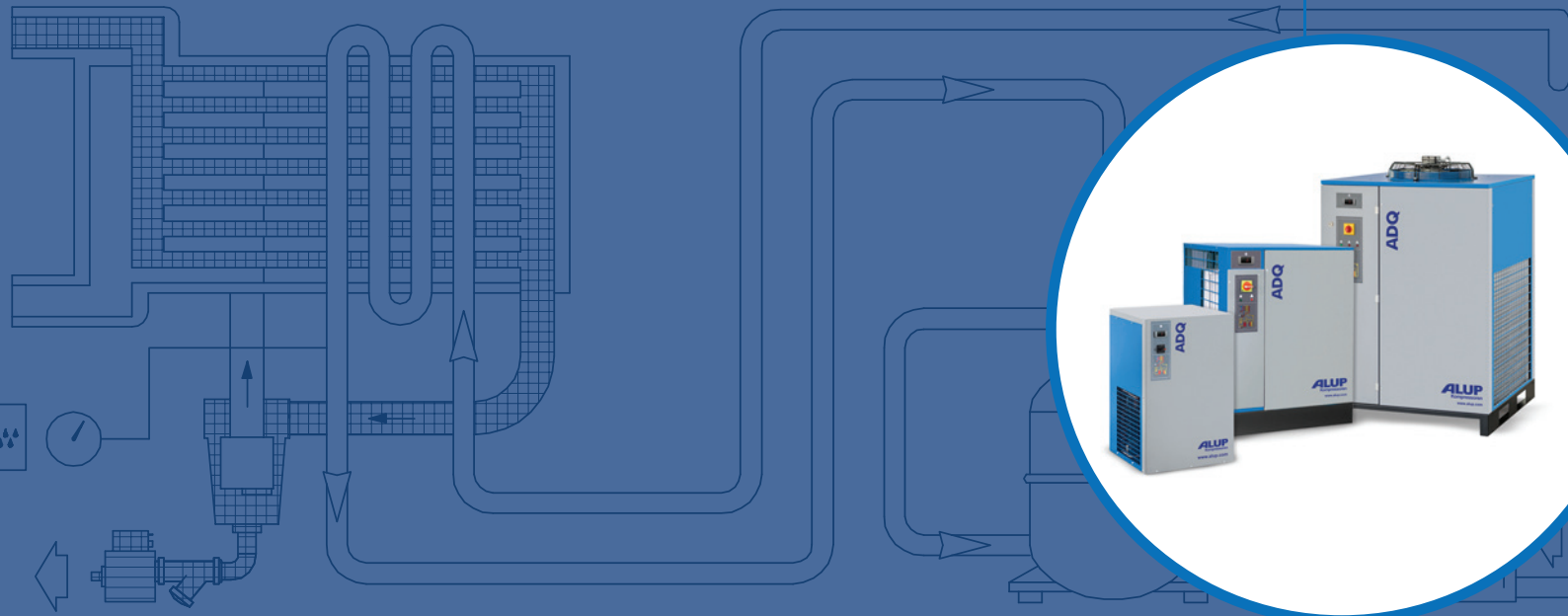


# ADQ

## Refrigeration dryers



ADQ 21-5040

**ALUP**  
Kompressoren

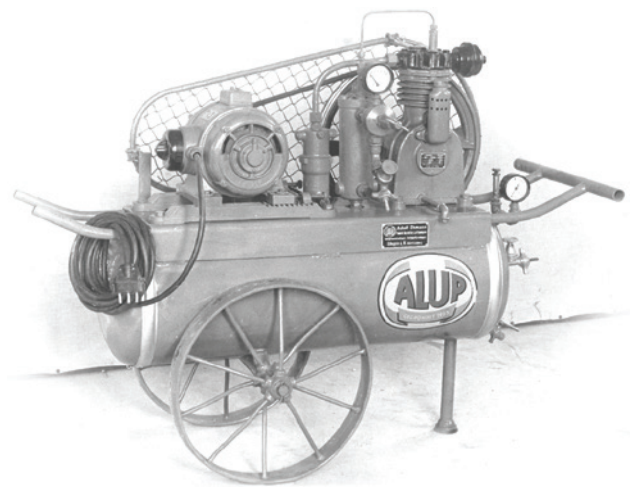


## ALUP's heritage

Founded in Germany in 1923, the company derives its name of the automotive products that were manufactured in the Köngen' mechanical workshop where ALUP came into existence: Auto-LUft-Pumpen. Only two years later, the first range of piston compressors was being developed, whilst in 1980 rotary screw compressors were added to the product offer.

Over time, experience grew and innovation prospered, leading to today's high quality product portfolio. As such, the name ALUP Kompressoren has become synonymous with innovative technology blended with a strong sense of tradition.

Today, ALUP Kompressoren is still operating out of its home town Köngen, where everything started in 1923.



## Driven by technology Designed by experience

Discover what happens when a passion for technology is fused with hands-on industrial experience. Designs evolve towards more practical installation and maintenance, giving you the freedom to focus on your job. Product ranges include the exact machine you need, with the right options for your performance needs. Return on investment is ensured, while your carbon footprint shrinks. And, because we stay close to our customers, we're one step ahead when your needs change.



## The range that meets your requirements

*During the compression process, a compressor turns humidity in the intake air into condensate. This will cause wear and corrosion to the compressed air network and downstream equipment. The results are costly interruptions to production and reduction in the efficiency and service life of the equipment used. Refrigeration dryers prevent these negative consequences, condensing the water in the air and removing it.*

### Clean and dry air brings you value

- Protect the air network from corrosion, rust and leakages.
- Improve final product quality.
- Boost productivity.
- Reduce maintenance costs.
- Prolong the life span of your air network and pneumatic tools.

### User-friendly operation

- Refrigeration technology is straightforward and requires little maintenance.
- Quick air quality check via dew point display.
- Compatible with any compressor technology and complying with over 95% of the industrial applications (reaching a PDP of maximum +3°C at reference conditions).

### Easy installation

- Very compact design.
- Easily installed, also in limited spaces thanks to the small footprint.
- Easy and fast installation of the filters and by-pass option.

### Environmental friendly refrigerant gases

- Lowest possible environmental impact.
- Use of R134a, R410A and R452A refrigerant gas.
- No impact on the ozone layer.
- Gas R410A benefits:
  - Low Global Warming Potential (GWP).
  - Energy saving by use of rotary refrigerant compressor.



# The highest standards



## Boost your productivity

- Quality components ensure low pressure drop, stable pressure dew point and efficient cooling.
- Clean and dry compressed air increases the overall productivity of your operations.

## Cost-efficient solution

- None or very little maintenance required.
- Very low energy consumption and high energy saving due to low pressure drops throughout the system.

## Easy installation and access

- Compact design, small footprint and simple layout.
- Extremely easy to install.

## User-friendly operation

- Straightforward control panel with easy access to all the electrical components.
- Easy reading from dew point display indicating all relevant information.



- 1 **Refrigerant compressor** driven by an electric motor, cooled using refrigerant fluid and protected against thermal overload.
- 2 **Refrigerant condenser** air-cooled and with a large exchange surface for high thermal exchange.
- 3 **Motor-driven fan** for the condenser cooling air flow.
- 4 **Air-air exchanger** with high thermal exchange and low load losses.
- 5 **Air/refrigerant evaporator** with high thermal exchange and low leakage rates.
- 6 **Condensate separator** for high efficiency.
- 7 **Hot gas bypass valve** controls the refrigerant capacity under all load conditions preventing any formation of ice within the system.
- 8 **Control panel** indicating all relevant information.
- 9 **Free contacts** as standard for the range ADQ 600-5040 for a:
  - Remote start/stop
  - Remote general alarm
  - Remote drain alarm

## Personalized for you: features and options

### PDP display

The operation of the ADQ dryer is monitored by an electronic controller indicating all relevant information:



### Technical details

- Status of the refrigerant dryer and fan.
- Dew point display.

### Alarm display

- Alarm about high or low dew point.
- Fan probe failure (ADQ 72-462).
- Service warning.

### Control panel with free contact (on request) for a:

- PDP alarm.
- High refrigerant temperature.
- Fan probe failure.

## Standard features (for ADQ 600-5040)

Free potential contacts for a:

- General alarm:
  - High/low PDP alarm
  - High-refrigerant temperature
  - Probe failures
  - High-pressure switch
  - Electrical failure
- Drain alarm
- Remote start / stop



## Intelligent capacitive drain discharge

The full refrigerant dryer range is equipped with a level-controlled condensate drain, using electronic level sensors to discharge only condensate without wasting any compressed air. This grants you the following benefits:

- Only water is discharged, no compressed air.
- Energy saving.
- No noise and environmentally friendly.

## Available options (for ADQ 21-110)

### Bypass valve and filter support\*

Allows the system to operate using the filters only during maintenance or malfunction of the dryer, thus avoiding any downtime.

### Filter support\*

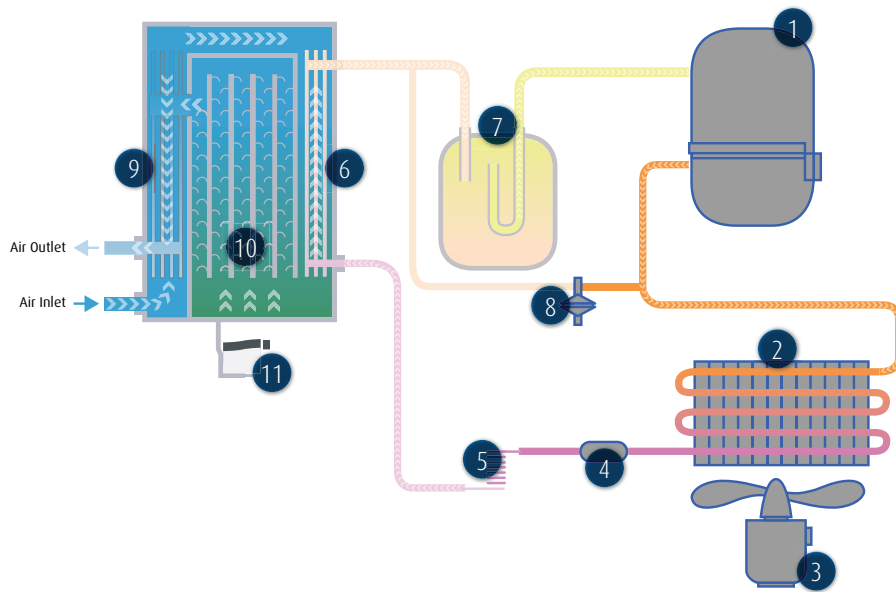
Allows two filters to be installed on the rear side of the dryer, reducing overall dimensions and installation costs.

\* Filters are not included in the option.



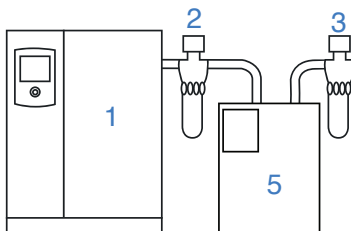
# Air drying principle

For many companies in today's competitive global market, the treatment of compressed air is not an option, but a necessity in view of operating costs and increased production efficiency. Based on an efficient and simple technology, refrigeration dryers represent the preferred solution for the majority of these applications. As a result the water from the air condenses and can be removed and a pressure dew point of +3°C can be reached at reference conditions.

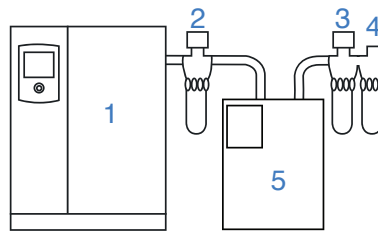


- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Air inlet</li> <li><span style="color: green;">■</span> Primary condensate flow</li> <li><span style="color: blue;">■</span> Secondary condensate flow</li> <li><span style="color: lightblue;">■</span> Air outlet</li> <li><span style="color: orange;">■</span> Refrigerant gas/liquid mixture</li> <li><span style="color: yellow;">■</span> Low pressure, cool refrigerant gas</li> <li><span style="color: red;">■</span> High pressure, hot refrigerant gas</li> <li><span style="color: pink;">■</span> High pressure, refrigerant liquid</li> <li><span style="color: lightpink;">■</span> Low pressure refrigerant liquid</li> </ul> | <ul style="list-style-type: none"> <li><span style="color: blue;">①</span> Refrigerant compressor</li> <li><span style="color: blue;">②</span> Refrigerant condenser</li> <li><span style="color: blue;">③</span> Fan</li> <li><span style="color: blue;">④</span> Refrigerant filter</li> <li><span style="color: blue;">⑤</span> Capillary tube</li> <li><span style="color: blue;">⑥</span> Air/refrigerant heat exchanger</li> <li><span style="color: blue;">⑦</span> Liquid separator</li> <li><span style="color: blue;">⑧</span> Hot gas by-pass valve</li> <li><span style="color: blue;">⑨</span> Air/air heat exchanger</li> <li><span style="color: blue;">⑩</span> Condensate separator</li> <li><span style="color: blue;">⑪</span> Automatic condensate drain</li> </ul> |
|---|---|

## Typical installations



High quality air with reduced dew point (air purity to ISO 8573-1: class 1:4:2)



High quality air with reduced dew point and oil concentration (air purity to ISO 8573-1: class 1:4:1)

1. Compressor with after cooler
2. G filter
3. C filter
4. V filter
5. Refrigerant dryer.

Vertical receiver is always recommended.

## Technical data

| TYPE     | Max. Working Pressure |     | Air Treatment Capacity |                   |      | Motor Power |          | Inlet/outlet Connections | Dimensions |      |      | Weight | Refrigerant gas |
|----------|-----------------------|-----|------------------------|-------------------|------|-------------|----------|--------------------------|------------|------|------|--------|-----------------|
|          |                       |     |                        |                   |      |             |          |                          |            | A    | B    | C      |                 |
|          | bar                   | psi | l/1'                   | m <sup>3</sup> /h | cfm  | W           | V/Hz/Ph  | Gas/DN                   |            |      |      | Kg.    |                 |
| ADQ 21   | 16                    | 232 | 350                    | 21                | 12,4 | 130         | 230/50/1 | 3/4" M                   | 493        | 350  | 450  | 19     | R134a           |
| ADQ 36   | 16                    | 232 | 600                    | 36                | 21,2 | 164         | 230/50/1 | 3/4" M                   | 493        | 350  | 450  | 19     | R134a           |
| ADQ 51   | 16                    | 232 | 850                    | 51                | 30,0 | 190         | 230/50/1 | 3/4" M                   | 493        | 350  | 450  | 20     | R134a           |
| ADQ 72   | 16                    | 232 | 1200                   | 72                | 42,4 | 266         | 230/50/1 | 3/4" M                   | 493        | 350  | 450  | 25     | R134a           |
| ADQ 110  | 16                    | 232 | 1825                   | 110               | 64,4 | 284         | 230/50/1 | 3/4" M                   | 493        | 350  | 450  | 27     | R134a           |
| ADQ 141  | 14                    | 203 | 2350                   | 141               | 83,0 | 674         | 230/50/1 | 1" F                     | 498        | 370  | 764  | 44     | R134a           |
| ADQ 180  | 14                    | 203 | 3000                   | 180               | 106  | 716         | 230/50/1 | 1" F                     | 498        | 370  | 764  | 44     | R134a           |
| ADQ 216  | 14                    | 203 | 3600                   | 216               | 127  | 660         | 230/50/1 | 1" 1/2 F                 | 558        | 460  | 789  | 53     | R410A           |
| ADQ 246  | 14                    | 203 | 4100                   | 246               | 145  | 663         | 230/50/1 | 1" 1/2 F                 | 558        | 460  | 789  | 60     | R410A           |
| ADQ 312  | 14                    | 203 | 5200                   | 312               | 184  | 835         | 230/50/1 | 1" 1/2 F                 | 558        | 460  | 789  | 65     | R410A           |
| ADQ 390  | 14                    | 203 | 6500                   | 390               | 230  | 1016        | 230/50/1 | 1" 1/2 F                 | 588        | 580  | 899  | 80     | R410A           |
| ADQ 462  | 14                    | 203 | 7700                   | 462               | 272  | 1136        | 230/50/1 | 1" 1/2 F                 | 588        | 580  | 899  | 80     | R410A           |
| ADQ 600  | 14                    | 203 | 10000                  | 600               | 353  | 1319        | 400/50/3 | 2" F                     | 898        | 735  | 962  | 128    | R410A           |
| ADQ 720  | 14                    | 203 | 12000                  | 720               | 424  | 1631        | 400/50/3 | 2" F                     | 898        | 735  | 962  | 146    | R410A           |
| ADQ 900  | 14                    | 203 | 15000                  | 900               | 530  | 1889        | 400/50/3 | 2" F                     | 898        | 735  | 962  | 158    | R410A           |
| ADQ 1080 | 14                    | 203 | 18000                  | 1080              | 636  | 2110        | 400/50/3 | 2" F                     | 898        | 735  | 962  | 165    | R410A           |
| ADQ 1440 | 14                    | 203 | 24000                  | 1440              | 848  | 3260        | 400/50/3 | 3" M                     | 1083       | 1020 | 1526 | 325    | R410A           |
| ADQ 1800 | 14                    | 203 | 30000                  | 1800              | 1060 | 3890        | 400/50/3 | 3" M                     | 1083       | 1020 | 1526 | 335    | R410A           |
| ADQ 2100 | 14                    | 203 | 35000                  | 2100              | 1237 | 4750        | 400/50/3 | 3" M                     | 1083       | 1020 | 1526 | 350    | R410A           |
| ADQ 2700 | 14                    | 203 | 45000                  | 2700              | 1589 | 6715        | 400/50/3 | DN 125                   | 1121       | 1020 | 1526 | 380    | R452A           |
| ADQ 3000 | 14                    | 203 | 50000                  | 3000              | 1766 | 6800        | 400/50/3 | DN 125                   | 2099       | 1020 | 1535 | 550    | R452A           |
| ADQ 4200 | 14                    | 203 | 70000                  | 4200              | 2472 | 10200       | 400/50/3 | DN 125                   | 2099       | 1020 | 1535 | 600    | R452A           |
| ADQ 5040 | 14                    | 203 | 84000                  | 5040              | 2966 | 12300       | 400/50/3 | DN 125                   | 2099       | 1020 | 1535 | 650    | R452A           |

<sup>1</sup> Reference conditions:

- Operating pressure: 7 bar (100 psi).
- Operating temperature: 35°C.
- Room temperature: 25°C.
- Pressure dew point: +3°C (+/- 1).
- Available in different voltages and frequency values.

Limit conditions:

- Max. operating pressure: 16 bar (232 psi) (ADQ 21 up to 110)  
14 bar (203 psi) (ADQ 141 up to 5040)
- Operating temperature: 55°C.
- Minimum/maximum room temperature: +5°C/+45°C.

### Correction factors to be used for site conditions outside of normal reference conditions (1) stated above = A x B x C

| Room temperature | °C       | 25          | 30   | 35   | 40   | 45   |                      |
|------------------|----------|-------------|------|------|------|------|----------------------|
|                  | <b>A</b> | <b>1,00</b> | 0,92 | 0,84 | 0,80 | 0,74 |                      |
|                  |          | <b>1,00</b> | 0,91 | 0,81 | 0,72 | 0,62 | (ADQ 600 up to 5040) |

| Operating temperature | °C       | 30          | 35          | 40   | 45   | 50   | 55                   |  |
|-----------------------|----------|-------------|-------------|------|------|------|----------------------|--|
|                       | <b>B</b> | 1,24        | <b>1,00</b> | 0,82 | 0,69 | 0,58 | 0,45                 |  |
|                       | 1,00     | <b>1,00</b> | 0,82        | 0,69 | 0,58 | 0,49 | (ADQ 600 up to 5040) |  |

| Operation pressure | bar      | 5    | 6           | 7           | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16                 |  |
|--------------------|----------|------|-------------|-------------|------|------|------|------|------|------|------|------|--------------------|--|
|                    | <b>C</b> | 0,90 | 0,96        | <b>1,00</b> | 1,03 | 1,06 | 1,08 | 1,10 | 1,12 | 1,13 | 1,15 | 1,16 | 1,15               |  |
|                    | 0,90     | 0,97 | <b>1,00</b> | 1,03        | 1,05 | 1,07 | 1,09 | 1,11 | 1,12 | 1,15 | -    | -    | (ADQ 60 up to 504) |  |

The new flow rate value can be obtained by dividing the current or real flow rate by the correction related to the real operation conditions.

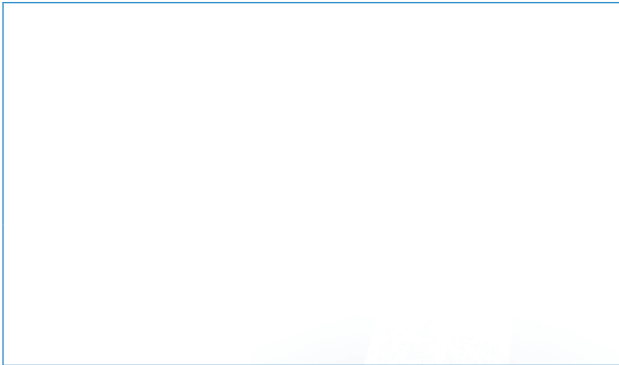




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Care is what service is all about: professional service by knowledgeable people, using high-quality original parts.

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**Efficiency**

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