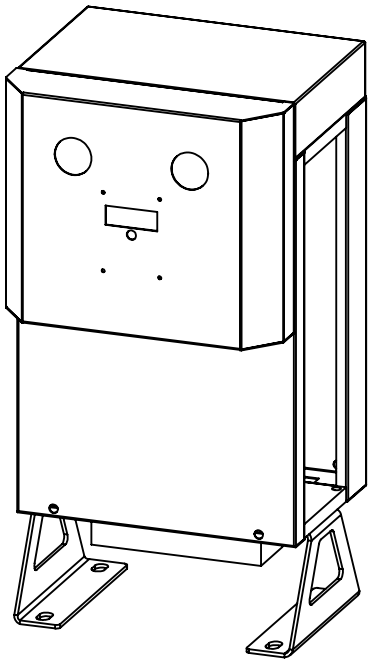
MaxAir



DESICCANT TYPE PRESSURE AIR DRYER
OPERATIG MANUAL

Contents

1.1 TRANSPORTATION

Air dryers should be transported by a forklift. The equipment should be lifted at the market points and should not be turned upside down.

1.2 LAY-OUT

- The air dryer should be definitely placed on a flat floor horizontally.
- The air dryer should not be subject directly to rain, sunlight and external atmospheric conditions.
- You should allow minimum clearance of 50cm around the air dryer for service and ventilation.

1.3 INSTALLATION

- The air dryer should be installed by well-trained and authorized personnel only.
- The installation should comply with the working pressure indicated on the nameplate of the air dryer.
- The power supply line indicated on the nameplate of the air dryer should be provided.
- The safety components, protection covers and materials on the equipment should never be removed or replaced.
- The power connection of the air dryer should not be used together with the switchboard of any other equipment in common.
- Necessary safety valve should always be connected to each pressure tank and accessories installed for the air dryer.
- A proper air installation and line filters should be used and by-pass line should be installed to close the air during maintenance-repair.

1.4 MAINTENANCE

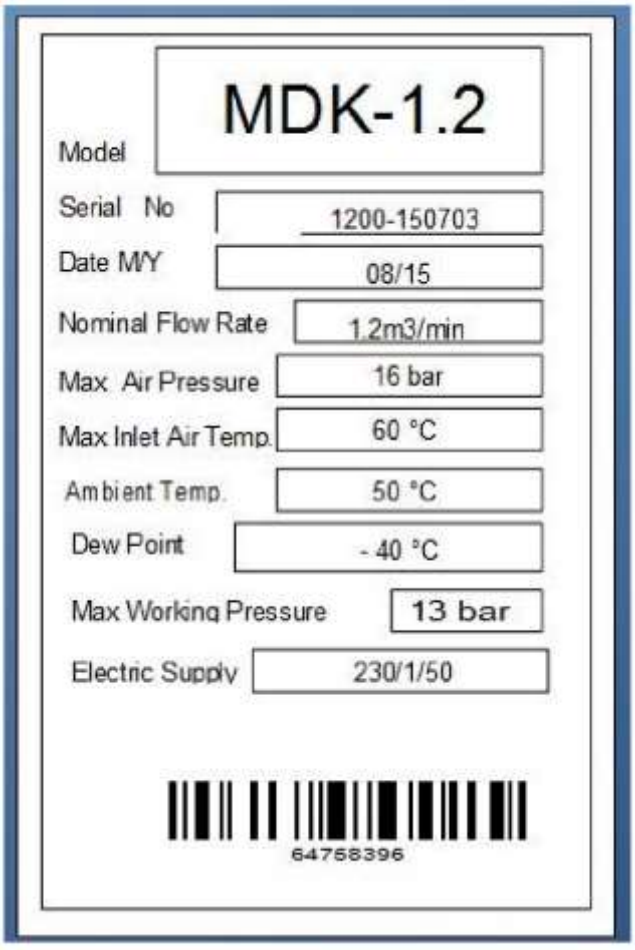
- The air dryer should be switched off, power cut off and compressed air in the system discharged prior to maintenance.
- Internal filter elements of the air inlet and outlet line should be replaced regularly.

2 GENERAL INFORMATION

2.1 Producer Details

Maksimum Makine Soğutma Sanayi ve Dış Tic. Ltd. Şti.
İkitelli O.S.B. Aykosan San. Sit. No.:22 Başakşehir/İstanbul
Telephone: +90 212 809 19 19 Fax: +90 212 809 19 18
E-mail: www.maxdryer.com info@maxdryer.com

2.2 Nameplate of the air dryer



2.3 Operating Principle of the Air Dryer

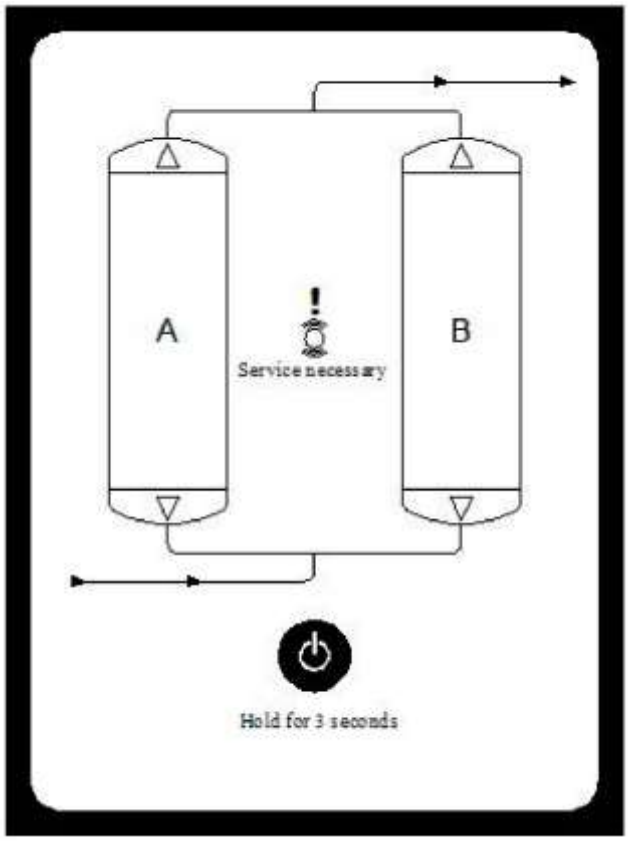
* **Adsorption Air Dryers** of different drying technology designed for more precise and critical applications; they are also known as silica gel dryer, chemical dryer or desiccant. Such type of air dyers adsorb and remove the moisture in the air by cohesion. Adsorption air dryers can provide dew temperature between **-20°C** and **-70°C**.

Such types of dryers have adsorption material filled in two reservoirs independent of each other. While the compressed air passes through one of these reservoirs, the water vapour in it is retained by the adsorbent. As the adsorption material in this reservoir becomes saturated after a while, the saturated reservoir enters the regeneration process when the other reservoir starts the drying process and the system operates continuously in tandem. In principle, some loss of air occurs during the regeneration process. However, depending on the technology used, such loss can be reduced and down to zero.

Quality air characteristics with the max-air desiccants are required for

- Chemical and pharmaceutical industry,
- Petrochemical plants,
- Food and beverage industry,
- Carriage of hygroscopic materials,
- Textile production,
- Ozone generators air supply,
- Medical respiration air,
- Food industry,
- Quality painting applications, and
- All applications which require low dew point.

3.1 FRONT PANEL



3.2 SWITCH ON/OFF

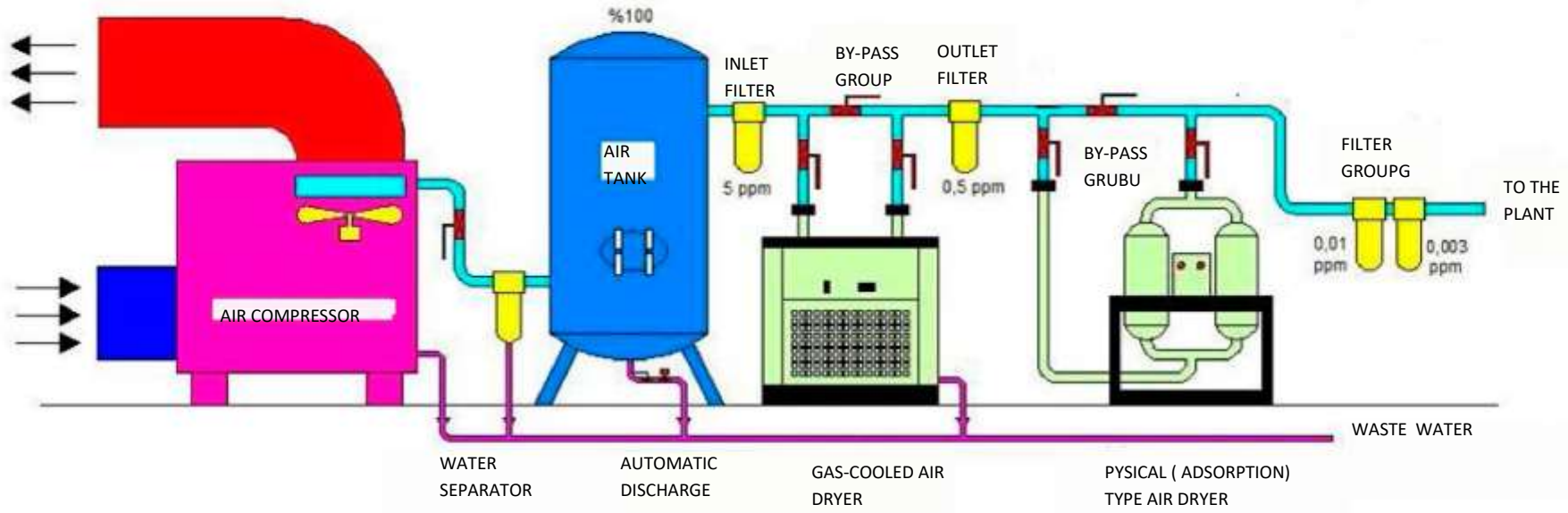
* Press and hold pressed the on-off button  for 3 seconds to operate the equipment. And hold it pressed the button  for 3 seconds to switch it off.

3.3 CHARACTERISTICS OF AIR DRYER

Microprocessor controlled electronic card is used on Max series air dryers. The electronic card has timer on it and when it is time to maintain it, the service necessary LED gives audio and light warning to warn the user.

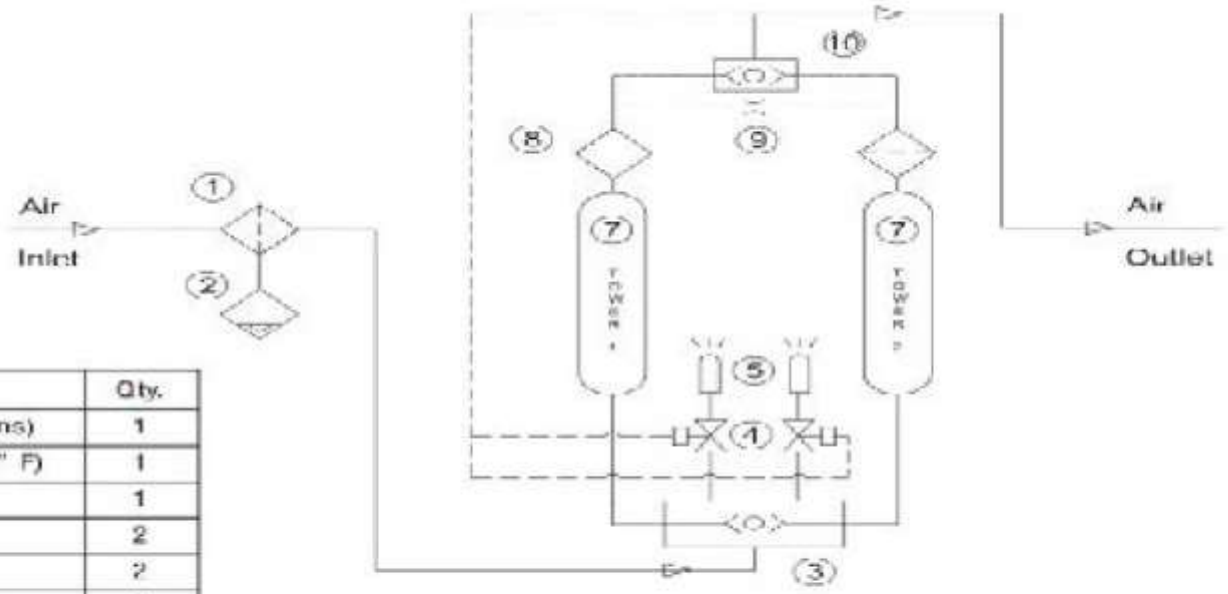
The operating and discharge status of the towers can be monitored via LEDs on the front panel.

LAYOUT DIAGRAM



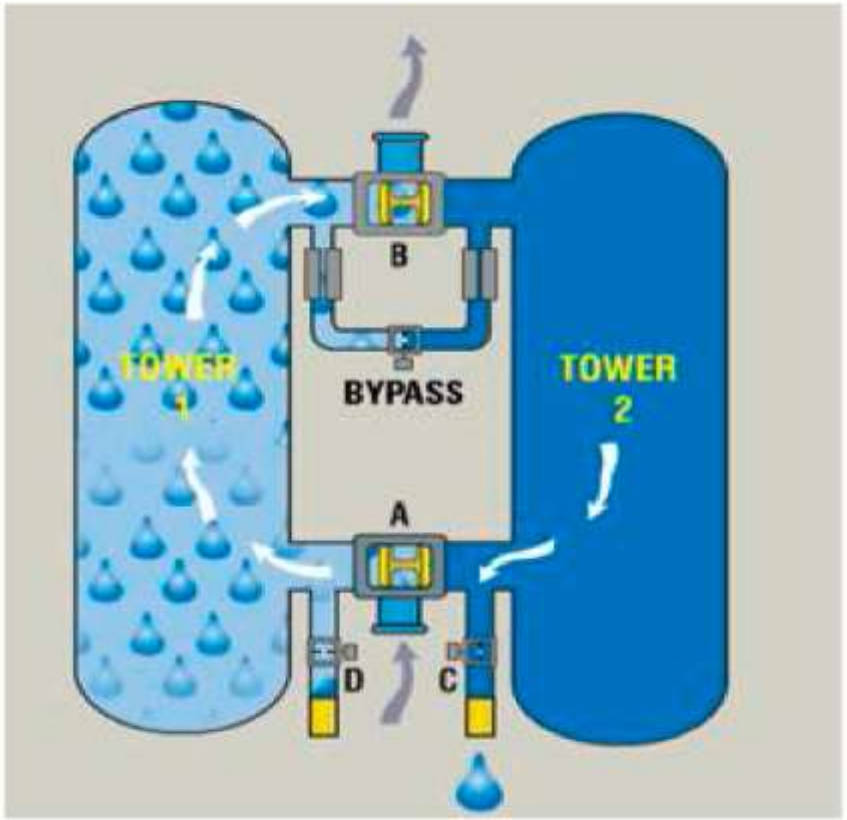
4. TECHNICAL CHARACTERISTICS AND DIAGRAMS

***Pneumatic Flow Diagram**

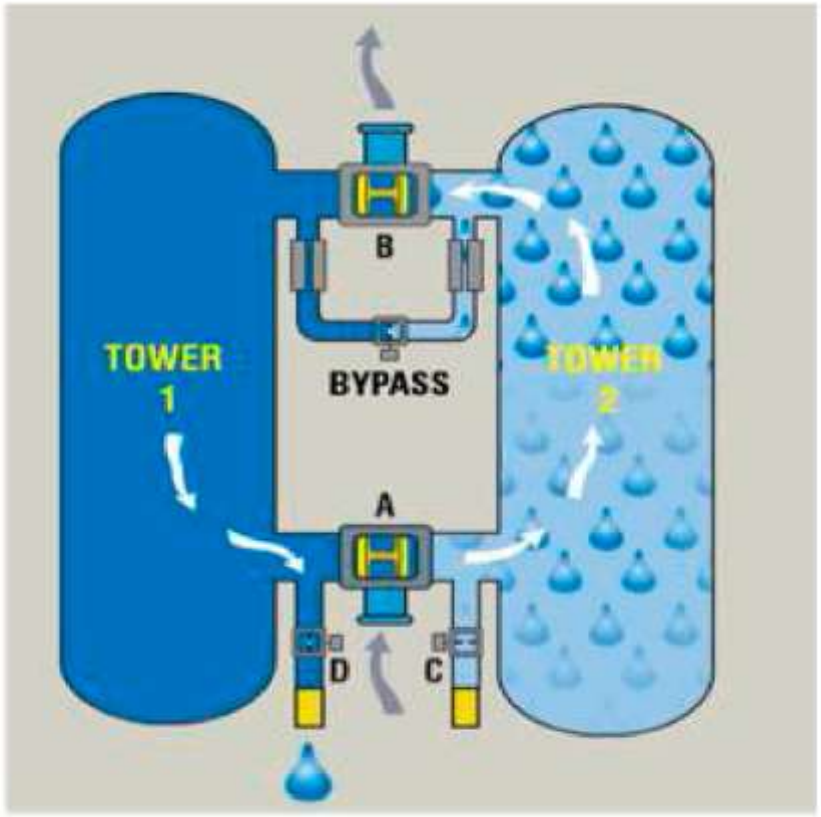


Rep.	Part Name	Qty.
1	Pre-filter (0.3-0.5 microns)	1
2	Pre-filter drain valve (¼" F)	1
3	Inlet shuttle valve	1
4	Solenoid valve	2
5	Exhaust silencer	2
6	Regulation (not shown)	1
7	Desiccant tower	2
8	After filter (In built)	2
9	Regeneration nozzle	1
10	Outlet shuttle valve	1

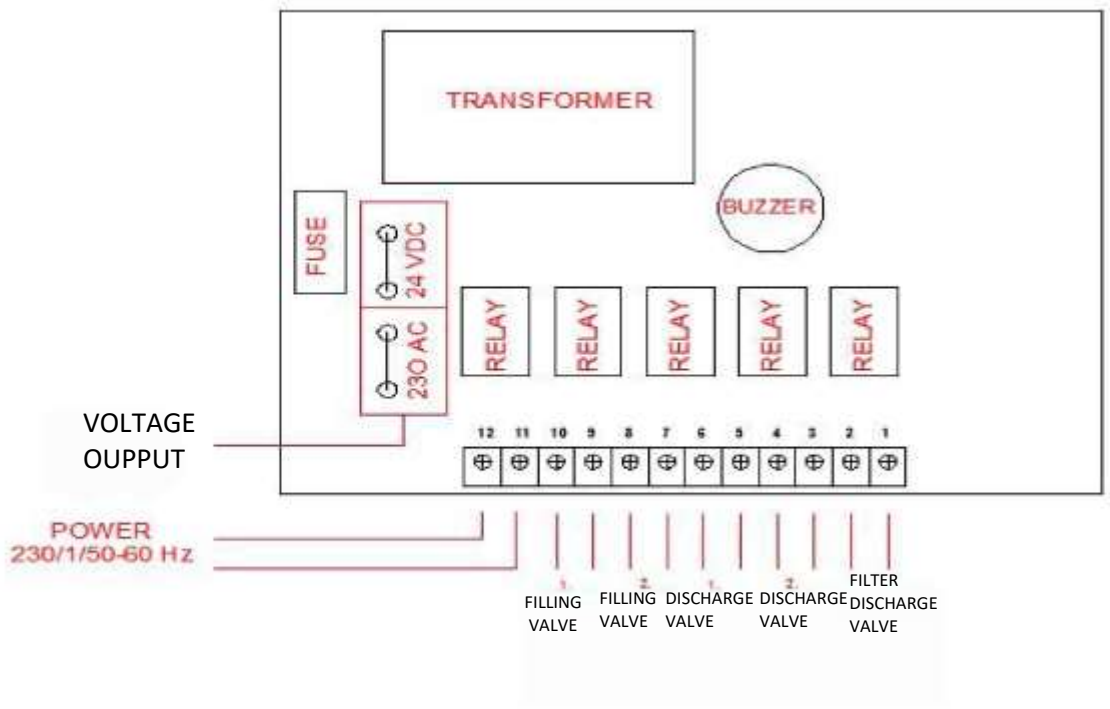
1ST CASE



2ND CASE



*Wiring Diagram



*ON THE CARD, JUMPERS AND RELAY OUTPUT VOLTAGE CAN BE SET AS 24 VDC OR 220 AC.

MODEL	INLET FLOW RATE (lt/min)	INLET-OUTLET CONNECTION SIZE	MAXIMUM WORKING PRESSURE (bar)	PRESSURE DROP (mbar)	DIMENSION (mm) WIDHT	LENGHT	HEIGHT	TOTAL WEIGH (kg)	ACTIVE ALUMINA (kg)	VOLTAGE
MDK-900	900	1/2"	10	130	770	450	500	76	16	230/1/50-60/Hz
MDK-1200	1200		10	130	770	450	550	80	20	230/1/50-60/Hz
MDK-1800	1800	3/4"	10	130	770	450	600	86	26	230/1/50-60/Hz
MDK-2200	2200		10	130	880	770	800	90	30	230/1/50-60/Hz
MDK-2600	2600	1"	10	130	880	770	950	115	40	230/1/50-60/Hz
MDK-3100	3100		10	130	880	770	1100	122	46	230/1/50-60/Hz
MDK-3700	3700		10	130	900	770	1250	130	55	230/1/50-60/Hz
MDK-4500	4500		10	130	900	1055	1300	200	95	230/1/50-60/Hz
MDK-5500	5500		10	130	900	1055	1400	215	105	230/1/50-60/Hz
MDK-6500	6500	1-1/2"	10	130	900	1055	1430	310	120	230/1/50-60/Hz
MDK-8500	8500		10	130	1250	1310	1480	380	165	230/1/50-60/Hz
MDK-11.000	11.000	2'	10	130	1250	1310	1550	425	215	230/1/50-60/Hz
MDK-13.000	13.000		10	130	1350	1310	1700	530	290	230/1/50-60/Hz
MDK-17.000	17.000		10	130	1400	1310	1850	710	400	230/1/50-60/Hz
MDK-20.000	20.000	3"	10	130	1400	1420	2010	950	505	230/1/50-60/Hz
MDK-25.000	25.000		10	130	1580	1420	2160	1100	610	230/1/50-60/Hz
MDK-30.000	30.000		10	130	1580	1550	2260	1350	680	230/1/50-60/Hz
MDK-35.000	35.000		10	130	1580	1550	2355	1450	715	230/1/50-60/Hz
MDK-40.000	40.000		10	130	1580	1550	2450	1700	830	230/1/50-60/Hz
MDK-45.000	45.000	DN-100	10	130	1580	1700	2580	2100	1100	230/1/50-60/Hz
MDK-50.000	50.000		10	130	1580	1700	2650	2350	1300	230/1/50-60/Hz

Correction Coefficient

Pressure Factor F1	4.5	5	6	7	8	9	10
	0.69	0.75	0.88	1	11.2	1.25	1.37
Air Inlet Temperature(°C)	20	25	30	35	40	45	50
Air Inlet Factor F2	1	1	1	1	0.80	0.73	0.59

Pressure Drop	-40°C / -70°C (optional)
Normal inlet temperature	35 °C
Normal working pressure	7 bar
Maximum inlet temperature	50 °C
Maximum working pressure	10 bar
Maximum ambient temperature	50 °C

PRODUCT SELECTION:
If a compressor operates at pressure of 9 bar, 850 Nm^3/hour and inlet temperature of 45°C, the dryer is selected as follows:
850/1.25/0.73 = 931 Nm^3/hour

***PERIODICAL MAINTENANCE SCHEDULE FOR MDK PRESSURE AIR DRYERS WITHOUT HEATING**

***PERIODICAL MAINTENANCE SCHEDULE FOR MDK NON-HEATING PRESSURE AIR DRYERS**							
Operation	**Daily**	**Weekly**	**Monthly**	**Each 4 Months**	**Each 8 Months**	**Each 12 Months**	**Each 24 Months**
Check of On-Off button							
Check of control panel							
Check of liquid discharge							
Check of air leakage							
Check of wiring							
Check of pressure indicators							
KIT-A (Obligatory periodical maintenance)							
KIT-B (Obligatory periodical maintenance)							
KIT-C (Obligatory periodical maintenance)							

***DESCRIPTION OF MDK PRESSURE AIR DRYERS WITHOUT HEATING**

CONTENTS OF KIT-A	**QUANTITY**
MFI-03 Compressed air inlet line filter internal element	1
MFI-01 Compressed air inlet line filter internal element	1

CONTENTS OF KIT-B	**QUANTITY**
MFI-03 Compressed air inlet line filter internal element	1
MFI-01 Compressed air inlet line filter internal element	1
O-Ring and gaskets	8
Silencer	2
Compressed air regulator	1
Dew-Point sensor calibration (if any)	1

CONTENTS OF KIT-C	**QUANTITY**
MFI-03 Compressed air inlet line filter internal element	1
MFI-01 Compressed air inlet line filter internal element	1
Silencer	2

FAULT	POSSIBLE CAUSE	REMEDY
Equipment does not operate	1-No power supply to the equipment. 2-Fuse at the control panel blown. 3-On-off switch is broken	1-Check whether power is supplied to the equipment. 2-Check the fuse at the control panel. If it is blown, resume the fuse. 3-Check the on-off switch. Replace it if broken. 4-Contact with our Service Centre if the failure persists.
It does not perform discharge	1-No signal is received at the discharge valve from the control panel. 2-Discharge valve fails or is clogged.	1-If the discharge light at the control panel is on, it should perform discharge. Otherwise, it means the intermediary connection cables/equipment is broken. Contact with our Service Centre. 3-If there is magnetization at the coil of the discharge valve, it means signal is received, but the discharge valve is clogged. Contact with our Service Centre.
Continuous and Compressed Discharge Air	1-CHECKVALVE FAILED.	1-Open the unions to which the check valve is connected; after the check valve is removed, supply compressed air in opposite of the “arrow” on it. If air passes, it is broken. Replace the check valve.

FAULT	POSSIBLE CAUSE	REMEDY
Dew point reduces (if there is dew point meter)	1-Adsorbant came into contact with the oil vapour or was subject to water directly. It should be replaced. 2-Euipment does not perform sufficient regeneration.	1-Check the internal filter elements. If there is excessive lubrication, contact with our Service Centre for replacement of the internal element and adsorbent. 2-B Discharge valve clogged or broken. If there is magnetization on the discharge valve, it means the signal is received, but the discharge valve is clogged. Contact with our service.
No air is supplied to the system	1-Air inlet solenoid or valve on the equipment is broken or clogged.	1-Check whether the air inlet solenoid or valve of the equipment receives signal or not. If the solenoid coil is magnetized, it means signal is received, but the valve is clogged. Contact with our Service Centre.
Pressure Drop in the System Air	1-Standby time is shorter than required.	Filter internal elements may be clogged. Replace. Contact with our Service Centre.
Service Light Flushes	It is time to replace the filter internal elements.	Contact with our Service Centre.

10. CERTIFICATE OF WARRANTY AND WARRANTY TERMS

- If the air dryer is used at under the conditions recommended by the manufacturing firm, Maksimum, it is under warranty against production and labour defects for 24 months. The warranty term starts to count from the date of invoice received by the customer.
- Repair term of the air dryer is maximum 30 days. This term starts with its submission to the service centre, dealer and producer.
- In order that the warranty remains valid, you should comply with the installation, usage, maintenance and environmental conditions specified in the operating manual. Defects caused by the improper use are excluded from the warranty.
- Faults that may arise from the wiring are excluded from the warranty.
- Faults caused by natural disasters, transportation and damage are excluded from the warranty.
- Only the authorized service centres and technicians of Maksimum Makine may intervene with the faults under the warranty. In case of interventions and replacements by any unauthorized persons, the equipment is excluded from the warranty.
- Failure of the discharge system of the air dryer is excluded from the warranty if the periodical maintenance of the equipment were not performed.
- If the air dryer fails, the customer is liable to submit the equipment to the regional service centre or, in absence of it, to the plant.
- Manufacturer warranty is restricted with removal of the failure and parts replacement. Other costs arising from the fault are excluded from the warranty.
- The warranty may not be assigned to any third persons.