

CASE STUDY

# **Maximizing efficiency with SERAPID's GPO Die Truck at AP Emissions Technologies**

# SERAPID



# Introduction

In the competitive landscape of automotive manufacturing, efficiency and safety are paramount. SERAPID's GPO Die Truck is designed to move and position dies up to 30 tons safely and accurately. AP Emissions Technologies, a leader in exhaust and emissions products, utilized a SERAPID double station die handler to address critical workflow challenges and optimize their metalforming operation.

**This case study explores how the GPO has significantly improved operational efficiency and safety in AP Emissions Technologies' production processes.**

They were previously using a Forklift to move dies to and from their 3 presses to the die storage rack which **was unsafe, time consuming and took multiple people**. It also tied up the forklift for long stretches of time, which made it unavailable for use in other areas of the shop. The dual station die stacker can hold 2 dies at a time, so they can drive the GPO to the storage rack, pick up the new die, drive it to one of the presses, then pick up the old die and load the new die in a single trip. They have 3 presses with different heights, **so the adjustable height of the GPO makes things go smoothly and effortlessly.**

# The challenge

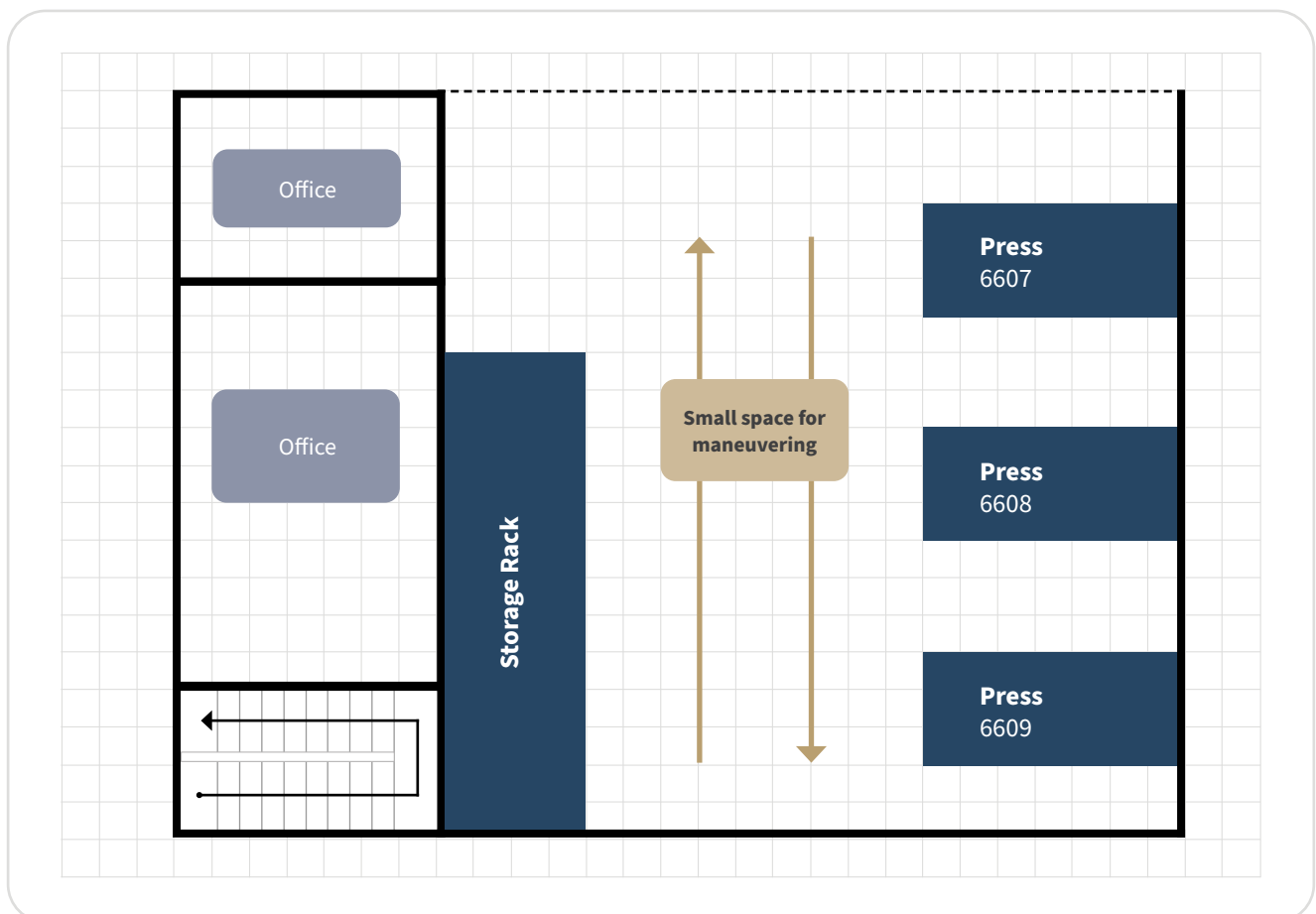
**AP Emissions Technologies faced persistent issues with their die transfer operations.** Traditional methods were both time-consuming and labor-intensive, leading to disrupted workflows and increased downtime.

The complexity of die changes often required multiple personnel, which strained resources and affected surrounding production.

The company realized they needed a solution that not only reduced the time for die transfers but also minimized the impact on other processes in their manufacturing environment.



## Layout of AP Emissions Technologies' operations





# The solution:

## SERAPID's GPO Die Truck

The GPO was introduced as a tailored solution to AP Emissions Technologies' challenges. The custom GPO double station die handler is designed to streamline the die transfer process.

**Key features and benefits include:**

### Performance and operational efficiency



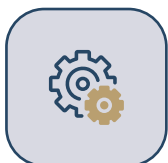
#### Significant reduction in die transfer time

The GPO reduces die transfer time, from hours to minutes. At AP Emissions Technologies, they have cut downtime in half, doubling their efficiency.



#### Lower personnel requirements

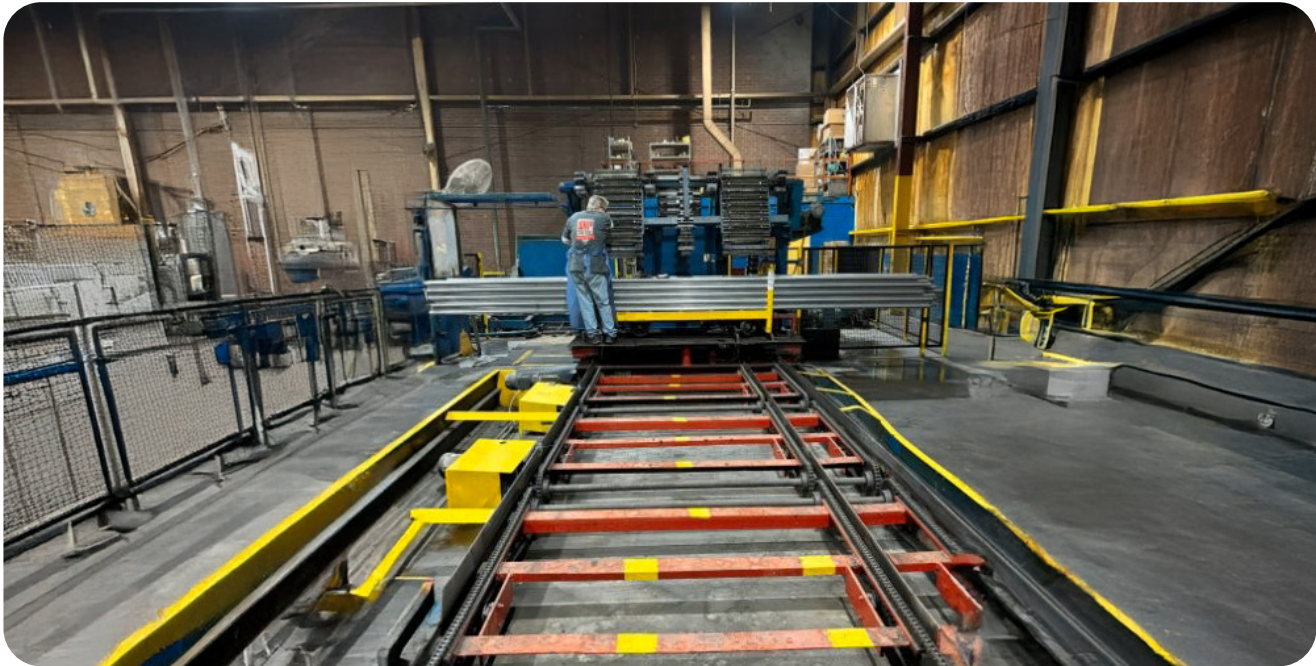
With the GPO, fewer personnel are needed to execute die changes. Jeffery Kincaid, Press Room Lead, noted, "*Less people are required to make the change with the GPO,*" which means resources can be reallocated to other critical tasks.



#### Minimized disruption to production

The compact design of the GPO allows it to maneuver between processes without necessitating the shutdown of surrounding operations. As a result, AP Emissions Technologies experienced less downtime, enhancing overall operational continuity.





| Description    | Maximum   | Minimum   |
|----------------|-----------|-----------|
| Die weight     | 4,000 lbs | 1,500 lbs |
| Die width      | 60°       | 30°       |
| Die depth      | 32°       | 30°       |
| Die height     | 20°       | 14°       |
| Bolster height | 43°       | 36°       |

|                                 |                                                                      |
|---------------------------------|----------------------------------------------------------------------|
| System voltage                  | 24 Volt DC.                                                          |
| System operation                | Speed ramp up/down allows smooth acceleration and good speed control |
| Vertical lift                   | 35° to 45°                                                           |
| Die loading/unloading direction | Side                                                                 |

| Preliminary dimensions |      |
|------------------------|------|
| Overall length         | 110° |
| Overall width          | 68°  |
| Turning radius         | 88°  |

| Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | The cart is composed of                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| A base frame on polyurethane coated wheels with side mounted double mast assembly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
| A lift/lower double platform frame rolling inside the mast assembly. Power lift provided by dual hydraulic cylinders (one on each mast for stability).                                                                                                                                                                                                                                                                                                                                                                                            |    |
| A power walk behind drive unit.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| A DC hydraulic system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |
| A DC electrical system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Each platform is equipped with a Push/pull system composed of dual Serapid push/pull chains, a common drive motor, and a pull/gradder bar used to latch onto the die for pulling.<br>Push/pull system designed to reach 12° beyond the edge of the platform to position smaller dies in their final position in the press in one single smooth motion.<br>Push/pull controls are located on a hand help operator pendant with a 10ft cord.<br>This will allow the operator to walk around the cart for better visibilité while changing the dies. |  |
| Dual platform over/under system, designed to pre-stage new die on one platform.                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
| System designed to lift/lower 2 dies (8,00 lbs) drive around with one die.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |

## Return On Investment and long-term savings

SERAPID's GPO also offers significant ROI through its robust and low-maintenance design:



### Improved safety

Safety is a top priority for AP Emissions Technologies. With the GPO, safety conditions are enhanced, leading to lower safety costs associated with die transfers and reduced lost workdays. *"The GPO improves safety conditions and therefore safety costs associated with die transfer,"* said Jeffery.



### Increased uptime

The efficiency gains from the GPO keep presses running more consistently, maximizing productivity and minimizing the time spent on die changes.



### Ease of maintenance

The GPO is designed for simplicity. Jeffery mentioned, *"the maintainability is great on this machine,"* noting that the GPO's parts are accessible, making it easier to perform maintenance as needed.

## Customization and integration

The GPO's adaptability was crucial for AP Emissions Technologies:

### Adjustable transfer heights

The GPO can accommodate three different presses, ensuring versatility in application. This ability to adjust the transfer height efficiently supports a wide range of operations.

### User-friendliness

The user-friendly nature of the GPO facilitates seamless integration into AP Emissions Technologies production lines, even where space is limited. The parallel positioning feature is particularly valuable in optimizing space without compromising on operation.

## Safety enhancements

The implementation of SERAPID's GPO has led to notable safety improvements:



### Reduced personnel needs

Fewer operators are required for die transfers, which lowers the likelihood of accidents. Jeffery commented, *"It's much safer than using a fork truck,"* highlighting the GPO's role in promoting a safer working environment.



### Improved operator conditions

The GPO's design minimizes the manual handling of heavy dies, reducing operator intervention and the risk of injuries.

# Conclusion

SERAPID's GPO has transformed die transfer processes at AP Emissions Technologies, addressing their operational challenges with a robust, efficient, and safe solution. **With significant reductions in die transfer time, enhanced safety conditions, and straightforward maintenance, the GPO has proven to be an invaluable asset in optimizing production efficiency.** As manufacturers strive to meet the demands of increasingly competitive markets, innovations like SERAPID's GPO stand at the forefront of operational excellence.

For more information on SERAPID's GPO solutions, please visit

**SERAPID**







AP Emissions Technologies **manufactures a wide range of exhaust and emissions products** including mufflers, exhaust and tailpipes, catalytic converters and control technology.



They serve various markets including light-duty and heavy-duty vehicles. **The company emphasizes regulatory and environmental compliance**, ensuring their products meet EPA and CARB standards. Operating from their headquarters in Goldsboro, NC, AP Emissions boasts a state-of-the-art facility covering ~700,000 square feet—approximately 425,000 square feet of which is dedicated to manufacturing.

Their vertical integration strategy combines steel coil slitting, tubing, bending, stamping, welding, and assembly, enabling control over supply chain quality and lead times.

**With a strong history in automotive innovation and a broad product portfolio, AP Emissions Technologies is positioned to innovate and adapt in a competitive market.**

Their product-oriented manufacturing focus may challenge the integration of new suppliers for custom parts.