



## Drying | DRYPOINT® RA

# A tried and tested system, for all applications: DRYPOINT® RA

The DRYPOINT® RA refrigeration dryer is the standard solution for applications with stable operating conditions and constant pressure dew points of +3 °C. Due to a wide range of models, we can always offer you the right solution for your needs. Each of these is characterised by reliable drying, a minimum loss of compressed air and a low energy consumption, even with different work loads. The tried and tested design of the DRYPOINT® RA enables not only the highest functionality but also a reliable, safe and cost-effective operation.

### DRYPOINT® RA 20-960

- › Control and monitoring of the integrated BEKOMAT® via the control panel
- › Potential-free alarm contact to transmit alarm messages

### DRYPOINT® RA 1080-13200

- › Control and monitoring of the integrated BEKOMAT® via the control panel
- › Use of low-vibration and energy-efficient Scroll compressors
- › Potential-free alarm contact to transmit alarm messages
- › RS485 interface provides the option of external control and monitoring
- › Recording of alarm situations/messages

### › Application-based

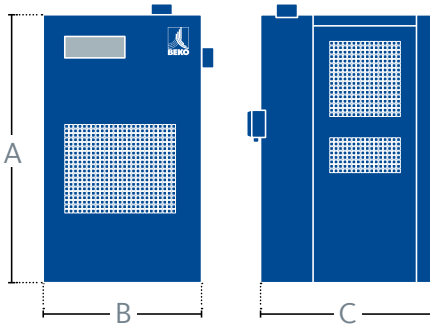
- › For capacities from 20 to 13,200 m<sup>3</sup>/h
- › Efficient drying through highly effective aluminium heat exchanger combination
- › Stable pressure dew point of +3 °C by utilising a hot gas bypass valve with external pressure equalisation and pressure-controlled fan
- › Optimum protection of the refrigeration cycle via low- and high-pressure switch (standard feature as of the RA 490 model)

### › Integrated extras

- › Equipped with BEKOMAT® as standard
- › Central control panel to inspect the function of the dryer and monitor the integrated BEKOMAT®

### › Environmentally friendly and easy to service

- › Use of environmentally and ozone-friendly refrigerant with a particularly favourable GWP value (Global Warming Potential)
- › Low-cost and fast maintenance



Operating conditions	
Maximum compressed air inlet temperature	+70 °C
Min. ...max. operating pressure RA 20 – RA 70	4 ... 16 bar [g]
Min. ...max. operating pressure RA 110 – RA 13200	4 ... 14 bar [g]
Min. ... max. ambient temperature	+2 ... +50 °C
Refrigerant RA20- RA135	R134.a
Refrigerant RA190- RA 13200	R407C

Reference conditions according to DIN / ISO 7183	
Medium	Compressed air
Volume flow rate in m <sup>3</sup> /h relative to +20 °C,	1 bar [g]
Operating pressure (p <sub>1</sub> )	7 bar [g]
Compressed air inlet temperature (t <sub>1</sub> )	+35 °C
Cooling air temperature (t <sub>c</sub> )	+25 °C
Inlet humidity	saturated
Pressure dew point (t <sub>pdp</sub> )	+3 °C

Electrical connections (other voltages on request)	
RA 20 – RA 110 with control DMC 18	230 V, 50 ... 60 Hz, 1 Ph.
RA 135 – RA 960 with control DMC 18	230 V, 50 Hz, 1 Ph.
RA 1080 – RA 13200 with control DMC 24	400 V, 50 Hz, 3 Ph.

DRYPOINT® RA	20 / AC	35 / AC	50 / AC	70 / AC	110 / AC	135 / AC	190 / AC
Volume flow (m <sup>3</sup> /h) at +3 °C	21	33	51	72	108	138	186
Power consumption (kW)	0.16	0.18	0.22	0.23	0.31	0.46	0.69
Pressure loss (Δp bar [g])	0.02	0.03	0.08	0.11	0.13	0.17	0.15
Air connection (ø in inches)	G 1/2 BSP-F	G 1/2 BSP-F	G 1/2 BSP-F	G 1/2 BSP-F	G 1 BSP-F	G 1 BSP-F	G 1 1/4 BSP-F
Dimensions							
A (mm)	740	740	740	740	740	740	825
B (mm)	345	345	345	345	345	345	485
C (mm)	420	420	420	420	420	420	455
Weight (kg)	28	29	31	34	36	37	46
Order ref.	4017119	4017120	4017121	4017122	4017123	4017124	4017125

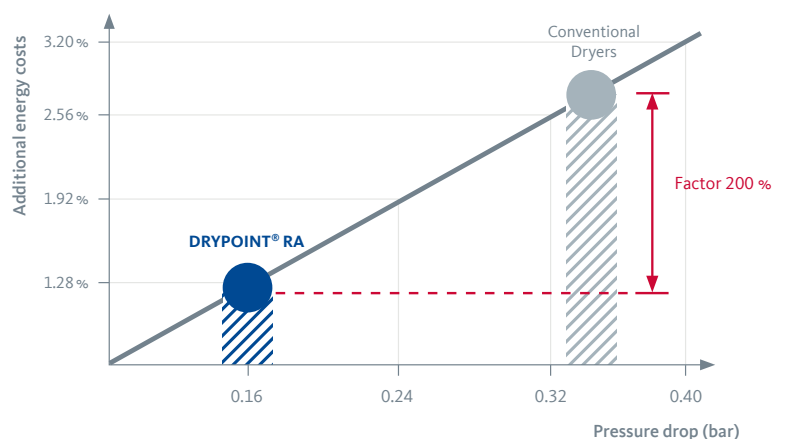
DRYPOINT® RA	240 / AC	330 / AC	370 / AC	490 / AC	630 / AC	750 / AC	870 / AC	960 / AC
Volume flow (m <sup>3</sup> /h) at +3 °C	240	330	372	486	630	750	870	960
Power consumption (kW)	0.75	0.70	0.84	0.98	1.10	1.45	1.52	1.73
Pressure loss (Δp bar [g])	0.19	0.15	0.18	0.09	0.13	0.07	0.13	0.15
Air connection (ø in inches)	G 1 1/4 BSP-F	G 1 1/2 BSP-F	G 1 1/2 BSP-F	G 2 BSP-F	G 2 BSP-F	G 2 1/2 BSP-F	G 2 1/2 BSP-F	G 2 1/2 BSP-F
Dimensions								
A (mm)	825	885	885	975	975	1105	1105	1105
B (mm)	485	555	555	555	555	665	665	665
C (mm)	455	580	580	625	625	725	725	725
Weight (kg)	50	55	63	92	94	141	150	161
Order ref.	4017126	4017127	4016270	4017128	4017129	4017130	4017131	4017132

## Superior efficiency with minimum pressure loss

A high pressure drop on the refrigeration dryer has to be compensated for by a higher compressor performance and therefore associated increased energy demand.

The consequences are unnecessary energy consumption and much higher operating costs.

This is why the DRYPOINT® RA refrigeration dryers pressure drop has been reduced to an absolute minimum. Key elements here include the flow-optimised heat exchanger, a demister for safe separation and generously dimensioned components to ensure a low pressure drop of on average 0.16 bar – in full load operation.



DRYPOINT® RA	1080 / AC	1300 / AC	1490 / AC	1800 / AC	2200 / AC	2400 / AC	3000 / AC	3600 / AC
Volume flow (m³/h) at +3 °C	1080	1260	1500	1800	2208	2400	3000	3600
Power consumption (kW)	2.10	2.55	2.85	3.10	3.50	4.30	4.80	5.60
Pressure loss (Δp bar [g])	0.17	0.21	0.13	0.19	0.26	0.21	0.14	0.20
Air connection (ø)	DN80 – PN16	DN80 – PN16	DN80 – PN16	DN80 – PN16	DN80 – PN16	DN100 – PN16	DN100 – PN16	DN100 – PN16
<b>Dimensions</b>								
A (mm)	1465	1465	1465	1465	1465	1750	1750	1750
B (mm)	790	790	790	790	790	1135	1135	1135
C (mm)	1000	1000	1000	1000	1000	1205	1205	1205
Weight (kg)	240	242	275	276	311	463	538	540
Order ref.	4017140	4017141	4016271	4017142	4017143	4017144	4017145	4017146

DRYPOINT® RA	4400 / AC	5400 / AC	6600 / AC	7200 / AC	8800 / AC	10800 / AC	13200 / AC
Volume flow (m³/h) at +3 °C	4416	5400	6624	7200	8832	10800	13248
Power consumption (kW)	6.40	8.40	10.80	11.30	16.80	18.6	21.6
Pressure loss (Δp bar [g])	0.26	0.20	0.26	0.20	0.26	0.22	0.26
Air connection (ø)	DN100 – PN16	DN150 – PN16	DN150 – PN 16	DN200 – PN16	DN200 – PN16	DN200 – PN16	DN200 – PN16
<b>Dimensions</b>							
A (mm)	1750	1810	1810	1870	1870	2192	2192
B (mm)	1135	1300	1300	1400	1400	1450	1450
C (mm)	1205	1750	1750	2200	2200	2250	2250
Weight (kg)	612	830	940	1055	1200	1450	1650
Order ref.	4017147	4017148	4017149	4017150	4017151	4029845	4029846

All models come with a BEKOMAT® condensate drain as standard. | Option: Oil-free; anti-corrosion coating TAC  
To protect the dryer, we recommend installing a CLEARPOINT® universal filter (G, 5µm) or finer upstream of the dryer inlet.

## Correction factors

Operating pressure (bar)	4	5	6	7	8	10	12	14
Correction factor	0.77	0.86	0.93	1.00	1.05	1.14	1.21	1.27

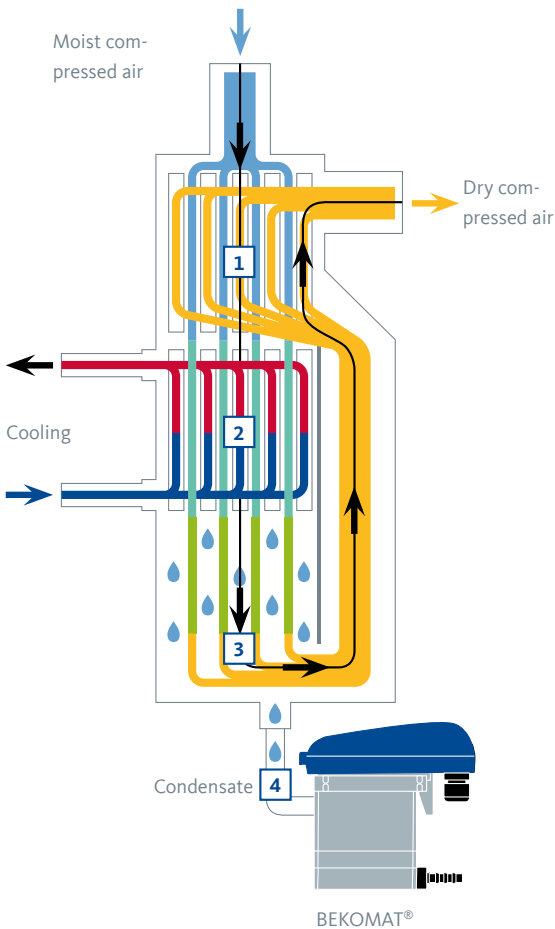
Compressed air - Inlet temperature (°C)	25	30	35	40	45	50	55	60	65	70
RA 20 – RA 960	1.27	1.21	1.00	0.84	0.70	0.57	0.48	0.42	On request	
RA 1080 – RA 13200	1.26	1.20	1.00	0.81	0.68	0.57	0.46	0.38	On request	

Ambient temperature: (°C)	25	30	35	40	45	50
RA 20 – RA 960	1.00	0.96	0.91	0.85	0.76	0.64
RA 1080 – RA 13200	1.00	0.95	0.93	0.85	0.73	0.58

Example: Nominal, relieved volume flow rate: 2500 m³/h relative to the following operating conditions:		
Betriebsdruck	10 bar, g	Correction factor 1 = 1.14
Compressed air inlet temperature	+40 °C	Correction factor 2 = 0.81
Ambient temperature	+30 °C	Correction factor 3 = 0.95

Minimum volume flow rate = nominal volume flow rate / (F1\*F2\*F3) => 2,500 m³/h / (1.14\*0.81\*0.95) = 2,850 m³/h  
selected dryer RA 3000 with 3,000 m³/h

# Operating principle of DRYPOINT® RA



In the DRYPOINT® RA refrigeration dryers, the air is dried in a counter-flow process with optimised heat exchange along the entire process path. The air flows in a constant downwards direction with no diversions.

The generously dimensioned counter-flow heat exchanger unit which consists of an air-air and an air-refrigerant heat exchanger, among others, cools the compressed air to a temperature of around 3°C. Therefore the size and design of the heat exchangers promote effective cooling while minimising flow resistance.

Warm compressed air saturated with moisture is pre-cooled in the air-air heat exchanger when it enters the refrigeration dryer (1). Consequently, the refrigerating capacity of the refrigerant needed in the downstream air-refrigerant heat exchanger (2) is reduced. This makes the system more energy-efficient. Gravity supports a very high droplet separation of nearly 99%. The flow velocity is greatly reduced in the very large condensate collection chamber with subsequent broad return. This reliably avoids any entrainment of droplets which have already been separated (3).

The condensate which is produced is drained from the DRYPOINT® RA through the level-controlled condensate drain BEKOMAT®. This prevents any pressurised air losses and can be treated reliably with processing systems such as the oil-water separation system ÖWAMAT® or the emulsion splitting plant BEKOSPLIT® (4). Before leaving the DRYPOINT® RA, the dried, cold compressed air is re-heated in the air-air heat exchanger. This significantly lowers the relative humidity and recovers up to 60% of the refrigerating capacity used (1).

## 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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