CompAir

Refrigeration dryers for energy efficient compressed air quality

Energy efficient compressed air treatment

F-HS series

Innovative, energy efficient refrigerant dryers

CompAir – guaranteed long-term economical compressed air treatment

For CompAir, quality and efficiency is just as important for compressed air treatment as it is for compressed air generation. Just like CompAir compressors, the F-HS series refrigerant dryers also provide a consistently high performance with optimum efficiency for many industrial compressed air applications.

They are carefully selected depending on working conditions with continuous dew point monitoring enabling reliable operation with the lowest possible pressure losses and running costs.

When it comes to compressed air treatment, modern, reliable technology and compact dimensions make the F-HS series the preferred choice for every application.

Investment protection through compressed air quality

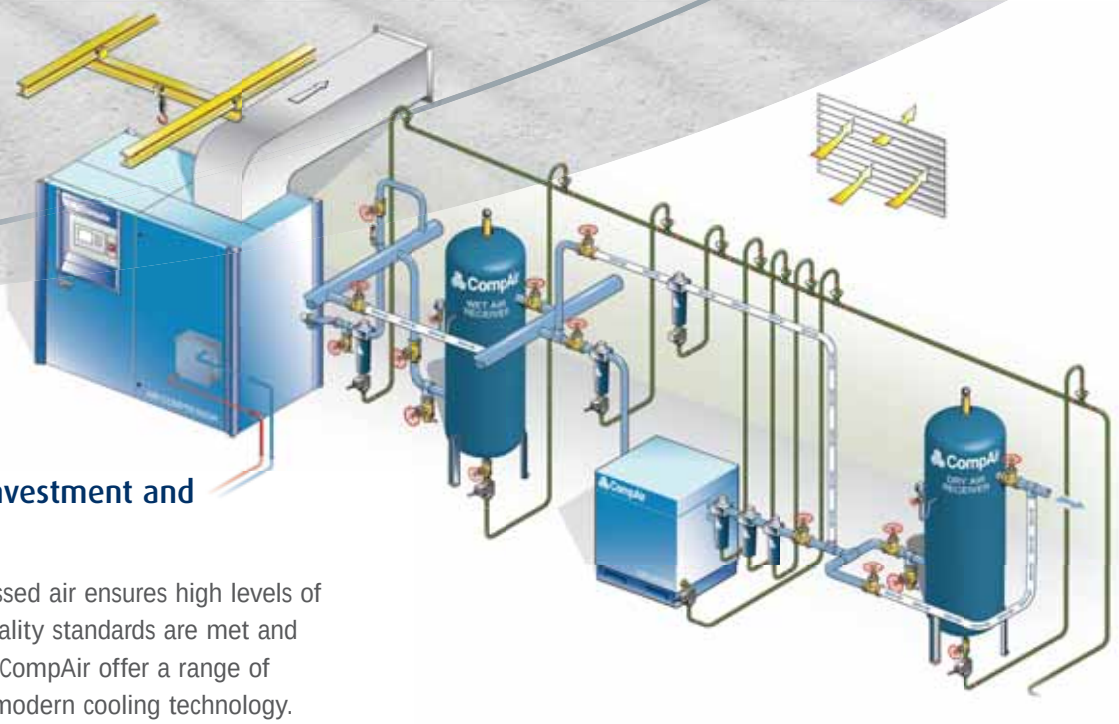
Modern production systems and processes demand high quality compressed air, which is defined in the 6 classes outlined in international standard ISO 8573.1. These are only achievable with filtration, water separation and drying.

Users in the food and pharmaceutical industry must adhere to stringent compressed air quality guidelines, as well as local legislation. Other industries may also follow specific advise regarding, the quality compressed air they use to ensure the protection and efficiency of process equipment and finished product.

Compressed air quality classes according to ISO 8573-1

Class	Particle size		Residual water		Residual oil volume
	[µm]	[mg/m³]	DTP [°C]	[g/m³]	[mg/m³]
1	0.1	0.1	−70	0.003	0.01
2	1	1	−40	0.12	0.1
3	5	5	−20	0.88	1
4	15	8	+3	6	5
5	40	10	+7	7.8	25
6	—	—	+10	9.4	—

> CompAir offers economical compressed air systems for the long term. Lowering running costs and increasing efficiency of existing systems means investments pay for themselves over a shorter period of time.



Impressive return on investment and operational reliability

The use of clean dry compressed air ensures high levels of reliability, guarantees that quality standards are met and can reduce production costs. CompAir offer a range of solutions for drying utilising modern cooling technology.

F4HS to F96HS
Volume flow 0.4 to 9.5 m³/min

F120HS to F1800HS
Volume flow 12 to 180 m³/min

Your benefits at a glance

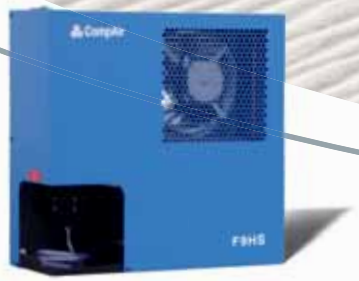
- High quality heat exchanger with low pressure loss
- +3°C pressure dew point
- Low operating costs
- Environmentally friendly R134a and R407c refrigerants
- Effective condensate separation
- Minimum space requirement due to compact dimensions
- Easy to install, operate and maintain

Save energy with refrigerant dryers

Operators primarily focus on compressed air quality and purchase cost. Differences in the operating costs of refrigerant dryers are often less likely to be considered.

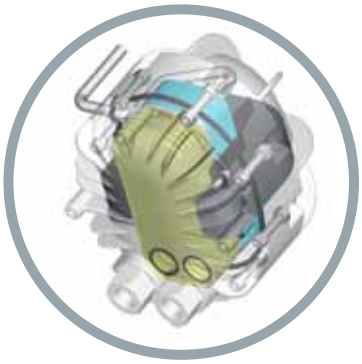
The CompAir refrigerant dryers are characterised by their energy efficiency, which helps to reduce running costs, thanks to patented heat exchanger technology.

Reliable refrigerant dryers … proven in thousands of applications



The small refrigerant dryers from F4HS to F59HS

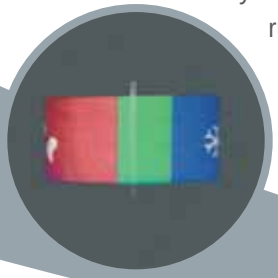
Compact dryers with minimal space requirements containing a unique air to air and air to refrigerant plate heat exchanger with condensate demister, integrated in an insulated aluminium housing.



Design Advantages

- Reliable, air tight piston compressor for instant start up.
- Simple and reliable cooling circuit which undergoes strict quality testing during manufacture and requires no adjustment.
- Safety protection built in to the cooling circuit, increases reliability
- Easy access for maintenance

Pressure dew point is kept well below the ambient temperature for all operating conditions. The control system is designed for constant running with a main switch and a dew point indicator.



> Did you know that a pressure loss of 140 mbar increases the energy costs of a compressor by approximately 1%?

F76HS – F1800HS: Outstanding efficiency thanks to its patented “all-in-one” heat exchanger system

The F76HS – F1800HS refrigerant dryers work according to the “direct expansion principle”, which, in contrast to other indirect systems such as “thermal mass”, preventing increased energy consumption when in full load mode.

The cooling circuit of these CompAir dryers is continuously controlled and monitored by means of a hot gas bypass valve. The F120HS to F1800HS models feature sophisticated energy saving properties. The on/off state is automatically controlled according to system demand. The refrigerant dryer consists of four main components

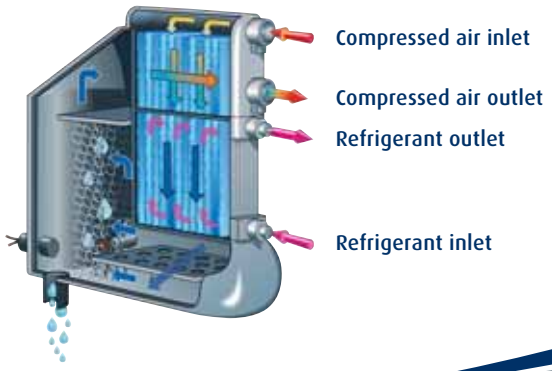
- Evaporator
- Compressor
- Condenser
- Expansion device

The air-to-air heat exchanger system is an all-in-one aluminium module without pipe connections which ensures minimum pressure loss.

Maximum dew point performance through:

- Flow paths with large diameters, achieve low flow speeds
- Generously dimensioned moisture separator, enables effective condensate separation
- A dew point sensor in the air flow provides continuous dew point monitoring

Operating principle



Focus on energy saving

Energy saving technology of the F120HS to F1800HS refrigerant dryers

No air loss condensate drain

This series includes an integrated, no air loss condensate drain as standard. The electronic condensate level sensor is integrated in the generously dimensioned drainage chamber of the heat exchanger and opens and closes automatically at set liquid levels by the measuring sensor, thereby ensuring no air loss drainage.

Scroll compressor

All models from F120HS to F1800HS are fitted with a scroll refrigerant compressor and offer energy savings of up to 20% compared to traditional systems. Thanks to refrigerant backflow resistance and a low number of components, these compressors are extremely robust.

SmartControl energy saving control

The multi-functional display provides an accurate digital dew point display as well as coded alarm monitoring of the refrigerant dryer.

The innovative control indicates to the user whether the dryer is running in energy saving mode and provides information on the energy saving achieved as a percentage.

- Digital dew point monitoring
- Energy-saving mode display
- Periodic maintenance interval display
- Status report
- Hours run meter

CompAir – technical data – F-HS series refrigerant dryer: F4HS–F95HS

MODEL		F4HS	F6HS	F9HS	F12HS	F18HS	F24HS	F30HS	F39HS	F49HS	F59HS	F76HS	F95HS
Volume flow at 20°C, 1 bar (a)	m³/min	0.4	0.6	0.9	1.2	1.8	2.4	3.0	4.0	5.0	6.0	7.5	9.5
Maximum operating pressure	bar	16	16	16	16	16	16	16	16	16	16	14	14
Input power	kW	0.13	0.17	0.25	0.25	0.49	0.57	0.78	0.71	0.85	1.05	0.9	1.38
Compressed air connection	BSP-F	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R407c	R407c
Dimensions Width	mm	450	450	500	500	520	520	520	555	555	555	703	703
Height	mm	430	430	505	505	565	565	565	600	600	600	945	945
Depth	mm	210	210	210	210	225	225	225	425	425	425	562	562
Weight	kg	19	19	23.5	23.5	26.5	31	35	52	58	60	83	83
Power Supply	V/ph/Hz	230/1/50											

CompAir – technical data – F-HS series refrigerant dryer: F120HS–F1800HS

MODEL		F120HS	F140HS	F180HS	F220HS	F260HS	F300HS	F350HS	F460HS	F520HS	F630HS	F750HS	F900HS	F1210HS	F1500HS	F1800HS
Volume flow at 20°C, 1 bar (a)	m³/min	12	14	18	22	26	30	35	46	52	63	75	90	120	150	180
Maximum operating pressure	bar	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Input power	kW	1.13	1.14	1.46	1.68	2.19	2.41	3.06	3.14	3.54	4.64	5.73	7.63	8.92	12.35	15,96
Compressed air connection	BSP-F	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	DN100/PN16			DN150/PN16			DN200/PN16	
Refrigerant		R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c	R407c
Dimensions Width	mm	706	706	706	806	806	806	806	1007	1007	1007	1007	1007	1007	1007	1007
Height	mm	1064	1064	1064	1316	1316	1316	1316	1690	1722	1722	1722	1722	2048	2208	2208
Depth	mm	1046	1046	1046	1166	1166	1166	1166	1097	1097	1657	1657	1657	1657	2257	2257
Weight	kg	145	145	155	230	240	245	250	470	490	580	670	690	830	1100	1190
Power Supply	V/ph/Hz	400/3/50														

The listed performance data relates to air-cooled models with an air intake of 20°C and 1 bar (a) under the following operating conditions:
Air intake at 25°C, 60% relative humidity, 7 bar g positive operating pressure, 25°C ambient temperature; 35°C compressed air inlet temperature; pressure dew point +3°C according to ISO 8573-1

Tolerance: Power consumption +/–10%; maximum inlet temperature: 65°C; maximum ambient temperature: 50°C; all data according to ISO 7183.

The F220HS to F1800HS models are optionally available with water cooling.

Volume flow correction factors for different operating conditions

To determine the required dryer power, multiply the volume flow by the correction factors (Volume flow x A x B x C x D).

The correction factors given are guide values. For precise selection, we recommend using the dryer configuration program.

For optimum efficiency a prefilter should be connected upstream of the refrigerant dryers for removing solid particles and oil.

A) Operating pressure	bar (g)	5	7	8	9	10	11	12	13
F4HS–F59HS		0.90	1.0	1.03	1.07	1.09	1.12	1.13	1.15
F76HS–F1800HS		0.90	1.0	1.04	1.07	1.08	1.11	1.12	1.14
B) Inlet temperature	**°C**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**
F4HS–F59HS		1.22	1.0	0.83	0.69	0.58	0.49	0.46	0.43
F76HS–F1800HS		1.23	1.0	0.84	0.70	0.59	0.50	0.45	0.40
C) Ambient temperature	**°C**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	
F4HS–F59HS		1.05	1.0	0.94	0.88	0.81	0.75	0.68	
F76HS–F1800HS		1.06	1.0	0.95	0.90	0.83	0.77	0.72	
D) Pressure dewpoint	**°C**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
F4HS–F59HS		1	1.06	1.12	1.18	1.24	1.31	1.38	1.46
F76HS–F1800HS		1		1.10		1.21			1.40

CompAir

Innovative products & services

With over 200 years of engineering excellence, the CompAir brand offers an extensive range of highly reliable, energy efficient compressors and accessories to suit all applications.

An extensive network of dedicated CompAir sales companies and distributors across all continents provide global expertise with a truly local service, ensuring our advanced technology is backed up with the right support.

As part of the worldwide Gardner Denver operation, CompAir has consistently been at the forefront of compressed air systems development, culminating in some of the most energy efficient and low environmental impact compressors on the market today, helping customers achieve or surpass their sustainability targets.

CompAir compressed air product range

Advanced Compressor Technology Lubricated

- Rotary Screw
  > Fixed and Regulated Speed
- Piston
- Portable

Oil-Free

- Water Injected Screw
  > Fixed and Regulated Speed
- Two Stage Screw
  > Fixed and Regulated Speed
- Piston
- High Speed Centrifugal - Quantima®

Complete Air Treatment Range

- Filter
- Refrigerant and Desiccant Dryer
- Condensate Management
- Heat of Compression Dryer
- Nitrogen Generator

Modern Control Systems

- CompAir DELCOS Controllers
- SmartAir Master Sequencer

Value Added Services

- Professional Air Audit
- Performance Reporting
- Leak Detection

Leading Customer Support

- Custom Engineered Solutions
- Local Service Centres
- Genuine CompAir Parts and Lubricants

www.compair.com sales@compair.com

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