FORTNA

Installation, Operation, Maintenance Manual

IntelliROL®
Motorized Roller Conveyor

Document Number: 1226671

Revision Date: August 14, 2023

FORTNA Inc. • 1300 E. Mount Garfield Rd. • Norton Shores, MI 49441

VYBERTE ODKAZ PRO ČESKÝ PŘEKLAD

Fortna-conveyor.com

The original manual is English.

Revision table

REVISION DATE	CHANGE DESCRIPTION	INITIALS
Aug 14, 2023	Initial release with CE standards	MD
No revision change	Nov 07, 2024, minor updates. Updated UBT drawings and spare parts. Updated maintenance UBT instruction. Updated contact information. Removed crawling under the conveyor	AE, MM

Original Instructions
Translated by:N/A

Published by: **FORTNA MI, USA**
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Disclaimer

It is the Customer's and the system user's responsibility to ensure that the system is operated only in safe conditions and in accordance with this document and any other documentation or instructions provided by FORTNA or its representatives. THIS DOCUMENT CONTAINS IMPORTANT WARNINGS AND SAFETY REQUIREMENTS. This document must be available to and accessible by any users or anyone with access to the system so that it may be regularly consulted.

ANY PERSON TO USE OR ACCESS THE SYSTEM IN ANY WAY MUST CAREFULLY READ AND UNDERSTAND THIS DOCUMENT. VISITORS OF ANY KIND, AUTHORIZED AND UNAUTHORIZED GUESTS, CHILDREN, ANIMALS AND ANY OTHER PERSON WHO HAS NOT FULLY READ AND UNDERSTOOD THIS DOCUMENT MUST BE KEPT AT A SUITABLE AND SAFE DISTANCE FROM THE SYSTEM. PHYSICAL CONTACT WITH THE SYSTEM MUST BE AVOIDED AT ALL TIMES. SUITABLE WORK CLOTHING AND PROTECTIVE GEAR ARE REQUIRED.

All FORTNA warranties will be voided by any misuse of the system, failure to exercise care, inappropriate behavior, failure to comply with this document or other documentation or instructions supplied by FORTNA or its representatives, or unauthorized modification of the system. Please refer to the applicable FORTNA warranty document for other warranty limitations.

You must contact FORTNA at usinfo@fortna-conveyor.com or (231) 798-4547 immediately with any questions or concerns about this document or the system.

Forward

Editor's Note

This documentation is expressly addressed to technicians. Therefore, information that can be easily retrieved by reading these texts and analyzing the drawings may not be explained further. The Editor is by no means liable for any information and data provided in this manual: all information included herein has been supplied, controlled, and approved by the Manufacturer during review. The Editor shall by no means be held responsible for the consequences resulting from the user's misuse of the system.

General Remarks

All operating, maintenance instructions and recommendations described in this manual must be respected. For the best results, the Manufacturer recommends cleaning and servicing regularly to keep the partly completed machine as efficient as possible. It is particularly important to train the personnel in charge of this partly completed machine on how to use and service it. They must also comply with the operating procedures and all the safety standards indicated in this manual.

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DOCUMENTATION OR INSTRUCTIONS SUPPLIED BY FORTNA OR ITS REPRESENTATIVES, OR UNAUTHORIZED MODIFICATION OF THE SYSTEM.

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1 Contact & Identification

1.1 Manufacturer Contact Information

FORTNA
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USA Tel.+ 231.798.4547
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1349 W Peachtree St. NW
Suite 1300
Atlanta, GA 30309

FORTNA Parts & Service
Attn: Lifecycle Performance Services
Website: fortna-conveyor.com

For additional manuals, videos, and other resources visit our website at:

fortna-conveyor.com

1.2 Manufacturer Identification

MANUFACTURER	NAME & ADDRESS
Address of registered offices	FORTNA | MHS Conveyor 1300 E. Mount Garfield Road Norton Shores, MI 49441-6097 USA USA Tel.+ 231.798.4547
Operational Headquarters Address	FORTNA 1349 W Peachtree St NW Suite 1300 Atlanta, GA 30309 USA USA Tel.+ 770.475.0991
Economic Operator	ECONOMIC OPERATOR Senior Product Manager, Conveyance Fortna Services CZ s.r.o. Karolinská 661/4 PRAHA 8 - KARLIN 186 00 PRAHA 86 Czech Republic VAT No: CZ17334233

1.3 Identification of the partly - completed machine

IDENTIFICATION OF THE PARTLY - COMPLETED MACHINE	
Type	FORTNA - IntelliROL Conveyor
Year of manufacture	As stated on bed tag. See Sample Label Below
Serial number	Reference CBC on bed tag

Bed Tag Label Sample

An identification label is attached to the outside of one side channel or on a cross member, close to one end of each conveyor bed or partly completed machine.

Refer to Parts Inventory & Identification in this IOM manual.

1.4 Contents of Declaration of Incorporation

Machinery listed in this manual fall under FORTNA's DOI for IntelliROL conveyor. Any modifications or unique designs based on IntelliROL conveyor technology will require further evaluation and risk assessment.

FORTNA

EC Declaration of Incorporation

EC DECLARATION OF INCORPORATION

WE, FORTNA
OF, 1300 E. Mt. Garfield Road
Norton Shores, MI 49441 USA

In accordance with the following Directive: 2006/42/EC, we hereby declare that the following EHSRs have been complied with:

Equipment	IntelliROL
Equipment Model number	ITR (With additional suffix)
Serial Number	(CBC/serial number)

In accordance with the following Directive: 2006/42/EC, we hereby declar[illegible] the [illegible]owin[illegible]SRs have been complied with:

1.1.2 Principles of safety integration
1.1.3 Materials and products
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1.7.1.1 Information and Information Devices
1.7.3 Marking of Machinery
1.7.4 Instructions

Other Standards co[illegible]ed with:
EN 619:2002+A1:20[illegible] Conti[illegible]ous h[illegible]dling equipment and systems — Safety and EMC requirements for equipment for mecha[illegible]Handling of u[illegible]t loads

The technical documentat[illegible]n for the machinery is available from:
Senior Product Manage[illegible]nveyance
Fortna Services CZ s.r.o.
Karolinská 661/4
PRAHA 8 - KARLIN
186 00 PRAHA 86
Czech Republic

We, FORTNA, certify that the equipment described above has the following essential health and safety requirements of the Machinery Directive applied and fulfilled. This machinery may not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive. The relevant technical documentation in accordance with Annex VII, Part B of the Machinery Directive 2006/42/EC has been compiled. We shall, in response to a reasonable written request by the appropriate national authority transmit the relevant requested information on the aforementioned partly completed machinery by email.

Date of Issue: 20/09/2023	
Signed: Mark van Bruchem	Title: VP Projects, EMEA
	Place of Issue: 1300 E Mount Garfield Rd. Norton Shores, MI 49441-6097
Signature:	

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FACSIMIL

1.5 Reference Directives

We, FORTNA, certify that the equipment described above has the following essential health and safety requirements of the Machinery Directive applied and fulfilled. This machinery may not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive.

The relevant technical documentation in accordance with Annex VII, Part B of the Machinery **Directive 2006/42/EC** has been compiled. We shall, in response to a reasonable written request by the appropriate national authority, transmit the relevant requested information on the aforementioned partly completed machinery by email.

FORTNA MI, USA, therefore, launches the partly completed machine on the market equipping it and accompanying it with: Declaration of Incorporation

Installation, Operation, Maintenance Manual	Documentation drafted according to point 1.7.4.2 and Annex VI, VII, of Machinery Directive 2006/42/EC.

It is also noted that the partly completed machine was designed according to the following **Directives**:

2006/42/EC	Machinery Directive

The following **harmonized standards** have also been applied:

EN_619;2002+A1;2010	Continuous handling equipment and systems – Safety and EMC requirements for equipment for mechanical handling of unit loads CONSOLIDATED TEXT

2 Warranty

The original warranty is stated in the sales agreement and has priority over that stated in this section if different.

The warranty is subject to the following general conditions:

- Opening of boxes, crates, packages, and installation must be carried out in the presence of the Manufacturer's authorized integrators or technicians.
- The first start-up and positive test of the partly completed machine must be carried out under the supervision of the Manufacturer's authorized integrators and technicians; the sheet of intervention relating to the installation and testing must be drawn up.
- The partly completed machine must be used within the limits specified in the contract and indicated in the technical documentation.
- Maintenance operations shall follow the instruction in this manual, using authentic spare parts by FORTNA and assigning the task to execute these operations to qualified staff.
- The warranty becomes void in the event of:
- Failure to comply with the safety standards.
- Removal or tampering with the control and safety devices (guards, photocells, sensors, microswitches, etc.).
- Improper use of the partly completed machine.
- Use of the partly completed machine by untrained and/or unauthorized personnel or not according to the competencies of the operators, as indicated in the manual.
- Changes or repairs made by the user without the manufacturer's written authorization.
- Non-compliance, partial or total, of the instructions.
- Energy power supply failures (electric, etc.).
- Lack in maintenance.
- Use of non-original spare parts not authorized.
- Extraordinary events like floods, fires, etc. (unless caused by the machines).

NOTICE	
	**Notice!** • Further details may be found in the commercial contract. • The conditions of the commercial contract (if different) have priority over those stated in this section.
Failure to follow these instructions can result in property damage or equipment damage.	

2.1 FORTNA Equipment Warranty

FORTNA warrants that the material and workmanship entering into its equipment is merchantable and will be furnished in accordance with the specifications stated.

FORTNA agrees to furnish the purchaser without charge any part proved defective within 2 years from date of shipment provided the purchaser gives FORTNA immediate notice in writing and examination proves the claim that such materials or parts were defective when furnished. Other than the above, there are no warranties which extend beyond the description on the face hereof. Consequential damages of any sort are wholly excluded.

The liability of FORTNA will be limited to the replacement cost of any defective part. All freight and installation costs relative to any warranted part will be at the expense of the purchaser. Any liability of FORTNA under the warranties specified above is conditioned upon the equipment being installed, handled, operated, and maintained in accordance with the written instructions provided or approved in writing by FORTNA.

The warranties specified above do not cover, and FORTNA makes no warranties which extend to, damage to the equipment due to deterioration or wear occasioned by chemicals, abrasion, corrosion, or erosion; Purchaser's misapplication, abuse, alteration, operation or maintenance; abnormal conditions of temperature or dirt; or operation of the equipment above rated capacities or in an otherwise improper manner.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, EXTENDING BEYOND THOSE SET FORTH IN THIS STATEMENT OF WARRANTY.

Rev Aug 12, 2021

3 General Preliminary Information

3.1 Intended For

The manual is intended for the operators in charge of utilizing and managing the partly completed machinery in all its technical aspects. The manual provides information for the correct utilization of the partly completed machine, to maintain its functional and qualitative characteristics unchanged over time. To include safety information and warnings for proper and safe use.

The manual, like the Declaration of Incorporation, is an essential part of the partly completed machine and must always accompany it in every displacement or property transfer. The user must maintain this documentation and make it available for consultation during the entire duration of the partially completed machine.

Failure to follow the instructions and cautions throughout this manual and warning label on the conveyor may result in injury to personnel or damage to the equipment.

Your FORTNA conveyor is powered by a motor and can be stopped only by turning off electrical power to the motor. As with all powered machinery, the drive-related components – including sprockets, chains, shafts, universal joints, and pneumatic devices – can be dangerous. We have installed or provided guards to prevent accidental contact with these parts, along with warning labels to identify the hazards.

Symbols / Figures

The pictures and drawings in this manual are purely illustrative and may differ from the actual machine due to technical changes.

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3.2 Supply and Preservation

The manual is supplied in paper and electronic format. All the additional documentation (plant diagrams, sub-supplier manuals, etc.) is supplied annexed to this manual.

Keep this manual close to the partly completed machine, for easy consultation by the operator.

The manual is an integral part for the purpose of safety, therefore:

- If it is lost or ruined, you should immediately request a copy or scan the QR code on the bed tag or visit the following links.
  - New or revised manuals are available at: Fortna-conveyor.com
  - Legacy manuals are available at: Fortna-conveyor/support/legacy/manuals.
- It must follow the partially completed machine until it is completed (even if relocation, sale, rental, lease, etc.)

The attached manuals are a part of this document and the same recommendations/prescriptions contained in this manual are applied to them.

NOTICE	
	**Notice!** • This manual is an integral part of the partly completed machine for safety purposes and must, therefore, always accompany it.
Failure to follow these instructions can result in property damage or equipment damage.	

3.3 Manufacturer Updates

If the partly completed machine requires functional modifications or replacements, the Manufacturer is responsible for revising or modifying the manual. The Manufacturer is responsible for delivering the manual update.

The user is also responsible for ensuring that, should this document be modified by the Manufacturer, only the updated manual versions are present in the points of use.

New or revised manuals are available at: Fortna-conveyor.com

Legacy manuals are available at: Fortna-conveyor/support/legacy/manuals.

3.4 Language

The original language for this manual is written in English. All other translations must be done from the original instruction.

The manufacturer shall be responsible for the original information. Translations into different languages cannot be fully verified, inconsistency in translation may be detected, the text in the original language must be referred to or contact the Manufacturer.

3.5 Qualifications of Authorized Personnel

For the purpose of professionalism, the following table establishes what skills and qualifications are required of the personnel in charge of the various duties (starting up, operating, and routine maintenance, etc.):

Operator Qualification

Definitions:

- Operators are authorized to use and operate the partly completed machine for production purposes, for the activities it was constructed and supplied for.
- All operators must be capable of performing all the procedures required for good partly completed machine operations, their personal safety, and the safety of other workers. Have proven experience in the correct use of this type of machine and be trained, informed, and instructed accordingly.
- Must report any irregularity to his/her superior in case of doubt.

Note!

He/she is **NOT** authorized to perform any maintenance activity.

Mechanical Maintenance Engineer

Definitions:

- A qualified Mechanical Maintenance Engineer can carry out preventive/corrective maintenance activities on all the mechanical parts of the partly completed machines subject to maintenance or repairs.
- A qualified Mechanical Maintenance Engineer can access all parts of the partly completed machine for a visual analysis, inspect the equipment status, carry out adjustments, and calibrations.

The Qualified Maintenance Engineer is able to:

- Use the partly completed machine as an operator.
- Intervene on the mechanical elements for adjustments, maintenance, and repairs.
- Read plant diagrams, technical drawings, and spare parts list.
- In exceptional cases, he/she is trained to run the partly completed machine under reduced safety conditions.
- Where necessary, provide the operator with instructions for the proper use of the partly completed machine for production purposes.

Note!

He/she is **NOT** authorized to work on live electrical systems (if installed).

Electrical Maintenance Engineer

Definitions:

- A qualified Electrical Maintenance Engineer can carry out preventive/corrective maintenance activities on all the electrical parts of the partly completed machines subject to maintenance or repairs.
- A qualified Electrical Maintenance Engineer can access all parts of the partly completed machine for a visual analysis, inspect the equipment status, carry out adjustments, and calibrations.

The Qualified Electrical Maintenance Engineer can:

- Use the partly completed machine as an operator.
- Work on adjustments and on the electrical systems for maintenance purposes, repairs, and replacing worn parts.
- Reading wiring diagrams and checking the proper functional cycle.
- Where necessary, provide the operator with instructions for the proper use of the partly- completed machine for production purposes.
- Work while the electrical circuits in the electrical panel, junction boxes, control appliances, etc. live only if the technician is suitably qualified (PEI).

Note!

They **DO NOT** perform software programming of systems such as: PLC (logic or safety) and cannot modify the system passwords.

Manufacturer Technician

Definitions:

- Technician qualified by the Manufacturer and/or by its distributor for complex operations and is aware of the constructive production cycle of the partly completed machine.

Lift Equipment Operator

Definitions:

- A qualified operator of the lifting equipment is aware of the constructive production cycle of the partly completed machine. The lifting operator lifts and moves the partly completed machine per the user requests.
- The qualifications stated fall within a category of people defined “as trained person.”

Trained Personnel

Definitions:

- A person informed, educated, and trained on the work and on any dangers deriving from improper use. Also knows the importance safety devices, accident-prevention standards, and safe work conditions.

3.6 Symbols Used in This Manual

Symbols are used throughout the manual to emphasize information of significant importance.

SYMBOL	TYPE	DEFINITION
	**ATTENTION**	Symbol used to identify important warnings for the safety of the operator and/or partly completed machine.
	**FORBIDDEN (MUST NOT)**	Symbol used to identify operations that must not be performed or behaviors that must not be adopted as they could cause injury to personnel or damage to the partly completed machine.
	**OBLIGATION (MUST DO)**	Mandatory action symbol is used to draw attention to a supplementary sign for a specified mandatory action. The mandatory action symbol is used to identify particularly important information inside the manual. The information also regards the safety of personnel involved use of the partly completed machine.
 	**OBLIGATION TO READ THE INSTRUCTION MANUAL** **OBLIGATION TO READ THE TECHNICAL MANUAL**	To use the partly completed machine safely, it is mandatory to read and understand the manual and accompanying documentation in its entirety. To use the partly completed machine safely, it is mandatory to read and understand the manual and accompanying documentation in its entirety. Before service to use the partly completed machine safely, it is mandatory to read and understand the manual and accompanying documentation in its entirety.

3.7 Symbols Used Throughout the Manual

Special attention must be made to the following areas of this manual. Listed below are some symbols used throughout the manual to emphasize information of significant importance.

DANGER	
	**Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.**

WARNING	
	**Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.**

CAUTION	
	**Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.**

NOTICE	
	**Failure to follow these instructions can result in property damage or equipment damage.**

3.8 Glossary

Technical terminology or a different meaning from the standard used in the manuals.

Below is the explanation of the different terms and definitions used in this manual:

TERM	DEFINITION
LIFTING ACCESSORIES	Pieces of equipment that are used to attach the load to lifting equipment providing a link between the two. Common examples of lifting accessories are (e.g., rope slings, chains, single or multiple legs), a harness and its components are also considered lifting accessories.
LIFTING CHAINS, ROPES, OR BELTS	Elements designed and built for lifting as integral part of machines for lifting or lifting accessories
PERSONAL PROTECTIVE EQUIPMENT (PPE)	Personal Protective Equipment (PPE) is protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's (operator, maintenance engineer, etc.) body from injury or infection.
BREAKDOWN	Element fully unable to perform a required function.
MACHINE	A machine is an apparatus using power to apply force and control movement to perform an action. Assembly, fitted with or intended to be fitted with a drive system, consisting of linked parts or components, at least one of which moves, and which are joined together for a specific application.
PARTLY COMPLETED MACHINE	Partly completed machinery is a term under the Machinery Directive (2006/42/EC) for an assembly of parts which is almost machinery, but which cannot in itself perform a specific application. Partly completed machines are only intended for incorporation or assembly with other machines or with other partly completed machines or devices to form a machine governed by the Machinery Directive.
PROTECTIVE MEASURE	Protective measures are designed or intended to protect something or someone from harm. **Measure required to achieve risk reduction, implemented:** • By design (intrinsically safe project, guards, covers, and additional protective measures, information for use). • By the user (organization: safe operation procedures, surveillance, work permits, availability and use of additional protective equipment, use of personal protective equipment, training).
HAZARD	Potential source of damage that, if not avoided, poses a risk to the safety and health of exposed persons.
EXPOSED PERSON	Any person fully or in part inside a dangerous area.
PREVENTION	The set of provisions or measures required also according to the specific work, the experience, and the technique, to avoid risks or reduce the probability of occurrence.

TERM	DEFINITION
PROTECTION	Defense against what may cause damage. Element placed between those who may suffer damage and what may cause it for hazards that cannot reasonably be eliminated or for risks that cannot be sufficiently reduced during design. **The following are distinguished:** • The active protection that the operators themselves must activate (e.g., emergency stops) and/or wear (PPE). • The passive protection that triggers even without human command.
GUARD	A device, fitted or specifically designed as a barrier and is attached as part of the partly completed machine, to provide protection.
FIXED GUARD	Fixed guards are permanently attached to the machine and do not have any moving parts and cannot be moved while the machine is in use. Permanent part of the machine. Protection held in place (i.e., closed) or permanently (welded) or by means of fixing elements (screws, bolts, etc.) that do not allow removing/ opening without the aid of tools (wrenches, screwdrivers, or Allen screws).
MOVABLE GUARD	A movable guard is mechanically connected to the partly completed machine structure by mechanical means (e.g., hinges, slides, or guides) and is attached to the machine frame or an adjacent fixed element. It can be opened without a use of a tool.
UNEXPECTED START-UP	Unintended start-up. Any start-up which, because of its unexpected nature, generates a risk to persons.
RISK	Combination of the probability of occurrence of damage and the severity of that damage.
RESIDUAL RISK	Portion of risk remains after applying protective and preventive measures.
INTENDED USE	Use of a machine in accordance with the information provided in the instructions for use.
REASONABLY FORESEE- ABLE MISUSE	Use of a machine or systems in a way not intended by designer, but which can result from foreseeable human behavior.

3.9 Personal Protective Equipment

When operating near the partly completed machine for assembly and maintenance and/or adjustment operations strictly respect the main accident-prevention rules. For this purpose, it will be important to use the personal protective equipment (PPE) required for each individual operation.

Below is the full list of personal protective equipment (PPE) that may be required for the different procedures:

SYMBOL	DESCRIPTION
	**Obligation to use protective or insulating gloves.** Indicates a requirement for personnel to use protective or insulating gloves.
	**Obligation to wear eye protection.** Indicates a requirement for personnel to use approved safety eye protection.
	**Obligation to use safety shoes.** Indicates a requirement for personnel to wear work-safety footwear.
	**Obligation to use noise protection devices.** Indicates a requirement for personnel to use headphones or earplugs to protect hearing.
	**Obligation to use protective clothing.**
	**Obligation to use the safety harness** Must use safety harness for work at elevated heights.
	**Obligation to use a protective helmet.** Indicates a requirement for personnel to wear head protection.

The clothing worn by individuals running the machine or performing maintenance on the partly completed machine must comply with the essential safety requirements defined by regulations in force in the country where it is installed/used.

4 Safety

4.1 General Safety Warnings

The purpose of this chapter is to inform the personnel of any possible dangers and risks as well as of general and specific recommendations to eliminate or minimize said risks.

This chapter has information and instructions regarding:

- Dangerous situations that can arise during use and maintenance of the partly completed machine.
- Guards and safety devices adopted and their correct use.
- Residual risks and conduct to adopt (general and specific recommendations to avoid or reduce them).

This installation operation maintenance (IOM) manual briefly summarizes these instructions in the sections where the described situations occur.

⚠DANGER	
	**Protective Devices** • It is forbidden to use the partly completed machine or completed machine with no guards or protection devices, or with guards or protection devices deactivated. Ignoring the above can cause serious damage and/or accidents.
Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.	

NOTICE	
	**Operation Manual Illustrations** • Some illustrations representing the partly completed machine are shown without the protection guards or with the guards removed to show specific details. This is necessary for the sake of clarity in the description. • Some drawings represented in this operation manual are for visual reference only and as such not all drawings contain completed drawing information such as dimensions, notes, conveyor labels, or safety symbols.
Failure to follow these instructions can result in property damage or equipment damage.	

⚠CAUTION	
	**Electrical Connection** • To incorporate the partly completed machine within the destination line, it is necessary to provide the external electrical connection for the activation of the safety functions of the partly completed machine by the control logic of the line itself.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

4.2 Obligations and Prohibitions

4.2.1 Obligations

Listed are obligations that are mandatory and **Must Do**!

	THE WORKERS MUST DO!
 	• **Must Do,** carry out maintenance operations with the partly completed machine switched off. Do not lubricate moving parts. • **Must Do,** parts over 18kg should be lifted by two people. • **MUST DO,** step ladder must be used when performing maintenance or cleaning on items that cannot be reached from floor level. • **Must Do,** tie up long hair or long beards, avoid wearing scarves or other clothes that may get trapped in the moving parts of the partly completed machine. All loose clothing, long hair, long beards, and jewelry must be kept away from moving equipment. • **Must Do,** remove jewelry such as bracelets, rings or necklaces that may get trapped in moving parts, thus creating a risk for the operator. • **Must Do,** always perform interventions on the electrical system components in the absence of voltage (main switch off). • **Must Do,** make sure that no-one is standing in the danger zones during the start-up and operation of the partly completed machine. • **Must Do,** use extreme caution to avoid injury or property damage during use of the partly completed machine. • **Must Do,** know the location and operation of the stopping device. • **Must Do,** comply with instructions and provisions given by the employer, managers, or supervisors, to ensure personal and collective safety. • **Must Do,** make proper use of equipment, tools, substances, and dangerous products, means of transport and other working machinery, as well as safety devices. • **Must Do,** make correct use of all personal protective equipment they have been provided with • **Must Do,** after maintenance, must REPLACE guards immediately. • **Must Do,** keep ALL warning labels clean and clear of any obstructions. • **Must Do,** must be trained to never remove, deface, or paint over symbols or labels of any kind. Any damaged label can be replaced by FORTNA by contacting Lifetime Services. • **Must Do,** it is very important to instruct personnel in proper conveyor use, including the location and function of all controls. • **Must Do,** special emphasis must be given to emergency stop procedures. • **Must Do,** it is important to establish work procedures and access areas, which do not require any part of a person to be under the conveyor.

THE WORKERS MUST DO!

- **Must Do,** after the power source is turned off and locked out trained maintenance technician are to remove blockage or jams from the partly completed machine.
- **Must Do,** maintain enough clearance on each side of all conveyor units for safe adjustment and maintenance of all components
- **Must Do,** provide crossovers or gates at sufficient intervals where needed to eliminate the temptation for personnel to climb over or under any conveyor.
- **Must Do,** use the partly completed machine within the approved environmental conditions.
- **Must Do, BEFORE** performing maintenance on the conveyor, make sure the start-up controls are locked out and cannot be turned on by any person other than the one performing the maintenance.
- **Must Do,** if more than one crewmember is working on the conveyor, **EACH CREW MEMBER MUST HAVE A LOCK ON THE POWER LOCKOUT.**
- **Must Do,** maintain enough clearance on each side of all conveyor units for safe adjustment and maintenance of all components.
- **Must Do,** all pneumatic devices must be de-energized, and air removed to prevent accidental cycling of the device while performing general maintenance.
- **Must Do,** make sure all personnel are clear of all conveyor equipment before restarting the system.
- **Must Do,** watch for nip points or pinch points. A pinch point hazard is a common class of mechanical hazard where injury or damage may be done by one or more objects moving towards each other, crushing, or shearing whatever comes between them. A nip point is a type of pinch point involving rotating objects, such as gears and pulleys.
- **Must Do, BEFORE** restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be made, and the cause of the stoppage determined. The starting device must be locked out before any attempt is made to correct the cause of stoppage.
- **Must Do,** make correct use of all personal protective equipment that they have been provided with.
- **Must Do,** know the workplace and traffic routes, and all required protections/guarding of nearby hazardous equipment.
- **Must Do,** know IntelliROL equipment starts and stops without warning and can cause severe injury.
- **Must Do,** employees that come in contact with the equipment must be warned of the dangers of an unexpected start.
- **Must Do,** hands can be crushed between products or products and channels.
- **Must Do,** the user shall be careful to ensure a regular feed, avoiding overloading.
- **Must Do,** all loading and working places, passageways, shall be kept clear.

THE WORKERS MUST DO!

- **Must Do, BEFORE** servicing or performing any work in the motor control panel, disconnect and padlock out air and the main incoming service. If ONLY the panel disconnect is off, the incoming side will still be hot.
- **Must Do,** all safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all installation, operation, maintenance, or technical manuals.

Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.

Mandatory action symbol is used to draw attention to a supplementary sign for a specified mandatory action.

The mandatory action symbol is used to identify particularly important information inside the manual. The information also regards the safety of personnel involved use of the partly completed machine.

4.2.2 Prohibitions

Listed are prohibitions and are mandatory **Must Not Do** to avoid the hazard!

	THE WORKER MUST NOT!
	• **Must Not,** use the partly completed machine improperly, i.e., for uses other than those indicated in the “Intended use” paragraph. • **Must Not,** remove or modify the safety or signaling devices without authorization. • **Must Not,** remove, deface, or paint over symbols or labels of any kind. Any damaged label can be replaced by FORTNA by contacting Lifetime Services.
	• **Must Not,** convey hazardous materials. • **Must Not,** Walking or riding on a partially completed machine/moving conveyor must be prohibited. No person shall ride, sit, or stand on a conveyor under any circumstances. • **MUST Not,** remove or install heavy parts whilst anyone is working on the floor level below the parts to be moved. This will help stop accidental falling of heavy parts onto people.
	• **Must Not,** carry out, upon their own initiative, operations or maneuvers they are not in charge of and that can jeopardize their own safety and that of other workers. • **Must Not,** wear bracelets, rings or necklaces that may get trapped in moving parts, thus creating a risk for the operator. • **Must Not,** make modification of the design or configuration of the equipment may lead to new hazards or higher risk that are not reduced adequately by the risk reduction measures of the manufacturer. • **Must Not,** replace or modify the speed of partly completed machine components without being authorized by a manager. • **Must Not,** modify the partly completed machine operating cycle. • **Must Not,** modify the connections to exclude the internal safety devices.
	• **Must Not,** use the partly completed machine if not properly incorporated within the final line, according to current regulations. • **Must Not,** use the partly completed machine or its components as point of support even if not operational (risk of falls and/or risk of damaging the components themselves). • **Must Not,** use the partly completed machine outside of the admitted environmental conditions. • **Must Not,** touch Motor rollers as they can become **hot!** • **Must Not,** touch any type of Motor as the motor may be **hot!** • **Must Not,** clear jams while the equipment is running. • **Must Not,** do not pull on equipment parts, such as belts, pulleys, or shafts, to assist slow starting equipment.
Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.	

Original language is English

THE WORKER MUST NOT!

Symbol used to identify operations that must not be performed or behaviors that must not be adopted as they could cause injury to personnel or damage to the partly completed machine.

NOTICE

Notice!

- FORTNA is not liable for damage to property or people if it has been determined that the partly completed machine has been used in one of the non-admitted environments.

Failure to follow these instructions can result in property damage or equipment damage.

4.3 Noise and Emissions

Noise levels have been measured in accordance with the requirements of the relevant regulations in force. During the operating cycles, the levels of exposure to noise for personnel **do not exceed 80 dBA**.

The actual noise levels of the incorporated partly completed machine during operation on site and in a manufacturing process, differ from those detected, as the noise is influenced by factors such as:

- Type and features of the site.
- Other adjacent machines in operation.

NOTICE	
	**Notice!** • It is the precise responsibility of the end user/customer to apply the relevant preventive and protective measures in compliance with the law in the country of installation and use of the partly completed machine.
Failure to follow these instructions can result in property damage or equipment damage.	

4.3.1 IntelliROL Noise Technical Data

INTELLIROL LOAD WEIGH LIMITATIONS	MINIMUM	MAXIMUM
IntelliROL Accumulation	65 dBA	68 dBA
IntelliROL Transportation	65 dBA	68 dBA
IntelliROL Belted Accumulation	65 dBA	68 dBA
IntelliROL High Speed Transportation	65 dBA	68 dBA
IntelliROL Belted Incline	65 dBA	68 dBA
IntelliROL Belted Decline	65 dBA	68 dBA

This chart is provided as a guide only. The load type will influence these readings if it is hard, metallic, soft, or if the contents add to the noise level. If loads are being transferred or diverted the readings will vary as well. The maximum readings are for worst case situations. In some cases, closer roller centers will affect the sound being generated. Equipment is tested without loading. Each load is unique and may impact noise levels.

FORTNA partially completed machines do not produce non-ionizing radiation which may cause harm to persons.

4.3.2 Noise Emission Declaration

INTELLIROL® CONVEYING SYSTEM	
Maximum Speed:	0,9 m/s
Total Height:	Minimum height: 330-mm Maximum Height: 5.65 m
Transportation Unit:	Product loaded tray or bin with a maximum total mass of 34 kg
Infeed Conveyor:	Can be connected to most conveying systems with similar load sizes.
Outfeed Conveyor:	As above.
Operating Cycle:	From the load infeed point to the outfeed point. Measuring time: 5 cycles for a total duration of 100s.
Measuring Point:	Height = 1,6 m above floor level. Distance = 1,0 m to the Conveyor Edge.
Measuring Sequence:	According to E.4 1) of EN 619:2022

DECLARED DUAL-NUMBER NOISE EMISSION VALUES [dB(A)]

In accordance with EN ISO 4871

A-weighted emission sound pressure level, *LpA*, at lower floor level	65,2 dB (A). This level does not exceed 70.0 dB (A)
Uncertainty, *KpA*,	3 dB (A)

Values determined according to noise test code given in Annex E of EN 619:2022 using the basic standard EN ISO 11201:2010 (grade 2)

NOTE The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements.

MHS Conveyor Corporation confirms that all requirements of the noise test code have been fulfilled.

WARNING: *In situ* noise levels at workplaces will be higher than those measured according to the noise test code given in Annex E of EN 619:2022, depending on the environmental noise.

4.4 Vibrations

The vibrations produced by the partly completed machine, depending on its method of operation, do not pose a risk to the health of the operators.

⚠CAUTION	
	**Caution**! • An excessive vibration can only be caused by a mechanical fault that must be immediately reported and eliminated, to avoid jeopardizing the safety of the partly completed machine and operators.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

4.5 Residual Risks

The partly completed machine was designed to guarantee the essential safety requirements for the operator.

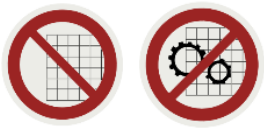
Safety has been incorporated, as much as possible, into the design and construction of the partly completed machine; however, there are risks from which the operators must be protected, especially during:

- Transport and incorporation or moving parts.
- Normal operation.
- Adjustments and fine tuning.
- Maintenance.
- Disassembly and dismantling.

For each residual risk, there is a description of the risk and of the zone or part of the partly completed machine subject to that residual risk, unless the risk is valid for the entire partly completed machine.

Procedural information as to how to avoid the risk and on the correct use of the personal protective equipment intended and prescribed by the Manufacturer is also supplied.

RESIDUAL RISK	DESCRIPTION	PROCEDURAL INFORMATION
 **HAND ENTANGLEMENT. BELT DRIVE WITH TEETH**  **HAND CRUSHED PINCH POINT OR ABOVE**	Limbs can get stuck during maintenance when the protections have been removed for inspection or repair.	Follow the procedures described and observe the safety instructions. Never turn on the partly completed machine without the safety protections installed. Turn the power off when working on the partly- completed machine. Lock the system to prevent it from being turned on inadvertently!
 **ELECTROCUTION HAZARD**	Contact with a power source during maintenance. Do not attempt to perform maintenance without having first de-energized the system.	Always turn the power off when working on the partly completed machine.
 **INJURIES TO THE LIMBS CAUSED BY CONTACT WITH MOVING PARTS**	Contact with moving parts during operation can cause minor or serious injuries.	Always keep sufficient distance from the partly complete machine. Never insert your hands into the partly completed machine or a complete machine when it is running or not running. Do not insert your hands on or in between materials being conveyed.

RESIDUAL RISK	DESCRIPTION	PROCEDURAL INFORMATION
 **AUTOMATIC START**	Know IntelliROL equipment starts and stops without warning and can cause severe injury.	Never insert your hands into the partly completed machine or a complete machine when it is running or not running. Do not insert your hands on or in between materials on the being conveyed.
 **FALL HAZARD STANDING OR WALKING ON CAONVYOR**	Risk of falling when standing or walking on the conveyor.	Never stand, walk on the conveyor.
 **DO NOT REACH MOVING PARTS UNDERNEATH**	Contact with moving parts during operation can cause minor or serious injuries.	Never insert your hands into the partly completed machine or a complete machine when it is running or not running.
 **RISK OF INJURIES TO THE LIMBS CAUSED BY CONTACT WITH MOVING PARTS**	Risk of falling due to walking, sitting, standing, or climbing on the conveyors belt, rollers, or any part of the conveyor systems, even when it is not moving.	Do not walk, stand, sit, or climb on the partly or completed machine when it is stationary or running.
	Ignoring the guards missing can cause serious damage and/or accidents.	It is forbidden to use the partly completed machine or completed machines with no guards and protection devices.
	Must read all manuals.	Manuals must stay with a partly completed machine or completed machine. All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals. Before service to use the partly completed machine safely, it is mandatory to read and understand the manual and accompanying documentation in its entirety.

4.6 User Responsibilities

It is the responsibility of the user to:

- Analyze the risks that might occur during handling and installation at his/her premises (the analysis done on the handling of the partly completed machine only took into consideration the characteristics of the same).
- Mark out the path of forklift trucks and/or laser guided vehicles, with appropriate floor signs.
- Awareness-raising and training of the personnel in charge of performing operations on workstations as well as partly- completed machine operators.
- Apply the visual safety signs in the work environment after having evaluated the risks inside the areas of transit or control.
- The integrator or end user/customer supply workstation layouts.

⚠CAUTION	
	• The end user of the line must, during the incorporation, reduce the risks in the different zones of the partly- completed machine, according to the general risk analysis of the line itself.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

4.7 Safety Pictograms

The partly completed machine is equipped with a series of pictograms, which serve the purpose of warning the operator of any residual risks.

	**Prohibition Must Not!** • **IT IS STRICTLY FORBIDDEN** to remove the pictograms installed on the partly completed machine. • FORTNA will not be held liable for the safety of the partly completed machine should this prohibition be disregarded.
	**Mandatory action Must Do!** • General mandatory action sign indicates an action to take to avoid the hazard. • FORTNA will not be held liable for the safety of the partly completed machine should this prohibition be disregarded.
	**Caution!** • Symbol used to identify important warnings for the safety of the operator and/or partly completed machine.

4.8 List of Pictograms

The following table lists the pictograms present on the partly completed machine but are not limited to only these pictograms.

PICTOGRAM AND DESCRIPTION		
 AUTOMATIC START UP	 HAND ENTANGLEMENT. BELT DRIVE WITH TEETH	 HAND CRUSH FROM NIP OR PINCH POINT
 HAND ENTANGLEMENT IN ROLLERS	 ELECTRICAL HAZARD	 HAND ENTANGLEMENT
 FALL HAZARD FROM CONVEYOR	 DO NOT STEP, STAND OR SIT	
 DO NOT REACH MOVING PARTS UNDERNEATH	 DO NOT OPERATE WITHOUT GUARDS MOVING PARTS UNDERNEATH	 DO NOT OPERATE WITHOUT GUARDS
 ENGLISH WRENCH REQUIRED	 LOCK OUT TAG OUT PNEUMATIC	 LOCK OUT TAG OUT ELECTRICAL
 MUST READ ALL MANUALS		

4.9 Safety Devices

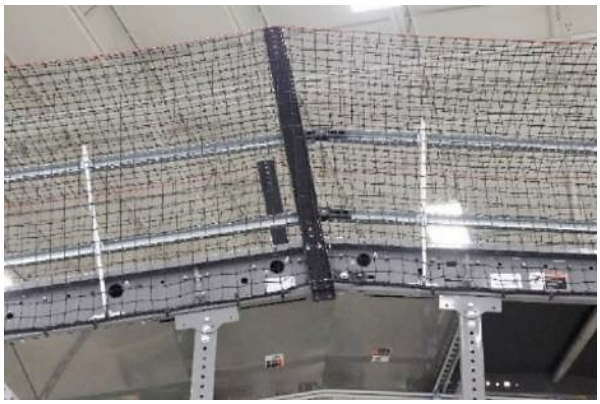
Safety devices are supplied by the integrators such as:

- Control systems
- Emergency stop systems
- Netting
- Fences

NOTICE	
	• Contact your customer/ integrator for specific safety information installed on your partly completed machine. • The integrator's (or end user's) responsibility is to ensure appropriate safety conditions. • FORTNA will not be held liable for the safety of the partly completed machine or people should this prohibition be disregarded.
Failure to follow these instructions can result in property damage or equipment damage.	

4.9.1 Safety Fence, Nets, Guards

Where applicable safety fences, netting, covers and guards must be applied.

POS	ELEMENT	DESCRIPTION
1	Safety Fence	 Safety fencing may be necessary depending on risk assessments and evaluations done by others.
		• FORTNA does not provide or sell fencing.
2	Safety Net	 It is advised for the customer of FORTNA to provide safety netting or other fall protection to protect anyone underneath the conveyor from falling load. FORTNA has added extra holes to the ceiling hanger crossmembers, as a service to our customers, to help attach safety netting to the bottom of an overhead conveyor.
		• FORTNA does not provide or sell safety netting.

POS	ELEMENT	DESCRIPTION	
3	Safety Covers & Guards	 Only CRUZbelt Take-up and drive beds have shrouds as a secured guards. All other shrouds are designed as a decorative cover.	 Plexi glass cover provides safety while providing a visual perspective. Plexi glass covers are supplied on certain electrical panels or other mechanical actions such as transfer take-ups.
		 Guard rails help guide carton or totes and protect product from falling off the conveyor.	

4.9.2 Ergonomic Hazards

Access to parts of the partly completed machine located in high elevation or over machinery shall be provided with proper means of protection against falls which may include but are not limited to, guard rails for stairways, stationary stepladders, platforms, or safety cages for ladders.

Improper access or poor location of controls could cause poor posture, issues that may lead to discomfort, fatigue, musculoskeletal disorder, stress, or inaccessibility for cleaning, maintenance, and similar hazards.

Assuring appropriate safe access to partly completed machine, safety controls, and equipment conditions is the integrator's (or end user's) responsibility.

4.9.3 Anchorage Points Personal Protection

Anchorage points for personal protective equipment against falls from height shall also be provided.

⚠WARNING

Warning!

- Maintenance done above 1.82m must be tied off with fall protection safety harness.

Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.

NOTICE

Notice!

- The integrator's (or end user's) responsibility is to ensure appropriate safety conditions.
- FORTNA will not be held liable for the safety of the partly completed machine or people should this prohibition be disregarded.

Failure to follow these instructions can result in property damage or equipment damage.

4.10 FORTNA Conveyor Environment Standards

FORTNA Environment Policy

FORTNA equipment is designed to be installed in a clean, dry warehouse environment. Exposure to extreme humidity, direct sunlight, blowing dirt or rain can permanently damage some components of FORTNA. In particular, the curing agents in concrete are known to attack and degrade the urethane conveyor equipment.

When installing conveyor on a new construction site, be sure that the concrete is properly cured before setting conveyor on it. In addition, if conveyors are stored in proximity of curing concrete, proper ventilation must be used to direct the curing agent fumes away from the conveyor.

Failure to comply with these guidelines will void the FORTNA warranty on any failed components that result from these environmental issues.

Pressurized Air Quality:

No FORTNA Manufacturer components require lubricated air. If the shop air is lubricated there must be a coalescing filter plus a regular filter of 5 micron installed in the line prior to the air reaching all FORTNA equipment.

In high humidity or low temperature situations an air dryer must be used.

Installation Environment:

All FORTNA technologies are designed to function in “normal” industrial environments. Chemical vapors, lubrication, excessive dust, high or low heat and moisture may affect their operation and void the equipment warranty. Some paint fumes, fresh concrete and other concentrations of airborne fumes have been known to adversely affect the life of many conveyor components and will void the equipment warranty.

4.11 Precautions & Cleaning

Precautions

ULTRAVIOLET RAYS of sunlight will weaken polyurethane belts.

OILY OR WET CONDITIONS impair frictional drive characteristics between polyurethane belts and roller grooves.

CORROSIVE SUBSTANCES such as concrete curing agents will adversely affect various components, voiding the warranty.

Temperature range (ambient):

- IntelliROL without belts +35F(+1°C) to +100F(+38°C).
- IntelliROL incline, decline, full width belts (FWB) +50F(+10°C) to +100F(+38°C).

For applications that exceed this temperature range, please consult Applications Engineering.

Grounding:

Equipment should be properly grounded before operation.

Cleaning O-Rings

The manufacturer suggested procedure for cleaning O-rings is to use a cloth with de-natured alcohol and not to clean them unless they are greasy, or you are experiencing issues such as slipping. This cleaning product would also work for cleaning rollers.

Note:

	Do **NOT** immerse the O-rings or any component in a container of this cleaning product.

Washdown Applications: No FORTNA manufactured conveyor equipment is designed or capable of being washed down. Even extremely high humidity may affect the ability of the equipment to convey loads as desired.

CAUTION WHEN CLEANING PRODUCTS:	
	• Cleaning products are not provided by FORTNA, and as such, users are instructed to follow the local regulations and the manufacturer safety instructions for use and to follow the PPE (Personal Protective Equipment) guidelines. Also, dispose of rags and other used media in accordance with the manufacturers recommendation and your company policy.
	• The end user is to provide the user with the Safety Data Sheet (SDS).
	• Ensuring a good and safe interior environment is the integrator's (or end user's) responsibility.
	• Must Not! Never clean any parts of the partially completed machine or completed machine while the conveyor is running. The equipment should not be started again until it is certain that it is all clear and safe to do.

5 Description - Intended Use

5.1 Intended Use

Equipment intended for use by trained professionals in charge of using and managing the partly completed machinery or completed machine in all its technical phases.

IntelliROL® - Motor Driven Roller IntelliROL (ITR) is FORTNA's motor driven roller conveyor. It is available in transportation, accumulation, and belted accumulation configurations.

IntelliROL conveyor is designed for conveying carton and tote distribution of products.

- IntelliROL Accumulation, in accumulation form IntelliROL conveys and accumulates conveyable products with non-contact style accumulation.
- IntelliROL Belted Accumulation, this style of accumulation functions exactly the same as the standard accumulation but the addition of a flexible belt covering the entire zone assists in conveying difficult product that would have problems being conveyed on roller-only style conveyor.
- IntelliROL Transportation, in transportation form IntelliROL is constructed in the same way as accumulation beds are, but there is no photo eye sensor, and the driver card is much simpler.

5.2 Reasonably Foreseeable Misuse

Reasonably foreseeable misuse is listed below:

- Conveying of people.
- Climbing, standing, sitting, or walking on top of the conveyor.
- Placing hands between rollers.
- Using the partly completed machine without having correctly incorporated it in the destination line.
- Using the partly completed machine as a support.
- Using the partly completed machine to achieve greater production values than the required limits.
- Using partially completed machine to convey hazardous materials.
- Using the partly completed machine differently than in the "intended use" paragraph.
- Not reading the Installation, Operation, Maintenance manual.

Any use of the partly completed machine that differs from the intended use must be authorized beforehand in writing by the Manufacturer. Without this written authorization, the use must be considered "**improper use**;" therefore, the Manufacturer declines any liability for eventual damage to persons or property and deems any kind of warranty on the partly completed machine void.

NOTICE	
	**Important!** • Incorrect use of the partly completed machine or completed machine excludes any liability by the Manufacturer.
Failure to follow these instructions can result in property damage or equipment damage.	

5.3 Definition of Terms

Conveyor terminology or different meanings pertaining to conveyor applications, parts, types, and functions that may be used in the manual.

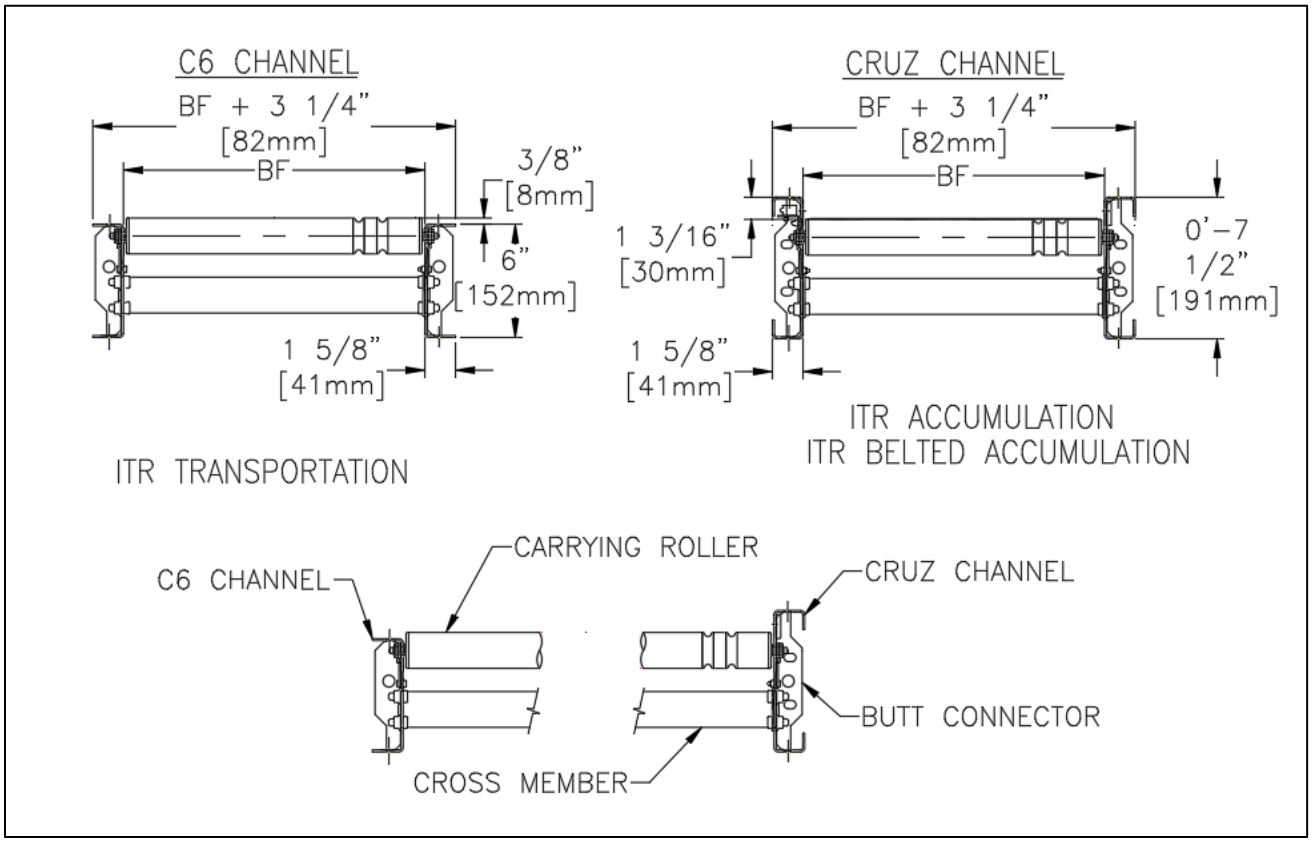
Below is the explanation of the different terms and definitions used in this manual:

TERM	DEFINITION
ACCUMULATION	Act of queuing, holding, or backing up product on a conveyor to gather (accumulate) product.
BED	The part of the conveyor the load or carrying medium rests or slides while being conveyed.
BETWEEN FRAMES (BF)	Inside width dimension, the abbreviation "BF" (between frames) is used.
CARRYING ROLLER	The conveyor roller upon which the object being transported is supported. It has circumferential grooves near one end to allow the slave belts to ride below the carrying surface.
COEFFICIENT OF FRICTION	A numerical expression of the ratio between the force of contact between two surfaces and the resistant force tending to oppose the motion of one with respect to the other.
CONVEYOR WIDTH	The dimension outside to outside of frame rails. For the inside dimension, the abbreviation "BF" (between frames) is used.
CROSSMEMBER	Structural member, which is assembled between two side channels of a conveyor bed.
FRAME	The structure, which supports the components of a conveyor bed consisting of formed channel rails, bolted together with crossmembers.
INDEXING CONTROL	Maintains non-contact accumulation and functionality of gates, transfers, curves, etc. by not allowing accumulation in these areas.
INTELLIROL NON-CONTACT ACCUMULATION	Accumulating products in a manner which the product is always smaller than the zone length and do not touch each other
CONTACT ACCUMULATION OR DENSE PACK ACCUMULATION	Accumulation product in a manner which allow product to touch each other but have no line pressure.
ROLLER CENTERS (RC)	Distance between centerlines of adjacent rollers. For curves, roller centers are measured at the inside radius.
ROLLER GROOVE	The groove that is fabricated into the carrying roller to provide a seat for the slave belt below the carrying surface.
SINGULATION RELEASE	A method of individual zone release, that spaces product approximately one zone length apart.

TERM	DEFINITION
CARRIER BELT	An endless round belt manufactured from elastic material, typically urethane, connecting a motorized roller, or carrying rollers or other carrying rollers within a zone.
SLUG RELEASE	Simultaneous release of several products.
TAPERED ROLLER	A conical conveyor roller for use in a curve with end and intermediate diameters proportional to their radius.
TOP-OF-ROLLER (TOR)	This is the distance from the floor to the top of the roller.
TOP-OF-BELT (TOB)	This is the distance from the floor to the top of the belt.
ZONE	A portion of conveyor activated by a motorized roller that may be controlled by a photo eye.
ZONE LENGTH	The distance between sensing devices (typically containing one motorized roller).
ZERO PRESSURE ACCUMULATION	The lack of force between products after accumulation. (Industry standard)

6 IntelliROL Technical Data

6.1 IntelliROL Standard Specification



Conversion Chart

- 1 inch (1”) = 25.4 mm
- 1 foot (1’) = 304.8mm
- 1 foot (1’) = 12 inch (12”)

General

The IntelliROL (ITR) partly completed machine can be supplied in different versions and with different features.

IntelliROL Framework:

C6 Channels for transportation and Cruz Channels for accumulating IntelliROL. Both channel types are connected with bolted-in cross members. Both frame types are supplied with welded butt connectors. Widths are available in 16”, 22”, 28” and 34” between the channels. All channels are formed from 12 Ga. steel. Dimensions as shown below.

MDR Rollers:

1.9” Diameter, Pulseroller AD with 7/16” hex axle. Mounted high in C6 channels and low in Cruz channels. All MDRs are captured in special mounting brackets as well to prevent wear to the framework. Rollers are available for 2” or 3” centers. All rollers are mounted in the frames prior to shipping.

Idler Rollers:

1.9” Diameter 16 Ga. plated shell with ABEC-1 bearings and a 7/16” spring loaded hex axle. Mounted high in C6 channels and low in Cruz channels. Rollers are available in 2” or 3” centers. All rollers are mounted in the frames prior to shipping.

O-Ring Belts:

- 3/16" diameter urethane.

Carrying Belts:

- Black Urethane, .079” (2mm) belt thickness

Driver Cards:

- Accumulation - IntelliROL standard driver card is Pulseroller AI3 drivercard.
- Transportation - IntelliROL standard driver card is Pulseroller AI3 drivercard.
- Air Required: Some IntelliROL accessories require air pressure to operate. Refer to each to determine what air requirements they have. No components require lubricated air. Lubrication may affect the operation and cause sluggish or erratic operation.

Speeds:

- AD35 Motor Roller: 4.8 ~ 48.5 m/min
- AD45 Motor Roller: 5.9 ~ 59.1 m/min
- AD60 Motor Roller: 8.0 ~ 80.8 m/min

Bed Lengths:

- Accumulating beds are available on zone length increments up to 12’-0” with 24” zones and 10’-0” with 30” zones.
- Transportation beds are available in lengths up to 10’-0” with the standard 30” roller groups. Odd length beds are best purchased in transportation design and secondarily driven from the downstream accumulating bed driver card.

Skew roller beds:

- Are available in 5’-0”, 10’-0”, and 12’-0” lengths.

Roller Skewing:

- Standard skew beds should be utilized when roller skewing is required. At no time should MDR rollers be skewed. Idler rollers skewed between the MDRs may increase the chance of premature belt wear.

Accumulation Zones:

- Standard accumulation zones are available in 24” or 30” lengths.

Belted Incline/Decline:

- Incline angles of 9, 12, & 15 degrees.
- Decline angles of 9 & 12 degrees.
- Straight sections are available in 24” and 30” zone lengths.
- Noseover and Noseunder modules complement the angled straights.
- Incline zones have two MDR with one anti-rollback roller.
- Decline zones have one MDR with a roller holding brake. Both incline and decline configurations have limitations. See specific section for all cautions and limitations.

Product Limitations:

- Loads must be a minimum of 1” high to be consistently detected by the IntelliROL sensors.
- Use the conveyor width to accommodate the maximum product width.
- Use the curve clearance calculator to see what width is required for the system loads. A minimum of three rollers should support the loads at all times.
- Select 2” or 3” roller centers to satisfy this requirement.
- Loads can weigh as much as 50# per foot with a maximum of 75# total.

Curves:

- Available in 30, 45, 60 & 90 degrees in transportation design with C6 channels (CRUZ channels are optional)
- Available in 45, 60, & 90 degrees in accumulation design with CRUZ channels
- All curves are available in high density roller configuration.
- All curves are constructed with true tapered rollers carrying the product.

Spurs:

- Standard spurs are available in 30 and 45 degrees.
- High speed curves are available in 30 degrees only.
- Sweep spurs are available in 45 degrees only.
- Spurs are available in 3” and 2” roller centers and with CBM-105, CB-016 and IB-E03 driver cards.
- All spurs are supplied with C6 channels.

UBTs:

Urethane belt transfers are available in 3-strand (2’8” and 3’0“). Each is available in a pneumatic lift or electric lift design. All UBTs are capable of reversing for bi-directional diverting. Both designs use MDR for transfer belt drive and one MDR for the carrying roller drive.

Wheel Diverters:

The IntelliROL wheel diverter is available in 30 degrees only and comes with 4 rows of pop-up diverting wheels. Can be configured with two solenoids (18” required gap) or four solenoids (12” required gap) for raising the wheels. The four-solenoid option increases the possible throughput rate. The wheel diverter is available in pneumatic lift or electric lift designs.

Note:

The wheel divert is intended for single location diverting only. Using multiple wheel diverts may require additional gap due to gap erosion on roller conveyor.

Gates:

A personnel gate is available in 16”, 22”, 28” and 34” BF. Each comes with a sensor to restrict the drive on the upstream conveyor when the gate is raised. This is a manually raised gate with gas spring assist to minimize the effort to raise it.

Shrouds:

Translucent PVC shrouds are available in 5' lengths to enclose the CRUZchannel or C6-channel to provide a decorative cover over the components. Mounting brackets for the C6 shrouds are installed in the field.

Shrouds and mounting kits are shipped loose for field installation.

Field modification is required to the shrouds if they are used with adjustable channel guardrail. Optional jackets mounted to the bottom flange of conveyor can be used as an alternate mount.

Note:

When installing conveyor shrouds, it is important to apply all safety labels where applicable.

Paint:

Components located within the framework are painted black. All other components are painted job color. All FORTNA paint is powder coated.

Power Supply:

All IntelliROL requires 24VDC power for operation. The MDRs and driver cards utilize the same power as the photo eye sensors. Each MDR requires approximately 2.2 Amps of 24 VDC power. There are several input voltages available as well as several output amperages to fit each area’s need.

6.2 IntelliROL Load Weight Limitations

INTELLIROL LOAD WEIGH LIMITATIONS	MINIMUM	MAXIMUM
IntelliROL Accumulation	*	50 Lb. / Ft. or 75# Total
IntelliROL Transportation	*	50 Lb. / Ft. or 75# Total
IntelliROL Belted Accumulation	*	50 Lb. # / Ft. or 75# Total
IntelliROL High Speed Transportation	*	50 Lb. / Ft. or 75# Total
IntelliROL Belted Incline	*	40 Lb. Total
IntelliROL Belted Decline	*	20 Lb. Total

(*) While there is no minimum weight established for these, lower weight loads may not respond to conveying or transferring as expected. FORTNA recommends testing of any loads in question.

(**) These sorters can manage light loads, but FORTNA recommends a minimum weight of 3# when utilizing gravity spurs coming off the diverts.

6.3 IntelliROL Load Length Limitations

INTELLIROL LOAD LENGTH LIMITATIONS	MINIMUM	MAXIMUM*
IntelliROL Accumulation	3X Roller Centers	2” less than zone length
IntelliROL Transportation	3X Roller Centers	n/a*
IntelliROL Belted Accumulation	**	2” less than zone length
IntelliROL High Speed Transportation	3X Roller Centers	n/a*
IntelliROL Belted Incline	**	2” less than zone length
IntelliROL Belted Decline	**	2” less than zone length

(*) Technologies that have curves should use the Curve Clearance Calculation worksheet to determine the maximum load length recommended.

(**) These belted sections can carry smaller loads but the transition from belt to belt must be considered. FORTNA recommends testing all questionable loads.

6.4 IntelliROL Load Width Limitations

INTELLIROL LENGTH LIMITATIONS	MINIMUM *	MAXIMUM **
IntelliROL Accumulation	n/a	Determined by BF (Between Frame)
IntelliROL Transportation	6”	Consider load stability and adjacent equipment
IntelliROL Belted Accumulation	n/a	Determined by BF (Between Frame)
IntelliROL High Speed Transportation	n/a	Consider load stability and adjacent equipment
IntelliROL Belted Incline	n/a	Determined by BF (Between Frame)
IntelliROL Belted Decline	n/a	Determined by BF (Between Frame)

(*) Technologies that have transfers and/or diverts must consider the possibility of load stability when transferring. FORTNA recommends testing of any questionable loads.

(**) Technologies that have curves should use the Curve Clearance Calculation worksheet to determine the maximum load width recommended

Load Height Limits

For all technologies load stability must be the determining factor for maximum height limits.

For minimum height limits, FORTNA has established a 1” height to ensure that all loads will be recognized by the photo sensors. For those technologies that do not use any sensors the minimum height is established by the rigidity of the load bottom. FORTNA recommends testing of any questionable loads.

6.5 IntelliROL Speed Limits

INTELLIROL SPEED LIMITS	MINIMUM FPM (FEET PER MINUTE)	MAXIMUM FPM (FEET PER MINUTE)
IntelliROL Accumulation	45 FPM	180 FPM
IntelliROL Transportation	24 FPM	180 FPM
IntelliROL Belted Accumulation	45 FPM	180 FPM
IntelliROL High Speed Transportation	180 FPM	405 FPM
IntelliROL Belted Incline	45 FPM	130 FPM
IntelliROL Belted Decline	45 FPM	130 FPM

6.6 IntelliROL Operating Temperature Range

INTELLIROL TEMPERATURE RANGE	MINIMUM	MAXIMUM
IntelliROL Accumulation	+35°F* (+1°C)	+100°F (+38°C)
IntelliROL Transportation	+35°F* (+1°C)	+100°F (+38°C)
IntelliROL Belted Accumulation	+50°F* (+10°C)	+100°F (+38°C)
IntelliROL High Speed Transportation	+35°F* (+1°C)	+100°F (+38°C)
IntelliROL Belted Incline	+50°F* (+10°C)	+100°F (+38°C)
IntelliROL Belted Decline	+50°F* (+10°C)	+100°F (+38°C)

6.7 Electrical Architecture

NOTICE

Notice!

- For a detailed electrical schematic, see the electrical diagrams provided for your layout.

Failure to follow these instructions can result in property damage or equipment damage.

6.8 IntelliROL Critical Parts

Critical components must be replaced without substitutes.

PART NUMBER	DESCRIPTION
E0009398	BRG, BUSHING THOMSON A-162536, 1"BORE (USED IN UBT LIFT TABLES)
E0005536	ORING, 3/16DIA X 9.5" HT BLUE ITR 3"CTR
1103388	ASY, PNEU-F/R-3/4":3/4"-40 PSI-W/PRV-W/LOCK-140 SCFM
1117507	HOSE, 3/8 X .250 X 46-1/4" 48" ZONE CLEAR
1118558	SHROUD, ACC-CZ-5'-L/LABEL
1132379	IDLER, ASY FLAT FACE ITR UBT
1226735	VALVE, SMC 4WAY 24VDC-M8 CONN, ITR UBT/ERS
1228107	VALVE, SMC 4WAY 24VDC-M8 CONN, ITR WD
1159961	IDLER, ASY FLANGED ITR UBT
1227171	DRIVERCARD, INSIGHT AI2-CONVEYLINX 2 ZONE ENET
1221722	ROLLER, ASY ITR 28BF 2G-PULSEROLLER AD-60, (1) FIXG BRKT-HEX FLAT UP, 600MM PULSEROLLER INSIGHT
1226720	CORDSET, SPLITTER, M8-STRAIGHT MALE,4PIN, 0.3 METER-TO 2 STRAIGHT FEMALE, 4PIN, 0.3 METER
1226739	CABLE, ASY PROFINET, 1M-W/IP54 PROTECTIVE SHROUDS
1226740	CABLE, ASY PROFINET, 2M-W/IP54 PROTECTIVE SHROUDS
1226743	CABLE, MOTOR EXTENSION, 300MM-M-F M8 CONN-USE INSIGHT RLLR-RSMV 4-RKMV 4-225/0.3M-NO SUBSTITUTION
1226744	CABLE, MOTOR EXTENSION, 1000MM-M-F M8 CONN-USE INSIGHT RLLR-RSMV 4-RKMV 4-225/1.0M-NO SUBSTITUTION
1226745	CABLE, MOTOR EXTENSION, 2000MM-M-F M8 CONN-USE INSIGHT RLLR-RSMV 4-RKMV 4-225/2.0M-NO SUBSTITUTION
1226868	CABLE, STRAIGHT M12 FEMALE-M8 STRAIGHT MALE, 4PIN, 1M-RSMV4RKT4-225/1M
1227090	COUPLING, ASI CABLE-PASSIVE DISTRIBUTOR
E0005539	TUBING,1/4” POLYU-95DURO.160ID UBT
89000580	TUBING, URETHANE .250OD, .159ID-CLEAR (90 DURO)
E0001391	TUBING, 1/4” POLYU-95DURO .160ID WD
89000585	TUBING, POLYETHYLENE 3/8 OD, CLR
E0001391	TUBING, 1/4"POLYU-95DURO.160ID-1A-151-05 (1,000') OR-1B-151-05 (500') BASED ON ORDER QTY
E0004268	SPRING, GAS 16-4, 600 NEWTONS 16-4-353-250-AM8-BM8-600N 20CC OIL
E0005339	DR, CTR 30NBA23 6" 3HP 255

7 Transport and Installation

7.1 General Warnings

General warnings are specified throughout the manual to emphasize information of significant importance.

⚠DANGER	
	**Danger!** **DO NOT** transit under suspended loads.
Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.	

⚠CAUTION	
	**Caution!** FORTNA shall not be held liable for any damage, to things or people, caused by accidents due to a failure to comply with the instructions provided in this manual and in the following chapter.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

NOTICE	
	**Important!** • Lifting and handling must only be done by specialized and trained personnel, who are qualified to perform these activities. • Safety briefing of installation personnel according to occupational health and safety protection plan.
Failure to follow these instructions can result in property damage or equipment damage.	

7.1.1 Packaging

The partly completed machine is shipped by FORTNA from the production plant to that of the Business Partner or End User/Customer. Depending on the transport distance, on the specific Customer requests and on the amount of the load will remain in the packaging, the partly completed machine is shipped as follows:

- Normal protective packaging for short and medium distances.
- Special protective packaging for long distances.

Shipment must be made using covered or sheeted transport means, depending on the type of load. Upon receipt of the partly completed machine, the customer must verify that there is no damage caused by the method of transport or by the personnel in charge of the specific operations.

PRODUCT SIZE	PACKING DIMENSIONS (cm)	APPROXIMATE WEIGHT (kg)	MAX QUANITY
16 BF	371x51x190	800	Max 9 beds stacked
22 BF	371x66x190	900	Max 9 beds stacked
28 BF	371x81x190	950	Max 9 beds stacked
34 BF	371x97x190	1200	Max 9 beds stacked

TYPE	PACKING DIMENSION (cm)	APPROXIMATE WEIGHT (kg)	PACKAGE
IntelliROL Curves	213x97x190	1100	Max 10 beds stacked
IntelliROL Spurs	122x81x190	1400	Max 10 beds stacked
IntelliROL Noseunder / Noseover (NO/NU)	310x81x152	2000	Max 12 beds stacked
IntelliROL UBT	122x81x63	300	1 unit per skid
IntelliROL UBT	127x127x51	350	1 unit per skid
IntelliROL Wheel Divert	234x190x63	700	1 unit per skid

ACCESSORIES/PARTS	PACKING DEMINSIONS (cm)	APPROXIMATE WEIGHT (kg)
Accessories/Parts	122x81x63	800/skids
Parts skid	310x66x51	1000/skids
RF Supports	Min 32” X 48” box on skid	Min 250 to Max 800 per skid

NOTICE	
	**Important!** • Packaging weight, size, and dimension will vary depending on crates built for each product size and quantity packaged. • RF Supports weight and size will vary by length and quantity stacked.
Failure to follow these instructions can result in property damage or equipment damage.	

NOTICE	
	**Important!** If damage is found, leave the found packaging and immediately contact the relevant shipping company for a damage assessment and then inform your distributor immediately.
Failure to follow these instructions can result in property damage or equipment damage.	

7.1.2 Packaging Removal

Place the partly completed machine or its components in its intended place.

Unpack the parts delivered with crate, as follows:

- Remove the straps.
- Remove screws.
- Remove stable 2x4 boards.
- Remove the heat-shrink cellophane.
- Remove the crate.
- Remove any fastening systems to the wooden platform.

Unpack the parts delivered on pallets, as follows:

- Remove the straps.
- Remove the heat-shrink cellophane.
- Remove any fastening systems to the wooden platform.

7.2 Disposal of Packaging

The packing is an integral part of the supply; its disposal is the purchaser’s responsibility.

The disposal or destruction must comply with the regulations in force in the user's country, bearing in mind the nature of the materials:

- Wood for the crates.
- Plastic film for the protection of the partly completed machine and adhesive tape for their fastening.
- Absorbing bags for the moisture.

7.3 Transport and Handling

The handling procedures described in this paragraph shall be carried out by staff trained for such operations: suitably trained to safely perform loading, unloading, and handling operations by means of lifting equipment.

Transport Operations

NOTICE	
	Important! The lifting personnel must be authorized and trained to use the lifting equipment and devices and must comply with the applicable regulations for personal protection. FORTNA refuses any liability for any damage to the partly completed machine arising from failure to comply with the instructions provided.
Failure to follow these instructions can result in property damage or equipment damage.	

Transport of Conveyor Modules

TRANSPORT REQUIREMENTS	
NO OF QUALIFIED OPERATOR	No. 2 Lifting equipment operator
PPE REQUIRED	
LIFTING EQUIPMENT	Electrical or Propane Forklift per your approved lifting equipment.
FORKLIFT TOOL TO BE USED	Forklift extenders
HANDHELD TOOLS TO USE	• Banding cutters • Torx T25 bit and cordless drill • Forklift extensions • Straps • Clamps

7.4 Lifting Equipment General Warnings

Must read Supports & Connections manual for installation details.

NOTICE	
	**Important!** • Must read all manuals. Support & Connections IOM#1226673 (Original language is in English) or visit: fortna-conveyor.com • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.
Failure to follow these instructions can result in property damage or equipment damage.	

⚠CAUTION	
	**Caution!** • Only use suitable and approved lifting equipment, compatible with the dimensions and weight of the component to be handled. • Make sure nobody stops within the range of the lifting equipment.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

NOTICE	
	**Important** The lifting personnel must be authorized and trained to use the lifting equipment and devices and must comply with the applicable regulations for personal protection.
Failure to follow these instructions can result in property damage or equipment damage.	

⚠WARNING	
	**Warning!** **Forklift Operating Procedures** • Only trained and license person is allowed to drive the fork truck. • Always know and follow your forklift operating procedures, safety guidelines and legal requirements.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

⚠DANGER	
	**Danger!** **Must Not** It is forbidden to ride on forks or anywhere on the fork truck that is not intended for people to ride, sit, or stand.
Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.	

7.5 Unloading Instructions

Step 1)

Checking the Load for Damage

1) Examination immediately following unloading will show if any damage was caused during shipment. If damage is evident, claims for recovery of expenses to repair damage or replace components must be made against the carrier immediately.
2) While unloading, a check must be made against the Bill of Lading, or other packing lists provided, to confirm full receipt of listed items.

Step 2)

Unloading Crates Using a Forklift

1) Drive safely into skid at bottom being careful not to drive too far into the load with the extended forks.
2) Lift skid and tilt backward to take the weight of the skid off the floor.
3) Drive skid off the container.
4) Place skid in designated unloading/unstacking area.

5) Remove banding between top skid and bottom skid.

6) Unstack skid by using forklift at the entry point of the top skid.

7) Lift skid and place next to bottom skid
8) Cut and remove the rest of the banding.

9) Remove the screws on the top and sides of the crate with a Torx T25 bit and cordless drill.
10) Lift the 2x4 support board out of the crate.

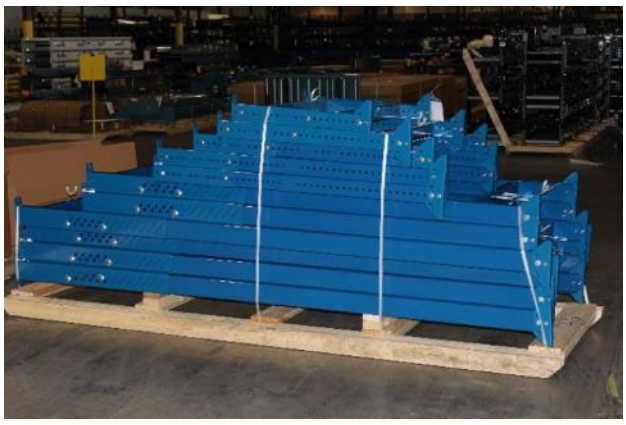
7.5.1 Visual of Packing Units

Packaging may vary per the partly completed machine.







Original language is English

7.6 Receiving & Site Preparation

General

FORTNA IntelliROL units are shipped in subassemblies. These subassemblies are packaged to guard against damage in shipment, when handled properly.

Examination immediately following unloading will show if any damage was caused during shipment. If damage is evident, claims for recovery of expenses to repair damage or replace components must be made against the carrier immediately. While unloading, a check must be made against the Bill of Lading, or other packing lists provided, to confirm full receipt of listed items.

⚠CAUTION	
	**Caution!** **TAKE CARE DURING THE REMOVAL OF EQUIPMENT FROM THE CARRIER.** Remove small items and boxes first. Pull and lift only on the skid, not on the frame, crossmember or any part of the equipment.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

7.6.1 Preparation of Site

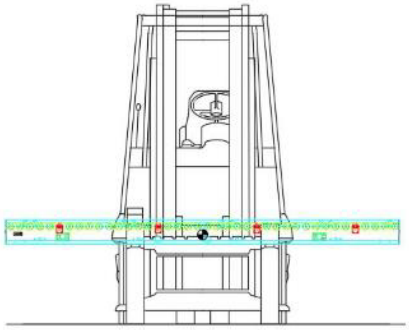
After the conveyor is received, move it to the installation site or designated dry storage area as soon as possible. Clean up all packing material immediately before parts get lost in it. Loose parts should remain in the shipping boxes until needed.

Prior to starting assembly of the partially completed machine conveyor, carefully check the installation path to be sure there are no obstructions that will cause interference. Check for access along the path needed to bring in bed sections and components closest to the point where they are needed. It is often necessary to give the area along the system path a general cleanup to improve installation efficiency, access, and accuracy.

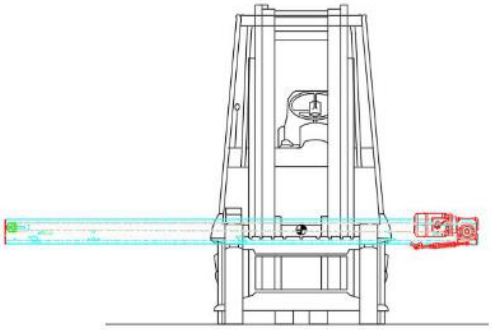
7.6.2 Staging or Installing with a Forklift

1) Make sure there is adequate space to move the partially completed machine without interference or obstruction.
2) Before moving the partially completed machine make sure to place the forklifts in the center of gravity of the load. If needed change position of the forking or lifting straps to find the center of gravity point. The center of gravity is typically at the center of the machine.

   Note: The motors will impact the center of gravity.



CONVEYOR CENTER OF GRAVITY IS TYPICALLY AT THE CENTER OF THE CONVEYOR.



ADJUST CENTER OF GRAVITY FOR CONVEYOR WITH MOTORS.

3) If possible, place fork truck forks under the partially completed machine to lift. If not possible, align forks at bottom of partially completed machine, at the center of gravity point. Then slide the partially completed machine onto the forks. Slowly lift the load and perform a stability check.
4) Before moving the partially completed machine make sure the load is balanced and secured with straps or clamps to prevent it from falling to the ground.
5) Position the conveyor on installed conveyor supports at installation point. Connect conveyor to supports before removing forks

Must read Supports & Connections manual for installation details.

NOTICE	
	Important! Must read all manuals. Support & Connections IOM#1226673 (Original language is in English) or visit: fortna-conveyor.com.
Failure to follow these instructions can result in property damage or equipment damage.	

7.6.3 Parts Inventory & Identification

Each subassembly is shipped completely assembled. Identify and separate components by type or tag number, for inventory and ease of locating during installation.

An identification label is attached to the outside of one side channel or on a cross member, close to one end of each conveyor bed or partially completed machine.

This label contains:

- Tag number (if specified)
- Description
- Item number
- Job Number
- Mfg. Number
- Mfg. Date
- CBC number (Serial Number)
- QR (Quick Response) Label
  - Scan Code for IOM Manual

Scan the QR code to retrieve the IOM Manual, if nothing happens; check your scanner settings and make sure the QR Label setting is enabled.

On the supports, the tag is located on the bottom side of the foot. On special devices, it is located on a convenient flat surface that is not offensive to the appearance of the equipment but is still accessible for viewing. These numbers can be cross-referenced against the packing list. Loose parts are boxed and shipped separately.

You should have all conveyor sections and supports for a particular conveyor prior to installation. It is cost-effective to identify and procure any missing parts before they are needed for assembly. Small items like nuts and bolts are weigh-counted and packaged by size and type.

⚠ WARNING	
	**Warning!** • The Installation Supervisor must be experienced with conveyor, qualified in the mechanics of the equipment, and enforce safe working procedures for the protection of the crew, customer, and customer's property. • The installation must only be carried out by trained and qualified personnel. • The responsibility for the correct realization of the installation work resides with the personnel entrusted with installation. • Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be conducted, and the cause of the stoppage determined. The starting device must be locked out before any attempt is made to correct the cause of stoppage.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

7.7 Supports and Connections

Must read Supports & Connections manual for installation details.

NOTICE	
	**Important!** • Must read all manuals. Support & Connections IOM#1226673 (Original language is in English) or visit: fortna-conveyor.com • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.
Failure to follow these instructions can result in property damage or equipment damage.	

IntelliROL Installation & Applications

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8 Installation Arrangements

8.1.1 Arrangements

Arrangements are to be made by the customer and integrator.

The Customer normally bears the preparation of the following, except for different contractual agreements:

- Premises (including building work, such as foundations or ducts if required, lighting).
- It is the integrator's responsibility to ensure conformity with all electrical safety aspects of the Machinery Directive.
- Systems up to the partly completed machine power supply points, in compliance with the laws in force in the country of installation and/or required by the Manufacturer.
- All technical specifications requested by the Manufacturer are contained in the contract of sale.
- The Manufacturer declines any liability if the customer is unable to guarantee the technical features of the systems requested in the contract of sale.
- Auxiliary services suitable for the partly completed machine requirements.
- Tools and consumables necessary for assembly and incorporation.
- If required lubricants for starting up the partly completed machine.
- Suitable lifting and handling systems.

Integrator

- It is the integrator's responsibility to ensure conformity with all electrical safety aspects of the Machinery Directive.

8.1.2 Permitted Environmental Conditions

The environment in which the partly completed machine is installed/incorporated and used is indoors, and sheltered against atmospheric agents such as rain, hail, snow, fog, suspended dusts, and combustible dusts.

The work surface must be sufficiently lit so there are no hazards resulting in discomfort, fatigue, stress, eye strain* etc., any other such as mechanical hazard or electrical hazard, due to human error caused by an inability to see clearly. If there are dark areas or differences in level in the workplace, the user must set adequate lighting devices.

Permitted Environmental Conditions

PERMITTED ENVIRONMENTAL CONDITIONS	
Ambient temperatures	1C through 38C (35° F / 100°F) Without belts 1C through 10C (50° F / 100°F) With belts
Maximum relative humidity	80% (Without condensation)
Installation site	Industrial warehouse
Ambient lighting	Fluorescent or LED
Flooring	Concrete industrial floor

⚠CAUTION	
	**Caution!** • Environmental conditions different from those specified may cause severe damage to the partly completed machine. • Placing the partly completed machine in facilities that do not fulfil these requirements will cause the warranty to lapse for parts to be replaced.
Indicates a low level potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices or for the protection of the equipment.	

8.1.3 Prohibited Environmental Conditions

It **must not** be a classified environment or exposed to aggressive agents such as corrosive vapors or sources of excessive heat.

The use of the partly completed machine under conditions other than those listed is **not allowed**. In particular, the installation and operating environment **MUST NOT**:

	MUST NOT!
	• **Must Not,** be exposed to corrosive fumes.
	• **Must Not,** be exposed to excessive humidity (beyond 80%) and quick relative humidity changes (beyond 0.005 p.u./h).
	• **Must Not,** be exposed to excessive dust.
	• **Must Not,** be exposed to abrasive dust.
	• **Must Not,** be exposed to oily vapors.
	• **Must Not,** be exposed to explosive powders or gas mixtures.
	• **Must Not,** be exposed to salty air.
	• **Must Not,** be exposed to anomalous vibrations, collisions, or blows.
	• **Must Not,** be exposed to weather conditions beyond allowed limits or dripping.
	• **Must Not,** be exposed to unusual transport or storage conditions.
	• **Must Not,** be exposed to high or rapid thermal variations (beyond 5K/h).
	• **Must Not,** have presence of any radiation.

Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.

NOTICE	
	Notice! Ensuring a good and safe interior environment is the integrator's (or end user's) responsibility.

Failure to follow these instructions can result in property damage or equipment damage.

8.2 IntelliROL Introduction

IntelliROL Concept

Utilizing 24V DC motorized roller, this technology is the most revolutionary since the advent of the line-shaft conveyor in the late- ‘60s. Its impact is currently expanding rapidly as more users and manufacturers begin to see the benefits of this technology. FORTNA’ experience with IntelliROL goes back to 1996 with a major tire handling system. This fast-advancing technology uses a self-contained 24-volt DC motorized roller to power a segment or zone of the conveyor. Rollers adjoining the motorized roller are O-ring driven with the same components FORTNA developed in the ‘60s.

XenoROL® line-shaft driven live rollers and IntelliROL equipment both drive products through the developed tangential force at the conveyor roller surface. The relationship between tangential forces, product weight and product characteristics have been at the root of FORTNA technology for the past 30 years. This natural extension places FORTNA at the forefront of applying this technology.

Operation

The product-carrying rollers are O-ring driven by a series of pre-tensioned belts to the motorized roller in each zone. Since every motorized roller can be individually controlled, every segment of the system can become a zero-pressure zone.

Accumulation begins when an external signal “arms” the first sensor (discharge end). External signals may originate from electrical controls, sensing devices, manually activated switches, etc. The first product stops at the discharge sensor, which arms the sensor in the upstream zone. A product travels through a zone, until blocking, the sensor (Armed from the previous zone) all carrier rollers within the zone stop. As accumulation takes place from zone-to-zone, accumulated products do not touch each other as long as the product is shorter than the zone length.

Feature/Benefits

FEATURES	BENEFITS
Flexible Modular design	Easy to reconfigure
Run on demand	Less noise, wear, and energy consumption
Non-contact zero-pressure	Product protection
Compact low profile	Multi-level usage
Reversible	Less electrical hardware cost
No scheduled maintenance	Lower operating cost
Low voltage	Safety and lower cost
Simple installation	Lower cost
Soft start/stop	Low G-forces
Variable speed	Versatility to suit each requirement
Intelligent control capabilities	Cost no greater than need

Most IntelliROL modules have a maximum depth profile of 6-3/8" top of roller (TOR) to bottom of flange. Devices such as UBT, Wheel Diverters, etc. Require a deeper channel profile. A bi-directional urethane belt transfer has a **maximum** rate of 30 cases per minute.

NOTICE	
	**Caution!** Urethane belt transfer, belts should only run while transferring a load. (Run on Demand).
Failure to follow these instructions can result in property damage or equipment damage.	

All curves except the minimum radius curve are based on FORTNA' true taper roller for all widths.

IntelliROL optional run-on-demand software can selectively deactivate conveyor zones when not carrying a product. Because each IntelliROL module has its own drive and control, any level of control sophistication is possible, including product tracking, diagnostics, and data collection.

The technology behind IntelliROL is growing and changing quickly. Most applications use a 24-volt DC, 1.9" diameter, brushless motorized roller, and these rollers are the basis of design for most IntelliROL modules. Special applications requiring slow speeds and high torque may require the use of geared motorized rollers and 3-phase AC voltage motorized rollers have been used in heavy-duty applications.

Standard Specification

Framework:

C6 Channels for transportation and Cruz Channels for accumulating IntelliROL. Both channel types are connected with bolted-in crossmembers. Both frame types are supplied with welded butt connectors. Widths are available in 16", 22", 28" and 34" between the channels. All channels are formed from 12 Ga. steel.

8.2.1 Restrictions

#NO.	RESTRICTION	REASON	EXPLANATION
1	Loads must be a minimum of 1" high.	To be consistently detected by the IntelliROL sensors.	Proper conveying of product.
2	Objects in sacks or bags should not be transported on the sorter.	Sacks or bags will get caught between the rollers causing stoppage or conveyor damage.	Proper carton and totes are to be conveyed.
3	Objects with irregular, flexible or non-uniform shapes should not be transported on the sorter.	Irregular objects will get caught between the rollers or width of the conveyor channels and cause stoppage, falling packages, or conveyor damage.	Proper carton and totes are to be conveyed.

NOTICE	
	**Important!** Refer to the IntelliROL “IntelliROL Technical data” Chapter for more information regarding the conveyor specification.
Failure to follow these instructions can result in property damage or equipment damage.	

The partly completed machine has been created to:

- Fulfill the specific demands stated in the sales agreement.
- Be used according to instructions and limitations for use set out in this manual.

The partly completed machine is designed and built to work safely if:

- It is used within the limits stated in the contract and in this manual.
- The usage manual procedures are followed.
- Ordinary maintenance operations are performed as indicated.
- Extraordinary maintenance is performed promptly, in case of need.
- Safety devices are not removed and/or modified.
- Safety labels or signs are not removed and/or modified.

8.3 IOM Purpose

IOM Purpose

It is the intent of FORTNA, through this manual, to provide information that acts as a guide in the Installation, Operation, and Maintenance of FORTNA conveyors.

This manual describes basic installation practices, assembly arrangements, preventive maintenance, and assists in replacement parts identification.

NOTICE	
	**Important!** • Must read all manuals. • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.
Failure to follow these instructions can result in property damage or equipment damage.	

This service manual is intended for use by personnel who are knowledgeable of installation and safe working practices on conveyor systems.

Not all applications and conditions can be covered; therefore, this manual is to be used ONLY as a guide. Proper training of operating and maintenance personnel is required by the owner/operator of the equipment. If additional copies of this manual are needed or if you have any question concerning the conveyor, please contact your FORTNA Distributor or FORTNA Lifetime Performance Services at 231-798-4547 or visit fortna-conveyor.com for maintenance videos and other application information.

Failure to follow the instructions and cautions throughout this manual and warning label on the conveyor may result in injury to personnel or damage to the equipment.

FORTNA conveyors are powered by a motor and can be stopped only by turning off electrical power to the motor. As with all powered machinery, the drive-related components – including sprockets, chains, shafts, universal joints, and pneumatic devices – can be dangerous. We have installed or provided guards to prevent accidental contact with these parts, along with warning labels to identify the hazards.

8.4 Tools

8.4.1 Applicable Tightening Torques

Applicable torque settings are specified in all other cases.

HEXAGON BOLTS/SOCKET SCREWS					
PROPERTY CLASS MARKING					
NOMINAL DIAMETER	PROPERTY CLASS	TIGHTENING TORQUE		PRELOAD	
(mm)		(Nm)	(FT-LBS)	(kN)	(LBS)
M4 X 0.7	4.6	1.0	8 (IN-LBS)	1.5	333
	8.8	2.6	23 (IN-LBS)	3.8	858
	10.9	3.7	32 (IN-LBS)	5.5	1,228
M5 X 0.8	4.6	2.0	18 (IN-LBS)	2.4	538
	8.8	5.3	47 (IN-LBS)	6.2	1,387
	10.9	7.5	66 (IN-LBS)	8.8	1,985
M6 X 1	4.6	3.5	31 (IN-LBS)	3.4	763
	8.8	9.0	79 (IN-LBS)	8.8	1,968
	10.9	12.8	113 (IN-LBS)	12.5	2,816
M8 X 1.25	4.6	8.4	6 (FT-LBS)	6.2	1,389
	8.8	21.8	16 (FT-LBS)	15.9	3,580
	10.9	31.1	23 (FT-LBS)	22.8	5,123
M10 X 1.5	4.6	16.7	12 (FT-LBS)	9.8	2,200
	8.8	43.0	32 (FT-LBS)	25.2	5,671
	10.9	61.5	45 (FT-LBS)	36.1	8,115
M12 X 1.75	4.6	29.1	21 (FT-LBS)	14.2	3,197
	8.8	74.9	55 (FT-LBS)	36.7	8,240
	10.9	107.3	79 (FT-LBS)	52.5	11,792

PRELOAD ESTIMATED AS 75% OF PROOF LOAD FOR SPECIFIC BOLT/SCREW TORQUE VALUES FROM T=KDF WHERE; K=0.17 FOR ZINC PLATED AND DRY CONDITIONS

Curves

⚠WARNING	
	**Warning!** Be very careful when tightening the M8 screws on the welded pins into the curves, they must be tightened to a maximum of 20 Nm, and no more, as this could damage the weld.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

There are points at which torque measurements should be measured.

- RF Supports.
- Connection plates.

8.4.2 Tools Required

QUANTITY	DESCRIPTION	DIMENSION
2	3/8” Socket extension	mm
2	5/16” Torque Wrench set to 6 Ft/Lb. ±10%.	N/A
1	Adhesive Tape	N/A
1	Adjustable wrench	N/A
1	Ball Peen Hammer	N/A
2	Dead Blow Hammer	N/A
1	English socket set	Inch
1	English wrench set	Inch
1	Flashlight	N/A
2	Flat head screwdriver	N/A
2	Hex wrench set	mm
2	Hex wrench set	Inch
2	Impact wrench with impact bit set	mm
2	Joint with extension for screwdriver	N.A.
1	Laser level	N.A.
2	Level	Up to 4ft
1	Locking pliers	N/A
2	M4 through M12 Torque wrench	N/A
2	Measuring tape	N.A.
2	Metric socket set	mm
2	Metric wrench set	mm
1	Multimeter	N/A
1	Permanent Marker	N/A

QUANTITY	DESCRIPTION	DIMENSION
2	Pliers	N/a
1	Plumb line (chalk string)	N.A.
1	Plum-Bob or Laser	N/A
2	Putty knife	N/A
2	Ratchet belt	N/A.
2	Screw Clamps	N.A.
2	Small snips	N/A
2	Square or a 90 triangle	N/A
1	Tongue and groove pliers	N/A
2	Torque Wrench set to 55 Ft./Lb.	N/A
2	Utility knife	N/A
2	Wire cutter	N/A
2	Wire Strippers	N/A
2	Wire tracer	N/A

NOTICE

Note!

- The tools required are designed for one work team or 2 people.
- The conveyor equipment is designed for one work team.

Failure to follow these instructions can result in property damage or equipment damage.

8.4.3 Other Tools (Optional)

What is marked in the following table is an option to have at the work site for ease of maintenance.

QUANTITY	DESCRIPTION	DIMENSION
1	FORTNA IntelliROL Full Width Belt Installation Tool # 1186633	N/A

8.5 Installation Information

General

IntelliROL conveyors are offered in four standard widths of 16BF, 22BF, 28BF, and 34BF with the overall conveyor width being 3.25" plus the BF. Standard available bed lengths are multiples of the two standard zone lengths of 24" and 30", up to 10' (both) or 12’ (24” zones only). Standard roller center distance is 3". Other roller centers and widths may be available.

Drivercard

The driver cards that are supplied with each motorized roller are mounted inside the side channel of a bed, opposite the O-ring side of the conveyor. These driver cards condition the 24VDC power coming from a separate power supply. Standard IntelliROL beds are partially prewired and tested prior to shipping. FORTNA provides an optional plastic shroud that snaps into grooves in the 7.5” deep CRUZchannel to cover the driver cards and wiring. These shrouds are translucent to allow monitoring of the LED condition lights on the driver cards.

Shrouds

Translucent PVC shrouds are available in 5' lengths to enclose the CRUZchannel or C6-channel with a decorative cover over the CRUZcontrol® components. Mounting brackets for the C6 shrouds are installed in the field. Shrouds and mounting kits are shipped loose for field installation.

Field modification is required to the shrouds if they are used with adjustable channel guardrail. Optional jackets mounted to the bottom flange of conveyor can be used as an alternate mount.

Note:

When installing conveyor shrouds, every fourth shroud requires safety label information and in addition, every 4th or 5th section requires a FORTNA label. Alternate labels so they are not on the same shroud.

Drive / O-ring Belt Break-in

The roller-to-roller round drive belts are installed under tension with predetermined initial tension. After a time of static and running time, this initial tension drops to a running tension.

8.6 Supports & Connections

Must read Supports & Connections manual for installation details.

NOTICE	
	**Important!** • Must read all manuals. • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.
Failure to follow these instructions can result in property damage or equipment damage.	

Support & Connections IOM#1226673 (Original language is in English) or visit: fortna-conveyor.com

8.7 Stability

FORTNA equipment, when installed as instructed in the Supports and Connections doc, ensures the stability of the equipment.

The partly completed machinery is packaged and delivered per the "Transportation and Handling Document" in such a manner to ensure the stability of the equipment during transport.

Instruction on the proper handling of equipment during installation can be found in the "Transportation and Handling Document".

8.8 IntelliROL Applications

8.9 IntelliROL Application Standard

The IntelliROL product line is based on the following features and concepts: http://pulseroller.com/

- Pulseroller AI3 driver card and AD motorized roller.
- Cables are pre-engineered with the appropriate connectors.
- All CRUZchannels including C6 channels have welded connectors and CRUZbelt tube crossmembers.
- AutoCAD blocks for IntelliROL devices are available upon request.

8.10 IntelliROL – AI3 (programmable)

- Standard product offered in Core Technologies.
- Conveyor based on the Pulseroller AI3 driver card and AD motorized roller.
- Programmable driver card (Programming by customer).
- CRUZchannel with welded butt bolt bed connectors and integrated photoeyes.
- Accumulation or transportation depending on customer needs.
- A signal can be sent from central PLC to activate the conveyor through the cards LAN line or the card can activate the conveyor with internal programming logic using the cards inputs.

8.11 IntelliROL Bed Construction

- Straight bed, curve, & spur channels – CZ or C6.
- C6 channel standard has 1.625” flanges.
- C6 channel top flange are punched at ends for transition bezel (P\N 1120166) from C6 to CRUZchannel.
- All channels come with a welded bed connector.
- Straight bed crossmembers are tube style as used in the CRUZbelt product line.
- Straight beds will be punched for driver cards in every zone.

8.12 Gap Filler Bed

Application

- The application of Gap Filler Beds is for transportation conveyor.
- When using a Gap Filler Bed between two transportation conveyors, use a roller spacing the same as the beds adjacent to the filler bed.

Features/Benefits

Gap Filler Beds aid the modularity of conveyors. Filler beds fit between straight sections of transportation to add length to the conveyor layout. The following is a list of features and their benefits.

- Modular design - Easy to reconfigure.
- C6 and CRUZ channel beds available in both 2” and 3” roller spacing.
- No scheduled maintenance - Lower operating cost.

- Simple installation - Lower cost.
- Few moving parts -Reduced maintenance cost and less noise.

8.13 IntelliROL Full Width Belt Bed Construction

- Horizontal, Decline, Incline, Noseover and Noseunder Beds
- Standard driver card for accumulation.
- ZPA conveyor based on the Pulseroller ConveyLinx-AI3 driver card and AD motorized roller.
- Can be a stand-alone conveyor. It does not require an input from a control panel, etc. to operate.
- CRUZ®channel with welded butt bolt bed connectors and integrated photoeyes.
- 24" and 30" zones
- A start signal can be used to activate the conveyor when using run on demand.

8.14 IntelliROL Skew Bed Construction

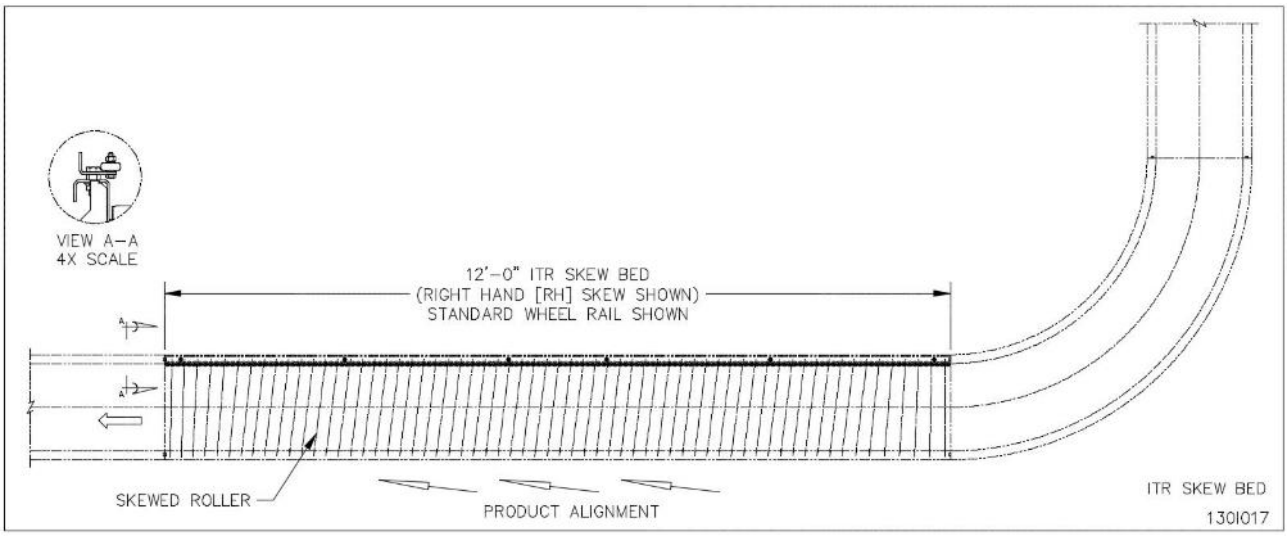
- Straight bed – CRUZ®channel.
- CZ channel standard has 1.625” flanges.
- 2.25"RC installed at the factory.
- Transportation conveyor based on the Itoh Pulseroller ConveyLinx-AI3 and AD motorized roller.
- All channels come with a welded bed connector.

8.14.1 IntelliROL Skewing Bed Rollers Defined

Skewing rollers are recommended on IntelliROL conveyor if the between frame (BF) dimension of conveyor is double the width of the smallest product. The normal method of skewing is to install a factory skew bed at the charge end of your conveyor. If your conveyor line is over 100' long and you have small product on it, you may want to add a shorter maintenance skew bed midway down the conveyor to preserve the product alignment.

Factory Skew Section

Standard 12', 10', or 5' skew beds are available with factory skewed rollers at 7 degrees. These beds are available left or right hand and a factory installed wheel guard rail is standard. The skewed bed will move products across the conveyor approximately 16" over the 12' length. This side movement is dependent on the bottom condition of the product.



Original language is English

Skew Bed Installation

FORTNA dedicated skew beds are typically installed as the first bed section in an IntelliROL conveyor line starting from the charge end. The rollers are factory skewed to the requested side and the installation is the same as any other IntelliROL transportation bed section.

A wheeled guard rail is standard to prevent the stalling of product as it is forced against the side channel by the skewed rollers. The wheeled rail is shipped installed at our factory.

8.15 Curve Construction

- 36” standard inside curve radius with CRUZ® side channel.
- Curve channels are notched with welded 10ga backers.
- No straight tangents, full straight section arc only.
- All channels come with a welded bed connector.
- AI3 cards are located on the outer channel with an adapter plate part number (P/N) 1226788.
- Sensor location is 6” from the end of the zone.

Curves

⚠WARNING	
	**Warning!** Be very careful when tightening the M8 screws on the welded pins into the curves, they must be tightened to a maximum of 20 Nm, and no more, as this could damage the weld.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

There are points at which torque measurements should be measured.

- RF Supports.
- Connection plates.

8.16 UBT Pneumatic Construction

- 3’-0” OAL standard for 5 strand
- 2’-8” 3’-0” standard 3 strand.
- C6 channels are 10ga construction with welded butt bolt bed connectors.
- UBT transfers use 1.9" diameter carrier rollers.
- UBT transfer belts on 4” center standard.
- UBT’s with sensors, PE’s (ZL) & reflectors are available as a standard option.
- UBT's are universal LH/RH.

8.17 Merge Beds

- Single bed that does not come with a spur bed but is designed to have a spur mounted to it.
- Must use designated bracket kit P/N 1228932
- Works with standard spur beds. Spur beds are 30 & 45 degree, RH/LH.
- Photoeyes (PE’s) provided by others.

8.18 Wheel Divert Pneumatic Construction

- Standard wheel diverter available in AI3 version (Transportation only).
- Standard spur angle is 30 degree RH/LH beds.

- Standard diverter has 4 wheel rows divided into two groups. Two solenoids standard, each solenoid operates two rows.

Optional:

- Diverter has 4 independently acting rows. Each divert wheel row is controlled by a separate solenoid. Having separate solenoids allows for independent control to raise or lower each wheel row independently allowing increased throughput.
- Solenoids are included as standard. 120VAC or 24VDC available.
- Photoeyes (PE's) provided by others.
- Wheel diverts include drop out tubs. Maintain at least 10" clearance below divert for removal.

8.19 Spur Construction

- Standard spur available in AI3 version (Transportation only).
- Standard spur angles are created for 30 & 45 degree, RH/LH.
- Each spur has a conversion cable to allow for proper power and control signal flow.
- Each spur includes a wheeled guardrail to direct packages.

8.20 IntelliROL Gate

- Standard driver card for transportation.
- Transportation conveyor based on the Pulseroller ConveyLinx-AI3 and AD Roller.
- Each driver card is wired to power using a power harness with a male connector at the charge end and a female connector at the discharge end.
- C6 channel with welded bed connectors.
- 30" roller groups.
- A limit switch is included with the gate.

8.20.1 IntelliROL Gate Defined

The gate provides a break in the conveyor line for pedestrian traffic. The power source must be from the charge side. The gate consists of a 4' pivoting bed and a 1' adjoining bed. Gates are available in right hand and left-hand lifts.

The gate requires a ½" gap between the discharge end of the lift gate section and the downstream conveyor for clearance.

Lift Gate Maximum Cycles:

Zones are not used in the gate in an accumulation system. When a gate is used in transportation, controls must be in place to stop product when the gate is in the “up” position. The gate must be free of product before rising for pedestrian use. The conveyor **must stop** when the gate is open.

The lift gate operates with two gas springs that are used for counterbalance when the gate is raised and lowered. The gas springs are attached to the inside of each gate side channel.

The powered lift gate is used for limited access to the opposite side of the conveyor. The lift gate is rated for a maximum of (5) cycles per 8-hour shift or 125 cycles over a (7) day period.

Exceeding the maximum cycles as stated above will cause damage to the gas springs and gate which will void the warranty.

8.21 IntelliROL Application Options

The application of IntelliROL breaks down into two areas. One is complete systems; the other is the application of specific modules within a system that may be based on Line-shaft conveyors or some other conveyor technology.

FORTNA has standard designs for straight bed sections for transportation or zoned accumulation. Standard zone lengths are 24” or 30”.

FORTNA also offers curves in 30, 45, 60 and 90 degree, 30 or 45 degree spurs, UBT transfers, three designs of product stops, belted inclines and declines, gates, minimum radius curve, and anti-rollback brakes (inclining). Many options are available including different roller centers, bearings, roller coatings, etc.

Application Specific Modules may be used to solve certain requirements within a system at a most cost-effective manner using IntelliROL conveyor.

Application Specific Module examples include:

- Short spurs
- Fill gaps between conveyors or devices
- Providing power to a lift bed
- Transfer car
- The bed of a turntable
- Gates
- Low Profile requirements over aisles, multi-level, etc.

In nearly all the above examples, space is a major consideration. Weight and balance may even be a consideration on something like a scale, lift, or vertical conveyor.

Controls

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9 FORTNA Controls Safety Guidelines

The following basic conveyor control safety guidelines are recommended by FORTNA even though Business Partner may or may not purchase conveyor controls from FORTNA. The items listed deal with applications of controls equipment. **The actual installation of the equipment must always follow the National Electric Code and all other local codes.**

Start-up Warning Horn

Ideally, all conveyors should be within sight of the conveyor start pushbutton. This allows the operator to verify that no one is touching the conveyor or would be in danger if the conveyor were to start up.

If it is not possible to see the entire conveyor being started from the start pushbutton location, then some form of audible warning device is required. It could be a horn, buzzer, bell, or anything unique to that conveyor for that location. It should be loud enough to be heard at any point on the conveyor system. It should sound for approximately five seconds after the start pushbutton is pushed, prior to the actual running of conveyor. Any auxiliary equipment such as vertical lifts, turntables, etc., should also be included in the warning circuitry.

Conveyors that stop and restart under automatic control could also require a horn warning prior to restarting. If it is not easy to distinguish the difference between a fully stopped conveyor system and a momentarily stopped conveyor section, then it is advisable to add a warning horn. All conveyor sections that stop and restart automatically should be marked with appropriate signs or labels.

Start Pushbuttons

Start pushbuttons should be the flush type or guarded such that inadvertently leaning against them will not actuate the conveyor. They should be provided with a legend plate clearly defining which conveyors will be started.

Stop Pushbuttons

Stop pushbuttons should be the extended type such that any contact with it is sufficient to stop the conveyor. They would also be provided with a legend plate clearly defining which conveyors will be stopped.

Operator Controls

Additional operator controls should be designed into the system with the same guidelines that go into start and stop pushbuttons, depending upon their function. Devices which are repeated on multiple control stations, such as emergency stops, should be located at the same relative location on each station (such as lower right corner).

Emergency Stops

All locations where an operator must work directly at the conveyor may be subject to local safety codes requiring e-stops. It is the responsibility of the integrator to check with state and local authorities on the need and application of e-stops.

Emergency stops can be of the pushbutton or cable operated switch type. The pushbutton type should be a red, mushroom head maintained pushbutton which requires resetting after it is actuated. Cable operated switches should trip by pulling the cable and require resetting at the switch.

Actuating an emergency stop must drop-out the start circuit, requiring restarting the system using the start pushbuttons provided.

An emergency stop should normally stop all conveyors in the system. Very large systems may involve dividing a system into zones of control based on proximity of personnel, safety hazards, walls obstacles, etc.

Controls Logic

Solid state controls logic devices, such as programmable controllers are used extensively for conveyor control. They are very reliable, but a hardware failure or software bug would cause an output to function erratically. For this reason, start circuits, warning horn circuits, and emergency stops should usually be configured using conventional relay logic.

Safety Switches

All conveyor control cabinets and motors should be provided with safety (or disconnect) switches. These switches must have provisions for padlocking. As required for maintenance, equipment should be locked in the off position.

Special Devices

Special devices and equipment such as vertical lifts, turntables, high speed conveyors, etc., all have unique design and safety requirements. These should be looked at in each case to determine what the requirements might be.

04/06/2023

NOTE: All the controls logic, safety switches, and some special devices are covered by the original manufacturer's warranty.

Conveyors in areas of high pedestrian traffic should also be protected by emergency stop devices.

Emergency stops should be located throughout the system. Their location will depend on likely observation points and areas with special devices or interfaces between equipment.

Emergency stops can be a pushbutton or cable operated switch. The pushbutton should be mushroom-style and red. The pushbutton must require resetting after actuation. Cable operated switches should trip by pulling the cable and require resetting at the switch.

An emergency stop should normally stop all conveyors in the system. Very large systems may involve dividing the system into zones of control.

Actuating an emergency stop must drop out the start circuit and require restarting the system using the start pushbutton.

9.1 Commissioning of Equipment

Commissioning of the equipment can best be defined as the final adjustments and test of the installed equipment required for its proper operation. The need for commissioning is inherent since the individual components of equipment are brought together at the installation site to operate as a system.

Mechanical and electrical commissioning is most often carried out simultaneously. Commissioning must simulate the actual operation of the system as close as possible to demonstrate its ability to perform reliably at the specified rate in the prescribed operational sequence.

During the Commissioning Phase, it is necessary to load the equipment with product to be conveyed, which provides the means of detecting those areas requiring adjustment. Personnel will be required to support operational functions and may serve as part of operator training and familiarity with the system. During the commissioning activity, special attention should be directed toward personnel safety.

No unnecessary risks should be taken that would endanger the safety of any commissioning personnel. All personnel must familiarize themselves with all safety features of the system such as emergency stops and power supply disconnects.

After commissioning, conduct operator training on all safety and operational aspects of the system. This must include systems start-up, location of emergency stops, and familiarity with all operator controls.

Mechanical Static Checkout

- (No power to the conveyor.)
- Follow the belt path through the entire conveyor. Ensure lacing is straight and fastened correctly.
- Visually inspect the installation. Is the conveyor straight? Is the conveyor level within bubble lines from side to side? From end to end?
- Check the guard rail clearance to product.
- Eliminate all catch points.
- Check conveyor elevations.
- All bolts and set screws are tight.
- Check product clearance to overhead structures.
- Simulate all operational functions with actual product.
- All guards in place with proper clearance.
- All required guards in place on walkways, catwalks, ladder-ways, floor openings, etc.
- All labels and warning signs in proper place, unobstructed.

Mechanical Dynamic Checkout

(Power to the conveyor, but no product on it.)

Turn the motor ON. With the belt moving make sure each belt has proper tension.

Check the belt tracking.

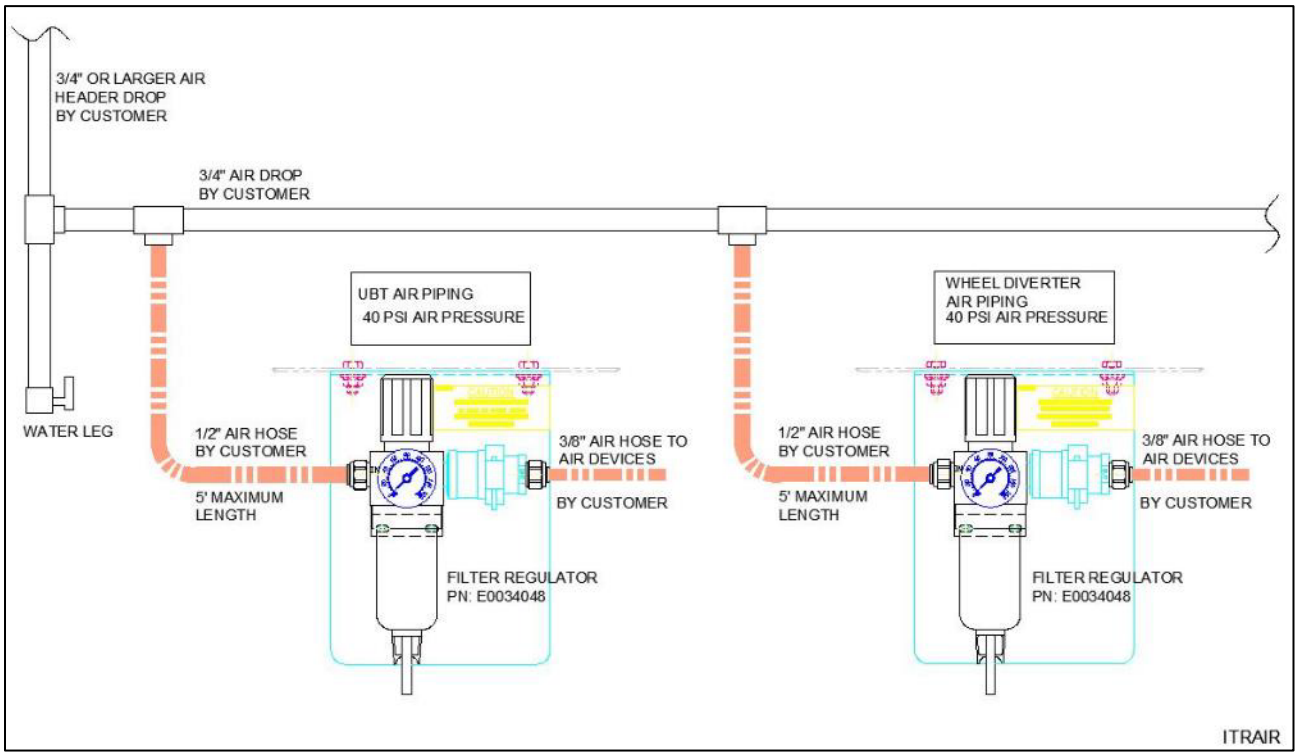
⚠WARNING	
	**Warning!** • The Installation Supervisor must be experienced with conveyor and qualified in the mechanics of the equipment and enforce safe working procedures for the protection of the crew, customer, and customer's property. • Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be made, and the cause of the stoppage determined. The starting device must be locked out before any attempt is made to correct the cause of stoppage.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

9.2 Operating Safety Precautions

Only trained personnel shall be allowed to operate a conveyor. Training shall include instruction in operation under normal conditions and emergency situations. It is very important to instruct personnel in proper conveyor use, including the location and function of all controls.

- Special emphasis must be given to emergency stop procedures and stopping devices or starting devices or both, must always be kept free of obstructions to permit ready access.
- Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be conducted, and the cause of the stoppage determined. The starting device must be locked out before any attempt is made to correct the cause of stoppage.
- Personnel working on or near a conveyor shall be instructed as to the location and operation of all important stopping devices.
- Trained maintenance personnel are to remove jams and blockages.
- Maintain enough clearance on each side of all conveyor units for safe adjustment, operations, and maintenance of all components.
- The area around loading and unloading points shall be kept clear of obstructions that could endanger personnel.
- Walking or riding on a partially completed machine/moving conveyor must be prohibited. No person shall ride, sit, or stand on a conveyor under any circumstances. Use the provide crossovers or gates at sufficient intervals.
- A conveyor shall be used to transport only approved material that the conveyor is designed to handle safely.
- Under no circumstances shall the safety features of the conveyor be altered as this would endanger personnel.
- Routine inspections and preventive and corrective installation maintenance programs shall be conducted to ensure all the guards and safety features and devices are retained and function properly.
- Personnel shall be alerted to the potential hazard of entanglement in conveyors caused by items such as long hair, long beards, loose clothing, and jewelry.
- Partially completed machine/ conveyor shall not be newly installed, maintained, or serviced while in operation unless proper installation, maintenance, or service requires the conveyor to be in motion. In this case, personnel shall be made aware of the hazards and how the task may be safely accomplished.

9.3 IntelliROL Air Supply Requirements



General

Every conveyor system is unique, with its own specific requirements. Therefore, the following is a general guide.

Main Feeder

Air velocity through the main feeder piping can be kept smooth with lower losses using large diameter pipe with minimum bends and restrictions. Standard weight black pipe or copper is suitable for plumbing the compressed air overhead to all points of use.

Air Drops

FORTNA recommends using 3/4" pipe on air drops for low pressure loss. The drop is terminated with a drain at the bottom. A tee located prior to the drain (drop leg) branches off to the conveyor. This branch line must contain a lockout/shutoff. A shutoff must also be located in the drop before the branch tee.

Fortna recommends energy sources (air drops) be turned off and capable of being locked or labeled with a warning tag.

Important!

If your air compressor uses synthetic oil, a coalescing filter plus a regular filter of 5 micron is required. Synthetic oils will shrink the seals in pneumatic devices.

Low Pressure Switch

An air pressure switch is recommended to be installed into the pneumatic circuit to detect a drop in air pressure below required levels. If pressure drops below approximately 40 PSI, the conveyor system should shut off.

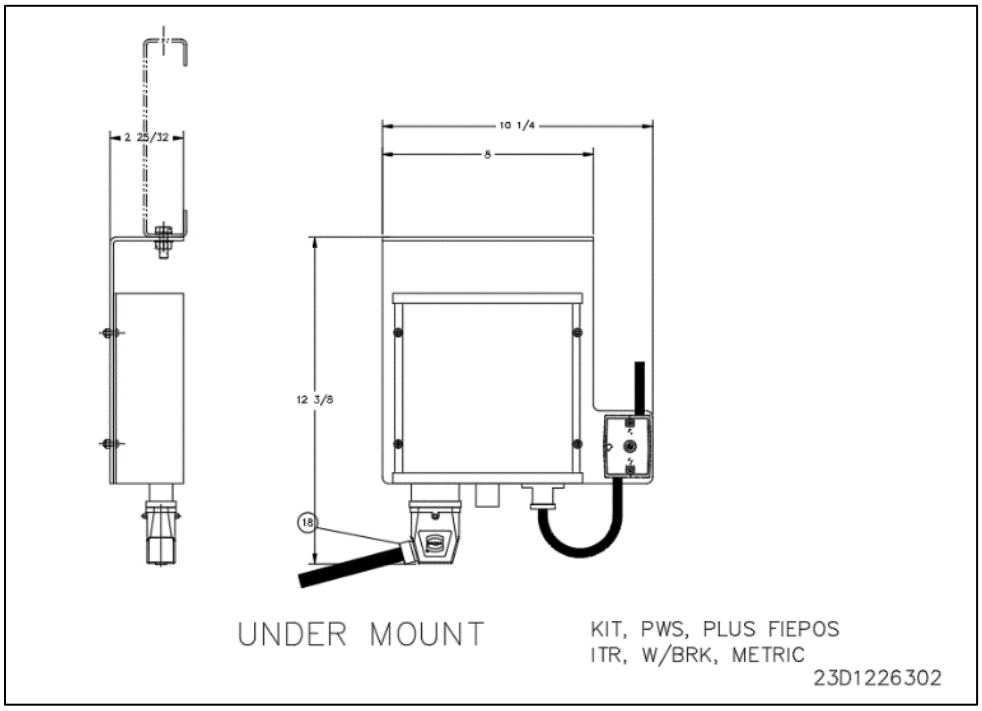
9.4 Pneumatic Requirements

- Recommended operating pressure set at: 40 – 45PSI /2.7-3.1bar.
- Filter Regulators provided with 3/8” OD hose connection to shop air.
- Maximum conveyor length each way from the regulator is 100'. Locate regulator in center of conveyor.
- **Low Pressure Switch** set below operating pressure of 40 PSI /2.7bar (Typical range: 35-39 PSI/2.4-2.7bar.)
- **Pressure Relief Valve** set above 45 PSI/3.1 bar (Typical range: 46-50 PSI/3.15-3.4 bar).
- In high humidity or low temperature, use an air dryer.
- Use 5 micron filter.
- Lockout/shutoff valve, to be provided by the air system installer.

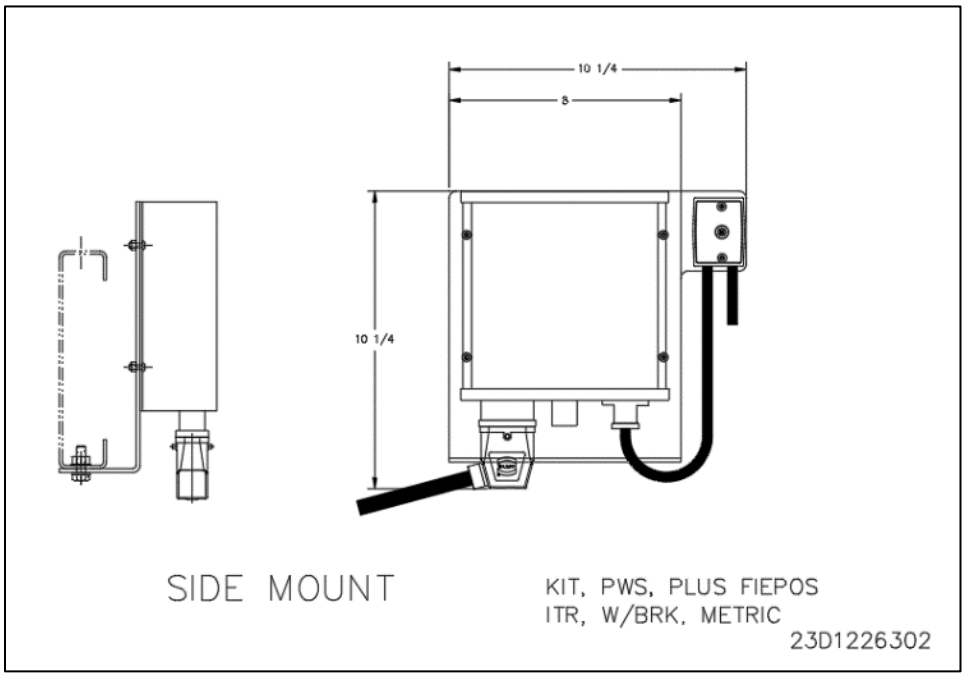
⚠WARNING	
	**Warning!** Whip restraints must be installed on flexible hosing. Cable ties removed from pneumatic hosing must be replaced.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

9.5 Power Supply Mounting Bracket Kits

Mounting Brkt for IntelliROL Standard Under Mount 10-1/4”x 12-3/8”



Mounting Brkt for IntelliROL Standard Side Mount 10-1/4”x 10-1/4”



Original language is English

9.6 General Electrical Requirements

Power supplies provided by others.

ITEM	SPECIFICATION
Input power	24V DC (+/- 10%)
Typical loaded current draw per motor* for AI3	2.5 ~ 3.5A – Per Motor
Maximum current draw per motor for AI3	5A – Per Motor
Power and communication cables	ASI

⚠WARNING

Warning!

- All electrical controls must be installed, wired, and connected by a licensed electrician only.
- All motor controls and wiring must conform to your local approved electrical codes and standards. Since specific electrical codes vary from one area to another, be sure to check with proper authorities before starting.

Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.

The electrical voltage of motorized rollers will be stamped on a metal name plate affixed to one end of the roller. This voltage should be checked to see that it matches the output voltage of your power supply. Consult the appropriate FORTNA wiring diagram for the proper connections.

NOTICE

Note!

- Do not connect the driver card to any other voltage than 24V DC.

Failure to follow these instructions can result in property damage or equipment damage.

NOTE:

All controls equipment is covered by the original manufacturer's equipment warranty.

⚠DANGER	
	**Danager!** • All safety devices, including wiring of electrical safety devices, shall be arranged to operate in a “fail safe” manner. That is, if power failure or failure of the device itself would occur, a hazardous condition must not result. • Before restarting a conveyor, which has been stopped because of an emergency, an inspection of the conveyor must be made, and the cause of the stoppage determined. The starting device must be locked out before any attempt is made to correct the cause of stoppage.
Indicates a high level potentially hazardous situation which, if not avoided, will result in death or serious injury.	

9.7 Pulse Roller AI3 Drivercard

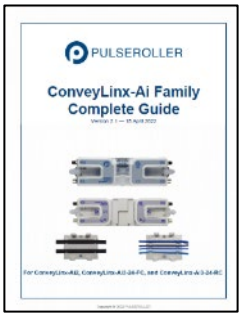
AI3 General Notes

The AI3 is a dual 24V brushless DC motor driver module that is compact, network-ready, configurable, and programmable.

AI3 Features

- For transportation and accumulation conveyor segments.
- Two brushless DC motor drivers.
- AI3: 43-5A max per driver.
- Built-in motor overload protections.
- Two powered connections for sensors or aux connections.

Must read Pulseroller AI3 manual for installation details.

NOTICE	
Important! • Must read ConveyLink-Ai Family Complete Guide • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.	
Failure to follow these instructions can result in property damage or equipment damage.	

For complete details go to For a complete Pulseroller AI3 detail manual it is recommended to download the manual from: https://www.manula.com

9.7.1 Installing AI3 Drivercard

Tools Required for AI3 Drivercard:

- 2mm Allen wrench.
- 5.5mm hex head wrench.
    - Tools recommended for Pulse Roller Shroud installation see link below.

https://www.manula.com

- https://www.phoenixcontact.com/en-us/products/assembly-tool-fl-ip-54-assembly-tool-2891547

9.7.2 AI3 Drivercard Installation

1) Padlock out / tag out power.
2) Drivercard mounting plate should be installed on the bed channel.
3) If it is not, install M3 button head bolt (1225649) through mounting plate and bed channel. Use M3 washer and M3 nylon locking nut (1115896, 115895). NOTE UP stamped on mounting plate.
4) Feed ASI cable through mounting plate. Cables are coded to only be inserted in the correct orientation.
5) IP54 Protection Shrouds for Ethernet cabling and power wiring

⚠WARNING		Protective shrouds
	Warning! In order to maintain IP54 rating; Ethernet cables need to be equipped with protective shrouds.	 IP54 Protection Shrouds for Ethernet cabling and power wiring
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.		

ATTENTION!

1) Top cable is for motor power supply cable.
2) Bottom cable is for card logic power; Ensure the proper wire locations are used!
3) Place drivercard onto mounting plate. Follow pictorial instructions below to mount and power drivercard.
4) To remove the drivercard, follow instructions in reverse.

Pictures from https://www.pulseroller.com/

NOTICE

Note!

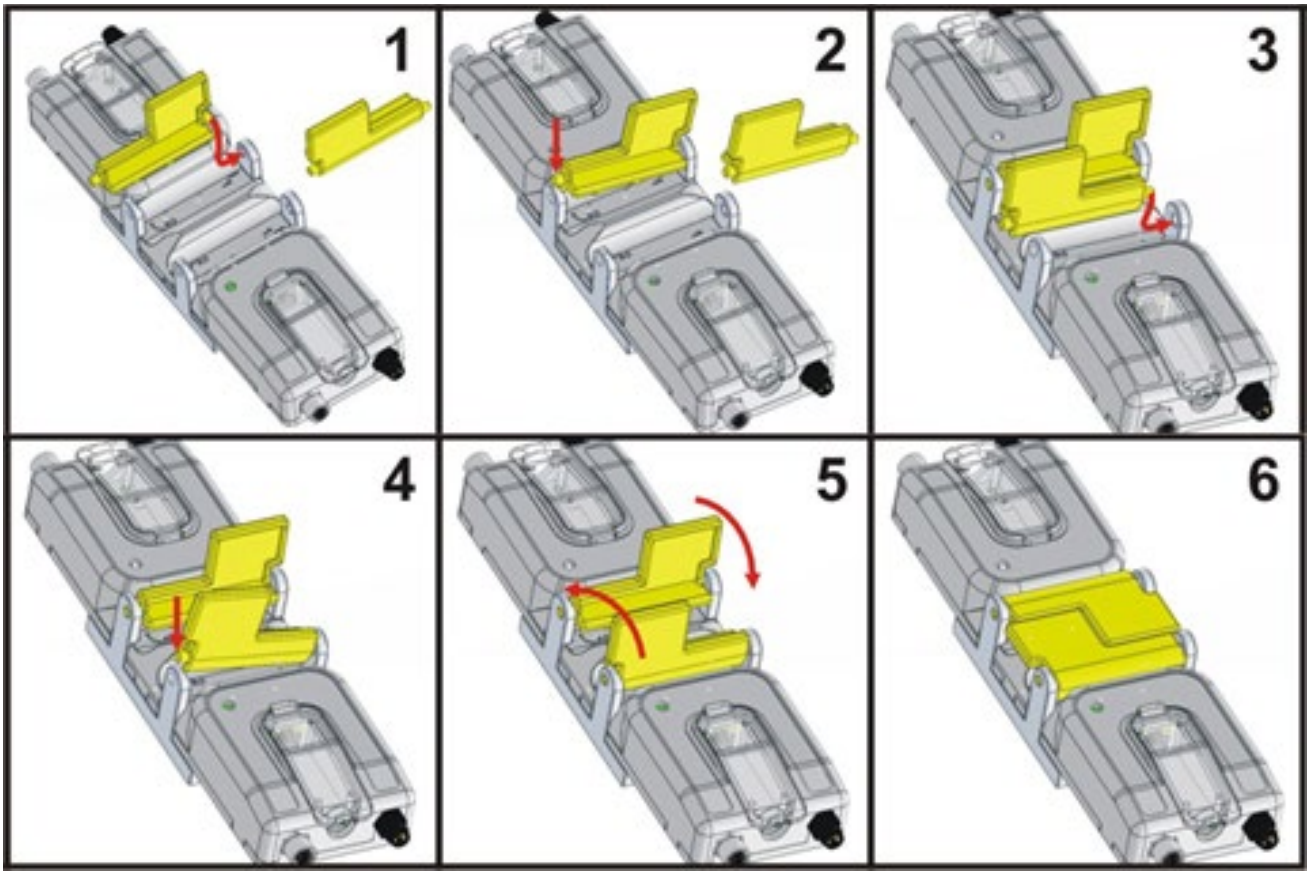
- The equipment is designed for one work team.
- FORTNA conveyor is shipped with drivercard plate and pulseroller attached. It is the responsibilities of FOTNA integrators to properly connect the cables and complete the drivercard assemblies.

- FORTNA conveyor is shipped with driver card plate and pulsroller assembly.

- FORTNA's, Integrator is responsible to assemble the Pulseroller AI3 driverscards, wires, and shrouds per layout specification and applications.

Failure to follow these instructions can result in property damage or equipment damage.

9.7.3 Pulseroller Driver Card Assembly



Pictures from *https://www.pulseroller.com/*

For a complete Pulseroller AI3 detail manual it is recommended to download the manual from:
https://www.manula.com/manuals/pulseroller/conveylinx-ai2-user-s-guide/2.0/en/topic/about-this-manual

9.7.4 AI3 Operating Environment

CONDITIONS		NOTES
Ambient temperature	-20 to 40°C (-4 to 104°F)	No condensation, water, frost, or ice
Humidity	≤ 90% Relative Humidity	
Atmosphere	No corrosive gas	
Vibration	≤ 1.0G	
Installation	Indoor	
Pollution level	2	Conforming to IEC60640-1 and UL840
Overvoltage category	2	

9.7.5 AI3 Power Requirements

ITEM	SPECIFICATION
Input power	24V DC (+/- 10%)
Typical loaded current draw per motor* for AI3	2.5 ~ 3.5A – Per Motor
Maximum current draw per motor for AI3	5A – Per Motor
Power and communication cables	ASI

** Actual current draw is dependent on load (size and weight) and motorized roller model used.*

For complete Pulseroller information visit: https://www.pulseroller.com/

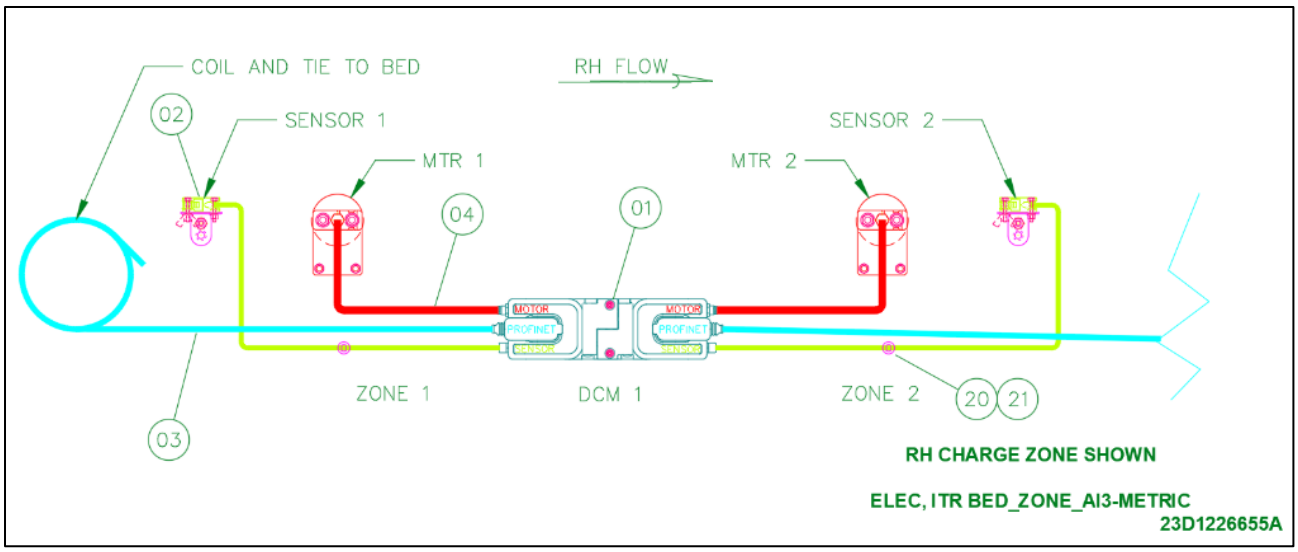
For a complete Pulseroller AI3 detail manual it is recommended to download the manual from: https://www.manula.com/manuals/pulseroller/conveylinx-ai2-user-s-guide/2.0/en/topic/about-this-manual

Or contact FORTNA, MI USA for more information.

Must read Pulseroller AI3 manual for installation details.

	NOTICE	
	Important! • Must read ConveyLink-Ai Family Complete Guide • Manuals must stay with a partially completed machine or completed machine. • All safety rules must be observed when working with, on or at the conveyor system in whatever way. This includes reading all Installation, Operation, Maintenance manuals.	
Failure to follow these instructions can result in property damage or equipment damage.		

9.7.6 AI3 Electrical Components



1) Drivercard, (Insight AI3-24-FC-Card and Shutter Doors-ConveyLinx 2 Zone Enet): **P/N 1227171**
2) Photoeye (ZL PNP Light Op-2000mm Lead W/733-104 W/Reflector & Tape): **P/N 1226403**
3) Cable, (Assembly Profinet, 2m W/Ip54 Protective Shrouds). **See Communication Table 1**
4) Motor Cable. **See Cable, Motor Extensions Table 2**

20) Tie, (Mount, Push): **P/N 1132788**
21) Tie, (Cable .098w X 5.6"L): **P/N 98000298**

Table 1 Communication Cables

COMMUNICATION CABLES	
Item No.	**Description**
1226739	CABLE, ASY PROFINET, 1M-W/IP54 PROTECTIVE SHROUDS
1226740	CABLE, ASY PROFINET, 2M-W/IP54 PROTECTIVE SHROUDS
1226742	CABLE, ASY PROFINET, 6M-W/IP54 PROTECTIVE SHROUDS

Table 2 – Cable Motor Extensions

MOTOR EXTENSION CABLES	
Item No.	**Description**
1226743	CABLE, MOTOR EXTENSION,300MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/0.3M-**NO SUBSTITUTION**
1226744	CABLE, MOTOR EXTENSION,1000MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/1.0M-**NO SUBSTITUTION**
1226745	CABLE, MOTOR EXTENSION,2000MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/2.0M-**NO SUBSTITUTION**

9.8 Cable Assembly Profinet with Protective Shrouds

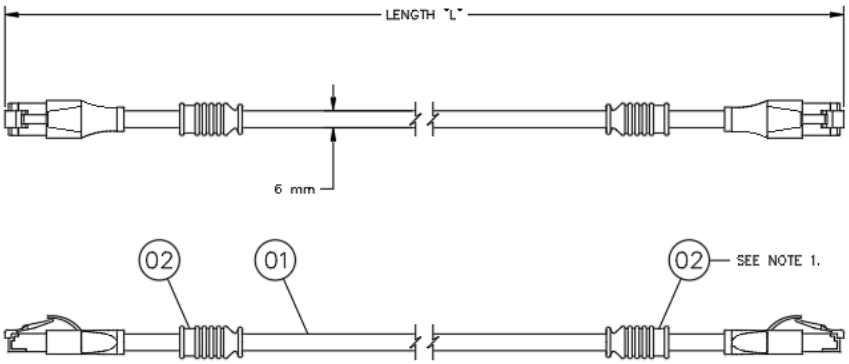
ASSEMBLY (A)	"L" (meter)	CABLE (01)
1226739	1 m	1227082
1226740	2 m	1227083
1226742	6 m	1227085

ASSEMBLY (A)

BAL	QUAN	ITEM NO.	DESCRIPTION
01	1	SEE CHART	CABLE,CTRLS-PROFINET
02	2	1227016	SHROUD,ETHERNET/POWER CABLING

NOTES

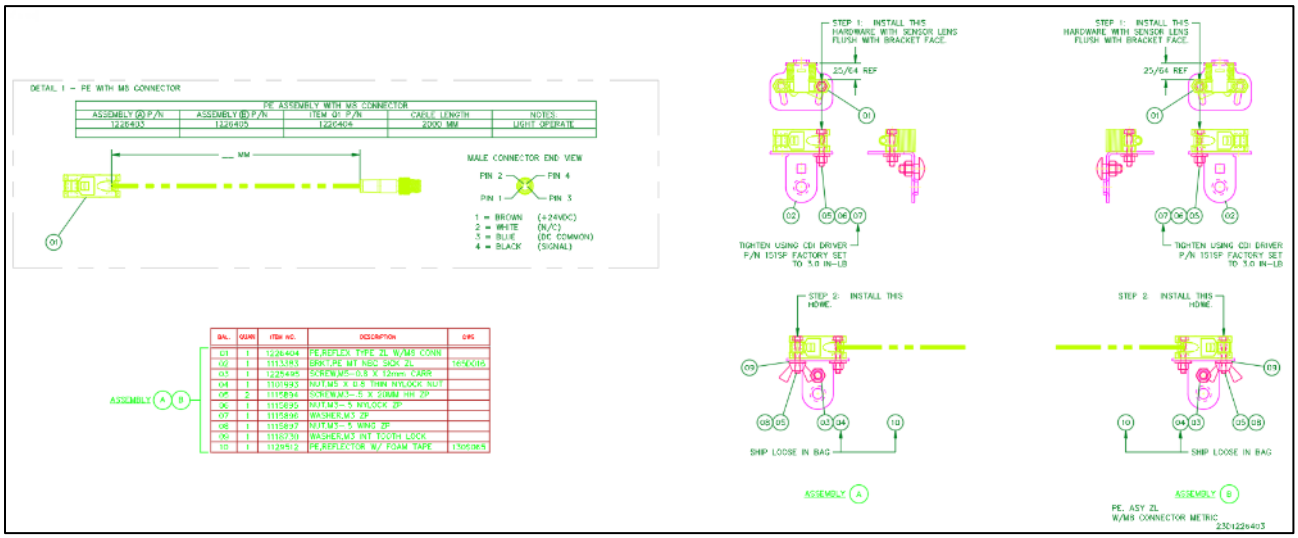
1. USE SLEEVE EXPANDING TOOL HELLERMANTYTON PART NO. 621-80008 OR SIMILAR TO INSTALL CABLE SHROUDS.



CABLE, ASY PROFINET
W/IP54 PROTECTIVE SHROUD
23D1227082

Original language is English

9.9 Photoeye Cable Kit

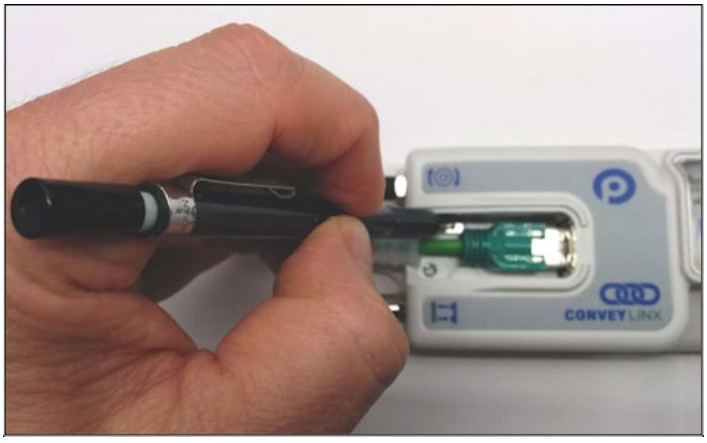


9.9.1 Replacement Parts – Photoeye Kit

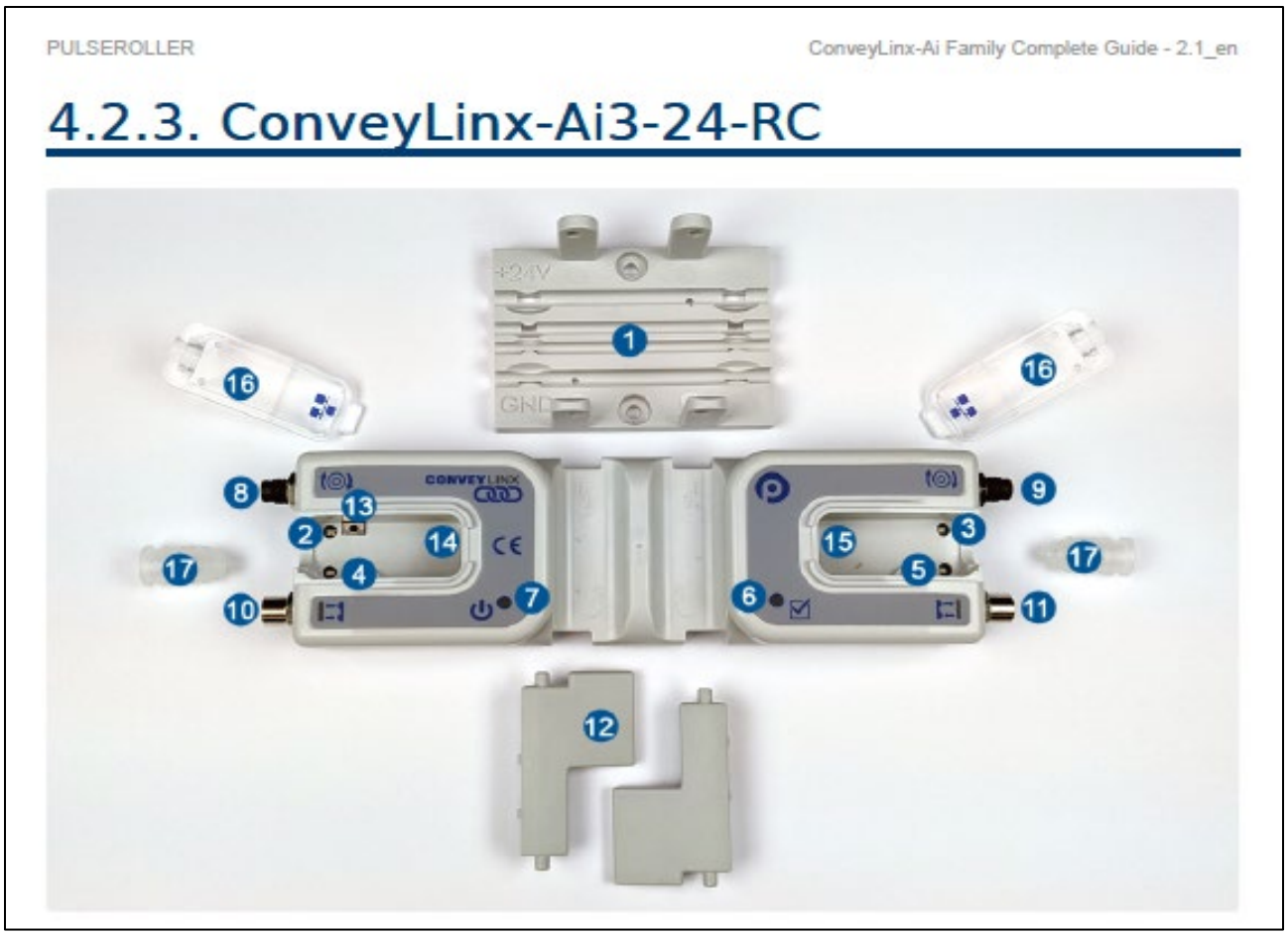
GENERAL PHOTOEYE CABLES & KIT				
Balloon	**Item #**	**Description**	**Mounted**	**DWG #**
1 - 10	1226403	PE, ASY SICK Z18 PNP LIGHT OP-2000MM LEAD W/ M8 METRIC-W/REFLECTOR & TAPE	FIELD MOUNTED	23D1226403
1 - 10	1226405	PE, ASY SICK Z18 PNP LIGHT OP-2000MM LEAD W/ M8 METRIC-W/REFLECTOR & TAPE-ZLD18-2PZ3G2S04	FIELD MOUNTED	23D1226403

9.9.2 AI3 Module Reset

1. Unplug all sensors, devices,motors, and network cables so the only thing connected is power.
2. Press and hold the Module Replacement Button until theModule LED begins to flashand then release.
3. When the Module Status LED blinks green, the procedure is complete.



9.9.3 ConveyLinx-AI3-24-RC



Picture from ConveyLinx-Ai Family Complete Guide page 24 & 25

ITEM	DESCRIPTION
1	Mounting Bracket with RC wire routing channels
2 & 3	Motor Left LED & Motor Right LED – Motor status indicators
3 & 5	Left Sensor & Right Sensor Status LED Indicators
6	Module Status LED Indicator
7	Module Power LED Indicator
8 & 9	Motor Left and Motor Right Port – 4-pin M8 style connector for MDR connection
10 & 11	Sensor Left and Sensor Right Port – M8 style connector for zone photo-sensor connection
12*	Module Clamping brackets
13	Module Replacement Button

ITEM	DESCRIPTION
14 & 15	Link Left and Link Right – RJ-45 style Ethernet network connection between modules including LED Indicators
16	Removable IP54 Ethernet RJ-45 Port Compartment Cover – Left and Right
17*	IP54 Protection Shrouds for Ethernet cabling and power wiring

* Indicates items shipped unattached to the module but are included in the model's box.

Pulseroller ConveyLinx-AI3-24-RC

For a complete Pulseroller AI3 detail manual it is recommended to download the manual from: https://www.manula.com

Or contact FORTNA for more information.

9.9.4 ConveyLinx-AI3-24-RC Troubleshooting

NO.	PROBLEM	POSSIBLE CAUSE	STATUS	REMEDY
1.	LED STATUS	POWER LED	SOLID BLUE	Power supply for both Logic and Motors are connected
			BLINKING BLUE	Motor power supply is less than 18V
		MOTOR	OFF	Motor is not running, and no faults detected
			SOLID GREEN	Motor is running
			SOLID RED	If Motor is running – indicates current limit If Motor is stopped – indicates motor is not connected properly or is overheated Power supply is under 18V or above 30V
			BLINKING RED	Motor is overloaded and the module is limiting current to reduce temperature
			FLASHING RED	Motor short circuit detected between at least two of the phase windings or Motor Power supply is less than 10V
			SOLID AMBER	Module is booting up
			SLOW BLINKING RED	Profinet enabled discover function initiated from PLC
		COMMUNICATIONS	OFF	No connection established
			SOLID GREEN	Connection is established
			BLINKING GREEN	When data transmission activity is occurring
		NETWORK AND MODULE STATUS	BLINKING RED	Module is starting task processes
			BLINKING GREEN	Module is ready
			FLASHING GREEN AND BLINKING RED	Module is in Failsafe Mode
			FLASHING RED	Auto-Configuration is in progress
			BLINKING AMBER	Connection to peer lost or performing firmware upgrade check
			SOLID AMBER	Firmware upgrade in progress
		SENSORS	SOLID GREEN	Sensor Input is energized
			SOLID AMBER	Module is booting up
			FLASHING GREEN	When in ZPA Mode and when Sensor is blocked – indicates external device (PLC/PC controller or EasyRoll) has accumulated the zone and inhibiting release
			SOLID RED	Aux I/O Pin 2 is energized (when configured as an Input while in PLC I/O Mode)
			BLINKING RED	Arrival Jam or missing sensor
			BLINKING GREEN/AMBER	Sensor Jam
			FLASHING RED	network Stop condition
			FLASHING AMBER	Power supply is less than 10V
			SLOW BLINKING RED	Profinet enabled discover function initiated from PLC

Pulseroller ConveyLinx-AI3-24-RC Troubleshooting

For a complete Pulseroller AI3 detail manual it is recommended to download the manual from: https://www.manula.com

Or contact FORTNA for more information.

IntelliROL Maintenance

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10 IntelliROL Preventive Maintenance & Service

10.1 General Preventive Maintenance

Preventive maintenance will save expensive downtime, wasted energy costs, and increase the life of components. An accurate record keeping system will track component servicing history. Periodic maintenance intervals may vary with load, speed, hours of operation, ambient temperature, humidity, etc. Intervals can be established by frequent maintenance at first, and then lengthens the intervals as justified by observation of need based on history. The following schedule is based on 5 days per week, 8 hours per day operation under normal conditions.

10.2 General Maintenance Obligation

GENERAL MAINTENANCE OBLIGATIONS
• **Must Do,** Continuous handling equipment shall be kept in proper working condition and maintained in accordance with the manufacturer's instructions.
• **Must Do,** Inspection, adjustment, maintenance and cleaning of moving parts shall be carried out regularly in a safe manner according to the manufacturer's instructions.
• **Must Do,** if possible, inspection and adjustment of continuous mechanical handling equipment, in motion or in use, shall only be carried out with guards in position.
• **Must Do,** Displacing or removal of a guard and/or neutralization of a safety device shall be carried out in accordance with 6.3.3 of EN ISO 12100:2010.
• **Must Do,** Repairs and removal of protective enclosures or panels shall only be carried out after stopping the equipment and starting devices have been rendered inoperative by qualified persons.
• **Must Do,** carry out maintenance operations with the partly completed machine switched off. Do not lubricate moving parts.
• **Must Do, BEFORE** performing maintenance on the conveyor, make sure the start-up controls are locked out and cannot be turned on by any person other than the one performing the maintenance

10.3 Safety Warnings

⚠WARNING
Warning! • It is **Prohibit** to walk, sit, or ride on the conveyor by anyone. • Care should be taken when servicing any conveyor to prevent accidental injury. • All moving parts are potentially dangerous. • The maintenance operations must be carried out by qualified and authorized personnel. • Maintenance of the partially completed machine includes modifications (inspection, adjustment, and replacement) that become necessary following normal usage.

⚠WARNING

Warning!

For proper maintenance operations:

- Use only authentic spare parts and tools that are suitable and in good condition.
- Respect the frequency of intervention provided in the IOM manual for scheduled maintenance (preventive and regular maintenance).
- The distance (indicated in time or in working cycles) between operations must be understood as the maximum acceptable, so it must not be exceeded, however, it can be reduced.
- Constantly supervise the partially completed machine and promptly verify the cause of potential problems such as excessive noise, overheating, fluid leaks, etc. repair them; the prompt removal of any cause of malfunction or failure prevents further damage to equipment and safeguards operators' safety.
- The partially completed machine maintenance personnel must be well trained and have an in-depth knowledge of safety regulations; unauthorized personnel must remain outside of the work area during operation.
- Cleaning and adjustment activities must also be carried out only during the maintenance phase and with the partly completed machine stopped and de-energized and the electrical panel disconnected.

- It is **Prohibit** to walk, sit, or ride on the conveyor by anyone..
- Care should be taken when servicing any conveyor to prevent accidental injury.
- All moving parts are potentially dangerous.
- Before starting any maintenance operation on the partly completed machine, isolate, and padlock all energy sources. Affix the sign “MACHINE BEING SERVICED-DO NOT POWER” near the machine.
- When the partly completed machine is being serviced, to stop it from accidentally being started up, press the emergency mushroom button, and display the following signs: "CAUTION! MACHINE UNDERGOING MAINTENANCE".
- Must wear all protective equipment such as gloves, goggles, boots, and clothing as required to the operation.
- During maintenance operations, unauthorized personnel must remain in the vicinity of the operating area. If the operation involves removing protections, set barriers around the area and display signs forbidding access to anyone who is not directly involved in the maintenance task.
- Perform only the tasks within your competence (Mechanical, Electrical, Hydraulic) for which you are permitted to intervene. Utilize the most suitable instruments and the most suitable for troubleshooting and maintenance.
- The need to place the partly completed machine in operating conditions and/or with protections disabled, requires an adequate competence and knowledge and extreme caution by the maintenance engineer who must be adequately trained on the possible and present risks.

- The safety precautions contained in the IOM manual must always be strictly observed during the maintenance of the partially finished machine, to avoid injuries to personnel and damage to the equipment.

⚠WARNING	
	• In case of doubt, it is forbidden to operate. Contact the manufacturer (https://mhs-conveyor.com) for the necessary clarification.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

10.4 Scheduled Maintenance

10.4.1 Daily Inspection

DAILY (VISUAL & LISTEN INSPECTION)	ACTION
Listen to everything for unusual noises or vibration.	Isolate noise or vibration and repair as needed.
Visually inspect to see that conveyor sections are clear and free of debris.	Remove any build-up.
Check to see that all safety guards, covers or netting are in place.	Reinstall any missing safety guards, covers or netting.
Check for loose bolts or parts.	Tighten any loose hardware.
Listen for air leaks.	Repair or replace air leaks.
Visually inspect for loose or hanging wires.	Reconnect or remount wires.
Visually inspect O-rings.	Replace as needed.
Full inspection of equipment, parts, and proper operations.	Full inspection of equipment.

10.4.2 Weekly Inspection

WEEKLY INSPECTION	ACTION
Check for proper pressure on air regulators.	Reset air to correct setting.
Check air filter bowls for accumulated water.	Remove accumulated water from the system. Check main air supply system for root cause.
Rollers are properly working.	Replace roller.

10.4.3 Curves

⚠WARNING	
	**Warning!** Be very careful when tightening the M8 screws on the welded pins into the curves, they must be tightened to a maximum of 20 Nm, and no more, as this could damage the weld.

⚠WARNING
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.

10.4.4 Air Systems

The best preventive maintenance for any air operated device is clean air. Dirty air will make pneumatic devices sticky, and they will not operate properly. To ensure the continued performance of filters, monitor filter / regulator bowl drain every week.

To manually drain the bowl, push the push button at the bottom of the bowl. Let all accumulated liquid drain until you hear air escaping.

10.4.5 Yearly Inspection

YEARLY INSPECTION	ACTION
Full inspection of equipment, parts, and proper operations. With the system running and off.	Full inspection of equipment. Repair, replace or service equipment.

⚠WARNING	
	**Warning!** • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

10.5 Inspection Sheet Sample

ADD COMPANY LOGO		IntelliROL Conveyor Inspection Sheet		
Customer:		Installation Foreman:		
Project #:		Site PM:		
City & State:		Date:		
Conveyor #				
#	DESCRIPTION	OK	CODE	COMMENTS
	MOTORIZED ROLLERS			
1	DRIVE ORINGS			
2	ROLLERS & BRACKET HARDWARE			
3	LISTEN FOR EXCESSIVE NOISE			
	PNEUMATICS			
1	CHECK AIR PRESSURE			
2	LISTEN FOR AIR LEAKS			
3	INSPECT REGULATOR			
	ELECTRICAL			
1	DRIVER CARDS			
2	WIRES /CABLES			
3	PHOTO EYES			
	MISCELLANEOUS			
1	GUARDS			
2	CARRIER ROLLERS			
3	O-RINGS			
4	CONVEYOR SPEEDS			
5	CONVEYOR STRAIGHT AND LEVEL			
6	BED JOINT CONNECTIONS			
7	CLEAN OF DEBRIS			
8	CHECK FOR LOOSE HARDWARE			
COMMENTS:				

CODE REFERENCE NUMBER		
1 - LOOSE	10 - LOW OR EMPTY	
2 - BROKEN	11 - EXCESSIVE NOISE	
3 - MISSING	12 - REPLACE	
4 - WORN	13 - LEAKING	
5 - DIRTY AND/OR DRY	14 - RUNNING HOT	
6 - EXCESSIVE TENSION	15 - INCORRECT	
7 - BENT AND/OR DENTED	16 - SLIPPAGE	
8 - WRONG SIZE	17 - VIBRATION	
9- OUT OF ALIGNMENT	18 - OTHER	*COMMENTS:*

Original language is English

10.6 Maintenance Service & Repairs

⚠WARNING	
	Warning! • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

10.7 How to Remove & Replace an IntelliROL Motorized Roller (MDR)

10.7.1 PPE & Tools Required

DIRECTION - INTELLIROL MOTORIZED ROLLER (MDR)	
No of required operators	No. 1 Maintenance Engineer
PPE required	
Tools to be used	• Channellock or pliers – To pull or push roller axle for removal. • Optional putty knife – Use this tool to protect the inner side channel surface from scratches while guiding the axle to the hex hole. • Screwdriver flat head – To loosen wedge. • Side cutter – To cut zip ties. • 10mm socket and 3/8” drive socket wrench - To loosen fixing bracket. • 8mm socket and 3/8” drive socket wrench - To loosen fixing bracket. • 3mm hex wrench - To loosen fixing bracket.

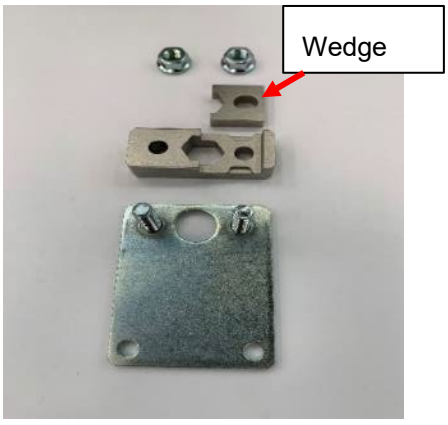
How to Remove & Replace an IntelliROL Motorized Roller (MDR)

STEP	DIRECTIONS
1	Remove the carrier roller on each side of the MDR roller. Push or pull the axel to remove the rollers.
2	Disconnect the power cable from the driver card. The cable may be tied down with zip ties, cut and remove zip ties, as necessary. Replace the zip ties when reinstalling.
3	Loosen & remove hardware on the fixing bracket. Use a 10mm socket and 3/8” drive socket wrench to loosen and tighten the fixing bracket wedge.
4	Loosen & remove hardware on the fixing bracket. Use an 8mm socket and 3mm hex wrench to loosen and tighten the fixing bracket
5	Push the axle in (opposite side of the power cord) and remove the MDR roller. Replace it with a new MDR roller.
6	Thread the power cord through the bracket and assemble.

NOTICE

Note!

- When reinstalling the fixing bracket, make sure the bracket and hex holes align to each other.
- When reinstalling the fixing bracket, avoid overtightening and stripping the hex nuts by tightening to **8-10Nm using a torque wrench on the top two hex nuts**.



Failure to follow these instructions can result in property damage or equipment damage.

7	• Follow these steps in reverse to install the MDR roller.

Maintenance video is available: https://Fortna-conveyor.com

Original language is English

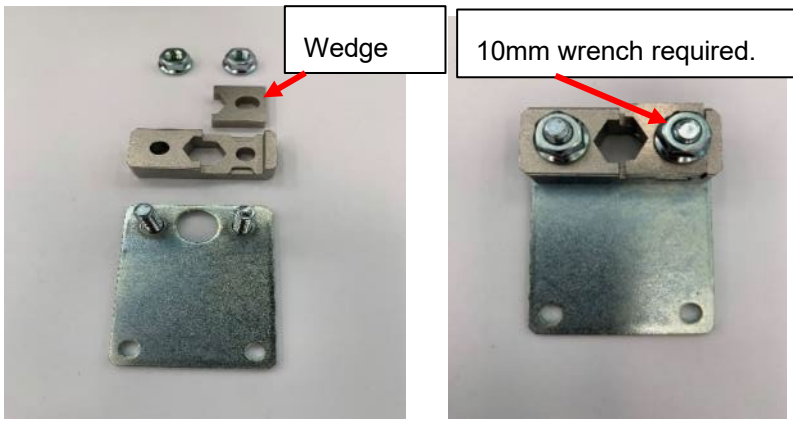
⚠WARNING	
	Warning! • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

10.8 How to replace O-Rings on a MDR Conveyor.

10.8.1 PPE & Tools Required

DIRECTION - INTELLIROL O-RING	
No of required operators	No. 1 Maintenance Engineer
PPE required	
Tools to be used	1. Channellock or pliers – To pull and remove rollers 2. Optional putty knife – Use this tool to protect the inner side channel surface from scratches while guiding the axle to the hex hole. 3. Screwdriver flat head – To loosen wedge. 4. Side cutter – To cut zip ties. 5. 10mm socket and 3/8” drive socket wrench.

(WI-LS-014) How to replace O-Rings on a MDR Conveyor.

STEPS	DIRECTIONS
1	Remove the rollers by pushing or pulling the axle through the conveyor frame. Remove the old O-Ring and replace it with the new O-Ring.
2	When changing the O-Rings on a MDR roller, loosen the fixing bracket first. Make sure the fixing bracket is loose, then push the axle through the conveyor frame and remove and replace the O-Rings.
3	Reassemble the fixing brackets.
3a	***NOTICE*** **Note!** • When reinstalling the fixing bracket, make sure the bracket and hex holes align to each other. • When reinstalling the fixing bracket, avoid overtightening and stripping the hex nuts by **tightening to 8-10Nm using a torque wrench on the top two hex nuts.**  **Failure to follow these instructions can result in property damage or equipment damage.**

aintenance video is available: https://Fortna-conveyor.com (How to replace ITR MDR Roller)

⚠WARNING	
	Warning! • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

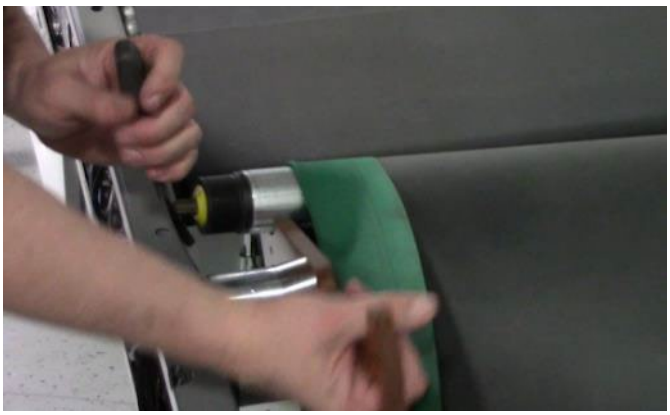
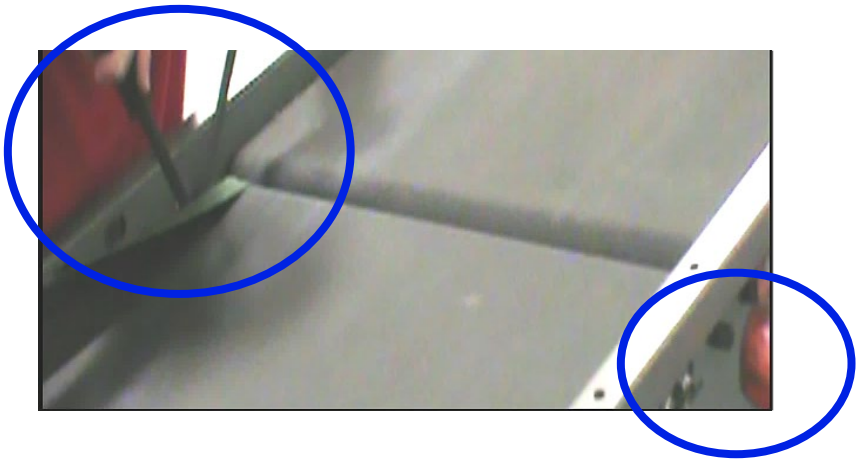
10.9 How To Replace a Carrier Belt (Traction Belt) On a Belted ITR Decline

10.9.1 PPE & Tools Required

DIRECTION – INTELLIROL CARRIER BELT	
No of required operators	No. 1 Maintenance Engineer or 2 if not using option tool #1186633
PPE required	
Tools to be used	• Channellock or pliers – To pull and remove rollers • Optional putty knife – Use this tool to protect the inner side channel surface from scratches while guiding the axle to the hex hole. • 8mm wrench - Used to loosen the fixing bracket. • 10mm socket – Used to remove finger guard • 2 long screwdrivers or prybars – Used to pry the end roller over and align the axle • Dead blow hammer – Used to tap roller axle in position • Optional Tool #1186633 – Used to install end roller

(WI-LT-015) How to Replace a Carrier Belt (Traction Belt) On a Belted ITR Decline

STEPS	DIRECTIONS
1	At the Charge End of the zone remove the end roller and all the Gravity rollers in that zone. Push the axle through the frame. Do not lose the black O-ring that is between the roller and the frame (around the axle). Make sure to reinstall these black O-rings.
2	Remove all the gravity rollers, push or pull the axle through the frame of the conveyor.
3	Remove any finger guards that may be on the conveyor, use a 7/16” (10mm) socket to do this.
4	Remove the other end roller, push the axle through the frame. Do not lose the black O-ring that is between the roller and the frame (around the axle). Make sure to reinstall these O-rings.
5	Loosen the fixing bracket on the MDR roller. Make sure the fixing bracket is loose. Use a 7/16” (10 mm) wrench to loosen the fixing bracket wedge.
6	Loosen & remove hardware on the fixing bracket. Use an 8mm socket and 3mm hex wrench to loosen and tighten the fixing bracket.
7	Lift the MDR roller and remove and replace the V-belt and carrier belt. Make sure the new Poly-V belt is aligned in the grooves.
8	Reinstall the finger guard. Verify the finger guard is not interfering with the Poly-V belt.
9	Reinstall the IntelliROL roller bracket and torque bracket hex nuts to 6 Ft/Lb. ±10%. Connect the drivercard.
10	**NOTICE**  **Note!** • When reinstalling the fixing bracket, make sure the bracket and hex holes align to each other. • When reinstalling the fixing bracket, avoid overtightening and stripping the hex nuts by tightening to 8-10Nm using a torque wrench on the top two hex nuts. • Re-install the Gravity rollers. Use a putty knife to shift the roller and to protect the frame finish until the axle springs pop into the hex hole. **Failure to follow these instructions can result in property damage or equipment damage.** •
11	Install the last roller with the belted IntelliROL Tool #1186633 • **(One maintenance person are required)**

STEPS	DIRECTIONS
	If using the belted IntelliROL tool #1186633 to install the last end roller. Place the tool between the rollers and turn the tool and move the tool upwards to re-install the roller. Using your other hand use a putty knife to shift the roller and to protect the frame finish until the axle springs into the hex hole.
	
13	Install the last roller without the belted IntelliROL Tool #1186633 **(Two maintenance people are required)**
	The first person will use two large screwdrivers to pry the end roller over and align the axle to the hex hole in the channel.
	On the other side of the conveyor, the second person will tap the axle with a dead blow hammer until the first person can see the axle project through the hex hole in the channel.
	
14	Check the edges of the belt to make sure the Carrier belt is not pinched or folded.

Maintenance video is available: https://Fortna-conveyor.com (Replace a carrier belt)

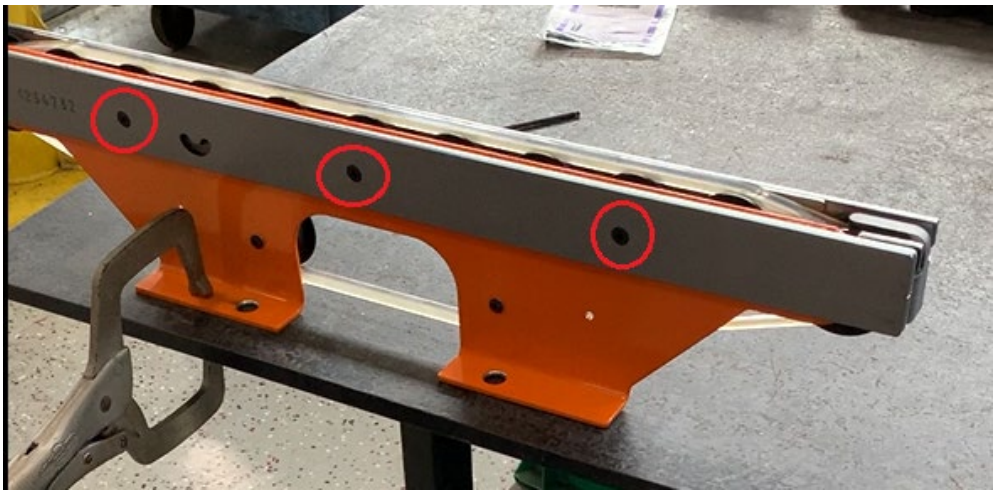
⚠WARNING	
	Warning! • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

10.10 How To Remove & Replace the Wheel Bracket in the ITR UBT.

10.10.1 PPE & Tools Required

DIRECTION – INTELLIROL REPLACE THE WHEEL BRACKET	
No of required operators	No. 1 Maintenance Engineer or 2 if not using option tool #1186633
PPE required	
Tools to be used	1. Channellock or pliers – Used to pull and remove rollers 2. Optional putty knife – Use this tool to protect the inner side channel surface from scratches while guiding the axle to the hex hole. 3. 9/16” (17mm) socket and long extension - Used to remove wheel bracket.

(WI-LT-016) How to Remove & Replace the Wheel Bracket in the ITR UBT.

STEPS	HOW TO REMOVE & REPLACE THE WHEEL BRACKET IN THE INTELLIROL UBT.
1	Remove the carrier rollers on each side of the wheel bracket that is to be replaced.
2	Push or pull the axle through the frame to remove the rollers. Make sure to twist the O-rings clockwise when reinstalling the rollers.
3	Loosen and remove the flange nuts holding the wheel bracket down. Use a17mm socket and long extension to do this. Remove & replace the wheel bracket or replace the UBT belt. If replacing only the belt see step 4.
4	Remove figure guard protecting the end pullies with a 1/8-inch Allen wrench. When replacing the UBT belt make sure to route the belt properly according to your wheel bracket structure. 
	NOTICE **Important!** **Make sure to route the transfer belts properly.** • Route the belt around the outside wheels as seen below. **Failure to follow these instructions can result in property damage or equipment damage.**

WHEEL BRACKET PICTURE 1
(Shown with 2 bottom wheels)

5	Pull the transfer belt over the wheels.
6	Follow these steps in reverse to install the wheel bracket.

Maintenance video is available: https://Fortna-conveyor.com (How to replace a transfer belt)

⚠WARNING	
	Warning! • Do not perform maintenance on the conveyor until the start-up controls, including motor safety switches, are locked out and cannot be turned by any person other than the one performing the maintenance. • If more than one member of a crew is working on the conveyor, **EACH CREW MEMBER MUST HAVE A PADLOCK ON THE POWER LOCK OUT.** The air pressure must be turned off to the work area. All pneumatic devices must be de-energized to prevent accidental cycling of the device. • Check the loosened parts have been retightened and all guards reinstalled. • Make sure personnel are clear of all conveyor equipment before restarting the system. • Allow sufficent time for brake resistor to cool before working on motor.
Indicates a medium level potentially hazardous situation that, if not avoided, could result in death or serious injury.	

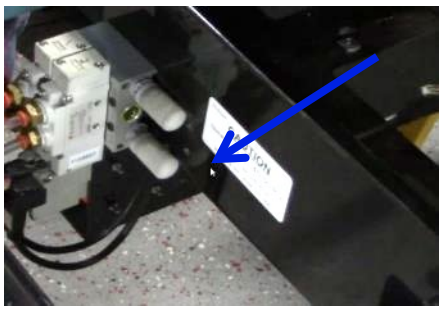
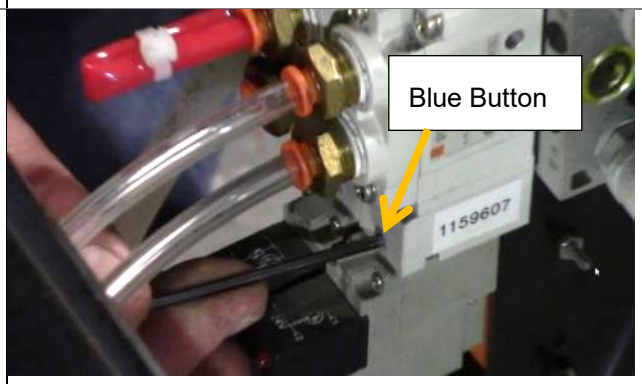
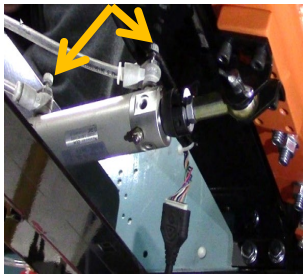
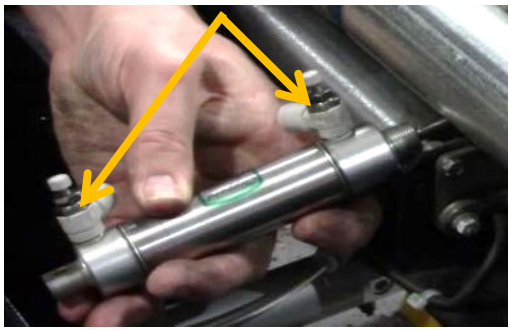
10.11 How to Adjust IntelliROL Wheel Divert Cylinders

10.11.1 PPE & Tools Required

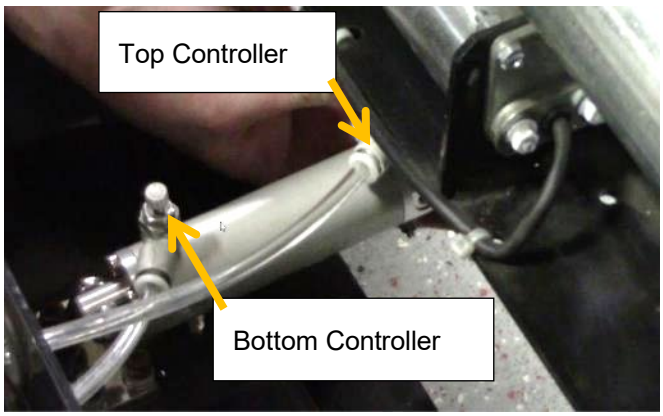
DIRECTION - INTELLIROL WHEEL DIVERTER	
No of required operators	No. 1 Maintenance Engineer
PPE required	
Tools to be used	1. Channellock or pliers – Used to pull and remove rollers 2. Optional putty knife -This tool protects the inner side channel surface while guiding the axle to the hex hole. 3. Allen wrench – Used to push in solenoid control 4. Adjustable wrench – Used to loosen flow control nuts

(WT-LT-017) How to Adjust IntelliROL wheel Divert Cylinders

After the IntelliROL Wheel Diverter is installed, it is important to adjust the flow controllers on the cylinders.

STEPS	DIRECTIONS	PICTURE
1	Make sure the air pressure is set to 3.1-3.4 bar.	
2	Cycle the wheel bracket by pushing the blue button on the solenoid. If the cylinder is “slamming” up or down, you will need to adjust the flow controls.	
3	Locate the flow controls on the cylinders.	 
4	Loosen the jam nuts on both of the flow controllers. **Note**! This cylinder is removed for clarity.	

Original language is English

STEPS	DIRECTIONS	PICTURE
5	The top flow controller controls the “up stroke,” and the bottom controller controls the “down stroke.” Adjust the controllers accordingly so the wheel bracket is **not** “slamming” up or down.	
6	After the proper adjustments are made, tighten the jam nuts on the flow controllers. **Note! Do not overtighten.**	

Maintenance video is available: https://Fortna-conveyor.com (Adjust IntelliROL wheel Divert Cylinders)

10.12 IntelliROL Troubleshooting Guide

	PROBLEM	POSSIBLE CAUSE	REMEDY
1.	**POWER ROLLER DOES NOT TURN**	IntelliROL roller not properly installed	Check that the Power Roller is properly inserted into the frame. Adjust as necessary
			Check the tube and end caps are not contacting the frame, side rails, or other parts. Power Roller should be allowed to move freely
		Too many carrying rollers connected to drive roller	Inspect MDR zone to ensure proper number of idlers is adequate related to the Powered Roller. Refer to IOM Manual for additional information
		Power Cable extensively twisted	Inspect cable for kinks or cracks in wiring.
		Check that the Power Roller's shafts are properly mounted with the applicable bracket(s). Proper mounting is required for tube rotation.	For AD series motors one bracket securing the cable side shaft.
		When O-ring driving idler rollers check that, the number of idlers driven is adequate for the particular model of Power Roller being used.	
		Check that the power cable is in good condition, with no twisting or severe kinks in the cable that would indicate broken wires. Also, check for any cuts in the power cable or wires near the connector end.	Locate and correct interference
			Install belt properly
2.	**ROLLER'S "DANCING" OR SPINNING UNCONTROLLABLY**	Too many zones on one IntelliROL control circuit	Set direction blocking dip switch setting. Refer to IOM Manual for additional information.
		Power Supply not centered within the string of zones	Locate and Adjust Power Supply to correct current supply issue
		Supply of power not equally distributed	Set card to Basic Accumulation. Refer to IOM Manual for additional information.
		Mixture of driver cards	Within the IntelliROL transportation product line, you can only use FP or FN cards within a string. Reference IOM Manual for additional information
		Power Supply Issue	If power supply is not purchased from FORTNA, please consult Manufacturers operation directions.
		Multiple connected Power Supply units	0V line of all power supplies connected within a conveyor "unit" need to be

	PROBLEM	POSSIBLE CAUSE	REMEDY
			connected. Reference IOM for additional detailed information
3.	INFEED ZONE NOT ACTIVATING OR RUNNING	Need input signal	Install FORTNA start eye kit, or provide 24V run signal
		Loose connection between driver cards	Inspect, and adjust, connection cables as necessary
4.	DISCHARGE ZONE NOT RELEASING	Down flow sending not providing “release” signal	Make sure photo eye and reflector are in alignment
		No “release” signal being provided	Use PLC connection, or Photo Eye & Reflector to provide zone with discharge open signal.
5.	ONE ZONE NOT TURNING	Loose wire connection	Check all stranded wires to ensure they are inserted properly
		Loose connector cable	Check all quick connection within power harness to ensure they are properly connected.
6.	DRIVER CARD CONTINUOUSLY FAULTING	Poor supply of power	Inspect to see if power supply is transmitting correct voltage
		Power Supply unit not wired correctly to the 24V supply line	Inspect termination points to ensure proper wiring. Adjust accordingly. Reference IOM Manual for additional information.
		Bad bearing in wheel bracket or carrying roller	Replace worn out component to relieve the extra stress on IntelliROL roller.
7.	ROLLERS ARE TURNING SLOWLY	Too many zones are connected to the Power Supply unit	Consult IOM Manual to ensure the proper configuration between Driver Cards and Power Supply unit.
		Wrong dip switch setting on driver card	Check dip switch setting of 1-6 is properly set to OFF for internal speed (rotary switch control) Refer to IOM Manual for additional settings.
8.	DRIVER CARDS FAULTING REGULARLY IN UBT	Programming issue. Transfer belt rollers running 24/7	IntelliROL rollers driving the transfer bands only need to run when signal is provided to UBT to divert product.
9.	THERMAL LIMIT REACHED	Driver Card or Roller is over heating	Check the ambient temperature. Consult IOM Manual for acceptable temperature ranges
		Excess friction or drag on motorized roller	Inspect mounting plate/conveyor surface to ensure complete surface connection for maximum heat dissipation.

	PROBLEM	POSSIBLE CAUSE	REMEDY
			Inspect area around roller to ensure nothing is rubber or lodged by the roller causing extra friction.

11 Replacement Parts & Identification

This section is used to identify parts that may require replacement during the life of the conveyor. Parts, which specifically pertain to FORTNA conveyors, are included with illustrations. A "Recommended Spare Parts List" is published for all conveyor orders of $20,000. The spare parts list is sent to the purchaser approximately (2) weeks after the order is received. It includes part numbers, description, pricing, and SP Class (“A,” “B,” & “C”) along with the recommended quantities to be kept on hand for maintenance. If you are unable to locate this document, another may be obtained by contacting the FORTNA Lifetime Performance Services at 231-798-4547.

11.1 Spare Parts Priority Level Explanations (SP Class)

Level #1

Failure of a priority level #1 spare part (“A” level part) may cause major disruption of system performance.

Priority level 1 spare parts **must be on-hand**, and available to be replaced in the event of a component failure that could shut down a critical function of a conveyor system.

Priority level 1 spare parts include motors, gear reducers, gearmotor, motorized rollers, air solenoid valves, and related components. The majority of these parts are purchased from FORTNA vendors and carry their own warranties through these vendors. For more warranty information, see FORTNA Equipment Warranty.

Level #2

Failure of a priority level #2 spare parts (“B” level part) usually is gradual and should not cause a major system disruption.

Priority level 2 spare parts are parts required for smooth system operation and preventative or regular mechanical maintenance.

Priority level 2 spare parts include roller chain, sprockets, belt pulleys, rollers, air cylinders, and other related parts whose failure should not stop a conveyor system suddenly. These parts tend to wear out gradually and are not known to fail suddenly.

Level #3

Priority level #3 parts (“C” level part) rarely fails and are easily obtainable.

Priority level 3 spare parts are parts that rarely fail or maybe optionally used by the customer.

11.2 Replacement Parts – Pulseroller No Groove

REPLACEMENT PARTS for PULSEROLLER, NO GROOVE, MOTORIZED ROLLER					
ITEM #	**DESCRIPTION**	**SPEED**	**(1) FIXING BRKT-METRIC-HEX AXLE-UP**	**REPLACEMENT ROLLERS**	**DESCRIPTION**
1227769	ROLLER, ASY ITR 24BF NG	35	FLAT UP	1227768	ROLLER, ITR 24BF NO GROOVE
1227022	ROLLER, ASY ITR 24BF NG	45	FLAT UP	1227020	ROLLER, ITR 24BF NO GROOVE
					Reference DWG 23D1227020

11.3 Replacement Parts – Pulseroller No Groove

REPLACEMENT PARTS for PULSEROLLER, NO GROOVE, MOTORIZED ROLLER					
Item #	**Description**	**Speed**	**(1) Fixing Brkt. Metric-Hex Axle-Up**	**Replacement Rollers**	**Description**
1226722	ROLLER, ASY ITR 24BF NG	35	FLAT UP	1226426	ROLLER, ITR 24BF NO GROOVE
1226949	ROLLER, ASY ITR 24BF NG	45	FLAT UP	1226948	ROLLER, ITR 24BF NO GROOVE
1226722	ROLLER, ASY ITR 24BF NG	60	FLAT UP	1226421	ROLLER, ITR 16BF NO GROOVE
1226722	ROLLER, ASY ITR 24BF NG	60	FLAT UP	1226422	ROLLER, ITR 22BF NO GROOVE
1226722	ROLLER, ASY ITR 24BF NG	60	FLAT UP	1226423	ROLLER, ITR 28BF NO GROOVE
1226722	ROLLER, ASY ITR 24BF NG	60	FLAT UP	1226424	ROLLER, ITR 34BF 2 GROOVE
					Reference DWG 23D1226426

11.4 Replacement Parts – Pulseroller with Poly-V Insert

REPLACEMENT PARTS for PULSEROLLER WITH POLY-V INSERT					
Item #	**Description**	**Speed**	**(1) Fixing Brkt. Metric-Hex Axle-Up**	**Replacement Rollers**	**Description**
1227108	ROLLER, ASY ITR 16BF VG	35	FLAT UP	1227105	ROLLER, ITR 16BF POLY-V-INSERT
1227109	ROLLER, ASY ITR 22BF VG	35	FLAT UP	1227106	ROLLER, ITR 22BF POLY-V-INSERT
1227110	ROLLER, ASY ITR 28BF VG	35	FLAT UP	1227107	ROLLER, ITR 28BF POLY-V-INSERT
1226521	ROLLER, ASY ITR 16BF VG	60	FLAT UP	1226428	ROLLER, ITR 16BF POLY-V-INSERT
1226522	ROLLER, ASY ITR 22BF VG	60	FLAT UP	1226429	ROLLER, ITR 22BF POLY-V-INSERT
1226523	ROLLER, ASY ITR 28BF VG	60	FLAT UP	1226430	ROLLER, ITR 28BF POLY-V-INSERT
					Reference DWG 23D1226428

11.5 Replacement Parts – Pulseroller with Two Grooves

REPLACEMENT PARTS for PULSEROLLER, 2 GROOVE, MOTORIZED ROLLER					
Item #	**Description**	**Speed**	**(1) Fixing Brkt. Metric-Hex Axle-Up**	**Replacement Rollers**	**Description**
1226964	ROLLER, ASY ITR 16BF 2G	45	FLAT UP	1226960	ROLLER, ITR 16BF 2 GROOVE
1226965	ROLLER, ASY ITR 22BF 2G	45	FLAT UP	1226961	ROLLER, ITR 22BF 2 GROOVE
1226966	ROLLER, ASY ITR 28BF 2G	45	FLAT UP	1226962	ROLLER, ITR 28BF 2 GROOVE
1226967	ROLLER, ASY ITR 34BF 2G	45	FLAT UP	1226963	ROLLER, ITR 34BF 2 GROOVE
1226515	ROLLER, ASY ITR 16BF 2G	60	FLAT UP	1226415	ROLLER, ITR 16BF 2 GROOVE
1226516	ROLLER, ASY ITR 22BF 2G	60	FLAT UP	1226416	ROLLER, ITR 22BF 2 GROOVE
1226517	ROLLER, ASY ITR 28BF 2G	60	FLAT UP	1226417	ROLLER, ITR 28BF 2 GROOVE
1226518	ROLLER, ASY ITR 34BF 2G	60	FLAT UP	1226418	ROLLER, ITR 34BF 2 GROOVE
					1Reference DWG 23D1226415

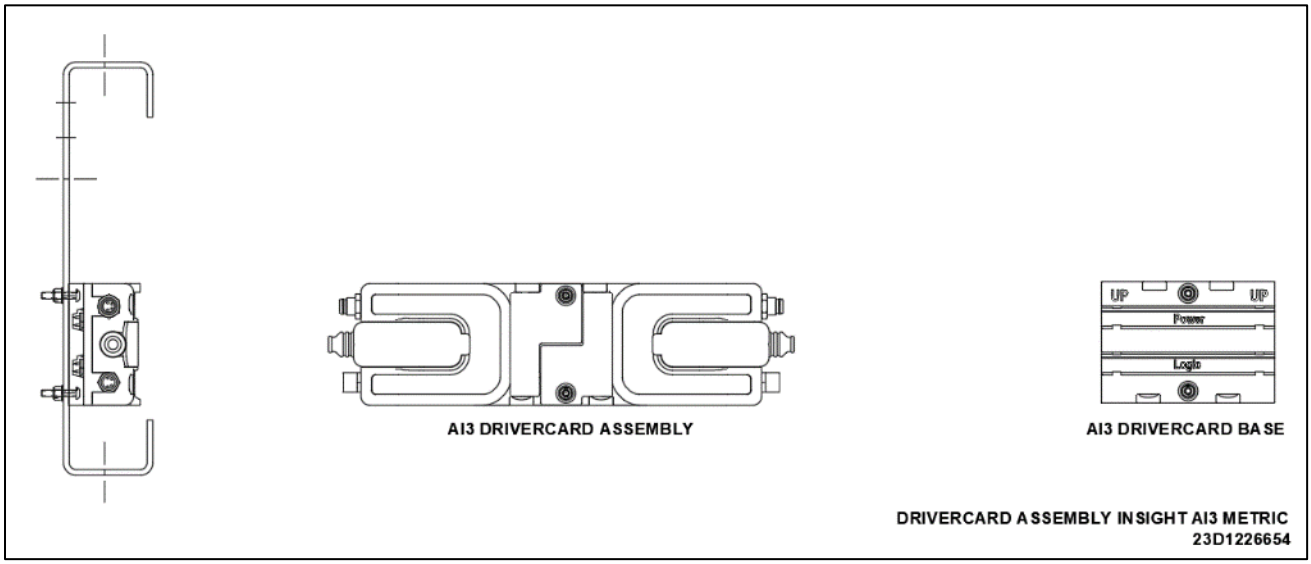
11.6 Replacement Parts – Pulseroller Two Grooves - Coated

REPLACEMENT PARTS for PULSEROLLER, 2 GROOVE, MOTORIZED ROLLER COATED					
Item #	**Description**	**Speed**	**(1) Fixing Brkt. Metric-Hex Axle-Up**	**Replacement Rollers**	**Description**
1226972	ROLLER, ITR 16BF 2G COATED ROLLERS	45	FLAT UP	1226968	ROLLER, ITR 16BF 2 GROOVE COATED ROLLERS
1226973	ROLLER, ITR 22BF 2G COATED ROLLERS	45	FLAT UP	1226969	ROLLER, ITR 22BF 2 GROOVE COATED ROLLERS
1226974	ROLLER, ITR 28BF G COATED ROLLERS	45	FLAT UP	1226970	ROLLER, ITR 28BF 2 GROOVE COATED ROLLERS
1226975	ROLLER, ITR 34BF 2G COATED ROLLERS	45	FLAT UP	1226971	ROLLER, ITR 34BF 2 GROOVE COATED ROLLERS
1226617	ROLLER, ITR 16BF 2G COATED ROLLERS	60	FLAT UP	1226613	ROLLER, ITR 16BF 2 GROOVE COATED ROLLERS
1226618	ROLLER, ITR 22BF 2G COATED ROLLERS	60	FLAT UP	1226614	ROLLER, ITR 22BF 2 GROOVE COATED ROLLERS
1226619	ROLLER, ITR 28BF 2G COATED ROLLERS	60	FLAT UP	1226615	ROLLER, ITR 28BF 2 GROOVE COATED ROLLERS
1226620	ROLLER, ITR 34BF 2G COATED ROLLERS	60	FLAT UP	1226616	ROLLER, ITR 34BF 2 GROOVE COATED ROLLERS
					Reference DWG 23D1226415

11.7 Replacement Parts – Drive O-rings

REPLACEMENT PARTS - DRIVE O-RINGS			
Item #	**Description**	**Roller Centers**	**Application**
E0005536	ORING,3/16DIA X 9.5" HT BLUE ITR 3"CTR	3"	STRAIGHT
1142656	ORING,3/16 DIA X 7-3/4" HT BLUE ITR 2"CTR	2"	STRAIGHT
1137420	ORING,3/16 DIA X 8.688 HT BLUE	2.50"	STRAIGHT
1127703	ORING,3/16 DIA X 11" HT BLUE ITR 4"CTR	4"	STRAIGHT
1102748	ORING,.210" DIA X 9.4" HT RED	3"	CURVE
1102845	ORING,.210" DIA. X 11.5" HT RED	4.27"	CURVE DRIVE
1103665	ORING,3/16" DIA X 13” HT BLUE	N/A	SPUR (Clockwise Twist)
1133173	ORING,88A .218" DIA X 20-1/2" BLACK	N/A	UBT (Clockwise Twist)

11.8 Pulseroller Drivercard

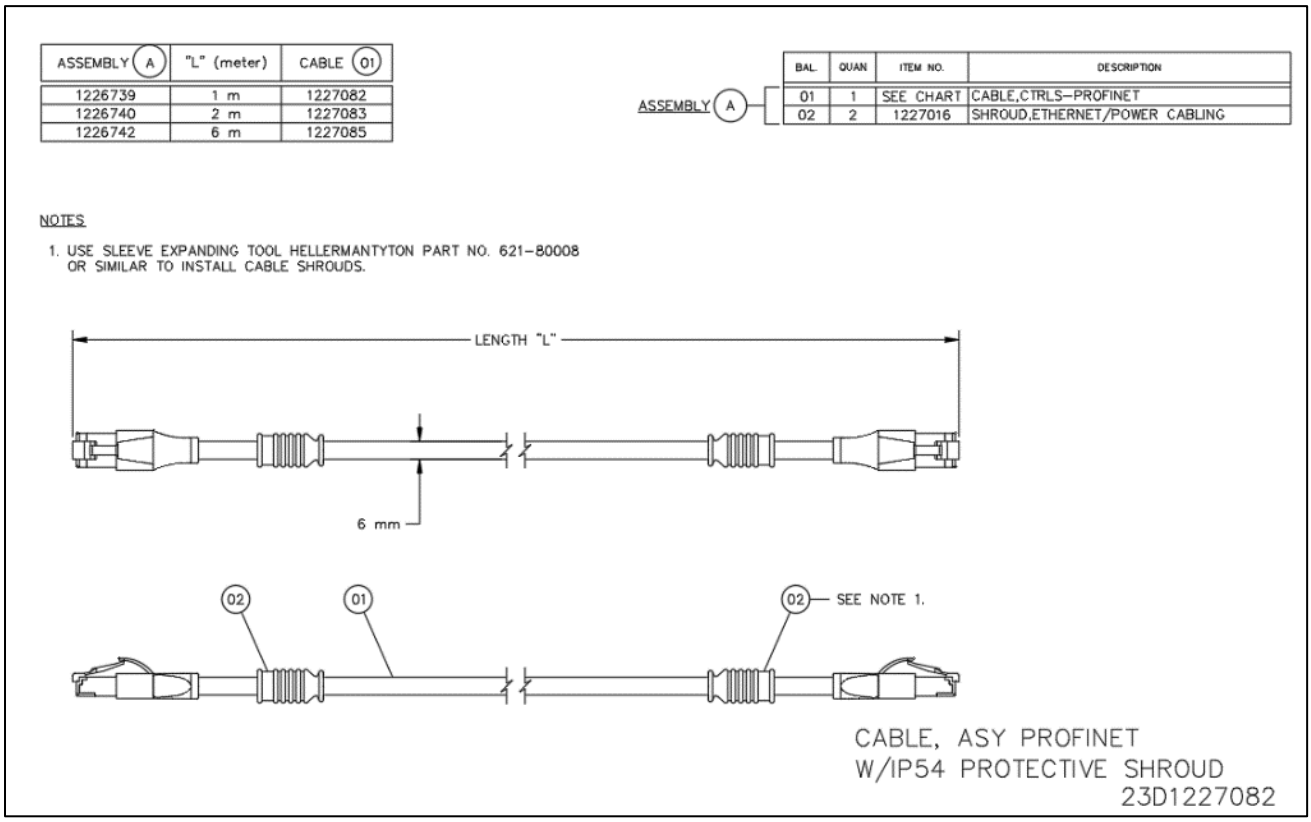


ITR beds are shipped with the AI3 Drivercard base attached only for installation convenience. See above for difference in appearance. When ordering replacement drivercards, it is recommended to order the complete drivercard assembly, PN 1227171

11.8.1 Replacement Parts- Pulseroller AI3 Drivercard

REPLACEMENT PARTS for DRIVERCARD AI3	
ITEM #	**Description**
1227171	DRIVERCARD, INSIGHT AI3-24-FC-CARD AND SHUTTER DOORS-CONVEYLINX 2 ZONE ENET

11.9 Replacement Parts - Communication Cables



11.9.1 Replacement Part – Communication Cables

COMMUNICATION CABLE ASSEMBLY	
Item No.	**Description**
1228373	CABLE, ASY PROFINET, 0.5M-W/IP54 PROTECTIVE SHROUDS
1226739	CABLE, ASY PROFINET, 1M-W/IP54 PROTECTIVE SHROUDS
1226740	CABLE, ASY PROFINET, 2M-W/IP54 PROTECTIVE SHROUDS
1226742	CABLE, ASY PROFINET, 6M-W/IP54 PROTECTIVE SHROUDS

COMMUNICATION CABLES ONLY	
Item No.	**Description**
1228372	CABLE, CTRLS-PROFINET-0.5M
1227082	CABLE, CTRLS-PROFINET-1M
1227083	CABLE, CTRLS-PROFINET-2M
1227085	CABLE, CTRLS-PROFINET-6M

11.10 Replacement Parts - Cable Motor Extensions

MOTOR EXTENSION CABLES	
Item No.	**Description**
1226743	CABLE, MOTOR EXTENSION,300MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/0.3M-**NO SUBSTITUTION**
1226744	CABLE, MOTOR EXTENSION,1000MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/1.0M-**NO SUBSTITUTION**
1226745	CABLE, MOTOR EXTENSION,2000MM-M-F M8 CONN- USE INSIGHT RLLR-RSMV 4-RKMV 4-225/2.0M-**NO SUBSTITUTION**

11.11 Coated Rollers

COATED ROLLERS	
Item No.	**Description**
Non-Motorized Roller	
1134693	ROLLER,18ITR 1.9CTD PRBG-1/8"BLK URE SLV (16BF)
1132204	ROLLER,24ITR 1.9CTD PRBG-1/8"BLK URE SLV (22BF)
1131724	ROLLER,30ITR 1.9CTD PRBG-1/8"BLK URE SLV (28BF)
1140369	ROLLER,36ITR 1.9CTD PRBG-1/8"BLK URE SLV (34BF)

11.12 Replacement Parts – IntelliROL Additional Power Harness

INTELLIROL 24VDC POWER HARNESS - INCLINE & DECLINE INCLINE BED, POWER HARNESS 24" & 30" ZONES		
Item No.	**Description**	**Application**
1227263	CABLE, ASI, 2COND, 14AWG-AUX POWER, CODED FLAT MEDIA-BLACK CABLE JACKET	24VDC POWER CABLE TO DRIVER CARDS

11.13 Replacement Parts – Shrouds

CRUZchannel SHROUD 5' Long (ONE SIDE)		
Part Number	**Description**	**Approx. Weight (Lbs.)**
1229873	SHROUD, ACC-ITR-5'-W/WARNING LABEL-CZ CHANNEL-METRIC	2
1207829	SHROUD, ACC-CZ-5'-W/FORTNA LABEL	2
1118558	SHROUD, ACC-CZ-5'-L/LABEL	2

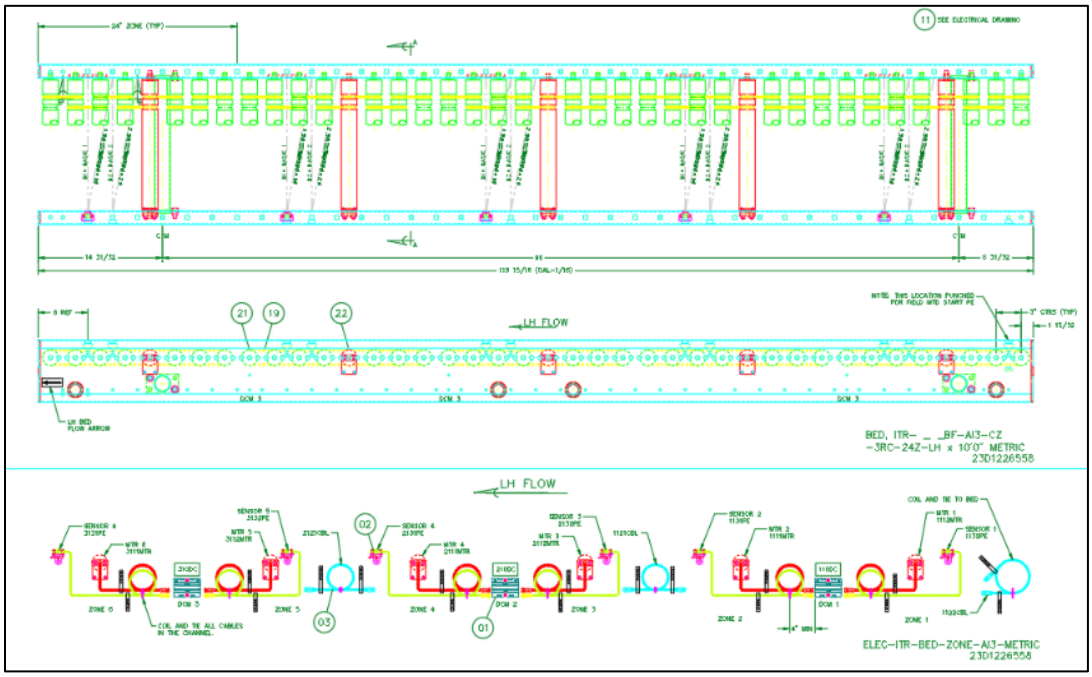
C6 Channel SHROUD 5' Long (ONE SIDE)		
Part Number	**Description**	**Approx. Weight (Lbs.)**
1229869	KIT, ACC-SHRD-C6-5'-W/WARNING LABEL-METRIC	2
1158488	KIT, ACC-SHRD-C6-5'-L/LABEL	2
1207889	KIT, ACC-SHRD-C6-5'-W/FORTNA LABEL	2

IntelliROL GATE SHROUD (BOTH SIDES)		
Part Number	**Description**	**Approx. Weight (Lbs.)**
1229870	KIT, ACC-SHRD-ITR GATE-39"-W/WARNING LABEL-METRIC	2

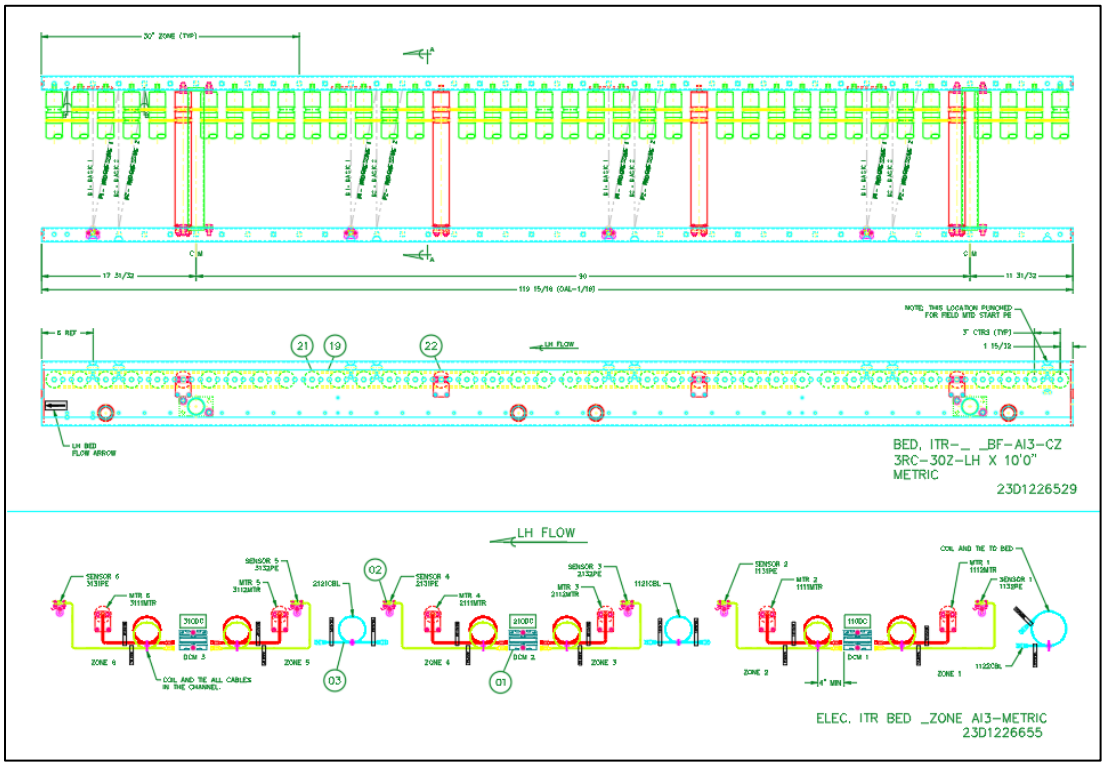
IntelliROL GATE SHROUD (FOR EACH INDIVIDUAL SIDE)		
Part Number	**Description**	**Approx. Weight (Lbs.)**
1229871	KIT, ACC-SHRD-ITR GATE-39" LH-W/WARNING LABEL-METRIC	2
1229872	KIT, ACC-SHRD-ITR GATE-39" RH-W/WARNING LABEL-METRIC	2

11.14 Accumulation Straight Bed Zone

11.14.1 Straight Bed 24” Zone



11.14.2 Straight Bed 30” Zone

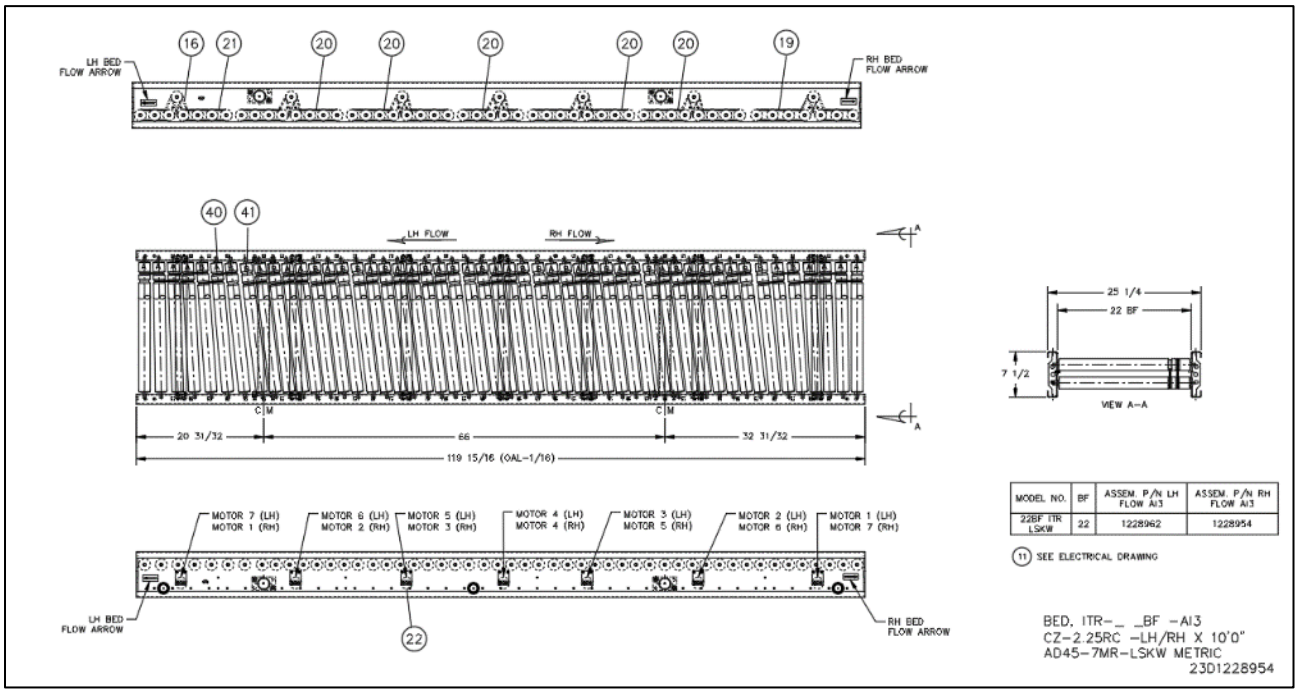


Original language is English

11.14.3 Replacement Parts – IntelliROL Accumulation Straight Bed

REPLACEMENT PARTS - INTELLIROL ACCUMULATION STRAIGHT BED					
BED, ITR-__BF-AI3-CZ-3RC--LH/RH-3MR-METRIC		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**	**----**
01	DRIVERCARD, INSIGHT, AI3-24-FC	1227171	1227171	1227171	1227171
02	PE, REFLEX TYPE ZL, PNP, LIGHT OP,2M CABLE	1226404	1226404	1226404	1226404
02	PE, REFLECTOR 4-3/8" X 1-1/8"	400004	400004	400004	400004
20	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740	1226740
----	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
----	SHROUD, ETHERNET/POWER CABLING, IP54 PROTECTION	1227016	1227016	1227016	1227016
----	**ITR COMPONENTS**	**----**	**----**	**----**	**----**
19	ORING, 3/16DIA X 9.5" HT BLUE, ITR 3"CTR	E0005536	E0005536	E0005536	E0005536
21	ROLLER, 18ITR 1.9PLTD PRBG	E0002412	E0002413	E0002414	E0006220
22	ROLLER, ITR __BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
Reference Dwg 23D1226558, 23D1226666 & 23D1226662					

11.15 IntelliROL Skew Bed

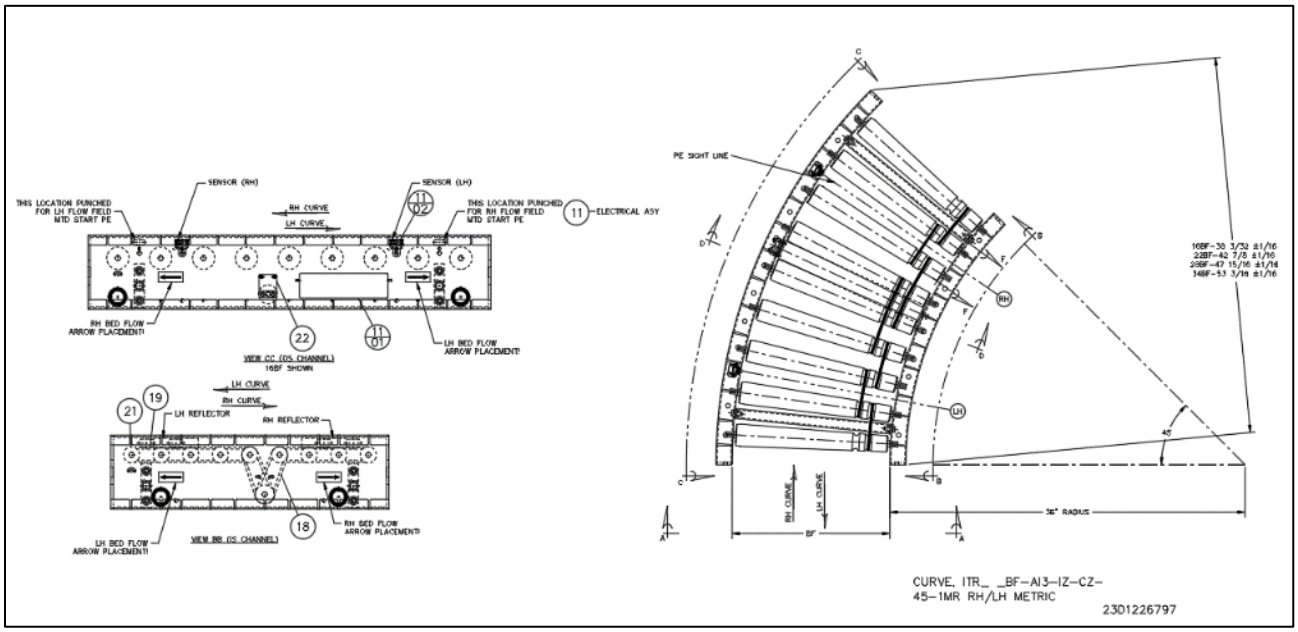


11.15.1 Replacement Parts - IntelliROL Skew Bed

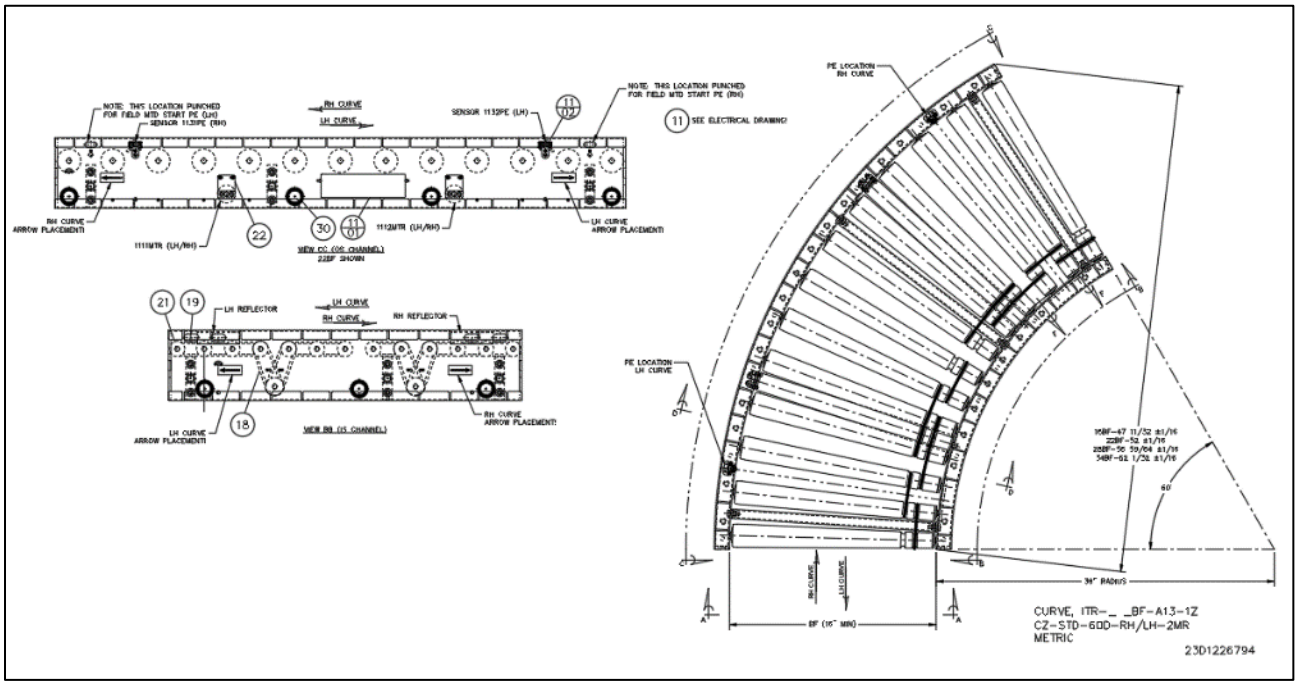
REPLACEMENT PARTS - IntelliROL SKEW BEDS, 2.25RC, FE60					
BED, ITR-_ _BF-AI3-CZ-225RC-17RG-LH or RH-10'0"-AD45-7MR-LSKW-METRIC-LESS GUARDRAIL		**Width & Item #**			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
16	ORING,.210 DIA X 10.0" HT RED	1130498	1130498	1130498	1130498
19	ORING,.210 DIA X 8.875" HT RED	1221206	1221206	1221206	1221206
20	ORING,.210 DIA X 8.25" HT RED	1194480	1194480	1194480	1194480
21	ORING,.210 DIA X 8.5" HT RED	1116838	1116838	1116838	1116838
22	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
40	ROLLER, _ _BF ITR SKEW, STYLE A	1220696	1220698	1220700	1220702
41	ROLLER, _ _BF ITR SKEW, STYLE B	1220697	1220699	1220701	1220703
----	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
----	CABLE, ASY PROFINET, 2M	1226740	1226740	1226740	1226740
Reference Dwg: 23D1228954					

11.16 IntelliROL Accumulation Curves

11.16.1 IntelliROL Cruz Channel Accumulating 45 Degree Curve

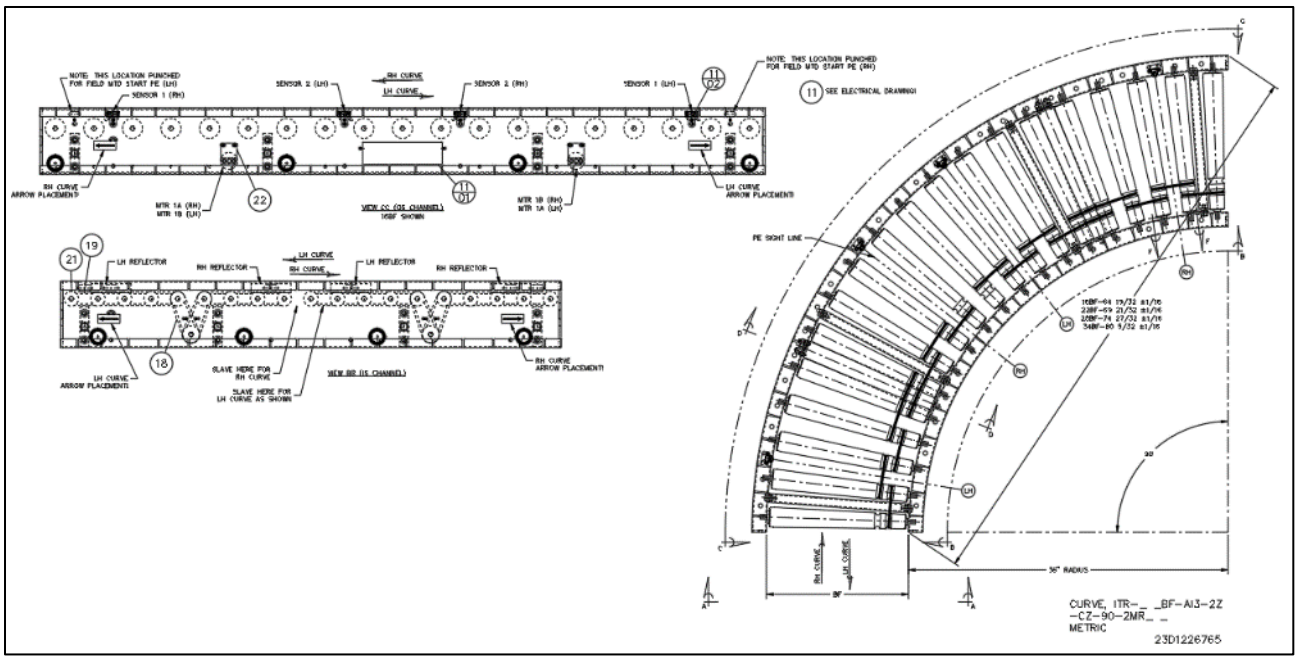


11.16.2 IntelliROL Cruz Channel Accumulating 60 Degree Curve



Original language is English

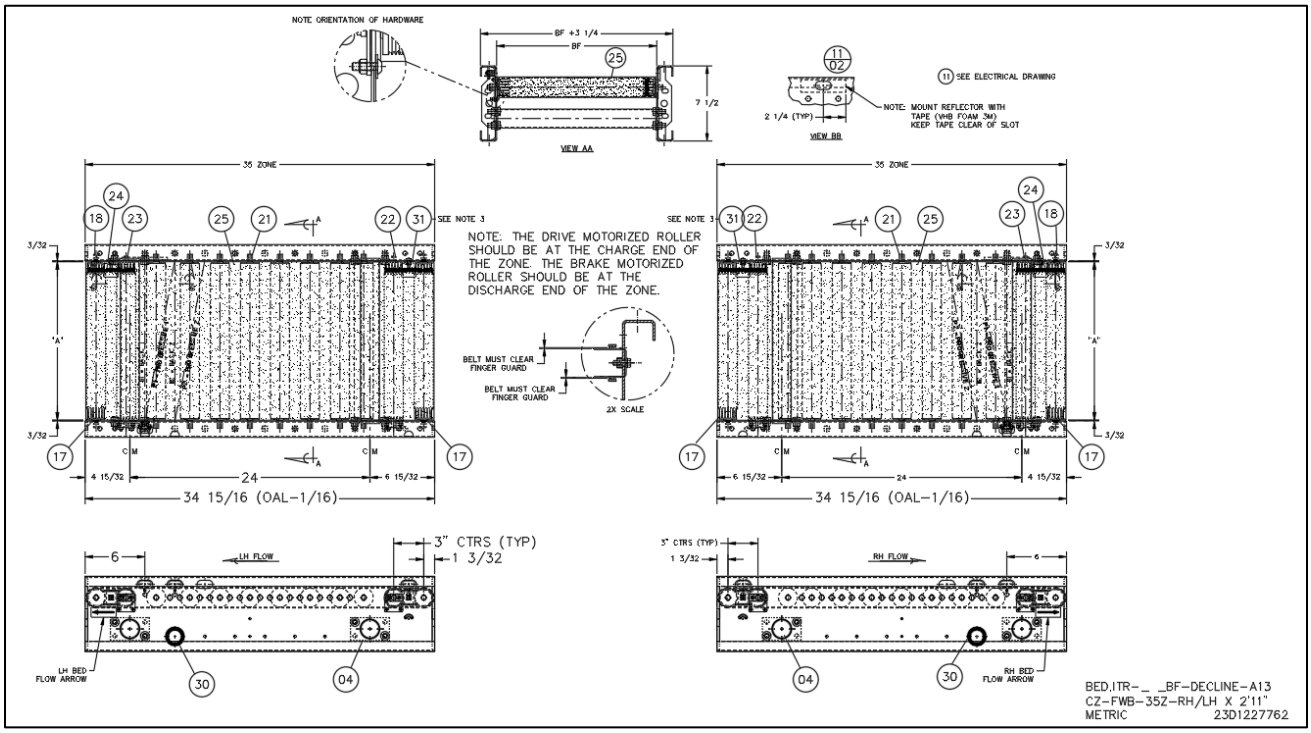
11.16.3 IntelliROL Cruz Channel Accumulating 90 Degree Curve



11.16.4 Replacement Parts – IntelliROL Accumulation Curve, AI3, 45, 60, 90 Degrees

REPLACEMENT PARTS - IntelliROL ACCUMULATION CURVES, STANDARD AI3, 45, 60, & 90 DEGREES					
CURVE, ITR-_ _BF-AI3-CZ-STD-45, 60, & 90D-METRIC-LH/RH		**Width & Item #**			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**	**----**
11/01	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404	1226404
11/02	PE, REFLECTOR 4-3/8" X 1-1/8"	400004	400004	400004	400004
----	CABLE, ASY PROFINET, 2M W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740	1226740
----	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
----	SHROUD, ETHERNET/POWER CABLING IP54 PROTECTION	1227016	1227016	1227016	1227016
----	**ITR COMPONENTS**	**----**	**----**	**----**	**----**
18	ORING,.210" DIA. X 11.5" HT RED	1102845	1102845	1102845	1102845
19	ORING,.210" DIA X 9.4" HT RED	1102748	1102748	1102748	1102748
21	ROLLER, W TT ITR 2 GRV PRBG	E0009900	E0009901	E0009902	E0009903
22	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
Reference Dwg: Accumulation Curve 23D1226797 & 23D1226794 & 23D1226765					

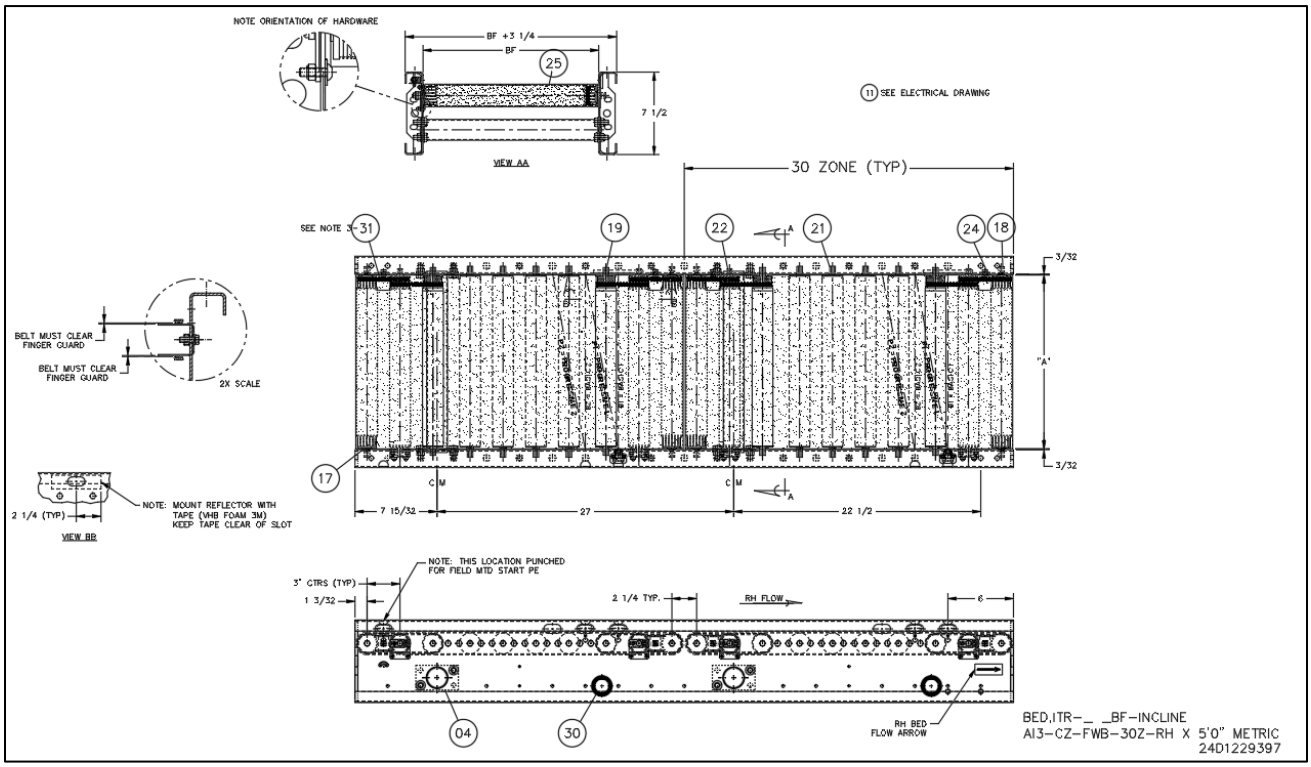
11.17 IntelliROL Horizontal / Decline Bed 30 Zones



11.17.1 Replacement parts – IntelliROL Horizontal / Decline Bed 30 Zone

IntelliROL FUL WIDTH BELT CZ HORIZONTAL / DECLINE BED, 30 ZONE				
BED, ITR-22BF-DECLINE-AI3-CZ-FWB-35Z-LH or RH -2'11"-AD35BR-1MR-METRIC		Width & Item #		
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**
11/20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404
11/02	PE, REFLECTOR W/ FOAM TAPE	1129512	1129512	1129512
----	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740
----	**ITR COMPONENTS**	**----**	**----**	**----**
17	ORING,1/2"ID (3/32 WALL)	90530050	90530050	90530050
18	ROLLER,28BF POLY-V 1.9 PRBG 2D	1208809	1208810	1208811
21	ROLLER,30"GRAV 1.9 PLTD PRBG	60218009	60224009	60230009
22	ROLLER, ITR _ _BF VG PULSEROLLER	1227105	1227106	1227107
23	ROLLER, ITR _ _BF VG PULSEROLLER BRAKE	1227091	1227092	1227093
24	BELT, ITR 3"CTR POLY-V 4RIB	1142087	1142087	1142087
25	BELT, TRAC _ _X_ _X_ _ RIBBED SIDE UP 30” ZONE (ROLLER TO ROLLER)	----	1227694	---
				Reference Dwg:23D1227762

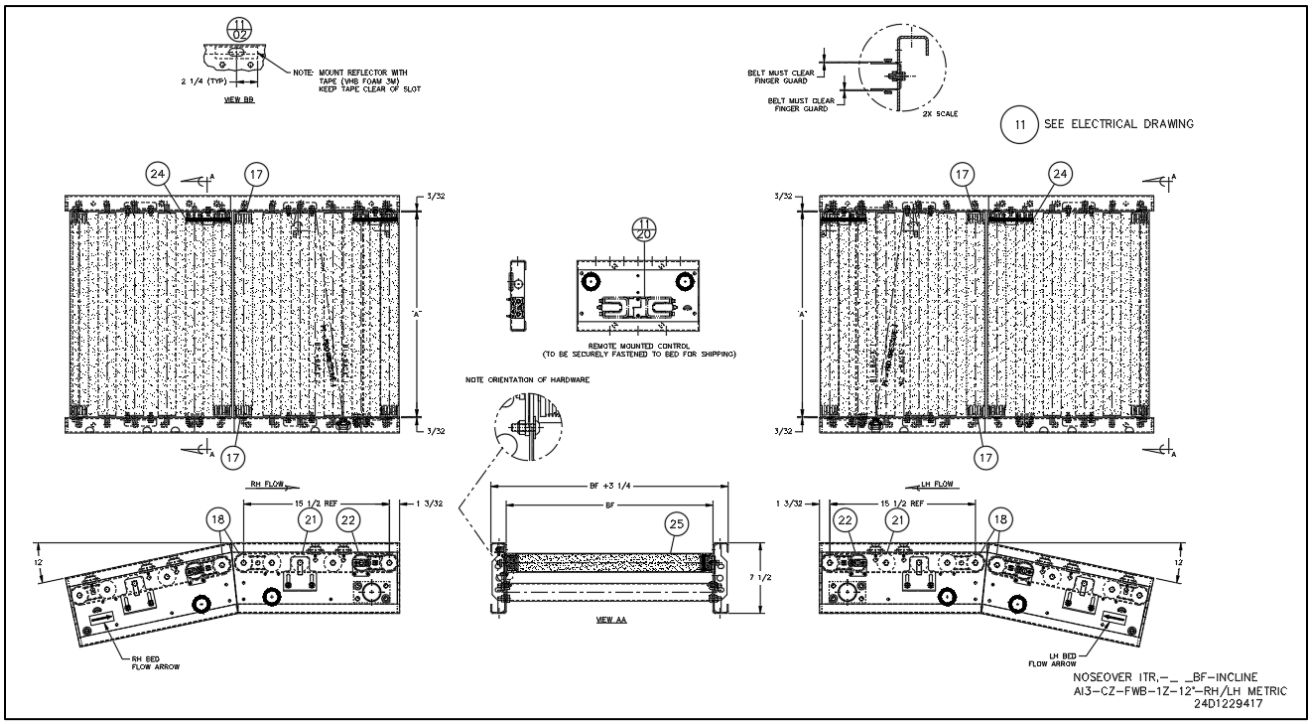
11.18 IntelliROL FWB Horizontal / Incline Bed 24 & 30 Zone



11.18.1 Replacement Parts - ITR FWB Incline Bed 24 & 30 Zone

IntelliROL FUL WIDTH BELT CZ HORIZONTAL / INCLINE BED, 30 ZONE				
BED, ITR-22BF-INCLINE-AI3-CZ-FWB-30Z-RH or LH-5'0"-AD35-4MR-METRIC		Width & Item #		
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**
11/20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404
11/02	PE, REFLECTOR W/ FOAM TAPE	1129512	1129512	1129512
----	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740
----	**ITR COMPONENTS**	**----**	**----**	**----**
17	ORING,1/2"ID (3/32 WALL)	90530050	90530050	90530050
18	ROLLER,28BF POLY-V 1.9 PRBG 2D	1208809	1208810	1208811
21	ROLLER,30"GRAV 1.9 PLTD PRBG	60218009	60224009	60230009
22	ROLLER, ITR _ _BF VG PULSEROLLER	1227105	1227106	1227107
23	ROLLER, ITR _ _BF VG PULSEROLLER BRAKE	1227091	1227092	1227093
24	BELT, ITR 3"CTR POLY-V 4RIB	1142087	1142087	1142087
25	BELT, TRAC _ _X_ _X_ _ RIBBED SIDE UP 30" ZONE (ROLLER TO ROLLER)	----	1227694	---
				Reference Dwg:23D1227762

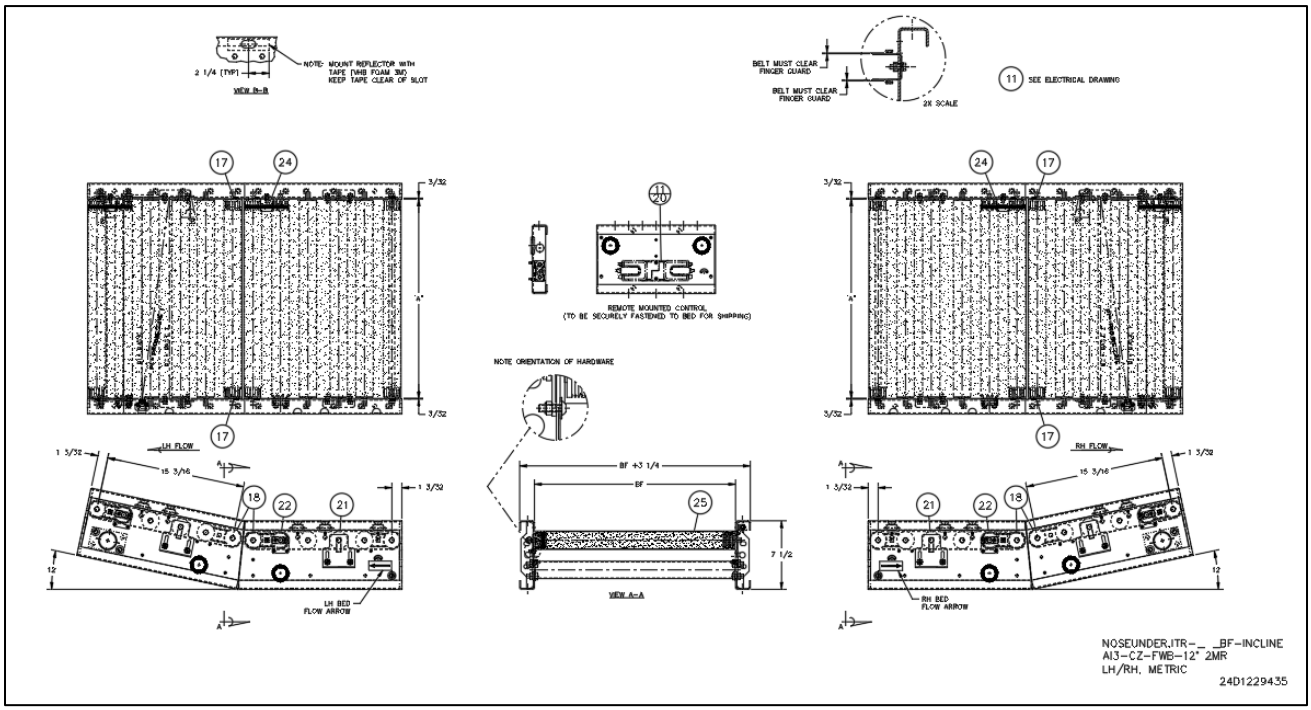
11.19 Noseover Incline (Accumulation)



11.19.1 Replacement Parts- Noseover Incline (Accumulation)

REPLACEMENT PARTS - ITR NOSEOVER INCLINE (ACCUMULATION) 1z – 12D				
NO, ITR-22BF-INCLINE-AI3-CZ-FWB-1Z-12D-RH or LH-AD35-2MR-METRIC		Width & Item #		
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**
11/20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404
11/02	PE, REFLECTOR W/ FOAM TAPE	1129512	1129512	1129512
----	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740
----	**ITR COMPONENTS**	**----**	**----**	**----**
17	ORING,1/2"ID (3/32 WALL)	90530050	90530050	90530050
18	ROLLER,28BF POLY-V 1.9 PRBG 2D	1208809	1208810	1208811
21	ROLLER,30"GRAV 1.9 PLTD PRBG	60218009	60224009	60230009
22	ROLLER, ITR _ _BF VG PULSEROLLER	1227105	1227106	1227107
24	BELT, ITR 3"CTR POLY-V 4RIB	1142087	1142087	1142087
25	BELT, TRAC _ _X_ _X_ _ RIBBED SIDE UP (ROLLER TO ROLLER)	----	1227692	---
				Reference Dwg:24D122914

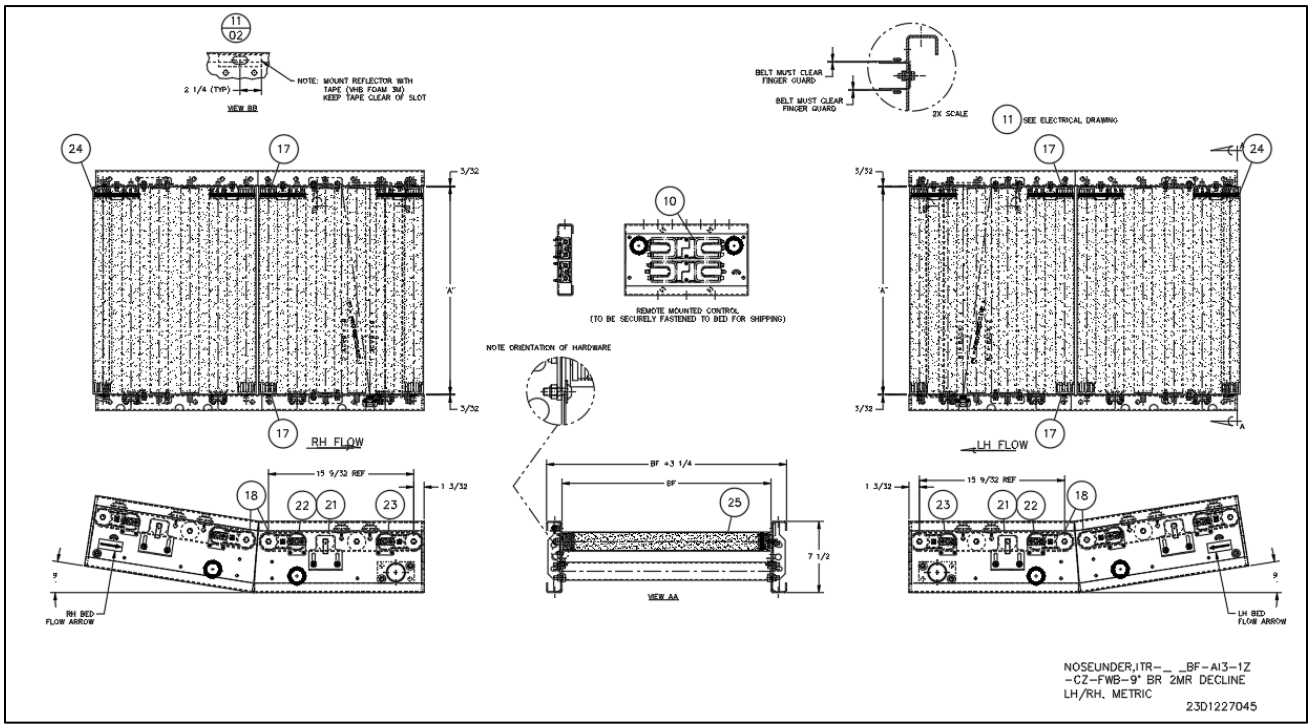
11.1 Noseunder Incline (Accumulation)



11.1.1 Replacement Parts – Noseunder Incline (Accumulation)

REPLACEMENT PARTS - ITR NOSEOVER INCLINE (ACCUMULATION) 1z – 12D				
NO, ITR-22BF-INCLINE-AI3-CZ-FWB-1Z-12D-RH or LH-AD35-2MR-METRIC		Width & Item #		
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**
11/20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404
11/02	PE, REFLECTOR W/ FOAM TAPE	1129512	1129512	1129512
----	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740
----	**ITR COMPONENTS**	**----**	**----**	**----**
17	ORING,1/2"ID (3/32 WALL)	90530050	90530050	90530050
18	ROLLER,28BF POLY-V 1.9 PRBG 2D	1208809	1208810	1208811
21	ROLLER,30"GRAV 1.9 PLTD PRBG	60218009	60224009	60230009
22	ROLLER, ITR _ _BF VG PULSEROLLER	1227105	1227106	1227107
24	BELT, ITR 3"CTR POLY-V 4RIB	1142087	1142087	1142087
25	BELT, TRAC _ _X_ _X_ _ RIBBED SIDE UP (ROLLER TO ROLLER)	----	1227696	---
				Reference Dwg:24D1229435

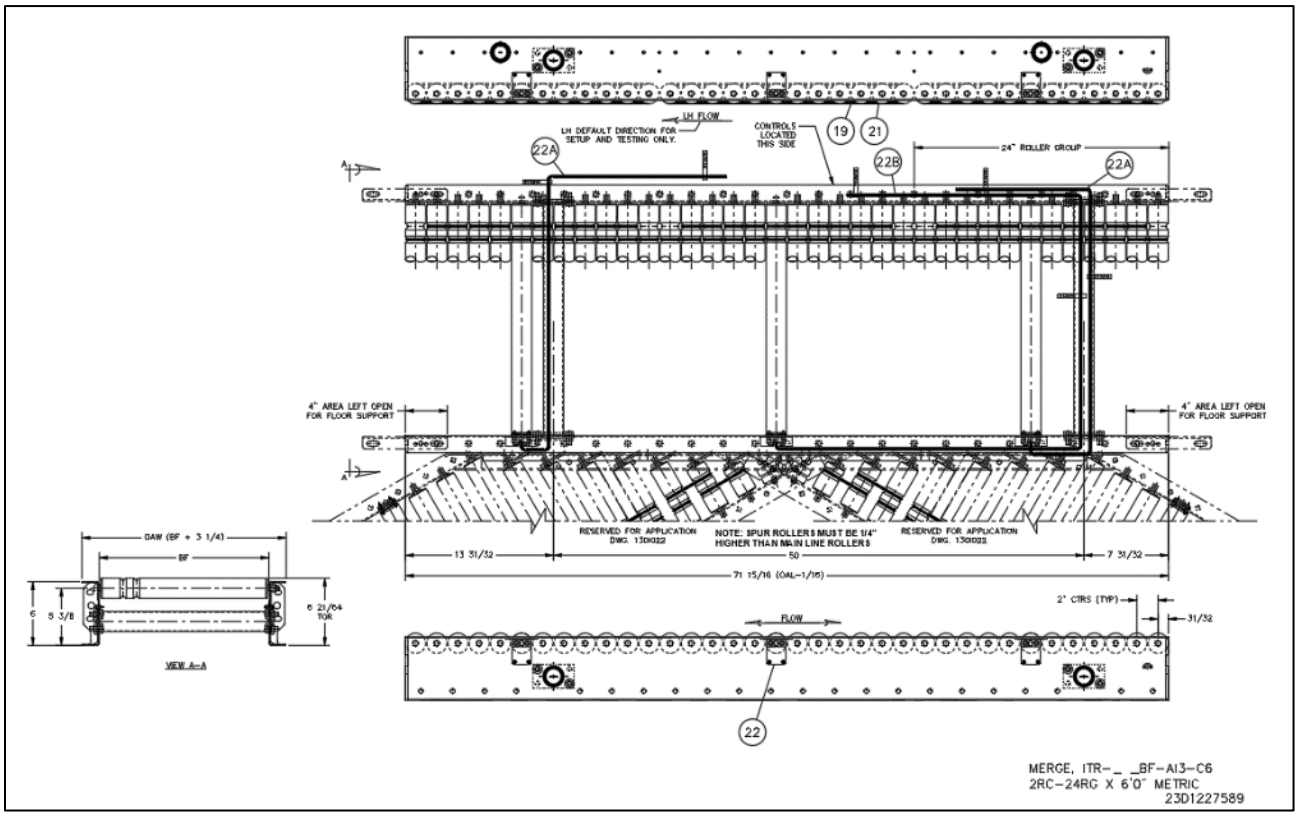
11.2 Noseover Decline (Accumulation)



11.2.1 Replacement Parts- Noseover Decline (Accumulation)

REPLACEMENT PARTS - IntelliROL NOSEOVER DECLINE (ACCUMULATION) 9 & 12 DEGREES				
NU, ITR-22BF-DECLINE-AI3-CZ-FWB-1Z-9D-RH-or LH AD35BR-2MR-METRIC		Width & Item #		
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**
----	**ELECTRICAL COMPONENTS**	**----**	**----**	**----**
11/20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171
11/02	PE, REFLEX TYPE ZL	1226404	1226404	1226404
11/02	PE, REFLECTOR W/ FOAM TAPE	1129512	1129512	1129512
----	CABLE, ASY PROFINET, 2M, W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740
----	**ITR COMPONENTS**	**----**	**----**	**----**
17	ORING,1/2"ID (3/32 WALL)	90530050	90530050	90530050
18	ROLLER,28BF POLY-V 1.9 PRBG 2D	1208809	1208810	1208811
21	ROLLER,30"GRAV 1.9 PLTD PRBG	60218009	60224009	60230009
22	ROLLER, ITR _ _BF VG PULSEROLLER, 600MM CABLE, M8-4PIN INSIGHT	1227105	1227106	1227107
24	BELT, ITR 3"CTR POLY-V 4RIB	1142087	1142087	1142087
25	BELT, TRAC _ _X_ _X_ _ RIBBED SIDE UP (ROLLER TO ROLLER)	----	1227696	---
				Reference Dwg:23D1227045

11.3 IntelliROL Merge



11.3.1 Replacement Parts – IntelliROL Merge

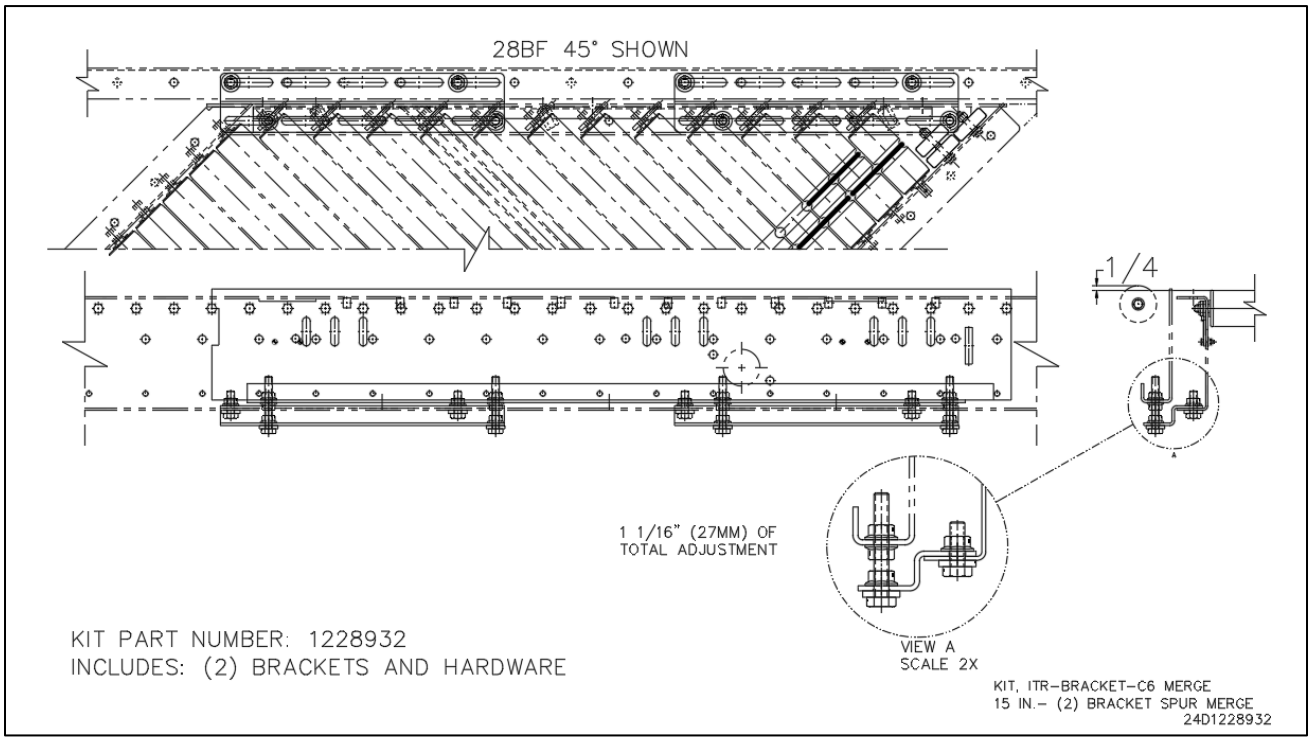
REPLACEMENT PARTS - IntelliROL MERGE					
MERGE, ITR-_ _BF-AI3-C6-2RC-24RG-6'0"-AD45-3MR-METRIC		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
----	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
----	CABLE, ASY PROFINET, 2M W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740	1226740
----	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
----	SHROUD, ETHERNET/POWER CABLING	1227016	1227016	1227016	1227016
19	ORING,3/16DIA X 7-3/4" HT BLUE ITR 2"CTR	1142656	1142656	1142656	1142656
21	ROLLER, _ _ITR 1.9PLTD PRBG	E0002412	E0002413	E0002414	E0006220
22	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
22A	CABLE, MOTOR EXTENSION,1000MM M-F M8 CONN-USE INSIGHT RLLR **NO SUBSTITUTION**	1226744	1226744	1226744	1226744
22B	CABLE, MOTOR EXTENSION,1000MM M-F M8 CONN-USE INSIGHT RLLR **NO SUBSTITUTION**	1226745	1226745	1226745	1226745
Reference Dwg: 23D1227589					

NOTE:

Single bed that does not come with a spur bed but is designed to have a spur mounted to it.
Must use designated bracket FORTNA P/N: 1208351.

Original language is English

11.4 IntelliROL Merge Bracket Kit 30 & 45 Degree

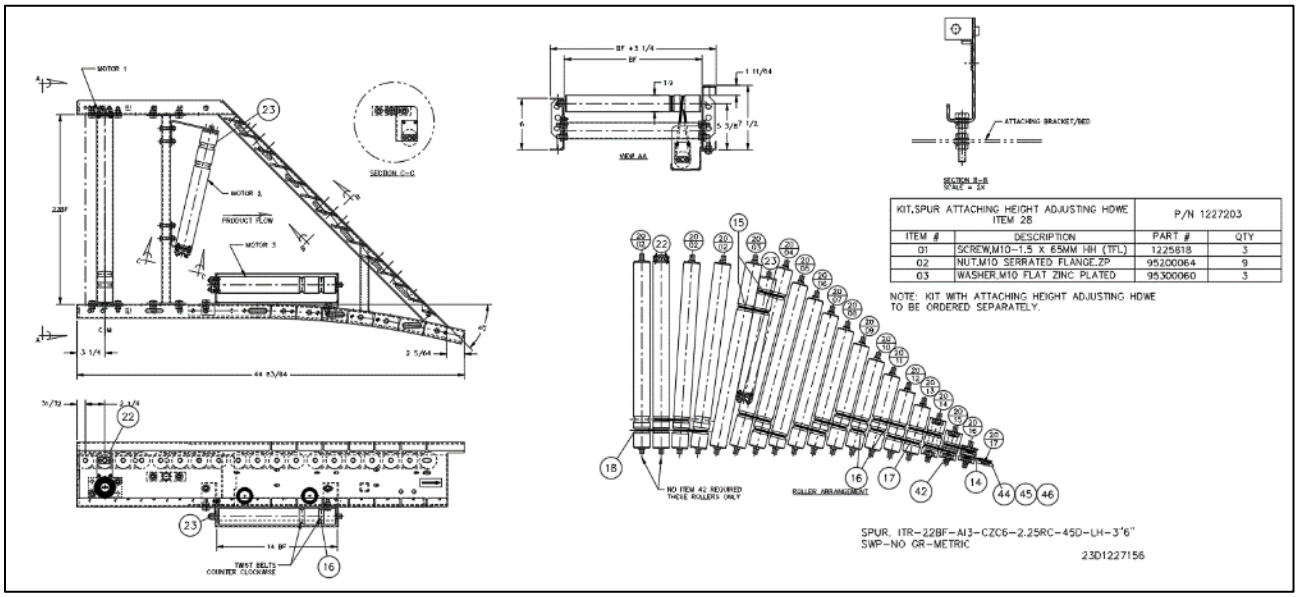


11.4.1 Replacement Parts- Merge Bracket

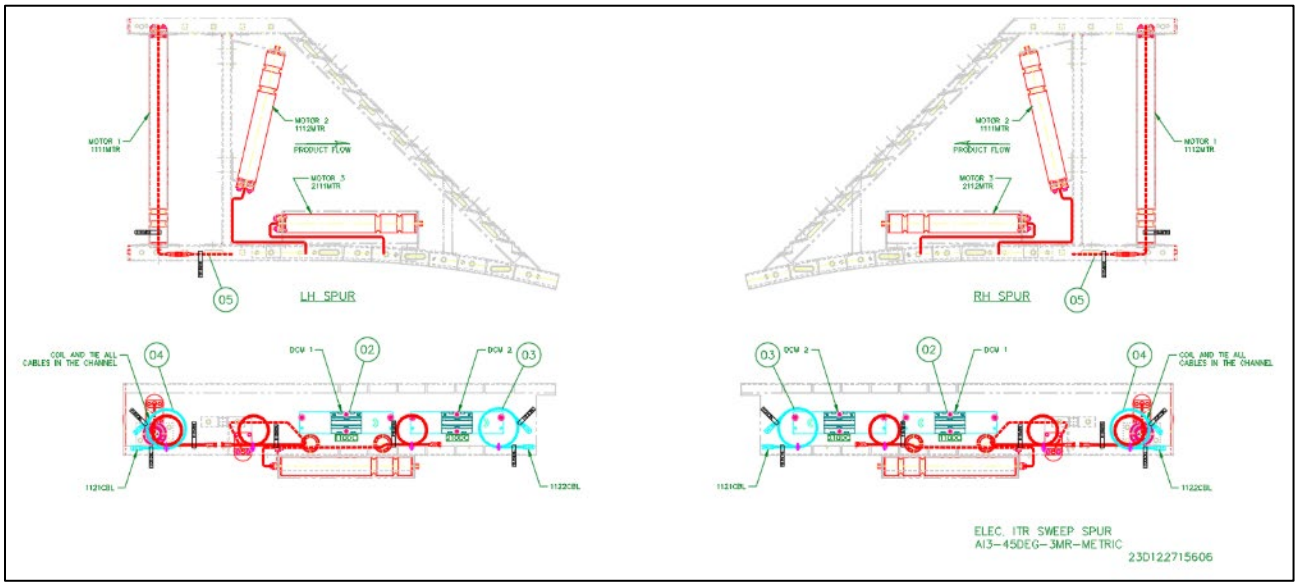
REPLACEMENT PARTS for DRIVERCARD AI3	
ITEM #	**Description**
1228932	KIT, ITR-BRKT-C6 MERGE-(2) BRKT-SPUR: MERGE-METRIC
Kit includes: (2) brackets and hardware	

11.5 IntelliROL Sweep Spur 45 Degree

11.5.1 IntelliROL Sweep Spur 22BF



11.6 Replacement Parts – Reference Electrical Components



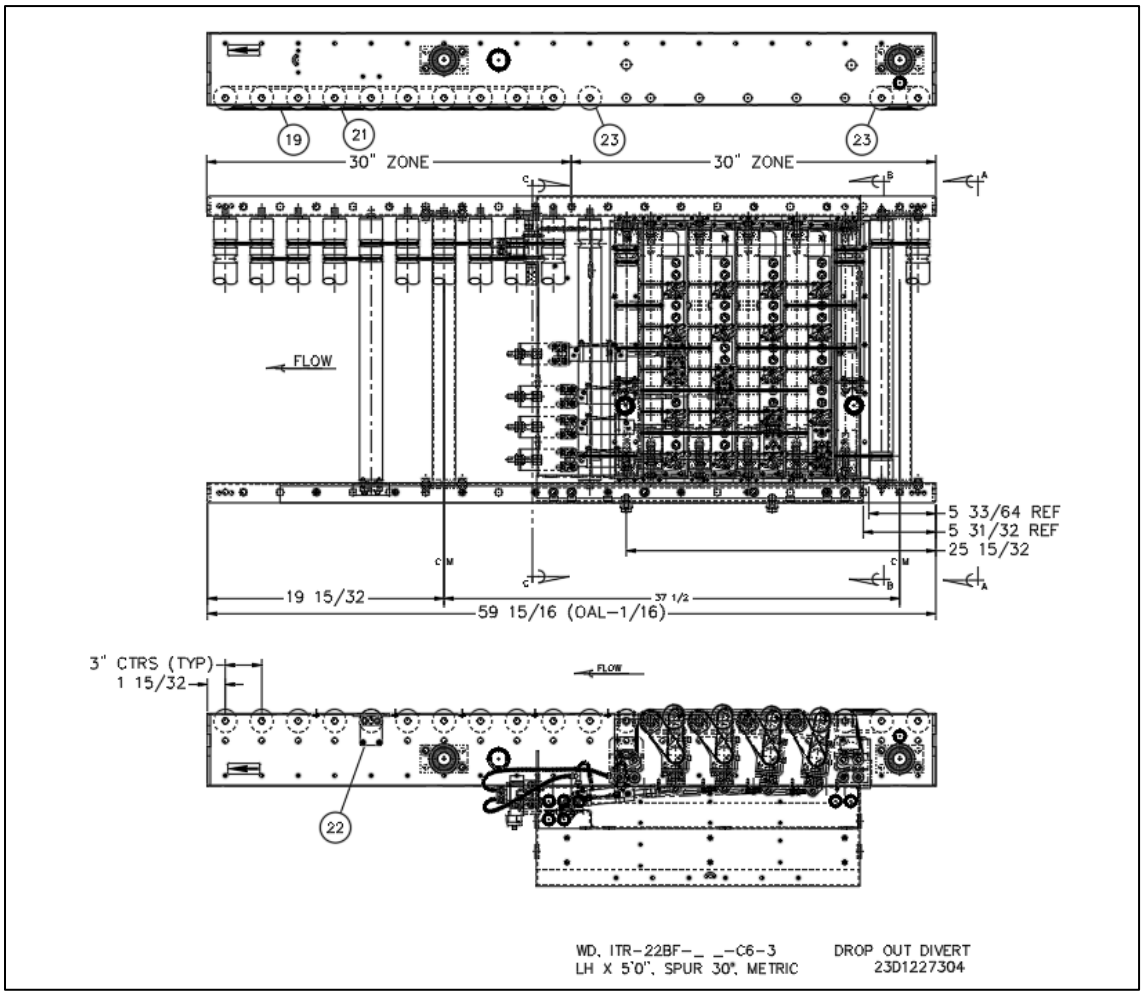
Original language is English

11.6.1 Replacement Parts – IntelliROL Sweep Spur 2.25RC 45 Degree

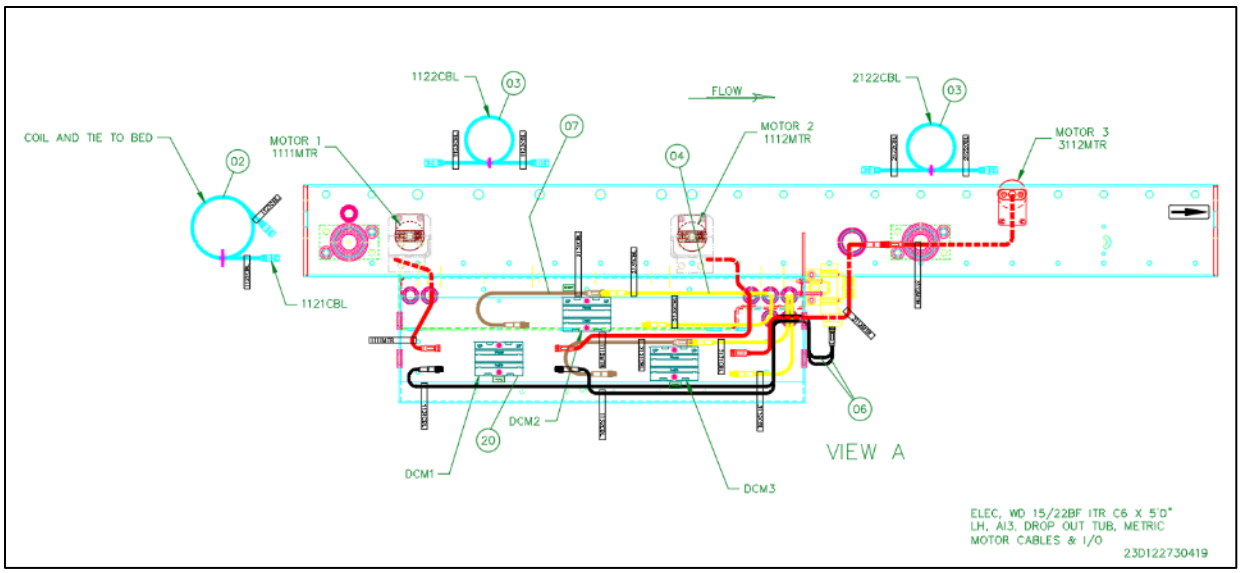
REPLACEMENT PARTS - IntelliROL SWEEP SPUR, 2.25RC, 45 DEGREE					
SPUR, ITR-_ _BF-AI3-C6-2.25RC 45D-LH/RH-3'6"-AD45-3MR-METRIC		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
----	**ELECTRICAL COMPONENTS**	----	----	----	----
02	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
03	CABLE, ASY PROFINET, 1M	1226739	1226739	1226739	1226739
04	CABLE, ASY PROFINET, 2M	1226740	1226740	1226740	1226740
05	CABLE, MOTOR EXTENSION,300MM	1226743	1226743	1226743	1226743
----	**SPUR, O-RINGS**	----	----	----	----
14	ORING, 83A 1/8 X 8" CLEAR	E0001238	E0001238	E0001238	E0001238
15	ORING, 3/16 DIA X 13" HT BLUE	----	1103665	1103665	1103665
16	ORING, 3/16" DIA X 15.312" HT BLUE FOR ITR 6.5" CTRS	1167247	1167247	1167247	1167247
17	ORING, 3/16 DIA X 8" HT BLUE	1142395	1142395	1142395	1142395
18	ORING, 3/16 DIA X 8-1/4" HT BLUE	E0034023	E0034023	E0034023	E0034023
19	ORING, 3/16 DIA X 8.688 HT BLUE	----	----	1137420	1137420
42	ORING, 1/2"ID (3/32 WALL)	90530050	90530050	90530050	90530050
----	**ROLLER SET ITR SWEEP SPUR**	----	----	----	----
20/02	ROLLER, _ _ITR 1.9" DIA PLTD (_ _BF)	E0002412	E0002413	E0002414	E0006220
20/03	ROLLER, ITR SWEEP SPUR, _ _BF	1195553	1195564	1195575	1195591
20/04	ROLLER, ITR SWEEP SPUR, _ _BF	1195554	1195565	1195576	1195592
20/05	ROLLER, ITR SWEEP SPUR, _ _BF	1195555	1195566	1195577	1195593
20/06	ROLLER, ITR SWEEP SPUR, _ _BF	1195556	1195567	1195578	1195594
20/07	ROLLER, ITR SWEEP SPUR, _ _BF	1195557	1195568	1195579	1195595
20/08	ROLLER, ITR SWEEP SPUR, _ _BF	1195558	1195569	1195580	1195596
20/09	ROLLER, ITR SWEEP SPUR, _ _BF	1195559	1195570	1195581	1195597
20/10	ROLLER, ITR SWEEP SPUR, _ _BF	1195560	1195571	1195582	1195598
20/11	ROLLER, ITR SWEEP SPUR, _ _BF	1195561	1195572	1195583	1195599
20/12	ROLLER, ITR SWEEP SPUR, _ _BF	1195562	1195573	1195584	1195600
20/13	ROLLER, ITR SWEEP SPUR, _ _BF	1195563	1195574	1195585	1195601
20/14	ROLLER, ITR SWEEP SPUR, _ _BF	1205985	1205985	1195586	1195602
20/15	ROLLER, ITR SWEEP SPUR, _ _BF	1205984	1205987	1195587	1195603
20/16	ROLLER, ITR SWEEP SPUR, _ _BF	1205986	1205986	1195588	1195604
20/17	ROLLER, ITR SWEEP SPUR, _ _BF	1160266	1160266	1195589	1195605
20/18	ROLLER, ITR SWEEP SPUR, _ _BF	----	----	1195590	1195606
20/19	ROLLER, ITR SWEEP SPUR, _ _BF	----	----	1205988	1205990
20/20	ROLLER, ITR SWEEP SPUR, _ _BF	----	----	1205989	1205991
20/21	ROLLER, ITR SWEEP SPUR, _ _BF	----	----	1205990	1205992
20/22	WHEEL, ASY NBS30 ALUM. SMOOTH	----	----	1160266	1160266
----	BRG, 6002ZZC3SRI2-Q	1179675	1179675	1179675	1179675
22	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963

REPLACEMENT PARTS - IntelliROL SWEEP SPUR, 2.25RC, 45 DEGREE					
SPUR, ITR-_ _BF-AI3-C6-2.25RC 45D-LH/RH-3'6"-AD45-3MR-METRIC		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
23	ROLLER, ITR 14BF 2G PULSEROLLER	----	1227178	----	----
					Reference Dwg: 23D1227156 & 23D122715606

11.7 IntelliROL Wheel Divert (Pneumatic)



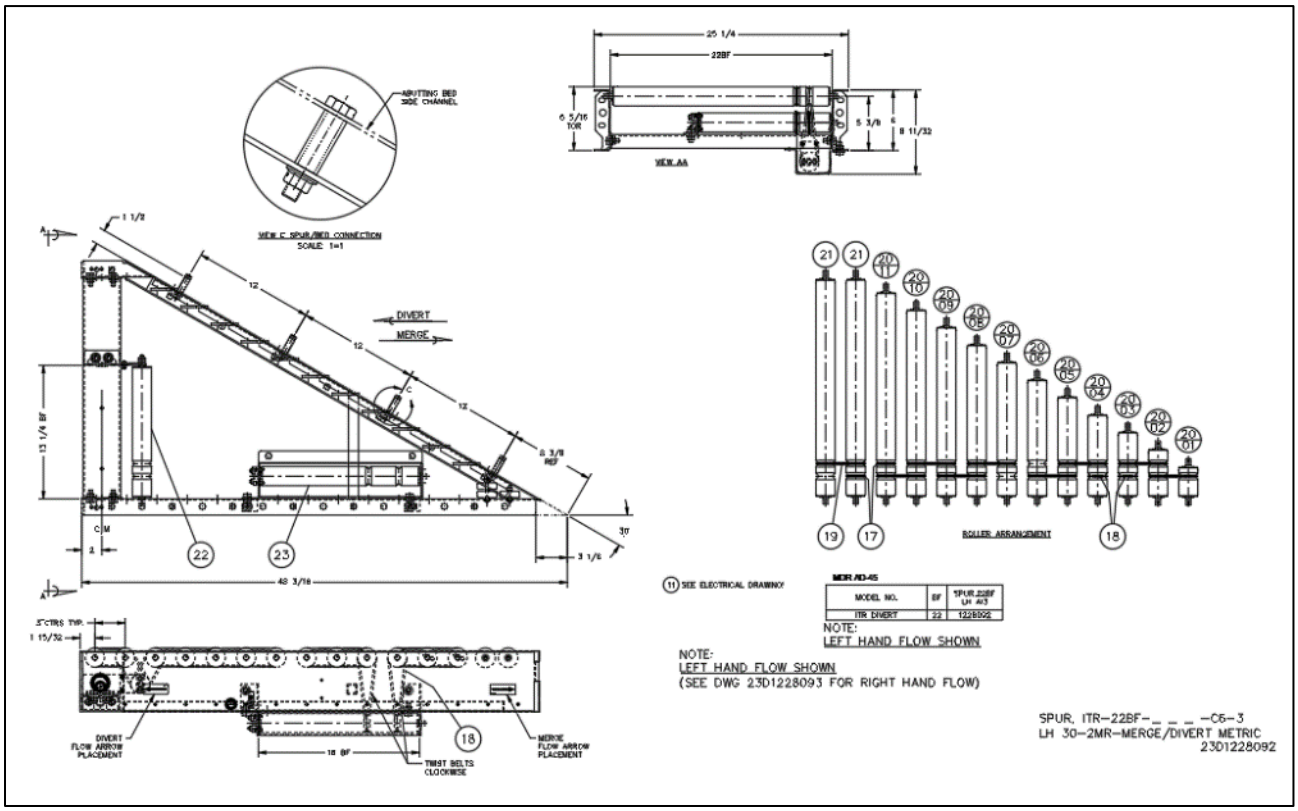
11.7.1 IntelliROL Wheel Divert (Pneumatic) Electrical Components



11.7.2 Replacement Parts – IntelliROL Wheel Divert, AI3, 3RC (Pneumatic)

REPLACEMENT PARTS - ITR WHEEL DIVERT PNEUMATIC, AI3, 3RC, 30 DEGREES					
WD, ITR-_ _BF-AI3-C6-3RC-30D-LH-5'0"-AD45-5MR-2SOL-W/DROPOUT-METRIC-CTD ROLLERS		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
-----	**ELECTRICAL COMPONENTS,**	-----	-----	-----	-----
2	CABLE, ASY PROFINET, 2M	1226740	1226740	1226740	1226740
1	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
2	SHROUD, ETHERNET/POWER CABLING	1227016	1227016	1227016	1227016
3	CABLE, ASY PROFINET, .5M	1228373	1228373	1228373	1228373
1	CABLE, CTRLS-PROFINET-.5M	1228372	1228372	1228372	1228372
2	SHROUD, ETHERNET/POWER CABLING	1227016	1227016	1227016	1227016
4	CORDSET, SPLITTER, M8	1226720	1226720	1226720	1226720
6	CABLE, VALVE EXTENSION, 1 METER	1227437	1227437	1227437	1227437
7	CABLE, MOTOR EXTENSION,300MM **(NO SUBSTITUTION)**	1226743	1226743	1226743	1226743
20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
----	**ROLLER ASSEMBLY**	----	----	----	----
19	ORING,3/16DIA X 9.5" HT BLUE	E0005536	E0005536	E0005536	E0005536
21	ROLLER, ITR 1.9CTD PRBG-1/8"BLK URE SLV (_ _BF)	1134693	1132204	1131724	1140369
1	ROLLER,24ITR 1.9PLTD PRBG	E0002412	E0002413	E0002414	E0006220
22/03	ROLLER, ITR _ _BF 2G PULSE-CTD	1226968	1226969	1226970	1226971
22	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
23	ROLLER, _ _ITR 1.9CTD PRBG 1D1S		1133259		
----	**DIVERTER WAVE ASSEMBLY**	----	----	----	----
1	CYL, AIR,1" BORE, 2" STROKE	1228040	1228040	1228040	1228040
9	ROLLER, WD _ _BF ITR PRBG	1195066	1191359	1194883	1198388
10	ROLLER, WD _ _BF ITR PRBG,5 GRV	1195067	1191372	1194884	1198402
3	ROLLER, ITR _ _. _ _BF 2G PULSE		1228126		
17	MANIFOLD, AIR 2 STA 24 VOLT	1228041	1228041	1228041	1228041
2	WHEEL, ASY NBS30 (MOLDED TIRE)	1158076	1158076	1158076	1158076
4	WHEEL, ASY IDLER NBS30 ALUMINUM	1158077	1158077	1158077	1158077
2	BRG, RADIAL #6802ZZC3SRI2	E0031808	E0031808	E0031808	E0031808
22	TUBING,1/4"POLYU-95DURO.160ID	E0001391	E0001391	E0001391	E0001391
25	ORING,83A WD 3/16 X 25-3/8"	1141505	1141505	1141505	1141505
26	ORING,3/16DIA X 7-3/4" HT BLUE	1142656	1142656	1142656	1142656
27	ORING,.210 DIA X 9.1" HT RED	1172694	1172694	1172694	1172694
28	ORING,83A 1/8" X 10"	1141229	1141229	1141229	1141229
29	ORING,83A 1/8 X 9-1/4" BLACK	E0001239	E0001239	E0001239	E0001239
37	ORING,3/16DIA X 14.5" HT BLUE	1172695	1172695	1172695	1172695
38	ORING,3/16DIA X 11" HT BLUE	1127703	1127703	1127703	1127703
39	ORING,3/16DIA X 17.95" HT BLUE	1172696	1172696	1172696	1172696
					REFRENCE DWG# 23D1227304

11.8 IntelliROL Spur Merge/Divert



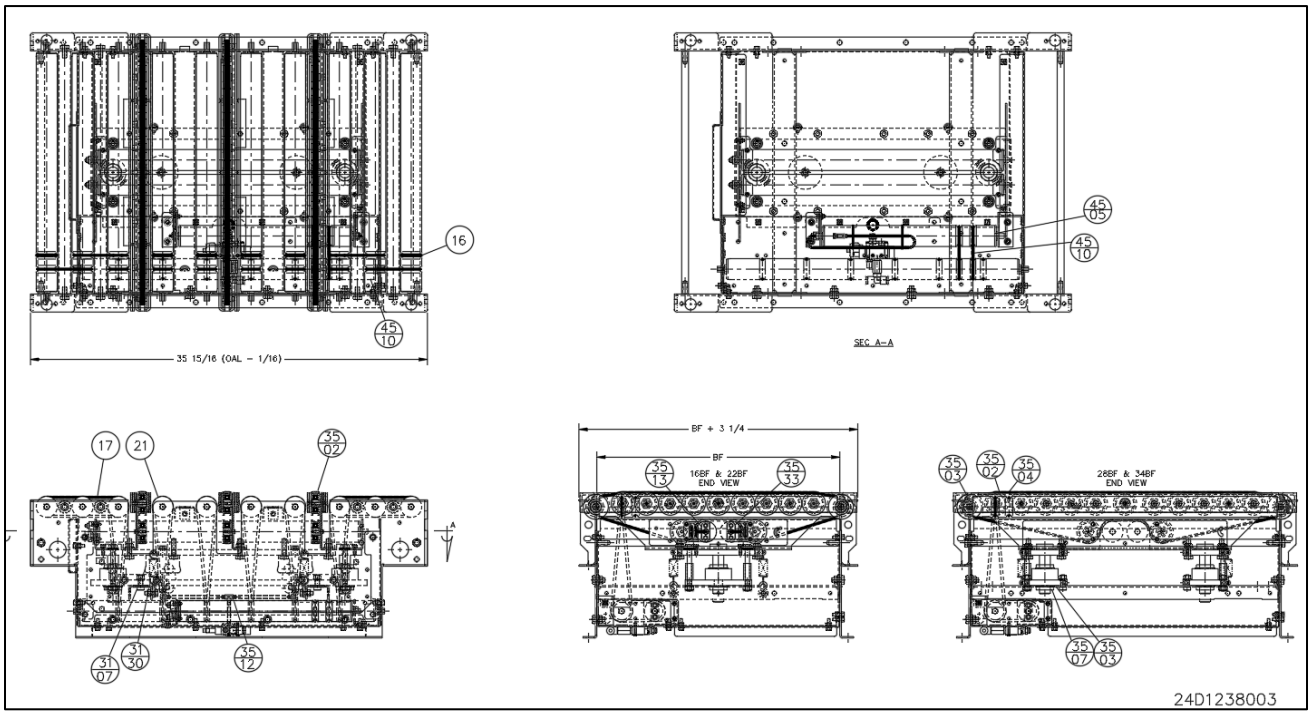
11.8.1 Replacement Parts – IntelliROL Spur Merge/Divert 3 RC

REPLACEMENT PARTS - INTELLIROL SPUR MERGE/DIVERT, 3RC, 30 DEGREES WITH COATED ROLLERS					
SPUR, ITR-22BF-AI3-C6-3RC-30D-DIVERT-LH-4'0"-AD45-2MR-METRIC		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
-----	**ELECTRICAL COMPONENTS,**	-----	-----	-----	-----
20	DRIVERCARD, INSIGHT AI3-24-FC		1227171		
3	CABLE, ASY PROFINET, 2M		1226740		
----	**SPUR, O-RINGS**	----	----	----	----
17	ORING,3/16DIA X 9.5" HT BLUE	E0005536	E0005536	E0005536	E0005536
18	ORING,3/16DIA X 15.312 HT BLUE	1167247	1167247	1167247	1167247
19	ORING,3/16DIA X 9.5" HT BLUE	E0005536	E0005536	E0005536	E0005536
----	**ROLLER ASSEMBLY**	----	----	----	----
20/01	ROLLER, ITR 3-3/8"BF PRBG		1143249		
20/02	ROLLER, ITR 5-1/8"BF PRBG		1130836		
20/03	ROLLER, 6-27/32BF ITR 1.9PLTD		1131620		
20/04	ROLLER, 8-9/16BF ITR 1.9PLTD		1131621		
20/05	ROLLER,10-5/16BF ITR 1.9PLTD		1143250		
20/06	ROLLER,12-1/32BF ITR 1.9PLTD		1131622		
20/07	ROLLER,13-25/32BF ITR 1.9PLTD		1131623		
20/08	ROLLER,15-1/2BF ITR 1.9PLTD		1131624		
20/09	ROLLER,17-1/4BF ITR 1.9PLTD		1143251		
20/10	ROLLER,18-31/32BF ITR 1.9PLTD		1131625		
20/11	ROLLER, 20-11/16BF ITR 1.9PLTD		1143252		
21	ROLLER, 24ITR 1.9PLTD PRBG		E0002413		
21/01	DRIVERCARD, BASE ONLY INSIGHT		1226653		
22/03	CABLE, ASY PROFINET, 2M		1226740		
23/03	ROLLER, ITR 13.25BF 2G PULSE		1228177		
Ref Dwg# 23D1228092					

11.8.2 Replacement Parts – IntelliROL Spur merge /Divert 3 RC – With Coated Rollers

REPLACEMENT PARTS - INTELLIROL SPUR, 3RC, 30 DEGREES					
SPUR, ITR-_ _BF-AI3-C6-3RC-30D-DIVERT-LH or RH-4'0"-AD45-2MR -METRIC-CTD ROLLERS		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
-----	**ELECTRICAL COMPONENTS,**	-----	-----	-----	-----
20	DRIVERCARD, INSIGHT AI3-24-FC		1227171		
3	CABLE, ASY PROFINET, 2M		1226740		
----	**SPUR, O-RINGS**	----	----	----	----
17	ORING,3/16DIA X 9.5" HT BLUE	E0005536	E0005536	E0005536	E0005536
18	ORING,3/16DIA X 15.312 HT BLUE	1167247	1167247	1167247	1167247
19	ORING,3/16DIA X 9.5" HT BLUE	E0005536	E0005536	E0005536	E0005536
----	**ROLLER ASSEMBLY**	----	----	----	----
20/01	ROLLER, ITR 3-3/8"BF CTD PRBG		1148674		
20/02	ROLLER, ITR 5-1/8"BF CTD PRBG		1148676		
20/03	ROLLER,6-27/32"BF ITR 1.9CTD		1148680		
20/04	ROLLER,8-9/16"BF ITR 1.9CTD		1148681		
20/05	ROLLER,10-5/16"BF ITR 1.9CTD		1148686		
20/06	ROLLER,12-1/32"BF ITR 1.9CTD		1148682		
20/07	ROLLER,13-25/32"BF ITR 1.9CTD		1148683		
20/08	ROLLER,15-1/2"BF ITR 1.9CTD		1148684		
20/09	ROLLER,17-1/4"BF ITR 1.9CTD		1148687		
20/10	ROLLER,18-31/32"BF ITR 1.9CTD		1148685		
20/11	ROLLER,20-11/16"BF ITR 1.9CTD		1148688		
21	ROLLER,24ITR 1.9CTD PRBG		1132204		
21/01	ROLLER,24ITR 1.9PLTD PRBG		E0002413		
22/03	ROLLER, ITR 13.25BF 2G PULSE		1228177		
23/03	ROLLER, ITR 16BF 2G PULSE		1228175		
					Ref Dwg# 23D1228092

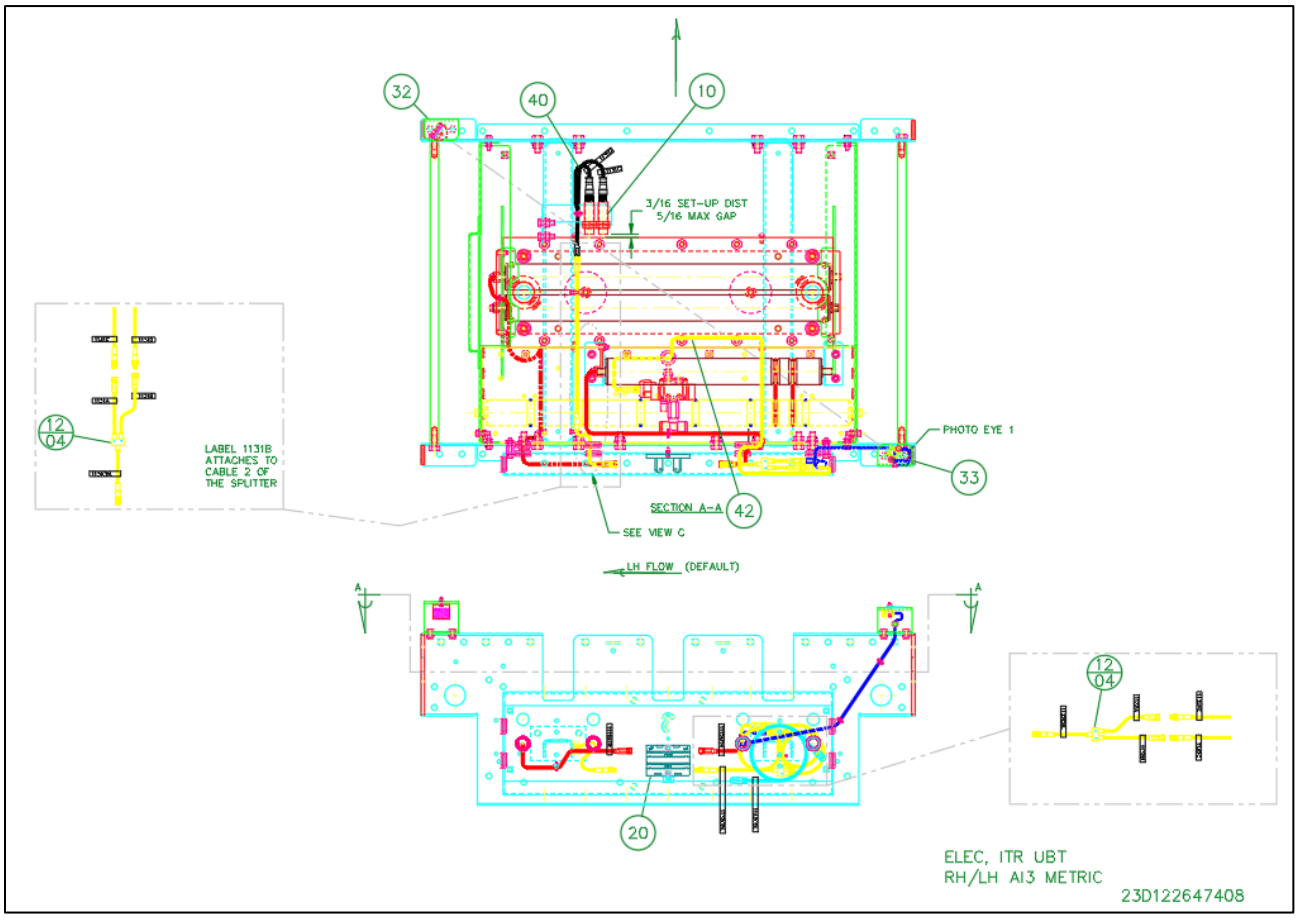
11.9 IntelliROL UBT (Pneumatic Lift) - Mechanical Components 3s



11.9.1 Replacement Parts – IntelliROL UBT (Pneumatic Lift) - Mechanical Components, 3s

REPLACEMENT PARTS - IntelliROL UBT PNUEMATIC LIFT, BI-DIRECTIONAL, 3s					
UBT, ITR-_ _BF-AI3-C6-3S-BD-3'0"-AD45-2MR-1SOL-METRIC-W/ 1 PE-CTD ROLLERS		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
-----	**UBT, MECH _ _BF ITR UBT**	-----	-----	-----	-----
16	ORING,70A,1/4DIA X 5.25"-GROOVE FILLER	1238108	1238108	1238108	1238108
17	ORING, 3/16 DIA X 9.875" HT BLUE ITR 3-1/4" CTR	1226701	1226701	1226701	1226701
21	ROLLER, _ _ITR 1.9 PLTD PRBG	E0002412	E0002413	E0002414	E0006220
----	**LIFTTABLE, ASY ITR UBT**	-----	-----	-----	-----
35/07	BRG, BUSHING THOMSON A-162536,	E0009398	E0009398	E0009398	E0009398
35/08	RING, GRIP THOMSON W1000	E0009399	E0009399	E0009399	E0009399
35/12	TUBING,1/4"POLYU-95DURO.160ID	E0005539	E0005539	E0005539	E0005539
35/13	ROLLER, _ _BF GRAV 1.9 PLTD PRBG	1129163	1129163	1129163	1129163
35/33	ROLLER, ITR 24BF NG PULSEROLLER AD-45, (1) FIXING BRKT	1227022	1227022	1227022	1227022
35/33	ROLLER, ITR 24BF NG PULSEROLLER (ROLLER ONLY)	1227020	1227020	1227020	1227020
---	**LIFTTABLE, SUB ASY ITR UBT**	-----	-----	-----	-----
31/07	AIRBAG, PNEUMATIC 1/8NPT	90000025	90000025	90000025	90000025
31/30	SPRING, EXT 3/4OD X 2" LG .075W LOOPS MUST BE INLINE +/- 20	90800263	90800263	90800263	90800263
-----	**WHEELBRKT, ASY ITR UBT _ _BF**	-----	-----	-----	-----
04/02	IDLER, ASY FLAT FACE ITR UBT	1132379	1132379	1132379	1132379
04/03	IDLER, ASY FLANGED ITR UBT EQUAL FLANGE DIAMETER	1234835	1234835	1234835	1234835
04/01	IDLER, ASY FLANGED ITR UBT	1159961	1159961	1159961	1159961
04/04	BELT,83A .188 X .468 X _ _"	1132754	1132755	1132756	1132757
35/02	WHEEL BRKT, ASY ITR UBT _ _"BF **-UNCOATED ROLLERS**	-----	234834	1235113	-----
35/02	WHEEL BRKT, ASY ITR UBT _ _"BF **COATED ROLLERS**	-----	1234837	1235114	-----
-----	**PAN, ASY BOTTOM ITR**	-----	-----	-----	-----
45/02	VALVE, SMC 4WAY 24VDC W/FITT & M8 CONN,	1226736	1226736	1226736	1226736
45/04	ROLLER, CARRIER DRIVE	1154791	1154791	1154791	1154791
45/05	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226960	1226960	1226960
45/10	ORING, 1/4"DIA X 9.5" HT BLUE	1144848	1144848	1144848	1144848
45/11	ORING, 83A ST TRNS 3/16X21-3/8	1149850	1149850	1149850	1149850
					Reference Dwg: 24D1238003

11.10 IntelliROL UBT (Pneumatic Lift) - Electrical Components 3s



11.10.1 Replacement Parts – IntelliROL UBT (Pneumatic Lift) - Electrical Components 3s

REPLACEMENT PARTS - IntelliROL UBT PNEUMATIC, ELECTRICAL COMPONENTS, IBE, 5s & 6s					
ELEC, ASY, UBT, AI3		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
----	**ELECTRICAL COMPONENTS**	**-----**	**-----**	**-----**	**-----**
10	PROX,18MM, M12,4 PIN, MALE CONN	1227311	1227311	1227311	1227311
20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
12/04	CORDSET, SPLITTER, M8 STRAIGHT MALE	1226720	1226720	1226720	1226720
----	CABLE, ASY PROFINET, 2M	1226740	1226740	1226740	1226740
----	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
----	SHROUD, ETHERNET/POWER CABLING IP54 PROTECTION	1227016	1227016	1227016	1227016
32	PE, REFLECTOR 20MM X 30MM	1136359	1136359	1136359	1136359
33	PE, REFLEX TYPE ZL	1226404	1226404	1226404	1226404
40	CABLE, STRAIGHT M12 FEMALE	1226868	1226868	1226868	1226868
42	CABLE, VALVE EXTENSION, 1 METER	1227437	1227437	1227437	1227437
					Reference Dwg: 23D122647408

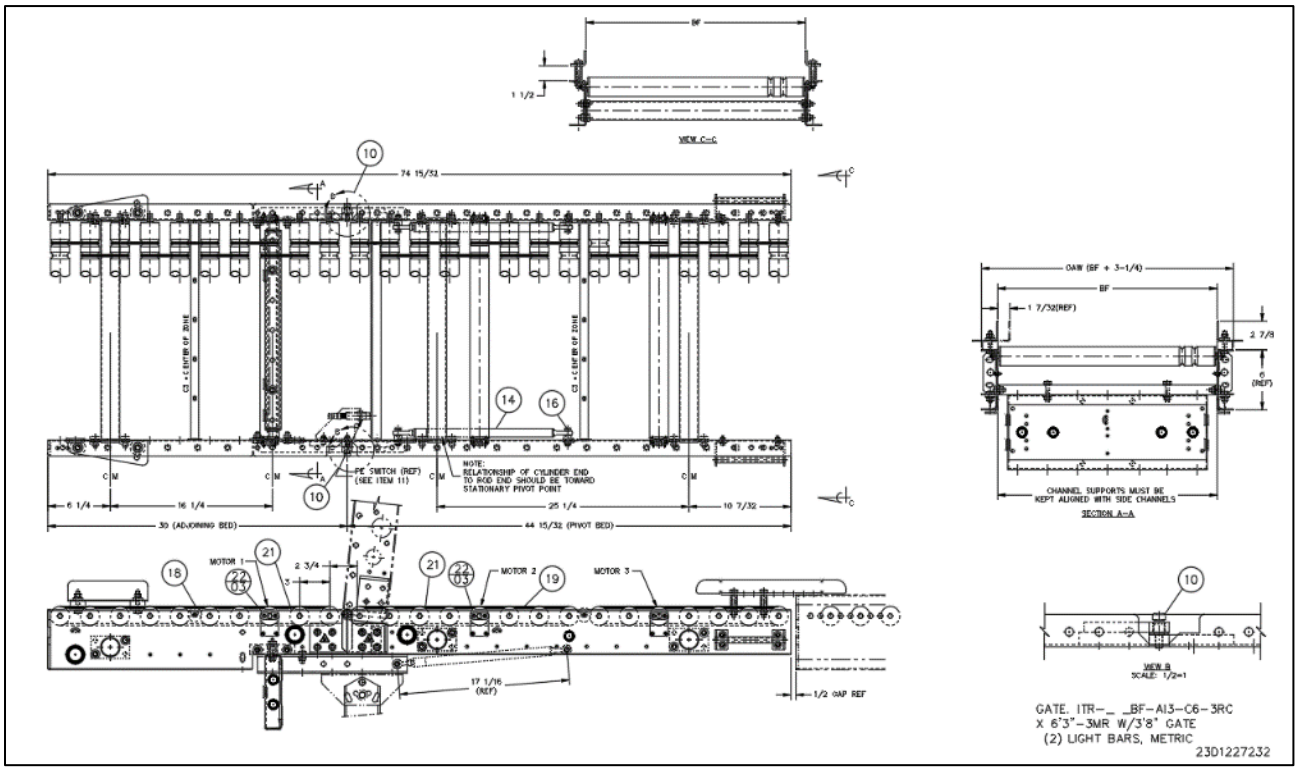
11.11 IntelliROL UBT Lift Table Transfer Optional Spare Parts

11.11.1 Optional Replacement Parts – IntelliROL Lift Table Transfer

Optional Replacement Part Numbers Lift Table Transfer	
ITEM #	**DESCRIPTION**
E0009398	BRG, BUSHING THOMSON A-162536
E0009399	RING, GRIP THOMSON W 1000
	Dwg# 23D1226392

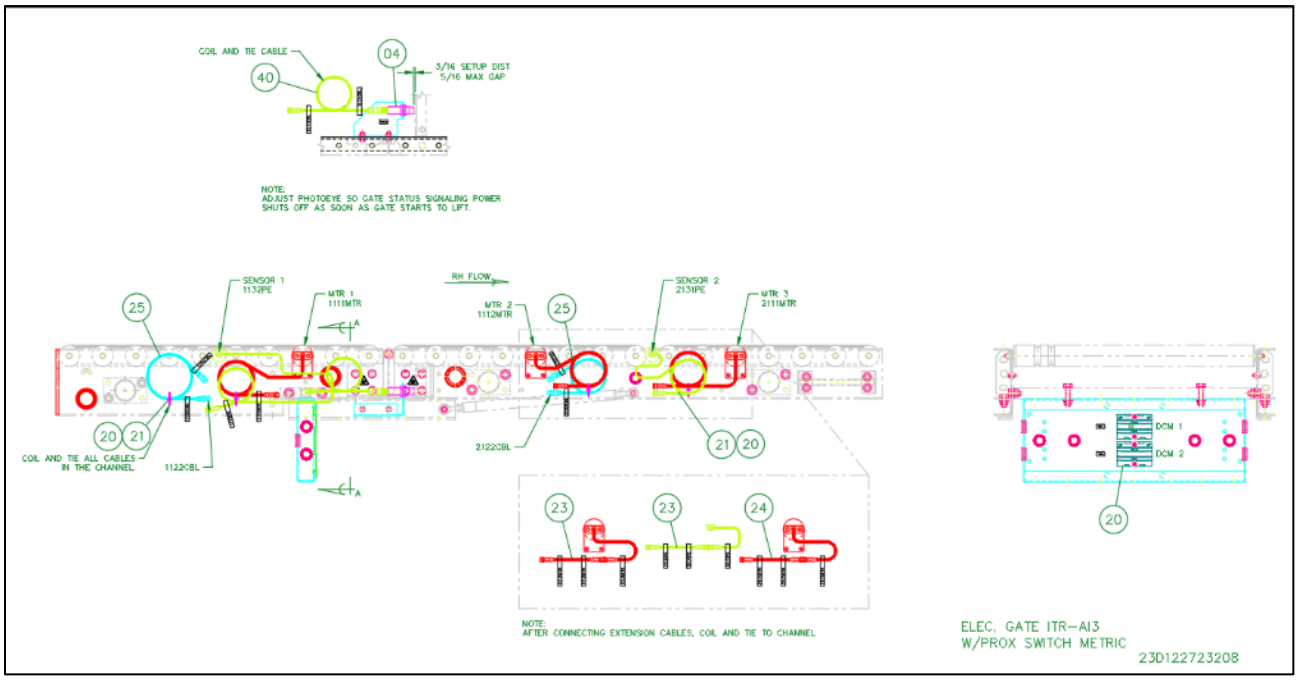
Original language is English

11.12 IntelliROL Gate



Original language is English

11.13 IntelliROL Gate, Electrical with Limit Switch AI3



Original language is English

11.13.1 Replacement Parts – IntelliROL Gate, AI3, 3RC

REPLACEMENT PARTS - IntelliROL GATE, AI3, 3RC					
GATE, ITR-_ _BF AI3-C6-(2RC OR 3RC)		Width & Item #			
Balloon	**Description**	**16 BF**	**22 BF**	**28 BF**	**34 BF**
1	**ADJOINING GATE**	**----**	**----**	**----**	**----**
18	ORING, 3/16DIA X 9.5" HT BLUE ITR 3"CTR **(USED WITH 3RC)**	E0005536	E0005536	E0005536	E0005536
21	ROLLER, _ _ITR 1.9PLTD PRBG	E0002412	E0002413	E0002414	E0006220
22/03	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
2	**PIVOT GATE**	**----**	**----**	**----**	**----**
10	BRG, BRONZE FLANGED MULTIPURPOS	1227436	1227436	1227436	1227436
14	SPRING, GAS 16-4, 600 NEWTONS	E0004267	E0004268	E0004269	E0004270
16	ROD, END PLAIN SPHERICAL DURBAL	E0003165	E0003165	E0003165	E0003165
19	ORING,3/16DIA X 9.5" HT BLUE **(USED WITH 3RC)**	E0005536	E0005536	E0005536	E0005536
21	ROLLER,24ITR 1.9PLTD PRBG	E0002412	E0002413	E0002414	E0006220
22/03	ROLLER, ITR _ _BF 2G PULSEROLLER	1226960	1226961	1226962	1226963
11	**ELEC, GATE, ITR IB-E03, LIMIT SWITCH**	**----**	**----**	**----**	**----**
20	DRIVERCARD, INSIGHT AI3-24-FC	1227171	1227171	1227171	1227171
4	PROX,18MM, M12,4 PIN, MALE CONN	1227311	1227311	1227311	1227311
23	CABLE, MOTOR EXTENSION, 1000MM-M-F M8 CONN-USE INSIGHT RLLR-RSMV 4-RKMV 4-225/1.0M-**NO SUBSTITUTION**	1226744	1226744	1226744	1226744
24	CABLE, MOTOR EXTENSION,2000MM-M-F M8 CONN-USE INSIGHT RLLR-RSMV 4-RKMV 4-225/2.0M-**NO SUBSTITUTION**	1226745	1226745	1226745	1226745
25	CABLE, ASY PROFINET, 2M W/IP54 PROTECTIVE SHROUDS	1226740	1226740	1226740	1226740
1	CABLE, CTRLS-PROFINET-2M	1227083	1227083	1227083	1227083
2	SHROUD, ETHERNET/POWER CABLING	1227016	1227016	1227016	1227016
40	CABLE, STRAIGHT M12 FEMALE M8 STRAIGHT MALE,4PIN,1M	1226868	1226868	1226868	1226868
					Ref Dwg# 23D1227232

12 Decommissioning and Disposal

Caution!

Decommissioning and dismantling must be entrusted to personnel specialized in such activities.

Only those in charge of the dismantling and final waste disposal phase can perform the following activities:

- Mechanical and electric disconnection of parts according to disassembly instructions and design diagrams.
- Transporting parts from the position of use to the waste disposal facility for separation of parts.

Caution!

The partly completed machine does not contain components or hazardous substances which require special removal procedures.

12.1 Decommissioning

If the partly completed machine is not to be used for a long time, it must be set safely and stored in a closed, dry, and clean environment to preserve all the parts that compose it as best as possible.

Proceed as follows to decommission the partly completed machine:

Step 1.

- Turn off and lock/out the main power supply panel.
- Turn off and lock out the power supply to the partly completed machine power box.
- Disconnect the electrical connection such as the driver cards, air lines, or power harness connections from the partly completed machine and the adjacent partly completed machine.
- Clean all the components of the partly completed machine (refer to the “Maintenance” chapter).
- Secure the partly completed machine before you unanchored it.
- Move partly completed machine to designated storage location

12.2 Disposal

- When you wish to dispose of the partly completed machine, secure it.
- To dispose of the partly completed machine, proceed as described below:

Step 2.

- Turn off and lock/out the main power supply panel.
- Disconnect the power supply to the partly completed machine.
- Disconnect the electrical connection such as the driver cards, air lines, or power harness connections from the partly completed machine and the adjacent partly completed machine.
- Clean all the components of the partly completed machine (refer to the “Maintenance” chapter).
- Secure the partly completed machine before you unanchored it.
- Prepare a spacious working area, free from obstacles, to safely dismantle the partly completed machine.
- Remove all the cables and electrical components, adopting the safety measures required for such interventions.
- Disassemble all the components, separating the resulting material into groups, for differentiated disposal.

Caution!

The partly completed machine does not contain components or hazardous substances which require special removal procedures.

Caution!

Always comply with the laws in force in the country of installation/incorporation regarding partly completed machine disposal.

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As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.