Nederman

IMPROVING YOUR WORKSPACE

Steel Belt Conveyor TL6

Manufacturing No. _____

Order No. _____

MACHINING

INSTRUCTION MANUAL E

No1426005
2009-05-19

Content

Foreword

ARBOGA-DARENTH 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 ARBOGA-DARENTH 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 ARBOGA-DARENTH Hinged Steel Belt Conveyor. It also contains greasing instructions, exploded view and a simple schedule for trouble-shooting.

ARBOGA-DARENTH Swarf Conveyors are normally used in all machine tools on the market as well as in swarf handling systems which ARBOGA-DARENTH 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.

Guarantee

All products from ARBOGA-DARENTH are guaranteed free from any fault in material and labour during a period of one year. One year consists of 365 calendar days or 1800 hours which ever occurs first. The guarantee period for our products starts the day the equipment is sent to the client and continues during one year as earlier described. This is due if our maintenance and control recommendations are followed.

The guarantee is not valid for incorrect erection, misuse, incorrect maintenance or if maintenance is not made due to our recommendations and accepted industry practice.

During the guarantee period and after written notice to us, we guarantee that all parts manufactured in our plant which are faulty regarding material or labour shall be replaced. We give no further guarantee either written or verbal for costs except material and man labour.

This guarantee or other guarantees from us do not cover:

1. Damage after the guarantee period is ended.

2. Damage caused by chemical reactions or wear due to the detail has been submitted to external influences.

3. Equipment damaged at delivery or by accidents.

4. Damage through misuse, incorrect use or feeding, or if recommended maintenance is not followed.

5. Damage to equipment which have been repaired or changed by others than by the one who has been acknowledged as our sole representative.

6. Wear parts.

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.

Operation

ARBOGA-DARENTH Hinged Steel Belt Conveyors are designed to handle a variation of material in different shapes and forms. They can convey short, long or curley swarf, dry as well as wet. They can also convey parts. Ask ARBOGA-DARENTH.

The conveyor consists of the following main components:

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

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 geared motor placed directly onto the shaft.

Examples of installations where the ARBOGA-DARENTH hinged belt conveyors are in sucessful 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.
- I swarf handling systems.

Installation

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

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

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 advantage 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 enclosure).

Maintenance instruction

After approx. 3 months at 1-shift operation, 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 shold 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 (untightened) 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.

Belt tightening

Proceed as follows by tightening the belt:

1. Loosen the bolts on the bearing plate (4) and the motor attachment (10).
2. Tighten or untighten with the tightening nuts (15).
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 bolts mentioned in item 1 above shall be fastened.

NB! 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.

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 bolts on the bearing plate (4) and the motor attachment (10).
2. Untighten the belt by loosening the tightening nuts (15). The nuts to be totally untightened.
3. Remove the motor (4 screws).
4. Remove the bearing and the motor attachment.
5. Locate the drive shaft (9) so that the belt shaft (25) will be positioned in the middle of the slot of the frame.
6. Remove the pipe pin (24) from the belt shaft.
   NB! We recommend to secure the belt so that it is not rolling back into the frame.
7. Pull out the belt shaft through the slot in the frame.
8. Unlink the chain links and the side wings, separate the belt and pull it out of 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 exploded view 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 the conveyor shall be conducted due to existing conditions.

Lubrication

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

NB! 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 with bearing grease of good quality (eg Statoil Uniway LI62 or similar).

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.

Trouble-shooting

Problem	Cause	Measures
The belt runs irregular.	The belt not tightened.	Tighten the belt.
Excessive wear on frame.	The belt uneven.	Adjust the tightening nuts.
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.

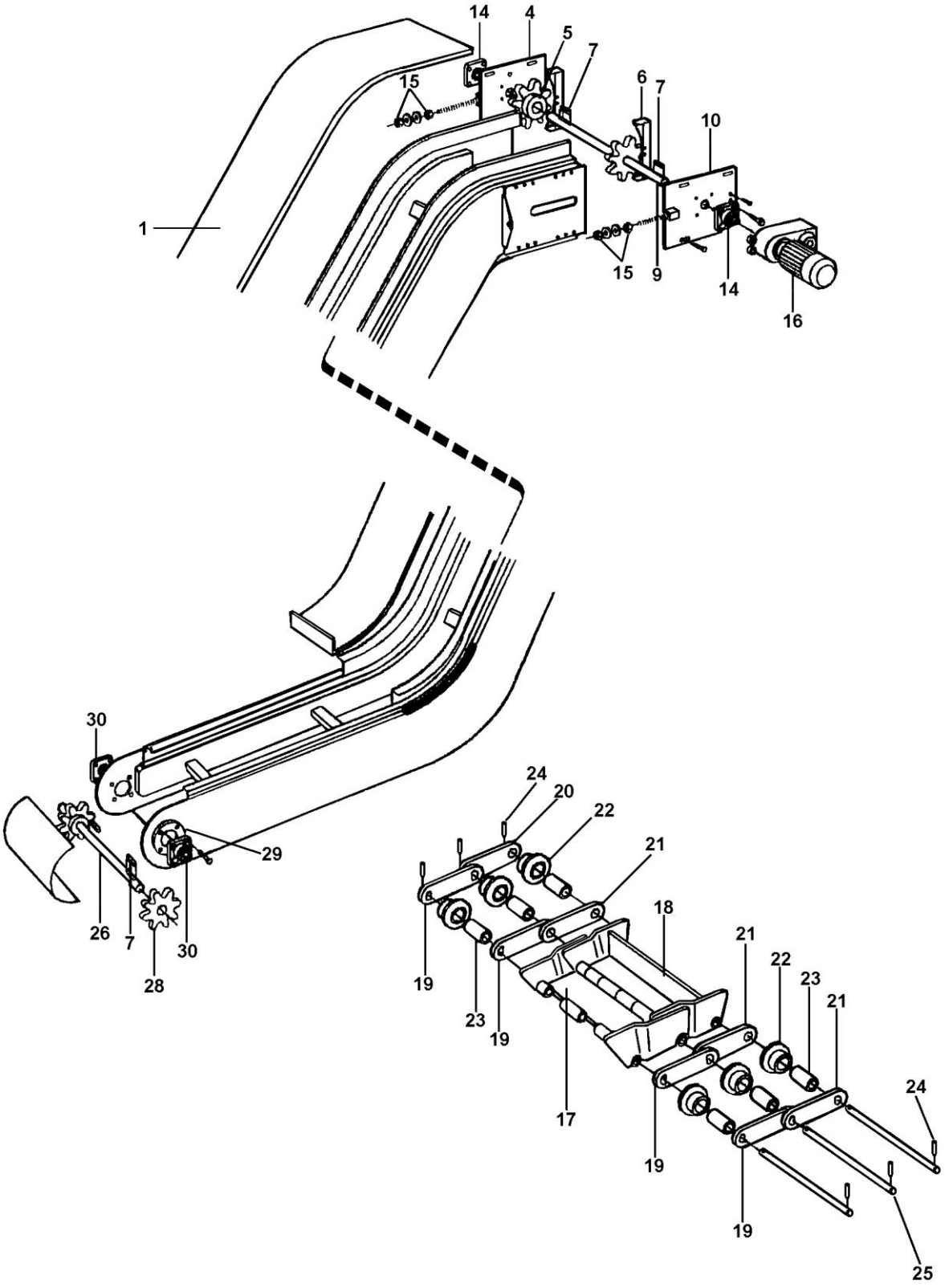
Spare parts list

NB! When ordering spare parts, please specify the following data:
- Type
- Serial number
- Designation
- Article number

Pos	Article No.	Designation
1	Order based	Top cover 12” - 60”
4	Order based	Bearing plate
5	900428	Chain wheel - Order based design
6	900431	End protection
7	970381480	Key - Order based design
9	940445	Shaft 12” - Order based design
	940446	Shaft 18” - Order based design
	940456	Shaft 24” - Order based design
	940438	Shaft 30” - Order based design
	940458	Shaft 36” - Order based design
	940485	Shaft 42” - Order based design
	940451	Shaft 48” - Order based design
	940486	Shaft 60” - Order based design
10	Order based	Motor attachment
14	970129	Flanged bearing - Order based design
15	970320024	Tightening nut
16	Order based	Geared motor
	76374776	Steel Belt 6” x 12”
	76374777	Steel Belt 6” x 18”
	76374778	Steel Belt 6” x 24”
	76374779	Steel Belt 6” x 30”
	76374780	Steel Belt 6” x 36”
	76374781	Steel Belt 6” x 42”
	76374782	Steel Belt 6” x 60”
17	900404	Belt plate with side wing 12”
	900405	Belt plate with side wing 18”
	900406	Belt plate with side wing 24”
	900407	Belt plate with side wing 30”
	900408	Belt plate with side wing 36”
	900409	Belt plate with side wing 42”
	900444	Belt plate with side wing 48”
	900410	Belt plate with side wing 60”
18	Order based	Flight 12” - 60”
19	900425	Inner link
20	900424	Lock link
21	900423	Outer link

Pos	Article No.	Designation
22	940466	Roll
23	940468	Bushing
24	970360645	Pipe pin
25	900411	Belt shaft 12”
	900412	Belt shaft 18”
	900413	Belt shaft 24”
	900414	Belt shaft 30”
	900415	Belt shaft 36”
	900416	Belt shaft 42”
	900445	Belt shaft 48”
	900417	Belt shaft 60”
26	Order based	Pulley wheel shaft 12” - 60”
28	900428	Chain wheel - Order based design
29	980450	Bearing plate - Order based design
30	970129	Flanged bearing - Order based design

Exploded view



Nederman

www.nederman.com

Nederman is represented in:

Australia, Austria, Bahrain, Belgium, Brazil, Bulgaria, Canada, China, the Czech Republic, Cyprus, Denmark, Egypt, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Iran, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Malaysia, the Netherlands, Norway, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia & Montenegro, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan R.O.C., Thailand, Turkey, United Arab Emirates, United Kingdom, USA.