Landmaster
Flailmower

EC Declaration of conformity for machines

Manufacturer: Votex B.V.
Adresse : Groen 2
Code postal : 6666 LP
Town: HETEREN (Netherlands)

declare that the following machines

Votex Landmaster types : 240 - 275 and 310
nr…….

- meets the requirements of the directive

  Directive 98-37-EC

  and the national legislation concerning the execution of this directive

- meets the requirements of further EEC directives (only fill in if applicable)

and further declare that ;

the following (parts of) harmonised norms have been applied

- EN 292-1 1994 / EN 292-2 1996
- EN 745 1999

Heteren …….

…….
(signature)

P.Krieckaert
General Manager.

User's Manual and Parts List
Votex Landmaster

Applicable to the following types:

Landmaster 275
Landmaster 310

delivered after 01 January 2005

VOTEX B.V.
P.O. Box 30
6666 ZG HETEREN
The Netherlands
tel +31(0)26-4790600
fax +31(0)26-4790602

HK 001

Internet : www.votex.nl
E-mail : export@votex.nl

Index

1. Introduction

You have acquired a Votex Landmaster flail mower. We wish you much success with this mower and thank you for your confidence in our organization. This manual is intended for end users and service engineers. Work that may only be done by service engineers is indicated as such in this book.
This manual contains complete information about safety, operation and maintenance of the Votex Landmaster flail mowers. We urge you to study this manual carefully, and then keep it in a safe place for future reference.
Following the rules and recommendations herein described will ensure a properly operating machine and reduce the risk of accidents!
The Votex Landmaster flail mower is a machine with which plant growth is struck off by flails fixed to a fast-rotating shaft, then shredded and thrown back to the ground through a hood.
The machine is intended to be used with tractors with a minimum wheel track of 1.50 m. It enables you to mow and shred grass, weeds and wood wildshoots having a maximum diameter of 5 cm.
The machines have been designed for mowing on:

- verges
- airfields
- fallow grounds and other stretches of grass

Important! Any other use is not in accordance with the intended purpose!

The tractor operator must be appropriately qualified and have experience in driving tractors.

The Votex Landmaster flail mower must not be used for mowing operations in the vicinity of areas presenting fire and/or explosion hazards.

The flail mower may be used only when the ground roller rests on the ground with its full width.

Votex B.V. is constantly working on improving its products. They therefore reserves the right to make any such changes, modifications and/or improvements asthey consider necessary. However, this does not imply any obligation on its part to make such changes, modifications and/or improvements to machines previously supplied.

2. Safety.

2.1. Safety instructions.

This symbol points to acute danger to the life and/or health of human beings and animals!

This symbol is a warning of possible damage to the mower if the user does not follow the instructions.

This gives the user suggestions/recommendations for performing certain tasks safer and easier.

- Study the user's manual thoroughly so that you will be aware of situations that may cause danger. Make sure you are familiar with the operation of the tractor, and, in particular, how to stop it in an emergency. Pass all safety instructions on to other users!
- Never let the rotor shaft run when the ground roller is not resting on the ground with its full length!
- The exhaust gases of combustion engines contain carbon monoxide, an odourless and lethal poison. So, never let the tractor engine run in a confined space.
- In addition to the specific directions contained in this user's manual, also observe the general regulations in force with regard to safety and the prevention of accidents!
- The pictograms on the machine provide important directions for safe use. Following these directions will serve your own safety. Replace any damaged pictograms!
- Wear ear protectors at noise levels exceeding 85 dB(A)! Never when using public roads, however!
- When using the machine, wear as much as possible close-fitting clothes!
- When using public roads, always observe the road traffic regulations in force!
- Tractors with machines attached to them may be driven only by appropriately qualified persons with sufficient experience!
- Observe the maximum admissible transport dimensions!
- If necessary, fit a lighting beam and/or warning signs!
- For road transport, put the machine into the appropriate position and lock it in accordance with directions (see chapter 4)!
- When driving on the road with the machine raised, make sure the operating lever of the lifting device has been secured against unintentional lowering!
- If necessary, fit front weights. Always do so in accordance with the instructions of the tractor manufacturer.

Observe the requirements for the maximum admissible axle load/total weight and the minimum front axle load required (road traffic regulations)!

- Do not take any passengers to ride along with you on any part, irrespective of their age!
- Hoses and cables for cylinders and lighting are to be disposed in such a way that they cannot be damaged under any transport and operating conditions. Be especially mindful of the fact that wrongly placed hoses may activate unintended movements or impede necessary functions!
- When taking bends, always bear in mind the greater width and length of your tractor and the greater mass (inertia) of the tractor + mower!
- Before driving off and putting the mower into operation, look around the mower and the tractor, making sure there are no persons within the working range. Make sure you have an unobstructed view!
- It is prohibited to come within the mower's working and danger range.

Keep your distance! Objects (stones and the like) may be hurled away.

- Operate the mower only when it is complete and all safeguards are intact.
- After bumping into an obstacle, check the mower for any damage.
- Immediately repair any damage before resuming working with the machine!

RESIDUAL RISK! The safety guards on the Votex mowers meet the relevant requirements as set by the European Commission!
Nonetheless, there will be some residual risk to be taken into account. Objects in the terrain may be picked up and hurled away by the flails! This may cause serious injury or damage up to a distance of about 50 metres!
In order to minimize this risk, act in accordance with the following safety recommendations:

1. Always proceed in accordance with the requirements of the road maintenance authority and observe the local ordinances and regulations.
2. If possible, close off roads, cycle paths, footpaths or bridle paths. If this is not feasible, use a mobile road barrier so that road users will stay at a safe distance from the machine.
3. Close off navigable waterways when you have to mowe along them. If this is not feasible, put up warning signs!

- The speed must be adapted to the terrain and working conditions!
- It is dangerous to work with the tractor on slopes! In order to prevent the tractor from toppling over on slopes, bear in mind the following points.
  - Do not accelerate abruptly or brake suddenly when driving up or down a slope!
  - Slowly let in the tractor-drive clutch and never drive down a slope without having put the tractor into a gear!
  - When driving the tractor on slopes and in bends, adjust your speed accordingly!
  - Especially on slopes, always be alert to bumps, holes and other hidden dangers.
  - Control of a tractor already sliding down can never be regained by braking!!
  - Do not mow on slopes having a gradient of more than 5%!

- Mow only in daylight or good artificial light!
- In transport, the PTO shaft must be switched off and the rotor shaft must be completely at rest!

Stay outside the link-motion range of moving parts!

- Make sure to avoid toppling over! Work only on sufficiently solid ground!
- The following measures must be taken when leaving the tractor and/or when work is to be done on the machine or universal joint shaft:
  - Switch off the PTO shaft.
  - Put the gear lever of the tractor into neutral.
  - Pull the parking brake of the tractor.
  - Set the machine entirely down.
  - Stop the tractor and remove the key from the ignition lock.
  - Always wait for the rotor shaft to stop completely before approaching the machine!

Machine is still coming to standstill! Stay away from rotating parts until they have stopped completely!

- Make sure the supporting leg is in the lower locked position when coupling or uncoupling the mower!
- Proceed very carefully when coupling and uncoupling the mower. Be particularly alert to the danger of getting trapped due to accidental operation of the lifting device. Secure the machine laterally by sufficiently tightening the stabilizers.

Universal joint shaft:

- Only use the universal joint shaft with freewheel specified by the manufacturer.
- Protecting tubes and guards at the universal joint shaft and the guards on tractor and machine must be properly fixed and in good condition!
- Ensure the specified overlapping of universal joint shaft halves and protecting tubes, both in the transport and operating position (see user's manual of universal joint shaft manufacturer).
- The universal joint shaft may be coupled and uncoupled only when the tractor engine has stopped, the ignition key has been removed, and the machine rests on the ground.
- Always ensure that the universal joint shaft is properly mounted and locked!
- Secure the guard of the universal joint shaft against turning with the shaft by fastening both chains to a fixed point on the tractor and machine sides!
- Before switching on the PTO shaft, make sure that the speed and direction of rotation of the PTO shaft correspond to the machine to be driven! The speed and direction of rotation are indicated on the mower by a pictogram!
- The rpm indicated must never be exceeded!
- Never switch the PTO shaft on when the engine is not running!
- Stay away from a rotating universal joint shaft!
- Always switch the PTO shaft off when the angles of the universal joints threaten to become too great!
- Place the uncoupled universal joint shaft into the bracket provided for this purpose on the three-point linkage!
- Fix the protective bush onto the PTO shaft of the tractor as soon as the universal joint shaft has been uncoupled!

Hydraulic system

- A hydraulic system operates under high pressure!
  If a leak occurs in it, depressurize the system immediately, collect oil leaking away, and replace defective parts!

Never put your finger to a hydraulic leak!
Liquid under high pressure easily penetrates skin and clothes, and causes serious injury. If this should happen, consult a physician immediately! Oil leaking away is quite harmful to the environment! Take measures to prevent oil leakage!

- Regularly check hydraulic hoses, lines and all connections. Replace them when damaged or aged. New hoses must meet the technical requirements of the manufacturer!
- Shut down the tractor engine, remove the ignition key and depressurize the hydraulic system before coupling or uncoupling the machine or before doing any work on the hydraulic system.
- Immediately fit dust caps onto disconnected hydraulic hoses.
- Lay hoses in such a way as to exclude any soiling and damage!

Maintenance and inspections:

Maintenance and inspections on the underside of the machine must never be carried out when the machine is held only by the tractor lifting device. Always take special precautions in order to prevent an unexpected lowering of the machine. Use a tackle or horse whose minimum carrying capacity exceeds or is equal to the mass of the machine (See type plate).

Vibrations in the mower are usually caused by the rotor shaft being out of balance. These vibrations may cause serious damage to the mower. When during mowing operations there is a clearly noticeable increase in vibrations or change in sound produced by the mower, stop operations immediately, locate the cause and eliminate it before continuing the work!

- Regularly check flails, flail brackets, bolts and flail mounting plates on the rotor shaft for wear. For minimum dimensions required, see chapter 7.1!
- Make sure the rotor shaft is provided with all flails equally worn off!
- Damaged and worn flails, flail brackets and bolts must be replaced immediately!
- Immediately replace rotor shafts that are out of balance or rotor shafts with worn mounting plates!
- Regularly check the metal protecting flaps of the cutting head, and replace them if showing too much wear.
  It is prohibited by law to work with this machine without protecting flaps/guards or if they are worn!!
- Only such persons are allowed to work with and/or on the mower as are perfectly familiar with it and well aware of possible dangers!
- Any and all work to be done on the mower is allowed to be carried out only with solid and proper tools!

2.2. Pictogramms (see figure 2.1.):

1. Before putting the machine into operation, read the user's manual and safety instructions and observe them. (Votex no. 20.10.604)

2. Direction of rotation and maximum PTO shaft speed 540 rpm (Votex no. 20.10.600) for rear mounting.
For 1000 rpm (Votex no. 20.10.602)

3. Do not touch any rotating parts before the machine has come to a standstill (Votex no. 20.10.605)!

4. Keep your distance from a rotating rotor shaft. (Votex no. 20.10.606)!

5. Never come within the link-motion range of moving parts. (Votex no. 20.10.608)!

6. Before carrying out any maintenance and repairs, shut down the engine and remove the ignition key. (Votex no. 20.10.609)!

7. Lift the machine only at the lifting lug. (Votex no. 20.10.610)

8. When operating the lifting device, stay outside the lifting range of the three-point linkage. (Votex no. 20.10.611)!

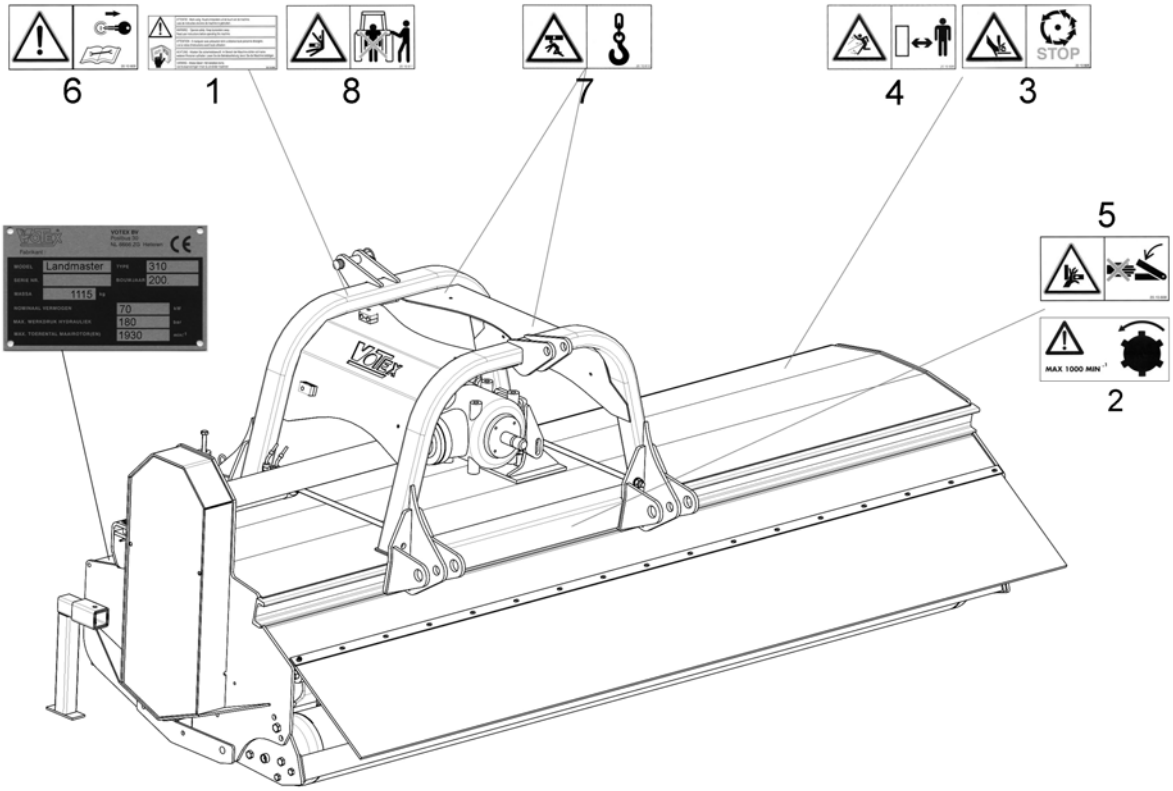
2.3. Type plate.

The type plate is provided on the top frame beam, see figure 2.1.

The plate contains the following data:

- Brand name : VOTEX
- Name and address of manufacturer : Votex B.V.
  Groen 2
  6666 LP HETEREN
  The Netherlands
- CE marking : CE
- Model : Landmaster
- Type : 275 or 310
- Serial number :
- Year of construction :
- Mass : 1020 or 1115 kg
- Nominal output : 60 or 70 kW
- Max. hydraulic operating pressure : 180 bars
- Max. R.P.M. of cutting rotor : 1830 rpm

Figure 2.1 : Pictograms and type plate on the machine



3. Technical specifications

Type Landmaster	275	310
Working width m	2.73	3.08
Transport width m.	2.99	3.31
Cutting height setting cm	2.5 - 7.5	2.5 - 7.5
Mass kg	1025	1115
Mounting category	II or III	II or III
Mounting	Front/pulled	Front/pulled
Nominal outpput	60 kW	70 kW
Max. range (from centre of tractor) cm	183	215
PTO shaft rpm	1000	1000
Max. rotor shaft rpm	1930 rpm	1930 rpm
Number of flails	30	36
Hydraulic connection	1x DW max. 180 bars	

For all types, the sound pressure produced at normal operating speed amounts to 94 dB(A), measured at a height of 1.60 m and at a distance of 1 m from the mower.

4. Transport and storage of the mower.

Transport is to take place with the rotor shaft standing still and the lateral-movement cylinder in the longest position (mower as narrow as possible).
The mower (when not coupled to a tractor) may be moved only when the following conditions have been met:

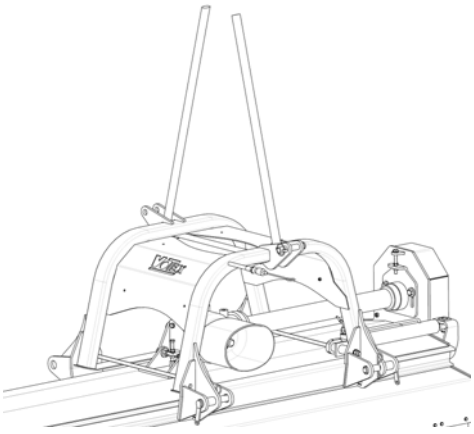
- supporting leg in lower position and locked,
- side-shift cylinder in the longest position (mower as narrow as possible),
- universal joint shaft, if mounted, in the bracket provided for this purpose on the three-point linkage.

When not coupled to a tractor, the mower can only be moved by lifting it, for which a sling is laid under the two three-point brackets. Make sure that the sling runs between the plates of the top-bar mounting so that it cannot move. (see figure 4.1)
Before lifting the machine, always put it into the narrowest position with the side-shift cylinder. For the lifting operation, use a lifting gear and slings having a lifting capacity exceeding or equal to the mass of the mower. For this, see the type plate on the machine.

Attention!

Place the mower on horizontal solid ground with a minimum strength of 400 kPa (ca. 4 kg / cm²).

Figure 4.1
Lifting lugs



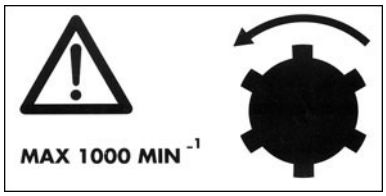
When the mower is to be stored, it is advisable slide the side-shift cylinder fully inwards in view of the risk of damage or corrosion.
If this is not possible, the cylinder rod must be lubricated with vaseline in view of the risk of corrosion.

For winter storage, we refer to chapter 7.9.

5. Putting the mower into operation.

Prior to coupling the mower, check whether the data on direction and speed of rotation as stated on the machine (see figure 5.1.) correspond to the direction and speed of rotation of the tractor PTO shaft.

Figure 5.1
Speed and direction of rotation of PTO shaft



5.1. Coupling the mower to the tractor.

The Votex Landmaster flail mower can be mounted to tractors using a cat. II or III linkage mechanism.

To couple the mower to the tractor, proceed as follows:

- place the tractor in front of the mower so that the drawbars can be coupled to the machine,
- pull the parking brake of the tractor and put the gear lever(s) into neutral,

Danger!

When operating the linkage mechanism, stay outside the lifting range of the three-point linkage.

- fix both drawbars to the mower using the lifting-arm pins and fit the spring clips,
- turn off the tractor engine and remove the ignition key,
- mount the universal joint shaft and both chains of the guard,
- mount the top bar and top-bar pin(s) and secure them,
- adjust the machine horizontally by turning the top bar,
- reduce the lateral play of the mower in the three-point linkage to a minimum.

5.2. Connecting the tractor hydraulic system.

Before connecting the hydraulic hoses, turn off the tractor engine, remove ignition key, and depressurize the tractor hydraulic system!
The hydraulic hoses of the Votex Landmaster are provided with 1/2" BSP connectors. The female connectors should be on the tractor. A double-acting control valve is required for the lateral movement of the cutting head.
Any costs to be incurred for adapting the tractor hydraulic system will be for account of the user.

After disconnecting the hydraulic hoses, the dust caps included in the delivery must be pushed on the quick connectors so as to prevent sand and dirt from getting into the tractor hydraulic system.
Damage to the tractor hydraulic system cannot be charged to the manufacturer.
Normal use of the Votex Landmaster flail mower will not lead to the tractor hydraulic system being loaded heavily.

5.3. Mounting the universal joint shaft.

Before mounting the universal joint shaft, turn off tractor engine and remove ignition key!
Use the universal joint shaft of the Votex Landmaster flail mower in accordance with the manufacturer's instructions.
The freewheel is incorporated in the gearbox. Make sure that universal joint shaft connections are well secured to tractor and mower. Only use a complete universal joint shaft guard provided with securing chains which must be firmly fastened to the tractor and mower so that it cannot turn with the shaft.
Take into account all angles that the universal joint shaft can conceivably form.
In addition, both the tractor and the machine must be provided at the shaft ends with solid guards overlapping the universal shaft guard by at least 50 mm.

The universal joint shaft must not be too long. To determine the proper shaft length, the upward movements and swinging of the machine and the turning inwards and outwards of the top bar must be taken into account. For mounting, shortening and maintenance, see the user's manual of the universal joint shaft!

6. Working with the mower.

After the initial 8 running hours, retighten all bolt connections (bolt-connection tightening moment for flail mounting: 80 Nm)!

6.1 PTO shaft speed.

The PTO shaft speed indicated on the machine must never be exceeded!

The PTO shaft speed indicated on the machine corresponds to a rotor-shaft speed of approx. 1930 rpm, which ensures the best cutting action.

6.2. Adjusting the cutting height.

The cutting height of the Votex Landmaster flail mower can be adjusted by altering the ground-roller supports in relation to the cutting head.

6.3 Vibrations in the machine.

When during mowing operations there is a clearly noticeable increase in vibrations or change in sound produced by the mower, then stop operations immediately, locate the cause and eliminate it (see 7.1) before continuing the work!

6.4 Uncoupling the mower.

Place the mower on horizontal solid ground with a minimum strength of 400 kPa (ca. 4 kg/cm²)

Be alert to residual pressure when uncoupling hydraulic hoses!

- pull the parking brake of the tractor and put the gear lever(s) into neutral,
- put the side-shift cylinder into the shortest position (For storage including winter storage, preferably in the shortest position),
- put the supporting leg into the lower position and lock it in place,
- lower the machine to the ground,
- shut down the tractor engine and remove the ignition key,
- then depressurize the hydraulic system of the machine by moving the levers, provided on the tractor for operating the lift cylinder and sliding cylinder, a few times back and forth,
- disconnect the hydraulic hoses and fit the dust caps,
- remove the universal joint shaft on the tractor side and place it into the bracket provided for this purpose,
- remove top-bar and lifting-arm pins,
- remove the lighting plug if mounted.

7. Machine maintenance.

Inspection and maintenance may be carried out only when:

- The PTO shaft of the tractor has been switched off
- The lifting device of the tractor is in its lower position
- The tractor engine has been shut down
- The ignition key has been removed
- The hydraulic system has been depressurized

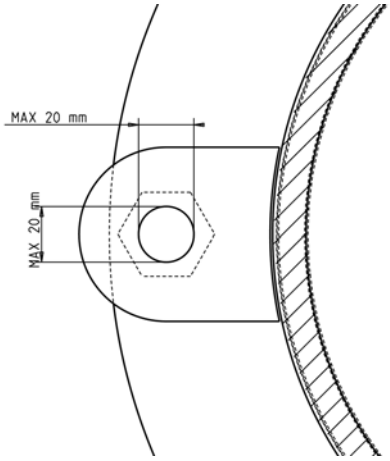
7.1. Flails, bolts, flail mountings and wearing plates.

Flails, bolts and mounting plates on the rotor shaft must be checked regularly for wear.

Danger!

Never work with flails, bolts and mounting plates that do not meet the minimum-dimension requirements! For this, see figure 7.1.1. Immediately replace any parts that do not meet the minimum dimensions required!

See figure 7.1.1
Minimum dimensions of flail mountings



Flail mounting nut tightening moment: 80 Nm

Worn flails result in poor cutting quality that looks bad. When this happens, replace all flails and, if necessary, all bolts. Replacing only the flails that are most worn would render the rotor shaft out of balance, resulting in vibrations which may cause serious damage to your mower in a very short time.
Vibrations may point to one or more (heavily) damaged flails. Also, objects wound around the rotor shaft (e.g. barbed wire) may cause vibrations.
In the event of vibrations and/or changes in the mower sound, switch off the PTO shaft immediately, then locate and eliminate the cause!

TIP

Excessive wear of flails, bolts and mounting plates on the rotor shaft may be caused by too low a rotor shaft speed and/or frequent contact of the flails with soil or water.

If one or more flails have been (heavily) damaged, replace them with specimens that are worn to the same degree as the other flails mounted.
If, after taking the above measures, there are still vibrations in the machine, this may point to a bent rotor shaft.
If so, contact your dealer. Never try to repair a rotor shaft yourself! Regularly check the degree of wear of the wearing plates under the cutting head.
Replace them if there appears to be a risk of wearing the underlying material.

7.2. Protection.

Regularly check the condition of the protection. Immediately replace damaged or worn rubber flaps! **It is prohibited by law to operate this machine without protecting flaps/guards or if they are worn!!**

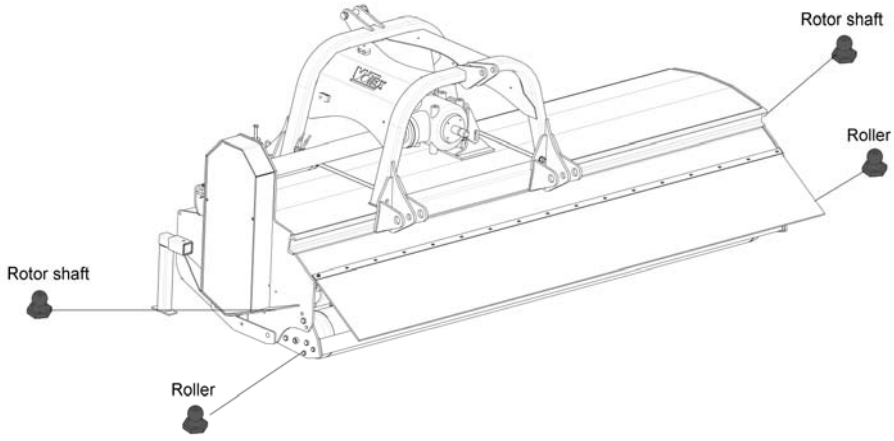
7.3. Greasing points.

Figure 7.3.1. shows the greasing points to be lubricated daily with multipurpose lithium grease.
Greasing points:

A End bearing of the rotor shaft (2 nipples)
B Ball bearings of the ground roller (2 nipples)

The universal joint shaft must be lubricated according to the lubrication schedule of the manufacturer.

Figure 7.3.1
Greasing points.



Rotor shaft greasing

point on driving side

7.4. Hydraulic system.

The hydraulic oil in hoses and cylinders is replaced automatically when replacing the hydraulic oil of the tractor. It is therefore important to follow the pertinent instructions of the tractor manufacturer.

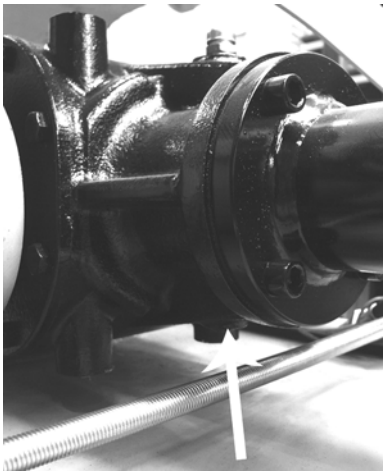
7.5. Gearbox.

The oil content required for the gearbox is 3.3 l of Gear Oil SAE 90 API GL4. The gearbox oil is to be changed for the first time after 20 running hours and subsequently once in a season. In addition, it is necessary to check regularly via the level plug on the gearbox (inside the PTO shaft guard) for any leakages.

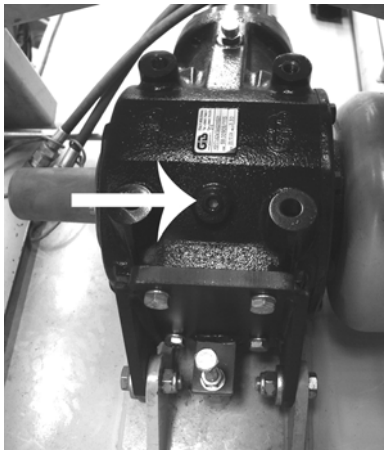
The necessary freewheel is incorporated in the gearbox.
Changing the oil: (see figure 7.5.1)

- Remove the PTO shaft to gain access to the level plug on the gearbox,
- clean the gearbox around the drain, filler and level plugs,
- loosen the drain plug on the underside of the gearbox and collect the oil
- place the plug back,
- remove the level plug (depending on front or rear mounting located inside the PTO shaft guard)
- remove the filler plug on top of the box,
- fill the box through this hole with 3.3 l of oil,
- the oil should then reach the level of the level plug,
- place the two plugs back.

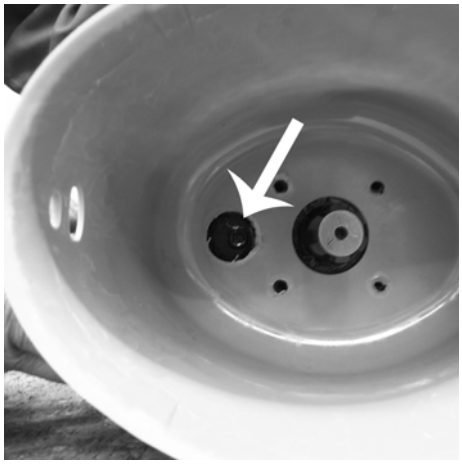
Figure 7.5.1
Checking the oil level



Drain plug



Filler plug



Level plug

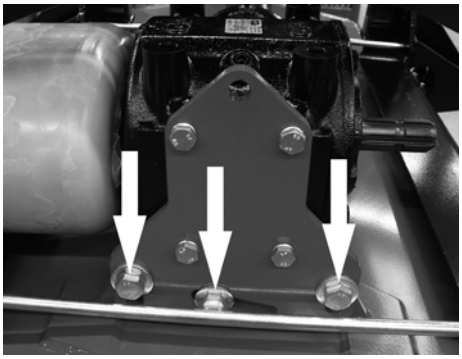
7.6. V-belt transmission.

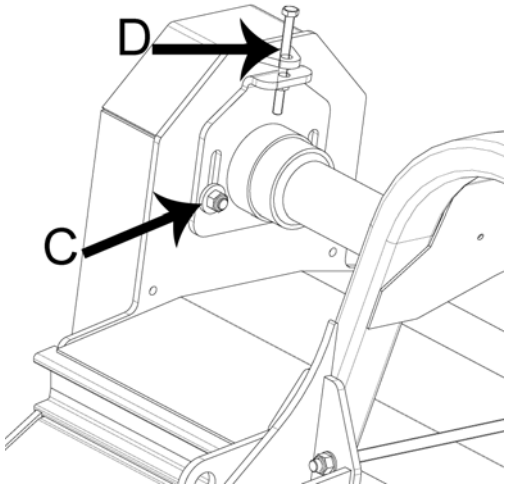
7.6.a Mounting and removing the V-belt guard and V-belts
(See figures 7.6.a.1 ; 7.6.b.1 and 7.6.b.2)

- loosen the fixing bolts of the V-belt guard,
- remove the V-belt guard,
- slightly loosen the 3 bolts (A) by which the gearbox is fixed to the cutting head,
- slightly loosen the 2 bolts (C) by which the drive housing is fixed to the side plate,
- loosen the lock nut of the V-belt tensioning bolt (D),
- loosen the V-belt tensioning bolt (D) to the extent that you can remove the V-belts,
- mounting is done in reverse order.

Figure 7.6.a.1
Tensioning the V-belts

A



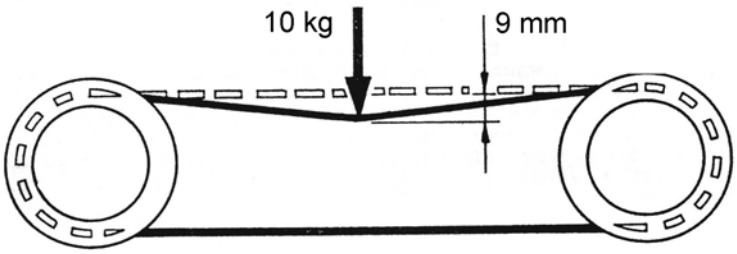


- before tightening the bolts of the gearbox, make sure that the V-belt pulleys are properly aligned. Check this by placing a ruler along the two V-belt pulleys. If the alignment is not correct, it must be corrected by adjusting the gearbox height.(see figure 7.6.a.1)

7.6.b. Tensioning the V-belts.

Checking V-belt tension:
- loosen the fixing bolts of the V-belt guard,
- remove the V-belt guard,
- exert a force of 10 kg upon one of the belts, using for instance a spring balance. The depression is then not to exceed 9mm. (see figure 7.6.b.1),
- tension the belt, if necessary

Figuur 7.6.b.1
Checking V-belt tension



Tensioning the V-belts (see figures 7.6.a.1 ; 7.6.b.1 and 7.6.b.2)

- slightly loosen the 3 bolts (A) by which the gearbox is fixed to the cutting head,
- slightly loosen the 2 bolts (D) by which the drive housing is fixed to the side plate,
- loosen the lock nut of the V-belt tensioning bolt (D),
- turn the V-belt tensioning bolt (D) until the belts have reached the correct tension, and secure the bolt again,
- before tightening the bolts of the gearbox, make sure that the V-belt pulleys are properly aligned. Check this by placing a ruler along the two V-belt pulleys, (see figure 7.6.b.2)
- retighten the bolts of the gearbox and the drive housing,
- mount the V-belt guard.

Note: First-time retensioning must be carried out after operating the mower for about 15 minutes. The tension and condition of the V-belts are subsequently to be checked at regular intervals.

7.7 Removing the rotor shaft

The operations described below are allowed to be performed only by the manufacturer or dealer!

To remove the rotor shaft, proceed as follows:

- using a tackle or fork-lift truck, bring the flail mower in a position lying on its side so that the ground roller lies on the ground. The best way to manage this is by fastening a sling to each top-bar pin. Make sure that the sling on the ground-roller side is longer than on the other side.
- support the machine with blocks so that it cannot fall back
- remove the V-belts as described in chapter 7.6.a
- remove the taperlock pulley on the rotor shaft by turning one of the socket-head screws in the appropriate hole
- fasten a tackle having a minimum lifting capacity of 300 kg to the rotor shaft to be able to lift it out of the frame.
- on both side plates, remove the three M12 bolts by which the ring is secured on the rotor shaft

- on the driving side, remove the guide block at the bottom of the side plate and the vertical lip screwed to it
- remove the bolts of both bearing blocks holding the rotor shaft in the cutting cap
- lift the rotor shaft out of the machine
- Mounting the rotor shaft is done in reverse order

7.8. Winter storage.

In the event the machine is put out of service for an extended period of time, it will be necessary to perform an intensive cleaning. Thereupon, lubricate all greasing points (see chapter 7.3) and change the gearbox oil (see chapter 7.5). After this, have the machine run for a few minutes. Make sure that the cylinder is in its slid-in position.

8. Scrapping the mower.

When the machine is to be scrapped, you must take the following measures:
- place a drain pan under the gearbox and drain the oil,
- remove all hydraulic components and collect the oil.
  Slide the cylinder a few times in and out and collect the residual oil,
- remove grease from:
  - bearing housings including bearings,
  - ground-roller bearings

Remove all rubber and synthetic parts and dispose of them in accordance with the regulations in force. Dispose of the grease and oil in accordance with the regulations in force. Dispose of the remaining parts as scrap iron.

Appendix.

A. Ordering parts.
B. Liability and warranty.
C. Notes.
D. Conversion table.
E. Tightening moments.

A. Ordering parts.

Your order for parts should contain the following details (see type plate):

- Model
- Type
- Serial number
- Part number, part name and quantity

For any part whose number cannot be determined with certainty, you may send the original in order to avoid delivery of a wrong part. The parts of the figures in this manual may show differences with the original because due to design adaptations or improvements a particular part may have been changed prior to the release of a new edition of this book. It is therefore advisable not to rely on the illustrations. Use original Votex parts only so that you will be assured of excellent quality and a good fit.

B. Liability and warranty.

Votex B.V. guarantees the proper operation of your machine for a period of 12 months after delivery, provided the instructions contained in this manual are followed as described.

- The machine shall be used only by persons who have thoroughly studied this manual beforehand, and are well aware of the dangers that may result from not properly following pertinent instructions. This also applies to the persons responsible for adjusting and servicing the machine.
- The machine shall be used only for the specified purposes.
- Always duly observe the safety instructions.
- **Replacement parts will be compensated within the period of guarantee only if they have been ordered from Votex B.V.**
- Use only original Votex parts/components and the specified lubricants.
- Always duly observe the local safety regulations as in force with regard to the prevention of accidents, transport safety and traffic regulations.
- **Important!**

  This manual applies to the original Votex technical design and construction of your machine. Votex B.V. can therefore not be held responsible and disclaims any liability for any damage resulting from any technical alteration or change independently made to the machine and from the use of any parts other than from Votex. This provision also applies to the use of any other lubricants, improper or insufficient maintenance and any repairs carried out improperly, without prior consultation with Votex B.V.

- **Please note that:**

  In case this manual is **not** correctly complied with, Votex B.V. cannot be held liable for any warranty claims within the period of guarantee.
  - The terms of delivery and payment used by Votex B.V. are the terms and conditions of the Metaalunie. These have been lodged with the Registry of the Court of Rotterdam.

They include the Algemene Handelsvoorwaarden Landbouwwerktuigen en -uitrustingen (AHL) (general terms of business for agricultural machinery and equipment).

- If the guarantee card and user declaration have not been correctly and completely filled in and returned to Votex B.V. within 14 days after delivery, warranty requests, if any, will not be considered.

C. Notes.

D. Conversion table.

Length
1 m = 100 cm = 1000 mm

Volume
1 m3 = 1000 dm3 = 1000 l

Force and weight
1 N = 0.102 kg (f) = 0.102 kp

Pressure and stress
1 bar = 0.987 atm = 100 kPa = 100 kN/m

Tightening moment
1 Nm = 0.102 kg (f) m

Power
1 kW = 1000 W = 1.36 pk = 1.36 cv = 1.34 hp

Number of revolutions
1 omw./min = 1 tpm = 1 U/min = 1 tr/mn = 1 min-1

Speed
1 km/h = 0.278 m/s

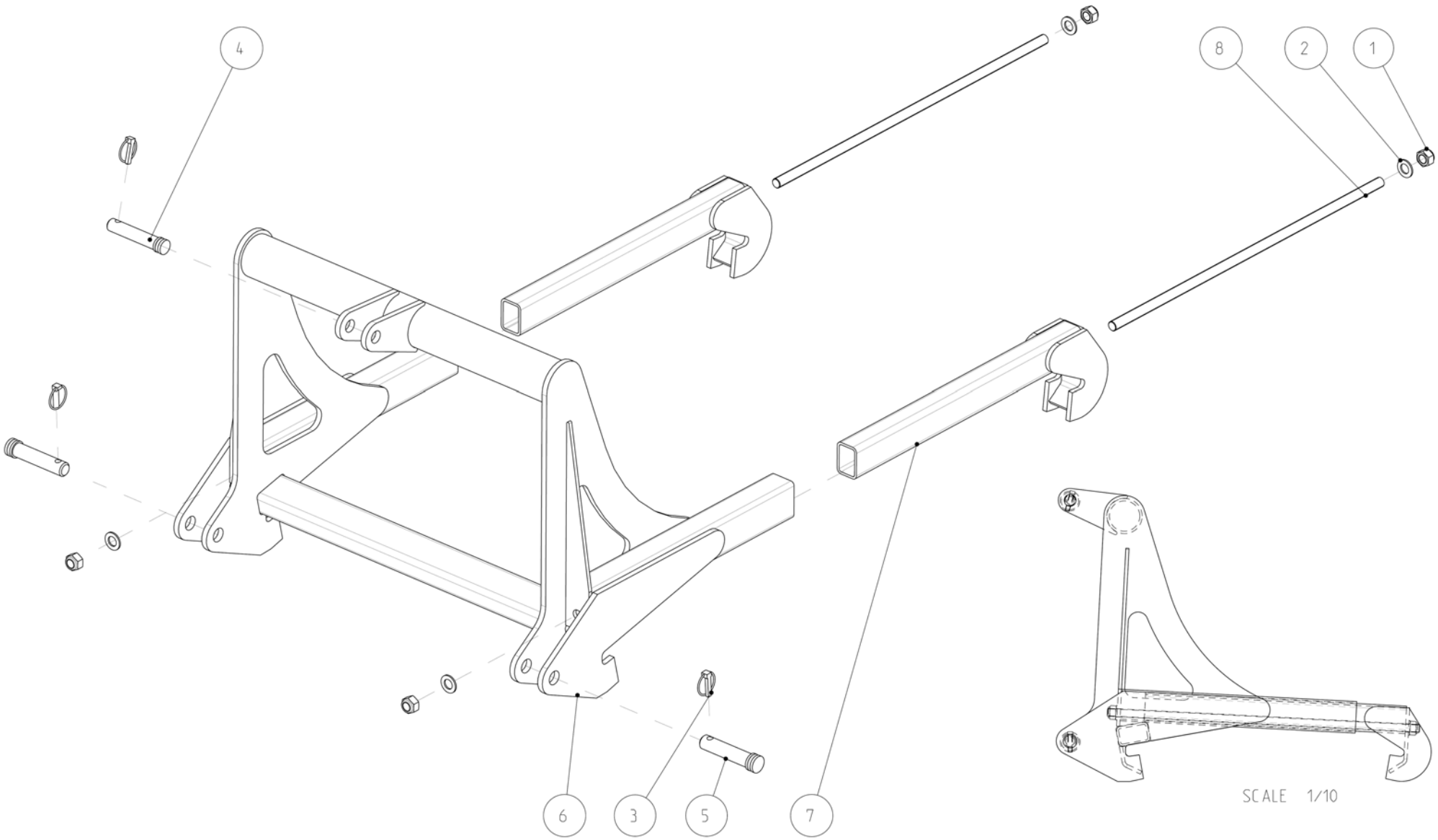
E. Tightening moments.

All bolt connections must be tightened according to the table below, unless otherwise stated in the manual or parts list.

Thread	Tightening moment (Nm)
M 8	24
M 10	49
M 12	84
M 14	133
M 16	205
M 18	290
M 20	410

Votex Driepuntsframe 3-points linkage Attelage 3-points Dreipunktaufhängung

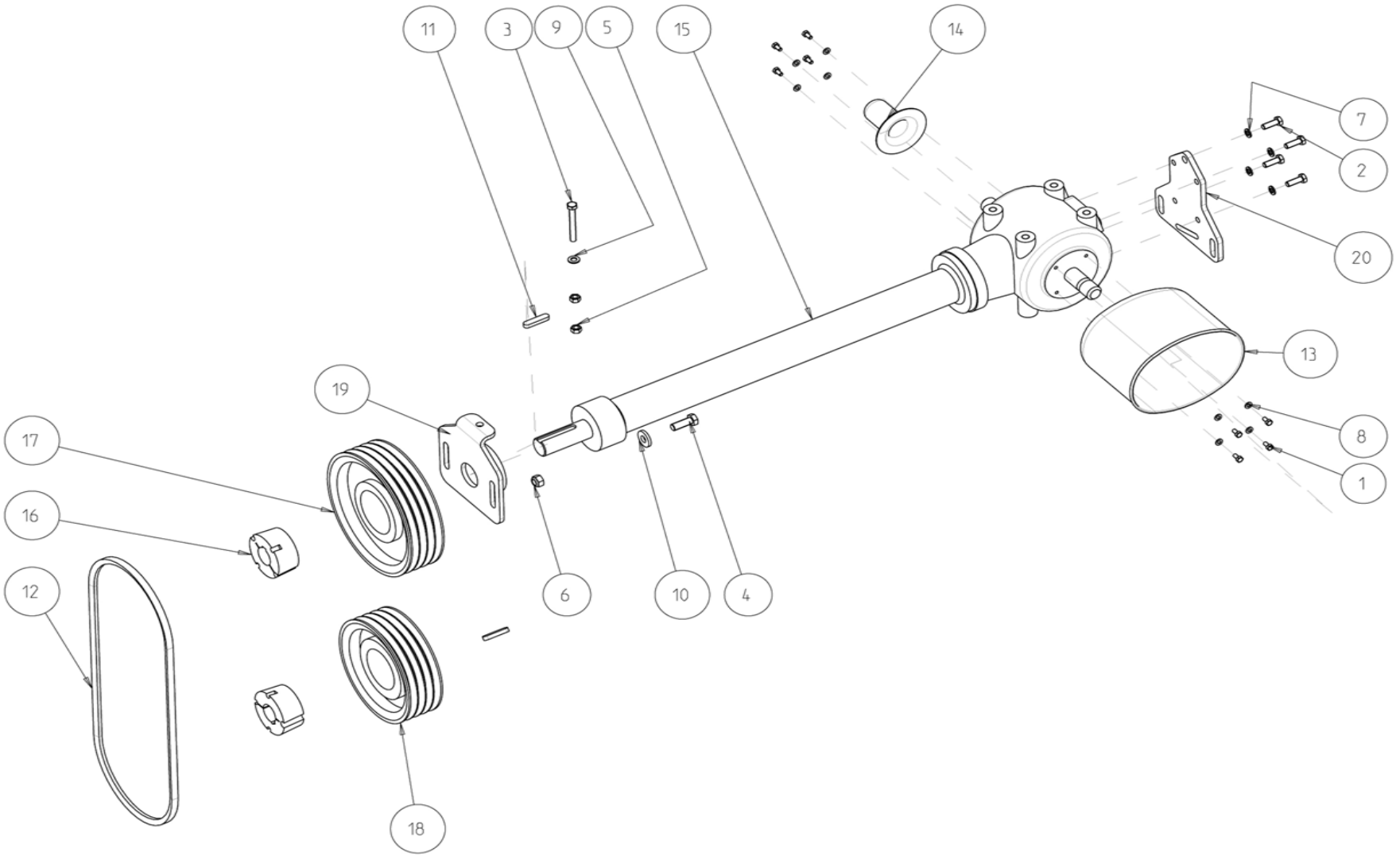
Landmaster



Votex Landmaster

No	Onderdeel nummer	Aantal	**Driepuntsframe** Omschrijving	**Three points linkage** Description	**Attelage trois points** Designation	**Dreipunkt aufhängung** Beschreibung	**Technische info**
1	11.05.020	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M20
2	12.11.020	4	Sluitring	Washer	Rondelle	Unterlegscheibe	M20
3	20.01.008	3	Borgclip	Linch pin	Goupille clips	Klappstecker	11mm
4	20.01.132	1	Topstangpen	Top link pin	Broche troisieme point	Bolzen	
5	20.01.133	2	Werktuigpen	Link pin	Broche	Lenker bolzen	
6	45.07.836	1	Driepuntsframe	Three points linkage	Attelage trois points	Dreipunkt Aufhängung	LM+RM07
7	45.07.840	2	Framebuis	Frame tube	Tube de Châssis	Ramen rohr	
8	45.07.843	2	Draadeind	Threaded rod	Tige filetée	Gewindestange	M20

Votex Landmaster Aandrijving Drive Transmission Antrieb



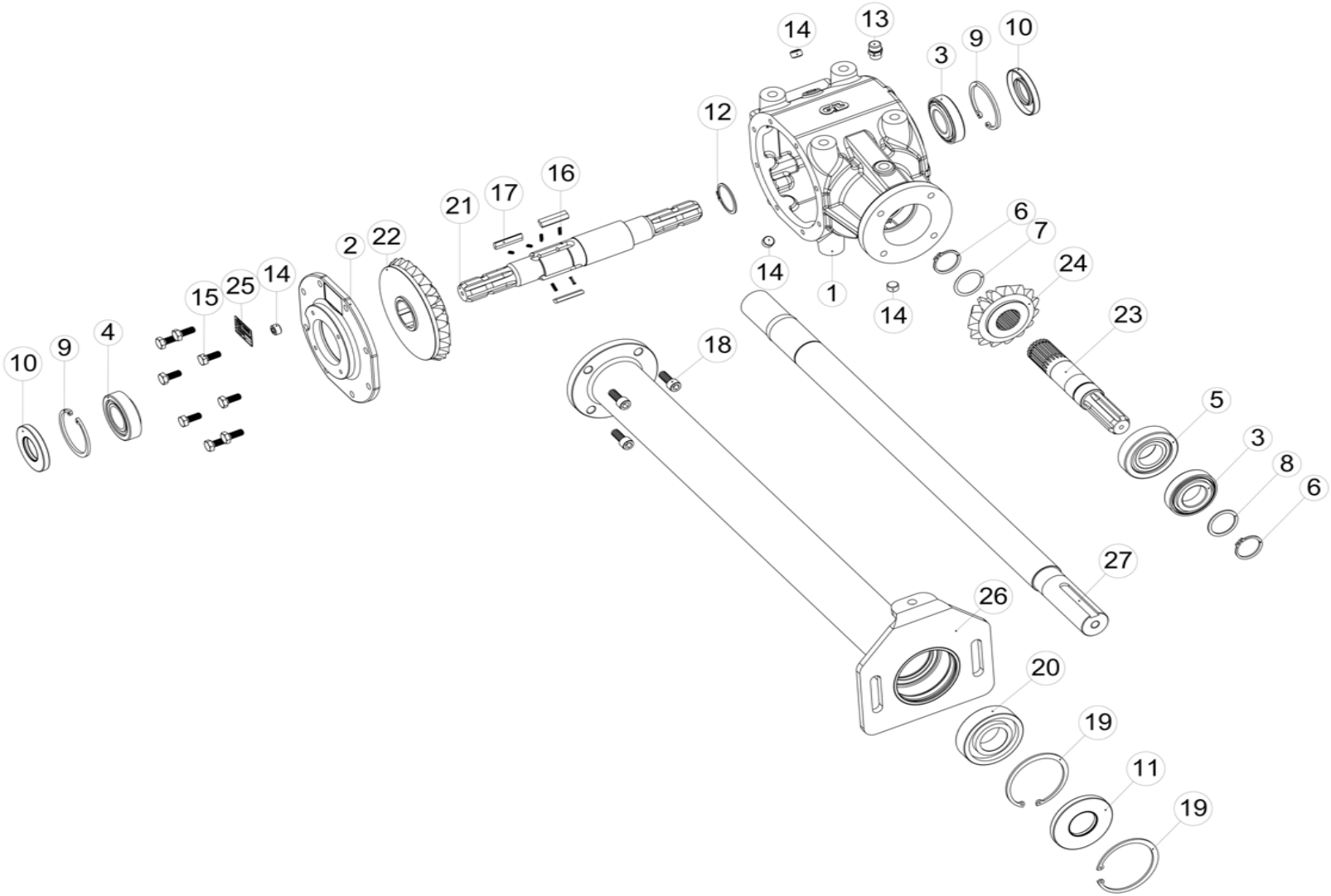
45.20.102

Votex Landmaster

Aandrijving — Drive — Transmission — Antrieb

nr.	onderdeel nummer	aantal	Omschrijving	Discription	Designation	Beschreibung	technische info
1	10.02.087	8	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M8x16-8.8
2	10.02.153	4	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M12x35-8.8
3	10.02.165	1	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M12x100-8.8
4	10.02.207	2	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M16X45-8.8
5	11.02.012	2	Zeskantmoer	Nut	Écrou	Mutter	M12
6	11.05.016	2	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M16
7	12.01.012	4	Veerring	Spring washer	Rondelle grower	Federring	M12
8	12.11.008	8	Sluitring	Washer	Rondelle	Unterlegscheibe	M8
9	12.11.012	1	Sluitring	Washer	Rondelle	Unterlegscheibe	M12
10	12.15.516	2	Sluitring	Washer	Rondelle	Unterlegscheibe	17x40x6
11	15.09.060	2	Inlegspie	Sunk key	Clavette	Paßfeder	14x9x60
12	19.06.210	4	V-snaar	V-belt	Courroie	Keilrieme	XPB-1800
13	27.10.149	1	Afscherming	PTO shaft guard	Protection transmission	GelenkwelleSchutz	P82.25
14	27.10.181	1	Afscherming	PTO shaft guard	Protection transmission	GelenkwelleSchutz	
15	28.01.311	1	Tandwielkast+ aandrijfas	Gearbox+ drive shaft	Boitier à renvoie d'angle+axe	Getriebe+ antriebswelle	
16	36.06.008	1	Taperlock klembus	Taperlock bush	Moyeu conique	Spanbüchse	3020-45 TL
17	36.06.216	1	V-snaarschijf	V-belt pulley	Poulie à gorges	Keilriemenscheibe	300SPB4
18	36.06.217	1	V-snaarschijf	V-belt pulley	Poulie à gorges	Keilriemenscheibe	250SPB4
19	45.09.633	1	Spanplaat	Tensionning plate	Plaque de tension	Spannplatte	
20	45.09.650	1	Spanplaat	Tensionning plate	Plaque de tension	Spannplatte	

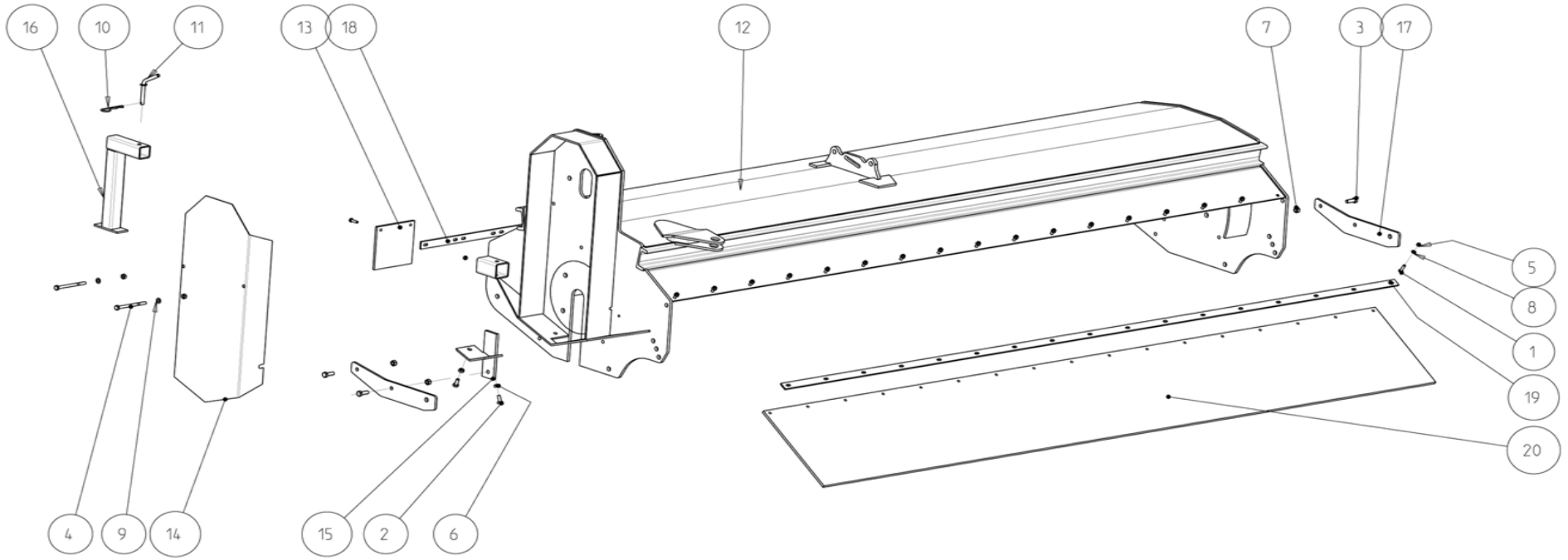
Votex Landmaster | Tandwielkast | Gearbox | Boîtier à renvoie d'angle | Getriebe



Votex Landmaster

			Tandwielkast	Gearbox	Boîtier à renvoie d'angle	Getriebe	
nr.	onderdeel nummer	aantal	Omschrijving	Discription	Designation	Beschreibung	technische info
1	28.11.301	1	Tandwielkasthuis	Gearbox case	Boitier	Getriebegehäuse	
2	28.11.302	1	Tandwielkastdeksel	Gearbox cover	Couvercle	Getriebedeckel	
3	18.11.010	2	Kegellager	Tapered rolling bearing	Roulement à rouleau conique	Kegellager	30208-J2
4	18.11.011	1	Kegellager	Tapered rolling bearing	Roulement à rouleau conique	Kegellager	32208-J2
5	18.11.013	1	Kegellager	Tapered rolling bearing	Roulement à rouleau conique	Kegellager	30308-J2
6	12.30.040	2	Zekeringsring	Circlip	Circlip	Sicherungsringe	40x1.75
7	28.09.006	1	Shim	Shim	Rondelle de réglage	Paßscheibe	40x50x0.5mm
8	28.11.310	1	Afstandsring	Distance ring	Rondelle d'entretoise	Distanzring	
9	12.31.080	2	Zekeringsring	Circlip	Circlip	Sicherungsringe	80x2.5
10	17.01.014	2	Keerring	Seal ring	Joint d'étanchéité	Simmerring	40x80x10
11	17.01.063	1	Keerring	Seal ring	Joint d'étanchéité	Simmerring	45x100x10
12	12.30.048	1	Zekeringsring	Circlip	Circlip	Sicherungsringe	48
13	26.10.536	1	Ontluchtingsnippel m.klep	Air release nipple w.valve	Reniflard d'air avec valve	Entlüfter m.klappe	R3/8
14	77.26.192	4	Plug	Plug	Bouchon filetée	Verschlüßschraube	3/8"
15	10.02.151	8	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M12x25-8.8
16	28.11.305	6	Veer	Spring	Ressort	Feder	
17	28.11.306	3	Inlegspie	Sunk key	Clavette	Paßfeder	
18	10.28.152	4	Cilinderkopschroef	Cilinderheadscrew	Vis à tête cilindrique	Zylinderkopfschraube	M12x30
19	12.31.100	2	Zekeringsring	Circlip	Circlip	Sicherungsringe	100x3
20	18.01.011	1	Kogellager	Ball bearing	Roulement à billes	Kugellager	6309
21	28.11.308	1	Aandrijfas	Drive shaft	Arbre d'entraînement	Antriebswelle	
22	28.11.303	1	Kegelwiel	Crownwheel	Pignon	Kegelzahnrad	25T
23	28.11.309	1	As	Shaft	Arbre	Welle	
24	28.11.304	1	Pionwiel	Pignon wheel	Pignon	Kegelzahnrad	15T
26	28.11.307	1	Aandrijfhuis	Drive house	Cage d'entraînement	Antriebsgehäuse	
27	28.11.300	1	Aandrijfas	Drive shaft	Arbre d'entraînement	Antriebswelle	LM

Votex Landmaster Maaigedeelte Cutting house Carter de broyage Mähergehäuse



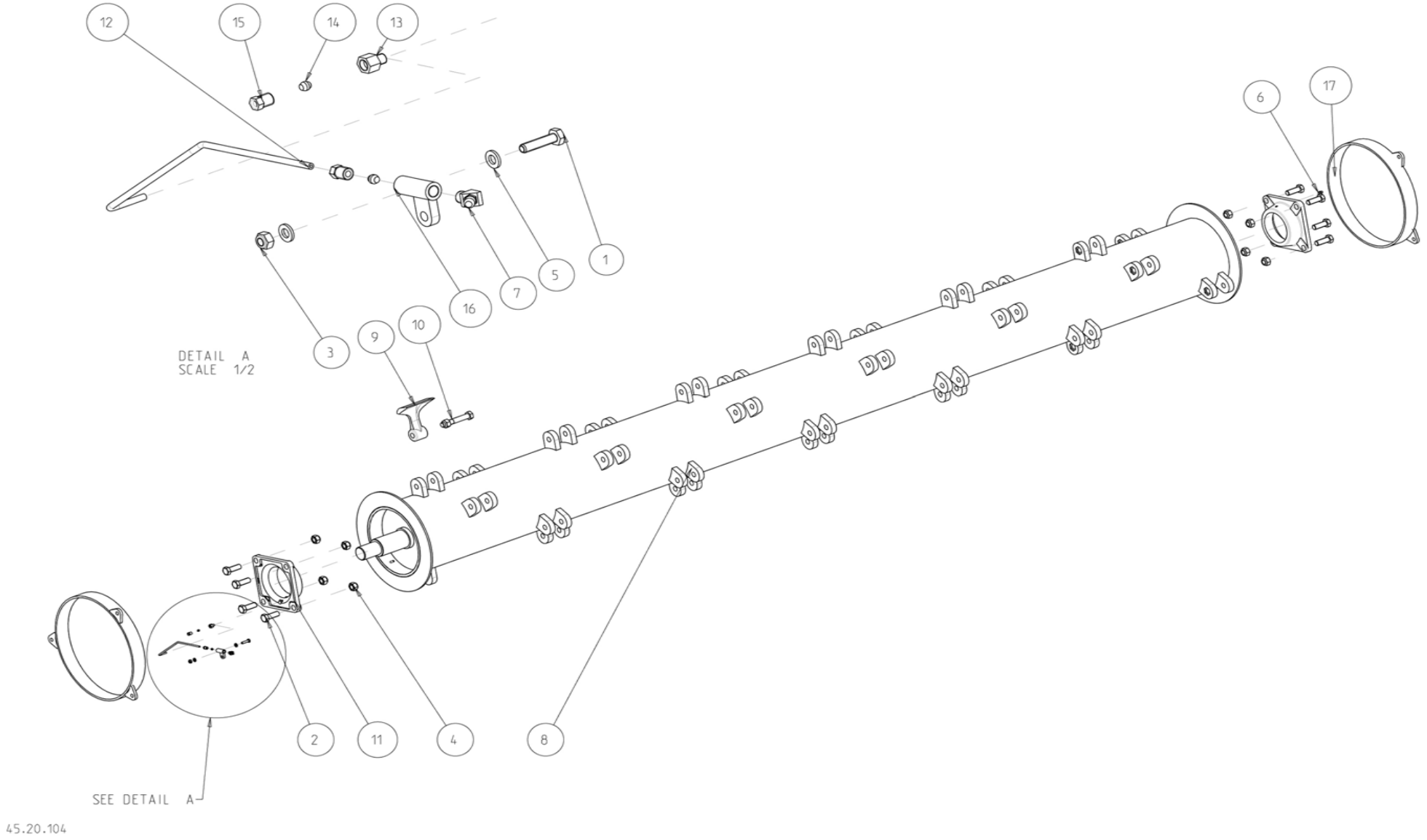
45.20.101

Votex Landmaster

Maaigedeelte — Cutting head — Carter de broyage — Mähergehäuse

no.	onderdeel nummer	Aantal 240	275	310	Omschrijving	Discription	Designation	Beschreibung	technische info
1	10.02.092	43	49	55	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M8x30-8.8
2	10.02.120	2	2	2	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M10x25-8.8
3	10.02.153	3	3	3	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M12x35-8.8
4	10.04.137	2	2	2	Zeskantbout	Bolt	Vis	Sechskantschraube	M10x130-8.8
5	11.05.008	43	49	55	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M8
6	11.05.010	4	4	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M10
7	11.05.012	3	3	3	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M12
8	12.11.008	15	17	19	Sluitring	Washer	Rondelle	Unterlegscheibe	M8
9	12.11.010	2	2	2	Sluitring	Washer	Rondelle	Unterlegscheibe	M10
10	20.01.004	1	1	1	Borgveer	Gripclip	Goupille beta	Federstecker	4mm
11	43.05.120	1	1	1	Vergrendelpen	Locking pin	Axe de veroullage	Bolzen	
12	45.01.821		1		Maaigedeelte	Cutting head	Carter de broyage	Mähergehäuse	Landmaster 275
	45.01.841			1	Maaigedeelte	Cutting head	Carter de broyage	Mähergehäuse	Landmaster 310
	45.01.860	1			Maaigedeelte	Cutting head	Carter de broyage	Mähergehäuse	Landmaster 240
13	45.05.232	14	16	18	Rubberflap	Rubbersheet	Protection en caoutchouc	Gummistreifen	174x174x8mm
14	45.10.607	1	1	1	V-snaar afschermkap	V-belt guard	Protection de courroie	KeilriemenSchutzblech	Landmaster
15	45.10.616	1	1	1	Plaatje	Plate	Plaque	Zunge	
16	45.11.526	1	1	1	Steunpoot	Parking leg	Béquille	Stütze	Landmaster
17	45.25.016	2	2	2	Slijtplaat	Wearing plate	Tôle d'usure	Sohle	
18	45.25.020		1		Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	
	45.25.040			1	Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	
	45.05.936	2			Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	B=878mm
19	45.25.023		1		Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	
	45.25.043			1	Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	
	45.25.100	1			Klemstrip	Clamping strip	Barre de serrage	Klemmleiste	
20	45.25.026		1		Rubberflap	Rubber sheet	Protection en caoutchouc	Gummistreifen	
	45.25.046			1	Rubberflap	Rubber sheet	Protection en caoutchouc	Gummistreifen	
	45.25.103	1			Rubberflap	Rubber sheet	Protection en caoutchouc	Gummistreifen	

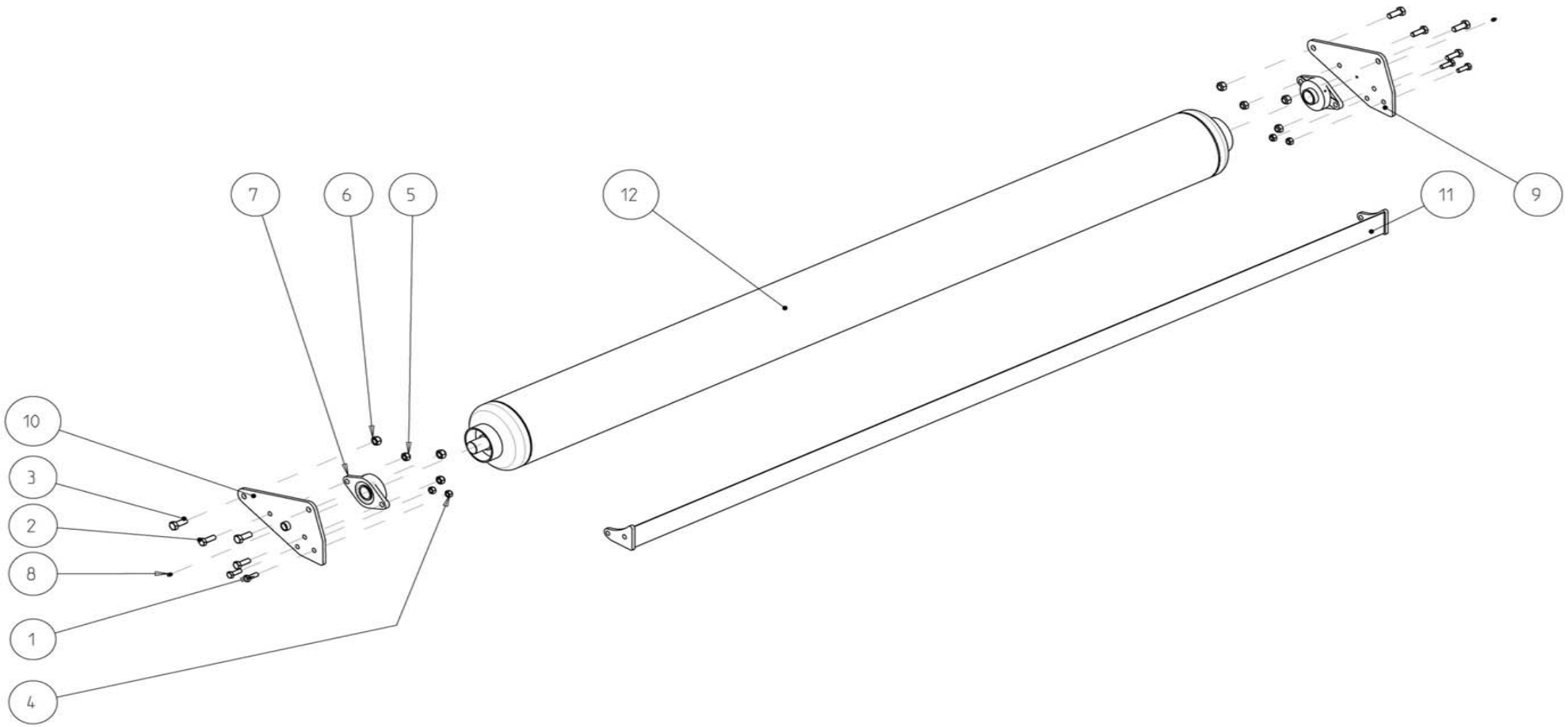
Votex Landmaster Rotoras Rotor Rotor Rotorwelle



Votex Landmaster

					Rotoras	**Rotor shaft**	**Rotor**	**Messerwelle**	
no.	onderdeel nummer	Aantal 240	275	310	Omschrijving	Discription	Designation	Beschreibung	technische info
1	10.02.065	1	1	1	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M6x25-8.8
2	10.02.207	8	8	8	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M16X45-8.8
3	11.05.006	1	1	1	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M6
4	11.05.016	8	8	8	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M16
5	12.11.006	2	2	2	Sluitring	Washer	Rondelle	Unterlegscheibe	M6
6	20.03.003	1	1	1	Smeernippel	Grease nipple	Graisseur	Schmiernippel	M8x1.25-180°
7	20.03.004	1	1	1	Smeernippel	Grease nipple	Graisseur	Schmiernippel	M8-45°
8	45.02.472		1		Rotoras kpl. m. klepels	Rotorshaft cpl.w.flails	Rotor cpl.avec fléaux	Messerwelle mit schlegel	Landmaster 275
	45.02.492			1	Rotoras kpl. m. klepels	Rotorshaft cpl.w.flails	Rotor cpl.avec fléaux	Messerwelle mit schlegel	Landmaster 310
	45.02.562	1			Rotoras kpl. m. klepels	Rotorshaft cpl.w.flails	Rotor cpl.avec fléaux	Messerwelle mit schlegel	LM 240 1.3 kg
9	45.03.260	26	30	36	Klepel	Flail	Fléau	Schlegelmesser	1.3 kg
10	45.03.263	26	30	36	Klepelbout+moer	Flail bolt+nut	Vis de fléau+écrou	Schlegelschraube+Mutter	M16x100-10.9
11	45.09.640	2	2	2	Lagerhuis	Bearing house	Palier à roulement	Lagergehäuse	
	18.06.021	2	2	2	Kogellager	Ball bearing	Roulement à billes	Kugellager	YAR-212-2F
12	45.09.643	1	1	1	Smeerleiding	Lubricate tube	Conduite de lubrification	Schmierleitung	
13	80.26.947	1	1	1	Koppeling	Coupling	Raccord	Kupplung	
14	80.26.950	2	2	2	Ring	Ring	Bague	Ring	
15	80.26.951	2	2	2	Moer	Nut	Écrou	Mutter	
16	80.26.954	1	1	1	Steun	Support	Support	Stutze	
17	45.10.613	2	2	2	Ring	Ring	Anneau	Ring	

Votex Landmaster Looprol Roller Rouleau palpeur Laufwalze

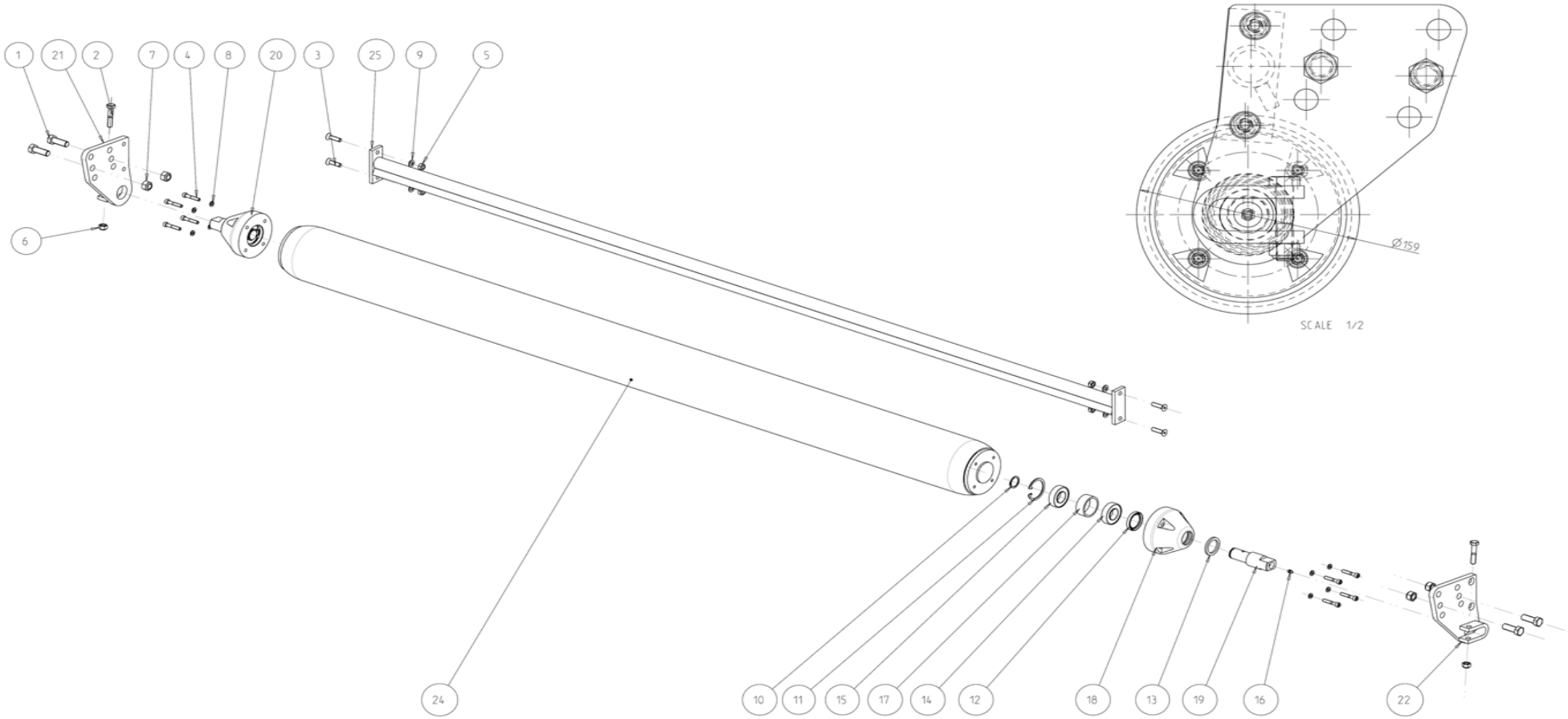


45.25.013

Votex Landmaster

				Looprol	**Roller**	**Rouleau palpeur**	**Laufrolle**	
no.	onderdeel nummer	275	310	Omschrijving	Discription	Designation	Beschreibung	technische info
1	10.02.153	4	4	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M12x35-8.8
2	10.02.181	4	4	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M14x40-8.8
3	10.02.206	4	4	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M16x40-8.8
4	11.05.012	4	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M12
5	11.05.014	4	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M14
6	11.05.016	4	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M16
7	18.31.032	2	2	Flenslagerblok	Bearing block	Palier à roulement	Lagergehäuse	UCFL 208
8	20.03.003	2	2	Smeernippel	Grease nipple	Graisseur	Schmiernippel	M8x1.25-180°
9	45.25.000	1	1	Looprolhouder rechts	Roller support right	Support de rouleau droite	Laufwalzestutz rechts	
10	45.25.003	1	1	Looprolhouder links	Roller support left	Support de rouleau gauche	Laufwalzestutz links	
11	45.25.006	1		Schraper	Scraper	Racloire	Schürfleiste	
	45.25.030		1	Schraper	Scraper	Racloire	Schürfleiste	
12	45.25.010	1		Looprol cpl.	Roller cpl.	Rouleau cpl.	Laufwalze kpl.	L=3050
	45.25.033		1	Looprol cpl.	Roller cpl.	Rouleau cpl.	Laufwalze kpl.	

Votex Looprol Roller Rouleau palpeur Laufwalze

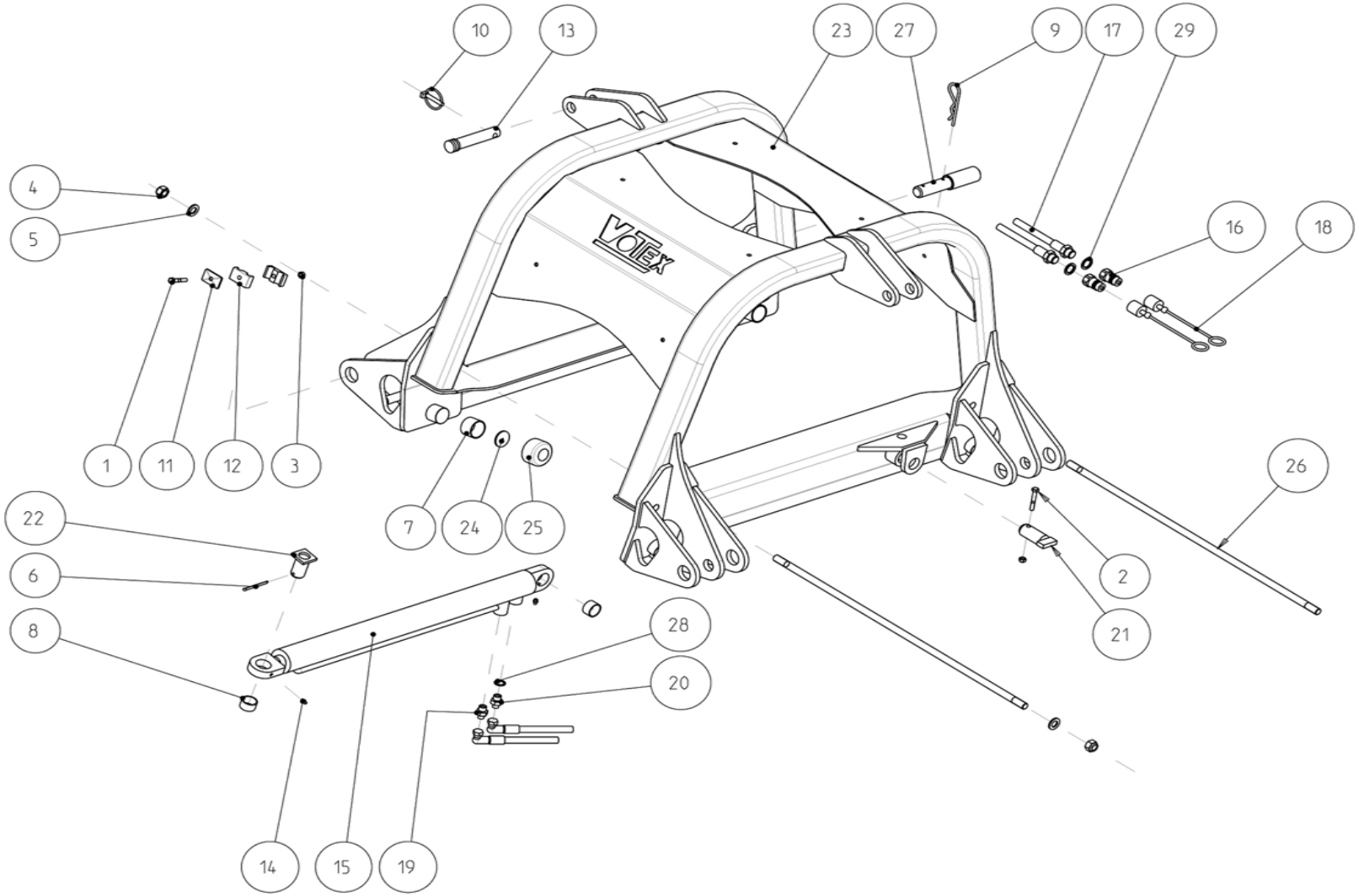


Votex Landmaster

			Looprol	**Roller**	**Rouleau palpeur**	**Laufrolle**	
no.	onderdeel nummer	Aantal 240	Omschrijving	Discription	Designation	Beschreibung	technische info
1	10.02.207	4	Zeskanttapbout	Bolt	Vis	Sechskantschraube	M16X45-8.8
2	10.04.158	2	Zeskantbout	Bolt	Vis	Sechskantschraube	M12x60-8.8
3	10.29.123	4	Verzonken schroef	Socket screw	Vis á tête fraisée	Senkschraube	M10x40
4	10.28.095	8	Cilinderkopschroef	Cilinderheadscrew	Vis à tête cilindrique	Zylinderkopfschraube	M8x45
5	11.05.010	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M10
6	11.05.012	2	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M12
7	11.05.016	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M16
8	12.01.008	8	Veerring	Spring washer	Rondelle grower	Federring	M8
9	12.11.010	4	Sluitring	Washer	Rondelle	Unterlegscheibe	M10
10	12.30.030	2	Zekeringsring	Circlip	Circlip	Sicherungsringe	30x1.5
11	12.31.062	2	Zekeringsring	Circlip	Circlip	Sicherungsringe	62x2
12	17.01.045	2	Keerring	Seal ring	Joint d'étanchéité	Simmerring	40x55x8
13	17.05.007	2	Viltring	Felt ring	Joint de feutre	Filzdichtung	
14	18.01.005	2	Kogellager	Ball bearing	Roulement à billes	Kugellager	6206
15	18.04.007	2	Kogellager	Ball bearing	Roulement à billes	Kugellager	6206-RS1
16	20.03.003	2	Smeernippel	Grease nipple	Graisseur	Schmiernippel	M8x1.25-180°
17	45.05.650	2	Afstandsbus	Distance bush	Bague d'entretoise	Distanzbüchse	
18	45.05.733	2	Looprolprop	Roller plug	Cône à roulements	Laufwalzepfropfenn	
19	45.05.736	2	Looprolas	Roller shaft	Arbre	Laufwalze welle	
20	45.05.740	2	Looprolprop cpl.	Roller plug cpl.	Cône à roulements cpl.	Laufwalzepfropfenn kpl.	
21	45.05.744	1	Looprolhouder links	Roller support left	Support de rouleau gauche	Laufwalzestutz links	
22	45.05.747	1	Looprolhouder rechts	Roller support right	Support de rouleau droite	Laufwalzestutz rechts	
23	45.25.083	1	Looprol cpl.	Roller cpl.	Rouleau cpl.	Laufwalze kpl.	240
24	45.25.086	1	Looprolbuis	Roller tube	Tube de rouleau	Laufwalze rohr	240
25	45.25.090	1	Schraper	Scraper	Racloire	Schürfleiste	240

Opties Options Options Options

Votex Landmaster Driepuntsophanging 3-points linkage Attelage 3-points Dreipunktaufhängung



45.20.131

Votex Landmaster

No	Onderdeel nummer	Aantal	Driepuntsframe Omschrijving	Three points linkage Description	Attelage trois points Designation	Dreipunkt aufhängung Beschreibung	Technische info
1	10.04.095	2	Zeskantbout	Bolt	Vis	Sechskantschraube	M8x45-8.8
2	10.04.097	1	Zeskantbout	Bolt	Vis	Sechskantschraube	M8x55-8.8
3	11.05.008	3	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M8
4	11.05.016	4	Borgmoer	Lock nut	Écrou autofreiné	Sicherungsmutter	M16
5	12.11.016	4	Sluitring	Washer	Rondelle	Unterlegscheibe	M16
6	14.29.063	1	Splitpen	Split pin	Goupille fendue	Splinte	5x63-94
7	18.15.050	4	Glijlager	Bush	Bague d'usure	Gleitlager	40.44.30A
8	18.15.054	2	Glijlager	Bush	Bague d'usure	Gleitlager	30.34.20A
9	20.01.007	2	Borgveer dubbel	Gripclip double	Goupille beta double	Federstecker doppelt	5mm
10	20.01.039	1	Borgclip	Linch pin	Goupille clips	Klappstecker	8mm
11	20.01.067	2	Afdekplaat	Clamp plate	Plaque	Platte	
12	20.01.068	4	Leidingbeugel dubbel	Clamp double	Bride double	Rohrschelle doppelt	15mm
13	20.01.132	1	Topstangpen	Top link pin	Broche troisieme point	Bolzen	
14	20.03.003	2	Smeernippel	Grease nipple	Graisseur	Schmiernippel	M8x1.25-180°
15	26.01.340	1	Hydrauliekcilinder	Hydraulic cylinder	Verin hydraulique	Hydraulikzylinder	
16	26.10.010	2	Snelkoppeling	Hydraulic coupling	Raccord rapide hydraulique	Kupplungsstecker	1/2BSP
17	26.05.787	2	Hydrauliekslang	Hydraulic hose	Tuyau hydraulique	Hydraulikschlauch	
18	26.10.244	2	Stofkap	Dust cap	Capuchon de protection	Staubkappe	1/2"rood
19	26.10.312	1	Verloopnippel	Reduction nipple	Racord de réduction	Reduktionsnippel	1/4-3/8"BSP"
20	26.10.362	1	Verloopnippel	Reduction nipple	Racord de réduction	Reduktionsnippel	2.5mm
21	45.06.203	1	Scharnierpen	Hinge pin	Axe de charnière	Gelenkbolzen	
22	45.07.430	1	Scharnierpen	Hinge pin	Axe de charnière	Gelenkbolzen	
23	45.07.754	1	Driepuntsframe	Three points linkage	Attelage trois points	Dreipunkt Aufhängung	
24	45.07.756	4	Kunststofring	Plastic ring	Rondelle en plastique	Kunststofring	
25	45.07.760	4	Rol	Roller	Rouleau	Rolle	
	45.07.816	4	Rol cpl.	Roller cpl.	Rouleau cpl.	Rolle kpl.	Pos. 7+24+25
26	45.07.764	2	Draadeind	Threaded rod	Tige filetée	Gewindestange	
27	73.31.648	2	Werktuigpen	Link pin	Broche	Lenker bolzen	Kat. 2-3
28	77.26.186	2	Usit ring	Seal ring	Rondelle joint	Dichtungsring	3/8"
29	77.26.188	2	Usit ring	Seal ring	Rondelle joint	Dichtungsring	1/2"