MIDACO CORPORATION

# Automatic Pallet Changer System

## with Light Curtain Guarding

Increase productivity and eliminate idle time by changing parts **OUTSIDE** the VMC on a Pallet Changer while the spindle is cutting.


**Optional Trunnion System for 4th-Axis Milling on VMC**



**Light Curtain Guarding**

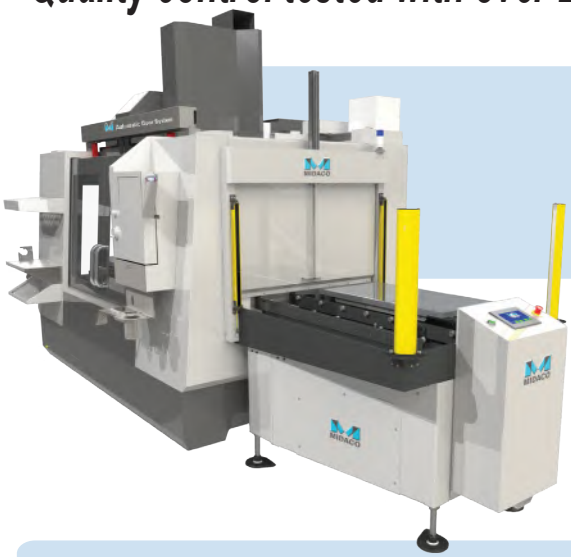


Retrofits to Any **NEW** or **EXISTING** Vertical Machining Center

CE UK CA

# AUTOMATIC PALLET SYSTEMS

## *Quality control tested with over 250,000 pallet changes before bringing product to market.*



- *Load, unload, inspect parts and set up jobs while alternate pallet is in the machine.*
- *Reduce set up time on repeat jobs by dedicating tooling onto pallets.*
- *Exchange pallet in seconds with +/- .0001" (.0025 mm) repeatability.*
- *Pallets easily interchanged between machines or departments.*
- *Fully integrated with CNC machine by using two M-Functions.*

- *Heavy/large workpieces easily loaded outside the machine.*
- *Single shuttle systems up to 8000 lb (3636 kg) capacity**
- *Dual Shuttle systems up to 32,000 lb (14,528 kg) capacity**
- *Jobs can be easily interrupted for emergency.*
- *Increase machine and operator productivity.*
- *Equipped with Mitsubishi controls.*

**with part weight evenly distributed*

# STATE OF THE ART VERSATILITY

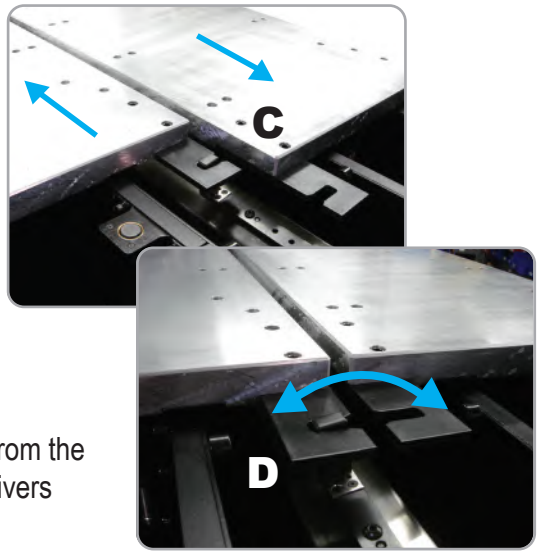

- MIDACO's PLC is fully integrated with the machine.
- While the alternate pallet is on the machine, the operator sets up the next pallet. Once ready, the operator pushes the "Pallet Ready" button (**A**) and walks away to attend other activities. When the pallet in the machine is complete, the next pallet shuttles in automatically.
- The PLC allows the operator to program pallet acceleration and deceleration according to the weight of the fixture to optimize performance.

### Keypad (B) Provides:

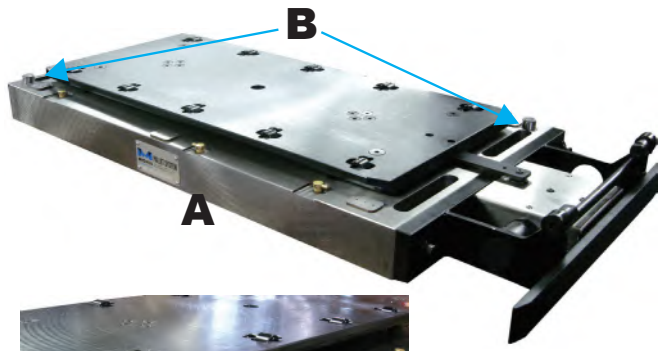
- Password protected access
- Parameters page access
- Manual functions access
- Current I/O status
- Diagnostic pages

### Electric Servo Drive Provides Proven Reliability

MIDACO's precision engineered Servo Drive assembly (**C**) extends into the machining center, tilts and engages with the pallet coupler (**D**) to remove the pallet from the machining center. The Servo Drive then delivers the next pallet into the machine in seconds.



## RECEIVER



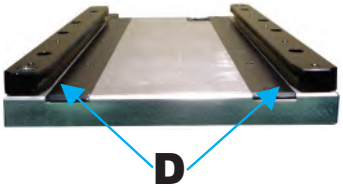


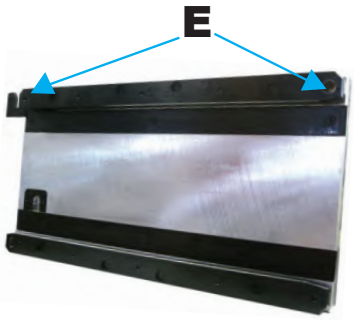
(**A**) Cast Iron receiver mounts directly to the machine table.

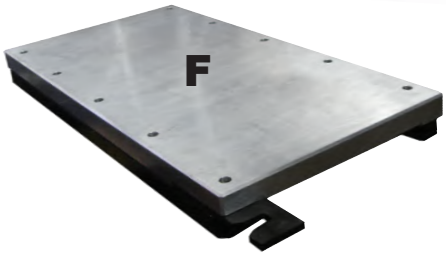
(**B**) Hardened and ground locating pins assure +/- .0001" (.0025 mm) repeatability.

(**C**) MIDACO's patented "Dual Air Blast" blows air up through and across the contact pads for chip removal. (see inset)

## PALLET




Precision ground steel rails (**D**) include hardened and ground bushings (**E**) to assure accuracy and durability.

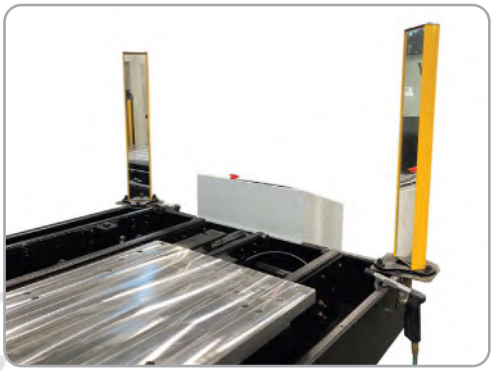
Standard plain cast aluminum pallets (**F**) offer extreme versatility.

Cast Iron and T-Slotted Cast Iron custom pallets are optional.

## Light Curtain Guarding

All models of the Automatic Pallet Changer System are available with **Light Curtain Guarding**.

With 3-sided guarding via a light emitter, mirrors and sensors, a pallet change will not occur if the invisible light beams surrounding the shuttle system are breached.



***Since 1969, MIDACO has been a leader in providing innovative and quality solutions to improve manufacturing efficiency for companies worldwide.***

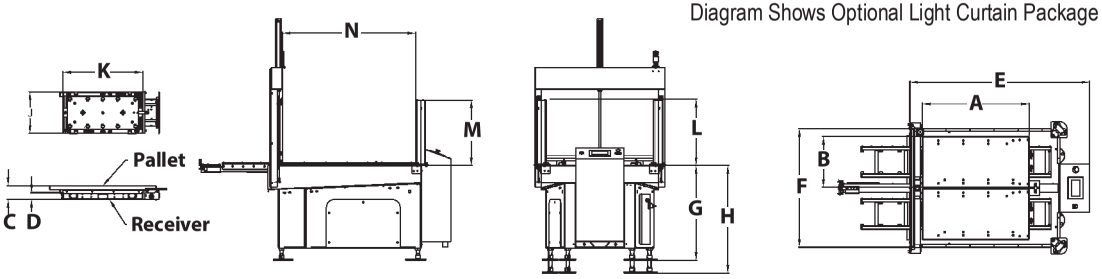
# AUTOMATIC PALLET SYSTEM SPECIFICATIONS

MIDACO pallet systems are designed for machines with stationary guarding. Some machines require options or customization.
Contact your sales representative to confirm model and specifications for all applications.

| Automatic | A2215SD & A2216SD | | A2416SD & AS2716SD | | A3016SD | | A3018SD & A3020SD | | A4020SD | | A4025SD | | AS4525SD | | AS5020SD | | AS5025SD | | A5025SD | | A6025SD, A6030SD, A6432SD | | A6040SD & A6440SD | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Specifications** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** |
| Clamping Force* | 4500 | 2041.2 | 4500 | 2041.2 | 5200 | 2358.7 | 5200 | 2358.7 | 5200 | 2358.7 | 5200 | 2358.7 | 7500 | 3401.9 | 7500 | 3401.9 | 7500 | 3401.9 | 15400 | 6985.3 | 15400 | 6985.3 | 15400 | 6985.3 |
| Receiver Weight | 95 | 43.1 | 95-107 | 43.1-48.5 | 223 | 101.2 | 223 | 101.2 | 239 | 108.4 | 239 | 108.4 | 240 | 108.9 | 243 | 110.2 | 243 | 110.2 | 588 | 266.7 | 594 | 269.4 | 594 | 269.4 |
| Pallet Thickness | 1 | 25.4 | 1-1.25 | 25.4-31.8 | 1.5 | 38.1 | 1.5 | 38.1 | 1.5 | 38.1 | 1.5 | 38.1 | 2 | 50.8 | 2 | 50.8 | 2 | 50.8 | 2 | 50.8 | 2 | 50.8 | 2 | 50.8 |
| Pallet Load Cap** | 250-500 | 113.4-226.8 | 250-500 | 113.4-226.8 | 1000 † | 453.6 | 1000 † | 453.6 | 1000 † | 453.6 | 1000 † | 453.6 | 2000 | 907.2 | 2000 | 907.2 | 2000 | 907.2 | 4000 | 1814.4 | 4000 | 1814.4 | 4000 | 1814.4 |
| A (Pallet X Dim) | 22 | 558.8 | 24-28 | 609.6-711.2 | 30 | 762.0 | 30 | 762.0 | 40 | 1016.0 | 40 | 1016.0 | 45 | 1143.0 | 50 | 1270.0 | 50 | 1270.0 | 50 | 1270.0 | 60-64 | 1524-1625.6 | 60-64 | 1524-1625.6 |
| B (Pallet Y Dim) | 14-15 | 355.6-381 | 14-15 | 355.6-381 | 15.5 | 393.7 | 17-19 | 431.8-482.6 | 19 | 482.6 | 24 | 609.6 | 24 | 609.6 | 19 | 482.6 | 24 | 609.6 | 24 | 609.6 | 24-31 | 609.6-787.4 | 39 | 990.6 |
| C | 4.13 | 104.9 | 4.13-4.4 | 104.9-111.1 | 5.17 | 131.3 | 5.17 | 131.3 | 5.17 | 131.3 | 5.17 | 131.3 | 5.67 | 144.0 | 5.67 | 144.0 | 5.67 | 144.0 | 6.91 | 175.5 | 6.91 | 175.5 | 6.91 | 175.5 |
| D | 2.5 | 63.5 | 2.5 | 63.5 | 2.56 | 65.0 | 2.56 | 65.0 | 2.56 | 65.0 | 2.56 | 65.0 | 2.56 | 65.0 | 2.56 | 65.0 | 2.56 | 65.0 | 3.8 | 96.5 | 3.8 | 96.5 | 3.8 | 96.5 |
| E | 47.1 | 1196.3 | 53 | 1346.2 | 57.4 | 1458.0 | 57.4 | 1458.0 | 68 | 1727.2 | 68 | 1727.2 | 77.4 | 1966.0 | 77.4 | 1966.0 | 77.4 | 1966.0 | 76.4 | 1940.6 | 91.3 | 2319.0 | 91.3 | 2319.0 |
| F | 35.2 | 894.1 | 35.2 | 894.1 | 36.2 | 919.5 | 44.2 | 1122.7 | 44.2 | 1122.7 | 54.2 | 1376.7 | 54.2 | 1376.7 | 44.2 | 1122.7 | 54.2 | 1376.7 | 57 | 1447.8 | 69 | 1752.6 | 85 | 2159.0 |
| G (Min Height) | 34.8 | 883.9 | 34.8 | 883.9 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 | 38 | 965.2 |
| H (Max Height) | 44.8 | 1137.9 | 44.8 | 1137.9 | 49 | 1244.6 | 49 | 1244.6 | 49 | 1244.6 | 49 | 1244.6 | 49 | 1244.6 | 49 | 1244.6 | 49 | 1244.6 | 52 | 1320.8 | 52 | 1320.8 | 52 | 1320.8 |
| J (Receiver) | 13 | 330.2 | 13 | 330.2 | 15.5 | 393.7 | 15.5 | 393.7 | 15.5 | 393.7 | 15.5 | 393.7 | 15.5 | 393.7 | 15.5 | 393.7 | 15.5 | 393.7 | 19.5 | 495.3 | 19.5 | 495.3 | 19.5 | 495.3 |
| K (Receiver) | 18 | 457.2 | 18 | 457.2 | 30 | 762.0 | 30 | 762.0 | 30 | 762.0 | 30 | 762.0 | 30 | 762.0 | 30 | 762.0 | 30 | 762.0 | 50 | 1270.0 | 50 | 1270.0 | 50 | 1270.0 |
| L (Door Opening) | 16 | 406.4 | 16 | 406.4 | 20 | 508.0 | 20 | 508.0 | 20 | 508.0 | 20 | 508.0 | 20 | 508.0 | 20 | 508.0 | 20 | 508.0 | 28 | 711.2 | 28 | 711.2 | 28 | 711.2 |
| M (LC Height) | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 | 24 | 609.6 |
| N (LC Opening) | 30 | 762.0 | 36 | 914.4 | 39.9 | 1013.5 | 39.9 | 1014.0 | 49.9 | 1267.5 | 49.9 | 1269.0 | 59.9 | 1521.5 | 59.9 | 1521.5 | 59.9 | 1521.5 | 58.9 | 1496.1 | 73.7 | 1872.0 | 72.8 | 1849.1 |

| Automatic | A8030SD & A8432SD | | A8035SD & A8440SD | | A12030SD & A12040SD | | A15032SD | |
|---|---|---|---|---|---|---|---|---|
| **Specifications** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** | **lbs. / in** | **kg / mm** |
| Clamping Force* | 20500 | 9298.6 | 20500 | 9298.6 | 20500 | 9298.6 | 20500 | 9298.6 |
| Receiver Weight | 1298 | 588.8 | 1298 | 588.8 | 1400 | 635.0 | 1400 | 635.0 |
| Pallet Thickness | 2.5 | 63.5 | 2.5 | 63.5 | 2.5 | 63.5 | 2.5 | 63.5 |
| Pallet Load Cap** | 8000 | 3628.7 | 8000 | 3628.7 | 8000 | 3628.7 | 8000 | 3628.7 |
| A (Pallet X Dim) | 80-84 | 2032-2133.6 | 80-84 | 2032-2133.6 | 120 | 3048.0 | 150 | 3810.0 |
| B (Pallet Y Dim) | 29-31 | 736.6-787.4 | 34.5-39 | 876.3-990.6 | 29-39 | 736.6-990.6 | 31-49 | 787.4-1244.6 |
| C | 8.12 | 206.2 | 8.12 | 206.2 | 8.1 | 205.7 | 8.1 | 205.7 |
| D | 4.24 | 107.7 | 4.24 | 107.7 | 4.25 | 108.0 | 4.25 | 108.0 |
| E | 120.5 | 3060.7 | 120.5 | 3060.7 | 161 | 4089.4 | 183 | 4648.2 |
| F | 73.2 | 1859.3 | 85 | 2159.0 | 73-92 | 1854-2337 | 73-112 | 1854-2845 |
| G (Min Height) | 45 | 1143.0 | 45 | 1143.0 | 38 | 965.2 | 38 | 965.2 |
| H (Max Height) | 57-65 | 1448-1651 | 57-65 | 1448-1651 | 52 | 1320.8 | 52 | 1320.8 |
| J (Receiver) | 25.5 | 647.7 | 25.5 | 647.7 | 25.5 | 647.7 | 25.5 | 647.7 |
| K (Receiver) | 75 | 1905.0 | 75 | 1905.0 | 75 | 1905.0 | 75 | 1905.0 |
| L (Door Opening) | 32 | 812.8 | 32 | 812.8 | 32 | 812.8 | 32 | 812.8 |
| M (LC Height) | 36.3 | 922.0 | 36.3 | 922.0 | 24 | 609.6 | 24 | 609.6 |
| N (LC Opening) | 99.2 | 2519.7 | 97.7 | 2481.6 | 139.4 | 3541.0 | 169.4 | 4303.0 |

Diagram Shows Optional Light Curtain Package




**NOTE: Pallet load capacity is based on the weight of the parts evenly distributed on pallet.**

*At 100PSI (6.9 bar) **At 120PSI (8.2 bar) with weight evenly distributed on pallets
† Optional 2000 lb (907kg) Pallet Load Capacity with weight evenly distributed on pallets.
Patented. Specifictaions subject to change without notice.

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