



## **Corn Crusher**



## **Instructions for use**

## Contents

1	Basic information.....	3
2	Foreword.....	4
2.1	Warning.....	4
3	Operation safety.....	5
3.1	Safety regulations.....	5
3.2	Safety pictographs.....	6
4	Machine use, technical specifications and description.....	6
4.1	Machine use.....	6
4.2	Technical description.....	6
4.3	Technical data.....	6
5	Instructions for use.....	7
5.1	Assembling the machine.....	7
5.2	Installing the driving unit onto the crusher.....	7
5.3	Procedure of driving unit installation.....	7
5.4	Working with the crusher.....	8
5.5	Preparing raw-materials for grinding.....	8
6	Maintenance.....	8
6.1	Replacement and sharpening of cutting blades.....	9
7	Storage.....	9
8	Disposal of packaging and machine after the end of service life.....	9
9	Instructions for ordering spare parts.....	9
10	Contact to supplier.....	10

## 1 Basic information.

**\* Ask your dealer to provide the machine unpackaging and briefing!**

Fill in the following data concerning your machine. The data are important for ordering spare parts.

It is advised to have a spare copy of this page with all data on the machine purchase for the case of loss or theft of the original record.

Model	
Commercial name	<i>Crusher</i>
Machine serial no./Year of manufacture	/
Date of delivery (sale)	
Supplier	
Address	
Tel./fax/E-mail/internet	

Your notes:

Supplier **reserves the right** of technical modifications and machine innovations that do not impact the machine function and operation safety. The changes need not be included in these Instructions for use.

## 2 Foreword.

Dear customer and user,

Thank you for trusting our products. You have become owner of machine from a wide range of machines and implements supplied by KNIGHTS a.s. as a system of farming, small agricultural and communal technology.

**Please read these Instructions for use carefully.** If you follow them properly, you will have our product doing a reliable work for you a number of years.

### 2.1 Warning

The user **is obliged** to get acquainted with the Instructions for use and to follow all instructions for the machine operation so that the user's and other persons' health and property cannot suffer any harm.

Safety instructions contained in this Manual do not describe all situations or conditions possibly occurring in practical use. Safety factors such as common sense, diligence and scrupulousness are not included in these Instructions for use; it is assumed, however, that all persons authorized for the machine operation or maintenance do possess the intelligence.

The machine can be operated only by persons at good mental and physical health. For the professional use of the machine the machine owner is obliged to ensure a training in labour safety and to provide instructions on the machine control for operators and to keep records on these trainings and briefings. **The user is obliged to carry out a so called categorization of works according to the relevant national legislation.**

Should some instructions in the Manual be unintelligible, you are encouraged to **contact your dealer** or directly the manufacturer of the machine. The contact address and telephone/fax connection are to be found at the end of the Manual.

The Manual (Instructions for use) supplied with the machine is an integral part of the machine. It has to be available at any time, placed at a well accessible place with no risk of its damage. In the case that the machine is sold to another person, the Instructions for use must be given to the new machine owner. If the above conditions are not met, the manufacturer bears no responsibility for possible risks, accidents and injuries resulting from the machine operation.

The manufacturer bears no responsibility for damages caused by unauthorized and incorrect use of the machine and for damages caused by any machine modifications not authorized by the manufacturer.

To prevent injuries to operators and other people occurring in the vicinity of the machine, it is absolutely necessary to follow safety regulations marked in the Instructions for use with the following warning safety symbol:

<b>*</b>	<b>On seeing this symbol in the Manual, read the following instruction carefully!</b>
----------	---

Note: Left and right as mentioned in the Manual is at all times meant as the machine viewed from the operator's site.

### 3 Operation safety.

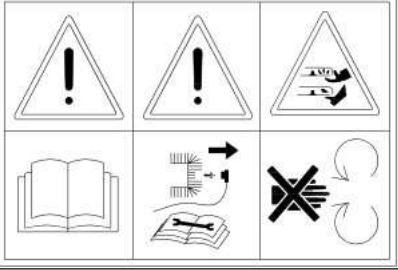

#### 3.1 Safety regulations.

- \* This international symbol indicates important messages concerning safety. When you see the symbol, be aware of a possible injury threatening to yourself or to other persons and read the attached instruction carefully.
- \* The machine operator must be over **18 years of age**. **He/she is obliged** to get acquainted with the instructions for the machine use and is supposed to have awareness about the general principles of work safety.
- \* Prior to starting work with the machine, check the safety engine switch on the left handle of handlebars of the power unit for its correct function. The function of the switch is described in the instructions for use of the driving unit.
- \* Materials such as stones, earth, glass, metal or plastic articles must never get into the crusher as they might cause damage to its working parts.
- \* The crusher operator bears a full responsibility for the safety of persons dwelling in the immediate vicinity of the machine. When the machine is in operation, all other persons and animals have to be outside the machine's working space. The machine operator can continue working only after they will have been shown to a safe distance.
- \* Never leave the crusher unattended in the presence of children.
- \* The crusher must be always placed on a flat, stable and firm base.
- \* Prior to **each employment of the machine** check all machine parts (namely working mechanisms and machine casing) for a possible damage or loosening. **Defects** must be **rectified without any delay**. Repairs are to be made only with the use of original spare parts.
- \* With respect to the exceeded recommended values of noise and vibrations, you are warned to adhere to the following instructions while working with the machine:
  - a) Protect your hearing by using suitable protective aids specified in **ČSN EN 352-1** (shell ear protectors) or in **ČSN EN 352-2** (plug ear protectors). Require the aids from your dealer.
  - b) Working with the machine should be interrupted after max. 20 minutes for a minimum break of 10 minutes. During these breaks, the machine operator must not be exposed to the impact of another source of noise or vibrations.
- \* Machine operators are warned to use working aids authorized to **ČSN EN 166** or **ČSN EN 1731** (tight-fitting garments, sturdy shoes, working gloves and protective glasses). Keep a safe distance given by the handle.
- \* After the engine is switched off, the cutting knives are still running out. Before leaving the machine or prior to dismounting the sieve, you are warned to wait until the knives stop turning!
- \* Don't start the engine if not connected to a working implement. If the engine is still running, don't remove it. Don't start the engine in enclosed spaces! Be very careful when handling the machine since the exhaust silencer remains hot after the engine has been switched off. Make sure there are no leakages or spills on engine parts when refuelling. If they happen to occur, dry out the stained parts or wait until the petrol evaporates.

- \* Removal of any protective equipment and casings from the machines is forbidden. Prior to the replacement of sieve, knives, or prior to any cleaning in the space of cutting blades, disconnect the cable terminal of engine spark plug or disconnect the driving unit from the machine.

### 3.2 Safety pictographs.

The user is obliged to maintain the pictographs on the machine legible and to provide for their replacement in the case of damage.

No.	Location	Safety information - Description
1	on the side	 <p>Instructions for use to be studied prior to use. During the machine maintenance the conductor is to be disconnected from the spark plug. Putting one's hands or feet into the cutting knife working space is forbidden – Danger of limb cut (off).</p>
2	on the side	 <p>Direction of tool rotation</p>

## 4 Machine use, technical specifications and description.

### 4.1 Machine use.

The crusher is designed for grinding raw materials such as cereals (wheat, rye, barley, oats), maize, legumes, cake meals and granulated dry forage, namely for feeding purposes.

The to-be-processed raw material is filled through a feeder to the milling chamber in which a rotor is installed with shaft-suspended cutting knives. There it is thrown at high circumferential speed against the chamber periphery formed by a sieve. Bumps between the sieve and the cutting knife blades crush the material which falls into the outlet hole. Grain size of the ground material is given by sieve perforation.

The crusher is powered by driving unit Models PJGCV160 and PJGCV190.

### 4.2 Technical description.

Basic structure of the machine consists of a frame that is welded of tubes and provided with tube supports. Pins for plastic wheels are welded on two supports. A metal plate is welded to the frame, onto which a crusher drive is bolted for the installation of the driving unit. A hopper, welded of sheet steel, is slid from the side. The sieve is bolted under the drive.

### 4.3 Technical data.

Crusher	Unit	Value
Length	mm	630
Width	mm	690
Height	mm	630
Weight	kg	29
Min. grinding output (according to sieve size)	kg/hr	40-80
Knives revolutions (at max. engine speed)	min <sup>-1</sup>	3600
Number of cutting knives	pcs	2

**Fig. 1: Crusher**

## 5 Instructions for use

### 5.1 Assembling the machine

The crusher is delivered in a cardboard box with the dismantled hopper, two sieves with hole size of 3 mm and 5 mm. The hopper is to be mounted onto the corpus neck.

### 5.2 Installing the driving unit onto the crusher

Driving unit represents a power source for the machine and is to be installed into a flange formed in the upper part of the crusher drive. On the bottom side of the complete flange there is a cylindrical part that is to be inserted into the flange in the crusher drive when putting the driving unit onto the crusher. The second part for seating the driving unit onto the gearbox case is a pin located on the upper surface of the crusher drive flange, which is to fall into the hole in the driving unit flange in order to arrest the position of the driving unit on the crusher.

### 5.3 Procedure of driving unit installation

Installing or removing the driving unit, you are advised to approach the machine from the side of air filter and carburettor control on the engine of the driving unit.

\* Be careful when installing or removing the driving unit or when transporting it to another machine. The exhaust silencer is hot when in operation.

1. Put the crusher on a firm base. Clean all connecting points for the driving unit and the inside of the clutch disc.
2. Clutch disc in the crusher drive must not be greasy as a slippage of the centrifugal clutch might occur that could result in a damage to the clutch lining and to the engine crankshaft sealing due to high temperature.
3. Grip the driving unit with one of your hands at a holder which is situated on the lower part of the driving unit flange and with the other hand at an upper joint of the handrail of guiding handles.
4. Slide the driving unit onto the crusher so that the cylindrical part of the flange completely falls into the flange on the crusher drive and the pin situated on the upper surface of the

crusher drive flange falls into the hole in the flange of the driving unit. Move the driving unit slightly from side to side until it is fully seated on the gearbox case.

5. Then secure the driving unit by means of two quick-operating spring clamps.
6. Latches on the quick-operating clamps are to be hooked into notches in the rivet on lugs of the crusher drive flange. Clip the quick-operating clamps by pushing on the clamp spring eye down to the crusher drive surface.

\* Be very careful when engaging and disengaging the quick-operating spring clamps as your fingers might suffer an injury. The pull of the springs is great and you will need a considerable force for clipping.

7. Removal of the driving unit is to be made in reverse order. Tilt the clamp latch away so that it does not hamper in sliding the driving unit out from the crusher drive when removing the driving unit from the machine.

#### **5.4 Working with the crusher**

Prior to machine use read the below information and learn how to operate the machine.

- \* Check the safety switch of engine ignition for its correct function.
- \* Prior to starting the machine, make sure that the hopper is empty and that no material is in it which is not meant for grinding (stones, iron, plastic materials etc )
- \* If the machine is in operation, all other persons and animals must be outside the machine's working space. The operator can continue working only after they have been showed out to a safe distance.

When starting the engine of the driving unit, you are obliged to follow instructions contained in the respective Instructions for use of the driving unit.

#### **5.5 Preparing raw-materials for grinding**

Raw-materials meant for grinding must be free of impurities (pebbles, stones, wood etc.). Then they are to be poured into the hopper. If the cutting knives exhibit a sudden slow-down of revolutions (showing as a decreased engine speed), stop feeding the raw-materials into the hopper. In a while, the engine will restore its full working speed again. Ground raw-materials (crushed grain, cake) will fall through the sieve into a prepared vessel or bag clamped to the crusher.

### **6 Maintenance**

To ensure a maximum satisfaction with our product, the machine must be given proper care and maintenance. Therefore you are advised to adhere to the following instructions for the machine maintenance:

1. Check all bolted connections for their proper tightening.
2. Make sure that all functional surfaces of the cutting mechanism are clean.
3. At the end of the season or if the machine is to be put out of operation for a longer time, clean the machine from all dirt and impurities.



4. When cleaning/washing the machine with water, solvents or other chemicals, you are warned to adhere to all valid regulations and laws on the protection of water courses and other water resources against their pollution and contamination with chemical substances.

### **6.1 Replacement and sharpening of cutting blades**

All operations described below are to be carried out either with the driving unit removed from the machine or with the disconnected spark plug cable terminal.

Be very careful when disassembling the cutting knives – danger of cutting your fingers.

1. Having unscrewed four bolts and removed the sieve you can release the two cutting knives.
2. Loosen and remove bolts that hold the cutting knives.
3. Turn the cutting knives by 180° or install freshly sharpened knives or new ones. The blades can be refreshed by using a sharpening steel or a fine whetstone.
4. Clean the bearing surfaces and reassemble the cutting knives.
5. Install back the sieve.

#### **Warning:**

Cutting blade refreshment is an extreme possibility. It is much more useful to use a new blade. Resharpening will change the weight of cutting knives and a considerable machine disbalance may result in vibrations of the whole crusher. It is advised that you have always new cutting knives on stock prepared for the case of urgency.

## **7 Storage**

Prior to any longer storage, clean the machine from all dirt and plant residues. Damaged paint on the machine parts should be repaired. For any long-time storage it is recommended to conserve the connecting surfaces. Access of unauthorized persons to the machine should be prevented. The machine should be protected against weather impacts but air-tight protection is not advised due to a possibly increased corrosion under it.

## **8 Disposal of packaging and machine after the end of service life**

Having the machine unpacked, you are obliged to provide for the disposal of packaging material with taking into account a possible use of secondary raw-materials according to Waste Law No. 185/2001 Gaz. (as amended) and with respect to decrees issued by local town or municipal authorities.

Procedure recommended for the machine disposal after the end of its service life is as follows:

1. Dismount all parts from the machine that can be still used.
2. Dismount all plastic machine parts and components made of non-ferrous metals. The stripped machine remainder and the dismantled parts are to be disposed in compliance with the Waste Law No. 185/2001 Gaz. (as amended) and with respect to the decrees issued by local town or municipal authorities.

## **9 Instructions for ordering spare parts**

Data to be used for easier identification when ordering spare parts are as follows:

1. Machine type (Model), serial number and year of machine manufacture
2. Number of ordered pieces separately for each particular item
3. Precise address, telephone number, fax number or E-mail address
4. Should you feel any uncertainty about the correct identification of spare parts or in the case of any technical difficulties, please contact your dealer.

## 10 Contact to supplier

KNIGHTS a.s.  
Ke Kapliče 387  
Dolní Břežany  
CZECH REPUBLIC  
252 41

telephone:  
fax:  
E-mail:  
Web:

(+420) 257 212 875  
(+420) 241 400 549  
[knights@knights.cz](mailto:knights@knights.cz)  
<http://www.global-tractor.com>