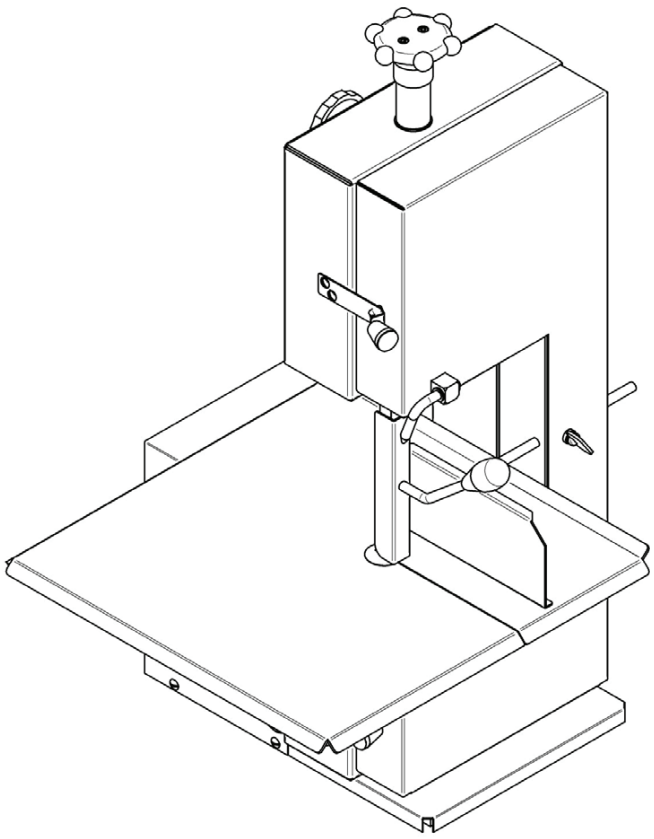
metos

Band Saw
Metos KT-210
2021057

INSTRUCTIONS FOR USE



28.02.2011

BAND SAW USER MANUAL

Caution!

KT Band Saws are designed to cut meat, bones, poultry and fish. These machines are capable of inflicting damage to the user, unless the right safety precautions are observed. Therefore, it is important that utmost care is taken when using this machine.

*** DO NOT** use this machine unless you have read and completely understood this manual. Your attention is drawn in particular to the part which concerns safety.

*** KEEP** hands and fingers away from the moving blade.

*** DO NOT** use the machine unless all the guards are fixed firmly into place.

*** DO NOT** leave the machine unsupervised when the blade is in motion.

*** DO NOT** leave the machine without lowering the blade guard.

*** DISCONNECT** the power source before changing or cleaning the blades, before adjusting anything or before you leave the machine unsupervised.

*** REPORT** all faults immediately.

CONTENTS

1. Introduction

KT Band Saws are standard or 2-speed (high-speed) band saws designed specifically for the cutting of fresh, frozen and bones or similar products. Read this instruction manual **BEFORE** using the machine and ensure also that all other users, service mechanics and cleaners have also read and thoroughly understood this manual, and also that they have familiarized themselves with the following:

1. Location and functioning of the guides
2. Dismantling, cleaning and re-assembly of the machine
3. The basic tightening, adjusting and guiding operation of the blade.

All users must be given the correct training in the safe use of band saws, and they must be thoroughly knowledgeable in the correct safety procedures. The parts of this manual which deal with **SAFETY** must be read with particular attention

1.1 Technical specifications

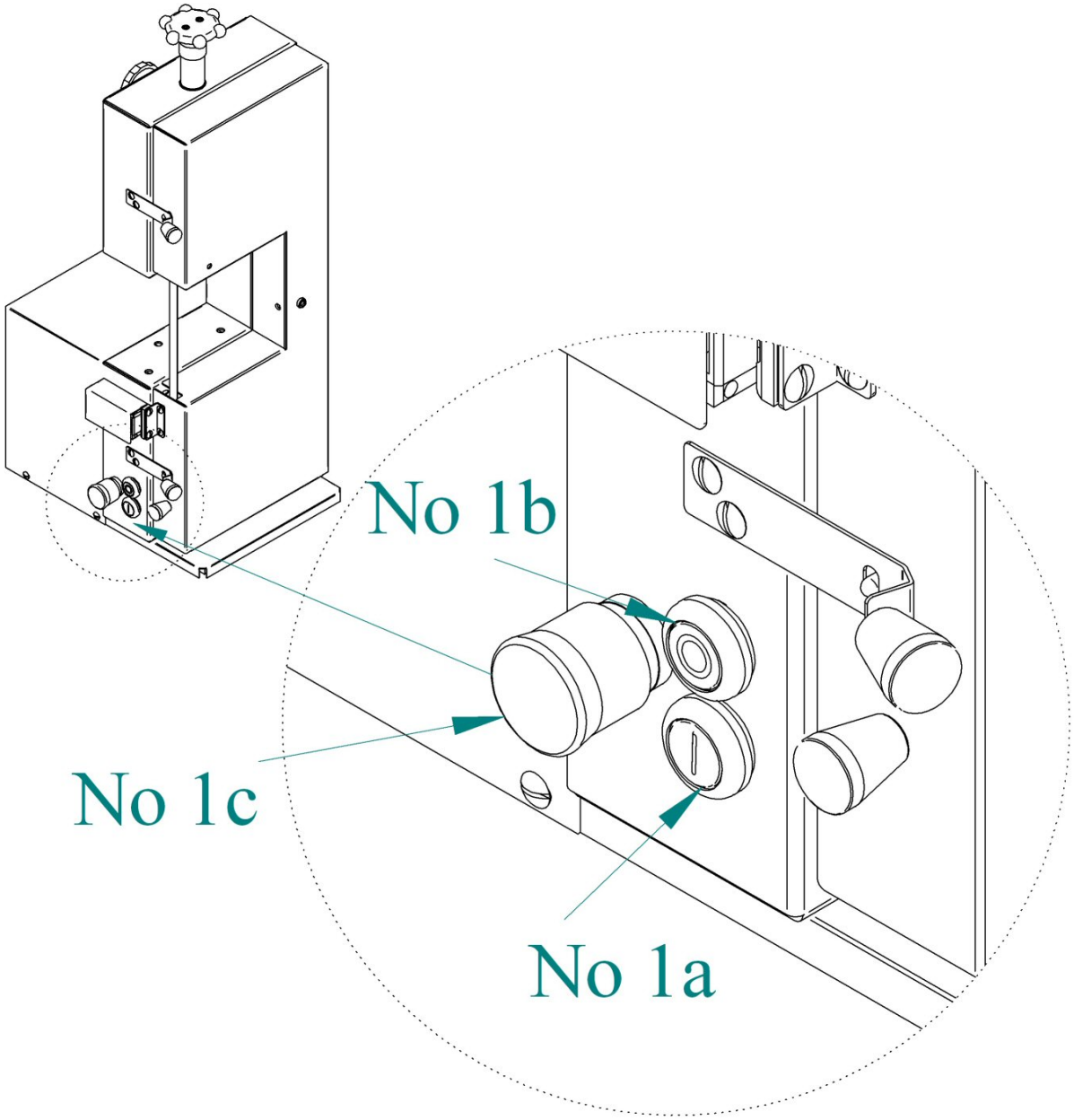
Motor	0,75 kW
Blade speed	15 m/s
Diameter of blade wheel	210 mm
Cutting width	185 mm
Cutting height	180 mm
Fixed table size	400 x 400 mm
Blade measurements	1570 x 16 mm

2. General description

This manual refers to the following models: **KT-210**

KT-210 is available with a fixed table and it has been constructed following KT product development methods. KT-210 is designed for the quick and accurate cutting of fresh and frozen meats. The machine function quietly, with minimum vibration. It may also be dismantled for ease cleaning. The machine is equipped with a safety switch in the cover to ensure that the machine cannot be started if the cover is not correctly shut. For safety reasons the motor incorporates a brake device. It ensures that the blade stops within 4 seconds of the machine being switched off. The machine is also equipped with a pusher and a slicer, which ensure the safe usage of the machine.

In model KT-210 the start/stop buttons and emergency stop button (Picture 1, No. 1 a, b, c) are located in the control panel. The starting switch also incorporates an undervoltage circuit breaker to prevent unintentional restarting after the power to the machine has been cut off.



Picture 1

3. Unpacking

The saw may be stored in the cold store. All models must be thoroughly cleaned before usage. See chapter 7.6 for the recommended cleaning agents.

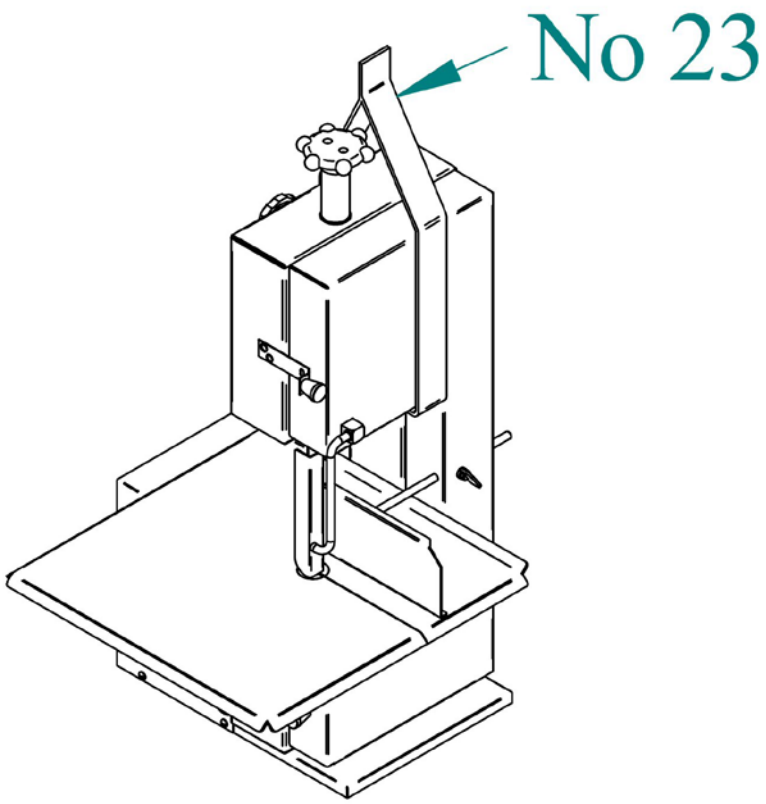
The saw is delivered ready assembled. If the saw or its package has been damaged in the transit, contact your retailer or the manufacturer.

WEIGHT OF SAW (without package) : 53 kg

The saw can be lifted form the pallet and moved to its location with a fork-lift truck. When moving the saw, **ENSURE THAT IT IS NOT LIFTED TOO HIGH** and that **ANOTHER PERSON CHECKS THAT THE SAW DOES NOT FALL OVER.**

When using ropes for lifting the saw, the lifting points (No. 23) indicated in the picture 2 are to be used.

UTMOST CARE MUST BE TAKEN WHEN LIFTING THE SAW.



Picture 2

4. Installation

Please note

1. Ensure that the supply voltage corresponds with the voltage marked on the rating label.
2. The machine must be **CORRECTLY EARTHED**.
3. Only an authorized electrician may connect the electricity supply to the machine and carry out the servicing work.

Ensure that the electrical supply has been disconnected before any electrical connections are made, or maintenance or adjusting work is carried out.

4.1 Table

The table must be large enough, so the saw fits completely on the table. The surface must be non-slippery.

4.2 Direction of rotation

Check the direction of rotation. After start-up, the machine's blade wheels should rotate in such a way that the blade is moving downwards, towards the table at the cutting point. If the direction of rotation is incorrect, ask an authorized electrician to change the direction of rotation.

4.2.1 Switch diagram

The switch diagram for the bad saw are to be found in the appendices of this manual.

4.3 Location

The band saw must be installed away from corridors and doors. The location must have adequate light. For the safety of the user, the surface of the floor must be non-slippery.

5. Operation

5.1 Safety measures

The importance of following safety procedures in the operation of industrial band saws cannot be over-stressed. Band saws are capable of inflicting bodily damage to operators. However, by using common sense and being careful, as well as by following all safety measures in the operation of band saws, the operator will get the best possible performance out of this versatile machine, and minimize the risk of accidents.

You personal safety is more important than the quick operation of the machine.

It is recommended that only authorized persons who have received the correct training in the operation of industrial band saws may operate them. They must also be aware of the danger factors and safety measures.

When using braided metal gloves, beware of the glove getting **ENTANGLED IN THE TEETH OF THE BLADE.** The gloves used must conform to local hygiene regulations. Your occupational safety inspector can advice you in the use of gloves.

5.2 Before use

Before starting up the band saw the operator must:

1. **REMOVE** all rings from his/her fingers.
2. **REMOVE** his/her watch.
3. **REMOVE / SECURE** his tie.
4. **CHECK** that his/her sleeves cannot touch the blade.
5. **CHECK** that the blade is correctly tightened.
6. **CHECK** that the wipers and guides are tightly and correctly fixed.
7. **CHECK** that the cover is securely closed.
8. **CHECK** that the table is safely and correctly mounted.
9. **CHECK** that the sawdust receptacle is in its place.
10. **ADJUST** the protective rail as low as possible.

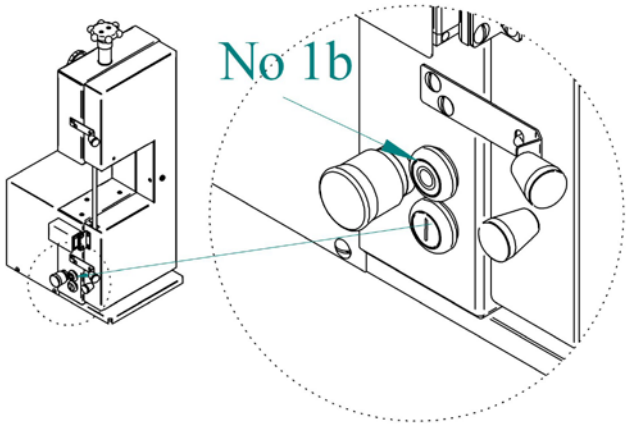
5.3 During use

1. **KEEP** hands and fingers at a **SAFE DISTANCE** from the blade.
2. **DO NOT** use the saw table for any other purpose than that of support for the product you are cutting.
3. **DO NOT** let passers-by talk to, or otherwise disturb the operator when the blade is in motion.
4. **NEVER** leave the machine unsupervised when the blade is in motion.
5. **DO NOT** use too much force when pushing the product to the blade.
6. **USE** the product pusher when sawing.

5.4 After use

1. **STOP** the machine by pushing the stop button (Picture 3, No 1b)
2. **DO NOT** leave the machine before the blade has stopped completely.
3. **DISCONNECT** the power supply.

NOTE!
All the safety instructions mentioned in this manual are only recommendations of the manufacturer. All local safety regulations must be followed. If in doubt contact your local occupational safety inspector, or ask the advice of the labour protection authorities.



Picture 3

5.5 Starting up

Provided that all the conditions in chapters 5.2 are fulfilled, the saw may be started. Press the start button (Picture 4, No 1a). After the start up, allow the machine to reach full speed before starting the cutting operation.

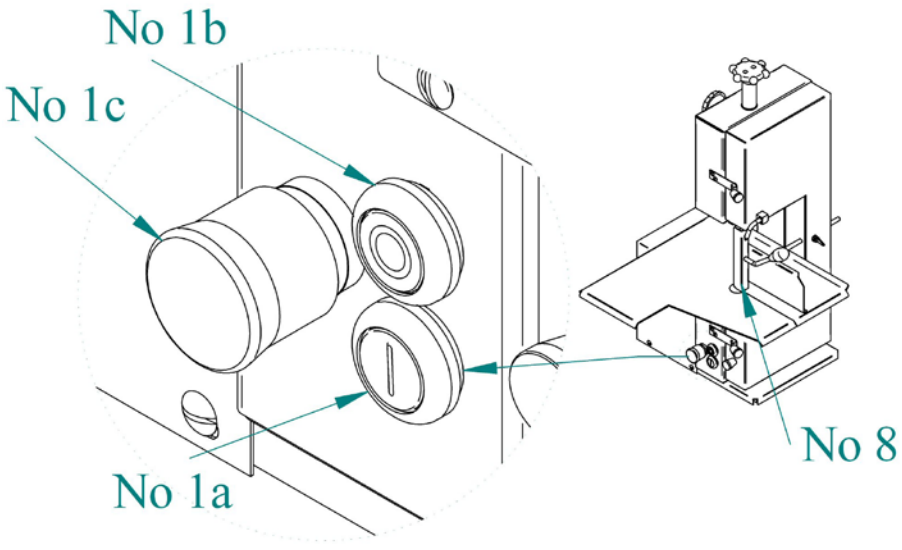
5.6 Stopping

The machine may be stopped as follows:

1. By pressing the stop button (No 1b).
2. In emergency, press the emergency stop button (No 1c).

All these methods engage the brake, which stops the movement of the blade in 4 seconds or less.

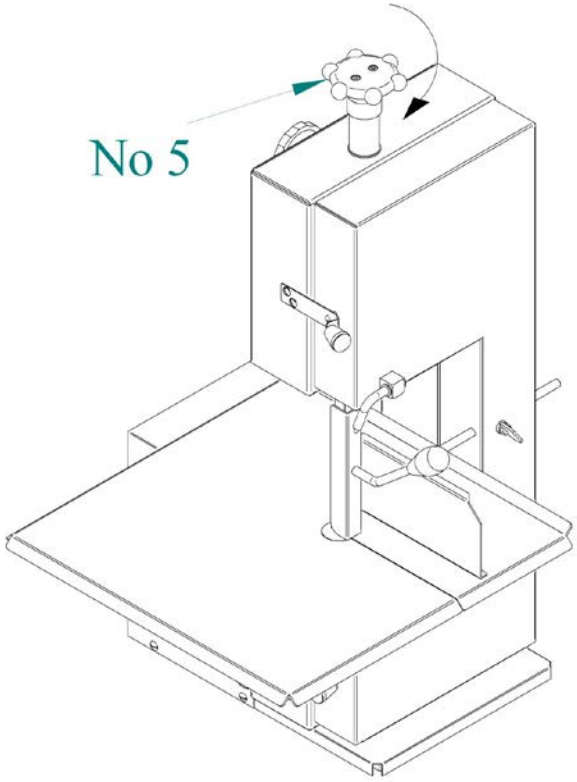
After the blade has stopped, ensure that the pusher / blade cover (No 8) are lowered.



Picture 4

5.7 Tightening the blade

To tighten the blade turn the adjusting wheel (Picture 5, No. 5) clockwise. Once the adjusting wheel rotates freely and it will not turn any further, the adjustment is correct. **KEEP THE COVER CLOSED WHEN YOU TIGHTEN THE BLADE!**



Picture 5

5.8 Sawing

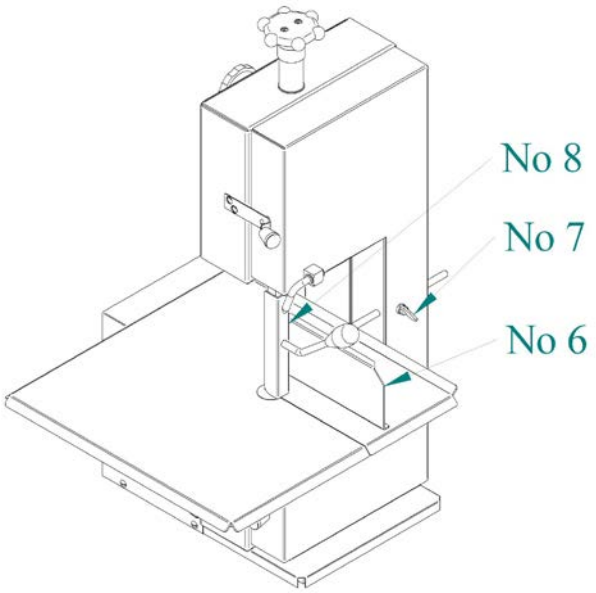
The sawing operation should be carried out rhythmically and easily. Do not try to force the product to the blade, let the blade do the work. It is not possible to the operator to work in a safe or efficient manner, if he/she tries to push the product through the blade more quickly than the blade can cut.

The saw is equipped with a portioning plate (Picture 6, No 6) to adjust the thickness of the slices produced. The portioning plate can be adjusted by unscrewing the finger nut (No 7) and sliding the plate along the edge of the table until the desired thickness has been achieved. The finger nut (No 7) must then be retightened. The saw is also equipped with a product pusher (No 8), which is lifted up and the product is placed between the blade and pusher. The product is then pushed to the blade by the pusher.

ALWAYS KEEP FINGERS AND HANDS AT A SAFE DISTANCE FROM THE BLADE.

Do not use the cutting table for any other purpose, such as opening packages, unwrapping, removing hooks or cutting by hand. The machine has not been designed for such jobs. Operator error may lead to serious accidents.

If the cutting operation becomes ponderous, slows down or straight cutting cannot be maintained, the reason may be a damaged or deteriorated blade which must be replaced. See chapter 7.1.3 regarding blade safety.



Picture 6

6. Cleaning

6.1 Stopping

Stop the machine and **REMOVE THE PLUG FROM THE SOCKET.**

6.2 Covers

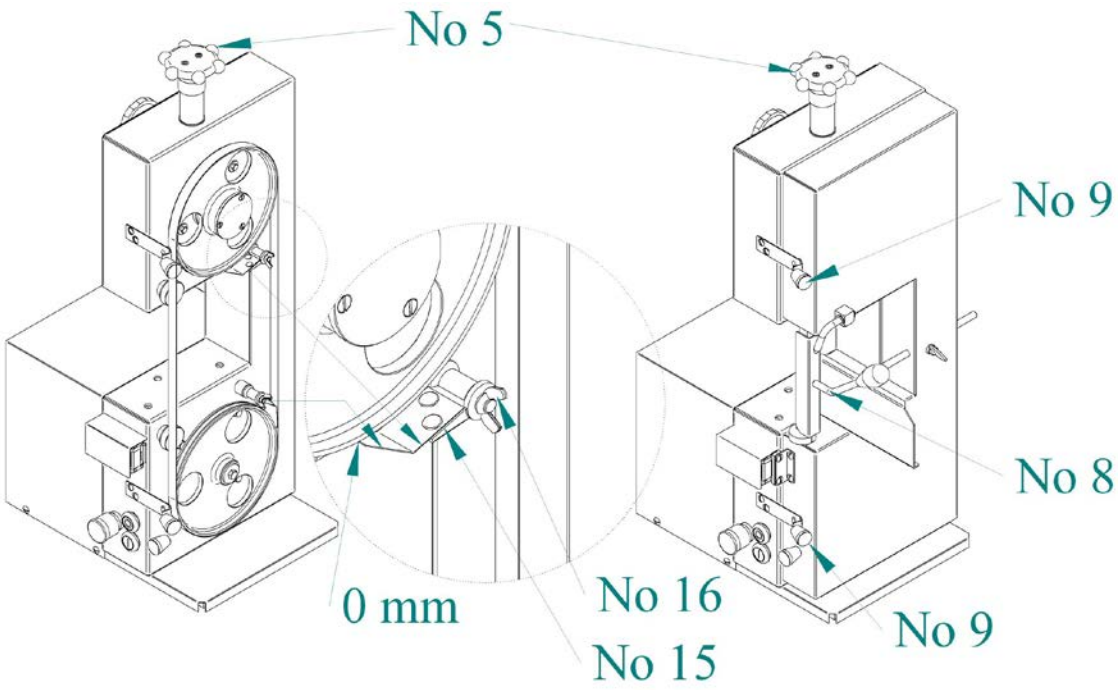
open the cover by gently pressing the locking knobs outwards to release the locking pins (No. 9) from the groove.

6.3 Blade

Release the tension on the blade by turning the handwheel (Picture 7, No. 5) and remove the blade.
See chapter 7.1.3 regarding blade safety.

6.4 Wheel wipers

Release the wheel wiper (No 15) by unscrewing the finger nut (No 16), and remove the wheel wiper. When reinstalling the wiper, make sure that it is in contact with the wheel (see illustration).



Picture 7

6.5 Washing

You can now wash the machine components either with warm water and detergent, using the brush supplied with the machine (see list of recommended detergents, chapter 7.6) or in a purpose built washing machine.

DO NOT USE PRESSURISED HOSE!

Regardless of cleaning methods used, to remove course dirt (large amount of waste) it is necessary to clean by hand or use warm water (40 ºC – 50 ºC) with a low-pressure hose.

After this the cleaning procedure may be started by hand:
Add the detergent to hand-warm water (about 20 ºC).

Always rinse after washing.

It is important to follow the instructions for all cleaning methods, and disinfect as necessary.

If detergent, rinsing water or disinfectant remains in the saw, it must be dried in an appropriate matter.

6.6 Reassembly

After washing, the machine may be reassembled by following the instructions in chapters 6.2 – 6.4 in reverse order.

If the blade does not move in the correct position, see **chapters 7.1.1 regarding replacing the blade**. See also chapter 7.1.3 regarding the blade safety.

7. Maintenance

In addition to daily cleaning the saw does not require much maintenance. The manufacturer recommends the following procedures:

Check weekly:
Condition of blade guides (Chapter 8.3), blade supporting rollers (Chapter 8.4), blade wipers and blade wheel wipers (Chapter 8.5), blade wheel and the table bearings.

Check that all adjustments and components of the saw are in a good condition to ensure the safe operation of the saw.

If there are faults in the electrical components, contact an authorized electrician, the importer or the manufacturer.

If the saw does not stop within 4 seconds, the brake is worn and must be replaced immediately. Contact the importer or the manufacturer.

The saw has no parts which need lubrication.

7.1 Blade

The machine's optimum performance is dependant on choosing the right blade for the right operation.

The following blades are used in KT Band Saws:

Model	Length mm	Width mm	Thickness mm
KT-210	1570	16	0,5

7.1.1 Replacing the blade

ATTENTION! IF THE BLADE HAS BROKEN DURING THE CUTTING OPERATION, OPEN THE COVER VERY CAREFULLY AND STAND BEHIND THE COVER – THE BROKEN BLADE MAY SPRING OUT OF THE SAW.

a. Remove the plug from wall socket.
b. Loosen the blade by turning the handwheel (No 5)
c. Open the cover
d. Remove the blade
e. Mount the new blade in reverse order (teeth of the blade must be located about 2 mm outside of the blade wheel edge)

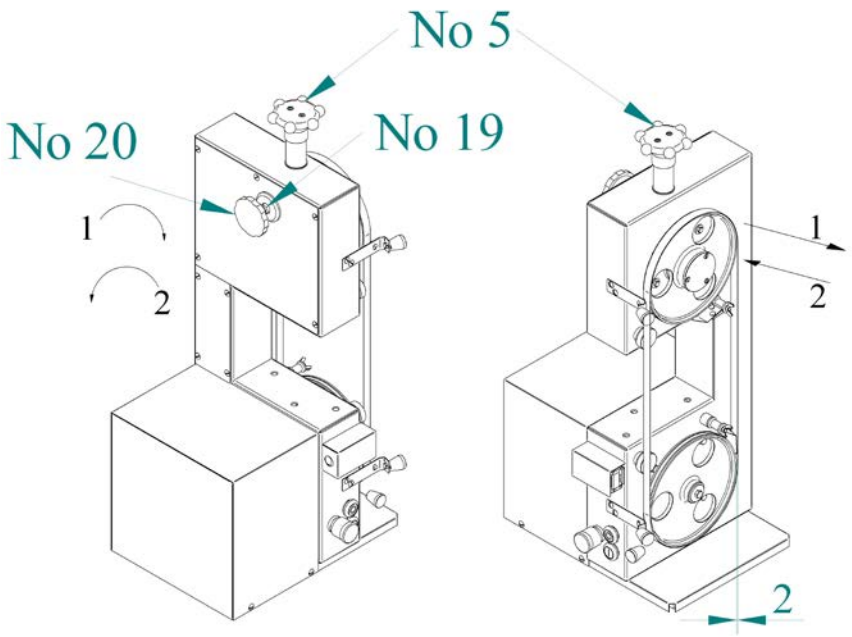
When mounting the blade ensure that the teeth are pointing downwards at the cutting point – in direction of the movement. If the teeth are pointing the wrong way, remove the blade from the machine and turn it inside out – this ensures that the teeth are pointing in the right direction.

When mounting the blade ensure also that it is correctly placed with regard to all the guides and wipers. An incorrectly mounted blade fails before its time and may cause damage to the guide and wiper structure.

If the blade does not move in the correct position, adjust the upper blade wheel (Chapter 7.1.2).

7.1.2 Adjusting the upper blade wheel

a. Remove the plug from the socket
b. Loosen the blade slightly by turning the handwheel (Picture 8, No. 5)
c. Release the lock (No. 19) in the adjusting wheel
d. Rotate the adjusting wheel (No. 20). Direction 1: the blade comes outwards, direction 2: the blade goes inwards (see illustration)
e. Retighten the locking mechanism (No. 19) of the adjusting wheel
f. Retighten the blade



Picture 8

7.1.3 Blade safety

Instructions for unpacking the blades

- ! Ensure that all other personnel are at a safe distance.
- ! **ALWAYS USE GLOVES WHEN HANDLING BLADES!**
  (with obeying an appropriate hygiene)

  Place the bundle of blades to the floor and press your hand firmly down on the bundle where the tie is. A packaged blade is always **SPRING-LOADED** and there is a danger that careless handling may cause it so **SUDDENLY SPRING OPEN** and cause and **ACCIDENT**.

  Hold the bundle **AT ARM'S LEGTH**.

Untie the bundle carefully holding it away from yourself and at arm's length.

7.2 Blade guides

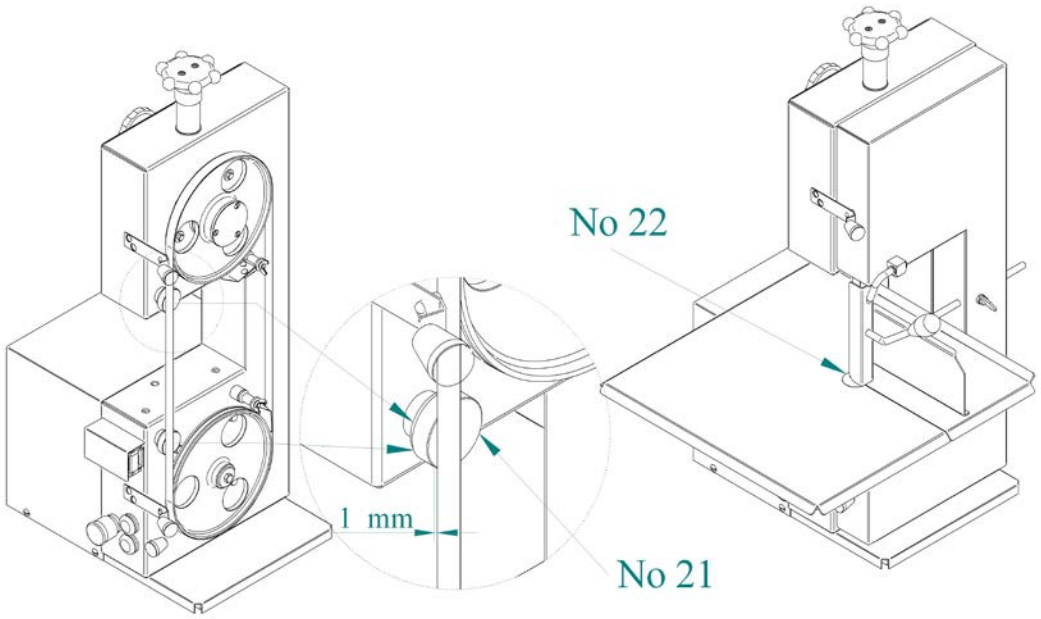
The blade guide piece is positioned in the table (Picture 9, No 22). Worn blade guide piece must be replaced.

7.3 Wipers

Both the blade wiper and wheel wipers are also in constant use, and should be checked and replaced when necessary in order to ensure correct cutting action.

7.4 Blade supporting rollers

Blade supporting rollers (No 21) are positioned in the frame of the saw (see picture 9). When the machine is on, but not cutting, the blade must be 1 mm **AWAY** from the supporting rollers. The supporting rollers are very durable and they will be operable for a long time, but if they do not rotate or if a groove has appeared in them, they must be replaced.



Picture 9

7.5 Wear and tear

To ensure longevity of the blade and to achieve the manufacturer's aim of optimum cutting action, it is imperative that the wipers, blade guides and supporting rollers are maintained in good condition.

7.6 Recommended detergents

Detergent: Kärcher RM 81

Disinfectant: Kärcher RM 32, RM 35

Regardless of detergent or method used, ensure that you observe the manufacturer's instructions. Observe the recommended concentrations and soaking times to avoid damaging your saw.

8. Noise emission values

Declaration of noise emission values:

Machine	Measurement results LpA (dB)
KT-210	89,0 dB

Average value	Maximum value	Relation
88,8 dB	89,1 dB	20µPa

The A-weighted sound power level L_{WA} = 90,3 dB (re 1 pW).

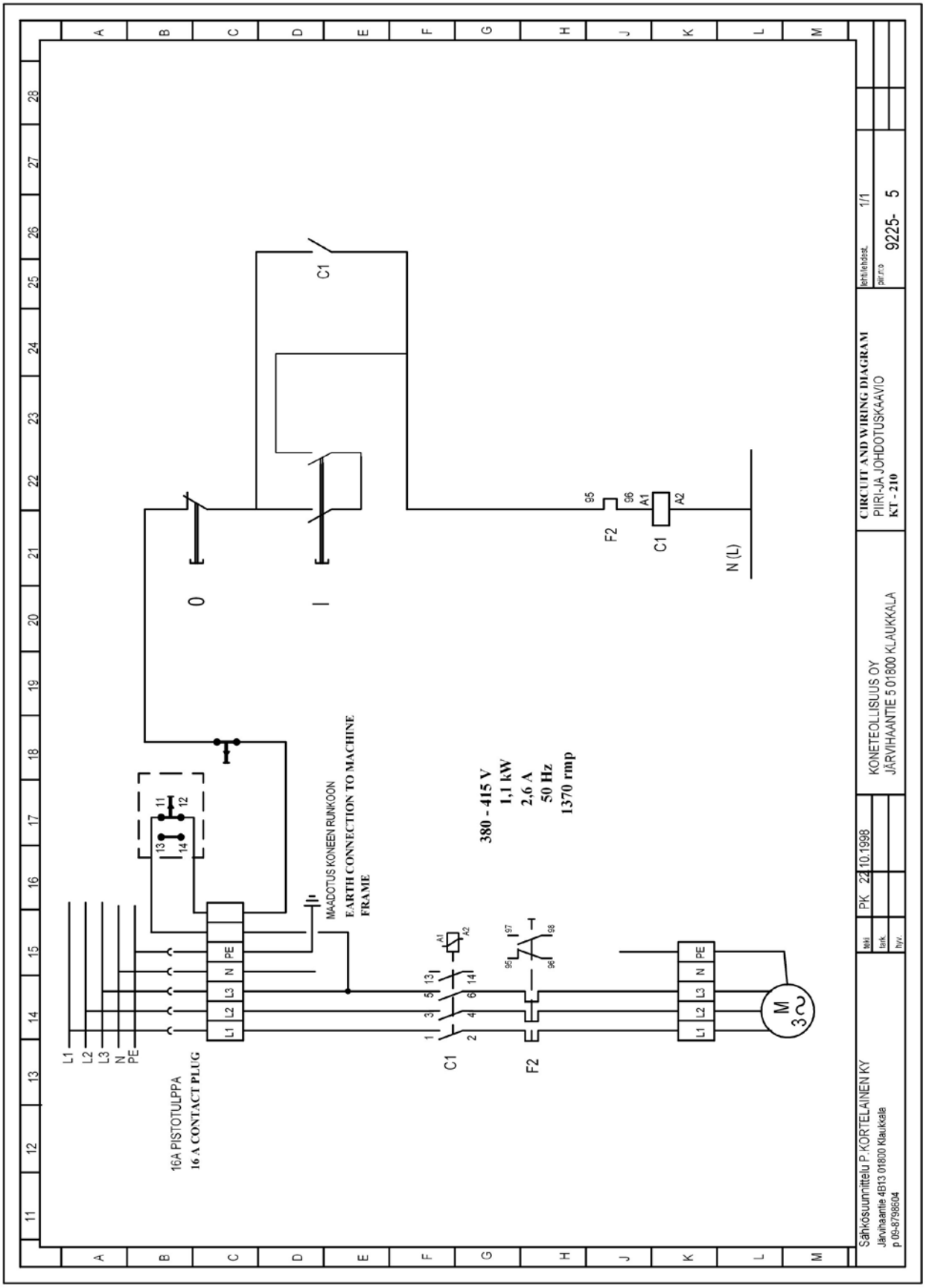
Hearing protection must be used.

APPENDIX 1 Fault finding

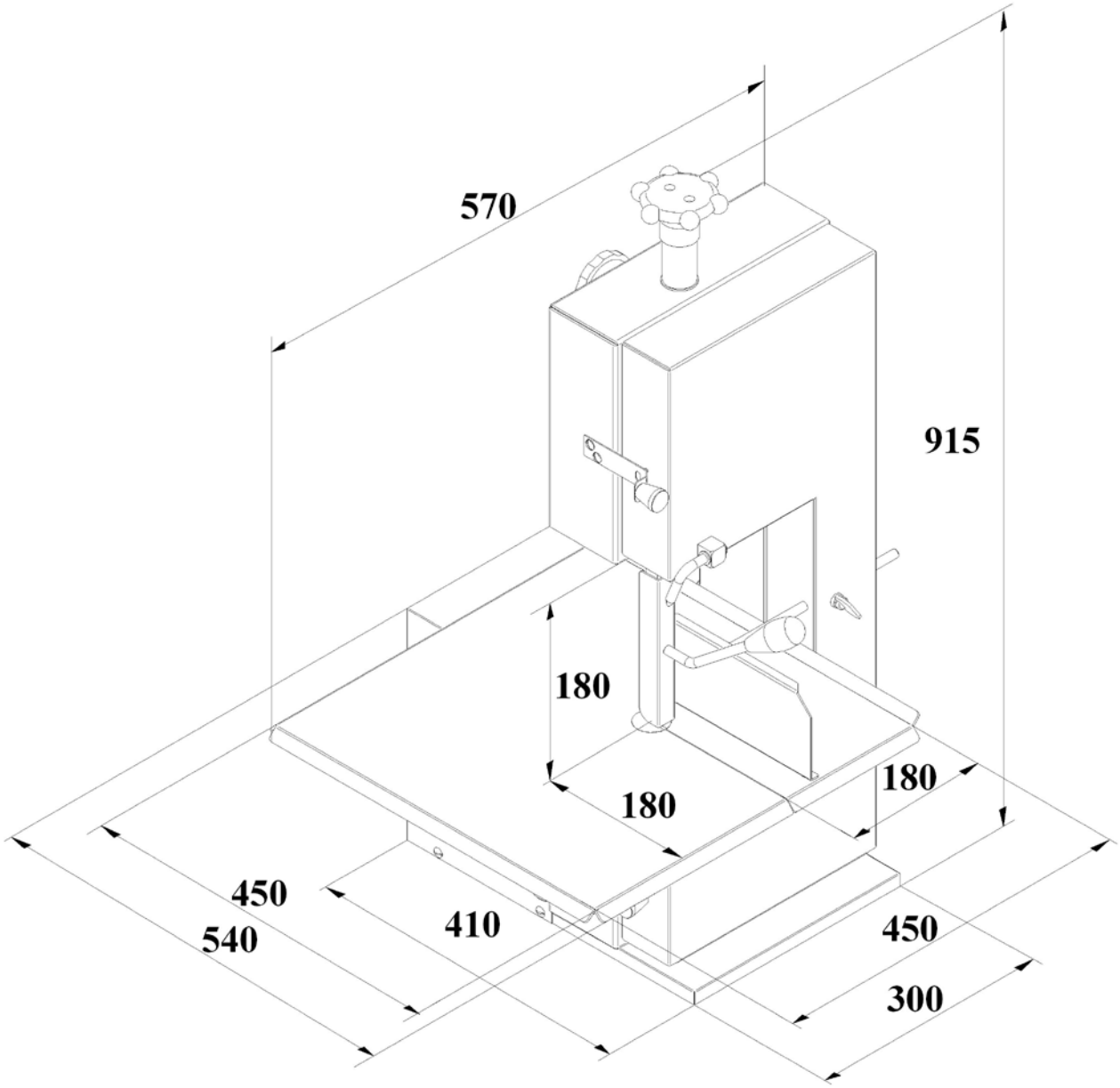
FAULT	CAUSE	REMEDY
The blade or the welding breaks	1. Side guides badly adjusted 2. An unused blade has continual tension 3. Incorrect tightening 4. Blade changes direction (does not cut straight) 5. Welding fault	1. Readjust to the correct gap (Chapter 8.3) 2. Release tension if machine is unused for a while 3. Turn handwheel until it rotates freely (Chapter 5.4) 4. See item regarding this 5. Return blade
Surplus in the back part of the blade	1. One or both blade supporting rolls adjusted too far away 2. Upper blade wheel aligned incorrectly	1. Adjust rolls to an evenly pressure and check that they have correct gap 2. Realign the upper wheel (See chapter 8.1.3)
Blade changes direction	1. Pressure while cutting 2. Side guides adjusted incorrectly 3. Guides wear unevenly 4. Upper blade wheel aligned incorrectly	1. Use less pressure 2. Readjust with correct gap 3. Incorrect tension, tighten the blade again (Chapter 5.4) 4. Realign the upper blade wheel (Chapter 8.1.3)
Teeth come loose or break during cutting	1. Pressure while cutting 2. Upper wheel overaligned 3. Incorrect amount of teeth	1. Use less pressure 2. Realign the upper blade wheel (Chapter 8.1.3) 3. Use correct blade
Blade twists	1. Side guides adjusted incorrectly 2. Moving blade guide too high 3. Teeth get damaged due to touching the table 4. Bad quality blade	1. Adjust to the correct gap 2. Adjust the bar so that it is just above the meat 3. Adjust the blade guide pieces 4. Only use good quality blades
Table will not return to its original position	1. The spring is worn 2. Table bearings have stuck	1. Replace the spring 2. Replace bearings
Machine will not start	1. Electrical cord is loose from the plug 2. Cord is broken 3. Contactor is broken 4. Safety switch is broken	1-4. Contact an authorized electrician or the manufacturer

For safety reasons disconnect the machine from the power supply before carrying out any adjustments.

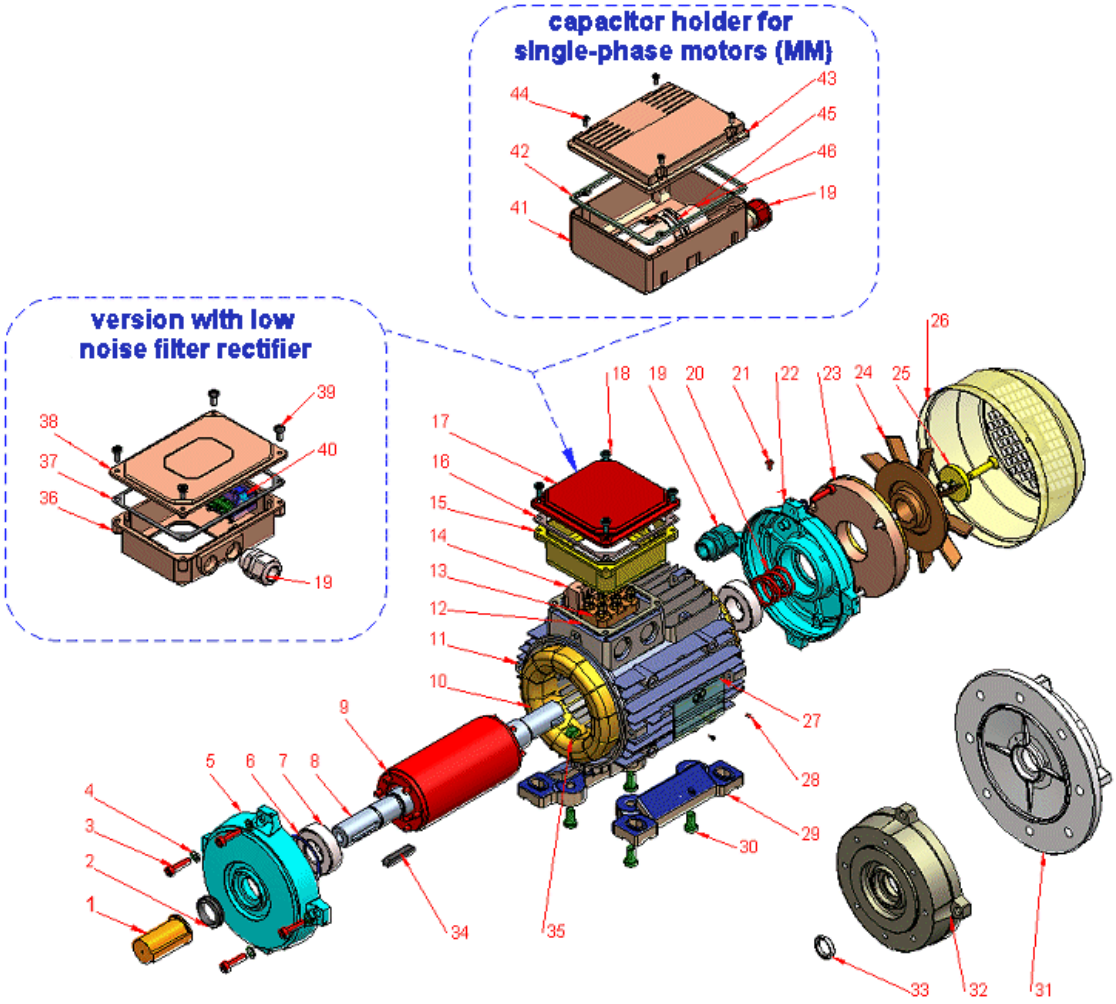
APPENDIX 2 Switch diagram

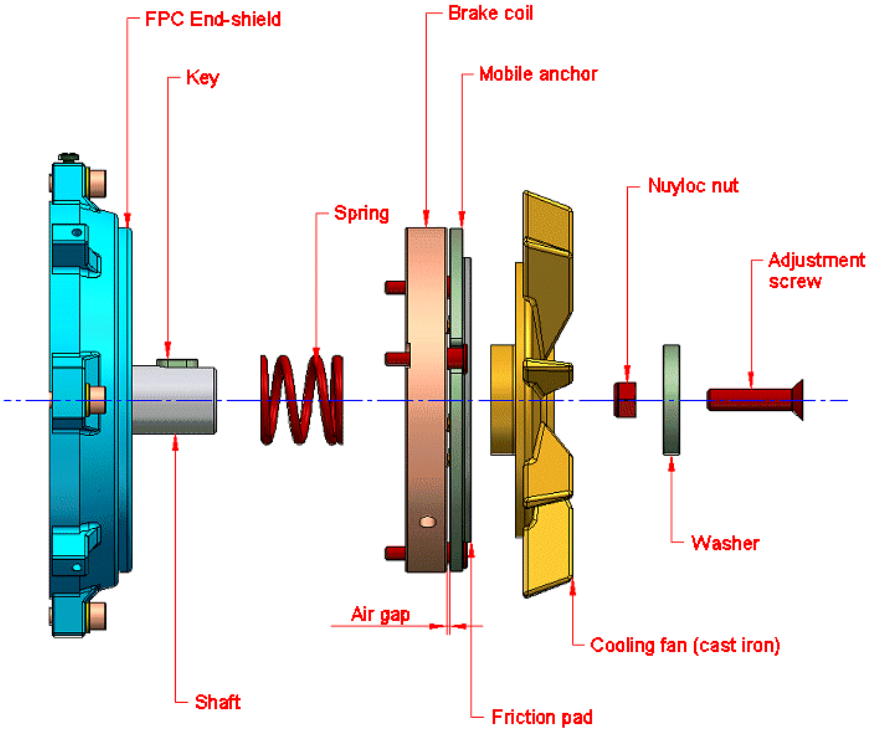


APPENDIX 3 Dimensional drawing



APPENDIX 5 Exploded view of the motor





KONETEOLLISUUS OY

EC DECLARATION OF CONFORMITY

We hereby declare that the following machinery complies with the essential health and safety requirements of the Machinery Directive 2006/42/EC.

Manufactured by KONETEOLLISUUS OY **Technical File Held At KT**
Address below **Address below**

Machine Description: Band saw **Serial No 139000-150000**
Type: below

This machinery confirms with the example of machinery that has undergone EC Type Examination by: VTT Valmistustekniikka, Box 17011, Kanslerinkatu 8 G, 33101 TAMPERE, FINLAND

Type examination certificate numbers:

KT-210	VAL 067/208/01
KT-325, KT-400	VAL 035/208/01
KT-360, KT-460	VAL 036/208/01
KT-750	VAL 041/208/01

This machinery has been designed and manufactured in accordance with the following harmonised European Standards:

EN 12268:2003+A1:2010 *Food processing machinery: Band saw machines. Safety and hygiene requirements.*
EN 12100-1:2003+A1:2009, 12100-1:2003+A1:2009 *Safety of machinery - Basic concepts, general principles for design*
EN 60204- 1:2006+A1:2009 *Safety of Machinery – Electrical equipment of machines – Specification for general requirements*
EN 1088:1995+A2:2008 *Safety of Machinery – Interlocking devices associated with guards. Principles for design and selection*
EN ISO 13857:2008 *Safety of Machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs*
EN 953:1997+A1:2009 *Safety of machinery – Guards. General requirements for the design and construction of fixed and movable guards.*
EN ISO 14121-1:2007 *Safety of machinery – Risk assessment. Part :. Principles.*

Furthermore, this machinery has been designed and manufactured in accordance with the following standards and directives:
SFS 5107*, Slaughterhouse and meat dressing machines. Machines and equipment for cutting. Occupational safety.*
E.M.C. Electro-magnetic compatibility directive 2004/108/EC

Signed **Date 2011-01-01**

Name **Jari Akrenius** **Position: Management**

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The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product end-of life.
This applies to your device but also to any enhancements marked with this symbol. Do not dispose of these products as unsorted municipal waste.