical to glassware assembly A2, but features two receiving flasks



### Glassware K

- Condensate trap **for low-boiling solvents; cooling by dry-ice**
- Comes with one 20-l evaporating flask and one 10-l receiving flask

### Glassware KC

- Identical to glassware assembly K, but features two receiving flasks

## ➤ Vacuum Pump

### Valve-regulated vacuum pump Rotavac 20

P/N 591-07210-00

Includes secondary condenser and air intake separation vessel

This vacuum system can be applied in many different fields in order to evacuate, evaporate and pump out gases and vapors. Thanks to the emission condenser it is possible to achieve a chemical recovery of almost 100%

- Excellent compatibility with chemicals and condensate
- Excellent ultimate vacuum of 2 mbar
- Very quiet and very low vibration
- Very high suction capacity of 3.0 m<sup>3</sup>/h
- Weight: 19.9 kg
- Dimensions: W350 / D275 / H495 mm



## ➤ Accessories - Hei-VAP Industrial



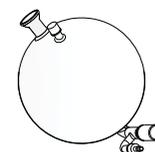
### Evaporating flasks

Evaporating flask 6 l  
P/N 15-300-003-23  
Evaporating flask 10 l  
P/N 15-300-003-22  
Evaporating flask 20 l  
(Included as a standard)  
P/N 15-300-003-21



### Powder flasks

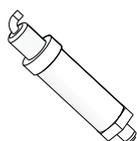
Powder flask 10 l  
P/N 15-300-003-24  
Powder flask 20 l  
P/N 15-300-003-25



### Receiving flask

P/N 15-300-004-11

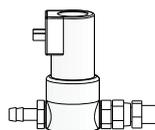
With drain valves, 10 l  
(Included as a standard for all Hei-VAP Industrial models)



### Vacuum sensor

P/N 591-21000-00

(Included as a standard for all Hei-VAP Industrial models)



### Vacuum valve

P/N 591-20000-00

(Included as a standard for all Hei-VAP Industrial models)



### Tubing

P/N 591-34000-00 (package 16 m)  
P/N 591-33000-01 (by meter)

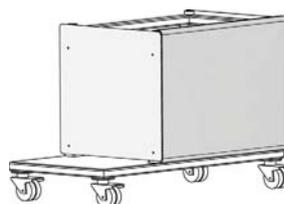
Tubing for vacuum and water connection. Available as package (16 meter piece incl. hose clamps) or in individual length (by meter)



### Vapor temperature sensor

P/N 14-014-003-06

(Included as a standard for all Hei-VAP Industrial models)



### Base Cart

P/N 591-23000-00

For all Hei-VAP Industrial models



### Heating bath liquid

P/N 569-00600-00

Heating bath liquid up to 220 °C (5 kg)

## ➤ Part Numbers – Hei-VAP Industrial

### Hei-VAP Industrial

#### Without Base Cart

##### Glassware

<b>R</b>	518-11100-00
<b>Shorty R</b>	518-18100-00
<b>RC</b>	518-12100-00
<b>Shorty RC</b>	518-19100-00
<b>A</b>	518-13100-00
<b>AC</b>	518-15100-00
<b>A1</b>	518-14102-00
<b>A1C</b>	518-16102-00
<b>A2</b>	518-14100-00
<b>A2C</b>	518-16100-00
<b>K</b>	518-18102-00
<b>KC</b>	518-19102-00



Limited budgets?  
Hei-VAP Industrial B >>>

### Hei-VAP Industrial B

As shown above (Hei-VAP Industrial) - without:

- Metal frame and safety glass guard hood covering the bath
- High-impact PMMA door covering the glassware assembly
- High-impact PMMA latching door which cover the receiving flask cassettes

#### Without Base Cart

##### Glassware

<b>R</b>	518-21100-00
<b>Shorty R</b>	518-28100-00
<b>RC</b>	518-22100-00
<b>Shorty RC</b>	518-29100-00
<b>A</b>	518-23100-00
<b>AC</b>	518-25100-00
<b>A1</b>	518-24102-00
<b>A1C</b>	518-26102-00
<b>A2</b>	518-24100-00
<b>A2C</b>	518-26100-00
<b>K</b>	518-28102-00
<b>KC</b>	518-29102-00

## ➤ Technical Specifications - Large-Scale Rotary Evaporators

Model	Hei-VAP Industrial
Rotation speed (rpm)	6 – 160
Rotation speed setting	digital
Heating bath lift	motor lift
Height adjustment speed (mm/s)	45
Height adjustment (mm)	180
Drive	EC-motor
Heating capacity (W)	4,000
Temperature range heating bath (°C)	20 – 180
Temperature accuracy (°C)	±1
Overheat cut-off protection (°C)	110 (H <sub>2</sub> O)/210 (oil)
Bath temperature setting	digital
Automatic heating bath control	micro processor
Material heating bath	V4A (1.4404)
Diameter heating bath (mm)	400
Volume heating bath (l)	24 (H <sub>2</sub> O)/22 (oil)
Level regulation of water bath	automatically due to level sensor and refill function
Display vapor temperature (required accessories)	digital temperature sensor
Indicating range vapor temperature sensor (°C)	0 - 200 (accuracy 0.1 °C)

Model	Hei-VAP Industrial
Vacuum controller	yes
Timer	yes
Vacuum control program SET <sub>pressure</sub> **	yes
Vacuum control program AUTO <sub>accurate</sub> ** requires AUTO <sub>accurate</sub> -sensor	yes
Programmable ramps	yes
Supply power (W)	4,600
Weight (without glass assembly) (kg)	approx. 120
Dimensions (l x w x h) (mm)	970 x 690 x 1,600
Protection class (DIN EN 60529)	IP 20
Permissible ambient conditions	5 – 31 °C at 80 % rel. humidity 32 – 40 °C decreasing linearly up to max. 50 % rel. humidity
Rate of evaporation (L/h) at 40 °C * temperature difference	
- Toluene	26.0
- Acetone	25.9
- Ethanol	12.9
- Water	4.7
Maximum condensing surface (m <sup>2</sup> )	1.2

\*  $\Delta T$  = difference between heating bath temperature and boiling temperature

\*\* Only in combination with vacuum systems

Standard supply voltage: 400 V three-phase current - other voltages upon request, please specify for order

# Certificate

**To confirm the ability for  
continuous operation  
of the Hei-VAP Industrial series Large-Scale Rotary Evaporators**

The Hei-VAP Industrial series Large-Scale Rotary Evaporators feature overtemperature safety circuits according to DIN EN 61010-1:2001 and DIN EN 61010-2-010:2014 and therefore is designed for continuous operation.

This statement is made under the precondition that all units are operated in accordance with the operation manual and in accordance with good practice standards for safety in laboratories, rules for accident preventions, and compliance with directions on hazardous materials.

S c h w a b a c h , J a n u a r y 2 0 1 8



Stefan Peters  
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