

GENSER[®]  **COM[®]**

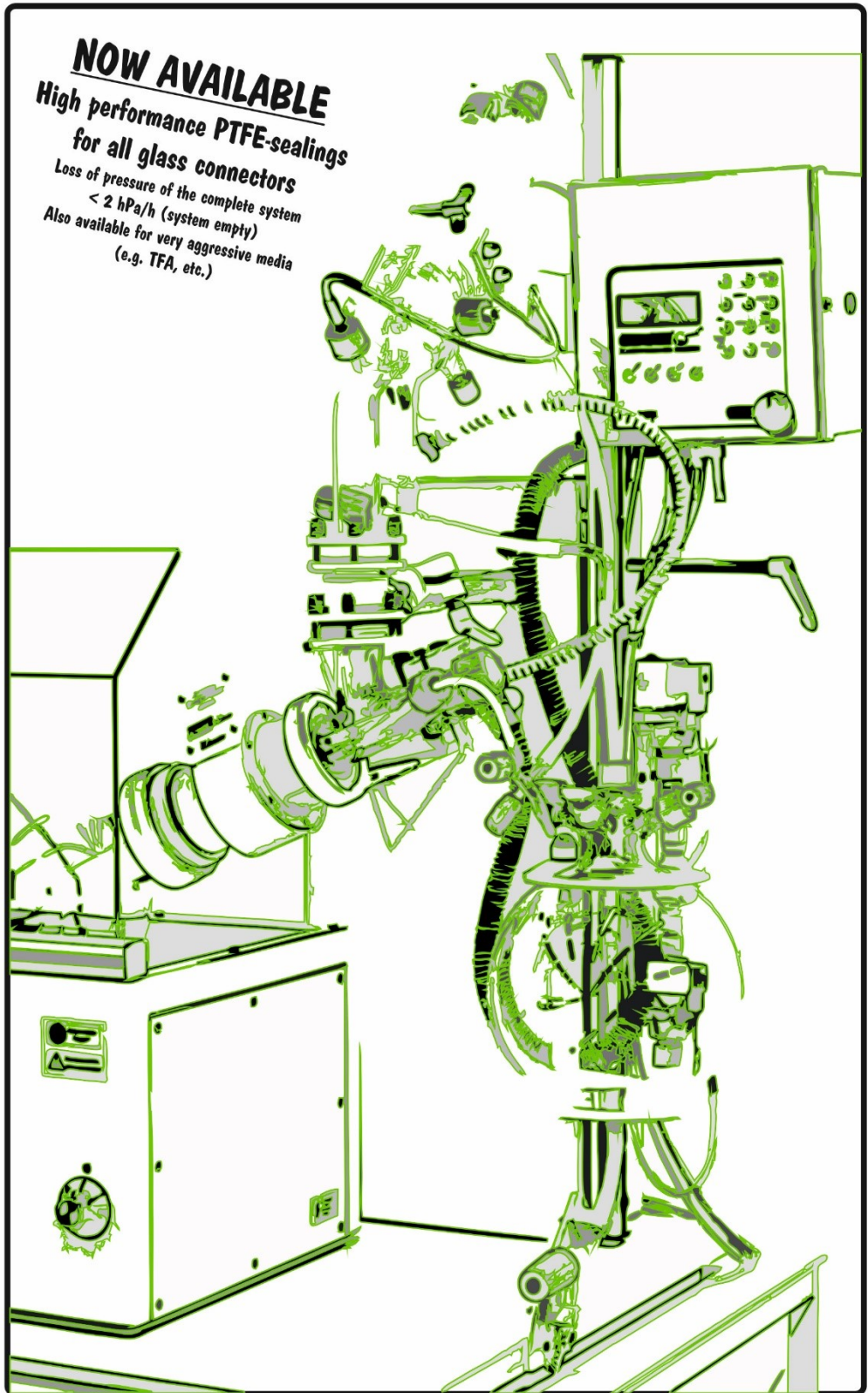
Scientific Instruments GERMANY

NOW AVAILABLE

**High performance PTFE-sealings
for all glass connectors**

*Loss of pressure of the complete system
< 2 hPa/h (system empty)*

*Also available for very aggressive media
(e.g. TFA, etc.)*



PILOTWAP[®]

High performance rotary evaporators

PILOTVAP is a patented pendulum system rotary evaporator with excellent performance and function

- ◆ The floating rotating flask reduces mechanical stresses, which results in a safe and powerful distillation process
- ◆ Patented hydraulic damping system for the rotating flask and the motor unit, to absorb mechanical pulses if e. g. powders are to be dried
- ◆ Draining of the distillate vessel without aerating the complete evaporator (distillation continues)
- ◆ Special surface treated glass flanges for best vacuum stability
- ◆ High performance sealing system
 - PTFE-GLASS process contact
 - Life expectancy approx. 20.000 (twenty thousand) running hours
 - Warranted for 3 years
 - Final vacuum 0.1 hPa (system empty)
 - Leakage rate < 5 hPa/h (system empty)
Leakage rate < 2 hPa/h (with high performance PTFE-sealings / option)
- ◆ Excellent solvent recovery thanks to the leak proof sealing system
- ◆ Vapor temperature control, to automatically switch off the heating bath
- ◆ Automatic vacuum control system
- ◆ Implosion protection hood for the rotating flask

The pendulum system makes the rotating flask float in the water bath, to achieve maximum performance and reliability

PILOTVAP applications

- ✓ Excellent for solvent recovery
- ✓ Especially designed for high boiling solvents
- ✓ Concentration of extracts
- ✓ Drying of powders
- ✓ Concentration of fractions from the preparative HPLC

PILOTVAP control unit **GUARD** with capacitive keyboard

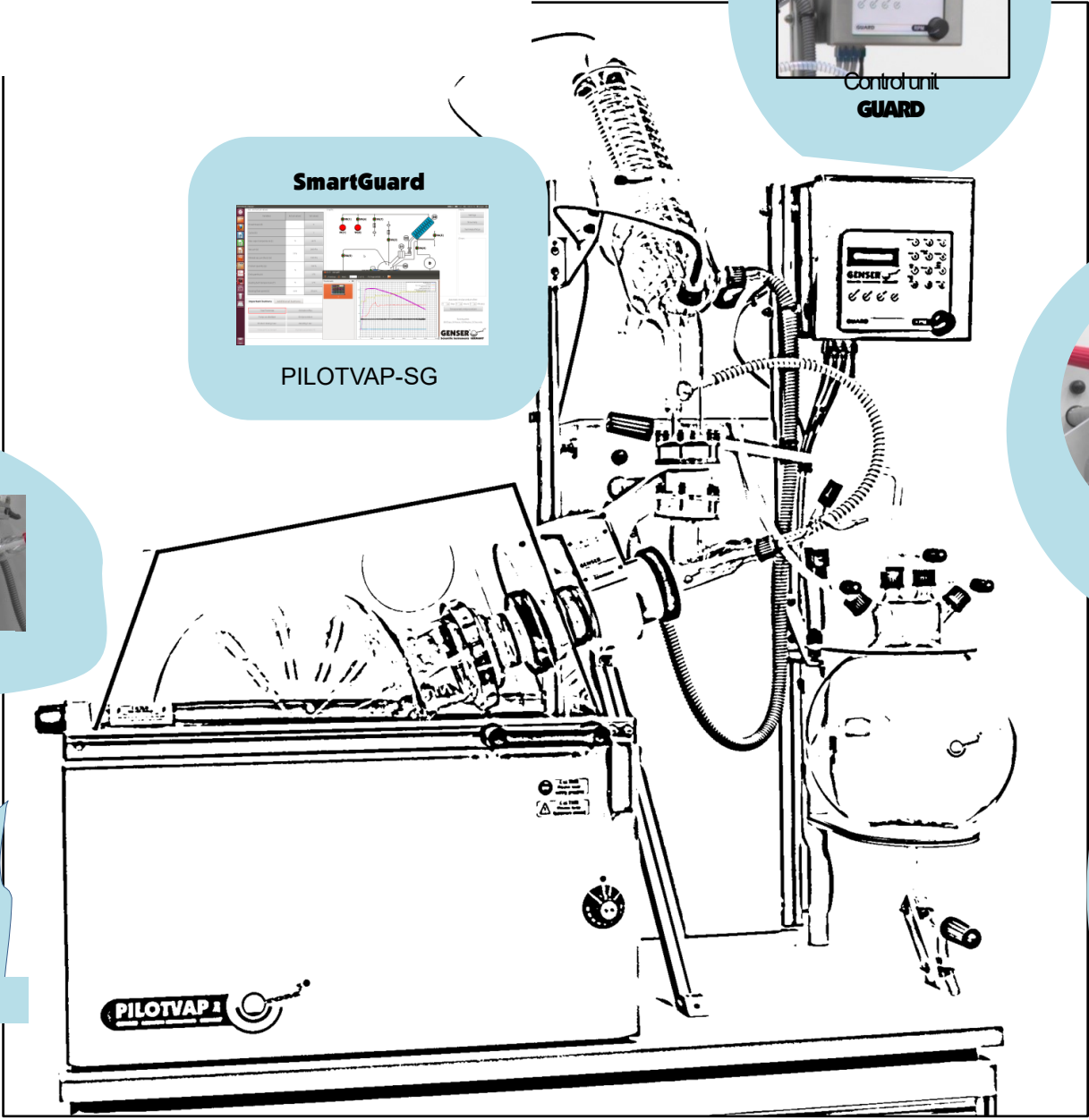
- ✓ Speed controller
- ✓ Vapor temperature controller
- ✓ Heating bath temperature controller
- ✓ Vacuum controller with automatic vacuum control
- ✓ Pulse aerating system
- ✓ RS232-port for data
- ✓ Watchdog

Options

- ✓ Automated speed control (patented)
- ✓ Automated foam control (patented)
- ✓ STACONSEAL – computer controlled main seal monitoring system (patented)
- ✓ Automated reflux



Overview of PILOTVAP features

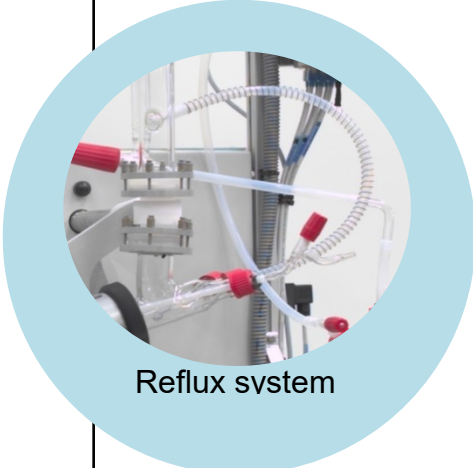


Controlunit
GUARD



SmartGuard

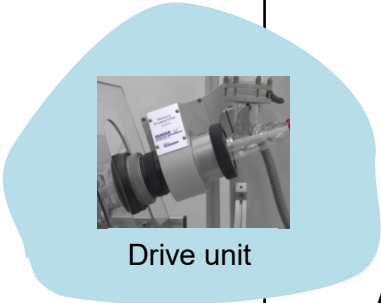
PILOTVAP-SG



Reflux system



*Distillate
vessel*



Drive unit



Implosion protection hood

SmartGuard (option)

Set- and actual values

Variables	Actual values	Set values
Dosed steps (d)		0
Cycles (b)		1
Max. vapor temperature (t)	°C	60 °C
Vacuum (v)	hPa	200 hPa
Minimal vacuum (Auto) (x)		199 hPa
Product quantity (p)		100 %
End quantity (e)	%	0 %
Heating bath temperature (T)	°C	0 °C
Rotating flask speed (r)	rpm	25 rpm

Graphic

Important buttons

- Stop Powervap
- Pump out distillate
- Product dosing 5 sec.
- Manual VC activated
- Activate reflux
- End procedure
- Aerating 1 sec.
- Activate automatic VC

Console

```
2013-11-19, 09:37:53 Main operating window is open now.
2013-11-19, 09:37:55 Powervap has been started.
```

Automatic end procedure after:
0 Days 0 Hours 0 Minutes
Set automatic end procedure

Running time:
000 Days, 00 Hours, 02 Minutes, 13 Seconds

GENSER®
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SmartGuard

... is the name of our new easy peasy user interface for **PILOTVAP®** rotary evaporators. It supports multiple languages and offers a lot of new features as listed below.

FastControl

SmartGuard offers a brand new touchscreen or mouse based interface. It was developed to make the input system handling easier - moreover it is faster and safer. The chance to enter a wrong value by mistake is less probable compared to other rotary evaporators.

SafeLog

SmartGuard saves actual and set values, messages, errors and commands in logfiles. Furthermore you are able to plot different values like vacuum, heating bath temperature and others in diagrams. This simplifies troubleshooting, but also improves your process. The files can be transmitted via highspeed USB 3.0 port.

Document Viewer

Variables	Actual values	Set values
Dosed steps (d)		0
Cycles (b)		1
Max. vapor temperature (t)	°C	60 °C
Vacuum (v)	hPa	200 hPa
Minimal vacuum (Auto) (x)		199 hPa
Product quantity (p)	%	100 %
End quantity (e)		0 %
Heating bath temperature (T)	°C	0 °C
Rotating flask speed (r)	rpm	25 rpm

Graphic

Menu

- Settings
- Show help
- Terminate PVGui

Errors

Automatic end procedure after:

0 Days 0 Hours 0 Minutes

Set automatic end procedure

Running time:

000 Days, 00 Hours, 03 Minutes, 30 Seconds.

out.pdf

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Thumbnails

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SmartProg – Don't reinvent the wheel every day!

PILOTVAP® combined with the new **SmartGuard** interface, creates the first user programmable rotary evaporator in the world! You simply can transmit self-written or prefactored control sequences to the rotary evaporator. This leads to a totally new and efficient way of working. While other rotary evaporators need at least one specialist, who controls the whole process round the clock, **SmartGuard** lets you automate processes easily by using short program scripts.

Predefined programs:

- Powder drying
- Drying
- Fractionating
- Removal of solvent traces

Linux based

... systems, like the **SmartGuard** controller, are resistant against computer viruses. Furthermore you benefit from the high stability of the operating system. For example, after a power loss exception that can lead to boot inability of other operating systems, **Linux** is still bootable (in general).

SmartGuard hardware overview

- Highspeed solid state drive (SSD) for fast system boots and program starts.
- Highspeed USB 3.0 ports for fast data transmissions.
- HD capable graphic card and screen for maximum graphic enjoyment.
- Please note: hardware components listed above may be replaced,
if faster/better ones are available.

PILOTVAP – robust, flexible, easy to maintain

PILOTVAP-6 with GUARD



PILOTVAP-20/50 with GUARD



Datasheet of **PILOTVAP-6/10/20/50/100**

Body		
1	High performance, low delta-p condenser	PILOTVAP-6: 0.3 m ² PILOTVAP-10: 0.6 m ² PILOTVAP-20: 0.6 m ² PILOTVAP-50: 1.2 m ² (option: 2.5 m ²) PILOTVAP-100: 1.2 m ² (option: 2.5 m ²)
2	Cooling water consumption	100 l/h up to 1500 l/h
3	Distillate flask capacity	PILOTVAP-6: 5 l PILOTVAP-10: 10 l PILOTVAP-20: 10 l (option 2x 10 l) PILOTVAP-50: 20 l (option 2x 20 l) PILOTVAP-100: 2x 20 l
4	MOC of all glass parts	Borosilicate glass type 3.3 (ISO 3585)
5	MOC of bellows and piping	PTFE
6	Aerating valve (distillate flask)	Yes
7	Vacuum valve (distillate flask)	Yes
8	Outlet valve (distillate flask)	Yes
9	Rotating flask capacity	PILOTVAP-6: 6 l PILOTVAP-10: 10 l PILOTVAP-20: 20 l PILOTVAP-50: 50 l PILOTVAP-100: 100 l
10	Flask connection at drive unit	Combined two-way connection (mounting and press off)
11	Rotating flask neck (centric version)	PILOTVAP-6: Cone joint TS55 PILOTVAP-10/20/50: Plane joint 100mm dia. PILOTVAP-100: Plane joint 150mm dia.
12	Special surface treated glass flanges	Yes
13	Reflux system	Yes
14	Patented pendulum system	Yes (www.rotationsverdampfer.com/images/pv250move003.gif)
15	Patented hydraulic damping system	Yes
16	Plastic safety coating (glass)	Option

17	Potential equalization	Yes
18	Anti-static wheels (lockable)	Yes
19	Dimensions* LxDxH in cm	PILOTVAP-6: 95x70x120 (including trolley: 95x70x195) PILOTVAP-10/20: 135x80x155 (including trolley: 135x80x215) PILOTVAP-50: 150x90x165 (including trolley: 150x90x225) PILOTVAP-100: 150x100x170 (including trolley: 150x100x230)

* Dimensions are subject to change without notice, please ask for actual dimensions

Heating bath

1	Operating voltage (bath)	400V/3-phase (other voltages upon request)
2	Heating element	PILOTVAP-6: 3 kW PILOTVAP-10/20: 6 kW PILOTVAP-50/100: 12 kW
3	MOC of heating bath	1.4571 (316 Ti) stainless steel
4	Automatic refilling of heating bath (tap water or tank version available)	Option
5	Water overflow	Yes
6	Heating bath	Insulated
7	Heating bath temperature range	Water bath 20-100 °C / Oil bath 20-180°C
8	Overtemperature limiter (heating element)	Yes
9	Adjustable overtemperature thermostat	Yes
10	Electronic temperature thermostat	Yes
11	Protection shield / cover	Yes

Motor unit

1	Rotation speed	PILOTVAP-6/10/20: approx. 5 – 120 rpm PILOTVAP-50/100: approx. 5 – 60 rpm
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Sealing system

1	Life expectancy (sealing system)	Approx. 20.000 (twenty thousand) running hours
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2	MOC of the sealing system	PTFE/glass compound
3	Warranty (sealing system)	3 years

Warranty

1	Warranty (system)	3 years (without glass)
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Performance

1	Max. Vacuum performance (system empty)	0.1 hPa
2	Loss of pressure (system empty)	< 5 hPa/h < 2 hPa/h with high performance PTFE-sealings
3	Distillation rate of water (heating bath temperature 60°C) approx.:	PILOTVAP-6: 2 l PILOTVAP-10: 3 l/h PILOTVAP-20: 4.5 l/h PILOTVAP-50: 6.5 l/h PILOTVAP-100: 8.5 l/h

Recommended vacuum pump

1	Suction capacity	1.0-3.5 m ³ /h
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Control unit **GUARD**

1	Vacuum (setting/display)	Yes (accuracy ± 0.3 % f. s.)
2	Vapor temperature (setting/display)	Yes (accuracy ± 1 K)
3	Bath temperature (setting/display)	Yes (accuracy ± 1 K)
4	Vacuum valve	Yes (long life pneumatic valve)
5	Aerating valve	Yes (long life pneumatic valve)
6	Vacuum sensor (direct measurement)	Yes
7	Automatic vacuum control mode	Yes
8	Pulse-aerating mode	Yes
9	Aerating in case of an emergency	Yes (power failure, overpressure, reset, watchdog)
10	Invert mode	Yes (to easily find a new set value for the vacuum)
11	RS-232 interface	Yes

12	Non-volatile memory	Yes
13	Detection of overpressure (alarm)	Yes
14	Process control (safety watchdog)	Yes
15	Vapor temperature alarm (acoustic)	Yes
16	Heating interrupt by vapor temperature control	Yes
17	External analog signals intrinsically safe (for supervision or safety devices)	Option
18	External supervision devices	Cooling water (option), safety switches (option), etc.
19	Control unit mobile	Yes
20	Operating voltage (control unit)	230V 50/60 Hz (other voltages upon request)
21	Dimensions LxDxH in cm	24x20x24