

DD & DDH

ADSORPTION DRYERS



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Adsorption dryers

Compressed air: a great resource to know

Atmospheric air always contains water vapour and impurities. For the final user it is necessary to get a compressed air supply, free from condensate and contaminating particles, such as oil and dust. If such contaminations should come in direct contact with the final product, the resulting costs would be extremely high and a solution that could have been practical and inexpensive at the design stage would then be very costly.

The aim of Mattei's compressors is to provide **quality compressed air, clean and dry**, i.e. free from any element that might reduce the plant's efficiency and reliability. According to the customer's compressed air use and field of application, these substances can have a different impact on the production process.



Once the function of compressed air through the production process has been precisely identified, it is important to accurately and thoroughly select the best possible combination of air treatment accessories, in order to optimise the available resources and reduce waste.

In those cases where dry and clean compressed air is required, like food, pharmaceutical and hospital industries, galvanic systems or applications where a dewpoint down to -40°C is required, installation of a **Mattei adsorption dryer** is the perfect choice to obtain the best product quality.

DD DRYERS

The use of Mattei's dryers removes the condensate from the air, preventing any damage to the compressed air distribution system. Mattei DD dryers reliably give you:

- more for your money - everything needed for installation is in the box
- moisture and particulate protection of your production process
- lower life cycle costs - low energy costs and simplified maintenance
- built in dew point monitoring (optional)
- space saving - models up to DD 130 can be easily wall mounted
- safe and quiet operation
- flows from 0,1 to 31,4 m³/min (3 to 1110 scfm) at 7 barg operating pressure
- peace of mind - the most reliable product of its kind

Designed for use in the compressor room, at the point of application or integrated into your original equipment, Mattei DD dryers are an effective solution to the problems caused by contaminated compressed air.

PRINCIPLES OF OPERATION

Heatless desiccant dryers are the most common due to their simplicity and hence low cost. A heatless twin tower dryer (see figure below) operates by removing moisture through adsorption onto a granular desiccant bed from the feed air (typically at 100 psig) as it flows up through a packed bed of desiccant, column A. Column B (having been previously used in drying the inlet air) is at atmospheric pressure and dry purge air from the outlet of column A is fed through a purge valve, expanded to near atmospheric pressure, and flowed in contra flow direction down through column B to effect the regeneration of its granular desiccant bed. When the desiccant in column A becomes saturated with water vapor (usually determined by a simple timer controller) the feed air is switched back to column B, after it has been pressurised, and the cycle continues.



PATENTED COMBINED FILTER & DESICCANT CARTRIDGES (DD 10 - 130)

COMBINED DESICCANT & AFTER FILTER COLUMN (DD 2110 - 6130)

PLC CONTROLLED OPERATION

ENERGY SAVING DEW POINT CONTROL OPTION

FLOOR OR WALL INSTALLATION (STANDARD ON DD 10-50, OPTIONAL ON DD 60-130)

CONSTANT DEW POINT

CONSTANT FLOW AND PRESSURE

RELIABLE HIGH PERFORMANCE VALVES

TWO STAGE MAINTENANCE FREE SILENCER

MAXIMUM CORROSION PROTECTION

ADSORPTION DRYERS

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DD 10 - 130



**UNIQUE PATENTED
CARTRIDGE DESIGN**



**PLC CONTROLS WITH
CLEAR TEXT DISPLAY**



**FLEXIBLE PIPING &
INSTALLATION OPTIONS
(DD 10 - DD 50)**



**MOUNT ON THE FLOOR
OR THE WALL**

WARRANTY

A 5 years warranty comes as standard with every Mattei DD dryer provided that:

- Operation is in accordance with recommendations
- No unauthorised modification has been made
- Only genuine spares are used at recommended service intervals



DD 2110 - 6130



FLEXIBILITY IS BUILT RIGHT IN

We've designed the Mattei DD 2110-6130 with simplicity of service in mind. As standard, the columns are high density filled and include a built in 1 micron after filter for reliable downstream air quality.



RELIABLE HIGH PERFORMANCE VALVES

Inlet, outlet and exhaust air are controlled using coaxial flow valves integrated into the upper and lower manifolds. The valves are designed for ease of maintenance and long service life.

											
				DIMENSIONS (MM)							
				A - LENGTH		B - WIDTH		C - HEIGHT			
MODEL	CONNECTIONS	RATED FLOW									
DD	BSPP ⁽¹⁾	m³/min	scfm	mm	inch	mm	inch	mm	inch	kg	lbs
DD 10	3/8 ^{''(1)}	0,1	3	432	17	229	9	254	10	8	17,6
DD 20	3/8 ^{''(1)}	0,14	5	432	17	229	9	254	10	8	17,6
DD 30	3/8 ^{''(1)}	0,3	10	635	25	229	9	254	10	13	28,7
DD 40	3/8 ^{''(1)}	0,4	15	889	35	229	9	330	13	16	35,3
DD 50	1/2 ^{''(1)}	0,7	24	1092	43	229	9	330	13	20	44,1
DD 60	1"	1	34	762	30	432	17	330	13	40	88,2
DD 70	1"	1,2	41	762	30	432	17	330	13	40	88,2
DD 80	1"	1,5	53	914	36	432	17	330	13	54	119,1
DD 90	1"	1,9	66	914	36	432	17	330	13	54	119,1
DD 100	1"	2,5	88	1092	43	432	17	330	13	64	141,1
DD 110	1"	3	106	1245	49	432	17	330	13	78	172
DD 120	1"	3,7	132	1499	59	432	17	330	13	95	209,4
DD 130	1"	5	177	1829	72	432	17	330	13	119	262,4
DD 2110	2"	6	212	1194	47	305	12	635	25	166	366
DD 2120	2"	7,8	276	1448	57	305	12	635	25	200	441
DD 2130	2"	11,3	400	1778	70	305	12	635	25	248	546,7
DD 3130	2"	15,9	560	1778	70	305	12	787	31	353	778,2
DD 4130	2 ½"	21,2	750	1778	70	305	12	965	38	458	1009,7
DD 6120	2 ½"	23,5	828	1448	57	305	12	1295	51	524	1155,2
DD 6130	2 ½"	31,4	1110	1448	57	305	12	1295	51	668	1472,7

PRESSURE CORRECTION FACTORS ⁽⁴⁾

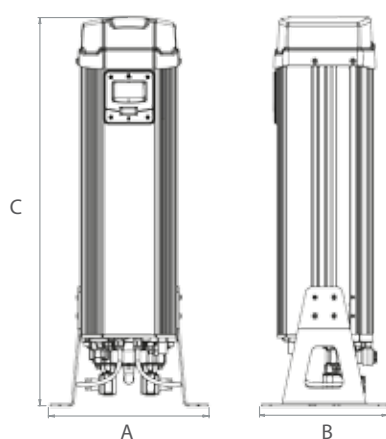
Inlet air pressure	barg	4	5	6	7	8	9	10	11	12	13	14	16
Correction factor		0,63	0,75	0,88	1	1,13	1,25	1,38	1,50	1,63	1,75	1,88	2,13

TEMPERATURE & DEW POINT CORRECTION FACTORS ⁽⁴⁾

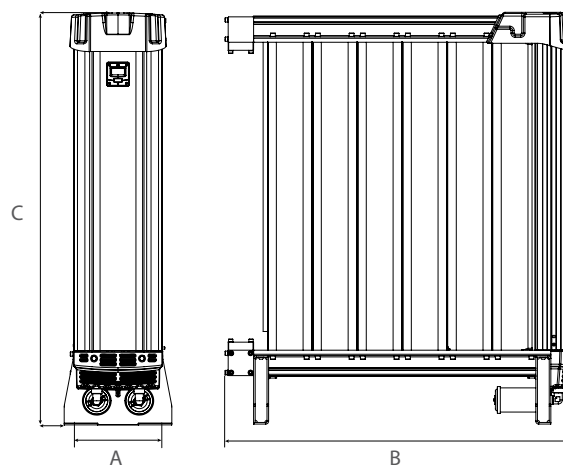
Inlet air temperature	°C	24	37	40	45	50	pressure dew point		-20	-40	-70
Factor		0,63	0,75	0,88	1	1,13	correction factor		1,10	1,00	0,70

(1) DD 10 to 50 have push to connect fittings on the inlet and outlet. All other models have BSPP threaded connections. | (2) at the inlet conditions of 7 barg and 38 °C and -40°C outlet pressure dew point. For all other conditions refer to the correction factors above | (3) We recommend installation of a condensate drainer and Mattei oil removing filter series "FM" grade "C1". | (4) ISO 8573.1:2010 (E)

DD 10 - 130



DD 2110 - 6130



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DDH DRYERS

Heated desiccant air dryers

A centrifugal blower and high efficiency heater eliminates the use of valuable compressed air to be used for desiccant regeneration.

The completely automatic drying system uses blower to pull ambient air and pass it through the heater. This hot air stream flows opposite to drying flow direction. Hot air above 200 °C regenerates the moisture inside desiccant bed and strips it completely of all moisture. The advanced control system monitors the dew point and adjusts the regeneration accordingly thereby providing valuable energy savings.

FEATURES OF MATTEI DDH DRYERS

- Dew point monitoring and control
- Computer control - Display status
- Display alarms - Display pressure
- Remote start/stop - Low pressure alarm
- Minimum pressure monitoring valve
- High pressure switches and alarms
- Externally heated or heatless dryer functions integrated to the Mattei DDH dryers

DDH RANGE



Pressure dewpoint	-40 °C
Nominal inlet temperature	35 °C
Nominal working pressure	7 bar
Maximum inlet temperature	45 °C
Maximum working pressure	10 bar
Maximum ambient temperature	40 °C

											
MODEL	CAPACITY	CONNECTION SIZE	PRESSURE DROP	MAX. WORKING PRESSURE	VOLTAGE	AVERAGE POWER	FUSE	ACTIVATED ALUMINA	DIMENSIONS (mm)		
DDH	m³/min	inch	mbar	bar	V/ph/Hz	kw	Amper	kg	A - WIDTH	B - LENGTH	C - HEIGHT
DDH 850	14	2"	≤ 130	10	400/3/50	9,4	40	264	1290	1180	2299
DDH 1000	17	2"	≤ 130	10	400/3/50	9,4	40	357	1200	1310	2415
DDH 1250	21	DN80	≤ 130	10	400/3/50	12	50	404	1610	1270	2468
DDH 1500	25	DN80	≤ 130	10	400/3/50	12	50	454	1610	1270	2563
DDH 1800	30	DN80	≤ 130	10	400/3/50	14,5	63	566	1563	1515	2479
DDH 2200	37	DN80	≤ 130	10	400/3/50	17,5	63	708	1563	1455	2789
DDH 2700	45	DN80	≤ 130	10	400/3/50	21,4	100	852	1615	1514	2836
DDH 3200	53	DN100	≤ 130	10	400/3/50	21,4	100	954	1710	1660	3054
DDH 3600	60	DN100	≤ 130	10	400/3/50	31,1	125	1070	1710	1660	3268
DDH 4400	73	DN100	≤ 130	10	400/3/50	36,1	125	1436	1975	2492	2910
DDH 5000	83	DN125	≤ 130	10	400/3/50	39,4	160	1670	2045	2560	3382
DDH 6300	105	DN150	≤ 130	10	400/3/50	49,4	200	2016	2090	2963	3328
DDH 7200	120	DN150	≤ 130	10	400/3/50	49,4	200	2446	2020	3363	3047
DDH 8800	147	DN150	≤ 130	10	400/3/50	72,3	260	2906	2020	3363	3341
DDH 10800	180	DN200	≤ 130	10	400/3/50	78,7	320	3354	2492	3481	3765

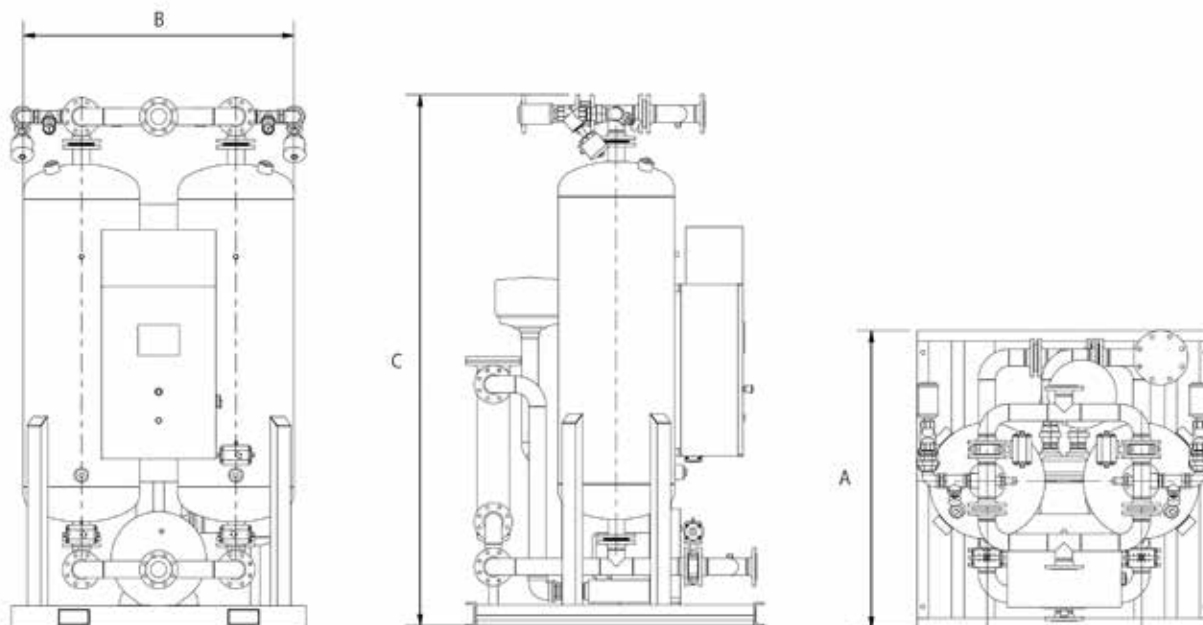
CORRECTION FACTOR

Bar	4.5	5	6	7	8	9	10
Factor Pressure F1	0.69	0.75	0.88	1	1.12	1,25	1.37

CORRECTION FACTOR

Inlet Temp. (°C)	20	25	30	35	40	45	-
Factor Inlet F2	1	1	1	1	0.80	0.73	-

DDH 850 - 10800





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