JS ENGINEERED SERVICES

Clamp-X

Conner Pratt - November 9, 2022

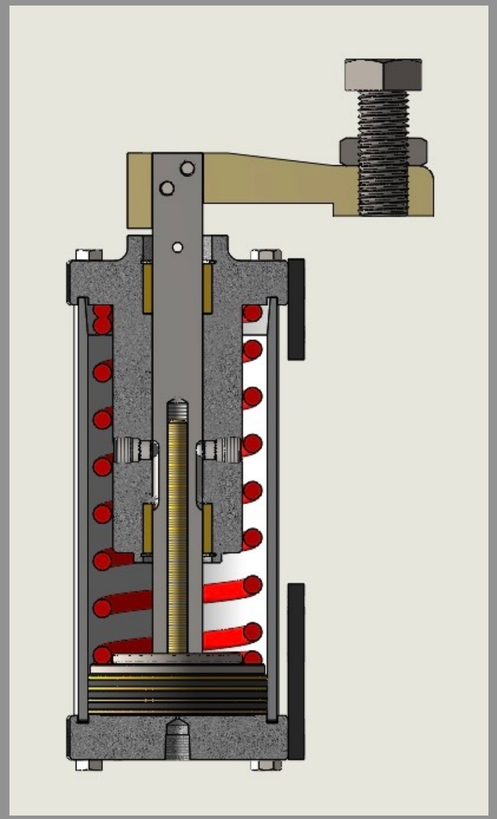
Clamp-X

Optimizing Mold Clamping

- Explanation of Clamp-X performance & design
- Advantages of pneumatic clamps
- Case study results
- Testimonials on labor, safety and efficiency

Clamp-X Design & Performance

Clamp-X Inner View & Understanding



Key Features:

- High temperature lubrication
- Stainless steel internals
- High temperature piston seals rated to 1000° F
- Hands free actuation (both opening and closing)
- Maximum clamping force of ~700 pounds per unit
- Adjustable from 0 lbs to 700 pounds
- Retrofittable to existing equipment or used on new equipment
- Colored foot to quickly identify clamp orientation
- Field serviceable
- Single air input (90-110 PSI), spring return clamping force
- High temperature synthetic lubrication

Clamp-X Reasoning & Logic

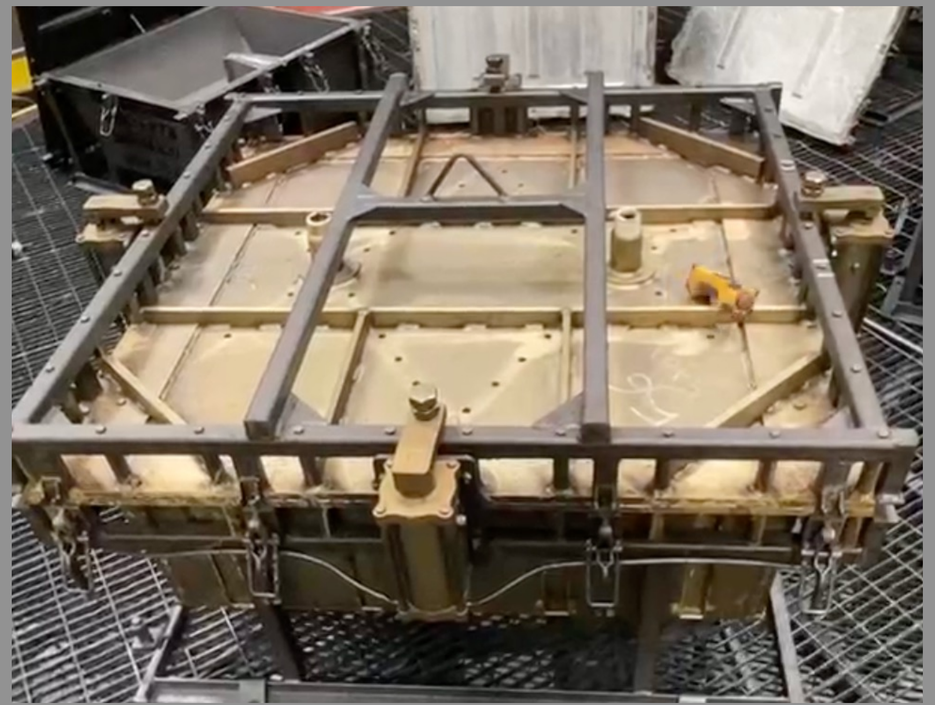
Designed For What Purpose?

- The CLAMP-X is a high temperature automated clamping system that was created to reduce down time, reduce energy consumption, increase productivity and reduce worker fatigue, while continuously providing consistent and precise clamping forces. This single acting, spring return, 90° swing clamp has been designed with rotational molding equipment, as the driving force.
    - Down Time - Customers have seen an increase in plant & workspace cleanliness, due to employees needing less time during set-up & de-mold.
    - Increase Productivity - Employees are driven to accomplish their tasks quicker & more efficiently, when those specific tasks no longer include the typical manual labor abuse, that has been the norm in the Roto world, for decades.
    - Reduce Energy Consumption

Clamp-X

Direct Frame Mounted Tools

- Removing all springs out of the mold
- Replacing all smaller springs for one high end pressure spring applied from the clamps force.
- Initial mold cost decreases, due to eradicating spring use. Less maintenance needed due to not needing to replace springs.



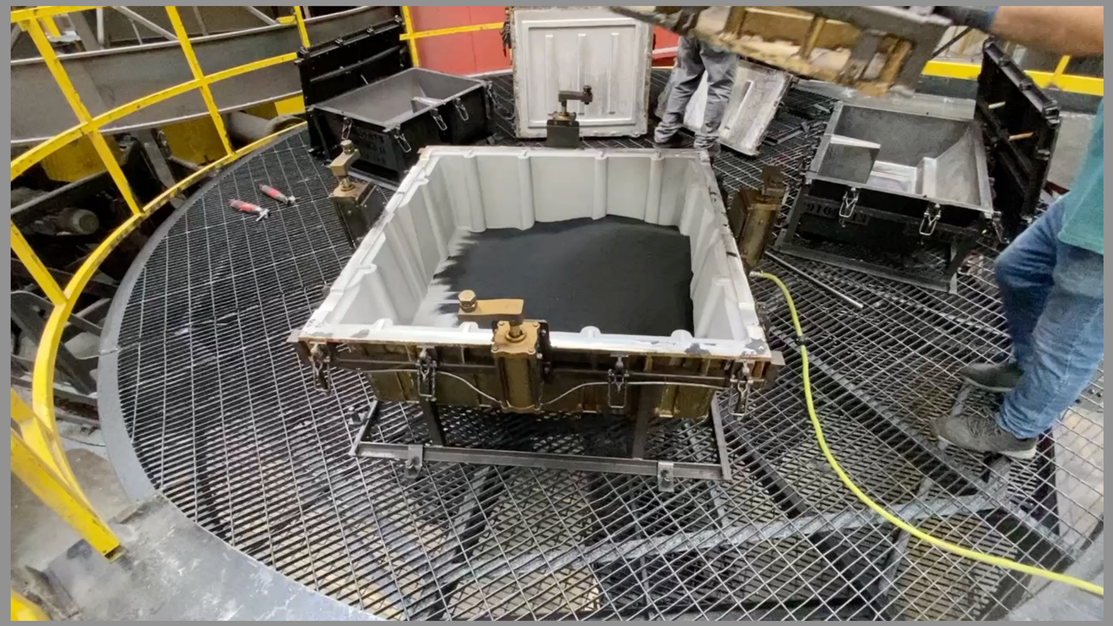
Clamp-X Efficiency

Case Study from Wisconsin

- Customer started with 16 clamps.
- Outfitting 1 arm with 8 clamps on each mold. Molds were equipped with high head bolts & receivers.
- Results from 30 days:
- - Mold & de-mold process was averaging 6.5 minutes.
- - Once Clamp-X was installed, the mold & de-mold process went to 4.6 seconds.
- - Overall time saved, with 18 minute cooking time, allowed for a reported 6 additional rotations per day.
- - Based on time saved and an increase of rotations per day on 1 arm, Clamp-X installed on that arm, pays for itself within 6 months.

Clamp-X Safety
Case Study Michigan

- “Training new employees on air clamp out-fitted molds is beneficial in many ways, but we have been able to truly see JS Engineered Services main objective, which was to simplify the effort.”
- “I think where air clamps shine are reducing the chronic injuries that take months or years too manifest. Hearing loss from impact guns, damage to hands from struggling with hand clamps, strained backs from reaching or squatting to rotate molds and reach corner clamps. All of these day to day struggles are eliminated by using Clamp-X.



Clamp-X
FAQ's

- ***Do we have to make a double compressed air network - One for closing the mold and the second for opening?***
  - This system is designed for ONLY air to open the mold. The clamps hold constant pressure by a mechanical spring.
- ***Do the cylinder boxes need to be insulated or are they designed to withstand the high temps during the heating cycles?***
  - No insulation is required. Our clamps are designed to withstand extremely high oven temps, up to 1,000º F.
- ***Is there any limit how many can be plumbed together?*** - There is no limit to how many can be plumbed in series together. We currently have a boat manufacturer that plumbed 24 clamps, running off one single manifold.
- ***What kind of spacing do you recommend when mounting Clamp-X on a mold?*** - At the beginning, we state that it depends on the reinforcing you have above the flange to spread the load. Recommended spacing is between 24"-36" depending on the overall design & weight of the mold.