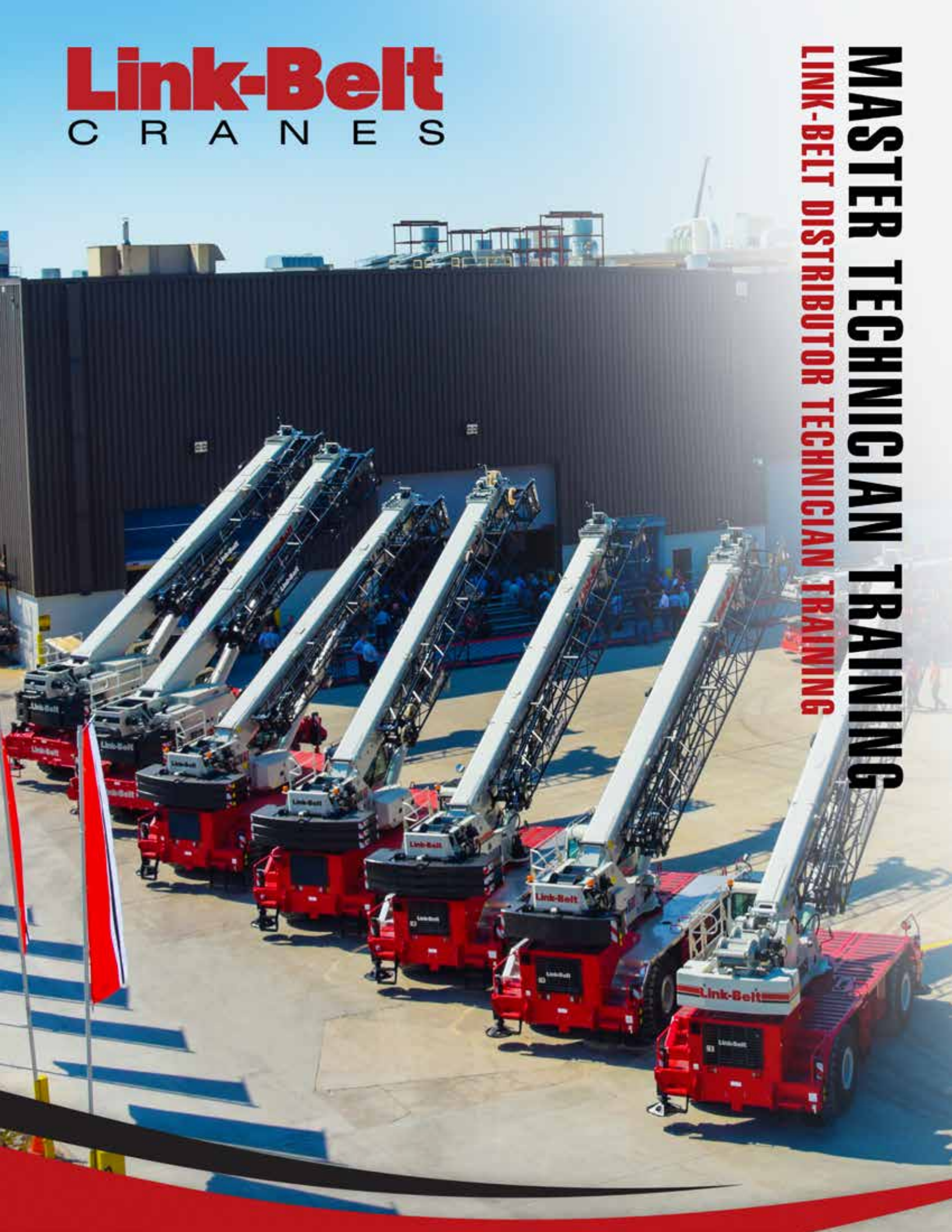
Link-Belt
CRANES

MASTER TECHNICIAN TRAINING

LINK-BELT DISTRIBUTOR TECHNICIAN TRAINING



A message from Link-Belt

Welcome to Link-Belt Training. We are committed to providing quality training experiences.

Our goal is to provide the necessary skills, knowledge and abilities to Link-Belt crane service personnel, so that they can perform their job effectively and efficiently. To accomplish this goal, we provide online training resources and classroom courses with hands-on troubleshooting scenarios.

The dedicated training staff here at Link-Belt strives to ensure that you have the most effective and enjoyable learning experience as possible. Our students can expect a comfortable training atmosphere with our knowledgeable instructional staff, access to modern Link-Belt crane models, quality accommodations and our Kentucky hospitality.

We look forward to seeing you in class and thank you for your interest in Link-Belt training.

Contact Information

Training Department
Phone: (859) 264-6285
Email: Scouch@linkbelt.com

Link-Belt Cranes
Phone: (859) 263-5200
Address: 2651 Palumbo Dr. Lexington, KY 40509
www.linkbelt.com

Link-Belt Technician Training

The Link-Belt Technician Training programs are designed and developed to meet the needs of Link-Belt crane technicians. Link-Belt has two distinct technician training programs; the Master Technician Training program which is provided to technicians employed by a Link-Belt Crane distributor, and the Preferred Technician Training program, provided to technicians who work for a company that owns at least one Link-Belt crane. Both of the technician training programs follow a similar path; however, the customer technician training program is completed at level 2 while the distributor technician training program continues on through level 3 and level 4 training.

Master Technician Training program consists of four levels:

- Level 1: Basics (Online Training)
- Level 2: General Knowledge & Skills
- Level 3: RCL Calibration/Configuration
- Level 4: Advanced Programming

Preferred Technician Training program consists of two levels:

- Level 1: Basics (Online Training)
- Level 2: General Knowledge & Skills

Program Completion

Technicians that complete the Master Technician Training will be awarded a Link-Belt technician jacket.

To complete the Master Technician Training program the technician must complete the following courses:

- Level 1.0 Online Training

- Level 2.0 Telescopic
- Level 2.1 Large RTC, Level 2.1 ATC-3210/3275 or Level 2.1 TCC
- Level 3.0 Telescopic RCL
- Level 4.0 Programming

- Level 2.0 Lattice
- Level 3.0 Lattice RCL

To complete the Preferred Technician Training program the technician must complete the following courses:

- Level 1.0 Online Training

- Level 2.0 Telescopic
- Level 2.1 Large RTC, Level 2.1 ATC-3210/3275 or Level 2.1 TCC

- Level 2.0 Lattice

Program Registration

The registration process for the Master Technician Training and/or the Preferred Technician Training is as follows:

Master Technician Training (Dealer)

Step 1:
Ensure the student has a Link-Belt Preferred account. If not, go to www.Linkbelt.com to create an account.

Step 2:
A dealer training coordinator or service manager will need to complete the online enrollment request form located under the "Training" tab at www.Linkbelt.com. The following information will be needed:

- Technician's name
- Technician's email address
- Dealer Training Coordinator's Name
- Dealer Training Coordinator's email address
- Purchase order for the one time enrollment fee of $297

Step 3:
Wait for the enrollment confirmation email. Once the technician has been enrolled in the program, they will receive an email with the details to begin the Level 1 online training.

Preferred Technician Training (Customer)

Note: Enrollment into the Preferred Technician Training requires approval through a Link-Belt Distributor.

Step 1:
Ensure the student has a Link-Belt Preferred account. If not, have them go to www.Linkbelt.com to create an account.

Step 2:
A dealer training coordinator or service manager will then need to complete the online enrollment request form found under the "Training" tab at www.Linkbelt.com. The following information will be needed:

- Technician's Name
- Technician's email address
- Company Training Coordinator's Name
- Company Training Coordinator's email address
- Dealer Training Coordinator's Name
- Dealer Training Coordinator's email address
- Purchase order for the one time enrollment fee of $537.

Note: Link-Belt will invoice the dealer $297 at the end of the month. The dealer is allowed to bill the customer up to $537.

Step 3:
Wait for the enrollment confirmation email. Once the technician has been enrolled in the program, they will receive an email with the details to begin the Level 1 online training.

Online Training Access

You must be enrolled in the Master Technician Training program or the Preferred Technician Training program in order to access the online training through our Link-Belt Preferred website.

www.Linkbelt.com

1. Click the “Sign in to Link-Belt Preferred” button on the lower left side of the main page.
2. Sign in with your user name and password.
3. Click the “Training” tab.
4. Click the “Online Training” menu option on the left hand side to access the online training system.

Note: Only people who are enrolled in the Master Technician Training or Preferred Technician Training program can see the “Online Training” menu option.

Course Registration

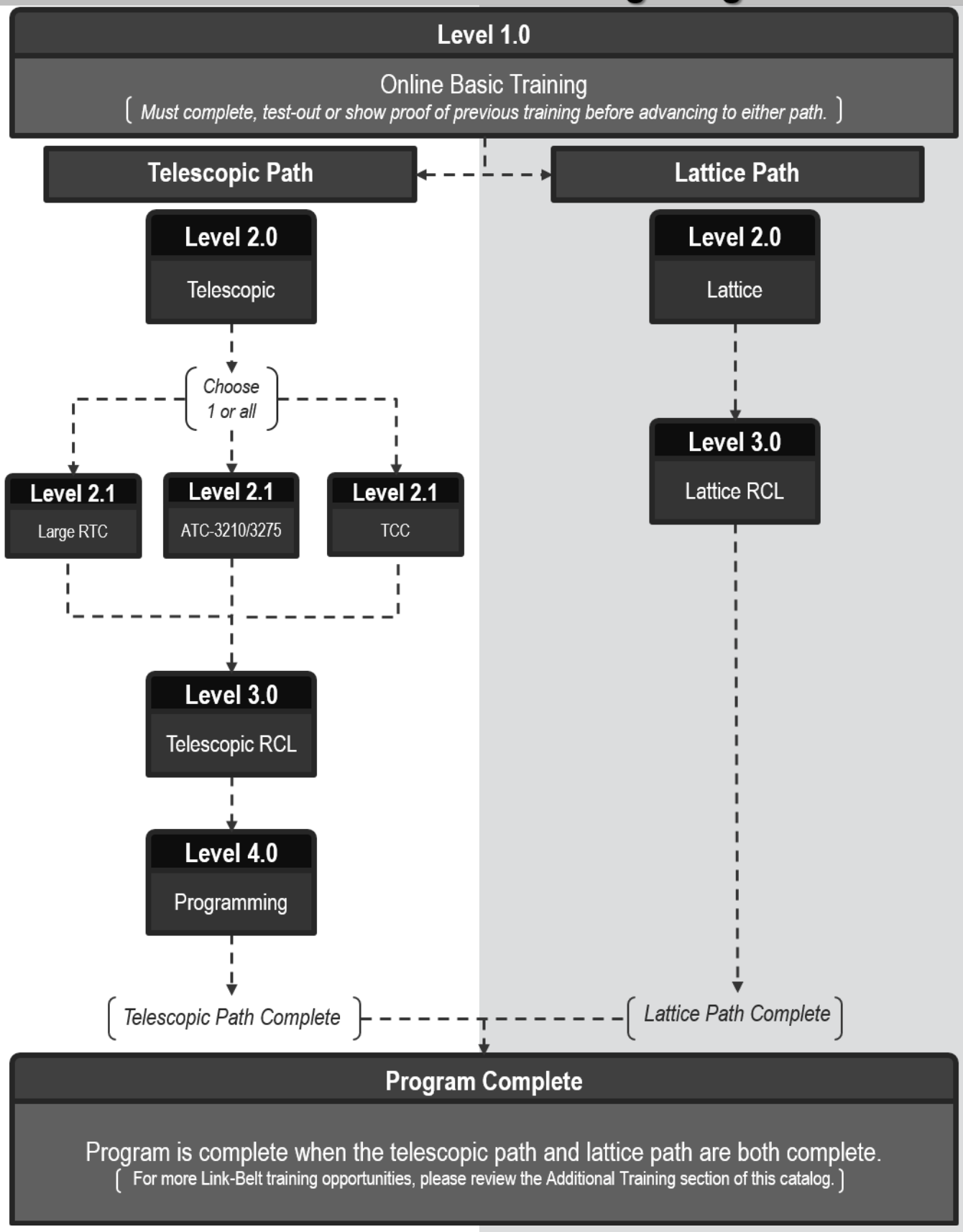
Once the technician has completed the Level 1 online training, they can be registered for the instructor-led training held at the Link-Belt factory in Lexington, Kentucky. The course schedule is posted on the Link-Belt Preferred “Training” tab.

To register for instructor-led training, have your dealer training coordinator complete the online enrollment form located under the “Training” tab at www.Linkbelt.com.

Courses are confirmed 30 to 45 days in advance. Do not make travel arrangements before the course is confirmed due to the possibility of a cancellation.

Once the course is confirmed, the technician registered for the course and their training coordinator will be emailed a confirmation letter with class and hotel information.

Master Technician Training Program



Level 1: Online Training

Level 1 of our technician training is taught through a series of online courses. The Level 1 courses are designed to ensure that every technician attending factory training has the same base knowledge and is ready for the technical depth of our training courses. Technicians must complete all the assigned online learning courses to complete Level 1. Once the Level 1 online courses are completed, the technician is permitted to register for the instructor-led training sessions.

Level 1.0 Online Training Courses:

Basic Electrical

Estimated completion time: 2 hours

- Ohm's Law
- Wiring and Symbols
- Introduction to Electrical Circuits
- Using a Multimeter

Basic Mechanical

Estimated completion time: 4 hours

- Fundamentals of Mechanics
- Actuators
- Clutches
- Brakes
- Bearings
- Gears
- Belt/Chain Drives
- Couplings

Basic Hydraulics

Estimated completion time: 4 hours

- Introduction to Hydraulics
- Hydraulic Pumps
- Hydraulic Actuators
- Hydraulic Valves

Link-Belt Preferred Website Overview

Estimated Completion Time: 50 minutes

- Website Access
- Link-Belt Crane Catalog
- Distributor Search
- Link-Belt Company Information and News
- Sales and Parts Information
- Services
- Training
- Logo Gear
- Technical Manuals and Parts Search

Link-Belt Cranes General Lube and Maintenance

Estimated Completion Time: 30 minutes

- Link-Belt Crane Operator's Manual General Information
- General Lubrication Information
- Overview of Lubrication and Maintenance Charts

Crane Nomenclature

Estimated Completion Time: 60 minutes

Part 1 – The Basics
- Link-Belt Cranes
- Link-Belt Serial Numbers
- Terms for Sections of a Crane

Part 2 – Beyond the Basics
- Boom Types and Their Components
- Upper Components
- Carrier Components for Each Crane Type

Link-Belt Crane Operating Safety Series

Estimated Completion Time: 90 minutes

- Safety Decals and Captions
- General Safety Overview
- Working Near Power Lines
- Crane Safety
- Luffing Attachment Operation
- Personnel Handling Guidelines

Link-Belt Crane Rating Manual (CRM)

Estimated Completion Time: 30 minutes

- Overview of CRM Notes Section
- Overview of CRM Charts
- Utilizing the CRM Charts

Level 2: Factory Training

Level 2 technician training includes instructor led training held here at the Link-Belt factory in Lexington, KY. Level 2 consists of two distinct categories; telescopic cranes and lattice cranes. Within the telescopic category, there is one primary course and three secondary courses. Technicians must complete the primary course before they are eligible to proceed to the secondary courses.

LEVEL 2 COURSES:
Primary Course:
- Level 2.0 Telescopic

Secondary Courses (Your choice of one or all):
- Level 2.1 Rough Terrain Cranes
- Level 2.1 All Terrain Cranes (ATC-3210/3275)
- Level 2.1 Telescopic Crawler Crane

Primary Course:
- Level 2.0 Lattice

COURSE DESCRIPTIONS

Level 2.0 Telescopic

Class Size: Minimum 5/Maximum 12
Duration: 4.5 days
Prerequisite: Successful completion of Level 1 Online Training

Set-Up, operations, lubrication and maintenance of Link-Belt HTC and RTC product lines (100 ton and below). At the end of the course students will have an understanding of the electrical and hydraulic systems used in the Link-Belt telescopic product. Topics covered include:

- Machine Overview & Set-Up
- Fly Erection
- Hydraulics
- Electrical
- Full Power & Latching Booms
- RCL Navigation
- Troubleshooting
- Crane Rating Manual & Lift Concepts

Level 2.1 Large Rough Terrain Crane (RTC)

Class Size: Minimum 4/Maximum 8
Duration: 4 days
Prerequisite: Level 2.0 Telescopic

This course focuses on the hydrostatic travel circuit, closed loop winch circuits and electronic control systems of the RTC-80110 II / 80130 II / 80150 II. Topics covered include:

- Hydrostatic Travel
- Suspension
- Closed Loop Winch Circuits
- Parker IQAN Control systems
- Linde DVC 10 Pump Control Module
- RTC Troubleshooting and Diagnostics

Level 2.1 All Terrain Crane (ATC-3210/3275)

Class Size: Minimum 4/Maximum 8
Duration: 3 days
Prerequisite: Level 2.0 Telescopic

The All Terrain Crane topics for this class include the hydraulic suspension, closed loop winch circuits and electronic control systems of the ATC-3210/3275. Topics covered include:

- Hydraulic suspension/outriggers
- Rear steer
- ATC fly erection
- Closed loop winch circuits
- Parker IQAN control systems
- ATC troubleshooting and diagnostics

Level 2.1 Telescopic Crawler Crane (TCC)

Class Size: Minimum 4/Maximum 8
Duration: 3 days
Prerequisite: Level 2.0 Telescopic

This course focuses on the assembly/disassembly, hydraulic circuits and electrical circuits used on the TCC product line. Topics covered include:

- Assembly/Disassembly
- Linde Pump Controllers
- IQAN Engine Display
- Hydraulic Systems
- Electrical Systems
- TCC Troubleshooting and Diagnostics

Level 2.0 Lattice

Class Size: Minimum 5/Maximum 12
Duration: 4.5 days
Prerequisite: Successful completion of Level 1.0 Online Training

This course focuses on H, HII, H5 and HSL lattice cranes. At the end of the course students will have an understanding of the mechanical, electrical and hydraulic systems used in the Link-Belt lattice product. Topics covered include:

- Machine Overview & Set-up
- Machine Assembly/Disassembly
- Boom Assembly/Disassembly
- 2 Shoe Clutch Theory
- HYLAB Hydraulics
- HYLAB Electrical
- SML-10 Operations and Troubleshooting
- HSL Hydraulics
- HSL Electrical
- HSL Winch
- HSL-1 Operations and Troubleshooting
- Crane Rating Manual & Lift Concepts

Level 3: Factory Training - Rated Capacity Limiter

The third level of our technician training consists of Rated Capacity Limiter (RCL) training for Link-Belt telescopic cranes and Link-Belt lattice cranes.

Level 3.0 Telescopic Rated Capacity Limiter (RCL)

Class Size: Minimum 4/Maximum 8
Duration: 4 days
Prerequisite: Level 2.0 Telescopic and Level 2.1 Large RTC, Level 2.1 ATC-3210/3275 or Level 2.1 TCC

At the end of this course a technician should be able to demonstrate an ability to troubleshoot and calibrate the Greer Micro Guard and Link-Belt Pulse RCL systems used on Link-Belt telescopic cranes. The specific topics covered are:

- MG-534 Troubleshooting and Calibration
- MG-540 Troubleshooting and Calibration
- Pulse Troubleshooting and Calibration

Level 3.0 Lattice Rated Capacity Limiter (RCL)

Class Size: Minimum 4/Maximum 8
Duration: 3 days
Prerequisite: Level 2.0 Lattice

At the end of this course a technician should be able to demonstrate the ability to troubleshoot and calibrate the PAT, SML-10 and HSL-1 RCL systems used on Link-Belt lattice cranes. The specific topics covered are:

- PAT Troubleshooting and Calibration
- SML-10 Troubleshooting and Calibration
- HSL-1 Troubleshooting and Calibration

Level 4: Factory Training - Programming

The focus of level 4 training is programming the systems on Link-Belt telescopic cranes.

Level 4.0 Programming

Class Size: Minimum 4/Maximum 8
Duration: 3 days
Prerequisite: Level 3.0 Telescopic RCL
Materials Fee: $2,700 – Programming Kit

At the end of this course a technician will be able to program the electronic control components used on Link-Belt telescopic cranes. Each technician will leave with all the necessary software loaded on their laptop and receive all hardware needed to interface with Link-Belt telescopic cranes. Topics covered include:

- How to install diagnostics software on a laptop
- Programming a Pulse Display using the HED Programmer
- Programming an ATC- 3210 Carrier Display using Orchestra
- Programming the PULSE RCL and LTC controllers using Moto-Update
- Adjust LTC variables using Moto-Viewer
- Husco Latching Controller using Husco Diagnostics
- Flashing Rear Steer Computers using WinPCS
- Programming the Suspension Controller using IQAN Run
- Programming the Upper Engine display using IQAN Run
- Troubleshooting Crane Control and Suspension control systems using IQAN Run

Equipment Required for this Course:

- Laptop with Windows 7 or Windows 10 (32 bit or 64 bit OS), 2 or more USB ports, serial port (may use portable dock or USB to Serial converter.

  Note: Technician must have administrator rights on their laptop prior to attending class.
- Programming Kit (purchased through Link-Belt Training at time of enrollment) $2,700, includes:
  - VECTOR Network Interface
  - Pulse Flashing Kit
  - USB Cable
  - USB Isolator
  - IQANrun Software
  - Rear Steer Cables
  - Water Tight Case

Additional Training

All Terrain Crane (ATC) Operator/Technician Overview

Target Audience: Crane Owners/Crane Operator
Class Size: Minimum 5/Maximum 10
Duration: 2-3 days

Prerequisite: Company must be receiving an ATC within 30 days. The ATC class is intended to familiarize operators, oilers and technicians with carrier and upper operations and practices that are unique to Link-Belt ATC cranes. At the end of the course a student should be able to properly set the crane up for a job, break the crane down and prepare it for travel after a job. Topics covered include:

- Crane Overview & Familiarization
- Intarder Operation
- Suspension Operation
- Rear Steer Operation
- Outrigger Operation
- Crane Rating Manual Familiarization
- Latching Boom Familiarization
- Pulse Familiarization
- Electronic Crane Controls
- Fly Erection
- Emergency Mode Operation
- Engine Regeneration

Boom Inspection and Welding Course

Target Audience: Crane Technicians and Welders
Class Size: Minimum 3/Maximum 6
Duration: 4.5 days
Prerequisite: None
Materials Fee: $250

The Boom Inspection and Welding class is intended to familiarize participants with inspection of telescopic box and formed boom, lattice boom, lattice jib and telescopic fly attachments. Participants are also given the opportunity for hands-on learning of proper welding techniques for lattice boom, jib and/or telescopic fly repair. This class **does not** provide welding certification.

Topics covered include:

- Boom Repair Manual
- Lattice Boom Inspection
- Telescopic Boom Inspection
- Lattice Boom Repair/Welding

Travel and Lodging

Traveling to Link-Belt

DRIVING

Link-Belt Cranes is located in Lexington, Kentucky. Drivers can get to Lexington via Interstate 75 from the north or south and Interstate 64 from the west or east.

FLYING

The Blue Grass Airport is located within Lexington and is serviced by Allegiant Air, American Airlines, Delta Air Lines, United Airlines and US Airways. For more information about the Blue Grass Airport please visit http://www.bluegrassairport.com.

Lodging in Lexington

Link-Belt has partnered with a local hotel to provide rooms for our students. The student's employer is responsible for the hotel cost. During the enrollment process Link-Belt will contact the hotel to reserve rooms and send the confirmation numbers to each student.

Transportation

Students are responsible for their own transportation while they are attending training.

Link-Belt will provide a shuttle service for the class on evenings when hospitality events and dinners are scheduled.

Link-Belt Cranes
2651 Palumbo Drive
Lexington, Kentucky 40509
Training Phone: (859) 264-6285
www.linkbelt.com

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