



## Drying | DRYPOINT® M eco control

# A class of its own: The electronically controlled DRYPOINT® M eco control membrane dryer

The DRYPOINT® M eco control is the first drying system which has been developed that automatically responds to fluctuating operating conditions. Purge air, and energy, is only consumed when actual dryer performance is required. The compact DRYPOINT® M eco control combines low running costs with excellent operational safety and short response times. This is precisely why this product series also bears our eco seal.

There are two operating modes to determine the dryers behaviour under fluctuating operating conditions (pressure, temperature and air volume):

### Constant Mode:

Setting a stable outlet pressure dew point.

### Dynamic Mode:

Stable difference between compressed air temperature and outlet pressure dew point.



### › Unique

- › Patented system made of proven components like membrane dryers, controls and sensors
- › Low maintenance - only filter element exchange
- › Constant high compressed air quality even under changing operating conditions
- › Individual adjustment of degree of drying

### › Safe

- › "Fail-safe" function: even in the event of a power failure the compressed air is dried reliably
- › Simple operation
- › Potential free contact

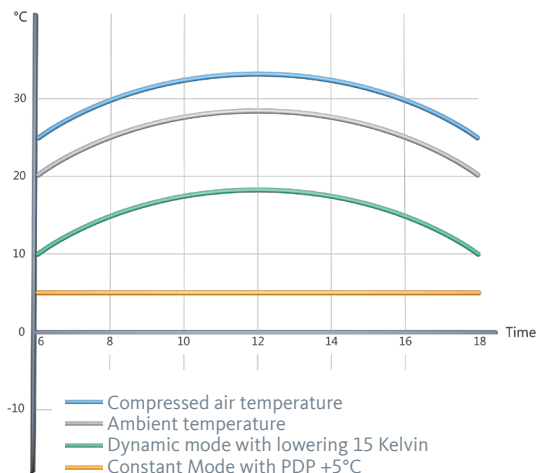
### › Energy-efficient

- › Energy consumption only when dryer performance is to be provided
- › Ideal for intermittent compressed air demand
- › Can be utilised at point of use as well as for the partial flow preparation

### › Network ready

- › Performance evaluation and display via analogue interface for data transfer (e.g. with METPOINT® UD01)

# The right operating mode for every application

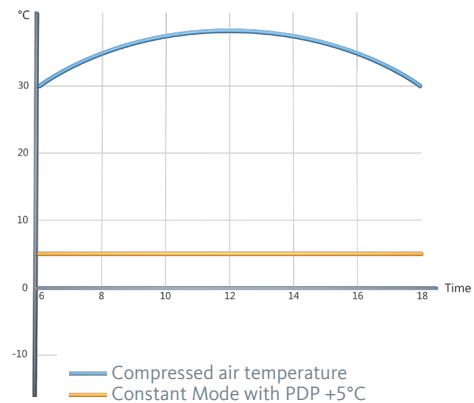


When it comes to fixed pressure dew points, the DRYPOINT® M eco control closes the gap between refrigeration and adsorption dryers. Depending on the requirements of your application, you can choose between two operating modes: "Constant Mode" when it comes to stable pressure dew points and "Dynamic Mode" when a safe difference to the compressed air temperature is crucial.

The operating mode or the application-specific degree of drying can be selected quickly and easily via the user-friendly interface. The set mode and state are clearly indicated by LEDs. The interface for data transfer enables user-friendly performance evaluation and visualisation, for example by means of a connection with the METPOINT® BDL Data Logger from BEKO TECHNOLOGIES.

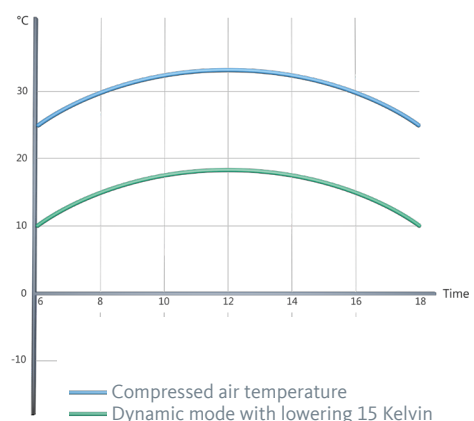
## Operating mode „Constant Mode“

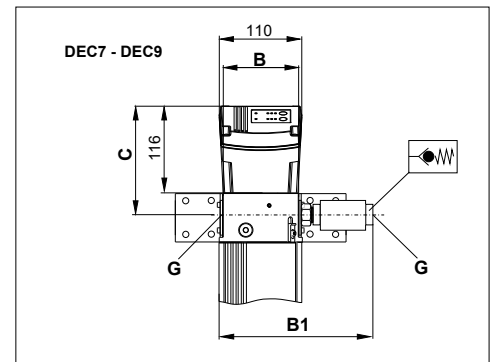
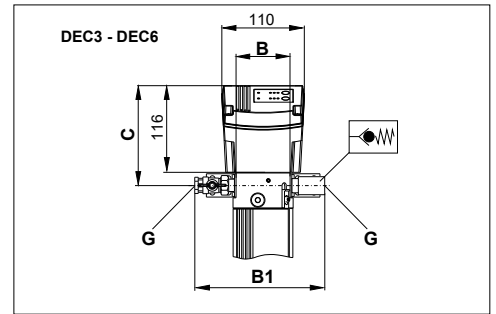
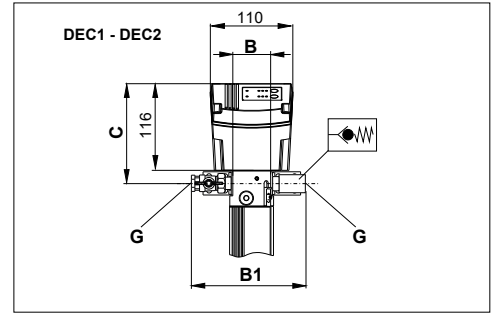
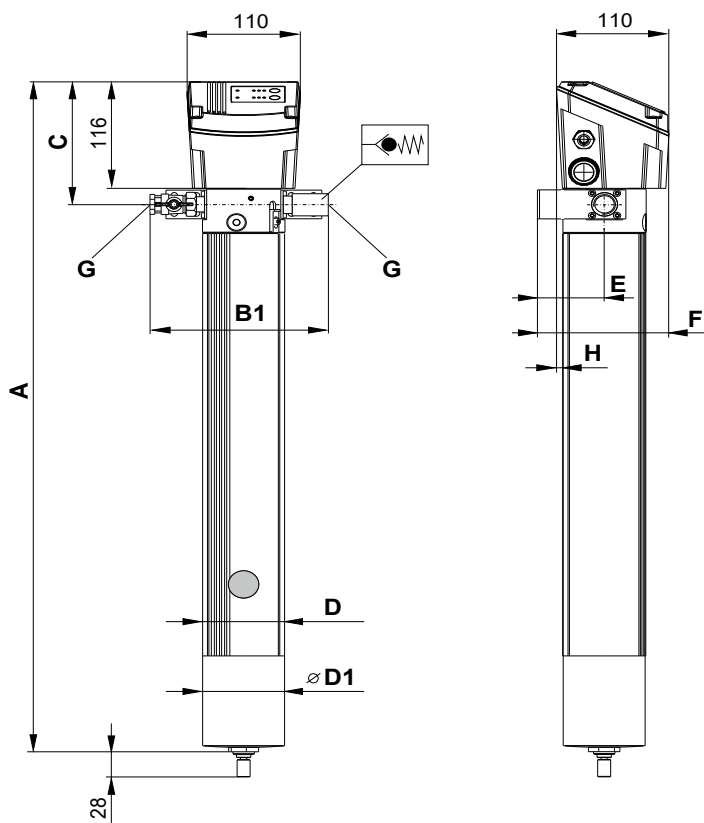
The DRYPOINT® M eco control retains the set outlet pressure dew point as stable between +10 and -26 °C, even with changing operating conditions. This means you can rely on the required drying values being provided at any time.



## Operating mode “Dynamic Mode”

In this operating mode, the pressure dew point is reduced relative to the compressed air temperature by a specified difference between 10 and 55 Kelvin. If the inlet temperature changes, the pressure dew point will automatically follow suit. That provides complete safety so that, even with changing compressed air temperatures, the right degree of drying is always maintained.





| Dimensions  | DEC 1-30S   | DEC 2-40S   | DEC 3-60S   | DEC 4-80S   | DEC 5-115S  | DEC 6-135S  | DEC 7-165S  | DEC 8-250S  | DEC 9-330S  |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| A (mm)      | 625         | 685         | 695         | 745         | 815         | 885         | 889         | 1029        | 1179        |
| B (mm)      | 52          | 52          | 72          | 72          | 72          | 72          | 104         | 104         | 104         |
| B1 (mm)     | approx. 195 | approx. 195 | approx. 215 | approx. 215 | approx. 215 | approx. 215 | approx. 210 | approx. 210 | approx. 210 |
| C (mm)      | 133         | 133         | 133         | 133         | 133         | 133         | 141         | 141         | 141         |
| D/D1 (ø mm) | 60/60       | 60/60       | 80/80       | 80/80       | 80/80       | 80/80       | 120/120     | 120/120     | 120/120     |
| E (mm)      | 65          | 65          | 63          | 63          | 63          | 63          | 78          | 78          | 78          |
| F (mm)      | 128         | 128         | 126         | 126         | 126         | 126         | 141         | 141         | 141         |
| G (mm)      | 1/2"        | 1/2"        | 1/2"        | 1/2"        | 1/2"        | 1/2"        | 1"          | 1"          | 1"          |

| Technical data                             | DEC 1-30S                                                                                                                                          | DEC 2-40S | DEC 3-60S | DEC 4-80S | DEC 5-115S | DEC 6-135S | DEC 7-165S | DEC 8-250S | DEC 9-330S |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Size of DRYPOINT® M plus                   | 10-41                                                                                                                                              | 10-47     | 20-48     | 20-53     | 20-60      | 20-67      | 40-61      | 40-75      | 40-90      |
| Min./max. Operating overpressure           | 4 ... 10 bar                                                                                                                                       |           |           |           |            |            |            |            |            |
| Overpressure protection                    | Pressure compensation plug                                                                                                                         |           |           |           |            |            |            |            |            |
| Min./max. storage/transport temperature    | +2 ... +50 °C                                                                                                                                      |           |           |           |            |            |            |            |            |
| Min./max. Ambient temperature              | +2 ... +50 °C                                                                                                                                      |           |           |           |            |            |            |            |            |
| Min./max. media temperature                | +2 ... +50 °C                                                                                                                                      |           |           |           |            |            |            |            |            |
| Medium                                     | Fluid group 2: Compressed air/nitrogen                                                                                                             |           |           |           |            |            |            |            |            |
| Medium and quality at membrane dryer inlet | Only neutral medium in accordance with PED 2014/68/EU with Class [3: - :3] ISO 8573 - 1                                                            |           |           |           |            |            |            |            |            |
| Noise level                                | << 45 dB (A), no expansion pop                                                                                                                     |           |           |           |            |            |            |            |            |
| Installation position                      | Vertical                                                                                                                                           |           |           |           |            |            |            |            |            |
| Weight                                     | 3.4 kg                                                                                                                                             | 3.6 kg    | 4.9 kg    | 5.2 kg    | 5.5 kg     | 5.8 kg     | 10.9 kg    | 12.0 kg    | 13.1 kg    |
| Materials                                  | Media-contacting parts as corrosion-proof<br>Materials conforming to RoHS and REACH regulations<br>Plastic components conforming to UL regulations |           |           |           |            |            |            |            |            |
| Integrated nanofilter                      | 0.01 µm / 0.005 mg/m³                                                                                                                              |           |           |           |            |            |            |            |            |
| Pressure loss                              | 0.1 - 0.3 bar, depending on compressed air volume flow                                                                                             |           |           |           |            |            |            |            |            |
| PDP outlet settings                        | +10 / +7 / +5 / +3 / 0 / -5 / -10 / -15 / -20 / -26 °C                                                                                             |           |           |           |            |            |            |            |            |
| PDP difference settings                    | 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 K (Kelvin)                                                                                         |           |           |           |            |            |            |            |            |

| Electrical data                                         |                                                                                                                                |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage                                       | 95 ... 240 VAC ± 10 % (50 ... 60 Hz) / 100 ... 125 VDC ± 10 %<br>or 24 ... 48 VAC ± 10 % (50 ... 60 Hz) / 18 ... 72 VDC ± 10 % |
| Power consumption                                       | maximum 20 VA (W) with permanently closed solenoid valve                                                                       |
| Recommended wire cross-section                          | min. 0.5 mm²                                                                                                                   |
| Recommended connection cable                            | 2-wired, diameter 5 ... 10 mm                                                                                                  |
| Protection class control unit                           | IP 54                                                                                                                          |
| Min. /Max. contact spring load (potential-free contact) | max. 48 VAC / 1 A or 30 VDC / 1 A; min. 5 VDC / 10 mA                                                                          |
| Signal output                                           | 4...20 mA (PDP outlet)                                                                                                         |
| Interfaces                                              | 2 x cable connection M16, cable diameter 5 ... 10 mm                                                                           |

| PDP inlet |        |       | Volume flow inlet in l/minute at 7 bar [g] |           |           |           |            |            |            |            |            |
|-----------|--------|-------|--------------------------------------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| +35 °C    | +20 °C | +5 °C | DEC 1-30S                                  | DEC 2-40S | DEC 3-60S | DEC 4-80S | DEC 5-115S | DEC 6-135S | DEC 7-165S | DEC 8-250S | DEC 9-330S |
|           | +10°C  |       | 390                                        | 520       | 780       | 1040      | 1440       | 1690       | 2000       | 3050       | 4050       |
|           | +5°C   | -5°C  | 310                                        | 410       | 615       | 820       | 1140       | 1340       | 1600       | 2380       | 3180       |
| +10°C     | 0°C    | -10°C | 244                                        | 325       | 495       | 655       | 910        | 1070       | 1280       | 1900       | 2540       |
| +5°C      | -5°C   | -15°C | 208                                        | 278       | 417       | 556       | 780        | 915        | 1090       | 1650       | 2190       |
| 0°C       | -10°C  |       | 182                                        | 242       | 364       | 485       | 685        | 805        | 970        | 1480       | 1960       |
| -5°C      |        | -20°C | 162                                        | 216       | 324       | 432       | 615        | 725        | 870        | 1330       | 1770       |
| -10°C     | -15°C  |       | 149                                        | 198       | 297       | 396       | 565        | 665        | 805        | 1230       | 1630       |
| -15°C     | -20°C  | -26°C | 136                                        | 182       | 273       | 364       | 520        | 610        | 745        | 1130       | 1500       |
| -20°C     | -26°C  |       | 127                                        | 169       | 253       | 338       | 484        | 570        | 690        | 1050       | 1390       |
| -26°C     |        |       | 118                                        | 157       | 236       | 315       | 452        | 530        | 640        | 975        | 1300       |

| PDP outlet                          | DEC 1-30S | DEC 2-40S | DEC 3-60S | DEC 4-80S | DEC 5-115S | DEC 6-135S | DEC 7-165S | DEC 8-250S | DEC 9-330S |
|-------------------------------------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|
| Purge air in l/minute at 7 bar [g]* | 30        | 40        | 60        | 80        | 115        | 135        | 165        | 250        | 330        |
| Measuring gas (l/min) at 7 bar [g]  | approx. 5 | approx. 5 | approx. 5 | approx. 5 | approx. 5  | approx. 5  | approx. 5  | approx. 5  | approx. 5  |

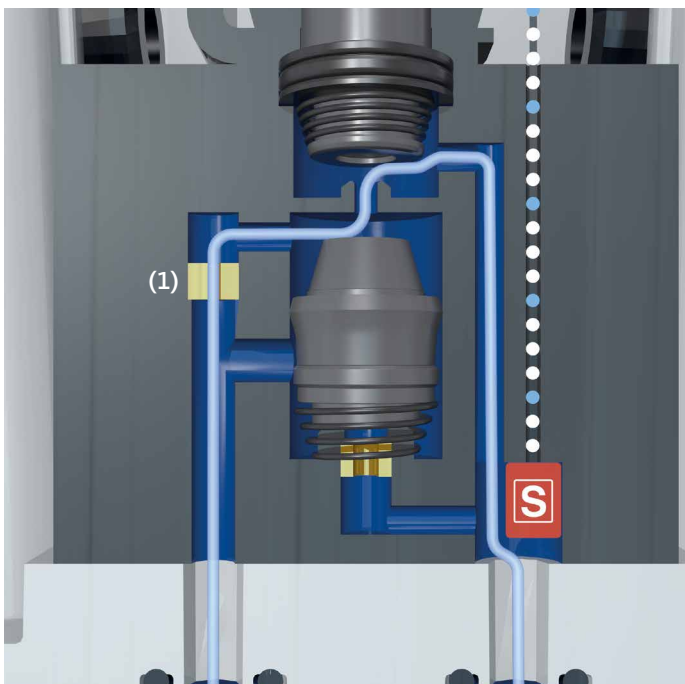
| Operating pressure correction factors |      |      |      |   |      |      |      |
|---------------------------------------|------|------|------|---|------|------|------|
| Operating pressure bar [gauge]        | 4    | 5    | 6    | 7 | 8    | 9    | 10   |
| Correction factor, performance        | 0.39 | 0.56 | 0.77 | 1 | 1.19 | 1.4  | 1.61 |
| Correction factor, purge air          | 0.63 | 0.75 | 0.87 | 1 | 1.12 | 1.25 | 1.37 |

\* The intrinsic permeability is approx. <5 % relating to the max. purge air volume.

# Operating principle for the DRYPOINT® M eco control

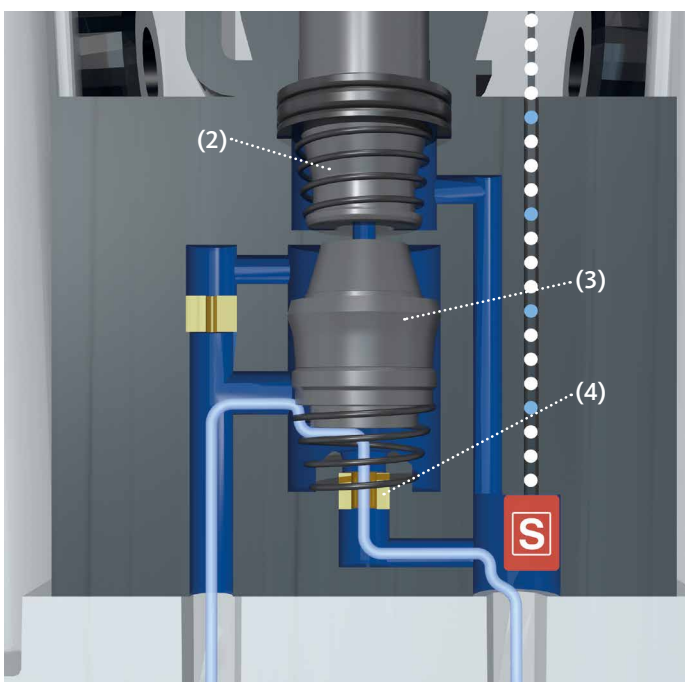
The control software decides in cycles if and for how long the complete purge air volume is to be supplied in order to achieve and stabilise the required degree of drying. This process is implemented via a targeted timed sequence of a solenoid valve.

The duration for both subsequent described process steps therefore varies in every cycle to retain the degree of drying within the specified tolerance range.



## Function: Measuring gas flows

A very small partial flow of the dried compressed air (measuring gas) flows continuously through the internal channel to a temperature and humidity sensor (S) over to the measuring gas nozzle (1). This sensor continuously detects the degree of drying of the compressed air in the sample gas and reports the result to the control.



## Function: Purge air flows

The control system continuously compares the measured degree of drying of the measuring gas with the individual specified set point value on the DRYPOINT® M eco control. The valve unit will be actuated with deviations: Magnetic core (2) and piston (3) close the valve seat and compressed air flows through the purge air nozzle (4) to the membrane dryer. The drying process commences immediately.

# Versatile application capability

The electronically controlled drying system DRYPOINT® M eco control is versatile due to its special properties:

**Universal:** when the degree of dryness should be set individually

**Efficient:** Purge air and energy is only consumed when actual dryer performance is required, e.g. with fluctuating compressed air withdrawal

**Constant:** when safely retained pressure dew point is also important with changing operation conditions

**Safe** due to its "fail safe" function, it is protected against failure and always delivers dried compressed air

**Frost proof:** When areas prone to cold require that condensation and freezing should be reliably excluded

**Compact:** with reduced installation space, it delivers regulated dryer and filtration performance



## Do **you** have questions about the best way of processing your compressed air?

We have the answers! We offer efficient solutions for any type of processing chain. Please contact us with your queries. We would be delighted to tell you more about our condensate

treatment, filtration, drying, measuring and process technology, and our comprehensive services.

Visit us at



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