



Compressed air and compressed gas technology

# Compressed air processing without compromises

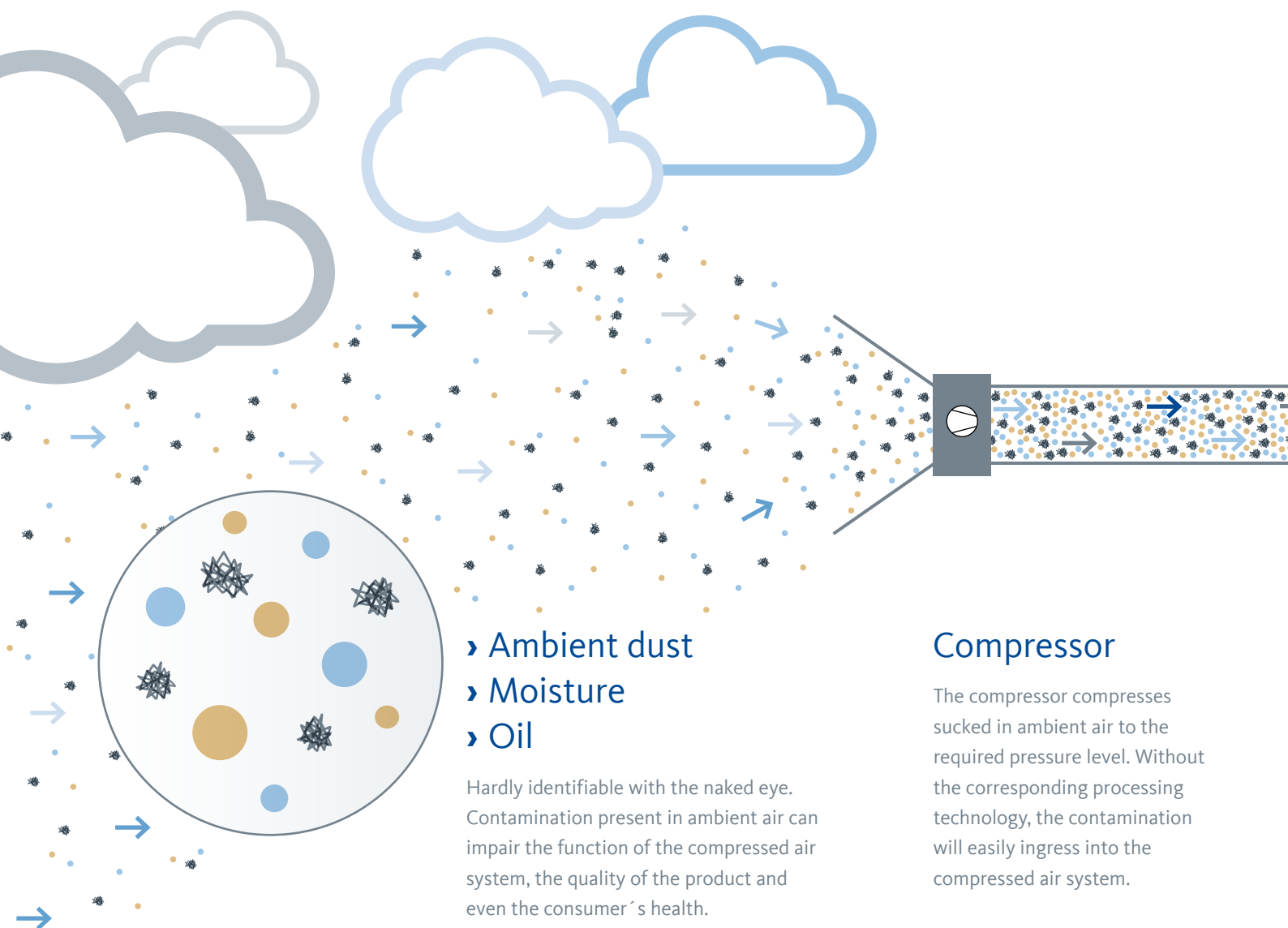
Better through Responsibility



# Quality is success:

## Compressed air processing

Modern production technology requires compressed air. Depending on the application, the requirements range from dry and oil-free up to absolutely sterile. We provide the suitable processing technology for every compressed air quality.



## The correct compressed air processing concept makes the difference!

Compressed air is an important energy resource in almost every industry. The required quality varies from branch to branch and from application to application. The desire for optimum production processes, safe plants and cost-efficient operating methods still remains the same. We can fulfil this from the compressed air generator to the application with safe, reliable and worldwide tried and tested processing technology.



### › Condensate technology

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### › Measurement technology / Process technology

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e.g. automotive and production industries



e.g. food industry



e.g. chemical and pharmaceutical industries



# Condensate discharge and condensate processing: Clean, safe, better

Condensate occurs at virtually every point along the compressed air treatment process. It is mostly oil-contaminated and soiled with dirt particles. Condensate discharge therefore plays a central role in compressed air processing – for optimum compressed air quality for every application.

## Condensate discharge

**4** Million  
BEKOMAT®  
condensate drains  
sold worldwide



BEKOMAT® 16 | 20 | 12 | 13 | 14

We set worldwide standards for condensate discharge: with the BEKOMAT®, the first electronically level-regulated condensate discharge with volume adjustment and with intelligent electronics to minimise energy utilisation and costs.

### For every application

- › Volume adjusted condensate discharge by utilising capacitive sensor
- › The right solution for every application with our comprehensive product range
- › Reduced compressed air loss and energy costs
- › Fully automatic function, monitoring and self-cleaning routine
- › Durable and sturdy aluminium, hard coated and high pressure models
- › No delicate mechanical components
- › Easy installation and operation



# Condensate processing

Professional handling of discharged condensate is an important contribution for environmental protection. Our ÖWAMAT® oil-water separation system ensures safe and cost-effective disposal for dispersed condensates. Condensate containing emulsifiers is pro-

cessed by our BEKOSPLIT® reaction release plant reliably and economically. The treated condensate can subsequently be disposed of into the foul drain as cleaned water in both cases.

## For safe processing on site

- › Oil-water separation system for dispersed condensate
- › Available as plant-aligned in various installation sizes
- › Rapid, clean and tried and tested for decades
- › Functionally safe, also with fluctuating condensate volume
- › Intuitive operation and simple handling
- › Up to 40 % less CO<sub>2</sub> emissions compared to customary activated carbon filters



ÖWAMAT® 10 | 11 | 12 | 14



BEKOSPLIT® 12 | 14


## For really harsh cases

- › Most purchased emulsion splitting plant for compressed air condensates
- › Processing emulsion-containing condensate up to, and including, water insoluble organic contamination like oil and solid material
- › Optimally suitable for compressor condensate
- › Completely automated operation
- › Highly effective reaction release agent does away with continuous pH adjustment
- › Huge reduction in waste volume to below 0.5 %

**Used Worldwide: our tried and tested, million times installed solutions for condensate technology.**

# Compressed air filtration: always top quality

Compressed air must be freed of aerosols, oil and particles before it is conveyed into your application. The contamination resulting from the ambient air and compressor operation can damage your production plant or system and ruin the product. CLEARPOINT® compressed air filters ensure pure compressed air and save energy and costs – in every quality class and pressure stage.

Compressed air class (ISO 8573-1)	Filter stages							
		Water separator CLEARPOINT® W <b>H<sub>2</sub>O</b>	Coarse Filter CLEARPOINT® C <b>25 µm</b> <b>4 . - . 4</b>	Fine filter CLEARPOINT® F <b>1 µm</b> <b>2 . - . 2</b>	Ultra-fine filter CLEARPOINT® S <b>0.01 µm</b> <b>1 . - . 2*</b>	Activated carbon filter CLEARPOINT® A/V <b>Oil vapour Odours</b> <b>- . - . 1</b>	Sterile filter CLEARPOINT® SR <b>Bacteria, viruses, Micro-organisms</b>	Vapour filter CLEARPOINT® ST <b>25 – 1 µm</b>
Pressure level Up to 16 bar								
50 bar								
100 – 500 bar								

\* Class 1 can also be achieved depending on ambient and operating conditions

# Up to 16 bar

Depending on the plant specifications, CLEARPOINT® filters are the solution with robust aluminium housings and threaded connections or as a welded container with flange connection for larger performance ranges. Always integrated: 3eco filter elements which considerably lower the pressure difference.



CLEARPOINT® Flange filter with BEKOMAT®



CLEARPOINT® Threaded filter with BEKOMAT®



# 100 up to 500 bar

## Designed for harsh conditions

- › Robust stainless steel housing for long service duration and effective protection against corrosion and aggressive condensate
- › High temperature resistance from up to 120 °C
- › Easy to change element in confined spaces

# Up to 50 bar

## Higher performance under high pressure

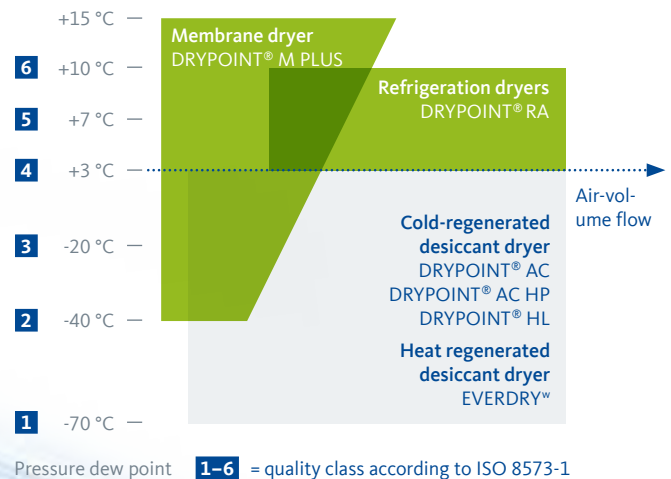
- › Streamlined housing
- › Optimum protection against corrosion and aggressive condensates by using seawater resistant aluminium, completely anodised and powder coated
- › Totally sealed by utilising special locking
- › Warning signal when attempting to open under pressure

Optimised for highest possible safety.  
Our quality promise from the processing chain to the product.



# Compressed air drying: The optimal solution for every application

Moisture and humidity in the compressed air system create a permanent danger for the operating process. Our comprehensive programme of refrigeration, membrane and desiccant dryers provides coverage for a wide scope of degrees of drying. Quality classes and can achieve a pressure dew point between +15 and -70 °C for every volume flow. This enables us to have exactly the right drying solution – including the highest possible process safety.



## Refrigeration dryers

Refrigeration dryers are used in compressed air systems worldwide and represent the current state of technology. They represent the most economic method for drying compressed air: For fluctuating volume flows, the DRYPOINT® RA eco with intelligent control saves considerable energy. If there are stable conditions present, then the DRYPOINT® RA provides the most efficient solution.

### Impressively efficient

- › Large variety choice from intelligent cycling dryers to frequency-regulated cycling dryers up to, and including, tried and tested standard solutions
- › For volume flows from 20 up to 13,200 m³/h
- › Reliable, safe, cost-effective



DRYPOINT® RA

DRYPOINT® RA eco



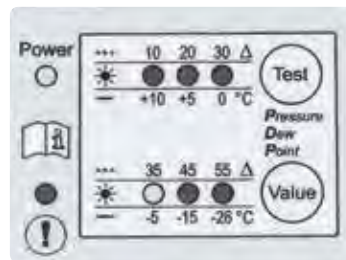


# Membrane dryer

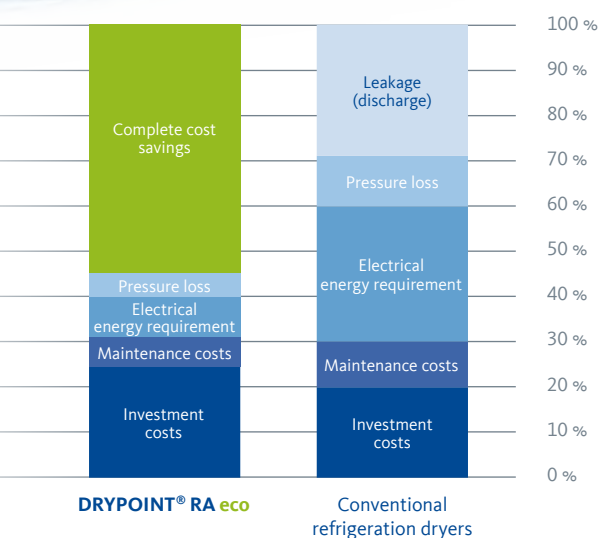
Compact and reliable: Membrane dryers use high quality diaphragms to dry the compressed air. They are able to achieve pressure dew points between +15 and -40 °C and this is a reason why they are therefore widely used for a wide range of applications also with interchanging operating conditions.

## The diverse all in one solution

- › Nanofilter and dryer combined in one housing
- › No electricity required for pure drying method
- › DRYPOINT® M eco control – the first regulating capable membrane dryer: Operating manner and degree of drying can be set optimally for the application



DRYPOINT® M eco control



The majority of the service duration costs for a refrigeration dryer result from ongoing operating costs. The requirement-related operation of the eco model series enable a reduction in the complete costs of up to 55 % in the first 5 years.

# Cold-regenerating desiccant dryer

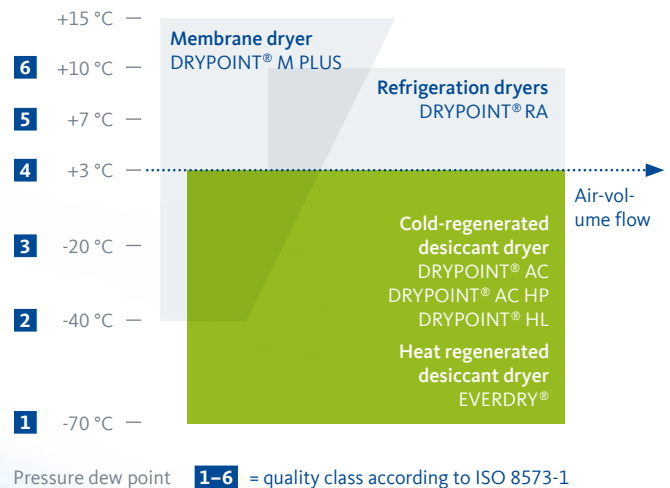
Challenging ambient conditions and high air volume flows demand special compressed air dryers that can handle such loads. Our cold-regenerating desiccant dryers are extremely robust and durable due to their high-quality components.



DRYPOINT® AC HP

## Efficient for all requirements

- › A comprehensive range for volume flows from 10 up to 8,200 m³/h and a pressure range from 4 up to 420 bar
- › Safe and reliable for trouble-free, smooth and economic production processes
- › Reduced operating costs by reducing compressed air failure



DRYPOINT® AC 410-495

# Heat-regenerating adsorption dryer:

The EVERDRY® heat-regenerating adsorption dryer completes our range for application-optimised products for compressed air drying. EVERDRY® stands for customer-oriented, customised plant construction utilising standardised, high-performance concepts. They enable complex task requirements for compressed air drying with large volume flow rates to be solved especially economically. The solution-oriented, optimal technology determines the concept for the drying plant.



EVERDRY® HOC-R



EVERDRY® FRL

## As individual as the task

- › Customised solution based on standardised plant concept
- › Three individually, variable basic concepts: Regeneration by utilising blown-air, processing combination of refrigeration dryer as well as adsorption dryer by utilising compression heat
- › Optimally customised for branch and application specific requirements.
- › Worldwide aligned for climatic zones, local utilisation conditions and acceptance provisions as well as economical parameters

**Reliability based on experience: the complete drying programme for small to large volume flows from one source.**



# Measurement technology: Knowledge is the basis for good decisions

Quality is not just a coincidence, rather the result of controlled processes. Only when all the relevant data is identified is it then possible for the quality and energy management to decisively gain transparency, reaction capability and additional safety. The measuring technology from **BEKO TECHNOLOGIES** is an instrument which provides the database for monitoring and evaluating important parameters such as residual vapour content, volume flow, pressure, relative humidity and dew point.

## Sensor technology



Dew point measurement  
METPOINT® DPM



Pressure monitoring  
METPOINT® PRM



Leak detection  
METPOINT® LKD



Volume flow measuring  
METPOINT® FLM

Residual moisture and humidity, pressure, volume flow, leaks: four important specifying elements for more effectiveness in production. Sensor technology from **BEKO TECHNOLOGIES** precisely records all the relevant parameters on critical points for compressed air – an important fundamental basis for energy saving and cost saving decisions.

### For precise measuring for all influencing coefficients

- › Monitors every critical influencing coefficient in compressed air processing and thereby increases efficiency and safety
- › Helps to prevent possible malfunctions and compressed air losses
- › Enables clear cost assignment for every separate production process
- › Supports economic, effective dimensioning and optimisation for plant components

# Monitoring

Compressed air contaminated with oil is a danger for production plants, the environment and even for health – a risk which must not be underestimated especially in sensitive production areas. The METPOINT® OCV monitoring system controls the flowing compressed air permanently and therefore provides support for analysing and controlling compressed air quality.

## Oil-free processes, oil-free products

- › Continuous monitoring for oil vapour content in the compressed air in a range of thousandths of mg/m<sup>3</sup>
- › For identifying contamination sources
- › Certainty at all times for the compressed air purity



METPOINT® OCV compact

# Process technology

Production processes can be optimised with the pioneering process technology from **BEKO TECHNOLOGIES**. For economical plant operation and shorter cycle times.

## Increases productivity

- › BEKOBLIZZ® LC compressed air cooler for economic cooling with +5 °C cold compressed air
- › BEKOKAT® catalytic converter technology for constant, oil-free compressed air in highly sensitive applications
- › Activated-carbon adsorber CLEARPOINT® V for efficient oil vapour adsorption



# Visualising and data logging

One can only see quality – when one can record it. Our data logger translates the process data into easy to view statistics and graphics. You can therefore comprehend the measured values simply and in real time and immediately implement necessary measures when required. From every location, at all times.



METPOINT® BDL

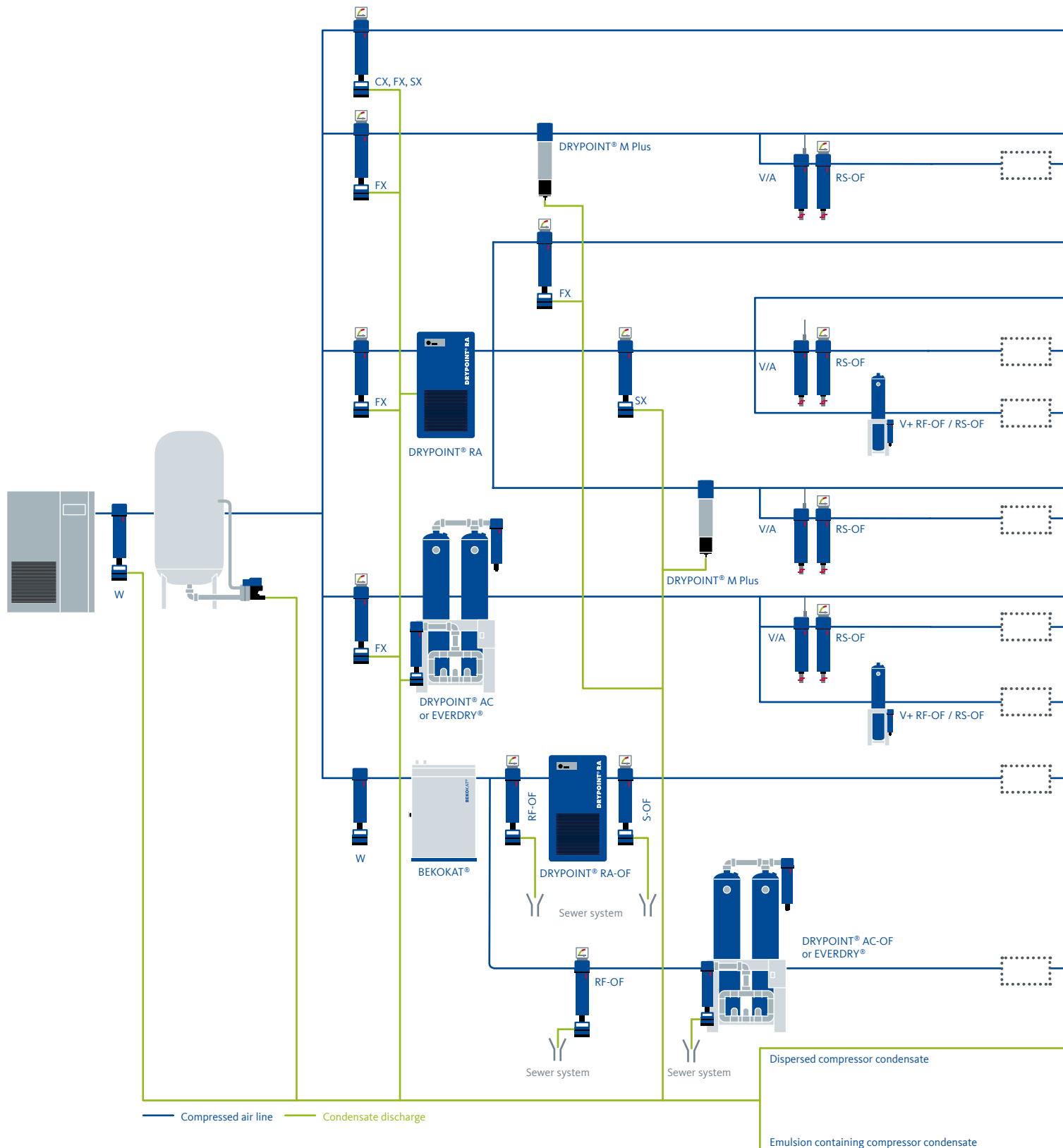
## Making the invisible visible

- › Central signal processing unit: complete monitoring with just one device
- › Independent solution which can be integrated in existing systems and can be retrofitted and extended at any time
- › Completely networked for worldwide and system overarching data transfer

**We can make the compressed air quality visible – and also solutions for it!**

# The compressed air schedule:

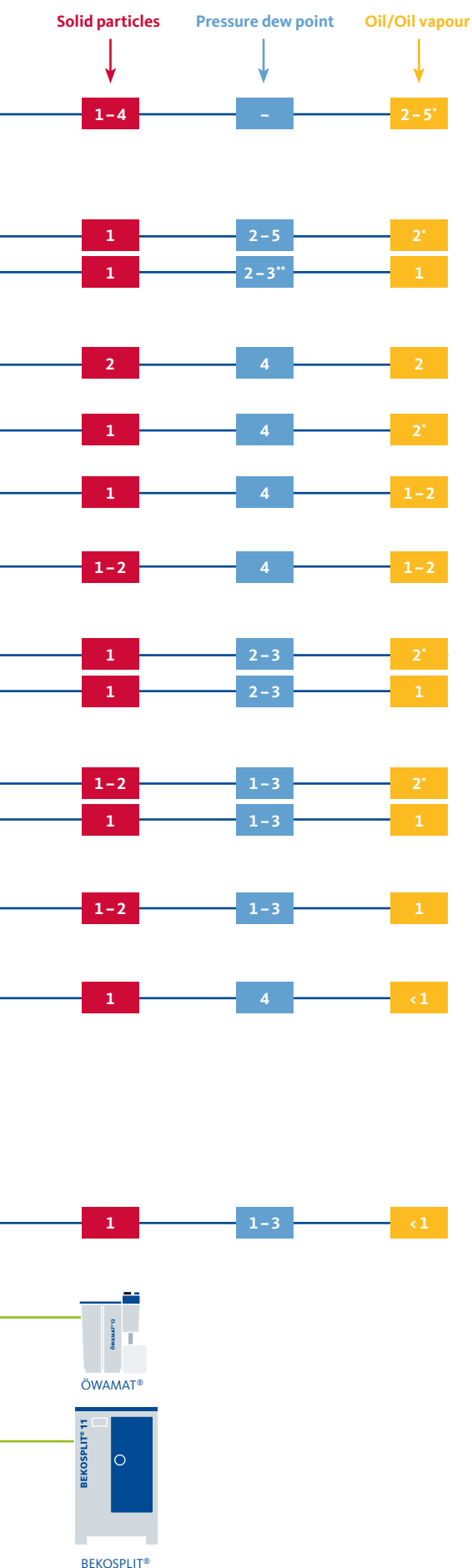
## All possibilities at a glance



\* Class 1 can also be achieved depending on the ambient and operating conditions (aspiration air, ambient temperature, type of compressor, type of oil etc.),

\*\* Relative humidity at inlet of activated carbon filter (temperature-dependent) maximum 30 %





## Air quality according to ISO 8573-1:2010

Class	Solid particles,max. number of particles per m³			Pressure dew point	Oil content (liquid, aerosol, oil vapour)
	0,1 µm < d ≤ 0,5 µm	0,5 µm < d ≤ 1,0 µm	1,0 µm < d ≤ 5,0 µm	°C	mg/m³
0	In accordance with the device operator's or supplier's specification, stricter requirements than class 1				
1	≤20,000	≤400	≤10	≤-70	≤0.01
2	≤400,000	≤6,000	≤100	≤-40	≤0.1
3	-	≤90,000	≤1,000	≤-20	≤1
4	-	-	≤10,000	≤+3	≤5
5	-	-	≤100,000	≤+7	> 5
6	-	-	-	≤+10	-

Measured according to ISO 8573-4, reference conditions 1 bar absolute 20 °C, 0% rel. humidity

Measured according to ISO 8573-3

Measured according to ISO 8573-2 and ISO 8573-5, reference conditions 1 bar absolute, 20 °C, 0% rel. humidity

Sterile filter as an option for sterile compressed air

	<b>CLEARPOINT® 3eco</b> coalescing filter CX/FX/SX with BEKOMAT® Option: Differential pressure gauge or BEKOMAT® 20 with filter management		<b>DRYPOINT® RA</b> Refrigeration dryer with BEKOMAT® PDP +3 °C
	<b>CLEARPOINT®</b> Dust filter RF/RS-OF with manual drain oil-free cleaned Option: Differential pressure gauge		<b>DRYPOINT® M Plus</b> Membrane dryer with integrated nanofilter DTP +15 ... -40 °C
	<b>CLEARPOINT® A</b> Activated carbon filter Option: Oil indicator		<b>CLEARPOINT®</b> Sterile filter PIT/PIF/PIW +FE ... SR
	<b>CLEARPOINT® V</b> Activated carbon cartridge Option: Oil indicator		<b>DRYPOINT® AC</b> Desiccant dryer with inlet- and dust filter
	<b>CLEARPOINT® V</b> Activated carbon adsorber with RF-dust filter		<b>BEKOSPLIT®</b> Emulsion splitting plant for emulsion containing compressor condensates
	<b>CLEARPOINT® W</b> Water separator with BEKOMAT®		<b>BEKOKAT®</b> Catalytic converter
	<b>ÖWAMAT®</b> Oil/water separator For dispersed compressor condensate		<b>Compressed air vessel</b> with BEKOMAT®
	<b>EVERDRY®</b> Heat regenerated desiccant dryer		

# At home in every application – worldwide!

For over three decades we have represented products, systems and solutions which ensure the desired compressed air quality in our customer's production processes and make them more efficient. Reliable, high-performing and tried and tested worldwide!

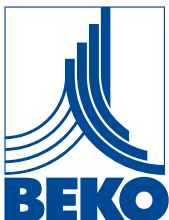


## This is **BEKO TECHNOLOGIES**:

- › Established by Berthold Koch in Germany in 1982
- › Independent, family-owned company
- › Head quarters based in Neuss, Germany
- › Operates production plants in Germany, the USA, India and China
- › Global sales network

**BEKO TECHNOLOGIES LTD.**  
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**Better through Responsibility**



We reserve the right to introduce technical amendments, E&EO.