MaxAir

OPERATING MANUAL FOR REFRIGERANT COMPRESSED AIR DRYER MAX-900/160.000

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1.1 TRANSPORTATION

Air dryers should be transported by an appropriate forklifet. The equipment should be lifted at the market points and should not be turned down.

1.2 PLACEMENT

- Air dryer should be definitely placed on a flat surface horizontally.
- Air dryer should not be directly exposed to rain, sunlight and outdoor conditions.
- A clearance of minimum 50cm should be left around the air dryer to allow access for service and ventilation.
- Hot air discharged from the air compressor should not reach the dryer. The ambient air temperature should be in the range of +4oC and +45oC and air circulation should be assured.

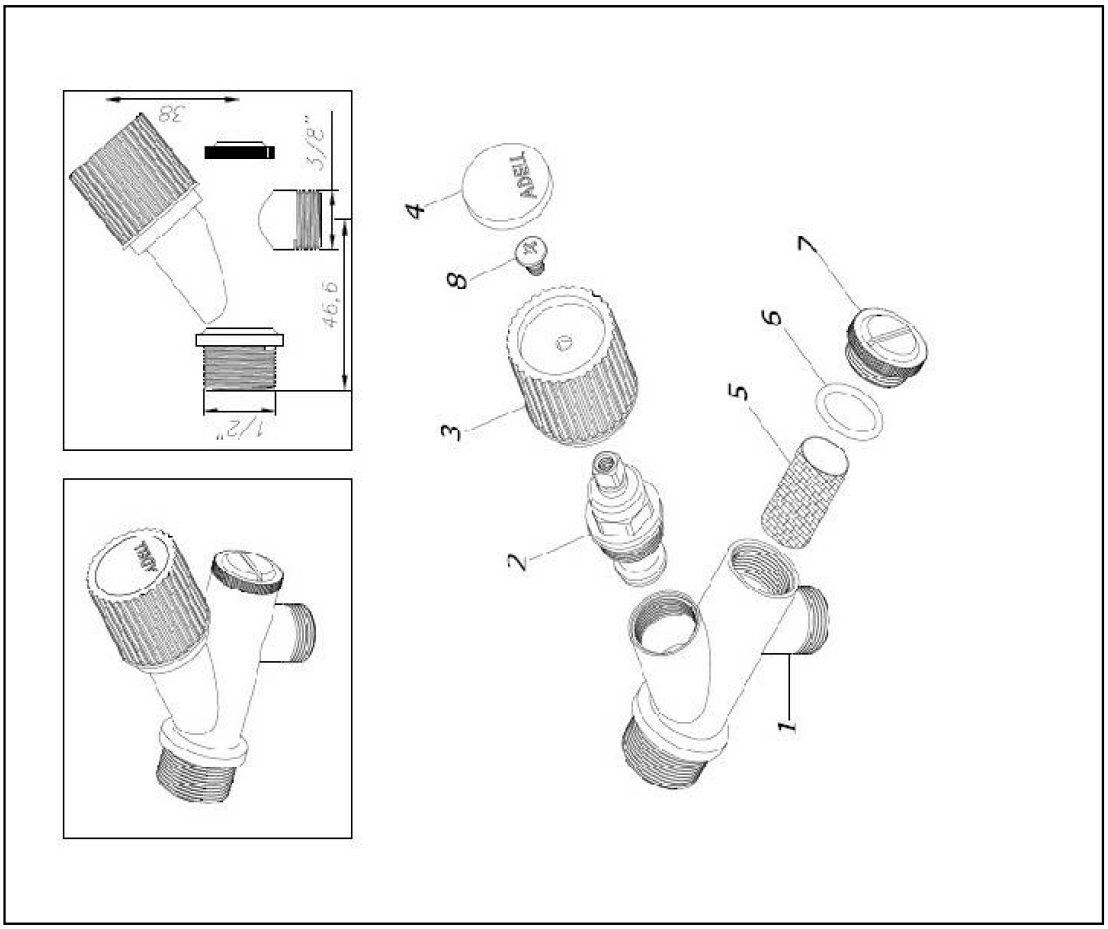
- Chemicals that may be harmful for copper and aluminium (e.g. ammonia gas, etc.) should be sept and stored in the environment. The air dryer should not be subject to rainwater and direct sunlight.

1.3 INSTALLATION

- Air dryer should be installed only by a trained and authorized personnel.
- Installation should comply with the operating pressure indicated on the nameplate of the air dryer.
- Air dryer should be supplied by voltage indicated on its nameplate.
- Safety elements and protection covers and materials on the equipment should never be removed or modified.
- Power connection f the air dryer should not be used in common with the board of another equipment.
- Necessary safety valve should be connected to each pressure tank and accessories of the air dryer.
- An appropriate air installation and line filters should be used and by-pass line should be installed for cutting off the air during maintenance-repair operations.

1.4 MAINTENANCE

- Air dryer should be switched off, power should be cut off and compressed air in the system should be released prior to maintenance.
- Condenser should be regularly cleaned with compressed air.
- The filter in the drain valve should be regularly cleaned with clean water and air.
- The interior elements of the filter at the air inlet and outlet lines should be replaced regularly.



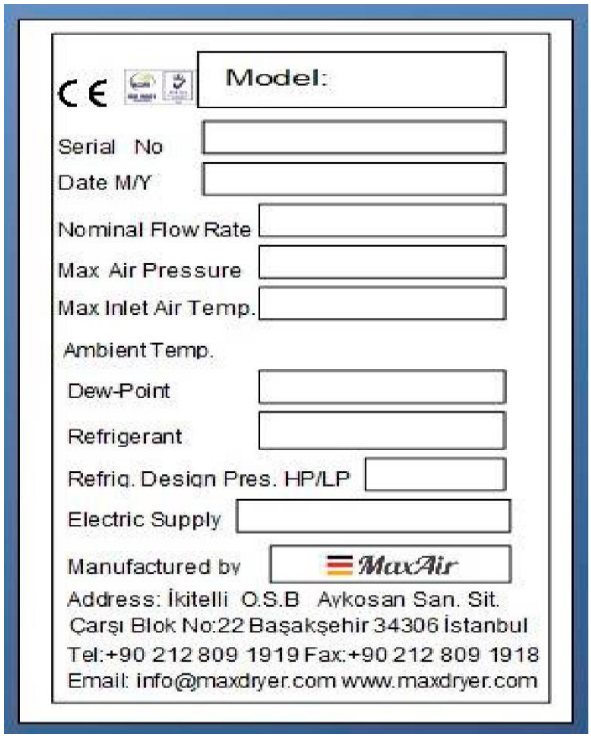
- Filter no. 5 should be cleaned with compressed air and water regularly. Otherwise, the drain solenoid valve may cause failure.

2 GENERAL INFORMATION

2.1 Manufacturer Information

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

2.2 Nameplate of the air dryer



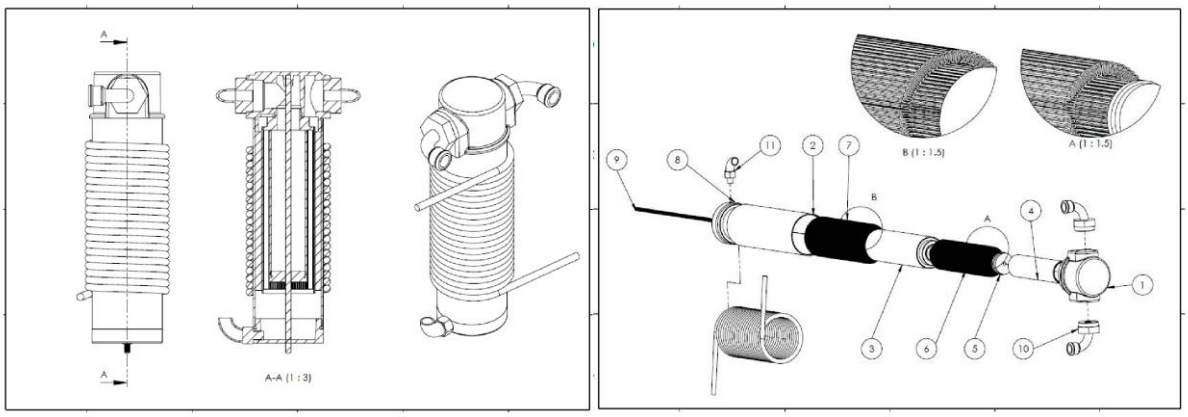
2.3 Operating Principle of the Air Dryer

a) When the dryer is switched on, it delivers the coolant to the system under high pressure and temperature and the compressor operates continuously without fail.
b) The hot coolant is cooled down by fan in the condenser to make it liquid. And fan operation is controlled by the pressure switch or heat sensor mounted at the condenser outlet.
c) The liquefied gas is stored in the liquid tank. And the coolant stored in liquid Is sprayed from the liquid tank to the heat exchanger by means of expansion valve or capillary piping. This expansion valve and capillary piping are protected by the particle-retaining filter coupled with the dryer filter and body.
d) The coolant thus sprayed takes over the heat of the air passing through the heat exchanger to cool it. While the compressed air is cooled down, the coolant in liquid form is converted back to the gas phase and suctioned by the compressor. This closed circuit gas cycle continues constantly.
e) In order to keep constant the pressure and temperature of the coolant in the heat exchanger, hot gas is delivered from the hot gas delivery line of the compressor to the hot gas return by means of a by-pass valve. And in case of some dryers, the pressure of the heat exchanger is controlled by the expansion valves (regulator).

- **COMPRESSED AIR CIRCUIT**

When the compressed air passes through the initial cooling circuit in the heat exchanger, it is mixed with the compressed air cooled down to $+3^{o}C$ to perform initial cooling process. After passed the initial cooling circuit, the air is cooled down to the intended temperature of 3oC at the section where gas-air comparison is made. The compressed air cooled down Is discharged at the water separator by the time-regulated drain valve.

Figure. Heat exchanger of he air dryer



3.1 FRONT PANEL

UP BUTTON and DRAIN TEST

DOWN BUTTON

ON-OFF BUTTON (press and hold 3 second)

3.2 ON/OFF

- Press on-off button ( ) and hold for 3 seconds to switch on the equipment. When the button is held pressed, it counts 1---2---3 seconds on the display and the statement (open) ( ) appears on the display. To switch off the equipment, hold o-off button for 3 seconds again. When the equipment is switched off, the statement (OFF) appears on the display and the equipment is closed. When the equipment is closed, this statement appears on the display.
- When you press the button (Drain Test) on the front panel, the equipment drains manually.
- To have access to the set values of the equipment, press the buttons ( ) together for 3 seconds. In this menu:
  TH: Setting the drain time. It drains each minute by the times set by means of the up-down arrows (in seconds).
  SR: The safety temperature value measured by the heat protection sensor is set. This setting is made during the production stage at the plant!! (Temperature should be set according to the type of the gas charged.)
  SET: Operating set value of the equipment is adjusted. It may be set between 3oC and 10oC. The default setting is set 3^{o}C at the plant.
  PRG: is selected in case of all versions.

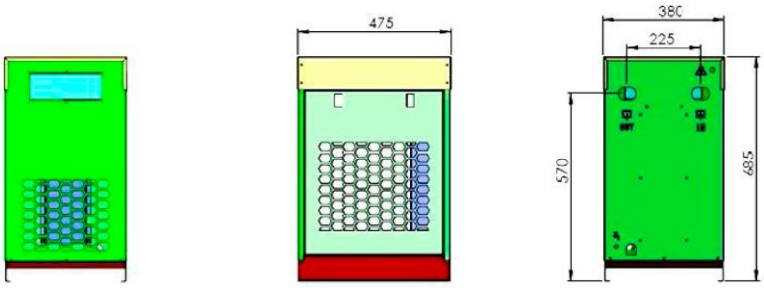
3.3 CHARACTERISTICS OF THE AIR DRYER

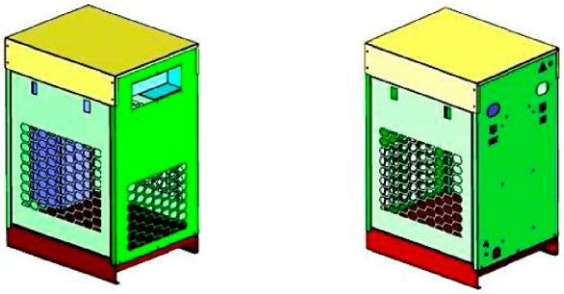
Max series air driers have microprocessor controlled electronic board. 2 heat exchanger on this board performs measurement continuously. The 1st sensor controls the dew temperature. And the 2nd sensor controls the condenser temperature of the equipment and, in some version, the temperature of the refrigerating compressor to ensure the equipment to operate safely.

1. On the control board of the dryer, failure-warning contact output is achieved by FREE contact.
2. In case of any failure, it gives audio alarm and the fault code appears on the display.

Air dryer is equipped with the control equipment to prevent any possible failure in the occurrence of the following faults:	
• Condenser heat control sensor	(Versions between 900-3700 l/min.)
• Compressor heat control sensor	(Versions above 5500 l/min)
• Klixon high temperature switch	(All versions)
• Low pressure switch	(All versions 5500 l/min and above)
• Condenser high pressure switch	(All versions 5500 l/min and above))
• Phase failure relay	(All versions 17,000 l/min. and above)
• Compressor control switch	(All versions 25,000 l/min and above)
• Fan control switch	(All versions 25,000 l/min and above)
Air dryer warns the user against the following faults by audio-visual warning on the front panel	
• High pressure warning alarm	(All versions)
• Sensor failure alarm	(All versions)
• Cooling failure alarm	(All versions)
• Freezing warning alarm	(All versions)
• Service-maintenance time alarm	(All versions)
• Low pressure warning alarm	(all versions 5500 l/min. and above)

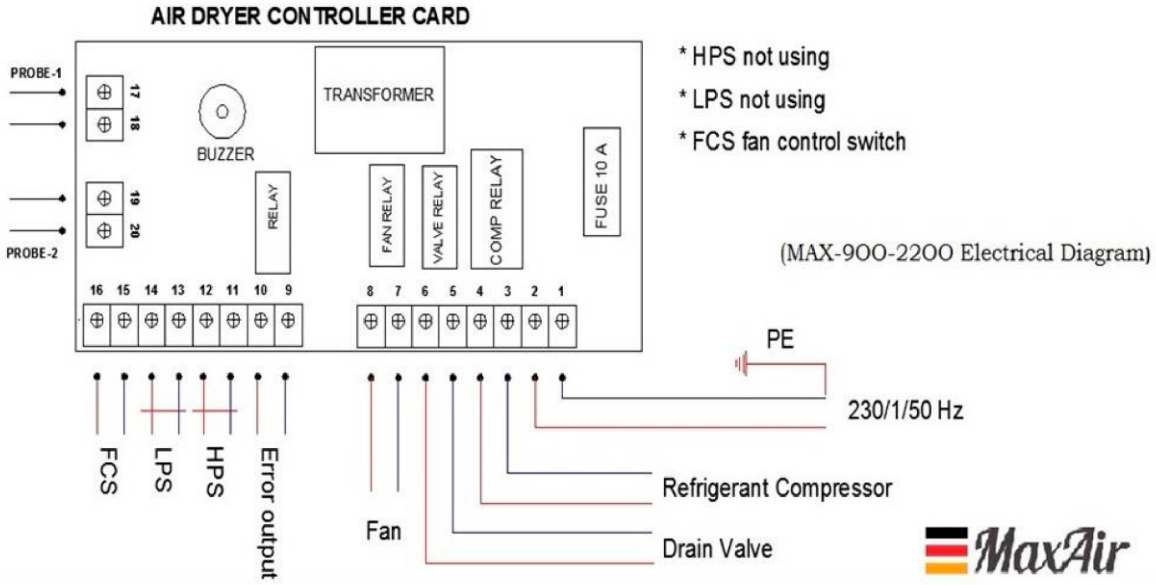
4. TECHNICAL SPECIFICATIONS AND DIAGRAMS



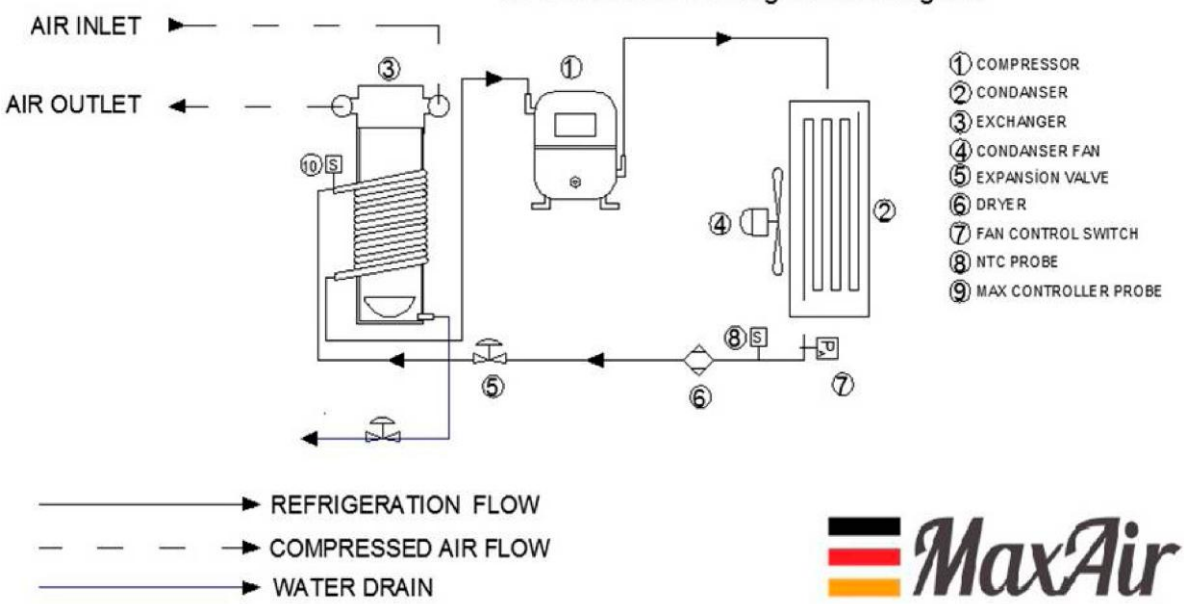


MAX-900-1200-1800-2200

MaxAir


AIR DRYER CONTROLLER CARD
PROBE-1
PROBE-2
17
18
19
20
BUZZER
RELAY
TRANSFORMER
FAN RELAY
VALVE RELAY
COMP RELAY
FUSE 10 A
16 15 14 13 12 11 10 9
8 7 6 5 4 3 2 1
FCS
LPS
HPS
Error output
Fan
PE
230/1/50 Hz
Refrigerant Compressor
Drain Valve
* HPS not using
* LPS not using
* FCS fan control switch
(MAX-900-2200 Electrical Diagram)
MaxAir

MAX-900-2200 Refrigeration Diagram



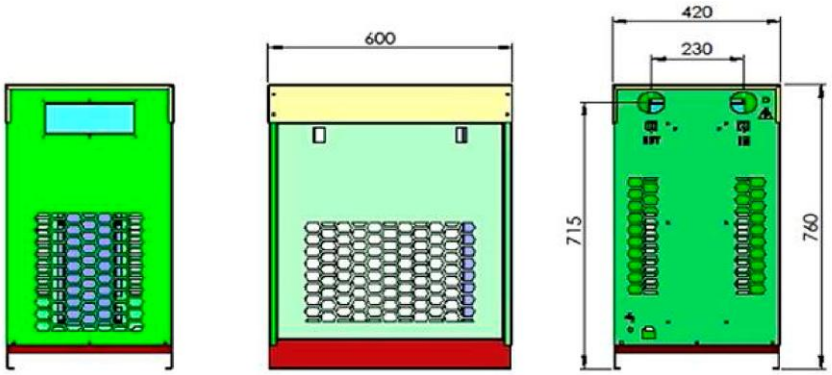
MaxAir

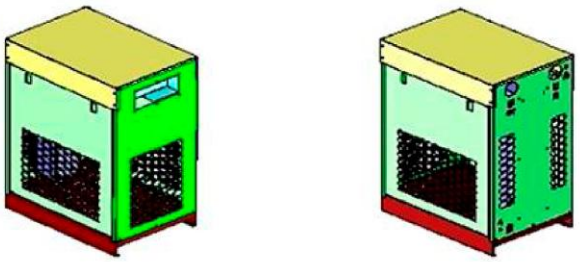
Max-900 Technical Data	
Volume flow	900 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /THB 4422 Y
Refrigerant Power Compressor (W)	293
Condenser Producer, Typ and Air Flow (m^3/h)	kontherm 1/3 hp 510
Producer of Fan Motor	elco
Fan Motor Typ	Q motor /vn 10-20
Fan Size Blade (Ø mm)	200 mm /28°
Fan Motor Power/Voltage (W/V)	53 watt/220
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	match-well 8.5-11
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.38
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.15
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.38 kw
Min. Fuse (A)	4
Protection Class (IEC)	IP 54
Connection (Inch)	1/2" female
Weight (kg)	30
Noise level (db)	< 70

Max-1200 Technical Data	
Volume flow	1200 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /THB 4422 Y
Refrigerant Power Compressor (W)	293
Condenser Producer, Typ and Air Flow (m^3/h)	kontherm 1/3 hp 510
Producer of Fan Motor	elco
Fan Motor Typ	Q motor /vn 10-20
Fan Size Blade (Ø mm)	200 mm /28°
Fan Motor Power/Voltage (W/V)	53 watt / 230/1/50Hz
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	match-well 8.5-11
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.38
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.16
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.38 kw
Min. Fuse (A)	4
Protection Class (IEC)	IP 54
Connection (Inch)	1/2'' female
Weight (kg)	30
Noise level (db)	< 70

Max-1800 Technical Data	
Volume flow	1800 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /AEZ 4425 Y
Refrigerant Power Compressor (W)	314
Condenser Producer, Typ and Air Flow (m^3/h)	kontherm 1/3 hp 650
Producer of Fan Motor	elco
Fan Motor Typ	Q motor /vn 10-20
Fan Size Blade (Ø mm)	200 mm /28°
Fan Motor Power/Voltage (W/V)	53 watt / 230/1/50Hz
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	match-well 8.5-11
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.42
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.15
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.38 kw
Min. Fuse (A)	4
Protection Class (IEC)	IP 54
Connection (Inch)	3/4'' female
Weight (kg)	32
Noise level (db)	< 70

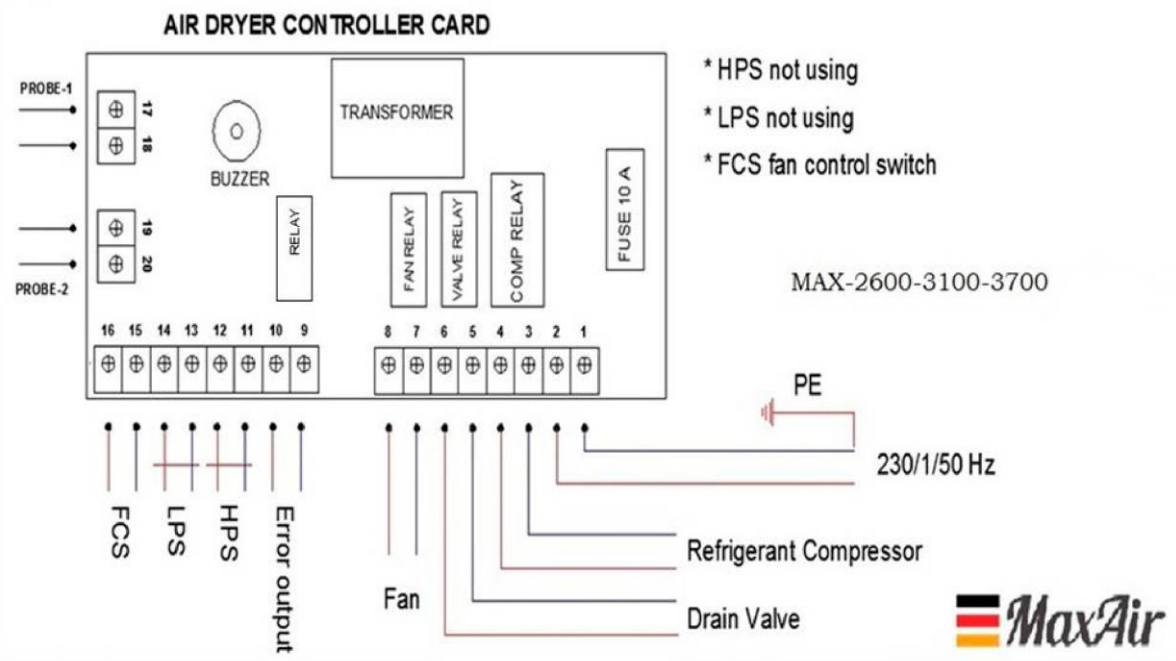
Max-2200 Technical Data	
Volume flow	2200 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /AEZ 4425 Y
Refrigerant Power Compressor (W)	314
Condenser Producer, Typ and Air Flow (m^3/h)	kontherm 1/3 hp 650
Producer of Fan Motor	elco
Fan Motor Typ	Q motor /vn 10-20
Fan Size Blade (Ø mm)	200 mm /28°
Fan Motor Power/Voltage (W/V)	53 watt / 230/1/50Hz
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	match-well 8.5-11
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.42
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.15
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.38 kw
Min. Fuse (A)	4
Protection Class (IEC)	IP 54
Connection (Inch)	3/4'' female
Weight (kg)	32
Noise level (db)	< 70



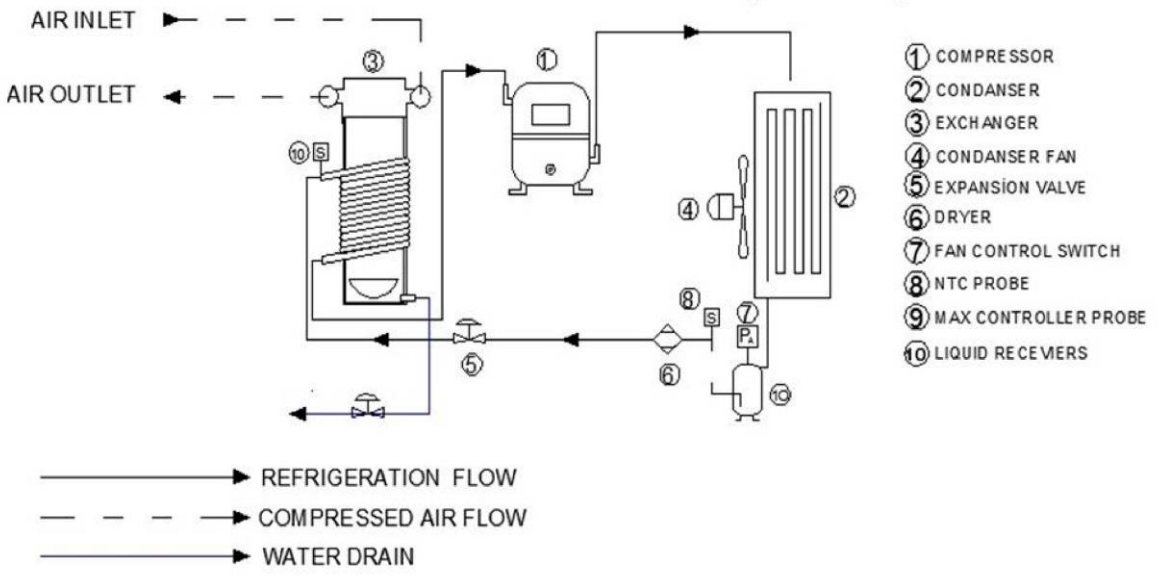


MAX-2600-3100-3700

MaxAir


AIR DRYER CONTROLLER CARD
PROBE-1
PROBE-2
17 18
19 20
BUZZER
TRANSFORMER
RELAY
FAN RELAY
VALVE RELAY
COMP RELAY
FUSE 10 A
16 15 14 13 12 11 10 9
8 7 6 5 4 3 2 1
* HPS not using
* LPS not using
* FCS fan control switch
MAX-2600-3100-3700
PE
230/1/50 Hz
Refrigerant Compressor
Drain Valve
Fan
FCS
LPS
HPS
Error output
MaxAir

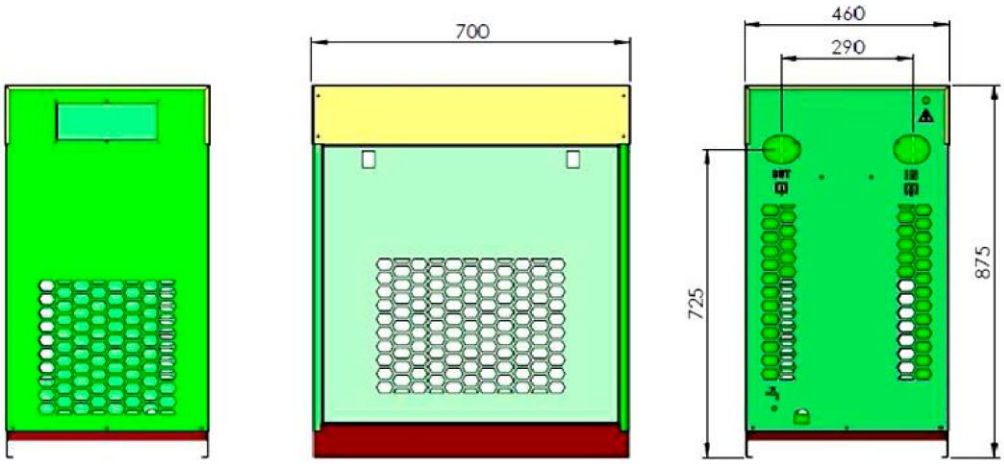
MAX-2600-3700 Refrigeration Diagram

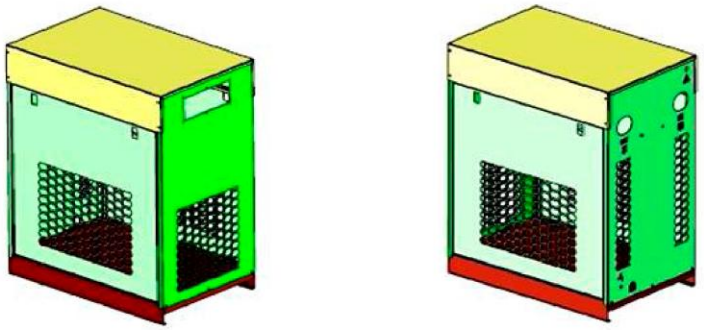


Max-2600 Technical Data	
Volume flow	2600 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /AEZ 4430Y
Refrigerant Power Compressor (W)	391
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1/3 hp 550
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	250
Fan Motor Power/Voltage (W/V)	50 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Liquid Receviers	Gökceler/Turkey/FGT-RDG-0,75LT
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.60
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.22
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.65 kw
Min. Fuse (A)	8
Protection Class (IEC)	IP 54
Connection (Inch)	1'' female
Weight (kg)	46
Noise level (db)	< 70

Max-3100 Technical Data	
Volume flow	3100 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /AEZ 4440Y
Refrigerant Power Compressor (W)	510
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1/3 hp 550
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	250
Fan Motor Power/Voltage (W/V)	50 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Liquid Receviers	Gökceler/Turkey/FGT-RDG-0,75LT
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.62
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.22
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.66 kw
Min. Fuse (A)	8
Protection Class (IEC)	IP 54
Connection (Inch)	1" female
Weight (kg)	46
Noise level (db)	< 70

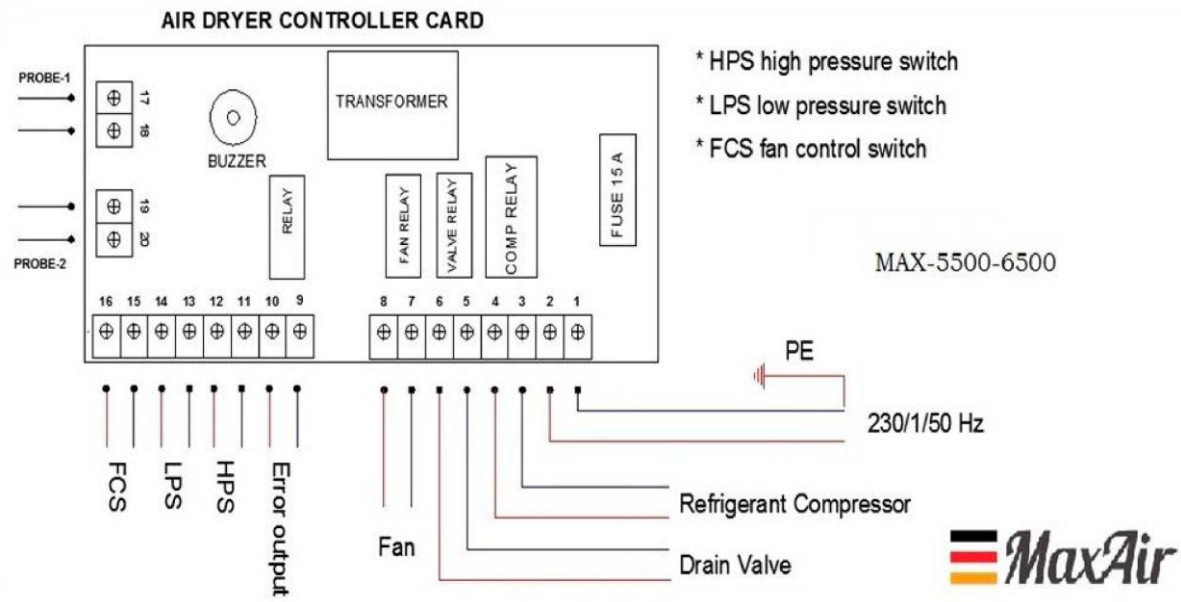
Max-3700 Technical Data	
Volume flow	3700 lt /dk
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /CAE 4456Y
Refrigerant Power Compressor (W)	712
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1/2 hp 550
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	250
Fan Motor Power/Voltage (W/V)	50 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	elektronic card's with sensor
Low Pressure Switch(Producer and Typ)	***
Liquid Receviers	Gökceler/Turkey/FGT-RDG-0,75LT
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	0.65
Components Expansion System with Producer and Typ	Automatic exp valve / Honeywell ,Germany
Hot Gas By-pass Valve	***
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	1
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.22
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	0.82 kw
Min. Fuse (A)	10
Protection Class (IEC)	IP 54
Connection (Inch)	1'' female
Weight (kg)	47
Noise level (db)	< 70



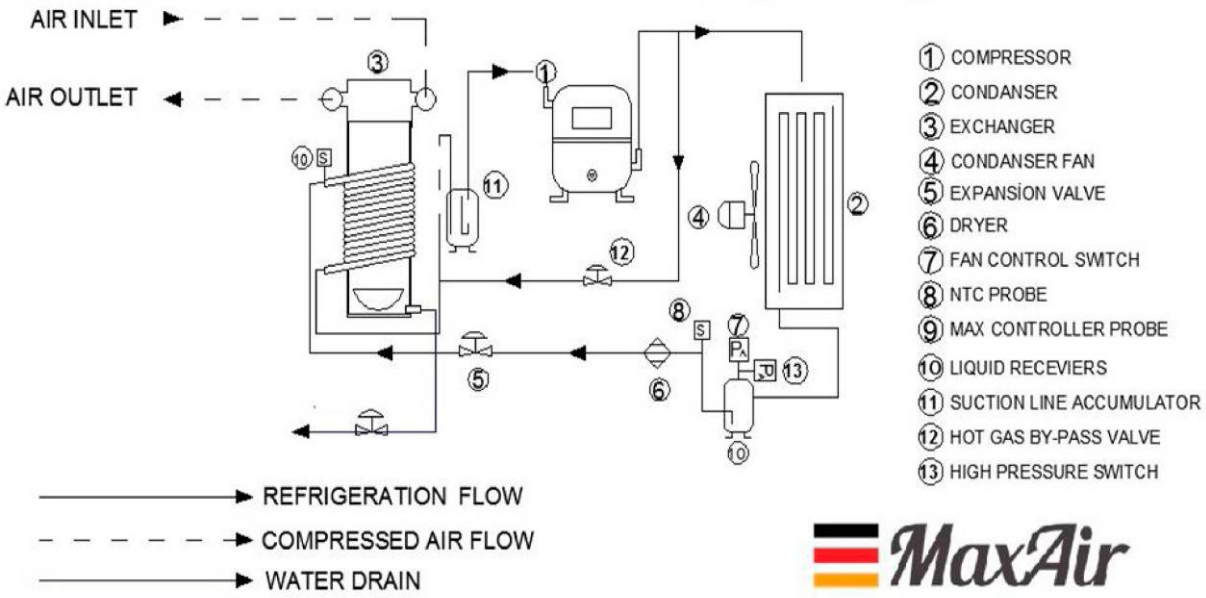


MAX-5500-6500

MaxAir


AIR DRYER CONTROLLER CARD
PROBE-1
PROBE-2
17
18
19
20
BUZZER
TRANSFORMER
RELAY
FAN RELAY
VALVE RELAY
COMP RELAY
FUSE 15 A
16 15 14 13 12 11 10 9
8 7 6 5 4 3 2 1
* HPS high pressure switch
* LPS low pressure switch
* FCS fan control switch
MAX-5500-6500
PE
230/1/50 Hz
Refrigerant Compressor
Drain Valve
Fan
FCS
LPS
HPS
Error output
MaxAir

MAX-5500-6500 Refrigeration Diagram

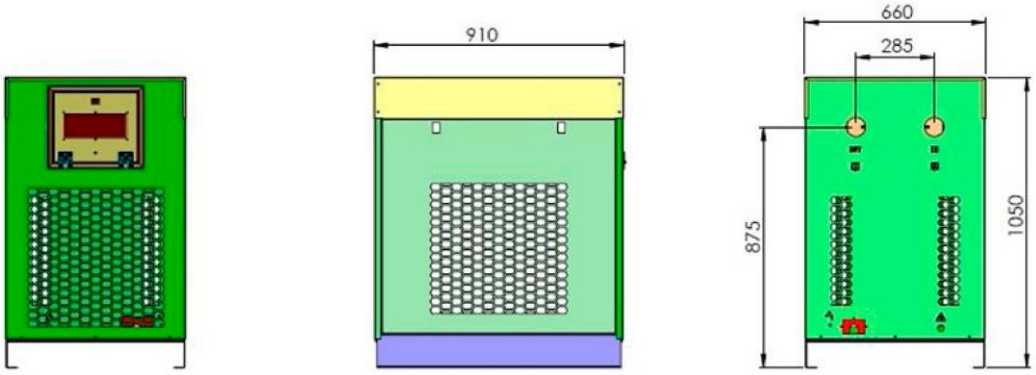


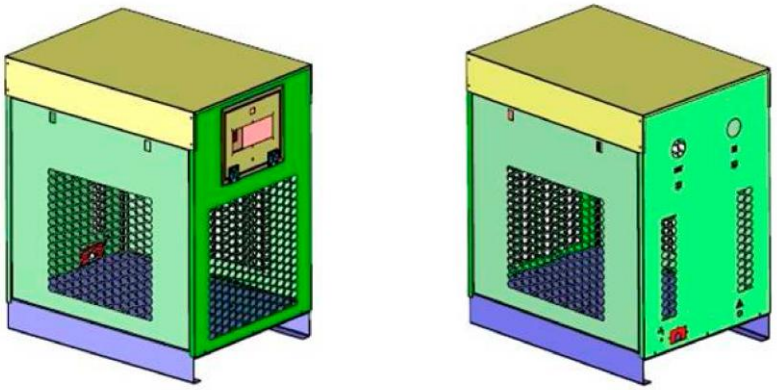
1. COMPRESSOR
2. CONDANSER
3. EXCHANGER
4. CONDANSER FAN
5. EXPANSİON VALVE
6. DRYER
7. FAN CONTROL SWITCH
8. NTC PROBE
9. MAX CONTROLLER PROBE
10. LIQUID RECEVIERS
11. SUCTION LINE ACCUMULATOR
12. HOT GAS BY-PASS VALVE
13. HIGH PRESSURE SWITCH

MaxAir

Max-5500 Technical Data	
Volume flow lt/min	5500 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /CAJ 4492 Y
Refrigerant Power Compressor (W)	1.000
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 3/4 hp / 1100 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	300
Fan Motor Power/Voltage (W/V)	80 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	Gökceler/Turkey/FGT-RDG-0,75LT
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	1.15
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	2
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.1
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	1.27 kw
Min. Fuse (A)	16
Protection Class (IEC)	IP 54
Connection (Inch)	1'' female
Weight (kg)	64
Noise level (db)	< 70

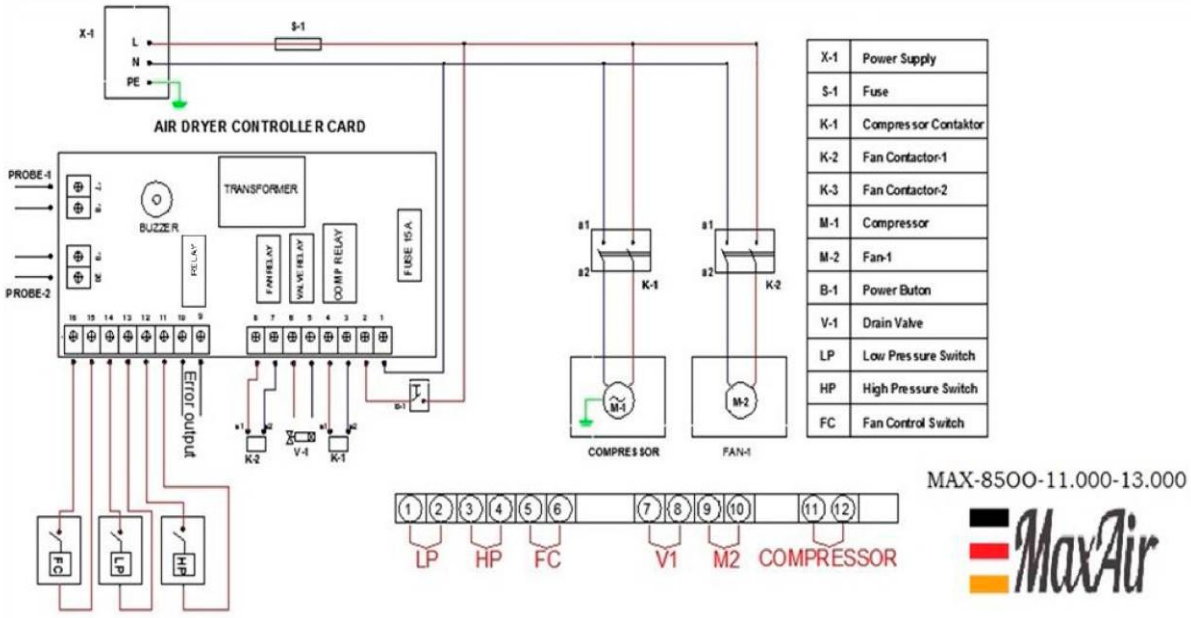
Max-6500 Technical Data	
Volume flow lt/min	6500 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /CAJ 4511 Y
Refrigerant Power Compressor (W)	1.177
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1 hp / 1100 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	300
Fan Motor Power/Voltage (W/V)	80 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	Gökceler/Turkey/FGT-RDG-0,75LT
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey /AKO ntc sensor SPAIN
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	1.35
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 6612 solenoid valve
Amount of Heat Exchangers	2
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.12
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	1.27 kw
Min. Fuse (A)	16
Protection Class (IEC)	IP 54
Connection (Inch)	1-1/2'' female
Weight (kg)	64
Noise level (db)	< 70





MAX-8500-11.000-13.000

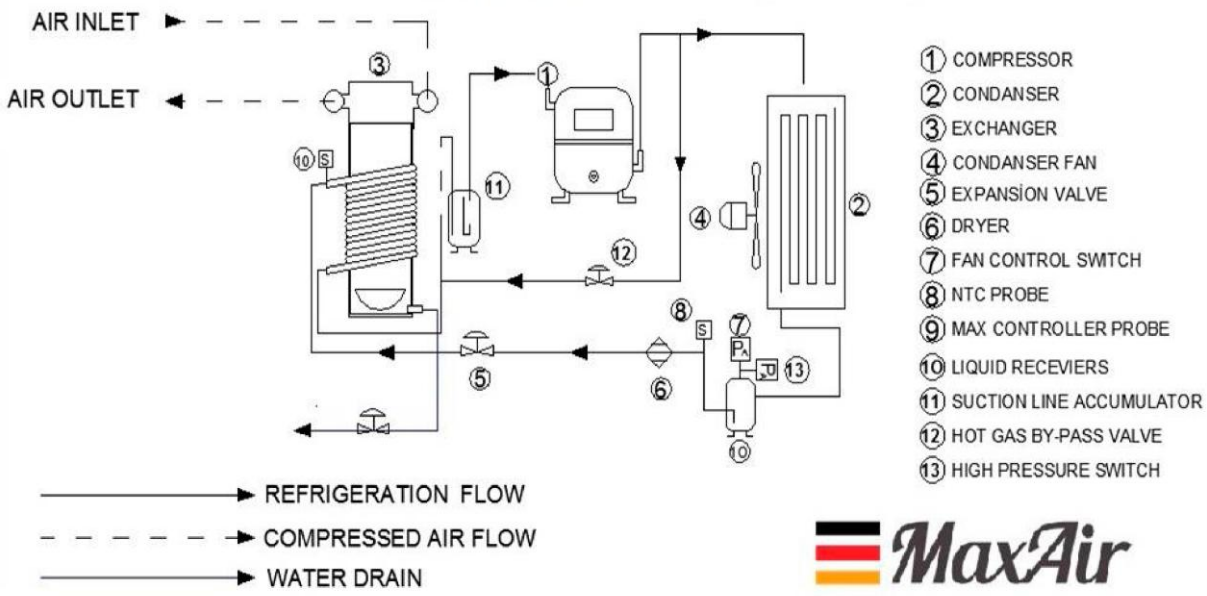
MaxAir



MAX-8500-11.000-13.000

MaxAir

MAX-8500-30.000



1. COMPRESSOR
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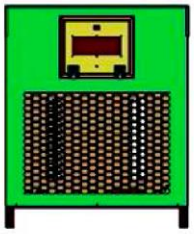
11. SUCTION LINE ACCUMULATOR
12. HOT GAS BY-PASS VALVE
13. HIGH PRESSURE SWITCH

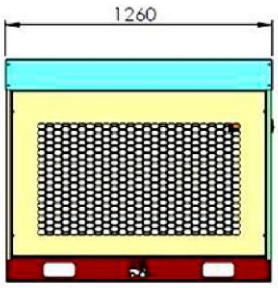
MaxAir

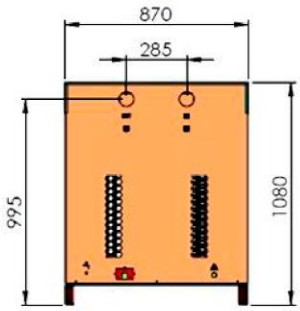
Max-8500 Technical Data	
Volume flow lt/min	8.500 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /CAJ 4517 Z
Refrigerant Power Compressor (W)	1.623
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1 tw-12 / 2300 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	350
Fan Motor Power/Voltage (W/V)	130 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-2
Suction Line Accumulators	İcold/Turkey/ICLTG-S 1,5-16B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	1.95
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	2
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.15
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	1.45 kw
Min. Fuse (A)	16
Protection Class (IEC)	IP 54
Connection (Inch)	2" male
Weight (kg)	86
Noise level (db)	< 70

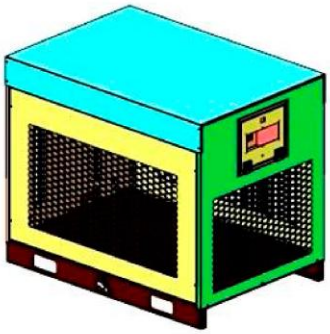
Max-11.000 Technical Data	
Volume flow lt/min	11.000 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /CAJ 4519 Z
Refrigerant Power Compressor (W)	2.202
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway 1 tw-15 / 3200 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	400
Fan Motor Power/Voltage (W/V)	200 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-2
Suction Line Accumulators	İcold/Turkey/ICLTG-S 1,5-16B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	2.20
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	3
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.18
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	1.65 kw
Min. Fuse (A)	16
Protection Class (IEC)	IP 54
Connection (Inch)	2" male
Weight (kg)	96
Noise level (db)	< 70

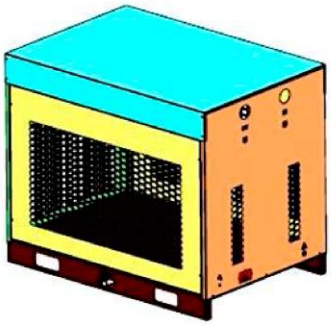
Max-13.000 Technical Data	
Volume flow lt/min	13.000 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /FH 4524 Z
Refrigerant Power Compressor (W)	2.337
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway tw-20 / 4200 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	450
Fan Motor Power/Voltage (W/V)	260 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-2
Suction Line Accumulators	İcold/Turkey/ICLTG-S 1,5-16B
Other used Electrical Components (Partname, Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	2.75
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	3
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.20
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	230/1/50 Hz
Inst. Electrical power (kW)	1.90 kw
Min. Fuse (A)	3X16
Protection Class (IEC)	IP 54
Connection (Inch)	2" male
Weight (kg)	114
Noise level (db)	< 70





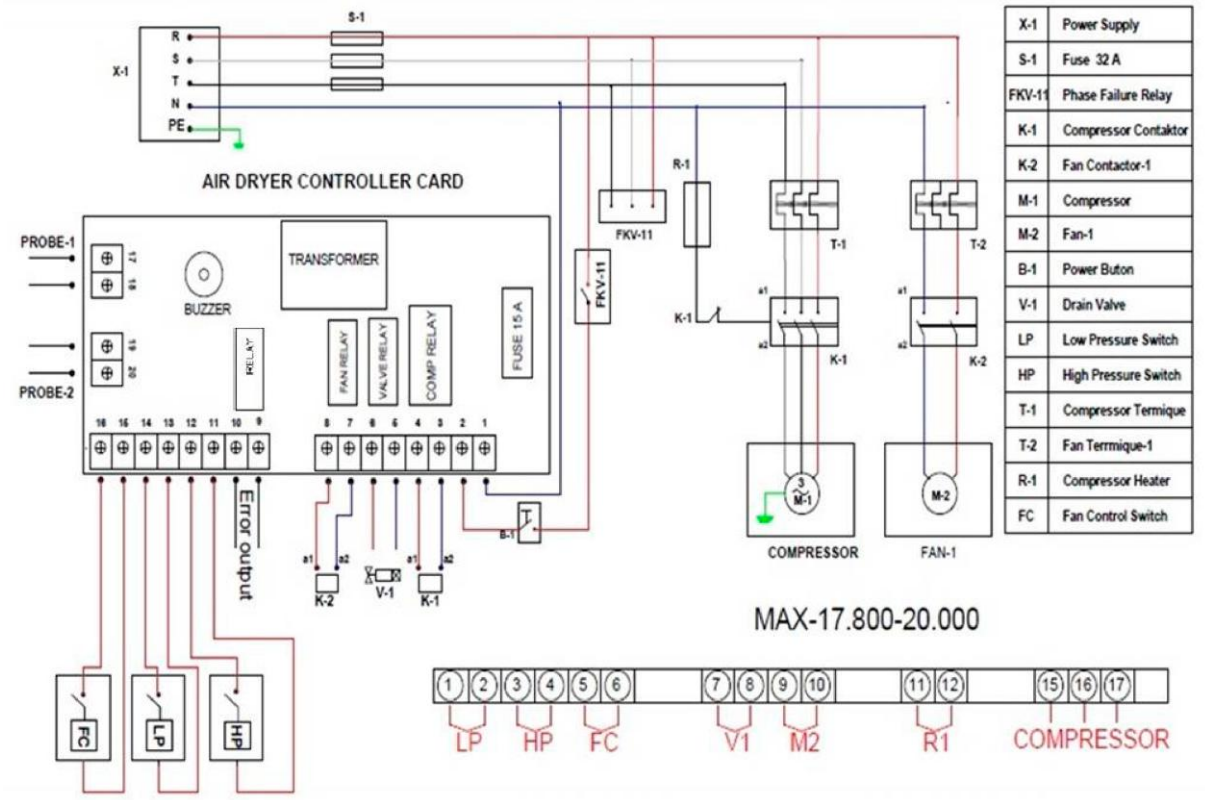






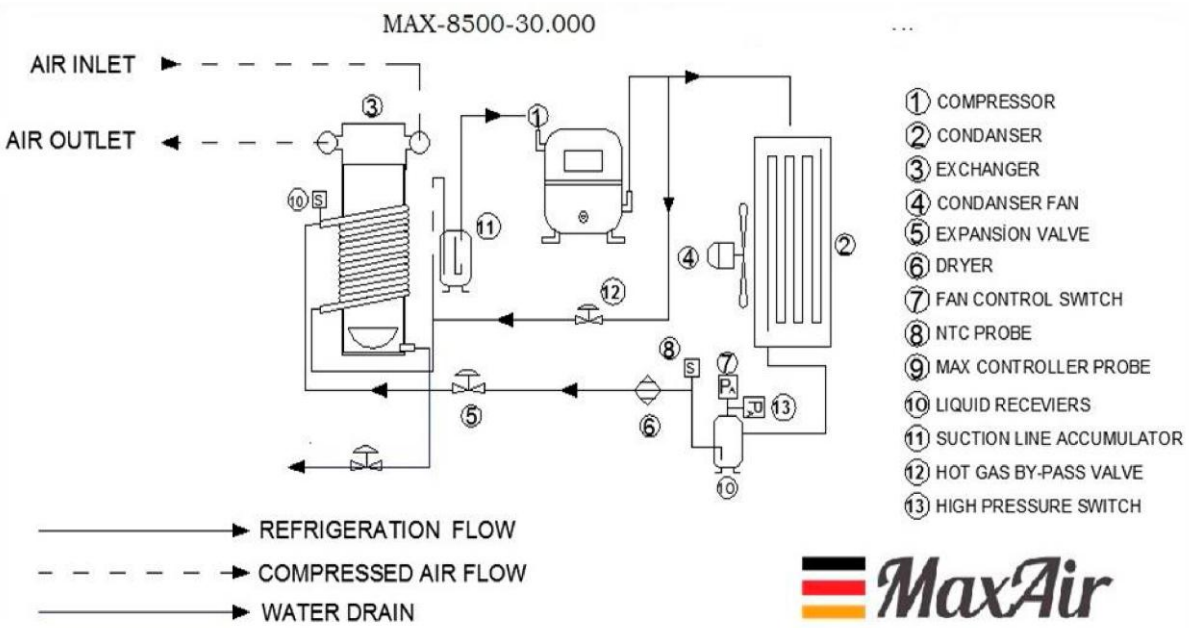
MAX-17.000-20.000

MaxAir



X-1	Power Supply
S-1	Fuse 32 A
FKV-11	Phase Failure Relay
K-1	Compressor Contaktor
K-2	Fan Contactor-1
M-1	Compressor
M-2	Fan-1
B-1	Power Buton
V-1	Drain Valve
LP	Low Pressure Switch
HP	High Pressure Switch
T-1	Compressor Termique
T-2	Fan Terrmique-1
R-1	Compressor Heater
FC	Fan Control Switch

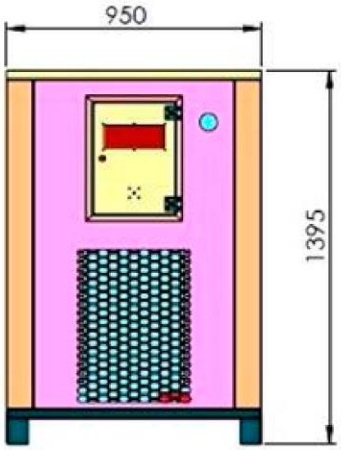
MAX-8500-30.000

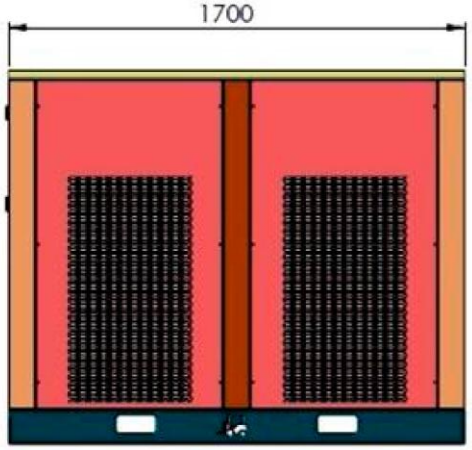


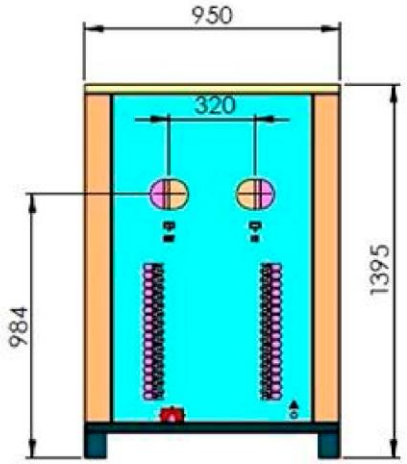
MaxAir

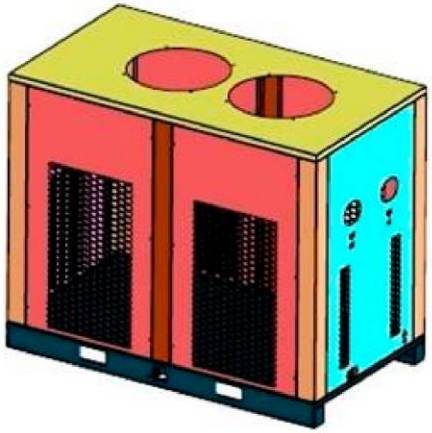
Max-17.800 Technical Data	
Volume flow lt/min	17.800 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /TFH 4540 Z
Refrigerant Power Compressor (W)	3.943
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway tw-30 / 4200 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	450
Fan Motor Power/Voltage (W/V)	260 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-3
Suction Line Accumulators	İcold/Turkey/ICLTG-S 3-22B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea/LG Termique Korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	3.40
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	4
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.20
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	400/3/50 Hz
Inst. Electrical power (kW)	2.1kw
Min. Fuse (A)	3X16
Protection Class (IEC)	IP 54
Connection (Inch)	2" male
Weight (kg)	230
Noise level (db)	< 70

Max-20.000 Technical Data	
Volume flow lt/min	20.000 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /TFH 4540 Z
Refrigerant Power Compressor (W)	3.943
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway tw-30 / 4200 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	450
Fan Motor Power/Voltage (W/V)	260 watt 230/1/50
Fan Motor Amount	1
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-3
Suction Line Accumulators	İcold/Turkey/ICLTG-S 3-22B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea/LG Termique Korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	3.80
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	5
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.20
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	400/3/50 Hz
Inst. Electrical power (kW)	2.1 kw
Min. Fuse (A)	3X25
Protection Class (IEC)	IP 54
Connection (Inch)	2" male
Weight (kg)	245
Noise level (db)	< 70



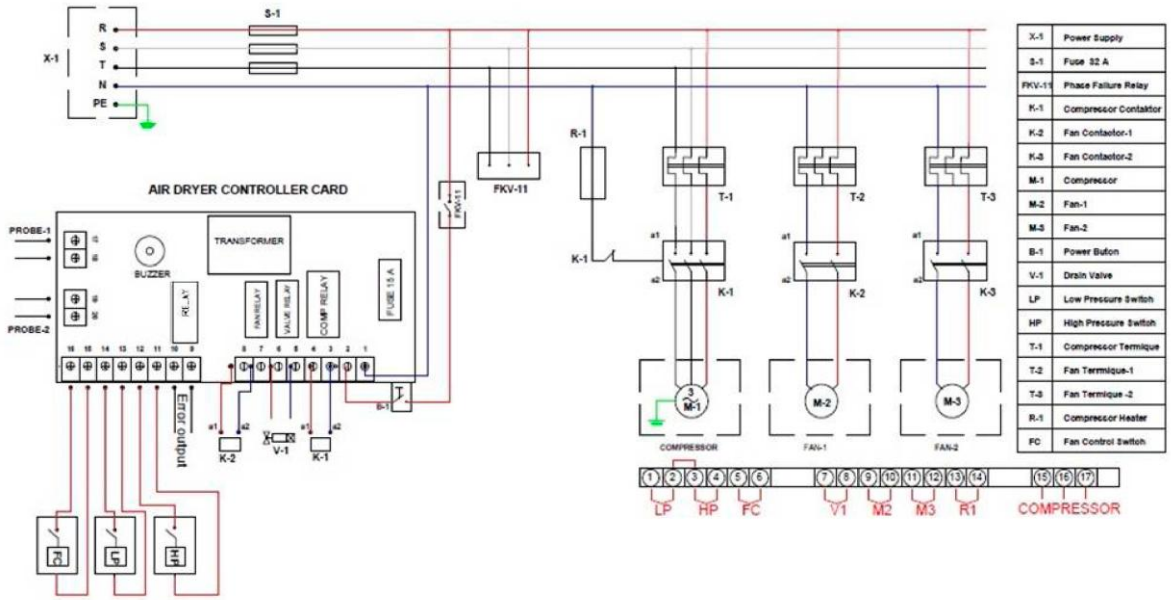






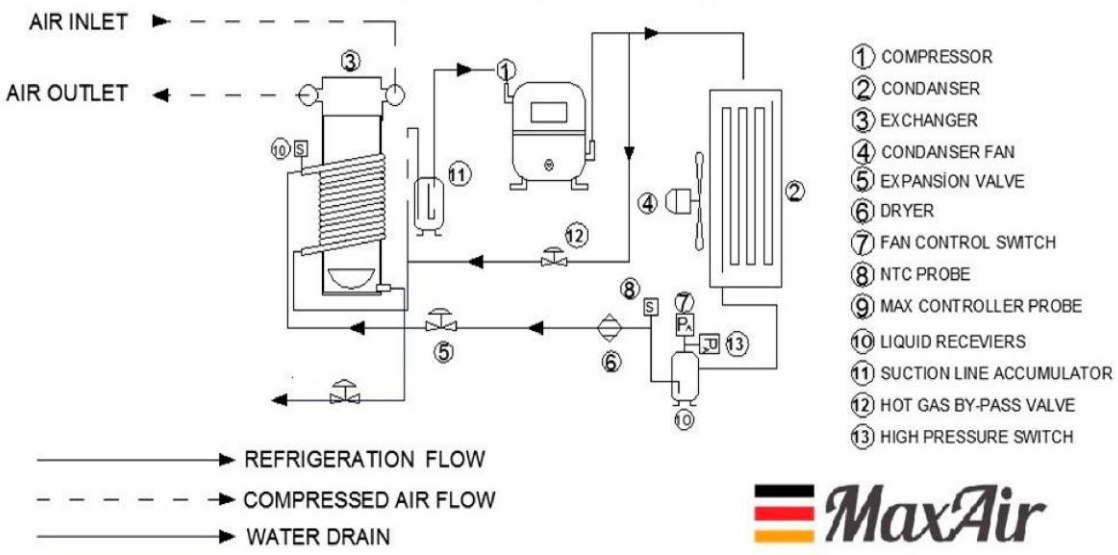
MAX-25.000-30.000

MaxAir



X-1	Power Supply
S-1	Fuse 32 A
FKV-11	Phase Failure Relay
K-1	Compressor Contaktor
K-2	Fan Contaetor-1
K-3	Fan Contaetor-2
M-1	Compressor
M-2	Fan-1
M-3	Fan-2
B-1	Power Buton
V-1	Drain Valve
LP	Low Pressure Switch
HP	High Pressure Switch
T-1	Compressor Termique
T-2	Fan Termique-1
T-3	Fan Termique -2
R-1	Compressor Heater
FC	Fan Control Switch

MAX-8500-30.000



1. COMPRESSOR
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4. CONDANSER FAN
5. EXPANSİON VALVE
6. DRYER
7. FAN CONTROL SWITCH
8. NTC PROBE
9. MAX CONTROLLER PROBE
10. LIQUID RECEVIERS
11. SUCTION LINE ACCUMULATOR
12. HOT GAS BY-PASS VALVE
13. HIGH PRESSURE SWITCH

MaxAir

Max-25.500 Technical Data	
Volume flow lt/min	25.500 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /TAG 4546 Z
Refrigerant Power Compressor (W)	4.125
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway tw-50 / 8400 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	450
Fan Motor Power/Voltage (W/V)	260 watt 230/1/50
Fan Motor Amount	2
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-3
Suction Line Accumulators	İcold/Turkey/ICLTG-S 3-22B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea/LG Termique Korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	4.45
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-12
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	6
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.20
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	400/3/50 Hz
Inst. Electrical power (kW)	3.14 kw
Min. Fuse (A)	3X25
Protection Class (IEC)	IP 54
Connection (Inch)	3" male
Weight (kg)	265
Noise level (db)	< 70

Max-30.000 Technical Data	
Volume flow lt/min	30.000 lt/min
Refrigerant Compressor Typ and Product Name	Tecumseh Hermetique /TAG 4561 Z
Refrigerant Power Compressor (W)	5.362
Condenser Producer, Typ and Air Flow (m^3/h)	thermoway tw-50 / 8400 (m^3/h
Producer of Fan Motor	wang-race
Fan Motor Typ	axial fan
Fan Size Blade (Ø mm)	450
Fan Motor Power/Voltage (W/V)	260 watt 230/1/50
Fan Motor Amount	2
Fan Control Switch(Producer and Typ)	ranco fan kontrol presostat 016H6750B01
High Pressure Switch(Producer and Typ)	refnox switch WPS-03H059/25R20R 20-25
Low Pressure Switch(Producer and Typ)	refnox WPS-03L059/0,3D1,8G 0,3-1.8 BAR
Liquid Receviers	İcold/Turkey/ICRDGS-6
Suction Line Accumulators	İcold/Turkey/ICLTG-S 6-28B
Other used Electrical Components (Partname,Producer and Article name from the manufacturer)	Max-air electronic card,Turkey/AKO ntc sensor Spain/LG contactor Korea/ Opaş power switch,Turkey/ LG fuse korea/LG Termique Korea
Typ of Refrigerant Gas	R-134 a
Amount of Refrigerant (kg)	5.20
Components Expansion System with Producer and Typ	Sanhua expansion valve /RFK-24019
Hot Gas By-pass Valve	Danfoss KVC-15
Heat Exchanger	Max-air , 3 in 1 aluminium tube and aluminium fin
Drain Valve Producer and Type	Ceme –Italy / 8514 solenoid valve
Amount of Heat Exchangers	7
Max./Min. Ambient Temperature (°C)	5-45°
Max. Inlet Temperature (°C)	50°
Max. Operating Pressure (bar)	16
Pressure drop (at 3°C dew point) (bar)	0.15
Outlet Temperature (at 35°C Inlet Temp.) (°C)	18-25 °
Voltage (Volt/Ph/Hz)	400/3/50 Hz
Inst. Electrical power (kW)	4.3 kw
Min. Fuse (A)	3X25
Protection Class (IEC)	IP 54
Connection (Inch)	3" male
Weight (kg)	290
Noise level (db)	< 70

8. SETTINGS

- **Setting the condensate drain time:**
  Press and hold for 3 seconds ( ) together on the front panel of the dryer and enter the TH parameter value by means of the arrows on the display.
  Click the button ( ) and increase-reduce the value that appears by using the arrows. (setting can be made in the range of 2 – 15 seconds.

- **Setting the evaporation gas pressure:**
  Evaporation gas pressure can be set by Allen screw on the automatic expansion/hot gas by-pass valve. Turn clockwise to increase the pressure and turn anticlockwise to reduce it.
  R-134 a gas pressure: 2.1 bar
  R-407 c gas pressure: 5.5 bar

- **Setting the temperature protection value of the compressor: (max. 5500-160,000)**

  Go through the menu on the display to the display where SR parameter value appears and click on-off button to view the set value. Set the value by using the up-down keys.
  Default setting: 45°C

9. FAULT CODES AND TROUBLESHOOTING

FAULT CODES ARE INDICATED ON THE DISPLAY OF THE AIR DRYER AND OPERATOR IS WARNED BY AUDIO ALARM.

FAULT CODE	DESCRIPTION	REMOVAL
HPR	High condenser temperature/pressure alarm	• If the ambient temperature of the air dryer is above 45°C, you should ensure ventilation of the environment to reduce the temperature. • Condenser fin spacing may be clogged/dirty. Clean by compressed air. • Condenser cooling fan may not operate. Remove the failure. • In case of versions max 5500 and above, the gas return temperature of the cooling compressor is very high. Set from expansion valve/hot gas by-pass valve.
LPR	Low gas pressure alarm	• Evaporation gas pressure might have reduced. Increase it from the expansion valve/hot gas by-pass valve. • The ambient temperature of the equipment may be below 5°C. Ensure the ambient temperature to be between 5-45o • Gas leakage in the cooling system. Contact with an authorized personnel/plant about gas failure.
SRU	Service/maintenance time alarm	• Service time for the internal elements of the air line filters. Replace the internal element and reset the timer.
ESH	Cooling sensor failure alarm	• The sensor measuring dew temperature is broken or short circuited. • Inspect the sensor socket connections. • Replace the sensor if it is broken.

CSH	Temperature protection sensor failure alarm	• Sensor measuring temperature is broken or short circuited. • Inspect the sensor socket connections. • Replace the sensor if it is broken.
SH	Failure arm in the cooling system	• If the temperature info from the sensor measuring the heat exchanger although the equipment has operated for 30 minutes, then the microprocessor stops the system given warning for problem in the cooling system. • Inspect the compressor contactor and wiring connections. • Inspect the coolant level.
Possible faults		
Pressure is law		• Dew temperature of the air dryer is low and freezing occurs. Increase the temperature setting from the expansion valve/hot gas by-pass valve. • Inlet and outlet line filters are clogged. Replace the internal elements of the filter.
Water in the system		• By-pass valve connecting the air inlet and outlet may be open. Close it. • Filter of the valve in the drain system of condensate may be clogged. Clean by compressed air and water. • Condensate drain solenoid valve may be broken. Remove the failure. • Water accumulation in the compressed air installation and charge into the dryer. Drain the water in the system and attach water separator to the line. • May be high dew point. Reduce the temperature from expansion valve/hot gas by-pass valve. • Condensate drain time may be insufficient. Extend the drain duration. • Air inlet-outlet connection of the air dryer may be reverse. Correct the connection.

Dryer does not operate	• Control the wiring connections of the equipment. Make sure it is powered. • If the equipment is 3-phase, then perhaps the phase control relay does not give output. Correct the phase direction. • Fuse on the electronic control board of the equipment is burnt. Replace it.

!!! ELECTRICAL PARTS ON THE DRYER ARE EXCLUDED FROM THE WARRANTY. FOR THIS REASON, MAKE SROU THE MAINS IS REGULAR.

10. WARRANT CERTIFICATE AND CONDITIONS

- If the air dryer is used under the conditions recommended by Maksimum Makine, the manufacturer, it is under warranty against manufacturing and workmanship defects for **24 months**. The warranty term starts on the date of invoice received by the customer.
- Maximum repair term of the air dryer is 30 days. This term starts upon notification of the failure to the service centre, dealer and manufacturer.
- For validity of the warranty, the conditions of installation, usage, maintenance and environment specified in the operating manual should be observed. Any defects arising from the misuse are excluded from the warranty.
- Any defects arising from the electric installation are excluded from the warranty.
- Defects arising from natural disaster, transportation and damage are excluded from the warranty.
- Any defects arisen under the warranty may be intervened only by the authorized service centres and technicians of Maksimum. Any intervention and replacement by the unauthorized persons is exclude from the warranty.
- If the periodical maintenance of the equipment is not made, any failure of the drain system of the air dryer is excluded from the warranty.
- In case the air dryer fails, the customer is liable to send the equipment to the regional service centre the factory.
- Warranty granted to the user is limited to removal of the failure and replacement of the parts. Other costs arising from the failure cannot be included in the scope of the warranty.
- The warranty may not be assigned to any third parties.