



HANKISON

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HPR*plus* SERIES

and HES SERIES

REFRIGERATED

COMPRESSED

AIR DRYERS

SPX Air Treatment

Compressed Air Treatment Reduces Operating Costs

Manufacturing Energy Efficient Solutions

Hankison has designed and manufactured energy-efficient solutions for compressed air treatment since 1948. Our mission is to reduce the operating expenditures of compressed air users by removing impurities from their air systems. Utilizing environmentally friendly refrigerants, Hankison Air Treatment Stations effectively remove moisture, solid particulates, and oil from compressed air systems.

Compressed Air System Impurities **HPRplus & HES Series Air Treatment Stations** **Reduce General Plant Operations Costs**

Moisture (Water)	<p>1 Refrigerated Air Dryers 38°F (3°C) Dew Point</p>	<ul style="list-style-type: none"> • Reduce wear and maintenance costs of pneumatic devices • Reduce product spoilage
Particles (Rust & Dust)	<p>2 HF Series Grade 9 Separator/Filter 3 micron particulate</p>	<ul style="list-style-type: none"> • Reduce work stoppages • Reduce rust, scale and leaks in air lines
Oil (Liquid)	<p>3 HF Series Grade 5 Oil Removal Filter 0.008 ppm (0.01 mg/m³)</p>	<ul style="list-style-type: none"> • Reduce malfunctions of control & air logic instruments

A 38°F (3°C) Dew Point Specification Saves Energy

All compressed air systems must be evaluated individually to develop a specification for compressed air treatment. The majority of compressed air users specify a 38°F (3°C) dew point for plant air. This dew point provides dry compressed air at a very low energy cost. Energy costs associated with refrigerated dryers are significantly lower than costs associated with desiccant dryers which satisfy sub-zero dew point requirements.

Refrigerated Dryers Save Energy

Operating Costs* for Dew Point Specifications

Air Flow		38°F (3°C) Refrigerated Dryer	-40°F (-40°C) Blower Purge Desiccant Dryer	-40°F (-40°C) Heatless Desiccant Dryer
scfm	(m3/h)			
250	429	\$ 1,700	\$ 5,282	\$ 6,688
750	1288	3,154	11,423	19,395
1000	1797	5,107	16,679	26,375
2000	3434	9,373	29,355	54,117
3000	5151	14,821	44,246	77,383

* Operating costs reflect actual dryer kW consumption and Purge Air requirements where applicable. Assuming 100°F (37°C) inlet and ambient temperature, 100 psig (6.9 bar) operating pressure, 8,760 working hours per year, \$ 0.10 / kWh energy cost.



Develop an Air Demand Profile to Save Energy

Compressed air demand in most plants fluctuates significantly. Hankison offers compressed air users who specify 38°F (3°C) dew point, two refrigerated drying technologies to choose from. Each HPR*plus* Series and the HES Series, include 3 micron filtration as standard in providing true, Air Treatment Stations. Both optimize energy saving opportunities for various compressed air demand profiles. The chart below will help you determine which solution is best for your application.



Match Air Demand Profiles with the Optimum Hankison Solution to Save Energy

HES Series Energy Saving Air Treatment Stations

- Optimize energy savings for variable air demand profiles that range from 0% to 100% capacity.
- Digital control PLC allows user to track cumulative energy savings.
- Digital Evaporator* coupled with an innovative Digital Scroll refrigeration system.

Air Demand Profile	Hankison Solution
 <p>Fluctuating Demands (1 to 3 shifts)</p>	HES Series
 <p>Reduced Demands (1 to 3 shifts)</p>	HES Series or HPR <i>plus</i> Series in schedule mode
 <p>Peak Demands (1 to 3 shifts)</p>	HES Series or HPR <i>plus</i> Series in schedule mode

HPR*plus* Series Steady Demand Air Treatment Stations

- Rugged reliability and value for steady demand profiles with 75% to 100% total average air flows.
- Energy Management Monitor (emm™) PLC comes with “schedule mode” which turns dryer on and off to optimize energy savings in one or two shift operations. (Models HPRp200 and larger)

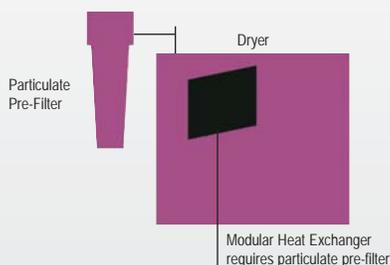
* U.S. Patent 6, 711, 906

Three Hankison Technology Platforms for HPRplus and HES Series Refrigerated Dryers

Since L.E. Hankison patented the **Condensfilter™**, (forerunner to the refrigerated air dryer) in 1943, Hankison engineers have set the industry standard for refrigerated dryer technology.

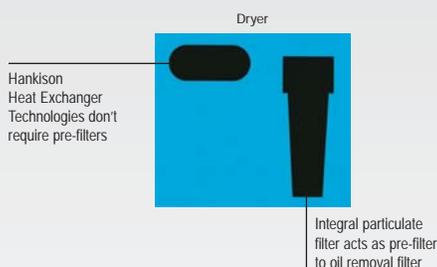
"Pre-Filter Required" Method

4 psi Δp + 5 psi Δp = 9 psi pressure drop



Energy Saving Hankison Method

5 psi Δp = 5 psi pressure drop



Hankison Heat Exchangers Eliminate the Pre-Filter: Calculate First-Year Savings

Air Flow		Pre-Filter Capital Cost	Pre-Filter Pressure Drop Cost*	Total First Year Cost of Pre-Filter
scfm	m ³ /h			
100	172	\$ 429	\$ 292	\$ 720
250	429	762	729	1,490
500	859	1,310	1,456	2,765
1000	1717	1,905	2,912	4,817
2000	3434	3,214	5,825	9,039
3000	5151	4,405	8,737	13,142

* Assuming a 4 psi (0.27 bar) pressure drop, 8,760 hours per year operation and \$ 0.10 / kWh energy cost.

Hankison Heat Exchanger Technologies

The ability to select and tailor the most reliable and efficient heat transfer materials for the application of compressed air has been a Hankison tradition for decades. HPRplus and HES Series dryers feature Hankison's most advanced heat exchanger designs.

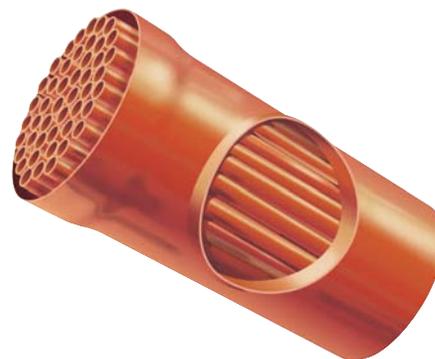
Reduce Capital and Operating Costs with Hankison Designs

Compressed air poses a unique challenge to heat exchangers in the form of high inlet concentrations of airborne contaminants such as dirt, rust and scale. These particles can potentially block the heat exchanger causing costly increases in pressure drop and, require the installation of additional pre-filtration.

Hankison-design heat exchangers feature smooth heat exchange surfaces which are non-fouling. Airborne contaminants have no place to get trapped and are swept through the heat exchanger by the compressed air. Unlike many competitive designs, these do not require pre-filtration thereby, reducing capital, installation and operating costs.

Smooth-Tube Technology (HPRp100 - 500, HES Series)

Featuring handcrafted all copper tubes-in-tube design, the air flow is split into multiple tubes to enhance the heat transfer rate and provide the thermal cooling necessary for consistent 38°F (3°C) dew points.



ColdWave™ Technology (HPRp600 - 3000)

Advanced metal forming and bonding techniques produce industry leading ColdWave™ heat exchangers. Crafted from premium grade 316SS, layers of sinusoidal flow paths form large, smooth channel flow cavities that provide low-pressure drop, unparalleled performance and superior reliability. These are the most advanced high-performance heat exchangers in the industry.



A Reliable 38°F (3°C) Pressure Dew Point - There is a difference!

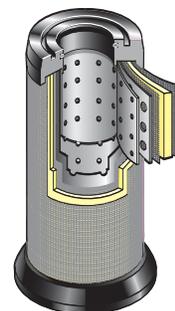
At 1000 scfm, the difference between a 38°F (3°C) and 60°F (15.6°C) dew point can result in 75 gallons of liquid water going downstream....every week. Be wary of performance claims that do not guarantee a pressure dew point (vs. a "lowest air temperature" claim).

Filtration Technology

The Integrated HF Series, Grade 9 Coalescing Separator/Filter

Once compressed air is cooled thermally, the condensed moisture must be effectively removed. A poorly designed separator can allow moisture to re-entrain itself into the compressed air stream. It is particularly challenging to consistently remove moisture at lower velocities (lower loads). The HF Series Grade 9 Separator/Filter effectively solves these challenges by utilizing two stages of filtration to remove bulk liquid and solid particulates to 3 micron in size.

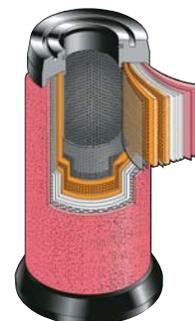
- **First stage** – two stainless steel orifice tubes provide 10 micron mechanical separation
- **Second stage** – in-depth fiber media captures solid and liquid particles to 3 micron in size



The Integrated HF Series Grade 5 Coalescing Oil Removal Filter - Optional

Space and timesavings can be achieved by integrating an oil removal coalescing filter into Hankison refrigerated dryers rated 800 scfm and larger. Instead of having a separate filter vessel and piping installed outside of the dryer... simply integrate it into the refrigerated dryer. This concept is what we call an "Air Treatment Station." The HF Series Grade 5 high efficiency oil removal filter effectively uses two stages of filtration to remove oil aerosols to 0.008 ppm (0.01 mg/m³) and solid particulates to 0.01 micron in size.

- **First stage** – multiple layers of fiber media and media screen remove larger particles, pre-filtering the air for the second stage
- **Second stage** – multiple layers of bonded, blended fiber media for fine coalescence captures fine oil aerosols and solid particles



Dryer Model	Coalescing Filter Type	Filter Performance
HPRplus 100 - 3000	Standard Grade 9	• Bulk liquid & solid particles
HES 800 - 3000	Filter Separator	• Oil aerosols to 5 ppm (6 mg/m ³)
HPRplus 1000 - 3000	Optional Grade 5	• Oil aerosols to 0.008 ppm (0.01 mg/m ³)
HES 800 - 3000	Oil Filter	• Solid particles to 0.01 micron

Refrigerant Technology

Hankison selects the HFC refrigerants, designed for industrial applications, R-134a and R-404a for the HPRplus and HES Series dryers, based upon the following criteria:

- Environmentally-friendly HFC refrigerants, which comply with the Montreal Protocol of 1989.
- Energy efficient at "medium" evaporator temperatures of 35°F. Models HPRp100 through HPRp750 feature R-134a with reciprocating compressors to provide optimal performance. All other sizes feature scroll and digital scroll compressors utilizing R-404a to provide the optimum payback for the user's air demand profile.
- Ability to maintain stable temperatures (small glide factor) to protect the integrity of the 38°F (3°C) pressure dew point. R-407c, for example, has a difficult-to-control 9°F glide factor and is selected for other product lines suited for light industrial applications.
- Widespread, long-term availability of the refrigerant at a reasonable cost.

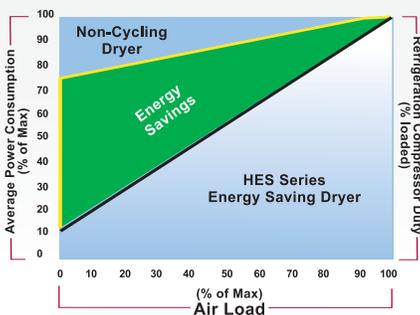
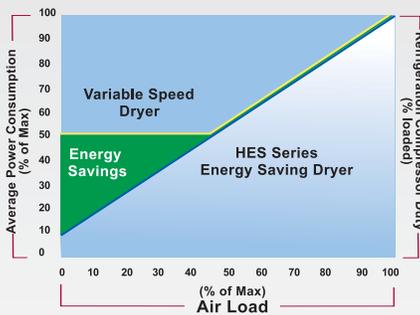
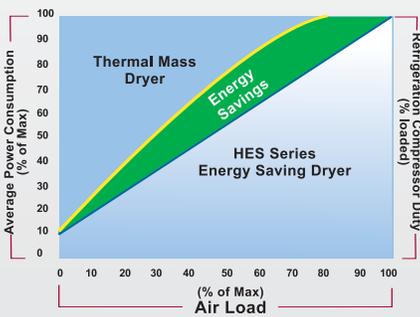
Dryer Model	HFC Refrigerant	Refrigeration Compressor-Type
HPRplus 100 - 750	R-134a	Reciprocating
HPRplus 1000 - 3000	R-404a	Scroll
HES 800 - 3000	R-404a	Digital Scroll

HES Series - Energy Saving Dryers

800 to 3,000 scfm

True Load-Matching Energy Savings

Compare the 4 major technologies that compete in the refrigerated dryer segment. HES Series (Energy Saving Dryers) are clearly the leader in energy savings, in all percentages of air demand. HES Series refrigerated dryers add more profit to your bottom line.



Digital Evaporator Technology

The HES Series features groundbreaking technologies for the refrigerated dryer industry. Digital Evaporator Technology continues the Hankison tradition of stable 38°F (3°C) dew points – while providing tremendous energy savings for a rapid return-on-investment. Unlike anything in the industry, the HES Series, with patented Digital Evaporator Technology, offers energy saving advantages over traditional non-cycling, cycling, and variable speed designs.

Rapid Return-On-Investment (ROI)

The HES Series is designed to provide a rapid return on investment by:

- Reducing the dryer's energy consumption down to 9% (91% savings) at 0% load
- Precise matching of average air flow (heat load) with the required input kW power....No More....No Less
- Qualifying for energy rebates offered by utility companies
- Maintaining a stable 38°F (3°C) dew point with no dew point spikes which send water downstream and cause high maintenance and downtime costs

HES Series Energy Savings per Year

Average Air Flow	Energy Consumption	HES Series Energy Savings per Year by Model							
		800	1000	1250	1500	1750	2000	2500	3000
100%	100%	-	-	-	-	-	-	-	-
75%	78%	\$ 1,275	\$ 1,604	\$ 1,210	\$ 261	\$ 1,073	\$ 804	\$ 1,065	\$ 1,408
50%	54%	1,907	2,280	2,189	1,690	2,729	2,704	3,330	4,373
25%	33%	2,426	2,835	3,002	2,893	4,112	4,298	5,226	6,855
0%	9%	3,058	3,512	3,981	4,323	5,768	6,200	7,490	9,820

Compared to non-cycling dryers: Assuming 100°F (37°C) inlet and ambient temperature, 100 psig (6.9 bar) operating pressure, 8,760 working hours per year, \$ 0.10 / kWh energy cost.

Air Treatment Station Features

- Space savings with dryer (no pre-filter required) and after-filters all in one cabinet.
- Integrated HF Series Grade 9 Coalescing Separator/Filter.
- Integrated HF Series Grade 5 Cold Coalescing Oil Removal Filter (optional).
- Dedicated Electronic "no air-loss" demand drain(s) for the integrated separator/filter and for the optional oil removal filter.
- RS-232 Communication Port

The HES Series Refrigeration System

Patented Digital Evaporator Technology controls the actions of the three core components in the refrigeration system (Digital Evaporator*, Digital Control board, Digital Scroll refrigeration compressor) to provide true load-matching energy savings while maintaining a very stable 38°F (3°C) dew point.



Digital Evaporator*

Technology embedded in the Digital Evaporator* recognizes varying heat loads between 0-100%, which result from the ever-changing Air Demand Profiles of compressed air users, and communicates dew point status to the Digital Control Board.

The air-to-air and air-to-refrigerant (Digital Evaporator*) heat exchangers are uniquely sized and custom made for the HES Series. Each utilizes advanced Hankison heat exchanger technology (see page 4), crafted from smooth tubes-in-tube copper. Pre-filtration is not required.

Digital Control

The control board receives information from the Digital Evaporator and sends signals to the Digital Scroll refrigeration compressor. This determines the amount of cooling energy sent back to the Digital Evaporator. With a 60% air demand, for example, the control board tells the compressor to run loaded 60% of the time.....

No More..... No Less. The display panel has an LED bar graph which instantaneously projects air demands in "real time." In this case, it would display 60% load. Energy Savings are delivered in the text display window. In addition, this control board has all the same standard features as found on the emm™ Energy Management Monitor of the HPR_{plus} Series (see page 8), including the "schedule mode" for automatic start-stop operation.

Digital Scroll



These innovative refrigeration scroll compressors are capable of running loaded or unloaded. A "power-on" signal equals no capacity (valve open-compressor unloaded) and no energy consumption while a "power-off" signal

equals full capacity (valve closed-compressor loaded). Digital Scroll compressors unload by allowing the fixed upper scroll to move axially from the orbiting lower scroll.

* U.S. Patent 6, 711, 906



HPRplus Series Refrigerated Dryers and Air Treatment Stations

The Hankison Performance and Reliability plus Filtration (HPRplus) Series is one of the world's most commonly installed refrigerated air dryers. The Hankison technology platforms of heat exchangers, filtration, and refrigeration (see pages 4-5), which are CSA and UL certified, represent the best value solution available for heavy-duty air demand profiles.



HPRplus Series Refrigerated Dryers 100 to 3,000 scfm

Models HPRp100 to 150

- On/off switch, Power-on light, and dew point temperature indicator-alerts operator to overload condition or refrigeration system fault
- HF Series Grade 9 Filter/Separator

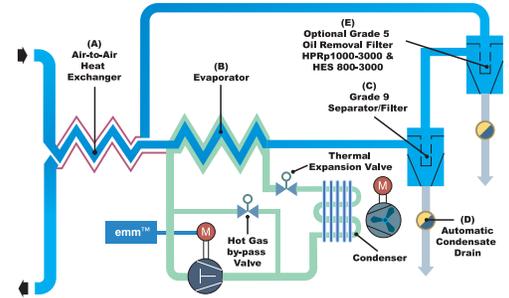
Models HPRp200 to 3000 with the emm™ Energy Management Monitor

- This advanced 24 volt electronic control package has many user-friendly interfaces which can save energy, automate service intervals, communicate in ten languages, and add functionality.
- Energy-saving "schedule mode" allows compressed air users (see page 2) with one or two-shift operations to schedule the dryer to turn on and off in accordance with their work schedule.
- Automatic service intervals can be set for predictive maintenance schedules: to ensure that the condenser on air-cooled units is maintained dust-free (HPRp1000 to 3000 include integral blow gun) and to ensure filter element replacement of the the standard HF Series Grade 9 Separator/Filter every 12 months. The HF Series Grade 5 cold coalescing, oil removal filter is available as an option on models HPRp1000 to 3000.
- Operator interface with read-outs comes standard in ten languages (English, German, French, Spanish, Italian, Polish, Danish, Dutch, Norwegian and Finnish). Read-outs include current time, operating status such as manual or schedule running modes, hours to service, and total operating hours.
- Functionality features include a drain push-to-test button, power-on and compressor-on lights, an operator alert light which indicates that service is required or that there is a refrigeration system or drain fault, dew point temperature indicator
- Remote monitoring of the emm™, from your computer, possible through the RS-232 Communication Port
- Standard NO and NC voltage-free alarm contacts and RS-232 Communication Port
- Fault condition diagnostics with user-friendly text display



How They Work

Compressed air, saturated with water vapor, enters the air-to-air heat exchanger (A), is pre-cooled by the outgoing chilled air, and then directed to the air-to-refrigerant (evaporator) heat exchanger (B) where it is further cooled by the refrigeration system. As the air is cooled, water vapor condenses into liquid droplets and is removed by the Separator/Filter (C) and discharged from the dryer by an automatic drain (D). Air then goes through an Oil Removal Filter (models HPRP1000-3000)(E) and as dry, oil-free, chilled air returns through the air-to-air heat exchanger where it is reheated before exiting the dryer.



The HPRplus Series Air Treatment Station 1,000 to 3,000 scfm

Space savings can be achieved in your factory by integrating your refrigerated dryer with the required after-filters all in one cabinet. Benefit from being able to customize your Air Treatment Station to the exact inlet compressed air conditions of your factory. Properly designed full-feature compressors with integrated dryers must, for example, default to the most demanding inlet conditions. Compare the space requirements of one Air Treatment Station with traditional installations which require a prefilter, dryer, and afterfilter.

HPRplus Series Air Treatment Station Features

The heart of the dryer is Hankison's ColdWave™ heat exchangers, which do not require prefiltration, therefore reducing the total system pressure drop.

Space-saving optional HF Series Grade 5 Cold Coalescing Oil Removal Filter eliminates oil aerosols to 0.008 ppm (0,01 mg/m³). This feature can save end users valuable wall space and installation costs.

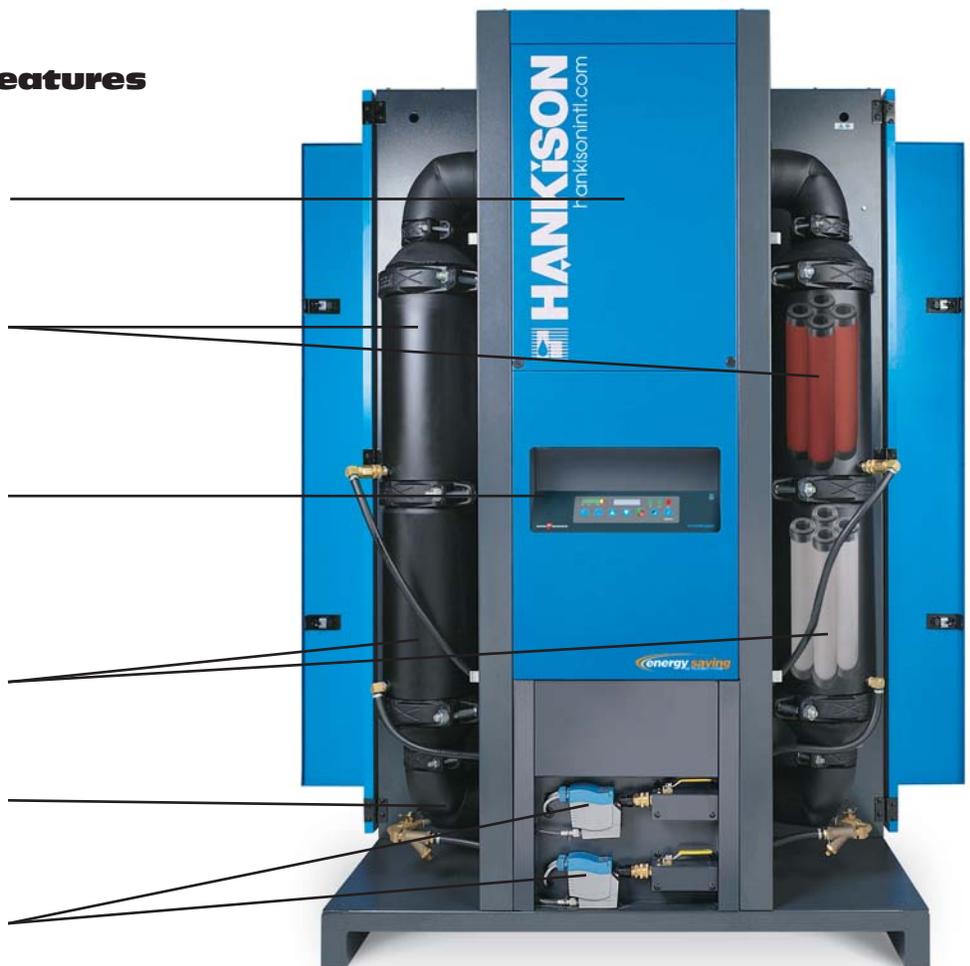
emm™ Energy Management Monitor

- programs the dryer for timed auto-start and stop. Saves energy during down time.
- monitors dryer for overload or fault conditions.
- programmable maintenance interval, visual and remote operator alert capabilities.

Standard HF Series Grade 9 Filter/Separator removes bulk liquids and particulates to 3 micron.

Refrigeration system ensures stable dewpoints with environmentally friendly R404a refrigerant, low-noise, hermetic, scroll compressors and hot gas by-pass valve automatic control system.

Dedicated Electronic "no air-loss" demand drain(s) with "time delay" feature to reduce cycle frequency.



HPRplus Series and HES Series Product Features and Specifications

HPRplus Series Product Specifications

Model	Rated Flow ¹ scfm	Voltages V/ph/Hz	Power ² kW	Connection ³	Dimensions			Weight lbs.	Total Air Treatment Station Pressure Drop with Integrated Filtration			
					H	W inches	D		Std. 3 Micron HF Series Grade 9 Separator/Filter		Opt. 0.008 ppm Oil HF Series Grade 5 Integrated Filtration	
									psig	bar	psig	bar
HPRP100	100	100/1/50	0.82	1" NPT	22	20	29	160	5.0	0.34	-	-
HPRP125	125	115/1/60	0.82	1-1/2" NPT	27	24	30	210	5.0	0.34	-	-
HPRP150	150	208-230/1/60 220-240/1/50	1.06	1-1/2" NPT	27	24	30	220	4.5	0.31	-	-
HPRP200	200	208-230/3/60 460/3/60 380-420/3/50	1.30	2" NPT	40	22	48	410	5.0	0.34	-	-
HPRP250	250		1.94	2" NPT	40	22	48	430	4.1	0.28	-	-
HPRP300	300		1.94	2" NPT	40	22	48	440	4.2	0.29	-	-
HPRP400	400		2.62	3" NPT	52	28	51	620	5.0	0.34	-	-
HPRP500	500		2.62	3" NPT	52	28	51	630	4.7	0.32	-	-
HPRP600	600		2.62	3" NPT	57	28	65	890	2.9	0.20	-	-
HPRP750	750		3.60	3" NPT	57	28	65	920	5.0	0.34	-	-
HPRP1000	1000		5.83	4" ANSI Flg.	85	48	49	1540	2.3	0.16	5.8	0.40
HPRP1250	1250		6.73	4" ANSI Flg.	85	48	49	1600	3.5	0.24	7.9	0.54
HPRP1500	1500		7.52	4" ANSI Flg.	85	48	49	1650	4.8	0.33	10.1	0.70
HPRP1750	1750	9.89	6" ANSI Flg.	85	54	56	2200	2.1	0.14	5.2	0.36	
HPRP2000	2000	10.70	6" ANSI Flg.	85	54	56	2240	2.7	0.19	6.2	0.43	
HPRP2500	2500	12.91	6" ANSI Flg.	85	54	56	2300	4.0	0.28	8.4	0.58	
HPRP3000	3000	16.92	6" ANSI Flg.	85	54	56	2500	5.0	0.34	10.3	0.71	

The emm™ Energy Management Monitor control package is standard on models HPRP200-3000

Refrigerants utilized on models HPRP100-750 is R-134a, models HPRP1000-3000 utilize R-404a

Models HPRP100-150: standard internal HF Snap Trap drain [dryer MOP 250 psig (17.6 bar), optional electric demand drain (dryer MOP 232 psig (16 bar), optional electric timed drain (dryer MOP 200 psig (14 bar)

Models HPRP200-3000: standard electric demand drain [dryer MOP 232 psig (16 bar)]. Second electric demand drain is standard when optional integrated HF Series Grade 5 oil removal filter is selected.

Maximum inlet temperature: 120°F (49°C)

All models are certified to UL1995/CSA 22.2 No. 236-95.

¹ Rated Flow Capacity - Conditions for rating dryers are in accordance with CAGI (Compressed Air and Gas Institute) Standard ADF100 working conditions: inlet air at 100 psig (7 bar) and 100°F (38°C) saturated, ambient air at 100°F (38°C), operating on 60 Hz power supply. At rated conditions, outlet pressure dew point is 38°F (3°C)

² At 35°F (2°C) evaporator and 100°F (38°C) ambient

³ BSP connections and DIN flanges available

HES Series Product Specifications

Model	Rated Flow ¹ scfm	Voltages V/ph/Hz	Power ² kW	Connection ³	Dimensions			Weight lbs.	Total Air Treatment Station Pressure Drop with Integrated Filtration			
					H	W inches	D		Std. 3 Micron HF Series Grade 9 Separator/Filter ⁴		Opt. 0.008 ppm Oil HF Series Grade 5 Integrated Filtration	
									psig	bar	psig	bar
HES800	800	208-230/3/60 460/3/60 380-420/3/50	4.28	3" NPT	85	40	52	1615	1.6	0.11	4.4	0.30
HES1000	1000		4.68	3" NPT	85	40	52	1650	2.3	0.16	5.8	0.40
HES1250	1250		6.34	4" ANSI Flg.	85	48	52	1770	3.5	0.24	7.9	0.54
HES1500	1500		8.68	4" ANSI Flg.	85	48	52	1890	4.8	0.33	10.1	0.70
HES1750	1750		10.35	6" ANSI Flg.	85	54	56	2110	2.1	0.14	5.2	0.36
HES2000	2000		11.72	6" ANSI Flg.	85	54	56	2205	2.7	0.19	6.2	0.43
HES2500	2500		14.00	6" ANSI Flg.	85	54	56	2248	4.0	0.28	8.4	0.58
HES3000	3000		18.33	6" ANSI Flg.	85	54	56	2288	5.0	0.34	10.3	0.71

The Digital Control package is standard.

All models utilize R-404a refrigerant with Digital Scroll compressors.

All models utilize a standard electric demand drain.

Second electric demand drain is standard when optional integrated HF Series Grade 5 oil removal filter is selected.

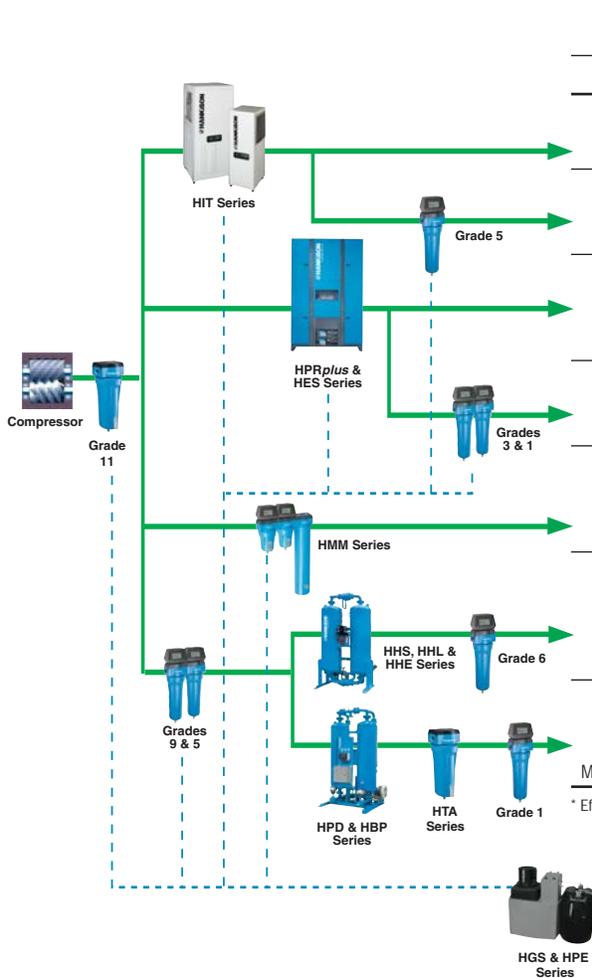
Maximum Operating Pressure 232 psig (16 bar), Maximum inlet temperature: 120°F (49°C).

All models are certified UL1995/CSA 22.2 No. 236-95.

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² At 35°F (2°C) evaporator and 100°F (38°C) ambient.

³ BSP connections and DIN flanges available.



ISO 8573.1 Air Quality Class			System	ΔP^*
Solids	Moisture	Oil	psi	bar
3	6	5	<5	<0,35
Body shops, Sand Blasting				
1	6	1	<8	<0,56
Large Pneumatic Tools, Spray Painting				
1	4	1	<8	<0,56
Powder Painting, Fine Pneumatic Tools, Air Gauging & Conveying, Pneumatic Instruments & Controls				
1	4	1	<11	<0,75
Food Packaging, Cosmetics, Photo Labs, Textile Looms				
1	2 - 5	1	<5	<0,35
Telephone Cable, Printing, Photo Labs, Sprays Painting, Dental, Laboratory Instruments				
1	1 - 3	1	<10	<0,68
Air Lines exposed to freezing ambient conditions, Pharmaceutical, Chemical, Powder Paint				
1	2 - 3	1	<12	<0,82
Food Processing, Dairies, Breweries, Air in direct contact with foods, Microchips, Optics, Medicines, Point-of-Use				

* Efficiencies per CAGI standards ADF100 and ADF400 and wetted element conditions.

ISO 8573.1 Quality Classes

Class	Solid Particles			Humidity and Liquid Water		Oil	
	Particle Size, d (micron)			Pressure Dew Point		Total concentration, Aerosol, Liquid, and Vapor	
	0.10 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0	°C	°F	mg / m ³	ppm w/w
0	As Specified			As Specified		As Specified	
1	100	1	0	≤ -70	≤ -94	≤ 0.01	≤ 0.008
2	100,000	1,000	10	≤ -40	≤ -40	≤ 0.1	≤ 0.08
3	Not Specified	10,000	500	≤ -20	≤ -4	≤ 1	≤ 0.8
4	Not Specified	Not Specified	1,000	≤ +3	≤ +38	≤ 5	≤ 4
5	Not Specified	Not Specified	20,000	≤ +7	≤ +45		
6				≤ +10	≤ +50		
				Liquid Water Content, C _w g/m ³			
7				C _w ≤ 0.5			
8				0.5 < C _w ≤ 5			
9				5 < C _w ≤ 10			

Per ISO8573-1: 2001(E)

HIT Series Refrigerated Dryers

Dries to 50°F (10°C) dew point, 3 micron integral filter

HPR Series Refrigerated Dryers

Dries to 38°F (3°C) dew point

HPRplus & HES Series Refrigerated Dryers - Air Treatment Stations

Dries to 38°F (3°C) dew point, 3 micron integral filter and optional 0.008 ppm (0,01 mg/m³) oil removal filter

HMM Series Membrane Dryers

Select from 50°F (10°C) to -40°F (-40°C) dew points
No Oxygen Loss

HHS, HHL & HHE Series Heatless Desiccant Dryers

Dries to -100°F (-73°C) dew point

HPD Series Heated Purge and HBP Series Blower Purge Desiccant Dryers

Dries to -40°F (-40°C) dew point

HGS and HPE Series Condensate Separators

Separates to 15 ppm (15 mg per liter)

HF Series Filters

- Grade 11** – 99% bulk water removal
- Grade 9** – 99% bulk water removal, 3 micron particulate
- Grade 7** – 1 micron particulate
- Grade 6** – 1 micron desiccant afterfilter
- Grade 5** – 0.008 ppm (0,01 mg/m³) oil removal
- Grade 3** – 0.0008 ppm (0,001 mg/m³) oil removal
- Grade 1** – oil vapor & 0.003 ppm (0,004 mg/m³) oil removal
- HTA** – 1 micron particulate, high temperature filter

SPX HANKISON

SPX Air Treatment

1000 Philadelphia Street

Canonsburg, PA 15317-1700 U.S.A.

Phone: 724-745-1555 • Fax: 724-745-6040

Email: hankison.inquiry@airtreatment.spx.com

www.hankisonintl.com

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Improvements and research are continuous at SPX Hankison
Specifications may change without notice.

