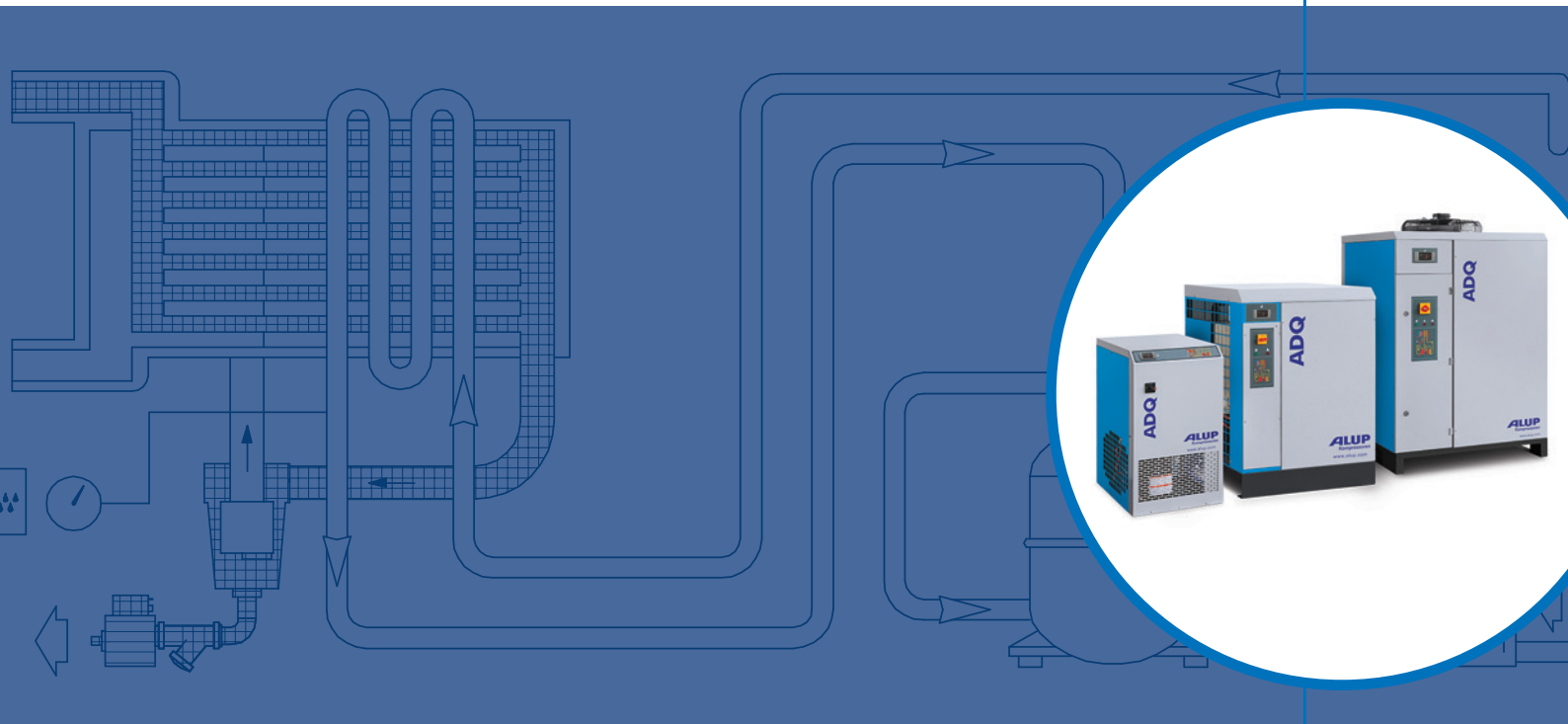


# ADQ

## Refrigeration dryers



ADQ 21-5040

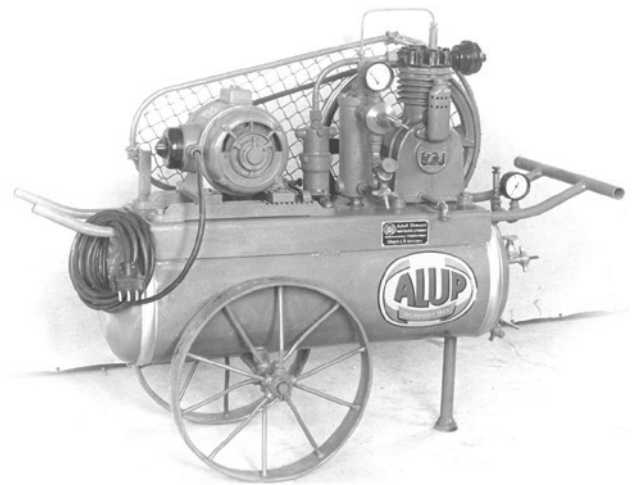


## ALUP's heritage

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, R404A and R410A gas.
- No impact on the ozone layer.
- Gas R410A with:
  - Very 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.

### Easy installation and access

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

### Cost-efficient solution

- No or very little maintenance required.
- Very low energy consumption and high energy saving due to low pressure drops throughout the system.

### 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/refrigerant evaporator** with high thermal exchange and low leakage rates.
- 5 **Condensate separator** for high efficiency.
- 6 **Air-air exchanger** with high thermal exchange and low load losses.
- 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:

- Remote PDP alarm (ADQ 141-5040).
- Remote high refrigerant temperature (ADQ 141-5040).
- Remote fan probe failure (ADQ 141-462).



### Intelligent capacitive drain discharge

The full refrigerant dryer range is equipped with a capacity 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 environmental 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\*

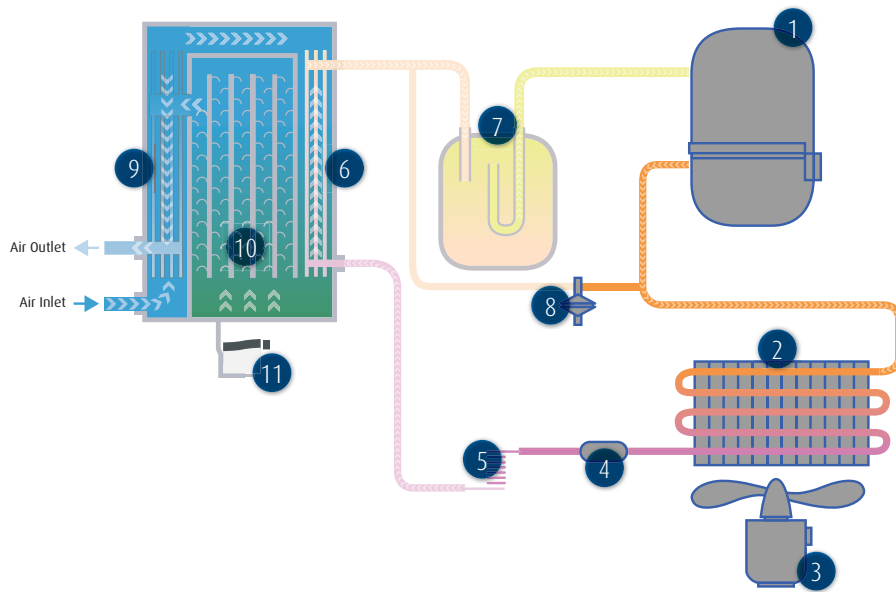
Allows two filters to be installed on the rear side of the dryer, reducing overall dimensions and installation costs.

\* Filters are not included in the option.



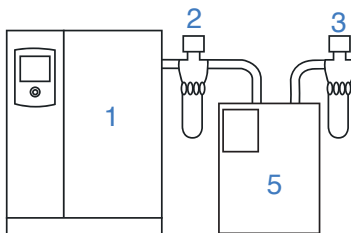
# Air drying principle

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 maximum pressure dew point of +3°C can be reached at reference conditions.

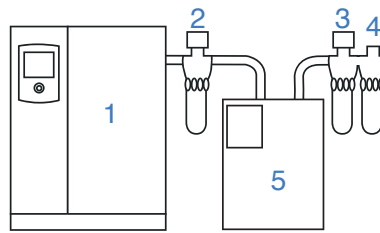


- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="color: blue;">■</span> Air inlet</li> <li><span style="color: green;">■</span> Primary condensate flow</li> <li><span style="color: cyan;">■</span> Secondary condensate flow</li> <li><span style="color: lightblue;">■</span> Air 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: magenta;">■</span> High pressure, refrigerant liquid</li> <li><span style="color: pink;">■</span> Low pressure refrigerant liquid</li> </ul> | <ul style="list-style-type: none"> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">1</span> Refrigerant compressor</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">2</span> Refrigerant condenser</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">3</span> Fan</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">4</span> Refrigerant filter</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">5</span> Capillary tube</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span> Air/refrigerant heat exchanger</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">7</span> Liquid separator</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">8</span> Hot gas by-pass valve</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">9</span> Air/air heat exchanger</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">10</span> Condensate separator</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;">11</span> Automatic condensate discharge</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	Flow treated according to temperature of compressed air input						Nominal electrical power <sup>1</sup>	Power supply voltage	Refrigerant gases	Air connections	Weight
	35 °C <sup>1</sup>		40 °C		45 °C						
	m <sup>3</sup> /h	cfm	m <sup>3</sup> /h	cfm	m <sup>3</sup> /h	cfm					
ADQ 21	21	12.4	17.2	10.2	14.5	8.6	0.13	230/50/1	R134a	3/4" M	19
ADQ 36	36	21.2	29.5	17.4	24.8	14.6	0.16	230/50/1	R134a	3/4" M	19
ADQ 51	51	30.0	41.8	24.6	35.2	20.7	0.19	230/50/1	R134a	3/4" M	20
ADQ 72	72	42.4	59.0	34.8	49.7	29.3	0.27	230/50/1	R134a	3/4" M	25
ADQ 110	110	64.4	90.2	52.8	75.9	44.4	0.28	230/50/1	R134a	3/4" M	27
ADQ 141	141	83.0	116	68	97	57.3	0.61	230/50/1	R404A	1" F	44
ADQ 180	180	106	148	87	124	73	0.67	230/50/1	R404A	1" F	44
ADQ 216	216	127	177	104	149	88	0.79	230/50/1	R404A	1" 1/2 F	53
ADQ 246	246	145	202	119	170	100	0.87	230/50/1	R404A	1" 1/2 F	60
ADQ 312	312	184	256	151	215	127	1.07	230/50/1	R404A	1" 1/2 F	65
ADQ 390	390	230	320	189	269	159	1.19	230/50/1	R404A	1" 1/2 F	80
ADQ 462	462	272	379	223	319	188	1.45	230/50/1	R404A	1" 1/2 F	80
ADQ 600	600	353	492	289	414	244	1.32	400/50/3	R410A	2" F	128
ADQ 720	720	424	590	348	497	293	1.63	400/50/3	R410A	2" F	146
ADQ 900	900	530	738	435	621	366	1.89	400/50/3	R410A	2" F	158
ADQ 1080	1080	636	886	522	745	439	2.11	400/50/3	R410A	2" F	165
ADQ 1440	1440	848	1181	695	994	585	3.90	400/50/3	R404A	3" F	325
ADQ 1800	1800	1060	1476	869	1242	731	4.46	400/50/3	R404A	3" F	335
ADQ 2100	2100	1237	1722	1014	1449	854	5.55	400/50/3	R404A	3" F	350
ADQ 2700	2700	1589	2214	1303	1863	1097	6.71	400/50/3	R404A	DN 125	380
ADQ 3000	3000	1766	2460	1448	2070	1219	6.80	400/50/3	R404A	DN 125	550
ADQ 4200	4200	2472	3444	2027	2898	1706	10.20	400/50/3	R404A	DN 125	600
ADQ 5040	5040	2966	4133	2432	3478	2047	12.30	400/50/3	R404A	DN 125	650

<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)  
13 bar (188 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	(ADQ 21 up to 462)
	<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	(ADQ 21 up to 462)
	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	(ADQ 21 up to 462)
	0.90	0.97	<b>1.00</b>	1.03	1.05	1.07	1.09	1.11	1.12	-	-	-	(ADQ 600 up to 5040)	

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



Dimensions	A	B	C
	mm		
ADQ 21 up to 110	350	492	484
ADQ 141 up to 180	370	496	764
ADQ 216 up to 312	460	556	789
ADQ 390 up to 462	580	586	899

Dimensions	A	B	C
	mm		
ADQ 600 up to 1080	735	952	1012
ADQ 1440 up to 2100	1020	1082	1560
ADQ 2700	1020	1121	1560
ADQ 3000 up to 5040	1020	2099	1560

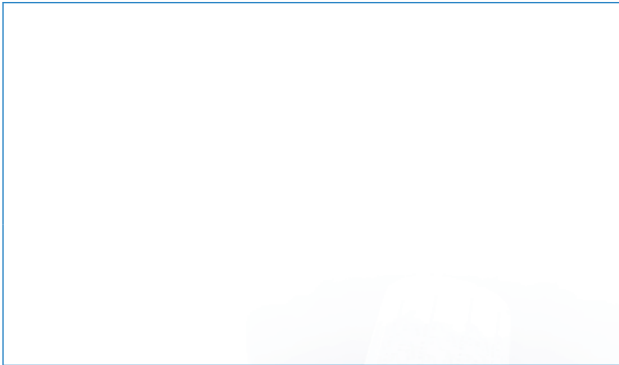




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Care. Trust. Efficiency.

**Care.**

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

**Trust.**

Trust is earned by delivering on our promises of reliable, uninterrupted performance and long equipment lifetime.

**Efficiency.**

Equipment efficiency is ensured by regular maintenance. Efficiency of the service organization is how Original Parts and Service make the difference.