

**HRB · HRA  
Series**  
Refrigerated Air Dryers



**HRB · HRA Series**



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Some specifications in this bulletin may change without notice.

## Refrigerated Air Dryers

# HRB Series

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. The HRB series non-cycling dryers were designed to meet these demands.

## Feature

### Static condenser with no cooling fan

- ▶ Worldwide-patented product
- ▶ No maintain required
- ▶ Excellent quiet operation
- ▶ Lowest operating cost

Perfect application for indoor installation such as hospital and laboratory

### Robust design & compact size

### Unique refrigerant control system

- ▶ Air-to-refrigerant reheating system

### Energy saving through waste heat recovery

- ▶ No condensate on outlet pipe

Excellent dew point performance under all conditions



## Hankison Refrigerated Air Dryers

Compressed air users around the world have relied on Hankison to provide innovative compressed air treatment solutions for critical applications. Hankison maintains a long standing reputation for manufacturing products that deliver superior performance, time proven reliability and optimal energy savings. Hankison is a preferred choice for providing clean, dry compressed air for the most challenging industries.

Compressed air contains ingested and generated contamination in the form of solid particulate, extraneous oils and water vapor. If untreated, the air will adversely affect pneumatically operated components and equipment. Hankison refrigerated air dryers are recognized for reliable, effective and efficient contaminant removal systems.

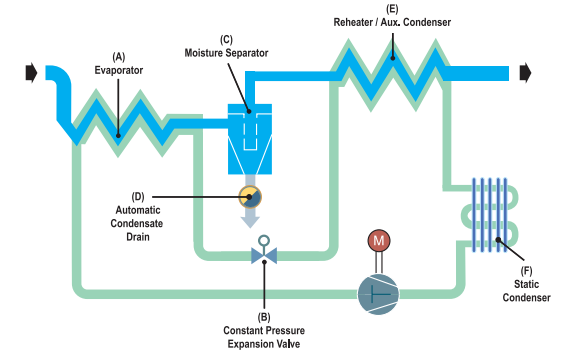
## About SPX

Based in Charlotte, NC, USA, SPX Corporation is a global Fortune 500 multi-industry manufacturing leader with over \$5 billion in annual revenue, operations in more than 35 countries and approximately 15,000 employees. The company's highly-specialized, engineered products and technologies are concentrated in Flow Technology and energy infrastructure.

[www.spx.com](http://www.spx.com)

## How it works

Warm saturated air enters the evaporator where it is cooled by refrigerant being controlled by a constant pressure expansion valve. Water vapor condenses into a liquid for removal at the moisture separator by a drain. The cold, dry air is reheated as it passes through the reheater. This prevents dryer outlet air pipeline sweating. The static condenser eliminates the need for a cooling fan and simplifies the system.



## HRB Series Specification

Model	Flow Capacity (Nm <sup>3</sup> /min)	Unit (kW)	Power Supply	Inlet/Outlet Connecions (PT)	Weight (kg)	Dimensions(mm)			Refrigerants
						H	W	D	
HRB 0.5	0.50	0.24	220~240V 1PH 50Hz	3/8"	20	382	320	320	R-134a
HRB 1.0	1.00	0.34		3/4"	32	568	368	394	
HRB 1.3	1.33	0.42		3/4"	32	568	368	394	
HRB 1.6	1.67	0.58		3/4"	44	568	500	500	

\* Rating Conditions are 42°C inlet temperature, 7.0 barg inlet pressure, 100% relative humidity, 35°C ambient temperature.

\* Maximum/minimum inlet pressure : 16 barG/2 barG, Maximum/minimum inlet air temperature : 60°C/4°C, Maximum/minimum ambient air temperature : 43°C/2°C

## Capacity Correction Factor

### Inlet Air Pressure (barG)

barG	4	5	6	7	8	9	10	11	12
Factor	0.82	0.88	0.95	1.00	1.05	1.09	1.13	1.16	1.18

### Inlet Air Temperature (°C)

°C	30	35	40	42	45	50	55	60
Factor	1.77	1.36	1.08	1.00	0.89	0.74	0.62	0.52

### Ambient Air Temperature (°C)

°C	20	25	30	35	40	45	50
Factor	1.20	1.13	1.07	1.00	0.94	0.85	0.74

### Frequency (Hz)

Hz	50	60
Factor	1.00	1.20

**Example** : What is the capacity of a 6.67 Nm<sup>3</sup>/min model when the compressed air at the inlet to the dryer is 10 barG and 45°C and ambient temperature is 35°C?

**Answer** : 6.67 Nm<sup>3</sup>/min (rated flow from Product Specifications Table) x 1.08 (correction factor for inlet pressure from Table 1) x 0.68 (correction factor for inlet temperature from Table 2) x 0.88 (correction factor for ambient temperature from Table 3) = 4.31 Nm<sup>3</sup>/min

## Refrigerated Air Dryers

# HRA Series

75~600 scfm

The HRA series utilizes advanced heat exchanger, separation and refrigeration technology. It's a revolutionary that uses an innovative, simplified refrigeration circuit to provide dependable operation, low operating cost and versatile installation. Performs in rated conditions of 75 to 600 scfm.

## Feature

3-in-1 stainless steel brazed plate heat exchanger with integral separator ensures optimal dew point performance under all conditions

Compact design uses 40% less floor space

Low pressure drop reduces operating costs

User friendly controller

- ▶ Power-on LED, Compressor-on LED, On/Off rocker switch and dew point bar graph LED display

Reliable timed electric drain with push-to-test button on the front panel

Electro-galvanized steel cabinet with two part epoxy coating

- ▶ Providing long term corrosion resistance

Environmentally friendly R-134a and R-407C refrigerants

## Optional

No loss drain valve

## Stainless Steel Brazed Plate Heat Exchanger

5 Year Warranty Program Provided

Integral structure

- ▶ Air-to-air heat exchanger, evaporator & moisture separator

High & consistent quality (counter-current flow)

Larger heat transfer surface area

Consistent dew point

Minimized air pressure drop due to the minimum piping

No moisture carry over

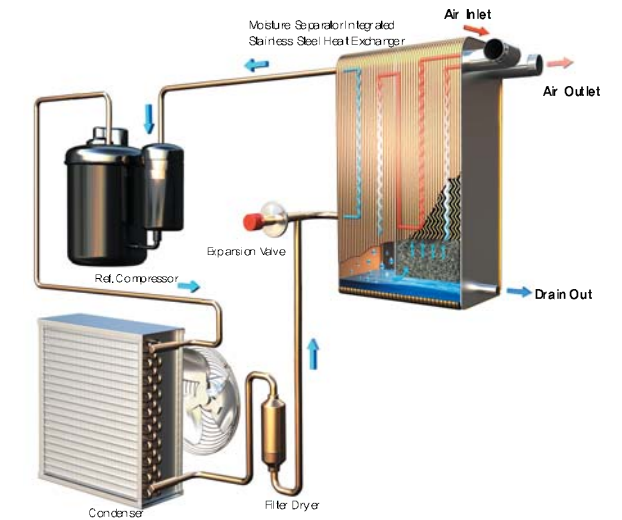
Patented design

- ▶ USA, EU, China, Japan, Korea



## How it works

Warm, saturated compressed air enters the air-to-air heat exchanger and is cooled by the exiting air. The precooled air then enters the air to refrigerant heat exchanger and is further chilled causing water vapor to condense. Condensed moisture is collected from the air stream by an integral separator with stainless steel demister. Liquid condensate is removed from the separator by an automatic timed electric drain. Cold air is then reheated in the air-to-air heat exchanger to eliminate pipe line sweat. Clean, dry air exits the dryer and is now conditioned for use.



## HRA Series Specification

Model	Flow Capacity (Nm <sup>3</sup> /min)	Unit (kW)	Power Supply	Inlet/Outlet Connectors (PT)	Weight (kg)	Dimensions(mm)			Refrigerants	
						H	W	D		
HRA 2.5	2.50	0.58	220~240V 1PH 50Hz	1"	50	601	363	861	R-134a	
HRA 3.0	3.00	0.60		1"	53	601	363	861		
HRA 4.9	4.92	0.87		1"	58	601	363	921		
HRA 6.6	6.67	1.39		2"	78	761	443	971		
HRA 8.0	8.00	1.58		380~420V 3PH 50Hz	2"	85	761	443	971	R-407C
HRA 10.0	10.08	2.06			2"	100	811	493	1151	
HRA 13.3	13.33	2.61			2"	112	811	493	1151	
HRA 15.0	15.00	2.82			2"	134	811	493	1251	
HRA 18.0	18.02	3.40	2 1/2"	152	811	543	1321			

\* Rating Conditions are 35°C inlet temperature, 7.0 barG inlet pressure, 100% relative humidity, 25°C ambient temperature.

\* Maximum/minimum inlet pressure : 16.0 barG/3 barG, Maximum/minimum inlet air temperature : 49°C/4°C, Maximum/minimum ambient air temperature : 43°C/4°C

\* Models for the high temperature condition are optional, consult factory.

## Capacity Correction Factor

### Inlet Air Pressure (barG)

barG	4	5	6	7	8	9	10	11	12
Factor	0.87	0.92	0.96	1.00	1.03	1.07	1.10	1.12	1.14

### Inlet Air Temperature (°C)

°C	30	35	40	45	49
Factor	1.22	1.00	0.84	0.71	0.60

### Ambient Air Temperature (°C)

°C	20	25	30	35	40	43
Factor	1.06	1.00	0.92	0.85	0.78	0.72

### Frequency (Hz)

Hz	50	60
Factor	1.00	1.20

Example : What is the capacity of a 6.67 Nm<sup>3</sup>/min model when the compressed air at the inlet to the dryer is 10 barG and 45°C and ambient temperature is 35°C?

Answer : 6.67 Nm<sup>3</sup>/min (rated flow from Product Specifications Table) x 1.08 (correction factor for inlet pressure from Table 1) x 0.68 (correction factor for inlet temperature from Table 2) x 0.88 (correction factor for ambient temperature from Table 3) = 4.31 Nm<sup>3</sup>/min

## Refrigerated Air Dryers

# HRA Series

800~12000 scfm

The HRA series, built-in with our highly advance stainless steel plate heat exchanger, deters refrigeration load with great efficiency of heat-exchanging. Saving in electrical power and convenient in maintenance are its unique feature.

## Feature

### Stainless steel brazed plate heat exchanger

- ▶ No rust water and corrosion
- ▶ One-pass structure : Heat exchanger and reheater

### Automatically adapts to system needs

### Fully automatic operation saves money

### Every unit comes pre-assembled with quality components

### User friendly controller

- ▶ Power-on LED, Compressor-on LED, On/Off rocker switch and dew point bar graph LED display

### Reliable timed electric drain with push-to-test button on the front panel

### Electro-galvanized steel cabinet with two part epoxy coating

- ▶ Providing long term corrosion resistance

### Environmentally friendly R-407C refrigerant

### No loss drain valve (Optional)

## System Control Monitor II (SCM II-Optional)

### LCD main window displays

- ▶ Dryer run, Auto drain valve on, Fan motor on, Alarm

### LCD monitor displays

- ▶ Inlet, Ambient/Cooling water, Chiller inlet & discharge refrigerant temperatures, Discharger refrigerant temperatures

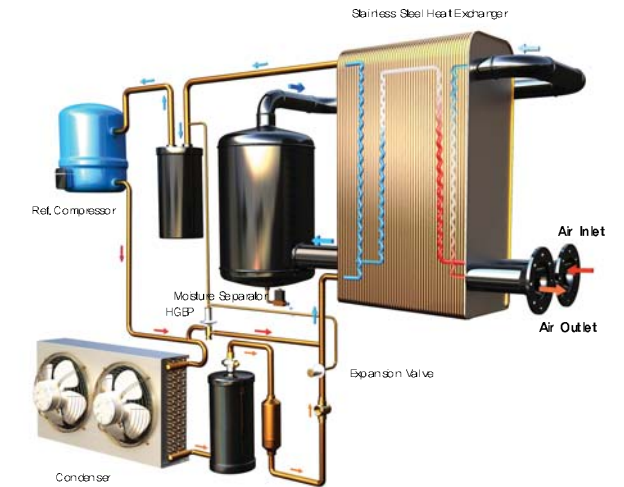
### Membrane touch panel

### Programmable timer drain settings



## How it works

Saturated incoming compressed air is quickly chilled in the air-to-air heat exchanger by the cold compressed air as it exits the air-to-refrigerant( evaporator). Here, the cold, dry air is reheated to prevent pipeline sweating and reduce compressor energy before exiting the dryer. In the evaporator, the air temperature is reduced to that of the cold refrigerant. A moisture separator lowers the velocity and mechanically separates the condensate from the air stream. An automatic drain removes the condensate. The air-to-air heat exchanger re-heats the air and clean, dry compressed air exits the dryer.



## HRA Series Specification

Model	Flow Capacity (Nm <sup>3</sup> /min)	Unit (kW)	Power Supply	Inlet/Outlet Connections (FLG)	Weight (kg)	Dimension (mm)			Refrigerant
						H	W	D	
HRA 24.0	24.06	4.5	380~420V 3PH 50Hz	3"	385	1470	750	1400	R-407C
HRA 31.4	31.48	6.1		4"	400	1470	750	1400	
HRA 37.5	37.52	7.6		4"	440	1470	750	1400	
HRA 45.1	45.10	8.6		4"	850	1582	860	1600	
HRA 60.0	60.00	9.5		6"	1000	1628	1050	1800	
HRA 75.0	75.00	10.3		6"	1050	1628	1050	1800	
HRA 90.1	90.10	11.8		6"	1100	1628	1050	1800	
HRA 120.0	120.00	15.1		8"	2000	2320	1500	2850	
HRA 150.1	150.10	20.8		8"	2300	2320	1500	2850	
HRA 180.3	180.30	25.7		8"	2500	2320	1500	2850	
HRA 240.1	240.10	38.5		8"	3500	2320	1500	3800	
HRA 300.3	300.30	46.6		10"	4800	2400	1600	4800	
HRA 360.3	360.30	52.7	10"	5000	2400	1600	4800		

\* Rating Conditions are 35°C inlet temperature, 7.0 barG inlet pressure, 100% relative humidity, 25°C ambient.

\* Maximum/minimum inlet pressure : 12.1 barG/3 barG, Maximum/minimum inlet air temperature : 49°C/4°C, Maximum/minimum ambient air temperature : 43°C/4°C

\* Dimension is for Air-cooled condenser type. Water-cooled condenser type is available, consult factory.

\* Models for the high temperature condition are optional, consult factory.

## Capacity Correction Factor

### Inlet Air Pressure (barG)

barG	4	5	6	7	8	9	10	11	12
Factor	0.87	0.92	0.96	1.00	1.03	1.07	1.10	1.12	1.14

### Inlet Air Temperature (°C)

°C	30	35	40	45	49
Factor	1.22	1.00	0.84	0.71	0.60

### Ambient Air Temperature (°C)

°C	20	25	30	35	40	43
Factor	1.06	1.00	0.92	0.85	0.78	0.72

### Frequency (Hz)

Hz	50	60
Factor	1.00	1.20

**Example :** What is the capacity of a 6.67 Nm<sup>3</sup>/min model when the compressed air at the inlet to the dryer is 10 barG and 45°C and ambient temperature is 35°C?

**Answer :** 6.67 Nm<sup>3</sup>/min (rated flow from Product Specifications Table) x 1.08 (correction factor for inlet pressure from Table 1) x 0.68 (correction factor for inlet temperature from Table 2) x 0.88 (correction factor for ambient temperature from Table 3) = 4.31 Nm<sup>3</sup>/min