

DOYON EQUIPMENT INC.

5600, 13th Street
Menominee, Michigan, USA
49858

Direct: 1 (906) 863-4401
Toll Free for USA & Canada
1 (800) 338-9886
Service Fax: 906-863-6322

Internet: <http://www.doyon.qc.ca>
E-mail: doyonservice@nu-vu.com



RAF100

Product / Produit: _____

Serial number / Numéro de série: _____



INDEX

1.2 - INSTRUCTIONS MANUAL	3
1.3 - GENERAL DESCRIPTION	3
1.4 - INDUSTRIAL USE OF THE MACHINE	3
CHAPTER 2	4
TRANSPORTATION, STORAGE, MOUNTING, INSTALLATION AND CONNECTING	4
2.1 - TRANSPORTATION	4
2.2 - STORAGE	4
2.3 - ASSEMBLING AND INSTALLATION	4
2.4 - CONNECTING AND ELECTRICAL SUPPLY	5
CHAPTER 3	5
MACHINE USAGE	5
3.1 - MACHINE CONTROL PANEL	5
3.1.1. – Analog control	5
3.1.2.– Digital control	5
3.2.3 – Water discharge control	5
3.2 – FUNCTIONING – ANALOG CONTROL	6
3.2.1.- Water temperature adjustment	6
3.3.- FUNCTIONING DIGITAL CONTROL	6
3.3.1 – Water temperature adjustment	6
3.3.2.- See defined temperature	6
3.4 - FAILURE DETECTION AND SOLVING	6
3.5 - PROTECTION MEASURES	7
3.6 - ACCESSORIES AND TOOLS	7
3.7 - MACHINE STABILITY	7
CHAPTER 4	7
PROPERTIES OF THE MACHINE	7
4.1 - MECHANICAL PROPERTIES	7
4.2 - ELECTRICAL PROPERTIES	7
4.3 - MACHINE CAPACITY	7
4.4 - SECURITY SYSTEM	7
4.5 - NOISE EMISSION	7
4.6 - RADIATION EMISSION	7
4.7 - LIFE CYCLE OF THE PRODUCT	7
CHAPTER 5	8
MAINTENANCE	8
5.1 - WHEN THE MACHINE IS NEW	8
5.2 - EVERYDAY	8
5.2.1 - Machine cleaning	8
5.3 - EVERY SIX MONTHS	8
5.3.1 - Piping check	8
WARRANTY	9

1.2 - INSTRUCTIONS MANUAL

Fully respect the content of this instructions manual.

This instructions manual is part of the machine and must be kept at reach of the user throughout the useful life of the machine, under conditions that preserve its integrity and durability.

1.3 - GENERAL DESCRIPTION

Thank you for choosing or using this equipment. It is our goal to provide reliable, safe and functional equipments, qualitatively adequate to the most demanding mechanical, electrical, ergonomic and food norms. Furthermore, several (electrical, mechanical, among other) tests are developed so as to assure the final quality of the supplied equipments.

Technically, this equipment may be defined as follows: Equipment composed of a steel structure, a series of mechanical devices that, when electrically triggered, refrigerate water.

This machine has been developed so as for the water used in the manufacturing of bakery and pastry products to be at an adequate temperature, inferior to air temperature. The water discharge is performed by system pressure and the control is manual. For a daily use of the refrigerated water, it is recommendable that the watercooler is always on, 24 hours per day, as several hours are needed to refrigerate the amount of water in the deposit. The higher the temperature of the water charge, the more energy will be necessary to refrigerate it and the more time will be necessary for the water to be at the intended temperature.

1.4 - INDUSTRIAL USE OF THE MACHINE**CAUTION**

**Non-qualified users are forbidden to operate the machine.
Inappropriate operation of the machine is forbidden.**

This machine has been designed to refrigerate water to be used in the manufacturing of bakery and pastry products. The use of refrigerated water is very important in this industry, as it is thus possible to transform products at lower temperatures in comparison to the transformed product using water at air temperature.

The intervention of the machine operator consists of opening and closing the water discharge.

The qualification level for a job may be achieved either through specific training on this machine and production processes, or through duly proved know-how experience. The qualification of the operator must be proved when requested.

Throughout the entire manual the operation of the machine is regarded on an 8 hour daily schedule, notwithstanding the machine not working for uninterrupted 8 hours. When the machine is used in a different period, considerations must be adjusted to the proportion of that use.

The manufacturer may not be held responsible for any damage to the machine, people, property or animals, resulting from an inappropriate use.

It is to be considered an inappropriate use of the machine:

Using the machine under inadequate environmental, operational and physical conditions;
Using the machine disregarding the good practice of the art of bakery and pastry;
The use of the machine by a non-qualified operator;
Use water with a pH higher than 7;
Refrigerating liquids for which it has not been designed;
Operating the machine without its complete installation;
Powering energy different to that specified;
Altering performances;
Removing or changing security systems;
Disrespecting the current laws in the country or the contents of this manual.

**CHAPTER 2
TRANSPORTATION, STORAGE, MOUNTING, INSTALLATION
AND CONNECTING**

The incorrect transportation, storage, mounting, installation or connection of this machine by the client or representative may cause material, people, property or animal damage, the manufacturer not being held responsible for this.

2.1 - TRANSPORTATION

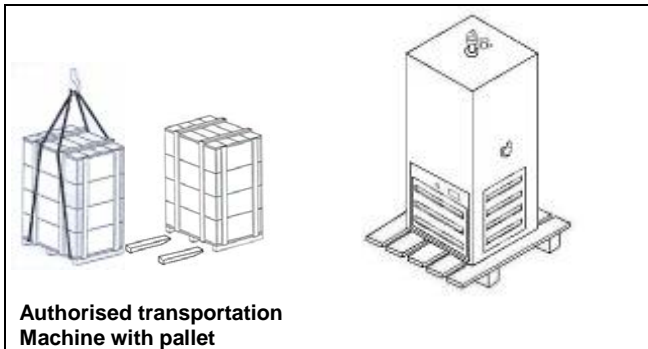
Always use an adequate transportation device regarding the weight on the nameplate. The internal deposit must always be empty during transportation however, should that not be possible, the transportation equipment must be adequate to the machine and the water in the deposit.

Always act in compliance with the current laws in your country. The ignorance of such laws does not justify in compliance.

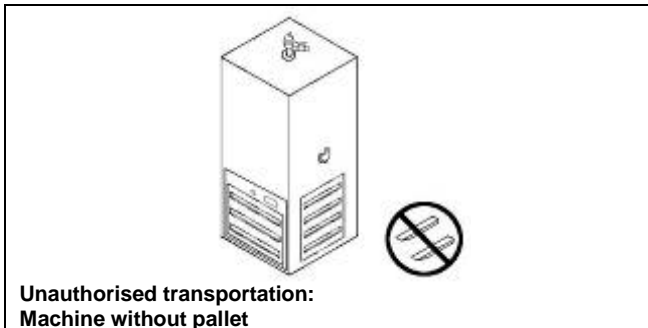
The machine must be transported according to the following images, with a freight elevator, adequate cables, ropes, chains or hooks.

In case of manual handling the risk of the machine over-sliding or sliding in an unexpected direction, must be taken into account.

Regularly check the package for damage subsequent to transportation. In case of damage suspicion, please contact the supplier for examination or record the event so as to later describe the situation.



**Authorised transportation
Machine with pallet**



**Unauthorised transportation:
Machine without pallet**

2.2 - STORAGE

Always use transportation equipment for storage that is adequate to the weight on the nameplate of this machine. The storage site has to hold the same weight, thus ground storage is recommendable, avoiding shelves or elevated storage reduces the risk of machine fall. There is no need for it to be fixed to the ground, however, the pavement must be flat and must not be slippery. The pavement should be free of humidity.

During storage, it is mandatory that the machine is disconnected from electrical power supply, but under not circumstances should it be stored subject to bad weather conditions, it must be kept in conditions similar to the work place.

2.3 - ASSEMBLING AND INSTALLATION

<p>CAUTION</p>	<p>During assembling and installation at the work place, make sure the power supply cable is disconnected from the socket. This should be performed by duly accredited personnel by the manufacturer.</p>
-----------------------	--

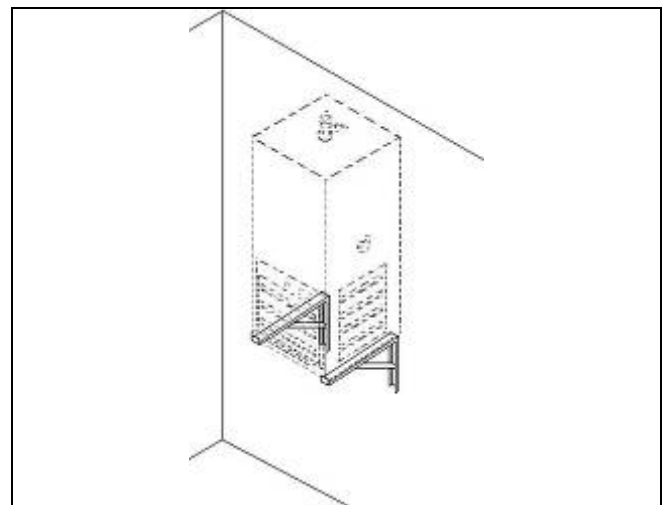
By the operating place of the machine, remove all packaging, such as cardboard, plastic, pallets, protection wood, film and others.

<p>CAUTION</p>	<p>While moving the machine to a new site, make sure the energy supply cable is disconnected from the socket. Never run the machine without its complete installation.</p>
-----------------------	---

The pavement which receives the installation of the machine must be made of concrete, able to endure the weight of the machine and the load for which it is set, in compliance with the properties on the nameplate of the machine. The pavement must be of a single flat ballast, not containing amendments between the supports of the machine and having a maximum inclination of 0,5%.

Make sure no sand or other residue remain between the supports of the machine and the pavement so as to avoid false oscillation or inconvenient noises.

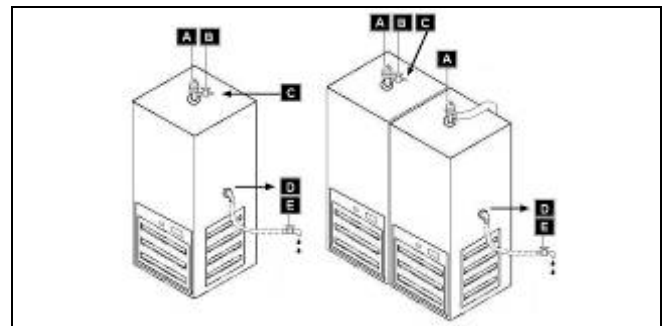
This machine may be installed on a structure screwed to a wall, instead of being installed on pavement.



It is mandatory that all support screws are fixed to the wall. The metallic bushings must be at least type "M10", with an "8.8" steel screw and anti-corrosion coating.

The manufacturer may not be held responsible for any subsequent damage to a possible drop of the machine from the wall caused by the lack of robustness of the wall.

After having been set on the working place, the water connections may be made:



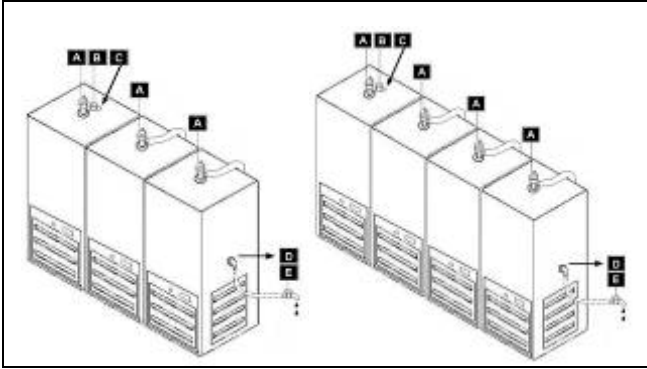


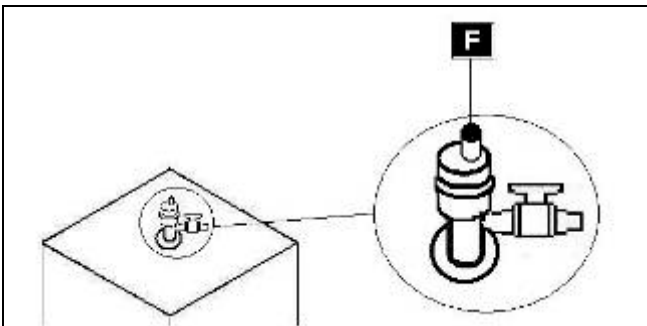
Image Caption:

	Function
A	Air-purging valve
B	Charging stop valve
C	Water charge 1/2" piping
D	Water discharge 3/4" piping
E	Discharging stop valve

Assure valve (B) is closed;
Connect the water charge in (C);

<p>CAUTION</p>	
-----------------------	--

Connect the water discharge in (D);
Valve (E) for water control must be installed on the discharge piping. However, if a water meter is used below the watercooler, this valve shall not be necessary as the on and off function is performed by the water meter.
To fill up each deposit close valve (E). Establish water connection, open the charge valve (B) and the purging valve (A).
To open each purging valve (A) unscrew the black lid (F) on top:



During the filling, each purging valve shall release the air in the whole deposit. A 100 litre deposit takes between 10 and 15 minutes to fill up and for higher capacity deposits the filling time increases proportionally to the increase of the capacity of the deposit.

2.4 - CONNECTING AND ELECTRICAL SUPPLY

<p>CAUTION</p>	<p>Any intervention to the equipment must be made after the electrical supply cable has been disconnected, however, when working without power is not possible for technical reasons, duly precautions to reduce the risk of electrical shocks and short-circuits must be taken.</p>
-----------------------	---

This intervention must be performed by a duly accredited technician. Electrical connection must be made by means of a plug or junction box connectors, from a "neutral TT" line, with a 300mA differential protection.

The electrical power available must comply with the specifications of the properties on the nameplate of the machine.
Mending supply cables is not allowed.
Power strips for phase reversal, 3D power sockets or other adaptation systems are not allowed.
More than one machine connected to the same power source (socket or derivation) is not allowed.
It is necessary to perform an equipotential bonding between machines that share a ferruled ground wire supplementary connection, of a section of at least 6 mm², connected to the exterior screw of this machine identified by the symbol

**CHAPTER 3
MACHINE USAGE**

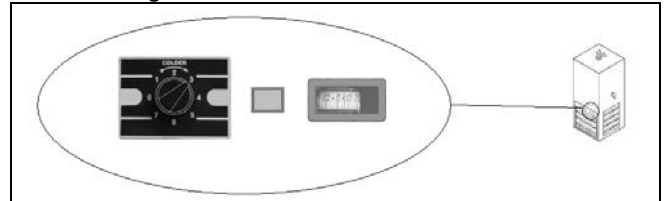
3.1 - MACHINE CONTROL PANEL

This machine is equipped with a water temperature controller and a main disconnect switch.

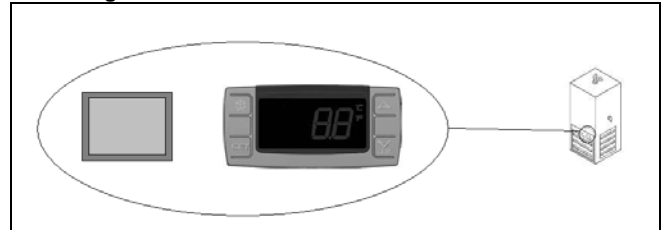
		<p>ATTENTION: Control must be performed with a finger. The use of hard or sharp objects may cause unreparable damage.</p>
--	--	---

There are 2 control options
Check the one which applies to your machine

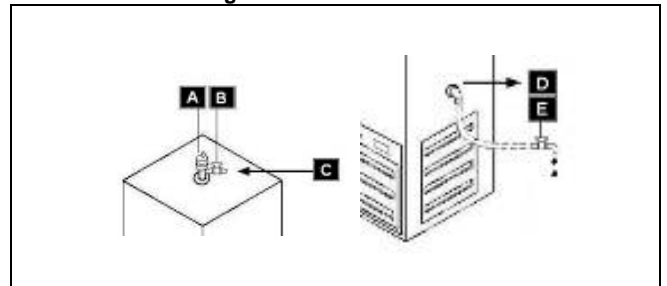
3.1.1. – Analog control



3.1.2.– Digital control



3.2.3 – Water discharge control

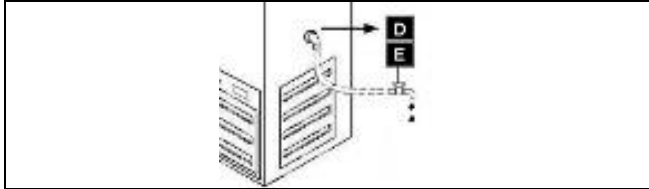


To discharge water it is necessary to comply with the following conditions:

- The deposit must contain water;
 - The charge valve (B) must be open;
 - At the charge (B) there must be water at system pressure;
 - The air-purging valve (A) must be open.
- Having all these conditions satisfied open the discharge valve (E).
To stop water discharge, close the discharge valve (E).

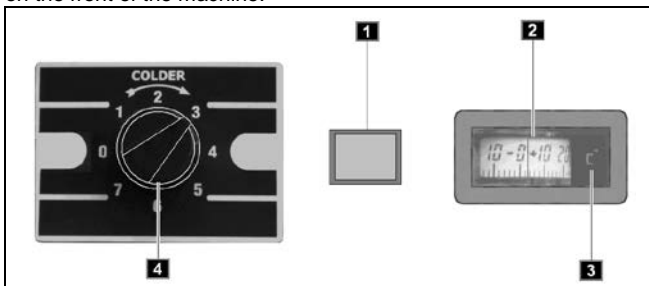
The water discharge temperature is not constant from the beginning to the end of the discharge. The type of internal functioning of this machine conditions each portion of discharged water to be "replaced" with air temperature water. Thus, as the water is discharged, the temperature increases. The temperature is considered constant, and non-increasing, until half the capacity of

the deposit has been consumed. For example, for a 200 litres deposit, the first 100 litres shall be discharged at the temperature on the digital controller and from that amount on, due to the water charge and subsequent mixture of air temperature water, the water shall start to be discharged at a higher temperature. Under regular circumstances, the temperature adjustment shall be made for a long period of time, for which the daily control of the machine shall be limited to the charge and discharge of water in valve (E) installed on the discharge piping (D).



3.2 – FUNCTIONING – ANALOG CONTROL

The temperature adjustment is performed on the controller located on the front of the machine.



Key:

Button	Function
1	Main disconnect switch
2	Water temperature display
3	(C) Celsius Unit
4	Temperature adjustment button

3.2.1.- Water temperature adjustment

Once the deposit is full of water supply the machine according to the specifications on the nameplate.

Switch on the main switch (1).

To decrease temperature:

Turn button (4) anti-clockwise.

To increase temperature:

Turn button (4) clockwise.

Check the temperature on the display (2).

Please notice that whatever temperature adjustment shall not be immediately noted, it shall take a few hours until the temperature is changed in the entire quantity of water.

3.3.- FUNCTIONING DIGITAL CONTROL

The temperature adjustment is performed on the controller located on the front of the machine.

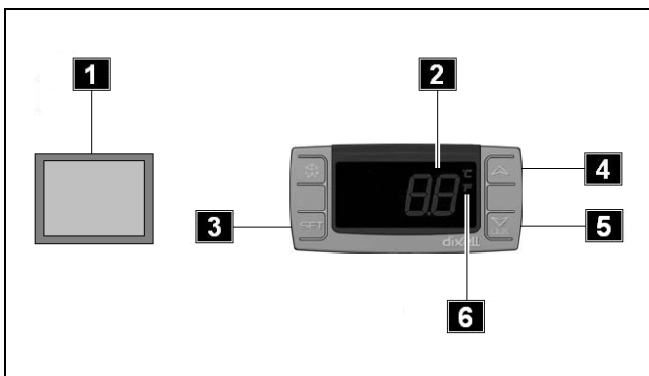


Image caption:

Button	Function
1	Main disconnect switch
2	Water temperature display

3	Temperature adjustment button
4	Temperature increase button
5	Temperature decrease button
6	(C) Celsius (F) Fahrenheit Unit

3.3.1 – Water temperature adjustment

Once the deposit is full supply the machine according to the specifications on the nameplate.

Switch on the main switch (1).

To decrease temperature:

Press button (3) for 2 seconds;

The display (6) flashes;

Press button (5);

Display (6) and (2) show the temperature;

To record, press button (3) for 2 seconds or wait 10 seconds without touching the control.

Check the temperature on the display (2).

To increase temperature;

Press button (3) for 2 seconds;

The display (6) flashes;

Press button (4);

Display (6) and (2) show the temperature;

To record, press button (3) for 2 seconds or wait 10 seconds without touching the control.

Check the temperature on the display (2).

Please notice that whatever temperature adjustment shall not be immediately noted, it shall take a few hours until the temperature is changed in the entire quantity of water.

3.3.2.- See defined temperature

Press (3).

Display (6) and (2) show the temperature.

To exit, press (3) or wait 5 seconds without touching the control.

3.4 - FAILURE DETECTION AND SOLVING

Possible failure - detetion	Probable cause	Possible solution
The machine does not switch on	The machine may not be power supplied	Reestablish electrical connection
	Main switch off	Turn on main switch
One of the functions of the machine does not operate	Electrical failure	Request accredited by the manufacturer technical support
	Broken buttons	Replace buttons
The machine operates but does not refrigerate water	Damaged refrigeration system	Request accredited by the manufacturer technical support.
	Electrical failure	
The machine operates but does not refrigerate much	Incorrectly regulated temperature on the controller	Decrease the temperature on the controller
	Damaged refrigeration system	Request accredited by the manufacturer technical support.
No water is discharged or the flow is very reduced	There is no water charge to the machine	Re-establish water supply
	The air temperature is very low (0 a 10°C) and the water has frozen	Switch off the machine and allow it a few days to defrost
The machine refrigerates but is noisy	Damaged refrigeration system or various vibrations	Request accredited by the manufacturer technical support.
The chassis oscillates too much	Irregular pavement or flawed fixation	Check and if necessary request accredited by the manufacturer technical support.
Other non-described failure	Unknown	

3.5 - PROTECTION MEASURES

The user must comply with all the necessary protection measures that apply. Thus, possible dust must be prevented by using a work overall and avoid dough contamination by protecting all capillary body parts.

3.6 - ACCESSORIES AND TOOLS

This machine does not need any accessories or tools for operating or mounting.

3.7 - MACHINE STABILITY

Conditions under which the machine complies with the stability requisite:

Phases	Conditions
Transportation and mounting	According to the specific information in the chapter on transportation, mounting, installation and connection within this manual.
Usage	According to specific information on assembling in this manual According to specific information in the chapter on maintenance.
Dismounting	On dismounting operations it is mandatory that the machine is on work position.
Out of service	When out of service, the machine must be in working position. The pavement must not be sloping or slippery. The machine does not need to be screwed to the floor.
During testing	When testing load the above described is applicable.
During possible failures	In case of power failure or failure with the deposit full, the repair must be carried out with the machine at the work location.. In any case, inform technical support and hold, the machine will not be damaged.

CHAPTER 4**PROPERTIES OF THE MACHINE****4.1 - MECHANICAL PROPERTIES**

The structure has standard or special order measures, to match its purpose.

Made of steel, standard physical-chemical or special order characteristics.

The materials that are in straight contact with the water are composed of AISI304 stainless steel.

4.2 - ELECTRICAL PROPERTIES

This machine has been manufactured according to characteristics on the nameplate.

Check annex to this manual for the electrical scheme.

The electrical system has been tested according to the applicable legislation and the test record is part of this manual.

Only Technical Support that is accredited by the manufacturer is qualified to work the electrical part. All necessary precautions must always be taken so as to reduce fire, electrical shocks and personal damage hazard, always in compliance with the following norms:

1. Stopping the machine.
2. Turning off main switch.
3. Disconnecting power cable.
4. Performing the necessary maintenance or repairing operations and only then,
5. Re-switching the machine to the power supply.

4.3 - MACHINE CAPACITY

The maximum capacity of the watercooler is specified according to the maximum capacity of the deposit (in litres), that is, for example a model "RAF200" has a capacity of 200 litres, this rule being applicable to any model.

The model is specified on the nameplate of the machine.

4.4 - SECURITY SYSTEM

The potentially most dangerous part of the machine is the internal area where the components for temperatures below zero are located, however, the user is not exposed to hazard on accounts for the solutions incorporated in the equipment:

- The general outer protection index of the machine is IP20 or greater if by special order.
- Protection lids or other security measure can only be removed by using tools.

If any security system component is noticed to be inoperative, turn off the main switch and call the manufacturer on the phone for technical support.


4.5 - NOISE EMISSION

The use of specific manufacturing techniques sustains an average sound pressure, considered in A, lower than 70dB, in compliance with ISO directive 3744: "Acoustic. Determination of sound power levels of noise sources using sound pressure. Engineering method in an essentially free field over a reflecting plane."

4.6 - RADIATION EMISSION

The machine does not produce any sort of radiation, including ionizing and non-ionizing radiations that may hazard the user's or exposed people's health, including cases involving active or non-active implanted medical devices.



4.7 - LIFE CYCLE OF THE PRODUCT

 <p>CAUTION</p>	<p>Do not place debris of the components of the machine together with domestic waste.</p>
--	--

During the life cycle of the product, whether it is an inspection operation, maintenance or disposal of this machine, the manufacturer is responsible for the treatment of any piece, component or material at any phase. The life cycle management must always be made by the manufacturer, the only to be held responsible for this management if duly informed for it.

This management firstly considers the possible repair and later reuse of any piece, component or material, however, should that not be possible, redirection to duly accredited residue management must be done, always keeping recycling as a priority. Taking this into consideration, the manufacturer shall deliver into the market highly recyclable equipment.

Directives of different countries must always be taken into consideration, each case having to be regarded separately.

CAUTION		Contains fluorinated greenhouse gases covered by the Kyoto Protocol
		


Model	Fluorinated gases			
	Generic designation	Mass		GWP
RAF100	R449A	0,7 Kg	1,54 lb	1397
RAF200	R449A	2x0,7 Kg	2x1,54 lb	1397
RAF300	R449A	3x0,7 Kg	3x1,54 lb	1397
RAF400	R449A	4x0,7 Kg	4x1,54 lb	1397
RAF500	R449A	5x0,7 Kg	5x1,54 lb	1397



This equipment has the recycling symbol. This means all residues must be separated per type and deposited in an adequate place for residue collection, never included in domestic waste.


This attitude is environmentally friendly and beneficial to all in present and coming generations.

**CHAPTER 5
MAINTENANCE**

CAUTION		Turn off the main switch and power cable before each cleaning or maintenance operation.

Whenever potentially dangerous operations are performed, such as mechanic tunings, maintenance, dismounting, electrical components replacement, mechanical or other type, the user must assure the electrical power cable is correctly unplugged.

The internal mechanical components of the machine may eventually offer some mechanical residual hazard. To handle these components wear adequate protection gloves.

CAUTION		Do not run the machine until all lids, security devices and protection have been set.

In case of a request to the manufacturer, please offer the information on the nameplate of the machine. Check the annex for the repairing pieces or maintenance applicable to this machine.

5.1 - WHEN THE MACHINE IS NEW

It is recommendable to test the functioning before starting the production and using the discharged water for other purposes rather than for human consumption. Thus, some residue caused by the installation of the piping can be removed.

5.2 - EVERYDAY

5.2.1 - Machine cleaning

This machine does not require daily maintenance.

5.3 - EVERY SIX MONTHS

Check frequency according to work load:

Number of 8 hour shifts	Check frequency every 6 months
1	One check on the 6th month
2	One check every 3 months
3	One check every 2 months

5.3.1 - Piping check

Check for water leakage. Should it be necessary, request technical support that is accredited by the manufacturer.

LIMITED WARRANTY

(Continental United States Of America And Canada Only)

Doyon Equipment Inc. guarantees to the original purchaser only that its product are free of defects in material and workmanship, under normal use.

This warranty does not cover any light bulbs, thermostat calibration or defects due to or resulting from handling, abuse, misuse, nor shall it extend to any unit from which the serial number has been removed or altered, or modifications made by unauthorised service personnel or damage by flood, fire or other acts of God. Nor will this warranty apply as regards to the immersion element damaged by hard water.

The extent of the manufacturer's obligation under this warranty shall be limited to the replacement or repair of defective parts within the warranty period. The decision of the acceptance of the warranty will be made by Doyon Equipment service department, which decision will be final.

The purchaser is responsible for having the equipment properly installed, operated under normal conditions with proper supervision and to perform periodic preventive maintenance.

If any parts are proven defective during the period of two years from date of purchase, Doyon Equipment Inc. hereby guarantees to replace, without charge, F.O.B. Menominee, MI, USA, such part or parts.

Doyon Equipment Inc will pay the reasonable labour charges in connection with the replacement parts occurring within one year from purchase date. Travel over 50 miles, holiday or overtime charges are not covered. After one year from purchase date, all labour and transportation charges in connection with replacement parts will be the purchaser's responsibility.

Doyon Equipment Inc. does hereby exclude and shall not be liable to purchaser for any consequential or incidental damages including, but not limited to, damages to property, damages for loss of use, loss of time, loss of profits or income, resulting from any breach or warranty.

In no case, shall this warranty apply outside Canada and continental United States unless the purchaser has a written agreement from Doyon Equipment Inc.