

ARBOGA - DARENTH

OPERATING INSTRUCTIONS FOR HINGED STEEL BELT CONVEYOR TYPE TL2

Customer:

Order No.:

Manufacturing No.:

Delivery date:

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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 whichever 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 of the centrifuge 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 Hinged Steel Belt Conveyors are designed to handle a variation of material in different shapes and forms. They can convey short, long or curly 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 gear motor placed directly onto the shaft.

Examples of installations where the ARBOGA 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.
- ◆ 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. See that the lifting equipment have approved quality and strength and that they are adapted in a safe way in the lifting lugs.

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 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 (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 (3) and the motor plate (18).
2. Tighten or untighten with the tightening screws (7, 14).
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 (3) and the motor plate (18).
2. Untighten the belt by loosening the tightening screws (7, 14). The screw to be totally untightened.
3. Remove the motor (4 screws).
4. Remove the bearing and the motor plate.
5. Locate the drive shaft (12) so that the belt shaft (23) will be positioned in the middle of the slot of the frame.
6. Remove the pipe pin (22) from the belt shaft.
7. Pull out the belt shaft through the slot in the frame.
8. Unlink the chain links (24, 27) and the side wings (19, 21), separate the belt and pull it out of the frame. NB! We recommend to secure 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 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 this 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.

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 bolts
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
- Designation
- Serial number
- Article number

Pos	Article no	Designation	Unit
1	-	Side wall (80 mm)	m
	-	Side wall (150 mm)	m
2	TL2 708	Top cover 6"	m
	TL2 701	Top cover 9"	m
	TL2 702	Top cover 12"	m
	TL2 703	Top cover 18"	m
	TL2 704	Top cover 24"	m
	TL2 705	Top cover 30"	m
	TL2 706	Top cover 36"	m
	TL2 707	Top cover 42"	m
3	9002503	Bearing attachment dia 35	pce
	9002504	Bearing attachment dia 45	pce
4	9002500	End protection	pce
5	9002506	Tightening holder	pce
6	-	Washer	pce
7	9002501	Clamping screw	pce
8	940240	Chain wheel dia 35	pce
	940267	Chain wheel dia 45	pce
9	970381050	Key for shaft dia 35	pce
	970381450	Key for shaft dia 45	pce
10	940240	Chain wheel dia 35	pce
	940267	Chain wheel dia 45	pce
11	9703810140	Key for shaft dia 35	pce
	9703814140	Key for shaft dia 45	pce
12	940213	Shaft 6" dia 35	pce
	940214	Shaft 9" dia 35	pce
	940215	Shaft 12" dia 35	pce
	940216	Shaft 18" dia 35	pce
	940217	Shaft 24" dia 35	pce
	940218	Shaft 30" dia 35	pce
	940219	Shaft 36" dia 35	pce
	940223	Shaft 42" dia 35	pce
	940277	Shaft 6" dia 45	pce
	940260	Shaft 9" dia 45	pce
	940261	Shaft 12" dia 45	pce
	940262	Shaft 18" dia 45	pce
	940263	Shaft 24" dia 45	pce
	940264	Shaft 30" dia 45	pce
	940265	Shaft 36" dia 45	pce
	940266	Shaft 42" dia 45	pce
13	-	Motor	pce
14	9002501	Clamping screw	pce
15	-	Washer	pce

16	9002506	Tightening holder	pce
17	9002500	End protection	pce
18	9002502	Motor attachment dia 35	pce
	9002506	Motor attachment dia 45	pce
19	940220	Side wing, left	pce
20	TL2 508	Flight 6"	pce
	TL2 501	Flight 9"	pce
	TL2 502	Flight 12"	pce
	TL2 503	Flight 18"	pce
	TL2 504	Flight 24"	pce
	TL2 505	Flight 30"	pce
	TL2 506	Flight 36"	pce
	TL2 507	Flight 42"	pce
21	940221	Side wing, right	pce
22	970360424	Pipe pin	pce
23	900227	Belt shaft drilled 6"	pce
	900228	Belt shaft drilled 9"	pce
	900229	Belt shaft drilled 12"	pce
	900230	Belt shaft drilled 18"	pce
	900231	Belt shaft drilled 24"	pce
	900232	Belt shaft drilled 30"	pce
	900233	Belt shaft drilled 36"	pce
	900234	Belt shaft drilled 42"	pce
24	940258	Inner link	pce
25	940257	Bushing	pce
26	940259	Roll for bushing	pce
27	940208	Outer link	pce
28	940224	Plate 6"	pce
	940225	Plate 9"	pce
	940226	Plate 12"	pce
	940227	Plate 18"	pce
	940228	Plate 24"	pce
	940229	Plate 30"	pce
	940230	Plate 36"	pce
	940231	Plate 42"	pce
29	-	Lubricator	pce
30	940103	Flanged bearing dia 35	pce
	940104	Flanged bearing dia 45	pce
31	97031001225	Screw	pce
32	940248	Pulley wheel shaft 6"	pce
	940241	Pulley wheel shaft 9"	pce
	940242	Pulley wheel shaft 12"	pce
	940243	Pulley wheel shaft 18"	pce
	940244	Pulley wheel shaft 24"	pce
	940245	Pulley wheel shaft 30"	pce
	940246	Pulley wheel shaft 36"	pce
	940247	Pulley wheel shaft 42"	pce
33	940240	Chain wheel dia 35	pce
34	970381050	Key	pce
35	940240	Chain wheel dia 35	pce

Exploded view

