

**Combi Ergopack™
Ergonomic Product Evaluation**

Combi Packaging Systems
Canton, Ohio

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Ergonomic equipment helps eliminate costs relating to medical expenses, lost wages, lower productivity, insurance costs, and other expenses resulting from worker's injuries. Ergonomics were an important consideration, and a driving force in the design and development of the Combi Ergopack™ System. The Ergopack™ System was designed to facilitate handpacking with minimal lifting of the product; the packer need only "drag, guide, and drop" the product into an automatically erected case. An independent engineering firm specializing in work place ergonomics conducted a complete evaluation of the Ergopack™ system. This is an excerpt of their findings.

I) Ergonomic Advantages of the Combi Ergopack™

The Combi Ergopack™ System reduces or eliminates many physical or ergonomic stressors often associated with manually erecting then handpacking and sealing cases. The prescribed method of use "drag, guide, & drop" used with the Ergopack™ System allows significant reduction in ergonomic stresses including lifting, reaching, bending, twisting, gripping and others. Specific examples of these ergonomic benefits of the Combi Ergopack™ System are detailed below:

- ✓ **Good Product Height For Picking:** The height of product in feed conveyor is usually set at 39 inches which is good height for this type of task. This allows a large percent of the working population to perform the task without extreme shoulder flexion or forward bending. (Height can be set differently to accommodate special product handling or workforce requirements.)
- ✓ **Forward Bending Reduced:** Bending forward to reach product is reduced, by providing abundant toe clearance at the packing station.
- ✓ **Lifting Product Greatly Reduced:** Height of case conveyor is set to eliminate the need to lift the product up to clear the top of the case or the flaps.
- ✓ **Manual Case Erection Eliminated:** Using a mechanical case-erecting machine eliminates stressful postures often used when manually erecting cases.
- ✓ **Manual Case Transfer & Taping Eliminated:** Stressful postures and forces, often involved in case transfer and taping, are eliminated with case conveyor and sealer.
- ✓ **Easier to Get Product:** Handgrip forces and lifting requirements are reduced by the low friction conveyor surface that allows easy sliding of product without lifting.
- ✓ **Product Brought Close to Packer:** By using the adjustable rear rail on the product conveyor to guide the product closer to packers, reaching out to product can be minimized.

- ✓ **Product Directly in Front of Packer:** By having both product and box directly in front of operator, twisting is eliminated.
- ✓ **Work Pace Adjustable:** Work pace can be easily adjusted using product conveyor speed control and the display can be located at the pack station allowing packers to control conveyor speed from their packing station.
- ✓ **Convenient Controls:** Controls are easy to reach and in close proximity to the work zone, walking and reaching are minimized and adopting awkward postures to see the work zone while operating the controls is eliminated.
- ✓ **Lifting of Corrugated Is Optimized:** Lifting stress for handling corrugated is reduced by the walk-in case magazine, which allows bundles to be held vertically and close to the body at a good height for lifting. It also allows the removal of the bundle strip before or after placing the bundle.

II) Optional Features That Provide Ergonomic Advantages Or Enhancements

- ✓ **Pusher Unit:** Reduces shoulder and back stress reaching for and controlling product. This unit brings the product forward to packer for easier and closer grasping, especially useful for larger and heavier products and those that tend to bind against each other on a crowded product conveyor.
- ✓ **Height Adjustable Case Conveyor:** Minimizes bending when packing smaller cases and for situations where a large range of box sizes is used.
- ✓ **Motor Drive Adjustment System:** Eliminates most bending in machine set-up especially useful when many box size changes are made during a single day.
- ✓ **Supplemental Height/Inclination Adjustable Conveyor:** Reduces lifting stress when manual palletizing is used. Brings the discharged cases up to the proper height for manual palletizing. (Strongly recommended, if manual palletizing is to be used!)
- ✓ **Elevated Unit Height:** Allows use of platforms (adjustable height, wooden, or padded). Platforms can serve two ergonomic benefits: 1) Optimally accommodate workers of different statures; 2) Reduce back and leg stress associated with standing for long durations. Wood platforms are much more comfortable to stand on, than is cement, for long durations. (The entire unit can be setup at an increased height for this purpose.)