01 GB

CompAir

by Gardner Denver

Refrigeration Dryer

High quality compressed air

F-Series

Energy efficient compressed air treatment

50Hz & 60Hz

Energy efficient refrigeration dryers

First-class air treatment efficiency

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-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 dewpoint 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-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 advice 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	—

> Economical compressed air systems from CompAir offer long-term solutions, ensuring lower operational costs and a timely return on investment.

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.

F4S to F100S
Volume flow 0.4 to 10 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 dewpoint
- 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.

Unrivalled low running costs

The small refrigeration dryer series F004S to F100S

Thanks to the highly efficient design, the refrigerant circuit absorbs lower power and uses less refrigerant charges than other comparable dryers. Developed around a state-of-the-art aluminium heat exchanger featuring an air-to-air section, an air-to-refrigerant section, a highly efficient stainless steel demister separator and a moisture collection chamber, the new range provides air quality at unrivalled costs.

All models are equipped with digital controller featuring dew point level indication, free voltage alarm contact, maintenance reminder and integral timed drain control.

When equipped with the Energy Save feature, which is optionally available from model F026S, the dryers will save additional energy at partial load by cycling the fridge compressor activity while cooling the inlet air using the cold reserve stored in the heat exchanger mass.

Key benefits

- Lowest running costs and lowest absorbed power
- High efficiency all-in-one aluminium heat exchanger
- 25% lower refrigerant charges than comparable ranges
- With dual-frequency ready for 50 and 60 Hz applications
- Digital controller with embedded features:
  - Free contact
  - Maintenance reminder
  - Drain control (timed mode)
- Wall-hang ready (up to model F018S)
- Easy drain access from both sides
- Compact dimensions

Options

- External float or electronic capacitive drain
- Energy saving versions (from model F026S)
- Pre-filter

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

F120HS – F1800HS: Outstanding efficiency thanks to its patented “all-in-one” heat exchanger system

The F120HS – 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:

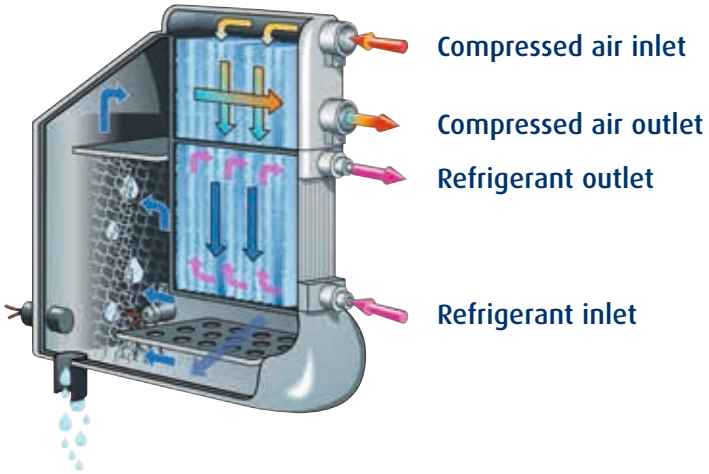
- Evaporator
- Compressor
- Condenser
- Expansion device

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 F-Series – Technical Data – F004S – F100S, 50Hz and 60Hz

Model			F004S	F007S	F009S	F014S	F018S	F026S	F032S	F040S	F052S	F062S	F080S	F100S
Volume flow 50Hz at 20°C, 1 bar (a)		m³/min	0.4	0.7	0.9	1.4	1.8	2.6	3.2	4.0	5.2	6.2	8.0	10.0
Volume flow 60Hz at 20°C, 1 bar (a)		m³/min	0.47	0.78	1.00	1.60	2.07	2.93	3.63	4.53	6.02	7.15	9.25	11.48
Maximum operating pressure		bar	16	16	16	16	16	16	16	16	16	16	14	14
Absorbed power 50Hz		kW	0.13	0.14	0.15	0.15	0.16	0.29	0.30	0.31	0.46	0.57	0.73	0.74
Absorbed power 60Hz		kW	0.16	0.17	0.19	0.18	0.20	0.36	0.37	0.38	0.56	0.69	0.90	0.91
Compressed air connection		BSP-F	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Refrigerant			R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
Dimensions	Width	mm	300	300	300	330	330	400	400	400	400	400	450	450
	Height	mm	520	520	520	580	580	650	650	650	650	650	840	840
	Depth	mm	400	400	400	550	550	630	630	630	630	630	780	780
Weight		kg	24	24	25	35	36	46	46	47	53	55	100	100
Power Supply		V/ph/Hz	230 / 1 / 50											

F120HS – F1800HS – 50Hz

Model			F120HS	F140HS	F180HS	F220HS	F260HS	F300HS	F350HS	F460HS	F520HS	F630HS	F750HS	F900HS	F1210HS	F1500HS	F1800HS
Volume flow 50Hz 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														

F325HS – F6000HS – 60 Hz

Model			F325HS	F400HS	F500HS	F700HS	F800HS	F1000HS	F1200HS	F1400HS	F1600HS	F2000HS	F2400HS	F3000HS	F3800HS	F5000HS	F6000HS
Volume flow at 20°C (76°F), 1 bar (a) to ISO 8573.1		m³/min	13	15	17.5	25	28	34	39	49	56	70	84	102	132	165	198
		cfm	459.0	530.0	618.0	883.0	989.0	1201.0	1377.0	1730.0	1978.0	2472.0	2966.0	3602.0	4662.0	5827.0	6992.0
Input power		kW	1.22	1.37	1.76	2.39	2.63	2.90	3.68	3.77	4.25	5.56	6.87	9.15	10.71	14.82	19.15
Port		BSP-F	2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	4"	4"	6"	6"	6"	6"	8"	4"
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	1007	1007	1007	1007	1007	1007	1007	1007	1007
	Height	mm	1064	1064	1064	1316	1316	1316	1690	1690	1722	1722	1722	2048	2048	2208	2208
	Depth	mm	1046	1046	1046	1166	1166	1166	1097	1097	1657	1657	1657	1657	1657	2257	2257
Weight		kg	145	145	155	230	240	250	370	490	580	670	690	730	830	1100	1190
Electrical connection		V/Hz	460V / 3Ph / 60Hz Standard / 380V / 3Ph / 60Hz Optional														

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 models F220HS to F1800HS (50Hz) and F700HS to F6000HS (60Hz) are optionally available with water cooling.

Volume flow correction factors for different operating conditions

F4S - F100S

A) Working pressure	bar (g)	3	5	7	9	11	13	15	16
Requested airflow correction factor 50Hz		1.35	1.11	1.00	0.85	0.81	0.77	0.72	0.71
Requested airflow correction factor 60Hz		1.45	1.11	1.00	0.85	0.81	0.77	0.73	0.71
B) Inlet temperature	**°C**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**
Requested airflow correction factor 50Hz		0.83	1.00	1.30	1.61	2.00	2.33	2.38	2.50
Requested airflow correction factor 60Hz		0.85	1.00	1.32	1.61	2.04	2.56	2.63	2.78
C) Ambient temperature	**°C**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	
Requested airflow correction factor 50Hz		0.93	1.00	1.02	1.09	1.15	1.22	1.28	
Requested airflow correction factor 60Hz		0.96	1.00	1.06	1.11	1.18	1.25	1.33	
D) Pressure dew point	**°C**	**3**	**5**	**7**					
Requested airflow correction factor 50Hz		1.00	0.78	0.70					
Requested airflow correction factor 60Hz		1.00	0.79	0.72					

To determine the required dryer model, multiply the requested volume flow by the correction factors (required volume flow x A x B x C x D) and then select the model from the table with nearest higher flow rate.

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.

F120HS - F1800HS (50Hz) F325HS - F6000HS (60Hz)

A) Working pressure	bar (g)	3	4	5	6	7	8	9	10	11	12	13	14
Requested airflow correction factor		1.35	1.20	1.11	1.04	1.00	0.96	0.93	0.93	0.90	0.89	0.88	0.87
B) Inlet temperature	**°C**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**				
Requested airflow correction factor		0.81	1.00	1.19	1.43	1.69	2.00	2.22	2.50				
C) Ambient temperature	**°C**	**20**	**25**	**30**	**35**	**40**	**45**	**50**					
Requested airflow correction factor		0.94	1.00	1.05	1.11	1.20	1.30	1.39					
D) Pressure dew point	**°C**	**3**	**5**	**7**	**10**								
Requested airflow correction factor		1.00	0.91	0.83	0.71								

CompAir
by Gardner Denver

Global experience – truly local service

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

0636B 07/16