

Series ADM 08-250



INSTALLATION USE AND MAINTENANCE MANUAL TA01-G-008

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Dear Customer,

We would like to take this opportunity to thank you for choosing our product. Please carefully read this manual so that you can fully exploit all of our product's features.

It is important to remember that, in order to avoid erroneous work conditions and dangers for operators, it is essential that you scrupulously stick to what is set out in the present manual as well as the accidents prevention regulations in force in the country where you are using the product.

Every drier in the **ADM** series, before being packaged, is subject to a rigorous inspection. During this phase checks are carried out to make sure that there are no manufacturing defects and the machine correctly carries out the functions for which it has been designed.

After correctly installing it, following the indications set out in the present manual, the drier is ready for use. Its functioning is completely automatic.

This manual must be kept for future reference and constitutes an integral part of the drier that you have purchased.

Due to continual technical developments we reserve the right to introduce any modifications we consider necessary without having to provide advance notice of the same.

If you have any type of difficulty or require further information do not hesitate to contact us.

General notes on delivery

On receipt of the machine check that:

- The supply corresponds with the order specifications.
- There is no damage due to transport or other reasons.

(If there is any damage or items are missing immediately inform the courier or **ING. ENEA MATTEI S.p.A.**), providing all relevant details.

AS REGARDS ANY REQUEST MADE TO ING. ENEA MATTEI S.p.A. OR TO ITS ASSISTANCE CENTRES, ALWAYS SPECIFY THE MACHINE'S SERIAL NUMBER AND CODE.

Rating plate

The product rating plate, which is located on the rear part of the control panel, states the main machine data in indelible form.

This data indicated must always be communicated to the manufacturer or to the retailer when requesting information, spare parts etc.

You must not remove the plate and/or exchange it with other plates belonging to machines of the same model used by the customer or operator.

If the plate is damaged or falls off the machine the customer must request another copy of the same from the manufacturer.

When carrying out installation fill in the plate shown at the side, transcribing the data indicated in the rating plate.

ING. ENEA MATTEI S.p.A. 20090 VIMODRONE (MI) - ITALIA		CE
MODELLO	ADM	_____
(model)		
PRESSIONE. MAX	bar	_____
(max pressure)		
POTENZA MAX.	W	_____
(Max power)		
TENSIONE	V	_____
(voltage)		
FREQUENZA	Hz	_____
(frequency)		
N° FABBRICA		_____
(s/n)		
ANNO		_____
(year)		
N° CODICE		_____
(code)		
Manufactured by: TECNO PROJECT INDUSTRIALE SRL Curno - Bg - Italy		

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Symbols in the manual

In this manual some symbols are used that to attract the reader's attention and underline some particularly important aspects of the treatment.

The table below gives the list and describes the meaning of the different symbols used

SYMBOL	MEANING and NOTES
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**Danger**

It indicates a danger with the risk for accident, even fatal, for the user
Pay careful attention to text block with this symbol.

**Warning**

It warns against a possible deterioration of the machine or personal item of the user

**Notice**

It shows either a notice or a note on the key functions or useful information.

**Further information**

This symbol introduces text blocks containing further information.
This information has no direct relationship with the description of a function or with procedure development.
They could be cross-references to other documents or other sections of this manual.

**Damage risk**

It indicates a high damage risk of a piece, for example, using a wrong tool or by mounting something with the incorrect procedure.

**Visual Check**

It recommends the reader to carry out a visual check. This symbol can also be found in the instructions for use. The user is required to read a measure value, to check some warning signs, etc.

**Acoustic Check**

It recommends the reader to carry out a sound acoustic check.
This symbol can also be found in the instructions for use. The user is required to listen to an operational noise.

Purpose of Document

This manual contains the technical characteristics, the performance, the transportation and installation rules, the instructions for use, and the preventive and corrective maintenance operations of the machine.



NOTE : This manual should be considered an integral part of the machine, and should stay with it during the entire life span of the equipment.

Keep this manual and all of the attached documents in a place easily accessible to all staff in charge of the control or the maintenance of the machine.

Ing. ENEA MATTEI S.p.A. reserves the right to subject the supply of further copies to the repayment of charges and the acceptance of special provisions with respect to the legitimate defense of intellectual, patent, and executive identity and functional property of the product and/or its parts.

It is understood that forwarding all or part of this manual to third parties is not tolerated unless with the prior written consent of Ing. ENEA MATTEI S.p.A. for both the text, the illustrations and the diagrams attached.

Ing. ENEA MATTEI S.p.A. reserves the right to make changes without prior notice. Any change, supplement or suppression of elements, components, functions or cycles of the machine, not previously agreed upon with Ing. ENEA MATTEI S.p.A. releases the manufacturer from any responsibility whatsoever.

This manual is for the user and the service engineer of the machine, and it aims at supplying them with the basic technical data typical of the system, a technical description of the several operating groups that form it as well as the essential use procedures and the information necessary to perform preventive and corrective maintenance.

This manual is for staff with a sound knowledge of the processing technique, of mechanical and electrical diagrams, and is for both those in charge for the use of the machine and the service engineers.

This manual is an integral part of the machine and contains information that aims at granting all staff safe working conditions and guaranteeing perfect efficiency during the life span of the machine.

For a correct use of the machine, it is assumed that the working environment is adequate to current regulations concerning safety and hygiene.

Applicable directives and technical standards

The machine has been designed, realised and inspected in compliance with the “essential health and safety requirements” referred to in annex I of **European Directive 98/37/CE**.

List of assimilated directives and technical standards

MACHINES DIRECTIVE 98/37/CE

ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89/336/CE

LOW VOLTAGE DIRECTIVE 2006/95/CE

PRESSURE EQUIPMENT DIRECTIVE 97/23/CE

For any type of information relative to use, maintenance and installation etc. do not hesitate to contact **ING. ENEA MATTEI S.p.A.**

It is important that purchasers state their questions in a clear manner with reference to the present manual and always indicate the data set out on the machine rating plate.

When communicating with the assistance centre always cite the type of machine, serial number and year of manufacture, which identify every individual machine and, when possible, specify the nature of the problem or the defect exhibited by the machine e.g. of an electrical or mechanical nature or relative to machining quality.

Contact our technical assistance office in the area nearest to you or alternatively our central office in Italy.

Instructions for ordering spare parts

The machine may, over time, need to have parts replaced that have been subject to wear and tear due to operational activity.

You must always purchase original spare parts.

When ordering spare parts always specify the following points:

- 1 Machine type and model
- 2 Serial number
- 3 Exact name of the part in question
- 4 Code and/or reference (if available)
- 5 Quantity desired

Manufacturer's address

Any request regarding the intervention of the assistance service at the customer's premises or clarification of the technical contents of the present document must be sent to:

Spare parts and Assistance Service

M.T.A. S.P.A. MECCANICA TECNICA ASSISTENZA

Corso Italia, 47 – 24049 Verdello - Zingonia (Bergamo) - Italy

TEL: +39 - 0354 186400 (Ric.Aut.) FAX: +39 - 0354 186490

e-mail: info@mta.bg.it

C.P. N° 69 Zingonia

Warnings

Compressed air is a highly dangerous source of energy. Never use the drier with parts under pressure. Never direct the jet of compressed air or condensate discharge towards people. The user is responsible for installing the drier in total compliance with what is set out in the section, "Installation". If this is not done, the warranty will be no longer be invalid and potentially dangerous situations could be created for operators and/or damage caused to the machine.

The use and maintenance of electrically powered equipment can only be carried out by qualified personnel. Before carrying out maintenance operations you must observe the following:

- Make sure that the machine does not have any live parts and cannot be reconnected to the electricity supply.
- Make sure that the drier does not have any parts under pressure and cannot be reconnected to the compressed air unit.

Any alteration of the machine or its relative function parameters, unless previously verified and authorised by the manufacturer, in addition to generating possible sources of danger will also invalidate the warranty.

Do not use water to put out fires near or on the drier.

Customer responsibilities

Without prejudice to any contractual agreements that may have been entered into, the following are normally the responsibility of the customer:

- ❑ Provision of the installation location and installation of the machine in accordance with the dimensions set out in the layout;
- ❑ Provision of auxiliary services that are appropriate for system requirements (e.g. electricity mains, pneumatic source etc.);
- ❑ Provision of electrical wiring system in compliance with Directive 2006/95/CE;
- ❑ Any safety devices upstream and downstream of the power lines (e.g. differential switches, earthing systems, safety valves etc.), as set out in current legislation in the country where the machinery is installed;
- ❑ Earthing system in compliance with standard CEI 64-8;

Before carrying out installation

- ❑ Check that there is no damage due to transport or other causes;
- ❑ Read and scrupulously adhere to the instructions;
- ❑ Check compatibility with the voltage supply;
- ❑ Check that normal operating conditions are respected:
 - maximum air delivery;
 - air input temperature (+ 5°C / + 50°C);
 - operating pressure (from 4 to 10 bar);
 - ambient temperature (+ 5°C / + 40°C).

Liability

ING. ENEA MATTEI S.p.A. is not liable for any damage to people, things and animals caused by:

- ❑ improper use of compressed air or the machine in general;
- ❑ failure to respect common safety standards or national regulations relative to work;
- ❑ failure to respect prescriptions during machine movement and transport;
- ❑ incorrect machine installation;
- ❑ failure to properly carry out periodic maintenance;
- ❑ unauthorised modifications or interventions;
- ❑ use of non original spare parts or spare parts that are not specific for the model;
- ❑ failure to carry out, even if only partially, the instructions.

Out of service and disposal

Placing the machine out of service and removing it can only be carried out by authorised personnel.

Before placing the machine out of service it is absolutely imperative that the power supply device be disconnected.

Disconnect the power supply cable from the power supply device.

Disconnect the pneumatic unit of the machine from the air distribution network.

Remove moving parts.

Remove the machine from the work area, adopting all prescriptions indicated in the present manual; before lifting, check the correct use of the lifting devices and only use appropriate equipment.

Waste disposal operations must be carried out in compliance with the legislation in the country where the machine is installed.

- ❑ Installation, start-up and use must be carried out in compliance with the standards and regulations in force relative to safety at work.
- ❑ The owner of the machine is responsible for its maintenance, an essential condition in ensuring complete operational safety.
Those parts of the machine which, due to poor use, wear and tear and deterioration, do not guarantee safe functioning must be promptly replaced.
- ❑ Installation, use, maintenance and repairs must only be carried out by authorised and qualified personnel, appropriately trained.
- ❑ Where there is any discrepancy between the prescriptions contained in this manual and those set out in current legislation relative to safety, we recommend application of the more restrictive prescriptions.

Adsorbent material

The adsorbent material is an alumina based product or one made using molecular sieves. It comes in a spherically shaped molecular form, non volatile and non inflammable. It is not dangerous for transport. Contact with water generates heat. If there is accidental contact with the eyes or skin, thoroughly wash with fresh water and, if necessary, consult a doctor.

It must be kept in its original packaging, in a clean and dry location.

Since the adsorbent material can contain powder, when handling it protect air passageways.

Maintenance and repairs

Maintenance operations, malfunction analysis and repairs can only be carried out by authorised personnel.

Installation or maintenance operations or components replacement on the machine or on the control unit must be carried out with the machine switched off.

Personnel assigned to maintenance, before intervening, must correctly reduce the pressure inside the unit forming the subject of the intervention, to a value equal to ambient pressure.

Malfunctioning components must be replaced with others having the same code.

Where necessary, during the malfunctions analysis activity, carry out interventions with the control unit and machine switched on. However, in such cases all precautions must be taken as required by safety standards when operating in the presence of dangerous voltages and moving parts.

At the end of the malfunctions analysis and maintenance interventions, the deactivated safety features must be reactivated.

The maintenance, repair and malfunctions analysis intervention must be concluded by verifying the correct functioning of the machine and all safety features.

Description of Pictograms

Danger pictograms

These indications are triangular in shape with black border, yellow background and black symbol.



Attention!
Risk of electric shock



Attention!
Recipient under pressure



Attention!
Discharge of air.

Prohibition pictograms

These indications are circular in shape with red border, white background and black symbol.



Do not work on machine



Pressure in recipient forbidden



Voltage forbidden



Parts that can start up without notice are forbidden

‘Must do’ pictograms

These signals are circular in shape with blue background and white symbol.



You must read the Instructions Manual before carrying out operations on the machine.



You must wear individual noise protection equipment

Indication pictograms

These signals are circular in shape with blue background and white symbol.



Lifting point.



Possible to carry out work

Combination of Pictograms

The combination of pictograms set out below means:

Attention! Check the Instructions Manual before starting work.

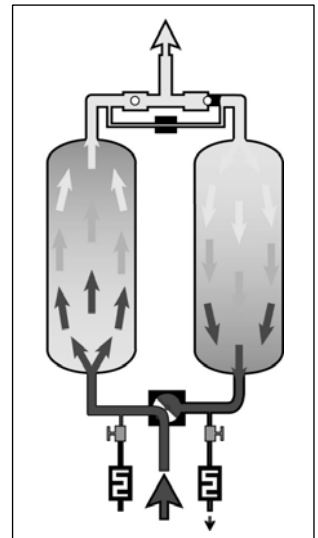


Function principle

Drying systems with a heatless functioning process (cold regeneration) use the chemical-physical property of drying materials to adsorb humidity from the air and then expel it in the subsequent regeneration phase.

When compressed air passes through one of the two towers, water vapour molecules are attracted by the adsorbent material until the column is saturated. While the adsorbent bed of the first tower is operating and adsorbs humidity from the input air, the bed of the second tower is in the regeneration phase.

Regeneration occurs by bleeding a small part of the dry air taken from the output which removes humidity from the exhausted adsorbent bed, discharging it from the atmosphere.



Description

The system comprises two tanks containing the load of drying material.

Inside there is provision for stainless steel filters that can stop any solid impurity exiting.

The valves that carry out various automatic functions are designed for continuous heavy duty utilisation.

No particular maintenance or lubrication is required for the valves.

The commands are carried out using solenoid valves that pilot the valves.

The command logic is electronic and completely automatic.

Efficiency indicator

All models are equipped with a coloured telltale located between the two columns, which make it possible to communicate efficiency. During operational activity it must be blue in colour.

After switch-on at least two complete function cycles are required for the telltale to start to change colour.

Installation location

For correct installation carry out the following recommendations:

- the location must be under roof or at least protected against atmospheric agents;
- ambient temperature must be between 5° and 40 °C;
- leave space above and around the unit for maintenance interventions.

Pneumatic connection



The input and output connection pipes must not transmit vibrations or stresses to the system.

We recommend installing a by-pass to the system to facilitate any interventions.

Check the perfect efficiency of the condensate separator with the relative discharger installed on the compressor post coolant (if present).



NOTE: The tanks of the driers in the ADM series are not equipped with safety valves.

Where plant pressure can reach values that are greater than those provided for in the design of the drier (pressure declared on the machine rating plate), the latter must be provided with safety valves (carried out by the installer).

Electrical wiring



Connect the line to the terminals on the panel (check the voltage).

Carry out earthing in accordance with current regulations.



ATTENTION: Switch off voltage before any intervention.

Filtration

After the compressor we recommend installing a final cooler with relative condensate separator and discharger.

Check the perfect functionality of each component to avoid any movement of water on the filters or the unit.

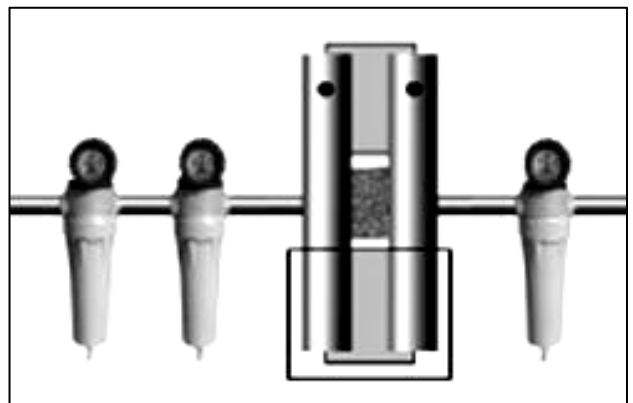
Where the compressed air to be treated comes from lubricated compressors it must be separated from oil using appropriate pre-filters before drying.

The dehydrating adsorbent material may be contaminated by the said oil and lose its qualities.

The de-oiler pre-filter must be of the "coalescence" type with an adequate degree of filtration (maximum oil content in air equal to 0.01 mg/m³).

We also recommend using an anti-dust post-filter downstream of the treated air unit so that the treated air is free of any solid impurities.

The degree of filtration must be chosen relative to the degree of purity required (usually 10 - 20 micron).



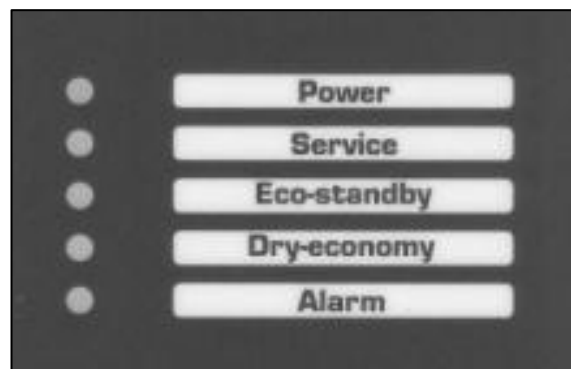
Command and control panel

The ADM driers are equipped with an electronic command and control panel.

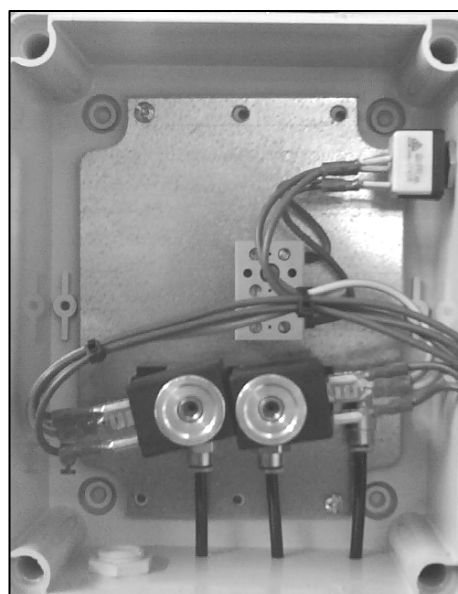
The start-up switch is located on the side of the command panel.

The control panel is equipped with indication telltales:

- **Power:** constant green light
(voltage on)
- **Service:** red light flashing
(maintenance required; drier still functional)
- **Eco-standby:** constant green light
(driver in stand-by with external consent)
- **Dry-economy:** constant yellow light
(regeneration air economizer activated)
- **Alarm:** constant red light (optional)
(alarm can be activated on request)



ATTENTION: Switch off voltage before any intervention.



Internal view



NOTE: electricity wiring diagram in Section 9.1

Before continuing make sure you have rigorously adhered to the prescriptions set out in the previous points.

Pressurization

Slowly pressurize the drier with the exit of closed air while avoiding speeds that are too high and which could damage the adsorbent material.

Check that the gauges on the towers indicate a gradual increase in pressure.

Start-up

Once pressurization has been carried out, turn on the voltage using the appropriate switch. Then slowly open the interception valve located downstream.



NOTE: On initial start-up make the unit function for approximately 1 hour with the exit of closed air.

Checks

We recommend carrying out a check of the first operational cycle so as to verify the correct insertion of the columns (sect. 7).

The insertion of the columns is cyclical and overall lasts approximately 10 minutes (5'+5'). Check pressurisation via two gauges located on the columns.

There must be at least two complete operating cycles subsequent to the previous start-up such that the visual telltale begins to change colour.

The system has been calibrated for operational activity in nominal conditions. Where operating conditions differ from nominal conditions contact Ing. **Enea Mattei S.p.A.**

Stop

To stop the machine use the switch located on the control panel. The control and communication system will immediately switch off.

With the drier switched off the compressed air continues to flow.

Adjustments

During normal operational activity the drier cyclically activates one or the other column. The complete cycle lasts overall approximately 10 minutes (5'+5').

However, it is possible to modify the duration times of the cycle relative to the quantity of air to be treated. There are 4 commutators (C1 - C2 - C3 - C4) with 2 positions (ON - OFF) on the electronic board, located inside the command and control panel.



ATTENTION: Operation to be carried out with the drier off.



ATTENTION: Absolutely do NOT touch commutators C5 and C6.

Relative to the quantity of air to be treated, with respect to nominal capacity, the commutators must be positioned as set out in the table.

Pressure dew point (7 bar)	Commutator position	% Delivery				
		100	87	75	63	50
- 40 °C	C1	OFF	ON	ON	ON	ON
	C2	OFF	OFF	ON	ON	ON
	C3	OFF	OFF	OFF	ON	ON
	C4	OFF	OFF	OFF	OFF	ON

If a less extreme dew point is required it is possible to economise the quantity of regeneration air, positioning the commutators in accordance with what is set out in the table below.

Pressure dew point (7 bar)	Commutator position	% Delivery				
		100	87	75	63	50
- 10 °C	C1	ON	ON	ON	ON	*
	C2	OFF	ON	ON	ON	*
	C3	OFF	OFF	ON	ON	*
	C4	OFF	OFF	OFF	ON	*

* Replace the diaphragm.



ATTENTION: Before every intervention switch off the voltage.

SERIES ADM 08 – 6**General description****Adsorption phase**

The compressed air to be dried enters from the valves group V1 and passes through the adsorber D/B, drying out as it does so, then exits for use through the upper valves group V2.

Regeneration phase

At the same time, part of the dried air is taken up through the batcher V3 (within the valves group V2), passes through the adsorber D/A, removing the humidity that has been adsorbed during the previous cycle which is discharged into the atmosphere by the lower valves group V1.

Pressurization phase

Having concluded the regenerative phase, the discharge of regeneration air (valves group V1) closes and the adsorber D/A then repressurises.

Inversion phase

During the following phase the valves group V1 inverts the input flow, the air to be dried starts to flow to the regenerated adsorber D/A.

Decompression phase

The discharge of the valves group V1 opens and the regenerative phase starts on the adsorber D/B.

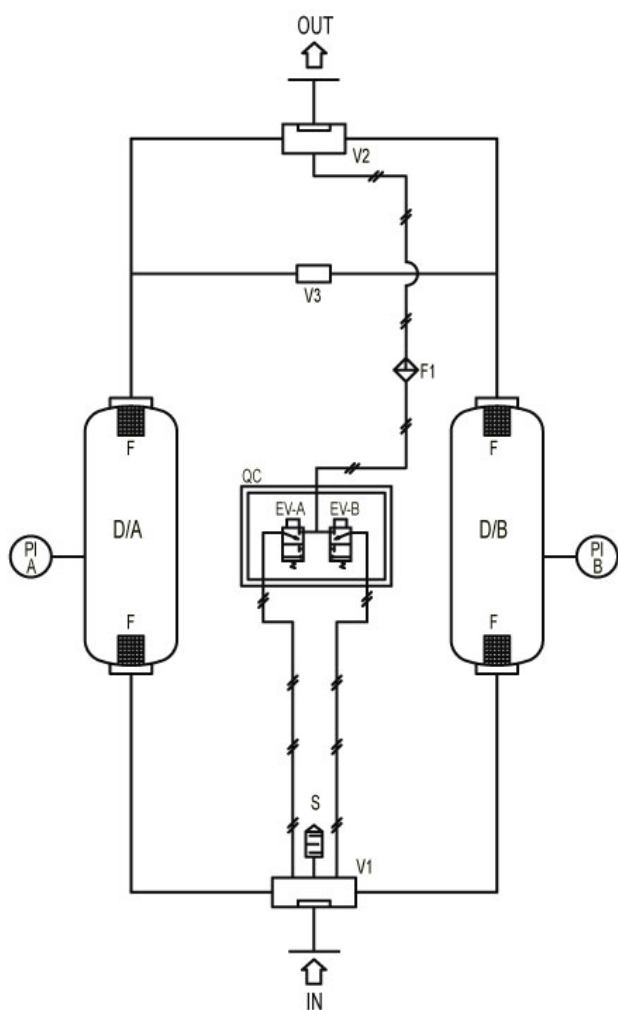
Solenoid valves sequence

Solenoid phases	EV-A	EV-B
Tower operation D/B	E	D
Tower regeneration D/A	E	D
Pressurization	D	D
Inversion	D	E
Tower operation D/A	D	E
Tower regeneration D/B	D	E
Pressurization	D	D
Inversion	E	D

Legend: E Solenoid on
 D Solenoid off

SERIES ADM 08 – 6

Flow diagram



POS item	DESCRIZIONE description	NOTE note
D/A D/B	SERBATOI ADSORBITORI adsorber vessels	
F	FILTRI INTERNI INOX internal filter	
V1	VALVOLA DI INGRESSO inlet valve	
V2	VALVOLA DI USCITA outlet valve	
V3	DISPOSITIVO PURGA purging device	
F1	FILTRO SINTERIZZATO sintered filter	
S	SILENZIATORE silencer	
QC	QUADRO COMANDO command panel	
EV-A/EV-B	ELETTROVALVOLA PILOTA pilot electrovalves	
PI/A-PI/B	MANOMETRO manometers	
FD	FILTRO DISOLEATORE disoleator filter	
FA	FILTRO ANTIPOLVERE dust filter	

SERIES ADM 10 – 16**General description****Adsorption phase**

The compressed air to be dried enters from the 4-way valve V1 and passes on to the adsorber D/B, drying out, then exits for use through valve V2.

Regeneration phase

At the same time, part of the dried air is taken through the batcher V3, passes through the adsorber D/A removing the humidity that has been adsorbed during the previous cycle and is discharged by valve V4.

Pressurization phase

Having concluded the regenerative phase, valve V4 closes, then the adsorber D/A repressurises.

Inversion phase

In the following phase valve V1 inverts, the air to be dried starts to flow on to the regenerated adsorber D/A.

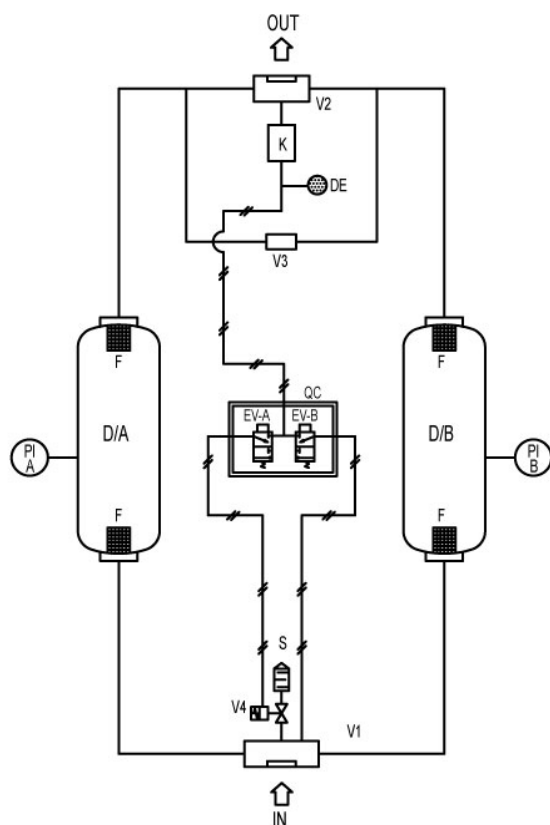
Decompression phase

Valve V4 opens and starts the regenerative phase on the adsorber D/B.

Solenoids sequence

Solenoid phases	EV-A	EV-B
Tower operation D/B	D	D
Tower regeneration D/A	D	D
Pressurization	E	D
Inversion	D	E
Tower operation D/A	D	E
Tower regeneration D/B	D	E
Pressurization	E	E
Inversion	D	D

Legend: E Solenoid on
 D Solenoid off

SERIES ADM 10 – 16
Flow diagram


POS	DESCRIZIONE	NOTE
D/A D/B	SERBATOI ADSORBITORI	
F	FILTRI INTERNI INOX	
V1	VALVOLA DI INGRESSO	
V2	VALVOLA DI USCITA	
V3	DISPOSITIVO PURGA	
V4	VALVOLA DI DECOMPRESIONE	
K	FILTRO SINTERIZZATO	
S	SILENZIATORE	
DE	DISPOSITIVO EFFICIENZA	
QC	QUADRO COMANDO	
EV-A/EV-B	ELETTTROVALVOLE PILOTA	
PI/A-PI/B	MANOMETRO	

SERIES ADM 23 – 43**General description****Adsorption phase**

The compressed air to be dried enters from valve V1 passes on to the adsorber D/B, drying out, then exits for use through valve V2.

Regeneration phase

At the same time, part of the dried air is taken through the batcher V3, passes through the adsorber D/A removing the humidity that has been adsorbed during the previous cycle and is discharged by valve 3A.

Pressurization phase

Having concluded the regenerative phase, valve 3A closes, then the adsorber D/A repressurises

Inversion phase

In the following phase valve V1 inverts, the air to be dried starts to flow on to the regenerated adsorber D/A.

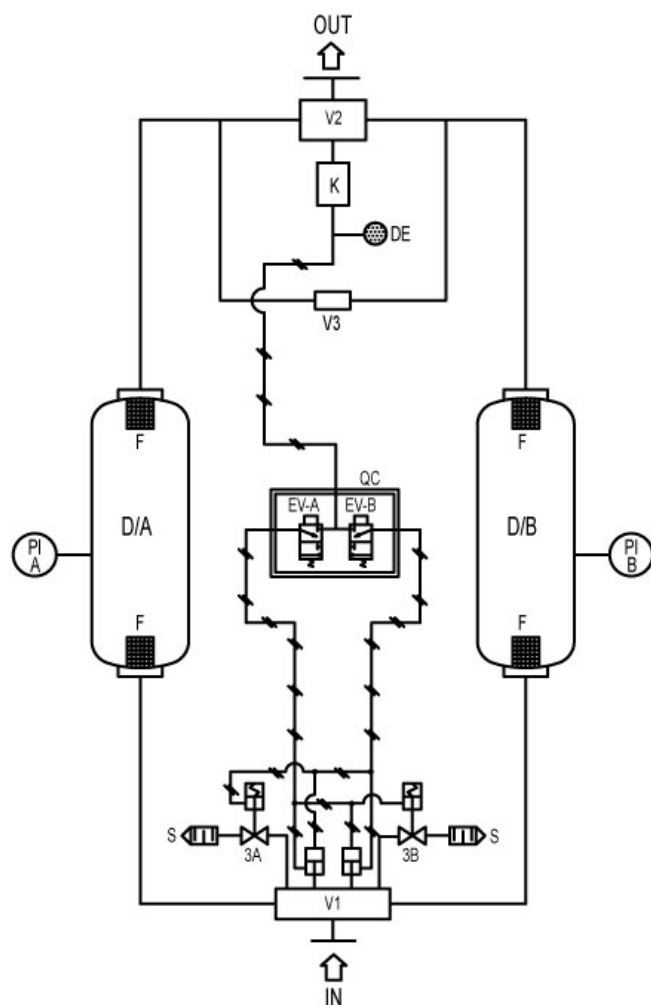
Decompression phase

Valve 3B opens and starts the regenerative phase on the adsorber D/B.

Solenoids sequence

Solendoid phases	EV-A	EV-B
Tower operation D/B	D	E
Tower regeneration D/A	D	E
Pressurization	D	D
Inversion	E	D
Tower operation D/A	E	D
Tower regeneration D/B	E	D
Pressurization	D	D
Inversion	D	E

Legend: E Solenoid on
 D Solenoid off

SERIES ADM 23 – 43
Flow diagram


POS	DESCRIZIONE	NOTE
D/A D/B	SERBATOI ADSORBITORI	
F	FILTRI INTERNI INOX	
V1	VALVOLA INTEGRATA DI ING.	
V2	VALVOLA 3 VIE ODI USCITA	
V3	DISPOSITIVO PURGA	
3A/3B	VALVOLA DI DECOMPRESIONE	
K	FILTRO SINTERIZZATO	
S	SILENZIATORE	
DE	DISPOSITIVO EFFICIENZA	
QC	QUADRO COMANDO	
EV-A/EV-B	ELETTTROVALVOLE PILOTA	
PI/A-PI/B	MANOMETRO	

SERIES ADM 58 – 75**General description****Adsorption phase**

The compressed air to be dried enters from valve V1 passes on to the adsorber D/B, drying out, then exits for use through valve V2.

Regeneration/decompression phase

At the same time, part of the dried air is taken through the batcher V3, passes through the adsorber D/A removing the humidity that has been adsorbed during the previous cycle and is discharged by valve 3A.

Pressurization phase

Having concluded the regenerative phase, valve 3A closes, then the adsorber D/A repressurises

Inversion phase

In the following phase valve V1 inverts and the air to be dried starts to flow on to the regenerated adsorber D/A.

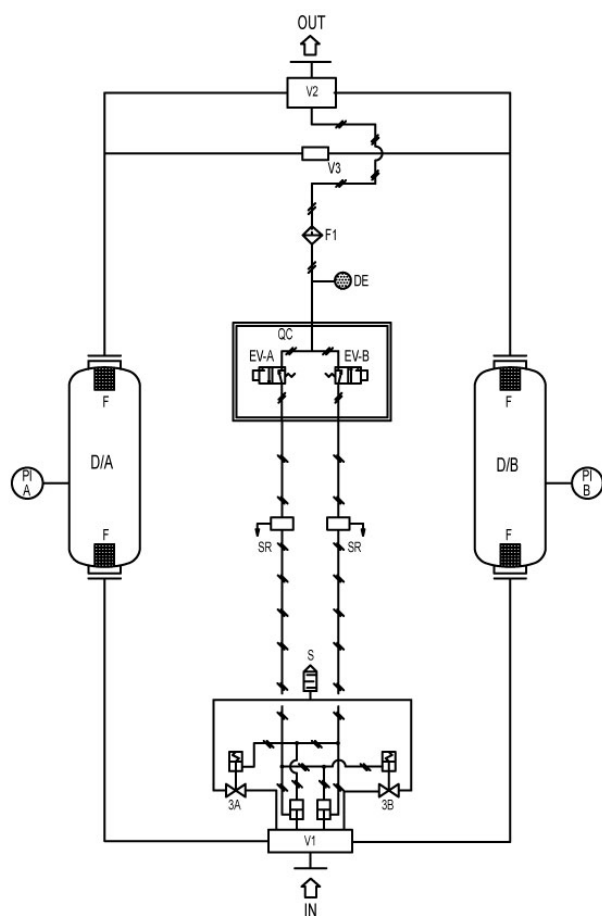
Decompression phase

Valve 3B opens and starts the regenerative phase on the adsorber D/B.

Solenoids sequence

Solenoid phases	EV-A	EV-B
Tower operation D/B	D	E
Tower regeneration D/A	D	E
Pressurization	D	D
Inversion	E	D
Tower operation D/A	E	D
Tower regeneration D/B	E	D
Pressurization	D	D
Inversion	D	E

Legend: E Solenoid on
D Solenoid off

SERIES ADM 58 – 75
Flow diagram


POS item	DESCRIZIONE description	NOTE note
D/A D/B	SERBATOI ADSORBITORI adsorber vessels	
F	FILTRI INTERNI INOX internal filter	
V1	VALVOLA PNEUM. INTEGRATA INGRESSO inlet integrated pneumatic valves	
V2	VALVOLE 3 VIE DI USCITA outlet 3 ways valve	
V3	DISPOSITIVO PURGA purging device	
3A-3B	VALVOLE DI DECOMPRESSIONE decompression valves	
F1	FILTRO ARIA COMANDO command air filter	
S	SILENZIATORE DI SCARICO discharge silencer	
DE	DISPOSITIVO EFFICIENZA efficiency indicator	
QC	QUADRO COMANDO command panel	
EV-A/EV-B	ELETTROVALVOLE PILOTA pilot solenoid valves	
PI/A-PI/B	MANOMETRI manometers	
SR	SCARICATORI RAPIDI dischargers	

SERIES ADM 100 – 133**General description****Adsorption phase**

The compressed air to be dried enters from valve V1, passes on to the adsorber D/B, drying out, then exits for use through valve V2.

Regeneration/decompression phase

At the same time, part of the dried air is taken through the batcher V3, passes through the adsorber D/A removing the humidity that has been adsorbed during the previous cycle and is discharged by valves 3A/1 and 3A.

Pressurization phase

Having concluded the regenerative phase, valves 3A/1 and 3A close and the adsorber D/A then repressurises

Inversion phase

In the following phase the valve V1 inverts, the air to be dried starts to flow on to the regenerated adsorber D/A.

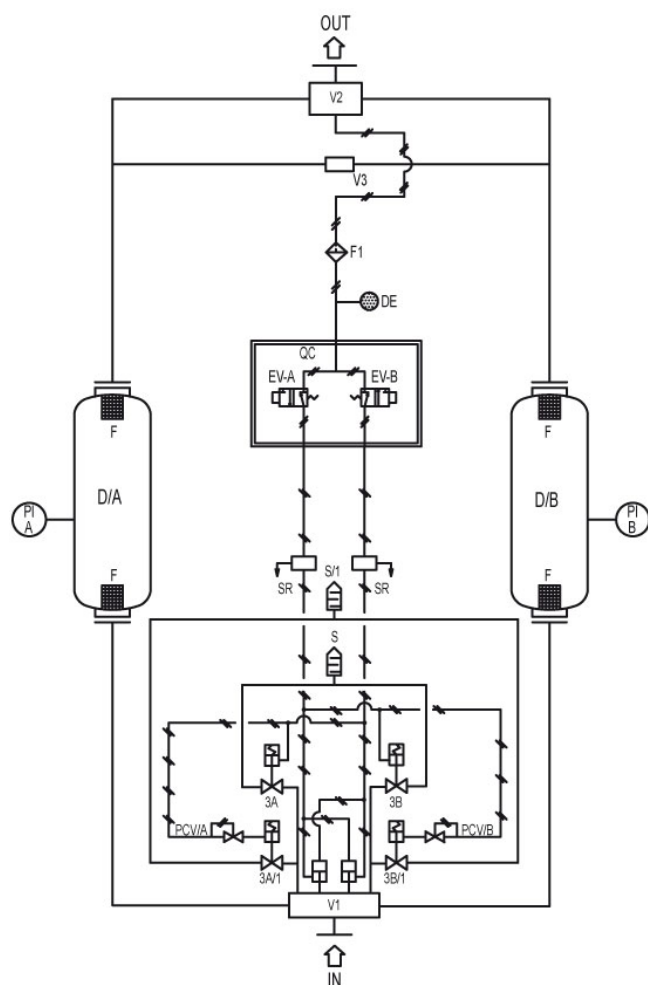
Decompression phase

Valves 3B/1 and 3B open in sequence, depressurising the adsorber D/B which starts the regenerative phase.

Solenoids sequence

Solenoid phases	EV-A	EV-B
Tower operation D/B	D	E
Tower regeneration D/A	D	E
Pressurization	D	D
Inversion	E	D
Tower operation D/A	E	D
Tower regeneration D/B	E	D
Pressurization	D	D
Inversion	D	E

Legend: E Solenoid on
D Solenoid off

SERIES ADM 100 – 133
Flow diagram


POS item	DESCRIZIONE description	NOTE note
D/A D/B	SERBATOI ADSORBITORI adsorber vessels	
F	FILTRI INTERNI INOX internal filter	
V1	VALVOLA PNEUM. INTEGRATA INGRESSO inlet integrated pneumatic valves	
V2	VALVOLE 3 VIE DI USCITA outlet 3 ways valve	
V3	DISPOSITIVO PURGA purging device	
3A/1 3B/1	VALVOLE DI PREDECOMPRESSIONE pre-decompression valves	
3A-3B	VALVOLE DI DECOMPRESSIONE decompression valves	
PCV/A PCV/B	RIDUTTORI DI PRESSIONE pressure reducing	
F1	FILTRO ARIA COMANDO command air filter	
S-S1	SILENZIATORI DI SCARICO discharge silencers	
DE	DISPOSITIVO EFFICIENZA efficiency indicator	
QC	QUADRO COMANDO command panel	
EV-A/EV-B	ELETTROVALVOLE PILOTA pilot solenoid valves	
PI/A-PI/B	MANOMETRI manometers	
SR	SCARICATORI RAPIDI dischargers	

SERIES ADM 200 – 250**General description****Adsorption phase**

The compressed air to be dried enters 2-way valve 2B, passes on to the adsorber D/B, drying out, then exits for use through valve 4B.

Regeneration/decompression phase

At the same time, part of the dried air is taken through the batcher V3, passes through the adsorber D/A removing the humidity that has been adsorbed during the previous cycle and is discharged by valves 3A/1 and 3A.

Pressurization phase

Having concluded the regenerative phase, valves 3A/1 and 3A close and the adsorber D/A then repressurises.

Inversion phase

In the following phase the valve 2A inverts, the valve 2B closes and the air to be dried starts to flow on to the regenerated adsorber D/A.

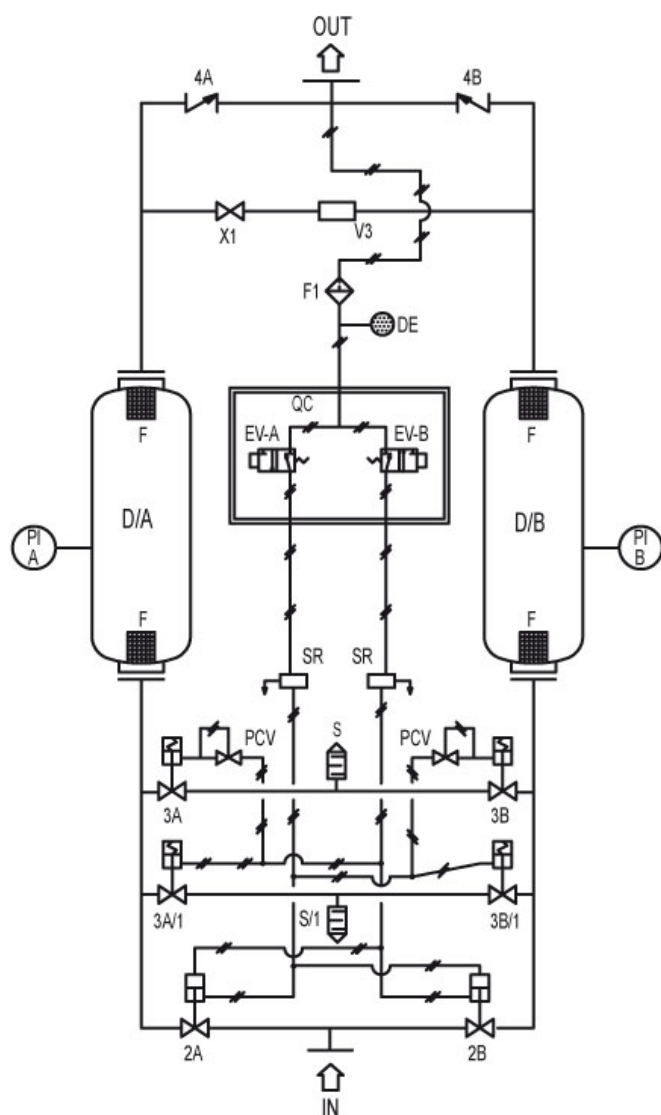
Decompression phase

Valves 3B/1 and 3B open in sequence, depressurising the adsorber D/B which starts the regenerative phase.

Solenoids sequence

Solenoid phases	EV-A	EV-B
Tower operation D/B	D	E
Tower regeneration D/A	D	E
Pressurization	D	D
Inversion	E	D
Tower operation D/A	E	D
Tower regeneration D/B	E	D
Pressurization	D	D
Inversion	D	E

Legend: E Solenoid on
 D Solenoid off

SERIES ADM 200 – 250
Flow diagram


POS item	DESCRIZIONE description	NOTE note
D/A D/B	SERBATOI ADSORBITORI adsorber vessels	
F	FILTRI INTERNI INOX internal filters	
2A 2B	VALVOLE PNEUMATICHE INGRESSO inlet pneumatic valves	
4A 4B	VALVOLE DI RITEGNO USCITA outlet check valves	
3A/1 3B/1	VALVOLE DI PREDECOMPRESSIONE pre-decompression valves	
3A-3B	VALVOLE DI DECOMPRESSIONE decompression valves	
6/A-6/B	VALVOLE DI SICUREZZA safety valves	
V3	DISPOSITIVO PURGA purging device	
PCV	RIDUTTORI DI PRESSIONE pressure reducing	
F1	FILTRO ARIA COMANDO command air filter	
S-S1	SILENZIATORI DI SCARICO discharge silencers	
DE	DISPOSITIVO EFFICIENZA efficiency indicator	
QC	QUADRO COMANDO command panel	
EV-A/EV-B	ELETTROVALVOLA PILOTA pilot electrovalves	
PI/A-PI/B	MANOMETRO manometers	
SR	SCARICATORI RAPIDI dischargers	

We suggest periodically checking the functioning of the drier to identify any anomalies. More specifically, check the correct sequence of phases using the appropriate gauges located on the columns.



ATTENTION: Before carrying out any maintenance operations, reduce the pressure and switch off the electricity supply.

**Every week**

Check the correct sequence of the various phases

Check that the nominal operating conditions (pressure - temperature) are respected

Bleed the accumulation chamber (if present), the various condensate dischargers, the pre-filter and post-filter

**Every three months**

Check the maintenance status of the filters

Oil remover pre-filter: cartridge condition and presence of any impurities

Antidust post-filter: cartridge condition (check for traces of oil)

Drier:

Check the discharge silencer (must be free of impurities and not exhibit any traces of oil)

Check the efficiency indicator (if provided). It must always be blue in colour

**Every six months**

Replace the filtration cartridges (especially oil remover filter cartridge)



ATTENTION: any replacement of the adsorption material must be carried out by qualified personnel.

Spare parts

When requesting spare parts always specify the type of machine, code, serial number and year of manufacture.

We recommend always keeping a small store of spare parts.

Components can be identified in Section 5 (flow diagram) in the present manual.

	PROBLEM	CAUSE	SOLUTION
1.	Humid air in output	Air delivery too high.	Check recommended operating conditions.
		Low pressure of input air.	Check recommended operating conditions.
		High input air temperature.	Check recommended operating conditions.
		Drying load saturated with humidity or oil.	Contact the supplier. The cause could be due to the separation system and system pre-filtration. Do not start up the system before carrying out maintenance
		No inversion phase.	Check function phases.
		Little purge air	Check the purge orifice.
		Pressure on tower in regeneration (P.max. : 0.5 bar).	Check (replace or clean) the discharge silencer (S). Check the internal filters (F), replace or clean.
2.	Not functioning	No voltage.	Check the voltage on the line, fuses, general switch.
		Electric board not functioning.	Check for presence of signals to solenoid valves. Replace them if necessary.
		No phases progression.	Check functioning of relative solenoid valves (see sequences sheet).
3.	No bleeding	Purge orifice clogged.	Clean or replace orifice.
		Silencer clogged (S).	Clean or replace the discharge silencer (S).
		Electronic card not functioning.	Check functioning of the relative solenoid valve.
4.	Pressure in the tower in regeneration phase (max. 0.5 bar)	Depressurization valve not completely open.	Check valve and relative pilot solenoid valve.
		Discharge silencer clogged.	Replace silencers (S).
5.	Fall of pressure on the drier	Air delivery too high.	Check recommended operating conditions.
		Low pressure of input air.	Check recommended operating conditions.
		Internal filters clogged (F).	Carry out disassembly and maintenance (inform the supplier).
		Deterioration of the drying load.	Replace (inform the supplier).

Technical Specifications

Model	Delivery m ³ /min	Pipe connections	Max operating pressure	Dimensions			Mass Kg
				A	B	C	
ADM 08	0,08	½"	10	240	230	480	10
ADM 1	0,17	½"	10	240	230	680	15
ADM 3	0,33	½"	10	240	230	1180	20
ADM 5	0,5	½"	10	240	230	1180	25
ADM 6	0,67	½"	10	240	230	1480	30
ADM 10	1	½"	10	450	240	1200	60
ADM 16	1,67	½"	10	450	270	1250	110
ADM 23	2,33	1"	10	450	270	1590	180
ADM 30	3	1"	10	470	270	1690	220
ADM 43	4,33	1"	10	800	450	2000	280
ADM 58	5,8	1 ½"	10	880	440	2170	300
ADM 75	7,5	1 ½"	10	880	440	2470	350
ADM 100	10	2"	10	1000	530	2330	450
ADM 133	13,3	2"	10	1000	530	2730	650
ADM 200	20	2 ½"	10	1400	630	2550	760
ADM 250	25	2 ½"	10	1400	630	2750	1050

The performances refer to 1 bar (a), and the following operating conditions: operating pressure 7 bar (r), compressed air input temperature 35°C, dew point under pressure -40°C,

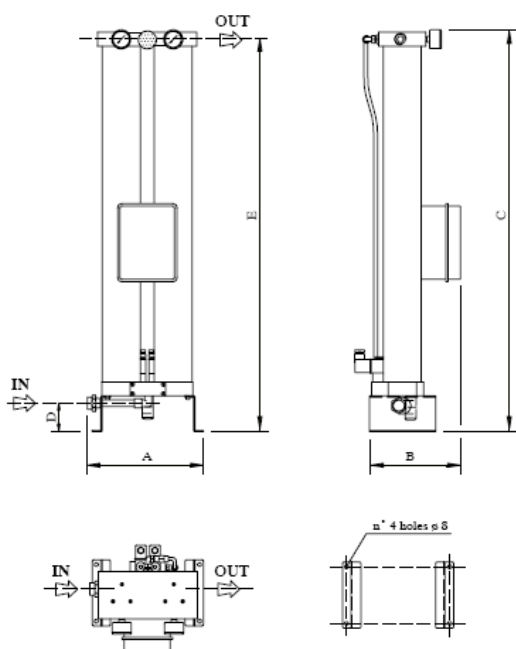
Correction factors with variation in operating pressure

Operating pressure	bar	4	5	6	7	8	9	10
Factor		0.6	0.74	0.86	1	1.1	1.2	1.3

Correction factors with variation in air input temperature

Air temperature	°C	20	25	30	35	40	45	50
Factor		1.15	1.1	1.05	1	0.9	0.7	0.6

ADM 08 – 6



ADM 10 – 250

