USER'S MANUAL

DRF-OV
DRFI-OV
DRF-OV EC

Destratificator

VENTS

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This user's manual is a main operating document intended for technical, maintenance, and operating staff.
The manual contains information about purpose, technical details, operating principle, design, and installation of the DRF(I)-OV(EC) unit and all its modifications.
Technical and maintenance staff must have theoretical and practical training in the field of ventilation systems and should be able to work in accordance with workplace safety rules as well as construction norms and standards applicable in the territory of the country.

SAFETY REQUIREMENTS

- Please read the user's manual carefully prior to installing and operating the unit.
- All user's manual requirements as well as the provisions of all the applicable local and national construction, electrical, and technical norms and standards must be observed when installing and operating the unit.
- The warnings contained in the user's manual must be considered most seriously since they contain vital personal safety information.
- Failure to follow the rules and safety precautions noted in this user's manual may result in an injury or unit damage.
- After a careful reading of the manual, keep it for the entire service life of the unit.
- While transferring the unit control, the user's manual must be turned over to the receiving operator.

UNIT INSTALLATION AND OPERATION SAFETY PRECAUTIONS

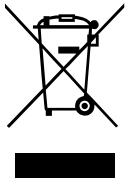
- Disconnect the unit from power mains prior to any installation operations.
- Unpack the unit with care.
- The unit must be grounded!
- While installing the unit, follow the safety regulations specific to the use of electric tools.
- Do not change the power cable length at your own discretion.
- Do not bend the power cable.
- Avoid damaging the power cable.
- Do not put any foreign objects on the power cable.
- Do not lay the power cable of the unit in close proximity to heating equipment.
- Do not use damaged equipment or cables when connecting the unit to power mains.
- Do not operate the unit outside the temperature range stated in the user's manual.
- Do not operate the unit in aggressive or explosive environments.
- Do not touch the unit controls with wet hands.
- Do not carry out the installation and maintenance operations with wet hands.
- Do not wash the unit with water.
- Protect the electric parts of the unit against ingress of water.
- Do not allow children to operate the unit.
- The unit is allowed to be used by children aged from 8 years oldand above and persons with reduced physical, sensory, or mental capabilities or no experience and knowledge provided that they have been given supervision or instruction regarding safe use of the unit and understand the risks involved.
- Disconnect the unit from power mains prior to any technical maintenance.
- Do not store any explosive or highly flammable substances in close proximity to the unit.
- When the unit generates unusual sounds, odour, or emits smoke, disconnect it from power supply and contact the Seller.
- Do not open the unit during operation.
- Do not direct the air flow produced by the unit towards open flame or ignition sources.
- Do not block the air duct when the unit is switched on.
- In case of continuous operation of the unit, periodically check the security of mounting.
- Do not sit on the unit and avoid placing foreign objects on it.
- Use the unit only for its intended purpose.

To prevent damage that could result in fire or risk of electric shock, do not:

- immerse the unit in water;
- let water inside the unit motor;
- install the unit outdoors or exposed to atmospheric precipitation. It is forbidden to use the unit in places where people and animals have free access to it in order to avoid injury from rotating blades. To reduce the risk of injury, install the unit so that the lowest rotating part of the destratificator is at least 2.5 m above floor level. Do not allow the blades to come into contact with other objects.

Do not install the unit near:

- stoves, fireplaces and other high-temperature heat sources;
- infrared source;
- other objects that may interfere with the operation of the destratificator.



THE PRODUCT MUST BE DISPOSED SEPARATELY AT THE END OF ITS SERVICE LIFE.
DO NOT DISPOSE THE UNIT AS UNSORTED DOMESTIC WASTE.

PURPOSE

A destratificator is a device intended to minimize the heat loss by cancelling the temperature differential on the premises.
Destratificators are essential elements of energy-saving solutions for buildings and premises.
Such units are used to force the warm air accumulated under the ceiling as a result of stratification towards the lower part of the space.
By ensuring an even temperature in the entire space a destratificator helps to reduce the heating costs.
In the warm season destratificators are used to supply fresh air into a specific zone thus creating a favorable microclimate in the ventilated area.
The destratificator is designed for continuous operation without disconnection from power mains.
Transported air must not contain any flammable or explosive mixtures, evaporation of chemicals, sticky substances, fibrous materials, coarse dust, soot and oil particles or environments favourable for the formation of hazardous substances (toxic substances, dust, pathogenic germs).

THE UNIT SHOULD NOT BE OPERATED BY CHILDREN OR PERSONS WITH REDUCED PHYSICAL, MENTAL, OR SENSORY CAPACITIES, OR THOSE WITHOUT THE APPROPRIATE TRAINING.

THE UNIT MUST BE INSTALLED AND CONNECTED ONLY BY PROPERLY QUALIFIED PERSONNEL AFTER THE APPROPRIATE BRIEFING.

THE CHOICE OF UNIT INSTALLATION LOCATION MUST PREVENT UNAUTHORISED ACCESS BY UNATTENDED CHILDREN.

DELIVERY SET

NAME	NUMBER
Destratificator	1 item
Mounting kit	1 item
Cable with a threaded tip	3 m
Fastening kit	1 item
Safety kit	1 item
Cable with a loop	3 m
User's manual	1 item
Packing box	1 item
Power cord (optional)	1 item

DESIGNATION KEY

Designation key example: **DRFI - OV 300 EC R**

Unit designation
DRF — destratificator
DRFI — destratificator in the noise-insulated casing

Fan type
OV — axial fan

Fan diameter [mm]
250, 300, 350

Motor type
_ — asynchronous motor
EC — synchronous electronically commutated motor

Power cord
_ — not included in the delivery set
R — power cord

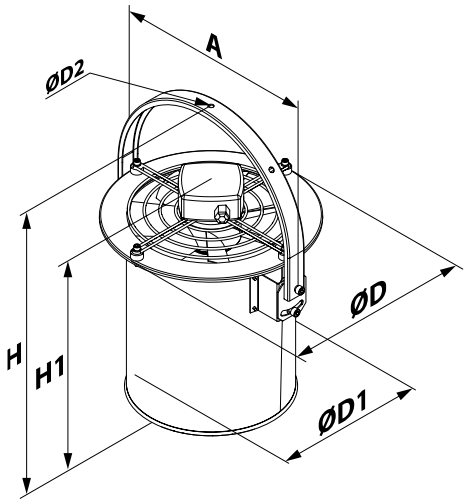
TECHNICAL DATA

The destratificator is designed for operation in an enclosed area at ambient temperatures from 0 ˚C to + 45 ˚C at relative humidity of up to 80 % (at +25 ˚C).
The unit is rated as a Class I electrical appliance.
The destratificator undergoes continuous improvement - therefore, some models may slightly differ from the ones described in the User's manual.

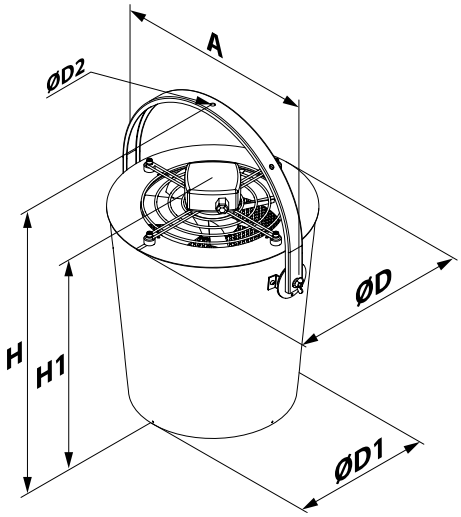
Parameter	DRF-OV 250 DRFI-OV 250	DRF-OV 300 DRFI-OV 300	DRF-OV 350 DRFI-OV 350	DRF-OV 250 EC	DRF-OV 300 EC	DRF-OV 350 EC
Voltage [V] at 50 Hz	1~230					
Power [W]	50	75	140	83	97	73
Current [A]	0.22	0.35	0.65	0.72	0.8	0.65
Max. air capacity [m³/h]	800	1340	2500	1460	1780	2620
RPM	1380	1350	1380	2400	1645	1100
Max. transported air temperature [°C]	60					
Ingress protection rating	IPX4					

Destratificator type	Dimensions [mm]						Weight [kg]
	A	H	H1	D	D1	D2	
DRF-OV 250	390	524	386	341	260	11	6.0
DRF-OV 300	442	620	456	392	316		7.2
DRF-OV 350	490	705	516	442	360		9.7
DRFI-OV 250	456	626	468	384	302		11.0
DRFI-OV 300	506	701	518	434	352		14.5
DRFI-OV 350	556	776	569	484	402		17.0
DRF-OV 250 EC	390	524	444	341	260		5.5
DRF-OV 300 EC	442	620	527	392	316		6.8
DRF-OV 350 EC	490	705	587	442	360		9.9

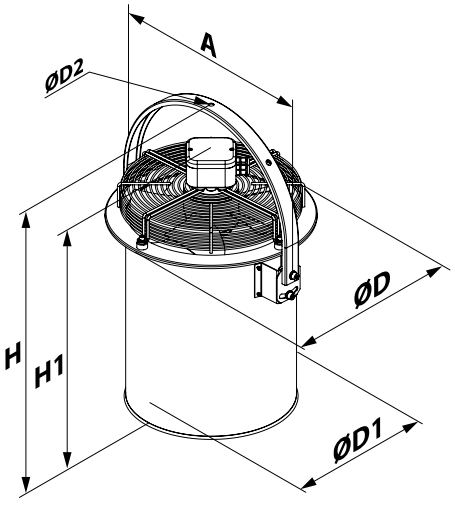
DRF-OV



DRFI-OV



DRF-OV EC



DESIGN AND OPERATING PRINCIPLE

The destratificator consists of an axial fan attached to the casing via the vibration mounts.

At the outlet, the casing is equipped with a rectifier, which ensures direct air flow and maximum air throw distance.

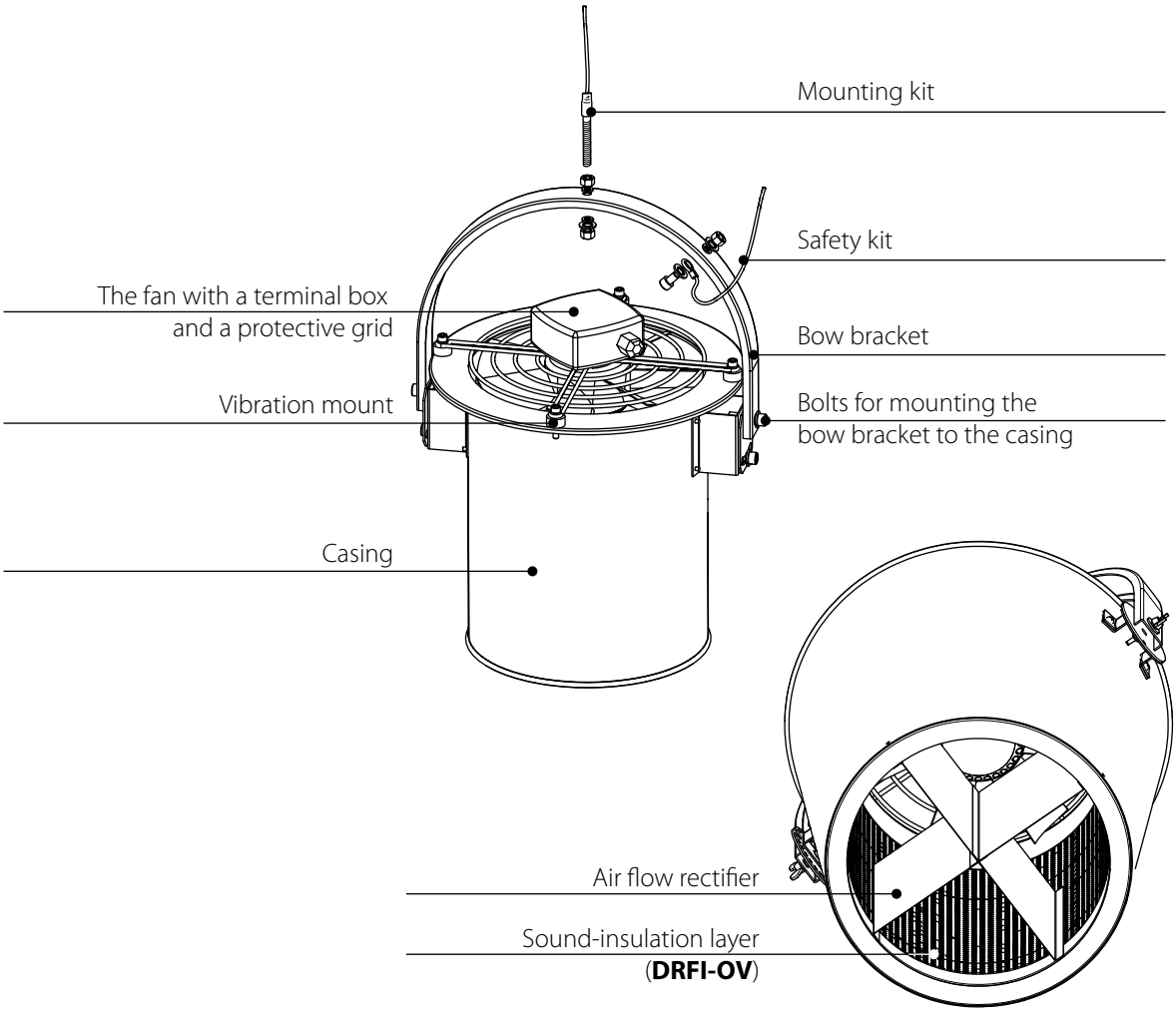
The destratificator has a polymer-coated steel casing.

The DRFI-OV casing has special perforation and a sound-insulating layer of mineral wool to reduce the noise generated by the axial fan.

Depending on the model, the destratificator is equipped with a single-phase asynchronous or electronically commutated motor with an external rotor and an axial impeller.

The motor is equipped with ball bearings and built-in thermal protection enabling its automatic restarting.

The destratificator is mounted by means of the bow bracket as well as the mounting and the safety cables with threaded joints each 3 m(9 27/32 ft) long. The destratificator position can be fixed every 15°.



MOUNTING AND SET-UP

READ THE USER'S MANUAL BEFORE INSTALLING THE UNIT.

WHILE INSTALLING THE UNIT ENSURE CONVENIENT ACCESS FOR SUBSEQUENT MAINTENANCE AND REPAIR.

Having unpacked the destratificator and prior to installation:

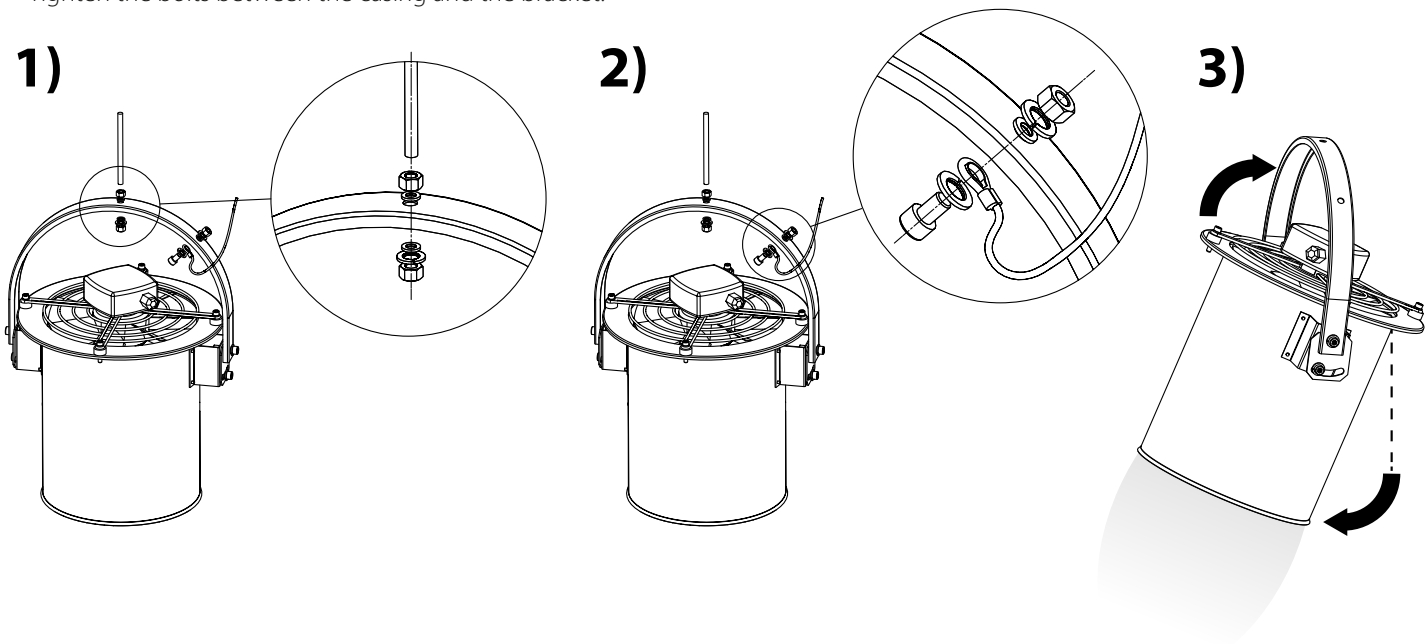
- Manually check the impeller for smooth rotation.
- Check the load-bearing structures at the installation site for adequate strength.
- Follow the safety regulations during the make-ready procedures and destratificator operation.

Mounting:

The destratificator is designed for installation in premises protected against atmospheric agents.
The unit is installed under the ceiling of the premises with the airflow nozzle down.
The destratificator is intended to be rigidly mounted to the load-bearing structure or suspended by means of the mounting kit (included in the delivery set).
Mounting the destratificator on two cables allows the additional benefit of unit angle correction by adjusting the safety cable length.

Mounting sequence:

- Attach the destratificator by the bow bracket.
- Secure the destratificator to the threaded bar with 2 nuts (see Fig. 1).
- Avoid deformation of the destratificator elements during installation.
- Attach one end of the safety cable to the building structures.
- Attach the other end of the safety cable to the destratificator bracket (Fig. 2).
- Loosen the fastening bolts between the destratificator and the bracket, turn the destratificator and direct its nozzle toward the intended air supply area (see Fig. 3).
- Tighten the bolts between the casing and the bracket.

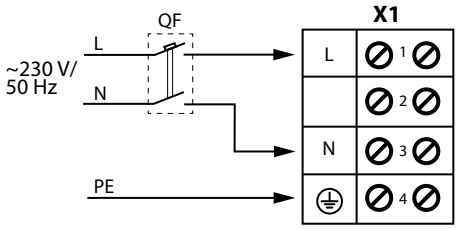


CONNECTION TO POWER MAINS

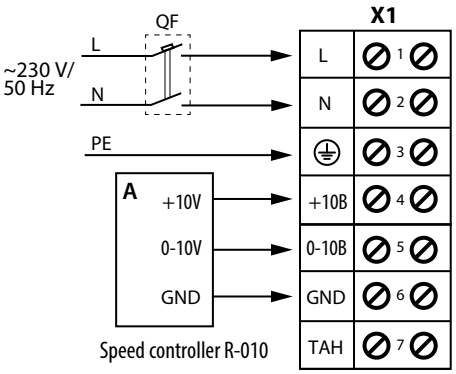
POWER OFF THE POWER SUPPLY PRIOR TO ANY OPERATIONS WITH THE UNIT.
THE UNIT MUST BE CONNECTED TO POWER SUPPLY BY A QUALIFIED ELECTRICIAN.
THE RATED ELECTRICAL PARAMETERS OF THE UNIT ARE GIVEN ON THE MANUFACTURER'S LABEL.

the destratificator is intended for connection to a single-phase 230 V/50 Hz AC power mains.
The destratificator connection must be made using durable, insulated and heat-resistant conductors (cables and wires).
The external lead-in must be equipped with a circuit breaker built into the stationary wiring to disconnect all the mains phases. The QF external circuit breaker position must ensure free access for quick power-off of the unit. The recommended circuit breaker nominal current is 1.0 A. The conductor cross section is 0.75 mm^2.
However, the conductor selection shall be based on the maximum permissible wire heating depending on the wire type, its insulation, length and installation method (i.e. overhead, in pipes or inside the walls).
The destratificator connections are made on the X1 terminal block mounted inside the terminal box on the casing of the destratificator.
The electrical connections diagram sticker is located inside the terminal box.
The speed adjustment (continuous and stepped) is performed by means of a thyristor or autotransformer speed regulator.
The same regulator device can be used for connecting several destratificators simultaneously provided that their combined capacity and working current remain within the nominal parameters of the speed regulator.

DRF-OV, DRFI-OV wiring diagram



DRF-OV EC wiring diagram



TECHNICAL MAINTENANCE

THE TECHNICAL MAINTENANCE AND REPAIR OF THE DESTRATIFICATOR MAY COMMENCE ONLY AFTER ITS DISCONNECTION FROM THE POWER MAINS AND ALL THE ROTATING PARTS COMING TO A COMPLETE HALT

the technical maintenance includes periodic cleaning of the surfaces from accumulated dust and dirt.
The recommended annual maintenance should include:

- Checking the tightness of the fastening bolts and their tightening, if necessary;
- Checking the fan blades for contamination and their cleaning, if necessary.

TROUBLESHOOTING

FAULT	POSSIBLE REASONS	TROUBLESHOOTING
The fan does not start	No power supply.	Make sure that the unit is properly connected to the power mains and make any corrections, if necessary.
	Jammed motor.	Switch off the destratificator. Troubleshoot the motor jamming. Switch on the destratificator again.
Circuit breaker tripping during the fan start.	Excessive electric current consumption caused by a short circuit.	Switch off the destratificator. Contact the Seller.
	Motor winding thermal protection is activated.	Wait till the fan cools down and the thermal switch resets to its normal position (about 3-5 minutes).
Noise, vibration.	The fan impeller is soiled.	Clean the impellers.
	The screw connection is loose.	Check the screw connection and tighten the screws if needed.

STORAGE AND TRANSPORTATION REGULATIONS

- Store the unit in the manufacturer's original packaging box in a dry closed ventilated premise with temperature range from +5 ˚C to +40 ˚C and relative humidity up to 70 %.
- Storage environment must not contain aggressive vapors and chemical mixtures provoking corrosion, insulation, and sealing deformation.
- Use suitable hoist machinery for handling and storage operations to prevent possible damage to the unit.
- Follow the handling requirements applicable for the particular type of cargo.
- The unit can be carried in the original packaging by any mode of transport provided proper protection against precipitation and mechanical damage. The unit must be transported only in the working position.
- Avoid sharp blows, scratches, or rough handling during loading and unloading.
- Prior to the initial power-up after transportation at low temperatures, allow the unit to warm up at operating temperature for at least 3-4 hours.

MANUFACTURER'S WARRANTY

The product is in compliance with EU norms and standards on low voltage guidelines and electromagnetic compatibility. We hereby declare that the product complies with the provisions of Electromagnetic Compatibility (EMC) Directive 2014/30/EU of the European Parliament and of the Council, Low Voltage Directive (LVD) 2014/35/EU of the European Parliament and of the Council and CE-marking Council Directive 93/68/EEC. This certificate is issued following test carried out on samples of the product referred to above.
The manufacturer hereby warrants normal operation of the unit for 24 months after the retail sale date provided the user's observance of the transportation, storage, installation, and operation regulations. Should any malfunctions occur in the course of the unit operation through the Manufacturer's fault during the guaranteed period of operation, the user is entitled to get all the faults eliminated by the manufacturer by means of warranty repair at the factory free of charge. The warranty repair includes work specific to elimination of faults in the unit operation to ensure its intended use by the user within the guaranteed period of operation. The faults are eliminated by means of replacement or repair of the unit components or a specific part of such unit component.

The warranty repair does not include:
- routine technical maintenance
- unit installation/dismantling
- unit setup

To benefit from warranty repair, the user must provide the unit, the user's manual with the purchase date stamp, and the payment paperwork certifying the purchase. The unit model must comply with the one stated in the user's manual. Contact the Seller for warranty service.

The manufacturer's warranty does not apply to the following cases:
- User's failure to submit the unit with the entire delivery package as stated in the user's manual including submission with missing component parts previously dismounted by the user.
- Mismatch of the unit model and the brand name with the information stated on the unit packaging and in the user's manual.
- User's failure to ensure timely technical maintenance of the unit.
- External damage to the unit casing (excluding external modifications as required for installation) and internal components caused by the user.
- Redesign or engineering changes to the unit.
- Replacement and use of any assemblies, parts and components not approved by the manufacturer.
- Unit misuse.
- Violation of the unit installation regulations by the user.
- Violation of the unit control regulations by the user.
- Unit connection to power mains with a voltage different from the one stated in the user's manual.
- Unit breakdown due to voltage surges in power mains.
- Discretionary repair of the unit by the user.
- Unit repair by any persons without the manufacturer's authorization.
- Expiration of the unit warranty period.
- Violation of the unit transportation regulations by the user.
- Violation of the unit storage regulations by the user.
- Wrongful actions against the unit committed by third parties.
- Unit breakdown due to circumstances of insuperable force (fire, flood, earthquake, war, hostilities of any kind, blockades).
- Missing seals if provided by the user's manual.
- Failure to submit the user's manual with the unit purchase date stamp.
- Missing payment paperwork certifying the unit purchase.

FOLLOWING THE REGULATIONS STIPULATED HEREIN WILL ENSURE A LONG AND TROUBLE-FREE OPERATION OF THE UNIT.

USER'S WARRANTY CLAIMS SHALL BE SUBJECT TO REVIEW ONLY UPON PRESENTATION OF THE UNIT, THE PAYMENT DOCUMENT AND THE USER'S MANUAL WITH THE PURCHASE DATE STAMP.

CERTIFICATE OF ACCEPTANCE

Unit Type	Destratificator
Model	DRF_____
Serial Number	
Manufacture Date	
Quality Inspector's Stamp	

SELLER INFORMATION

Seller	
Address	
Phone Number	
E-mail	
Purchase Date	
This is to certify acceptance of the complete unit delivery with the user's manual. The warranty terms are acknowledged and accepted.	
Customer's Signature	

Seller's Stamp

INSTALLATION CERTIFICATE

The DRF_____ unit is installed pursuant to the requirements stated in the present user's manual.		
Company name		
Address		
Phone Number		
Installation Technician's Full Name		
Installation Date:	**Signature:**	
The unit has been installed in accordance with the provisions of all the applicable local and national construction, electrical and technical codes and standards. The unit operates normally as intended by the manufacturer.		
Signature:		

Installation Stamp

WARRANTY CARD

Unit Type	Destratificator
Model	DRF_____
Serial Number	
Manufacture Date	
Purchase Date	
Warranty Period	
Seller	

Seller's Stamp

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