Intelligent
Evaporation

Leading Safety Standards | Superior Ease of Use | Reduced Cost of Ownership

Heidolph

Research made easy

Leading **Safety Standards**

- Newly designed **Easy Clip Flask** attached to evaporating flask allows for safe flask change

- **New Emergency off switch** 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 S model which comes standard with: a guard hood consisting of a metal frame and ESG rated 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

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

Intelligent 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.

Superior **Ease of Use**

- A state of the art glass covered **touch panel** allows for easy operation

- **No hassle evaporating flask change out** due to Easy Clip Flask attachment

- 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 your individualized **pre-programmed parameter settings** of vacuum and temperature gradients for your most common application on a daily basis by saving it as a ramp in memory

- Reduce your process times by using the exclusive AUTO$_{accurate}$ 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 Hei-VAP Industrial 20 Distimatic 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

- Benefit from the **LAN and USB interface** to save all process data in a digital file

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 and vacuum sensor

- AUTO$_{accurate}$-evaporations drive your solution to a variable quantity or dryness, then shut off vacuum, heating bath, rotation settings and ventilate system to give you semi-automated capabilities with **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 Hei-VAP Industrial Distimatic

- Maximize your initial investment significantly: the automatic module Hei-VAP Industrial Distimatic is an **affordable and more flexible alternative** to common 50 or 100-liter evaporators
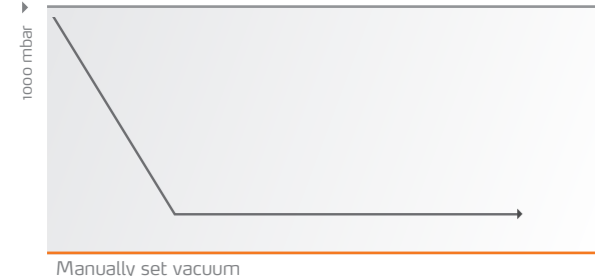
❯ Hei-VAP Industrial control panel

Menu

Timer
Vacuum (set & actual)
Speed (set & actual)
Bath temperature (set & actual)
Vapor temperature
Start/Stop all parameters

LAN und USB interface

Vacuum control mode

Height adjustment of heating bath

Separate on/off switches for all process parameters

Indicating warm-up

on/off switch

❯ Two Programs for Process Control

SET$_{pressure}$

Program for solvent separations

- This program holds a set vacuum constant and uses a hysteresis
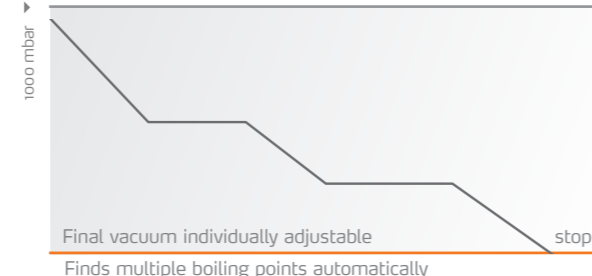
AUTO$_{accurate}$

Supports very precise automatic pressure control for solvent evaporation and separations

- It is able to identify multiple boiling points automatically by reducing vacuum by use of a vapor temperature system. T$_{(auto)}$ guides the vacuum control by adjusting valve reaction time to reflect the solvent vapor front collecting on the condenser to yield sustainable distillation. This unique program gives operator ease of use in optimizing the vacuum parameters

Program: SET$_{pressure}$
Control parameter: manually set pressure

1000 mbar

Manually set vacuum

Program: AUTO$_{accurate}$
Control parameter: vapor temperature

1000 mbar

Final vacuum individually adjustable   stop

Finds multiple boiling points automatically

Intelligent
Evaporation

MADE IN
GERMANY

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

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

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

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

The brand-new **Easy Clip Flask** attachment supports any flask change and eliminates any safety risk

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

Unique integrated evaporating flask support system allows for **"one-person operation"** to remove the flask in just moments

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

A temperature sensor **powers off the bath** in case of any uncontrolled heat-up event. In case of overpressure or glassware breakage, the unit powers off entirely

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

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

Continuous unattended evaporation without limits - the automatic module Hei-VAP Industrial Distimatic with automatic release of condensate is an affordable and more flexible alternative to common 50 or 100-liter evaporators

6

7

❯ Hei-VAP Industrial S

Highest safety and integrated vacuum control capabilities
Includes leading safety standards and features for superior ease of use and reduced cost of ownership, plus:

Excellent user safety with high-impact transparent PMMA door

Large touch screen control panel with illuminated displays for all process parameters, programmable ramps as described on page 6

Non-fogging safety glass and metal frame guard hood provides excellent user protection

The evaporation flask is illuminated during operation for increased visibility

Receiver cassettes and additional PMMA door housing protect against threat of glassware breakage

Certification according to GMP available for this model: validation for installation (IQ) and operating qualification (OQ)

Universal heating bath accommodates water or other bath fluids allowing for temperature settings up to 180 °C

Comes standard with integrated refill water system, spillover prevention and a release valve on the bottom

Optional Base Cart is fully-maneuverable with removable panels for storage of vacuum pump, glassware, solvents or accessories

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

❯ Hei-VAP Industrial

For advanced requirements and integrated vacuum control capabilities
Features identical specifications as the Hei-VAP Industrial S, but for limited budgets the following components have been removed:

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

Comes standard with integrated refill water system, spillover prevention and a release valve on the bottom

Certification according to GMP available for this model: validation for installation (IQ) and operating qualification (OQ)

Large touch screen control panel with illuminated displays for all process parameters & programmable ramps as described on page 6

Optional Base Cart is fully maneuverable with removable panels for storage of vacuum pump, glassware, solvents or accessories

Universal heating bath accommodates water or other bath fluids allowing for temperature settings up to 180 °C

Hei-VAP Industrial with glassware set RC
(without Base Cart)
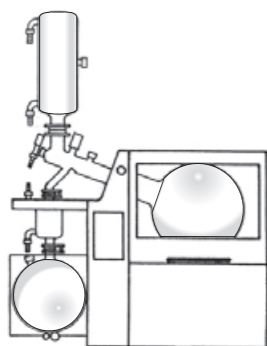P/N 518-21100-00

❯ Glassware – Hei-VAP Industrial
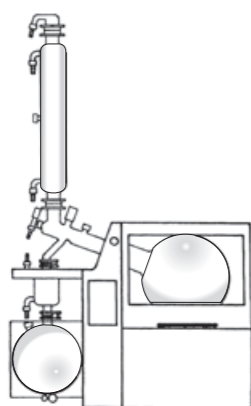
Glassware R

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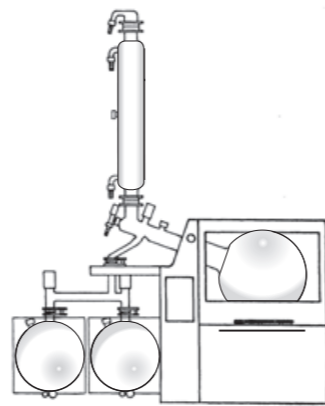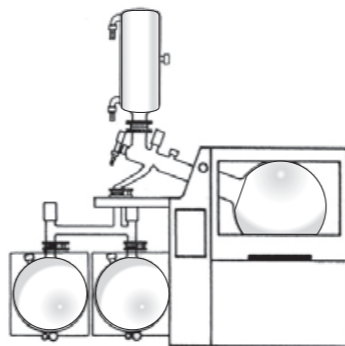
Glassware RC

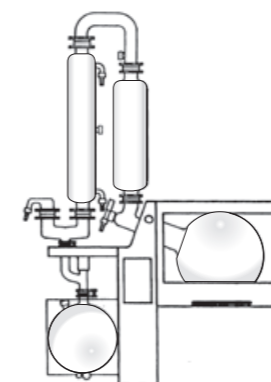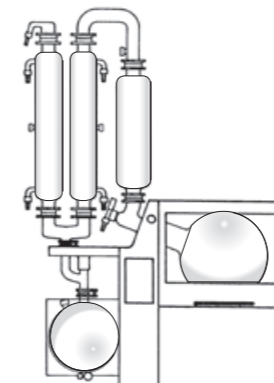- Identical to glassware assembly R, but features two receiving flasks

Glassware 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**
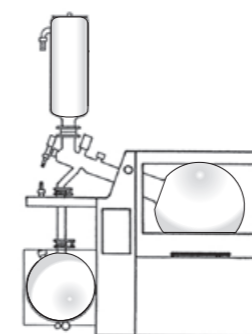
Glassware A2

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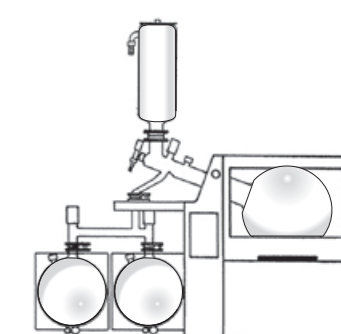
- **For low-boiling solvents and highest recovery rates**

Glassware 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 AC

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

Glassware A2C

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

Glassware KC

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

Vacuum Pump

Valve-regulated vacuum pump Rotavac Industrial

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 m³/h
- Weight: 19.9 kg
- Dimensions: W350 / D275 / H495 mm

P/N 591-07210-00

Accessories - Hei-VAP Industrial

Evaporating flasks

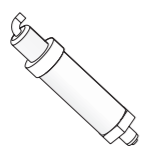Evaporating flask 6 l
P/N 15-300-003-20
Evaporating flask 10 l
P/N 15-300-003-16
Evaporating flask 20 l
(Included as a standard)
P/N 15-300-003-17

Evaporating flasks NS 14.5 incl. adaptor (NS 29 or NS 24)

Powder flasks

Powder flask 10 l
P/N 15-300-003-18
Powder flask 20 l
P/N 15-300-003-19

Receiving flask

With drain valves, 10 l
(Included as a standard for all Hei-VAP Industrial models)
P/N 15-300-004-11

Vacuum sensor

(Included as a standard for all Hei-VAP Industrial models)
P/N 591-21000-00

Vacuum valve

(Included as a standard for all Hei-VAP Industrial models)
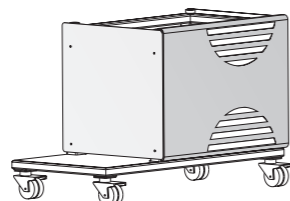P/N 591-20000-00

Tube set

6.25 meter vacuum tubing and 10 meter water tubing
P/N 591-34000-00

Vapor temperature sensor

P/N 14-014-003-06

Base Cart

For all Hei-VAP Industrial models
P/N 591-23000-00

Part Numbers – Hei-VAP Industrial

Hei-VAP Industrial S

Without Base Cart

Glassware	
R	518-11100-00
Shorty R	518-18100-00
RC	518-12100-00
Shorty RC	518-19100-00
A	518-13100-00
AC	518-15100-00
A2	518-14100-00
A2C	518-16100-00
K	518-18102-00
KC	518-19102-00

Hei-VAP Industrial

Without Base Cart

Glassware	
R	518-21100-00
Shorty R	518-28100-00
RC	518-22100-00
Shorty RC	518-29100-00
A	518-23100-00
AC	518-25100-00
A2	518-24100-00
A2C	518-26100-00
K	518-28102-00
KC	518-29102-00

Technical Specifications - Large-Scale Rotary Evaporators Hei-VAP Industrial Series

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)	200
Drive		capacitor motor
Heating capacity	(W)	4,000
Temperature range heating bath	(°C)	20 – 100 (H_2O) 20 – 180 (oil)
Temperature accuracy	(°C)	±1
Overheat cut-off protection	(°C)	110 (H_2O) / 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_2O) / 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$_{pressure}$ **		yes
Vacuum control program AUTO$_{accurate}$ ** requires AUTO$_{accurate}$-sensor		yes
Programmable ramps		yes
Supply power	(W)	4,500
Weight (without glass assembly)	(kg)	approx. 120
Dimensions (l x w x h)		970 x 1,600 x 690
Protection class	(DIN EN 60529)	IP 20
Operating conditions	(°C)	0 - 40 at 80 % rel. humidity 32 – 40 decreasing linearly up to max. 50% rel. humidity
Rate of evaporation (L/h) at 40 °C * temperature difference - Toluene - Acetone - Ethanol - Water		26.0 25.9 12.9 4.7
Maximum condensing surface	(m²)	1.2

* Δ T = difference between heating bath temperature and boiling temperature
** Only in combination with vacuum systems

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

Certificate

To confirm the ability for

continuous operation

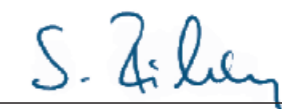**of the Hei-VAP Industrial Series Large-Scale Rotary Evaporators**

The Hei-VAP Industrial Series Large-Scale Rotary Evaporators feature overtemperature safety circuits according to DIN EN 61010-1:2001 and DIN EN 61010-2-010:2003 and therefore are 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.

Schwabach, January 2013

i. V. Jan Welzien
Technical Director

i. V. Stefan Richter
Quality Control Director