WITT

www.wittgas.com

/ TECHNOLOGY FOR GASES /

Our MAP solutions
guarantee certified safety for
your packaging process.
Keyword: HACCP

DOES YOUR PROCESS INVOLVE MODIFIED ATMOSPHERE PACKAGING (MAP)?

DAVID SAGARNA-DÍAZ, REGIONAL SALES DIRECTOR – WITT-GASETECHNIK

**ISO 22000 approval
for food safety**

THE RIGHT MODIFIED ATMOSPHERE FOR EVERY PRODUCT

PROTECTIVE GASES

› OXYGEN (O_2)

causes food to spoil due to oxidation. It also forms the ideal preconditions for the growth of aerobic micro-organisms. As a result, oxygen is frequently excluded from modified atmosphere packaging. However, in some cases processing is deliberately carried out with high oxygen concentrations, for example, with red meat. Oxygen prevents the red color from becoming pale, and it inhibits the growth of anaerobic organisms.

› CARBON DIOXIDE (CO_2)

is colorless, odorless and tasteless. Due to its oxidation-inhibiting and growth-inhibiting effects on most aerobic bacteria and molds, the gas is frequently used to increase the shelf life of food. As the shelf life of packaged or stored food is normally longer, the CO_2 concentration is higher. Nevertheless, many products can become sour if the CO_2 concentration is too high. In addition, the gas can diffuse out of the packaging or be absorbed by the product, causing the packaging to collapse. The use of supporting or filling gases can slow down this effect.

› NITROGEN (N_2)

is an inert gas and exhibits a high degree of purity, depending on the production. It is usually used for displacing air, especially atmospheric oxygen, in food packaging. This prevents the oxidation of food and inhibits the growth of aerobic microorganisms. As N_2 diffuses very slowly through plastic films and, there-fore, remains longer in the packaging, it is frequently used as a supporting or filling gas.

› CARBON MONOXIDE (CO)

is colorless, odorless and tasteless. Similar to oxygen, carbon monoxide is sometimes used to retain the red color of meat and seafood. While the required concentrations are very low, in some regions, including the EU, the use of carbon monoxide for modified atmosphere food packaging is prohibited.

ISO 22000 approval for food safety

› MEAT AND SAUSAGE PRODUCTS

Shelf life	in air	with MAP
Raw red meat	2–4 days	5–8 days
Raw poultry	4–7 days	16–21 days
Sausages	2–4 days	2–5 weeks
Sliced cooked meat	2–4 days	2–5 weeks
Cooked, smoked and refined poultry products	5–10 days	7–21 days

Meat and sausage products are highly susceptible to spoilage from microbial growth. As this growth is enhanced by high moisture and nutrient content, raw meat is especially prone to spoilage. No matter whether beef, pork or poultry, spoilage begins from the moment of slaughter and continues throughout the butchering pro-cess. Besides stringent hygiene standards and continuous cooling, modified atmospheres can significantly extend the shelf life of meat and sausage products – with CO_2 as the most important among the protective gases. At concentrations above 20%, CO_2 can consider-ably reduce microbial growth.

In the case of red meat, there is also the risk of oxidation of the red pigments. The meat will lose its color, becoming gray and unappetizing in appearance. This is especially true with beef. To combat this problem, a high oxygen concentration in protective gas packaging can prevent oxidation. In addition, a very low carbon monoxide concentration (approx. 0.5%) can further help to retain the red color. The use of this gas in food packaging, however, is prohibited in the EU and some other regions.

Poultry is particularly sensitive to rapid spoilage and, therefore, subject to stricter cooling requirements. Here, too, a modified atmosphere with CO_2 will extend the shelf life. A high oxygen concen-tration is also used for poultry without skin in order to retain the color of the meat. As CO_2 can be partially absorbed by food, nitrogen is added as a supporting gas to prevent the packaging from collapsing. Sausage and meat products, e.g. marinated or smoked meat, react differently depending on the preparation. While shelf life is inherently longer than that of raw meat, it can also be positively influenced with protective gases. The CO_2 concentration should not exceed recommended limits with these products, however, or a sour taste may occur.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Raw red meat	70	20–30	0–10
Raw entrails	80	20	0
Raw poultry with skin	0	30	70
Raw poultry without skin	70	20–30	0–10
Cooked meat and sausage products	0	20–30	70–80

› FISH AND SEAFOOD PRODUCTS

Shelf life	in air	with MAP
Raw low-fat fish and crustaceans	2–4 days	4–9 days
Raw high-fat fish and crustaceans	2–3 days	4–6 days
Cooked fish	2–4 days	3–4 weeks
Smoked and refined fish and seafood products	5–10 days	7–21 days

Fish and seafood are some of the most sensitive foods. They are at risk of rapidly declining in quality and spoiling, even shortly after the catch. The reason for this lies in seafood's neutral PH value – an ideal precondition for microorganisms, as well as special enzymes that negatively affect taste and odor. Fish, which is rich in fatty acids, also becomes rancid quickly.

The most important element for a longer shelf life is cooling close to 32°F, but modified atmospheres with at least 20% CO_2 also slow the growth of bacteria, and CO_2 concentrations around 50% are frequently used. As with other foods, higher levels of CO_2 can lead to undesirable side effects, such as liquid loss or a sour taste.

In the case of low-fat fish and shellfish, oxygen is also used in the packaging. This prevents a fading or loss of color, while simultaneously serving as a growth inhibitor for some types of bacteria.

When dealing with shellfish and crustaceans, special attention should be paid to ensuring a CO_2 concentration that is not too high. As these products absorb the most CO_2, there's a greater risk of sour taste. In addition, there's a greater risk of package collapse. However, using nitrogen as an inert supporting gas prevents this effect.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Raw low-fat fish	20–30	40–60	20–40
Raw high-fat fish	0	40	60
Shellfish and crustaceans	30	40	30
Cooked/Smoked fish	0	30–60	40–70

› DAIRY PRODUCTS

Shelf life	in air	with MAP
Butter, yoghurt, cream etc.	1–4 weeks	2–12 weeks
Hard cheese	2–3 weeks	4–10 weeks
Soft cheese	4–14 days	1–3 weeks
Milk powder	4–8 months	1–2 years

Cheese is predominantly spoiled by microbial growth or rancidness. While a continuous cooling chain extends the shelf life, in the case of hard cheese, there is a risk of mold formation upon contact with oxygen. As a result, vacuum packaging was frequently used in the past, even though this type of packaging is awkward to open and can leave unattractive marks on the product. Modified atmosphere packaging with CO_2, on the other hand, effectively prevents mold formation – without the undesirable effects of vacuum packaging – but does not otherwise affect the maturation of the cheese.

Soft cheese can quickly become rancid. While this problem can also be tackled with CO_2, soft cheese absorbs this gas at a greater rate than other types of cheese, resulting in a risk of sour taste and package collapse. Therefore, a lower CO_2 and higher nitrogen concentration should be used.

Likewise, dairy products such as yogurt and cream can absorb too much CO_2 and become sour; these products should be packaged with an even lower concentration of CO_2.

Powdered milk, frequently used in baby formula, is a highly sensitive product. It is especially important to ensure that oxygen is displaced from the packaging in order to extend the shelf life. In practice, packaging is carried out in pure nitrogen with as low a residual oxygen content as possible.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Hard cheese	0	30–100	0–70
Soft cheese	0	10–40	60–90
Sliced cheese	0	30–40	60–70
Cream cheese	0	100	0
Yoghurt	0	0–30	70–100
Milk powder	0	0–20	80–100

› FRUIT AND VEGETABLES

Shelf life	in air	with MAP
Fresh cut salad or fruit	2–5 days	5–10 days
Cooked vegetables	3–14 days	7–21 days

Modified atmosphere packaging makes it possible to offer consumers fresh and untreated products – in other words, succulent fruit and vegetables – with a long shelf life. At the same time, fruit and vegetables are subject to unique requirements regarding the nature of the packaging and atmosphere. In contrast to other types of food, fruit and vegetables continue breathing after the harvest and, consequently, require an oxygen concentration in the packaging. Furthermore, the packaging film doesn't have to be airtight. By taking the product's respiration and the permeability of the film (typically via micro-perforation) into account, the ideal composition of CO_2, nitrogen and low amounts of oxygen can be maintained. The term used here is EMA – equilibrium modified atmosphere. The gas composition is individually adapted to the corresponding product. Thorough cleaning and hygienic processing are the fundamental preconditions for long-lasting freshness. Modified atmospheres, in conjunction with cooling, can be used to extend the shelf life of fresh produce while achieving an attractive packaging design at the point of sale.

› BREAD AND CAKE

Shelf life	in air	with MAP
Bread	some days	2 weeks
Pre-baked bread	5 days	20 days
Cakes	several weeks	up to one year

The shelf life of bread, cake and cookies is primarily affected by mold formation. Although a high standard of hygiene during production and packaging can significantly minimize this risk, using a modified atmosphere with CO_2 (and without oxygen) minimizes the risk considerably further, greatly extending the shelf life. Because these products may absorb CO_2, nitrogen is often included as a supporting gas to prevent package collapse.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Crispy breads	0	50–100	0–50
Cakes, biscuits	0	50	50

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Fresh fruit and vegetables	3–10	3–10	80–90
Cooked vegetables	0	30	70

› PASTA AND READY-MADE MEALS

Shelf life	in air	with MAP
Fresh pasta	1–2 weeks	3–4 weeks
Pizza	7–10 days	2–4 weeks
Convenience foods	2–5 days	7–20 days
Combination products (sandwiches, pies, meat and fish in batter, etc.)	2–7 days	3–21 days
Chilled fruit and vegetable juices	1 week	2–3 weeks

The nature and composition of fresh pasta and, in particular, ready-made meals vary greatly. Products such as ready-made pizzas or sandwiches contain many different ingredients with a variety of shelf lives and spoilage properties. In the majority of cases, modified atmospheres can significantly extend the shelf life without using oxygen. Mixtures of CO_2 and nitrogen are used with the concentration of gases adjusted to the content of the product. If, for example, there is a risk that large volumes of CO_2 will be absorbed by the product, the nitrogen concentration should be increased to prevent the packaging from collapsing.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Ready-made meal	0	30–60	40–70
Pasta/Pizza	0	30–60	40–70
Sandwiches	0	30	70

› SNACKS AND NUTS

Shelf life	in air	with MAP
Dried foods (snacks, coffee, dried milk, herbs, etc.)	4–8 months	1–2 years

Snack products containing fats, for example, potato chips or peanuts, are at increased risk of oxidation, whereby the products can quickly become rancid if the packaging is not optimal. To extend the shelf life, it is critical that contact with oxygen is minimized. In this case, modified atmospheres with 100% nitrogen are frequently used. Not only does this prevent premature spoilage, the nitrogen atmosphere also provides protection from mechanical damage to sensitive products, such as potato chips in conventional packets.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Snacks/Crisps/Peanuts	0	0	100

› WINE

Gases or gas mixtures are often used to protect wine in the different phases of its production process and to retain the quaility of the product. They are mainly used to avoid contact with oxygen and prevent microbial deterioration. The tank headspace is replaced with an inert gas or a gas mixture, for example of CO_2, N_2 or Ar. The composition of the gases is chosen according to the type of wine.

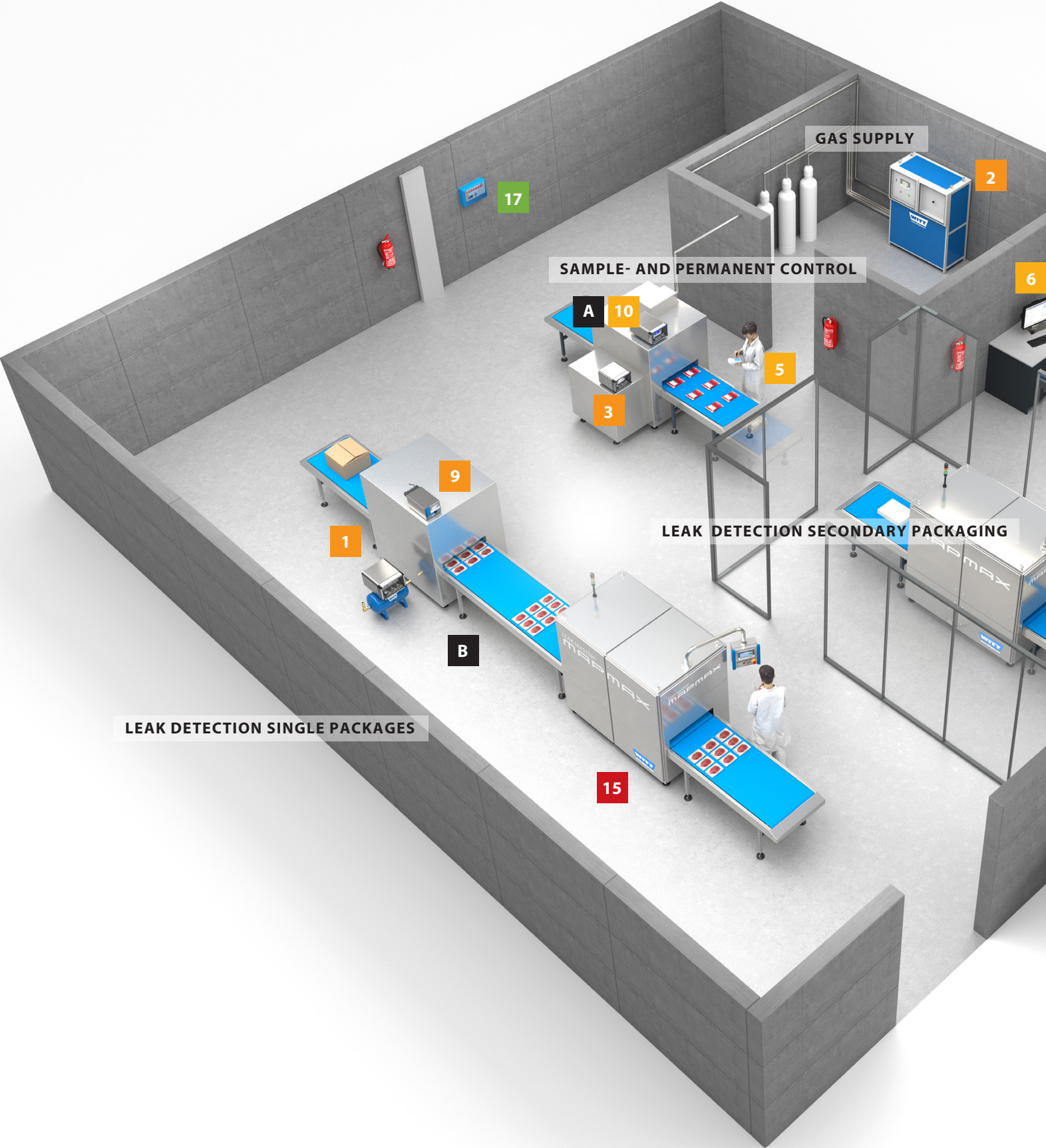| Gas mixture composition in % (examples)	O_2	CO_2	N_2	Ar
White wine / Rosé	0	20	80	0
White wine / Rosé	0	20	0	80
Red wine	0	0	100	0

› COFFEE

As a dried product, coffee is relatively immune to spoilage by microorganisms. However, due to its fatty acid content, the product may turn rancid as a result of oxidation. To prevent this, coffee is packaged to exclude oxygen. Instead, a modified atmosphere comprising pure nitrogen is frequently used in coffee bags or capsules.

Gas mixture composition in % (examples)	O_2	CO_2	N_2
Coffee	0	0	100

CONTROLLED QUALITY OFFERS PEACE OF MIND!

GAS SUPPLY

2

17

SAMPLE- AND PERMANENT CONTROL

6

A **10**

5

3

9

1

LEAK DETECTION SECONDARY PACKAGING

B

15

LEAK DETECTION SINGLE PACKAGES

ISO 22000 approval for food safety

LABORATORY / SAMPLE CHECK

If you master and control your modified atmosphere packaging process you get a safe and appealing food package and protect the quality of your products. WITT gives you effective support for your quality assurance.

As a solution provider we offer high quality products for every part of the packaging process. Gas mixers, gas analysers, leak detection and ambient air monitoring – with WITT you get modern MAP solutions from a single source. Of course certified according to ISO 22000 food safety standard.

Rely on the highest level of technical standard that is available with modern MAP gas technology by WITT – for optimal process safety and perfect food quality.

The illustration of the packaging process shows where WITT products provide quality and security.

> **GAS MIXER AND GAS FLOW CONTROL SYSTEMS**

1 KM-Series

2 MG-Series

3 KD 500-1A

> **GAS ANALYSERS**

4 OXYPAD©

5 OXYBABY© O_2/CO_2

6 OBCC

7 PA O_2/CO_2

8 MAPY O_2/CO_2

9 MAPY VAC

10 MAPY LE

> **LEAK DETECTION SYSTEMS**

11 LEAK-MASTER© EASY

12 Control unit PLUS for LEAK-MASTER© EASY

13 LEAK-MASTER© PRO 2

14 LEAK-MASTER© PRO

15 LEAK-MASTER© MAPMAX
(Leak detection for single packages)

16 LEAK-MASTER© MAPMAX
(secondary packaging e.g. cartons E2-boxes)

> **AMBIENT AIR MONITORING**

17 GAS MONITORING RLA

Please find the explanation to each product and also the corresponding technical features and benefits in the chart on the following pages.

A FLOW PACK MACHINE

B VACUUM PACKAGING MACHINE

GAS MIXERS AND METERERS

In the packaging process the air inside the package is replaced by a gas or a gas mixture. Typically, gas mixers are used to create these mixtures. MAP gas mixers by WITT provide controlled gas quality and safety in your packaging process – for germfree food preservation. But above all they offer great flexibility to the user. At the push of a button, different mixtures can be produced quickly on one packaging line, depending on the requirements of the product. WITT offers gas mixing and metering systems for all packaging machines used in the food industry: vacuum packaging, thermo forming, flow pack or chamber packaging machines. The gas mixing systems are adjusted to your specific product type and processing with only basic installation requirements.

Suitable for food gases according to Regulation (EC) No. 1935/2004

ISO 22000 approval for food safety

1

KM-SERIES

APPLICATION
Gas mixing systems for 2 or 3 defined gases, designed for a variety of applications, particularly for all areas with constant or varying mixed gas flow demands.

FUNCTION ➜ YOUR BENEFITS
- Infinitely variable mixture settings
    - ➜ Always the correct gas mixture
- Proportional mixing valve for two gases with %-scale Individual mixing valves for three gases with %-scale
    - ➜ Easy mixture adjustment without any complicated calculation
- Gas mixture withdrawal from zero to max flow capacity
    - ➜ All-purpose for large and small packages
- Integrated pressure equalization system
    - ➜ Protection against pressure fluctuations in the gas supply
- Splash-proof, robust stainless steel housing
    - ➜ Easy to clean and hygienic

OPTIONS
- Gas supply monitoring
- Integrated analysis
- Mixer mounted on a buffer tank
- Remote control

2

MG‑SERIES 🍷

APPLICATION

Gas mixing systems for 2 or 3 defined gases, designed for a variety of applications, particularly for all areas with constant or varying mixed gas flow demands.

FUNCTION ➜ YOUR BENEFITS

- Infinitely variable mixture settings
  - ➜ Always the correct gas mixture
- Proportional mixing valve for two gases with %-scale
  Individual mixing valves for three gases with %-scale
  - ➜ Easy mixture adjustment without any complicated calculation
- Gas mixture withdrawal from zero to max flow capacity
  - ➜ All-purpose for large and small packages
- Integrated pressure equalization system
  - ➜ Protection against pressure fluctuations in the gas supply
- Splash-proof, robust stainless steel housing
  - ➜ Easy to clean and hygienic

OPTIONS

- Gas supply monitoring
- Integrated analysis
- Mixer mounted on a buffer tank
- Remote control
- For flammable gases available as Ex-version
  with separate control cabinet

3

KD 500‑1A 🍷

APPLICATION

Electronic flow control system for modified atmosphere packaging (MAP) to suit flow pack machines in the food industry and for room atmospheres, e.g. for the storage of fruit and vegetables. Total control of the residual O_2 in the package.

FUNCTION ➜ YOUR BENEFITS

- Integrated O_2 analysis
  - ➜ Reliability by continuous control of the O_2 concentration
- Electronic control of gas flow to sensor
  - ➜ Optimal process reliability by self-control
- Threshold limit control with alarm relay contacts
  - ➜ Direct alarm reaction avoids defective goods (by stopping the packaging machine)
- Integrated pressure control
  - ➜ Protection against pressure fluctuations in the gas supply
- Splash-proof and robust stainless steel housing
  - ➜ Easy to clean and hygienic
- Interfaces for documentation and remote transfer of settings and measured values
  - ➜ Customer-oriented quality documentation

OPTIONS

- Integrated printer for data documentation
- Separate printer for data documentation
- Zirconia sensor for O_2 measurement

Product features may differ according to version

GAS ANALYZERS

Gas analyzers are essential for quality control in the MAP process. Gas analysis can be done continuously during the packaging process or after as a sample test. For continuous analysis, a gas analyzer module is integrated into the gas mixing system where it monitors the correct composition of the gas mixture. In sample testing, a key element of quality control for any company working with modified atmospheres, a sample is taken from the package via a needle. Equipped with the most modern sensors, WITT gas analyzers are extremely precise and fast. And with a minimal gas volume requirement for testing, they're suitable for packages of all sizes, including those with a small head-space or a very low volume of gas inside the package. For total quality assurance, all data is logged and can be archived for complete documentation.

4

OXYPAD
O_2/CO_2

APPLICATION
Battery-operated gas analyzer for the quality control of modified atmosphere packaging. Can be used as a tabletop or mobile device. A true 2-in-1 solution for fast and accurate random sampling checks in the laboratory, or directly at the packaging machine.

FUNCTION ➜ YOUR BENEFITS
- Minimal sample gas requirement (< 6 ml)
  - ➜ Ideal for small packaging
- Fast measurement via needle pinprick
  - ➜ Measurement result in 6 seconds
- Large 7" touchscreen with graphical user interface
  - ➜ Intuitive operation
- Measurement of the gas pressure
  - ➜ Checking the correct gas pressure in the packaging
- Ergonomic, compact, and lightweight design
  - ➜ Ideal for mobile use
- Needle compartment with flap
  - ➜ For clean and safe storage of the needle
- Ergonomic needle pin
  - ➜ Easy and safe handling
- Integrated measurement memory
  - ➜ saves the last 5,000 measurements
- Product name management
  - ➜ Assignment of measured values to product name, user, and packaging line for up to 5,000 products
- Flow control via adjustment of the pumping rate
  - ➜ Protection against incorrect measurement results
- USB interface
  - ➜ Convenient connection to PC, and for battery charging
- Multilingual design

OPTIONS
- OBCC software for convenient and secure master data maintenance, measurement data analysis and quality assurance
- Further versions, options, and accessories on request

ISO 22000 approval for food safety

5

OXYBABY®
O_2/CO_2

APPLICATION
Cordless hand held Gas Analyzer for checking modified atmosphere packaging (MAP). The ideal instrument for portable, fast and accurate sample tests at the packaging machine, in stores or in laboratories.

FUNCTION ➜ YOUR BENEFITS
- Minimal sample gas requirement (approx. 2 ml)
  - ➜ Ideal instrument for all package sizes
- Fast measurement
  - ➜ Results within max. 6 seconds
- O_2 value is displayed in 0.01% steps
  - ➜ Oxygen can be controlled maximum precisely
- Ergonomic design
  - ➜ Genuine one hand operation, plug and play
- Large illuminated graphic-text-display
  - ➜ Easy to read. All information at a glance
- Integrated needle cover
  - ➜ User protection
- Integrated data logger
  - ➜ Storage of the last 500 measurements
- Specific product names
  - ➜ Practical classification of the measured values
- Flow Control with alarm function
  - ➜ Prevention of incorrect results
- USB port
  - ➜ Comfortable connection to PC
- Multilingual menu guide
  - ➜ D, UK, F, I, NL, S, FIN, E, PL, RUS, JP, H, TR

OPTIONS
- Integrated barcode-reader
- Bluetooth
- OBCC Software for comfortable and safe master data management, data analysis and quality assurance
- Separate printer via Bluetooth for result documentation
- Device for headspace analysis in cans/bottles
- P version (for pressurized sample gas)

6

OBCC – Software

APPLICATION
Software for documenting measurement results, specially developed for WITT gas analyzers. The OBCC software simplifies the complex task of data analysis and master data management in your company.

FUNCTION ➜ YOUR BENEFITS
- Modern, clear user interface
  - ➜ Optimum information and ease of use
- Simple creation and management of master data
  - ➜ Thorough documentation
- Measurement data recording and storage, with date and time stamps
  - ➜ Quick overview due to graphical display of measured values
- Data analysis tool with filter options
  - ➜ Gain insight
- CSV export option and 1-click creation of PDF reports
  - ➜ Complete digital documentation, and safe storage of measurement data
- Multilingual menu navigation
  - ➜ GB, D, FR, IT, ES, PT, PL, RUS, FIN, SE, TR, RO, HU
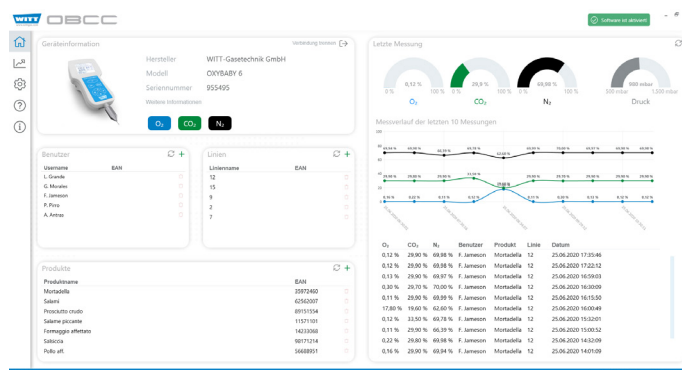
reddot design award

7

PA
O$_2$/CO$_2$

APPLICATION
Compact Gas Analyzer for checking and/or monitoring modified atmosphere packaging (MAP). For continuous analysis (in-line) as well as intermittent sampling via a needle at the packaging machine, in stores or in laboratories.

FUNCTION ➜ YOUR BENEFITS
- Minimal sample gas requirement
  - ➜ Ideal instrument for all package sizes
- Threshold limit control with alarm relay contacts
  - ➜ Direct alarm reaction avoids defective goods (by stopping the packaging machine)
- Large illuminated graphic-text-display
  - ➜ Easy to read. All information at a glance
- Zirconia sensor for O$_2$ measurement possible
  - ➜ Fast, precise measurement
- Integrated data logger
  - ➜ Storage of the last 500 measurements
- Specific product names
  - ➜ Practical classification of the measured values
- USB port
  - ➜ Comfortable connection to PC
- Continuous analysis or sample testing
  - ➜ Flexible usage
- Flow control with alarm function
  - ➜ Prevention of incorrect results
- Multilingual menu guide
  - ➜ D, UK, F, I, NL, S, FIN, E, PL, RUS, JP, H, TR

OPTIONS
- OBCC Software for comfortable and safe master data management, data analysis and quality assurance
- Separate printer for result documentation
- Connection plugs
- Different versions available:
  continuous analysis, sample testing and
  P version (for pressurized sample gas)

8

MAPY
O$_2$/CO$_2$

APPLICATION
Premium Multifunctional Gas Analyzer for checking and/or monitoring modified atmosphere packaging (MAP). For continuous analysis (in-line) and also intermittent sampling via a needle at the packaging machine, in stores or in laboratories.
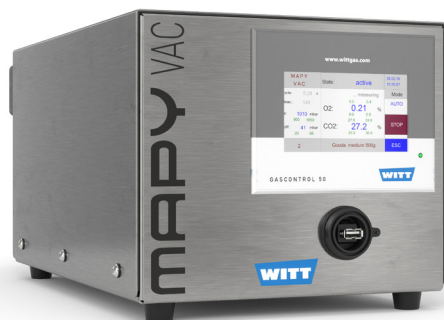
FUNCTION ➜ YOUR BENEFITS
See PA features, plus:
- Large, clear color touch screen
  - ➜ Optimal information and easy to operate
- User management for up to 60 users
  - ➜ Personalization of measurements
- Administration of up to 1000 products
  - ➜ Individual classification of results and limits
- Auto run of the sample hold measurement
  - ➜ For productivity and comfort
- Data transfer via USB-stick or Ethernet connection
  - ➜ Customer-oriented quality documentation
- Flow Control with alarm function
  - ➜ High measuring accuracy
- Automatic checking
  - ➜ High process safety
- Pressure compensation
  - ➜ Reliable measuring results
- Electrochemical, Zirconia or Paramagnetic sensor for O$_2$
  - ➜ The best measuring principle to suit the application

OPTIONS
- Different versions available:
  continuous analysis, sample testing and
  P version (for pressurized sample gas)
- Barcode reader
- Fully automatic calibration
- Special version for higher inlet pressures
- 19" rack version

ISO 22000 approval for food safety

9

MAPY VAC
O_2/CO_2

APPLICATION
Inline gas analyzer for monitoring protective atmospheres on thermoforming and tray packaging machines. For continuous O_2 or O_2/CO_2 gas mixture monitoring.

FUNCTION ➜ YOUR BENEFITS
- Large, clear touchscreen
  - ➜ Optimum information and ease of operation
- High process reliability
  - ➜ Long-term, stable measurement results
- Management of up to 250 products
  - ➜ Customized allocation of measurement results and limit values
- Data transfer via USB stick
  - ➜ Customer-orientated quality documentation
- Measures every machine cycle
  - ➜ Rapid, high-precision measurement
- Limit value monitoring with alarm
  - ➜ Immediate intervention avoids rejects (and machine stoppage)
- Measures O_2 or O_2/CO_2 concentration non-destructively, before sealing
  - ➜ Low labor and wastage costs compared to random sample analysis
- Splash-proof, robust stainless-steel housing
  - ➜ Easy maintenance and perfect hygiene

OPTIONS
- Fully automatic calibration
- Separate desktop printer
- Black box version without user button especially for automated machine control

10

MAPY LE
O_2/CO_2

APPLICATION
Inline gas analyzer for the continuous monitoring of gas concentrations in a wide range of technical applications, as well as for random sample analysis of MAP tubular bag packaging, via the suction needle.
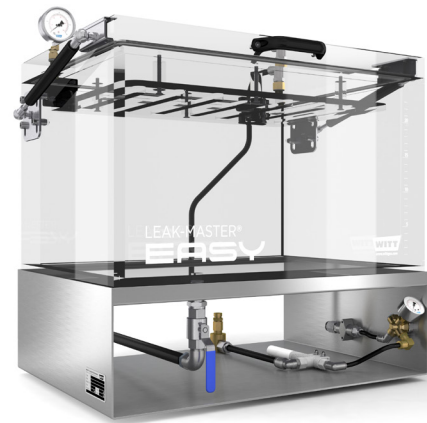
FUNCTION ➜ YOUR BENEFITS
- Minimal sample gas requirement
  - ➜ Ideal for small packaging
- Large, clear touchscreen
  - ➜ Optimum information and simple operation
- Pressure compensation
  - ➜ Long-term stable measurement results
- Data transfer via USB stick
  - ➜ Customer-orientated quality documentation
- Limit value monitoring with alarm
  - ➜ Immediate reaction avoids rejects (and machine stoppage)
- Splash-proof, robust stainless-steel housing
  - ➜ Easy maintenance and perfect hygiene

OPTIONS
- Fully automatic calibration
- Separate desktop printer
- Special version for higher inlet pressures
- Suction needle for line sample analyses
- Heating and thermostat for chemical measuring cells

LEAK DETECTION

Modified atmospheres can only benefit your product if the protective gas remains inside the package – it must be fully leak tight. Give a freshness guarantee to retailers and consumers and use package leak detection to your competitive advantage. Prevent needless returns, loss of prestige, legal consequences and loss of customers by checking the leak tightness of your packages. WITT offers certified quality systems for the leak testing of all kinds of food packaging – with modified atmospheres as well as vacuum packaging. To optimize your quality assurance, you can choose between solutions for sample or in-line testing – based on CO_2 or a water bubble test. WITT leak detection systems reliably detect even the smallest of leaks, and you can digitally log all test results to document proven safety for your customers.

11

LEAK-MASTER® EASY

APPLICATION
Leak detection "bubble test" for packages. LEAK-MASTER® EASY features detection of even the smallest leaks without the need for trace gases.

FUNCTION ➜ YOUR BENEFITS
- No trace gas required in package
  - ➜ Usable without modified atmosphere (MAP)
- No electrical connections, operation using compressed air
  - ➜ Easy installation and operation
- optionally also with an electric vacuum pump
  - ➜ For operation without compressed air
- visual status display through LED lighting
  - ➜ Fast, intuitive work
- Testing of vacuum packages possible
  - ➜ One system for all kinds of packages
- Easy to use
  - ➜ No special skills required
- Low maintenance
  - ➜ Time and cost effective
- Perspex housing
  - ➜ Easy to clean

OPTIONS
- Different chamber sizes
- Available for vacuum packages
- Available for altitude simulation test
- Electronic control unit PLUS for easy, standardized test processes and complete documentation
- Supplementary set for testing according to ASTM F2096 (bubble test)

ISO 22000 approval for food safety

12

CONTROL UNIT PLUS

LEAK-MASTER® EASY CHAMBER SIZES

MODEL	inner chamber size approx. in [mm] (inches) (H×W×D)	overall dimension approx. in [mm] (inches) (H×W×D)	Weight approx. in [kg] (lb)
EASY 0,5	115 × 305 × 195 (4.5 × 12.0 × 7.7)	485 × 440 × 300 (19.1 × 17.3 × 11.8)	15.5 (34)
EASY 1	165 × 305 × 195 (6.5 × 12.0 × 7.7)	535 × 440 × 300 (21.1 × 17.3 × 11.8)	17 (37)
EASY 1,5	145 × 505 × 310 (5.7 × 19.9 × 12.2)	520 × 650 × 420 (20.5 × 25.6 × 16.5)	31,5 (69)
EASY 2	205 × 505 × 310 (8.1 × 19.9 × 12.2)	580 × 650 × 420 (22.8 × 25.6 × 16.5)	35 (76)
EASY 3	275 × 525 × 360 (10.8 × 20.7 × 14.2)	660 × 705 × 485 (26.0 × 27.8 × 19.1)	55 (121)
EASY 4	320 × 625 × 500 (12.6 × 24.6 × 19.7)	900 × 840 × 630 (35.4 × 33.1 × 24.8)	108 (238)
EASY 5	340 × 760 × 500 (13.4 × 29.9 × 19.7)	920 × 970 × 630 (36.2 × 38.2 × 24.8)	120 (265)

APPLICATION

Portable control unit for the LEAK-MASTER® EASY leak detector.

In combination with the LEAK-MASTER® EASY, the portable control unit enables the non-destructive detection of even the smallest leaks without the costly use of helium as a trace gas. The various preset measuring programs, a height simulation, and fast, continuous operation independent of who is using it are the essential features of this device.
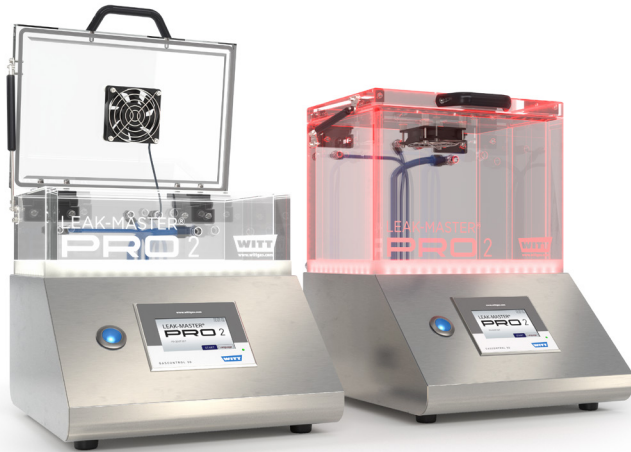
FUNCTION ➜ YOUR BENEFITS

- Large, clear touchscreen
  - ➜ Optimum information and ease of use
- Minimal response time and fast product changeover
  - ➜ Superior quality and efficiency in production
- Continuous monitoring of the adjustable limit values
  - ➜ Precise monitoring
- Individually configurable error codes
  - ➜ Localization and identification of the leak
- Data and process parameter input via integrated keypad or PC
  - ➜ Intuitive, user-friendly operation
- Seamless user and product data as well as error logs
  - ➜ Thorough documentation
- Data transmission via Ethernet (browser-based EASY PLUS control software) or via USB stick
  - ➜ Customer-orientated quality documentation
- Product name and user administration
  - ➜ Personalization of measurements and individual assignment of measurement results
- Splash-proof, robust stainless-steel housing
  - ➜ Easy maintenance and perfect hygiene

OPTIONS

- Barcode reader for quick and easy user and product selection, splash-proof.

Product features may differ according to version

13

LEAK-MASTER® EASY

APPLICATION
Leak detection system for packages containing CO_2. The LEAK-MASTER® PRO 2 features non-destructive testing of the smallest of leaks at a strong price-performance ratio.

OPTIONS
- Electrical vacuum pump
- Barcode reader IP 65

FUNCTION ➜ YOUR BENEFITS
- Non-destructive testing with highly sensitive and ultra-fast CO_2 sensor
  - ➜ Products remain undamaged and dry for further processing
  - ➜ Detects even the smallest of leaks from 10 µm
  (depending on the product and the test conditions)
- Visual indication of test results (LED lighting)
  - ➜ Intuitive, quick operation
- Lid with gas pressure spring
  - ➜ Quick and easy product change
- Large and clearly arranged touch screen
  - ➜ Optimal information and easy handling, no special skills required
- Compact stainless steel and acrylic glass cabinet / housing
  - ➜ Hygienic, robust and space saving
  - ➜ Double safety through simultaneous visual inspection
- Various chamber sizes
  - ➜ 2 models for single packages and small boxes
  - ➜ For larger packages, cartons or E2 boxes: LEAK-MASTER® PRO
- Data storage for over 6,000 measurements
  - ➜ For high measurement frequencies
- Data transmission via Ethernet
  - ➜ Customer orientated quality documentation, integrated into company network
- Separate PC program
  - ➜ For documentation of test results

LEAK-MASTER EASY® PRO 2 CHAMBER SIZES

MODEL	Chamber-size approx. in [mm] (inch) (H×W×D)	Cabinet / housing-size approx. in [mm] (inch) (H x W x D)	Weight approx. in [kg]	Voltage
LM 2.1	42 × 310 × 200 (1.7 × 12.2 × 7.9)	335 × 370 × 515 (13.2 × 14.6 × 20.3)	20,0	100–230 V 50–60 Hz 50 W
LM 2.2	174 × 310 × 200 (6.9 × 12.2 × 7.9)	470 × 370 × 515 (18.5 × 14.6 × 20.3)	23,5	100–230 V 50–60 Hz 50 W
LM 2.3	100 × 460 × 305 (3.9 × 18.1 × 12.0)	470 × 560 × 640 (18.5 × 22.0 × 25.2)	35,0	100–230 V 50–60 Hz 50 W
LM 2.4	100 × 380 × 380 (3.9 × 15.0 × 15.0)	470 × 480 × 715 (18.5 × 18.9 × 28.1)	35,0	100–230 V 50–60 Hz 50 W

ISO 22000 approval for food safety

14

LEAK-MASTER®

APPLICATION

System for leak testing of large packaging or cartons based on CO_2. The LEAK-MASTER® PRO enables non-destructive detection of even the smallest leaks using a highly sensitive, ultra-fast CO_2 sensor.

FEATURES ➜ YOUR BENEFITS

- Minimised response time and fast product changeover
  ➜ Optimum quality and efficiency in production
- Data and process parameter input via integrated keypad or PC
  ➜ Extremely simple operation
- Data transmission via Ethernet
  ➜ Customer-orientated quality documentation
- Non-destructive measurement
  ➜ Product remains undamaged and dry for further use
- Various chamber sizes
  ➜ For flexible and stable packaging
- Measures CO_2 or concentration non-destructively
  ➜ Low labour and wastage costs compared to random sample analysis
- Simple intuitive operation
  ➜ No specialist trained personnel required
- Splash-proof, robust stainless steel housing
  ➜ Easy maintenance and perfect hygiene

OPTIONS

- Barcode reader for quick and easy user and product selection, splash-proof
- Wireless data transmission via WLAN (WIFI)

15/16

LEAK-MASTER® MAPMAX

APPLICATION

In-line micro-leak detection system for packages containing CO_2. MAPMAX features non-destructive detection of the smallest of leaks directly from the packaging line – and without the need for costly helium.

FUNCTION ➜ YOUR BENEFITS

See LEAK-MASTER® features, plus:

- Fully automatic leak detection
  ➜ Avoiding operating errors
- Various chamber sizes
  ➜ Testing of single packages, cartons or E2 boxes possible
- High operating speed (max 15 cycles/min)
  ➜ High productivity of packaging line
- 100% automatic control of all packages
  ➜ No leaking packages are delivered to the customer – no costly returns

OPTIONS

- Various chamber sizes
- Reject system
- Barcode reader IP 65
- W-LAN (WIFI)

Product features may differ according to version

AMBIENT AIR MONITORING

With WITT gas monitoring systems for ambient air, you protect your employees and make the use of gases such as carbon dioxide safer. CO_2 is odorless and may accumulate unnoticed in closed rooms and replace the oxygen in the air. A concentration of 0.3 percent carbon dioxide in ambient air can be a health hazard. The allowed maximum concentration at the workplace is 0.5 percent. At five percent headache and dizziness may occur; at eight percent and beyond, unconsciousness or even death. WITT's RLA gas monitors continuously monitor the concentration of the respective gas in ambient air and activate an acoustic and visual alarm when individually definable limits are exceeded – simply effective. Controlled atmospheres are not just used in packaging but also for ripening control in special ripening chambers with the help of ethylene. By using a gas monitor from WITT's RLA series, the ambient atmosphere can be monitored.

17
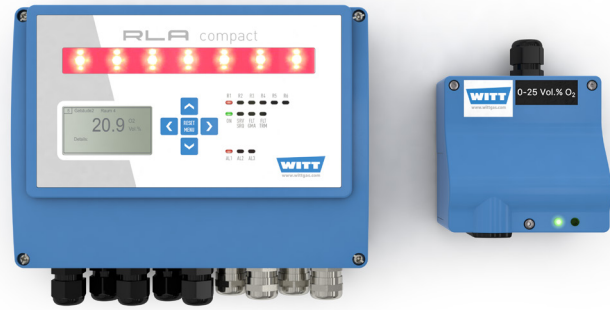
GAS MONITORING RLA

APPLICATION
Gas monitoring system for the detection of oxygen (O_2), carbon dioxide (CO_2) and other gases

FUNCTION ➜ YOUR BENEFITS
- 3 alarm limits adjustable within the measuring range
  - ➜ Individually adjustable alarm limits
- Triple-digit display
  - ➜ Permanent visual control
- Connections for alarm easily accessible on front
  - ➜ Easy installation
- Continuous self monitoring
  - ➜ High process safety
- Separate control panel and transmitter
  - ➜ Flexible installation for highest safety
- Up to 16 channels
  - ➜ Monitoring of large areas

OPTIONS
- Flow adapter for sensor check and calibration

ISO 22000 approval for food safety

WITT – NO. 1 IN MAP

WITT-Gasetechnik is a manufacturer of gas-related equipment that meets the highest quality standards. As a specialist in Modified Atmosphere Packaging (MAP), WITT was able to place the first production gas mixers for vacuum packaging machines on the market in 1977. Today, as a world market leader, WITT offers gas mixers, meterers and analyzers for all types of packaging machines in the food industry, as well as package leak detectors and ambient air monitors.

WITT products are manufactured exclusively in Germany. Through its subsidiary companies and partners, the family business now operates worldwide with approx. 200 employees. Modern production processes with a high degree of vertical integration are a precondition for achieving the highest standards of products – with a long service life. A comprehensive quality management system guarantees consistent results so that everything leaving the factory meets the highest levels of safety and quality. As a manufacturer, WITT is certified according to ISO 22000 for food safety.

Rely on German quality and worldwide support – rely on WITT.

WE MEET CUSTOMER NEEDS –
YOUR CUSTOMIZED MAP SOLUTION

You haven't found something suitable in our product range?
No problem: we manufacture your custom product on demand. Step by step
we will develop your special solution – custom-tailored to your needs.
Talk to us about your requirements!

Tel. +1 770 664 4447
www.wittgas.us
witt-usa@wittgas.com

OUR PRODUCT RANGE

GAS CONTROL EQUIPMENT
Gas mixing systems
Gas metering systems
Gas analyzers
Leak detection systems
Gas pressure vessels
Engineering of customized systems

GAS SAFETY EQUIPMENT
Flashback arrestors
Non-return valves / check valves
Quick couplers
Safety relief valves
Stainless steel devices
Gas filters
Pressure regulators
Outlet points
Lance holders
Ball valves
Automatic hose reels
Test equipment
Accessories
Customized safety equipment

What are your requirements?
Please contact us.
Tel. +1 770 664 4447 | witt-usa@wittgas.com

WITT-Gasetechnik GmbH & Co KG
Salinger Feld 4–8
58454 Witten
Deutschland
Tel. +49 (0)2302 8901-0
www.wittgas.com
witt@wittgas.com

GUSTUS & PARTNER GmbH
Installation – Service – Wartung
Alt Salbke 6–10, Geb. 59
39122 Magdeburg
Deutschland
Tel. +49 (0)391 4015246
gustus@wittgas.com

WITT Tecnología de Gas, S.L.
C/Simón Cabarga N° 2a – Bajo
39005 Santander
España
Tel. +34 942 835142
witt-espana@wittgas.com

WITT FRANCE S.A.R.L.
131 Voie de Compiègne
91390 Morsang sur Orge
France
Tel. +33 (0)160 151779
witt-france@wittgas.com

WITT Gas Techniques Ltd.
Unit 7 Burtonwood Industrial Estate
Phipps Lane, Burtonwood
Warrington, Cheshire
WA5 4HX
Great Britain
Tel. +44 (0)1925 234466
witt-uk@wittgas.com

WITT GAS INDIA PVT.LTD.
855/N, Upen Banerjee Road
Kolkata 700060
West Bengal
India
Tel. +91 9831319810
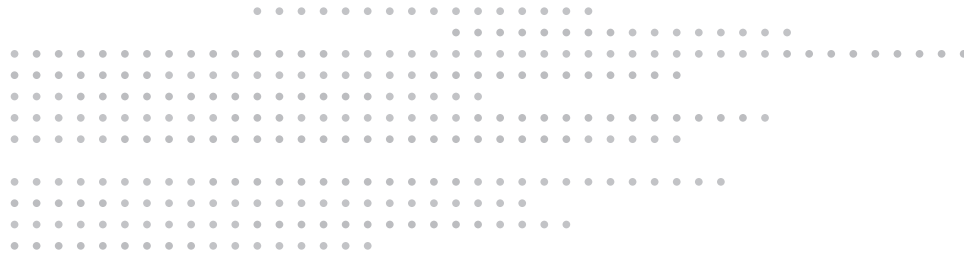witt-india@wittgas.com

WITT ITALIA Srl.
Via Papa Giovanni XXIII, 18
24030 Solza (BG)
Italia
Tel. +39 035 4933273
witt-italia@wittgas.com

WITT POLSKA Sp. z o. o.
Ul. Bulwar Dedala 16a
54-130 Wrocław
Poland
Tel. +48 71-352 28 56
witt-polska@wittgas.com

WITT Gas Controls LP
1055 Windward Ridge Parkway
Suite 170
Alpharetta, Georgia 30005
USA
Tel. +1 770 664 4447
witt-usa@wittgas.com