DTP Heatless Desiccant High Pressure Compressed Air Dryers

domnick hunter

www.domnickhunter.com

DTP Heatless Desiccant Dryers

Compressed air is polluted with dirt particles, water, oil and condensate. These contaminants result in high maintenance costs, premature wear, spoilt products and the failure of control systems.

A domnick hunter series DTP "Classic" dryer will efficiently remove these contaminants.

The traditional adsorption principle used in this design is simple, robust and flexible using compressed air for regeneration thereby eliminating any need for an outside energy supply.

High levels of reliability are achieved by the use of proven engineering technology and components.

How Classic DTP Dryers Work

The compressed air is passed through a high-efficiency inlet filter which removes solid and liquid particles down to a size of 0.01 micron/0.01ppm. A manual or automatic drain valve removes the bulk liquid.

After being filtered, the compressed air which is still 100% saturated, passes into the inlet control valve where it is distributed into one of the vessels which is filled with a moisture adsorbent desiccant material. Diffusers ensure even distribution of the inlet air through the desiccant bed.

During the drying phase, the moisture in the compressed air is adsorbed by the desiccant material. Dry, clean air then passes into the upper control valve and out through a high efficiency particulate filter into the pipe distribution system. As vessel A is drying the compressed air, vessel B is being regenerated. This is achieved by passing a small amount of dry compressed air through a fixed orifice where it expands to atmospheric pressure, flowing through vessel B from top to bottom.

The expansion from line pressure to atmospheric pressure allows the dried air to remove the moisture in the bed of vessel B thereby drying (regenerating) the desiccant bed. This purge air then passes out through an exhaust valve and silencer.

Flexible Control

An electronic or pneumatic control system operates the changeover from one vessel to the other. After pre-set times, the exhaust valve is closed allowing a gradual pressure build up in vessel B equal to the pressure in vessel A. The main valve on vessel A closes, redirecting the air to the fully regenerated vessel B. The exhaust valve on Vessel A opens allowing depressurisation and the start of generation.

Features

- Dewpoint options of -40˚C and -70˚C PDP.
- A mixed adsorption bed allows inlet temperatures up to 50˚C with high adsorption and desorption efficiency.
- Operation can be matched to the load/unload state of the compressor.
- High capacity drying beds offer good moisture separation and long reserve times.
- Diffusers ensure low pressure drop and an even flow distribution through the desiccant beds.
- Pressure vessel codes to AD-MERKBLATTER/TUV and other approvals on request.
- Vessel designs have good aspect ratios resulting in optimum bed velocities and contact times.
- Electronic controls are fitted as standard.
- Pneumatic control options are available for hazardous areas or where electrical supplies are not available.
- All drying systems are supplied complete with high efficiency oil removal and dust filtration.
- Inlet and outlet valve blocks are generously sized, robustly constructed, offering minimum pressure drop.
- Control valves are designed as a block system to minimise pipe connections and the risk of expensive air leaks.
- Outlet control block combines check valves and regulators.

Applications

The domnick hunter series DTP is suitable for many intermediate and high pressure applications where high quality compressed air or gas up to 350 bar g is required (420 bar g options are available by special enquiry).

Typically:

- Power Plants
- Energy Supply
- Engine 'Start-up' systems
- Offshore, oil and gas industry
- Pipeline construction
- Drilling
- Exploration
- Aeronautics
- Fire brigades
- Breathing air generation
- Marine engineering
- Rescue teams
- Test equipment
- Breweries
- Hospitals
- Medical Laboratories
- Instrumentation

Options

Activated Carbon Purification Systems

The domnick hunter series DTP can be supplied with an activated carbon stage to provide oil vapour free compressed air. Oil vapour can be drawn in by the compressor or generated by an oil lubricated compressor and is potentially damaging to most critical applications. The activated carbon adsorber produces air with an oil content of 0.003mg/m^3 for at least 6,000 hours under normal conditions, providing totally clean compressed air to the user.

Pre-Filtration

The domnick hunter series DTP is supplied complete with high-efficiency filtration. Where inlet temperatures are above 35°C or liquid loading is in excess of 15 mg/m^3, an additional 1 micron high efficiency pre-filter must be installed.

Differential Pressure Gauges

Differential pressure gauges are not fitted as standard, but two types are available as an option:- A standard version which can be directly fitted to the filter, or a switched version which has the addition of volt free contacts for remote annunciation.

Automatic Timed Drains

These are available as an option to remove the need for regular drainage.

Pressure Maintaining Valves

To prevent shock loading conditions damaging the desiccant bed during compressor start-up, a pressure maintaining valve should be considered at the outlet of the dryer.

Technical Data - DTP High Pressure Dryers

Flow Range @ 25 bar g:	0.42 to 10m³/min (15 - 350 cfm)
40 bar g:	0.42 to 10m³/min (15 - 350 cfm)
100 bar g:	0.8 to 9.7m³/min (29 - 341 cfm)
250 bar g:	1.3 to 17m³/min (47 - 600 cfm)
350 bar g:	2.2 to 21.3m³/min (77 - 753 cfm)
Dewpoint:	-40°C (-40°F) Nominal -70°C (-100°F) Optional
Air Quality Class:	ISO8573.1 Class 1.2.1 Nominal ISO8573.1 Class 1.1.1 Optional

Pipe Connection:	¼" to 1" BSP
Maximum Inlet Temperature:	50°C (122°F)
Minimum Inlet Temperature:	5°C (41°F)
Controls	Electronic Control Standard Pneumatic Control Optional
Condensate Drain	Manual Drain Standard Timed Solenoid Drain Optional

Model	Max Pressure bar g	Flowrate at ANR*		Port Size	Dimensions mm			Weight kg
		cfm	m³/h		A	B	C	
DTP 01**	25	15	25	¼"	570	720	250	44
DTP 11**	25	30	50	½"	570	990	260	56
DTP 21**	25	60	100	½"	570	1090	295	82
DTP 31	25	75	125	¾"	665	1470	365	110
DTP 41	25	105	180	¾"	665	1470	280	136
DTP 51	25	140	240	1"	890	1560	430	190
DTP 61	25	230	390	1"	925	1650	460	256
DTP 71	25	350	600	1"	1055	1720	540	365
DTP 02**	40	24	40	¼"	570	720	250	44
DTP 12**	40	48	80	½"	570	990	260	56
DTP 22**	40	95	160	½"	570	1090	295	82
DTP 32	40	115	195	¾"	665	1470	365	110
DTP 42	40	172	290	¾"	665	1470	380	136
DTP 52	40	230	390	1"	890	1560	430	190
DTP 62	40	373	630	1"	925	1650	460	256
DTP 72	40	562	950	1"	1055	1720	540	365
DTP B4	100	29	48	½"	660	1050	400	100
DTP A4	100	47	78	½"	660	1150	400	110
DTP 04	100	68	114	½"	675	1150	400	120
DTP 14	100	141	240	½"	800	1300	450	235
DTP 24	100	218	372	¾"	800	1340	450	285
DTP 34	100	341	582	¾"	855	1690	450	500
DTP B5	250	47	78	½"	660	1050	400	140
DTP A5	250	82	138	½"	660	1150	400	150
DTP 05	250	121	204	½"	675	1150	400	160
DTP 15	250	247	420	½"	800	1300	450	295
DTP 25	250	385	654	¾"	800	1340	450	300
DTP 35	250	600	1020	¾"	855	1690	450	550
DTP B6	350	77	132	½"	660	1050	400	170
DTP A6	350	106	180	½"	660	1150	400	180
DTP 06	350	150	255	½"	675	1150	400	190
DTP 16	350	306	522	½"	800	1300	450	280
DTP 26	350	483	822	¾"	800	1340	450	310
DTP 36	350	753	1278	¾"	855	1690	450	570

**Indicates flowrate is free air at standard reference atmospheric conditions. ** wall mounted only*

Correction factor table

Inlet Temperature °C	Correction Factor
30	1.02
35	1.0
40	0.78
45	0.60
50	0.48

Use correction factors above when calculating flow rates at different inlet temperatures at maximum rated pressure. For lower pressures, contact **domnick hunter**.

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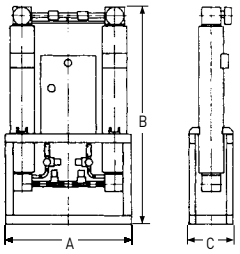

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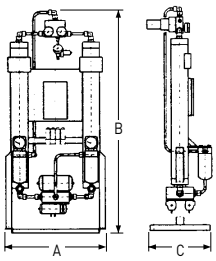

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