

Automated Aluminum & Steel Destacking
Solutions



Destacking Introduction

Atlas automated blank destackers handle separated blanks via robots, pick and place shuttles or overhead destack head to mag belts and conveys them forward to a centering station for pick up by press feeding equipment.

Automated blank destackers ensure a continuous flow of blanks to the press. When equipped with a cranesaver conveyor (for queuing stacks), a lift table and a “continuous destacking” carriage, you can achieve non-stop destacking at production rates that range up to 1,320 parts per hour, without a pause in press actuation.

Robotic front of line destacking systems utilize two destacking tables equipped with lifts and an optimally positioned robot (dependant upon floor space and blank sizes). Robots typically offer a lower cost, highly flexible solution with the added benefit of a programmable pathway. Production rates range up to 720 parts per hour.

Both types of destacking systems may incorporate the Atlas Cyclone washer and/or the Atlas Oiler for optimum blank cleanliness and lubrication.



Conventional Destacking...How it Works

The Destack Sequence

During operation, a palletized stack of blanks is conveyed into position via cranesaver conveyor onto a lift table. Lift tables are utilized to maintain blanks at a consistent height as the stack is depleted to reduce destack head travel. Individual blanks are separated by fanner magnets, picked up by overhead vacuum cups and raised to a magnetic belt conveyor. Magnetic rollers are used in some applications, and systems can be configured for non-magnetic sheets as well, such as aluminum. The vacuum cups release their grasp and retract above the belts (or rollers). Each blank is then conveyed through a blank washer and/or oiler, if additional lubrication is required, and positioned in a gage station, ready to be picked up by first-press, pick-and-place load automation.



The Continuous Destacking System

Provides continuous “no interruption” destacking. As a stack of blanks gets close to depletion, the remaining blanks are supported by carriage mounted forks that allow the next stack to be positioned by the conveyor under the destack head. The lift table raises the stack to right underneath the forks. When the forks are empty, they retract and the destack head immediately begins destacking the next stack. Another strategy employs an indexing destack head that can alternately access two stacks.



Cranesaver Conveyor

An integrated chain conveyor that queues stacks of blanks, indexes them into position under the destack head, and moves empty pallets or dunnage (if used) out after depletion. In-line, L-shaped, U-shaped and other configurations can be used depending on available space and number of pallet stations desired.



Lift Table

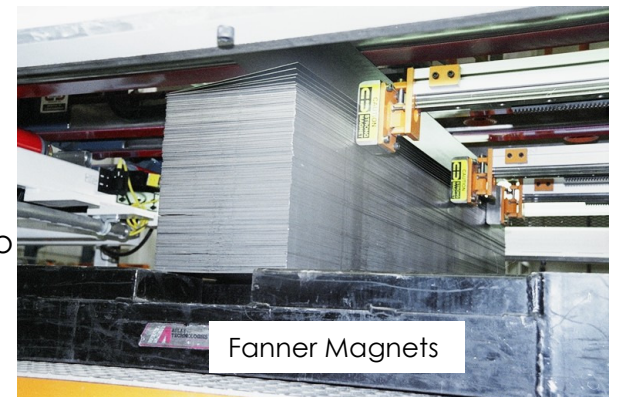
(a.k.a stack lifter, scissor lift)

The lift table maintains the blanks at a consistent height as the stack is depleted, reducing the distance the destack head travels to contact each blank. Straight-acting or scissor lifts are typically used.



Disengageable Fanner Magnets

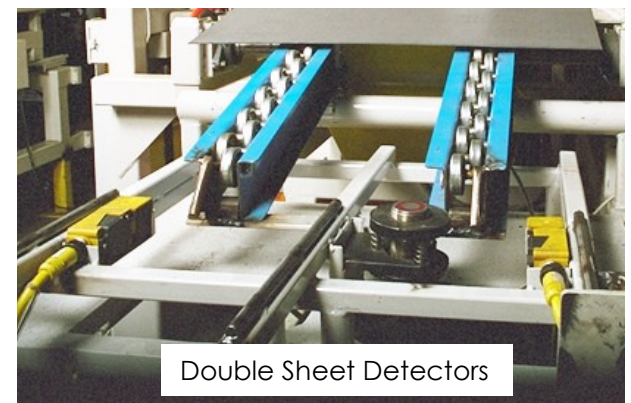
Fanner magnets separate steel blanks before the destack head contacts the top sheet for destacking. Fanning the blanks helps to reduce the amount of double blank rejects entering the reject bin or causing a halt situation. The “disengageable” feature allows the magnetic field to be broken if you need to pull the fanner unit away from a stack in order to remove or adjust a partial stack, or otherwise gain access to it.



Double Blank Detector

(a.k.a. double-sheet detector)

Prevents damage, expense and downtime that can result when more than one blank is loaded into the press. Sensors detect more than one blank, and are typically set up to signal the destacker to place blanks that are stuck together in a reject bin or halt operation.



The Destack Head

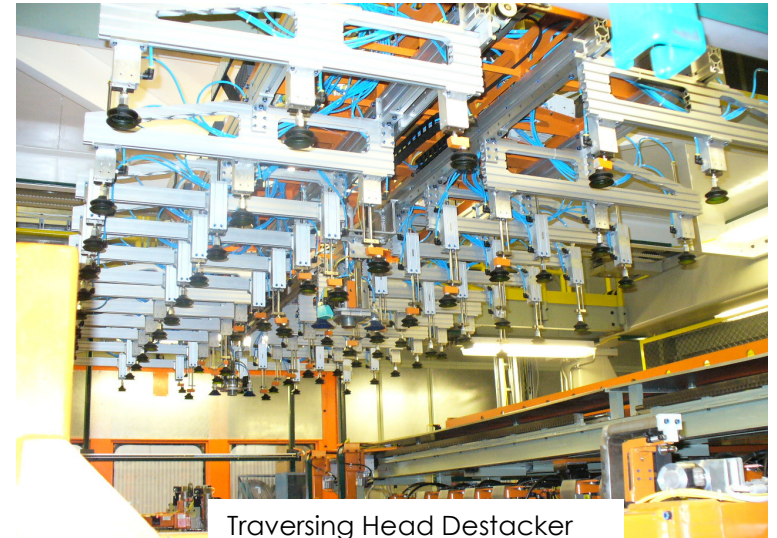
Typically a carriage-mounted set of vacuum cups that extend and retract above and below an inverted magnetic belt or roller conveyor. The vacuum cups engage a steel blank and raise it to the conveyor. In non-magnetic applications, the destack head indexes horizontally and drops the blank onto the conveyor.

Traversing Head Destacker

Suitable for slower press speeds and non-magnetic blanks. Eliminates the use of a magnetic belt conveyor. After picking up the blank, the entire destack head indexes and the blank is released into a nest or onto an in-feed conveyor.

Vacuum Cups

The primary element of the destack head. Vacuum cups secure each blank and raise it to a magnetic belt (or roller) conveyor. They are preferred over magnets because they do not mar surface finishes. In applications where blank size changes frequently, individually adjustable vacuum cups and arms (with easy-access) are employed, coupled with programming features for activating or de-activating individual cups.



Traversing Head Destacker



Vacuum Cups (a.k.a. pogo sticks) and Overhead Mag Belt Conveyor

Magnetic Conveyor

An inverted conveyor that holds each blank via magnetism and conveys it horizontally, releasing it in a nest or gage station. Can convey blanks through a washer and/or oiler. Utilizes either magnetic belts or magnetic rollers.

Gage Station

(a.k.a. crowder, centering station, nesting station, nest)

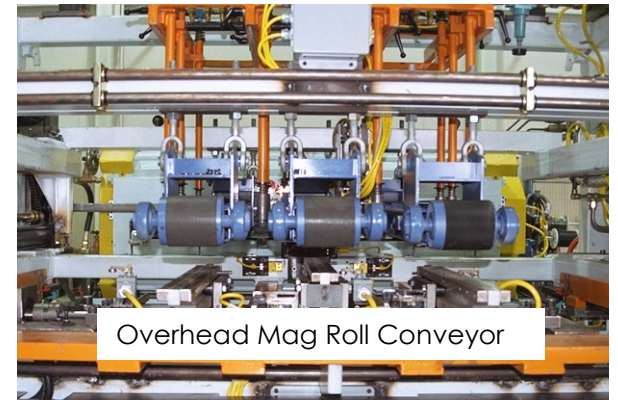
Manually or automatically adjusted gages that accurately position the part for press loading after destacking. Our fully programmable, servo-controlled gages allow fast, automatic 2-axis adjustment to create the appropriate position for different blank sizes and shapes.

Press Loader

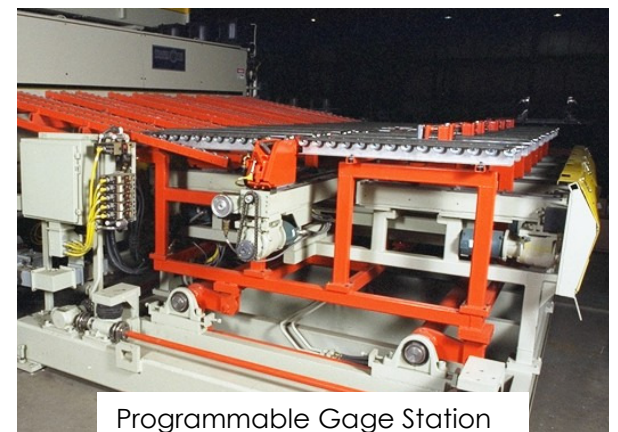
Moves a single blank, after destacking from the nest (or gage station) to the press. Dedicated pick-and-place or multi-axis robots are common, and linear shuttles can also be used. In transfer press applications, the in-press transfer automation can pick up the blank right from the nest or gage station.



Overhead Mag Belt Conveyor



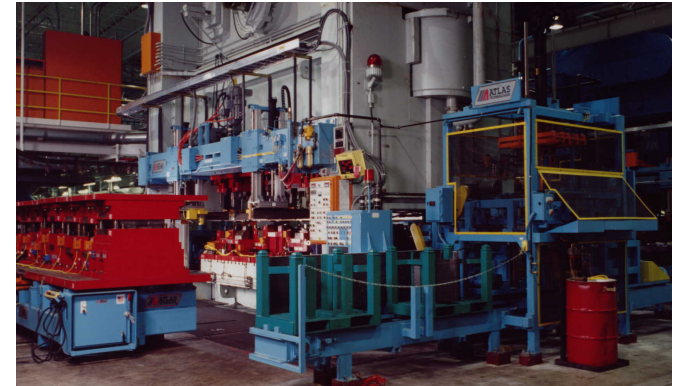
Overhead Mag Roll Conveyor



Programmable Gage Station

No Transfer Press Loader Required

In most transfer press applications, the Atlas gage station configuration eliminates the need for a press loader, since the destacker is designed to interface with the transfer press automation for pick up from the gage station by the transfer fingers or crossbar vacuum cups.



Atlas Command Center Integrated Controls System

PLC or PC based systems monitors and controls destack operations and can be integrated with press controls. Advanced destackers have programmable vacuum cups, gage stations and system diagnostics.



Optional Blank Lubrication

Atlas Technologies spray oiler provides programmed additional lubrication of blanks. Other features and benefits include: Individually controlled, self cleaning nozzles, self contained oil spray tank and mist collector, even distribution of fluid on the entire blank (both top and bottom) and PLC controlled spray patterns based on part requirements.

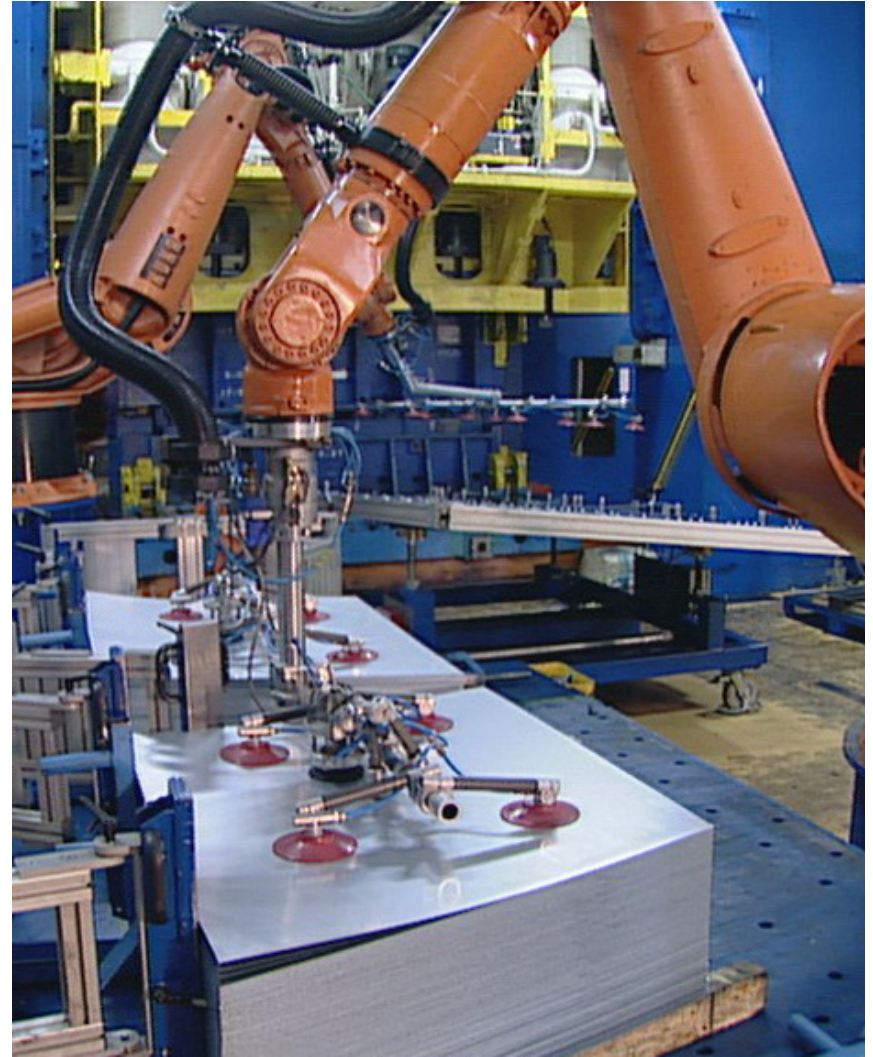


Robotic Destacking

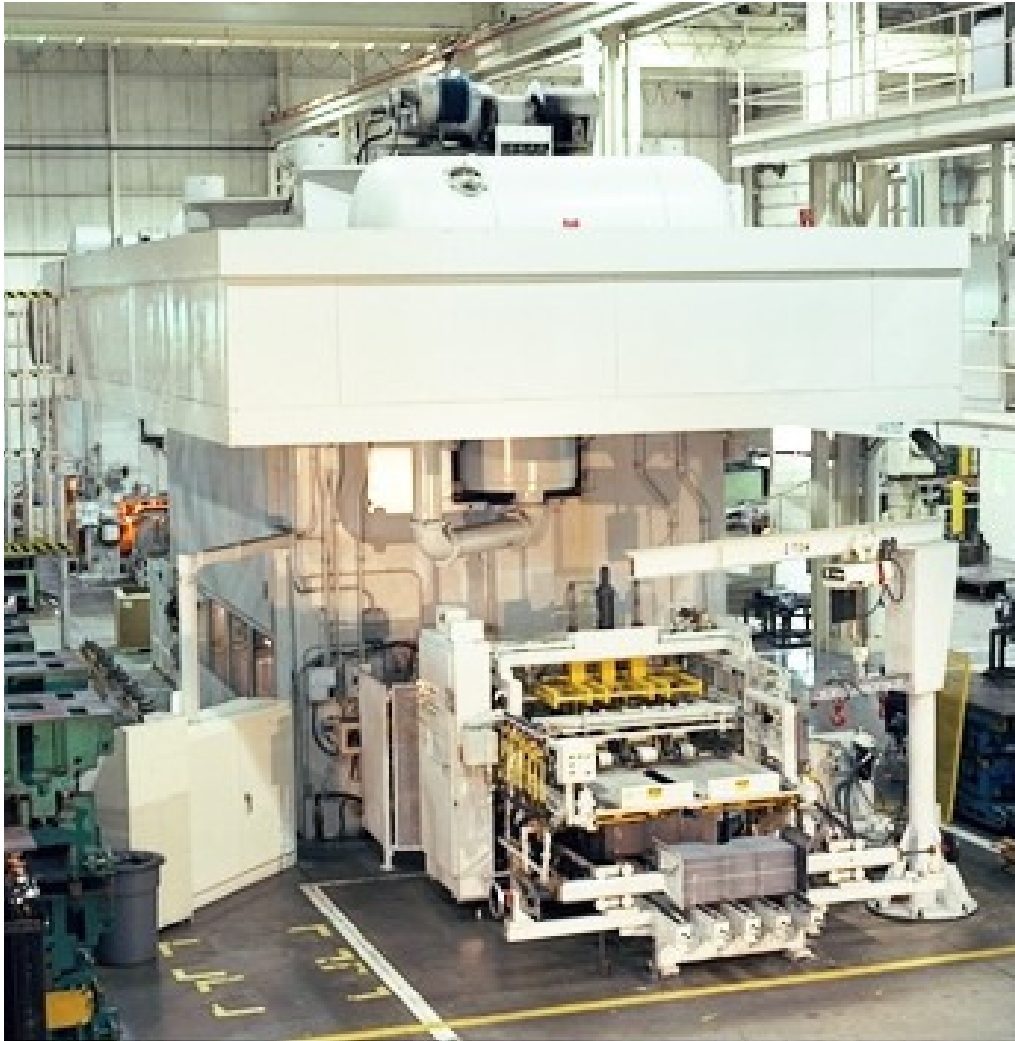
For applications with slower press speeds, robotic destacking provides a solution that is lower in cost and high in flexibility. The end of arm tool is utilized to place the blank either directly into the press, into a centering station or onto a vision conveyor. As with conventional destacking, an Atlas Cyclone washer may be utilized for optimal cleaning and additional lubrication of the blank.

The front of the line may consist of one or two robots depending on the configuration of the available floor space and peripheral automation. Commonly, two destack stations are located side by side with a central destacking robot. Fixed position destack tables with lifts are used with manually positioned stack locators that aid in loading stacks in a repeatable position.

In ferrous metal applications, the separation of the blanks would be assisted by fanner magnets and in non-ferrous (aluminum) applications, high powered air knives are used to separate the materials.



Destacker Installations



Die Handling Automation • Robotic Integration • Sheet Metal Handling • Tri-Axis Transfers
System Integration • AS/RS • Washer & Oiler Systems • Automation Tooling

Why Atlas?

Our Promise....Atlas listens to you, the customer.

We embrace your vision and understand your motivation.

It's our culture of total commitment that allows us to conceptualize solutions tailor made to fit your specific applications...creating world class material handling systems that will exceed your expectations.



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