HANKISON

AN SPX BRAND

Refrigerated compressed air dryers

HHD Series

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HANKISON HHD Series refrigerated compressed air dryers increase productivity

HHD Series refrigerated compressed air dryers provide the ideal combination of technology and simplicity to dry your compressed air system to a pressure dew point of + 3 °C from 20 m3/h to 820 m³/h.

Focus on cost-effectiveness

Clean and dry compressed air enables products to be manufactured in the most effective way by improving productivity and keeping waste to a minimum. Processes throughout the entire company run more smoothly and competitiveness increases.

Designed to be durable and reliable

All dryers in the HHD Series have been designed for a long service life.

The housing is constructed from sturdy sheet steel and is protected by a high-quality powder coating. The reliable refrigeration system works with the environmentally friendly refrigerant R-134a.

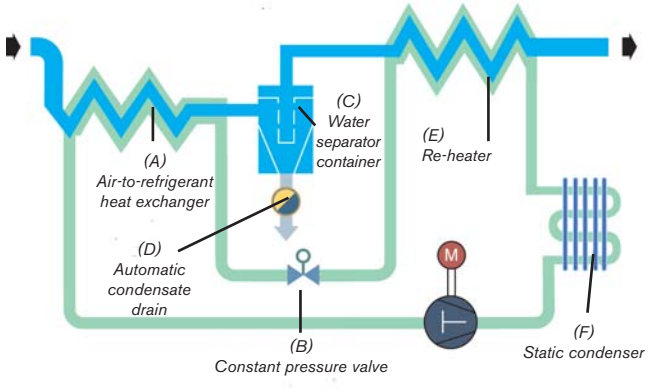
Dry compressed air – pure and simple

Research indicates that many customers want reliability and dry compressed air at an affordable price, no fancy bells and whistles – just dry air, pure and simple.

HHD Series refrigerated compressed air dryers are designed to meet these demands.

The functional principle of the model series HHD 21 to HHD 101

Warm, saturated air enters the evaporator (A) where it is cooled by a refrigerant regulated by a constant pressure expansion valve (B). Water vapour condenses into liquid, which is separated from the compressed air in the demister (C) and discharged through the fully automatic condensate drain (D).

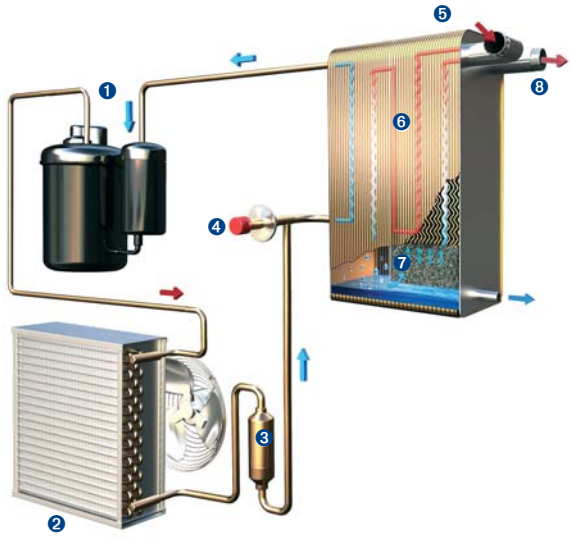


The chilled, dry air is reheated in the heat exchanger (E). The static condenser (F) removes the need for a fan and significantly improves system reliability.

The functional principle of the model series HHD 140 to HHD 820

Refrigeration circuit:

A chiller (1) and an air-cooled condenser (2) continuously circulate refrigerant through the system. The filter dryer (3) removes impurities from the gasiform refrigerant and the expansion valve (4) regulates the flow of refrigerant into the 3-to-1 heat exchanger.



Compressed air circuit:

Warm, saturated compressed air enters the air-to-air heat exchanger (5) where it is cooled by the outgoing chilled air. The pre-chilled air (6) passes through the air-to-refrigerant heat exchanger (6) where it is further cooled, which causes water vapour to condense. The condensed moisture is removed from the air flow by an integrated separator (7) with a stainless steel demister and liquid condensate is removed from the separator by an automatic, timer-operated electrical drain / level-controlled automatic drain. Chilled air is then reheated in the air-to-air heat exchanger to prevent condensation forming on pipes. Clean and dry air leaves (8) the dryer and is now ready for use.

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HHD Series basic configuration

- Easy to install (230 V supply voltage) with Schuko connector
- Units provided fully pre-assembled
- Automatically adapts to the requirements of the compressed air system
- Long service life through the exclusive use of high-quality components
- Constant pressure dew point guarantees consistently dry compressed air
- Illuminated on/off switch to indicate the operating mode
- Dew point display on the control panel to monitor operation (models HHD 21 to HHD 820)

HHD models for up to 100 m³/h Additional equipment

- Re-heater uses condensation warmth to heat outgoing air and prevent cold, damp pipes
- Integrated demister drain
- Fully automated, timer-operated condensate drain with isolation valve and integrated dirt arrester (model HHD 21: mechanical level-controlled condensate drain)
- Optional electronic level-controlled X-DRAIN® Series condensate drain

HHD model 140 to HHD 820 Additional equipment

- Integrated stainless steel 304 heat exchanger and stainless steel demister drain for a long service life
- Electronic level-controlled X-DRAIN® Series condensate drain with potential-free fault indication for HHD 140 to HHD 820
- LED dew point display (HHD 140 – HHD 820)

HHD – Quality

- Housing constructed from sturdy sheet steel and protected by high-quality powder coating
- Newly developed stainless steel Crossflow heat exchanger features an increased calming zone and an optimised demister unit
- Together with the stainless steel compressed air connections, this results in an entirely corrosion-free system constructed of homogeneous materials
- High-quality air-conditioning refrigerant compressors with above average performance values provide cost-savings through energy efficiency
- The reliable refrigeration system works with the environmentally friendly refrigerants R-134a and R-407c.
- A newly developed constant pressure valve guarantees a constant supply of refrigerant even at varying levels of compressed air consumption, providing a constant cooling and dew point temperature
- The entire HHD model series is safe against overpressure
- All system components have secure connections that are extremely vibration resistant

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Model	Capacity* [m³/h]	Max. operating pressure [bar.g]	Weight [kg]	Dimensions (HxWxL) [mm]	Connection [R]	Refrigerant
HHD 21	20	16	15	382 x 325 x 320	3/8" OD	R 134a
HHD 31	30	16	19	382 x 325 x 320	3/8" OD	R 134a
HHD 61	60	16	29	568 x 393 x 394	R 3/4"	R 134a
HHD 81	80	16	29	568 x 393 x 394	R 3/4"	R 134a
HHD 101	100	16	41	568 x 525 x 500	R 3/4"	R 134a
HHD 140	140	16	50	601 x 393 x 891	R 1"	R 134a
HHD 160	160	16	53	601 x 393 x 891	R 1"	R 134a
HHD 240	240	16	58	601 x 393 x 951	R 1"	R 407c
HHD 315	315	16	80	761 x 443 x 1011	R 2"	R 407c
HHD 360	360	16	78	761 x 443 x 1011	R 2"	R 407c
HHD 470	470	16	86	761 x 443 x 1011	R 2"	R 407c
HHD 580	580	16	100	811 x 533 x 1191	R 2"	R 407c
HHD 680	680	16	112	811 x 533 x 1191	R 2"	R 407c
HHD 820	820	16	134	811 x 533 x 1291	R 2"	R 407c
HHD 1000	1100	16	314	1510 x 1129 x 857	R 2 1/2"	R 134a
HHD 1200	1300	16	327	1510 x 1129 x 857	R 2 1/2"	R 134a
HHD 1700	1700	16	354	1510 x 1110 x 857	R 3"	R 404a

Correction factors for other inlet temperatures

Inlet temperature	+25°C	+30°C	**+35°C**	+40°C	+45°C	+50°C	+55°C
Correction factor	1,60	1,24	**1**	0,82	0,69	0,59	0,5

Correction factors for varying operating pressures in bar.g

bar.g	2	3	4	5	6	**7**	8	9	10	11	12	13	14	15	16
Correction factor	0,70	0,80	0,87	0,92	0,96	**1**	1,03	1,05	1,07	1,08	1,10	1,11	1,12	1,13	1,14

Correction factor for varying ambient temperatures: No correction required below 49 °C

Performance data at reference conditions as specified in DIN ISO 7183-1. Please note: Max. operating pressure 16 bar, max. inlet temperature: +49 °C.
Ambient temperature +25 °C, compressed air inlet temperature +35 °C, operating pressure 7 bar.g, pressure dew point +3 °C as per ISO 8573, HHD21-101 230V/1PH/50HZ

Correction factors for inlet temperature and inlet pressure

	Inlet temperature					
Inlet pressure	25°C	30°C	35°C	40°C	45°C	50°C
3	1,42	1,00	0,79	0,63	0,51	0,43
4	1,50	1,08	0,87	0,72	0,60	0,52
5	1,57	1,13	0,92	0,77	0,65	0,56
6	1,63	1,18	0,96	0,81	0,68	0,60
7	1,67	1,22	**1**	0,84	0,71	0,63
8	1,72	1,25	1,03	0,87	0,74	0,65
9	1,76	1,29	1,07	0,91	0,78	0,67
10	1,81	1,33	1,10	0,93	0,80	0,70
11	1,84	1,36	1,13	0,96	0,82	0,73
12	1,87	1,38	1,16	0,98	0,84	0,75
13	1,90	1,41	1,18	1,00	0,86	0,77
14	1,93	1,44	1,21	1,02	0,88	0,80

Reference conditions based on DIN/ISO 7183
Flow rate in m³/h based on 20° C and 1 bar absolute
Operating pressure: 7 bar.g
Compressed air inlet temperature: 35 °C
Ambient temperature: 35 °C

Operating conditions
Max. inlet temperature: 49 °C
Min./max. ambient temperature: +3° C / +43° C
Mains voltage/frequency: 230V/50Hz (HHD 21 - HHD 820)
Mains voltage/frequency: 400V/3/50Hz 460V/3/60Hz (HHD 1000 - HHD 1700)
Protection class: IP 44 (HHD 1000 - HHD 1700)
Protection class: IP 23 (HHD 21 - HHD 820)
If the inlet conditions are different, consult our Technical Sales Department
Special voltages and connections on request
HHD 1000 - HHD 1700 available in a water-cooled version upon request

Technical changes reserved

Correction factors for ambient temperature

Ambient temperature	**+25°C**	+30°C	+35°C	+40°C	+45°C
Correction factor	**1**	0,94	0,89	0,83	0,78

X-DRAIN®

HANKISON compressed air refrigerant dryers use an electronic level-controlled X-DRAIN® above 140 m³/h to ensure that the condensate is drained off effectively. For further information, see our X-DRAIN® data sheet.

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