

COMPRESSED AIR DRYERS

KELTEC
Technolab

INSTRUCTION MANUAL

KRAD M SERIES (KRAD 30M to KRAD 250M)



WARRANTY NOTICE

Failure to follow the instructions and procedures in this manual or misuse of this equipment will VOID its warranty !

**AB UYGUNLUK BEYANI - 2**
CE DECLARATION OF CONFORMITY - 2**CE 2195****2014/68/AB Basınçlı Ekipmanlar Yönetmeliği Ek-IV'e Göre Uygunluk Beyanı**
*Declaration of Conformity According to 2014/68/EU Pressure Equipment Directive Annex-IV***Üretici / Manufacturer**

Adı / Name : Mikropor Makina Sanayi ve Ticaret A.Ş.
Adresi / Address : 1. OSB Oğuz Caddesi No:5, 06935, Sincan - Ankara / Türkiye (Merkez / Head Office)
1. OSB Osmanlı Caddesi No:5, 06935, Sincan - Ankara / Türkiye (Üretim / Production)
1. OSB Büyük Timur Caddesi No:14, 06935, Sincan - Ankara / Türkiye (Üretim / Production)
Telefon / Phone : +90 312 267 07 00
Faks / Fax : +90 312 267 05 52
İnternet Adresi / Web : www.mikropor.com

Uygunluk Değerlendirme Sertifikaları / Conformity Assessment Certificates

Sertifika Numarası / Certificate Number : 2195-PED-2100401
Prosedür (Kategori) / Procedure (Category) : Kategori I to II / Category I to II
Prosedür (Modül) / Procedure (Module) : Modül A2 / Module A2
Onaylanmış Kuruluş / Notified Body : Szutest Uygunluk Değerlendirme A.Ş. (2195)

Ürün Tanımı ve Dizayn Şartları / Product Description and Design Conditions

Ürün Tanımı / Product Description : Soğutmalı Hava Kurutucu / Refrigerated Air Dryer
Ürün Tipi / Product Type : KRAD M Series
Tasarım Standardı / Design Standard : EN 378-2

Seri Numarası / Serial Number
P000000001 to P999999999

Aşağıdaki tasarım koşullarına sahip 2014/68/EU PED Madde 4.2'ye göre bir donanım olarak
As an assembly according to 2014/68/EU PED Article 4.2 with the following design conditions

Maks. Çalışma Basıncı (PS) : 16 Bar
Max. Working Pressure (PS)
Maks. Çalışma Sıcaklığı (Tmax) : 60°C
Max. Working Temp. (Tmax)
Min. Çalışma Sıcaklığı (Tmin) : 5°C
Min. Working Temp. (Tmin)
Akışkan Grubu : 2
Fluid Group

Bileşen Ekipmanlar / Sub-Components	
Basınçlı Ekipman-1 / Pressurized Equipment-1	
Exchanger	"Category SEP" to "Category II Module H1"
Basınçlı Ekipman-2 / Pressurized Equipment-2	
Condenser	"Category I Module A" to "Category II Module A2"
Basınçlı Ekipman-3 / Pressurized Equipment-3	
Compressor	"Category I Module A"
Basınçlı Ekipman-4 / Pressurized Equipment-4	
Liq. Sep	"Category I Module H"

İmza / Signature

Beyan Eden / Declared By
Ad Soyad / Name Surname : Arda SUCUKA
Unvan / Title : Makine & Kaynak Mühendisi / Mechanical & Welding Engineer
Tarih - Yer / Date - Place : 30.06.2025 / Ankara

Not: Ürün üzerinde değişiklik yapmak yasaktır ve uygulamasına göre çalıştırılmalıdır. Aksi halde Mikropor sorumlu olmayacak ve CE işareti geçersiz olacaktır.

Note: Any modifications are forbidden on the equipment and shall be operated according to its application. Otherwise Mikropor will not be responsible and CE marking will be invalid.

FRM.715 - REV1 - 11.1.2023



AT UYGUNLUK BEYANI

EC DECLARATION OF CONFORMITY



2006/42/AT - 2014/30/AB - 2014/35/AB Yönetmelikleri'ne Göre Uygunluk Beyanı
Declaration of Conformity According to 2006/42/EC - 2014/30/EU - 2014/35/EU Directives

Üretici / Manufacturer

Adı / Name : Mikropor Makina Sanayi ve Ticaret A.Ş.
Adresi / Address : 1. OSB Oğuz Caddesi No:5, 06935, Sincan - Ankara / Türkiye (Merkez / Head Office)
1. OSB Osmanlı Caddesi No:5, 06935, Sincan - Ankara / Türkiye (Üretim / Production)
1. OSB Büyük Timur Caddesi No:15, 06935, Sincan - Ankara / Türkiye (Üretim / Production)
Telefon / Phone : +90 312 267 07 00
Faks / Fax : +90 312 267 05 52
İnternet Adresi / Web : www.mikropor.com

Uygunluk Değerlendirme Sertifikaları / Conformity Assessment Certificates

Sertifika Numarası / Certificate Number : 23-IS-1104-TAT-25-MD-0032
Onaylayan Kuruluş / Certifying Body : TÜV Austria Türk Belgelendirme Eğitim ve Gözetim Hizmetleri Ltd. Şti.

Ürün Tanımı ve Uygulanabilir Yönetmelik - Direktifler / Product Description and Applicable Directives

Ürün Tanımı / Product Description : Soğutmalı Hava Kurutucu / Refrigerated Air Dryer
Ürün Tipi / Product Type : KRAD M Series

Seri Numarası / Serial Number

P000000001 to P999999999

Yukarıda belirtilen ürün / ürünler, Mikropor tarafından nihai değerlendirme ile iç imalat kontrollerine tabi tutulmuştur.
The above mentioned product(s) has been subjected to internal manufacturing controls with final assessment by Mikropor.

Aşağıda imzası bulunan kişi, ürün tanımında belirtilen ürün / ürünlerin, aşağıda belirtilen yönetmelik ve standartların temel gereksinimlerini karşıladığını beyan eder.

The undersigned declares that the product(s) which specified in the product description meet the essential requirements of the following directives and standards.

Uygulanabilir Yönetmelikler / Applicable Directives ;

- * 2006/42/AT Makine Emniyeti Yönetmeliği / 2006/42/EC Machinery Directive
- * 2014/30/AB Elektromanyetik Uyumluluk Yönetmeliği / 2014/30/EU Electromagnetic Compatibility Directive
- * 2014/35/AB Düşük Voltaj Yönetmeliği / 2014/35/EU Low Voltage Directive

Uygulanabilir Standartlar / Applicable Standards;

- * EN ISO 12100:2010
- * EN IEC 61000-6-2:2019
- * EN 60204-1:2018
- * EN IEC 61000-6-4:2019

İmza / Signature

Beyan Eden / Declared By : Anıl KOÇTÜRK
Ad Soyad / Name Surname : Elektrik Elektronik Mühendisi / Electrical and Electronics Engineer
Unvan / Title : 30.06.2025 / Ankara
Tarih - Yer / Date - Place

Teknik dosyadan sorumlu kişi - adresi / Name and address of the person to responsible the technical file:
Arda SUCUKA - 1. OSB Büyük Timur Caddesi No:14, 06935, Ankara - Türkiye

FRM.716 - REV.0 - 2.12.2022

TABLE OF CONTENTS

1.	IMPORTANT SAFETY NOTES - Please read	5
1.1.	Transportation	5
1.2	Positioning	5
1.3	Installation	5
1.4	Before operating	5
1.5	Qualified service personnel	6
1.6	Maintenance by the user	6
2.	INTRODUCTION TO THE KRAD DRYER	6
3.	OPERATION	12
4.	ELECTRICAL CONTROLLER	14
4.1	Digi-Pro	14
4.2	ESD 3	15
5.	TECHNICAL SPECIFICATIONS.....	18
6.	DIAGRAMS.....	19
6.1	Air Flow Diagrams	19
6.2	Electrical Diagrams	23
6.3	ID Diagrams	27
7.	GENERAL ARRANGEMENTS.....	38
8.	EXPLODED DIAGRAMS	39
9.	COMPONENTS LOCATION	60
10.	TROUBLESHOOTING	61
11.	WARRANTY	63

I. IMPORTANT SAFETY NOTES



When operating the air dryer the operator must apply safe working methods and observe all local safety instructions and relevant regulations.

- A)** Prior to installation, the dryer and the compressed air system are to be depressurized and disconnected from the electrical main supply.
- B)** The user is responsible for safe operating conditions. Parts and accessories must be replaced if inspection shows that safe operation cannot be assured.
- C)** Installation, operation, maintenance and repair are only to be authorized, trained and skilled engineers.
- D)** The minimum and maximum values stated must be observed, as well as all of the safety precautions described in this manual.
- E)** If any statement in this manual does not comply with the local legislation, the strongest standard is to be applied.

1.1. Transportation

- A)** Use care and caution when transporting the dryer. Avoid dropping and other physical abuse.
- B)** A forklift can be used to transport the dryers provided the forks are long enough to support its full width or length and caution is used throughout the move.

1.2. Positioning

- A)** The dryer must be installed vertically. A minimum of 50 cm clearance around the dryer is necessary to allow a good ventilation and easy access for servicing.
- B)** The ambient temperature in the room should not exceed 45°C and should not be below 4°C, taking the heat radiated by the dryer into account.
- C)** (40 watt for each liter/sec under ISO 7183-A condition or 18 watts for each SCFM under ISO 7183-B condition).
- D)** There should be no chemicals in the atmosphere that will damage the copper source. (Ammonia gas etc.)

1.3. Installation

In addition to the general mechanical construction procedures and local regulations, the following instructions need to be emphasized:

- A)** Only authorized, trained and skilled engineers should install the compressed air dryer.
- B)** Safety devices, protecting covers or insulation in the dryers never to be dismantled or modified. Each pressure vessel or accessory installed outside the dryer with air above atmospheric pressure must be fitted with the required pressure relief safety valves.

1.4. Before Operating

The following points must be observed before operating the air dryer:

- A)** Review all safety precautions.
- B)** The dryer connection piping measurements must be selected correctly. (See Technical specifications)
- C)** The dryer connection piping must be adapted to the operating pressure. (See Technical specifications)
- D)** Never operate the dryer at pressure above the maximum specified on the dryer label (check the technical specs too).
- E)** The drains should be opened to atmosphere. If the drains are connected to a pipe / hose, the diameter of the hose / pipe should be large enough to create no back pressure during drain. It is not recommended to reduce the diameter of the hose / pipe less than port that is given at the drain outlet of the unit. The hose / pipe should be at atmospheric pressure at all time. Back pressure in relevant pipe will result in permanent damage on drain system and the affect function of the filters and / or dryers.

1.5. Qualified service personnel

- A)** Maintenance and repairs should only be performed when the air dryer is shut down and depressurized and when the main power switch is turned off.
- B)** Use only the appropriate tools for maintenance and repair.
- C)** Before dismantling a part under pressure, disconnect the pressure sources and depressurize the system.
- D)** Proceed carefully during maintenance and repair. Prevent dirt from entering by covering parts and orifices with a clean cloth, paper or tape. A receiver should never be welded or modified in any way.
- E)** Never leave tools, loose parts or cleaning rags in or on the air dryer.
- F)** Before returning the dryer into service, check the setting of the control and safety devices as well as the pressure and the temperature of the compressed air circuit.

1.6. Maintenance by the user

- A)** Keep the dryer clean.
- B)** Regularly check the correct operation of the condensate drain trap.
- C)** Every six months, check and clean the drain strainer by undoing the access screw and rinsing the filter with tap water to remove the trapped dirt from the inside.
- D)** For aircooled dryers, clean the air condenser as soon as it's dirty or clogged.
- E)** For optional water-cooled condensers, use only clean water and install a water filter if needed. Use water counter flow to clean condenser if need.
- F)** Check the trouble-shooting list in case of maintenance troubles.
- G)** Check operating pressures, temperatures and time settings after maintenance. If operating and safety devices function properly, the air dryer may be used.

2. INTRODUCTION TO THE DRYER

A) Purpose of this dryer

- A)** This refrigerated compressed air dryer has been designed to remove water vapor from industrial compressed air.
- B)** This dryer has been designed for indoor operation.
- C)** The minimum and maximum values stated must be observed, as well as the safety precautions described in this manual.

B) Dryer label

The following label is affixed on the cabinet of the refrigerant compressed air dryer.

REFRIGERANT AIR DRYER		
Model No:	MODEL NO	
Serial No:		
Max. Pressure	Refrigerant	
Max. Amper	Ref.Quantity	
Fuse Amper	Voltage	
Power	Element Type	
	Address:	

Dryer label descriptions

Model No:	Dryer Model No
Serial No:	Dryer Serial No
Max Pressure:	Dryer maximum working pressure
Max Amper:	Maximum allowed amount of current
Fuse Amp	Maximum size of protector
Element Type:	Filter element type in Air Dryer
Refrigerant :	Type of refrigerant gas used
Refri Quantity:	Amount of refrigerant gas used
Voltage:	Main supply voltage
Power:	Nominal input power under conditions specified for this type of dryer

C) Working details

1) Refrigerant circuit:

The refrigerant circuit can be divided in **3** parts:

- A) Low pressure section with an evaporator (heat exchanger)
- B) High-pressure section including: Condenser, liquid receiver, (if installed) and the filter dryer.
- C) Control circuit including: Compressor, Expansion valve, by-pass valve (if installed), Fan pressure switch (if installed)

2) For water - cooled dryers:

- A) Water valve
- B) Safety high pressure switch (if installed)

3) The Refrigerant circuit operates as follows:

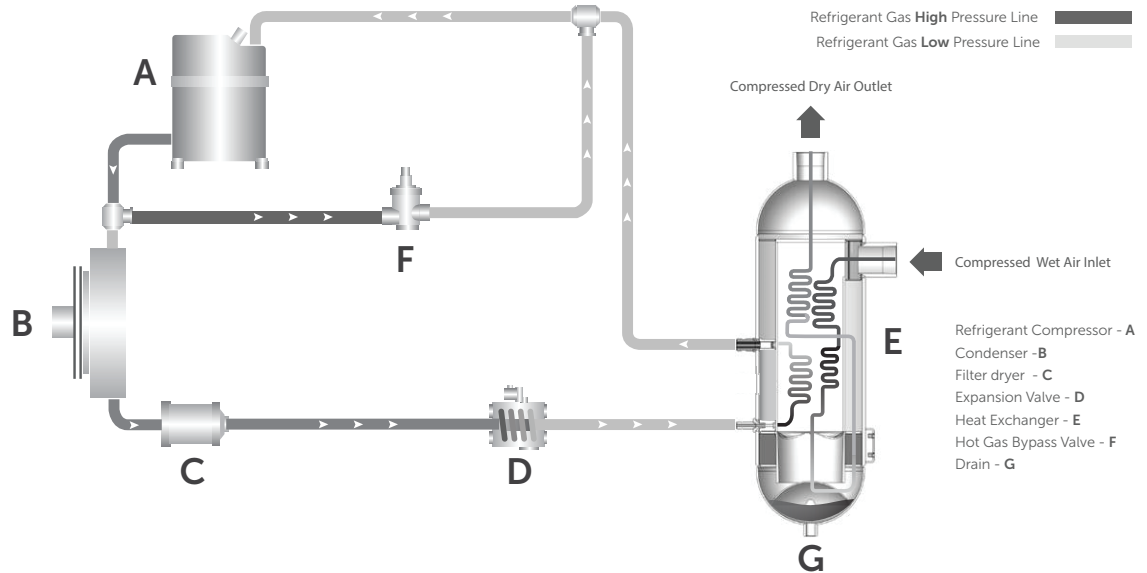
- A) The compressor compresses gaseous refrigerant to a high temperature.
- B) The hot refrigerant condenses in the condenser. Being liquefied it is stored in the liquid receiver (if installed).
- C) The liquid is taken out the storage vessel and injected in the evaporator (heat exchanger) by an expansion valve. This expansion valve is protected by a filter, which removes particles and humidity that could be in the circuit.
- D) The injected liquid fills in the refrigerant section of the air / refrigerant heat exchanger and evaporates by taking out the calories from the compressed air. The gaseous refrigerant is sucked in the compressor and the cycle carries on.
- E) In order to keep the evaporation pressure steady, and thus the refrigerant temperature in the heat exchanger, a by-pass valve is injecting hot gaseous refrigerant in the circuit. On certain dryers, an automatic expansion valve regulates this.

4) Compressed air circuit:

- A) The saturated hot compressed air flows into the Economiser where it is pre-cooled by the out flowing dry chilled air. In the cold zone of the air refrigerant section it continues to cool down to dew point and enters the separator where condensates are collected. The outgoing chilled air is then warmed up in the economizer by the hot incoming air.

B) The condensates are collected after centrifugal separation and drained out through the automatic trap.
C) As long as the compressed air temperature does not drop below dew point, there will be no condensation in the air circuit.

Compressed Air Dryer Working Principle



5) Refrigerant compressor

Increases the pressure and temperature of refrigerant. There are two type of compressors commonly used according to refrigerant capacity on this application:

- Piston type
- Scroll type

6) Condenser

Dissipates the heat provided by evaporator and compressor. There are two type of condensers used on the application:

1) Air Cooled Type (standard)

These condensers are designed to dissipate the heat to the ambient air. The fans are used to force the air flow through the fins to enhance the heat transfer.

2) Water Cooled Type (optional)

These condensers are designed to dissipate the heat to a water flow. A shell and tube heat exchanger is used for this purpose.

2.1. Points to Condenser in the Protection of Water Cooled Condenser

- The most common problem is the clogging problem. Undesirable/unexpected change in the amount of incoming water will affect the dryer performance.
- Clogging is caused by calcification, solid particles, microorganisms.
- Calcareous substances in the cooling water should not be tried to be removed with a water softener.
- Filtration technique with the help of semi-permeable membrane can be used for lime cleaning.
- After the analysis of the solid particles, the solids can be filtered with the appropriate filtration equipment. (100µm strainer filter can be used.)

- If a corrosive water such as sea water is to be used, the condenser must be manufactured using special materials. If a condenser produced as a standard is used with sea water contrary to the information, the dryer will be out of warranty.
- If the information about the chemicals in the working environment is not given to the manufacturer and it is operated in corrosive ambient conditions (Ammonia etc.), this will void its warranty.
- In order to prevent explosions caused by freezing, water containing antifreeze should be used at the rate required by the minimum temperatures. (Preferably ethylene glycol)
- The water pressure and flow rate should be used within the limits written in the technical datasheet. (Pressure maximum 6 barg)
- Care should be taken not to use materials that will cause galvanic corrosion.
- The company is not responsible for any malfunctions that may occur due to water.

7) Refrigerant circuit protection

A) Klixon: The single phase compressors are equipped with a klixon which is a thermal sensitive switch controlling the temperature of the compressor and possible overintensity. In case of malfunction, the klixon trips but switches on again automatically as soon as the compressor has cooled down.

B) High Pressure Security Switch: Refrigerant line is considered as a pressure vessel. That is why it is protected against bursts by the help of manually reset switch. It is set to 25 bars for dryers working with R134a

C) Filter dryer: A refrigerant circuit is a closed circuit and total water removal in the refrigerant circuit is paramount in order to obtain a correct functioning.

D) To avoid problems, the refrigerant circuit must be vacuumed before loading the refrigerant. It is equipped with a filter dryer, which also traps any solid particles, which may have migrated into the circuit during assembly.

E) Water-cooled dryers have a safety high-pressure switch.

In case of cooling water failure, the safety switch stops the dryer. When the safety switch has tripped out, it has to be manually resettled before switching on the dryer.

8) Refrigerant circuit controls

A) Liquid refrigerant injection: The liquid refrigerant is into the evaporator by a control valve. This valve is a thermostatic or pressostatic one maintaining a constant overheats of the refrigerant in the evaporator(s).

B) Constant evaporating pressure: In the dryers equipped with a by-pass valve, the evaporating pressure is kept constant by a controlled injection of hot gas from the high-pressure side into the low-pressure section of the circuit.

9) Condensate drain - trap assembly

Dismantling the drain is easy because it can be isolated from the air circuit under pressure with a ball valve. The drain has to be depressurized before being dismantled.

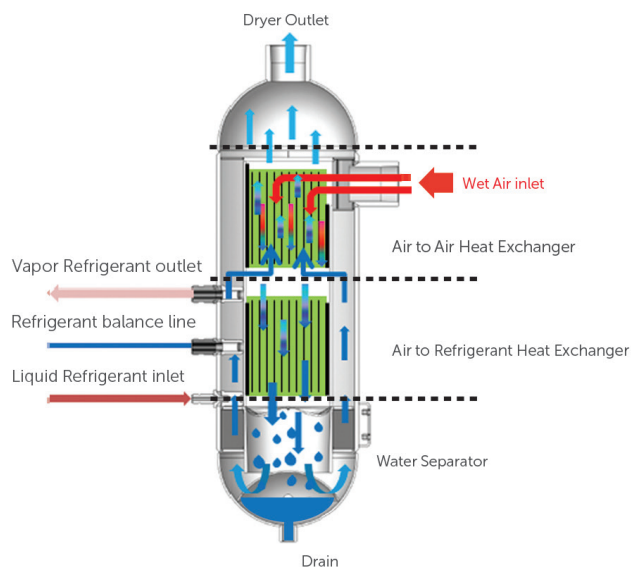
10) Heat Exchanger Modular design

A) The dryers are equipped with a compact Mono Bloc Heat Exchanger module.

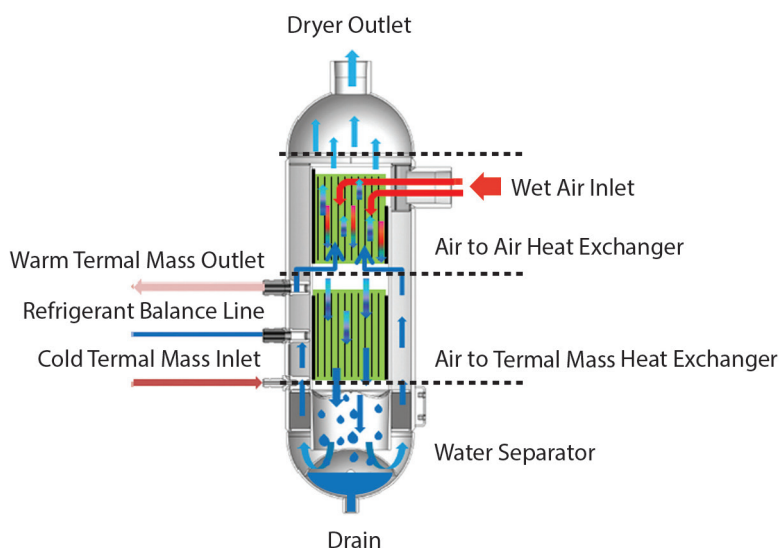
This assembly has been specially designed to dry compressed air and is made of:

- 1)** An Economiser which pre-cools the entering hot air with the out flowing cold air.
- 2)** An air / Thermal mass refrigerant exchanger cooling down the compressed air.
- 3)** A centrifugal separator concentrating all condensates and requiring no maintenance.

Air Cooled System



Water Cooled System



11) Accessories

Temperature switch: Temperature switch: Located inside the dryer, this temperature switch is adjustable from 0° up to 35 °C.

Digital Controller –DigiPro: This device helps dryer save energy when there is not any compressed air flow in the dryer. Those information can be reached; Dewpoint value, periodic maintenance interval display, status report, run time meter, temperature unit selection (°F or °C)

Digital Controller – ESD3: Energy Saving Device: (ESD) This device helps dryer save energy when there is not any compressed air flow in the dryer. Those information can be reached; Dewpoint value, periodic maintenance interval display, status report, run time meter, temperature unit selection (°F or °C)
(Please see the models have standard and optional in next page)

3. OPERATION

Control panels for KRAD M Series

The control panel of the dryer includes the following elements:



Monophase	Digital Controller
KRAD 15M - KRAD 250M	Digi-Pro



IMPORTANT NOTE

The Dryer has two Compressed Air Filter inside.

It is better to change filter element for the best efficiency when the alarm status is active.

It is recommended to keep replacement filter elements in your stock in order to replace them when needed.



ATTENTION

KRAD M range dryers have low pressure drop according its competitors.

Do not use KRAD M range dryers together with other dryers which have higher pressure drop without getting the confirmation from our technical team.

3.1. During Operation

Regularly check the digital temperature controller Digi-Pro on dryer.

3.2 Start up and shut-down

Warning: Avoid leaving the dryer off when compressed air is still flowing through it.

3.3 Starting for the first time or after a long stop

- 1) Set the rotary switch to "I" This preheats the dryer and turns the drain system on.
It is recommended to leave the dryer power on permanently so the crankcase heater runs continuously.



IMPORTANT NOTE!

- 2) After a long stop of the dryer it is MANDATORY to allow a preheating period of minimum 4 hours before starting again, to avoid any compressed air flow during preheating.

- 3) Follow the daily starting and shut down procedure.

3.4 Daily starting and shut-down

- A) Push on the ON button to start the dryer.
- B) The start light or Dryer Active will indicate that the dryer is running.
- C) To stop the dryer, first stop the airflow (either shut-down the air compressor or close the inlet/outlet or by-pass valve) When the air flow is stopped, set the rotary switch on " 0 " Set it again on " I " in order to keep the preheating on.



IMPORTANT NOTE !

- 4) Avoid leaving the dryer stopped when compressed air is still flowing through it.
- 5) To switch the already preheated dryer on again, simply push the green start button.

4. ELECTRICAL CONTROLLER

4.1 DIGI-PRO

4.1.1 Description

With the Digi-Pro series controllers, air dryers have outstanding technology for both functionality and dynamism, as well as appearance. The multi-functional display provides an accurate digital dew point display as well as coded alarm monitoring of the refrigerant dryer.

DIGITAL CONTROLLER ADVANTAGES;

- Digital dew point monitoring
- Energy-saving mode display
- Periodic maintenance interval display
- Status report
- Run time meter
- Fahrenheit and Centigrade selection

4.1.2 Operation

Using the Digi Pro controller as shown in the picture below:



4.1.3 Menu Buttons



PROGRAM

To modify the parameter, press and release button set. The menu is used by service team. To disable the Key Lock: Press and hold the SET for 4 sec.



POWER

This button is used for starting and stopping the dryer. Press and hold for 4 seconds to start or stop.



MENU

These buttons are used to navigate between screens and adjust values.



MANUAL DRAIN

This button is used for manual control of the drain output. Press and hold for 4 seconds to drain manually.

4.1.4 ALARM DISPLAY



Alarms / warnings are displayed on the digital screen. That means the dryer is not working under normal operating conditions, which are outside the range of set values.

Alarm Code	Alarm Description	Reason for Alarm
tAL	Low Temperature Alarm	Refrigerant line temperature is lower than specified set values
tAH	High Temperature Alarm	Refrigerant line temperature is higher than specified set values
FIL	Filter Change Alarm	Filter element needs to be replaced
HP	High Pressure Alarm	Refrigerant high line pressure is higher than specified set values
tSH	High Suction Line Temperature	Refrigerant suction line temperature is higher than specified set values
hSE	Service Time	General service time of the dryer



Please contact to the service when an alarm/warning occurs.

4.1.5 MODE DISPLAY



DRYER ACTIVE MODE

This mark indicates that the dryer is performed in active state and drying.



AUTOMATIC DRAIN MODE

Shows if the drain system is activated.



ENERGY SAVING MODE

Shows if the energy saving mode is activated



CELSIUS UNIT MODE

Indicates that Celsius temperature unit is selected.



FAHRENHEIT UNIT MODE

Indicates that Fahrenheit temperature unit is selected.



COMPRESSOR STANDBY MODE

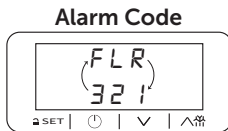
This mode shows that the dryer is ready for drying operation.



SERVICE MODE

This mode shows that the dryer is in the service time.

4.1.6 REPLACING FILTER KIT WITH ENCRYPTION CODE FOR DIGIPRO CONTROLLER



1. In case of filter alarm, a warning digit-code appears on the controller screen.



2. Inform the authorized distributor or service.



3. Replace the filter kit with an original spare part.



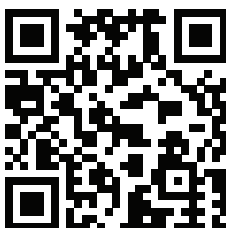
4. Go to website mentioned below on phone or PC. Fill in the required information. (Dryer Model No, Filter Kit Serial No, Warning Digit Code). Note the 3-digit code on the website. This is the solution code.



5. Enter the solution code to the controller via COD parameter.*



6. Process is completed, the alarm is to disappear.

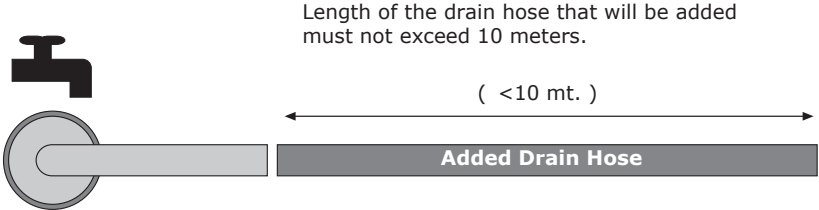
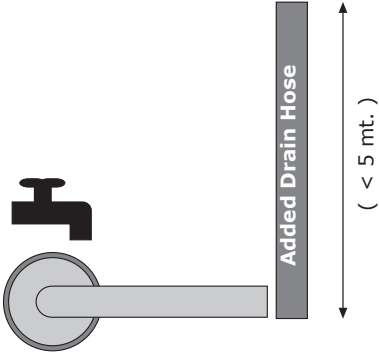
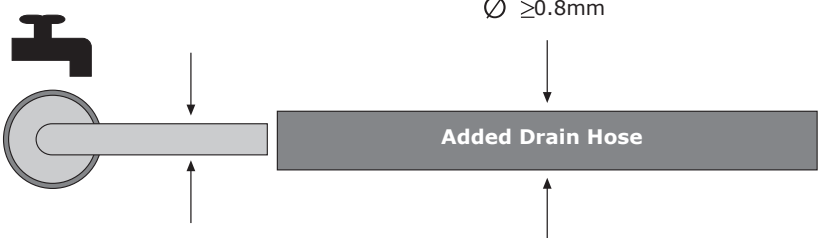
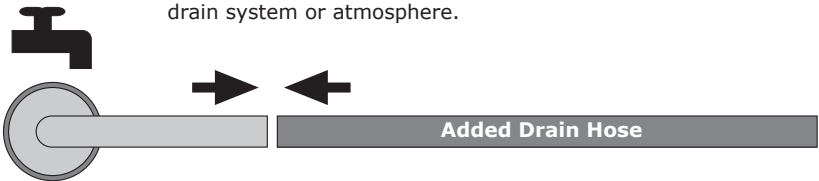


www.myintegratedfilter.com

***DIGIPRO**

Unlock keyboard by pressing on the "**SET**" button for 4 sec, find COD parameter with "↓" button. Enter COD menu with "**SET**" button. Enter the solution code with navigator keys. Press "**SET**" button to finish.

4.3.5 Correct Drain Hose Connection

Comment	Correct Drain Hose Connection
It should be connected by trying to keep the length of the drain hose to be added as short as possible.	 Length of the drain hose that will be added must not exceed 10 meters. (< 10 mt.)
The drain hose to be added must be connected as far as possible without being raised.	 Height of the drain hose that will be added must not exceed 5 meters. (< 5 mt.)
The diameter of the drain hose to be added must be bigger than the diameter of the existing hose fittings.	 $\varnothing \geq 0.8\text{mm}$ Diameter of the drain hose that will be added must bigger than fitting hose diameter. if Diameter is $\varnothing 6\text{ mm}$, $\varnothing \geq 6\text{ mm}$ Diameter is $\varnothing 8\text{ mm}$, $\varnothing \geq 8\text{ mm}$ Diameter is $G1/2"$, $\varnothing \geq G1/2"$ Diameter is $G1"$, $\varnothing \geq G1"$
The drain hose to be added must be connected to the drain system (or atmosphere) so that it does not create back pressure.	 The drain hose that will be added should be connect directly to the drain system or atmosphere.

5. TECHNICAL SPECIFICATIONS

Model	Capacity (m ³ /h)	Connection Size	Voltage	Total Installed Power (kw)	Nominal Operating (Amp)	MCA (A)	Total LRA (A)	Fuse (Amp) ***	Amount of Refrigerant (gr)	Refrigerant gas	Pressure drop (mbar)
KRAD 15M	30	1/2"	230V / 1 / 50 Hz	0,34	1,72	2,10	8,85	4	300	R134a	150
KRAD 25M	42	1/2"	230V / 1 / 50 Hz	0,37	1,87	2,40	9,35	4	320	R134a	250
KRAD 40M	66	3/4"	230V / 1 / 50 Hz	0,39	1,87	2,35	9,75	4	500	R134a	90
KRAD 60M	96	3/4"	230V / 1 / 50 Hz	0,59	3,22	3,98	14,05	4	550	R134a	195
KRAD 80M	130	3/4"	230V / 1 / 50 Hz	0,68	3,83	4,73	18,65	6	600	R134a	285
KRAD 100M	168	1 1/2"	230V / 1 / 50 Hz	0,82	4,63	5,85	19,85	6	1000	R134a	195
KRAD 125M	240	1 1/2"	230V / 1 / 50 Hz	1,07	6,38	7,98	28,85	8	1000	R134a	285
KRAD 150M	300	1 1/2"	230V / 1 / 50 Hz	1,19	5,46	7,23	30,85	8	1000	R134a	175
KRAD 200M	396	2"	230V / 1 / 50 Hz	1,23	5,39	6,98	30,6	8	2500	R134a	275
KRAD 250M	498	2"	230V / 1 / 50 Hz	1,32	6,28	7,85	36,6	8	2500	R134a	215

*** Will be provided by the user

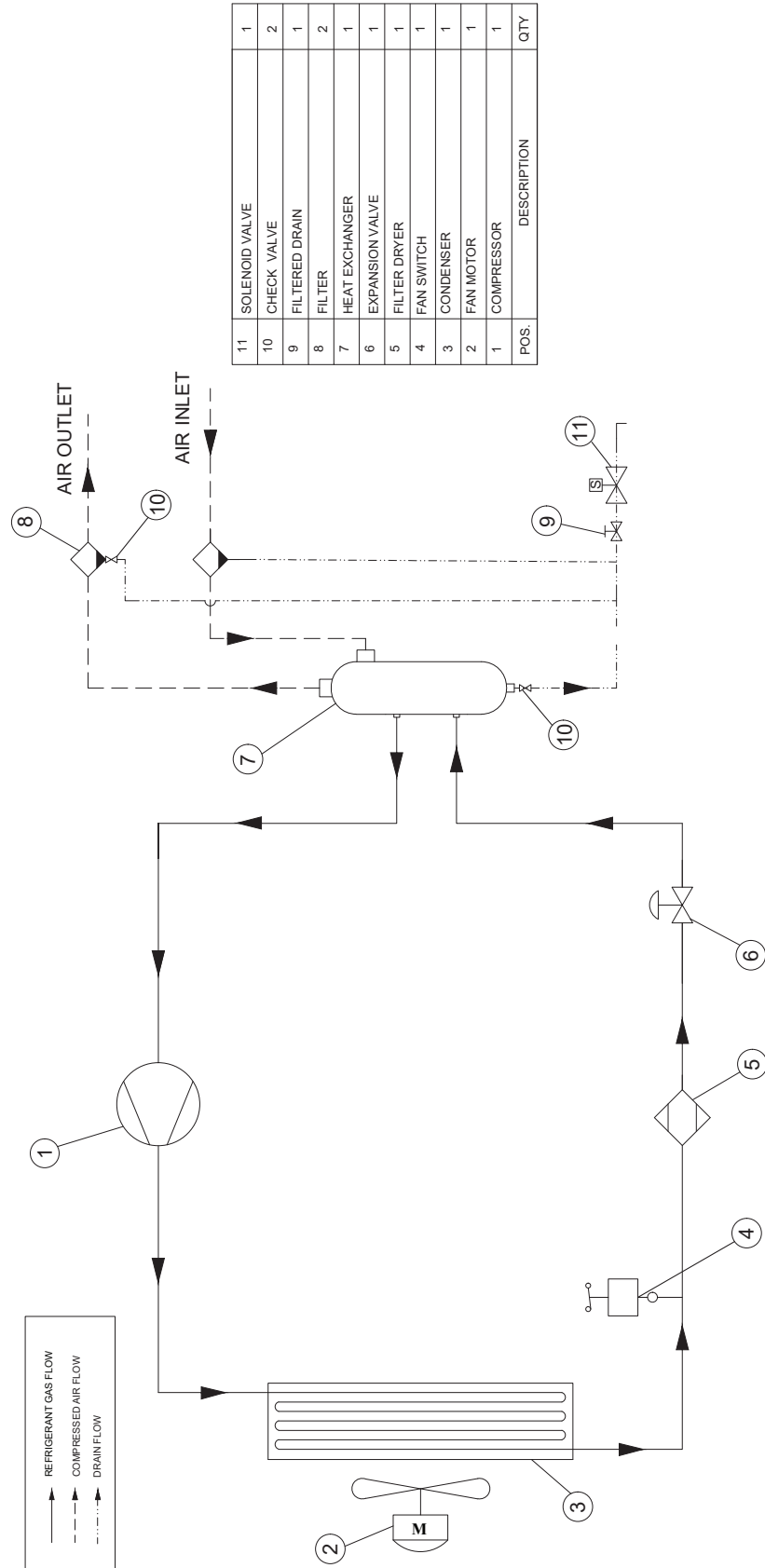
Note: Electrical protection class according to IEC is IP 54

FOR AIR COOLED MODELS	
Nominal Working Pressure	7 barg
Maximum Working Pressure	16 barg
Maximum Ambient Temperature	50°C
Minimum Ambient Temperature	4°C
Maximum Inlet Temperature	60°C

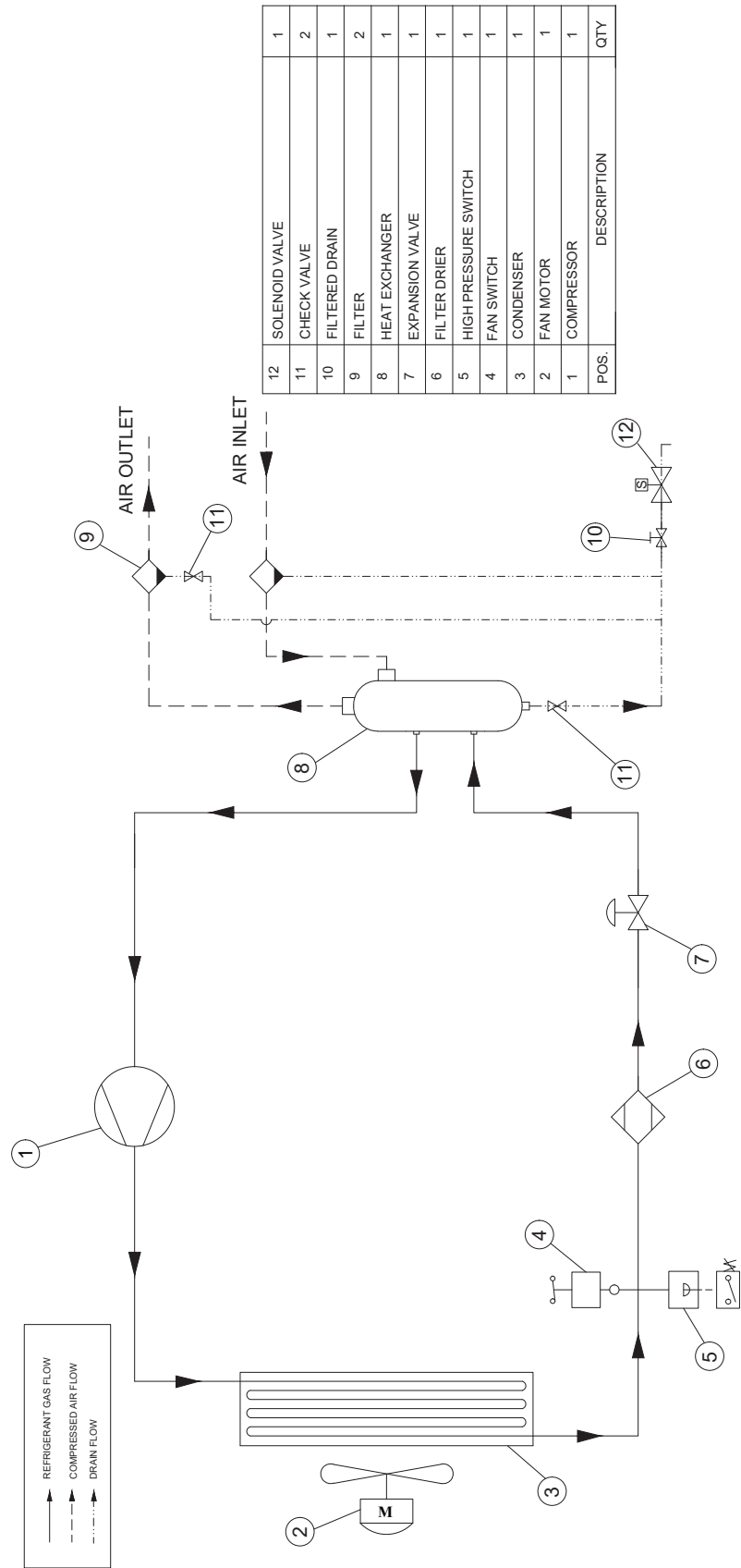
FOR WATER COOLED MODELS	
Maximum Working Pressure	16 barg
Maximum Water Temperature	30°C
Maximum Water Inlet Temperature	60°C
Minimum Water Temperature	5°C
Maximum Water Pressure	6 barg
Minimum Water Pressure	4 barg

6.DIAGRAMS

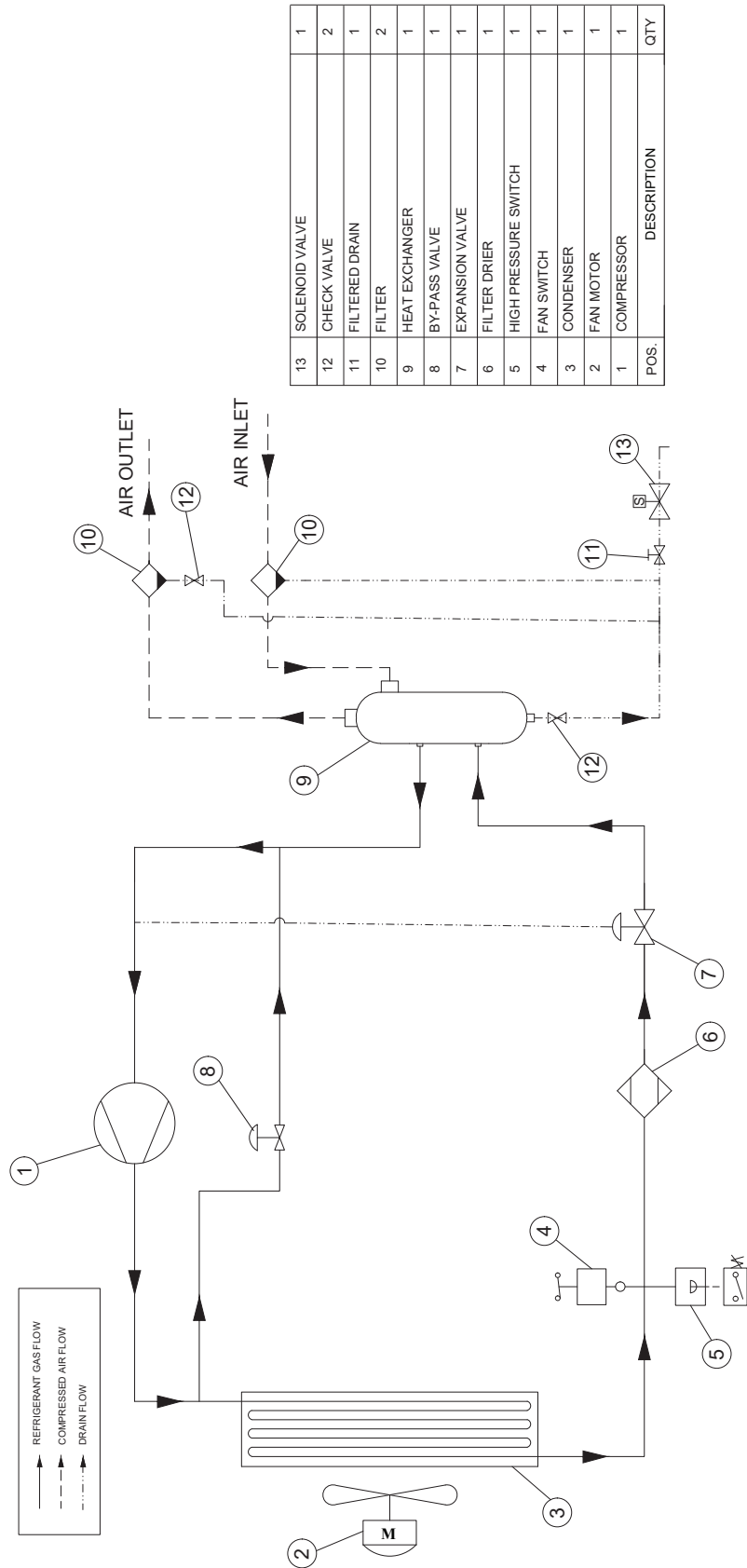
6.1 AIR FLOW DIAGRAMS KRAD 15M - KRAD 25M



6.1 AIR FLOW DIAGRAMS
KRAD 40M to KRAD 80M

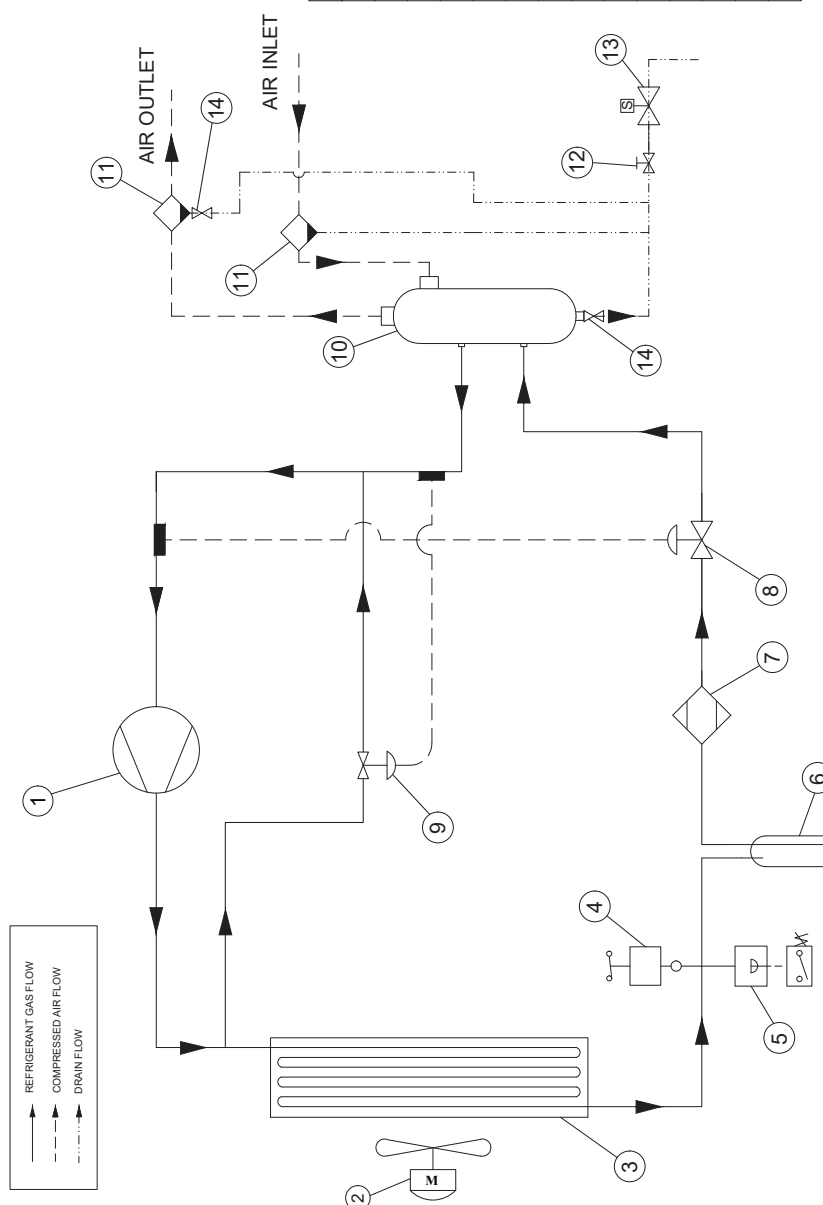


6.1 AIR FLOW DIAGRAMS KRAD 100M to KRAD 150M



6.1 AIR FLOW DIAGRAMS

KRAD 200M to KRAD 250M



14	CHECK VALVE	2
13	SOLENOID VALVE	1
12	FILTERED DRAIN	1
11	FILTER	2
10	HEAT EXCHANGER	1
9	BY-PASS VALVE	1
8	EXPANSION VALVE	1
7	FILTER DRIER	1
6	LIQUIT RECEIVER	1
5	HIGH PRESSURE SWITCH	1
4	FAN SWITCH	1
3	CONDENSER	1
2	FAN MOTOR	1
1	COMPRESSOR	1
POS.	DESCRIPTION	QTY

6.2 KRAD M

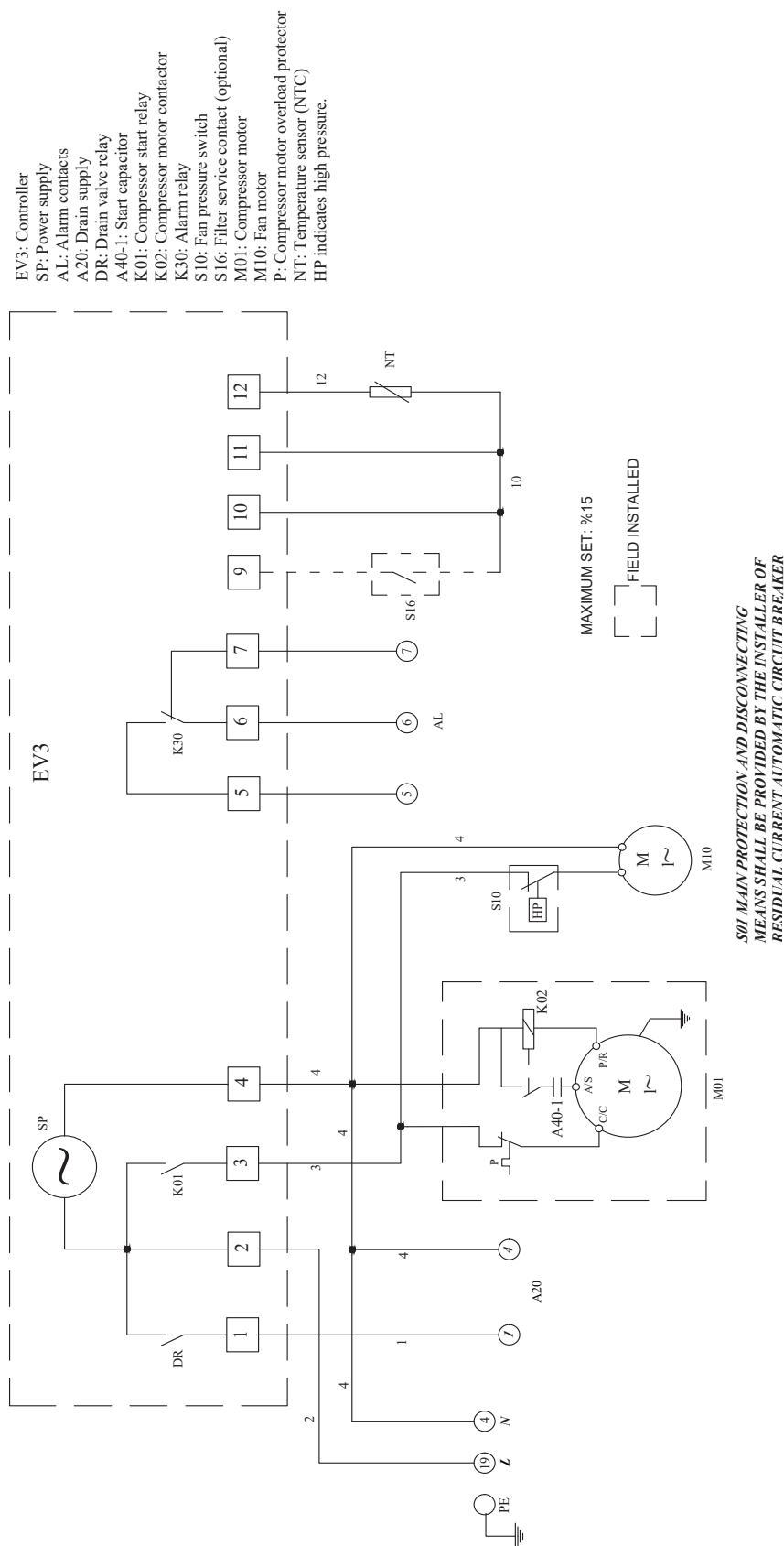
ELECTRICAL DIAGRAMS

With Control & Power

"User must supply the protective earth conductor of the dryer. The conductor is to be connected to the point on the conducting body of the dryer, specified by a sticker with the protective earth symbol next to it. The size of the protective earth conductor should be minimum the size of the power conductor, minimum 16 mm² for power conductor size between 16 and 35 mm², minimum half the size of the conductor if it is larger than 35 mm²."

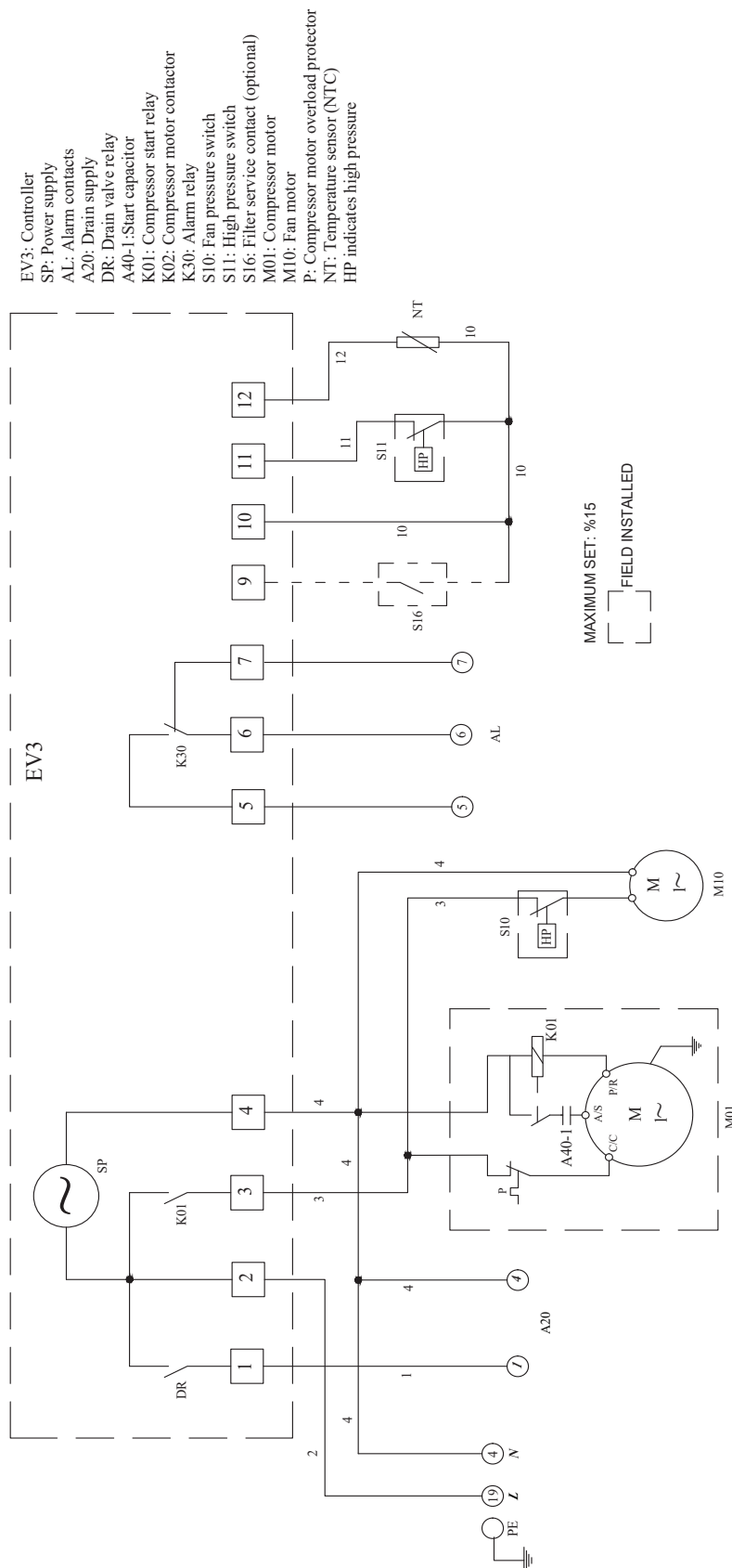
6.2 ELECTRICAL DIAGRAMS

KRAD 15M to KRAD 25M



6.2 ELECTRICAL DIAGRAMS

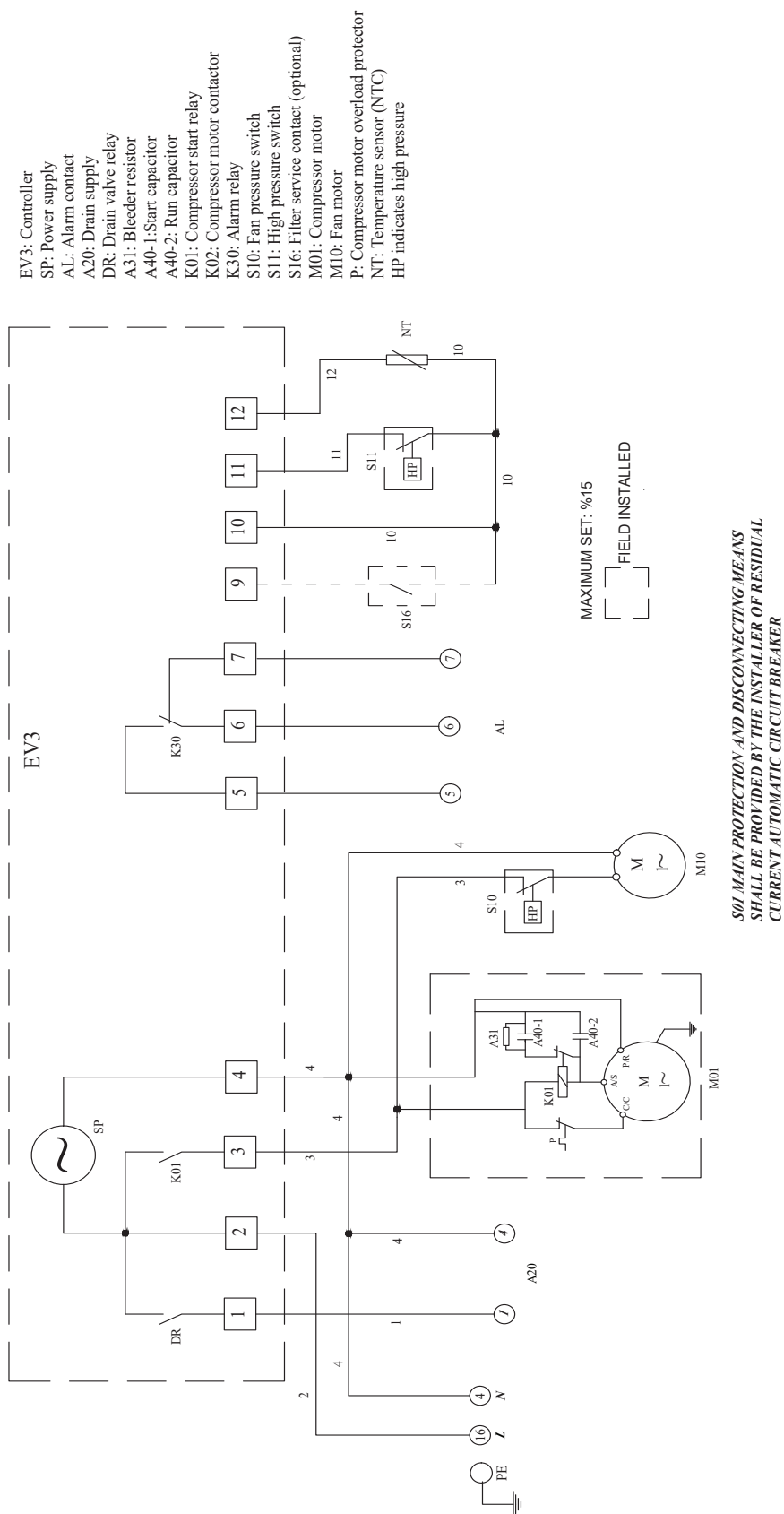
KRAD 40M to KRAD 125M



*S01 MAIN PROTECTION AND DISCONNECTING MEANS
SHALL BE PROVIDED BY THE INSTALLER OF
RESIDUAL CURRENT AUTOMATIC CIRCUIT BREAKER*

6.2 ELECTRICAL DIAGRAMS

KRAD 150 M to KRAD 250M

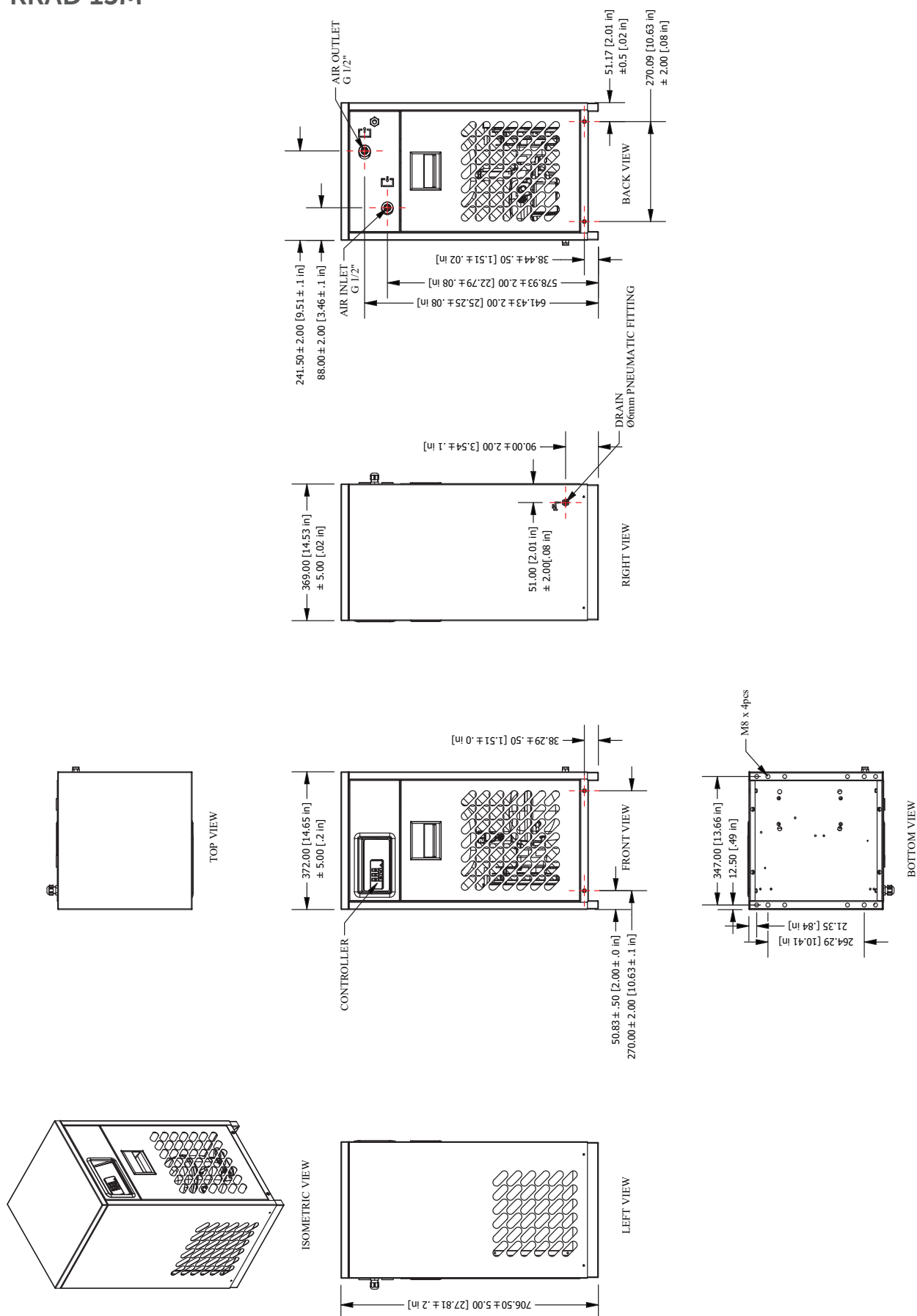


6.3 KRAD M

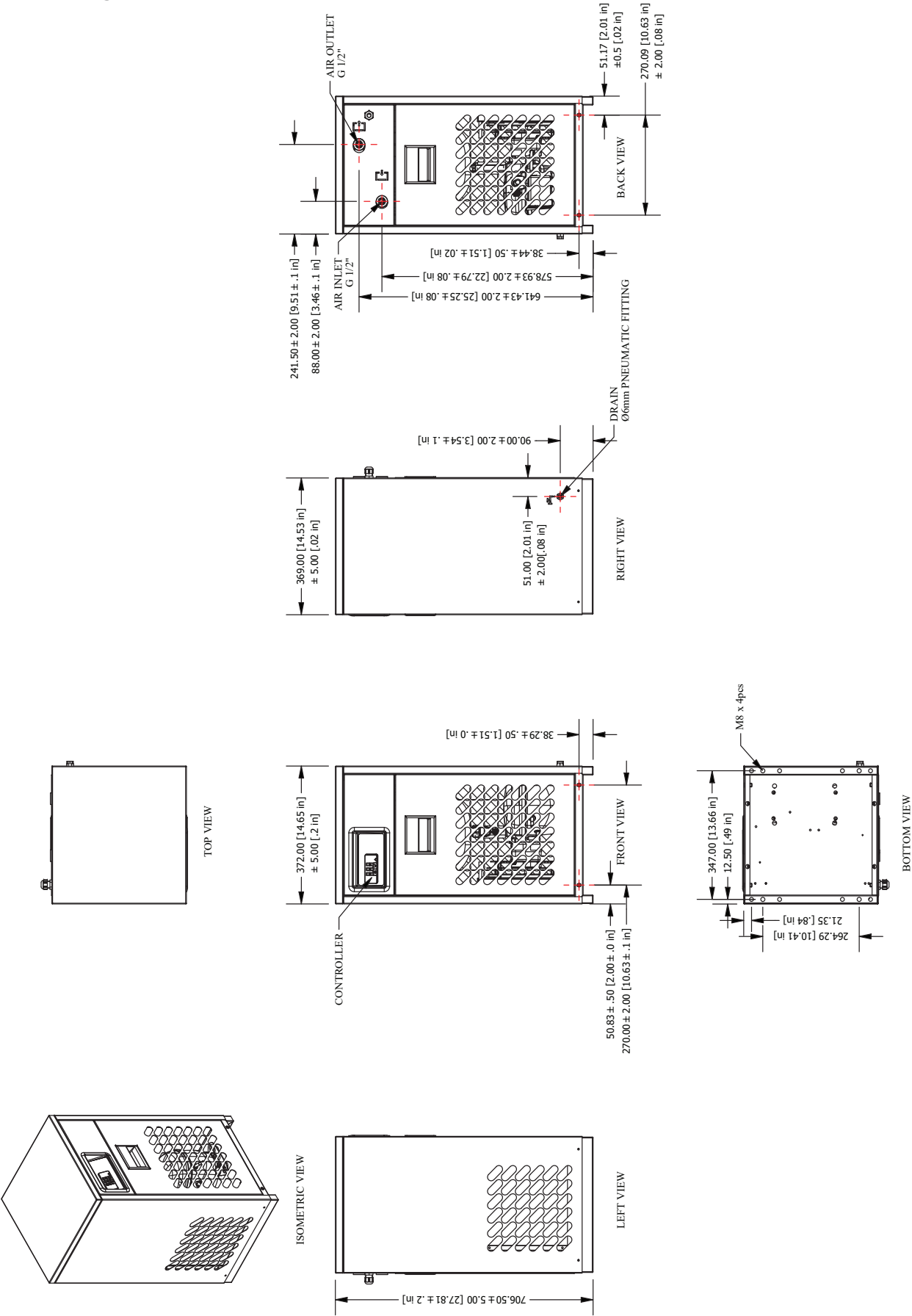
ID DIAGRAM DRAWINGS & GENERAL ARRANGEMENTS

6.3 ID DIAGRAM DRAWINGS

KRAD 15M

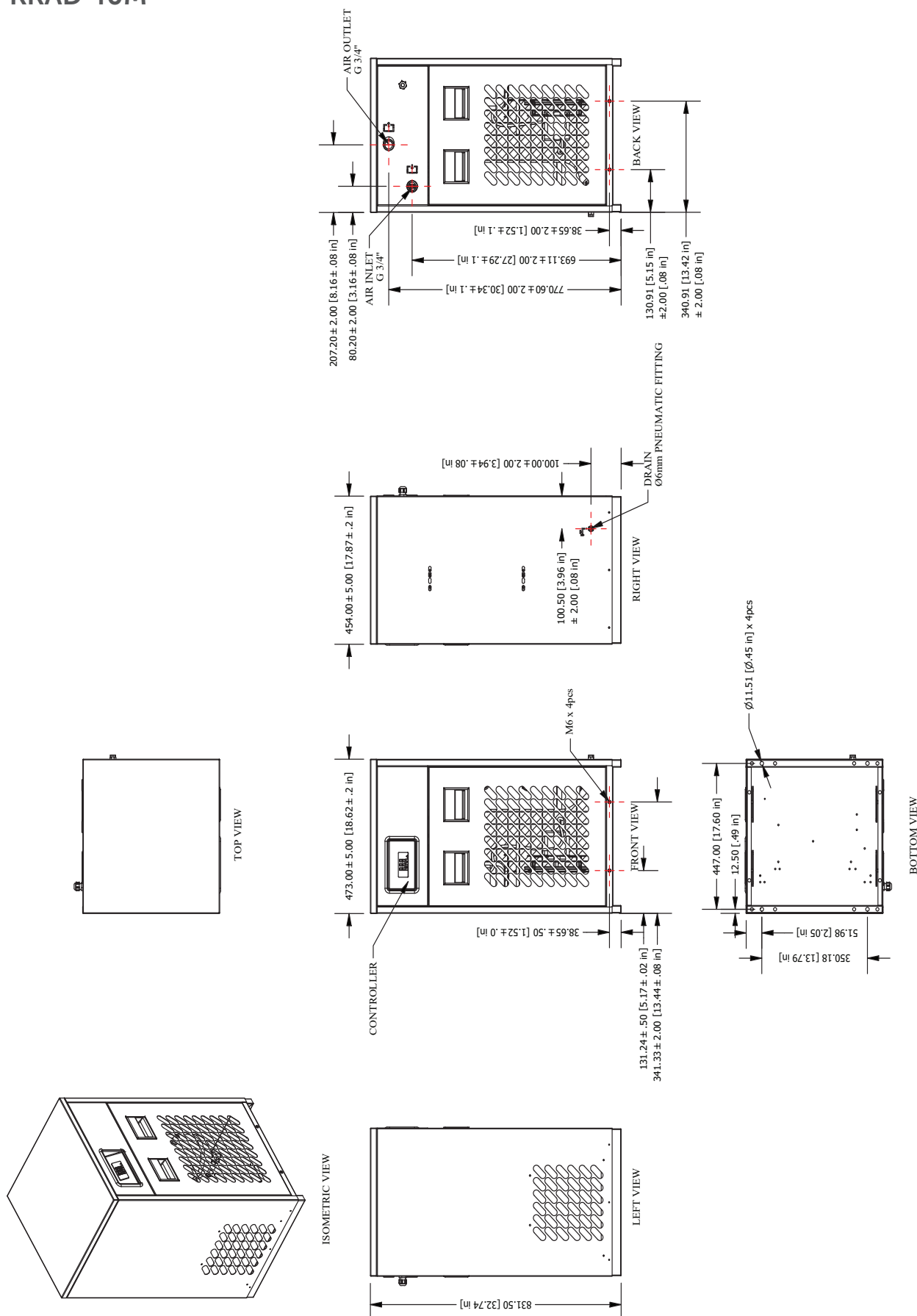


6.3 ID DIAGRAM DRAWINGS KRAD 25M

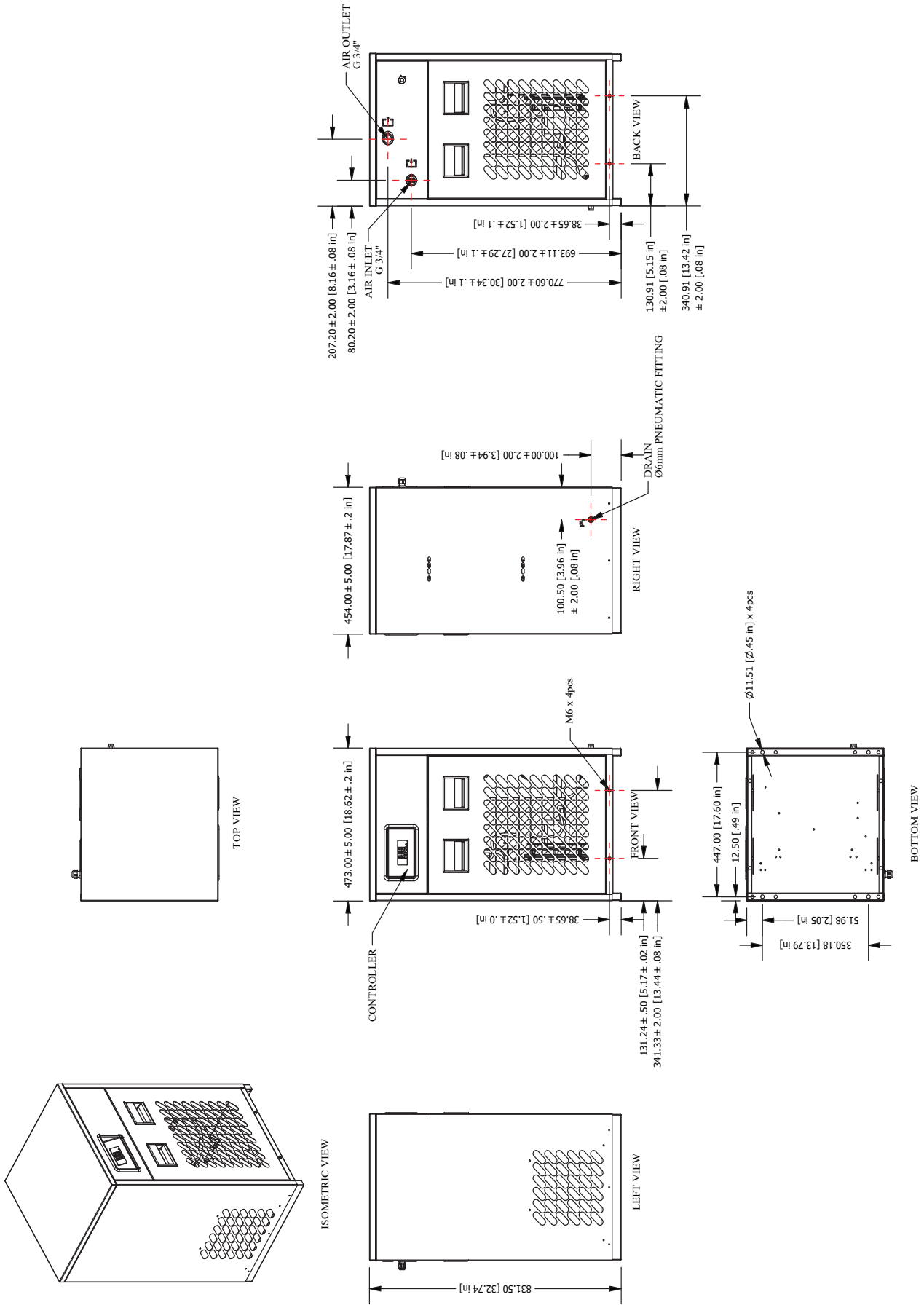


6.3 ID DIAGRAM DRAWINGS

KRAD 40M

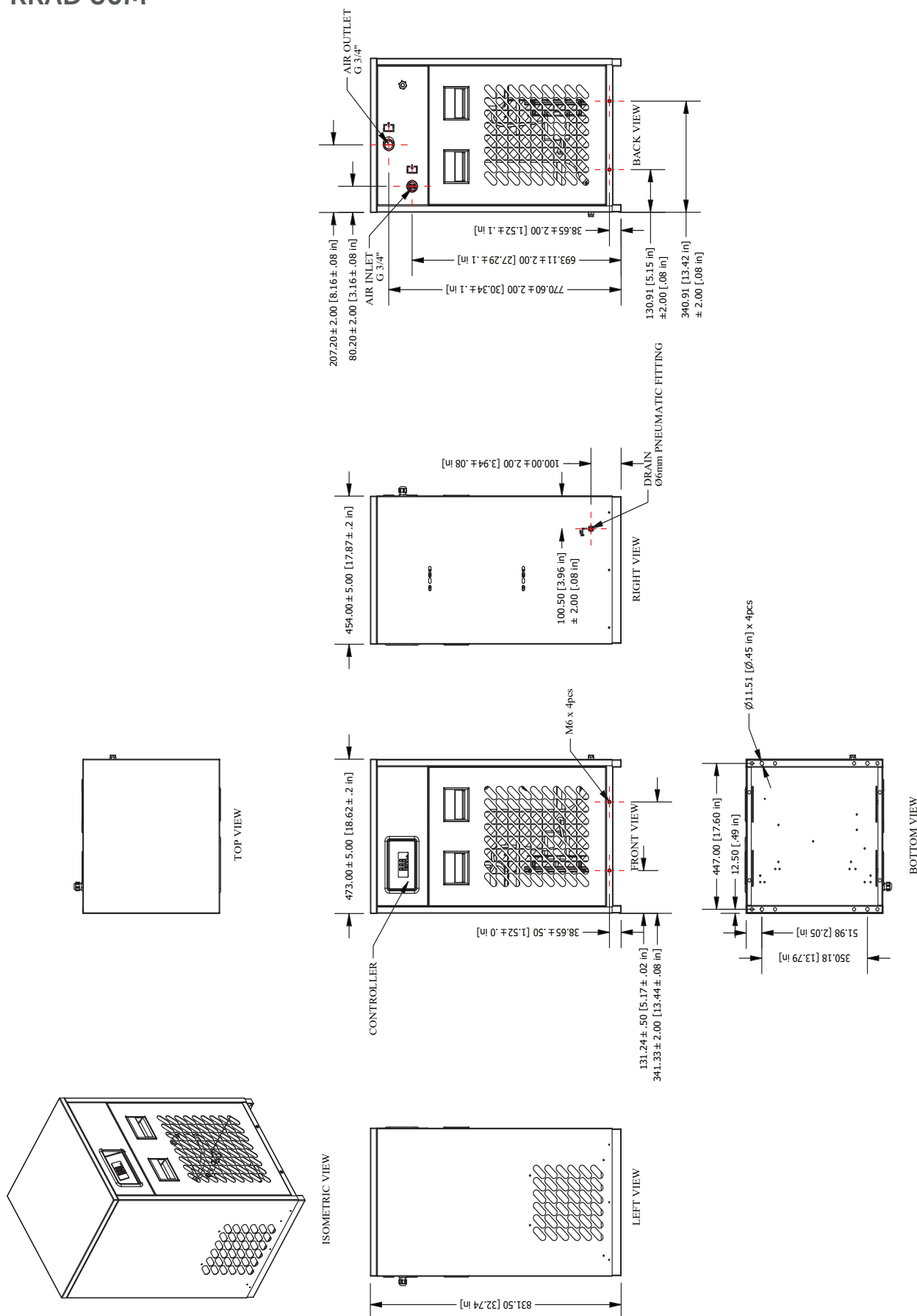


6.3 ID DIAGRAM DRAWINGS KRAD 60M

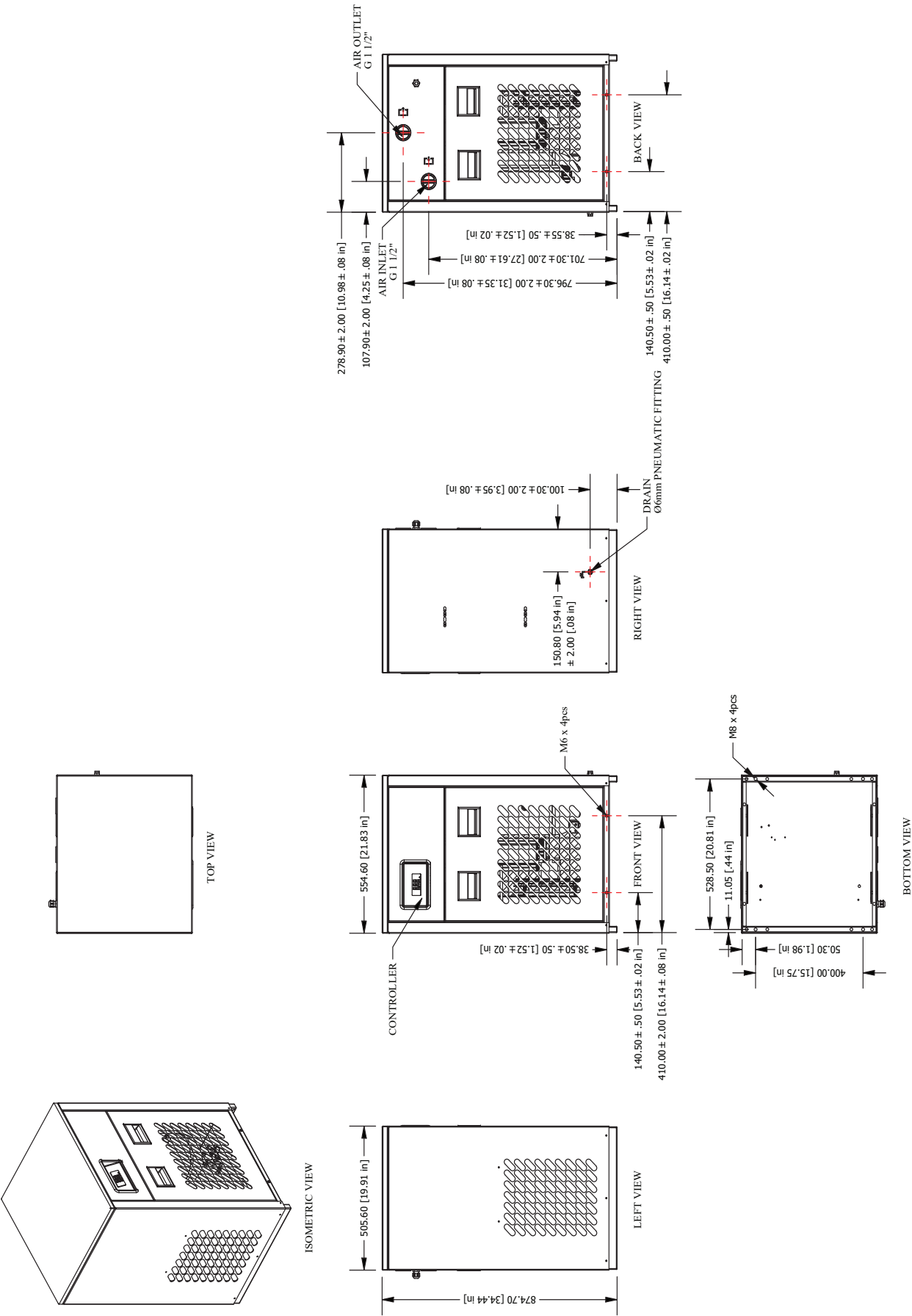


6.3 ID DIAGRAM DRAWINGS

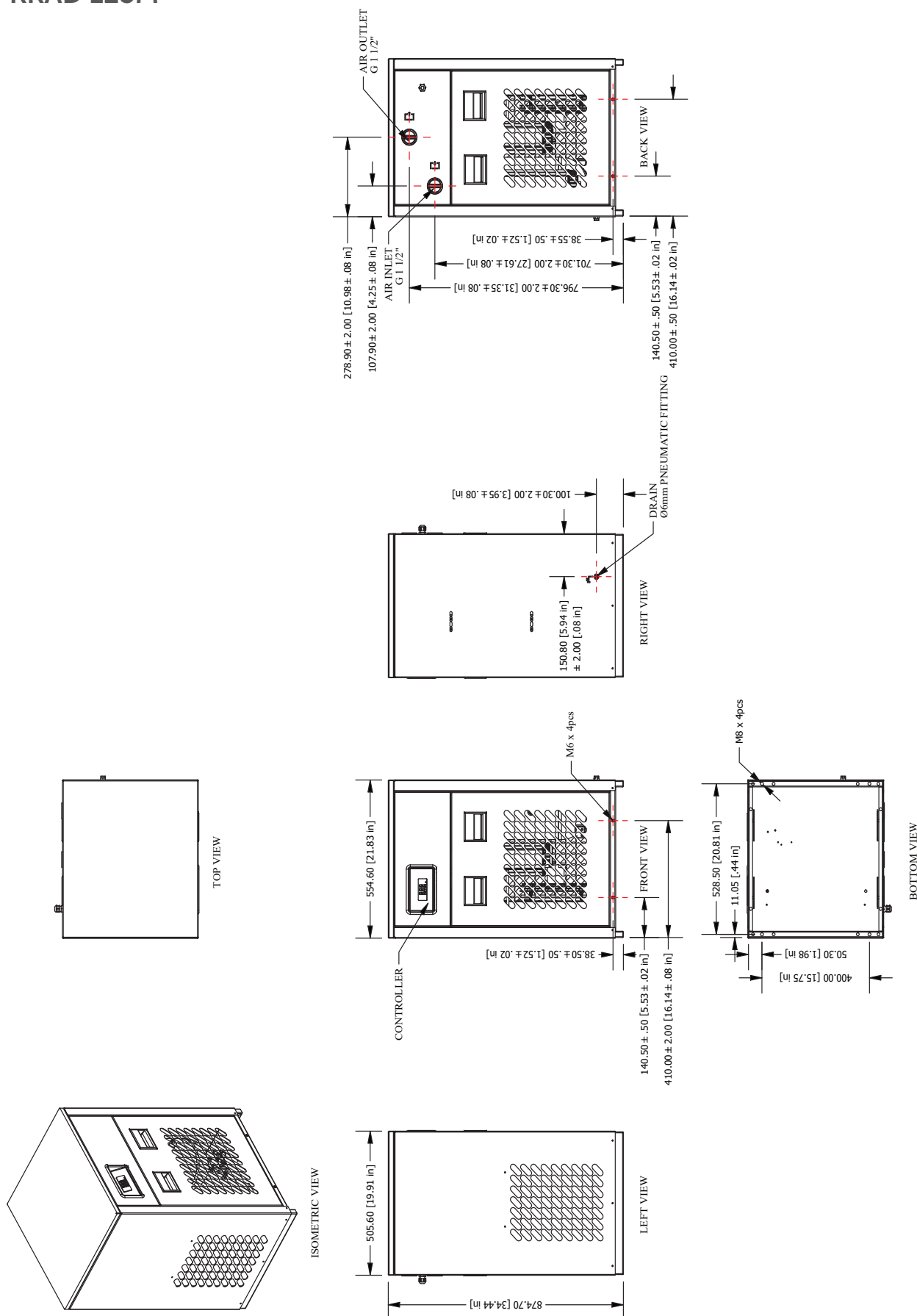
KRAD 80M



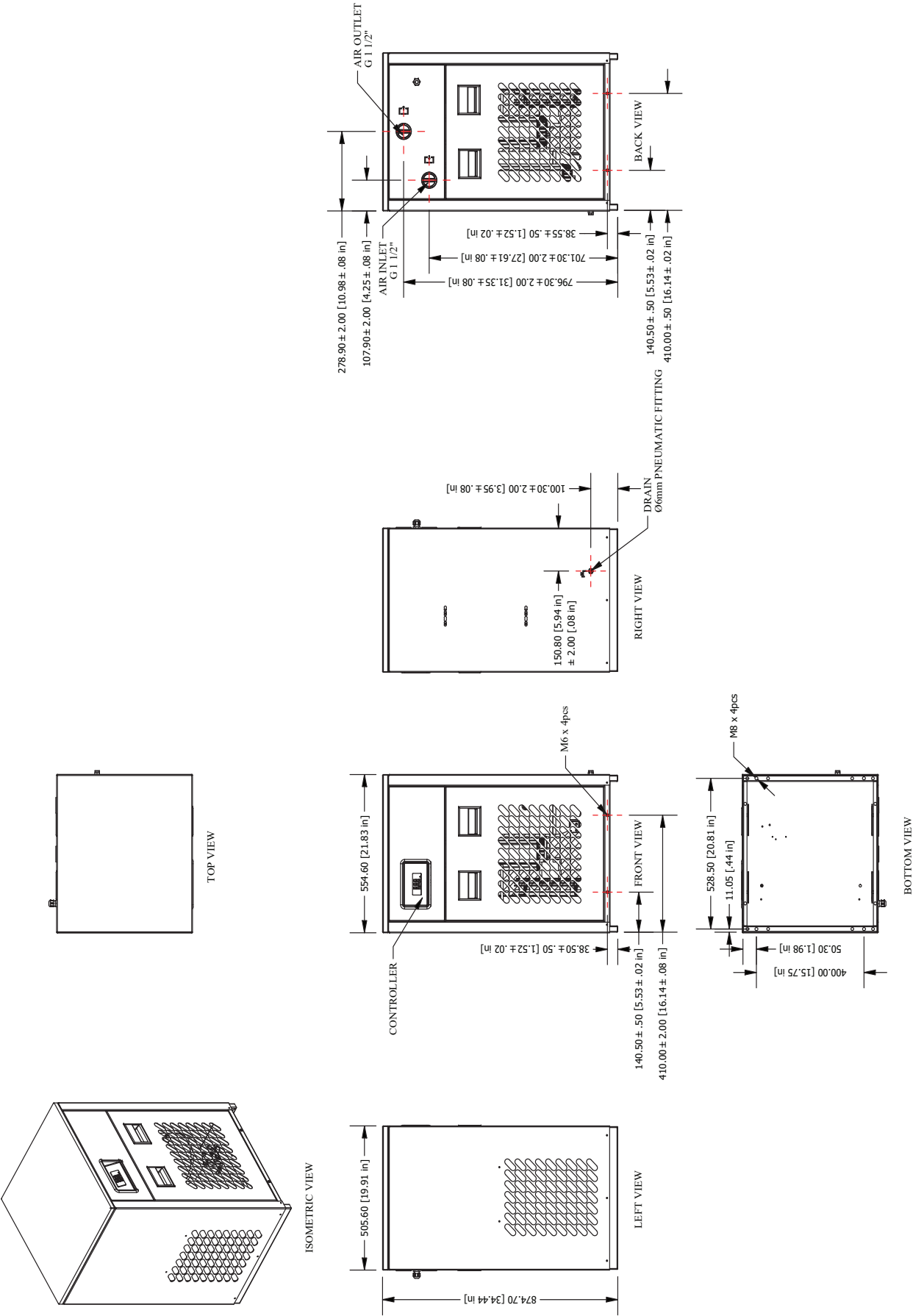
6.3 ID DIAGRAM DRAWINGS **KRAD 100M**



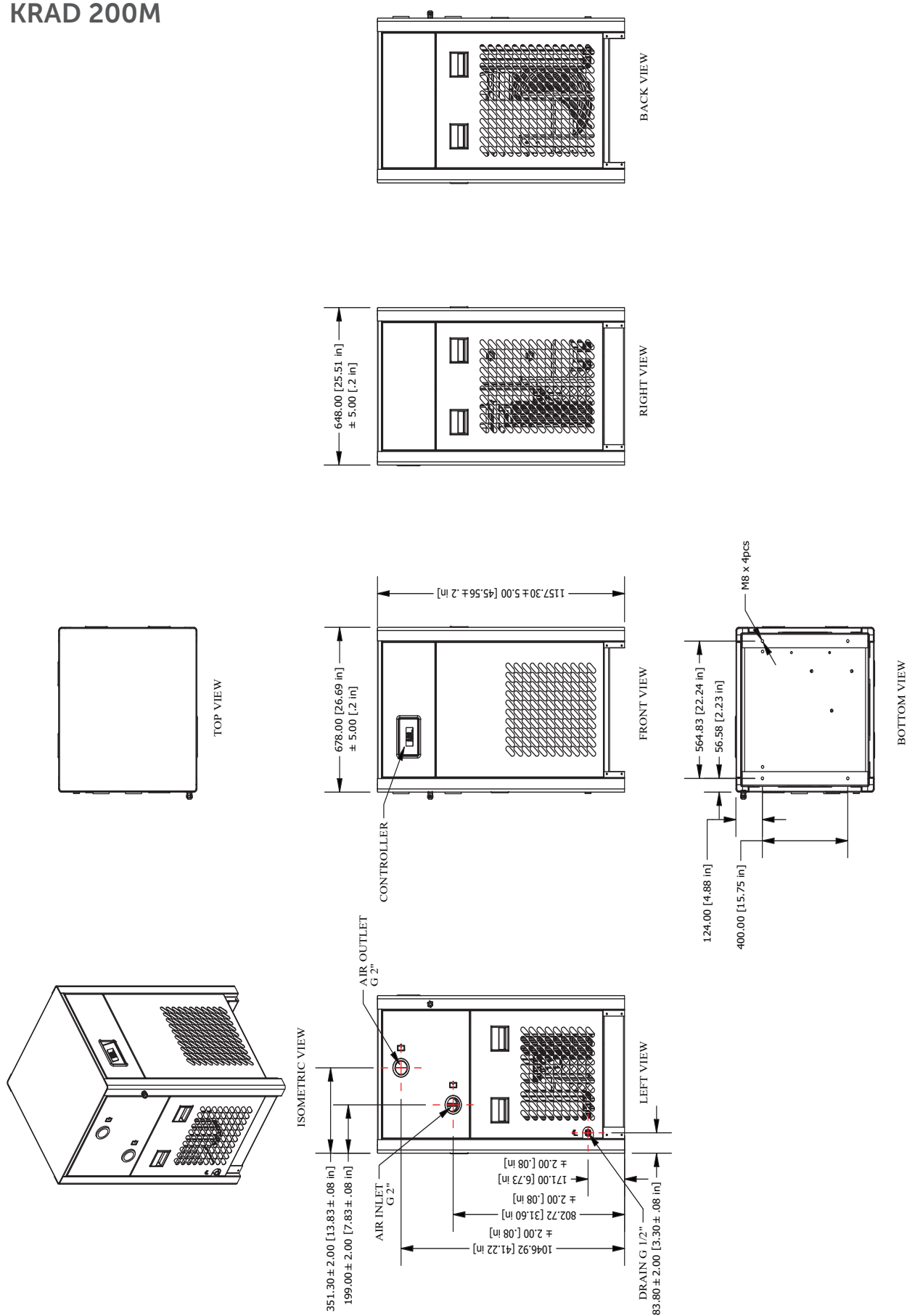
6.3 ID DIAGRAM DRAWINGS KRAD 125M



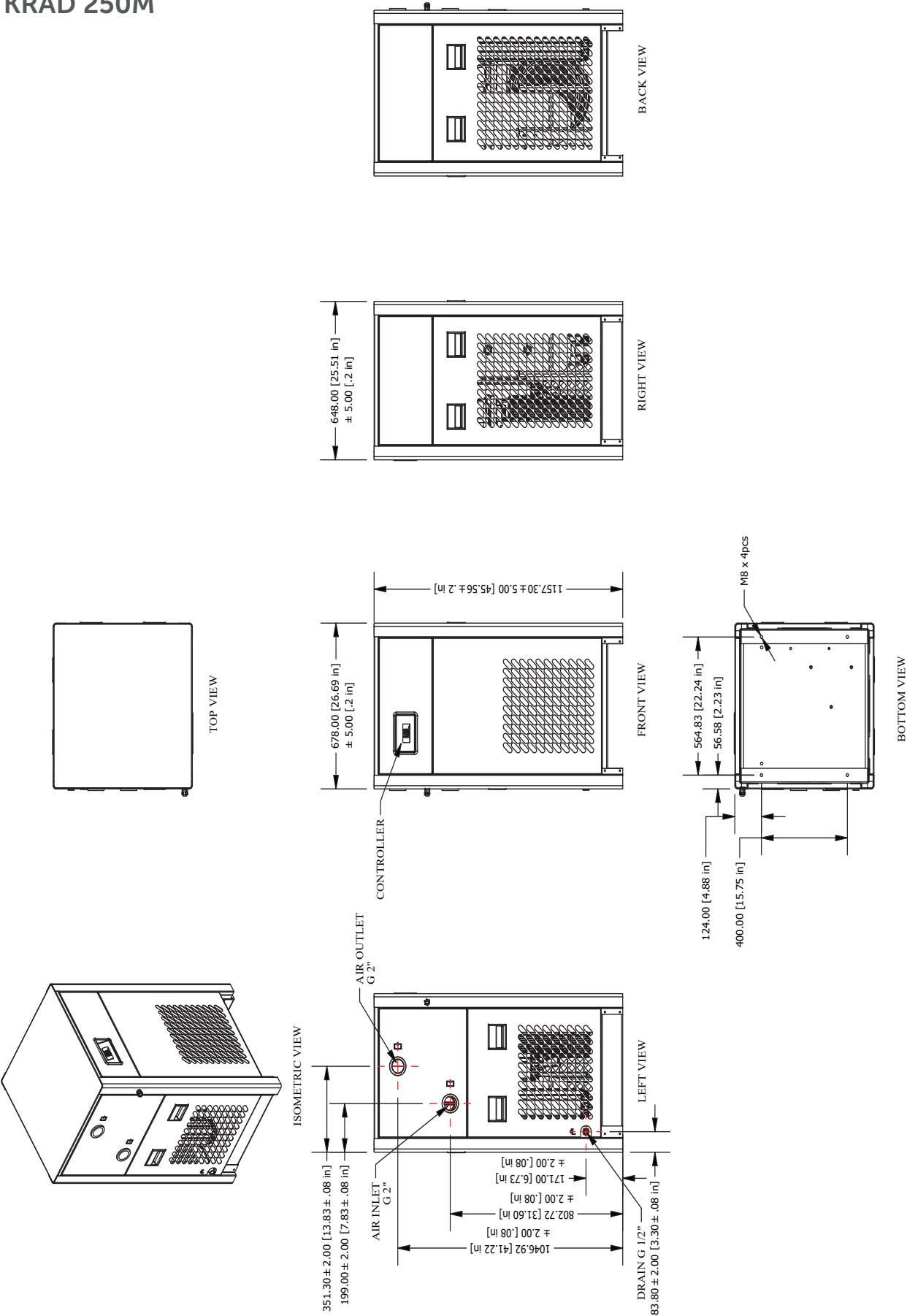
6.3 ID DIAGRAM DRAWINGS KRAD 150M



6.3 ID DIAGRAM DRAWINGS KRAD 200M



6.3 ID DIAGRAM DRAWINGS KRAD 250M



7.GENERAL ARRANGEMENTS

Model	Filter Quantity and Type	Element Type	Control Type	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
KRAD 15M	1*GKON65M X + 1*GKON65M Y	MKON 65 KIT	DigiPro	372	369	706	32
KRAD 25M	1*GKON65M X + 1*GKON65M Y	MKON 65 KIT	DigiPro	372	369	706	32
KRAD 40M	1*GKON155M X + 1*GKON155M Y	MKON 155 KIT	DigiPro	454	473	832	51
KRAD 60M	1*GKON155M X + 1*GKON155M Y	MKON 155 KIT	DigiPro	454	473	832	53
KRAD 80M	1*GKON155M X + 1*GKON155M Y	MKON 155 KIT	DigiPro	454	473	832	55
KRAD 100M	1*GKON405M X + 1*GKON405M Y	MKON 405 KIT	DigiPro	506	556	875	78
KRAD 125M	1*GKON405M X + 1*GKON405M Y	MKON405 KIT	DigiPro	506	556	875	83
KRAD 150M	1*GKON405M X + 1*GKON405M Y	MKON 405 KIT	DigiPro	506	556	875	86
KRAD 200M	1*GKON805M X + 1*GKON805M Y	MKON 805 KIT	DigiPro	648	678	1157	160
KRAD 250M	1*GKON805M X + 1*GKON805M Y	MKON 805 KIT	DigiPro	648	678	1157	165

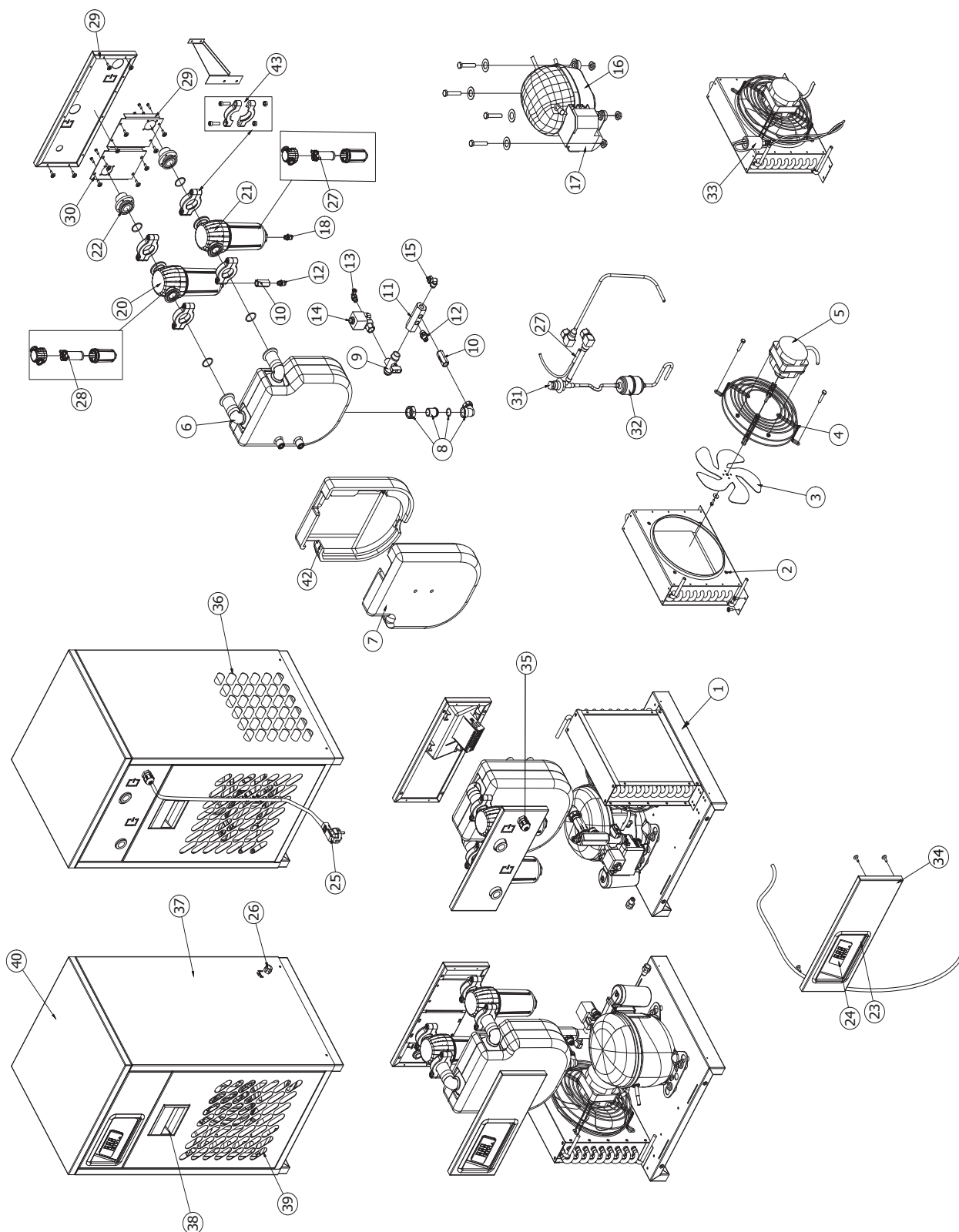
ALL MODELS	Superheat of thermostatic expansion valve	Evaporating pressure	Fan pressure switch	Security high pressure switch	Security low pressure switch	Drain timer	Refrigerant temperature switch	Water flow valve (if water condenser)
	5°C - 10°C	2.05 bar	9 - 12 bar	25 bar	1.6 bar	5 min. -5sec.	45°C	11 bar

8. KRAD M

EXPLODED DIAGRAMS & SPARE PART LISTS

8.1 - ED & Spare Part List

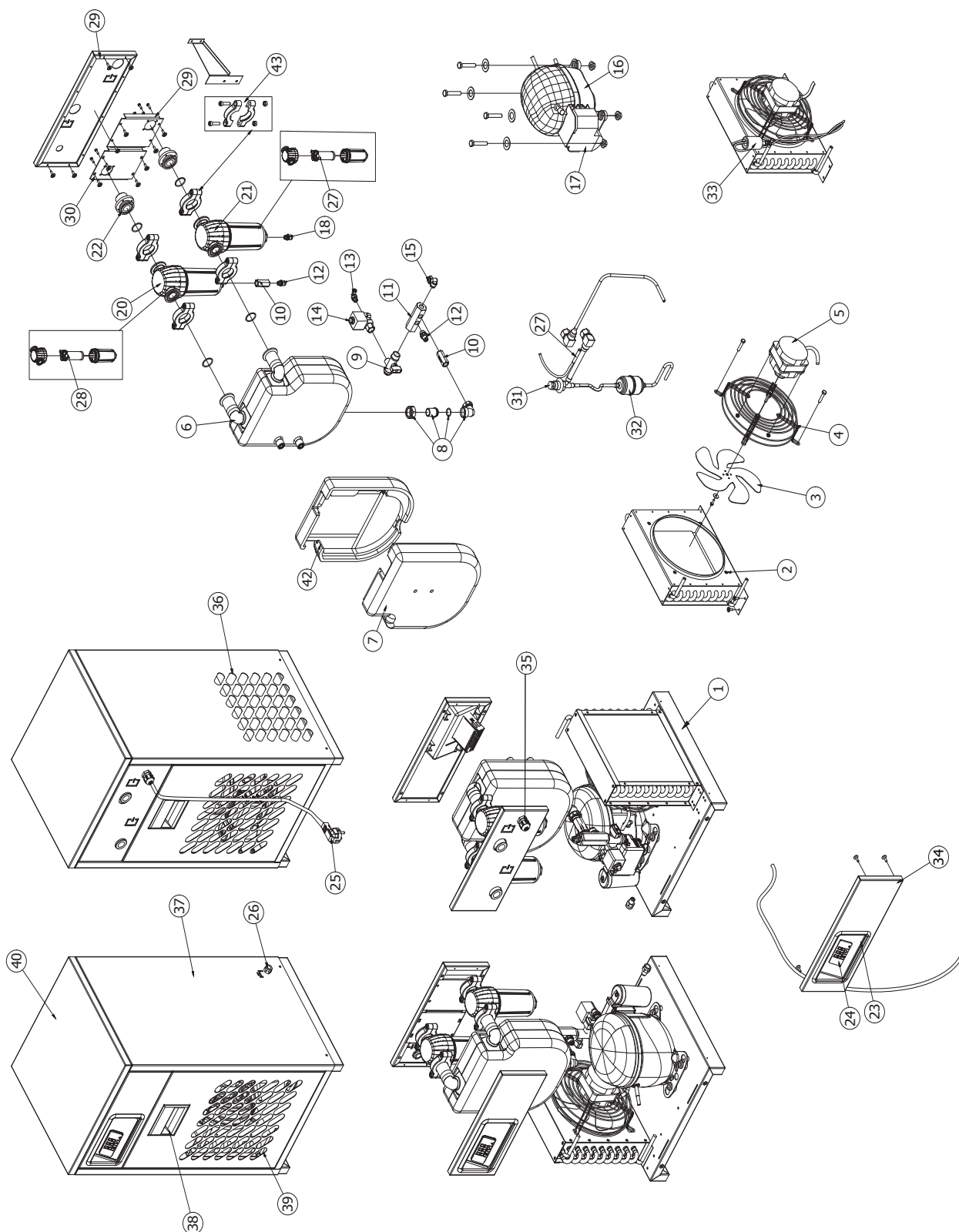
KRAD 15M



43	1019759	G25-100 CLAMP KIT	4
42	1442270100	MK10-35 ISOLATION POLYSTYRENE TOP	1
41	1612250731	1/4"-4MM STRAIGHT FEMALE FITTINGS	1
40	1612264166	MK10-20-30-35-08-GON (7012 THICK RAGGED GREY)	1
39	1612264165	MK10-20-30-35-07-GON (7012 THICK RAGGED GREY)	2
38	1039220100	AIR DRYER HANDLE	2
37	1612264162	MK10-20-30-35-03-GON (7012 THICK RAGGED GREY)	1
36	1612264161	MK10-20-30-35-02-GON (7012 THICK RAGGED GREY)	1
35	1023220100	POLYAMIDE CABLE UNION PG11	1
34	1612264164	MK10-20-30-35-06-GON (7012 THICK RAGGED GREY)	1
33	1026750100	12-9 BAR-FAN SWITCH	1
32	1026100100	MK10-90 FILTER DRYER	1
31	1025980100	MK10-60 EXPANSION VALVE	1
30	1612264149	MK10-20-30-35-05A-GON (GALVANIZED)	1
29	1612264150	MK10-20-30-35-05B-GON (GALVANIZED)	1
28	1612264163	MK10-20-30-35-04-GON (7012 THICK RAGGED GREY)	1
27	1057380100	NTC SENSOR	1
26	1026290100	PASS UNION Ø6mm	1
25	1031920100	3mt CABLE WITH PLUG	1
24	1057350100	DPR0 INDICATOR 30A 230V	1
23	1057340100	DRYER FRONT PANEL SINGLE HOLE	1
22	1037930100	MK10-20-30 CONNECTION KIT- ALD	2
21	1035799	ME-MKON-0065-3565/0123-Y-BM-PK	1
20	1035800	ME-MKON-0065-3565/0123-X-BM-PK	1
19	1035794	GKON-65-1/2-MY-A1/4-NSG-W-0000	1
18	1035793	GKON-65-1/2-MX-A1/4-NSG-W-0000	1
17	1062760100	MK10-20 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
16	1024550100	MK10-20 COMPRESSOR 220-230/1/50-60	1
15	1612250732	1/4"-4MM UNION - ELBOW	1
14	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
13	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
12	1034620100	1/4"-Ø6 STRAIGHT FEMALE FITTINGS	3
11	1022290100	MK10-150 COLLECTOR	1
10	1002090100	1/4" CHECK VALVE	2
9	1018430100	1/2"-1/4" FILTERED DRAIN	1
8	1002060100	1/2" CORNER UNION	1
7	1442260100	MK10-35 ISOLATION POLYSTYRENE LOWER	1
6	1017260100	MK10-35 EXCHANGER	1
5	1025370100	MK10-40 230/1/50 FAN MOTOR	1
4	1025260100	MK10-40 (Ø220) FAN GRILL	1
3	1025150100	MK10-40 (Ø200) FAN PROPELLER	1
2	1025040100	MK35 CONDANSER	1
1	1612264160	MK10-20-30-35-01-GON (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

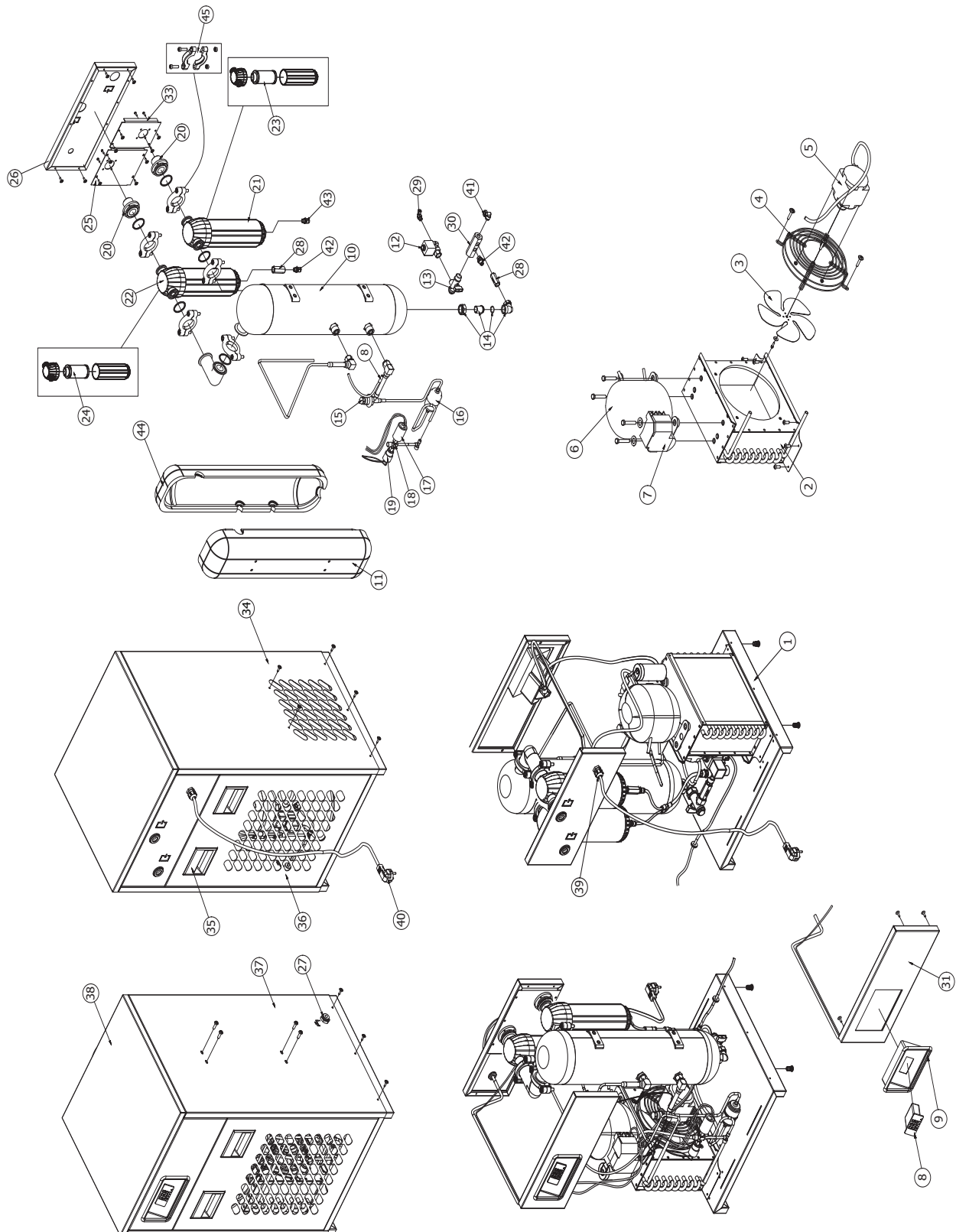
KRAD 25M



43	1019759	G25-100 CLAMP KIT	4
42	1442270100	MK10-35 ISOLATION POLYSTYRENE TOP	1
41	1612250731	1/4"-4MM STRAIGHT FEMALE FITTINGS	1
40	1612264166	MK10-20-30-35-08-GON (7012 THICK RAGGED GREY)	1
39	1612264165	MK10-20-30-35-07-GON (7012 THICK RAGGED GREY)	2
38	1039220100	AIR DRYER HANDLE	2
37	1612264162	MK10-20-30-35-03-GON (7012 THICK RAGGED GREY)	1
36	1612264161	MK10-20-30-35-02-GON (7012 THICK RAGGED GREY)	1
35	1023220100	POLYAMIDE CABLE UNION PG11	1
34	1612264164	MK10-20-30-35-06-GON (7012 THICK RAGGED GREY)	1
33	1026750100	12-9 BAR-FAN SWITCH	1
32	1026100100	MK10-90 FILTER DRYER	1
31	1025980100	MK10-60 EXPANSION VALVE	1
30	1612264149	MK10-20-30-35-05A-GON (GALVANIZED)	1
29	1612264150	MK10-20-30-35-05B-GON (GALVANIZED)	1
28	1612264163	MK10-20-30-35-04-GON (7012 THICK RAGGED GREY)	1
27	1057380100	NTC SENSOR	1
26	1026290100	PASS UNION Ø6mm	1
25	1031920100	3mt CABLE WITH PLUG	1
24	1057350100	DPR0 CONTROLLER 30A 230V	1
23	1057340100	DRYER FRONT PANEL	1
22	1037930100	MK10-20-30 INTERMEDIATE COUPLING KIT	2
21	1035799	ME-MKON-0065-3565/0123-Y-BM-PK	1
20	1035800	ME-MKON-0065-3565/0123-X-BM-PK	1
19	1035794	GKON-65-1/2-MY-A1/4-NSG-W-0000	1
18	1035793	GKON-65-1/2-MX-A1/4-NSG-W-0000	1
17	1062720100	MK30-35-40 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
16	1024410100	MK30-35-40 COMPRESSOR 220-230/1/50-60	1
15	1612250732	1/4"-4MM UNION - ELBOW	1
14	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
13	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
12	1034620100	1/4"-Ø6 STRAIGHT FEMALE FITTINGS	2
11	1022290100	MK10-150 COLLECTOR	1
10	1002090100	1/4" CHECK VALVE	2
9	1018430100	1/2"-1/4" FILTERED DRAIN	1
8	1002060100	1/2" CORNER UNION	1
7	1442260100	MK10-35 ISOLATION POLYSTYRENE LOWER	1
6	1017260100	MK10-35 EXCHANGER	1
5	1025290100	MK10-40 230/1/60 UL FAN MOTOR	1
4	1025260100	MK10-40 (Ø220) FAN GRILL	1
3	1025150100	MK10-40 (Ø200) FAN PROPELLER	1
2	1025060100	MK35 CONDANSER	1
1	1612264160	MK10-20-30-35-01-GON (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

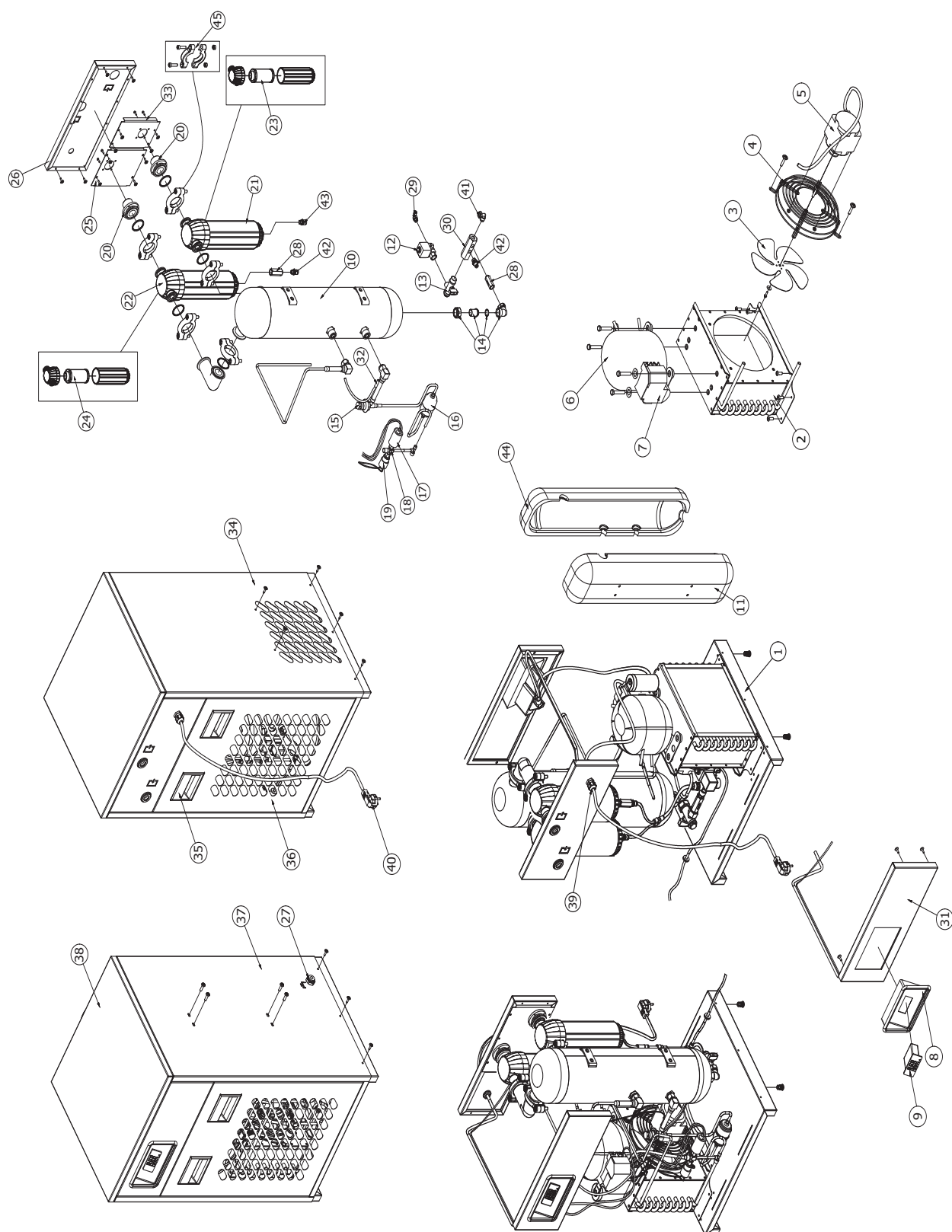
KRAD 40M



45	1019819	G150-250 CLAMP KIT	5
44	1442350100	MK40-60 ISOLATION POLYSTYRENE TOP	1
43	1612250731	1/4" 4mm STRAIGHT FEMALE FITTINGS	1
42	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	2
41	1612250732	1/4"-4mm UNION - ELBOW	1
40	1031920100	3mt CABLE WITH PLUG	1
39	1023220100	POLYAMIDE CABLE UNION PG11	1
38	1047510100	MK40-50-60-08 PANEL (7012 THICK RAGGED GREY)	1
37	1043740100	MK40-50-60-02 PANEL (7012 THICK RAGGED GREY)	1
36	1037460100	MK40-50-60-07 PANEL (7012 THICK RAGGED GREY)	2
35	1039220100	AIR DRYER HANDLE	4
34	1047680100	MK40-03A PANEL (7012 THICK RAGGED GREY)	1
33	1000670700	MK40-50-60-05B PANEL (GALVANIZED)	1
32	1057380100	NTC SENSOR	1
31	1042000100	MK40-50-60-06 PANEL (7012 THICK RAGGED GREY)	1
30	1022290100	MK10-150 COLLECTOR	1
29	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
28	1002090100	1/4" CHECK VALVE	2
27	1026290100	PASS UNION Ø6mm	1
26	1040160100	MK40-50-60-04 PANEL (7012 THICK RAGGED GREY)	1
25	1000670600	MK40-50-60-05A PANEL (GALVANIZED)	1
24	1012807	ME-MKON-0155-180300/0170-Y-BM-PK	1
23	1012808	ME-MKON-0155-180300/0170-X-BM-PK	1
22	1012805	GKON-155-3/4-MY-A1/4-NSG-W-0000	1
21	1012806	GKON-155-3/4-MX-A1/4-NSG-W-0000	1
20	1040740100	MK40-50-60 CONNECTION KIT ALD	2
19	1026770100	25 BAR HIGH PRESSURE SWITCH	1
18	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED T	1
17	1026750100	12-9 BAR-FAN SWITCH	1
16	1026100100	MK10-90 FILTER DRYER	1
15	1025980100	MK10-60 EXPANSION VALVE	1
14	1002060100	1/2" CORNER UNION	1
13	1018430100	1/2"-1/4" FILTERED DRAIN	1
12	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
11	1026970100	MK40-60 ISOLATION POLYSTYRENE	1
10	1045560100	MK40-50-60 HEAT EXCHANGER-MKR	1
9	1057350100	DPR0 CONTROLLER 30A 230V	1
8	1057340100	DRYER FRONT PANEL	1
7	1062720100	MK30-35-40 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024410100	MK30-35-40 COMPRESSOR 220-230/1/50-60	1
5	1025370100	MK10-40 230/1/50 FAN MOTOR	1
4	1025260100	MK10-40 (Ø220) FAN GRILL	1
3	1025150100	MK10-40 (Ø200) FAN PROPELLER	1
2	1024690100	MK40 CONDENSER	1
1	1038050100	MK40-50-60-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

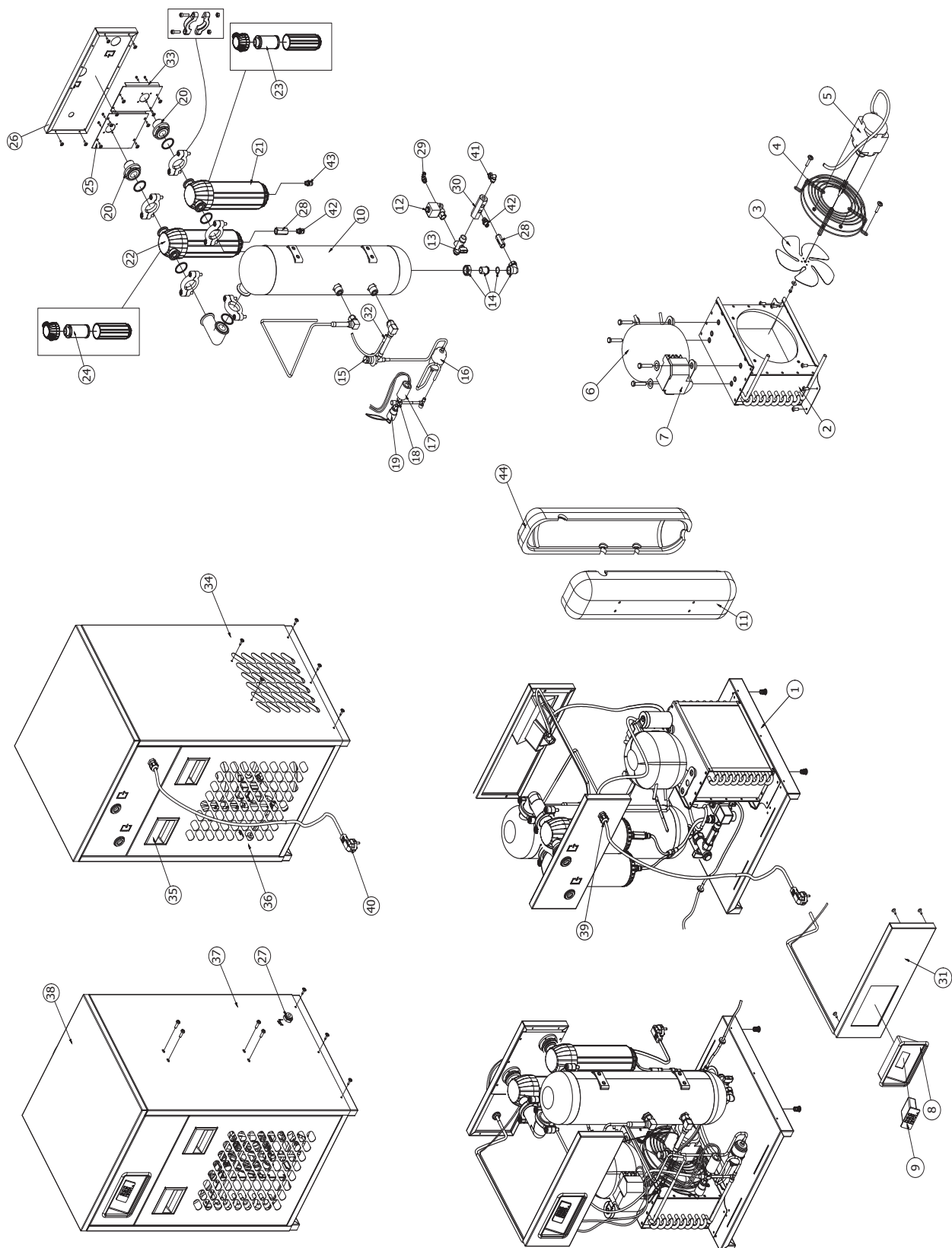
KRAD 60M



45	1019819	G150-250 CLAMP KIT	5
44	1442350100	MK40-60 ISOLATION POLYSTYRENE TOP	1
43	1612250731	1/4" 4mm STRAIGHT FEMALE FITTINGS	1
42	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	2
41	1612250732	1/4"-4 UNION - ELBOW	1
40	1031920100	3mt CABLE WITH PLUG	1
39	1023220100	POLYAMIDE CABLE UNION PG11	1
38	1047510100	MK40-50-60-08 PANEL (7012 THICK RAGGED GREY)	1
37	1043740100	MK40-50-60-02 PANEL (7012 THICK RAGGED GREY)	1
36	1037460100	MK40-50-60-07 PANEL (7012 THICK RAGGED GREY)	2
35	1039220100	AIR DRYER HANDLE	4
34	1038260100	MK50-60-03B PANEL (7012 THICK RAGGED GREY)	1
33	1000670700	MK40-50-60-05B PANEL (GALVANIZED)	1
32	1057380100	NTC SENSOR	1
31	1042000100	MK40-50-60-06 PANEL (7012 THICK RAGGED GREY)	1
30	1022290100	MK10-150 COLLECTOR	1
29	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
28	1002090100	1/4" CHECK VALVE	2
27	1026290100	PASS UNION Ø6mm	1
26	1040160100	MK40-50-60-04 PANEL (7012 THICK RAGGED GREY)	1
25	1000670600	MK40-50-60-05A PANEL (GALVANIZED)	1
24	1012807	ME-MKON-0155-180300/0170-Y-BM-PK	1
23	1012808	ME-MKON-0155-180300/0170-X-BM-PK	1
22	1012805	GKON-155-3/4-MY-A1/4-NSG-W-0000	1
21	1012806	GKON-155-3/4-MX-A1/4-NSG-W-0000	1
20	1040740100	MK40-50-60 CONNECTION KIT ALD	2
19	1026770100	25 BAR HIGH PRESSURE SWITCH	1
18	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED T	1
17	1026750100	12-9 BAR-FAN SWITCH	1
16	1026100100	MK10-90 FILTER DRYER	1
15	1025980100	MK10-60 EXPANSION VALVE	1
14	1002060100	1/2" CORNER UNION	1
13	1018430100	1/2"-1/4" FILTERED DRAIN	1
12	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
11	1442340100	MK40-60 ISOLATION POLYSTYRENE LOWER	1
10	1045560100	MK40-50-60 HEAT EXCHANGER-MKR	1
9	1057350100	DPR0 CONTROLLER 30A 230V	1
8	1057340100	DRYER FRONT PANEL	1
7	1062710100	MK50 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024420100	MK50 COMPRESSOR 220-230/1/50-60	1
5	1057820100	MK50-90 230V FAN MOTOR	1
4	1025270100	MK50-70 (Ø275) FAN GRILL	1
3	1025160100	MK50-70 (Ø254) FAN PROPELLER	1
2	1024990100	MK50-60 CONDENSER	1
1	1038050100	MK40-50-60-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

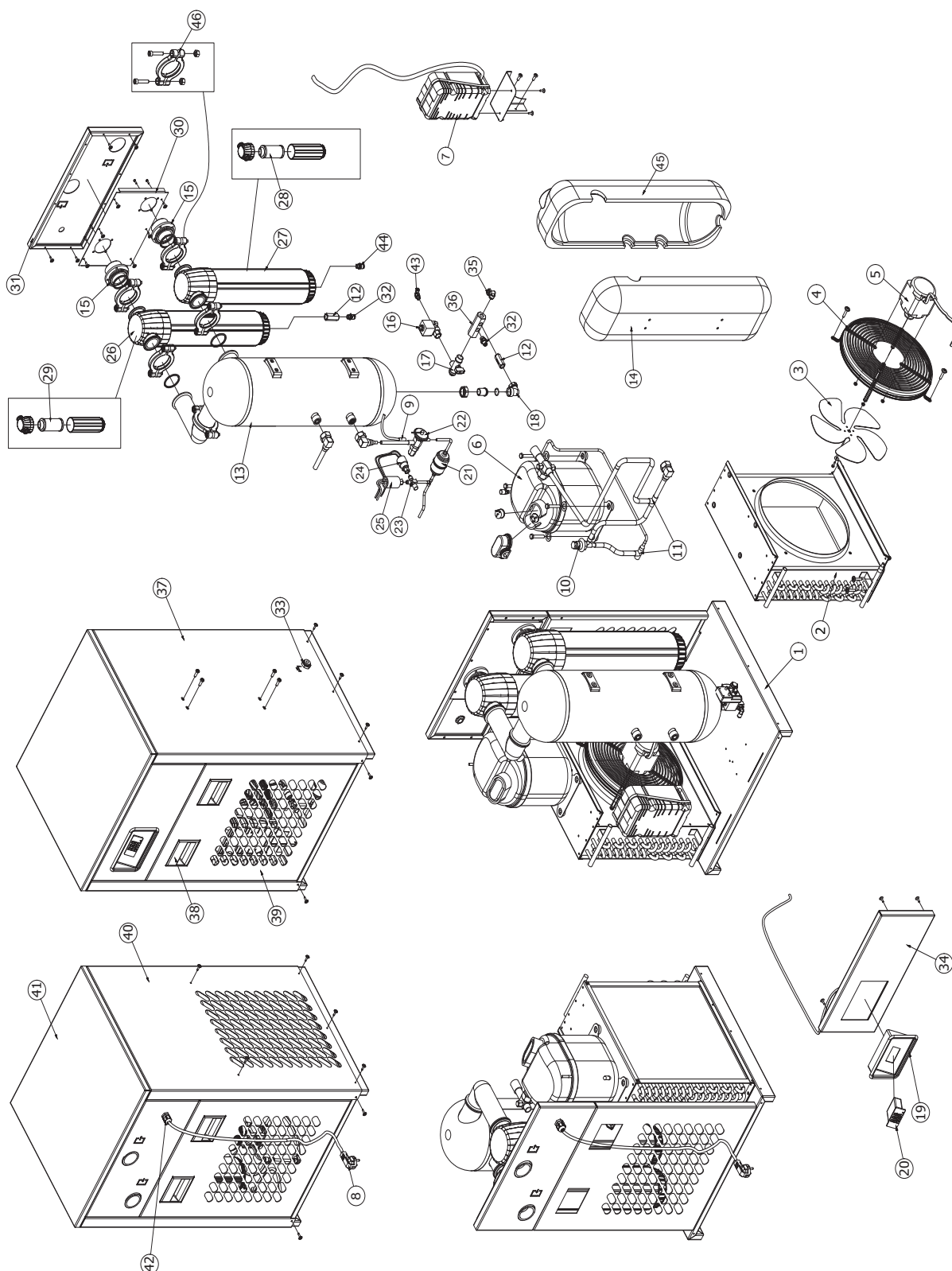
KRAD 80M



45	1019819	G150-250 CLAMP KIT	5
44	1442350100	MK40-60 ISOLATION POLYSTYRENE TOP	1
43	1612250731	1/4" 4mm STRAIGHT FEMALE FITTINGS	1
42	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	2
41	1612250732	1/4"-4 UNION - ELBOW	1
40	1031920100	3mt CABLE WITH PLUG	1
39	1023220100	POLYAMIDE CABLE UNION PG11	1
38	1047510100	MK40-50-60-08 PANEL (7012 THICK RAGGED GREY)	1
37	1043740100	MK50-60-02 PANEL (7012 THICK RAGGED GREY)	1
36	1037460100	MK40-50-60-07 PANEL (7012 THICK RAGGED GREY)	2
35	1039220100	AIR DRYER HANDLE	4
34	1038260100	MK50-60-03B PANEL (7012 THICK RAGGED GREY)	1
33	1000670700	MK40-50-60-05B PANEL (GALVANIZED)	1
32	1057380100	NTC SENSOR	1
31	1042000100	MK40-50-60-06 PANEL (7012 THICK RAGGED GREY)	1
30	1022290100	MK10-150 COLLECTOR	1
29	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
28	1002090100	1/4" CHECK VALVE	2
27	1026290100	PASS UNION Ø6mm	1
26	1040160100	MK40-50-60-04 PANEL (7012 THICK RAGGED GREY)	1
25	1000670600	MK40-50-60-05A PANEL (GALVANIZED)	1
24	1012807	ME-MKON-0155-180300/0170-Y-BM-PK	1
23	1012808	ME-MKON-0155-180300/0170-X-BM-PK	1
22	1012805	GKON-155-3/4-MY-A1/4-NSG-W-0000	1
21	1012806	GKON-155-3/4-MX-A1/4-NSG-W-0000	1
20	1040740100	MK40-50-60 CONNECTION KIT ALD	2
19	1026770100	25 BAR HIGH PRESSURE SWITCH	1
18	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED T	1
17	1026750100	12-9 BAR-FAN SWITCH	1
16	1026100100	MK10-90 FILTER DRYER	1
15	1025980100	MK10-60 EXPANSION VALVE	1
14	1002060100	1/2" CORNER UNION	1
13	1018430100	1/2"-1/4" FILTERED DRAIN	1
12	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
11	1442340100	MK40-60 ISOLATION POLYSTYRENE LOWER	1
10	1045560100	MK40-50-60 HEAT EXCHANGER-MKR	1
9	1057350100	DPR0 CONTROLLER 30A 230V	1
8	1057340100	DRYER FRONT PANEL	1
7	1062820100	MK60 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024430100	MK60 COMPRESSOR 220-230/1/50-60	1
5	1057820100	MK50-90 230V FAN MOTOR	1
4	1025270100	MK50-70 (Ø275) FAN GRILL	1
3	1025160100	MK50-70 (Ø254) FAN PROPELLER	1
2	1024990100	MK50-60 CONDENSER	1
1	1038050100	MK40-50-60-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

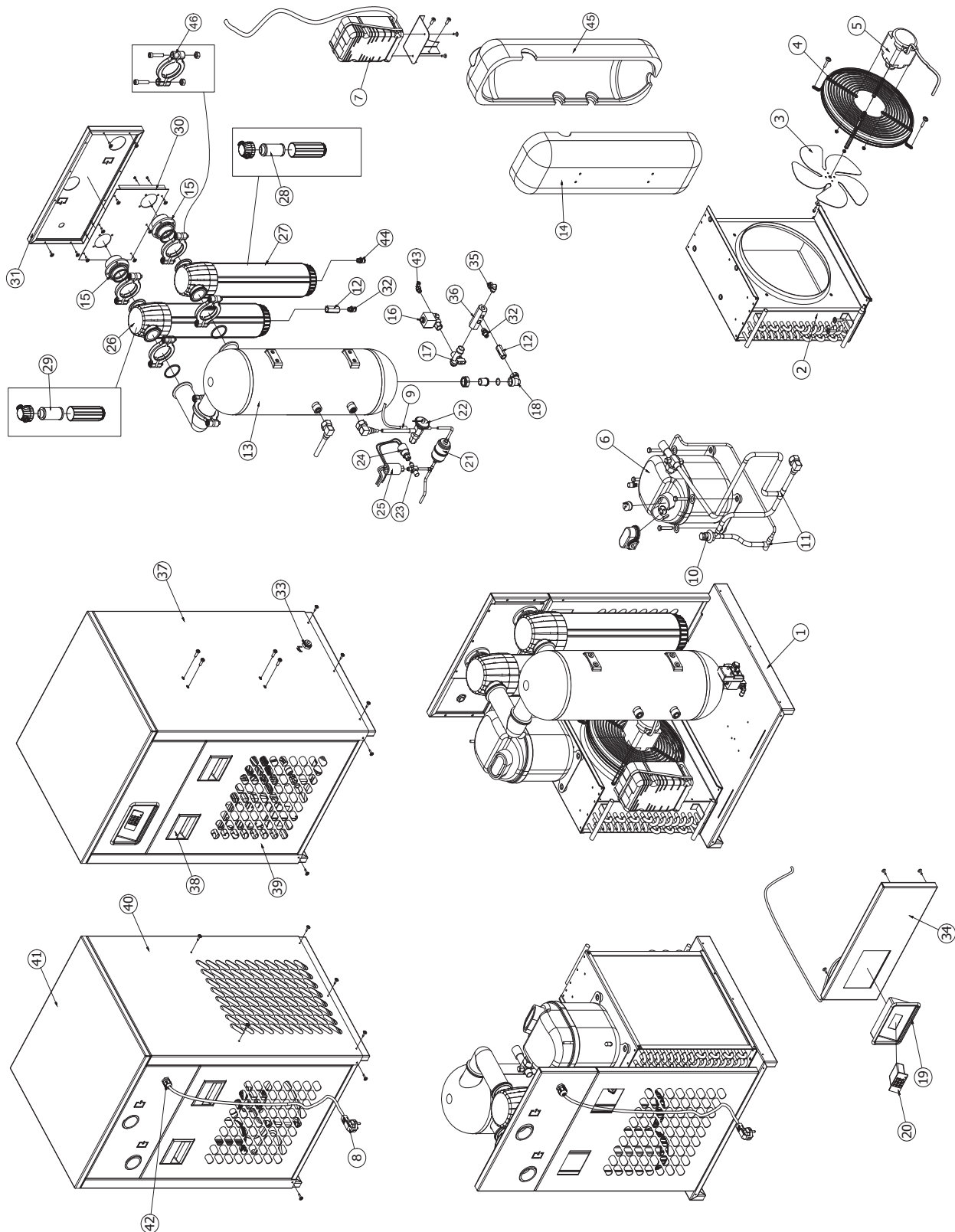
KRAD 100M



46	1020952	G300-600 CLAMP KIT	5
45	1442370100	MK70-90 ISOLATION POLYSTYRENE TOP	1
44	1612250731	1/4"-4 STRAIGHT FEMALE FITTINGS	1
43	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
42	1023220100	POLYAMIDE CABLE UNION PG11	1
41	1044830100	MK70-80-90-08 PANEL (7012 THICK RAGGED GREY)	1
40	1045190100	MK70-03A PANEL (7012 THICK RAGGED GREY)	1
39	1045220100	MK70-80-90-07 PANEL (7012 THICK RAGGED GREY)	2
38	1039220100	AIR DRYER HANDLE	4
37	1046660100	MK70-80-90-02 PANEL (7012 THICK RAGGED GREY)	1
36	1022290100	MK10-150 COLLEKTOR	1
35	1612250732	1/4"-4 UNION - ELBOW	1
34	1044300100	MK70-80-90-06 PANEL (7012 THICK RAGGED GREY)	1
33	1026290100	PASS UNION Ø6mm	1
32	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	2
31	1047010100	MK70-80-90-04A PANEL (7012 THICK RAGGED GREY)	1
30	1001310500	MK70-80-90-05 PANEL (GALVANIZED)	1
29	1013517	ME-MKON-0405-300400/0390-Y-BM-PK	1
28	1013516	ME-MKON-0405-300400/0390-X-BM-PK	1
27	1013513	GKON-405-1 1/2-MX-A1/4-NSG-W-0000	1
26	1013512	GKON-405-1 1/2-MY-A1/4-NSG-W-0000	1
25	1026750100	12-9 BAR-FAN SWITCH	1
24	1026770100	25 BAR HIGH PRESSURE SWITCH	1
23	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED	1
22	1025640100	EXPANSION VALVE TUBE-5	1
21	1026100100	MK10-90 FILTER DRYER	1
20	1057350100	DPR0 CONTROLLER 30A 230V	1
19	1057340100	DRYER FRONT PANEL	1
18	1018430100	1/2"-1/4" FILTERED DRAIN	1
17	1002060100	1/2" CORNER UNION	1
16	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
15	1041300100	MK70-80-90 CONNECTION KIT ALD	2
14	1441820100	MK70-90 ISOLATION POLYSTYRENE LOWER	1
13	1058200100	MK70-80-90 EXCHANGER	1
12	1002090100	1/4" CHECK VALVE	2
11	1029560100	1/4" COPPER T 6mm	2
10	1025410100	MK10-60 BY-PASS VALVE TYPE -2	1
9	1057380100	NTC SENSOR	1
8	1031920100	3mt CABLE WITH PLUG	1
7	1062730100	MK70 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024560100	MK70 COMPRESSOR 220-230/1/50-60	1
5	1057820100	MK50-90 230V FAN MOTOR	1
4	1025270100	MK50-70 (Ø275) FAN GRILL	1
3	1025160100	MK50-70 (Ø254) FAN PROPELLER	1
2	1024700100	MK70 CONDENSER	1
1	1047230100	MK70-80-90-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

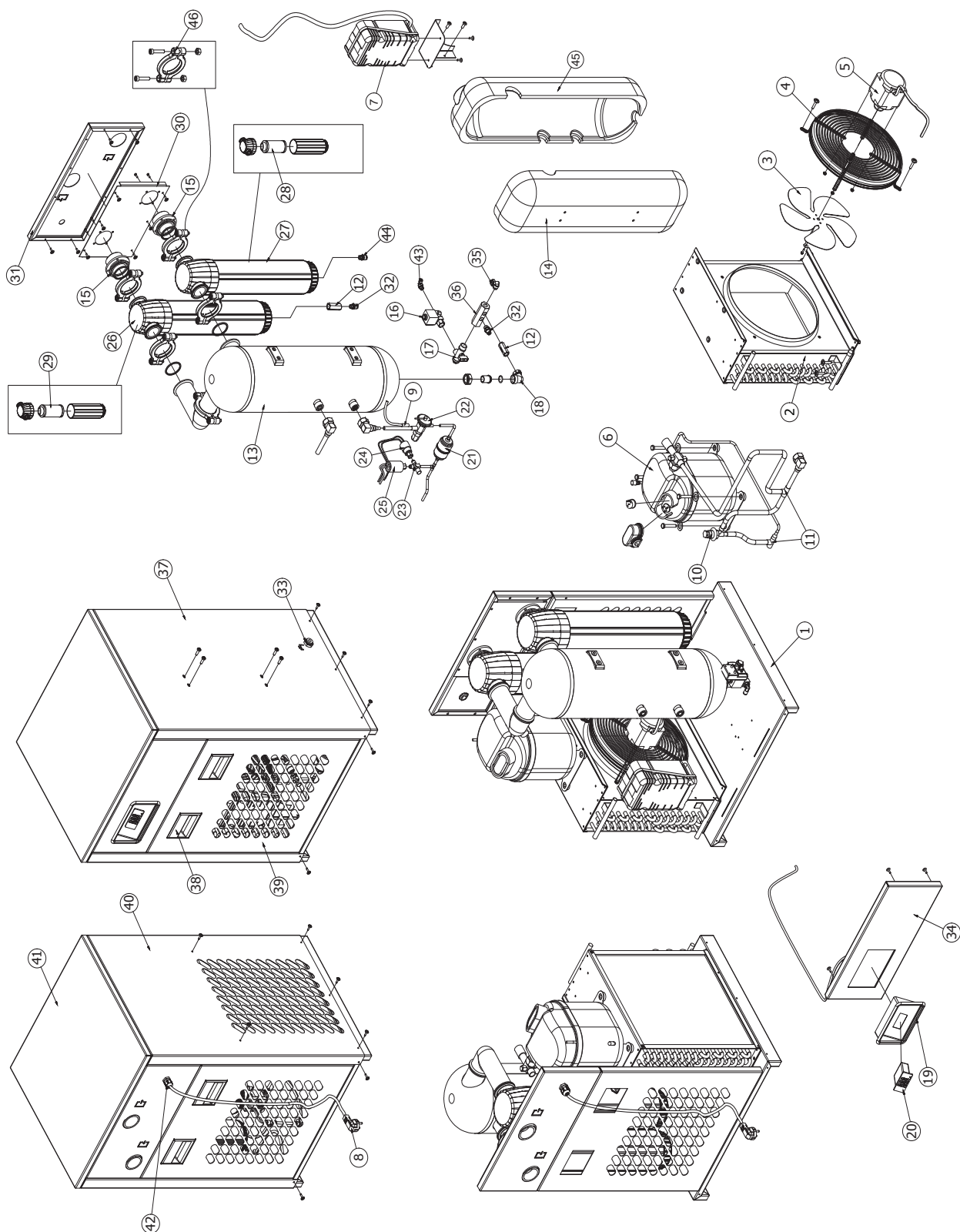
KRAD 125M



46	1020952	G300-600 CLAMP KIT	5
45	1442370100	MK70-90 ISOLATION POLYSTYRENE TOP	1
44	1612250731	1/4"-4 STRAIGHT FEMALE FITTINGS	1
43	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
42	1023220100	POLYAMIDE CABLE UNION PG11	1
41	1044830100	MK70-80-90-08 PANEL (7012 THICK RAGGED GREY)	1
40	1045420100	MK80-90-03B PANEL (7012 THICK RAGGED GREY)	1
39	1045220100	MK70-80-90-07 PANEL (7012 THICK RAGGED GREY)	2
38	1039220100	AIR DRYER HANDLE	4
37	1046660100	MK70-80-90-02 PANEL (7012 THICK RAGGED GREY)	1
36	1022290100	MK10-150 COLLECTOR	1
35	1612250732	1/4"-4 UNION - ELBOW	1
34	1044300100	MK70-80-90-06 PANEL (7012 THICK RAGGED GREY)	1
33	1026290100	PASS UNION Ø6mm	1
32	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	3
31	1047010100	MK70-80-90-04A PANEL (7012 THICK RAGGED GREY)	1
30	1001310500	MK70-80-90-05 PANEL (GALVANIZED)	1
29	1013517	ME-MKON-0405-300400/0390-Y-BM-PK	1
28	1013516	ME-MKON-0405-300400/0390-X-BM-PK	1
27	1013513	GKON-405-1 1/2-MX-A1/4-NSG-W-0000	1
26	1013512	GKON-405-1 1/2-MY-A1/4-NSG-W-0000	1
25	1026750100	12-9 BAR-FAN SWITCH	1
24	1026770100	25 BAR HIGH PRESSURE SWITCH	1
23	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED	1
22	1025640100	EXPANSION VALVE TUBE-5	1
21	1026100100	MK10-90 FILTER DRYER	1
20	1057350100	DPR0 CONTROLLER 30A 230V	1
19	1057340100	DRYER FRONT PANEL	1
18	1018430100	1/2"-1/4" FILTERED DRAIN	1
17	1002060100	1/2" CORNER UNION	1
16	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
15	1041300100	MK70-80-90 CONNECTION KIT ALD	2
14	1441820100	MK70-90 ISOLATION POLYSTYRENE LOWER	1
13	1058200100	MK70-80-90 EXCHANGER	1
12	1002090100	1/4" CHECK VALVE	2
11	1029560100	1/4" COPPER T 6mm	2
10	1025610100	MK80-130 BY-PASS VALVE 3/8"x1/2"	1
9	1057380100	NTC SENSOR	1
8	1031920100	3mt CABLE WITH PLUG	1
7	1062740100	MK80 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024570100	MK80 COMPRESSOR 220-230/1/50-60	1
5	1057820100	MK50-90 230V FAN MOTOR	1
4	1025320100	MK80-90 (Ø340) FAN GRILL	1
3	1025170100	MK80-90 (Ø300) FAN PROPELLER	1
2	1024920100	MK80-90 CONDENSER	1
1	1047230100	MK70-80-90-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

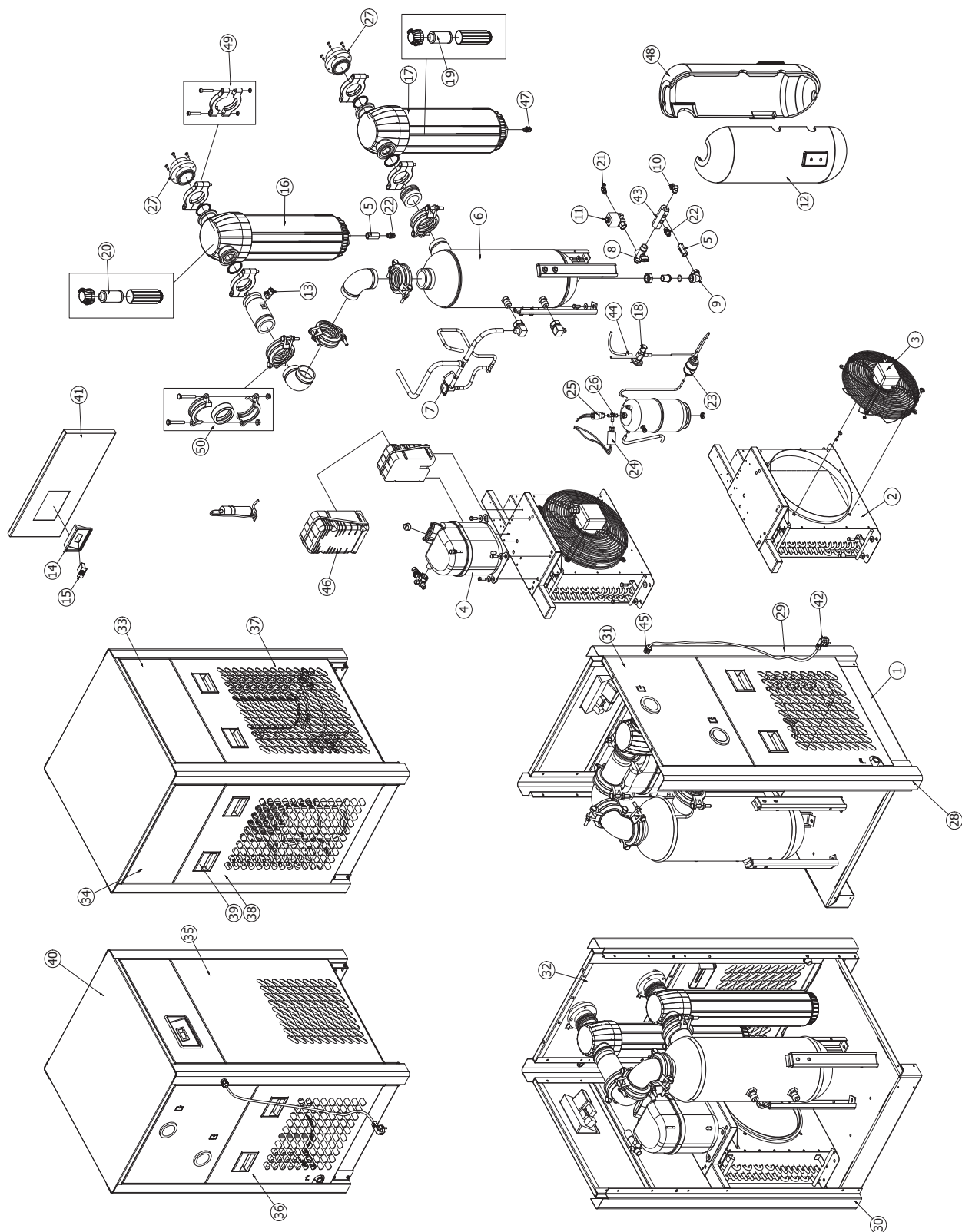
KRAD 150M



46	1020952	G300-600 CLAMP KIT	5
45	1442370100	MK70-90 ISOLATION POLYSTYRENE TOP	1
44	1612250731	1/4"-4 STRAIGHT FEMALE FITTINGS	1
43	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	1
42	1023220100	POLYAMIDE CABLE UNION PG11	1
41	1044830100	MK70-80-90-08 PANEL (7012 THICK RAGGED GREY)	1
40	1045420100	MK80-90-03B PANEL (7012 THICK RAGGED GREY)	1
39	1045220100	MK70-80-90-07 PANEL (7012 THICK RAGGED GREY)	2
38	1039220100	AIR DRYER HANDLE	4
37	1046660100	MK70-80-90-02 PANEL (7012 THICK RAGGED GREY)	1
36	1022290100	MK10-150 COLLECTOR	1
35	1612250732	1/4"-4 UNION - ELBOW	1
34	1044300100	MK70-80-90-06 PANEL (7012 THICK RAGGED GREY)	1
33	1026290100	PASS UNION Ø6mm	1
32	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	3
31	1047010100	MK70-80-90-04A PANEL (7012 THICK RAGGED GREY)	1
30	1001310500	MK70-80-90-05 PANEL (GALVANIZED)	1
29	1013517	ME-MKON-0405-300400/0390-Y-BM-PK	1
28	1013516	ME-MKON-0405-300400/0390-X-BM-PK	1
27	1013513	GKON-405-1 1/2-MX-A1/4-NSG-W-0000	1
26	1013512	GKON-405-1 1/2-MY-A1/4-NSG-W-0000	1
25	1026750100	12-9 BAR-FAN SWITCH	1
24	1026770100	25 BAR HIGH PRESSURE SWITCH	1
23	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED	1
22	1025640100	EXPANSION VALVE TUBE-5	1
21	1026100100	MK10-90 FILTER DRYER	1
20	1057350100	DPR0 CONTROLLER 30A 230V	1
19	1057340100	DRYER FRONT PANEL	1
18	1018430100	1/2"-1/4" FILTERED DRAIN	1
17	1002060100	1/2" CORNER UNION	1
16	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
15	1041300100	MK70-80-90 CONNECTION KIT ALD	2
14	1441820100	MK70-90 ISOLATION POLYSTYRENE LOWER	1
13	1058200100	MK70-80-90 EXCHANGER	1
12	1002090100	1/4" CHECK VALVE	2
11	1029560100	1/4" COPPER T 6mm	2
10	1025610100	MK80-130 BY-PASS VALVE 3/8"x1/2"	1
9	1057380100	NTC SENSOR	1
8	1031920100	3mt CABLE WITH PLUG	1
7	1062740100	MK80 COMPRESSOR 220-230/1/50-60 ELECTRIC BOX	1
6	1024030100	MK90-100 COMPRESSOR 220/1/50	1
5	1057820100	MK50-90 230V FAN MOTOR	1
4	1025320100	MK80-90 (Ø340) FAN GRILL	1
3	1025170100	MK80-90 (Ø300) FAN PROPELLER	1
2	1024920100	MK80-90 CONDENSER	1
1	1047230100	MK70-80-90-01 PANEL (7012 THICK RAGGED GREY)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

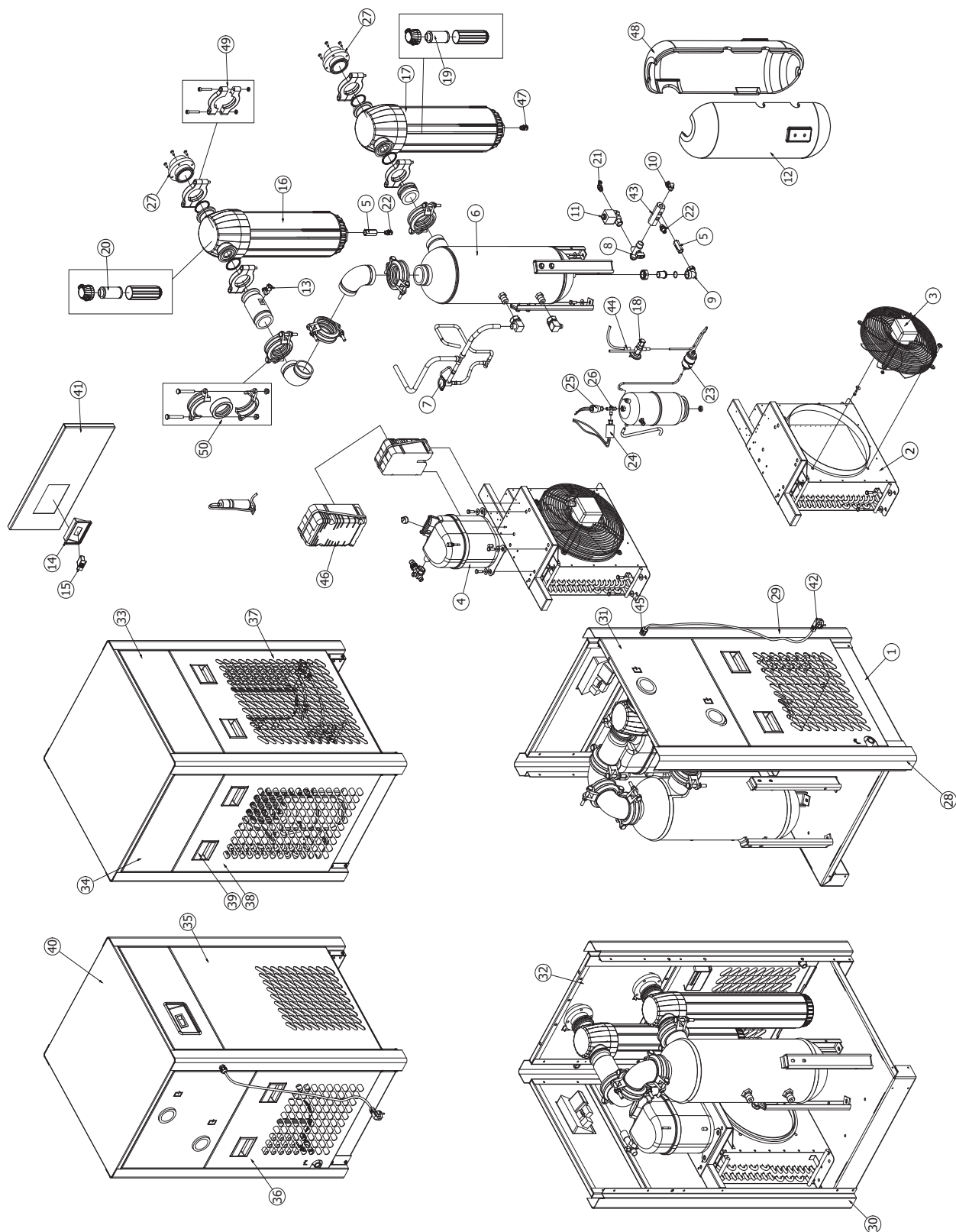
KRAD 200M



50	1027870100	76,1mm (2 1/2") RIGID COUPLAGE CLAMP	4
49	1020002	G851-1210 CLAMP KIT	4
48	1442300100	MK100-110 ISOLATION POLYSTYRENE LOWER	1
47	1612250731	1/4" -4mm STRAIGHT FEMALE FITTINGS	1
46	1062780100	MK90-100 COMPRESSOR 220/1/50 ELECTRIC BOX	1
45	1023220100	POLYAMIDE CABLE UNION PG11	1
44	1057380100	NTC SENSOR	1
43	1022290100	MK10-150 COLLECTOR	1
42	1031920100	3mt CABLE WITH PLUG	1
41	1041820100	MK100-110-14 PANEL (7012 THICK RAGGED GREY)	1
40	1041760100	MK100-110-13 PANEL (7012 THICK RAGGED GREY)	1
39	1039220100	AIR DRYER HANDLE	6
38	1042480100	MK100-110-10 PANEL (7012 THICK RAGGED GREY)	1
37	1038590100	MK100-110-11 PANEL (7012 THICK RAGGED GREY)	1
36	1041090100	MK100-110-12 PANEL (7012 THICK RAGGED GREY)	1
35	1041470100	MK100-110-09 PANEL (7012 THICK RAGGED GREY)	1
34	1042370100	MK100-110-08 PANEL (7012 THICK RAGGED GREY)	1
33	1038380100	MK100-110-07 PANEL (7012 THICK RAGGED GREY)	1
32	1001740700	MK100-110-06 PANEL (GALVANIZED)	1
31	1044820100	MK100-110-05 PANEL (9005 THIN RAGGED BLACK)	1
30	1049460100	MK100-110-02 PANEL (9005 THIN RAGGED BLACK)	2
29	1044400100	MK100-110-04 PANEL (9005 THIN RAGGED BLACK)	1
28	1044370100	MK100-110-03 PANEL (9005 THIN RAGGED BLACK)	1
27	1000280100	MK100-110-120-130 CONNECTION KIT ALD	2
26	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED	1
25	1026770100	25 BAR HIGH PRESSURE SWITCH	1
24	1026750100	12-9 BAR-FAN SWITCH	1
23	1026110100	MK100-110 FILTER DRYER	1
22	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	1
21	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	3
20	1013518	ME-MKON-0805-5001200/0400-X-BM-PK	1
19	1013519	ME-MKON-0805-5001200/0400-Y-BM-PK	1
18	1025640100	EXPANSION VALVE TUBE-5	1
17	1013510	GKON-805-2-MX-A1/4-NSG-W-0000	1
16	1013511	GKON-805-2-MY-A1/4-NSG-W-0000	1
15	1057350100	DPR0 CONTROLLER 30A 230V	1
14	1057340100	DRYER FRONT PANEL	1
13	1021840100	BALL VALVE 1/4" Mini Metal Handle	1
12	1442310100	MK100-110 ISOLATION POLYSTYRENE TOP	1
11	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
10	1612250732	M1/4"-4 UNION - ELBOW	1
9	1002060100	1/2" CORNER UNION	1
8	1018430100	1/2"-1/4" FILTERED DRAIN	1
7	1025610100	MK80-130 BY-PASS VALVE 3/8"x1/2"	1
6	1026550100	MK100-110 EXCHANGER	1
5	1002090100	1/4" CHECK VALVE	2
4	1024030100	MK90-100 COMPRESSOR 230/1/50	1
3	1018100100	MK100-110 230V FAN MOTOR	1
2	1024960100	MK100-110 CONDENSER	1
1	1038290100	MK100-110-01 PANEL (9005 THIN RAGGED BLACK)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

8.1 - ED & Spare Part List

KRAD 250M



50	1027870100	76,1mm (2 1/2") RIGID COUPLAGE CLAMP	4
49	1020002	G851-1210 CLAMP KIT	4
48	1442300100	MK100-110 ISOLATION POLYSTYRENE LOWER	1
47	1612250731	1/4" 4mm STRAIGHT FEMALE FITTINGS	1
46	1062780100	MK90-100 COMPRESSOR 220/1/50 ELECTRIC BOX	1
45	1023220100	POLYAMIDE CABLE UNION PG11	1
44	1057380100	NTC SENSOR	1
43	1022290100	MK10-150 COLLECTOR	1
42	1031920100	3mt CABLE WITH PLUG	1
41	1041820100	MK100-110-14 PANEL (7012 THICK RAGGED GREY)	1
40	1041760100	MK100-110-13 PANEL (7012 THICK RAGGED GREY)	1
39	1039220100	AIR DRYER HANDLE	6
38	1042480100	MK100-110-10 PANEL (7012 THICK RAGGED GREY)	1
37	1038590100	MK100-110-11 PANEL (7012 THICK RAGGED GREY)	1
36	1041090100	MK100-110-12 PANEL (7012 THICK RAGGED GREY)	1
35	1041470100	MK100-110-09 PANEL (7012 THICK RAGGED GREY)	1
34	1042370100	MK100-110-08 PANEL (7012 THICK RAGGED GREY)	1
33	1038380100	MK100-110-07 PANEL (7012 THICK RAGGED GREY)	1
32	1001740700	MK100-110-06 PANEL (GALVANIZED)	1
31	1044820100	MK100-110-05 PANEL (9005 THIN RAGGED BLACK)	1
30	1049460100	MK100-110-02 PANEL (9005 THIN RAGGED BLACK)	2
29	1044400100	MK100-110-04 PANEL (9005 THIN RAGGED BLACK)	1
28	1044370100	MK100-110-03 PANEL (9005 THIN RAGGED BLACK)	1
27	1000280100	MK100-110-120-130 CONNECTION KIT ALD	2
26	1029510100	3 SIDE SCHRADER, 1 SIDE WELDED	1
25	1026770100	25 BAR HIGH PRESSURE SWITCH	1
24	1026750100	12-9 BAR-FAN SWITCH	1
23	1026110100	MK100-110 FILTER DRYER	1
22	1034620100	1/4" 6mm STRAIGHT FEMALE FITTINGS	1
21	1029740100	1/4"-6*8 METAL SWIVELLING ELBOW UNION	3
20	1013518	ME-MKON-0805-5001200/0400-X-BM-PK	1
19	1013519	ME-MKON-0805-5001200/0400-Y-BM-PK	1
18	1025640100	EXPANSION VALVE TUBE-5	1
17	1013510	GKON-805-2-MX-A1/4-NSG-W-0000	1
16	1013511	GKON-805-2-MY-A1/4-NSG-W-0000	1
15	1057350100	DPR0 CONTROLLER 30A 230V	1
14	1057340100	DRYER FRONT PANEL	1
13	1021840100	BALL VALVE 1/4" Mini Metal Handle	1
12	1442310100	MK100-110 ISOLATION POLYSTYRENE TOP	1
11	1026430100	MK10-130 230V 16Bar SOLENOID VALVE	1
10	1612250732	M1/4"-4 UNION - ELBOW	1
9	1002060100	1/2" CORNER UNION	1
8	1018430100	1/2"-1/4" FILTERED DRAIN	1
7	1025610100	MK80-130 BY-PASS VALVE 3/8"x1/2"	1
6	1026550100	MK100-110 EXCHANGER	1
5	1002090100	1/4" CHECK VALVE	2
4	1024330100	MK110 COMPRESSOR 230/1/50	1
3	1018100100	MK100-110 230V FAN MOTOR	1
2	1024960100	MK100-110 CONDENSER	1
1	1038290100	MK100-110-01 PANEL (9005 THIN RAGGED BLACK)	1
ITEM NO.	PART NO.	DESCRIPTION	QTY
PART LIST			

9. COMPONENTS LOCATION

All main components located into dryer identified with labels as listed here under.

CAUTION: Due to manufacture design, some components out of the list are not installed into the dryer.

Electrical components:

Accessories :

A01:	Control circuit transformer
A02:	Power circuit transformer
A10:	ON warning light
A11:	OFF warning light
A20:	Drain solenoid valve
A30:	Crankcase heater
A31:	Electrical resistor
A40:	Electrical capacity
EV3	Digital Controller (Digi-Pro)
A50-3:	Energy saving device 3 (ESD3)

Relays :

K01:	Compressor motor relay
K10:	Fan motor relay
K20:	Drain timer or Bekomat (optional)
K30:	Temperature Controller

Switches :

S01:	Main switch
S02:	Start push button
S03:	Stop push button
S10:	Fan pressure control
S11:	High-low pressure security control
S12:	High pressure security control
S13:	Low pressure security control
S20:	Refrigerant temperature control
S21:	Air temperature control

Motors :

M01:	Refrigerant compressor motor
M10:	Fan motor

Thermal protections :

P01:	Refrigerant compressor thermal overload
P10:	Fan motor thermal overload

Fuses protections :

See complete identification into electrical sketch included in dryer

F--:	Transformer protection
F--:	Fan protection
F--:	Compressor relay protection
F--:	Transformer protection
F--:	Drain protection
F--:	Fan relay protection

Refrigerant components:

G01:	Liquid receiver
G02:	Refrigerant drier
G03:	Expansion valve
G04:	Liquid separator
G05:	Hot gas bypass valve
G06:	Refrigerant solenoid valve
G10:	Water cooled condenser
G11:	Water control valve
G20:	Refrigerant evaporating pressure gauge
G21:	Refrigerant evaporating temperature gauge

Compressed air components :

H01:	Air inlet prefilter
H11:	Drain filter
H12:	Pneumatic drain valve

Terminal boxes:

B01:	Main terminal box
B11:	Refrigerant unit terminal box
B12:	Free of potential terminal box

Problem	Possible Cause	Repair	Comments
Dryer is switched on, indicator light is lit but the refrigerant compressor does not turn on.	The connection has inverted phases	Invert two phases	3-phase dryers are equipped with a phase controller to avoid the fans from turning in the opposite direction.
	Refrigeration unit is not functioning	Check refrigeration compressor	Several factors can cause compressor failure. A qualified refrigeration technician needs to check all the electrical and refrigerant circuit and controls.
	The refrigerant highpressure protection has tripped	The refrigerant safety high pressure switch has tripped. In case of water cooled condensers, check the water control valve	The dryer is protected against excessively high refrigerant pressure. If the condenser efficiency has reduced, the switch will trip. Manually reset the switch.
	Excessive ambient temperature	Be sure that dryer is working in temperatures lower than the design conditions. Designed conditions and correction factors are described in this manual.	A high ambient temperature may cause the refrigerant system to operate at higher than normal pressures. Results will be higher than normal evaporator temperature. Important: adequate air circulation around the dryer, and proper ventilation in the equipment room should guarantee a low enough ambient temperature.
Dryer is switched on, but the refrigerant compressor does not turn on.	Excessive temperature on crankcase of compressor.	Allow time to compressor to cool down. Reason may be a possible incorrect adjustment of hot gas bypass valve or shortage of refrigerant	Compressor is protected against overly high temperatures of the crankcase by a thermal switch.
	Excessive compressed air inlet temperature.	Be sure that dryer is working in temperatures lower than design conditions.	The dryer is designed for working in calculated conditions (see description in this manual). If conditions are exceeded, the dryer will be overflowed, dew point will go up and protecting devices can switch off.
	Clogged condenser fins or clogged water condenser. Possible high crankcase temperature Possible loss of phase Possible low voltage causing overload trip Possible failed compressor	Clear fins or water condenser of all obstructions.	The clogged fins in the condenser will restrict the air passage and reduce the refrigeration capacity, causing high temperature in the evaporator. Same will occur if water condenser is clogged with mud or dirt. Air condenser and water condenser should be periodically checked and cleaned. Protect water circuit by an adapted filter.
	Too much compressed air flow.	Check actual flow through the dryer.	This dryer is designed for a maximum air flow at design conditions. If too much air is pumped into the dryer, water removal capacity may not be sufficient, resulting in liquid carryover down stream. Check the rated output the air compressor.
	Faulty electrical wiring	Inspect the circuit	The compressor-on light should be wired into the refrigerant compressor circuit. See wiring diagrams in this manual.
	One electrical protection has tripped.	Reset the protection or replace the blown fuse.	The dryer is protected against high amp draw by fuse and/or overload relay that can trip in case of need. Reset or replace fuse once, but do not persist if it trips again, request assistance from a qualified refrigeration contractor.
Dryer is switched on but fan is not running.	Fan has to run if refrigerant high pressure reaches upper set point.	Check that compressed air flows through the dryer. Check that fan blades are free to move. Check the fan pressure switch.	Fan operates automatically to keep refrigerant pressure below the maximum value. The fan can stop if pressure is under the recommended setting.
When compressor starts, it vibrates a lot and makes mechanical noise.	Compressor is slugging liquid refrigerant at start up.	Be sure the pre-heating period of at least 2 hours is respected	Refrigerant may move between receivers when refrigerant compressor is stopped and not heated, especially if stopped for a long time. This migration may cause liquid shock (slugging) in valves specially on large dryers containing more refrigerant

Problem	Possible Cause	Repair	Comments
Water in system	Compressed Air Inlet and outlet connections are reversed.	Check inlet and outlet connections.	This dryer is designed for air flow in one direction only. Inlet and outlet directions are identified on the dryer.
	Drain system is clogged or inoperative.	Restore a free flow of water condensate. Check water evacuation.	Drain system is timed solenoid valve, pneumatically assisted which has to be adjusted in accordance with values listed in this manual. The Solenoid valve includes a strainer that has to be periodically checked and cleaned. Membranes of pneumatically assisted drain have to be checked or replaced every 6 months.
	Bypass system is open	Check the valves	Important: Bypass piping should be installed around the dryer so the dryer can be isolated for service without shutting down the air supply. During dryer operation, valves must be set so all air goes into the system. Check tightness of the bypass system.
	Free moisture remains in pipe lines.	Blow out the system	Before the dryer is first started all free moisture should be blown out of the system.
	Excessive air flow	Check actual flow through the dryer.	This dryer is designed for a maximum air flow. If too much air is pumped into the dryer, water removal capacity may not be sufficient, resulting in liquid carry over downstream. Check the rated flow of the air compressor.
	Excessive free moisture	Check the separator and drain system and compressor after cooler ahead of the dryer.	In some system there may be an accumulation of free moisture in the line ahead of the dryer. If this moisture is pumped into the dryer intermittently, the water removal capacity may not be sufficient. A water separator should be installed in the line before the dryer.
	Excessive compressed air inlet temperature.	Be sure that dryer is working lower than design conditions	The dryer is designed to work for calculated design conditions. Should the conditions be exceeded, the dryer will be overflowed, dew point will go up and protecting devices can switch off.
	Clogged condenser fins	Clear fins of all obstructions	The clogged fins in the condenser will restrict air passage and reduce refrigerant capacity causing water downstream. Fins should be periodically checked and cleaned.
	Shortage of refrigerant	Fix the leak and add a charge of refrigerant.	Loss of refrigerant will cause improper functioning. A qualified, refrigeration specialist should perform the necessary repairs, or factory should be contacted if the unit is in warranty.
	Refrigeration system is not functioning	Check to be certain refrigerant compressor is running	To check if the compressor is running, check compressor-on light. It is possible for the fan to be operating but not the compressor. Compressor not running can be caused by several factors. A qualified refrigeration technician should check all refrigerant and electrical controls
	Excessive pressure dew point	Readjust refrigerant evaporating pressure	The refrigerant pressure adjustment should be done by a qualified refrigeration engineer. This is a very sensitive device and incorrect settings may create other failures.
High pressure drop	Excessive compressed air flow or too low air inlet pressure.	Check actual pressure and flow through the dryer.	This dryer is designed for a maximum air flow. If too much air is pumped into the dryer, water removal capacity may not be sufficient, resulting in liquid carry-over downstream. Check the rated flow of the air compressor.
	Freeze up	Check that compressor room ambient,	Frosting of the lines is an indication that controls are set too low. The following should be done by an experienced refrigeration technician.
		Fan switch could have failed in closed position keeping fan on.	Controls may be adjusted in the fields by means of the hot gas bypass valve. This is to be done by a qualified refrigerant technician.
The unit will not run or cycles off and on.	Clogged heat exchanger	Clean heat exchanger with reverse air flow.	Dryer are supposed to be used with compressed air free of any aggressive contaminants. Some contamination may require extra maintenance of the heat exchanger.
	Line disconnect switch is open.	Close the start or disconnect switch.	If the dryer is not operating, check the disconnect switch or circuit breaker to be certain it is on.
	Fuse or breaker is open	Replace fuse or reset breaker.	The fuse to the power line should be checked and replaced if needed. Never replace a burnt fuse with an oversized fuse.
	Faulty refrigerant compressor or controls.	Determine the cause and make correction	Failure of compressor to run may be caused by several factors. A qualified refrigeration specialist should check all electrical and refrigeration controls, or factory should be contacted if unit is in warranty.
	Excessive compressed air inlet temperature.	Design conditions and correction factors are described in this manual. Be sure that dryer is working in ambient temperatures below design conditions.	The dryer is designed for working into calculated design conditions. Should the conditions be exceeded, the dryer will be overflowed, dew point will go up and protecting devices may trip.

Problem	Possible Cause	Repair	Comments
The unit will not run or cycles off and on.	Excessive ambient temperature	Designed conditions and correction factors are described in dryer . Be sure that dryer is working lower than design conditions.	A high ambient temperature may cause the refrigerant system to operate at higher than normal pressures. Results will be a higher than normal evaporator temperature. Important: there should be adequate air circulation around the dryer, and proper ventilation in the equipment room should guarantee a low enough ambient temperature.
	Clogged condenser fins	Clear fins of all obstructions.	The clogged fins in the condenser will restrict the air passage and reduce the refrigeration capacity, causing high temperature in the evaporator. Fins should be periodically checked and cleaned.
	Shortage of refrigerant	Fix the leak and add a charge of refrigerant.	Loss of refrigerant will cause improper functioning. Dryers are equipped with a temperature switch which maintains the amount of refrigerant to maintain proper cooling of the compressor. A shortage of refrigerant may cause suction line to become very hot, causing the temperature switch to trip. A qualified refrigeration specialist should perform the necessary repairs.
Error sign occurs on digital temperature control device	The dew point is too low or too high	Check refrigerant gas and make sure that the working conditions are within the correct range.	If there is not enough refrigerant gas or if the working temperature and inlet temperatures are very high, the dew point will increase.
Drain Failure	Back pressure or reduction of drain port.	Back First of all replace the drain / drains. Open drain to atmosphere (no back pressure) - if hose / pipe is used to carry the drain somewhere else; keep or enlarge the diameter.	Max drain hose length after the dryer must not exceed 10 meters.
			Max drain hose height from the dryer must not exceed 3 meters.
			The drain port size should not be reduced.
			There should not be any fitting that may cause pressure drop such as valves, elbow, tees, etc. on the drain connection.
			Drain should be at atmospheric pressure at all times. Any back pressure will result in failure and malfunction.

Warranty Statement for Air Dryers

when used under the conditions recommended by the manufacturer, Keltec Air Dryers are warranted to be free from defects in material and workmanship for a period of 24 months from startup date, which should not exceed 30 days from the factory ship date, provided that Keltec is furnished the startup form. The heat exchanger will be warranted for 5 years. This warranty is limited to the replacement of the heat exchangers, FOB Factory, and subject to the same restrictions as outlined below concerning misuse, abuse or accident.

All electrical components such as fan motor, compressors and electronical parts such as timer drain etc. in the product have a limited warranty for 3 months. It is always possible to send the failed electrical and electronical parts back to Keltec for detailed inspection and a report. If the inspection result of Keltec or the manufacturer of the equipment shows that the failure is due to a production fault, then the parts will be considered under warranty.

This warranty will apply to equipment installed, operated and maintained in accordance with the procedures and recommendations as outlined in the owner's manual published by Keltec during the life of this warranty. Keltec reserves the right to ask for the photos of the failed part or the part itself delivered to its warehouse. After inspection, if Keltec warranty department examination of the photo or returned part concludes that such defect has occurred in normal service and was not due to apparent misuse, abuse or accident, Keltec will repair or replace, at its sole discretion, the defective part free of charge and deliver it FOB from its warehouse.

This warranty is not transferable. Any warranty service performed in the field must be authorized by Keltec prior to service. Unauthorized service voids the warranty and any resulting charges will not be paid for by Keltec.

Keltec makes no other warranties or guarantees, expressed or implied. Keltec assumes no liability for indirect or consequential damages.