

PRODEL

The power of the
Prodel AFP system now
available in a
compact product

> DirectLine >





1LM and 1L2M manual modules

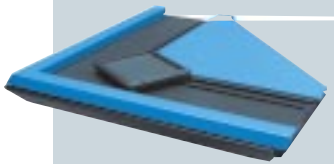
This station is designed to be operated manually. The module consists of a conveyor equipped with one or two workstations and a read/write head. Pallets are read prior to entering the workstation by a second read head.

The Turbo controller and its' LCD screen and keyboard can be mounted on up-right cross bars just like a front panel, or inserted in a remote box fixed on the front of the module.

1L1A and 1L2A automated modules

One or two work stations equip these modules. The pallet is positioned on an anvil for a flat referenced surface. The stations may contain a 4-column platform mount for actuators and tooling. An optional safety housing prevents access to mobile parts.

The Turbo controller with its LCD screen and keyboard can be mounted on the front panel of the safety housing or on a remote box set in the front of the module.



1L90 and LU angle modules

The 1L90 angle modules are used to free up space in the center of the assembly line and create "open" layouts. The additional space may be used to install large equipment needed for the assembly process or to integrate single way conveyors that better fit the production floor footprint.

LU angle modules make L or U shaped line layouts to minimize distances between machines.

Shunt module CY

These modules are used to divide the line in islands. They can direct the pallets toward the interior or exterior loop of the line and reinsert them at the desired location.

Linear module 1LC

This conveying module with a 580 mm length adjusts the line to layout constraints.

Access module 1LP

The circulation track can be raised allowing personnel or materials access to the inside of an "open" line layout.

Compact and accessible modules



The DirectLine product range is made of compact "in-line" modules equipped with the same system as the established AFP/Prodel modules. This ensures DirectLine/Prodel modules are compatible with earlier generation AFP/Prodel modules. DirectLine modules have increased frontal access. This helps to facilitate mechanical integration.

Simplified integration

Automatic DirectLine modules allow total front access to the mechanics and the controller for simplified integration and troubleshooting.

Protective housing

Protected by two doors which can be fully opened, the housing is designed with an extra 250 mm extension in front giving plenty of room for integration. The rear part of the module is free of equipment.

Configured in an "open" layout, the rear platform can be extended with a 25 mm thick plate, 600 mm long to support additional integrated equipment.

Control panel

Fit in the upper part of the module, access to the control panel is available by simply tilting the cover.

Over sized, it contains all the electrical circuitry, while allows free access to Turbo controller boards.

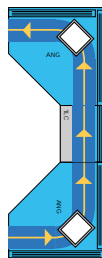
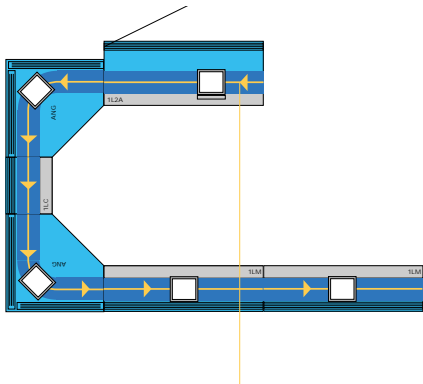
Pallet indexing

Pallet indexing stations lock pallets toward the exterior side of the line using a 15 mm stroke cylinder. This system differs from AFP modules

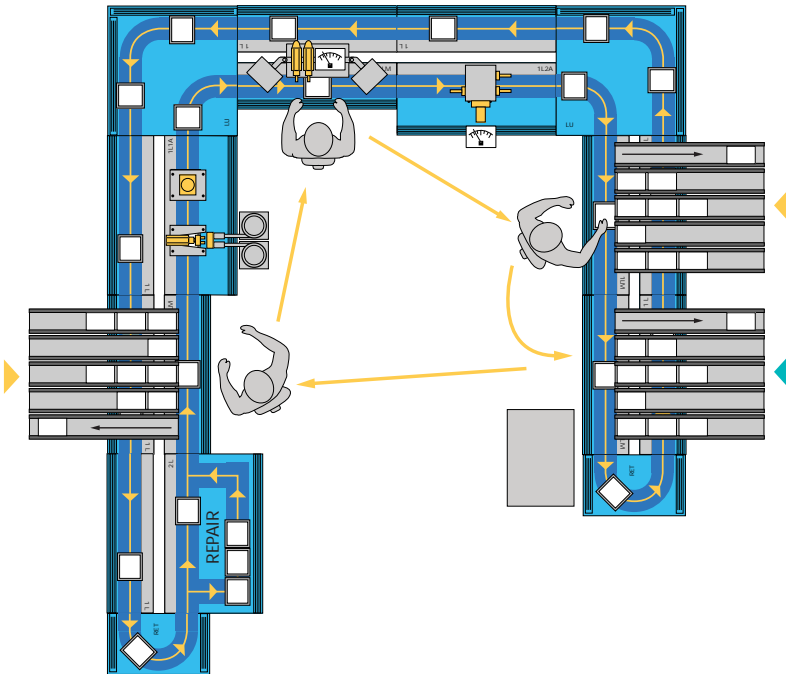


where the index stroke is directed toward the interior side of the line.

Σ-034 START



> DirectLine <



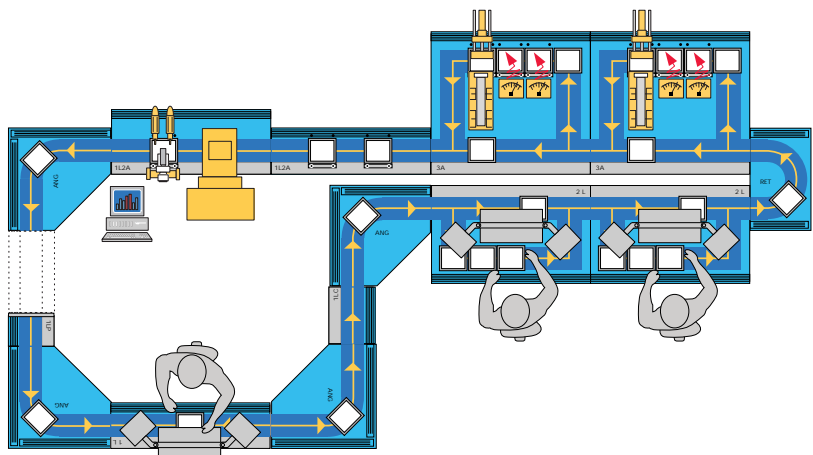
“LEAN” cells

In the “LEAN” DirectLine cells, the operators work by shifting position. Thus each one assembles a product by moving from one workstation to another. Exempt from both product transport and machine feeding tasks, they can devote 100% of their capabilities to more productive tasks where their skills and dexterity are required. Automated operations run under overlap time. Defects are routed to a repair unit.

Mixed lines

By combining both AFP/Prodel off-line modules and DirectLine in-line modules, it is possible to combine sequential and parallel operations in order to benefit from the automated 3A or 4A type multiple indexing modules.

DirectLine angle modules allow “open” configurations and integration or large machines inside the central area. The 1LC conveyor can also help to shape the installation to fit the available space on the production floor.



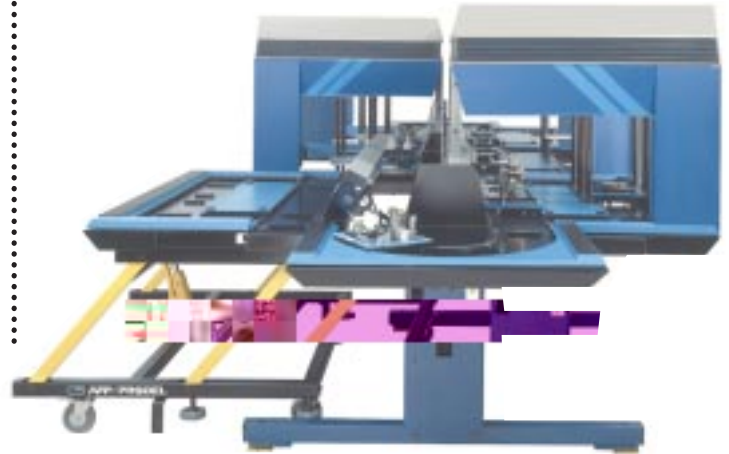
Patented

> DirectLine >

All the advantages of the AFP/PRODEL concept

The originality of the AFP concept resides in its modularity and simplicity: A flexible system ready to receive any type of manual or automatic operation.

The AFP modules contain a PC based controller - Turbo - to manage the circulation of pallets, robotics, and software. The new DirectLine products capture all the advantages of the AFP system plus more!



Plug&Play philosophy

With their self-contained multi-directional conveyance, control system, and pre-equipped mechanics, the DirectLine plug and play modules enjoy complete autonomy.

Fully interchangeable they can be moved, and re-inserted to match with any change of production or process.

Developed for integrators

The DirectLine modules are equipped with an indexing

mechanism and tool support structure for integration of automation. They accept a wide range of commercial robots and working units available on the market.

Automatic modules are equipped with a large protective housing including sliding polycarbonate doors and electromagnetic door locks. Precise pallet positioning is provided by integrated pallet locators.

Progressive automation Modularity of the DirectLine system opens the option to progressively automate assembly operations and adjust the investment to the evolution of production needs.



> DirectLine >



The Pallet

Designed with a powerful memory, it is a unique concept and a key-element of the Prodel assembly system.

In constant communication with the Turbo controller, the memory tag carries process information. It can be used to direct pallet traffic and to control work process and part quality.



Controls and Robotics

Using a simple intuitive programming language, Turbo manages automation and integrated robotics with pre-written sequentials.

Turbo also communicates with peripheral equipment using serial or Ethernet ports.



Associated software

Resident in every Turbo controller, TurboTrace, displays production statistics in either tabular or graphical form on the module LCD.

TurboScope is a software package for system monitoring, data collection and flow optimization. It provides an interactive graphic layout of the system as well as a variety of display options.

TurboKit is a production management and scheduling software.

MODULES

Designation	manual assembly	1-station automatic	2-stations automatic	short single line	single line angle	double line angle	shunt module (*)	access module
Reference	1LM	1L1A	1L2A	1LC	1L90	LU	CY	1LP
Pallet size 25x28	•	•	•	•	•	•	•	•
Pallet size 30x40	•	•	•	•	•	•	•	•
Motor driving 400V ⁽¹⁾ tri 0,4amps 50 or 60 Hz	•	•	•	•	•	•	•	•
Pallet plate actuator	•	•	•					
PCU/Turbo 4-Kbytes	•	•	•				(**)	(**)
Number of pallet indexing stations	0	1	2	0	0	0	0	0
Number of RF read/write heads	2	2	3	0	0	0	1	0
Number of Ethernet ports	1	1	1	0	0	0	option	option
Number of serial ports	5	5	5	0	0	0	0	0

400V⁽¹⁾ = 480V in USA version

(*) indicate circulation way on layout

(**) integrated and dedicated system command

STRUCTURE

Designation	Reference
Standard support leg	PS
Short support leg single module ("open lines")	PSC
Supply beam for access module	LEP
Supply beam 90° with foot for angle module	LEA
Supply beam for shunt module	LES
Short supply beam for 1LC module	LEC
Head supply beam with FRL	LET
Extra circuit breaker	DISJ

153 rue de Verdun - 60170 Carlepont - FRANCE
Tél. 03 44 75 81 02 - Fax 03 44 75 81 22

Voltastraße 7 - 63128 Dietzenbach - DEUTSCHLAND
Tel. 06074/40 09 20 - Fax 06074/4 44 61

751 Canyon Drive - Suite 150 - Coppell TX 75019 - USA
Tel. (972) 745 33 50 - Fax (972) 745 19 44

