MPD, MHD, MBD, AND OFC SERIES

TWIN TOWER DESICCANT DRYERS

EXPERIENCE THE REVOLUTION

TWIN TOWER DESICCANT AIR DRYERS

Background

Mattei Desiccant Air Dryers use the adsorption method to remove moisture from compressed air. Nominal pressure dewpoints reach -40°F (-40°C) by directing the flow of saturated compressed air over a bed of desiccant.

The most commonly used desiccant is activated alumina, a spherically shaped, hygroscopic material, selected for its consistent size, shape and extreme surface to mass ratio. This physically tough and chemically inert material is contained in two pressure vessels commonly referred to as "dual" or "twin" towers. As the saturated compressed air flows through the bed of the "on-line" tower, its moisture content adheres to the surface of the desiccant.

The dry compressed air is then discharged from the vessel into the distribution system.

A master controller cycles the flow of compressed air between the towers. While one tower is "on-line" drying, the other tower is "off-line" regenerating. Regeneration, sometimes referred to as "purging", is the process of stripping the accumulated moisture from the "off-line" bed.

Mattei MPD Series and OFC Series heatless desiccant dryers use about 15% of the process purge air stream capacity to strip the moisture off of the offline desiccant bed then, exhausting the water vapor to ambient. Mattei MHD Series heated dryers uses an external heater to pre-heat the process purge air stream and uses about 7% of rated capacity to regenerate the offline bed. MBD Series blower purge dryers use an external heater to heat ambient air for the purge air stream from an external low pressure blower to evacuate the moisture from the offline bed, then, uses about 2% of rated capacity to cool the bed down once regenerated.

MBD Series Blower Purge

MHD Series Heated

MPD Series Heatless

OFC Series Heatless

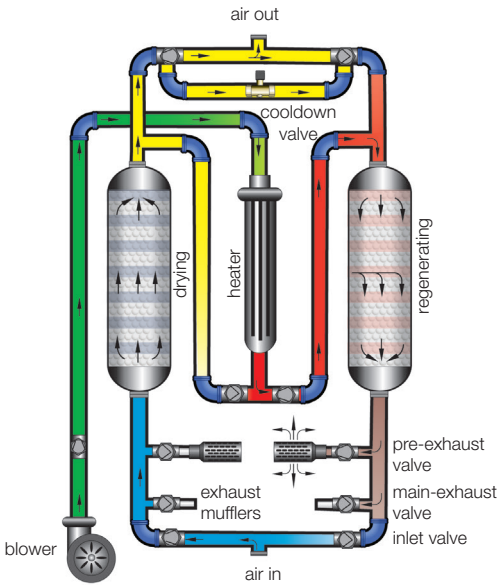
Mattei's patented Multi-Port Regeneration System affects superior desiccant bed regeneration and, as a result, provides better and more consistent performance. The Multi-Port Regeneration System injects heated purge air at precise points up and down the towers' length providing a more balanced distribution of heat.

This system prevents the desiccant on top from prematurely deteriorating while providing the bottom of the chamber with enough heated purge air to allow complete regeneration on every cycle. The energy saving temperature monitoring system senses the exiting purge air temperature. When the purge air temperature increases to a pre-set point at which the desiccant bed is fully heated and regenerated, the heater is turned off.

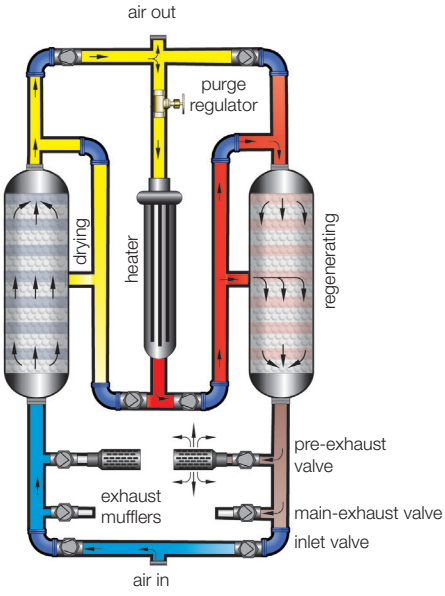
Mattei's Primary Blowdown System is standard on all MHD Series and MBD Series heat reactivated air dryers 1000 scfm and larger. It improves performance and efficiency while increasing desiccant life. The depressurization stage also strips moisture from the bottom of the tank through a purge muffler. Once depressurization is complete, the system switches to the main exhaust where final regeneration is accomplished with low pressure purge air. By eliminating the main exhaust mufflers, back pressure is also eliminated which allows for more thorough regeneration and less maintenance.

Up Flow Versus Down Flow Drying
In the event of prefilter/auto drain failure, up flow drying protects the desiccant bed from contamination of bulk liquids and oil since they stay on the bottom of the tank and get discharged during blowdown. When down flow drying, liquids and oil will gravity drain through the entire bed to the bottom of the tank.

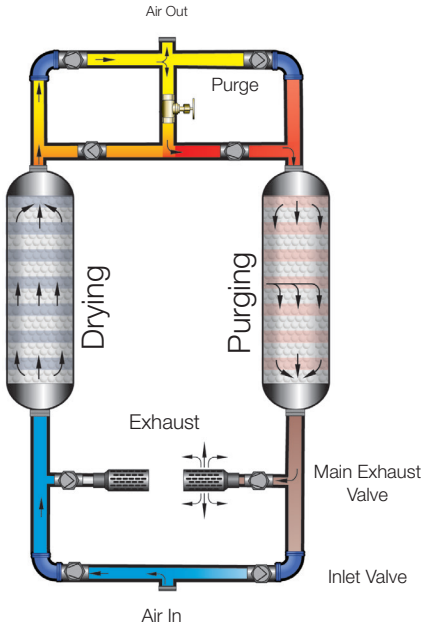
MBD Series Blower Purge



MHD Externally Heated with Patented Multi-Port



MPD and OFC Series Heatless



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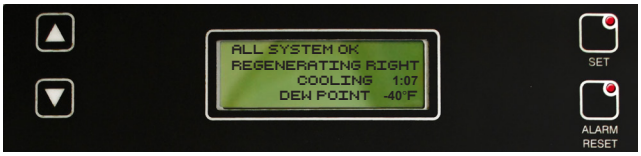
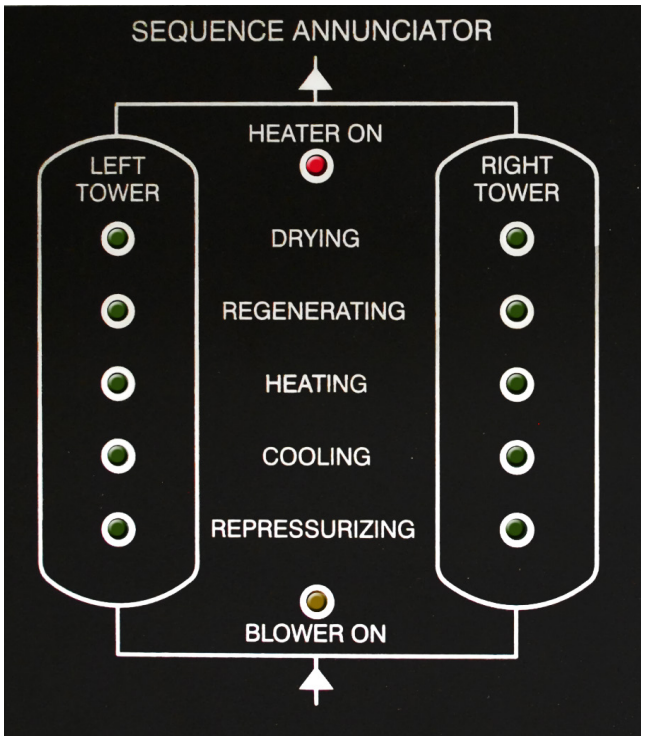
TWIN TOWER DESICCANT AIR DRYERS

Quick Glance Operational Status

Digital Readout
The Control Center features a backlit four line character display that monitors operation and status. Regenerating countdowns and time remaining are included.



Sequence Annunciator
Indicates the status of each tower. LED's indicate which tower is "on-line" drying, "off-line" regenerating as well as the regeneration stages.

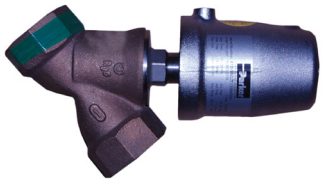


Manual Stepping
Allows the operator to quickly and safely step the dryer through a complete 8 hour cycle, in a matter of minutes.

ThermaLoc™
The Control Center also controls Mattei's "ThermaLoc™" heater protection system. ThermaLoc™ ensures maximum reliability and eliminates the safety concerns often associated with heat reactivated dryers. Heaters are protected by a totally redundant dual shutdown system that utilizes independent contactors. In addition to the redundant temperature controllers, the system monitors pressure and shuts the heater down in the event of low line pressure. Blower purge dryers have controls to prevent the heater from energizing if the blower is not running.

Dual Mode Heatless Back Up System
Allows the dryer to function in either the primary heated mode or the auxiliary heatless mode. Should the system experience a temporary overload or a heater failure, the dryer can easily be switched over to operate in the heatless mode. This way the dryer will remain on line until such time as service can be conveniently scheduled. The Dual Mode Back Up System offers unparalleled flexibility, eliminates downtime and prevents business interruptions.

Non-Lubricated Valves
Dryers up to 800 scfm are equipped with our time-proven and dependable non-lubricated switching valves. These independent, air operated valves are specifically designed for compreSsed air service. They are resistant to desiccant dust and can be maintained without being removed from the dryer.



Butterfly Actuated Valves
High Performance Butterfly Actuated Switching Valves are standard on dryers 1000 scfm and larger. These premium, air operated butterfly valves are specifically designed for compressed air. They provide more opening and closing force compared to other types of valves. An indicator shows the "opened/closed" position of the valve and service can be performed without disturbing dryer piping.

Design Parameters
Mattei's Externally Heated and Blower Purge dryers are designed to process a specific volume of compreSsed air and deliver it to the discharge at a desired pressure dewpoint.
Both dryers are rated for a -40°F (-40°C) pressure dewpoint. Dewpoint spikes, inherent on all blower and heat purge dryers, can be reduced by activating Mattei's standard Supplemental Cool Down Purge feature. Standard ratings are based on inlet conditions of +100°F (38°C), 100 psi g (7 bar g) and 100% flow. Dryer performance will vary with different inlet conditions.

Tower insulation
The tower, heater, and purge lines are insulated to increase dryer performance and efficiency by reducing radiant heat loss. It also keeps the unit within the safety parameters set forth by OSHA. Insulation suitable for indoor service is standard on all Mattei Heat Reactivated Dryers (Insulation suitable for outdoor service is an available option).

Equipment

- Failure to Switch Alarm
- Contacts for Common Alarm
- Systems Sequence Annunciator
- Auxiliary Cooldown
- Heater, Blower Flow Interlock (MBD Models)
- Blower Silencer (MBD Models)
- Compressor Surge Protection
- Control Center
- Redundant Heater Control System (ThermaLoc™)
- Cycle Stepping
- Dual Mode, Heatless Backup
- Fail-Safe Operation
- Control Air Filter
- Long Life and Low Watt Density Heater
- Independent Switching Valves
- Moisture Indicator
- Purge Flow Indicator
- Full Instrumentation
- Indoor Tower Insulation
- Separate Tower Fill/Drain Ports
- Power Saver Exhaust Termination (early regeneration)
- Pressure Equalization
- Stainless Steel Diffuser Screens
- Standby Mode
- Structural Steel Base (1000 scfm & larger)
- Cushioned Seat Check Valves
- High Performance Butterfly Valves (1000 scfm & larger)
- ASME Coded Vessels
- Actuator Valve Limit Switch*
- Pre and After Set Filters*
- Outdoor Insulation*
- ModBus
- All NEMA Classifications*
- Non-Yellow Metals*
- Pressure to 1000 psi g (69 bar g)*
- Star Watch®*
- Non-Standard Voltages*
- PowerLoc™*
- Ethernet connection*
- RS485 connection*

*Optional Equipment

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TWIN TOWER DESICCANT AIR DRYERS

Complete Air Treatment

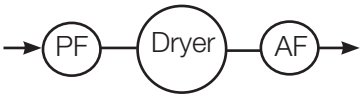
Without proper filtration, desiccant air dryers will not work. Desiccant dryers are designed to adsorb vapor from compressed air; they are not designed for liquid. When liquid, especially oil, is allowed to enter the desiccant chamber, it coats the desiccant material preventing any further adsorption. Oil coated desiccant can not be regenerated, and must be replaced.

The coalescing pre-filter is installed at the dryer inlet. It protects the dryer by removing liquids and reducing the contamination level of the compressed air to .01 PPM by weight. The element is DOP rated at 99.9+% efficient in the 0.3 to 0.6 micron range. An integrated digital indicator is provided to determine element condition. A float is provided on all systems to ensure proper drainage. To protect downstream equipment from desiccant dust a particulate after-filter is installed at the dryer discharge. The after-filter element is designed to remove solid particulates from compressed air. The hybrid pleated filter media provides high dirt retention, low pressure drop, and long element life. The element is 99+% effective in removing particles 1.0 micron and larger. An integrated digital element condition indicator is also provided.

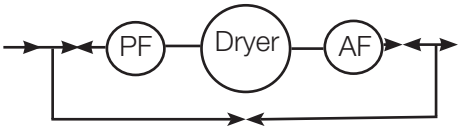
Most field problems experienced with desiccant air dryers are the result of improper filter selection, installation, maintenance, and/or draining of condensate. Considering the importance of filtration to dryer performance, Mattei recommends that all desiccant dryers be ordered as a complete, factory assembled Air Treatment System. The Mattei package includes: properly sized, factory installed coalescing pre-filter and particulate after-filter (Automatic Float Drain standard), and color change indicators.

In-line cast filters are used on systems 250 through 800 scfm and two stage fabricated severe duty filters are used on systems 1000 scfm and larger. Mist eliminators are available as extra protection.

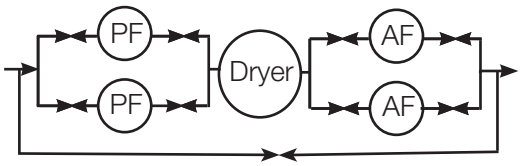
Package Schematic



Standard Offering/Supply:
Includes dryer with factory installed pre-filter and after-filter (250-800 scfm, 1000+ scfm filters shipped loose)



Option 1:
Includes dryer with factory installed pre-filter and after-filter with system bypass



Option 2:
Includes dryer with factory installed dual selectable pre and after-filters with system bypass

The Control Center is designed to accomodate Mattei's optional Demand Controller.

The Demand Controller automatically adjusts energy use to actual moisture load. Moisture loading is affected by inlet temperature, pressure, relative humidity, and flow. These conditions vary throughout the day and rarely combine in such a manner as to produce maximum moisture loads. An inlet temperature reduction of just 20°F (-7°C) will reduce the moisture load by almost 50%. Desiccant dryers are normally sized for "worst case" operation with the cycle fixed to accommodate maximum moisture loads. Because the fixed cycle does not compensate for fluctuating loads, dryers not equipped with the Demand Controller waste energy by regenerating more often than necessary. The Demand Controller eliminates this unnecessary use of energy by delaying regeneration until the total design moisture load is achieved. The system monitors actual moisture loading and limits the number of purge cycles accordingly.

At $0.08 per KWH, the Demand Controller would save $6,730 annually when used with a 1000 scfm externally heated dryer operating at 75% load for 8,000 hours, at an average inlet temperature of +80°F (27°C). Digital dew point control provides for additional energy savings by allowing the operator to select higher dewpoints when appropriate. The moisture probe is contained in and protected by a rugged, stainless steel housing with a 80 micron sintered metal guard and a pressure rating of 3000 psi g. This housing increases the sensor's ability to withstand reasonable shock and vibration.

The housing also contains an electronics package for continuous self calibration, temperature compensation, and signal stabilization. Due to less frequent cycling, switching valves and desiccant will last longer and require less maintenance.

The ceramic sensor is made from state-of-the-art metallized ceramic and replaces traditional materials such as aluminum, silicon and hydroscopic salts. This fast response sensor is made from a ceramic tile that is plated and vapor deposited to form a surface that is very sensitive to small changes in water vapor pressure.

The proprietary coating process make the ceramic sensor inherently faster to respond than other impedance or capacitive sensors currently available. The ceramic sensor features the latest digital technology with calibration data stored directly in the sensor's memory, and is equipped with a built-in thermistor for automatic temperature compensation. The Demand Controller is traceable to the National Institute of Standards and Technology. A certificate of traceability is available.

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TWIN TOWER DESICCANT AIR DRYERS

Complete Air Treatment

Mattei's Control Center for Heat Reactivated Desiccant Air Dryers features a complete complement of data acquisition functions.

These data acquisition functions include the measurement of temperature, pressure, and dewpoint.

Star Watch® activated dryers can monitor and analyze every moment of operation, 24-7; it can be done wirelessly. When Star Watch® is active on an installation, it is like having an Mattei factory technician in your plant, advising your process engineer.

The easy to use Control Center affords superior dryer control along with digital telemetry for remote analysis of performance.

TEMPERATURE (thermocouple)

- **Purge Air**
- **"Special" (fail-safe) Heater Over Temperature**
- **Left Exhaust**
- **Right Exhaust**
- **Dryer Inlet**
- **Dryer Outlet**

PRESSURE (Transducer signals can be either 4-20ma or 1-5 volt DC)

- **Inlet**
- **Left Tower**
- **Right Tower**
- **Purge**
- **Pre-Filter (psi d) (Package "E")**
- **After-Filter (psi d) (Package "E")**

DEWPOINT (Energy Management) - optional

- **Demand Controller ("Fast Response" Digital Readout with Power Save feature)**
- **Flow Meter**

All Mattei Heated Desiccant Dryers are remotely accessible by RemoteWatch™ software which can be downloaded at http://divapps.parker.com/divapps/pdf/Starwatch/.

- Virtual control, diagrams and graphics
- 68 channels of data and over 60 process values
- Temperature and pressure instrumentation package
- Energy Management Demand Controller dewpoint digital readout with Power Save (optional)
- Two extra user defined 4-20 mA or 1-5 Vdc inputs with setpoints and alarms for connection to your flow meter, power meter, etc.
- Intelligent display with operational information
- Full system retentive alarm network (event) log
- Programmable process set points
- Dryer operating “state” annunciation display
- Automatic data logging 24/7, 365 days of all operational information
- 16 Channel “programmable” common alarm
- RS-232 communications port (Optional RS-485)
- Access system via Modbus protocols
- UL Rated Components
- 160 Fields of operational information
- Dual Mode communications. Modbus Protocol
- Connectivity: telco line and cellular wireless modem
- Ethernet (optional)

MBD Series Blower Purge

MHD Series Heated

MPD Series Heatless

OFC Series Heatless

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TWIN TOWER DESICCANT AIR DRYERS

Engineering Data Specifications

Product Selection - MPD Series (200 - 3,000 scfm)

Heatless Twin Tower - Standard Design

Model	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MPD-107-1.0NPT	107	1" NPT	18	31	79	468
MPD-135-1.0NPT	135	1" NPT	18	31	79	496
MPD-200-1.5NPT	200	1.5" NPT	22	37	82	692
MPD-250-1.5NPT	250	1.5" NPT	22	40	80	776
MPD-300-1.5NPT	300	1.5" NPT	22	40	80	796
MPD-400-2.0NPT	400	2" NPT	27	43	85	1626
MPD-510-2.0NPT	510	2" NPT	27	45	84	1735
MPD-650-2.0NPT	650	2" NPT	27	47	84	1740
MPD-770-2.0NPT	770	2" NPT	28	50	87	2120
MPD-1000-3FLG	1000	3" FLG	41	74	92	3676
MPD-1200-3FLG	1200	3" FLG	41	74	103	4605
MPD-1500-4FLG	1500	4" FLG	41	74	113	4985
MPD-2000-4FLG	2000	4" FLG	48	78	96	5206
MPD-2600-4FLG	2600	4" FLG	60	96	112	7600
MPD-3000-6FLG	3000	6" FLG	60	96	112	8300

Heatless Twin Tower - Design with Energy Management System (EMS)

Model	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MPD-107-1.0NPT-EMS	107	1" NPT	18	31	79	468
MPD-135-1.0NPT-EMS	135	1" NPT	18	31	79	496
MPD-200-1.5NPT-EMS	200	1.5" NPT	22	37	82	692
MPD-250-1.5NPT-EMS	250	1.5" NPT	22	40	80	776
MPD-300-1.5NPT-EMS	300	1.5" NPT	22	40	80	796
MPD-400-2.0NPT-EMS	400	2" NPT	27	43	85	1626
MPD-510-2.0NPT-EMS	510	2" NPT	27	45	84	1735
MPD-650-2.0NPT-EMS	650	2" NPT	27	47	84	1740
MPD-770-2.0NPT-EMS	770	2" NPT	28	50	87	2120
MPD-1000-3FLG-EMS	1000	3" FLG	41	74	92	3676
MPD-1200-3FLG-EMS	1200	3" FLG	41	74	103	4605
MPD-1500-4FLG-EMS	1500	4" FLG	41	74	113	4985
MPD-2000-4FLG-EMS	2000	4" FLG	48	78	96	5206
MPD-2600-4FLG-EMS	2600	4" FLG	60	96	112	7600
MPD-3000-6FLG-EMS	3000	6" FLG	60	96	112	8300

Nominal Capacity based on: Ambient temperature 100°F, Inlet temperature 100°F, Inlet pressure 100 psi g.

* Consult Factory for -100°F pressure dew points

NOTES

1. Pre & After filters with automatic drain ARE included in the unit price. Filters supplied mounted on Models MPD-200 - MPD-700

2. Standard electrical requirement of 115V/1Ph/60Hz
3. Standard design pressure: 150 psi g
4. If MATTEI MCF/MFF Series filters are not used for protection of the dryer, warranty may be invalid
5. Maximum Inlet Temperature: 120°F
6. Minimum Inlet Temperature: 50°F
7. UL/CSA and CRN certified

Specifications

Description	Flow Range @ 100 psi g (7 bar g)	Dewpoint	Max Operating Pressure	Min Operating Pressure	Max Inlet Temp	Min Inlet Temp	Controls	Dewpoint Control	Standard Electrical Supply
MPD-107 - MPD-1500	107 - 1500 scfm	-40°F (-40°C) Standard	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Solid State	Optional	120V/1Ph/60Hz
MPD-2000 - MPD-3000	2000 - 3000 scfm	-40°F (-40°C) Standard	135 psi g (9.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Solid State	Optional	120V/1Ph/60Hz

Correction Factors

Temperature Correction Factor CFT										
Maximum Inlet Temperature (C1)	°F	80	85	90	95	100	105	110	115	120
	°C	27	29	32	35	38	41	43	46	49
	CFT	1.17	1.17	1.17	1.15	1.00	0.87	0.76	0.66	0.58

Pressure Correction Factor CFP													
Minimum Inlet Pressure (C2)	psi g	80	85	90	95	100	105	110	115	120	125	130	135
	bar g	5.51	5.86	6.21	6.55	6.89	7.24	7.58	7.93	8.27	8.62	8.96	9.31
	CFP	0.83	0.87	0.91	0.96	1.00	1.04	1.09	1.13	1.17	1.22	1.26	1.31

Dewpoint Correction Factor CFD		Standard	Option 1
Required Dewpoint (C3)	PDP °F	-40	-100
	PDP °C	-40	-70
	CFD	1.00	1.43

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TWIN TOWER DESICCANT AIR DRYERS

Engineering Data Specifications

Product Selection - MHD Series (100 - 3,000 scfm)

Externally Heated Desiccant Dryer

Model	Heater (kW)	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MHD-100-1.0NPT	1.5	100	1" NPT	18	31	83	680
MHD-135-1.0NPT	1.5	135	1" NPT	22	40	83	720
MHD-200-1.5NPT	3	200	1.5" NPT	22	40	85	920
MHD-250-1.5NPT	3	250	1.5" NPT	22	40	85	1180
MHD-300-1.5NPT	4	300	1.5" NPT	27	43	87	1370
MHD-400-2.0NPT	6	400	2" NPT	27	47	88	1400
MHD-500-2.0NPT	6	500	2" NPT	27	50	89	2060
MHD-600-2.0NPT	9	600	2" NPT	28	52	92	2350
MHD-800-2.0NPT	9	800	2" NPT	35	63	93	3035
MHD-1000-3FLG	13	1000	3" FLG	41	74	102	4195
MHD-1200-3FLG	13	1200	3" FLG	41	74	113	5215
MHD-1500-4FLG	18	1500	4" FLG	60	78	113	7765
MHD-2000-4FLG	25	2000	4" FLG	60	78	110	8565
MHD-2600-4FLG	25	2600	4" FLG	60	96	112	11562
MHD-3000-6FLG	30	3000	6" FLG	60	96	112	12002

Externally Heated Desiccant Dryer with Energy Management System (EMS)

Model	Heater (kW)	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MHD-100-1.0NPT-EMS	1.5	100	1" NPT	18	31	83	680
MHD-135-1.0NPT-EMS	1.5	135	1" NPT	22	40	83	720
MHD-200-1.5NPT-EMS	3	200	1.5" NPT	22	40	85	920
MHD-250-1.5NPT-EMS	3	250	1.5" NPT	22	40	85	1180
MHD-300-1.5NPT-EMS	4	300	1.5" NPT	27	43	87	1370
MHD-400-2.0NPT-EMS	6	400	2" NPT	27	47	88	1400
MHD-500-2.0NPT-EMS	6	500	2" NPT	27	50	89	2060
MHD-600-2.0NPT-EMS	9	600	2" NPT	28	52	92	2350
MHD-800-2.0NPT-EMS	9	800	2" NPT	35	63	93	3035
MHD-1000-3FLG-EMS	13	1000	3" FLG	41	74	102	4195
MHD-1200-3FLG-EMS	13	1200	3" FLG	41	74	113	5215
MHD-1500-4FLG-EMS	18	1500	4" FLG	60	78	113	7765
MHD-2000-4FLG-EMS	25	2000	4" FLG	60	78	110	8565
MHD-2600-4FLG-EMS	25	2600	4" FLG	60	96	112	11562
MHD-3000-6FLG-EMS	30	3000	6" FLG	60	96	112	12002

Notes

1. PowerLoc Demand Control Option (add $3,295.00) is an Energy Management system that adjusts energy use to demand. Features automatic demand control, digital dewpoint readout, 4-20mA analog output (optional) and high humidity alarm with contacts.
2. Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Mattei Technical Services.
3. Weight includes desiccant (shipped loose Models MHD 1500 and up).
4. For sizing at other temperatures and pressures, please consult factory.
5. UL/CSA and CRN certified.

Product Selection - MBD Series (100 - 3,000 scfm)

Blower Purge Desiccant Dryer

Model	Heater (kW)	Blower (HP)	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MBD-100-1.0NPT	0.75	3	100	1" NPT	37	49	83	1050
MBD-200-1.5NPT	0.75	6	200	1.5" NPT	39	56	85	1500
MBD-300-1.5NPT	1.5	6	300	1.5" NPT	27	43	87	1900
MBD-400-2.0NPT	1.5	9	400	2" NPT	27	47	88	2180
MBD-500-2.0NPT	12	2	500	2" NPT	27	50	89	2840
MBD-600-2.0NPT	12	2	600	2" NPT	28	52	92	3420
MBD-800-2.0NPT	18	5	800	2" NPT	35	64	93	4490
MBD-1000-3.0FLG	18	5	1000	3" FLG	41	74	102	5700
MBD-1200-3.0FLG	25	5.5	1200	3" FLG	41	74	113	6300
MBD-1500-4FLG	30	7.5	1500	4" FLG	60	78	113	7165
MBD-2000-4FLG	30	7.5	2000	4" FLG	66	114	112	9850
MBD-2600-4FLG	50	10	2600	4" FLG	72	132	112	12210
MBD-3000-6FLG	60	10	3000	6" FLG	72	132	112	12650

Blower Purge Desiccant Dryer with Energy Management System (EMS)

Model	Heater (kW)	Blower (HP)	Nominal Capacity (scfm) -40°F*	Air Conection (NPT)	Depth (in.)	Width (in.)	Height (in.)	Weight (lbs.)
MBD-100-1.0NPT-EMS	0.75	3	100	1" NPT	37	49	83	1050
MBD-200-1.5NPT-EMS	0.75	6	200	1.5" NPT	39	56	85	1500
MBD-300-1.5NPT-EMS	1.5	6	300	1.5" NPT	27	43	87	1900
MBD-400-2.0NPT-EMS	1.5	9	400	2" NPT	27	47	88	2180
MBD-500-2.0NPT-EMS	12	2	500	2" NPT	27	50	89	2840
MBD-600-2.0NPT-EMS	12	2	600	2" NPT	28	52	92	3420
MBD-800-2.0NPT-EMS	18	5	800	2" NPT	35	64	93	4490
MBD-1000-3.0FLG-EMS	18	5	1000	3" FLG	41	74	102	5700
MBD-1200-3.0FLG-EMS	25	5.5	1200	3" FLG	41	74	113	6300
MBD-1500-4FLG-EMS	30	7.5	1500	4" FLG	60	78	113	7165
MBD-2000-4FLG-EMS	30	7.5	2000	4" FLG	66	114	112	9850
MBD-2600-4FLG-EMS	50	10	2600	4" FLG	72	132	112	12210
MBD-3000-6FLG-EMS	60	10	3000	6" FLG	72	132	112	12650

Notes

1. MF2 and MF4 filters ARE included in base unit price. Filters supplied mounted on Models MBD500 - MBD800.
2. Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Mattei Technical Services.
3. Weight includes desiccant (shipped loose Models MBD-2000 and up).
4. For sizing at other temperatures and pressures, please consult factory.
5. UL/CSA and CRN certified.

TWIN TOWER DESICCANT AIR DRYERS

Engineering Data Specifications

Specifications

Description	Flow Range @ 100 psig (7 barg)	Dewpoint	Max. Operating Pressure	Min. Operating Pressure	Max. Inlet Temp.	Min. Inlet Temp.	Controls	Dewpoint Control	Standard Electrical Supply
MHD-100 - MHD-250	100 - 250 scfm	-40°F (-40°C) Standard -100°F (-70°C) Optional	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	240V/1PH/60Hz
MHD-300 - MHD-1200	300 - 1200 scfm	-40°F (-40°C) Standard -100°F (-70°C) Optional	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz - Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional)
MHD-1500 - MHD-8000	1500 - 1800 scfm	-40°F (-40°C) Standard -100°F (-70°C) Optional	135 psi g (9.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz - Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional)

Notes

1. Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Mattei Technical Services.
2. Weight includes desiccant (shipped loose Models MHD 1500 and up).
3. For sizing at other temperatures and pressures, please consult factory.

Description	Flow Range @ 100 psig (7 barg)	Dewpoint	Max. Operating Pressure	Min. Operating Pressure	Max. Inlet Temp.	Min. Inlet Temp.	Controls	Dewpoint Control	Standard Electrical Supply
MBD-100 - MBD-1500	500 - 1500 scfm	-40°F (-40°C) Standard -100°F (-70°C) Optional	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz - Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional)
MBD-2000 - MBD-3000	200 - 12000 scfm	-40°F (-40°C) Standard -100°F (-70°C) Optional	135 psi g (9.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz - Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional)

Notes

1. MF2 and MF4 filters ARE included in base unit price. Filters supplied mounted on Models MBD500 - MBD800.
2. Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Mattei Technical Services.
3. Weight includes desiccant (shipped loose Models MBD-2000 and up).
4. For sizing at other temperatures and pressures, please consult factory.

Correction Factors

Inlet Air Pressure

psi g	bar g	CF
50	3.5	.56
60	4.1	.65
70	4.9	.74
80	5.5	.83
90	6.2	.91
100	6.9	1.00
110	7.6	1.09
120	8.3	1.18
130	9.0	1.27
140	9.7	1.37
150	10.3	1.43

Temperature

°F	°C	CF
90	32	1.35
95	35	1.16
100	38	1.00
105	41	.85
110	43	.74
115	46	.64
120	49	.56

Example Calculations

MHD/MBD-500 corrected for 120 psi (8.3 bar) + 110°F (43°C)

Corrected Capacity = (Rated Capacity) x (psi Correction) x (Temperature Correction)

= 500 scfm (13.9 Nm^3/min) x (1.18) x (.74)

= 437 scfm (12.1 Nm^3/min)

Product Selection - Oil Field Twin Tower (15 - 280 scfm)

Oil Field Twin Tower						
Model	**Nominal Capacity (scfm) -40°F***	**Air Conection (NPT)**	**Length (in.)**	**Width (in.)**	**Height (in.)**	**Weight (lbs.)**
TF-OFC15-A1-JCE	15	1.5" NPT	28	44	78	692
TF-OFC23-A1-JCE	23	1.5" NPT	30	44	78	776
TF-OFC36-A1-JCE	36	1.5" NPT	30	44	78	796
TF-OFC50-A1-JCE	50	2" NPT	41	74	84	1626
TF-OFC80-A1-JCE	80	2" NPT	41	74	85	1735
TF-OFC105-A1-JCE	105	2" NPT	41	74	86	1740
TF-OFC140-A1-JCE	140	2" NPT	41	74	91	2120
TF-OFC220-A1-JCE	220	3" FLG	54	108	88	3676
TF-OFC280-A1-JCE	280	3" FLG	54	108	111	4605

Nominal Capacity based on: Ambient temperature 100°F, Inlet temperature 100°F, Inlet pressure 100 psi g.
* Standard construction. Consult Factory for NEMA 7 and/or Non-Yellow Metal requirements

NOTES

1. Pre & After filters with automatic drain ARE included in the unit price. Filters supplied mounted.
2. Standard electrical requirement of 115V/1Ph/60Hz
3. Standard design pressure: 150 psi g
4. Pressure dew point is based on CAGI ADF 200. Standard for rating and testing compressed air dryers.
5. If MATTEI MF or MFF Series filters are not used for protection of the dryer, warranty may be invalid
6. Maximum Inlet Temperature: 120°F
7. Minimum Inlet Temperature: 50°F
100 psi g (6.89 bar) inlet air pressure, 100°F (37.8°C) inlet air, 100°F (37.8°C) ambient air temperature.
8. UL/CSA and CRN certified.

Specifications

Max. Inlet Temperature	120°F (49°C)
Min. Inlet Temperature	50°F (10°C)
Max. Working Pressure	150 psi g (10.3 bar g)
Min. Working Pressure	80 psi g (5.5 bar g)
Dewpoint	-40°F (-40°C)
ISO Quality Class	8573.1 Class 1.2.1
Standard Electronics	120V/1Ph/60Hz
Controls	Solid State Board

- Pressure drop at rated flow: less than 5 psi (0.34 bar)
- Maximum inlet air or ambient air temperature 120°F (49°C)
- Maximum working pressure: 150 psi g (10.5 bar g) standard units for higher maximum working pressure are available.
- Minimum operating pressure: 80 psi g (5.5 bar g)

Correction Factors

Inlet Air Pressure

psi g	80	90	100	110	120	130	140	150
bar g	5.5	6.2	6.9	7.6	8.3	9.0	9.7	10.3
CF	.83	.91	1.00	1.09	1.18	1.27	1.37	1.43

Temperature

°F	100	105	110	115	120
°C	38	41	43	46	49
CF	1.00	0.85	0.74	0.64	0.56

EXAMPLE CALCULATIONS
TF-OFC80-A1-JCE Corrected for 120 psi (8.3 bar)
Corrected Capacity: = (Rated Capacity) X (psi Correction)
= 80 scfm (2.27 Nm^3/min) X (1.18)
= 94.4 scfm (2.67 Nm^3/min)

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