

# Cylindrical brush sweeper KV-100/Z KV-100

basic version

with sprinkler and collector





# Instructions for use



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# 2 Basic information

 $\triangle$   $\,$  Ask your dealer to provide unpackaging of the machine and training.

Fill in the following table with data on your machine. The data are important for ordering spare parts.

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



Туре	KV-100	KV-100/Z
Serial number		
Date of delivery (sale)		
Supplier		
Address		
Telephone/Fax		

The product's design complies with the requirements of Act No. 22/1997 Gaz. and with all relating legislation, decrees, regulations, directives and norms.

Manufacturer **reserves the right** of technical alterations and machine innovations which might differ from the data included in this Operational manual but which, however, would not impact the machine function and safety.

#### 2.1 Warning:

User is **<u>obliged</u>** to get acquainted with the Operational manual and follow all instructions for machine operation so that user's and other persons' health and property do not suffer any harm.

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

The machine can be operated only by persons in good mental and physical condition. For the professional use of the machine the machine owner is obliged to ensure a work safety training and provide instructions on machine control for the operators and to keep records on the trainings.

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

Instructions for use supplied with the machine are an integral part of the machine. They have to be available at any time, deposited at an available place with no risk of their damage. In the case that the machine is sold to another person, the Instructions for use must be passed over to the new machine owner. If the above mentioned conditions are not met, the manufacturer bears no responsibility for incurred risks, dangers, accidents and injuries resulting from the machine operation.

The manufacturer bears no responsibility for damage caused by unauthorized and incorrect use of the machine and for damage caused by any machine modification unauthorized by the manufacturer.

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



If you see the symbol in the Manual, read the following instruction carefully!



# 3. Introduction

Dear customer,

Thank you for your trust in our products. You have become the owner of one part from a wide range of machines, equipments and tools made by **VARI**, a.s. as a system of garden, farm, small agricultural and communal technology. The system is meant for gardeners and farmers on **small-scale** lots and for companies providing communal works.

The machines and tools of the system can easily do all necessary work such as active and passive soil cultivation, pumping of liquids, mowing of stalky plants and grass, removal of snow, sweeping of roads and other surfaces, and transportation of various materials on single-axis trailers

**Please read the Instructions for use carefully**. If you follow them properly, you will get our products performing a reliable work for years.

## 4 Safety regulations

- $\triangle$  This international safety symbol indicates important messages concerning the safety of operation. When you see it, be aware of a possible injury to yourself or other persons and read the following instructions carefully.
- $\triangle$  The machine operator must be **over 18 years of age**. He(she) must be made familiar with guidelines for using the driving unit and is supposed to be informed of general principles of work safety.
- $\triangle$  Never lift or move the machine by holding the plastic container.
- △ Protect your machine from the frost or drain water from the sprinkling circuit! (KV-100 only)
- △ Transportation of the brush sweeper with the gearbox DSK-316 on road classes I, II and III is prohibited with the exception of their perpendicular crossing.
- $\triangle$  Pay extra attention at working (cleaning) on public roads.
- ☆ Follow the basic safety regulations while operating the machine. The machine is equipped with a rotating brush. Maximum circumferential speed is 2.6 m.s<sup>-1</sup>. Make sure that other persons move at a safe distance from the working machine with respect to a possible injury by flying-off debris or other solid objects!
- $\triangle$  **Prior to each** employment of the machine check its parts (working mechanism in particular) for possible damage or loosening. Found defects must be **rectified immediately**. Repairs are to be made only with the original spare parts.
- $\triangle$  With respect to the exceeded recommended values of noise and vibrations, you are warned to observe the following instructions when working with the machine:
  - a) Protect your hearing by using suitable protective aids specified in CSN EN 352-1 (shell ear protectors) or CSN 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.
- $\triangle$  Machine operators should use working aids authorized to CSN EN 166 or CSN EN 1731 (tight-fitting garments, sturdy shoes, working gloves and protective glasses). Keep the safety distance given by the handle.
- $\triangle$  Don't start the engine in enclosed spaces! Exhaust silencer remains hot after the engine has been switched off; ensure that there are no leakages and spills on engine parts when adding the fuel. If they happen to occur, dry out the stained parts or wait until the petrol evaporates.



- $\triangle$  All other persons (children in particular) and animals have to be outside the machine's working space. The machine operator can continue working only after they have been ordered out to a <u>safe</u> distance.
- $\triangle$  Removal of any protection equipment and machine casing is forbidden.
- $\triangle$  Safe slope accessibility of the machine is 7 degrees.
- $\triangle$  All kinds of repairs, adjustments, lubrication and cleaning are to be made with the machine switched-off and spark plug cable disconnected.

The user is obliged to keep pictographs on the machine legible and to ensure their replacement in the case of their damage. There are following pictographs on the machine:

This self-sticker is located on the right side of the lower part of the plastic tank or on the upper side of the plastic cover.



- Operating instructions are to be thoroughly studied prior to the machine use. The conductor should be disconnected from the spark plug during the machine maintenance or repair.
- 2) Putting one's hands into the machine working space is prohibited. Danger of injury.
  - Keep a safe distance from the machine. Danger of injury by flying material fragments and objects.

This self-sticker is located in the right half of the upper part of the tank or in the right half of the cover in the rear part in front of the exhaust silencer.



- 1) Warning.
- Danger of plastic parts being burnt through by hot combustion products. See chapter 6.2 Assembly of deflector.
- 3) Study the Instructions for use prior to the machine use.



# 5 Use, technical data and technical description

#### 5.1 Use

The cylindrical brush sweeper KV-100 (KV-100/Z) is exclusively designed for the removal of debris or fresh fallen snow from communications, pavements and roads with **paved and even surface**. The adapter is driven by the DSK-316 Series gearboxes.

#### 5.2 Technical data

Technical data	KV-100	KV-100/Z
Brush diameter	350	mm
Working width	1000 mm	n±20 mm
Brush rotations	142 min <sup>-1</sup> (4stroke) /	<sup>1</sup> 123 min <sup>-1</sup> (2stroke)
Tank volume	43 1	
Sprinkling time	Max. 23 min.	
Area performance with sprinkling	Max. 1430 m <sup>2</sup>	
Area performance	Max. 3730 $m^2/hr$ (with no overlap)	
Weight with full tank	94 kg	
Weight of the machine	51 kg	46 kg

#### 5.3 Technical description of KV-100

The cylindrical brush sweeper **KV-100** consists of a frame made of metal sheet parts on which a plastic tank (cover of the primary belt transmission driving the worm-gear castiron gearbox) with discharge cock is attached from above. A freely rotating height-adjustable guide wheel is fixed to the frame. In the rear part of the metal sheet frame there is a union flange to connect the driving unit. A water pump fixed on a metal sheet holder which enables arrestment both in working and non-working position is located on the other side of the flange. The freely rotating sweeping mechanism itself is installed in the front part of the frame and can be adjusted at both sides (Fig. 4) with a possibility of arrestment in individual positions. On the metal sheet brush casing there are guiding rods which serve for the connection of the Receptacle and at the same time as a gripping place for sprinkler with jet. The Receptacle consists of a tubular frame (again with grips for sprinkler and with 4 guide wheels), on which a plastic collector is attached with anti-dust rubber strips.

#### 5.4 Technical description of KV-100/Z

The cylindrical brush sweeper **KV-100/Z** consists of a frame made of metal sheet parts on which a plastic cover of the primary belt transmission driving the worm-gear castiron gearbox is attached from above. A freely rotating height-adjustable guide wheel is fixed to the frame. In the rear part of the metal sheet frame there is a union flange to connect the driving unit. The freely rotating sweeping mechanism itself is installed in the front part of the frame and can be adjusted at both sides (Fig. 4) with a possibility of arrestment in individual positions. The sweeping cylinders are equipped with outcuts, which lower the stalling of the brush hair with snow.



# 6 Instructions for operation

#### 6.1 Machine assembly

- $\triangle$  Ask your dealer to provide unpacking of the machine and briefing.
- $\triangle$  When handling the machine, lift it only by holding on **metal parts:** in the front part of the machine between guide rods and in the rear part on the union flange; the **machine must** be in no case lifted by holding on fenders or the plastic tank (KV-100) or the plastic cover (KV-100/Z). Danger of damage!

Make the driving unit (gearbox and engine unit) ready for operation according to relevant Instructions for use and plug it in the flange in the rear part of the brush. The Receptacle is to be placed into slots in the front part of the machine (KV-100 only). Install the sprinkler onto the guiding rods on the tubular frame of the Receptacle (KV-100 only) so that the jet is pointing forward and its mouth to the ground.

#### 6.2 Assembly of deflector (exhaust gas tube rectifier)

Should you have the driving units **PJ-5V** nebo **PJ-5T** in your possessions (with the engine **HONDA GXV 160**), it is absolutely necessary that a deflector (exhaust gas tube rectifier) is installed on the exhaust silencer, which is to be purchased as optional accessories (**ordering No. 3321**). Assembling procedure is described in the following paragraph. In the case you don't feel skilled enough or lacking the necessary technical equipment you are encouraged to contact our customer service department which is prepared to make a technically sound assembly.

Should you have the driving unit **PJGCV160** in your possessions (with the engine **HONDA GCV 160**), it is absolutely necessary that the already mounted deflector on the engine is turned so that products of combustion are directed downwards to in front of the engine. Assembling procedure is described in the following paragraphs. In the case you don't feel skilled enough or lacking the necessary technical equipment you are encouraged to contact our customer service department which is prepared to make a technically sound assembly.

#### 6.2.1 Assembly on the engine **HONDA** GXV 160

Guidelines for assembly are contained in the plastic bag together with the deflector and two self-tapping screws. For the assembly, follow the guidelines.

#### 6.2.2 Assembly (modification of the engine **HONDA** GCV 160)



Figure 1 – Deflector GCV160

This engine is supplied with the mounted deflector as a standard equipment, see Fig. 1 but exhaust gases are directed forward to in front of the engine. The first step is to exhaust casing "2" release bv removing 3 screws "4" and to take it off carefully. By removing 2 selftapping screws "9" release and then remove deflector casing "6" from exhaust casing "2". Deflector "7" is to be released by removing other 2 screws ...8". Turn the deflector carefully clockwise so that the

following 2 holes line up. Screw back the 2 bolts "8" holding the deflector, screw on the



exhaust casing "2". The deflector casing "6" should be fixed with the output opening of the casing pointed to the same direction as the deflector. Tighten the screws. The machine is ready for use now.

#### 6.3 Work with the machine

#### 6.3.1 Sprinkling circuit operation (KV-100 only)

- $\triangle$  Never operate the pump "dry". If lacking water, the pump should always be switched off.
- $\triangle$  At reverse gear in the gearboxes **DSK-316PZ** a **DSK-316PSZ**, the pump should always be switched off because it can suck in air through the jet and there is a danger of its damage
- $\triangle$  Don't fill the water tank with pesticides or other chemicals.
- $\triangle\,$  Don't do water pumping by reverse operation of the pump (in gearboxes DSK-316PZ and DSK-316PSZ)
- $\triangle$  Don't operate the sprinkling circuit at temperatures below the frost point. Necessary provisions see Chapter 7.4 Storage.

The machine is equipped with a sprinkling circuit to ensure moisturizing of the swept



material. The sprinkler circuit consists of tank, discharge cock. switchable pump and sprinkler (Fig. 2). Prior to sprinkling the tank is to be filled with clean non-potable water without mechanical impurities in order to prevent jet blockage. Turn the plastic plug on the tank in anticlockwise direction by and 90°, loosen it remove. Add the required amount of

water through the hole. Re-install the plug and arrest it by turning it clockwise by the same angle.

The cock in the tank has two positions: Position closed when water supply into the tank and into the entire sprinkling circuit is closed (valve lever pointing to the engine), and Position open when water can be pumped through the whole circuit up to the jet (valve lever pointing to the jet to in front of the machine). <u>Water leakage from the jet in the position</u> <u>Open due to gravity is normal.</u>

The pump is operated (switched on/off) by switching on/off the whole pump from engagement. The pump is switched off the engagement by gripping the pump by pump holder and moving the whole assembly in direction of arrow "1" (Fig. 3), and switched on the engagement by moving the pump in direction of arrow "2". Guiding slots which help to install the pump in correct position ease the handling. The pump is secured by 2 extension springs in both positions.

At all times make sure that the pump has got in engagement. In the case that the driving peg has not fitted into slot on the shaft, start the engine and accelerate it for a moment so that the brush conduit turns and the driving peg fits into the engagement. This is how the pump is



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made ready for operation. Accelerate the engine and check if water starts spraying from the jet. (If not so, check the cock which should be in the position Open, possible jet blockage and sufficient water filling in the tank).

Pump drive is designed in such a way that water pumping and hence sprinkling occurs automatically when the brush starts turning (after acceleration). Sprinkling alone without sweeping cannot be used.

If the water ray is deflected toward one or another edge of the brush at sprinkling, the jet angle in the jet holder is to be corrected by turning the jet to the appropriate side by using side spanner No. 8 or narrow tongs.

 $\triangle$  Don't turn the jet by the tongs in front reflection part but only at changeable cap.

 $\triangle$  The jet should be protected from damage.

#### 6.3.2 Brush positioning

Sweeping cylinders are attached to the gearbox which is fixed in one of 5 possible



the road middle. The central position is used to clear large areas or straight road sections. Adjustment is made by moving the lever in the positions by means of arresting lever. Marginal positions (Fig. 4) are used at removing debris from kerbs. It is adviced to employ the machine without the Receptacle when the debris is swept from the road edge to



Figure 4 – Brush position

front part of the machine (Fig. 5) in direction of the arrow until the lever gets outside arresting holes. Then the whole sweeping apparatus should be displaced into the required position by pulling or pressing on the guiding rods and the lever returned back into the appropriate arresting hole. Brush turning can be made even with the Receptacle connected. In this case the turning is made by pulling or pressing on the tubular frame of the Receptacle.

#### 6.3.3 <u>Receptacle (KV-100 only)</u>

Receptacle situated in front of the sweeping brush serves to gather the removed material. It is to be connected in front of the sweeping brush in guiding rods (Fig. 5) by pins welded on the tubular frame of the Receptacle. Fig. 6 illustrates a correct placement of the pins in the guiding rods in the working position. **Before connecting the Receptacle, you** 



have to remove the sprinkler with the jet from slots on guiding rods. (The mounted



sprinkler prevents connection of the Receptacle.)

The separate suspension of the Receptacle as related to the sweeping machine itself ensures safe copying of uneven surfaces and hence perfect adhesion of the rubber wiper (dust collector) to the ground.

When connecting the Receptacle to the brush, hold it by the

tubular frame and after tilting it into the working position, lift it as one whole in the guiding rods and then let it down again. This is how the lower dust collector can be straightened and its tightness improved. Having been removed from the guiding rods the sprinkler is to be settled on two cylindrical holders in the front part of the tubular frame.

Container emptying is carried out by pulling on the handrail and by turning around the pins in the guiding rods the container is put into the emptying position. Individual positions are presented in Fig. 7. By this procedure the collected material will be emptied to the in front



**Figure 7 – Receptacle positions** 

of the machine.

Should the emptying be incomplete, sticking remove the remainders on walls of the plastic collector bv tapping on the collector with your palm. After the Receptacle has been emptied, lift it by pulling on the handrail and place the transversal tube into cut-outs in the guiding rods. With the container in emptying position this move the machine away

from the debris discharged on the ground manually by pulling on the guiding handles and then return the Receptacle back into its working position.

 $\triangle$  Don't travel with the machine if the Receptacle is fixed in emptying position.

 $\triangle$  Don't back the machine with the Receptacle in working position.

#### 6.3.4 Brush engagement adjustment Fig. 8

Height adjustment of the brush is made by turning a manual wheel with the bolt placed in tank depression.

The brush is **ascending** from the engagement by turning the wheel to the **right** and **descending** into the engagement by turning the wheel to the **left**. The locking nut must be



#### KV-100/Z KV-100

tightened against the nut which holds the tank so that the manual wheel can be turned but



Figure 8 – Adjusting engagement

loosening and hence the spontaneous height adjustment does not occur during the operation. The tank-holding nut should never be tightened to the very end of the thread but only so that the empty tank is prevented from the free movement on the frame. Brush (hair) height should be preferrably adjusted so that the imaginary end of the hair circumference is about 1-2 cm below the surface when the driving unit is connected. It is only this adjustment that does

not result in increased resistance at which the hairs suffer unnecessary wear. Should the engine get choked with the resistance of the hairs while sweeping and is losing power, lift the hairs from the engagement by turning the manual wheel to the right. Should you experience an occasional failure in sweeping, turn the manual wheel to the left.

#### 6.3.5 Debris removal (work with the machine KV-100)

If you wish to operate sprinkling together with sweeping, make sure before starting the work that the tank has sufficient water filling, the pump is engaged and the valve is in the position Open (lever pointing from the engine). If you wish to collect the removed material, make sure that the Receptacle is connected.

**Regarding a considerable inertial mass of the brush sweeper with the filled tank, make sure that you start moving very carefully.** Accelerate the engine slowly by using the accelerator lever so that there are no shocks. When clearing large areas, make sure that the brush adjustment is perpendicular to the cleared strip (see paragraph **Brush positioning**). When clearing debris close to kerbs, it is adviced that the Receptacle is disconnected and the debris is swept off the kerb, then connected again and the swept-on strip of debris collected evenly from one edge of the container continually to the other which prevents quick filling of the container up to the rim. Dustiness can be reduced by moisturizing the swept material. As perfect moisturizing cannot be guaranteed in larger amounts of debris, it is adviced that the tobe-swept surface is first wetted with water (e.g. by using a spraying hose).

- $\triangle$  Pay attention to turning. The assembly is long and requires sufficient room to turn.
- $\triangle$  Use a respirator if the dustiness is high.
- $\triangle$  The wear of the side hair is increased during long-term clearing close to edges (kerbs etc.) Replace them by new ones if they are too worn.

#### 6.3.6 Debris removal (work with the machine KV-100/Z)

When sweeping, try to drive the machine so that the removed material is shifted in one direction all the time till the sweeping cylinders are able to clear the sweeped impurities, not throwing them behind. Remove the accumulated impurities and continue again in the same way until the whole area is cleared. Dustiness can be reduced by moisturizing the swept material.

 $\triangle$  Use a respirator if the dustiness is high.

 $\triangle$  Scotched hair may fall off the new brush.



### 7 Maintenance, care and storage

To be satisfied with our product for a long time you have to provide proper care to its maintenance. Regular maintenance of the machine will prevent its rapid wear and will ensure correct functioning of all its parts.

Do follow all instructions concerning maintenance intervals and machine adjustments. It is adviced to keep records on the number of machine working hours and on the working conditions (for service purposes). After-season maintenance – similarly as current maintenance – should be preferrably entrusted to some of our authorized service shops.

 $\triangle$  With respect to machine weight the machine maintenance and adjustments are to be carried out by two persons.

#### 7.1 Lubrication and conservation

#### 7.1.1 <u>Replacement and additional oil</u>

Worm gearing operates in an oil bath. Oil replacement is to be made after the first 10 hours of operation in the new machine, and then after **100** machine working hours or at the end of the season. This is how to ensure that the gears don't suffer excessive wear. Check oil level once a month.

Minimum classification of gear oil is to API GL-4, GL-5 or to SAE 90 or 80W-90. Czech-made gear oils fully complying with the requirements are MOGUL TRANS 90 or MOGUL TRANS 80W - 90. In gear oils of higher classification (API GL 5, SAE 80W - 90) the replacement interval can be prolonged up to 130 machine working hours (the interval of 10 hours of machine running-in must be observed).



Refill the oil when the casing is warm and the oil can be easily drained. Before the work, drain water from the tank (KV-100 only). Dismount the brush sweepers from the machine. Clean the surface around the oil cap. Place a vessel beneath the oil plug, whose minimum volume is 0.3 l. Loosen the plug (by using key No. 19) and tilt the machine forward. After the oil is drained into the prepared vessel, return the machine into the

original position.

Fill the gearbox with new oil (preferrably by using a funnel with flexible tube). Oil level (ca. 0.15 l) should reach a lower edge of the hole. Then screw on the cap back to its place. Should the cap sealing be damaged, replace it with a new one.

 $\triangle$  When changing oil, follow rudiments of hygiene and observe environmental legislation.

 $\triangle$  Don't lay the machine down onto side on the plastic tank or plastic cover.

#### 7.1.2 Conservation

Prior to putting the machine out of operation for a longer time, the conduit casing should be treated with the grease LV2-3.

#### 7.2 Cleaning

Remove the reeled-on dirt from the brush sweepers and clean the internal space of the Receptacle with streaming water after each work.



At the end of the season, clean the machine from dirt, wash out the sprinkling circuit and clear the jet. Remove water from the sprinkling circuit prior to the storage, so that it does not freeze at low temperatures.

 $\triangle$  When cleaning and washing the machine, do follow valid legislation on the protection of watercourses and other water resources from pollution or contamination with chemicals.

#### 7.3 Belt drive maintenance

Belt drive is designed so that it does not require any particular care or maintenance. In the case that belt slippage occurs due to worn sides, the belt must be stretched. Belt stretching procedure is described in the following paragraph. In the case that you don't feel skilled enough or lacking the necessary technical equipment, you are encouraged to contact our customer service department which is ready to provide professional service and adjustments.

Disconnect the tube leading from the valve to the tank (KV-100 only), loosen the locking nut (see Fig. 8) and remove the screw with the manual wheel. Screw off the screw M6 in the front part of the cover (KV-100/Z only). Screw off the nut M20 and carefully remove the tank or the cover. A back assembly is described in the paragraph below the belt replacement.

#### 7.3.1 <u>Belt stretching</u>

Loosen 4 bolts (1) in the slot and the nut (2) on the belt stretching screw (3). Stretch the belt by turning the nut (4) so that the maximum deflection at the point of guiding wheel holder is 1 cm at the most. Tighten the nut (2) on the screw (3). Check if the machine frame does not exhibit signs of visible crossing and tighten the four bolts (1).

#### 7.3.2 <u>Belt replacement</u>

Loosen and remove the nuts (2 and 4), remove the belt stretching screw (3). Loosen and remove the bolted joint (5). Release the belt by a slight turning of the pulley shaft (6), remove the belt and take out the shaft with the pulleys. Displace the pump (7) outside the slots so that the shaft is as far from the belt pulley as possible. Remove the released belt. In the case that the belt cannot be pulled out around the pump, dismount the pump (7) from the machine. Replace the old belt with a new one by reversed procedure and stretch it.

Install the tank (cover) back to its original place and screw-on the nut M20. Mount the



cover with screw M6 (KV-100/Z only). The nut M20 should be tightened carefully. Screw-on the bolt with the manual wheel and do adjustment of engagement height (see Adjustment of engagement) and tighten the locking nut. Pull the loose end of the hose on the valve (KV-100 only).



#### 7.4 Storage

Prior to a long-term storage, clean the machine from all dirt and plant residues. If putting the machine out of operation for a longer time, conserve the connecting flange. Underlay the set of the brush with the driving unit with a pad with a height of approx. 2 cm under the guiding wheel or screw out the guiding wheel so that the brush is above the ground. Underlay the freestanding brush implement on the spacer rings between the hair at the ends with a suitable support. This will prevent the hair from laying flat, which would impair efficiency of the sweeping. Prevent unauthorized persons from access to the machine. Protect the machine from weather impacts not using air-tight protection due to possible corrosion.

- $\triangle$  Prior to the storage, remove water from the sprinkling circuit; alternatively use an environment-friendly anti-freezing agent.
- $\triangle\,$  Having disconnected the suction hose, spray silicon oil into the pump and give the pump a run.

#### 7.5 Disposal of packaging and machine after service life

On expiration of product service life you are obliged to liquidate the machine making use of secondary raw materials as stipulated in Act on Wastes No. 238/91 Gaz. and its possible later amendments.

Recommended procedure is as follows:

- 1) Dismount all possibly utilizable parts from the machine.
- 2) Remove all plastic parts and liquidate them as required by the Act on Wastes No. 238/91 Gaz. and its possible later amendments.
- 3) Remove all parts made of non-ferrous metals and the dismantled machine remainder liquidate together with the disassembled non-ferrous metal parts as required by the Act on Wastes No. 238/91 Gaz. and its possible later amendments.

## 8 Instructions for ordering spare parts

For the purpose of easy identification your order of spare parts should contain the following data:

- Machine type, serial number and year of manufacture;
- Ordering number specified by the manufacturer in the Component list and the name of the part;
- Number of ordered pieces separately for each item;
- Precise address, possibly also telephone number, fax or E-mail;
- Should you feel uncertain about the correct identification of required components, mail the damaged component either to the nearest service centre or right to the manufacturer;
- All components should be ordered from the nearest service centre or from your dealer.

In the case of any confusion concerning the spare parts or technical problems your inquiries will be responded to by commercial, customer-service or technical departments of the company VARI, a.s.



## 8.1 Contact to manufacturer

VARI, a.s.	Telephone:	+420 325 607 111
Opolanská 350	Fax:	+420 325 637 550
Libice nad Cidlinou		+420 325 607 264
CZECH REPUBLIC	E-mail:	vari@vari.cz
Postal code: 289 07	web:	www.vari.cz



# 9 Component list of KV-100/Z









# Main frame of the mashine KV-100/Z

Pos.	Name	Drawing-Standard	Ord. No.	Pcs
1	Wheel pivot assembly	22 9 1616 005	150 078	1
2	Guiding wheel holder I	22 9 1621 009	150 072	1
3	Guiding wheel holder II	22 9 1621 010	150 073	1
4	Wheel suspension	22 9 1646 017	150 077	1
5	Pullev shaft assembly	22 9 2740 003	150 070	1
6	Belt pulley 147	22 9 3325 004	171 005	1
7	Manual wheel	22 9 8025 002	108 005	1
8	-	-	-	-
9	-	-	-	-
10	Carrier plate	32 0 1542 006	150 068	1
11	Traversable plate	32 0 1542 007	150 074	1
12	Conduit case	32 0 3253 037	150 066	1
13	Conduit flange	32 0 3253 038	150 085	1
14	Driving shaft	32 0 3312 006	150 067	1
15	Pulley	32 0 3320 041	150 071	2
16	Belt stretching bolt	32 0 8010 024	150 069	1
17	Adjustment bolt	32 0 8010 026	150 086	1
18	V-belt	AVX 10x1735 La (AVX 10x1735La SF)	150 625	1
19	Bolt M8x25	ČSN 02 1103.25	110 525	7
20	Bolt M6x16	ČSN 02 1103.25	189 552	1
21	Bolt M10x30	ČSN 02 1103.25	129 552	4
22	Bolt M8x16	ČSN 02 1103.25	106 547	4
23	Nut M8	ČSN 02 1401.25	104 572	11
24	Nut M10	ČSN 02 1401.25	106 529	6
25	Nut M6	ČSN 02 1401.25	180 0141	1
26	Nut M14x1.5	ČSN 02 1403.25	106 526	1
27	Washer 21	ČSN 02 1702.15	124 530	1
28	Washer 17	ČSN 02 1702.15	189 566	1
29	Washer 6	ČSN 02 1740.05	651 0920	1
30	Washer 8	ČSN 02 1740.05	104 574	11
31	Washer 10	ČSN 02 1740.05	106 530	4
32	Cotter pin 4x32	ČSN 02 1781.05	189 577	1
33	Flexible pin 5x25	ČSN 02 2156	150 623	1
34	Woodruff key 5e7x5x16	ČSN 02 2562	150 544	1
35	Retaining ring 20	ČSN 02 2930	602 1512	1
36	Retaining ring 25	ČSN 02 2930	131 520	1
37	Retaining ring 15	ČSN 02 2930	131 521	2
38	Retaining ring 16	ČSN 02 2930	108 503	1
39	Retaining ring 47	ČSN 02 2931	126 504	2
40	Retaining ring 32	ČSN 02 2931	123 504	2
41	Bearing 6005 2RS	ČSN 02 4630	135 501	2
42	Bearing 6002 2RS	ČSN 02 4630	150 621	2
43	Spring	TLZ 160.267.0950	150 622	1
44	Bellows BABETA		150 624	1
45	Wheel 200/20		150 626	1







	Gearbox KV-100/Z					
Pos.	Name	Drawing-Standard	Ord. No.	Pcs		
1	Welded support	22 9 1536 037	150 064	1		
2	Welded carrier casing	22 9 1546 007	150 061	1		
3	Complete worm wheel	22 9 3226 012	123 006	1		
4	Welded arrestment lever	22 9 8044 006	150 062	1		
5	Coloured hinge	32 0 1340 018B	182 008	1		
6	Arrestment lever guide	32 0 2721 005	150 063	2		
7	Worm shaft	32 0 3214 025	150 060	1		
8	Lower part of the box	32 0 3265 001	-	1		
9	Belt pulley	32 0 3320 040	150 065	1		
10	Box body	32 0 5021 010	-	1		
11	Left fender	32 0 8545 039	150 616	1		
12	Right fender	32 0 8545 040	150 617	1		
13	Plug	32 0 9016 036	106 050	1		
14	Ring	32 0 9220 035	123 016	2		
15	Felt sealing	32 0 9220 036	123 502	2		
16	Dust seal	32 0 9621 002	123 007	2		
17	Bolt M8x45	ČSN 02 1101.55	150 619	1		
18	Bolt M8x16	ČSN 02 1103.25	106 547	2		
19	Bolt M8x22	ČSN 02 1103.25	150 565	3		
20	Bolt M6x16	ČSN 02 1103.25	189 552	6		
21	Bolt M6x25	ČSN 02 1143.50	-	4		
22	Bolt M6x16	ČSN 02 1143.50	-	1		
23	Nut M8	ČSN 02 1401.25	104 572	4		
24	Nut M6	ČSN 02 1492.25	168 516	6		
25	Washer 6.6	ČSN 02 1729.05	195 530	5		
26	Washer 8	ČSN 02 1740.05	104 574	6		
27	Washer 6	ČSN 02 1740.05	651 0920	5		
28	Woodruff key 5e7x5x12	ČSN 02 2562	186 506	1		
29	Retaining ring 25	ČSN 02 2930	131 520	1		
30	Retaining ring 22	ČSN 02 2930	125 504	2		
31	Retaining ring 20	ČSN 02 2930	602 1512	1		
32	Retaining ring 60	ČSN 02 2930	110 532	1		
33	Retaining ring 47	ČSN 02 2931	126 504	1		
34	Bearing 6005A	ČSN 02 4630	129 535	2		
35	Bearing 6005 2RS	ČSN 02 4630	135 501	1		
36	Sealing ring 14x18	ČSN 02 9310.3	106 539	1		
37	Gufero sealing 25x47x7	ČSN 02 9401.0	124 505	2		
38	Bearing INA HK 2816	DIN 618	150 618	1		
39	Spring	TZ 160.176.0624	150 620	1		
40	Cylindrical cover 14x70	VINYL-FLEX	189 578	1		
Note:	Positions 8, 10, 21, 22, 27	7 cannot be ordered ser	parately. The	v are		

Note: Positions 8, 10, 21, 22, 27 cannot be ordered separately. They are supplied as a complete assembly under the name COMPLETE BOX – Drawing No. 22 9 3259 008, ord. No. 150 059.



#### KV-100/Z KV-100



Sweeper cylinders KV-100/Z					
Pos.	Name	Drawing-Standard	Ord. No.	Pcs	
1	Axial pin KV-100	22 9 9316 061	150 058	1	
2	Bolt M8x20	ČSN 02 1103.25	189 548	8	
3	Nut M12x1.5	ČSN 02 1401.25	150 615	2	
4	Washer 14	ČSN 02 1727.15	170 517	2	
5	Washer 8	ČSN 02 1740.05	104 574	8	
6	Sweeping ring flat	PPZ 1.5 350/110	150 637	10	
7	Sweeping ring 10°	PPZ 1.5 350/110	150 638	4	
8	Sweeping ring 20°	PPZ 1.5 350/110	150 639	4	
9	Sweeping ring 30°	PPZ 2x3 350/110	150 640	4	
10	Spanning ring		150 634	20	
11	Carrier frame		150 635	2	
12	Holding washer		150 636	2	





	Cover KV-100/Z						
Pos.	Name	Drawing-Standard	Ord. No.	Pcs			
1	Complete cover KV-100/Z	22 1 8545 027	150 087	1			
2	Nut M6	ČSN 02 1492.25	168 516	1			
3	Bolt M6x18	ČSN 02 1103.25	150 538	1			
4	Washer 6.6	ČSN 02 1729.05	195 530	1			



# 10 Component list of KV-100









# Main frame of the mashine KV-100

Pos.	Name	Drawing-Standard	Ord. No.	Pcs
1	Wheel pivot assembly	22 9 1616 005	150 078	1
2	Guiding wheel holder I	22 9 1621 009	150 072	1
3	Guiding wheel holder II	22 9 1621 010	150 073	1
4	Wheel suspension	22 9 1646 017	150 077	1
5	Pulley shaft assembly	22 9 2740 003	150 070	1
6	Belt pulley 147	22 9 3325 004	171 005	1
7	Manual wheel	22 9 8025 002	108 005	1
8	Short sealing	32 0 1520 044	150 054	2
9	Long sealing	32 0 1520 046	150 053	2
10	Carrier plate	32 0 1542 006	150 068	1
11	Traversable plate	32 0 1542 007	150 074	1
12	Conduit case	32 0 3253 037	150 066	1
13	Conduit flange	32 0 3253 038	150 085	1
14	Driving shaft	32 0 3312 006	150 067	1
15	Pulley	32 0 3320 041	150 071	2
16	Belt stretching bolt	32 0 8010 024	150 069	1
17	Adjustment bolt	32 0 8010 025	150 076	1
18	V-belt	AVX 10x1735 La (AVX 10x1735La SF)	150 625	1
19	Bolt M8x25	ČSN 02 1103.25	110 525	7
20	Bolt M6x16	ČSN 02 1103.25	189 552	1
21	Bolt M10x30	ČSN 02 1103.25	129 552	4
22	Bolt M8x16	ČSN 02 1103.25	106 547	4
23	Nut M8	ČSN 02 1401.25	104 572	11
24	Nut M10	ČSN 02 1401.25	106 529	6
25	Nut M6	ČSN 02 1401.25	180 0141	1
26	Nut M14x1.5	ČSN 02 1403.25	106 526	1
27	Washer 21	ČSN 02 1702.15	124 530	1
28	Washer 17	ČSN 02 1702.15	189 566	1
29	Washer 6	ČSN 02 1740.05	651 0920	1
30	Washer 8	ČSN 02 1740.05	104 574	11
31	Washer 10	ČSN 02 1740.05	106 530	4
32	Cotter pin 4x32	ČSN 02 1781.05	189 577	1
33	Flexible pin 5x25	ČSN 02 2156	150 623	1
34	Woodruff key 5e7x5x16	ČSN 02 2562	150 544	1
35	Retaining ring 20	ČSN 02 2930	602 1512	1
36	Retaining ring 25	ČSN 02 2930	131 520	1
37	Retaining ring 15	ČSN 02 2930	131 521	2
38	Retaining ring 16	ČSN 02 2930	108 503	1
39	Retaining ring 47	ČSN 02 2931	126 504	2
40	Retaining ring 32	ČSN 02 2931	123 504	2
41	Bearing 6005 2RS	ČSN 02 4630	135 501	2
42	Bearing 6002 2RS	ČSN 02 4630	150 621	2
43	Spring	TLZ 160.267.0950	150 622	1
44	Bellows BABETA		150 624	1
45	Wheel 200/20		150 626	1







	Gearbox KV-100					
Pos.	Name	Drawing-Standard	Ord. No.	Pcs		
1	Welded support	22 9 1536 037	150 064	1		
2	Welded carrier casing	22 9 1546 007	150 061	1		
3	Complete worm wheel	22 9 3226 012	123 006	1		
4	Welded arrestment lever	22 9 8044 006	150 062	1		
5	Coloured hinge	32 0 1340 018B	182 008	1		
6	Arrestment lever guide	32 0 2721 005	150 063	2		
7	Worm shaft	32 0 3214 025	150 060	1		
8	Lower part of the box	32 0 3265 001	-	1		
9	Belt pulley	32 0 3320 040	150 065	1		
10	Box body	32 0 5021 010	-	1		
11	Left fender	32 0 8545 039	150 616	1		
12	Right fender	32 0 8545 040	150 617	1		
13	Plug	32 0 9016 036	106 050	1		
14	Ring	32 0 9220 035	123 016	2		
15	Felt sealing	32 0 9220 036	123 502	2		
16	Dust seal	32 0 9621 002	123 007	2		
17	Bolt M8x45	ČSN 02 1101.55	150 619	1		
18	Bolt M8x16	ČSN 02 1103.25	106 547	2		
19	Bolt M8x22	ČSN 02 1103.25	150 565	3		
20	Bolt M6x16	ČSN 02 1103.25	189 552	6		
21	Bolt M6x25	ČSN 02 1143.50	-	4		
22	Bolt M6x16	ČSN 02 1143.50	-	1		
23	Nut M8	ČSN 02 1401.25	104 572	4		
24	Nut M6	ČSN 02 1492.25	168 516	6		
25	Washer 6.6	ČSN 02 1729.05	195 530	5		
26	Washer 8	ČSN 02 1740.05	104 574	6		
27	Washer 6	ČSN 02 1740.05	651 0920	5		
28	Woodruff key 5e7x5x12	ČSN 02 2562	186 506	1		
29	Retaining ring 25	ČSN 02 2930	131 520	1		
30	Retaining ring 22	ČSN 02 2930	125 504	2		
31	Retaining ring 20	ČSN 02 2930	602 1512	1		
32	Retaining ring 60	ČSN 02 2930	110 532	1		
33	Retaining ring 47	ČSN 02 2931	126 504	1		
34	Bearing 6005A	ČSN 02 4630	129 535	2		
35	Bearing 6005 2RS	ČSN 02 4630	135 501	1		
36	Sealing ring 14x18	ČSN 02 9310.3	106 539	1		
37	Gufero sealing 25x47x7	ČSN 02 9401.0	124 505	2		
38	Bearing INA HK 2816	DIN 618	150 618	1		
39	Spring	TZ 160.176.0624	150 620	1		
40	Cylindrical cover 14x70	VINYL-FLEX	189 578	1		
Note:	Positions 8, 10, 21, 22, 27	cannot be ordered sep	arately. The	y are		

Note: Positions 8, 10, 21, 22, 27 cannot be ordered separately. They are supplied as a complete assembly under the name COMPLETE BOX – Drawing No. 22 9 3259 008, ord. No. 150 059.







	Sprinkli	ng KV-100	)	
Pos.	Name	Drawing-Standard	Ord. No.	Pcs
1	Pump - adjustment	22 9 2380 002	150 079	1
2	Complete tank	22 9 8545 025	150 608	1
3	Holder peg	32 0 1510 010	150 055	2
4	Short sealing	32 0 1520 044	150 054	4
5	Jet holder	32 0 1530 102	150 056	1
6	"U" metal sheet	32 0 1541 022	-	1
7	Pump holder	32 0 1542 004	150 057	1
8	Pump coupling	32 0 2720 005	-	1
9	Sucker hose	32 0 4320 001	150 052	1
10	Jet tube	32 0 4320 002	150 051	1
11	Tank cap	32 0 8545 042	150 607	1
12	Pump tie-plate	32 0 9220 227	-	1
13	Retaining ring 6	BN 833 QUICKLOCK	150 605	2
14	Bolt M6x25	ČSN 02 1103.25	171 532	2
15	Nut M20x1.5	ČSN 02 1403.25	150 604	1
16	Nut M6	ČSN 02 1492.25	168 516	4
17	Washer 6.4	ČSN 02 1702.15	189 571	2
18	Pin 3x18	ČSN 02 2156	127 504	1
19	Shackle ring 5	ČSN 02 2929.05	150 606	2
20	Bolt U M6-060.029	FABORY	150 614	1
21	Spring	TZ 100.090.0350	150 602	2
22	Сар СР 25607-3-NYB		150 610	1
23	Joint 18638-111-540-NYB		150 613	1
24	Nut		-	1
25	Corner valve 956000		956 000	1
26	Bolted hook Ø17		150 603	2
27	Sealing		-	1
28	Sealing 19438-EPR		150 611	1
29	Deflection jet DT 5.0		150 612	1

Note: Position 1 is supplied only as an assembly together with Positions 8 and 18. Position 25 is supplied only as an assembly with Positions 24 and 27. Integral parts of the Position 2 – Complete tank are Positions 6, 12, 14, 15 and 16.

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### KV-100/Z KV-100



S	Sweeper cylinders KV-100						
Pos.	Name	Drawing-Standard	Ord. No.	Pcs			
1	Axial pin KV-100	22 9 9316 061	150 058	1			
2	Bolt M8x20	ČSN 02 1103.25	189 548	8			
3	Nut M12x1.5	ČSN 02 1401.25	150 615	2			
4	Washer 14	ČSN 02 1727.15	170 517	2			
5	Washer 8	ČSN 02 1740.05	104 574	8			
6	Sweeping ring flat	PP1.5 350/110	150 627	10			
7	Sweeping ring 10°	PP1.5 350/110	150 628	4			
8	Sweeping ring 20°	PP1.5 350/110	150 629	4			
9	Sweeping ring 30°	PP2x3 350/110	150 630	4			
10	Spanning ring		150 634	20			
11	Carrier frame		150 635	2			
12	Holding washer		150 636	2			





Collector								
Pos.	Name	Drawing-Standard	Ord. No.	Pcs				
1	Collector frame	22 9 1437 001	150 080	1				
2	Welded wheel suspension	22 9 1646 020	150 084	4				
3	Collector assembly	22 9 6896 008	150 631	1				
4	Lower bar	32 0 8630 022	150 082	1				
5	Upper bar	32 0 8630 023	150 081	1				
6	Dust collector	32 0 8630 024	150 083	2				
7	Locking ring 10	BN 833 QUICKLOCK	150 633	4				
8	Bolt M6x16	ČSN 02 1103.25	189 552	22				
9	Nut M6	ČSN 02 1492.25	168 516	22				
10	Washer 10.5	ČSN 02 1702.15	131 518	4				
11	Washer 6.6	ČSN 02 1729.05	195 530	29				
12	Rubber wheel 80	Cat.No. 33	150 632	4				



# **11 Letter of Guarantee**

#### To be completed by manufacturer

Name of product	Cylindrical brush sweeper				
Model	KV-100	KV-100/Z	(encircle your type)		
Serial number					
Engine serial number					
Warranty (months)					
Output control					

The above product was passed over to the purchaser without any defects including the appropriate commercial and technical documentation and accessories. The purchaser was duly informed about the principles of sound operation and technical maintenance of the product.

#### To be completed by seller

Name of purchaser	
Address of purchaser	
Purchaser's signature	
Place of sale	
Date of sale	
Seller's stamp and signature	

#### **GUARANTEE CONDITIONS**

#### Subject of warranty:

Warranty relates to the basic product including accessories supplied by VARI a.s.

#### Warranty period:

Warranty period for the product and accessories supplied with the product is 24 months from the date of sale to the purchaser if not stated otherwise in the Letter of Guarantee. Time from the enforcement of liability for defects to the date when the user was obliged to take over the thing after the end of repair is not included in the warranty period.

The seller is obliged to give the purchaser a receipt confirming the date of the right exercise and repair and the time of its duration. If the product is exchanged, the warranty period starts running again from the date on which the purchaser took over the new product. If it is a whole assembly to be replaced, the warranty period starts running for the given assembly again from the date of product take-over.

#### Scope of manufacturer's liability:

Manufacturer bears responsibility for the product having properties usual for the kind of the product in question and specified parameters for the whole period of warranty. The manufacturer does not answer for defects of the product resulting from current wear or from the product's use for purposes other than specified.

#### Warranty extinction:

#### Claim of warranty extincts if:

- a) the product was not used and maintained as specified in the Instructions for use, or it was damaged by any unauthorized operation by the user;
- b) the product was used in conditions or for purposes other than specified;
- c) the letter of guarantee for the product cannot be presented;
- d) data filled in the original product's documentation by the manufacturer, seller or service organization were intentionally falsified;
- e) a part of the product was replaced with a non-original component;
- f) the product was damaged or excessively worn due to improper maintenance;
- g) the product suffered an accident or was damaged by an Act of God;
- h) a modification was made to the product made without manufacturer's consent;
- i) defects result from improper storage of the product;
- j) defects result from natural and common operating wear of the product;
- k) the prescribed warranty inspection of the product was not made or was not made within the set-up time (this applies only for products with extended warranty period). 2 warranty inspections must be made in some products with the extended warranty period within 12 and 24 months from the date of sale at the latest. The oil change made by the service shop is a part of the inspection (the inspection and the oil charge are paid by the customer).
- 1) the product was connected to or operated with the equipment not approved by the manufacturer.

#### **Complaints:**

Complaints are applicable by purchasers at the seller's. When applying a complaint, the purchaser is obliged to submit a duly filled in letter of guarantee. Warranty repairs are carried out by sellers or by special service shops appointed by them.

#### Legislation:

Other purchaser/seller relations are ruled by relevant stipulations of the Civil Code No. 47/1992 Gaz., and/or Commercial Code No. 513/1991 Gaz. as amended.



Warranty inspection 1	Warranty inspection 1
Date:Person in charge:	• Me alaine and al
	Serial No :
Service shop stamp and signature	Senar No.
Warranty inspection 2	Warranty inspection 2
Date:Person in charge:	
	Machine model
	Serial No.:
Service shop stamp and signature	,
1 <sup>st</sup> Warranty service	1 <sup>st</sup> Warranty service
Date of complaint delivery:	Machine model
Brief description of the defect	Serial No.:
	Date:
	Repair made by:
Replaced parts (new warranty of months):	
Parts:	I
	Stamp and signature
Repair made by:	
Service shop stamp and signature	,
2 <sup>nd</sup> Warranty service	2 <sup>nd</sup> Warranty service
Date of complaint delivery:	<ul> <li>Machine model</li> </ul>
Brief description of the defect:	Serial No.:
	Date:
	Repair made by:
Replaced parts (new warranty of months):	I
Parts:	
	<ul> <li>Stamp and signature:</li> </ul>
Repair made by:	
Service shop stamp and signature	┚ <u></u> <u></u> <u></u>
3 <sup>rd</sup> Warranty service	<u>3<sup>ra</sup> Warranty service</u>
Date of complaint delivery:	∎Machine model
Date of repair:	Serial No.:
Brief description of the defect:	Date:
	Repair made by:
Deplaced parts (new warranty of	•
Parts	
	Stamp and signature:
Repair made by:	
	•
Service shon stamp and signature	
Ath Warranty service	4 <sup>th</sup> Warranty service
+ Warrancy Scivice	
Date of complaint delivery:	Machine model
Date of repair:	Serial No.:
Brief description of the defect:	Date:
	• Kepair made by:
Replaced parts (new warranty of months):	I
Parts:	·····
	Stamp and signature:
Densis made bu	I
Repair made by:	I
	-
Service shop stamp and signature	



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