



HAFFMANS GENERAL PRODUCT INFORMATION



O₂, CO₂, AND AIR

O₂ Gehaltemeter, type o-DGM

Determines the dissolved O₂ (DO) content.

CO₂/O₂ Gehaltemeter, type c-DGM

Measures the dissolved CO₂ and DO content.

CO₂ Gehaltemeter

Determines the dissolved CO₂ content and comes in different executions to meet the requirements of your application:

- Intelligent CO₂ Gehaltemeter, type i-DGM
- Analog CO₂ Gehaltemeter, type GMT

Inpack TPO Meter, type TPO

Automatically determines the total O₂ content by measuring the DO and the headspace O₂ content of the packaged product in a single measurement.

Inpack TPO/CO₂ Meter, type c-TPO

Determines the DO, headspace O₂ and total O₂ content of the packaged product. In addition, the c-TPO measures CO₂.

Automator

Automatically measures all relevant quality parameters directly in the filled package in a single measurement cycle. In addition to the basic parameters O₂ and CO₂, the system can be extended for further analysis to meet customer requirements.

Inpack 2000 CO₂ Device

Manually determines the dissolved CO₂ content in carbonated beverages filled in bottles or cans and comes in different executions:

- Inpack 2000 CO₂ Calculator, type ICC
- Inpack 2000 CO₂ Meter Digital, type ICD

Inpack 2000 Air Meter, type IAM

Determines the air content in the headspace and the total air content of the package.

CO₂-Selector

For non-invasive CO₂ measurement in the filled package. Measures the headspace CO₂ content and internal pressure, and accurately determines the dissolved CO₂ content in the package. Piercing is not required to perform the measurement.

FOAM MEASUREMENT

Nibem Foam Stability Tester

Measures the foam collapsing time and is available in two executions:

- Type Nibem-TPH
- Type Nibem-T

Inpack 2000 Sampling Device, type ISD

For sampling from bottles or cans. In combination with a DO device, the DO content can be measured.

Sample Bottle Filler, type SBF

For sampling beverages from tanks, pipes or kegs without air intake.

Inpack 2000 Flasher Head, type IFH

A flashing device for the creation of reproducible foam for the Nibem foam quality analysis, to be used in combination with the ISD or SBF.

TURBIDITY MEASUREMENT

Turbidity Meter

Measures the turbidity of beer and beverages according to the MEBAK standard. Two executions are available:

- Type Vos Rota 90/25
- Type Vos Rota 90



o-DGM



CO₂-Selector



Automator



Nibem-TPH



MONITORING OF PROCESSES

PASTEURIZATION

Redpost PU Monitor

Monitors the pasteurization process of beer and beverages as it travels through the pasteurizer tunnel. PU's are automatically calculated and displayed. Available in three executions:

- Type RPU-353
- Type RPU-352
- Type RPU-351

Redpost Charger/Interface

Charges PU Monitor and enables data transfer from the Monitor to a PC or printer and comes in two executions:

- Type RPC-80, compatible with all Redpost PU Monitors
- Type RPC-50, compatible with PU Monitors type RPU-120+, RPU-351/352/353.

BOTTLE & KEG WASHING

Bottle Monitor, type BTM

Evaluates the washing process in each compartment of the bottle washer, based on the time, temperature and conductivity of the cleaning medium.

Keg Monitor, type KEG

Evaluates the washing process of the keg washer, based on temperatures and pressure of the keg and cleaning medium.

TOTAL LAB SOLUTION (TLS)

Complete, customized laboratories for quality analysis throughout the entire production process. Depending on the requirements, a Total Lab covers everything from concept to commissioning to after sales service.

IN-LINE EQUIPMENT

O₂ & CO₂ MEASUREMENT

In-line quality assurance and product monitoring is critical during the production process.

In-line CO₂ Meter AuCoMet-i

Determines the dissolved CO₂ content based on Henry's Law. Can easily be extended with an O₂ sensor, due to its modular design.

In-line O₂ Gehaltmeter, type OGM

Determines the DO content based on optical O₂ measurement.

In-line O₂ Gehaltmeter, type OGM gas application

Determines the O₂ content of CO₂ gas from the fermentation, compressed gases and/or ultra pure gases, which makes it especially suitable for use in CO₂ recovery plants.

TURBIDITY MEASUREMENT

In-line Turbidity Meter, type OptHaze-i

Determines the turbidity of beer and beverages according to the MEBAK standard.

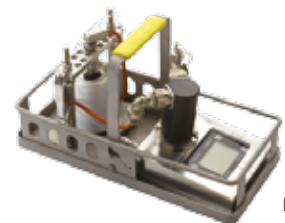
ALCOHOL, EXTRACT & PLATO

In-line Alcohol/Extract Meter, type RefraSonic-i

Based on the measurement of the refractive index, the sound velocity and the temperature of the product, the RefraSonic-i mathematically calculates the original gravity/extract, alcohol concentration, and real extract content (Brix/Plato).

Plato Monitor, type PLM

For rapid and reliable measurement ($\pm 0.03^\circ$ Plato) of the original gravity in beer and wort, either during filtration or in the filling process, using ultrasound technology. Also suitable for measuring Brix in soft drinks.



RPU-353



KEG



OGM



RefraSonic-i



FILTRATION

CPM® Ecofilters

Feature the most advanced design of filters for beverage, food, and other process applications on the market today. Available as:

- Sterile Filter, type PSF
- Steam Filter, type PDF
- Liquid Filter, type PFF
- Pre-Filter, type PVF
- Venting Filter, type BA
- Coalescence Filter, type PSMF
- Activated Carbon Filter, type PAK

CPM® Filter Tester, type MK-2

Provides easy and fast testing of CPM sterile filter elements and most conventional sterile filter cartridges.

CPM® Gazijector

A unique aeration and gas dosing device that combines the functions of sterile gas filtration, a check valve and air atomizer in one unit. Typically used for wort aeration, yeast propagation and carbonation.

CPM® Aseptic Yeast Management, type VSS

An advanced solution for CO₂ degassing, yeast aeration and particle-free screening of fermenting yeast.



Sterile Filter, type PSF



Gazijector

VARIOUS

Dew Point Tester, type DPT

Measures the condensation temperature of humidity present in CO₂ or other gases.

Gauge Calibration Device, type GCD

Precisely calibrates pressure gauges and digital pressure sensors.

CO₂ Purity Tester, type CPT

Measures the purity of the CO₂ gas and is available in the measuring ranges 50 - 100 % v/v and 99 - 100 % v/v.

Schwarz Differential Agar, type SDA

A microbiological media for brewery labs to identify and enumerate most brewing bacteria simultaneously.

Manucol Ester B, type MEB

A food-grade propylene glycol alginate, providing improvement of foam stability.

UNITS

Carbo-Controller, type CCR

A fully automated plug & play unit with standard CO₂ dosing unit, static mixers and CO₂ or even combined CO₂/O₂ measuring device allows for accurate CO₂ injection, 'bubble free' CO₂ dissolving and total process control.

Carbo-Blender, type CBR

Optimization of beer production in quantity and quality through controlled CO₂ dosing with CO₂, CO₂/O₂ or O₂ measurement, involving the dilution of high gravity beer with deaerated water.

Membrane Deaeration System, type MDS

A compact skid-mounted system utilizing membrane technology for the deaeration of process water with modular set-up.
O₂ < 0.01 ppm

SERVICE

Professional After-Sales Service

A worldwide network of service technicians and engineers ensures maximum performance of your quality control devices and CO₂ systems. After professional maintenance and fine-tuning of your quality control device and/or CO₂ system, energy, CO₂ and beer losses are eliminated. High-quality spare parts ensure the best performance throughout the system's lifetime.

Technical Support

A team of well-trained product specialists answers your questions regarding your quality control equipment and CO₂ systems. When needed, support is provided by our worldwide service network or long distance by phone, Skype, e-mail or remote service.

Training & Commissioning

Pentair Haffmans' skilled and experienced Service Team trains operators, technical personnel, and managers to meet their specific needs. Training can also be done during a service visit.

Energy Scan

Improving performance and processes while meeting environmental requirements is more important today than ever. Pentair Haffmans' energy scan enables you to reach these targets. It gives a complete overview of your CO₂ system performance and will be translated into a custom-made maintenance plan with recommendations in regard to required improvements. This ensures maximum plant efficiency and performance against the lowest energy consumption.



Biogas upgrading system with CO₂ tank

CO₂ RECOVERY

CO₂ Recovery Plants

Custom-made, to recover CO₂ from fermentation, both at inlet and outlet levels:

- Conventional
Inlet purity: > 99.7% v/v
Outlet purity: > 99.97% v/v
- Early recovery
Inlet purity: > 95.0% v/v
Outlet purity: > 99.998% v/v (O₂ < 5 ppm)

Upgrade for CO₂ Recovery Plants

The CO₂ 4U is a skid-mounted system for upgrading the quality of CO₂ of existing CO₂ Recovery Plants.

- Unique in design, operation, performance, and efficiency
- Universally applicable for each type of CO₂ plant
- Upgrade, improving the CO₂ quality up to 99.998%
- Unit, compact, easy to install and commission plug & play unit

Heat Recovery Systems

The CO₂ Recovery process requires energy to condense the recovered CO₂ from fermentation. In the CO₂ vaporization process, prior to CO₂ consumption, energy is required to vaporize the CO₂.

- LiquiVap
Combines both energy intensive processes (liquefaction and vaporization) into one efficient process. Total energy consumption can be reduced by up to 60 percent.
- HRS
Enables breweries to recover energy by evaporating CO₂ with hot return glycol, NH₃, ice- or cooling water.

Accessories for CO₂ Recovery Plants

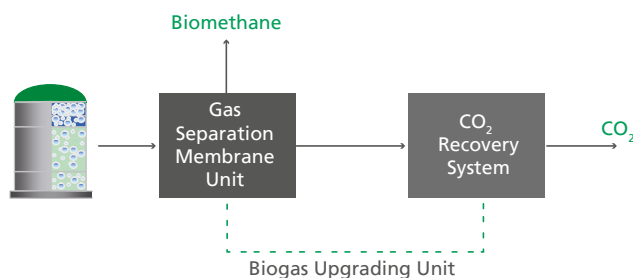
- Foam Separator
- Gas and Aerosol Washer
- CO₂ Compressor
- Activated Carbon Filter/Drier
- Purge Controller
- CO₂ Storage Tank and accessories
- Cylinder Filling Unit
- Road Tanker Pump Unit
- CO₂ Evaporator
- Back Pressure/Reducing Station

ETHANOL RECOVERY

The highly efficient ethanol scrubber washes the fermentation gas with water and reduces the amount of ethanol being expelled to the atmosphere to a minimum, resulting in an ethanol recovery rate of up to 100%.

BIOGAS UPGRADING

Our state-of-the-art biogas upgrading technology makes it possible to recover 100% of the methane, thus eliminating the environmentally harmful 'methane slip'. In addition, the CO₂ by-product is recovered and can be sold as a useful product.



ABOUT US

Pentair Haffmans develops and supplies quality control equipment, microfilters and CO₂ systems for the brewing, soft drink, wine, bioethanol, and biogas industries.

Pentair Haffmans is a multinational company, with a strong focus on innovation and customer satisfaction, and a presence in more than 150 countries worldwide. All of our technologies are designed with the same principles in mind: protect the environment and reduce operating expenses at the same time.

When it comes to customer satisfaction Pentair Haffmans continuously strives to realize a 'best of the best' standard, not just meeting but anticipating and exceeding customers' requirements. We offer unparalleled customer service and technical support for all our products through custom-made service plans that range from maintenance contracts to comprehensive service level agreements.



HAFFMANS BV

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