

Gardner
Denver

Refrigerant Dryers

Innovative Compressed Air Treatment Solutions
GDD Series



High performance, optimum efficiency

Why is compressed air processed?

Compressed air is an essential form of driving and process energy in all fields of industrial and production manufacturing. Compressed air must be dry, free of oil and clean to avoid expensive production breakdowns. Compressed air is produced by compressing air which is sucked into the compressor. This usually contains pollutants, dirt particles and always moisture in the form of water vapour, which condenses spontaneously in the compressed air and can then lead to disruptions in operations and thereby to substantial but avoidable costs.

GDD refrigerant dryers – innovation & energy efficiency guaranteed

For GD Compressors, quality and efficiency is just as important for compressed air treatment as it is for compressed air generation. Just like GD compressors, the GDD 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 GDD series the preferred choice for every application.

Protect your investment with quality compressed air

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.

ISO 8573-1 quality classes for compressed air

Class	Particle Size		Residual Water		Residual Oil Volume
	(μm)	(mg/m^3)	DTP ($^{\circ}\text{C}$)	(g/m^3)	(mg/m^3)
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	-

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. Gardner Denver offer a range of solutions for drying utilising modern cooling technology.

GDD4S to GDD100S

Volume flow 0.4 to 10 m³/min

GDD120HS to GDD1800HS

Volume flow 12 to 180 m³/min

Use refrigerant dryers to save energy

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

The 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

Long term economical compressed air systems from Gardner Denver. Lower operating costs and increased efficiency equals **quicker return on investment.**



GDD4S – GDD100S: Low running costs and minimum absorbed power

The GDD4S - GDD100S series is the perfect solution for efficient removal of water vapour from compressed air and combines quality and efficiency in a reliable design with the smallest impact on the environment and on the operating costs.

Developed around a state-of-the-art Aluminium heat exchanger, with a patent pending all-in-one design, featuring an air-to-air section, an air-to-refrigerant section, a highly efficient stainless steel demister separator and a moisture collection chamber, the GDD series provides air quality with unrivalled running costs.

All models are equipped as standard with a digital controller that provides features useful in the day-by-day operations of any application: dew point level indication, free voltage alarm contact, maintenance reminder and integral timed drain control. In addition, thanks to its dual frequency design, the series is ready to operate either in 50Hz or 60Hz environments.

Key Benefits:

- The range with one of the lowest Carbon Footprint on the market
- Low running costs and minimum absorbed power in this range
- High efficiency all-in-one Aluminium Heat Exchanger
- Minimum refrigerant charges (avg. 25% lower than comparable ranges)
- Dual-Frequency ready for 50 or 60Hz applications
- Digital controller with embedded features:
 - Free contact
 - Maintenance reminder
 - Drain control (timed mode)
- Wall-hang ready (up to model GDD18S)
- Easy drain access from both sides
- Compact dimensions





GDD120HS – GDD1800HS: Patented “all-in-one” heat exchanger system offers outstanding efficiency

The GDD120HS-GDD1800HS 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.

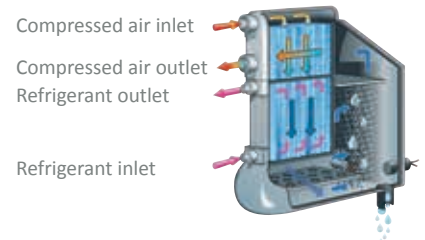
The cooling circuit of these GDD-HS dryers is continuously controlled and monitored by means of a hot gas bypass valve. The GDD120HS to GDD1800HS models feature sophisticated energy saving properties. The on/off state is automatically controlled according to system demand. The refrigerant dryer consists of four main components.

- Evaporator
- Compressor
- Condenser
- Expansion device

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



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



GDD120HS – GDD1800HS: Focused on energy saving

Scroll refrigerant compressor

All models from GDD120HS to GDD1800HS 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.



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.

Energy saving control with Smart 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



Technical Data

GDD-S Series refrigerant dryer: GDD4S – GDD100S

Model		GDD4S	GDD7S	GDD9S	GDD14S	GDD18S	GDD26S	GDD32S	GDD40S	GDD52S	GDD62S	GDD80S	GDD100S	
Air flow 50 Hz	m³/h	24	42	54	84	108	156	192	240	312	372	480	600	
	m³/min	0.4	0.7	0.9	1.4	1.8	2.6	3.2	4	5.2	6.2	8	10	
Air flow 60 Hz	m³/h	28	47	60	96	124	176	218	272	361	429	555	689	
	m³/min	0.47	0.78	1	1.6	2.07	2.93	3.63	4.53	6.02	7.15	9.25	11.48	
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	
Air connections	BSPP-F	½"	½"	½"	¾"	¾"	1"	1"	1"	1½"	1½"	1½"	1½"	
R134a Charge	kg	0.14	0.15	0.15	0.17	0.18	0.33	0.34	0.35	0.39	0.4	0.74	0.75	
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	
Pre-filter	BSPT	GDF0006G1/2"G			GDF0018G3/4"G		GDF0036G1"G		GDF0066G1"G		GDF0066G1/2"G		GDF0096G1/2"G	GDF0132G1/2"G

Correction factors for GDD_S model selection at 50Hz /60 Hz

A) Operating pressure	bar (g)	3	5	7	9	11	13	15	16
Correction Factor CFP 50Hz		1.35	1.11	1	0.85	0.81	0.77	0.72	0.71
Correction Factor CFP 60Hz		1.45	1.11	1	0.85	0.81	0.77	0.73	0.71
B) Inlet temperature	°C	30	35	40	45	50	55	60	65
Correction Factor CFID 50Hz		0.83	1	1.3	1.61	2	2.33	2.38	2.5
Correction Factor CFID 60Hz		0.85	1	1.32	1.61	2.04	2.56	2.63	2.78
C) Ambient temperature	°C	20	25	30	35	40	45	50	-
Correction Factor CFAT 50Hz		0.93	1	1.02	1.09	1.15	1.22	1.28	-
Correction Factor CFAT 60Hz		0.96	1	1.06	1.11	1.18	1.25	1.33	-
D) Pressure dewpoint	°C	+3	+5	+7					
Correction Factor CFD 50Hz		1	0.78	0.7					
Correction Factor CFD 60Hz		1	0.79	0.72					

GDD-HS Series refrigerant dryer: GDD120HS – GDD1800HS

Model		GDD120HS	GDD140HS	GDD180HS	GDD220HS	GDD260HS	GDD300HS	GDD350HS	GDD460HS	GDD520HS	GDD630HS	GDD750HS	GDD900HS	GDD1210HS	GDD1500HS	GDD1800HS
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"	DN 100/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
Pre-filter	BSPT	GDF0132G2"G	GDF0198G2"G			GDF0258G21/2"G		GDF0372G21/2"G		GDF0600G4"G			GDF1116GFG		GDF1488GFG	GDF2232GFG
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 GDD220HS to GDD1800HS models are optionally available with water cooling.

Volume flow correction factors for different operating conditions

A) Operating pressure	bar (g)	5	7	8	9	10	11	12	13
GDD120HS – GDD1800HS		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
GDD120HS – GDD1800HS		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	-
GDD120HS – GDD1800HS		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
GDD120HS – GDD1800HS		1	-	1.10	-	1.21	-	-	1.40

To obtain the necessary drying capacity, 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.



Gardner Denver

Global Expertise

The GD rotary screw compressor range from 2.2 – 500 kW, available in both variable and fixed speed compression technologies, are designed to meet the highest requirements which the modern work environment and machine operators place on them.



The oil-free EnviroAire range provides high quality and energy efficient compressed air for use in a wide range of applications. The totally oil-free design eliminates the issue of contaminated air, reducing the risk and associated cost of product spoilage and rework.



A modern production system and process demands increasing levels of air quality. Our complete **Air Treatment Range** ensures the highest product quality and efficient operation.



Compressor systems are typically comprised of multiple compressors delivering air to a common header. The combined capacity of these machines is generally greater than the maximum site demand. To ensure the system is operated to the highest levels of efficiency, the **GD Connect** air management system is essential.



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For additional information please contact Gardner Denver or your local representative.

Specifications subject to change without notice.