Оборудование для очистки воздуха GDDT
Технические характеристики

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Flexibility, energy efficiency
and optimised life-cycle costs

The Gardner Denver GDDT dryer series with Dual Technology – an innovative family of dryers for compressed air from 2.5 to 34m³/min

"Dual Technology" combines two drying techniques, to form an optimised and unique compressed air treatment package – refrigeration technology / adsorption technology.

This technology combination provides efficient drying performance with significantly lower energy levels when compared to traditional adsorption dryers.

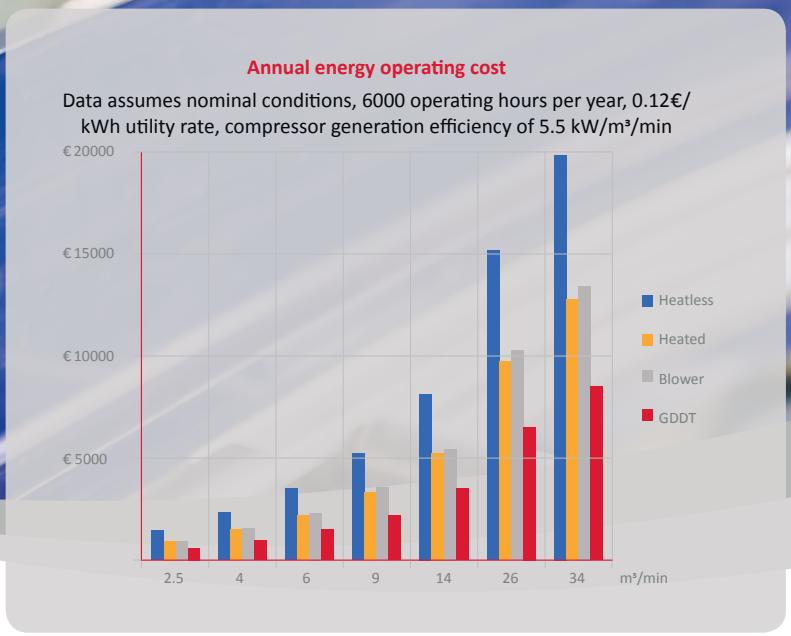
Patented product features and operation mean the GDDT dryer series can provide a constant dew point (-40°C as standard) using extremely low amounts of purge air. By simply setting the required dew point on the control panel the dryer can operate from +3°C pdp (ISO Class 4) to -70°C pdp (ISO Class 1), in an efficient and economical manner.

petrochemical

material forming

instrumentation and control

automotive

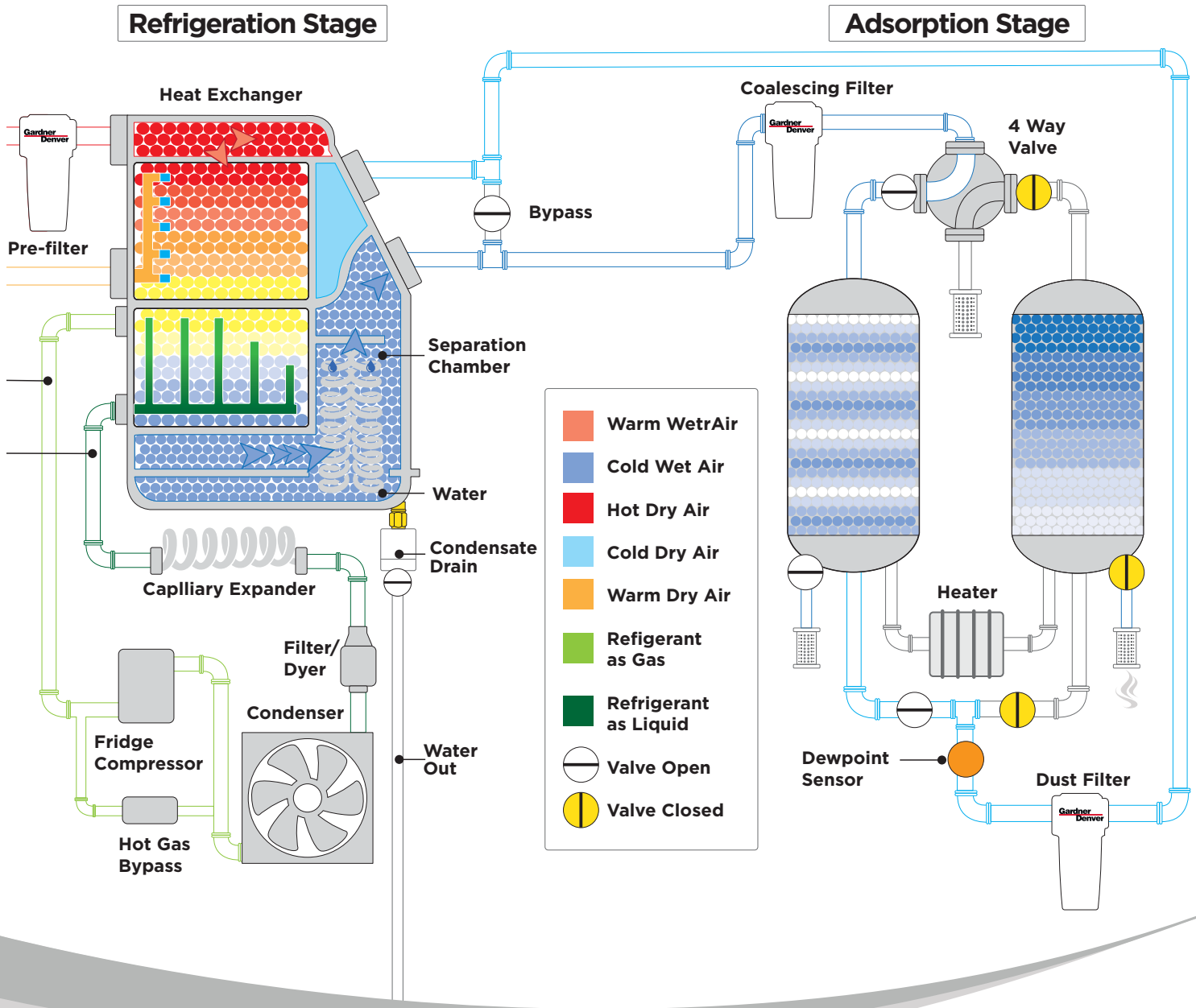


Less overall power consumption, less purge-air consumption

Constant and stable outlet pressure dew points and reduced operating and maintenance costs are the major features of this product range.

Key Features & Benefits:

- Lower operating costs vs. traditional heatless and heat-regenerative adsorption dryers
- Reduced maintenance costs due to less desiccant-fill with extended life time
- Exemption from periodic vessel inspection
- **Constant dew point performance** – no peaks above set-point
- **"Dial-a dew point feature"** for seasonal operation (by-pass Option)
- **Additional energy savings at partial load** – (dew-point-dependent-switching)
- **Compact overall dimensions** – small footprint - space saving.



The technology behind the benefits

Untreated, humid compressed air is initially confronted by a pre-filter protecting a traditional, but modified and patented refrigeration circuit, where the majority of the water vapour is effectively removed from the incoming air. The second stage consists of a highly-compact desiccant drying stage, protected before and after by high-performance oil/water-aerosol and particle removal filters, which serves to further reduce the moisture content of the air to a standard dew point of -40 °C. Finally, clean, dry compressed air exits via the patented air/air heat-exchanger to be re-heated and delivered to the air distribution system.

GDDT dryers equipped with an optional by-pass are ideally suited to meet the demands of seasonal variation, calling for application flexibility to meet dew points requirements above zero in summer and below zero in winter. In such cases GDDT dryers can be operated solely as a refrigeration-dryer or alternatively “in conjunction” with the adsorption stage.

Scope of supply:

GDDT Dual Technology dryer – supplied ready for installation. Complete with ISO-12500 validated oil/ water aerosol and particulate pre-filters, located prior to the refrigeration circuit, and pre-and post the adsorption stage.

Dew-point dependant switching – a standard feature on all models.

Integral timed-drain on models GDDT025-090 – integral capacitance-drain on models GDDT140-340.

Optional:

By-pass for seasonal operation (Models GDDT060-340).
7“ colour -Touch Screen Display (Models GDDT140-340).

Everything under control

Digital Controller functions:

- Full control and display of dryer operations and regeneration phases
- Parameter configuration, alarms and alarm history
- Service menu, password protected
- Potential free contact alarm, Remote ON/OFF, ModBus interface
- Dew point display

Touch screen option from model GDDT140

- Drainage system controlled by the dryers electronic controller
- Time mode on GDDT025-090
- Capacitive on GDDT140-340

Key facts

Feature	Advantage	Benefit
Small amount of regeneration purge air	Up to 60% lower power v's Twin Tower heatless regegeration dryers	• Return on additional investment v's heatless in <2 yrs • Save money on running costs
Low regeneration power consumption	Up to 30% reduced regeneration costs v's heat regenerated solutions	• Lower capital investment v's heated solutions • Save money on running costs
Less purge air consumption	More air downstream v's heatless solutions	• Air compressor investment can be lower • Better utilisation of existing compressor • Save on overall capital investment
Energy management system available	Delivered air quality dewpoint monitoring allows energy saving extension of drying cycle as appropriate	• Saves on bottom line energy costs
Small desiccant vessels	Exempt from periodic vessel inspection PED class 2	• Save money on inspections and downtime • Reduced running costs
Desiccant by-pass option	Avoids using more energy when only positive dew point is required	Save additional money on running costs
Low temperature filtration operation	Better oil vapor filtration, better air qulity downstream	Lower capital investment
No need to modify desiccant bed or change orificies	Fexible solution, fits for any working condition and performance required	Optimised capital investment

Dual Dryers - GDDT 025-340

Technical Data

Model	Airflow[1] m³/min		Air Connections	Max Pressure	Effective Avg. Absorbed Power[2]	Purge Air Equivalent Absorbed Power[3]
	Inlet	Outlet	BSPP-F	bar_e	kW	kW
GDDT025	2.5	2.4	1"	16	0.94	0.42
GDDT040	4	3.9	1"	16	1.30	0.68
GDDT060	6	5.8	1½"	12	1.27	1.02
GDDT090	9	8.7	1½"	12	1.94	1.53
GDDT140	14	13.6	2"	12	2.01	2.37
GDDT260	26	25.2	2½"	12	4.02	4.41
GDDT340	34	32.9	2½"	12	5.17	5.76

[1] Referring to 1 bara and 20°C at compressor suction capacity. Subsequently compressed to 7 bare at 35°C inlet to the dryer, at 100 % relative humidity, 25°C ambient, for -40°C pressure dew point. Outlet flow is the average net flow following subtraction of the average purge-air flow.

[2] Calculated throughout the entire cycle period - includes total refrigeration-circuit and desiccant heater absorbed power

[3] Purge-air flow throughout the entire cycle period, evaluated as an air compressor absorbed power at the rate of 5.5 kW/m³/min.

Operating Range

Site Selection	Frost-free indoor installation in a non-hazardous environment
Ambient Temperature	5 to 50 °C
Compressed Air Inlet Temperature	3 to 65 °C
Operating Pressure	3 to 16 bar_e - GDDT025-40 3 to 12 bar_e - GDDT060-340
Medium	Compressed air and gaseous nitrogen

Electrical connections

Mains Voltage	230V, 1-phase, 50Hz on GDDT025-090; 400V, 3-phase, 50Hz on GDDT140-340
Protection Class	IP44

Dimensions

Model	Width	Height	Depth	Weight
	mm	mm	mm	kg
GDDT025	706	1064	1246	180
GDDT040	706	1064	1246	200
GDDT060	806	1214	1416	295
GDDT090	806	1214	1416	335
GDDT140	1007	1586	1345	490
GDDT260	1007	1720	2535	880
GDDT340	1007	1720	2535	950

Corrections factors for GDDT model selection

Inlet Temperature (°C)	30	35	40	45	50	55	60	65
Correction Factor	1.22	1	0.81	0.69	0.59	0.52	0.46	0.4

Working Pressure (bar_e)	4	5	6	7	8	9	10	11	12	13	14	15	16
Correction Factor	0.62	0.75	0.87	1	1.08	1.2	1.28	1.34	1.4	1.45	1.5	1.54	1.6

Ambient Temperature (°C)	20	25	30	35	40	45	50
Correction Factor GDDT025-040	1.05	1	0.94	0.88	0.81	0.75	0.68
Correction Factor GDDT060-340	1.06	1	0.95	0.90	0.83	0.77	0.72

Factor to calculate the power consumption of an GDDT model at pressure dew-point values which devlate from -40°C and/or at partial load.

Pressure Dew Point (°C)	Refrig. only	+3	0	-10	-20	-40	-70
Correction Factor	0.39	0.88	0.89	0.90	0.92	1	1.31

Partial load	20%	50%	75%	100%
Correction Factor	1.05	1	0.94	0.88
Correction Factor Refrigeration-circuit only	1.06	1	0.95	0.90

Example: GDDT40 working at -20°C pdp and loaded with 50% of its nominal capacity

1) Find the correction factor in the table above: -20°C pdp=0.92 : 50% load=0.82

2) The total power at nominal conditions consumed by model GDDT40 (see performance table) is: 2.01+2.37=4.38kW

3) Apply the correction factor. The total power consumed at the new conditions is 4.38 x 0.39 x 0.76 = 1.3kW

Example: GDDT40 with seasonal "By-pass Option" (Refrigeration-circuit only active), unit loaded at 50%

1) Find the correction factor in the table above: Refrigeration-circuit only = 0.39 : 50 % load with refrigeration-circuit only = 0.76

2) Apply the correction factor to the total power consumed by an GDDT40. The new value is 4.38 x 0.39 x 0.76 = 1.3kW

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