



# HAFFMANS GENERAL PRODUCT INFORMATION



## O<sub>2</sub>, CO<sub>2</sub>, AND AIR

### O<sub>2</sub> Gehaltemeter, type o-DGM

Determines the dissolved O<sub>2</sub> (DO) content.

### CO<sub>2</sub>/O<sub>2</sub> Gehaltemeter, type c-DGM

Measures the dissolved CO<sub>2</sub> and DO content.

### CO<sub>2</sub> Gehaltemeter

Determines the dissolved CO<sub>2</sub> content and comes in different executions to meet the requirements of your application:

- Intelligent CO<sub>2</sub> Gehaltemeter, type i-DGM
- Analog CO<sub>2</sub> Gehaltemeter, type GMT

### Inpack TPO Meter, type TPO

Automatically determines the total O<sub>2</sub> content by measuring the DO and the headspace O<sub>2</sub> content of the packaged product in a single measurement.

### Inpack TPO/CO<sub>2</sub> Meter, type c-TPO

Determines the DO, headspace O<sub>2</sub> and total O<sub>2</sub> content of the packaged product. In addition, the c-TPO measures CO<sub>2</sub>.

### Automator

Automatically measures all relevant quality parameters directly in the filled package in a single measurement cycle. In addition to the basic parameters O<sub>2</sub> and CO<sub>2</sub>, the system can be extended for further analysis to meet customer requirements.

### Inpack 2000 CO<sub>2</sub> Device

Manually determines the dissolved CO<sub>2</sub> content in carbonated beverages filled in bottles or cans and comes in different executions:

- Inpack 2000 CO<sub>2</sub> Calculator, type ICC
- Inpack 2000 CO<sub>2</sub> 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.

### CO<sub>2</sub>-Selector

For non-invasive CO<sub>2</sub> measurement in the filled package. Measures the headspace CO<sub>2</sub> content and internal pressure, and accurately determines the dissolved CO<sub>2</sub> 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



CO<sub>2</sub>-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

### O<sub>2</sub> & CO<sub>2</sub> MEASUREMENT

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

#### In-line CO<sub>2</sub> Meter AuCoMet-i

Determines the dissolved CO<sub>2</sub> content based on Henry's Law. Can easily be extended with an O<sub>2</sub> sensor, due to its modular design.

#### In-line O<sub>2</sub> Gehaltemeter, type OGM

Determines the DO content based on optical O<sub>2</sub> measurement.

#### In-line O<sub>2</sub> Gehaltemeter, type OGM gas application

Determines the O<sub>2</sub> content of CO<sub>2</sub> gas from the fermentation, compressed gases and/or ultra pure gases, which makes it especially suitable for use in CO<sub>2</sub> recovery plants.

### TURBIDITY MEASUREMENT

#### In-line Turbidity Meter, type OptHaze-i

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

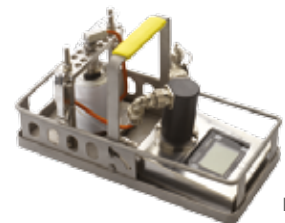
### ALCOHOL, EXTRACT & PLATO

#### 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 CO<sub>2</sub> 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 CO<sub>2</sub> or other gases.

### Gauge Calibration Device, type GCD

Precisely calibrates pressure gauges and digital pressure sensors.

### CO<sub>2</sub> Purity Tester, type CPT

Measures the purity of the CO<sub>2</sub> 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 CO<sub>2</sub> dosing unit, static mixers and CO<sub>2</sub> or even combined CO<sub>2</sub>/O<sub>2</sub> measuring device allows for accurate CO<sub>2</sub> injection, 'bubble free' CO<sub>2</sub> dissolving and total process control.

### Carbo-Blender, type CBR

Optimization of beer production in quantity and quality through controlled CO<sub>2</sub> dosing with CO<sub>2</sub>, CO<sub>2</sub>/O<sub>2</sub> or O<sub>2</sub> 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.  
O<sub>2</sub> < 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 CO<sub>2</sub> systems. After professional maintenance and fine-tuning of your quality control device and/or CO<sub>2</sub> system, energy, CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> tank

## CO<sub>2</sub> RECOVERY

### CO<sub>2</sub> Recovery Plants

Custom-made, to recover CO<sub>2</sub> 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 (O<sub>2</sub> < 5 ppm)

### Upgrade for CO<sub>2</sub> Recovery Plants

The CO<sub>2</sub> 4U is a skid-mounted system for upgrading the quality of CO<sub>2</sub> of existing CO<sub>2</sub> Recovery Plants.

- Unique in design, operation, performance, and efficiency
- Universally applicable for each type of CO<sub>2</sub> plant
- Upgrade, improving the CO<sub>2</sub> quality up to 99.998%
- Unit, compact, easy to install and commission plug & play unit

### Heat Recovery Systems

The CO<sub>2</sub> Recovery process requires energy to condense the recovered CO<sub>2</sub> from fermentation. In the CO<sub>2</sub> vaporization process, prior to CO<sub>2</sub> consumption, energy is required to vaporize the CO<sub>2</sub>.

- 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 CO<sub>2</sub> with hot return glycol, NH<sub>3</sub>, ice- or cooling water.

### Accessories for CO<sub>2</sub> Recovery Plants

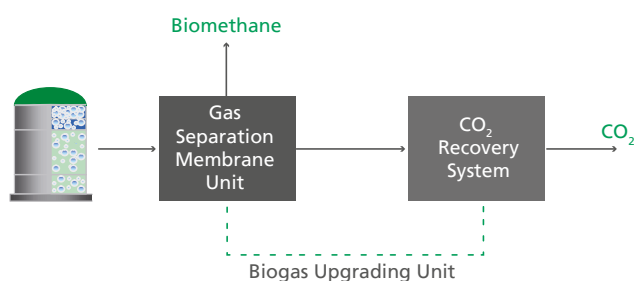
- Foam Separator
- Gas and Aerosol Washer
- CO<sub>2</sub> Compressor
- Activated Carbon Filter/Drier
- Purge Controller
- CO<sub>2</sub> Storage Tank and accessories
- Cylinder Filling Unit
- Road Tanker Pump Unit
- CO<sub>2</sub> Evaporator
- Back Pressure/Reducing Station

## 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 CO<sub>2</sub> by-product is recovered and can be sold as a useful product.



## ABOUT US

Pentair Haffmans develops and supplies quality control equipment, microfilters and CO<sub>2</sub> 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.



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