

Boreas Variopulse

DV 1800 AP - DV 28500 WPT Twin

Refrigeration Compressed Air Dryer for medium and big volume flows



Operating mode

Compressed air is fed into the dryer and is pre-cooled in the air-to-air heat exchanger by the outgoing cold compressed air. The pre-cooled air then passes through the refrigerant-to-air heat exchanger where it is further cooled to the required pressure dew point. The moisture in the compressed air condenses out and is collected and discharged automatically.

Finally, the cold discharged air is rewarmed by the incoming compressed air. This saves energy and prevents any moisture forming beyond the dryer in the compressed air system.

Boreas Variopulse, two methods - one purpose: Energy saving

Suction pressure control (DV 1800 AP - DV 2800 AP)

In case of partial load, the suction line of the refrigerant compressor is closed by a solenoid valve. Because of this, only a partial amount of refrigerant is sucked and compressed by the compressor which means reduced load and therefore reduced power consumption. In case of lower partial load or zero load, the compressor is switched off completely by the Variopulse controller at times.

Frequency converter control (DV 3500 AP - DV 28500 WPT Twin)

The speed of one of the refrigerant compressors is controlled by the Variopulse control via a frequency converter. The other compressors are switched on if required (partial load or full load). This leads to a reduction up to 90 % of the nominal power consumption.

Additional advantages of the new dryer generation:

- Variopulse-controlling for the whole range as standard
- CAN-bus interface
- Datatransfer optional
- Lighted multi functional display
- Continuous dew point without any peaks
- Load controlled energy consumption, reduction up to 90 % of the nominal energy consumption
- Level controlled drain UFM-T100
- Display is changeable from °C to °F
- Max. operation parameter, inlet temp. 70 °C, ambient temp. 50 °C and working pressure 16 bar g for the whole series
- Generously sized air-to-air and refrigerant-to-air aluminium heat exchanger with a large power density and generously dimensioned flow channels
- One-component refrigerant R134a, Ozone-depleting factor zero
- Compact and easy to install cabinets

The Multi Functional Display shows the following parameters:

- Current pressure dew point
- Operation mode Normal/Summer/Autom.
- Power consumption related to the whole hours of operation
- Alarm signal
- Alarm history
- Maintenance required
- Operation hours
- Fridge compressor on/off
- Current energy consumption

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Technical data										
Housing	Type	Volume flow	Volume flow	Pressure drop	Power supply	Power consumption kW			Cooling air	Cooling water
		m³/h	m³/min	bar	3~ / 50Hz	100 % Full load	50 % Part load	0% Zero load	m³/h	m³/h
0	DV 1800 AP	1800	30.00	0,12	400 V	3,1	1,7	0,4	4800	1,0
	DV 2000 AP	2000	33.33	0,14	400 V	3,2	1,9	0,4	4800	1,1
	DV 2300 AP	2300	38.33	0,19	400 V	3,4	2,0	0,4	4800	1,3
	DV 2800 AP	2800	46.67	0,24	400 V	4,3	2,5	0,6	5200	1,6
1	DV 3500 AP	3500	58.33	0,11	400 V	6,9	4,0	0,8	9600	2,0
	DV 4300 AP	4300	71.66	0,16	400 V	7,1	4,1	0,9	9600	2,5
	DV 5500 AP	5500	91.67	0,24	400 V	10,8	6,2	1,4	10400	2,9
2	DV 7000 WP	7000	116.67	0,19	400 V	12,6	7,1	1,5	19200	4,0
	DV 8750 WP	8750	145.83	0,17	400 V	15,3	8,6	2,0	19200	5,2
	DV 10500 WP	10500	175.00	0,22	400 V	17,3	9,7	2,1	20800	6,4
3	DV 12500 WP	12500	208.33	0,22	400 V	21,9	12,1	2,7	23000	7,5
	DV 14250 WP	14250	237.50	0,20	400 V	23,9	13,3	3,0	23000	8,5
Twin	DV 17500 WPT	17500	291.67	0,17	400 V	30,6	17,3	3,8	38400	10,4
	DV 21000 WPT	21000	350.00	0,22	400 V	34,6	19,6	4,4	41600	12,8
	DV 25000 WPT	25000	416.67	0,22	400 V	43,8	24,3	5,5	46000	15,0
	DV 28500 WPT	28500	475.00	0,20	400 V	47,8	26,6	6,0	46000	17,0

Explanations:

Volume flow (m³/h) in relation to intake state of air compressor +20°C, 1 bar, at compressed air inlet temperature of +35°C, ambient temperature / cooling water of +25°C and an operating pressure of 7 bar, +3°C pressure dew point in accordance with DIN ISO 7183.

Operating pressure:
max. 16 bar

Inlet temperature:
max. +70°C

Ambient temperature:
min. +2°C max. +50°C

Noise pressure level:
dB (A) < 80

Working pressure	bar g	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Factor	f _p	0.60	0.70	0.80	0.88	0.94	1.0	1.04	1.06	1.09	1.10	1.12	1.14	1.15	1.16	1.17

Compressed air inlet temperature	°C	30	35	40	45	50	55	60	65	70
Factor	f _{ti}	1.20	1.00	0.82	0.67	0.55	0.45	0.38	0.34	0.30

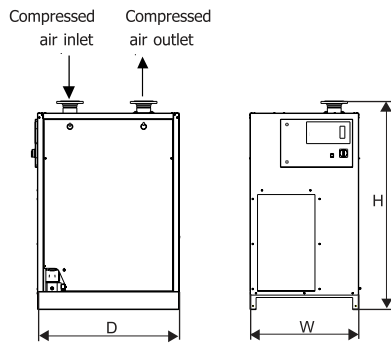
Ambient temperature / cooling water temperature	°C	25	30	35	40	45	50
Factor	f _{tc}	1.00	0.98	0.93	0.84	0.72	0.56

Dew Point	°C	3	5	7	10	15
Factor	f _{ta}	1.00	1.10	1.21	1.35	1.58

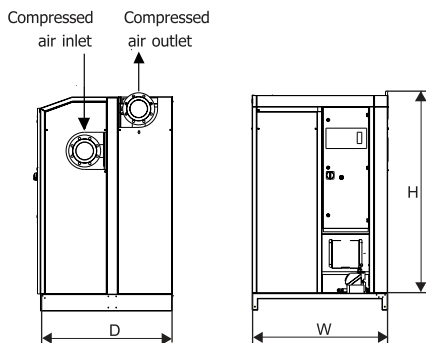
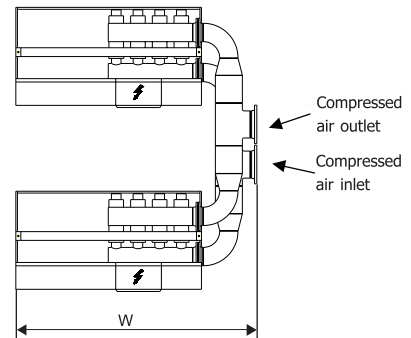
$$\text{Corrected dryer capacity} = \text{Standard dryer capacity} \times f_p \times f_{ta} \times f_{tc} \times f_{ti}$$

Dimension Sheet

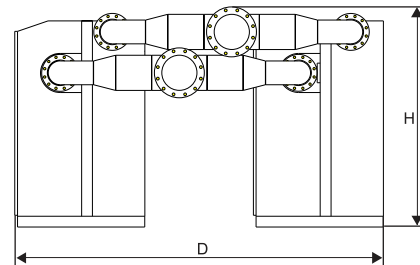
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DV 1800 AP- 2800 AP



DV 3500 AP- 14250 WP



DV 17500 WP- 28500 WPT

Dimensions							
Housing	Type	Air connection	Condensate drain	Weight	Dimensions		
		DN	DN		W	H	D
0	DV 1800 AP	100	14	412	900	1725	1175
	DV 2000 AP	100	14	420	900	1725	1175
	DV 2300 AP	100	14	425	900	1725	1175
	DV 2800 AP	100	14	435	900	1725	1175
1	DV 3500 AP	150	14	610	1200	1940	1200
	DV 4300 AP	150	14	630	1200	1940	1200
	DV 5500 AP	150	14	670	1200	1940	1200
2	DV 7000 WP	200	14	995	2225	1970	1200
	DV 8750 WP	200	14	1165	2225	1970	1200
	DV 10500 WP	200	14	1225	2225	1970	1200
3	DV 12500 WP	250	14	1710	3345	2030	1200
	DV 14250 WP	250	14	1940	3345	2030	1200
Twin	DV 17500 WP	250	14	2730	2885	1970	3400
	DV 21000 WP	300	14	2890	2885	1970	3400
	DV 25000 WP	350	14	3860	4145	2080	3400
	DV 28500 WP	350	14	4320	4145	2080	3400