USERS MANUAL FOR
INCLINE CONVEYORS
SERIES LR

CUSTOMER:_____

SERIAL#:_____

DATE OF MFG:_____

CONVEYOR MODEL:_____

28300 Euclid Avenue –-Wickliffe, OH 44092 – Phone: 216-535-4800 – Fax: 216-535-4809

crizaf
Automation Systems

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0. INTRODUCTION

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This user manual will explain the specifications concerning the LR series conveyor system. The user manual covers explanations from installation to operation of the LR series conveyor system.

A. DIMENSIONS

The LR series conveyor is built to customer specifications. The LR series conveyors are available in 3" high anodized extruded aluminum profile. Standard lengths are available in foot increments and standard widths are available in 2" increments. Special dimensions available upon request.

B. SPECIFICATIONS

1.0 Frame

The conveyor frame is anodized extruded aluminum profile 80mm (3 inches)/150mm (6 inches) in height by 25mm (1 inch)/45mm (1.75 inches) thick. Furthermore steel parts are used in areas which require high strength (motor plate, telescopes, legs etc.). The belt support sheet metal is made from galvanized sheet metal (1.5 mm thick). High quality ball bearings and hardened sprockets guarantee a long lasting maintenance free operation. Infeed hoppers are manufactured from 16-gauge stainless steel sheet metal 1.5mm thick.

2.0 Belt

The standard belt consists of a non-slip (PVC) two ply fabric with double finger jointing to insure maximum belt life. The belt guidance is assured by the THRU self-aligning design along the entire length on both sides of the conveyor. The belt laps ½" per side under the side rails. The belt tension is preset at the factory to a medium tension.

2.1 Optional belt types:

a) Smooth endless Polyurethane belts.
b) Smooth endless Polyurethane belts with/without cleats and/or SPONDAFLEX side wall design.

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For conveyors with cleats:

- ***Keep enough clearance between the cleats of the belt and any container standing in front of the conveyor. This will extend the lifetime of the belt.***

WARNING:
Over tightening of the belt may void warranty.

3.0 Legs

The legs are made from zinc plated perforated tubing to guarantee optimum resistance to corrosion and an easy height adjustment. They are furthermore angle adjustable 0-45 degrees. (Horizontal to 45 degrees max.) The horizontal parts drop shelf is adjustable 0-45 degrees, too. **Each leg is equipped with a 2 ½" ∅ (60mm) caster to guarantee easy mobility.**

4.0 Drive

4.1. Motor

The standard gearmotor is a Dayton, 60 HZ, 110 VAC, single phase TEFC gearmotor.

Optional motors:

- **260/440 VAC, 3-phase gearmotor.**
- **110 VAC powered roller ∅ 4.5"/∅ 3.0" right angle drive package.**

Note:
Special motor HP, size and torque available upon request.

4.2. Control

The standard control is a single pole manual motor starter switch. This standard unit is overload protected and mounted inside a NEMA 1 enclosure.

Optional controls:

- **Variable speed control, to be used with a 90 VDC permanent magnet gearmotor.**
- **Three pole manual motor starter switch with overload protection, to be used with 3-phase gearmotor.**
- **220 VAC 60 Hz variable speed inverter HITACHI - SINGLE PHASE INPUT- (to be used with 3-phase gearmotor)**

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- **440 VAC 60 Hz variable speed inverter HITACHI - THREE PHASE INPUT - (to be used with 3-phase gearmotor)**

Note:
Special control systems available upon request.

4.3. Power transmission

A roller chain transmits power to the drive roller. The drive and idle rollers are mounted on ball bearings, which are lubricated. The drive roller transmits the power to the belt.

C. INSTALLATION

Every conveyor is shipped pre-tested at the factory. All conveyors are shipped with a 15 feet cord terminating with a standard 3-prong plug ready to be plugged in any 110 VAC receptacle with ground. The direction of rotation is factory preset.

Note:
Conveyors with 3-phase gearmotors might have the wrong direction of rotation preset at the factory, depending on the polarity of your 3-phase outlet. In order to set the direction follow these instructions:

WARNING:
ALWAYS UNPLUG THE CONVEYOR FROM ITS POWER SOURCE BEFORE ANY MAINTENANCE IS DONE

1. **Connect the conveyor to a 3-phase power source according to the motor wiring.**
2. **Lift up the PVC flap inside the hopper before you test the belt direction, to protect the belt and the flap!**
3. **Turn on the manual motor starter switch.**

   a. **If the belt runs from the horizontal or "infeed" end towards the incline or "discharge" end, the direction of the belt is correct. The flap may be released and the conveyor is ready to run.**

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b. If the belt runs from the incline or "discharge" end towards the horizontal or "infeed" end, the direction of the belt is incorrect.

- **Disconnect the conveyor from the power source!**
- **Open the enclosure of the motor starter switch.**
- **Swap two wires on the line side of the manual motor starter switch. (either L1 with L2, L1 with L3 or L2 with L3)**
- **Close the enclosure of the motor starter switch.**
- **Connect the conveyor to the power source.**
- **Turn the manual motor starter switch "ON".**

WARNING:
THE CONVEYOR MUST BE CONNECTED TO GROUND, FOR THE SAFETY OF OPERATING PERSONNEL!

D. OPERATION

WARNING:
Any height or angle adjustment of the conveyor should be made carefully. Avoid injuries by choosing a proper lifting device.

1. Conveyor angle adjustment.

1. **Turn the conveyor system OFF.**
2. **Loosen the handles located on the swivel telescope Drive Side.**
3. **Adjust the angle of the conveyor as desired.**
4. **Tighten the handles.**
5. **Loosen the handles located on the swivel telescope Non-Drive Side.**
6. **Adjust angle as desired.**
7. **Tighten the handles.**

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2. Height adjustment of the conveyor legs

2.1. Conveyor height adjustment/down

1. **STOP the conveyor.**
2. **Remove the height adjusting pins.**
3. **Insert the pins in the proper hole setting and insert the safety pin.**
4. **Release the set knob in order to slide the telescopes down to the desired position.**
5. **Tighten the screw knob.**

2.2. Conveyor height adjustment/up

1. **STOP the conveyor.**
2. **Remove the height adjusting pins.**
3. **Release the set knob in order to slide the telescopes up to the desired position.**
4. **Insert the pins in the proper hole setting and insert the safety pin.**
   Tighten the screw knob.

Note:
The screw knob is not supposed to fit into the holes of the tubing.

3.0 To operate the LR type conveyor, perform the following:

1. Plug the power cord into a power source according to the motor voltage.
2. Adjust the conveyor in the desired angle.
3. Turn the manual motor starter switch to the "on" position.

Note: If the conveyor is equipped with optional s-style roller separators or a discharge chute allows enough clearance between the belt and the devices to clear the cleats as they turn around the idle roller.

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WARNING:
THIS CONVEYOR IS DESIGNED TO OPERATE IN A REASONABLY CLEAN, DUST-FREE AND MOISTURE-FREE INDUSTRIAL ENVIRONMENT!
OPERATING THE CONVEYOR IN A WET ENVIRONMENT OR IN THE PRESENCE OF OIL, METAL SHAVINGS, ETC., IS DANGEROUS FOR THE OPERATOR!
THIS MAY CAUSE DAMAGE TO THE CONVEYOR AND VOID THE WARRANTY!

E. PREVENTIVE MAINTENANCE

The LR series conveyor is essentially maintenance free. However, a few easy preventive maintenance steps will increase the lifetime of the conveyor.

1. **Control the tension of the drive chain regularly. The tension is preset at the factory. If necessary to adjust tension, turn off the conveyor and unplug from the power source. Loosen the four nuts (Pos.4) on the motor plate. Pull the motor vertically up-or downward until the right tension of the chain is achieved. To test the right tension you should be able to pull the two ends of the chain as they lay around the motor sprocket with your fingers towards each other about ¼ to ½ inch from each side. Make sure that the motor sprocket runs parallel with the chain. Re-tighten the four nuts (Pos. 4).**

2. **Keep the conveyor clean! Especially moving parts, like belt, rollers and chain can create an additional load on the motor if they are not clean. Make sure that no plastic parts are caught underneath the side rails. To clean the conveyor, do not use sharp cleaners or alcohol. Use a common household cleaner with warm water to clean the belt.**

3. **Attached with the conveyor spare parts list is a list of recommended items. Keeping these items in stock will reduce the down time of your conveyor, if it needs to be repaired.**

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BELT CHANGE:

The following instructions describe the procedure for replacement of the belt on the LR series conveyors. The mentioned part numbers refer to the attached spare parts drawing of the conveyor.

WARNING!
ALWAYS UNPLUG THE CONVEYOR FROM ANY POWER SOURCE BEFORE SERVICING!

1. **Take off all the roller guards, part # 17.**
2. **Release belt tension: (Note: Before you release the belt tension make a note of the dimension between the frame and the tensioning arms (#15) for easier re-assembly)**
3. **Loosen the nuts (#16) which tighten the tensioning arms (#15) against the frame.**
4. **Loosen the set screws (#10) to be able to take the shaft out of the roller assembly.**
5. **Take out the shaft (#77) and remove the idle roller (#78) The belt now is completely loose.**
6. **Remove one side rail (non-motor side #65)**
7. **Take the conveyor off the leg assembly and turn it motor side down.**
8. **Remove the two nuts (#27) which connect the motor post (#29) with the frame (non motor side)**
9. **Slide off the worn belt and slide on the new belt.**
10. **For the re-assembly use reversed order of above steps.**

BELT TENSIONING & TRACKING:

1. **Once the new belt is installed, set the tension by tightening the tensioning arms (#15) to approx. 2–3 mm below the dimension between frame and tensioning arms that you noted before you disassembled the Conveyor. (Step 2. Above)**
2. **Connect the Conveyor to proper Power Source and turn it on. (ATTENTION: THE ROLLER GUARDS ARE NOT INSTALLED YET. KEEP YOUR HANDS AWAY FROM ROTATING PARTS!)**
3. **How to track the belt: *The final belt tension is adjusted during the tracking process. The Belt is always tracked from the idle end, NOT motor end!***
4. **The process of tracking the belt might take 10-20 minutes. Observe the motion of the belt. By adjusting the tensioning arms (#15) towards or away from the frame the tracking of the belt is influenced. To adjust the tensioning arms towards the frame, turn the nut (#16) that sits against the frame counter clockwise. To adjust the tensioning arms away from the frame, turn the nut clockwise. When turning the nut to track the belt use only half revolutions at a time and observe if the belt moves into the right direction.**

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5. ***Adjust the tensioning arm away from the frame on the side where the belt tends to run to. If the belt runs to the right, bring out the right tensioning arm, if it moves to the left, bring out the left tensioning arm. Remember to do this cautiously in half revolutions with the nut (#16) to avoid an over tighten of the belt.***

6. **For Conveyors with Central V Guide Tracking System manual tracking is not necessary, since the V guide tracks the belt automatically. Ensure that the belt is not over tightened. The tension should just be enough to guarantee a motion without slip.**

F. ACCESSORIES

1. **Discharge chute. 16-gauge stainless steel chute made to customer specification, with standard hardware for mounting on the discharge end of the conveyor.**

2. **Infeed hopper. 16-gauge stainless steel tapered hopper made to customer specification with PVC flap.**

3. **Special side rails. 3.5" and 6" side rails with PVC skirting to avoid parts jamming between the belt and the side rails.**

4. **Part separator. The separators are mounted on the discharge end of the conveyor and are used to separate parts from runner systems. The separators are available in the following models:**

    - **S1, separator with one roller.**
    - **S1-"finger", separator with "finger" type roller**
    - **S1/2, separator with two rollers.**
    - **S1/S, separator with one spiral roller.**
    - **S1/2- star, separator with geared PVC sprockets**

5. **Casters: Standard casters are ∅ 2 ½" non-locking/locking.**
   Optional available: ∅ 3" non-locking /locking casters.

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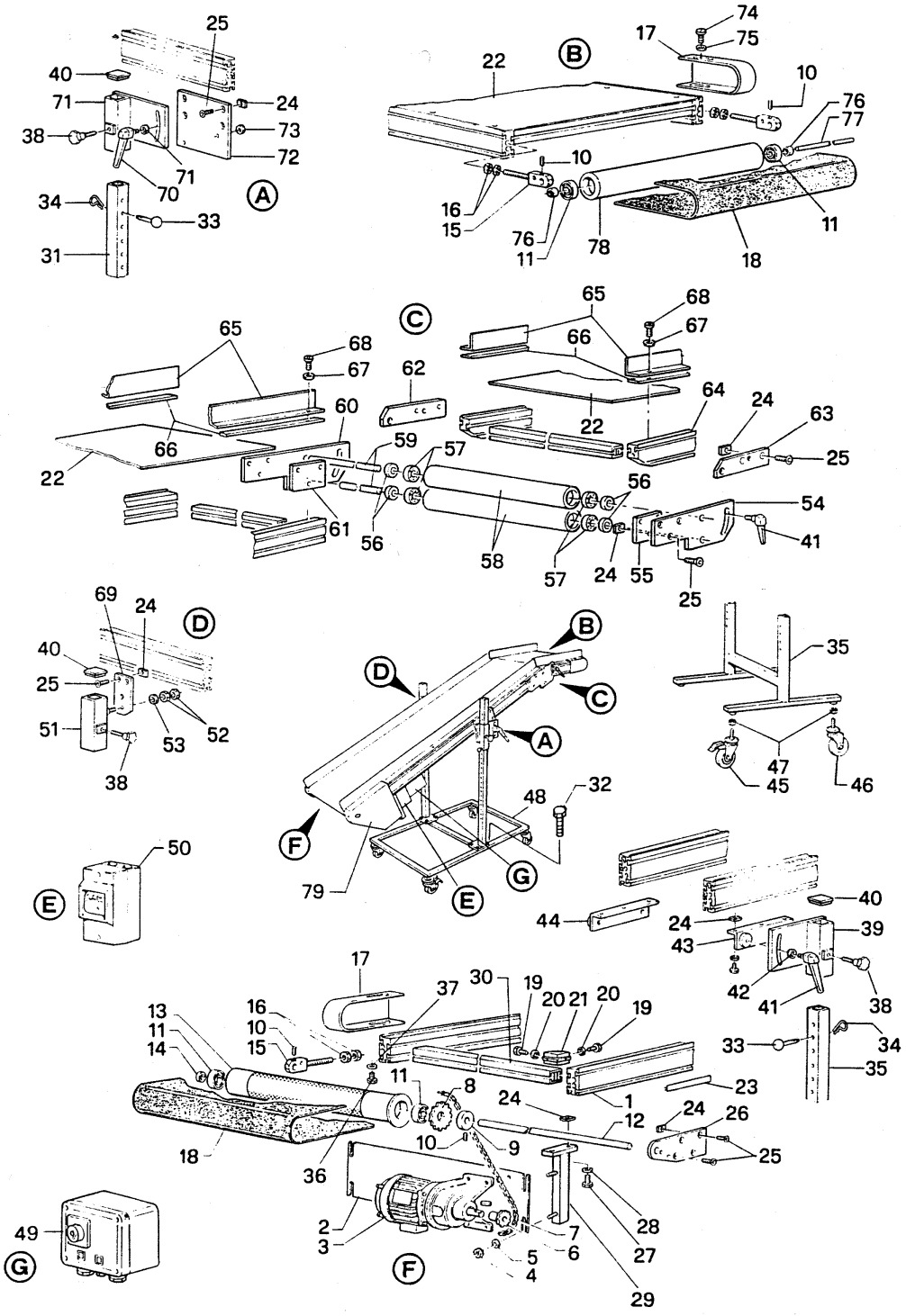

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Pos.	Description	Order #	Recommended Spare Parts
1	Anodized extruded aluminum profile type L	LR 01	
2	Motor mounting plate	LR 02	
3	Gearmotor (refer to the QC sheet of the Conveyor)	LR 03	1
4	Nut, M8	LR 04	4
5	Lock washer, ∅ 8 mm	LR 05	4
6	Motor sprocket, 13/17 teeth (refer to QC-Sheet)	LR 06	1
7	Chain (sold in 10ft incl. (3) master links)	LR 07	1
8	Drive roller sprocket, 21/30 teeth (refer to QC-Sheet)	LR 08	
9	Locking collar, ∅10-25 mm	LR 09	1
10	Set screw, M6 x 10	LR 10	
11	Roller bearing, 6202 ZZ – Roller ∅ 60 mm	LR 11	4
11 A	Roller bearing, 1204 – Roller ∅ 100 mm	LR 11 A	4
12	Shaft ∅ 15 mm for drive roller ∅ 60mm	LR 12	1
12 A	Shaft ∅ 20 mm for drive roller ∅ 100mm	LR 12 A	1
13	Drive roller ∅ 60 mm	LR 13	1
13 A	Drive roller ∅ 100 mm	LR 13 A	1
14	Spacer, 5 mm	LR 14	
15	Tensioning arm L, LH	LR 15	
15a	Tensioning arm L, RH	LR 15a	
16	Nut, M14	LR 16	
17	Roller guard	LR 17	
18	Endless belt (refer to QC-sheet)	LR 18	1
19	Hex head screw, TE M8 x 20	LR 19	
20	Lock washer, ∅ 8 mm	LR 20	
21	Angle bracket – transverse support	LR 21	
22	Galv. Belt pan sheet metal	LR 22	
23	Channel cover PVC black	LR 23	
24	Square nut, M8	LR 24	
25	Screw, TPSCE M8 x 18	LR 25	
26	Support plate for drive roller	LR 26	
27	Hex head screw, TE M8 x 20	LR 27	
28	Lock washer, ∅ 8 mm	LR 28	
29	Post motor mounting plate, LH	LR 29	
29 A	Post motor mounting plate, RH	LR 29 A	
30	Transverse support - aluminum	LR 30	
31	Perforated leg for LR	LR 31	
32	Hex head screw, TE M10 x 25	LR 32	

Pos.	Description	Order #	Recommended Spare Parts

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33	Pin with plastics ball	LR 33	2
34	Safety pin	LR 34	2
35	Adjustable leg type LI	LR 35	
35 A	PVC Skirting (only with 3.5 & 6 inches side rail -- refer to QC-sheet))	LR 35 A	
36	Hex head screw, TE M8 x 16	LR 36	
37	Washer, ∅ 8 mm	LR 37	
38	Screw knob, ∅ 40 M10 x 15	LR 38	2
39	Pivoting telescope with plate RH	LR 39	
39 A	Pivoting telescope with plate LH	LR 39 A	
40	Plastic cap for perforated tubing	LR 40	
41	Handle, M10 x 25 mm	LR 41	1
42	Washer, ∅ 10-30 mm	LR 42	
43	L bracket RH pivoting telescope	LR 43	
44	L bracket LH pivoting telescope	LR 44	
45	Locking casters, ∅ 60 mm	LR 45	2
46	Non-locking casters, ∅ 60 mm	LR 46	2
47	Washer, ∅ 10-30 mm	LR 47	
48	Base with adjustable legs for LR	LR 48	
49	Universal indexing interface (optional)	LR 49	
50	Manual motor starter switch 110 VAC	LR 50	
51	Pivoting telescope	LR 51	
52	Nut, M12	LR 52	
53	Washer, ∅ 12-36 mm	LR 53	
54	Top shelf angle plate, RH – long frame	LR 54	
55	Spacer plate, RH	LR 55	
56	Spacer, 10 mm	LR 56	
57	Bearing 6202 ZZ	LR 57	2
58	Support roller	LR 58	1
59	Shaft for support roller	LR 59	1
60	Top shelf angle plate, LH – long frame	LR 60	
61	Spacer plate, LH	LR 61	
62	Top shelf angle plate, LH – short frame	LR 62	
63	Top shelf angle plate, RH – short frame	LR 63	
64	Top shelf aluminum profile, RH	LR 64	
65	Side rail LR top shelf 65 mm	LR 65	
66	Wear strip LOFRENE	LR 66	
67	Washer, ∅ 4-16 mm	LR 67	
68	Screw, TC M4 x 16	LR 68	
69	Support bracket – pivoting telescope type LR	LR 69	
70	Handle, M12 x 30	LR 70	
Pos.	Description	Order #	Recommended Spare Parts
71	Washer, ∅ 12-36 mm	LR 71	
72	Mounting plate – adjustable pivoting telescope LR	LR 72	
73	Screw, welded M12 x 36	LR 73	

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74	Screw, TC M4 x 16	LR 74	
75	Washer, ∅ 4-16 mm	LR 75	
76	Spacer 4 mm	LR 76	
77	Shaft for idle toller ∅ 15 mm	LR 77	1
78	Idle roller ∅ 60 mm	LR 78	1
79	Chain guard for LR	LR 79	

I. HOW TO ORDER SPARE PARTS:

1. **Determine the part number by utilizing the above spare part drawing and spare parts list.**
2. **To this number ad the 6-digit serial number of the conveyor.**
3. **Example: You want to order a conveyor belt for your conveyor with the serial # CE 000.**
   The part number for a replacement belt is: LR 18
   The serial number of the conveyor is: CE 000

THE ORDER NUMBER is: LR18 CE 000.

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