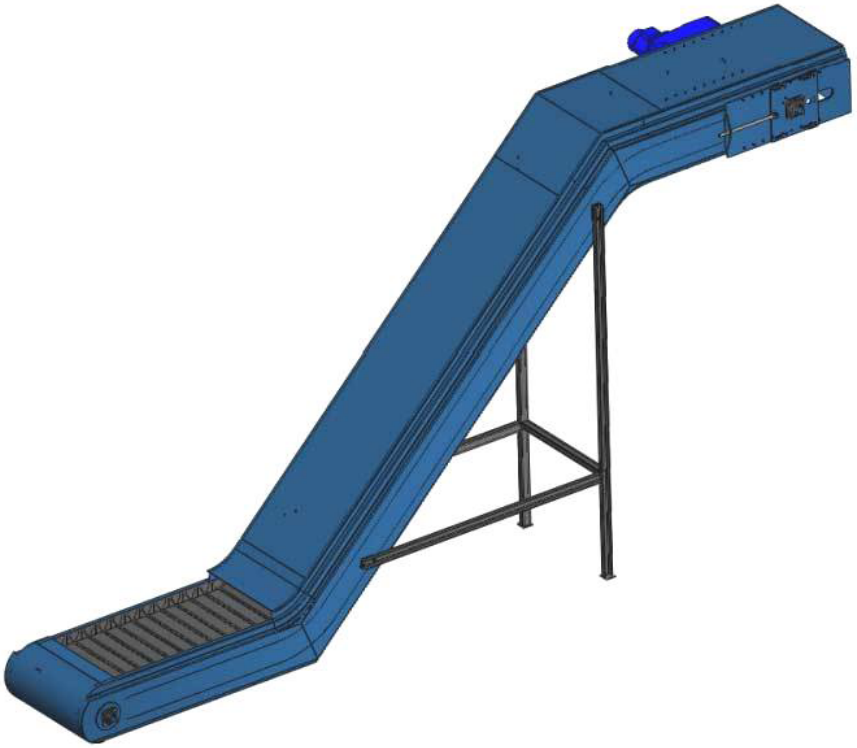
Nederman

Instruction manual

Chip & swarf management system

Steel belt conveyor

TL2M



Original instruction manual

EN INSTRUCTION MANUAL

Translation of original instruction manual

DA BETJENINGSVEJLEDNING
DE BEDIENUNGSANLEITUNG
ES MANUAL DE INSTRUCCIONES
PL INSTRUKCJA UŻYTKOWANIA
SV ANVÄNDARMANUA

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Figures

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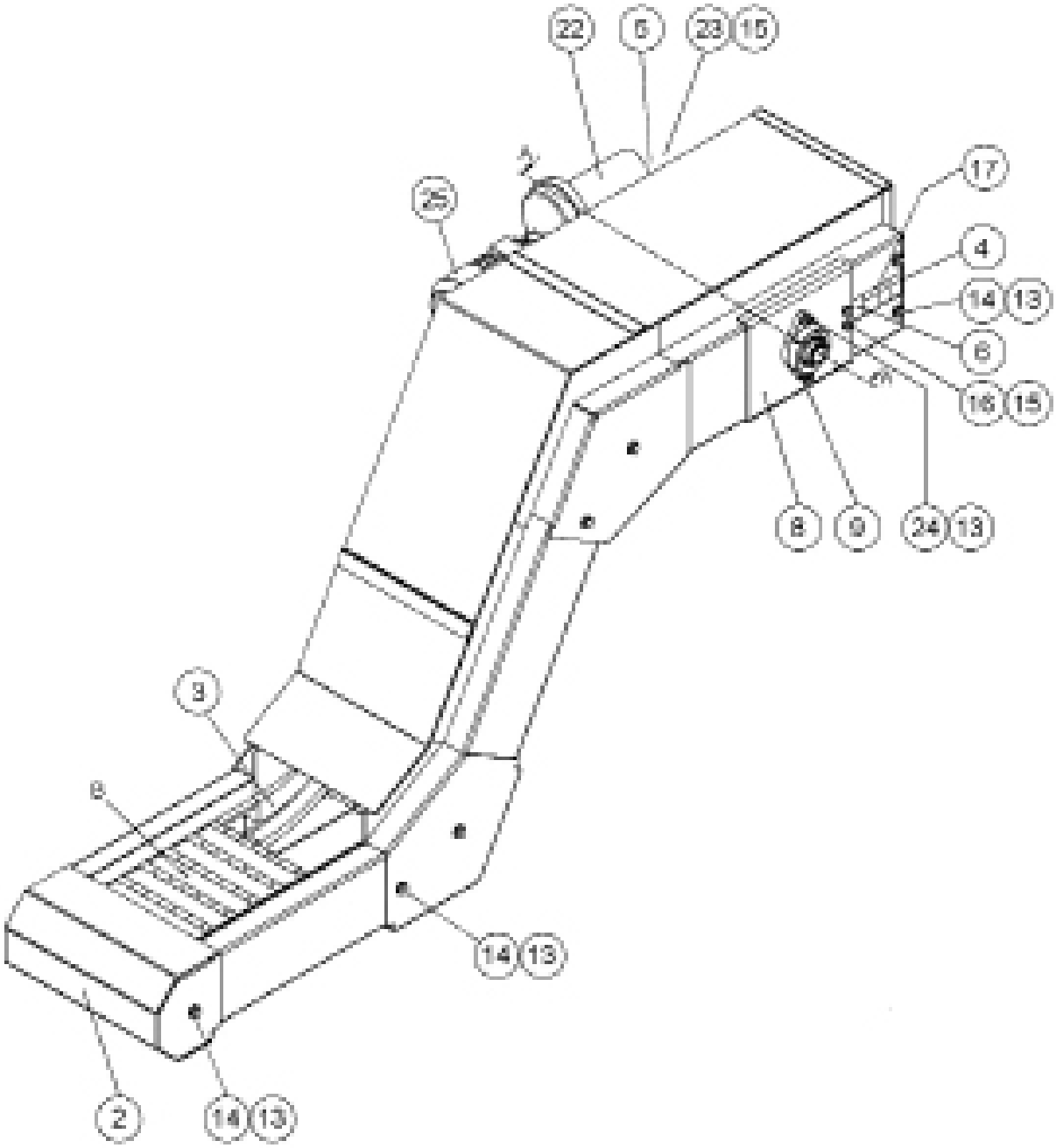

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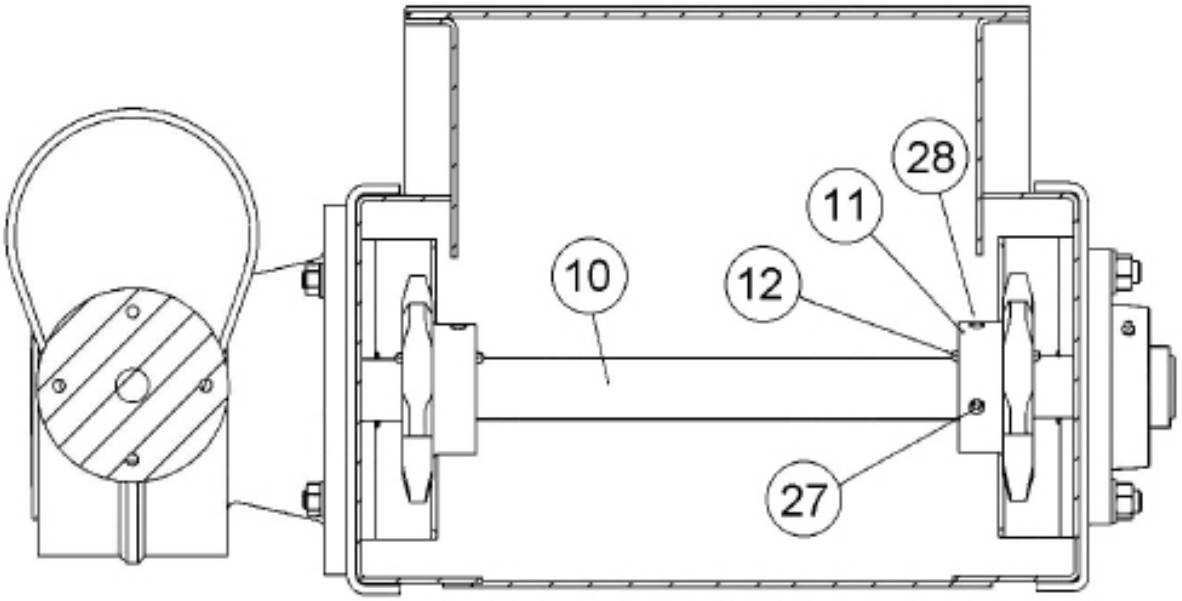
A - A



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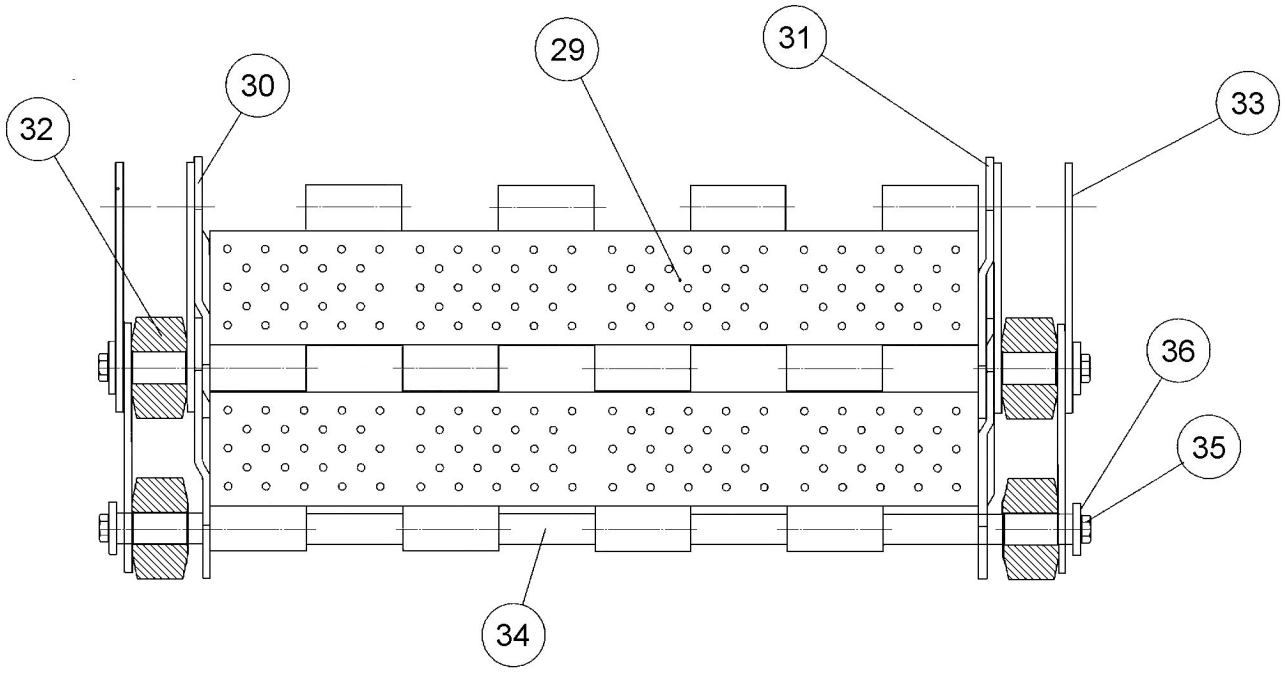

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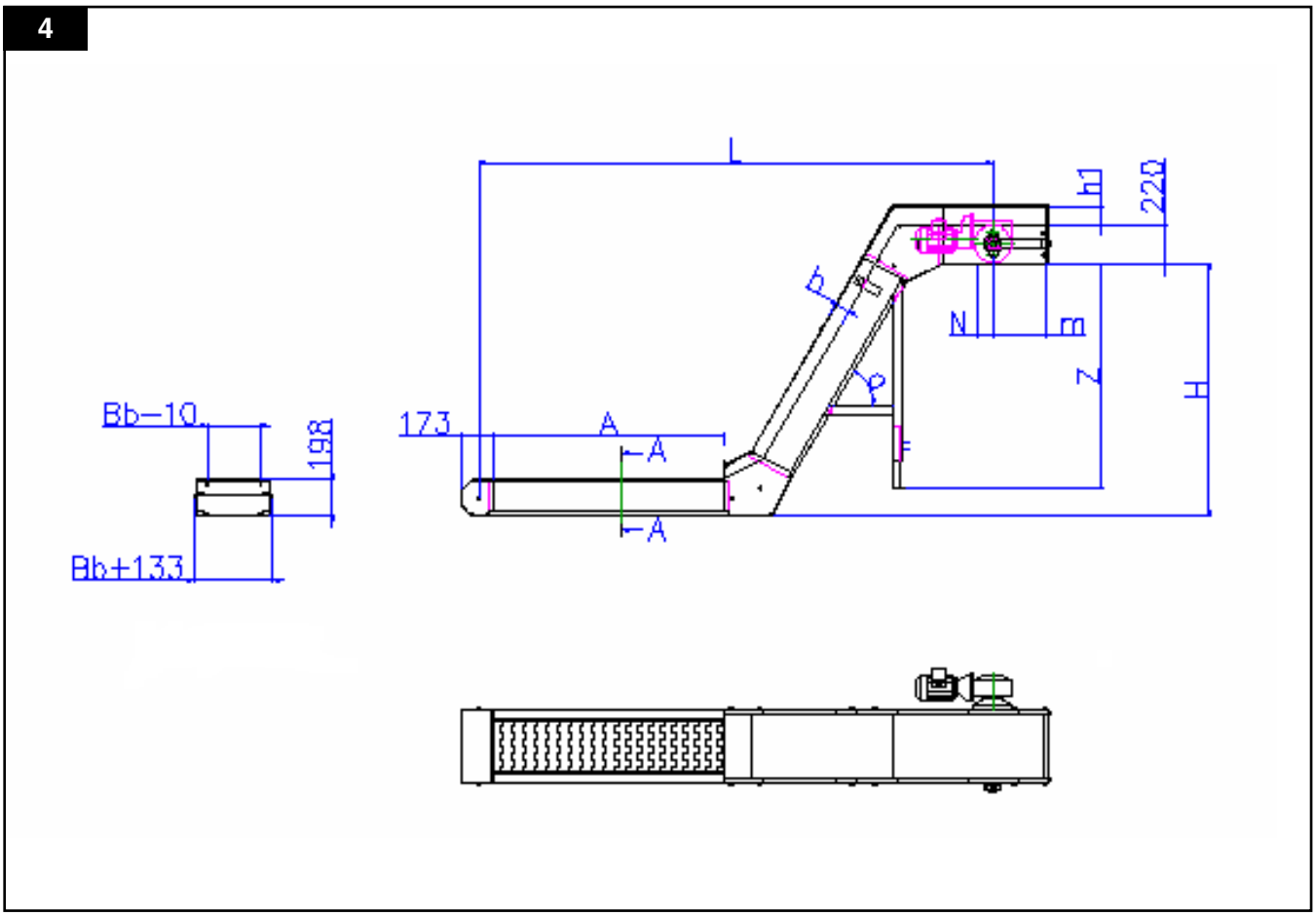

English
Instruction manual

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Table of contents

1 Declaration of conformity

The formal Declaration is attached to your TL2M steel belt conveyor.

2 Preface

This manual is for the correct installation, use and maintenance of this product. Read it carefully before using this product or carrying out maintenance. Replace the manual immediately if lost.

This product has been designed to meet the requirements of relevant EC directives. To maintain this status, all installation, repair and maintenance work for this product is to be carried out by qualified personnel using only original spare parts. Contact the nearest authorized distributor or Nederman for advice on technical service and obtaining spare parts. Also read Chapter '4 Safety' thoroughly.

Nederman continuously improves its products' design and efficiency through modifications, and reserves the right to do so without introducing these improvements to previously supplied products. Nederman also reserve the right to, without previous notice, modify data and equipment as well as operating and maintenance instructions.

NEDERMAN Conveyors guarantee good design, quality components and skilled labour plus years of experience in swarf handling and swarf crushing. All these abilities have been used to design a product with high reliability and long service life. We are convinced that your experiences will confirm your choice of NEDERMAN Swarf Conveyors.

Length of life and reliability can, as with any machine tool, be prolonged with correct installation and correct maintenance. It pays off to follow our advice for maintenance.

This maintenance manual consists of instructions and spare parts list for your new NEDERMAN Steel Belt Conveyor. It also contains greasing instructions, spare parts list and a simple schedule for trouble-shooting.

NEDERMAN Swarf Conveyors are normally used in all machine tools on the market as well as in swarf handling systems which NEDERMAN designs, sells and installs.

All Conveyors which leave our works are checked and do not need any additional maintenance other than stated in this manual.

For orders of spare parts and if you want to contact our engineers please find our phone number and address at the front page of this instruction.

3 Notices on hazards

This document contains important information that is presented either as a warning, caution or note. See the following examples:

WARNING! Type of injury.
Warnings indicate a potential hazard to the health and safety of personnel, and how that hazard may be avoided.

CAUTION! Type of risk.
Cautions indicate a potential hazard to the product but not to personnel, and how that hazard may be avoided.

NOTE! Notes contain other information that is important for personnel.

4 Safety

This chapter contains important information that refer to a potential hazard to the health and safety of personnel, and how that hazard may be avoided.

Safety regulations:

- Electrical installations have to be done by qualified personnel only.
- At connection of voltage feed as well as at service and maintenance work on the conveyor the circuit breaker must be off.
- Test the emergency stop at installation and always when maintenance and service have been done.
- The conveyor must not be operated with the covers removed.
- The data sheet from the coolant supplier must be studied as parts from coolant can cause allergic reactions.

WARNING! The floor around the conveyor might get slippery from coolant getting outside the machine.

5 Description

5.1 Function

NEDERMAN Hinged Steel Belt Conveyors are designed to handle a variation of material in different shapes and forms. They can convey short, long or curled swarf, dry as well as wet. They can also convey parts. Ask NEDERMAN for technical assistance.

The capacity depends on volume/weight of material, size and shape of the chips.

The frame is designed to cover the chain wheels and its components for increased reliability. The material is conveyed on the upper side of the belt, with a minimum of power, to your scrap bin. To get a clean area around the conveyor it is equipped with a top plate. Optional the frame can be welded waterproof.

Flights or cleats can be welded at regular intervals onto the belt in order to increase the capacity of the conveyor. The belt is endless driven by a gear motor placed directly onto the shaft.

Examples of installations where the NEDERMAN hinged belt conveyors are in successful use:

- Incorporated into machine tools to convey swarf from the machine into a scrap bin (as well as for conveying parts).
- In channels below floor level connecting several or a line of machines for automatic swarf removal.
- In press lines to remove press scrap from the machine area.

- In swarf handling systems.

5.2 Technical data

Table 5-1: Specification - dimensions of TL2M conveyors -see Fig. 4

Characteristic	Value
Frame width	Bb + 133 mm
Inlet opening	Bb - 10 mm
Side wall height	80/100 alt 150/170 mm
Selectable measures	H, Z, A, L
Belt pitch	63.5 mm (2.5”)
Belt width	152, 229, 305, 457, 610, 762, 914, 1067, 1219
Total width	Bb + 88 mm
Belt plate thickness	2.5 mm
Side wings height	40 mm
Wheel diameter	Ø 39.7 mm
Shaft diameter	Ø 12.7 mm
Noise level*	< 70 dB(A)

*Measurement based on EN ISO 11201.

6 Main components

We continuously improve our products and their efficiency through the introduction of design modifications. We reserve the right to do this without introducing these improvements on previously supplied products. We also reserve the right, without previous notice, to modify data and equipment, as well as operating and maintenance instructions.

The steel belt conveyor TL2M consists of the following main components:

- Conveyor frame
- Precision hinged steel belt
- Drive system
- Accessories (standard or customized)

Components of TL2M conveyor are shown on Figures 1,2 and 3. For details see also the Table 10-1 indicating the spare parts.

6.1 Accessories

Optionally the TL2M steel belt conveyor may be equipped with:

1. Receiving hopper
2. Shrouds
3. Coolant tank
4. Pump
5. Filter
6. Level sensors
7. Control
8. Support

9. Wear plates made of Hardox steel

7 Before installation

7.1 Delivery checks

Check the unit for any transport damage. In case of damage or parts missing, notify the carrier and your local Nederman representative immediately.

7.2 Installation requirements

Shorter conveyors will be delivered completely assembled, ready to install and to use. Longer conveyors will be delivered in sections.

Consideration must be taken to the positioning of the conveyor in relation to other equipment.

Lifting instructions
The conveyor or the conveying pieces can be handled by a crane.

Use a two-part chain of approved quality and strength and in adapted lengths. Place the chain in the eye bolts on the upper side of the conveyor.

8 Installation

8.1 Installing the conveyor TL2M

When frame junctions are used assure that the wheel path (the frame) is in level on both sides.

The belt side wings must overlap so that the rear part of the front side wing is conducted inside the front part of the rear side wing.

The conveyors shall be placed on a plane ground. They need not to be fastened, but it is an ad-vantage to securely fasten the conveyors with expansion bolts, if it is possible. No dynamic forces are being transmitted from the conveyor.

The lubrication directions from the gear manufacturer have to be followed (see separate instruction manual).

The electric cables to the motor must accommodate a certain flexibility.

9 Using the conveyor TL2M

9.1 Before start-up

WARNING: Before any kind of activity, the SAFETY REGULATIONS (Chapter 4) must be read carefully, and the safety regulations must be strictly adhered to.

9.2 Operation

The operator should always be aware of the normal power consumption of the motor, normal outflow of solid particles, the liquid content of the material

and the level of vibration, By considering the above mentioned factors and observing modifications one can be sure that the centrifuge will function properly.

10 Maintenance

Read Chapter ‘4 Safety’ before carrying out maintenance.

Installation, repair and maintenance work is to be carried out by qualified personnel using only original Nederman spare parts. Contact your nearest authorized distributor or Nederman for advice on technical service.

NOTE! The service intervals in this chapter are based on the unit being professionally maintained.

10.1 Maintenance instruction

After approx. 3 months operation in one shift, the conveyor shall be checked.

The following items shall be special attended.

1. Belt tension.
2. The chain and its position in the frame.
3. The rollers.

It can be necessary to retighten the belt. The frame and the chain should be checked for eventual excessive wear. The rollers should be easy to move and should run freely. If necessary, the rollers should be greased.

The belt must be in the middle of the frame to avoid unnecessary wear. When tightening the belt, check that it will come in the middle of the frame, otherwise the shaft will not be in a straight angle to the conveying direction. The belt must then be tightened with the tightening device, so that the belt will come into its correct position.

The conveyor must be checked in intervals. Damaged parts must immediately be replaced, otherwise the function of the conveyor will be disturbed and even other parts can be damaged, e.g. the belt and the frame.

10.2 Belt tightening

Proceed as follows by tightening the belt:

1. Loosen the screws (16) on the bearing plate (8) and the motor plate (5).
2. Tighten or loose with the tightening screws (17).
3. Tighten the belt so much that it is possible to press it down about 5-10 mm just before the tail end.
4. If it is not enough to tighten the belt with the tightening device, it is necessary to take away 2 hinges (see belt disassembly).
5. After the tightening of the belt, the screws mentioned in item 1 above shall be fastened.

NOTE: We recommend to take extra care in checking the belting and to follow the procedure above when tightening. If the belt is tightened too hard or too

loose, both conditions can cause problems in operation and damage the belt and the conveyor itself.

10.3 Belt disassembly

Disassembly of the hinged belt can be done for two reasons:

- To replace damaged parts.
- Cleaning and maintenance of the conveyor trough.

Hinged belt
The belt is to be disassembled in the following order:

1. Loosen the screws (16) on the bearing plate (8) and the motor plate (5).
2. Release the belt by loosening the tightening screws (17). The screws to be totally unblocked.
3. Remove the motor (4 screws).
4. Remove the bearing plate and the motor plate.
5. Locate the drive shaft (10) so that the belt shaft (34) will be positioned in the middle of he slot of the frame.
6. Remove the screw (35) from the belt shaft.
7. Pull out the belt shaft through the slot in the frame.
8. Unlink the chain links (33) and the side wings (30, 31), separate the belt and pull it out of the frame.
   Note: We recommend securing the belt so that it is not rolling back into the frame.
9. If you wish to exchange one belt plate, just exchange the damaged one.
10. Assembly takes place in the reverse order.

When you change the complete belt, please note that the side wings on the plate come in the correct position. The wings must overlap in the conveying direction, i.e. to avoid jamming and destruction of the wings. It is recommendable to note the position of the wings on the old belt for correct mounting of the new belt. You can also find the correct position in the drawing in this manual.

It is possible to pull out and mount the belt with the motor.

When disassembling the belt as per above, run the motor forwards.

When mounting a new belt, put it over the drive shaft and run the motor in reverse.

Cleaning and maintenance of this conveyor shall be conducted due to existing conditions.

10.4 Lubrication

NOTE: The greasing intervals should be adjusted to the operating intensity.

Gear
The gear manufacturer's specifications and separate instruction manual are to be followed (see enclosure).

Note: Some gears are delivered without oil. It is in these cases fully marked on the gear.

The manufacturer's specification is valid.

Drive
The drive shaft bearings are to be greased every 6th month.

Pulley wheel shaft bearing
When pulley wheel shaft bearings are used the shaft bearings are to be greased every 6th month.

It is to recommend to grease the bearings additionally, when the conveyor is placed outdoors. Bearing grease of good quality is to be used.

10.5 Spare parts

Contact your nearest authorized distributor or Nederman for advice on technical service or if you require help with spare parts. See also **www.nederman.com**

Ordering spare parts
When ordering spare parts always state the following:

- Product serial number and Nederman reference number (see the product identification plate).
- Detail number and name of the spare part - see Table 10-1.
- Quantity of the parts required.

Table 10-1: Spare parts specification - see Figures 1, 2 and 3

Pos.	Article No.	Denomination
2	980201	End cover
3	980275	Bend 30°
	980274	Bend 45°
	980241	Bend 60°
4	9002506	Tightening holder
5	900204	Motor plate
6	900203	Cover
8	900202	Bearing plate
9	970103	Bearing
10	Order based	Drive shaft 6” - 60”
11	940240	Chain wheel
12	970381050	Key
13	970330011	Washer
14	97031021225	Hexagon-headed screw
15	970330009	Washer
16	97031001020	Hexagon-headed screw (4 pcs)
17	970310012150	Tightening screw (2 pcs)
22	Order based	Gear
23	970320010	Nut
24	970320012	Nut
25	Order based	Motor

Pos.	Article No.	Denomination
27	97031081016	Stop screw
28	97031081012	Stop screw
29	Order based	Belt plate 6” - 60”
30	940220	Side wing, left
31	940221	Side wing, right
32	940233	Roll
33	940208	Outer link
34	Order based	Belt shaft 6” - 60”
35	97031010612	Screw
36	970330007	Washer

11 Recycling

The product has been designed for component materials to be recycled. Its different material types must be handled according to relevant local regulations. Contact the distributor or Nederman if uncertainties arise when scrapping the product at the end of its service life.

12 Troubleshooting

If the trouble shooting guide in ‘Table 12-1: Trouble shooting guide’ does not solve the problem, contact your nearest authorized distributor or Nederman service center for technical advice.

Table 12-1: Trouble shooting guide

Problem	Possible cause	Solution
The belt runs irregular.	The belt not tightened.	Tighten the belt.
Excessive wear on frame.	The belt uneven.	Adjust the tightening screws.
The belt jammed.	The belt not tightened or scrap pieces block the conveyor.	Tighten the belt. If any foreign parts can have entered into the conveyor, it is necessary to disassemble the conveyor for inspection of belt and frame.
The belt ”squeaks”.	The belt too tight.	Release tension by adjusting the tightening screws.

13 Acronyms and abbreviations

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