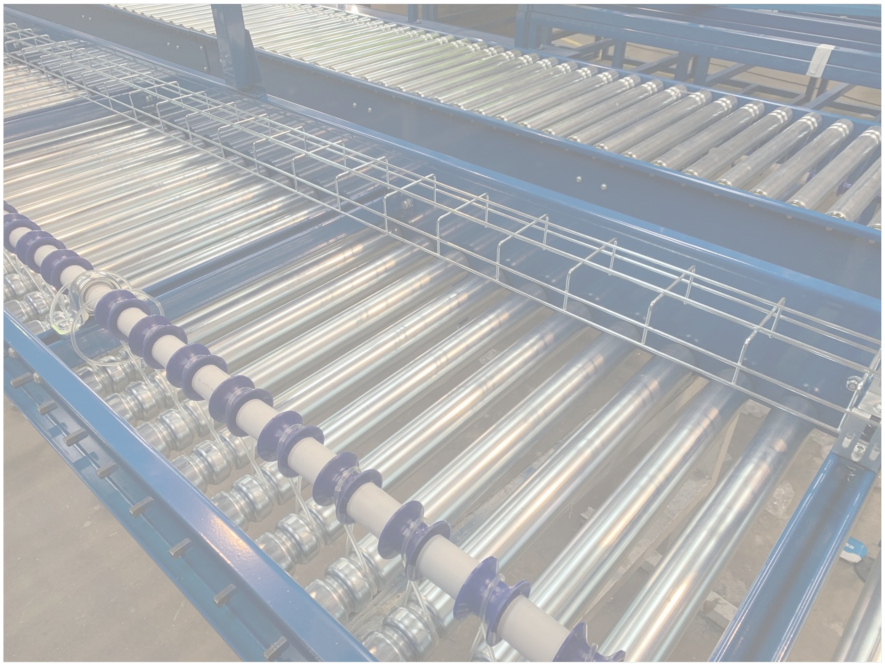
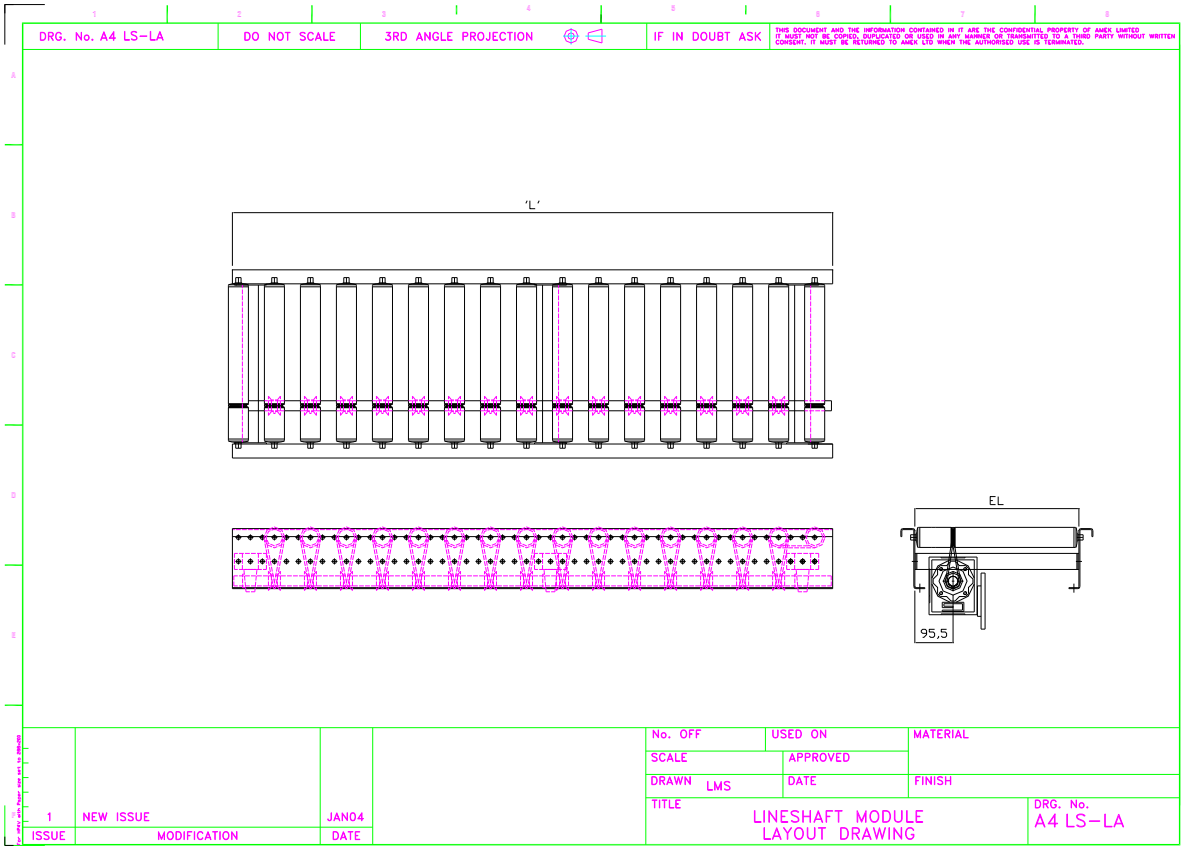


Installation and operating instructions

Spaceguard Lineshaft Driven Conveyor

Safety note: Spaceguard conveyors are designed for incorporation, therefore a relevant risk assessment and safe working method, must be carried out by the customer prior to use. This manual contains important safety information regarding your conveyor



Lineshaft driven roller conveyor.

The lineshaft rollers within the conveyor are driven by pretensioned polyurethane belts which pull the drive spools against the lineshaft. Each spool delivers a fixed amount of torque from the line-shaft to the rollers. This torque is based on the drive belt tension and coefficient of friction between the spool and line-shaft. If the torque requirement to drive the load on the rollers exceeds the fixed torque of the spool, the spool slips on the line-shaft like a clutch.

Additional support sheets maybe available for your individual product. These are attached to the pallet the conveyors were shipped on.

Conveyor Training

Prior to the use of automation equipment, Spaceguard Recommends the following courses which is available through various recognised health and safety course providers.

IOSH Working safely: 1 day (aimed at all employees)

To enable individuals to reduce the risk of accidents and incidents at work.
To help them apply sound-working principles of Health & Safety effectively.
To enable trainees to demonstrate their competencies in successfully completing a practical & written exam, to the performance criteria specified by IOSH.
Content: Health & Safety at Work, Hazards & Risks, Common Hazards at Work, Risk & Risk control,
Positive Safety Behaviour, Safe System at Work, Common Hazards

IOSH Managing safely: 5 days (aimed at managers) (Also available as an online course)

To enable delegates to apply sound health and safety principles to the management of health and safety at work.
To enable delegates to become competent and demonstrate this by successfully completing a practical and written exam to the performance criteria specified by IOSH.
To build up an in-depth awareness of health and safety practices, its implementation and the legal aspects and how to apply it in their workplace.
To understand health and safety risk, its assessment and the use of accident investigation and prevention.

Additional Training
We would always recommend application specific training for your staff prior to using any conveyor or automation item. This would normally also include manual handling techniques and use of PPE. When using, loading and unloading conveyors correct manual handling techniques should be used. We would also recommend as part of your training, you highlight any areas of residual risk, (and add additional guarding if required) and ensure they do not go underneath a moving conveyor, or enters areas of residual risk.

DEFINITION OF TERMS

Accumulation (Minimum Pressure) - Act of queuing, holding, or backing up of product on a conveyor.
Conveyor Roller - The conveyor roller upon which the object being transported is supported. It has a circumferential groove near one end to allow the drive belt 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 used is "EL" (between frames).
Coupler - A mechanical device which connects segments of the line-shaft.
Coupler Chain - A double wide chain, plastic or metal, which performs the function of connecting one sprocket to an adjacent sprocket.
Coupler Sprocket - A sprocket located at the extreme end of a line-shaft, positioned to allow connection to a second sprocket on another line-shaft by using a coupler chain.
Crossmember - Structural member which is assembled between two side channels of a conveyor bed.
Drive - An assembly of mechanical, electrical, and structural components to provide power to line-shaft.
Drive Belt - An endless round belt manufactured from elastic material, typically polyurethane, connecting spools to carrying rollers for transmitting rotation of line-shaft.
Drive Sprocket - The sprocket which propels the chain or synchronous belt.
Driven Sprocket - The sprocket which is propelled by the chain or synchronous belt.
Frame - The structure which supports the components of a conveyor bed consisting of formed channel rails bolted together with square tubing crossmembers.
Guard Rail - Members paralleling the path of a conveyor and limiting the unit loads to movement in a defined path.
Jump Chain - A drive chain or belt which transmits power from one line-shaft to an adjacent parallel lineshaft. A crossover between adjacent line-shafts within a common conveyor frame is called an internal jump chain. A crossover between a line-shaft in one conveyor frame and a line-shaft in an adjacent parallel conveyor frame is called an external jump chain.
Line-shaft - Shaft which runs longitudinally within lineshaft conveyor to provide power transmission to carrying rollers and accessory equipment.
Line-shaft Bearing - The pillow block style bearings in which the line-shaft rotates.
Line-shaft Curve - A curved conveyor section equipped with a line-shaft segmented with universals to change the direction of product travel horizontally. The curve radius is measured to the inside face of the inside frame rail.
Roller Centers - Distance between center lines 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 drive belt below the carrying surface.
Speedup Spool - (See spool) A spool of larger diameter than adjacent spools assembled to the line-shaft. The difference in diameters causes those carrying rollers powered by the speedup spools to rotate faster than those driven by the smaller spools when driven by the same line-shaft.
Spool - A sheave or concave cylinder assembled on the line-shaft with slip fit to provide friction drive to carrying rollers but also “slip” in case of stalled carrying rollers. Also contains and protects drive belt. **Sprocket Ratio** - The ratio of the number of teeth of the driven sprocket to the drive sprocket.
Tapered Roller - A conical conveyor roller for use in a curve with end and intermediate diameters proportional to their radius.
Universal Joints - A device used to connect two intersecting line-shafts whose axes are not in a straight line.

Assembly and installation

The conveyor is supplied part pre assembled - if 3m or under or part assembled if over 3m, conveyor assembly is to be completed by the customers appointed competent team, using safe methods and required equipment at the customers site.

WARNING

Risk of injuries due to incorrect assembly & installation

- A risk assessment, method statement & safe working / installation procedures must be carried out prior to site and installation.
- Conveyor assembly and installation must be carried out by trained, competent and qualified personnel in accordance with the relevant safety standards.
- When erecting conveyor systems, safe systems of work, competent people and adequate lifting aids (machines) (all lifting aids must be only used within the manufacturers limits) must be used. (additional lifting eyes maybe required on the conveyor dependent on the application.) (customer may need to put holes in the bed to accommodate these.)

General installation safety

- Carry out risk assessment and devise a safe working procedure.
- Check conveyor structure to ensure you can safely install.
- Ensure work area is clear of obstruction and you have the room available to safely install.
- Cordon off the work area to prevent access by non authorised personnel
- Use lifting aids to minimise manual handling. (ensure your installer is trained, qualified and competent to use the lifting aids safely.
- Ensure lifting aids are suitable for the installation and are tested, checked and deemed safe.
- Spaceguard recommends the use of best practice work equipment. Example if possible use a tested / correctly installed work platform rather than a ladder. (If using ladders and steps - these must be suitable for the task, tagged and checked prior to use.)

Assembly and installation

- Using best practices, safely lifting one section at a time, bolt and tighten the legs to the conveyor. On large structures ensure each section is fully braced prior to adding next section. (ensure prior to adding the second section onwards the conveyor is in its final place. (secure 1st leg.)
- When adding section ensure the conveyor is straight. (use plumb line)
- When all sections are in place, check and ensure all conveyor fixings have been tightened.
- Set the conveyor to the required height using the adjustable feet and use the locking nuts to secure them - Use a spirit level for this task
- If using adjustable feet, secure the conveyor to the ground and additional structures, with the relevant fixing kit, ensuring the frames are not warped.
- When aligning the conveyor ensure, ensure there is no contact between moving parts.

WARNING

Risk of injuries due to incorrect assembly

- A risk assessment, method statement & SWP* must be carried out prior to final assembly and installation.
- Assembly must be carried out by competent and qualified personnel in accordance with the relevant safety instructions.
- Carefully assembly all connections, eg cables, hoses and pipes and check they are corrected correctly

* SWP (Safe working procedure)

- Pay attention to the Belt tension & guarding
- After conveyor installation, make sure passageways are clear. If conveyors are to be crossed, put in walkways
- When integrating conveyor into a system or a process, a risk assessment must be carried out for the conveyor to reach conformity, Always consider possible danger zones including areas where crushing and cuts can occur.
- PPE and Safe working practices should also be adopted

Electrical Installation

DANGER

Danger of death due to live cable ends!

- Electrical installation should only be carried out by experienced / qualified / competent electrical personnel
- Disconnect from power supply
- Observe the minimum bending and wear

- Power is to be supplied to the conveyor by relevant isolated plug or direct into a control panel through an isolator
- Always check cable for damage
- Connect motor in accordance with EN-IEC 60204-1 - refer to motor wiring pages for wiring information

Start up and operation

Initial Start up - *To be carried out by competent persons*

WARNING

Risk of injuries due to incorrect installation

- Check risk assessment and method statement have been carried out.
- Check all aspects of installation. Ensure correctly installed
- Check electrical connections and protective equipment
- Ensure all unauthorised / un trained personnel are removed from the area, Wear appropriate PPE

- Check direction of travel prior to initial start up. If required correct the direction.
- Check the motor current and electrical installation
- Check all guarding is in position

Operation

Prior to each operation

- Check the conveyor for signs of visual damage. Pay special attention to belts, support stands and wiring
- Ensure that all safety equipment is functioning properly
- Make sure only authorised and trained personnel are in the conveyor work area and they are wearing all the appropriate PPE.
- Ensure the work area is clear from obstruction and is tidy
- Provide instructions and monitor, loading and unloading the conveyor

WARNING

Rotating parts!

Crushing and serious injury due to being caught and pulled into the conveyor

- Do not remove any guarding
- Never wear loose clothes and tie long hair back
- Keep hands and body parts away from moving parts
- Follow safe working practice when using conveyors

- If goods become trapped within the conveyor, do not just pull the object, Isolate the conveyor and find out why and how the jam has occurred

Procedure for accidents or malfunctioning

- Stop the conveyor and isolate
- Accident - Apply first aid and call emergency services
- Inform a specialist (A specialist must eliminate the fault)
- Only restart after the conveyor has been deemed safe by a specialist

Disposal

- Adhere to the manufacturers disposal documents when disposing of oil, recycle parts if possible.

Environmental - considerations

- Turn off the power to the conveyor when not in use
- Ensure waste oils, belts etc are disposed of in accordance to regulations

Conveyor Safety

Basic Safety instructions

The conveyor was generally safe to operate at time of delivery, however dangers may still arise during use. A safe working practice, risk assessments must be carried out by the user covering all aspects of use within the incorporated system, process or machine. All staff to be properly trained in all aspects.

- Danger of personal injury or death for operators and others
- Adverse effects on the conveyor and other items

Non adherence to the information in these instructions and information within this manual can result in life threatening injury.

Intended use

This design lineshaft conveyor are intended for incorporation in a wide range of industrial systems & machines to transport goods. All conveyors are built to suit the application information the direct customer or reseller has provided. They are not recommended for use outside of these parameters without further assessment by the manufacturer.

Do not exceed the conveyor limits, if unsure contact your conveyor supplier prior to use.

Incorrect Use

The conveyor is not intended at any time, under any situation, to transport, people and some transportation of hazardous chemicals. These conveyors are not suitable for use in wet or oily environments. Around corrosive or abrasive substances. Or in direct contact with ultraviolet rays. Please check with you supplier

Specialists

Specialists are people who have knowledge of conveyor items and understand the instructions, and have the ability to carry out work professionally whilst knowing and observing regulations.

Competent Person

A person is regarded as competent if they have ‘sufficient training and experience or knowledge and other qualities to properly and safely carry out the required operation ‘ without causing risk to themselves or others’.

Electricians

Electricians must be able to assess and recognise possible dangers when performing tasks, due to training, experience and knowledge of regulations.

Motor wiring diagrams are contained within this manual.

Conveyor Safety

Dangers

The following dangers are some of the various dangers which may occur when operating, maintaining or cleaning the conveyor.

Spaceguard recommends staff to be trained, conveyor to be maintained in accordance to these instructions and conveyor to be checked daily prior to use

Safety Equipment

- Only carry out maintenance when the conveyor is switched off and measures taken so it cannot be started
- Organise additional measures to restrict access to the conveyor
- Never remove any guarding whilst the machine is running.
- Regularly inspect safety equipment and barriers
- Always wear PPE that is in good condition

Electricity

- Never reach into a live machine - Always Isolate from supply

Rotating parts

- Never wear loose clothing
- Never wear jewellery
- If long hair - wear a hair net

Work environment

- Keep work area tidy and clear of obstruction
- Wear safety shoes + other site minimum PPE including gloves
- Monitor work practice

Malfunctioning

- Inspect the conveyor for damage
- Be aware of any smoke or unusual noises, (Isolate at mains and seek advise)
- Clean up any oil spills
- Do not climb on the conveyor
- If Objects get jammed - Do not just pull - Isolated the conveyor and find cause of jam

Maintenance - Isolate prior to maintenance

- Carry out maintenance regularly
- Only use original spare parts

Incorporation

Danger zones can arise when integrating the conveyor into a system, machine or process. These danger zones are not covered in these instructions. These must be analysed during final assembly and installation and first start up. *Safe working practices and relevant training should be given to personnel.*

If necessary, implement and add further constructional methods

Conveyor Safety

PPE

Spaceguard recommends staff to be trained, and well maintained PPE worn as appropriate. PPE should be checked daily prior to use.

SAFETY SHOES

Spaceguard recommends all staff working around conveyor equipment to wear safety shoes. Specific type should depend on application, please take suitable advise from health and safety consultants.

TYPE OF SIGN TO BE DISPLAYED

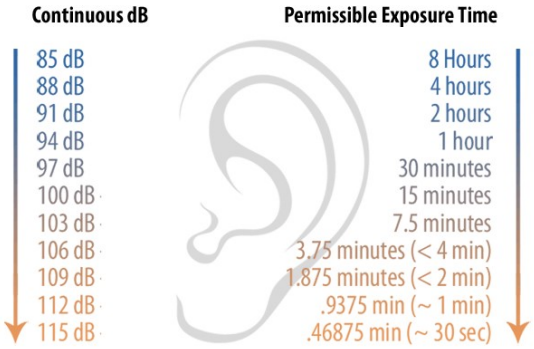
Conveyor Safety

PPE

Spaceguard recommends staff to be trained, and well maintained PPE worn as appropriate. PPE should be checked daily prior to use.

NOISE

The level at which employers must provide hearing protection and hearing protection zones is now 85 decibels (daily or weekly average exposure) and the level at which employers must assess the risk to workers' health and provide them with information and training is now 80 decibels. There is also an exposure limit value of 87 decibels, taking account of any reduction in exposure provided by hearing protection, above which workers must not be exposed. From HSE website



Ear protection options

Headband comfort ear defenders

For reduction of upto 30db

Foam disposable ear plugs

For reduction of upto 25db

Banded ear plugs

For reduction of upto 20db

TYPE OF SIGN TO BE DISPLAYED

Conveyor Safety

PPE

Spaceguard recommends staff to be trained, and well maintained PPE worn as appropriate. PPE should be checked daily prior to use.

Ensure long hair is tied up.

LOOSE HAIR

Spaceguard recommends all staff working around conveyor equipment to wear hair nets or appropriate means to tie long hair up and out of the way. Specific type should depend on application, please take suitable advise from health and safety consultants.

TYPE OF SIGN TO BE DISPLAYED

Conveyor Safety

PPE

Spaceguard recommends staff to be trained, and well maintained PPE worn as appropriate. PPE should be checked daily prior to use.

EYE Protection

Safety Glasses with impact lenses.

A suitable pair for task should be used. Spaceguard recommends. Advise should be taken from a health and safety consultant.

Safety Goggles with impact lenses.

A suitable pair for task should be used. Spaceguard recommends. Advise should be taken from a health and safety consultant. More used with high speed particles

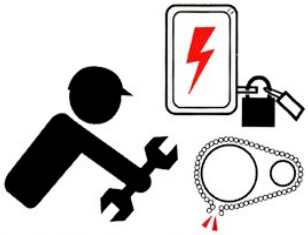
Full face visor with impact lenses.

A suitable pair for task should be used. Spaceguard recommends. Advise should be taken from a health and safety consultant. More used with high speed particles and liquid splashes.

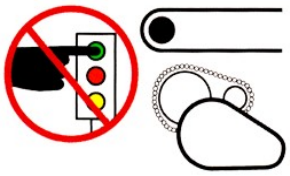
TYPE OF SIGN TO BE DISPLAYED

Conveyor Safety

Do Not Climb, Sit, Stand, Walk, Ride, or Touch the Conveyor at Any Time



Do Not Perform Maintenance on Conveyor Until Electrical, Air, Hydraulic and Gravity Energy Sources Have Been Locked Out and Blocked



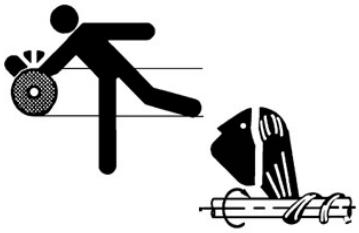
Operate Equipment Only With All Approved Covers and Guards in Place

Do Not Load a Stopped Conveyor or Overload a Running Conveyor

Ensure That All Personnel Are Clear of Equipment Before Starting

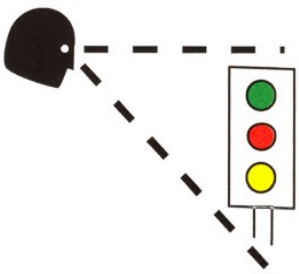
Allow Only Authorized Personnel To Operate or Maintain Material Handling Equipment

Do Not Modify or Misuse Conveyor Controls

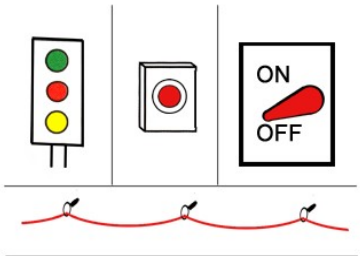


Keep Clothing, Body Parts and Hair Away from Conveyors

Remove Trash, Paperwork and Other Debris Only When Power is Locked Out



Ensure That ALL Controls and Pull Cords are Visible and Accessible



Know the Location and Function of All Stop and Start Controls

Report All Unsafe Conditions

POST IN PROMINENT AREA

We recommend risk assessments and safe working practices are adopted prior to use.
Keep work areas clear

Transport, movement and storage

The conveyors will be delivered generally on a pallet, secured with strapping and heat shrunk, highlighted for incorporation. On the pallet, there will be the conveyor items, supports, fixings etc along with a incorporation paperwork and wiring detail.

Transport and movement

CAUTION

Risk of injuries due to incorrect transport

- Transport must be carried out by qualified and authorised personnel.
- Lifting must be carried out be competent personnel

- Ensure people are not in danger - lift zone
- Ensure pallet and conveyors are lifted and moved safety, we would recommend due to the size and nature of the items moved a specific risk assessment and safe working procedure should be carried out and adopted.
- Wear appropriate PPE (including minimum Safety shoes and Gloves)

Delivery

- Prior to signing from the carrier the pallet must be inspected for damage. Notify the driver, by writing on there paperwork as damaged and contact your supplier. The carrier must be notified at time of delivery, to prevent any claims been refused.

Storage

WARNING

Risk of injuries due to incorrect Storage

- Do not stack conveyors on top of each other
- Do not place other objects on the conveyor
- Ensure conveyor is safely positioned prior to leaving it
- If the conveyor is not to be used straight away, protect from moisture and dust.

Movement - Conveyors supplied with castors

WARNING

Risk of injuries due to incorrect Movement - *if in doubt do not move*

- Ensure a risk assessment should also carried out and safe working procedure on regarding movement of conveyors
- Ensure the conveyor is free of objects prior to movement.
- Ensure the area is free from obstruction and floors swept.
- Ensure the castors are free to move without obstruction
- Ensure castors are in good condition.
- Ensure floor surface is suitable for moving conveyors
- Ensure the castors are locked prior to using the conveyor again.

Electrical Installation

DANGER

Danger of death due to live cable ends!

- Electrical installation should only be carried out by qualified / competent electrical personnel
- Disconnect from power supply
- Observe the minimum bending and wear

- Power is to be supplied to the panel by relevant isolated plug or direct into a control panel through an isolator
- Always check cable for damage
- Connect motor in accordance with EN-IEC 60204-1 - refer to motor wiring pages for wiring information

WARNING

Risk of injuries due to incorrect assembly

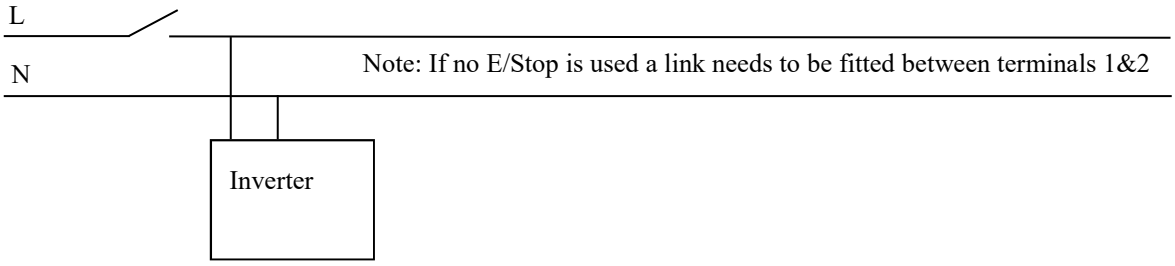
- A risk assessment and method statement must be carried out prior to final assembly and installation.
- Assembly must be carried out by competent and qualified personnel in accordance with the relevant safety instructions.
- Carefully assembly all connections, eg cables, hoses and pipes and check they are corrected correctly

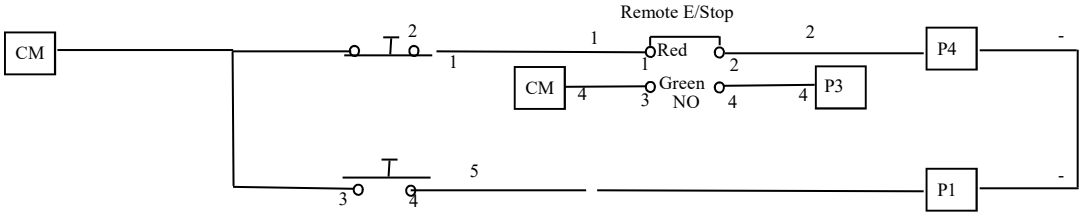
Notice

Risk of injuries or death due to incorrect assembly

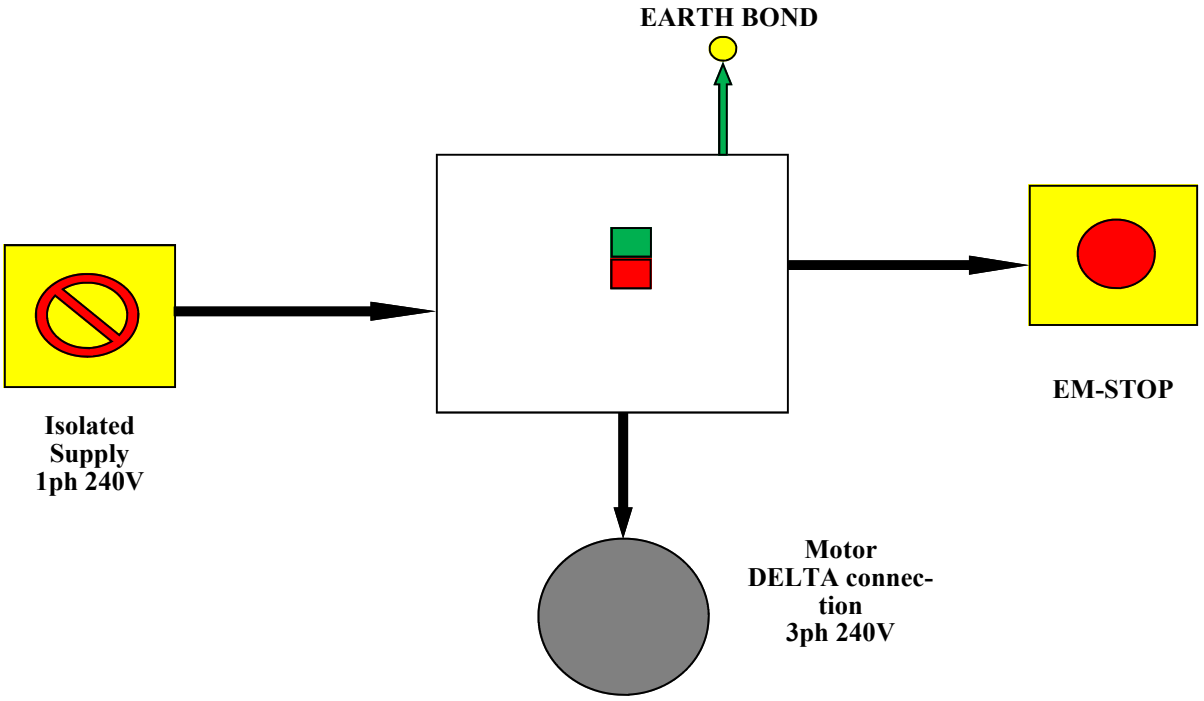
- Always ensure panels and electrical items are correctly earth bonded.
- Earth bonding and testing must be carried out by competent and qualified personnel in accordance with the relevant safety instructions, prior to putting this panel into service.

Wiring diagram: Panel
Single drive. Start / Stop / Estop
Input Voltage : 1ph 240V
Output Voltage: 3ph 240V (Delta wiring)





Panel Connection



Control panel inspection certificate

The manufacturer
Spaceguard Limited
Bergen Way, Hull, UK

Hereby declares that the control panel supplied

- Serial numbers between: 11000 - 13000

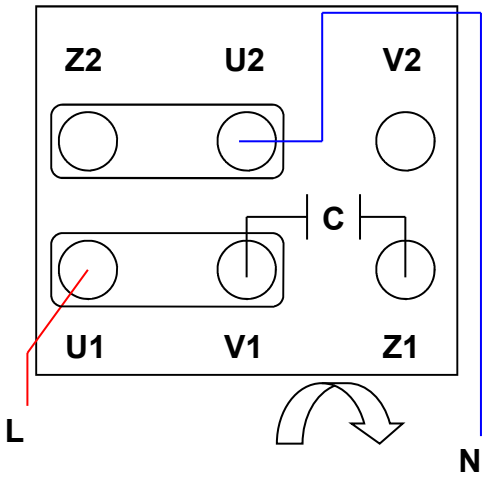
Is not a ready to use panel according to the EC machinery directive and therefore does not fully comply with the requirements of this directive.
Initial start up of these panels is not permitted until conformity of the entire machine / system / process in which they are installed has been declared via the EC machinery directive!

Insulation resistance test 1000V		
Control cables > 200MΩ	L1 to N > 200MΩ	N to PE > 200MΩ L1 to PE > 200MΩ

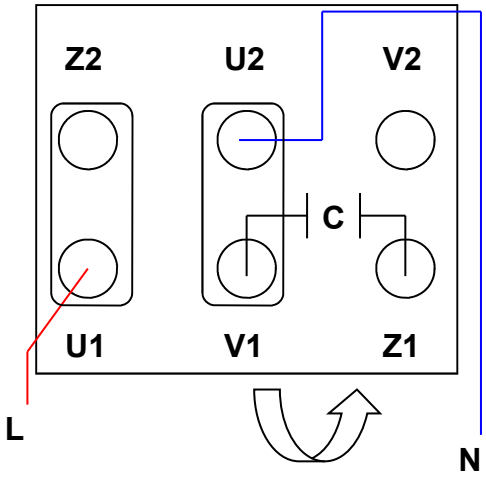
General
Panel wiring to BSEN 60204
All conveyor wiring to BS 7671 IEE regulations

Neil Ellerby
Director
29.08.2015

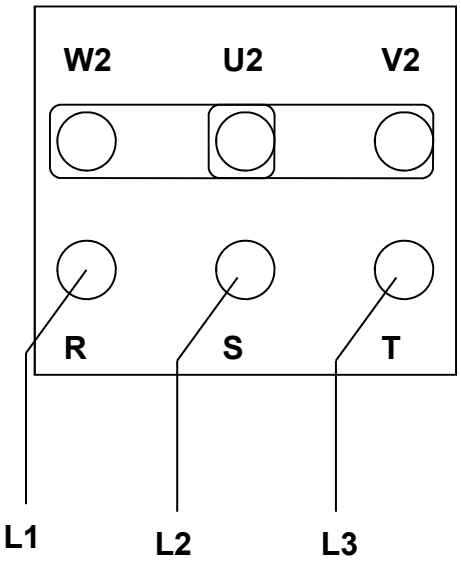
Geared Motor Wiring



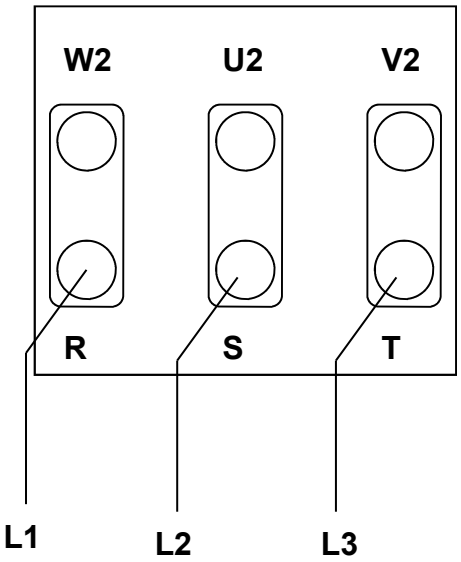
1 Phase 230 V



1 Phase 230 V



3 Phase 400 V



3 Phase 230 V

Motor Rating Plate

Safety note: Always electrically test end earth bond conveyors prior to operation.

Safety Data Sheets for belt materials

Storage

Keep in a neutral environment and do not expose products to direct sunlight.

Do not expose modules to extreme temperatures or open flame.
belts are flammable (does not apply to Flame

Installation

Use foot protection.
Use eye protection.
Use Gloves.

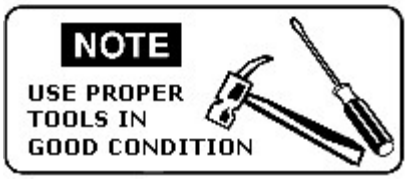
To avoid personal injury or damage to product, do not attempt to connect or disconnect conveyor modules unless you are familiar with conveyor module construction.

Before installing the chain or belt ensure that both the conveyor and belt are suitable for the application.

When connecting or disconnecting belt or chain:
Always lock out equipment power switch before removing or installing conveyor modules.

Use proper tools which should be in good condition.

Support the belt or chain to prevent uncontrolled movement.



Warnings

Fire

Modular plastic products are, unless clearly specified, made from materials which support open flame.
Products made from PVC & PU when so exposed, will emit toxic fumes.
Plastics should therefore not be exposed to extreme temperatures or open flame. Special care should be taken when undertaking repair work particularly when welding at a conveyor if the conveyor is fitted with plastic belts.

Personal Protection

Always use safety glasses when mounting or repairing chains and belts and while securing or removing pins.
Use only suitable tools in good condition.
The weight of some products calls for the use of safety shoes. When installing/removing or repairing belts on a conveyor, the motor must be turned off.

SPACEGUARD

Conveyor Maintenance Schedule + Spares requirements

Conveyor maintenance, service and daily checks are an essential part of the reliable, safe running of any conveyor. Failure to carry out these simple checks, may have a detrimental effect on the conveyor and potential safety implications. Below is the outlined recommended checks and maintenance detail for belt conveyors.

CONVEYOR MUST BE ISOLATED PRIOR TO CARRYING OUT CHECKS & MAINTENANCE

Daily checks by trained nominated operator

- Check condition of conveyor for visual damage including belt, structure etc
- Check for obvious signs of wear including in bearings & sprockets or loose fixings
- Check for foreign bodies lodged on or in the conveyor
- Check condition of warning signs and operating procedure
- Check condition of electric buttons and knobs - (Do not open panels)
- Check all personal using have had relevant training **& have all required PPE**
- Check conveyor bands. (inform maintenance if this need replacing)

If any problems or issues with the conveyor are found either during the prior to operation or during the working day. Stop using the conveyor, isolate and report to maintenance personnel and line managers.

Conveyor Maintenance - To be carried out by suitable qualified / competent person

- Check condition of conveyor
- Investigate Drive station for signs of wear.
- Check condition of external wiring.
- Tighten any loose fixings
- Grease any bearings as required
- Check and adjust shaft alignment as required
- Check condition of warning signs and operating procedure
- Check condition of electric buttons and knobs
- Check panel wiring and carry out electrical tests on conveyor
- Look over conveyor body for signs of damage
- Check condition and functionality of guarding directly associated with the conveyor and conveyor process + report

Conveyor maintenance should be carried out on a regular basis by a competent person, Contact us to ascertain service interval for your product. Recommend service period should be between 3 and 12 months dependent on application. (the more arduous shorter service the interval. FAILURE TO SERVICE CONVEYORS MAY CAUSE SAFETY RISKS.

Spare parts

We would always recommend the stocking of spare parts which minimises down time on conveyors, in the event of a part failure.

Geared motor
Conveyor rollers
Shaft bearings
Drive bands
Slave bands
Drive chains
Sprockets

Costing and accurate delivery details, available on request

Conveyor Number:

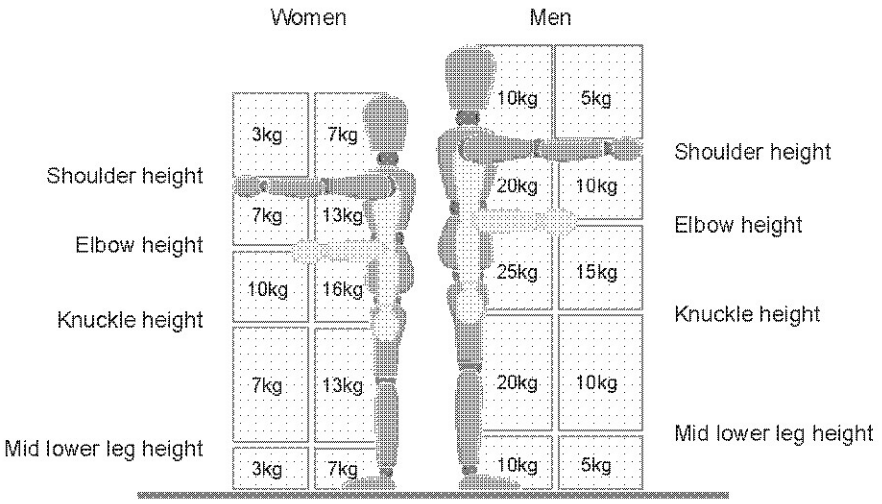
Conveyor Maintenance check list. Please fill out date and sign once work complete												
	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
Check condition of Conveyor												
Investigate Drive for signs of wear												
Check condition of external wiring												
Tighten any loose fixings												
Grease any bearings as required												
Check and adjust Shaft as required												
Check condition of warning signs and operating procedure												
Check condition of electric buttons and knobs												
Look over conveyor body for signs of damage												
Check condition and functionality of guarding directly associated with the conveyor and conveyor process + report												

Support sheet - conveyors

Prior to loading and use, thought must be given to where the conveyor is situated and the items you are putting on the conveyor, for example a shiny flat bottomed object will not go up inclined conveyors very well. Items with hot melt glue will not be suitable for conveyors., or very long items will not go down incline conveyors very well. The position and work area around the conveyor should be clear of obstruction, *as it is often the location and the process which will limit functionality*

Before use
The rule of thumb is quite simple, unless you have had adequate training on the piece of equipment, do not use it. This training should include, safest use practices which is application dependent, if conveyor is to be loaded by hand, manual handling training etc. Once you have had the relevant safety training, ensure you familiarise yourself with the control function and process for your application. A driven conveyor by nature has moving parts and must be treated with care.
Ensure the work area is clear of obstruction and any personal within the work area are aware of the conveyor starting.

Loading and unloading manually
The recommendations are briefly as follows. Do not lift anything over 25 kg, the sketch below shows roughing what is and is not acceptable for male and female. If there is twisting or tight access involved these figures should be reduced by at least 20%.

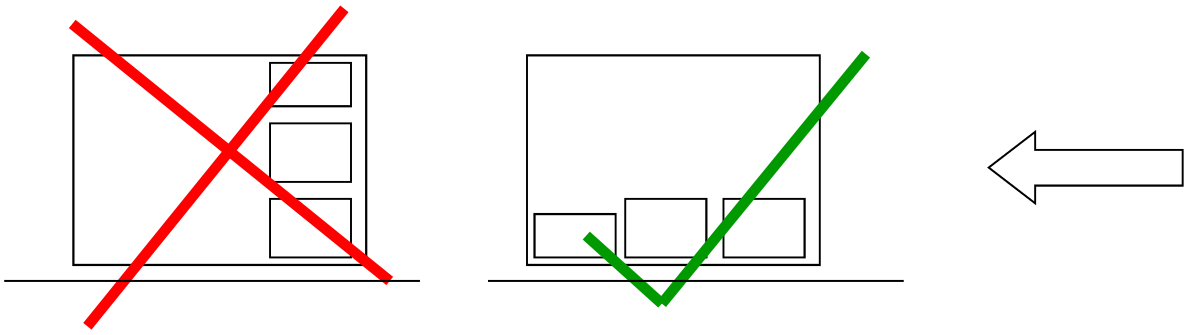


Operational loading.
When working against the conveyor the rule of thumb is a maximum of 450mm reaching is acceptable. Please note the weights you can lift near your person are not the same as when you reach over something. - **NOMINAL OPTIMUM LOADING HEIGHT = 850mm**

Using incline conveyors with basic start / stop function.
The best (safe) practice is to have one person at the top and one person at the bottom, with an effective means of communication between them. Transport one item at a time which will lower the risks of one of the people been overwhelmed. Note: always be in control of the contents on the conveyor. An application specific training document should created and followed at all times, with a copy of it and the relevant safety signs displayed near the conveyor.

Load distribution on incline conveyors

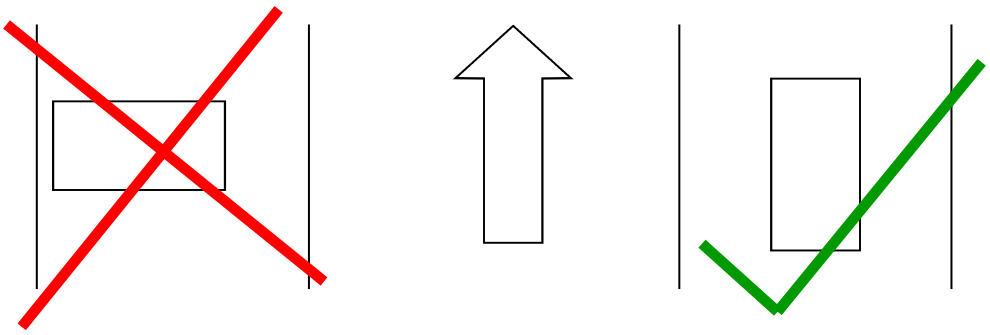
Due to the nature of incline conveyors, care must be taken in the packing of boxes totes and general positioning of items. The load must be as evenly spread against the conveyor belt, for example, do not stand a coat rack up on the conveyor and expect it not to fall over. When using boxes or totes make sure the load is spread out on the bottom of the box (see sketch)



Do not place items directly onto a moving conveyor belt.
Do not load an inclined belt whilst the conveyor is stopped.

An ideal loading involves placing the item on a gravity roller or fixed table and gently pushing the package (from the top of the package) towards the moving belt until the moving belt takes it away.

Position and orientation of items on the belt.
Items should always be placed centrally on the belt with short side leading



General safety.
If the conveyor is to be used by more than one team of people, We would recommend a reporting book, white board etc to pass information team to team

Maintenance checks
OPERATOR
Daily:
Check the general condition of belt. - Report any problems to an engineer
Visually check fixings for loose fixings
ENGINEER
Monthly:
Check condition of drive drum and return rollers, repair or replace as required.
Ensure tracking is correct, adjust if required.
Check fixings are tight

NOTE: Before any work is carried out ensure the equipment is properly secured isolated from the mains.

DRIVE BELTS

When it becomes necessary to replace a drive belt, there are choices depending on the situation. New original manufactured belts are the best and will last the longest. Replacement belts with hook connections require only the removal of a roller to install. Making belts by heat welding a length of cord stock requires special tools and techniques.

When replacing all belts, only use original type belts with the following procedure.

Disassembly/assembly procedures (original belts):

Remove all rollers.
Remove the line-shaft guarding.
Remove coupler chains at both ends.
Unbolt the line-shaft bearings from the conveyor crossmembers, then lower line-shaft carefully.
Place new belts over the line-shaft assembly. Fit spares, they must be secured with tie straps to the spacers. Do not tighten tie to cause belt compression or distortion or it will not be usable in the future.
Reassemble the line-shaft by bolting the line-shaft bearings to the crossmembers.
Realign adjoining coupler sprockets.
Attach coupler chains. Be aware of the drive belt's twist direction for proper conveying direction.
Twist belt onto roller's groove and reassemble roller into conveyor bed.

When replacing a few belts in a specific location, use original type belts with the following procedures:

Remove rollers receiving new belts.
Remove the line-shaft guard.
Remove the coupler chain closest to the replacement wear.
Remove the bolts holding line-shaft bearings between the coupler and replacement area.
Pass the belt between the coupler sprockets.
Pass belts over the line-shaft bearings.
Pass the belts through all connected belts by turning the roller while pulling the belt through.
With the new belts in their respective pulleys, reassemble bearing and couplings.

Manufacturers declaration

According to EC Machinery Directive 2006/42/EC

The manufacturer

Spaceguard Limited

Bergen Way, Hull, UK

Hereby declares that the conveyor module described belt

- Belt conveyor
- Serial numbers between: 11500 to 13000

Is not a ready to use machine according to the EC machinery directive and therefore does not fully comply with the requirements of this directive.
Initial start up of these conveyor modules is not permitted until conformity of the entire machine / system / process in which they are installed has been declared via the EC machinery directive!

Applied EC directives

Machinery directive 2006/42/EC
Low voltage directive 2006/95/EC
EMC Directive 2004/108/EC

Applied harmonised standards
EB ISO 12100 Pt 1 & Pt2
EN 294 Safety of machinery to prevent danger zones been reached
EN 349 Safety of machinery, minimum distances to avoid crushing
EN 60204-1

Neil Ellerby
Director
9th May 2015

Declaration of EC Conformity

According to the guidelines of the council for adjustment of the legal stipulations for the member states: 2006/42/EC

The manufacturer

Spaceguard Limited

Bergen Way, Hull, UK

Hereby certify that the conveyor module described belt

- Belt conveyor
- With serial number: 11346 to 13000

Complies with all the relevant provisions of the EC Machinery directive and the national laws and regulations adopting this directive. Any modifications to the machine will render this declaration null and void.

Applied EC directives

Machinery directive 2006/42EC
Low voltage directive 2014/35/EU
EMC Directive 2004/108/EC

With reference to:
EB ISO 12100 Pt 1 & Pt2
EN 30204-1-2006+A1:2009 Electrical equipment of machines
EN 619: 2002 Continuous handling systems and equipment
EN 294 Safety of machinery to prevent danger zones been reached
EN 349 Safety of machinery, minimum distances to avoid crushing
EN 60204-1

On behalf of Spaceguard limited

Director