



Operation Manual

Type 05



Machine no.

Models	
KM 80 H	KM 100 H

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1 Important information

We are pleased that you have selected a machine from Cramer GmbH in Germany.

Please read this Operation Manual before you use the machine for the first time and observe the notes and safety instructions.

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1.1 General

Information on this Manual

- Observing the instructions in this manual allows for the safe and efficient handling of the machine.
- The operator must have read this manual carefully and understood it before starting working with the machine.
- Compliance with the safety instructions contained is a prerequisite for using the machine without any risk.

Keeping the Operation Manual

- The Operation Manual is an integral part of the machine and shall be kept in its immediate vicinity.
- The operator must have access to this Manual at any time.

Traffic regulations

- Any applicable traffic regulations have to be complied with in regard to manoeuvring and transporting the machine on public roads.

Accident prevention regulations

- General safety and local accident prevention regulations must also be observed.
- National occupational safety regulations shall be complied with.

Other applicable documents

Installation instructions, declaration of conformity

1.2 Symbols



DANGER!

This symbol cautions against an immediate threat resulting in serious injuries or death if not avoided.



WARNING !

This symbol cautions against a potentially dangerous source of risk which may result in death or serious injury if not avoided.



ATTENTION !

Indication of a potential risk which may result in minor injuries if not avoided.

NOTE !

This symbol cautions against a potentially dangerous source of risk which may result in damage to property or minor injuries.

1.3 Limitation of liability

Liability on part of the manufacturer is excluded in the following cases:

- Non-compliance with the Operation Manual
- Use of the machine and accessory equipment not in compliance with intended purpose
- Assignment of untrained staff
- Use of unauthorized spare parts. Only original components may be used.
- Unauthorized modifications on the machine and the accessory equipment.

1.4 Copyright

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Copying of the Operation Manual is only permissible for internal training purposes.

1.5 Warranty

The General Terms and Conditions of Business as issued by us in every country shall be applicable. Failures within the statutory warranty period will be remedied by us free of charge if they are caused by a material or manufacturing defect in our responsibility. Please contact your dealer in case of a failure and submit the proof of purchase.

2.1 Use in compliance with intended purpose

The machine is approved as a sweeper for sweeping leaves, waste and snow. With the sweepings container attached, the sweeper is also approved for collecting leaves and waste.

Any use exceeding this is considered not in compliance with the intended purpose. The manufacturer shall not be liable for damage resulting from use not in compliance with the intended purpose; the risk for this shall be in the sole responsibility of the user.

Use in compliance with the intended purpose shall also include compliance with the operation and maintenance provisions specified by the manufacturer.

2.2 Possible misuse

- Do not sweep any wires, cables or heavy stones: (risk of injury and damage to the machine!)
- Do not use your foot to push any objects beneath the sweeping brushes. (Risk of injuries!)
- Do not sweep any materials which may block the sweeping brushes. (Machine damage!)

2.3 General sources of risks

2.3.1 Use and operation

- Prior to starting the machine, the machine including accessories shall be checked for their proper condition and operational safety.
- The operator shall use the machine in compliance with its intended purpose.
- Indoor machine operation is prohibited.
- The machine is only approved for floorings as indicated in the Operation Manual.
- The machine may only be operated by staff who have been instructed in its use or have provided evidence of their operating capability, and who have explicitly been instructed to operate the machine.
- When starting the motor, no other persons may be in the vicinity of the machine.
- Any protective equipment must be properly attached and in working order.
- Never leave the machine unattended.
- When leaving the machine, stop the motor and secure the machine against unintended movement.
- The operator shall be responsible for accidents involving other persons or their property.

2.3.2 Product-specific risks

- Do not sweep any highly flammable materials or hot objects (e.g. barbecue coal) - danger of life by burning!

2.3.3 Risks from motor operation

- Do not touch any parts of the motor during operation or immediately afterwards. Significant risk of burning by hot surfaces.
- Stop the motor and let it cool down before working on the machine as well as before performing maintenance, cleaning and repair work.

- Do not refill the tank when the motor is running - danger of life by burning and explosion.
- Immediately remove spilled fuel with a cloth - danger of life by burning and explosion.
- Keep fuel in designated containers.
- Exhaust gases are toxic and dangerous to health; they must not be inhaled.

2.3.4 Operating risks

- Without any accessories mounted, only use the machine on slopes of up to 12 %.
- With accessories mounted, only use the machine on slopes of up to 2 %.
- When using the machine transverse to the direction of travel, this is only possible on slopes up to 12 %.
- When operating the machines on slopes: → be careful when lifting off mounted accessories

2.3.5 Risks for children, elderly persons and pets

- The operator shall take account of surrounding conditions, e.g. the effects of noise on persons and animals.
- The machine must never be left on a slope.
- Children, elderly persons and pets/livestock must not stay near the machine.
- Children must not play with/on the machine.

2.4 Maintenance

- Servicing, maintenance and repair work as well as troubleshooting shall only be carried out when the machine is switched off and the motor is at a standstill. As required, the spark plug connectors shall be disconnected.
- The machine must not be cleaned with spray water (risk of short circuits or other damage).
- Safety checks pursuant to local regulations for non-stationary commercially used machines shall be complied with.
- Wear suitable gloves and use appropriate tools for working on the machine.
- Only use the manufacturer's original spare parts.

2.5 Staff and operator qualification

- Persons with physical, sensory or mental handicaps or persons with insufficient experience or knowledge must not operate the machine unless a person in charge for their safety acts as operation or instruction supervisor.
- People under the age of 16 must not operate the machine.
- The operator's responsiveness must not be affected, e.g. by drugs, alcohol or medications.
- The operator shall have been instructed in the operation of the machine.
- The operator shall be familiar with the Operation Manual.

2.6 Safety instructions



The operation manual and safety instructions must be read and observed prior to starting the machine.



Risk by flinging parts with running motor. Keep a safety distance of 3m.



Keep sufficient distance to hot surfaces.

2.7 Required protection equipment

- Rugged footwear
- Close-fitting clothing
- Ear protection
- Safety gloves
- Protection goggles

2.8 Safety devices

- Do not remove any covers during operation.
- Immediately remedy any damage to safety devices.

2.9 Behaviour in case of fire

1. Stop immediately.
2. Switch off the motor.
3. Leave the machine.
4. Remedy the risk situation.

2.10 Environmental protection

- Oils, fuels, greases and filters shall be disposed of properly and separately in accordance with legal regulations. Please do not dispose of any wastes in the environment.
- Packaging materials are recyclable. Please make sure that they are collected for reuse.
- Legacy devices contain valuable recyclable materials which should be collected for reuse. These devices may be disposed of through appropriate collection systems.

3 Design and function

3.1 Brief description

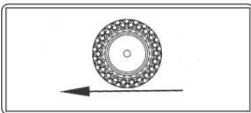


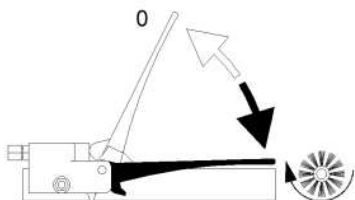
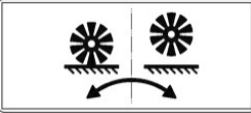

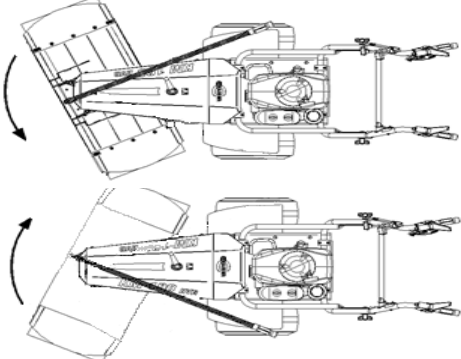


The sweeper may be used for sweeping and collecting (if a sweepings container is mounted) loose dirt. It also serves as an excellent tool for clearing snow. The machine is driven by a petrol engine. The drive is continuously adjustable and the brush function can be activated using an operating lever. The sweeping brushes are adjustable in five positions.

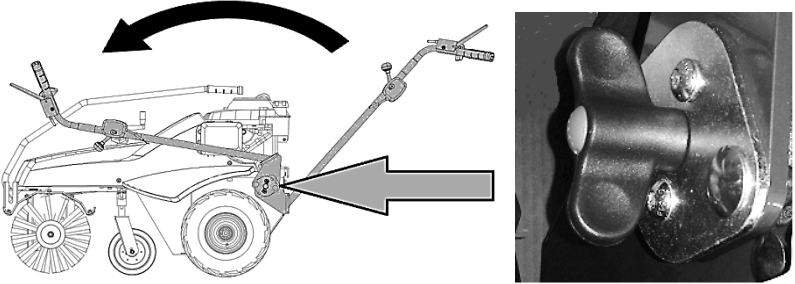
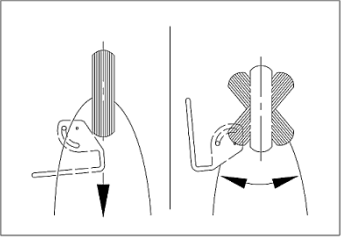

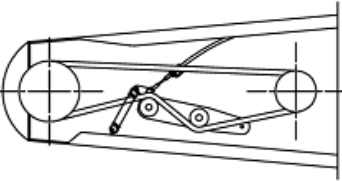
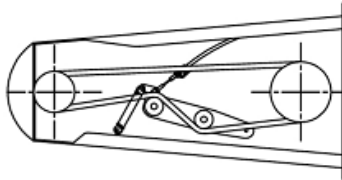

3.2 Overview

- 1 Turning handle for drive
- 2 Operating lever for brush speed
- 3 Brush height adjustment
- 4 Swivel bracket for brush adjustment
- 5 Attachment points for accessories
- 6 Hand throttle for motor capacity (choke)
- 7 Support wheel adjustment
- 8 Steering bracket
- 9 Drive wheel



3.3 Operating elements for all models

<p>1. Turning handle for drive</p> 	 <p><u>Right-hand handle for drive with continuous speed regulation</u></p> <ul style="list-style-type: none"> ➤ Turn to the right: Continuously increase machine speed ➤ Turn to the left or release handle: Machine is at standstill
<p>2. Operating lever Brush speed</p> 	 <p><u>Lever on the left for brush activation</u></p> <p>Lever released: Brush is at standstill: Lever activated: Brush turns</p>
<p>3. Brush height adjustment</p> 	 <p><u>Turn crank to required setting</u></p> <ul style="list-style-type: none"> ➤ Turn right → Lift brush ➤ Turn left → Lower brush <p>Use the star screw to secure the setting.</p>
<p>4. Swivel bracket for brush adjustment</p>	 <ol style="list-style-type: none"> 1. Lift swivel bracket (disengage) 2. Select setting (centre, left, right) 3. Push back bracket (engage)
<p>5. Attachment points for accessories</p>	 <p>Mount accessories in the provided elongated hole guide and secure them by R-clips.</p>
<p>6. Hand throttle for motor capacity</p>	 <ul style="list-style-type: none"> N Choke (to start the motor) ▲ Full throttle (setting for sweeping operation) ▼ Idle (when not sweeping) O = (motor switched off)

<p>7. Release and tilt back steering bracket (for transport and storage)</p>	<ol style="list-style-type: none"> 1. Release wing bolts. The wing bolt is located on the right and left above the drive wheel 2. Hold Bowden cable at the right and left of the motor block 3. Carefully turn steering bracket to motor cover (observe Bowden cables!) 4. Position swivel bracket as shown in figure 5. Tighten wing bolts. 
<p>8. Support wheel adjustment</p> 	 <p><u>Lever pointing right</u> Support wheel can be moved freely Travel is possible in all directions</p> <p><u>Lever pointing left</u> Support wheel is fixed Direction of travel is straight, helpful with inclined brush setting</p>
<p>Changing the brush speed for varying operations</p>  <p>Low speed (for sweeping dirt)</p>  <p>High speed (for clearing snow). This setting is factory assembled.</p>	<p><u>For the various brush speeds, the V-belt runner must be routed over the V-belt pulley shown in the illustration.</u></p> <ol style="list-style-type: none"> 1. Switch off the machine (turn throttle to O) 2. Completely unscrew the crank 3. Remove the 4 fastening screws at the side 4. Remove the cover 5. Reposition the V-belt on the other V-belt pulley 6. The V-belt must be routed as shown in the illustration 7. Secure the cover using the 4 screws. 8. Screw in the crank. 

3.4 Working position and areas of risk

Working position:

Behind the machine on the handles

Areas of risk:

- Catchment area of sweeping brushes
- Ejection area of sweeping brushes

3.5 Accessories and spare parts

Original parts

Only original spare parts and original accessories may be used.

4 Delivery, transport, storage

4.1 Delivery

Risk of high dead weight

- The machine must not be lifted manually.
- Pull the machine off the transporter by its handles.

Transport inspection

- Check the machine for completeness and potential damage upon delivery.
- Assembly and start-up have to be performed by a specialist dealer and/or an expert in this field.

4.2 Transport

Transport without packaging

- Shut down the machine.
- Fix the machine by using lashing straps.

4.3 Storage (short-term)

- Do not store the machine in the open air
- Do not expose it to aggressive materials
- Clean machine with a soft brush before start up.

4.4 Storage (long-term)

The following recommendations will help to ensure the long-standing functionality of your Cramer machines:

1. Ensure that fuels are prepared for long-term storage (longer than 30 days), e.g. add fuel stabilizer.
2. Clean the machine - Important! Also clean the underbody and sweeping brushes.
3. Renew motor oil
4. Treat spark plugs
5. Check machine for wear, repair paint damage
6. Store the machine when it is dry.

Please refer to the attached motor operation manual for instructions on how to care for the motor!

5 Start up (first machine inspection)

5.1 Safety


Unauthorized restart

- It is prohibited to start the machine while another person is working on it.
- When the sweepings container is emptied, the machine must be switched off.

Risks of insufficient order and cleanliness

- Clean the machine from dried dirt and sand regularly.
- Check the machine for blocking objects.

Risks of non-applied protection devices

	WARNING !
	Risk of injuries by rotating brushes and V-belts!
Parts of the body may be seized if you reach into the brushes or V-belts. Lack of covers may cause injuries by flinging materials.	
✓ Do not reach into the brushes during operation. ✓ Do not open or remove any covers during operation.	

5.2 Requirements at location of use

- Only leave the machine on plane surfaces and solid ground.
- Only mount accessories on plane surfaces and solid ground.

5.3 Assembly

Please observe the Assembly Instructions in the Annex of this Operation Manual.

5.4 Start-up

Start the machine.

1. Fill the fuel tank
2. Check motor and oil level (see Motor Operation Manual)
3. Put on protection equipment
4. Push throttle to CHOKE
5. Slightly pull starter lever to resistance
6. Strongly pull starter lever
7. Carefully return starter lever
8. Motor is running
9. After a short time, move throttle to FULL THROTTLE
10. The machine is ready for use.

6 Operation

6.1 Activities prior to use


Basic setting

- ✓ Height of sweeping brush is set
- ✓ Fuel tank is filled
- ✓ Throttle is set to **O**.

6.2 Start and stop

Start
<ol style="list-style-type: none">1. Move throttle to Choke2. Pull starter rope3. Motor is running4. Move throttle to FULL THROTTLE
Stop
<ol style="list-style-type: none">1. Move throttle to O2. Motor is off
Emergency stop
Immediately move throttle to O .

6.3 Normal operation

	WARNING !
	Risk of injuries by highly flammable materials and heat!
Materials coming into contact with a hot surface may result in serious burns on the body when they inflame; e.g. hot or burning materials such as coal.	
<ul style="list-style-type: none">✓ Keep highly flammable materials away from the machine.✓ Do not move the machine over any spilled fuel or similar substances.	

Start the machine.

- Activate brush drive.
- Activate operation drive handle.
- Move machine across the area to be swept
- Adjust brush on the left or right in order to sweep dirt aside.

Stop machine.

6.4 Brush settings

Height setting of sweeping brush by adjusting the support wheel:

- The bristles of the sweeping brushes should just touch the ground
- Turn crank to the left: Sweeping brush is lowered
- Turn crank to the right: Sweeping brush is lifted.

An excessively low setting results in an overload of the drive and in inappropriate wear of the sweeping brushes.

6.5 Brush inclination

In order to sweep dirt to a specific side:
Set brush to the left or to the right.

6.6 Activities after use

1. Stop the motor.
2. Where applicable, close the petrol tap.
3. Roughly remove dirt and sand by using a soft hand brush.
4. Check the general condition of the machine and remove any tapes or wires wrapped around the brushes
5. The machine must be left in a clean and dry condition.

7 Maintenance

7.1 Safety



DANGER !

Risk of injury by inappropriately performed maintenance work!

Defective work may result in serious bodily injuries and damage to property.

- ✓ Make sure that you have sufficient working space.
- ✓ Disconnect spark plug connectors when working on the machine
- ✓ Place components separately.
- ✓ Remount all components.
- ✓ Remount all safety covers.
- ✓ Keep the risk area clear of persons.

7.2 Maintenance plan

Maintenance	Prior to each use	Annually	Intervals in hours			
			25	50	100	200
Cleaning	X (Item 7.3.1)					
Check safety precautions	X (Item 7.3.2)					
Check all screws for tight fitting	O					
Check motor oil level	B					
Check air filter	B					
Clean or replace air filter (normal use)					B	
Clean or replace air filter (dusty conditions)			B			
Adjust tyre pressure	O					
Check sweeping brushes for tapes wrapped around	O					
Check sweeping brush height adjustment	X (Item 6.4)					
Check sweeping brush for wear		O				
Check and adjust Bowden cables						F
Grease rotating points and joints		O				
Grease Bowden cables						O
Check machine for fuel or oil leaks	O					
Replace fuel filter					B	
Replace spark plugs					B	


X = Described in this Operation Manual in the indicated section.

O = Not described in the present Operation Manual

B = Description is enclosed in attached motor operation manual.

F = Work may only be performed by a qualified expert in this field.

7.3 Maintenance work

	ATTENTION!
	Risk of injuries by combustion motors
Cleaning and repair work must never be carried out during operation or when the machine runs idle, since this may result in burns and cuts.	
✓ Stop machine and motor and let them cool down	

7.3.1 Machine cleaning

NOTE !
Machine damage!
Do not clean the machine with spray water.

- ✓ Wipe off machine with a soft brush or a damp cloth.

7.3.2 Check safety precautions

Safety precautions comprise:

- Covers of brushes (including rubber strips)
- Covers of drive wheels
- Cover of belt drive.

The machine must not be operated if the covers show any signs of damage or are removed. They are to be replaced in case of damage or loss. The machine must not be started without safety precautions.

8 Troubleshooting

8.1 Safety

Procedure for failures and accidents

- 1 Initiate emergency stop (leave working position).
- 2 Stop the machine.
- 3 Determine the failure cause.
- 4 Remedy failure or contact authorized dealer.

8.2 Service address

Please contact your sales consultant in case of failures, problems or otherwise. Please always indicate the machine serial no. in inquiries. (Please refer to nameplate on the machine or on the Operation Manual cover).

8.3 First action for troubleshooting

Failure / Error message	Remedy	Notes
Motor does not start Low motor capacity	Check throttle setting. Refill tank. Open fuel tap (Honda motor). Drain spoiled or old fuel from tank and carburettor; add fresh fuel. Check and clean spark plug; replace if required. Check air filter; replace if required. Check Bowden cable to motor. Fuel line clogged or water in fuel - drain line and tank and refill fuel. Notify Cramer specialist dealer.	Observe motor manufacturer's Operation Manual!
Motor becomes excessively hot.	Carburettor needs readjustment. Check and fill up motor oil.	
Motor is running, but machine does not move. Drive performance weak	Adjust Bowden cable of operation drive. Notify Cramer specialist dealer.	Notify authorized dealer if failure persists. Only use original spare parts!
Machine does not sweep properly Heavy wear on brush	Check sweeping brush for wear; replace if required. Lower and/or lift sweeping brush by height adjustment. Re-adjust Bowden cable of sweeping drive. Notify Cramer specialist dealer.	
Significantly reduced brush speed	V-belt slips → Tighten belt using adjustment screw on brush drive lever.	
Brushes are rotating	Adjust Bowden cable at set screws of belt tensioner.	
Sweepings container performs unsatisfactorily.	Correct rubber strip seat of sweepings container. Check sweeping brush height adjustment	
Snow is thrown under the machine	Use snow plow when snow is too high. Set brushes to the very left or right.	

9 Technical data

	KM 80 H	KM 100 H
Machine data		
Length x Width x Height, cm	111x83x77	11x103x77
Deadweight (transport weight), kg	84	86
Drive speed Forward km/h	0 - 4	0 - 4
Brush speed for dirt / snow rpm.	130 / 260	130 / 260
Climbing power, max %	12	12
Climbing power with accessories, max %	2	2
Working width, cm	80	100
Support wheel	360° freely rotatable / lockable	
Brush is adjustable	Left , Centre , Right	
Motor		
Model	Honda GCV 160	Honda GCV 160
Engine size, cm ³	160	160
Max. motor speed, rpm	3000	3000
Min. motor speed, rpm	1350	1350
Net capacity KW/HP at 3600 rpm	3.3 / 4.4	3.3 / 4.4
Max. permanent capacity KW/HP	2.1 / 2.8	2.1 / 2.8
Fuel type	Regular petrol, lead-free	
Tank contents, litres	0.91	
Spark plug	BPR 6 ES (NGK)	
Motor oil type	SAE 10W30	
Motor oil filling quantity, litres	0.55	
Tyres		
Drive wheel	13x5.00-6	
Air pressure, bar	1.8	
Support wheel	180x50-100	
Wheel drive	Continuously adjustable drive	
Ambient conditions		
Temperature, °C	-5 to +40	
Working ground	Asphalt, industrial flooring, floor screed, concrete, pavement	
Application area	Normal use in facilities and landscaping maintenance	
Noise emission		
Guaranteed acoustic power level, dB	96.6	96.6
Sound pressure level at operator ear, dB	84.1	84.1
Hand-arm vibration, m/s ²	3.7	4.2
Responsibility limits for components: Motor	Honda	Honda
Year of construction	See machine nameplate	
Technical modifications reserved!		

EU Declaration of conformity pursuant to machine directive 2006/42/EC Annex II 1-A

The authorized party with residence in the EU,

**Cramer GmbH
Reimersstr. 36
D-26789 Leer**

herewith declares, that the following product

Manufacturer: Cramer GmbH
Reimersstr. 36
26789 Leer

Product designation: Sweeper

Make: Cramer GmbH

Serial number: see cover nameplate

Type(s): KM 80 H, KM 100 H

complies with all relevant regulations of the above-stated Directive as well as all other applicable Directives - including their amendments applicable at the date of this declaration.

The following other EU Directives were applied:

EMC Directive 2004/108/EC
EU Directive 2000/14/EC

The following harmonized standards were applied:

EN 12733:2001+A1:2009
EN 349:1993+A1:2008
EN 55012:2007/A1:2009
EN 953:1997+A1:2009
EN ISO 12100:2010
EN ISO 13857:2008
EN ISO 3744:2010
DIN EN ISO 5349-2

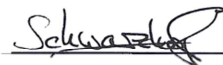
Name and address of person authorized to compile the technical documentation:

Andre Schwarzkopf
Cramer GmbH
Reimersstraße 36
26789 Leer

Place: Leer
Date: 21/01/2014



A. Bruns
Managing Director



A. Schwarzkopf
CE Officer

Sweeping brush installation for KM 80 H, KM 100 H

Delivery, packaging, assembly



ATTENTION!

Squeezing hazard during installation!

Parts of the body may be squeezed when components are mounted.

- ✓ Wear close-fitting clothing and protection gloves during assembly.

Risk of high dead weight

- The machine must not be lifted manually.
- Pull the machine off the transporter by its handles.
- Remove machine parts separately from packaging.

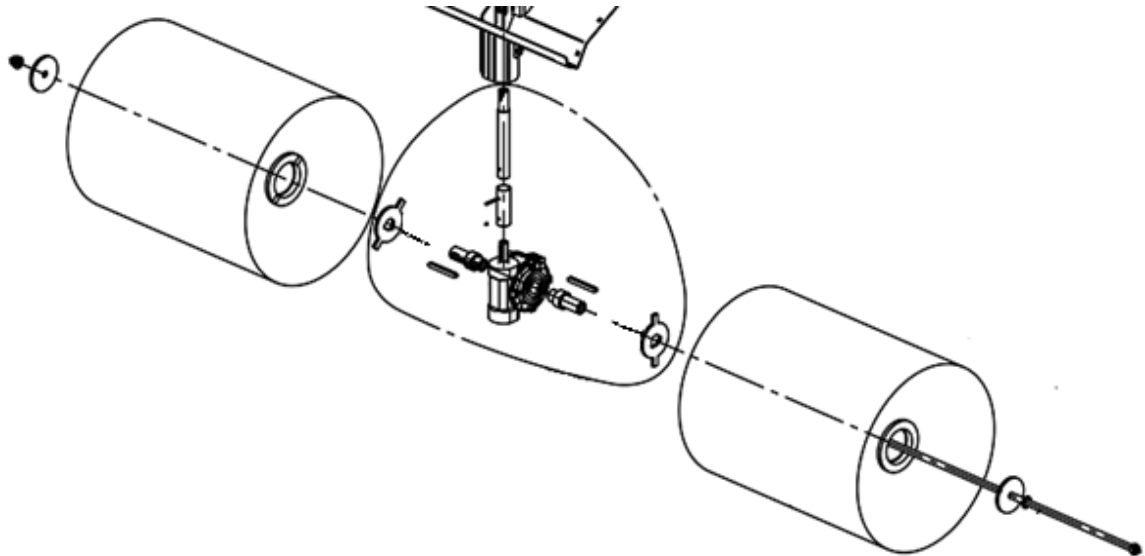
Transport inspection

- Check the machine for completeness and potential damage upon delivery.
- The machine shall be supplied to the specialist dealer in a partially assembled condition.
- Assembly and start-up have to be performed by a specialist dealer and/or an expert in this field.

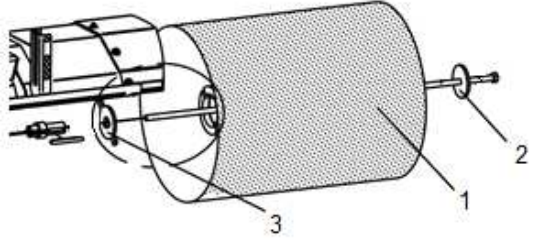

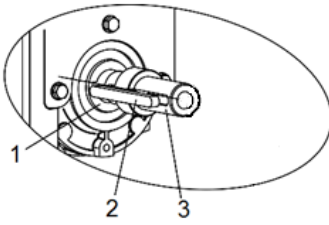
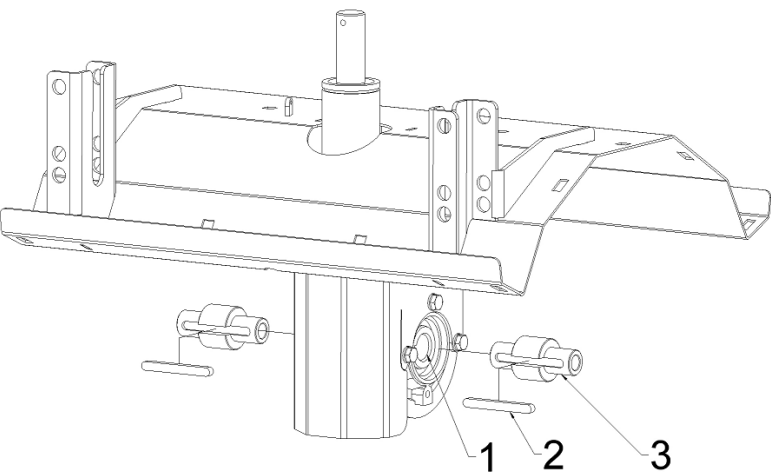
Packaging

- Please dispose of packaging materials separately.

Overview



<p>1. Right brush</p>	<p>1. Right brush overview</p>		<p>1. Right brush 2. Washer 3. Washer with nibs</p>
	<p>2. Press-fit the washer with nibs (no. 1) into the hollow body recess of the right brush. Lightly hit on it as needed.</p>		<p>1. Washer with nibs 2. Washer 3. Recess</p>
	<p>3. Press-fit the washer (no. 2) in the recess on the outside of the right brush.</p>		

<p>2. Left brush</p>	<p>1. Left brush overview</p>		<p>1. Left brush 2. Washer 3. Washer with nibs</p>
	<p>2. Press-fit the washer with nibs (no. 1) into the hollow body recess of the left brush. Lightly hit on it as needed.</p>		<p>1. Washer with nibs 2. Washer 3. Recess</p>
<p>3. Assemble left and right brush shaft!</p>	<p>1. Plug feather key into brush shaft groove. 2. Plug brush shaft into gear boring on the left and right by using feather keys.</p>		<p>1. Gear boring 2. Feather key 3. Brush shaft</p>
<p>Overview</p>			
<p>4. Brush assembly</p>	<p>1. Push pre-assembled brushes on brush shafts. 2. Push threaded rod through entire brush unit 3. Finally, place one washer and the locking nut onto the end of the threaded rod and tighten.</p>		