<table>
<thead>
<tr>
<th>CHAPTER 1: INTRODUCTION</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Basic introduction</td>
<td>4</td>
</tr>
<tr>
<td>1.1.1. Symbols and terminology</td>
<td>4</td>
</tr>
<tr>
<td>1.2. Rights</td>
<td>5</td>
</tr>
<tr>
<td>1.3. Characteristics</td>
<td>6</td>
</tr>
<tr>
<td>1.3.1. Floor plans</td>
<td>6</td>
</tr>
<tr>
<td>CHAPTER 2: SETTING INTO OPERATION</td>
<td>7</td>
</tr>
<tr>
<td>2.1. Transportation</td>
<td>8</td>
</tr>
<tr>
<td>2.2. Unpacking</td>
<td>8</td>
</tr>
<tr>
<td>2.3. Lifting the conveyor</td>
<td>9</td>
</tr>
<tr>
<td>2.4. Fitting the castors</td>
<td>10</td>
</tr>
<tr>
<td>2.5. Safety devices</td>
<td>11</td>
</tr>
<tr>
<td>2.5.1. Description</td>
<td>11</td>
</tr>
<tr>
<td>2.5.2. Layout of the safety elements on the conveyor</td>
<td>11</td>
</tr>
<tr>
<td>2.5.3. Installation safety</td>
<td>12</td>
</tr>
<tr>
<td>2.5.4. Security analysis for the correct incorporation</td>
<td>13</td>
</tr>
<tr>
<td>2.6. Installation and startup</td>
<td>14</td>
</tr>
<tr>
<td>2.6.1. Conveyor drive</td>
<td>14</td>
</tr>
<tr>
<td>2.6.2. Leveling</td>
<td>14</td>
</tr>
<tr>
<td>2.6.3. Connection to the machine</td>
<td>14</td>
</tr>
<tr>
<td>2.6.4. Electrical connection</td>
<td>15</td>
</tr>
<tr>
<td>2.6.5. Setting the voltage of the motor</td>
<td>16</td>
</tr>
<tr>
<td>2.6.6. Electrical control</td>
<td>16</td>
</tr>
<tr>
<td>CHAPTER 3: CONVEYOR BELT</td>
<td>17</td>
</tr>
<tr>
<td>3.1. Belt direction</td>
<td>18</td>
</tr>
<tr>
<td>3.2. Belt tensioning – Checking the tension</td>
<td>18</td>
</tr>
<tr>
<td>3.3. Belt tensioning – How to tension the belt</td>
<td>20</td>
</tr>
<tr>
<td>3.4. Belt removal and installation</td>
<td>21</td>
</tr>
<tr>
<td>3.5. Belt assemblies</td>
<td>25</td>
</tr>
<tr>
<td>3.5.1. Belt with internal filter cleaning brushes</td>
<td>25</td>
</tr>
<tr>
<td>CHAPTER 4: MAINTENANCE</td>
<td>27</td>
</tr>
<tr>
<td>4.1. Periodic inspection</td>
<td>28</td>
</tr>
<tr>
<td>4.1.1. After first 100 hours</td>
<td>28</td>
</tr>
<tr>
<td>4.2. Cleaning</td>
<td>28</td>
</tr>
<tr>
<td>4.3. Factors affecting performance</td>
<td>28</td>
</tr>
</tbody>
</table>
4.4. Filtration system maintenance ................................................................. 29
   4.4.1. Filter box removal and replacement .............................................. 29
   4.4.2. Replacement of brushes ................................................................. 30

CHAPTER 5: OPTIONS .................................................................................. 33

5.1. Spare parts ............................................................................................. 34
   5.1.1. Layout of the elements ................................................................. 34

CHAPTER 6: APPENDICES ........................................................................... 37

Appendix A: Ordering form .......................................................................... 38
Appendix B: Address LNS ........................................................................... 39
1.1. Basic introduction

LNS conveyors simply and reliably remove waste from machining operations. Machine efficiency is increased and operator safety is improved since the conveyors work with little operator attention and without interrupting production time. LNS conveyors are available for many types of machine tools or other applications. They can be arranged to deliver wet or dry waste to containers or to conveyor or chute-type disposal systems. For further information, contact LNS.

The TURBO MH500 conveyor was specifically designed to handle a wide variety of materials and applications where filtration is not required. Its simple yet robust construction ensures it offers a long, continuous, trouble free operation in the most demanding of today’s machining environments.

Combining the latest conveyor technology and user friendliness, it provides efficient chip removal, while remaining simple to use and highly reliable. Given its compact assembly, TURBO MH500 requires very little space, and allows for optimum use of the work surface.

1.1.1. Symbols and terminology

! This sign recommends following the directions very closely avoiding causing an incident that could result in injury, damage to the equipment, or data loss.

! This sign indicates that safety measures must be taken to avoid possible electrical shocks or mishaps.

This sign stress interesting points or comments, and provide useful advice for optimal system operation
1.2. Rights

All rights reserved. Reproduction, recording or transmission of all, or any portion, of this manual, in any form or through any means whatsoever, whether mechanical, photographic, sound or other, without the express written authorization of LNS, is prohibited. LNS disclaims all responsibility for errors which may be contained in this manual and the problems which may result therefrom.

LNS and its subsidiaries cannot be made responsible for the debts, losses, expenses, or damage incurred, or suffered, by the buyer of this product, or a third party, following an accident, incorrect use, or misuse, or stemming from modifications, repairs, or transformations not authorized by LNS.

LNS and its subsidiaries cannot be held responsible for damage and problems arising from the use of options and products other than LNS products, or products approved by LNS.

The names of the products indicated in this manual are registered trademarks.

All information contained in this manual is intended to be correct, however information and data in this manual are subject to change without notice. LNS makes no warranty of any kind of regard to this information or data. Further, LNS is not responsible for any omissions or errors or consequential damage caused by the user of the product. LNS reserves the right to make manufacturing changes which may not be included in this manual.

LNS supplies data necessary for the proper instruction, test, operation and maintenance of this product. LNS retains all proprietary rights in and to the information so disclosed and such shall not be reproduced, copied, or used in whole or in part for purposes other than those for which it is furnished.
1.3. Characteristics

Depending on the country and the standards in effect, certain technical data, such as the power supply, may vary. Please see the technical card delivered with the device.

<table>
<thead>
<tr>
<th>Drawing dimension</th>
<th>Conveyor terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Frame width</td>
</tr>
<tr>
<td>B</td>
<td>Baffle height LH</td>
</tr>
<tr>
<td>C</td>
<td>Baffle width</td>
</tr>
<tr>
<td>D</td>
<td>Baffle height RH</td>
</tr>
<tr>
<td>E</td>
<td>Tail height</td>
</tr>
<tr>
<td>F</td>
<td>Baffle length</td>
</tr>
<tr>
<td>G</td>
<td>Overall height</td>
</tr>
<tr>
<td>H</td>
<td>Discharge height</td>
</tr>
<tr>
<td>I</td>
<td>Load above floor</td>
</tr>
<tr>
<td>J</td>
<td>Conveyor length</td>
</tr>
<tr>
<td>K</td>
<td>Load length</td>
</tr>
<tr>
<td>L</td>
<td>Incline angle</td>
</tr>
</tbody>
</table>

Conveyor frame dimensions

- **W-Width**: 266.7–673.1 mm (10.5”–26.5”)
- **E-Height**: 130 mm (5.1”)

1.3.1. Floor plans

Each conveyor varies in size depending on the machine tool it is designed to fit to. Above is a general diagram which can be used to help in communications with LNS regarding size queries and enquiries.
CHAPTER 2: SETTING INTO OPERATION
CHAPTER 2: SETTING INTO OPERATION

2.1. Transportation

Please read the safety precautions described at the beginning of this manual before handling the following devices.

Depending on its destination, the MH500 conveyor is normally secured to a pallet then heat sealed inside a protective plastic cover. All shipping documents including this manual are also secured to the pallet. Regardless of the type of packaging, the un-creating and lifting instructions recommended by LNS must be observed in order to prevent any injuries to persons and damages to objects.

2.2. Unpacking

For practical and safety reasons, the conveyor must be unpacked in a spacious, well-lit location.

Check to see that the lifting capacity of the hoisting crane, or lift truck, is adequate before proceeding with the handling of the merchandise. No one should be near the hanging load, or within the operating range of the overhead hoist/crane, forklift, or any other means used for lifting and transportation.

1. If the conveyor is received as shown above start by removing the protective plastic material
2. Cut any steel banding used to secure the conveyor to the pallet using side cutters (always wear eye protection and gloves)
3. Remove any screws holding the conveyor to the pallet including those through the castor plate.
2.3. Lifting the conveyor

Check to see that the lifting capacity of the hoisting crane, or lift truck, is adequate before proceeding with the handling of the merchandise. No one should be near the hanging load, or within the operating range of the overhead hoist/crane, forklift, or any other means used for lifting and transportation.

Lifting points are strategically placed around the conveyor system to allow the conveyor to be safely lifted with a fork truck or lifting straps. Otherwise points under the system are marked with arrows for safe, balanced, lifting points for fork trucks to lift the conveyor system. Always read the weight on the conveyor and check it against the capacity of the lifting equipment before attempting to lift:
2.4. Fitting the castors

Before attempting to fit the castors ensure the conveyors weight is properly and securely off the castor plate and the conveyor is properly balanced to prevent injury.

Depending on the specific design of conveyor the castors may either be welded to the conveyor or bolted to the conveyor. If they are bolted to the conveyor they are normally shipped bolted upside down to the castor plate for stability in transport if this is the case then they will need to be fitted prior to installation. Please see the drawing below for the castor assembly:

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leg brace</td>
</tr>
<tr>
<td>2</td>
<td>Formed leg</td>
</tr>
<tr>
<td>3</td>
<td>Locking nut</td>
</tr>
<tr>
<td>4</td>
<td>Castor</td>
</tr>
<tr>
<td>5</td>
<td>Welded/Fixed nut</td>
</tr>
<tr>
<td>6</td>
<td>Castor plate</td>
</tr>
</tbody>
</table>

Note:
Some conveyors have castors welded in place for shipping purposes.
2.5. Safety devices

The LNS Company, or its local representative, may not be held responsible for possible accidents or property damage, whether caused directly or not, by any means whatsoever, if certain safety devices have not been included.

2.5.1. Description
The TURBO MH500 conveyor has been designed with a focus on maximum safety during its handling and complies with all EC requirements.

Safety covers and devices make access to the moving parts of the conveyor impossible during operation. The conveyor – machine interface must ensure that the conveyor cannot run when the machine door is open. All safety interlocks on the conveyor or machine must not be over written at any time. The installation of the Hinge conveyor on site must ensure the belt is inaccessible during operation. It is recommended that an E-Stop cord is installed around the discharge area of the conveyor and integrated to the machines safety circuit. Suitable guarding should be provided between the conveyor discharge and the receiving chip container.

2.5.2. Layout of the safety elements on the conveyor

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing cover</td>
</tr>
<tr>
<td>2</td>
<td>Top cover incline</td>
</tr>
<tr>
<td>3</td>
<td>End cover discharge</td>
</tr>
<tr>
<td>4</td>
<td>Drive cover</td>
</tr>
</tbody>
</table>

Note:
Direct drive motor version shown.
2.5.3. Installation safety

In order to ensure the proper installation of the conveyor several steps must be taken. These steps are listed below. It is possible to purchase these parts from LNS if required. Speak to your local LNS representative for further details:

1) Suitable guarding must be used between the waste receptacle and the conveyor to ensure no access to the moving belt is possible when the receptacle is in place (4). It is recommended to utilize an interlock between the two components to stop the belt when the receptacle is removed. In case any part of the belt is accessible then an emergency stop cord around the discharge of the conveyor must be integrated to the machine tools emergency stop circuit where the conveyor and machine are stopped immediately if the cord (1) is pulled.

2) Suitable guarding must be installed around the area where the conveyor fits to the machine to ensure that no conveyor belt (2) is exposed to the customer.

3) A suitable waste receptacle must be utilized with the conveyor to ensure a proper fit to the conveyor dimensions and working conditions (3).

4) The conveyor must be integrated to the machines control circuit in such a way that the conveyor belt cannot run when the machine door (5) is opened.

5) Suitable warning signs must be placed at the danger zones of the conveyor such as the discharge area to warn personnel of risk of injury.
2.5.4. Security analysis for the correct incorporation

Before considering assembling the machine, it is necessary to consider the following points:

- Consider security strategies that reduce risks to an acceptable level;
- Define the tasks required for applications to predict and assess the need of access and/or for the approach;
- Identify sources of risks, including failures and failure modes associated with each task. Risks can come from:
  - machine in which the device is integrated;
  - its association with other equipment,
- Evaluate and assess the risks associated by using the machine
  - programming risks
  - operation risks
  - risks of use
  - maintenance risks
- Choose methods of protection:
  - the use of protective devices
  - the introduction of signals
  - compliance with safe work procedures
2.6. Installation and startup

Your conveyor has been run prior to shipment to insure proper operation. However, it is recommended that the following checks be made before startup:

2.6.1. Conveyor drive
- Check frame and belt for damage during shipment or storage.
- Locate conveyor in operating position inside the machine (see separate specific interface instructions).
- All drive elements (pulleys and sprockets) should be located close to their bearing supports. Each set of pulleys and sprockets should be carefully aligned to prevent excessive wear and noise.
- Drive chains and belts should be properly tensioned.

2.6.2. Leveling
A level should be placed across tail section and on the conveyor belt inline with the direction of travel of the belt. Adjust the conveyor or tanks castors to ensure the system is level. If the system is not equipped with castors or jacking screws then it may be necessary to shim the system to make it level.

When the conveyor is installed to the machine it may be necessary to level the conveyor by adjusting the setting of the conveyor leg in conjunction with a level. See the diagram below for details.

2.6.3. Connection to the machine
Once the conveyor has been installed to the machine, the conveyor must be connected to the interface of the machine and if an Air header is supplied an air supply must be connected to the conveyor. At this stage all guards must be in place as indicated in the specific installation instructions and in this manual.

For the electrical connection, please see section 2.6.4. and, if an electrical control is supplied, the electrical drawing inside the conveyors electrical box.
2.6.4. Electrical connection

Particular attention should be given to the handling of electrical elements because of risks of electrocution. In case of possible electrical malfunctions, it is advisable to contact LNS or their local representative.

It is strictly prohibited to make adjustments as long as the conveyor is under electrical power. The adjustments of the electrical equipment must only be performed by qualified personnel in line with local regulations.

During the installation, ensure that the motor is wired in accordance with the supply voltage available. The supply voltage of the conveyor is indicated on the electrical drawing supplied in the conveyors control panel. If no control panel is supplied then the voltage can be checked directly at the conveyor motor terminal box (1) as shown below in section 2.6.5.

Even if the electrical drawing is correct to the machines requirements the conveyor motor should be checked to ensure the voltage setting is correct to prevent possible damage.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motor terminal box</td>
</tr>
</tbody>
</table>
2.6.5. Setting the voltage of the motor

If the voltage does not correspond, the wiring of the motor must be modified:

2.6.6. Electrical control

Your conveyor may or may not be supplied with an electrical control depending on the machine and applications’ requirements. If an electrical control is supplied then please see the electrical drawing inside the control panel for specific details. If any faults with the conveyor control occur or further information is required, please consult your LNS local representative.
3.1. Belt direction

Please read the safety instructions provided at the beginning of this manual before Starting the conveyor.

3.2. Belt tensioning – Checking the tension

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

Correct conveyor belt tension is essential to ensure proper operation and extended life of the conveyor components. The belt has been properly tensioned during factory assembly. As normal wear occurs, the belt may become slack and need adjustment. The following factors may be used to determine whether the belt needs adjustment.

**Belt too loose:** Belt slack at exit point of the drive sprocket before re-entry into frame (see illustration).

**Belt too tight:** Belt has intermittent jerks and a popping sound while the conveyor is in operation.
**Uneven tension** (side to side): The belt tends to track to one side. An indication of this is excessive wear on outside of side wings as shown below:

Check to see that the clutch body is square to the bearing mounting bracket. If it is not, this will generally indicate which direction the belt is off on side to side tension.

Once it is determined that re-tensioning of the belt is necessary, the following procedure should be followed:
3.3. Belt tensioning – How to tension the belt

Torque wrench required.

1. Install the belt as stated in Section “belt installation” below, except do not install the drive cover or tension the belt.

2. Tighten the bolts that attach the drive shaft bearings to the conveyor (1), then loosen 1 ¼ turns. (This step ensures that bearing is parallel to bearing mount surface, and that the lock washer is not adding additional torque to reading.)

3. Set the torque wrench to 2.8Nm. Tighten (clockwise) each bearing adjusting bolt (2) on each side of the conveyor, alternately until 2.8Nm is obtained and torque wrench no longer turns adjusting belt, but clicks at rotation.

4. Manually rotate belt back and forth. (This distributes tension evenly throughout the belt).

5. Repeat steps (3) and (4) until belt rotation no longer results in decreased torque setting. This step ensures that both sides of belt are tensioned equally.) Lock adjusting bolts.

6. Run machine for a two-hour break-in period.

7. Loosen adjusting bolts lock nuts. Loosen bearing belts as noted in step (2).

Repeat steps (3), (4), and (5). The belt must be re-torqued to obtain correct tension after break-in period (see guide below).

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bolts</td>
</tr>
<tr>
<td>2</td>
<td>Adjusting bolts</td>
</tr>
</tbody>
</table>

Note:
Belts with discharge heights in excess of 1200 mm or load lengths in excess of 2500 mm may require higher torque settings application or different incline angles can also affect the required torques settings. Contact LNS if assistance is needed.

Torque Guide

- Overall Length to 5700 mm  2.8 Nm
- Overall Length 5700 to 9500 mm  4.0 Nm
- Overall Length 9500 mm and over  5.1 Nm
3.4. Belt removal and installation

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

1. Remove the motor and bearing cover from the discharge.

2. One by one loosen and remove the 2 bolts (1) holding the motor to the motor mounting plate. When removed the motor can be slid off the drive shaft and removed (note: keep hold of the key used in the keyway as this will be required for re-assembly)

3. Loosen the lock nuts (4) on the belt tension adjusting screws (5) and back off the belt tensioning adjusting screws (5) until they are flush with the face of the adjusting bracket.

4. Loosen the 2 bolts (2) holding each pillow block bearing.

5. Slide the drive shaft toward the tail of the conveyor as far as the adjusting slots for the pillow block bearings (3) will allow. This will provide maximum slack in the belt.
6. Remove the maintenance access panels (1) from each side of the conveyor side plate discharge’s to expose either side of the belt.

7. It may be necessary to rotate the belt until a cotter pin is in position through the access panel. This can normally be done by hand (using hand tools) or it may be necessary to temporarily reconnect the motor for this. When the cotter pin is in position as shown below, carefully remove it from the end of the belt pin (before doing so, ensure that you have a new one to replace it when re-installing the belt).
8. Catch the flat washers and rollers. Pull the hinge pin out through the access panel on the opposite side of the conveyor as shown below.

9. Grasp the end of belt below the drive shaft and pull the belt out of the conveyor. Be sure to wear gloves to avoid being cut by sharp edges on the belt. When only a few feet of belt remain in the conveyor, the belt on the floor will have enough weight to begin pulling the remainder out on its own. As the last of the belt begins to run out faster, don't attempt to stop it; just stand clear and let it run out onto the floor. Note that the belt was moved in the direction opposite normal belt travel.

10. Before moving the old belt out of the way, pay particular attention to the way the side wings overlap. When the belt is running in the normal direction of travel, the leading ends of the side wings are outboard, and the trailing ends are inboard.

11. Place the new belt on the floor beneath the conveyor discharge, being careful to orient it in the same direction as the old one that was removed.
12. If there is not already a hinge pin in the end of the belt, use the pin and rollers that were removed to separate the old belt. There must be a pin and rollers in the extreme end of the belt for ease of insertion.

13. With a person standing on either side of the belt, lift up the lead end and start it in the lower track, from which the old belt was pulled out. Insert the belt in the reverse direction from taking it out. Be sure and wear gloves to prevent injury, and be sure to maintain a secure hold on the belt until at least five feet have been fed into the conveyor frame. At this point, the weight of the belt inside the frame should be enough to prevent it running back out on its own. Rollers and pin must be in the extreme end of the belt for ease of insertion.

14. Continue feeding the belt into the conveyor frame. One person may have to use a pry bar to "help" it along from time to time. Force should not be required. Many times the belt can be pushed in all the way around from the discharge end. If the belt hangs up, look for some obstruction; do not force it.

15. When the lead end of the belt reaches the drive shaft, carefully feed it up over the drive sprockets.

16. Remove the hinge pin and rollers that were used to help guide the belt through the track.

17. With the ends of the belt engaged in the teeth around the top and bottom of the drive sprockets, the two ends should join. At this point, it may be necessary to remove two or more hinge plates from the new belt. Most new belts are supplied longer than necessary.

18. Reverse steps 1 through 7.

19. When adjusting belt tension, clamp a pair of vise grip pliers on one of the formed cleats on the belt. Use the vise grips to "rock" the belt back and forth to feel the slack and drag on the belt. There should not be more than enough slack to allow rocking the drive shaft through 15 degrees of rotation without moving the belt. On a new belt, zero slack is O.K., but if the belt is difficult to move with the vise grips, it is too tight.

20. Visually confirm the belt is located in the center of the frame. Adjust if necessary by loosening the setscrews in the pillow block bearings and shifting the drive shaft; motor and all; to the left or right as appropriate.

21. Re-connect power and test run the conveyor. The belt should run freely and the only sound should be a subdued clicking as each hinge plate passes over the drive sprocket.
3.5. Belt assemblies

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

3.5.1. Belt with internal filter cleaning brushes

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brush holder</td>
</tr>
<tr>
<td>2</td>
<td>Brush hinge plate</td>
</tr>
<tr>
<td>3</td>
<td>Hinge plate</td>
</tr>
<tr>
<td>4</td>
<td>Side wing</td>
</tr>
<tr>
<td>5</td>
<td>Roller</td>
</tr>
<tr>
<td>6</td>
<td>Side link</td>
</tr>
<tr>
<td>7</td>
<td>Belt link pin</td>
</tr>
<tr>
<td>8</td>
<td>Brush</td>
</tr>
</tbody>
</table>
CHAPTER 4: MAINTENANCE
4.1. Periodic inspection

Please read the safety instructions provided at the beginning of this manual before handling the following devices. Switch of the power supply to the system before commencing any maintenance work.

The TURBO MH500 conveyor has been designed to be low maintenance, however, the following periodic checks should be completed at the recommended service intervals to ensure continued and trouble-free operation.

4.1.1. After first 100 hours

- Inspect conveyor belt parts for excessive wear. If excessive wear is noted, belt should be removed and repaired. (Refer to chapter 3.4 for belt removal instructions.)
- Grease pillow block bearings, using grease gun. Do not grease too often – bearing seals could be damaged.
- Check belt tension.

4.2. Cleaning

As with any vehicle, machinery, or device, regular cleaning of your conveyor can only serve to improve its operation and prolong its useful life. For cleaning on the outside, use a soft cloth and a regular detergent, for the inside, use a cloth or a brush. However, make sure that the rollers and parts made of synthetic materials do not come into contact with these products. The use of compressed air for cleaning is not advisable, because particles could become lodged in sensitive areas and impede the proper operation of the conveyor.

At no time should solvents, such as acetone, or diluents be used for cleaning the conveyor. At no time should cleaning products come into contact with electrical components.

4.3. Factors affecting performance

The installation is a very important phase that, if neglected, could seriously impede the operation and efficiency of the conveyor system

<table>
<thead>
<tr>
<th>Level</th>
<th>The conveyor must be properly levelled otherwise the flow of coolant through the conveyor will prevent efficient running such as poor coolant drainage, leakage to the floor or surrounding area, wetter than normal chips and poor interfacing of the conveyor baffles and/or flange to the machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment</td>
<td>If the conveyor is not aligned to the machine and/or tank then the conveyor baffles will not mate to the tank and/or casting properly which will result in an increased volume of chips into the machine tank. The incorrect alignment of the conveyor to the machine and/or tank can also result in safety issues as areas of exposed belt may be seen.</td>
</tr>
<tr>
<td>Loose parts</td>
<td>In some cases the conveyor may be supplied with additional bolt on or loose parts that are designed to improve the conveyors performance with the particular machine. This can include adjustable conveyor baffles, flanges and levelling feet. If these are not installed the conveyor may not perform efficiently on the machine.</td>
</tr>
</tbody>
</table>
4.4. Filtration system maintenance

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

The MH500 also incorporates filtration in the side of the conveyor body which cleans coolant flowing through the conveyor to 500 μm maximum particle size. This keeps the coolant tank much cleaner and reduces maintenance.

The filtration consists of a flanged box or boxes which are inserted into an aperture in the side of the conveyor. The base(s) of the box is made from perforated stainless steel sheet metal, with 500 μm holes.

Coolant flowing through the conveyor must pass through the perforations to get out into the coolant tank. The perforations in the filter box are cleaned every minute by a series of brushes which are connected to the inside of the hinge belt. These brushes are normally not visible during the conveyors operation. To view the brushes the access panels (1) at either side of the conveyor can be removed (see below for details).

4.4.1. Filter box removal and replacement

Removing the filter box:

1. To determine whether or not the filter box surface is blocked or damaged, the filtering box (Item 3 as shown below) will have to be removed from the conveyor. On some machines this may be accessible without removing the conveyor from the coolant tank of the machine. On other machines it may be necessary to remove the entire conveyor from the tank to gain access to the box.
2. There may be more than one filter box. Each box should be examined for blockage or damage of the screen material that acts as a filter.

3. **NOTE:** Take care in handling the filter box so that the surface is not punctured, nor the box dropped. This is a precision fabricated unit and for proper functioning, the box must be handled carefully. Any rips in the filtering material will result in the loss of filtration and effectiveness of the conveyor.

4. To remove the filter box, remove the seven nuts, washers and lock washers (Items 4, 5 and 6 shown above). Slide the filter box out from the flanged side. Inspect the flange gasket (Item 2 shown above) to ensure it is not damaged. If so replace the gasket before re-assembly. Failure to do so can result in poor filtration efficiency of the conveyor.

5. After removal of the box, if there is a large build up of fine material is on the bottom surface of the box (the filtering surface), it would indicate that the material is not being removed via the self-cleaning brushes (some material in the box is to be expected during normal operation) if flow is affected or there is a large build up of chips on the mesh then these brushes should be replaced (see the section below “replacement of brushes”).

6. After removal of all loose material on the surface, inspect the box to determine if any fine elements have wedged themselves in the holes in the filtering element. Remove these prior to reinstalling the box.

**Installing the filter box:**

1. After cleaning the box or replacing the brushes as described above, make sure that the area in which the box is mounted inside the conveyor is free of any debris and chips as the box must seat inside the conveyor frame and must form a water-tight joint. Epoxy or gasket cement should be used with the gasket and the box tightened down in a three-step process so as not to distort the frame. Take care not to over-tighten the nuts, light compression of the gasket is all that is required.

**4.4.2. Replacement of brushes**

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

If the brushes are worn or damaged then the following procedure should be used to replace them.

Note:
There are several brushes used on the conveyor belt so each should be looked at in turn:

1. Remove the drive and bearing covers to expose the access panels.

2. Remove the access panels (1) at either side of the conveyor discharge.
3. Position the belt so that the brushes are visible through the access panel in the position shown below (note the belt will need to be rotated to access each brush in turn) great care should be taken to stay clear of the belt when it is rotating.

4. The brush holder (1) is attached to the belt with rivets. The brush element (2) slides into and out of the brush holder (1).

5. Replace brush elements (2) as needed.
5.1. Spare parts
Without the written consent of LNS, no addition or modification of the machine or spare parts can be undertaken. LNS assumes no responsibility when using spare parts which were not provided by LNS.

5.1.1. Layout of the elements

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>End cover discharge</td>
</tr>
<tr>
<td>2</td>
<td>Drive sprocket</td>
</tr>
<tr>
<td>3</td>
<td>Top cover discharge</td>
</tr>
<tr>
<td>4</td>
<td>Drive shaft</td>
</tr>
<tr>
<td>5</td>
<td>Drive sprocket</td>
</tr>
<tr>
<td>6</td>
<td>Bearing</td>
</tr>
<tr>
<td>7</td>
<td>Motor mounting plate</td>
</tr>
<tr>
<td>8</td>
<td>Motor</td>
</tr>
<tr>
<td>9</td>
<td>Drive cover</td>
</tr>
<tr>
<td>10</td>
<td>Access panel</td>
</tr>
<tr>
<td>11</td>
<td>Eye bolts</td>
</tr>
<tr>
<td>12</td>
<td>Top cover incline</td>
</tr>
<tr>
<td>13</td>
<td>Lower curve tracks RH</td>
</tr>
<tr>
<td>14</td>
<td>Load track</td>
</tr>
<tr>
<td>15</td>
<td>Tail disc</td>
</tr>
<tr>
<td>16</td>
<td>Tail end tracks RH</td>
</tr>
<tr>
<td>17</td>
<td>Tail filler</td>
</tr>
<tr>
<td>18</td>
<td>Tail end cover</td>
</tr>
</tbody>
</table>
### Designation | Description
--- | ---
19 | Tail end tracks LH
20 | Formed load
21 | Filter box gasket
22 | Filter box
23 | Lower curve tracks LH
24 | Bottom cover lower curve
25 | Formed incline
26 | Castor set
27 | Castor plate
28 | Bearing cover
29 | Access panel
30 | Bearing
31 | Bearing mounting bracket

**Note:**
The appearance of the conveyor may vary and some components may not be present on your conveyor due to application design.
Appendix A: Ordering form
Appendix B: Address LNS
Appendix A: Ordering form

*This form should be photocopied, duly filled out, and returned to your retailer or nearest LNS agent*

Company name:

Person in charge:

Address:

ZIP:  City:

Country:

Phone:

Fax:

Type of device:

Serial number:

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Ordering no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Expected delivery:

Location and date:

Signature and stamp of the company:
Find our complete agent and service centers network on www.LNS-GROUP.COM
# TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION ...................................................................................... 3

1.1. Basic introduction ........................................................................................................ 4
   1.1.1. Symbols and terminology ...................................................................................... 4

1.2. Rights ................................................................................................................................. 5

1.3. Characteristics .................................................................................................................. 6
   1.3.1. Floor plans .............................................................................................................. 6

CHAPTER 2: SETTING INTO OPERATION ................................................................... 7

2.1. Transportation .................................................................................................................. 8

2.2. Unpacking ........................................................................................................................... 8

2.3. Lifting the conveyor ......................................................................................................... 9

2.4. Fitting the castors .......................................................................................................... 10

2.5. Safety devices ................................................................................................................... 11
   2.5.1. Description .............................................................................................................. 11
   2.5.2. Layout of the safety elements on the conveyor ......................................................... 11
   2.5.3. Installation safety .................................................................................................... 12
   2.5.4. Security analysis for the correct incorporation .......................................................... 13

2.6. Installation and startup .................................................................................................... 14
   2.6.1. Conveyor drive ....................................................................................................... 14
   2.6.2. Leveling .................................................................................................................. 14
   2.6.3. Connection to the machine ..................................................................................... 14
   2.6.4. Electrical connection ............................................................................................... 15
   2.6.5. Setting the voltage of the motor ............................................................................. 16
   2.6.6. Electrical control ..................................................................................................... 16

CHAPTER 3: CONVEYOR BELT ................................................................................. 17

3.1. Belt direction .................................................................................................................... 18

3.2. Belt tensioning – Checking the tension .......................................................................... 18

3.3. Belt tensioning – How to tension the belt ....................................................................... 20

3.4. Belt removal and installation ........................................................................................... 21

3.5. Belt assemblies ................................................................................................................. 25
   3.5.1. Belt with internal filter cleaning brushes ................................................................... 25

CHAPTER 4: MAINTENANCE ..................................................................................... 26

4.1. Periodic inspection .......................................................................................................... 27
   4.1.1. After first 100 hours ................................................................................................. 27

4.2. Cleaning ............................................................................................................................. 27

4.3. Factors affecting performance ....................................................................................... 27
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4. Filtration system maintenance</td>
<td>28</td>
</tr>
<tr>
<td>4.4.1. Filter box removal and replacement</td>
<td>28</td>
</tr>
<tr>
<td>4.4.2. Replacement of brushes</td>
<td>29</td>
</tr>
<tr>
<td>CHAPTER 5: OPTIONS</td>
<td>32</td>
</tr>
<tr>
<td>5.1. Spare parts</td>
<td>33</td>
</tr>
<tr>
<td>5.1.1. Layout of the elements</td>
<td>33</td>
</tr>
<tr>
<td>CHAPTER 6: APPENDICES</td>
<td>36</td>
</tr>
<tr>
<td>Appendix A: Ordering form</td>
<td>37</td>
</tr>
<tr>
<td>Appendix B: Address LNS</td>
<td>38</td>
</tr>
</tbody>
</table>
1.1. Basic introduction

LNS conveyors simply and reliably remove waste from machining operations. Machine efficiency is increased and operator safety is improved since the conveyors work with little operator attention and without interrupting production time. LNS conveyors are available for many types of machine tools or other applications. They can be arranged to deliver wet or dry waste to containers or to conveyor or chute-type disposal systems. For further information, contact LNS.

The TURBO MH Series conveyor was specifically designed to handle a wide variety of materials and applications where filtration is not required. Its simple yet robust construction ensures it offers a long, continuous, trouble free operation in the most demanding of today’s machining environments.

Combining the latest conveyor technology and user friendliness, it provides efficient chip removal, while remaining simple to use and highly reliable. Given its compact assembly, TURBO MH Series requires very little space, and allows for optimum use of the work surface.

1.1.1. Symbols and terminology

This sign recommends following the directions very closely avoiding causing an incident that could result in injury, damage to the equipment, or data loss.

This sign indicates that safety measures must be taken to avoid possible electrical shocks or mishaps.

This sign stress interesting points or comments, and provide useful advice for optimal system operation.
1.2. Rights

All rights reserved. Reproduction, recording or transmission of all, or any portion, of this manual, in any form or through any means whatsoever, whether mechanical, photographic, sound or other, without the express written authorization of LNS, is prohibited. LNS disclaims all responsibility for errors which may be contained in this manual and the problems which may result therefrom.

LNS and its subsidiaries cannot be made responsible for the debts, losses, expenses, or damage incurred, or suffered, by the buyer of this product, or a third party, following an accident, incorrect use, or misuse, or stemming from modifications, repairs, or transformations not authorized by LNS.

LNS and its subsidiaries cannot be held responsible for damage and problems arising from the use of options and products other than LNS products, or products approved by LNS.

The names of the products indicated in this manual are registered trademarks.

All information contained in this manual is intended to be correct, however information and data in this manual are subject to change without notice. LNS makes no warranty of any kind of regard to this information or data. Further, LNS is not responsible for any omissions or errors or consequential damage caused by the user of the product. LNS reserves the right to make manufacturing changes which may not be included in this manual.

LNS supplies data necessary for the proper instruction, test, operation and maintenance of this product. LNS retains all proprietary rights in and to the information so disclosed and such shall not be reproduced, copied, or used in whole or in part for purposes other than those for which it is furnished.
1.3. Characteristics

Depending on the country and the standards in effect, certain technical data, such as the power supply, may vary. Please see the technical card delivered with the device.

<table>
<thead>
<tr>
<th>Drawing dimension</th>
<th>Conveyor terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Frame width</td>
</tr>
<tr>
<td>B</td>
<td>Baffle height LH</td>
</tr>
<tr>
<td>C</td>
<td>Baffle width</td>
</tr>
<tr>
<td>D</td>
<td>Baffle height RH</td>
</tr>
<tr>
<td>E</td>
<td>Tail height</td>
</tr>
<tr>
<td>F</td>
<td>Baffle length</td>
</tr>
<tr>
<td>G</td>
<td>Overall height</td>
</tr>
<tr>
<td>H</td>
<td>Discharge height</td>
</tr>
<tr>
<td>I</td>
<td>Load above floor</td>
</tr>
<tr>
<td>J</td>
<td>Conveyor length</td>
</tr>
<tr>
<td>K</td>
<td>Load length</td>
</tr>
<tr>
<td>L</td>
<td>Incline angle</td>
</tr>
</tbody>
</table>

Conveyor frame dimensions:

- W-Width: 266.7–673.1 mm (10.5”–26.5”)
- E-Height: 130 mm (5.1”)

1.3.1. Floor plans

Each conveyor varies in size depending on the machine tool it is designed to fit to. Above is a general diagram which can be used to help in communications with LNS regarding size queries and enquiries.
CHAPTER 2: SETTING INTO OPERATION
2.1. Transportation

Please read the safety precautions described at the beginning of this manual before handling the following devices.

Depending on its destination, the MH conveyor is normally secured to a pallet then heat sealed inside a protective plastic cover. All shipping documents including this manual are also secured to the pallet. Regardless of the type of packaging, the un-creating and lifting instructions recommended by LNS must be observed in order to prevent any injuries to persons and damages to objects.

2.2. Unpacking

For practical and safety reasons, the conveyor must be unpacked in a spacious, well-lit location.

Check to see that the lifting capacity of the hoisting crane, or lift truck, is adequate before proceeding with the handling of the merchandise. No one should be near the hanging load, or within the operating range of the overhead hoist/crane, forklift, or any other means used for lifting and transportation.

1. If the conveyor is received as shown above start by removing the protective plastic material
2. Cut any steel banding used to secure the conveyor to the pallet using side cutters (always wear eye protection and gloves)
3. Remove any screws holding the conveyor to the pallet including those through the castor plate.
2.3. Lifting the conveyor

Check to see that the lifting capacity of the hoisting crane, or lift truck, is adequate before proceeding with the handling of the merchandise. No one should be near the hanging load, or within the operating range of the overhead hoist/crane, forklift, or any other means used for lifting and transportation.

Lifting points are strategically placed around the conveyor system to allow the conveyor to be safely lifted with a fork truck or lifting straps. Otherwise points under the system are marked with arrows for safe, balanced, lifting points for fork trucks to lift the conveyor system. Always read the weight on the conveyor and check it against the capacity of the lifting equipment before attempting to lift:
2.4. Fitting the castors

Before attempting to fit the castors ensure the conveyors weight is properly and securely off the castor plate and the conveyor is properly balanced to prevent injury.

Depending on the specific design of conveyor the castors may either be welded to the conveyor or bolted to the conveyor. If they are bolted to the conveyor they are normally shipped bolted upside down to the castor plate for stability in transport if this is the case then they will need to be fitted prior to installation. Please see the drawing below for the castor assembly:

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leg brace</td>
</tr>
<tr>
<td>2</td>
<td>Formed leg</td>
</tr>
<tr>
<td>3</td>
<td>Locking nut</td>
</tr>
<tr>
<td>4</td>
<td>Castor</td>
</tr>
<tr>
<td>5</td>
<td>Welded/Fixed nut</td>
</tr>
<tr>
<td>6</td>
<td>Castor plate</td>
</tr>
</tbody>
</table>

Note:
Some conveyors have castors welded in place for shipping purposes.
2.5. Safety devices

The LNS Company, or its local representative, may not be held responsible for possible accidents or property damage, whether caused directly or not, by any means whatsoever, if certain safety devices have not been included.

2.5.1. Description

The TURBO MH Series conveyor has been designed with a focus on maximum safety during its handling and complies with all EC requirements.

Safety covers and devices make access to the moving parts of the conveyor impossible during operation. The conveyor – machine interface must ensure that the conveyor cannot run when the machine door is open. All safety interlocks on the conveyor or machine must not be over written at any time. The installation of the Hinge conveyor on site must ensure the belt is inaccessible during operation. It is recommended that an E-Stop cord is installed around the discharge area of the conveyor and integrated to the machines safety circuit. Suitable guarding should be provided between the conveyor discharge and the receiving chip container.

2.5.2. Layout of the safety elements on the conveyor

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bearing cover</td>
</tr>
<tr>
<td>2</td>
<td>Top cover incline</td>
</tr>
<tr>
<td>3</td>
<td>End cover discharge</td>
</tr>
<tr>
<td>4</td>
<td>Drive cover</td>
</tr>
</tbody>
</table>

Note:
Direct drive motor version shown.
2.5.3. Installation safety
In order to ensure the proper installation of the conveyor several steps must be taken. These steps are listed below. It is possible to purchase these parts from LNS if required. Speak to your local LNS representative for further details:

1) Suitable guarding must be used between the waste receptacle and the conveyor to ensure no access to the moving belt is possible when the receptacle is in place (4). It is recommended to utilize an interlock between the two components to stop the belt when the receptacle is removed. In case any part of the belt is accessible then an emergency stop cord around the discharge of the conveyor must be integrated to the machine tools emergency stop circuit where the conveyor and machine are stopped immediately if the cord (1) is pulled.

2) Suitable guarding must be installed around the area where the conveyor fits to the machine to ensure that no conveyor belt (2) is exposed to the customer.

3) A suitable waste receptacle must be utilized with the conveyor to ensure a proper fit to the conveyor dimensions and working conditions (3).

4) The conveyor must be integrated to the machines control circuit in such a way that the conveyor belt cannot run when the machine door (5) is opened.

5) Suitable warning signs must be placed at the danger zones of the conveyor such as the discharge area to warn personnel of risk of injury.
2.5.4. Security analysis for the correct incorporation

Before considering assembling the machine, it is necessary to consider the following points:

- Consider security strategies that reduce risks to an acceptable level;
- Define the tasks required for applications to predict and assess the need of access and/or for the approach;
- Identify sources of risks, including failures and failure modes associated with each task. Risks can come from:
  - machine in which the device is integrated;
  - its association with other equipment,
- Evaluate and assess the risks associated by using the machine
  - programming risks
  - operation risks
  - risks of use
  - maintenance risks
- Choose methods of protection:
  - the use of protective devices
  - the introduction of signals
  - compliance with safe work procedures
2.6. Installation and startup

Your conveyor has been run prior to shipment to insure proper operation. However, it is recommended that the following checks be made before startup:

2.6.1. Conveyor drive

- Check frame and belt for damage during shipment or storage.
- Locate conveyor in operating position inside the machine (see separate specific interface instructions).
- All drive elements (pulleys and sprockets) should be located close to their bearing supports. Each set of pulleys and sprockets should be carefully aligned to prevent excessive wear and noise.
- Drive chains and belts should be properly tensioned.

2.6.2. Leveling

A level should be placed across tail section and on the conveyor belt inline with the direction of travel of the belt. Adjust the conveyor or tanks castors to ensure the system is level. If the system is not equipped with castors or jacking screws then it may be necessary to shim the system to make it level.

When the conveyor is installed to the machine it may be necessary to level the conveyor by adjusting the setting of the conveyor leg in conjunction with a level. See the diagram below for details.

2.6.3. Connection to the machine

Once the conveyor has been installed to the machine, the conveyor must be connected to the interface of the machine and if an Air header is supplied an air supply must be connected to the conveyor. At this stage all guards must be in place as indicated in the specific installation instructions and in this manual.

For the electrical connection, please see section 2.6.4. and, if an electrical control is supplied, the electrical drawing inside the conveyors electrical box.
2.6.4. Electrical connection

Particular attention should be given to the handling of electrical elements because of risks of electrocution. In case of possible electrical malfunctions, it is advisable to contact LNS or their local representative.

It is strictly prohibited to make adjustments as long as the conveyor is under electrical power. The adjustments of the electrical equipment must only be performed by qualified personnel in line with local regulations.

During the installation, ensure that the motor is wired in accordance with the supply voltage available. The supply voltage of the conveyor is indicated on the electrical drawing supplied in the conveyors control panel. If no control panel is supplied then the voltage can be checked directly at the conveyor motor terminal box (1) as shown below in section 2.6.5.

Even if the electrical drawing is correct to the machines requirements the conveyor motor should be checked to ensure the voltage setting is correct to prevent possible damage.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Motor terminal box</td>
</tr>
</tbody>
</table>
2.6.5. Setting the voltage of the motor

If the voltage does not correspond, the wiring of the motor must be modified:

2.6.6. Electrical control

Your conveyor may or may not be supplied with an electrical control depending on the machine and applications’ requirements. If an electrical control is supplied then please see the electrical drawing inside the control panel for specific details. If any faults with the conveyor control occur or further information is required, please consult your LNS local representative.
CHAPTER 3: CONVEYOR BELT
3.1. Belt direction

Please read the safety instructions provided at the beginning of this manual before starting the conveyor.

3.2. Belt tensioning – Checking the tension

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

Correct conveyor belt tension is essential to ensure proper operation and extended life of the conveyor components. The belt has been properly tensioned during factory assembly. As normal wear occurs the belt may become slack and need adjustment. The following factors may be used to determine whether the belt needs adjustment.

Belt too loose: Belt slack at exit point of the drive sprocket before re-entry into frame (see illustration).

Belt too tight: Belt has intermittent jerks and a popping sound while the conveyor is in operation.
Uneven tension (side to side): The belt tends to track to one side. An indication of this is excessive wear on outside of side wings as shown below:

Check to see that the clutch body is square to the bearing mounting bracket. If it is not, this will generally indicate which direction the belt is off on side to side tension.

Once it is determined that re-tensioning of the belt is necessary, the following procedure should be followed:
3.3. Belt tensioning – How to tension the belt

Torque wrench required.

1. Install the belt as stated in Section “belt installation” below, except do not install the drive cover or tension the belt.

2. Tighten the bolts that attach the drive shaft bearings to the conveyor (1), then loosen 1 ¼ turns. (This step ensures that bearing is parallel to bearing mount surface, and that the lock washer is not adding additional torque to reading.)

3. Set the torque wrench to 2.8Nm. Tighten (clockwise) each bearing adjusting bolt (2) on each side of the conveyor, alternately until 2.8Nm is obtained and torque wrench no longer turns adjusting belt, but clicks at rotation.

4. Manually rotate belt back and forth. (This distributes tension evenly throughout the belt).

5. Repeat steps (3) and (4) until belt rotation no longer results in decreased torque setting. This step ensures that both sides of belt are tensioned equally. Lock adjusting bolts.

6. Run machine for a two-hour break-in period.

7. Loosen adjusting bolts lock nuts. Loosen bearing belts as noted in step (2).

Repeat steps (3), (4), and (5). The belt must be re-torqued to obtain correct tension after break-in period (see guide below).

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bolts</td>
</tr>
<tr>
<td>2</td>
<td>Adjusting bolts</td>
</tr>
</tbody>
</table>

Note:
Belts with discharge heights in excess of 1200 mm or load lengths in excess of 2500 mm may require higher torque settings application or different incline angles can also affect the required torques settings. Contact LNS if assistance is needed.

Torque Guide

- Overall Length to 225 inches  25 inch pounds
- Overall Length 225 to 375 inches  35 inch pounds
- Overall Length 375 inches and over  45 inch pounds
3.4. Belt removal and installation

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

1. Remove the motor and bearing cover from the discharge.

2. One by one loosen and remove the 2 bolts (1) holding the motor to the motor mounting plate. When removed the motor can be slid off the drive shaft and removed (note: keep hold of the key used in the keyway as this will be required for re-assembly)

3. Loosen the lock nuts (4) on the belt tension adjusting screws (5) and back off the belt tensioning adjusting screws (5) until they are flush with the face of the adjusting bracket.

4. Loosen the 2 bolts (2) holding each pillow block bearing.

5. Slide the drive shaft toward the tail of the conveyor as far as the adjusting slots for the pillow block bearings (3) will allow. This will provide maximum slack in the belt.
6. Remove the maintenance access panels (1) from each side of the conveyor side plate discharge’s to expose either side of the belt.

7. It may be necessary to rotate the belt until a cotter pin is in position through the access panel. This can normally be done by hand (using hand tools) or it may be necessary to temporarily reconnect the motor for this. When the cotter pin is in position as shown below, carefully remove it from the end of the belt pin (before doing so, ensure that you have a new one to replace it when re-installing the belt).
8. Catch the flat washers and rollers. Pull the hinge pin out through the access panel on the opposite side of the conveyor as shown below.

9. Grasp the end of belt below the drive shaft and pull the belt out of the conveyor. Be sure to wear gloves to avoid being cut by sharp edges on the belt. When only a few feet of belt remain in the conveyor, the belt on the floor will have enough weight to begin pulling the remainder out on its own. As the last of the belt begins to run out faster, don’t attempt to stop it; just stand clear and let it run out onto the floor. Note that the belt was moved in the direction opposite normal belt travel.

10. Before moving the old belt out of the way, pay particular attention to the way the side wings overlap. When the belt is running in the normal direction of travel, the leading ends of the side wings are outboard, and the trailing ends are inboard.

11. Place the new belt on the floor beneath the conveyor discharge, being careful to orient it in the same direction as the old one that was removed.
12. If there is not already a hinge pin in the end of the belt, use the pin and rollers that were removed to separate the old belt. There must be a pin and rollers in the extreme end of the belt for ease of insertion.

13. With a person standing on either side of the belt, lift up the lead end and start it in the lower track, from which the old belt was pulled out. Insert the belt in the reverse direction from taking it out. Be sure and wear gloves to prevent injury, and be sure to maintain a secure hold on the belt until at least five feet have been fed into the conveyor frame. At this point, the weight of the belt inside the frame should be enough to prevent it running back out on its own. Rollers and pin must be in the extreme end of the belt for ease of insertion.

14. Continue feeding the belt into the conveyor frame. One person may have to use a pry bar to "help" it along from time to time. Force should not be required. Many times the belt can be pushed in all the way around from the discharge end. If the belt hangs up, look for some obstruction; do not force it.

15. When the lead end of the belt reaches the drive shaft, carefully feed it up over the drive sprockets.

16. Remove the hinge pin and rollers that were used to help guide the belt through the track.

17. With the ends of the belt engaged in the teeth around the top and bottom of the drive sprockets, the two ends should join. At this point, it may be necessary to remove two or more hinge plates from the new belt. Most new belts are supplied longer than necessary.

18. Reverse steps 1 through 7.

19. When adjusting belt tension, clamp a pair of vise grip pliers on one of the formed cleats on the belt. Use the vise grips to "rock" the belt back and forth to feel the slack and drag on the belt. There should not be more than enough slack to allow rocking the drive shaft through 15 degrees of rotation without moving the belt. On a new belt, zero slack is O.K., but if the belt is difficult to move with the vise grips, it is too tight.

20. Visually confirm the belt is located in the center of the frame. Adjust if necessary by loosening the setscrews in the pillow block bearings and shifting the drive shaft; motor and all; to the left or right as appropriate.

21. Re-connect power and test run the conveyor. The belt should run freely and the only sound should be a subdued clicking as each hinge plate passes over the drive sprocket.
3.5. Belt assemblies

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

3.5.1. Belt with internal filter cleaning brushes

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brush holder</td>
</tr>
<tr>
<td>2</td>
<td>Brush hinge plate</td>
</tr>
<tr>
<td>3</td>
<td>Hinge plate</td>
</tr>
<tr>
<td>4</td>
<td>Side wing</td>
</tr>
<tr>
<td>5</td>
<td>Roller</td>
</tr>
<tr>
<td>6</td>
<td>Side link</td>
</tr>
<tr>
<td>7</td>
<td>Belt link pin</td>
</tr>
<tr>
<td>8</td>
<td>Brush</td>
</tr>
</tbody>
</table>
CHAPTER 4: MAINTENANCE
4.1. Periodic inspection

Please read the safety instructions provided at the beginning of this manual before handling the following devices. Switch off the power supply to the system before commencing any maintenance work.

The TURBO MH series conveyor has been designed to be low maintenance, however, the following periodic checks should be completed at the recommended service intervals to ensure continued and trouble-free operation.

4.1.1. After first 100 hours

- Inspect conveyor belt parts for excessive wear. If excessive wear is noted, belt should be removed and repaired. (Refer to chapter 3.4 for belt removal instructions.)
- Grease pillow block bearings, using grease gun. Do not grease too often – bearing seals could be damaged.
- Check belt tension.

4.2. Cleaning

As with any vehicle, machinery, or device, regular cleaning of your conveyor can only serve to improve its operation and prolong its useful life. For cleaning on the outside, use a soft cloth and a regular detergent, for the inside, use a cloth or a brush. However, make sure that the rollers and parts made of synthetic materials do not come into contact with these products. The use of compressed air for cleaning is not advisable, because particles could become lodged in sensitive areas and impede the proper operation of the conveyor.

At no time should solvents, such as acetone, or diluents be used for cleaning the conveyor. At no time should cleaning products come into contact with electrical components.

4.3. Factors affecting performance

The installation is a very important phase that, if neglected, could seriously impede the operation and efficiency of the conveyor system

<table>
<thead>
<tr>
<th>Level</th>
<th>The conveyor must be properly levelled otherwise the flow of coolant through the conveyor will prevent efficient running such as poor coolant drainage, leakage to the floor or surrounding area, wetter than normal chips and poor interfacing of the conveyor baffles and/or flange to the machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alignment</td>
<td>If the conveyor is not aligned to the machine and/or tank then the conveyor baffles will not mate to the tank and/or casting properly which will result in an increased volume of chips into the machine tank. The incorrect alignment of the conveyor to the machine and/or tank can also result in safety issues as areas of exposed belt may be seen.</td>
</tr>
<tr>
<td>Loose parts</td>
<td>In some cases the conveyor may be supplied with additional bolt on or loose parts that are designed to improve the conveyors performance with the particular machine. This can include adjustable conveyor baffles, flanges and levelling feet. If these are not installed the conveyor may not perform efficiently on the machine.</td>
</tr>
</tbody>
</table>
4.4. Filtration system maintenance

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

The MH Series also incorporates filtration in the side of the conveyor body which cleans coolant flowing through the conveyor to 500µm or 250µm maximum particle size. This keeps the coolant tank much cleaner and reduces maintenance.

The filtration consists of a flanged box or boxes which are inserted into an aperture in the side of the conveyor. The base(s) of the box is made from stainless steel sheet metal, with holes to provide the filtration.

Coolant flowing through the conveyor must pass through the perforations to get out into the coolant tank. The perforations in the filter box are cleaned every minute by a series of brushes which are connected to the inside of the hinge belt. These brushes are normally not visible during the conveyors operation. To view the brushes the access panels (1) at either side of the conveyor can be removed (see below for details).

4.4.1. Filter box removal and replacement

Removing the filter box:

1. To determine whether or not the filter box surface is blocked or damaged, the filtering box (Item 3 as shown below) will have to be removed from the conveyor. On some machines this may be accessible without removing the conveyor from the coolant tank of the machine. On other machines it may be necessary to remove the entire conveyor from the tank to gain access to the box.
2. There may be more than one filter box. Each box should be examined for blockage or damage of the screen material that acts as a filter.

3. **NOTE:** Take care in handling the filter box so that the surface is not punctured, nor the box dropped. This is a precision fabricated unit and for proper functioning, the box must be handled carefully. Any rips in the filtering material will result in the loss of filtration and effectiveness of the conveyor.

4. To remove the filter box, remove the seven nuts, washers and lock washers (Items 4, 5 and 6 shown above). Slide the filter box out from the flanged side. Inspect the flange gasket (Item 2 shown above) to ensure it is not damaged. If so replace the gasket before re-assembly. Failure to do so can result in poor filtration efficiency of the conveyor.

5. After removal of the box, if there is a large build up of fine material is on the bottom surface of the box (the filtering surface), it would indicate that the material is not being removed via the self-cleaning brushes (some material in the box is to be expected during normal operation) if flow is affected or there is a large build up of chips on the mesh then these brushes should be replaced (see the section below “replacement of brushes”).

6. After removal of all loose material on the surface, inspect the box to determine if any fine elements have wedged themselves in the holes in the filtering element. Remove these prior to reinstalling the box.

**Installing the filter box:**

1. After cleaning the box or replacing the brushes as described above, make sure that the area in which the box is mounted inside the conveyor is free of any debris and chips as the box must seat inside the conveyor frame and must form a water-tight joint. Epoxy or gasket cement should be used with the gasket and the box tightened down in a three-step process so as not to distort the frame. Take care not to over-tighten the nuts, light compression of the gasket is all that is required.

4.4.2. **Replacement of brushes**

![]

Please read the safety instructions provided at the beginning of this manual before carrying out any maintenance on the conveyor.

If the brushes are worn or damaged then the following procedure should be used to replace them.

**Note:**
There are several brushes used on the conveyor belt so each should be looked at in turn:

1. Remove the drive and bearing covers to expose the access panels.

2. Remove the access panels (1) at either side of the conveyor discharge.
3. Position the belt so that the brushes are visible through the access panel in the position shown below (note the belt will need to be rotated to access each brush in turn) great care should be taken to stay clear of the belt when it is rotating.

4. The brush holder (1) is attached to the belt with rivets. The brush element (2) slides into and out of the brush holder (1).

5. Replace brush elements (2) as needed.
5.1. Spare parts
Without the written consent of LNS, no addition or modification of the machine or spare parts can be undertaken. LNS assumes no responsibility when using spare parts which were not provided by LNS.

5.1.1. Layout of the elements

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>End cover discharge</td>
</tr>
<tr>
<td>2</td>
<td>Drive sprocket</td>
</tr>
<tr>
<td>3</td>
<td>Top cover discharge</td>
</tr>
<tr>
<td>4</td>
<td>Drive shaft</td>
</tr>
<tr>
<td>5</td>
<td>Drive sprocket</td>
</tr>
<tr>
<td>6</td>
<td>Bearing</td>
</tr>
<tr>
<td>7</td>
<td>Motor mounting plate</td>
</tr>
<tr>
<td>8</td>
<td>Motor</td>
</tr>
<tr>
<td>9</td>
<td>Drive cover</td>
</tr>
<tr>
<td>10</td>
<td>Access panel</td>
</tr>
<tr>
<td>11</td>
<td>Eye bolts</td>
</tr>
<tr>
<td>12</td>
<td>Top cover incline</td>
</tr>
<tr>
<td>13</td>
<td>Lower curve tracks RH</td>
</tr>
<tr>
<td>14</td>
<td>Load track</td>
</tr>
<tr>
<td>15</td>
<td>Tail disc</td>
</tr>
<tr>
<td>16</td>
<td>Tail end tracks RH</td>
</tr>
<tr>
<td>17</td>
<td>Tail filler</td>
</tr>
<tr>
<td>18</td>
<td>Tail end cover</td>
</tr>
</tbody>
</table>
### Designation | Description
--- | ---
19 | Tail end tracks LH
20 | Formed load
21 | Filter box gasket
22 | Filter box
23 | Lower curve tracks LH
24 | Bottom cover lower curve
25 | Formed incline
26 | Castor set
27 | Castor plate
28 | Bearing cover
29 | Access panel
30 | Bearing
31 | Bearing mounting bracket

**Note:**
The appearance of the conveyor may vary and some components may not be present on your conveyor due to application design.
Appendix A:
Ordering form A-2

Appendix B:
Address LNS A-3
Appendix A: Ordering form

*This form should be photocopied, duly filled out, and returned to LNS using the information found in Appendix B below.*

Company name:

Person in charge:

Address:

ZIP:    City:

Country:

Phone:

Fax:

Type of device:

Serial number:

<table>
<thead>
<tr>
<th>Qty</th>
<th>Ordering no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Expected delivery:

Location and date:

Signature and stamp of the company:
Appendix B:

LNS Turbo Contact Information

**LNS America:**  [www.lns-america.com](http://www.lns-america.com)

LNS Turbo, Inc.
203 Turbo Drive
Kings Mountain, NC 28086

Main Phone: 704-739-711
Sales & Service Fax: 704-739-6039
Sales Email: [Sales@Turbosystemsinc.com](mailto:Sales@Turbosystemsinc.com)
Parts and Service Email: [WebService@LNSAmerica.com](mailto:WebService@LNSAmerica.com)