POWERVAP®-EX

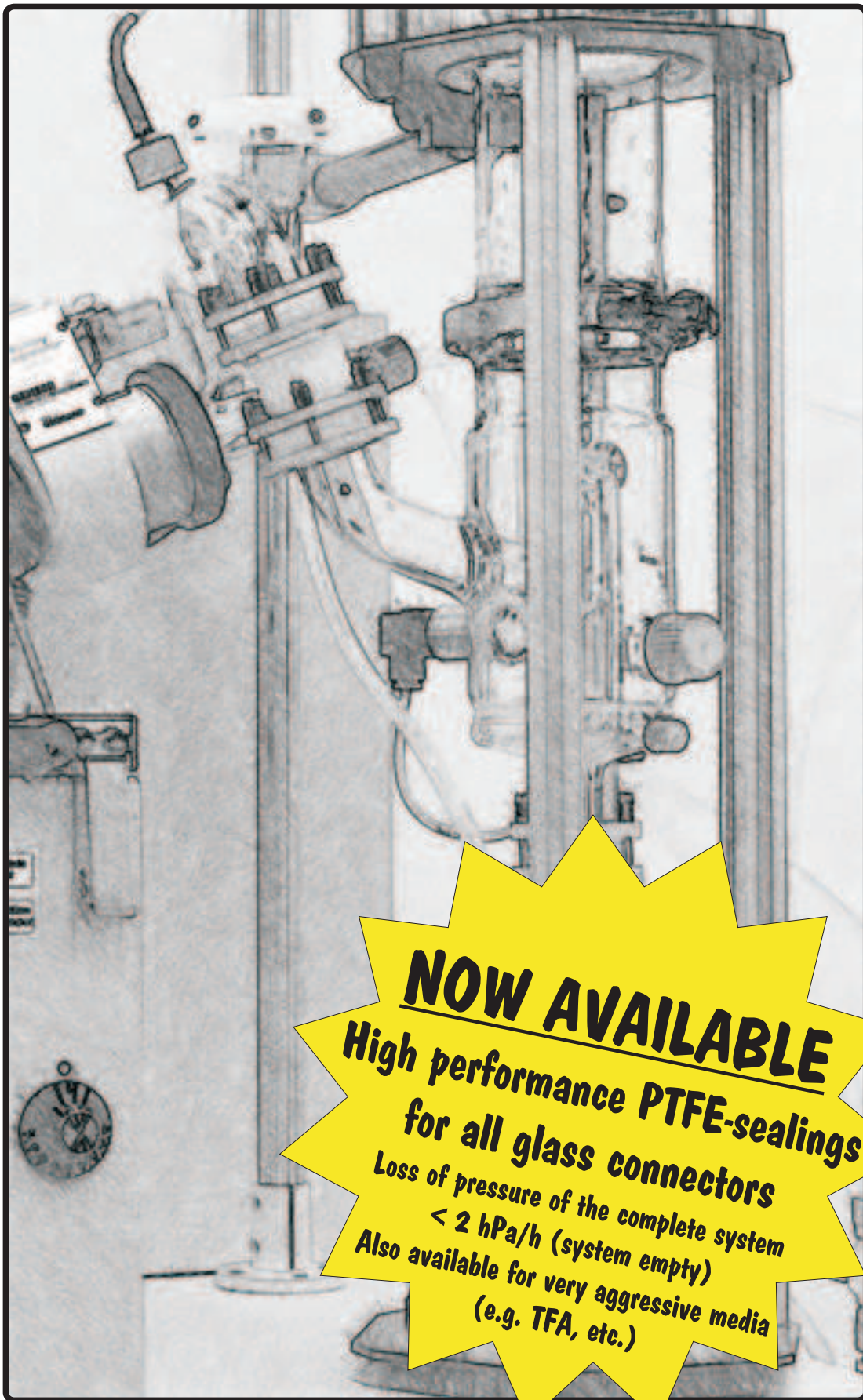## GENSER® ♂tom®
Scientific Instruments GERMANY

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.)

Fully automated rotary evaporators

GENSER®

Scientific Instruments GERMANY

POWERVAP® is a fully automated rotary evaporator with excellent performance and function (EX-version ATEX)

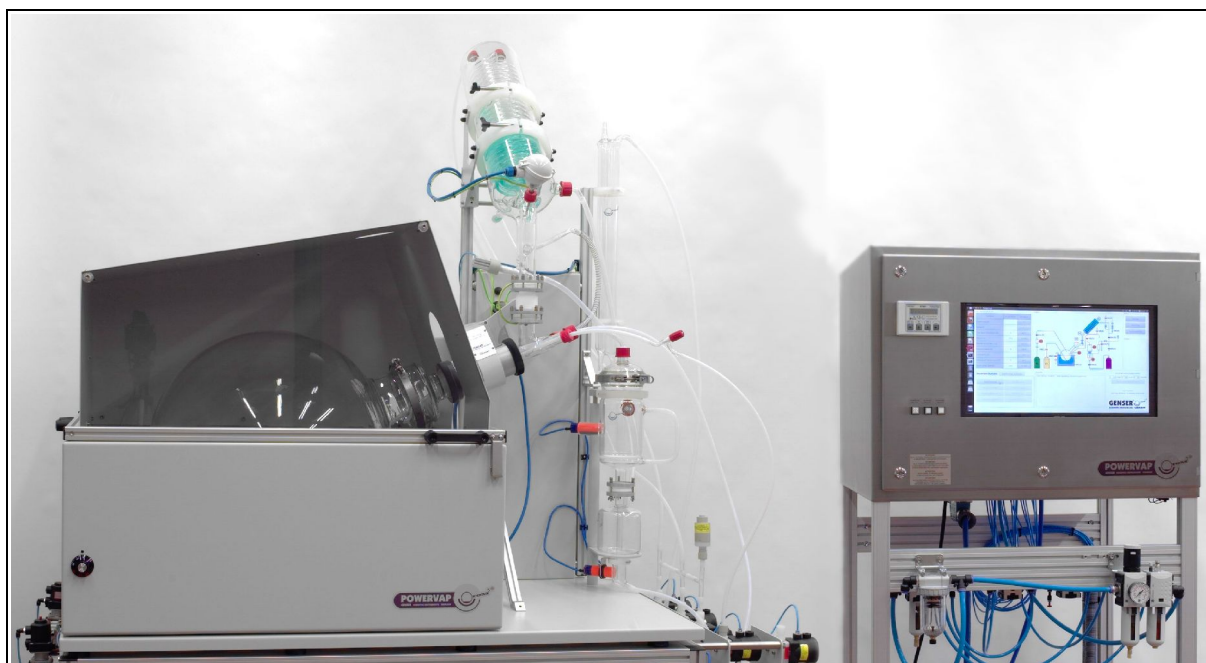**The following outstanding features of the POWERVAP®
will save you time and money:**

▶ Filling and draining of the rotating flask automatically

▶ Draining of the distillate receiver automatically (patented)

▶ Produces a pre-determined product concentration

▶ Close control of the distillation process. Temperature, vacuum and other process variables are closely controlled allowing processing of foaming products

▶ Computer controlled reflux

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

▶ 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

▶ Special surface treated glass flanges for best vacuum stability

▶ High performance sealing system

- PTFE-GLASS process contact
- Final vacuum 0.1 hPa (system empty)
- Leakage rate < 5 hPa/h (system empty, vacuum valve closed)
- Life expectancy approx. 20.000 (twenty thousand) running hours
- Warranted for 3 years

▶ Excellent solvent recovery thanks to the leak proof sealing system

▶ Vapor temperature control, to automatically switch off the water bath

GENSER®

Scientific Instruments GERMANY

POWERVAP® offers 5 times the performance of a standard rotary evaporator employing the same rotating flask size

POWERVAP® applications:

- Excellent for solvent recovery

- Especially designed for high boiling solvents

- Concentration of extracts

- Distillation of large quantities of solvents

- Concentration of fractions from the preparative HPLC

You want more?
Explore the POWERVAP® interface PVGui

POWERVAP®-100-EX (diagonal condenser, **PVGui** interface)

The **PVGui** interface helps you to configure and control the **POWERVAP**® easily. Do the settings and start the evaporator with the provided mouse.

At each step of the process you can see clearly arranged the actual value for temperature and pressure as well as the status of each sensor and valve.

The focus, while designing the **PVGui**, was to create a nearly bullet proof and easy to handle user interface. This is why it is based on a LINUX operating system.

POWERVAP® guarantees an unattended, safe and continous (24/7) operation

PVGui (original screenshot)

A bunch of **POWERVAP**®**-20** (standard text terminal, non ATEX)

Datasheet of POWERVAP®-6/10/20/50/100-EX

System

1	High performance, low delta-p condenser	**POWERVAP**®**-6**: 0.3 m² **POWERVAP**®**-10**: 0.6 m² **POWERVAP**®**-20**: 0.6 m² **POWERVAP**®**-50/100**: 1.2 m²
2	Cooling water consumption	100 l/h up to 1500 l/h
3	Rotating flask capacity	**POWERVAP**®**-6**: 6 l **POWERVAP**®**-10**: 10 l **POWERVAP**®**-20**: 20 l **POWERVAP**®**-50**: 50 l **POWERVAP**®**-100**: 100 l
4	Rotating flask neck (centric version)	**POWERVAP**®**-6**: Cone joint TS55 **POWERVAP**®**-10/20/50**: Plane joint 100mm dia. **POWERVAP**®**-100**: Plane joint 150mm dia.
5	Flask connection at drive unit	Combined two-way connection (mounting and press off)
6	Distillate emptying system (patented)	Yes
7	Concentrate emptying system	Yes
8	Product filter	Yes

9	Reflux system	Yes
10	Special surface treated glass flanges	Yes
11	MOC of all glass parts	Borosilicate glass type 3.3 (ISO 3585)
12	MOC of bellows and piping	PTFE
13	Patented hydraulic dampening system for the rotating flask and the motor unit	Yes
14	Patented pendulum system	Yes (www.rotationsverdampfer.com/en_features.htm)
15	Plastic safety coating (glass)	Option
16	Potential equalization	Yes
17	Anti-static wheels (lockable)	Yes
18	Dimensions (diagonal condenser) LxDxH in cm (trolley included) (Dim. for vertical condenser on request)	**POWERVAP®-6**: 90 x 68 x 185 **POWERVAP®-10/20**: 130 x 80 x 200 **POWERVAP®-50**: 150 x 85 x 215 **POWERVAP®-100**: 170 x 100 x 220

Bath

1	Operating voltage (bath)	400V/3-phase (other voltages upon request)
2	Heating element	**POWERVAP®-6**: 3 kW **POWERVAP®-10/20**: 6 kW **POWERVAP®-50/100**: 12 kW
3	MOC of heating bath	1.4571 (316 Ti) stainless steel
4	Water overflow	Yes
5	Heating bath	Insulated
6	Heating bath temp range	20 - 100 °C
7	Overtemperature limiter (heating element)	Yes
8	Adjustable overtemperature thermostat	Yes
9	Electronic temperature thermostat	Yes
10	Automated water level control	Yes
11	Protection shield / cover	Yes
12	Marking	Heater: Ex II 2G EEx de IIC T4 Controller: Ex II 2G Ex demb ia IIC T4

Motor unit

1	Rotation speed	**POWERVAP®-6/10/20**: approx. 5 – 115 rpm **POWERVAP®-50/100**: approx. 8 – 60 rpm
2	Marking	EEx II 2G c IIC TX

Sealing system

1	Final vacuum (system empty)	0.1 hPa
2	Leakage rate (system empty, valves closed)	< 5 hPa/h
3	Life expectancy (sealing system)	Approx. 20.000 (twenty thousand) running hours
4	MOC of the sealing system	PTFE/glass compound
5	Warranty (sealing system)	3 years

Warranty

1	Warranty (system)	3 years (without glass)

Performance

1	Distillation rate of water (water bath temperature 60°C) approx.:	**POWERVAP®-6**: 2 l **POWERVAP®-10**: 3 l/h **POWERVAP®-20**: 4.5 l/h **POWERVAP®-50**: 6.5 l/h **POWERVAP®-100**: 8.5 l/h

Recommended vacuum pump

1	Suction capacity	1.0-3.5 m³/h

General remarks

1	Vacuum (setting/display)	Yes (accuracy ± 0.3% f. s.)
2	Vapor temperature (setting/display)	Yes (accuracy ± 1K)
3	Bath temperature (setting/display)	Yes (accuracy ± 1K)
4	Dosed steps (setting/display)	Yes
5	Cycles (setting/display)	Yes

6	Product quantity (setting/display)	Yes
7	End quantity (setting/display)	Yes
8	Drive speed control (setting/display)	Yes
9	Process time (display)	Yes
10	Vacuum valve	Yes (long life pneumatic valve)
11	Aerating valve	Yes (long life pneumatic valve)
12	Compressed air (nitrogen) valve	Yes (long life pneumatic valve)
13	Product valve	Yes (long life pneumatic valve)
14	Distillate valve	Yes (long life pneumatic valve)
15	Concentrate valve	Yes (long life pneumatic valve)
16	Water inlet valve (water bath)	Yes
17	Distillate level sensor (2x)	Yes
18	Product sensor	Yes
19	Water bath level sensor	Yes
20	Inclination measuring device	Yes
21	Vacuum sensor	Yes
22	Automatic vacuum control mode	Yes
23	Pulse-aerating mode	Yes
24	USB interface / RS232 internal	Yes
25	Detection of overpressure	Yes
26	Process control (safety watchdog)	Yes
27	Vapor temperature alarm (acoustic)	Yes
28	Heating interrupt by Vapour temperature alarm	Yes
29	Automatic speed control system (patented)	Option
30	Pulse dosing system (patented)	Option
31	Computer controlled sealing system **STACONSEAL** (patented)	Option
32	Control unit mobile	Yes

33	Operating Voltage (control unit)	230V 50/60 Hz (other voltages upon request)

Computer System with PVGui (EX-p-Box)

1	Vacuum (setting/display)	Yes (accuracy ± 0.3 % f. s.)
2	Vapor temperature (setting/display)	Yes (accuracy ± 1K)
3	Bath temperature (setting/display)	Yes (accuracy ± 1K)
5	Vacuum valve	Yes (long life pneumatic valve)
6	Aerating valve	Yes (long life pneumatic valve)
7	Graphic user interface PVGui	Yes
8	Automatic vacuum control mode	Yes
9	Automatic filling and emptying	Yes
10	Aerating in case of an emergency	Yes (power failure, overpressure, reset, watchdog)
11	Counter for dosed steps and cycles	Yes
12	Serial interface USB	Yes
13	Non-volatile memory	Yes
14	Detection of overpressure (alarm)	Yes
15	Process control (safety watchdog)	Yes
16	Vapor temperature alarm	Yes
17	Heating interrupt by vapor temperature control	Yes
18	External analog signals intrinsically safe (for supervision or safety devices)	Yes
19	External supervisory devices	Cooling water (option), compressed air (option) safety switches (option) ...
20	Control unit mobile	Yes

21	Operating voltage (control unit)	230V 50/60 Hz (other voltages upon request)
22	Dimensions LxDxH in cm (trolley included)	80 x 80 x 170
23	Marking	II 2 G EEx p T4