Pallet Transfer System
HFL2002-S

www.lanco.us

A Systematic Approach to Assembly
Worldwide Offices

Internet-Addresses:
www.lanco.us
www.lanco.ch (Europe)

USA - Corporate
Lanco Transfer Systems
12 Thomas Drive
Westbrook, ME 04092
USA
Tel: 207 773 2060
Fax: 207 773 2021
E-Mail: info@lanco.net

USA – South East Office
Lanco SE
1750 Hwy. 160 W
Fort Mill, SC 29708
USA
Tel: 615 826 3644
Fax: 615 826 3622
E-Mail: info@lanco.net

USA – Mid West Office
Lanco MW
119 Cheshire Drive
Andersonville, TN 37705
USA
Tel: 865 494 8217
Fax: 865 494 8219
E-Mail: info@lanco.net

Switzerland - Corporate
Lanco AG
Gurzenenstrasse 14
CH-4512 Bellach
Tel: ++41 (0)32 617 38 00
Fax: ++41 (0)32 617 38 01
E-Mail: info@lanco.ch

United Kingdom
Chess Assembly Systems Limited
North Heath Industrial Estate, Unit 7
North Heath Lane
Horsham
West Sussex
RH12 5QE England
Tel: ++44 (0) 1403 249888
Fax: ++44 (0) 1403 249555
Website: http://www.chess-sys.com
E-Mail: sales@chess-sys.com

France
Abeille Productive
61, rue de la Division Leclerc
F-78830 Bonnieres
Tel: ++33 (0)130 41 39 00
Fax: ++33 (0)130 88 43 68
E-Mail: abeille.productive@wanadoo.fr

Italy
T.M.M. s.r.l.
Via O. Guerrini, 4
I-20133 Milano
Tel: ++39 02 7060 2666
Fax: ++39 02 236 7912
E-Mail: info@tmmmilano.com

A Systematic Approach to Assembly

Germany
Lanco Systemhaus Baden-Wurtemberg
Verkaufsburo der Lanco AG Schweiz
Michael-Welte-Strasse 21
D-78147 Vohrenbach
Tel: ++49 (0) 7727 929 655
Fax: ++49 (0) 7727 929 656
E-Mail: lancogmbh@t-online.de

Lanco Systemhaus Deutschland Mitte
Verkaufsburo der Lanco AG Schweiz
Kronbergstrasse 16B
D-97078 Würzburg
Tel: ++49 (0)931 250 90 450
Fax: ++49 (0)931 250 90 451
Mobil: ++49 (0)171 14 72 439
E-Mail: jens.meinck@lanco.ch

Lanco Systemhaus Bayern
Escad Systemtechnik GmbH
Reinhartser Strasse 18
D-87437 Kempten
Tel: ++49 (0)831 5700 20
Fax: ++49 (0)831 5700 10
E-Mail: lanco.kempten@t-online.de

Israel
DIES Engineering+Automation Co. Ltd
9 Pineles Street
62265 Tel Aviv
Tel:+972 (0)3 54 60 410
Fax:+972 (0)3 54 62 754

Hungary
Transmoduls Engineering Kft
H-8200 Veszprem
Jozsef Attila u. 9
Hungary
Tel:+36 (0)88 411-210
Fax:+36 (0)88 567-730
E-Mail: office@transmoduls.hu

Brasil
Lanco do Brasil
Rua Prof. Kydd James Galliano, 199
CEP: 82020 - 140
Curitiba – Parana, Brasil
Tel/Fax: ++55 41 3339 0004
E-Mail: aebi@terra.com.br

China
Asia Consult® Company
Room 101 No. 2 Lihua Gongyu
Xinzhuang, Shanghai, P.R.C. 201100
Overview: HFL 2002-S Transfer System

The HFL 2002-S Transfer System is an efficient modular, non-synchronous pallet transfer platform for material handling, assembly and test systems. It is suitable for creating lean manufacturing cells, and for building semi or fully automatic systems.

Expandable
The modularity of the HFL 2002-S Transfer System makes it easy to expand or contract as production demands change. Customers can initially create a semi-automatic system for small runs or low speeds, and later add more automation as production requirements increase.

Modular
System elements can be rearranged or redeployed as product life cycles change.

Two Guide Systems in One
You can choose the type of guidance needed at each element:

- **Central guidance with center rail,**
  for turns and precise, multiple-stop pallet positioning
  or
- **Side guidance,**
  which ensures full accessibility from below.

Fast & Efficient
Unique in the industry, the HFL 2002-S Transfer System makes the most of cycle time by utilizing **multiple stop positions and/or multiple parts** on a single pallet. This feature often eliminates the need for duplicate stations to make rate, thus reducing the overall cost of automation.

Ease of Maintenance
The HFL 2002-S Transfer System is maintenance-friendly. LANCO keeps all component parts, including endless transport belts, in stock. The drive and automatic belt-tensioner mechanisms are designed to allow a belt change in less than 60 seconds.

**Lanco: A Systematic Approach to Assembly**
**System Components**

**Transfer Pallets**

Depending upon system width \( B \) (200 ... 300 mm), a variety of transfer pallet lengths are available:

\( B = 200 \text{ mm} \) Length: 250, 300, 350, 400, 450, 500 mm

\( B = 250 \text{ mm} \) Length: 300, 350, 400, 450, 500 mm

\( B = 300 \text{ mm} \) Length: 350, 400, 450, 500 mm

Each pallet comes with a shock-absorbing bumper and 2 guide pins used for stopping at stations and guiding through corners and gated turns. More positioning pins can be added to the pallet for multiple-stopping capability, thus reducing cycle time between operations.

**Linear Tracks & Corner Modules**

Linear Tracks and Corner Modules are the basic building blocks of the HFL 2002-S Transfer System. Linear Tracks are mounted either on floor or table stands and carry pallets in a single direction through the various workstations. Each section is equipped with two belts that run freely over rollers to move the pallets. A single drive mechanism mounted below the track can be positioned anywhere along its length. Each drive mechanism has an automatic belt tensioner and is designed to allow belt replacement in less than 60 seconds. A single fixed-speed motor powers either a single track or multiple tracks in line. Also available is a two-speed motor that provides pallet deceleration and acceleration through the stops.

One Corner Module turns the pallet 90 degrees between Linear Tracks. Two combine to reverse pallet direction in a very short radius. Each turn maintains pallet orientation so that automation and pallet code positioning remain the same on either side of the line.

**Spur Tracks & Bridge Tracks**

Standard Spur Tracks and Bridge Tracks, supplied with In/Out Pallet Gating hardware for traffic control, are used to direct pallets away from the system loop. Spur Track work areas can be perpendicular (Magazines) or parallel (Parallel Tracks) to the line. By simply swapping the In & Out Gates, the pallet can be directed to enter the “exit” of the Spur Track, thus allowing “batch processing” or cyclic repetitions through the stations. This feature also reverses the pallet orientation in case access from the opposite side is desirable.

Internal Bridge Tracks can be used to divert pallets and bypass certain stations or sections on a loop. External Bridge Tracks can be used to create unlimited custom spur configurations depending upon the system need.

**Pallet Stops**

Standard and Shock-Absorbing Pallet Stops mount directly to the transfer system and can be combined with Pallet Lifting devices to provide support for high-load applications.
System Gating Examples

System Flexibility

A variety of pallet switching and diverting options are possible using the IN / OUT Pallet Gating system (page 5-1) in conjunction with Spur Tracks (page 5-1) or Bridge Tracks (page 5-6).

The “state” of a pallet (Finished / Unfinished; Good / Reject) is identified using a Pallet Coding System (Section 9). The “identity” of a pallet (Product A, B, C...) is also detected using this method at each point.

Same Operation, Varying Production Quantity

Shown is portion of a line using two perpendicular Spur Tracks (Magazines) to perform identical operations on the same product. Pallets worked on in the first Magazine bypass the second, and visa versa. This configuration provides a way to efficiently increase the production rate of these operations when the station tasks cannot be further divided. Simply add an operator at the second Magazine.

Same Product, Multiple Operations

Shown is a portion of a line using two perpendicular Spur Tracks (Magazines) to perform different operations on the same product. In this case Pallets enter both Magazines.

Multiple Products, Same Line

This example demonstrates the versatility of the HFL 2002-S Transfer System to run more than one product on the same line. By coding the pallet (either mechanical or electrical) the system can be programmed so that each Spur Track receives only the pallets containing the product it needs for that operation. In this case Pallet A bypasses the second Magazine, and Pallet B bypasses the first.

Bypassing with Bridge Tracks

A variation on the previous example, this configuration demonstrates the system loop bypass possibility using a Bridge Track. Pallet “C” is shown being diverted to the opposite side of the line. This feature can be used to assemble different parts simultaneously on the same line, to set up multi-passes through stations, or to simply and efficiently divert reject product into rework areas.
System Assembly Steps

STEP 1

Select a system width and Transfer Pallet Size
Based upon the transport needs of the product:
  \[ B = 200, 250 \text{ or } 300 \text{ mm} \]
- Transfer Pallet, Section 2

STEP 2

Select System Modules
- Length of Track Modules (Single & Double) for:
  - Main Loop
  - Spur Tracks (Magazine & Parallel)
  - Bridge Tracks, Section 3

STEP 3

Select Corner and Gating Modules
- 90° or 180° Corners, Section 4
- Spur Track, Forward & Reverse Gating, Section 5
- Bridge Track Gating, Section 5

STEP 4

Select Accessories
- Pallet Stops & Lifting Device, Section 6
- Table Modules, Section 7
- Safety Guarding, Section 7
- Manual Workstation, Section 8
- Pallet Coding System, Section 9
- Motor Controls & Other Accessories, Section 9

Your System is now ready to order
Call us at the Lanco office nearest you: See Page 1-6
System Application Examples

The HFL 2002-S Transfer System has the flexibility to start simply and to expand or increase automation as production requirements change. The modularity of the system makes layout changes or re-deployment of modules for new programs easy to do. Here are just a few of the types of configurations possible using Lanco’s HFL 2002-S Transfer System components.
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Lanco Transfer Systems  
12 Thomas Drive  
Westbrook, ME 04092  
USA  
Tel: 207 773 2060  
Fax: 207 773 2021  
E-Mail:info@lanco.net

**USA – South East Office**
Lanco SE  
1750 Hwy. 160W  
Fort Mill, SC 29708  
USA  
Tel: 615-826-3644  
Fax: 615-826-3622  
E-Mail:info@lanco.net

**USA – Mid West Office**
Lanco MW  
119 Cheshire Drive  
Andersonville, TN 37705  
USA  
Tel: 865-494-8217  
Fax: 865-494-8219  
E-Mail:info@lanco.net

**Switzerland - Corporate**
Lanco AG  
Gurzenenstrasse 14  
CH-4512 Bellach  
Tel:+41 (0)32 617 38 00  
Fax:+41 (0)32 617 38 01  
E-Mail:info@lanco.ch

**United Kingdom**
Lanco (UK) Ltd  
Stoneleigh Deer Park  
Staretton  
Warwickshire CV8 2LY  
Tel:+44 (0)2476 531839  
Fax:+44 (0)2476 531842  
E-Mail:alprofil@lancouk.win-uk.net

**France**
Abeille Productive  
61, rue de la Division Leclerc  
F-78830 Bonnelles  
Tel:+33 (0)130 41 39 00  
Fax:+33 (0)130 88 43 68

**Ireland**
SIS Stewart Industrial Services Ltd  
Mallusk Park  
Newtownabbey  
Co. Antrim BT36 8FS  
Belfast  
Tel:+353 (0)232 342464  
Fax:+353 (0)232 34470

**Germany**
Lanco Systemhaus Baden-Wurttemberg  
Verkaufsburo der Lanco AG Schweiz  
Michael-Welte-Strasse 21  
D-78147 Vohrenbach  
Tel: ++49 (0) 7727 929 655  
Fax:+49 (0)7727 929 656  
E-Mail:lancogmbh@t-online.de

**Hungary**
Transmoduls Engineering Kft  
H-8200 Veszprem  
Jozsef Attila u. 9  
Hungary  
Tel:+36 (0)88 411-210  
Fax:+36 (0)88 567-730  
E-Mail:office@transmoduls.hu

**Israel**
DIES Engineering+Automation Co. Ltd  
9 Pineles Street  
62265 Tel Aviv  
Tel:+972 (0)3 54 60 410  
Fax:+972 (0)3 54 62 754

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Lanco SE  
1750 Hwy. 160W  
Fort Mill, SC 29708  
USA  
Tel: 615-826-3644  
Fax: 615-826-3622  
E-Mail:info@lanco.net

**USA – Mid West Office**
Lanco MW  
119 Cheshire Drive  
Andersonville, TN 37705  
USA  
Tel: 865-494-8217  
Fax: 865-494-8219  
E-Mail:info@lanco.net

**Switzerland - Corporate**
Lanco AG  
Gurzenenstrasse 14  
CH-4512 Bellach  
Tel:+41 (0)32 617 38 00  
Fax:+41 (0)32 617 38 01  
E-Mail:info@lanco.ch

**United Kingdom**
Lanco (UK) Ltd  
Stoneleigh Deer Park  
Staretton  
Warwickshire CV8 2LY  
Tel:+44 (0)2476 531839  
Fax:+44 (0)2476 531842  
E-Mail:alprofil@lancouk.win-uk.net

**France**
Abeille Productive  
61, rue de la Division Leclerc  
F-78830 Bonnelles  
Tel:+33 (0)130 41 39 00  
Fax:+33 (0)130 88 43 68

**Ireland**
SIS Stewart Industrial Services Ltd  
Mallusk Park  
Newtownabbey  
Co. Antrim BT36 8FS  
Belfast  
Tel:+353 (0)232 342464  
Fax:+353 (0)232 34470

**Germany**
Lanco Systemhaus Baden-Wurttemberg  
Verkaufsburo der Lanco AG Schweiz  
Michael-Welte-Strasse 21  
D-78147 Vohrenbach  
Tel: ++49 (0) 7727 929 655  
Fax:+49 (0)7727 929 656  
E-Mail:lancogmbh@t-online.de

**Hungary**
Transmoduls Engineering Kft  
H-8200 Veszprem  
Jozsef Attila u. 9  
Hungary  
Tel:+36 (0)88 411-210  
Fax:+36 (0)88 567-730  
E-Mail:office@transmoduls.hu

**Israel**
DIES Engineering+Automation Co. Ltd  
9 Pineles Street  
62265 Tel Aviv  
Tel:+972 (0)3 54 60 410  
Fax:+972 (0)3 54 62 754
Transfer Pallets

Transfer Pallets carry workpieces from station to station. Pallets are made from precision flat aluminum plate with a super-hardcoat for durability. Customer-supplied fixture tooling holds the workpiece to the pallet.

Pallets are side-guided along open track sections and center-guided through stops and in corner or gating turns, therefore pallet orientation is maintained throughout the system. This simplifies pallet code positioning (all codes are on the same side) and allows for any line reconfiguration to occur (stations can be moved freely from side to side).

Pallets can be indexed through a station by simply stopping on each pallet pin, thus enabling multiple parts to be carried and processed on a single pallet. This feature decreases the distance between parts and therefore the transfer time between operations. It also simplifies working on more than one part at a time if the station cycle time requires it. Finally, indexing a pallet can also save an axis of motion for pick and place operations from pallet nest to pallet nest. All of these features contribute to lower cycle times and simpler/lower-cost automation.

Transfer Pallets come complete with two (2) Guide Pins and mounting hardware and a leading edge bumper.

Ordering Information

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<th>200mm</th>
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Standard Pallet Sizes

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<tr>
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</table>

Standard Pallet sizes are shown above. Custom sizes are available upon request.
Pallet Guiding & Positioning Pins

Proper positioning of Guide Pins is dependent on the Transfer Pallet length. This will determine the nature of the pallet motion during a turn through a corner or gate and the pitch of multiple stopping positions. Lanco’s Pallet Motion Simulation software is available to assist in proper pin positioning.

Minimum Positioning Pin spacing (A) is 20mm for positioning in Standard Pallet Stops (Chapter 6) and 40 mm for a Shock-Absorbing Pallet Stop.

Consult Lanco for special pin positions not shown in the chart below.

Ordering Information

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<td>Guiding Pin (w/ Bearing)</td>
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<td>AFH-A22-02056</td>
<td>Positioning Pin (w/out Bearing)</td>
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<td>Retainer, Standard Pin Spacing</td>
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<td>Bumper, 200 Wide Pallet</td>
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<td>Bumper, 250 Wide Pallet</td>
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<td>AFH-A22-01658</td>
<td>Bumper, 300 Wide Pallet</td>
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Single Track Module

Floor Mounted

Single Track Modules are conveyor sections used to transport pallets in a linear direction. They are typically connected to other Single Tracks or to Corner Modules for turning pallets 90 or 180 degrees. They serve as the building blocks for Bridge Tracks and Spur Track Modules as well as Manual Workstations (see page 8-1).

Single Track Modules come complete with: Floor Mounts, all Conveyor Belts, connection brackets and One (1) Drive.

Standard system dimensions are shown here. Custom lengths are available on request.

Standard speed 240 mm/s. Other speeds are available. Standard voltage 208 V 60 Hz.

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
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<td>Drive Speed:</td>
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<tr>
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<td>Manual Workstation Floor Mount</td>
<td>No Mount</td>
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Standard Floor Mount

Manual Workstation Floor Mount
Single Track Module

Table Mounted

Single Track Modules are conveyor sections used to transport pallets through tables in a linear direction. They are typically connected to other Single Tracks or to Corner Modules for turning pallets 90 or 180 degrees. They can also serve as Bridge Tracks. Table-mounted tracks are normally combined with Station Modules for automatic assembly operations (see page 7-1).

Single Track Modules come complete with: Table Mounts, all Conveyor Belts, connection brackets and One (1) Drive.

Standard system dimensions are shown here. Custom lengths available on request.

Standard speed 240 mm/s. Other speeds are available.
Standard voltage 208 V 60 Hz.

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
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<table>
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Drive Voltage: 208VAC 60Hz

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<th>Drive Speed:</th>
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Leg Set: Table Mount | No Mount

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</table>

B+10

L
Lift Gate Track Module

Track Mounted

Lift Gate Modules allow access to the inside of a transport system loop. The Lift Gate takes the place of a standard 1.0 meter Single Track Section between two other Track Sections. The hinge hardware mounts to one track section and the latch hardware mounts to the other track section.

Single Track Modules come complete with Hinge and Latch hardware. The belts on the Lift Gate are powered by the motor drive unit on the adjacent hinge side Track Module. Conveyor belt length is calculated based on the total length of the Lift Gate plus the adjacent track section (hinge side). See below.

Standard system dimensions are shown here.

Standard speed 240 mm/s. Other speeds are available.
Standard voltage 208 V 60 Hz.

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<th>Module Length: L</th>
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</thead>
<tbody>
<tr>
<td>200mm</td>
<td>1000mm</td>
</tr>
<tr>
<td>250mm</td>
<td>1000mm</td>
</tr>
<tr>
<td>300mm</td>
<td>1000mm</td>
</tr>
</tbody>
</table>

Belt Length Calculation

When connecting a Lift Gate to the adjacent Single Track Module, it is necessary to order two (2) additional conveyor belts to provide drive to the Lift Gate by spanning both track sections. These belts replace the adjacent track belts provided. Refer to Page 3-7 to order the required belts as specified below.

<table>
<thead>
<tr>
<th>Lift Gate Length</th>
<th>Adjacent Track Length</th>
<th>Specify 2 Belts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X (mm)</td>
<td>Part Number</td>
</tr>
<tr>
<td>1.0</td>
<td>500</td>
<td>AHK-112-23450</td>
</tr>
<tr>
<td>1.0</td>
<td>1000</td>
<td>AHK-112-24450</td>
</tr>
<tr>
<td>1.0</td>
<td>1500</td>
<td>AHK-112-25450</td>
</tr>
<tr>
<td>1.0</td>
<td>2000</td>
<td>AHK-112-26450</td>
</tr>
</tbody>
</table>
Double Track Module

Floor Mounted

Double Track Modules are conveyor sections typically used to create custom length Compact Loops or Spur Track Modules. They can also be combined with Single Tracks, Corners (90 & 180 Degree) and Manual Workstations for manual assembly operations (Section 8).

Double Track Modules come complete with: Floor Mounts, all Conveyor Belts, connection brackets and Two (2) Drives. The two drives can be configured to run in the same or opposite directions.

Standard system dimensions are shown here. Custom lengths available on request.

Standard speed 240 mm/s. Other speeds are available. Standard voltage 208 V 60 Hz.

Ordering Information

<table>
<thead>
<tr>
<th>D</th>
<th>L</th>
<th>3</th>
<th>F</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Width: B</td>
<td>200mm</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>250mm</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300mm</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Module Length: L</td>
<td>1000mm</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1500mm</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2000mm</td>
<td>2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2500mm</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3000mm</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Drive Voltage:</td>
<td>208VAC 60Hz</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive Speed:</td>
<td>240mm/sec.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No Drive</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leg Set:</td>
<td>Floor Mount</td>
<td>F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions

<table>
<thead>
<tr>
<th>Module Width:</th>
<th>Pallet Width: B</th>
</tr>
</thead>
<tbody>
<tr>
<td>X (mm)</td>
<td>200 250 300</td>
</tr>
<tr>
<td>Double Track</td>
<td>520 620 720</td>
</tr>
</tbody>
</table>
Stands

Note: Included with Standard Track Modules. Shown here for ordering separately.

Table Mount
All Standard Table Mount Stands correspond to a system line height* of 1000 mm (±/ 30 mm) when used with Table Modules shown in Section 7. Custom line heights are specified in the part number as shown below, in millimeters.

* Line Height is the distance from the floor to the top of the transfer system belt.

Floor Mount, Basic
All Standard Floor Mount Stands correspond to a system line height of 1000 mm (±/ 30 mm). Custom line heights are specified in the part number as shown below, in millimeters.

Floor Mount, Spur Tracks, Double Tracks & Manual Workstation
All Standard Floor Mount Stands correspond to a system line height of 1000 mm (±/ 30 mm). Custom line heights are specified in the part number as shown below, in millimeters.

Intermediate Element without Stand
Included with Standard Track Section Modules. For attachment of any of the above Stands to transport tracks, where no Intermediate Element is present. Specify Part Number based on Track Section width.

<table>
<thead>
<tr>
<th>System Width (mm)</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>AFH-A21-01656</td>
<td>Intermediate Element 200</td>
</tr>
<tr>
<td>250</td>
<td>AFH-A21-01657</td>
<td>Intermediate Element 250</td>
</tr>
<tr>
<td>300</td>
<td>AFH-A21-01658</td>
<td>Intermediate Element 300</td>
</tr>
</tbody>
</table>
Drives
Note: Included with Standard Track Modules. Shown here for ordering separately.

Drives for Track (where additional units are needed)
Standard Track Section Drive Units fall into three categories:

- **Dual Belt w/ Constant Speed**
  For typical track operation. Standard belt speed is 240mm/sec. Other speeds are available.

- **Dual Belt w/ variable Two-Speed Control**
  By reducing the drive speed at a station, soft pallet stopping can be achieved. Use with a 2-sensor Pallet Stop (Section 6)

- **Single Belt w/ Constant Speed**
  For situations in which a track section with a single belt is required, whether as a dual rail track or single rail (i.e. Feeder Belts)

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Drive Voltage:</th>
<th>Drive Belt Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>208VAC 60Hz</td>
<td>240mm/sec. Constant</td>
</tr>
<tr>
<td>250mm</td>
<td></td>
<td>0-300mm/sec. Variable / Reversible</td>
</tr>
<tr>
<td>300mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of Belts Driven: 1

Motor Mounting Positions
For Track Drives
(Default position is shown in solid lines)

Drives for Corner Modules (where additional units are needed)
The drive unit for Standard Corner Modules is specified below. It is used to drive a single belt with constant speed (300 mm/sec.) and can also be used to drive Feeder Belts:

<table>
<thead>
<tr>
<th>Turn Angle:</th>
<th>Drive Voltage:</th>
<th>Drive Belt Speed:</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 Deg.</td>
<td>208VAC 60Hz</td>
<td>300mm/sec. Constant</td>
</tr>
</tbody>
</table>

| D C - 9 0 0 0 - 0 1 0 0 |

HFL 2002-S Linear Tracks 3-6
Conveyor Belts

Note: Included with Standard Track Modules. Shown here for ordering separately or when combining any Track Modules with Spur Tracks, Bridge Tracks, or Lift Gates.

Lanco belts are pre-made and labeled with Part Number and Belt Length for ease of identification. The belt feed direction is also marked with an arrow.

Standard Belt Material is Rapplon TT04 Polyamide fabric jacket and polyamide foil tension member. Other belt materials are available for special applications.

Transport track without belt deflecting rollers

\[ L_T = 2 \times L + 450 \text{ mm} \]

Transport track with single pair of belt deflecting rollers at entry / exit to Bridge Track

\[ L_T = 2 \times L + 450 \text{ mm} \]

Belt lengths up to 25 mm longer can be accommodated by adjusting a pulley in the drive unit.

Transport track with two pair of belt deflecting rollers at entry / exit to Spur Tracks

\[ L_T = 2 \times L + 500 \text{ mm} \]

Combination of multiple transport tracks

It is possible to bridge over multiple transport tracks with a single conveyor belt, saving drives. This also occurs when using a Lift Gate Track Module (Page 3-3).

The maximum combined transport track length is 3200 mm.

How to order conveyor belts

1. Calculate conveyor belt length
2. Specify Part No.

Ordering Information

<table>
<thead>
<tr>
<th>A</th>
<th>H</th>
<th>K</th>
<th>1</th>
<th>1</th>
<th>2</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt Length: mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example:

Transport Track Length = 1.0 m

\[ L_T = 2 \times L + 450 \text{ mm} \]

\[ L_T = 2 \times 1000 + 450 \text{ mm} \]

\[ L_T = 2450 \text{ mm} \]

⇒ Part No. AHK-112-22450
Corner Module

Corner Modules are typically connected to any Single or Double Track Module and used to change the pallet direction by 90 or 180 degrees. They can be used to form Compact Loops, combined with Gate Modules (Chapter 5) to create custom Spur Tracks, or configured with Linear Tracks to make serpentine or any shape systems.

Corner Modules mount to each of the adjacent modules and include a belt drive unit angled at 45 degrees to quickly and efficiently transfer a pallet through the turn.

Standard speed 300 mm/s.
Standard voltage 208 V 60 Hz.

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>200mm</th>
<th>250mm</th>
<th>300mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turn Angle: 90 Deg.</td>
<td>0 0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>Turn Angle: 180 Deg.</td>
<td>0 1 8</td>
<td>0 0</td>
<td>0 0</td>
</tr>
</tbody>
</table>

I/O Requirements:
- 90 Deg. Corner: 1 Motor
- 180 Deg. Corner: 2 Motors
Gating Systems

Overview

Gating Systems are an important part of the HFL 2002-S Transfer System. They allow pallets to be diverted from the main transport loop onto Spur Tracks or Bridge Tracks.

This Section offers the Gating System mechanisms that are used to divert pallets into Spurs or Bridge Tracks. Common examples of Gating Systems are shown. To better clarify how these Gates are used, it is important to understand the definition of Spur Tracks and Bridge Tracks.

There are two types of Spur Tracks: Magazines with work area perpendicular to the main loop and Parallel Tracks with work area parallel to the main loop. Both can be used for manual or automatic workstations. By swapping In & Out Gates of a Spur Track, a batch-processing cell can be created that allows cyclic repetitions at the stations. This also reverses pallet orientation for access from the opposite side. Note that Spur Tracks can be placed directly on the corners of a transport loop, which helps save floor space.

There are two types of Bridge Tracks: In-Line Tracks used to bypass operations on a transport loop and Off-Line Tracks used to create custom Spur Tracks.

Gating Systems mount to Linear Track Modules (Section 3) and include switching gates, pallet stops, queue sensors and Corner Modules (for parallel tracks). Pallet Coding (Section 9) is typically required to identify pallets in conjunction with Gating Systems.
Magazine Gating

Magazine Middle Gate

Magazine Middle Gates connect Magazines, that have the minimum distance possible between its Linear Tracks, to the main loop (i.e. there is no separation between the In & Out Gates along the main loop track). A 180° Corner Module (Section 4) fits perfectly on the opposite end of the Magazine. Magazines are typically used for manual workstations (See page 1-3). By swapping the In & Out Gates on the Magazine, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Magazine Middle Gates can be placed anywhere along a Linear Track Module and include: (1) pneumatically operated switching gate, (1) passive switching gate, (2) pallet stops, (2) queue sensors, and (1) 180 degree Corner Module (optional).

For complete installation, specify:

- Double Track Module (Section 3)
- Valve for each Output
- Pallet Coding System (Section 9)

I/O Requirements:

4 Inputs 3 Outputs

Ordering Information

| System Width: B | 200mm | 200 |
| | 250mm | 250 |
| | 300mm | 300 |

| Pallet Travel: | Forward through Gate | F |
| | Reverse Loop | R |

| Corner Option: | Gate Only | 0 |
| | Complete with 180 Deg. Corner | K |

Loop Direction:

- Counterclockwise
- Clockwise

Gate and 180 Degree Corner

Gate Only

Forward through Gate

Reverse Loop

Pallet Travel Direction

Gate Only

Forward through Gate

Reverse Loop

Pallet Travel Direction
Magazine Gating

Magazine Left Gate

Magazine Left Gates connect Magazines, that have the minimum distance possible between their Linear Tracks, directly to the corners of the transport loop (to save space). A 180° Corner Module (Section 4) fits perfectly on the opposite end of the Magazine. By swapping the In & Out Gates on the Magazine, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Magazine Left Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (2) pallet stops, (2) queue sensors, and (1) 180 degree Corner Module (optional).

For complete installation, specify:
• Double Track Module (Section 3)
• Valve for each Output
• Pallet Coding System (Section 9)

I/O Requirements:
4 Inputs 3 Outputs

Ordering Information

| System Width: B | 200mm | 2 | 0 | 0 |
| 250mm | 2 | 5 | 0 |
| 300mm | 3 | 0 | 0 |
| Pallet Travel: | Forward through Gate | F |
| | Reverse Loop | R |
| Corner Option: | Gate Only | O |
| | Complete with 180 Deg. Corner | K |
| Loop Direction: | Counterclockwise | 0 |
| | Clockwise | C |

Gate Only
Forward through Gate

Gate Only
Reverse Loop

Gate and 180 Degree Corner
Forward through Gate

Gate and 180 Degree Corner
Reverse Loop
Magazine Gating

Magazine Right Gate

Magazine Right Gates connect Magazines, that have the minimum distance possible between their Linear Tracks, directly to the corners of the transport loop (to save space). A 180° Corner Module (Section 4) fits perfectly on the opposite end of whatever length Double Track Module is used for the Spur. By swapping the In & Out Gates on the Spur, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions on the Spur stations.

Magazine Right Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (2) pallet stops, (2) queue sensors, and (1) 180 degree Corner Module (optional).

For complete installation, specify:
- Double Track Module (Section 3)
- Valve for each Output
- Pallet Coding System (Section 9)

I/O Requirements:
- 4 Inputs
- 3 Outputs

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Pallet Travel:</th>
<th>Corner Option:</th>
<th>Loop Direction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Forward Gate</td>
<td>Gate Only</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>250mm</td>
<td></td>
<td>Complete with 180 Deg. Corner</td>
<td></td>
</tr>
<tr>
<td>300mm</td>
<td>Reverse Gate</td>
<td></td>
<td>Clockwise</td>
</tr>
</tbody>
</table>

Reverse Loop

Gate Only
Forward through Gate

Gate and 180 Degree Corner
Forward through Gate

Gate Only
Reverse Loop

Gate and 180 Degree Corner
Reverse Loop
Parallel Track Gating

Parallel Middle Gate

Parallel Middle Gates link Parallel Tracks to the transport loop at the minimum distance allowed between the Parallel and transport loop tracks (i.e. there is no separation between the In-Gate and the Corner to the Linear Track). Parallel tracks can be any length (See page 1-3 for various ways to use Parallel Tracks). By swapping the In & Out Gates on the Parallel Track, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Parallel Middle Gates can be placed anywhere along a Linear Track Module and include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops, (3) queue sensors for traffic control, and (2) 90 degree Corner Modules.

For complete installation, specify:
• Single Track Module (Section 3)
• Valve for each Output
• Pallet Coding System (Section 9)

Ordering Information

<table>
<thead>
<tr>
<th>P M</th>
<th>0 0 0 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>200mm</td>
</tr>
<tr>
<td></td>
<td>250mm</td>
</tr>
<tr>
<td></td>
<td>300mm</td>
</tr>
</tbody>
</table>

System Width: B

Pallet Travel: Forward through Gate, Reverse Loop

Loop Direction: Counterclockwise, Clockwise

I/O Requirements: 6 Inputs 4 Outputs

Parallel Gate
Forward through Gate

Parallel Gate
Reverse Loop

Parallel Middle Gate
Reverse Loop
Parallel Track Gating

Parallel Left Gate

Parallel Left Gates link Parallel Tracks directly to the left corner* of the transport loop (to save space) at the minimum distance allowed between the Parallel and transport loop tracks. Parallel Tracks can be any length (See page 1-3 for various ways to use Parallel Tracks). By swapping the In & Out Gates on the Parallel Track, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Parallel Left Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops, (3) queue sensors for traffic control, and (2) 90 degree Corner Modules. NOTE: (1) additional 90 degree Corner Module is included with reversing loop.

For complete installation, specify:
- Single Track Module (Section 3)
- Valve for each Output
- Pallet Coding System (Section 9)

* Left or right orientation of the Parallel Track and Gate is determined by its location when the loop drawing is rotated until the Parallel Track is on top.

Ordering Information

<table>
<thead>
<tr>
<th>P</th>
<th>L</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
</table>

System Width: B
- 200mm
- 250mm
- 300mm

Pallet Travel: Forward through Gate
- F
- Reverse Loop
- R

Loop Direction: Counterclockwise
- 0
- Clockwise
- C

I/O Requirements:
6 Inputs 4 Outputs
Parallel Track Gating

Parallel Right Gate

Parallel Right Gates link Parallel Tracks directly to the right corner* of the transport loop (to save space) at the minimum distance allowed between the Parallel and loop tracks. Parallel Tracks can be any length (See page 1-3 for various ways to use Parallel Tracks). By swapping the In & Out Gates on the Parallel Track, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Parallel Right Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops, (3) queue sensors for traffic control and (2) 90 degree Corner Modules. NOTE: (1) additional 90 degree Corner Module is included with reversing loop.

For complete installation, specify:
• Single Track Module (Section 3)
• Valve for each Output
• Pallet Coding System (Section 9)

* Left or right orientation of the Parallel Track and Gate is determined by its location when the loop drawing is rotated until the Parallel Track is on top.

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Pallet Travel:</th>
<th>Loop Direction:</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Forward through Gate</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>250mm</td>
<td>Reverse Loop</td>
<td></td>
</tr>
<tr>
<td>300mm</td>
<td>Reverse Loop</td>
<td>Clockwise</td>
</tr>
</tbody>
</table>

I/O Requirements:
6 Inputs 4 Outputs

Parallel Gate
Forward through Gate

Parallel Gate
Reverse Loop

Parallel Right Gate
Forward

Parallel Right Gate
Reverse Loop
Parallel Track Gating

Parallel End Gate

Parallel End Gates link Parallel Tracks to the end of the transport loop (to save space) at the minimum distance allowed between the Parallel and transport loop tracks. Non-reversing Parallel Tracks are as wide as the transport loop (See page 1-3 for various ways to use Parallel Tracks). By swapping the In & Out Gates on the Parallel Track, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Parallel End Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops (3) queue sensors for traffic control, and (2) 90 degree Corner Modules. The Reverse Loop version includes (2) additional Corner Modules.

For complete installation, specify:
• Single Track Module (Section 3)
• Valve for each Output
• Pallet Coding System (Section 9)

I/O Requirements: 6 Inputs 4 Outputs

Ordering Information

<table>
<thead>
<tr>
<th>System Width</th>
<th>Pallet Travel</th>
<th>Loop Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Forward Gate</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>250mm</td>
<td>Reverse Loop</td>
<td>Clockwise</td>
</tr>
<tr>
<td>300mm</td>
<td>Forward Gate</td>
<td></td>
</tr>
</tbody>
</table>

Parallel Gate
Forward through Gate

Parallel Gate
Reverse Loop

Pallet Travel Direction
Bridge Track Gating

In-Line Bridge Gate

Bridge Tracks can be In-Line (for bypassing operations on a loop) and Off-Line (for building custom Spur Tracks). In-Line Bridge Gates connect Bridge Tracks to opposite sides of a transport loop. By swapping the In & Out Gates on the Bridge Tracks, the pallet orientation can be rotated (reverse loop) for opposite side access and/or to perform cyclic repetitions at the stations.

Bridge Tracks Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops and (3) queue sensors for traffic control.

For complete installation, specify:
- Single Track Module (Section 3)
- Valve for each Output
- Pallet Coding System (Section 9)

I/O Requirements:
- 6 Inputs
- 4 Outputs

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Loop Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>250mm</td>
<td></td>
</tr>
<tr>
<td>300mm</td>
<td></td>
</tr>
</tbody>
</table>

Off-Line Bridge Middle Gate

Off-Line Bridge Middle Gates link custom-sized Spurs anywhere along a Linear Track Module and include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops and (3) queue sensors for traffic control. Custom Spurs have variable separation between the In & Out Gates, therefore an additional Pallet Stop is included for staging pallet(s) between them. This minimizes pallet transfer time through the Bridge.

For complete installation, specify:
- Single Track Modules (Section 3)
- Corner Modules (Section 4)
- Valve for each Output
- Pallet Coding System (Section 9)

I/O Requirements:
- 6 Inputs
- 4 Outputs

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Pallet Travel</th>
<th>Loop Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Forward through Gate</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>250mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In-Line Bridge Gate

Off-Line Bridge Gate Middle

Forward through Gate

Reverse Loop

Clockwise

Off-Line Bridge Gate Middle

Reverse Loop

Clockwise
Bridge Track Gating

Off-Line Bridge Left Gate

Off-Line Bridge Left Gates link Spur Tracks directly to the left corner of a transport loop. Custom Spurs have variable separation between the In & Out Gates, therefore an additional Pallet Stop is included for staging pallet(s) between them. This minimizes pallet transfer time through the Bridge. By swapping the In & Out Gates on a Bridge, the pallet orientation can be rotated (reverse loop) for access or to perform cyclic repetitions at the stations.

Off-Line Bridge Left Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops and (3) queue sensors for traffic control. Note: (1) additional 90 degree Corner Module is included with reversing loops.

For complete installation, specify: I/O Requirements:
• Single Track Module (Section 3)
• Corner Modules (Section 4)
• Valve for each Output
• Pallet Coding System (Sec. 9)

Ordering Information

B L - 0 0 0
System Width: B
200mm 2 0 0
250mm 2 5 0
300mm 3 0 0
Pallet Travel: Forward through Gate
Reverse Loop
Loop Direction: Counterclockwise
Clockwise

Off-Line Bridge Right Gate

Off-Line Bridge Right Gates link Spur Tracks directly to the right corner of a transport loop. An additional Pallet Stop is included for staging pallet(s) between the In & Out Gates. This minimizes pallet transfer time through the Bridge. By swapping the In & Out Gates on a Bridge, the pallet orientation can be rotated (reverse loop) for access or to perform cyclic repetitions at the stations.

Off-Line Bridge Right Gates include: (1) pneumatically operated switching gate, (1) passive switching gate, (3) pallet stops and (3) queue sensors for traffic control. Note: (1) additional 90 degree Corner Module is included with reversing loops.

For complete installation, specify: I/O Requirements:
• Single Track Module (Section 3)
• Corner Modules (Section 4)
• Valve for each Output
• Pallet Coding System (Sec. 9)

Ordering Information

B R - 0 0 0
System Width: B
200mm 2 0 0
250mm 2 5 0
300mm 3 0 0
Pallet Travel: Forward through Gate
Reverse Loop
Loop Direction: Counterclockwise
Clockwise
Pallet Stop

The **Standard Pallet Stop** mounts directly to the track profile and includes an actuated pawl lever that precisely stops the Pallet guide pins. Rails secure the pallet position in the lateral direction. A sensor embedded in the rail support verifies that the pallet pin has been secured. This allows stopping on multiple pallet pins or indexing through a station. An anti-reversing pawl can be added to prevent upstream-applied loads from moving the pallet backwards in the stop. Finally, a second pallet pin sensor is included with the “two-speed” motor option to give smooth deceleration and acceleration through the stop.

The **Shock-Absorbing Pallet Stop** uses an adjustable-strength shock absorber to cushion the pallet as it comes to rest.

Short guide rails typically maintain the position of one pallet pin, while long guide rails locate two or more pins.

*For complete installation, specify:*
- Valve for each Output

**I/O Requirements:**
- 1 Inputs 1 Outputs

**Ordering Information**

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>Stop Type:</th>
<th>Guide Rails:</th>
</tr>
</thead>
<tbody>
<tr>
<td>200mm</td>
<td>Standard</td>
<td>Short S</td>
</tr>
<tr>
<td>250mm</td>
<td>Damped 1-10</td>
<td></td>
</tr>
<tr>
<td>300mm</td>
<td>Damped 3-35</td>
<td></td>
</tr>
</tbody>
</table>

Positioning accuracy: \( \pm 0.02 \) mm lateral

*See Page 2-2 for the proper spacing between pallet posts and guides.*

**Options:**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFH-A22-01643</td>
<td>Ratchet Pawl, Anti-Reversing</td>
</tr>
<tr>
<td>AFH-A22-01644</td>
<td>Sensor, Stop Latch Detecting</td>
</tr>
</tbody>
</table>

HFL 2002-S  Pallet Stops & Lifts  6-1
Pallet Guide, Supplemental

The Supplemental Pallet Guide is used for precisely positioning a second pallet pin in the lateral direction if only one pallet pin is being captured in the stop rails.

The guide mounts directly to the transport track profile. This part is often used at stations where pallet indexing occurs.

Ordering Information

<table>
<thead>
<tr>
<th>System Width: B</th>
<th>200mm</th>
<th>250mm</th>
<th>300mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG - 0 0 - 0 0 0 0</td>
<td>2 0</td>
<td>2 5</td>
<td>3 0</td>
</tr>
</tbody>
</table>

Choosing a Pallet Stop

Limits of Allowed Pallet Queue Pressure

Max. stationary load in front of a Pallet Stop 50 kg.
Max. stationary load in front of a Corner Module 10 kg.

If these static limits are exceeded, a pallet pre-stop is needed.

Determination of Pallet Stop Type Needed

The maximum kinetic energy to stop a transfer pallet with a pallet stop without shock absorbers is:

\[ mv^2 = 320,000 \text{ kg} \cdot \text{m}^2/\text{s}^2 \]

Refer to the table at right.

1. If the kinetic energy calculated is shown in the non-shaded boxes, , a Standard Pallet Stop is sufficient.
2. If the kinetic energy calculated is shown in the shaded boxes, , a Shock Absorbing Pallet Stop is required. Use PS-XXD1-X100 or PS-XXD2-X100 (Page 6-1) or Track Drive with controlled deceleration (Page 3-6)

| Kinetic Energy \( [10^3 \text{ kgm}^2/\text{s}^2] \) | Speed \([\text{mm/s}]\) |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 200             | 250             | 300             | 375             |                 |
| 2               | 80              | 125             | 180             | 281.25          |
| 5               | 200             | 312.5           | 450 *           | 703.125 *       |
| 10              | 400 *           | 625 *           | 900 *           | 1406.25 *       |

Note: Shock absorbing Pallet Stops add a small amount of time to overall station cycle time calculations.
Pallet Lifting Devices

500 N Payload
To lift the transfer pallet off the conveyor belt.

This unit mounts to any Standard Table Module (Section 7).

Ordering Information

<table>
<thead>
<tr>
<th>System Width B [mm]</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type designation</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
</tr>
<tr>
<td>500 N</td>
<td>21-0412</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following elements must be specified when ordering this unit:

• Pallet Stop (Page 6-1)
• Support Element (By Customer)
• Valve

Technical Data

<table>
<thead>
<tr>
<th>Lifting Capacity (5 bar)</th>
<th>500 N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support Capacity (5 bar)</td>
<td>500 N</td>
</tr>
</tbody>
</table>

Stroke (adjustable) 0 ... 25 mm
Air Consumption per Stroke 0.05 l

I/O requirements:
2 Inputs
2 Outputs
Pallet Lifting Devices

500 kN Payload

To lift the transfer pallet off the conveyor belt.

This unit mounts to any Standard Table Module (Section 7).

Ordering Information

<table>
<thead>
<tr>
<th>System Width B [mm]</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type designation</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
</tr>
<tr>
<td>500 kN</td>
<td>21-0415</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustment Block</td>
<td>31-1970</td>
</tr>
<tr>
<td>Guarding</td>
<td>21-0416</td>
</tr>
</tbody>
</table>

The following elements must be specified when ordering this unit:

- Pallet Stop (Page 6-1)
- Support Element (By Customer)
- Valve

Technical Data

- Lifting Capacity: (5 bar) 1 kN
- Support Capacity: (5 bar) 500 kN
- Stroke: 12 mm
- Air Consumption per Stroke: 0.5 l

I/O requirements:

- 2 Inputs
- 2 Outputs
Table Module

With Frame for Safety Guarding

Automation equipment and HFL 2002-S components can be firmly secured onto a rugged 31.75 mm thick aluminum plate as part of Lanco’s Table Module. Equipment to perform operations such as pressing, screw driving, pick & placing, ultrasonic welding, riveting and bonding can be supported. External devices such as feeding systems can also be permanently positioned onto the Table Modules. These independent modules are easily built, debugged, and integrated together to form a completely flexible line.

Table Modules are available with integrated compressed air, exhaust manifolds and profile frame for safety guarding. Safety Guarding must be ordered separately (see page 7-2). Optional modular PC and PLC Controllers and system valving can also be supplied as required.

Refer to Page 10-2 for System Specifications and more detail on Table Modules.

Ordering Information

<table>
<thead>
<tr>
<th>T</th>
<th>M</th>
<th>O</th>
<th>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table Length: 1000 mm 1 0
1500 mm 1 5
2000 mm 2 0

Table Depth: Standard S
Narrow K

Guard Frame: With Guard Frame G
No Guard Frame 0

Air/ Exhaust Headers: With Headers H
No Headers 0

Table top plate: Aluminum, 31.75 mm thick

<table>
<thead>
<tr>
<th>Usable area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part.-No.</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>TM-0010-SG00</td>
</tr>
<tr>
<td>TM-0015-SG00</td>
</tr>
<tr>
<td>TM-0020-SG00</td>
</tr>
<tr>
<td>TM-0010-KG00</td>
</tr>
<tr>
<td>TM-0015-KG00</td>
</tr>
<tr>
<td>TM-0020-KG00</td>
</tr>
</tbody>
</table>

Capacity: 500kg per Table
Safety Guarding
For Table Modules

<table>
<thead>
<tr>
<th>Doors and Panels</th>
<th>Art.-No. for Module Length [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1000</td>
</tr>
<tr>
<td>Polycarbonate (PC) lateral</td>
<td>A 21-9510</td>
</tr>
<tr>
<td>Polycarbonate (PC) front/rear</td>
<td>B 21-9511</td>
</tr>
</tbody>
</table>

For Table Length of 1000mm, No additional vertical strut is included.

<table>
<thead>
<tr>
<th>Doors and Panels</th>
<th>Art.-No. for Module Length [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1500 2000</td>
</tr>
<tr>
<td>Polycarbonate (PC) lateral</td>
<td>A 21-9510</td>
</tr>
<tr>
<td>Polycarbonate (PC) front/rear</td>
<td>B 21-9513 21-9514</td>
</tr>
</tbody>
</table>

For Table Length of 1500 & 2000mm, An additional vertical strut is included.

<table>
<thead>
<tr>
<th>Fastening Elements</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left-hand Hinge</td>
<td></td>
</tr>
<tr>
<td>with Safety Switch</td>
<td>21-0320</td>
</tr>
<tr>
<td>with Safety Interlock</td>
<td>21-0322</td>
</tr>
<tr>
<td>Right-hand Hinge</td>
<td></td>
</tr>
<tr>
<td>with Safety Switch</td>
<td>21-0321</td>
</tr>
<tr>
<td>with Safety Interlock</td>
<td>21-0323</td>
</tr>
<tr>
<td>Panel</td>
<td></td>
</tr>
<tr>
<td>Fastening Set</td>
<td>21-0326</td>
</tr>
</tbody>
</table>
Manual Workstation

Overview

Manual workstation accessories shown below support either seated or standing operations. These accessories mount directly to the Manual Workstation Floor Mount Stands (FH Floor Mounts). See pages 3-1, 3-4 & 3-5.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Type designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame</td>
</tr>
<tr>
<td>2</td>
<td>Tool Hanger</td>
</tr>
<tr>
<td>3</td>
<td>Part Bins</td>
</tr>
<tr>
<td>4</td>
<td>Holder for Part Bins</td>
</tr>
<tr>
<td>5</td>
<td>Work Surface</td>
</tr>
<tr>
<td>6</td>
<td>Knee Switch</td>
</tr>
<tr>
<td>7</td>
<td>Courtesy Panel</td>
</tr>
<tr>
<td>8</td>
<td>Foot Switch</td>
</tr>
<tr>
<td>9</td>
<td>Foot Rest</td>
</tr>
<tr>
<td>10</td>
<td>Worksheet Holder</td>
</tr>
<tr>
<td>11</td>
<td>Workplace Lamp</td>
</tr>
</tbody>
</table>

Also, specify a Pallet Stop to hold the pallet in position at each workstation. (Section 6)

As shown with Single Track Module. Can also be used with Parallel or Magazine Spur Tracks and Double Track Modules.
Manual Workstation

Accessories

Frame for manual workstation.
For attachment to transport track.

<table>
<thead>
<tr>
<th>System Width B [mm]</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type designation</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
</tr>
<tr>
<td>Frame</td>
<td>21-0610</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Height: 1200
Width: 760
Profile: 40/80

Frame with slide rail for manual workstation.
For attachment to transport track.

<table>
<thead>
<tr>
<th>System Width B [mm]</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type designation</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
<td>Art.-No.</td>
</tr>
<tr>
<td>Frame with Slide Rail</td>
<td>21-0615</td>
<td>21-0616</td>
<td>21-0617</td>
</tr>
</tbody>
</table>

Height: 2000
Width: 760
Depth: 550 / 750 / 950
Length of slide rail: 1500
Profile: 40/80

Workplace Lamp 36 W, with fastening set for frame with slide rail.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workplace Lamp</td>
<td>21-0730</td>
</tr>
</tbody>
</table>
Manual Workstation

Accessories

Tool hanger with counterbalance.
Model with steel cable.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Hanger</td>
<td></td>
</tr>
<tr>
<td>0 ... 1 kg</td>
<td>21-0710</td>
</tr>
<tr>
<td>1 ... 2 kg</td>
<td>21-0711</td>
</tr>
<tr>
<td>2 ... 4 kg</td>
<td>21-0712</td>
</tr>
<tr>
<td>4 ... 7 kg</td>
<td>21-0713</td>
</tr>
<tr>
<td>7 ... 10 kg</td>
<td>21-0714</td>
</tr>
<tr>
<td>10 ... 14 kg</td>
<td>21-0715</td>
</tr>
</tbody>
</table>

Tool hanger with counterbalance.
Model with compressed air connection.
Connector = R ¼". Max. pressure 6 bar.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Hanger</td>
<td></td>
</tr>
<tr>
<td>1 ... 2.5 kg</td>
<td>21-0718</td>
</tr>
</tbody>
</table>

Glider with two stops.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glider</td>
<td>21-1668</td>
</tr>
</tbody>
</table>
Manual Workstation

Accessories

Color: blue
Universal design, range of sizes available.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>L</th>
<th>B</th>
<th>H</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Bin</td>
<td>90</td>
<td>95</td>
<td>54</td>
<td>21-1180</td>
</tr>
<tr>
<td>Part Bin</td>
<td>170</td>
<td>95</td>
<td>77</td>
<td>21-1182</td>
</tr>
<tr>
<td>Part Bin</td>
<td>230</td>
<td>140</td>
<td>132</td>
<td>21-1184</td>
</tr>
<tr>
<td>Part Bin</td>
<td>350</td>
<td>200</td>
<td>145</td>
<td>21-1186</td>
</tr>
<tr>
<td>Part Bin</td>
<td>350</td>
<td>200</td>
<td>200</td>
<td>21-1188</td>
</tr>
<tr>
<td>Part Bin</td>
<td>500</td>
<td>300</td>
<td>200</td>
<td>21-1190</td>
</tr>
</tbody>
</table>

Part Bins, Plastic

Fan-shaped holder for plastic part bins.
Space for 8 bins of 95 mm wide part bins.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan-Shaped Holder</td>
<td>21-0631</td>
</tr>
</tbody>
</table>

Linear holder for plastic part bins.
Space for 9 bins of 95 mm wide part bins.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Holder</td>
<td>21-0634</td>
</tr>
</tbody>
</table>

Worksheet Holder

Worksheet holder with fastening set.
Paper size: A4

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worksheet Holder</td>
<td>21-0740</td>
</tr>
</tbody>
</table>
Manual Workstation

Accessories

Color: green
Universal design, range of sizes available, stackable.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>L</th>
<th>B</th>
<th>H</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>80</td>
<td>40 mm</td>
<td>21-1110</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>160</td>
<td>40 mm</td>
<td>21-1115</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>80</td>
<td>80 mm</td>
<td>21-1120</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>160</td>
<td>80 mm</td>
<td>21-1125</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>80</td>
<td>160 mm</td>
<td>21-1130</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>160</td>
<td>160 mm</td>
<td>21-1135</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>240</td>
<td>160 mm</td>
<td>21-1140</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>160</td>
<td>240 mm</td>
<td>21-1145</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>240</td>
<td>240 mm</td>
<td>21-1150</td>
</tr>
<tr>
<td>Part Bin</td>
<td>240</td>
<td>240</td>
<td>240 mm</td>
<td>21-1155</td>
</tr>
</tbody>
</table>

Fan-shaped holder for metal part bins.
Space for 12 bins of 80 mm wide part bins (3 + 6 + 3).

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan-Shaped Holder</td>
<td>21-0630</td>
</tr>
</tbody>
</table>

Sliding tray for metal part bins.
Part bins may be moved to the optimal position.
Space for 16 bins of 80 mm wide part bins.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sliding Tray</td>
<td>21-0632</td>
</tr>
</tbody>
</table>
Manual Workstation

Accessories

Set of courtesy panels for manual workstation.

<table>
<thead>
<tr>
<th>System Width B [mm]</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type designation</strong></td>
<td><strong>Art.-No.</strong></td>
<td><strong>Art.-No.</strong></td>
<td><strong>Art.-No.</strong></td>
</tr>
<tr>
<td>for Linear Track</td>
<td>22-0850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Spur Track</td>
<td>22-0850</td>
<td>22-0860</td>
<td></td>
</tr>
</tbody>
</table>

Work surface with mounting brackets.

<table>
<thead>
<tr>
<th><strong>Type designation</strong></th>
<th><strong>Art.-No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Surface</td>
<td>21-0705</td>
</tr>
</tbody>
</table>

Work surface with mounting brackets and cut-out for part bins.

<table>
<thead>
<tr>
<th><strong>Type designation</strong></th>
<th><strong>Art.-No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Surface for Part Bins</td>
<td>21-0706</td>
</tr>
</tbody>
</table>

Color: blue
Universal design, range of sizes available.

<table>
<thead>
<tr>
<th><strong>Type designation</strong></th>
<th><strong>L</strong></th>
<th><strong>B</strong></th>
<th><strong>H</strong></th>
<th><strong>Art.-No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Bin</td>
<td>198 x</td>
<td>99 x</td>
<td>40 mm</td>
<td>21-1198</td>
</tr>
<tr>
<td>Part Bin</td>
<td>99 x</td>
<td>99 x</td>
<td>40 mm</td>
<td>21-1196</td>
</tr>
<tr>
<td>Part Bin</td>
<td>99 x</td>
<td>49 x</td>
<td>40 mm</td>
<td>21-1194</td>
</tr>
</tbody>
</table>
Manual Workstation

Accessories

with mounting brackets.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Rest</td>
<td>21-0670</td>
</tr>
</tbody>
</table>

Foot Rest: 320 x 500

with mounting brackets and cut-out for foot switch.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Rest for Foot Switch</td>
<td>21-0671</td>
</tr>
</tbody>
</table>

Foot Rest: 320 x 500
Cut-out: 150 x 100

for foot rest.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot Switch</td>
<td>21-0685</td>
</tr>
<tr>
<td>Foot Switch</td>
<td>21-0682</td>
</tr>
</tbody>
</table>

Foot Switch:

Knee Switch:

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Switch</td>
<td>21-0695</td>
</tr>
<tr>
<td>Knee Switch</td>
<td>21-0692</td>
</tr>
</tbody>
</table>
## Accessories

### Queue Sensor

Detects transfer pallet queue at a station.
Mounts directly to the transport track profile.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFH-A22-00750</td>
<td>Queue Sensor, Mount &amp; Cable</td>
</tr>
</tbody>
</table>

**I/O Requirements:**
1 Input

*Included with Pallet Gating System (Section 5)*

### Retainer

Serves as a hold-down when lifting parts from the transfer pallet.
Prevents tilting of a transfer pallet when used with a lifting device.
Mounts directly to the transport track profile.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFH-A22-00754</td>
<td>Retainer ZNH 001</td>
</tr>
</tbody>
</table>

*To be used in conjunction with Pallet Lifts (Section 6)*

### Light Barrier

For presence checking of parts at any point in a system.
Universal adjustment.
Mounts directly to the transport track profile.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA-S21-93500</td>
<td>Light Barrier</td>
</tr>
</tbody>
</table>

**I/O Requirements:**
1 Input

### Guide Setup Tool

For setting the separation of pallet pin guide rails in Pallet Stops (long and short rails), Gated Turns and Corner Modules.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA-S22-90600</td>
<td>Setup Tool, Pallet Stop &amp; Corner</td>
</tr>
</tbody>
</table>
Pallet Coding System

Overview

The “state” of a pallet (Finished / Unfinished; Good / Reject) is identified using a Pallet Coding System. The “identity” of a pallet (Product A, B, C...) is also detected using this method at each point in the system. The state or identity of any pallet can be changed as the result of an operation at chosen points in an automation system.

In conjunction with the Pallet Coding System, a variety of pallet switching and diverting options are possible using the Pallet Gating System (Section 5) for Spur Tracks or Bridge Tracks.

Code Mounting on Transfer Pallets (Section 2)

Fixed coding for transfer pallets.
Detected with fixed code reader.
Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 10F</td>
<td>24-0100</td>
</tr>
</tbody>
</table>

Binary Code

Single Level

Dynamic coding for transfer pallets.
Detected and actuated with reader/SETTERS or ramps.
Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 10B S01</td>
<td>24-0105</td>
</tr>
<tr>
<td>Data:</td>
<td>1 bit</td>
</tr>
</tbody>
</table>

Dual Level

Dynamic coding for transfer pallets.
Detected and actuated with reader/SETTERS or ramps.
Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 10B S12</td>
<td>24-0110</td>
</tr>
<tr>
<td>Data:</td>
<td>2 bit</td>
</tr>
</tbody>
</table>
Pallet Coding System

For fixed code reading. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 20F</td>
<td>24-0120</td>
</tr>
</tbody>
</table>

PLC requirement: 1 Input

For reading lower flag of dynamics codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 20B S01</td>
<td>24-0125</td>
</tr>
</tbody>
</table>

PLC requirement: 1 Input

For reading upper flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 20B S02</td>
<td>24-0130</td>
</tr>
</tbody>
</table>

PLC requirement: 1 Input

For reading lower and upper flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 20B S12</td>
<td>24-0135</td>
</tr>
</tbody>
</table>

PLC requirement: 2 Inputs
Pallet Coding System

**Code Reader / Setter**

**Lower Flag**

For reading and setting lower flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 30B S01</td>
<td>24-0140</td>
</tr>
</tbody>
</table>

PLC requirement:
1 Input
1 Output

For proper functioning, the following accessory must be specified:
- Valve

**Code Reader / Setter**

**Upper Flag**

For reading and setting upper flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 30B S02</td>
<td>24-0145</td>
</tr>
</tbody>
</table>

PLC requirement:
1 Input
1 Output

For proper functioning, the following accessory must be specified:
- Valve

**Code Reader / Setter**

**Lower and Upper Flag**

For reading and setting lower and upper flags of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 30B S12</td>
<td>24-0150</td>
</tr>
</tbody>
</table>

PLC requirement:
2 Inputs
2 Outputs

For proper functioning, the following accessory must be specified:
- Valve
Pallet Coding System

**Combined Code Reader / Setter**
- Code Reader / Setter Lower Flag
- Code Reader Upper Flag

For reading and setting lower flag and for reading upper flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 40B 1S2L</td>
<td>24-0155</td>
</tr>
</tbody>
</table>

PLC requirement:
- 2 Inputs
- 1 Output

For proper functioning, the following accessory must be specified:
- Valve

---

**Combined Code Reader / Setter**
- Code Reader Lower Flag
- Code Reader / Setter Upper Flag

For reading lower flag and for reading and setting upper flag of dynamic codes. Multiple fixing at 20 mm intervals.

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 40B 1L2S</td>
<td>24-0160</td>
</tr>
</tbody>
</table>

PLC requirement:
- 2 Inputs
- 1 Output

For proper functioning, the following accessory must be specified:
- Valve
Pallet Coding System

For setting lower flag of dynamic codes.
Ramp length = 80 mm

Type designation | Art.-No. |
-----------------|----------|
LC002 50B 1S    | 24-0165  |

PLC requirement:
passive
Setting by pallet motion.
Resetting by code reader / setter or by hand.

For resetting lower flag of dynamic codes.
Ramp length = 80 mm

Type designation | Art.-No. |
-----------------|----------|
LC002 50B 1R    | 24-0170  |

PLC requirement:
passive
Resetting by pallet motion.
Setting by code reader / setter or by hand.

For setting upper flag of dynamic codes.
Ramp length = 80 mm

Type designation | Art.-No. |
-----------------|----------|
LC002 50B 2S    | 24-0175  |

PLC requirement:
passive
Setting by pallet motion.
Resetting by code reader / setter or by hand.

For resetting upper flag of dynamic codes.
Ramp length = 80 mm

Type designation | Art.-No. |
-----------------|----------|
LC002 50B 2R    | 24-0180  |

PLC requirement:
passive
Resetting by pallet motion.
Setting by code reader / setter or by hand.
Pallet Coding System

For setting lower and upper flags of dynamic codes.
Ramp length = 80 mm

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 50B 1S2S</td>
<td>24-0185</td>
</tr>
</tbody>
</table>

PLC requirement:
passive
Setting by pallet motion.
Resetting by code reader / setter or by hand.

For resetting lower and upper flags of dynamic codes.
Ramp length = 80 mm

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 50B 1R2S</td>
<td>24-0190</td>
</tr>
</tbody>
</table>

PLC requirement:
passive
Setting by pallet motion.
Resetting by code reader / setter or by hand.

For setting lower flag and resetting upper flag of dynamic codes.
Ramp length = 80 mm

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 50 1S2S</td>
<td>24-0185</td>
</tr>
</tbody>
</table>

PLC requirement:
passive
Setting / resetting by pallet motion.
Resetting / setting by code reader / setter or by hand.

For resetting lower flag and setting upper flag of dynamic codes.
Ramp length = 80 mm

<table>
<thead>
<tr>
<th>Type designation</th>
<th>Art.-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC002 50B 1R2S</td>
<td>24-0200</td>
</tr>
</tbody>
</table>

PLC requirement:
passive
Setting / resetting by pallet motion.
Resetting / setting by code reader / setter or by hand.

Code Setter Lower and Upper Flag
Code Resetter Lower and Upper Flag
Code Setter Lower Flag
Code Resetter Upper Flag
Code Resetter Lower Flag
Code Setter Upper Flag
Code Setter Lower and Upper Flag
Code Resetter Lower and Upper Flag
Code Resetter Lower Flag
Code Setter Upper Flag
Motor Controls

Several Options are available from Lanco for providing power to Track Drive Motors and Corner Drive Motors. Review the options shown below for the appropriate method for your application.

**Option 1: Basic Motor ON/OFF Junction Box**

If Customer provides conditioned power. This option is best for small transport loops where a power bus is unnecessary.

**Track Motor**

![Schematic for Track Motor]

208VAC, 60Hz  
1 Phase

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Qty.</th>
<th>Unit of Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA-S06-59000</td>
<td>1</td>
<td>Per Motor</td>
<td>Motor On/Off Control Box</td>
</tr>
<tr>
<td>BEB-155-00001</td>
<td>1</td>
<td>Per Track Motor</td>
<td>Capacitor, 4uF 370V</td>
</tr>
</tbody>
</table>

**Corner Motor**

![Schematic for Corner Motor]

208VAC, 60Hz  
1 Phase

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Qty.</th>
<th>Unit of Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA-S06-59000</td>
<td>1</td>
<td>Per Motor</td>
<td>Motor On/Off Control Box</td>
</tr>
</tbody>
</table>
Motor Controls

Option 2: Power Bus Motor Control

This option is best for large transport loops where a power bus is necessary to minimize wiring.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Qty.</th>
<th>Unit of Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AAA-S06-30100</td>
<td>1</td>
<td>Per 20 Motors</td>
<td>Motor Control Box - 20 Motors</td>
</tr>
<tr>
<td>2</td>
<td>AAA-S06-59000</td>
<td>1</td>
<td>Per Motor</td>
<td>Motor On/Off Control Box</td>
</tr>
<tr>
<td>3</td>
<td>BEB-155-00001</td>
<td>1</td>
<td>Per Track Motor</td>
<td>Capacitor, 4uF 370V</td>
</tr>
<tr>
<td>4</td>
<td>BBY-155-00004, 5, 6</td>
<td>1</td>
<td>Per Motor</td>
<td>Quick Disconnect, 5 Pole</td>
</tr>
<tr>
<td>5</td>
<td>BBY-155-00007</td>
<td>L</td>
<td>Ft. Total Length</td>
<td>Bus Ribbon Cable, 10 Motor Capacity</td>
</tr>
<tr>
<td>6</td>
<td>BBY-155-00002</td>
<td>2</td>
<td>Per Bus Ribbon</td>
<td>End Caps for Bus Ribbon Cable</td>
</tr>
<tr>
<td>7</td>
<td>BBY-155-00003</td>
<td>1</td>
<td>Per Bus Ribbon</td>
<td>Main Power Connector, Bus Ribbon</td>
</tr>
</tbody>
</table>

Schematic for Motor Control Box and Power Bus
System Specifications

Transport Track
Transport Belt Height: 1000 mm
System Width: B
(Transfer Pallet Width): 200, 250, 300 mm
Track Length: L
(Length of Transport Tracks): 1.0, 1.5, 2.0, 2.5, 3.0 m
Stands: Floor Mount, Table Mount, Manual Workstations, Spur Tracks, Compact Loops
Transfer Pallet Guidance: Central or Side guidance
Custom transport belt heights and track lengths are available on request.

Pallet Positioning Accuracy – X-Y Direction
Automatic Stop: +/- 0.02 mm (0.0008 in.)
Manual Stop: +/- 2.00 mm (0.079 in.)

Drive for Linear Tracks & Corners
AC-motor with gearbox
- Select left or right running
- Integral capacitor
- Integral latching thermal protection
- Temperature Range: 10 ... 40 °C
- Protection Class: IP54
- External Fusing: 8 A

Linear Track Drive Unit (Double belt)
Performance: 100 W
Standard Voltage: 208 V 50/60 Hz, 0.75 A
Available: 115V 50/60 Hz 1.5 A
Stationary Load Capacity per Linear Drive: 60 kg (max)
Standard Belt speed: 240 mm/s (14.4 m/min)
Available:
- 300 mm/s (18 m/min)
- 360 mm/s (21.6 m/min)
- 450 mm/s (27 m/min)
Option:
Two-Speed Electronic Belt Speed Control 10 ... 100 %
Nominal Speed: 300 mm/s (18 m/min)

Corner Drive Unit (Single Belt)
Performance: 25 W
Standard Voltage: 208 V, 50/60 Hz, 0.75 A
Belt speed: Standard: 300 mm/s (18 m/min)
Technical Data

Linear Track Drive Loading

The **Load** is the combined weight of pallets, including fixtures and parts, over the span of a linear track section.

Combined max. load per linear track drive: **60 kg (132 lb)**

Drive load may be contained on a single pallet or distributed over multiple pallets.

---

**Cycle Time vs. Production Rate**

Calculate production volumes based on various cycle times.

Or

Derive machine cycle times based on production volume requirements.

This information will help you to determine how many work pieces will be needed on a pallet to meet cycle time requirements. This, in turn, will determine the pallet size required (Section 2).

<table>
<thead>
<tr>
<th>SEC. PER PRT</th>
<th>PER MIN @ 100% EFF.</th>
<th>PER HR @ 100% EFF.</th>
<th>PER HR @ 85% EFF.</th>
<th>PER SHIFT (8 HR) @ 100% EFF.</th>
<th>PER SHIFT (8 HR) @ 85% EFF.</th>
<th>PER MO. (22 DAYS) @ 85% EFF.</th>
<th>PER YR. (250 DAYS) @ 85% EFF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>3,600</td>
<td>3,060</td>
<td>28,800</td>
<td>24,480</td>
<td>538,560</td>
<td>6,120,000</td>
</tr>
<tr>
<td>1.2</td>
<td>50</td>
<td>3,000</td>
<td>2,550</td>
<td>24,000</td>
<td>20,400</td>
<td>448,000</td>
<td>5,100,000</td>
</tr>
<tr>
<td>1.5</td>
<td>40</td>
<td>2,400</td>
<td>2,040</td>
<td>19,200</td>
<td>16,320</td>
<td>359,040</td>
<td>4,090,000</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>1,800</td>
<td>1,530</td>
<td>14,400</td>
<td>12,240</td>
<td>269,280</td>
<td>3,060,000</td>
</tr>
<tr>
<td>2.5</td>
<td>24</td>
<td>1,440</td>
<td>1,224</td>
<td>11,520</td>
<td>9,792</td>
<td>215,424</td>
<td>2,448,000</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>1,200</td>
<td>1,020</td>
<td>9,600</td>
<td>8,160</td>
<td>179,520</td>
<td>2,040,000</td>
</tr>
<tr>
<td>3.5</td>
<td>17.1</td>
<td>1,029</td>
<td>874</td>
<td>8,229</td>
<td>6,994</td>
<td>153,874</td>
<td>1,748,571</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
<td>900</td>
<td>765</td>
<td>7,200</td>
<td>6,120</td>
<td>134,640</td>
<td>1,530,000</td>
</tr>
<tr>
<td>4.5</td>
<td>13.3</td>
<td>800</td>
<td>680</td>
<td>6,400</td>
<td>5,440</td>
<td>119,680</td>
<td>1,360,000</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>720</td>
<td>612</td>
<td>5,760</td>
<td>4,896</td>
<td>107,712</td>
<td>1,224,000</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>600</td>
<td>510</td>
<td>4,800</td>
<td>4,080</td>
<td>89,760</td>
<td>1,020,000</td>
</tr>
<tr>
<td>7</td>
<td>8.6</td>
<td>514</td>
<td>437</td>
<td>4,114</td>
<td>3,497</td>
<td>76,937</td>
<td>874,286</td>
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<tr>
<td>8</td>
<td>7.5</td>
<td>450</td>
<td>383</td>
<td>3,600</td>
<td>3,060</td>
<td>67,320</td>
<td>765,000</td>
</tr>
<tr>
<td>9</td>
<td>6.7</td>
<td>400</td>
<td>340</td>
<td>3,200</td>
<td>2,720</td>
<td>59,840</td>
<td>680,000</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>360</td>
<td>306</td>
<td>2,880</td>
<td>2,448</td>
<td>53,856</td>
<td>612,000</td>
</tr>
<tr>
<td>11</td>
<td>5.5</td>
<td>327</td>
<td>278</td>
<td>2,618</td>
<td>2,225</td>
<td>48,960</td>
<td>556,364</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>300</td>
<td>255</td>
<td>2,400</td>
<td>2,040</td>
<td>44,880</td>
<td>510,000</td>
</tr>
<tr>
<td>13</td>
<td>4.6</td>
<td>277</td>
<td>235</td>
<td>2,215</td>
<td>1,883</td>
<td>41,428</td>
<td>470,769</td>
</tr>
<tr>
<td>14</td>
<td>4.3</td>
<td>257</td>
<td>219</td>
<td>2,057</td>
<td>1,749</td>
<td>38,469</td>
<td>437,143</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>240</td>
<td>204</td>
<td>1,920</td>
<td>1,632</td>
<td>35,904</td>
<td>408,000</td>
</tr>
<tr>
<td>16</td>
<td>3.8</td>
<td>225</td>
<td>191</td>
<td>1,800</td>
<td>1,530</td>
<td>33,660</td>
<td>382,500</td>
</tr>
<tr>
<td>17</td>
<td>3.5</td>
<td>212</td>
<td>180</td>
<td>1,694</td>
<td>1,440</td>
<td>31,680</td>
<td>360,000</td>
</tr>
<tr>
<td>18</td>
<td>3.3</td>
<td>200</td>
<td>170</td>
<td>1,600</td>
<td>1,360</td>
<td>29,920</td>
<td>340,000</td>
</tr>
<tr>
<td>19</td>
<td>3.2</td>
<td>189</td>
<td>161</td>
<td>1,516</td>
<td>1,288</td>
<td>28,345</td>
<td>322,105</td>
</tr>
<tr>
<td>20</td>
<td>3</td>
<td>180</td>
<td>153</td>
<td>1,440</td>
<td>1,224</td>
<td>26,928</td>
<td>306,000</td>
</tr>
</tbody>
</table>
Technical Data

Pneumatic
Standard Pallet Stop

Damped Pallet Stop

Pallet Lift
500N and 500kN Payload

Gating System

Standard Pneumatic Service Unit
Including Filter / Regulator, Pressure Control Switch and Soft–Start Valve

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA-C21-91100</td>
<td>Main Air Supply Unit</td>
</tr>
</tbody>
</table>

Output Air Filter
Compressed air exhaust filter for use on Table Module exhaust header (Section 7)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFH-A21-00920</td>
<td>Exhaust Air Filter</td>
</tr>
</tbody>
</table>