

# Fruit Crushers

DZO 16N; 18N; 20N; 22N; 23N; 25N; 26N  
(SHARK Fruit 1.6; 1.8; 2.0; 2.2; 2.3; 2.5; 2.6 kW)



Original instructions for use (EN)



**VARES Mníchovice a. s.**

Pražská 539, 251 64 Mníchovice,  
CZECH REPUBLIC

[www.vares.cz](http://www.vares.cz) • [info@vares.cz](mailto:info@vares.cz)

Tel: +420 323 631 333

+420 323 631 334

Fax: +420 323 640 466

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## Introduction

These instructions for use are intended for users of OZD 16N; 18N; 20N; 22N; 23N; 25N and 26N type fruit crushers (commercial name SHARK Fruit) manufactured by VARES Mnichovice a. s. These instructions for use form an integral part of the technical documentation that the manufacturer and supplier of the fruit crusher provides to the user. The manual contains all necessary information for an overall familiarisation with the properties and functions of individual parts of the garden-waste crushers as well as directions arising from the requirements of regulations that apply to the product concerned in order to ensure correct and safe procedures during:

- installation
- putting into operation
- operation
- cleaning and maintenance
- repair
- troubleshooting
- handling and transport
- final dismantlement of the machine, after the expiry of its service life and its subsequent disposal.

The fruit crushers manufactured by VARES Mnichovice a. s. rank amongst machines designed and manufactured to comply with the requirements for safety during their operation. In spite of that, they may be a source of danger if used incorrectly and operated unprofessionally.

The manual must be stored by the user in such a way that it is available to persons designated for operation and maintenance of the machine.

Before commencing any activity involving the garden-waste crusher, the operator is obliged to familiarise himself/herself in detail with the directions and information contained in these instructions for use and to understand their meaning, which is a condition for correct and safe use of the machine.

The fruit crusher is a product that corresponds, with its properties, to the requirements of technical regulations that apply to it, especially Government Regulation (GR) No. 17/2003 Coll., GR No. 616/2006 Coll., GR No. 176/2008 Coll., GR No. 9/2002 Coll. and, hence, also the EU Directives 2006/95 EC, 2004/108 EC, and 2006/42/EC, 200/14/EC.

An EC declaration of conformity has been issued for the product in accordance with Section 13, Act No. 22/1997 Coll., as subsequently amended, and the product may be freely marketed in EU countries and further countries of the EEC (European Economic Area). These facts are declared by a mark marking the product.

**Note:** Instead of the product name "fruit crusher", the simplified name "crusher" or "machine" will be used in the following sections of these instructions for use, in texts in which there will be no possibility of confusion or misinterpretation.

**Notice:** The manufacturer of the fruit crusher – VARES Mnichovice a. s. – reserves the right to make technical changes to its products and changes in the instructions for use without prior notice.

## 1.1 Marking used in these instructions for use and on the machine

### 1.1.1 Safety marking in the instructions for use

Mark	Symbol	Meaning
A	 Text	Danger to the operator: Failure to observe this requirement or instruction may endanger the safety of persons!
B	 Text	Danger to the operator: Failure to observe this requirement or instruction may cause an electric shock!
C	 Text	Danger to the machine: Failure to observe this requirement or instruction may endanger the safety of the machine!

### 1.1.2 Safety marking used on the machine

Mark No.	Symbol	Meaning
1	 POZOR! PŘED SEJMUTÍM KRYTU ODPOJTE ZAŘÍZENÍ OD ELEKTRICKÉ SÍTĚ	CAUTION! Covers marked with this safety symbol (colour version: a black triangle with black lightning on a yellow background), cover spaces with electrical equipment; before removing covers marked in this way the electrical equipment of the machine must be disconnected from the mains and an off-state must be ensured! (the symbol is complemented by a text with a safety message)
2		CAUTION! Spaces marked with this safety symbol (colour version: a black triangle with a black exclamation mark on a yellow background), contain moving mechanical components which pose a risk of injury; before removing the covers of spaces marked in this way the electric drive of the machine must be turned off and an off-state must be ensured! The symbol is complemented by texts with a safety message: operators are strictly prohibited to put their hands under the rubber diaphragm of the insertion opening and into the opening for discharging the crushed material.
3		CAUTION! This symbol orders machine operators to use protective glasses or a protective face shield when working with the machine to protect their eyes from small objects catapulted from the working mechanism of the crusher. (colour version: a blue circle with a white silhouette of a human head wearing glasses)
4		CAUTION! This symbol orders machine operators to use ear protectors when working with the machine to protect their hearing organs against the noise generated by the operation of the crusher. (colour version: a blue circle with a white silhouette of a human head wearing ear protectors)

### 1.1.3 Other marking used on the machine

Mark No.	Symbol	Meaning
5	Manufacturing plate of the machine	A plate containing basic technical data that allows identification and operation of the machine.
6	Manufacturing plate of the electric motor	A plate containing data that allows identification and operation of the electric motor.
7		By marking the product with a CE mark the manufacturer declares that the product meets the requirements of Government Regulation (GR) No. 17/2003 Coll., GR No. 616/2006 Coll., GR No. 176/2008 Coll., GR No. 9/2002 Coll. and, thus, also the EU Directives that apply to the product, i.e. 2006/95 EC, 2004/108 EC, and 2006/42/EC, 2000/14/EC.

### 1.1.4 Design of the machine's manufacturing plate

VARES Mnichovice a. s.			
TYPE	DZO 16 N	LEVEL OF PROTECTION	IP 44
YEAR OF MANUFACTURE		WEIGHT	27 kg
SERIAL NUMBER			
VOLTAGE	230 V, 50 Hz		
CURRENT	7,7 A		
INPUT	1,6 kW		

### 1.1.5 Position of marks on the machine

Mark No.	Position of the mark on the machine
1	Side surface of the protective enclosure of the electric motor
2	Front surface of the protective enclosure of the electric motor
3	
4	
5	Side surface of the protective enclosure of the electric motor
6	Shell of the stator of the electric motor
7	Manufacturing plate of the machine

## 2 Intended purpose of the product

DZO 16N; 18N; 20N; 22N; 23N; 25N and 26N type fruit crushers are intended for crushing fruit before it is further processed, e.g. by cider making.

With their structure and parameters, the crushers are intended particularly for gardeners.

The main advantage of these machines is sufficient performance, minimal space demands, simple operation and easy relocation thereof.

The crushers are intended for work in an environment defined by ČSN 33 2000-3 with the following external influences:

AB5 – ambient air temperature –5 to +40 °C with relative humidity of up to 85 %

AD3 – presence of water – water spray

AE1 – negligible dustiness

AF2 – atmospheric presence of corrosive pollutants

AG2 – medium mechanical stress

AH1 – moderate vibration stress

The crushers cannot work in an outdoor environment while it is raining or snowing!

The operation of the crushers does not cause excessive high-frequency electromagnetic interference. No limitations are set for the work of the machines in terms of external electromagnetic influences. The crushers are supposed to work in an electromagnetic environment that corresponds to the generally applicable requirements defined by ČSN EN 61000-6-3 ed. 2, (residential, commercial and light-industrial premises).

The set conditions of use of the crushers also include the observance of instructions and procedures for the installation, operation, maintenance and cleaning of the machine stated in the following chapters of these instructions for use.

**Important notice:** If the machine is used for other purposes, the manufacturer (supplier) does not bear responsibility for damage, if any; the full responsibility shall pass to the user!

### 3 Technical data

#### 3.1 Basic technical data

Product name: Fruit crusher  
 Manufacturer: VARES Mnichovice a. s.

Indicator	Unit	Data - value							
		16N	18N	20N	22N	23N	25N	26N	
Machine type	DZO								
Machine dimensions:	mm								
length		680				680			
height		735				1 146			
width		545				545			
Nominal supply voltage	V	230							
Nominal frequency	Hz	50							
Installed output	kW	1,6	1,8	2,0	2,2	2,3	2,5	2,6	
Nominal current	A	7,7	9	10	10,5	11	11,5	12	
Rotor speed	min <sup>-1</sup>	2 800							
Max. diameter of material being crushed	mm	90 až 100							
Machine weight	kg	27							
Level of protection	-	IP 44							

The given type of crusher, DZO 16 N, corresponds to the commercial designation SHARK Fruit 1.6 etc.

### 3.2 Other technical data

The electrical equipment of the machine is protection class 1 equipment, within the meaning of ČSN EN 61140 ed. 2.

Protection against electric shock is executed pursuant to ČSN 33 2000-4-41 ed. 2, Section 411 by automatic disconnection from a power source using a residual current device.

Working environment pursuant to ČSN 33 2000-3 – see Chapter 3 of this manual.

Noise emissions generated by operation of the machine:

The declared time-averaged emission level of acoustic pressure A at the workplace of a fruit crusher operator, i.e. 0.5 m from the main switch  $L_{pAd} = (69 + 4)$  dB (measured as per ČSN EN ISO 11201 in no-load operation).

**Note:** The basic technical data of the machine together with its identification data is included in the manufacturing plate placed on the housing of the electric motor.

**Notice:** It is necessary to give identification data from the manufacturing plate every time when communicating with the manufacturer in connection with the application of any requirements that concern a particular machine!



## 4 Safety instructions

### 4.1 Work safety

- Before commencing any work with the machine, the operator is obliged to familiarise himself/herself in detail, according to the instructions for use, with all the machine's functions, its controls and tripping elements that serve to avert danger.
- The machine may only be used for the purposes for which it is technically fit, in accordance with the conditions laid down by the manufacturer and which with its construction, design and technical condition complies with regulations to ensure safety.
- Before the commencement of work with the machine, the machine must be placed on a flat firm base so as not to disrupt its stability.
- When working with the machine, do not allow other persons, especially children, to get near the machine.
- When working with the machine, the operator is obliged to use personal protective equipment, namely working gloves, protective glasses or a protective face shield and ear protectors.
- A user of the machine is obliged to ensure that regular maintenance and cleaning of the machine is done.
- A user of the machine is obliged to take such measures to prevent any unauthorised person from operating the machine.
- The machine may be operated separately only by physically and mentally fit workers, over eighteen years of age, demonstrably trained to operate it and acquainted with the instructions for use, which must be kept in a place accessible to the operators.
- The operator is obliged to visually check the equipment and take basic care of it. Cleaning, maintenance and repairs may only be carried out after the machine's electrical equipment has been disconnected from the mains, i.e. by disconnecting the plug/socket combination of the machine's flexible cord.
- If the operator discovers a fault or damage that could endanger work safety or operation of the device and that they are not able to remedy himself/herself, he/she may not put the machine into operation.

- If the machine is not in use for any reason, its electrical equipment must be disconnected from the mains and an off-state must be secured, by disconnecting the plug/socket combination of the machine's flexible cord.
- It is necessary to maintain the safety marks, symbols and signs on the machine in a legible condition. If they are damaged or have become illegible, the user is obliged to restore them in accordance with the original condition [see points 1.1.2 to 1.1.4 of this manual].



### IT IS PROHIBITED!

- To connect the machine's electrical equipment to an electrical network if any protective device has been removed or damaged (enclosures of the electrical equipment, covers of dangerous mechanical components).
- To disable safety, protective or locking devices.
- To make any interventions in the machine's construction or in its electric circuits.
- To insert any tools or objects, except for material intended to be crushed, into the drum while the machine is running.
- To carry out maintenance, cleaning and repairs if an off-state of the machine's electric circuits is not ensured.



### 4.2 Fire protection

- **CAUTION!** Harmful emissions may be generated by burning of plastic components during a fire, and, therefore, it is necessary to abide by generally applicable fire regulations.
- Water must not be used for extinguish a fire of the electrical equipment. If a water or foam fire extinguisher is to be used for putting out the fire, it is only possible to use it after power supply has been turned off!
- It is necessary to regularly clean the surface of enclosures of the electrical equipment, especially the surface of the electric motor, to remove impurities.



### 4.3 Electrical equipment

- Electrical installation must be carried out according to the requirements of applicable regulations and technical standards that apply to the device concerned, in particular ČSN EN 60 204-1 ed. 2 and related regulations.
- The electric circuit of the single-phase socket for connecting the machine to the mains must be executed according to the requirements of applicable regulations and technical standards that apply to the device concerned, in particular ČSN 33 2130 ed. 2, ČSN 33 2000-4-41 ed. 2, ČSN 33 20000-5-51 ed. 2, ČSN 33 2000-5-54 ed. 2 and related regulations.
- The protection of the socket circuit against electric shock must be executed according to the requirements of ČSN 33 2000-4-41 ed. 2 by automatic disconnection from power supply; the socket circuit must be fitted with a residual current device with a trip current of 30 mA, the proper function of which must be checked on a regular basis.



**Caution!** The flexible cord between the power supply point and the machine must not lie freely on the ground without protection against mechanical damage! If an extension cord is used for connecting the machine to the electrical network, it must be protected against mechanical damage and it must be placed in such a way that does not interfere in the machine's working space and it cannot be a cause of injury – stumble, slipping!

- Work on the electrical equipment within the meaning of ČSN EN 50110-1 ed. 2 may only be carried out by workers possessing appropriate electrotechnical qualifications within the meaning of the Czech Occupational Safety Office and Czech Mining Authority Decree No. 50/1978 Coll. and acquainted with the equipment to the necessary extent.
- The machine operator is obliged to ensure, within time limits set, revisions of the electrical equipment are made, within the meaning of Section 4 of Act No. 309/2006 Coll. and ČSN 33 1500 Article 3.1 to 3.6.



#### 4.4 Hygiene requirements

- The machine operator is obliged to observe hygiene regulations relating to the handling of foodstuffs.
- Following maintenance and repairs of the machine during which hands or tools came into contact with machine components that come into direct contact with foodstuffs, it is necessary to carry out cleaning as per Chapter 9 of this manual!



#### 4.5 Overview of possible hazards during work with the machine

Although the machine is manufactured in compliance with the requirements of technical regulations concerning safety, it is not possible, through the technical design of this product, to eliminate all risks that may occur particularly if it is handled carelessly!

**When using the machine, you must be aware of the possibility of the following hazards occurring:**

##### 4.5.1 Mechanical hazards:

- Risk of bruising fingers, hand or possibly even leg during the assembly and disassembly of machine components.
- Risk of injury to fingers, hand caused by rotating parts of the machine when a hand is inserted into the crusher's working space.
- Risk of injury to the upper limbs or other body parts when putting long foreign objects into the drum of the machine that is running (except material intended for crushing).
- Risk of injury to the lower limbs or other body parts due to the machine falling when it is being relocated carelessly.
- Risk of injury to the eyes or other body parts caused by deflected small objects catapulted by the crusher's working mechanism.

##### 4.5.2 Electrical hazards:

- Risk when directly or indirectly touching components intended for conducting electric current (live parts), when removing enclosures of the electrical equipment or when damaging insulation parts.
- Risk of electric shock due to damaged parts of the electrical equipment, in particular when handling the extension flexible cord.
- Risk of electric shock due to inappropriate placing of the plug/socket combination of the extension flexible cord in places with the danger of mechanical damage or in places with the presence of water, e.g. wet grass, places with accumulated water after rain etc.
- Risk of electric shock when failing to observe the directions for connecting the machine to the mains, stated in point 5.3 and 6.1 of this manual.
- Risk of disabling the device to protect against electric shock when using unsuitable extension cords of great length with a small cross-section of conductors and, hence, a high impedance of the tripping loop of the protective conductor.

##### 4.5.3 Hygienic hazards:

- The operator has the duty to use ear protectors when working with the crusher!

## 5 Description of the machine

### 5.1 Work places

The work place of the machine in which the operator stays during crushing is the space on both lateral sides. A sufficiently free space around the entire machine must be provided for maintenance and cleaning of the machine.

### 5.2 Mechanical parts of the machine

The machine consists of the following basic parts, the arrangement of which is evident from Figure 1 and a description of which is given in the following sections of this manual. The components that come into direct contact with the material being crushed are made of stainless steel intended for food purposes. The surface finish of metal parts of the machine that are not made of stainless steel is made by painting.

2. Upper part of Shark Fruit
3. Motor housing
4. U-shaped stand
5. Vessel
6. Vessel lid
7. Vessel handle
8. Locking mushroom button
9. Machine identification plate
10. Upper part of Shark Fruit Megalodon

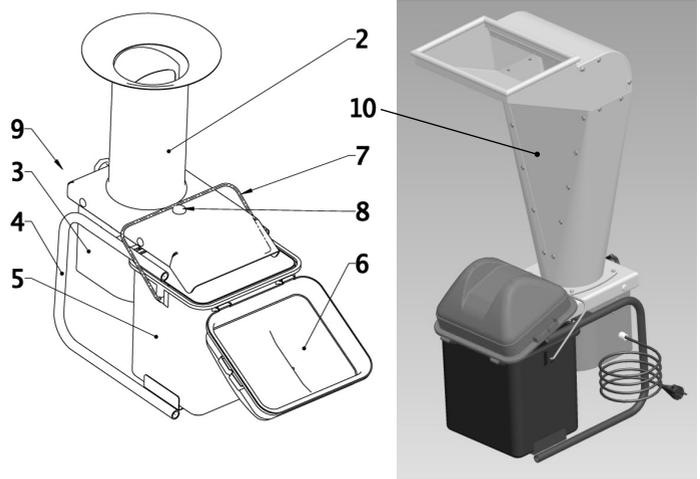


Figure 1

A detailed drawing of the product with all the parts and position numbers is provided on page 23.

#### 5.2.1 Upper part

See Figure 1. The upper part is composed of a circular hopper, a tube with partitions and the top part of the crushing mechanism, with four openings for attachment to the lower part by means of screws. The entire upper part including the partitions is made of stainless steel intended for food-industry purposes.

#### 5.2.2 Lower part

See Figure 2. The lower part is composed of a base plate, to which the envelope of the working space of the crushing mechanism is welded.

A U-shaped stand is attached to the bottom of the base plate. A plastic vessel, which serves to collect material that has been crushed, is inserted into this stand. In the course of crushing, the vessel is secured by means of a handle directly on the crusher body. This will prevent possible movement of the vessel owing to vibrations of the crusher.

After the vessel is taken out (by sliding it out forward), a flap that prevents the operator from getting potentially injured by putting his/her hand near the rotating parts of the crusher automatically closes. After the vessel is inserted back under the crusher again, the flap will open again.



**Caution!** It is prohibited to open the flap while the crusher is running and put hands into this space or insert any objects into it!  
**DANGER OF INJURY!**

A flange electric motor, the shaft of which goes through to the centre of the working space of the crushing mechanism, is attached to the base plate by means of four screws. The electric motor is protected against the action of external influences by a housing welded from sheetmetal parts.

### 5.2.3 Working mechanism and drive

The working mechanism of the machine is a rotating cutting disc fitted with one blade on the front side. The disc is mounted on the shaft of the electric motor and secured by a centre airscrew. The electric motor is attached by means of countersunk screws to the base plate of the lower part of the crusher.

The drive of the working mechanism is designed with a flange single-phase, asynchronous electric motor with a short-circuit armature with a permanently connected capacitor. The sense of direction of the electric motor cannot be changed without intervening into the internal connection of the winding of the electric motor. This guarantees a correct sense of rotation of the cutting disc.

The motor contains an electric brake. After power supply has been disconnected, the motor will be mechanically stopped by the brake.

1. Lower part
2. Cutting disc – fitted
3. Bottom roller, 17 mm, stainless
4. Top roller, 17 mm, stainless
5. Centre airscrew, stainless
6. M 8x16 stainless countersunk screw
7. 8.4 stainless washer
8. Electric motor
9. WA-20 (20 x 30 x 7 G) NBR 70 packing ring

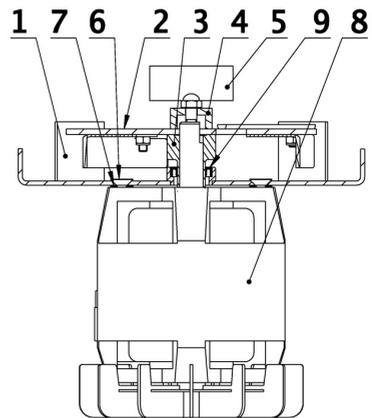


Figure 2

### 5.3 Electrical equipment

The machine is designed as a protection class 1 device, within the meaning of ČSN EN 61140 ed. 2.

The electrical equipment of the machine is intended for connection to a 1/PE+N 230 V, 50 Hz single-phase electrical network.

The machine is connected by means of a flexible cord conducted through a H05VV-F 3G conductor with a cross-section of  $3 \times 1.5 \text{ mm}^2$ , which is firmly attached to the machine on one side and terminated with a 10/16 A single-phase plug with a protective contact on the other side.

The use of extension flexible cords must be in accordance with the requirements of ČSN 34 0350 ed. 2.

The electric drive of the machine is started and stopped by means of a double button located on the rear wall of the electric motor housing. The turn-on button is marked with green colour and an "I" symbol, and the turn-off button is marked with red colour and an "O" symbol. The double button is fitted with an electromagnetic release responding to voltage loss that ensures that the machine does not spontaneously start after the interruption and subsequent restoration of power supply.

Protection against electric shock is performed pursuant to ČSN 33 2000-4-41 ed. 2 by automatic disconnection from power supply.

Current protection is incorporated in the supply circuit of the electric motor and it protects the electric motor against excessive load and it interrupts the supply circuit of the electric motor in the event that the load of the electric motor is exceeded. The motor then stops. It is only possible to restart the electric motor after it cools down. A safety limit switch is incorporated in the supply circuit of the electric motor, which automatically interrupts the supply circuit of the electric motor during dismantlement of the upper part of the crusher which covers its working mechanism. The safety microswitch is controlled by a single screw that fastens the upper part (see the detailed drawing, position 72).

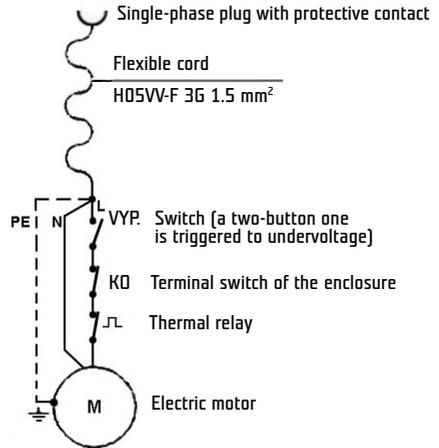


Figure 3 – Diagram of electric circuit

### 5.3.1 Safety devices

A safety limit switch is incorporated in the supply circuit of the electric motor, which automatically interrupts the supply circuit of the electric motor during dismantlement of the upper part of the crusher which covers its working mechanism. The safety micro-switch is controlled by one screw that fastens the upper part (see the detailed drawing, position 72).

## 6 Installing the machine

The machine is supplied assembled, with a flexible lead wire connected in the terminal box of the electric motor.

The machine shall be installed in outdoor or indoor areas with sufficiently free space in its surroundings so as to handle the material being processed. The machine needs to be positioned on a flat firm surface in order to ensure that it is sufficiently stable during work.



Follow the instructions given in Chapter 12 of this manual when handling the machine during its installation.



**Caution!** Never place the machine in an outdoor environment and work with it in rain; the machine's electrical equipment is not resistant to the adverse effects of water considering the ingress protection used. There is danger of electric shock and of the machine being damaged.

Before installation of the machine, an electric line must be prepared according to local conditions for connecting the machine to the mains according to the instructions given in point 6.1 of this manual.



**Caution!** In view of the fact that fruit and its crushed parts are handled in the vicinity of the crusher, there is increased risk of slipping or stumbling in this area.

## 6.1 Connecting the machine to the mains

Work on the electrical equipment within the meaning of ČSN EN 50110-1 ed. 2 may only be carried out by workers possessing appropriate electrotechnical qualifications within the meaning of the Czech Occupational Safety Office and Mining Authority Decree No. 50/1978 Coll. and acquainted with the equipment to the necessary extent.

The electrical equipment of the crusher may only be connected into an appropriate 230 V, 50 Hz single-phase mains socket, with a protective contact connected to a protective conductor. The circuit of the single-phase socket for connecting the crusher to the mains must be executed according to the requirements of applicable regulations and technical standards that apply to the device concerned, in particular ČSN 332130 ed. 2, ČSN 332180, ČSN 332000-4-41 ed. 2, ČSN 332000-5-51 ed. 2, ČSN 332000-5-54 ed. 2 and related regulations.

The circuit must be protected at the point of connection against overcurrent by means of a protective element with a maximum nominal value of 10 A, and in view of the environment and working conditions of the machine, it must be equipped with a residual current device with a nominal trip differential current  $I_{\Delta n} = 30 \text{ mA}$ !

This measure will ensure increased protection of the machine against electric shock.

If it is necessary to use an extension flexible cord for connecting the crusher to the mains, it is necessary to use only cords fitted with a plug and portable socket-outlet of the same pattern, for the same nominal current and the same nominal voltage intended for use in an outdoor environment. The cross-section of the conductors of a flexible cord must not be smaller than  $1.5 \text{ mm}^2$  for a length of up to 25 m and than  $2.5 \text{ mm}^2$  for a length of up to 50 m.



**Caution!** Use flexible extension cords longer than 25 m only exceptionally and pay increased attention to their protection against mechanical damage. The use of extension cords longer than 50 m is prohibited as the reliable function of protection against electric shock is not guaranteed.

It is necessary to lay flexible extension cords according to the requirements of Chapter 4.4, ČSN 34 0350 ed. 2 in such a way to ensure that they are sufficiently protected against mechanical damage and that they do not hinder the use of the spaces through which they are led. As protection against mechanical damage, use primarily position protection, i.e. place the flexible cord in areas in which it is not exposed to the danger of mechanical damage.

## 7 Putting into operation

Before putting the machine into operation the machine operator must be demonstrably familiarised with the basic information on the machine, with its functions, with the safety instructions according to Chapter 4 of this manual and with the principles of maintenance according to Chapter 9 of this manual.

Before starting the machine for the first time make sure that all of its components are sufficiently mechanically fastened and that there are not foreign objects in its working space.

If no faults are detected, it is possible to put the machine into operation according to the following instructions:

- Insert the plug of the machine's flexible cord into an appropriate mains socket.
- Press the green button marked with the "I" symbol, the electric drive will start running.

**Notice:** The sense of rotation of the electric motor does not need to be checked. The electric motor is connected from the manufacturing plant with a required sense of rotation of the working mechanism.

- Once full working speed of the crusher's electric drive has been reached, it is possible to start loading material into the crusher.



**Caution:** If the crusher stops owing to overloading, it is prohibited to take the contents out of the working space of the crusher by hand and put hands into the internal space if the machine is not entirely at standstill and its off-state is not ensured by pulling the plug of the flexible cord out of the mains socket!



**Caution:** When working with the crusher, the operator has the duty to use ear protectors to protect his/her hearing organs!

**Notice:** Frequent overloading of the electric motor may cause its excessive warming and damage.

## 7.1 Working with the machine

The SHARK FRUIT crusher is intended for processing fruit, e.g. apples, pears, plums, apricots, grapevine, currants etc. Crushed fruit has an ideal coarseness and consistency for further processing: production of ciders, juices, home-made squashes, fruit pulp, wine or spirits.

Fruit (individual fruits) with a diameter of up to 10 cm can be crushed.

Fruit is processed in a very efficient manner by means of the stainless mechanism of the crusher (upper stainless airscrew, cutting stainless blade on a rotating bearing plate, 2 800 rev./min.).

The machine may only be used provided that all the directions given in these "Instructions for use" have been followed, in particular those in Chapter 4.

### 7.1.1 Preparing for work

- Position the machine on a hard flat base (concrete floor, pavement etc.).
- Perform all the instructions given in points 4.1 to 4.5.3.
- If all the instructions mentioned above have been carried out, insert the plug of the flexible cord of the crusher into a mains socket.
- Make sure that the vessel for collecting crushed fruit is secured. The vessel must be secured by clicking the vessel handle behind the locking mushroom knob shut. The FRUIT tongue must be tilted off behind the vessel.
- Turn on the machine.

### 7.1.2 Putting fruit into the machine

- Use a plastic bucket or basket to put fruit into.
- Put fruit into the hopper evenly.
- Cut fruits that are larger than 10 cm in two.

### 7.1.3 Filling the vessel with crushed fruit

- The SHARK Fruit machine includes one 20-litre plastic vessel for collecting crushed fruit.
- The volume of crushed fruit in the vessel can be easily checked visually even while the machine is running by lifting off the vessel's lid. After checking the level in the vessel (fill rate of the vessel), put the lid back on.
- We recommend interrupting the crushing at the moment when the vessel is filled to ca. 2/3 of the capacity.
- Wait approx. 2 minutes so that the crushing of fruit that has already been put into the crusher can be completed; the working mechanism must be entirely emptied before the machine is turned off.
- Turn the machine off when no fruit pulp flies into the vessel any more.
- Unlock the vessel by unlocking the vessel handle from the locking mushroom button.

- Slide the filled vessel outwards from the crusher undercarriage. Once the vessel is removed, the flap (tongue), which prevents possible injury to the operator due to a hand being put near rotating parts of the crusher, will automatically close.
- Do not put your hands near the rotating parts of the crusher in any case while the crusher is running! When the vessel is slid back under the crusher again, the flap will automatically re-open.
- Empty the vessel.
- Slide the vessel back under the crusher so that the flap – FRUIT tongue is behind the vessel.
- Put the vessel lid on.
- Secure the vessel by means of the handle (secure the handle / click it shut on the locking mushroom button on the upper part of the crusher).
- Turn the machine on.
- Continue crushing until the vessel is filled again.

#### **7.1.4 Ending work, cleaning the machine**

- After the last batch of fruit is put into the crusher tube, wait for it to be crushed.
- The working mechanism must be entirely emptied before the machine is turned off.
- Turn off the machine when no fruit crush flies into the vessel any more.
- Take the vessel out and empty it.
- Pull out the plug of the flexible cord of the crusher from the mains socket, clean the conductor and coil it into free loops.
- Clean the crusher thoroughly according to point 9.2 of this manual.

**MANUFACTURER'S TIP:** We recommend further processing apples and other fruits immediately after their being crushed by pressing / cider making etc. In this way you will prevent the crushed fruit from becoming brown.

**MANUFACTURER'S TIP TO INCREASE THE EFFICIENCY OF WORK:** The crusher has a very quick working mechanism; thus all fruit is processed at a relatively quick rate. Fruit can be crushed by 1 person. To make work more efficient, we recommend working in a team: 1 person puts fruit in and another person takes away the vessel with crushed fruit. If you process a larger volume of fruit (in the order of several hundred kilos), you can purchase one more vessel for crushed fruit from the manufacturer, VARES Mnichovice a. s. You will double the efficiency of work by using a second vessel.

**MANUFACTURER'S TIP FOR FURTHER UTILISATION OF THE FRUIT CRUSHER:** In addition to fruit intended for pressing / cider making such as apples or pears, you can also process other fruits including stone fruits (plums, apricots etc.). When fruits containing a stone are processed, the stones will be broken too. A suitable press for fruit pulp can also be bought at VARES Mnichovice a. s. for further processing of crushed fruit.

## **8. Shutdown**

After finishing work, put the crusher out of operation according to the following instructions:

After finishing work with the crusher, leave the machine running until the working mechanism has been completely emptied; when the crushed material stops falling out of the crusher's discharge opening, turn off the crusher by pressing the red button marked with the "0" symbol.

Pull the plug of the flexible cord of the crusher out of the mains socket and clean the conductor and coil it into free loops. Clean the crusher according to the instructions given in point 9.2 of this manual and store it in a place that is protected from the direct action of effects of the outdoor environment.

## 9 Maintenance and cleaning

Regular and correct maintenance is one of the conditions that affect the safety, correct functioning and service life of the machine. Insufficient and irregular maintenance may cause increased costs of repairs and inadequately long shutdowns of the machine. The machine has been designed and made in such a way that it is easy to clean with a minimum need for machine parts to be dismantled.



**Caution!** All activities stated in this chapter need to be performed only after the machine has been disconnected from the mains and an off-state of the electrical equipment of the machine has been secured by pulling the plug of the flexible cord from the mains socket.

**Notice:** Pressure water or steam must not be used for cleaning the crusher!

**Notice:** When the machine is being cleaned, the crusher must not be turned “upside down” as water or juice may leak into the vent holes in the motor housing and subsequently into the motor brake. Pressure water or steam must not be used for cleaning the crusher!

When carrying out maintenance and inspection of the machine observe, in addition to the safety instructions given in this manual, also the requirements of generally applicable safety regulations!

### 9.1 Routine maintenance and cleaning

- Every time before starting to work check the condition of the insulation of the flexible cord for mechanical damage or whether it is not pulled out of the bushing in the protective housing of the electric motor and check the condition of the plug of the flexible cord as well.
- If you use a flexible extension cord, check the condition of the insulation and the condition of the plug/socket combinations as well.
- Before beginning to work always check whether all screwed joints on the machine are tightened.
- Keep both the external and internal space of the machine clean. Clean the crusher every time after use according to point 9.2 of this manual – paragraph “Procedure for cleaning the machine”.
- Before putting the crusher out of operation for a prolonged period of time, clean the internal space of the crusher and preserve its individual parts with oil, when dismantling the upper part of the crusher proceed according to point 9.2 of this manual – paragraph “Procedure for cleaning the machine”.

### 9.2 Dismantling the machine

To gain access to the working mechanism of the machine, proceed according to the following instructions:

- Loosen and unscrew the screw connecting the upper and lower part of the crusher.
- Dismantle and remove the upper part of the crusher, whereby the cutting disc is made accessible.
- Loose the centre airscrew, take off the bearing plate and remove fruit remains from the parts.

#### Procedure for cleaning the machine

Carry out the cleaning of removed parts No. 2, 9, 10, 11, 12, 25 and 4 (see the detailed drawing of the crusher) cleaning of the above parts removed from the machine at a sufficient distance from the crusher (in no case may water or preparations used for cleaning these parts leak into the motor housing, vent holes or even the machine motor).

First of all remove carefully all solid remains after crushing. Wash the removed upper part of the crusher (position 2 in the detailed drawing of the machine) as well as the removed bearing plate (position 9) including the blade (position 10) and ejection blades (position 11) and airscrew (position 25) properly with

warm water with a bit of washing-up liquid. The said parts are made of stainless steel; to clean them you can also use a small amount of a preparation intended specially for stainless dishes (pots, cutlery etc). Be careful when handling the parts; in particular, the airscrew and blade have sharp edges. After washing the parts, rinse them properly with clean water and dry them up. Finally polish them with a dry cloth.

Wipe the flap – tongue of the crusher (position 5). Do not use pressure water to clean the flap or the lower part to prevent water from leaking into the motor. Clean the parts ONLY with a slightly moistened cloth with a minimal amount of washing-up liquid. Then remove the preparation properly by repeatedly wiping the product with a moist cloth, wipe it dry and polish it with a dry cloth.

Wash the vessel for crushed fruit (position 4) separately with warm water with a bit of washing-up liquid. After washing, rinse it well with clean water and dry it up.

Put the bearing plate back on and tighten the centre airscrew well. During assembly and disassembly use the attached detailed drawing of the crusher for easier identification of the parts and their correct location.

### 9.3 Replacing the cutting blade

After dismantling the upper part of the crusher unscrew the centre airscrew of the shaft of the electric motor and take the cutting disc off the shaft (point 8.2, see the description above). When loosening the screw it is necessary to secure the disc against rotation. Loosen and unscrew the two countersunk screws by which the blade is attached to the disc. Take out the blade. After the first replacement it is possible to turn the blade by 180° and make use of its other sharpened side.

**Notice:** Do not grind the blades! Use solely new blades. Grinding the blades changes their weight and the cutting disc becomes imbalanced. Great imbalance causes vibrations of the entire crusher and excessive loading of the bearings of the electric motor.

Replacement blades can be purchased directly from the manufacturer, VARES Mnichovice a. s., [www.vares.cz](http://www.vares.cz).

When mounting a blade into the body of the cutting disc clean carefully all the seating surfaces both on the blade and on the disc. Always use new nuts. Nuts are self-locking, after being loosened they lose their efficiency.

### 10 Troubleshooting

When trying to find the cause of a failure or fault it is necessary to realise that not all failures in the activity of the machine must be due to a fault in the machine itself. Some failures may be caused by failures in the electric mains.



**Caution!** All activities associated with repairing the electrical equipment may only be carried out by workers possessing appropriate electrotechnical qualifications within the meaning of the Czech Occupational Safety Office and Czech Mining Authority Decree No. 50/1978 Coll. and acquainted with the equipment to the necessary extent!



**Caution!** All activities associated with troubleshooting may only be performed after the electric drive of the machine has been turned off and an off-state of the electrical equipment has been ensured by pulling the plug of the flexible cord from the mains socket.

FAULT	CAUSE	METHOD OF ELIMINATION
1. It is not possible to start the electric motor of the crusher.	The crusher is not connected to the mains.	Insert the plug of the flexible cord into a mains socket.
	Interruption of power supply.	Call an electrician.
	The locking element of the circuit of the socket into which the crusher is connected has switched off.	Switch on the circuit-breaker or replace the fuse in the socket circuit.
	Loosened screwed fastening the upper part to the lower part.	Retighten the screw that controls the safety switch.
	The thermal relay got switched off owing to overloading of the electric motor.	It is necessary to allow the current protection and, thus, also the winding of the electric motor cool down; after cooling down the protection will automatically return to an on-state.
2. Once turned on, the electric motor of the crusher will not rotate – it hums.	A blocked cutting disc by a foreign body.	Dismantle the upper part pursuant to point 9.2 of this manual and remove the foreign object.
3. The material has been crushed insufficiently.	The edge of the blade is blunt.	Replace the blade of the cutting disc pursuant to point 9.3 of this manual.
4. In no-load operation, the crusher vibrates excessively.	An unbalanced cutting blade owing to repeated grinding of the blade.	Replace the blade by a new one.

## 11. Spare parts

An overview of spare parts including their pictures and ordering numbers is provided in Annexes No. 3 and 4.

Based on a written order, the manufacturer supplies all spare parts for all crusher types.

An order for spare parts shall contain, among other things:

machine type, machine serial number, name of part according to Annex 4, number of units

## 12 Packaging, transport, handling and storage

### 12.1 Packaging The machine is packaged in a carton box.

### 12.2 Handling and transport



**Caution!** When handling the machine by means of lifting devices observe safety regulations relating to such activity!

- The machine can be handled by hand.
- When handling the machine it is necessary to take account of its weight, dimensions and the position of its centre of gravity.
- When handling the machine by means of lifting devices, never put your hands or other parts of the body under those parts of the machine that are not properly attached or are in motion.
- Transport shall take place by means of standard vans or lorries of corresponding load-carrying capacity.

- During transport, the crusher must be secured on the loading area of the means of transport against undesirable movement and against overturning!

### 12.3 Storage

- The crushers can be stored in dry, enclosed areas, protected from weather effects.
- The crushers may only be stored packaged and placed on a flat, firm surface.
- If more packaged crushers are stored standing on one another, it is necessary to take account of the weight of the top layers so as to prevent damage to the machines in the bottom layers!

### 13 Disposal of the machine

After the service life of the machine expires or when its repair would be uneconomical, individual parts shall be disposed of following overall dismantlement of the machine in accordance with Act No. 185/2001 Coll., on waste, as subsequently amended, as follows:

- The metal parts shall be sorted out by the type of metal and offered for sale to an organisation engaged in the collection of secondary raw materials.
- Parts made from plastics and similar materials not subject to natural decomposition shall be sorted out and handed to an organisation engaged in the collection of these materials.
- Parts of electrical equipment shall be handed to an organisation authorised to collect and dispose of electrical waste.



**Caution:** Considering environmental protection, it is prohibited to dispose of parts from plastics by burning them!

### 14 Ordering, service and sales network of spare parts

Deliveries of machines on the basis of a written order, sale of spare parts and service is provided by the manufacturer:

VARES Mnichovice a. s., Pražská 539, 251 64 Mnichovice, Czech Republic

E-mail: info@vares.cz

Website: www.vares.cz

Phone: +420 323 640 607, +420 323 631 333

Fax: +420 323 640 466

### 15 Warranty and warranty conditions

The supplier provides a warranty period for the functionality of the machine that was the object of a delivery for a duration set by the purchase agreement provided that the machine works in single-shift operation.

The warranty covers all faults and failures due to a defect in material.

The fulfilment of the warranty is conditional on the observance of the instructions for use, carrying out basic maintenance, without any interventions into the construction of the product. The customer shall not remedy faults of the product in the warranty period; he/she shall report them to the supplier, with whom he/she shall agree on the method of their remedy.

The warranty does not cover natural wear of the components and faults due to mechanical damage, unprofessional installation or handling, the penetration of foreign bodies into the machine's working mechanism or due to the effects of the elements.

The suppliers is not liable for losses or damage incurred during repair, replacement of parts etc that have not been carried out according to the directions given in the instructions for use and according to the requirements of generally applicable safety regulations.

For the warranty conditions, see the WARRANTY CERTIFICATE on page 21 of this manual.

## ES PROHLÁŠENÍ O SHODĚ

### EC Declaration of conformity

<b>Výrobce:</b> <i>Manufacturer:</i>	VARES Mnichovice a. s.,																
<b>Adresa:</b> <i>Address:</i>	Ondřejovská 699, 25164 Mnichovice, CZECH REPUBLIC																
<b>IČ:</b> <i>Identification Number:</i>	00662437																
<b>Jméno a adresa osoby pověřené sestavením technické dokumentace:</b> <i>Name and address of the person authorised to compile the technical file:</i>	VARES Mnichovice a. s., Ondřejovská 699, 25164 Mnichovice, CZECH REPUBLIC																
<b>Výrobek (stroj) - typ:</b> <i>Product (Machine) - Type:</i>	<b>Drtič ovoce typ SHARK Fruit / Fruit crusher type SHARK Fruit</b>																
<b>Výrobní číslo:</b> <i>Serial number:</i>																	
<b>Popis:</b> <i>Description:</i>	Drtiče ovoce jsou určeny pro drcení ovoce před jeho dalším zpracováním, např. moštováním. Drtiče jsou svoji konstrukcí a parametry určeny zejména pro zahrádkáře. / Fruit crushers are intended for crushing of fruit before its further processing, e.g. cider. Crushers are through their construction and parameters designed primarily for gardeners.																
	Základní technické údaje / Basic technical data																
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Typ / type:</td> <td>DZO 16N; 18N; 20N; 22N; 23N; 25N; 26N</td> </tr> <tr> <td>Napájecí napětí / nominal voltage:</td> <td>1/N/PE AC 230 V, 50 Hz</td> </tr> <tr> <td>Příkon / input power:</td> <td>1,6; 1,8; 2,0; 2,2; 2,3; 2,5; 2,6 Kw</td> </tr> <tr> <td>Otáčky rotoru / rotor speed:</td> <td>2 800 min<sup>-1</sup></td> </tr> <tr> <td>Stupeň ochrany / degree of protection:</td> <td>IP 44</td> </tr> <tr> <td>Rozměry stroje (d<sub>vx</sub>š) / dimensions (l<sub>txw</sub>):</td> <td>680 x735x545 mm / 680x1146x545 mm</td> </tr> <tr> <td>Hmotnost / mass:</td> <td>27 - 37kg</td> </tr> <tr> <td>Max. průměr drceného material / max. diameter of ground material:</td> <td>90 až 100 mm</td> </tr> </table>	Typ / type:	DZO 16N; 18N; 20N; 22N; 23N; 25N; 26N	Napájecí napětí / nominal voltage:	1/N/PE AC 230 V, 50 Hz	Příkon / input power:	1,6; 1,8; 2,0; 2,2; 2,3; 2,5; 2,6 Kw	Otáčky rotoru / rotor speed:	2 800 min <sup>-1</sup>	Stupeň ochrany / degree of protection:	IP 44	Rozměry stroje (d <sub>vx</sub> š) / dimensions (l <sub>txw</sub> ):	680 x735x545 mm / 680x1146x545 mm	Hmotnost / mass:	27 - 37kg	Max. průměr drceného material / max. diameter of ground material:	90 až 100 mm
Typ / type:	DZO 16N; 18N; 20N; 22N; 23N; 25N; 26N																
Napájecí napětí / nominal voltage:	1/N/PE AC 230 V, 50 Hz																
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Otáčky rotoru / rotor speed:	2 800 min <sup>-1</sup>																
Stupeň ochrany / degree of protection:	IP 44																
Rozměry stroje (d <sub>vx</sub> š) / dimensions (l <sub>txw</sub> ):	680 x735x545 mm / 680x1146x545 mm																
Hmotnost / mass:	27 - 37kg																
Max. průměr drceného material / max. diameter of ground material:	90 až 100 mm																
<b>Prohlašujeme, že strojní zařízení splňuje všechna příslušná ustanovení uvedených směrnic (NV):</b> <i>We declare that the machinery fulfils all the relevant provisions mentioned Directives (Government provisions)</i>	Strojní zařízení NV č. 176/2008 Sb. Machinery Directive 2006/42/EC Elektrické zařízení nízkého napětí NV č. 17/2003 Sb. Low Voltage Directive 2006/95/EC Elektromagnetická kompatibilita NV č. 616/2006 Sb. Electromagnetic Compatibility Directive 2004/108/EC																
<b>Harmonizované technické normy a technické normy použité k posouzení shody</b> <i>The harmonized technical standards and the technical standards applied to the conformity assessment:</i>	ČSN EN ISO 12100-2, ČSN EN 1050, ČSN EN 61029-1 ed. 3 +/-A11+/Opr.1, ČSN EN 13683+A2, ČSN EN 13478+A1, ČSN EN 1672-2+A1, ČSN EN 61000- 6-1 ed. 2:2007, ČSN EN 61000-6-3 ed. 2:2007.																
<b>Poslední dvojčíslí roku v němž byl výrobek opatřen označením CE:</b> <i>Last double issue of the year when the product was CE marked:</i>	09																
<b>Posouzení shody provedla akreditovaná laboratoř:</b> <i>The conformity assessment carried out by the accredited laboratory:</i>	Státní zkušebna zemědělských, lesnických a potravinářských strojů, a. s., Třanovského 622/11, 163 04 Praha 6 - Řepy, ČR The Government Testing Laboratory of Agricultural, Food Industry and Forestry Machines, Joint-stock company - Závěrečná zpráva č. 33 727 - The final report No. 33 727																

**Poznámka:** Veškeré předpisy byly použity ve znění jejich změn a doplňků platných v době vydání tohoto prohlášení bez jejich citování.  
*Note: All regulations were applied in wording of later amendments and modifications valid at the time of this declaration issue without any citation of them.*

Místo a datum vydání: V Mnichovicích, 04.05.2012  
*Place and date of issue:*

Jméno: Karel Vodenka ml.  
*Name:*

Funkce: předseda představenstva a.s.  
*Grade:*

Podpis:  
*Signature:*

**VARES Mnichovice a.s.**  
Ondřejovská 699  
251 64 Mnichovice

Osoba zmocněná k podpisu  
*Signed by the person entitled to deal in the name of producer:*



### Warranty Certificate

A Warranty Certificate belongs to the sold product of the corresponding type and serial number as part its accessories. It must be presented every time a claim is made. Provided warranty conditions have been met (Chapter 14 of the User’s Guide), we provide the consumer with a

#### 24-month warranty after the date of sale

The warranty does not apply to defects caused by external phenomena such as for instance faults in the power mains, damage caused by the effects of natural disasters, unsuitable operating conditions, damages suffered during transportation and manipulation, or when the product was used in contrary with the User’s Guide. The warranty is also null and void after unauthorised interference with the equipment by the owner or other person or organisation.

Provided the warranty conditions have been met and a purchase document and a correctly filled in Warranty Certificate presented, the vendor will repair all defects caused by faulty manufacturing or faulty material free of charge, so that the product may be duly used again.

The seller must properly and in full fill in the Warranty Certificate. Incomplete or illegally modified Warranty Certificates are invalid. The warranty period is extended by the time the product was in a warranty repair. We recommend that together with the Warranty Certificate and the purchase document, you keep also documents of the product repairs.

If it is found out during the repair that the claimed defect is not covered by the warranty conditions, the costs of repairs will be paid for by the clients.

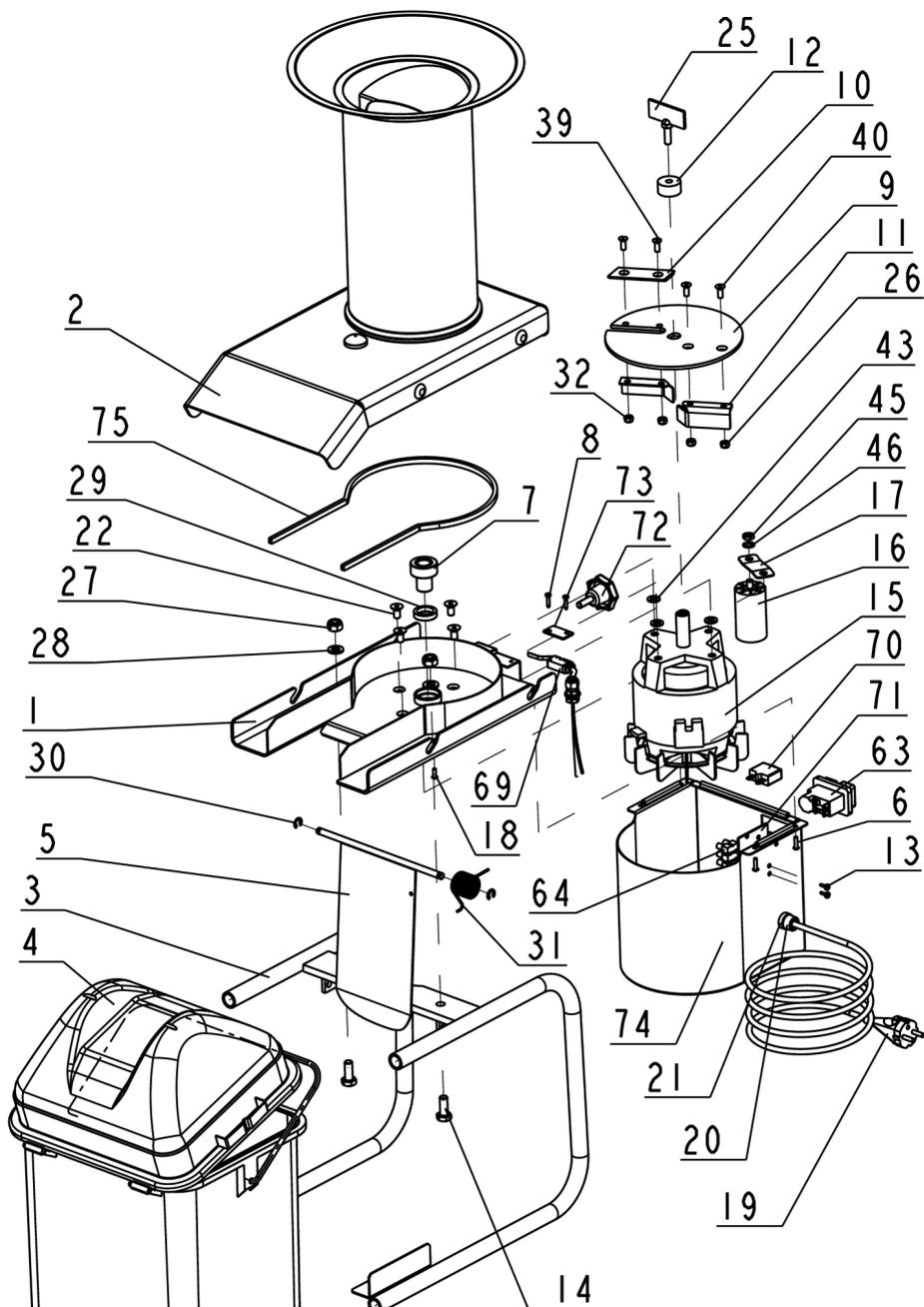
Product name and type: .....

Serial number: .....

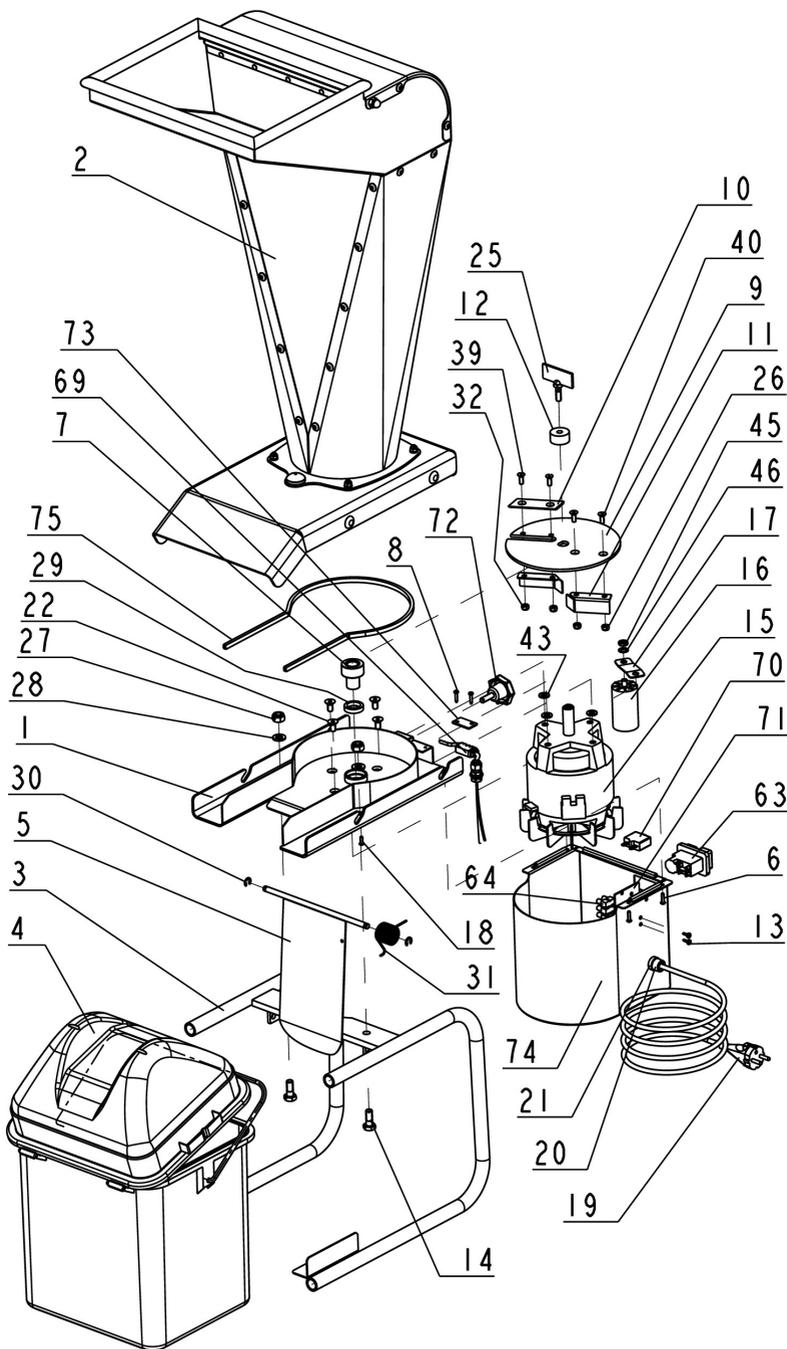
Date of sale: .....

Seller’s stamp: .....

**Appendix 1 – Spare Parts FRUIT SHARK**



**Appendix 2 – Spare Parts FRUIT SHARK MEGALODON**



**Appendix 3 – Spare Parts**

<b>Position:</b>	<b>Part</b>
1	Lower part of the shredder
2	Upper part of the shredder FRUIT SHARK
2	Upper part of the shredder FRUIT SHARK MEGALOODN
3	Chassis of the shredder
4	Transport vessel 20 l
5	Tongue
6	Screw Button A2M 4 x 12
7	Lower roller - diameter 17 mm, stainless steel
8	Galvanized self drilling screw M 3,5 x 13
9	Stainless support plate
10	Cutter blade Shark - set
11	Stainless ejection shovel
12	Upper roller - diameter 17 mm, stainless steel
13	Galvanized self drilling screw M 3,9 x 13
14	Stainless hexagonal screw M10x70
15	Engine 1,6-2,6 kW
16	Engine 1,6-2,6 Capacitor
17	Capacitor holder
18	Screw Button A2M 4 x 12
19	Power cord
20	Cable bushing - diameter: 9 mm
21	Cable bushing nut - diameter: 9 mm
22	Countersunk screw M8x16 - stainless steel
23	Stainless flat washer 10,5
24	Stainless hexagonal screw M10x55
25	Central propeller
26	Galvanized M6 nut
27	Stainless M10 closed nut
28	Stainless flat washer 10,5
29	Gufero 20x30x7 G
30	Snap ring 7 - stainless steel
31	SHARK FRUIT Valve Spring
32	Galvanized M6 nut 10,9
39	Black Countersunk screw M6x20, 10,9
40	Galvanized Countersunk screw M6x20 imbus
43	Washer 8,4
45	Galvanized M8 NUT
46	Serrated washer
63	Switching Unit TRIPUS
64	Terminal block EKL2
69	Waterproof microswitch
70	Motor current protection 9-12 A (1,6-2,5 kW)
71	Microswitch Insulation plate - big
72	Handly tightenable stainless screw
73	Microswitch Insulation plate - small
74	Engine SHARK 1,6-2,6 cover
75	Gasket



