



e-GEARBOX Assembly Line



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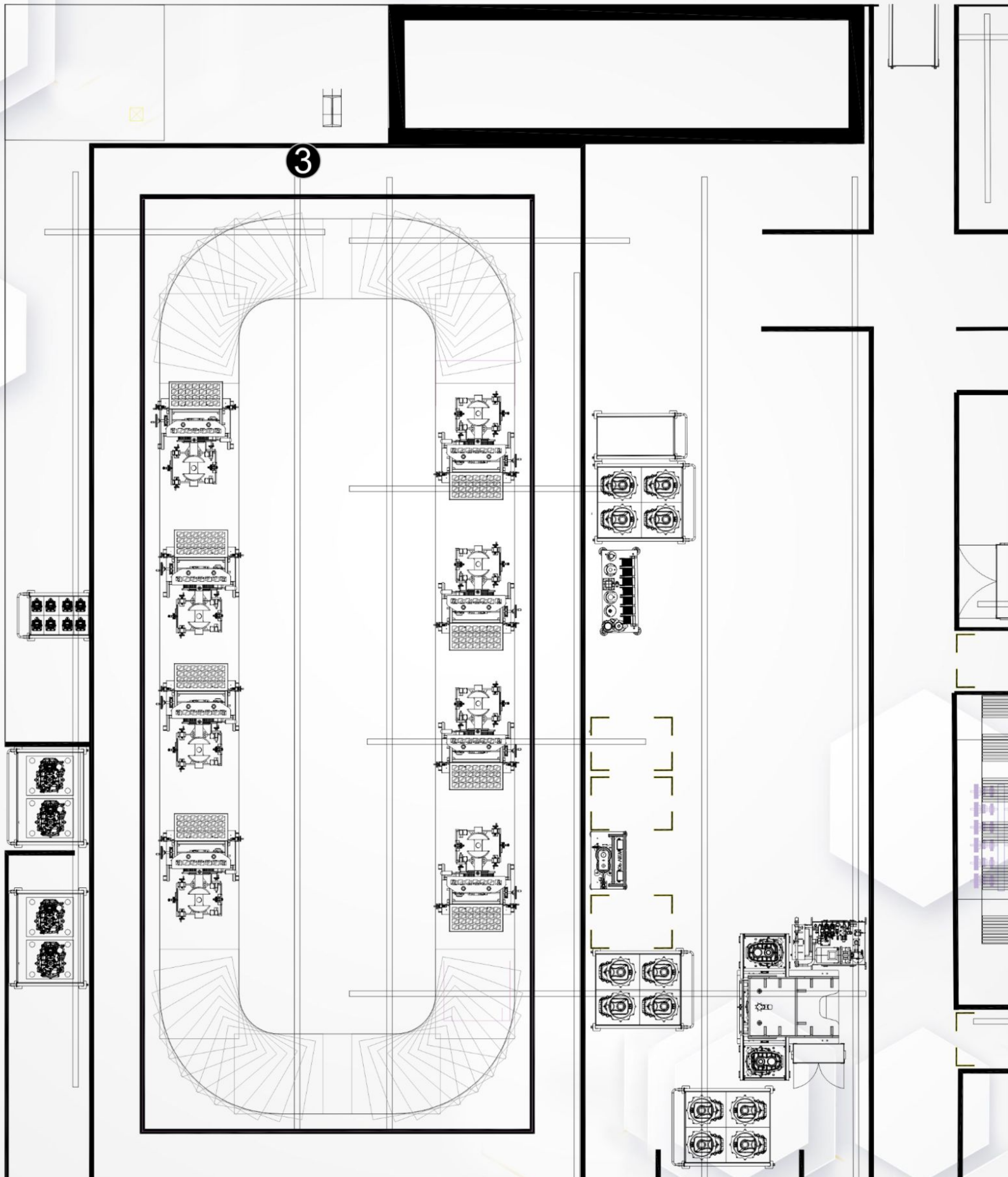


MAKE IN INDIA



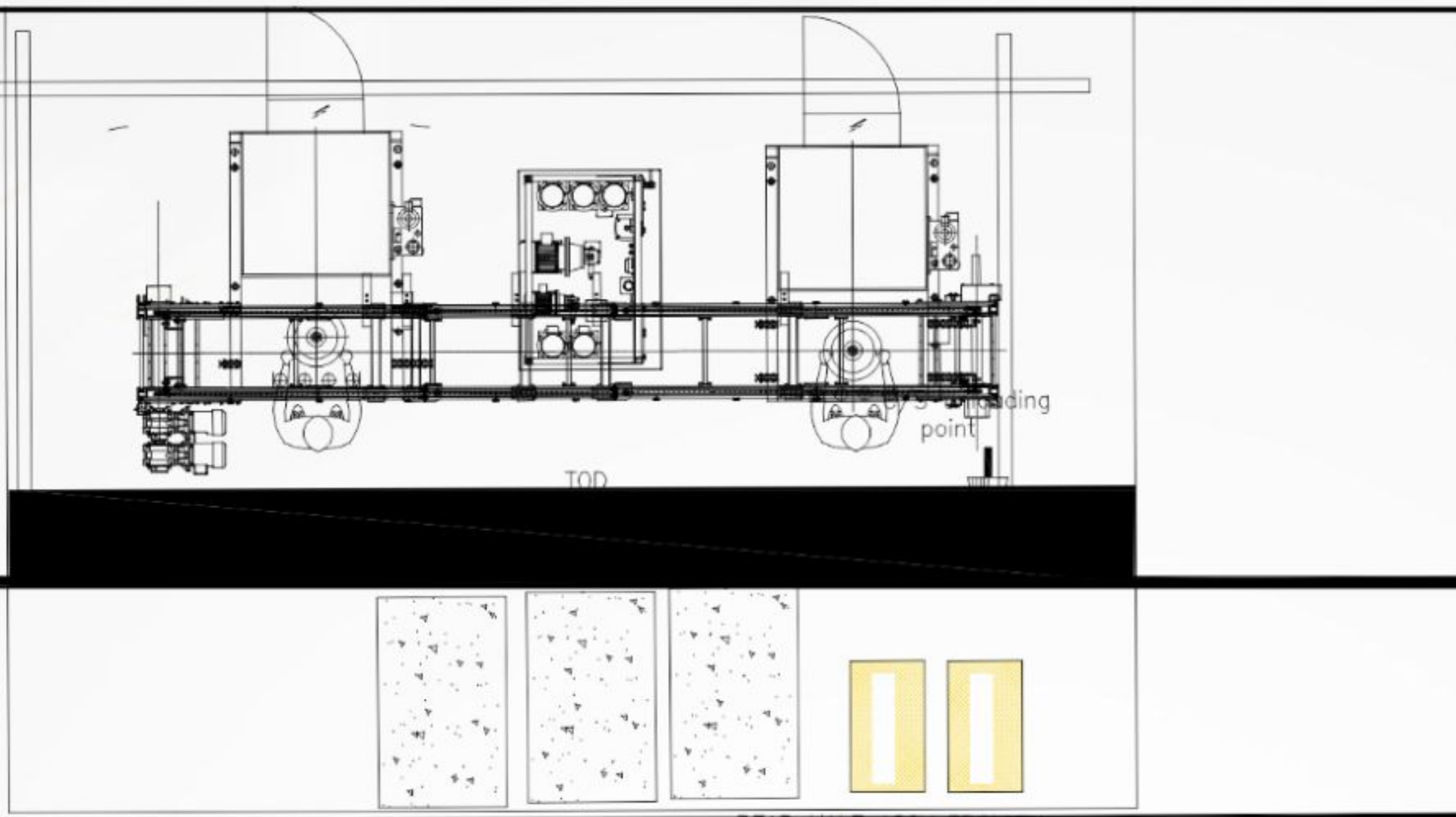
MT-MKT-AU-01, V1.0

LAYOUT



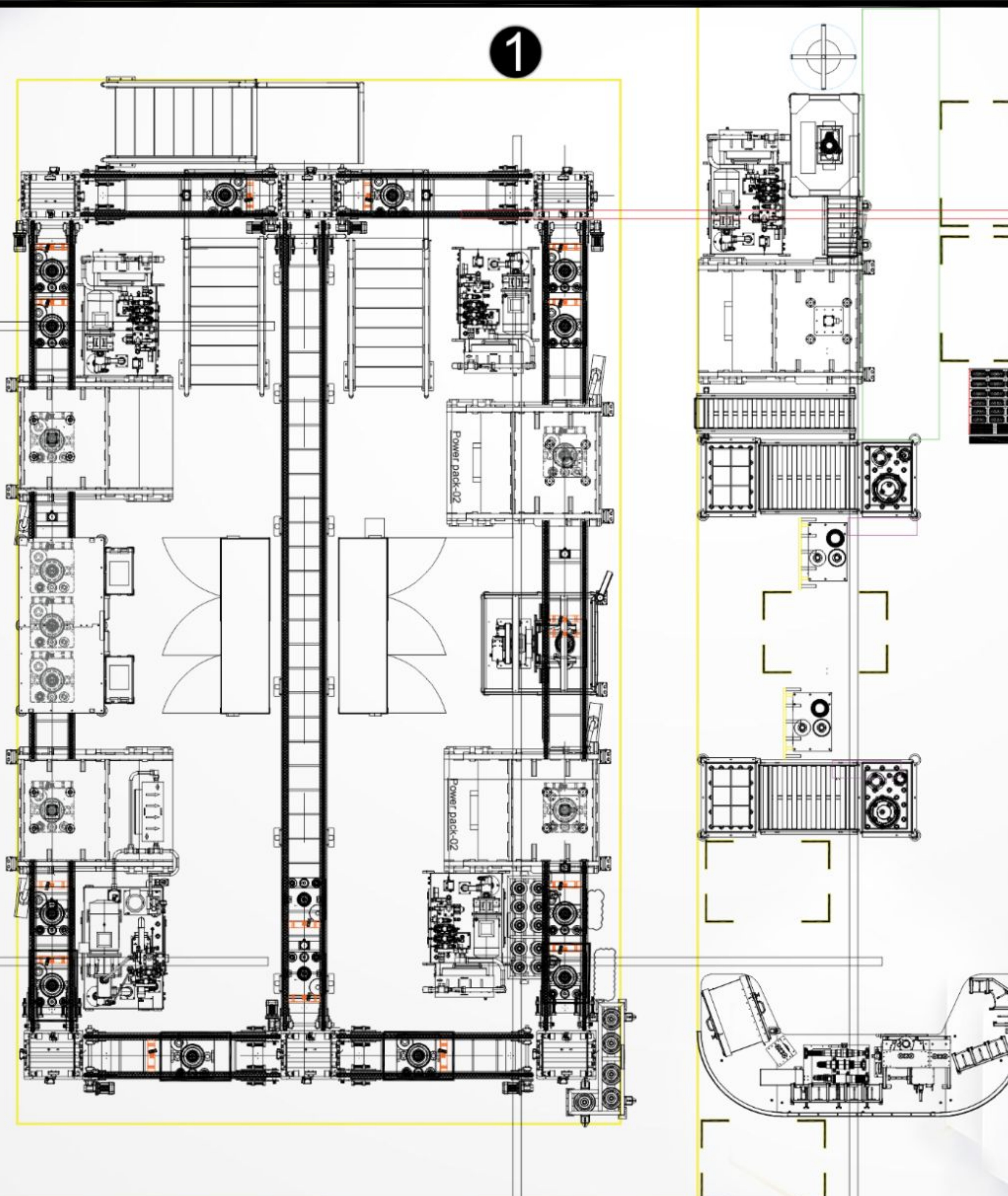
Gearbox Assembly Line

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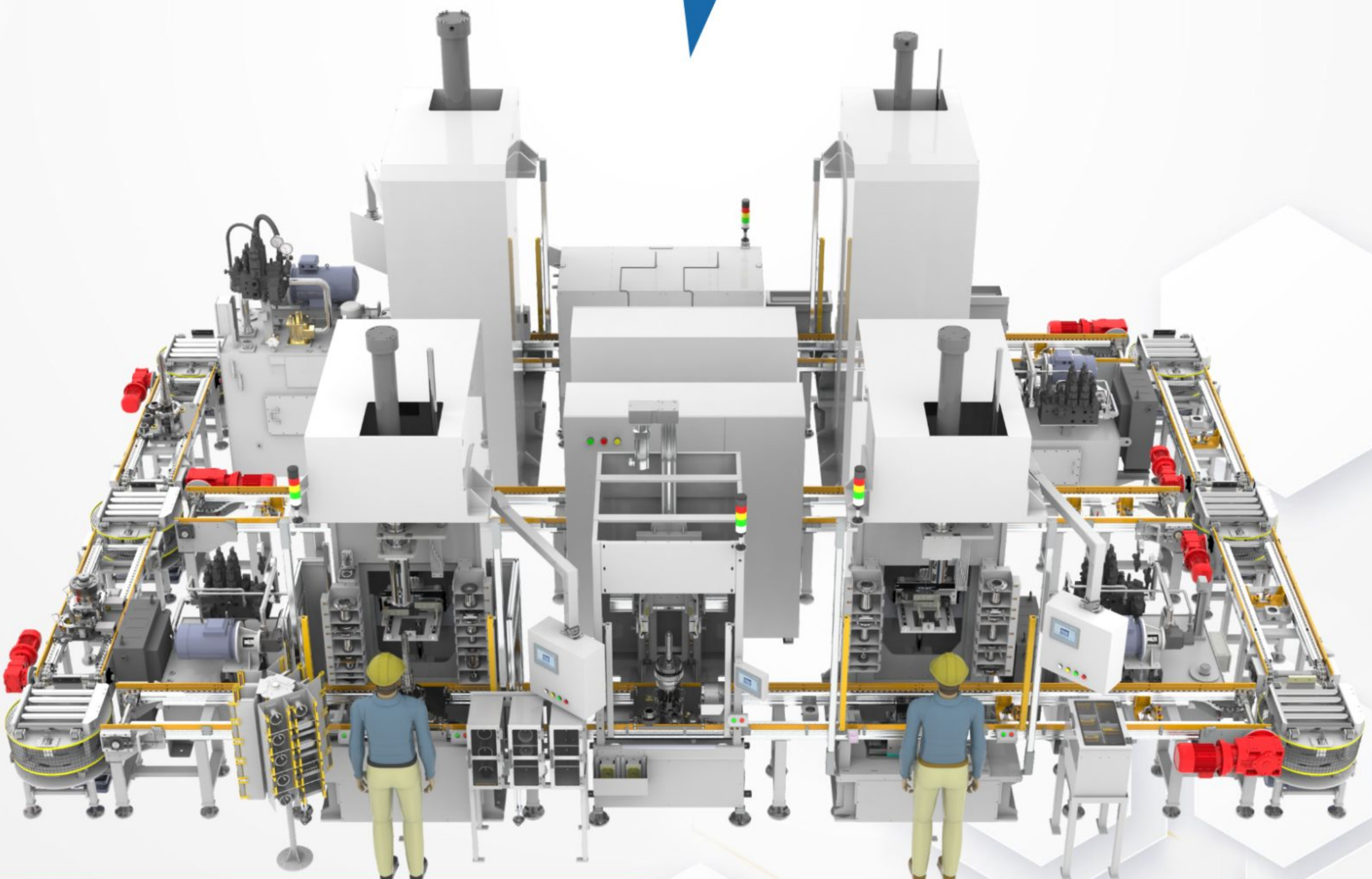


1. Sub Assembly Line
2. Rear Half line
3. Main Assembly Line

1

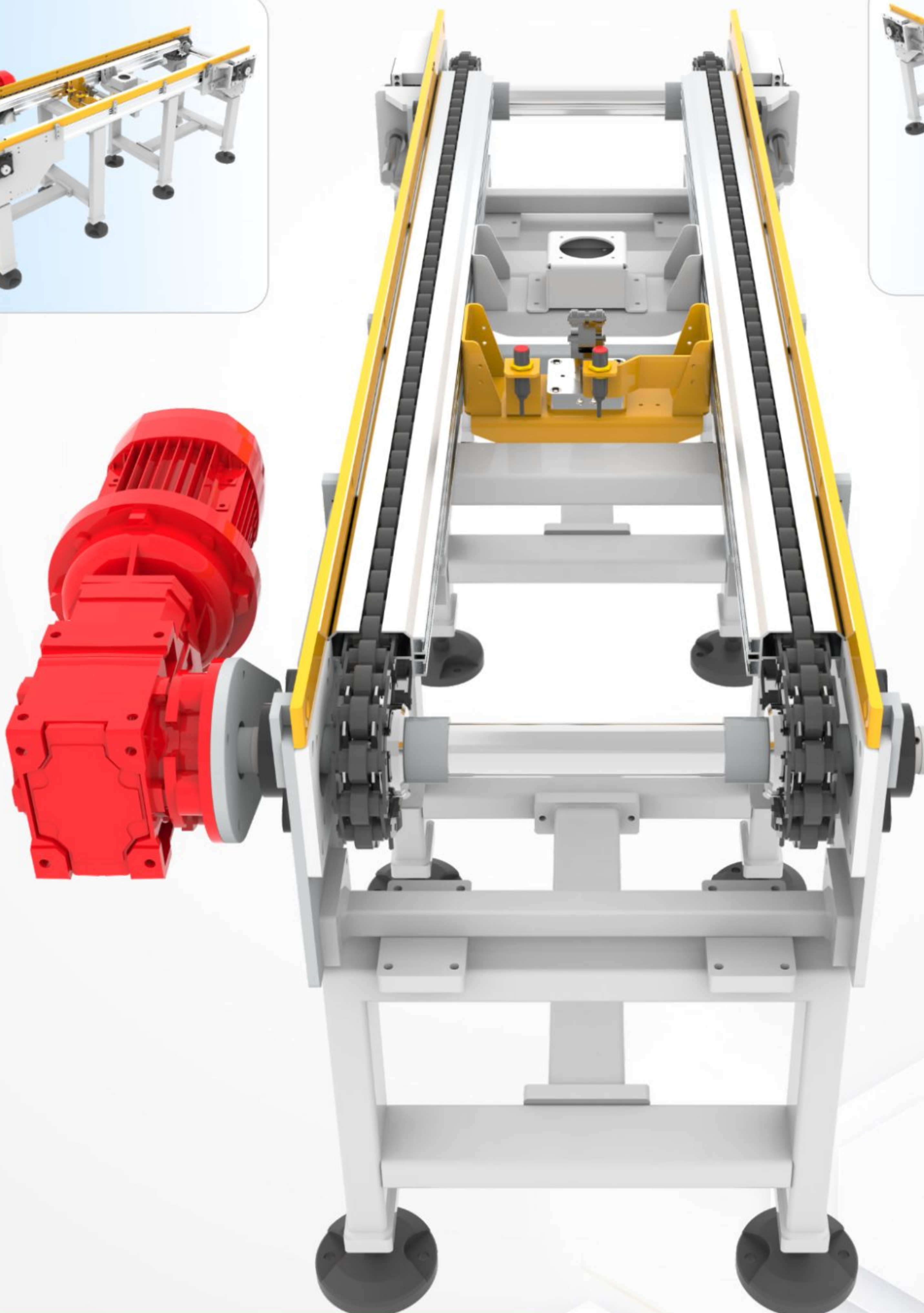


A gearbox assembly line is a production system designed for the efficient and precise assembly of gearboxes, which are critical components in automobiles, industrial machinery, and other mechanical systems. The gearbox transfers power from the engine or motor to the wheels or driven equipment, making accuracy in assembly extremely important.



Conveyor

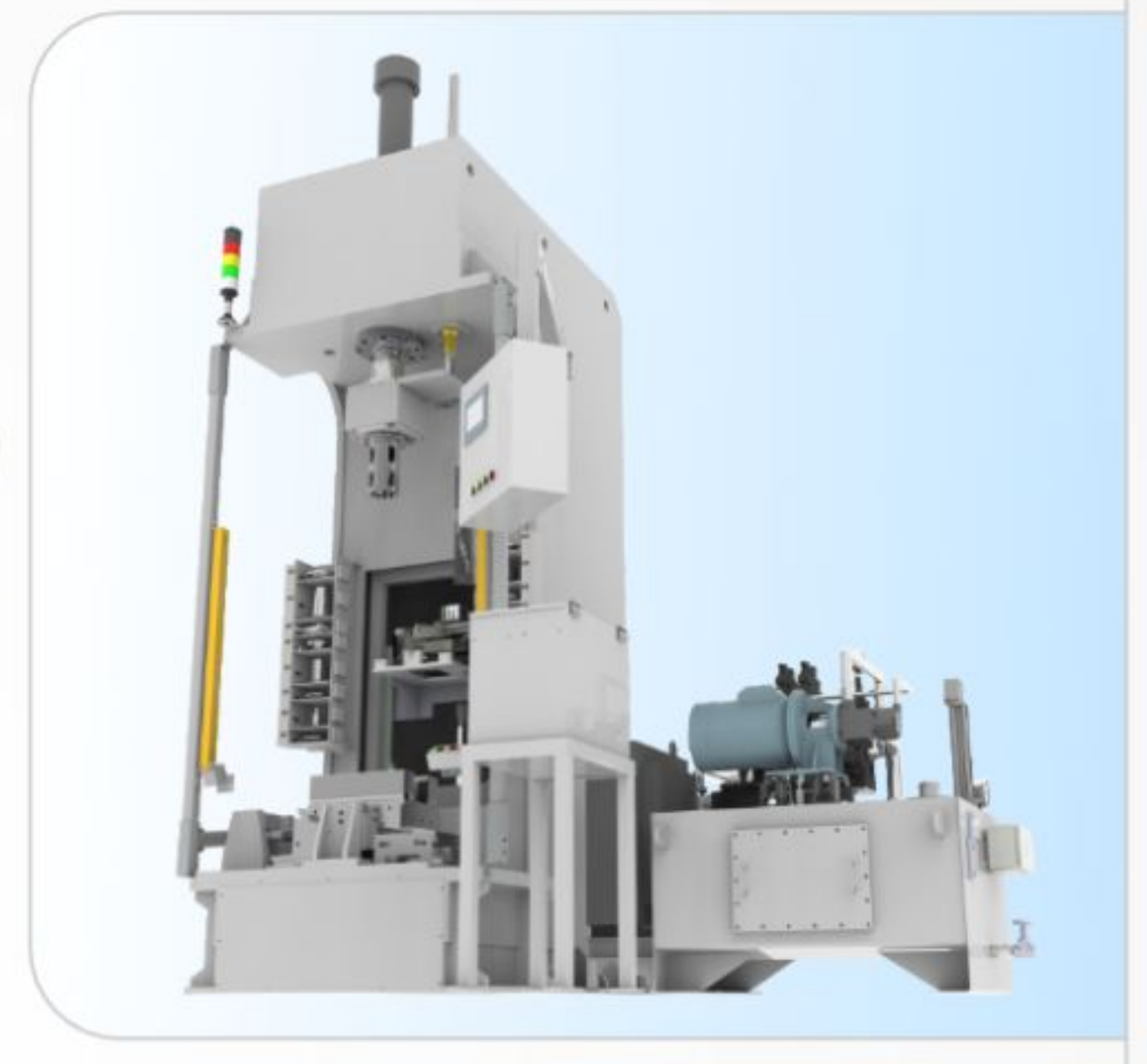
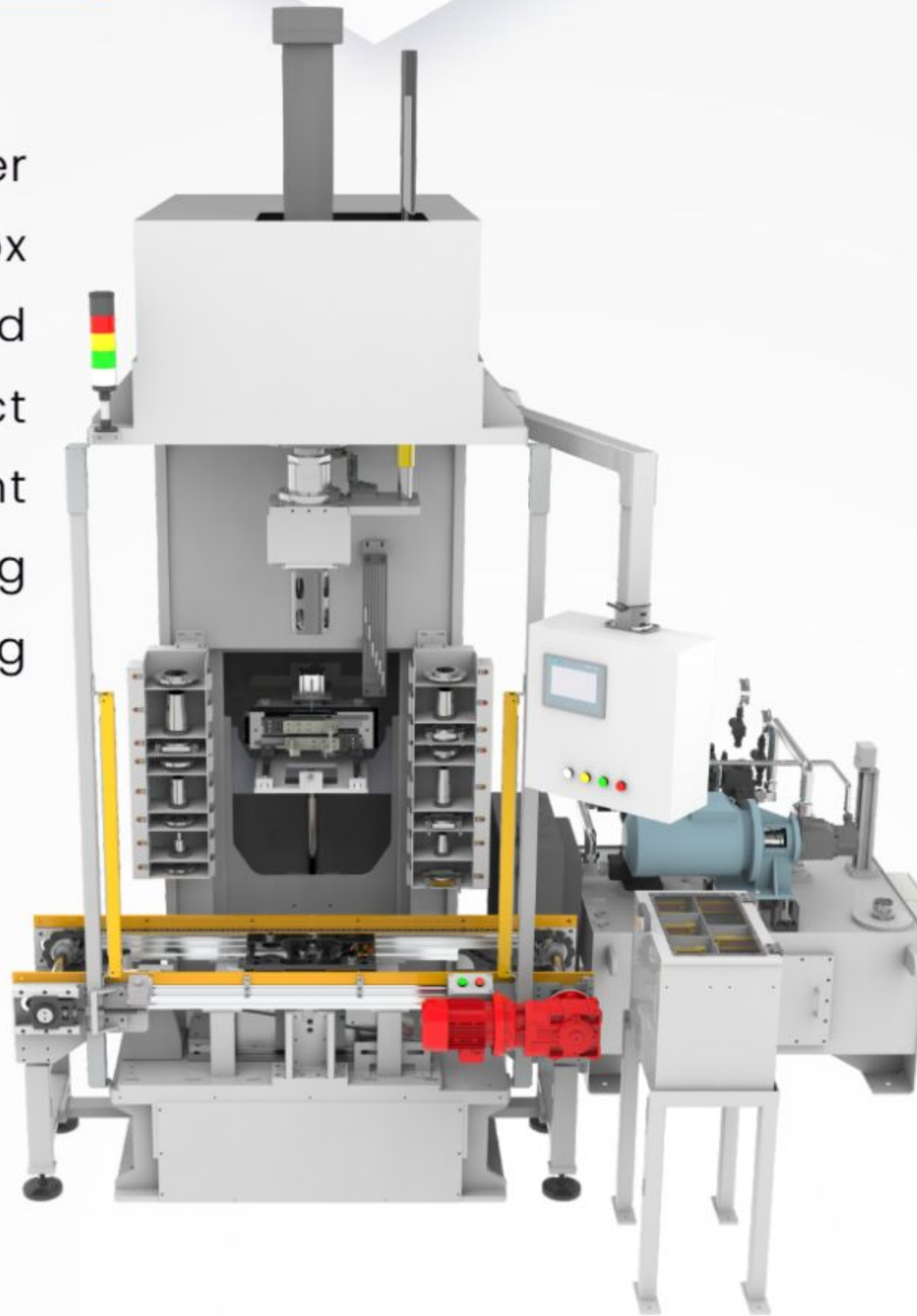
A **gearbox assembly line conveyor** is a specialized material-handling system used in automotive & industrial manufacturing to move gearbox parts and assemblies through each production process efficiently and safely.



Counter Shaft Press (Model -A)

Objective:

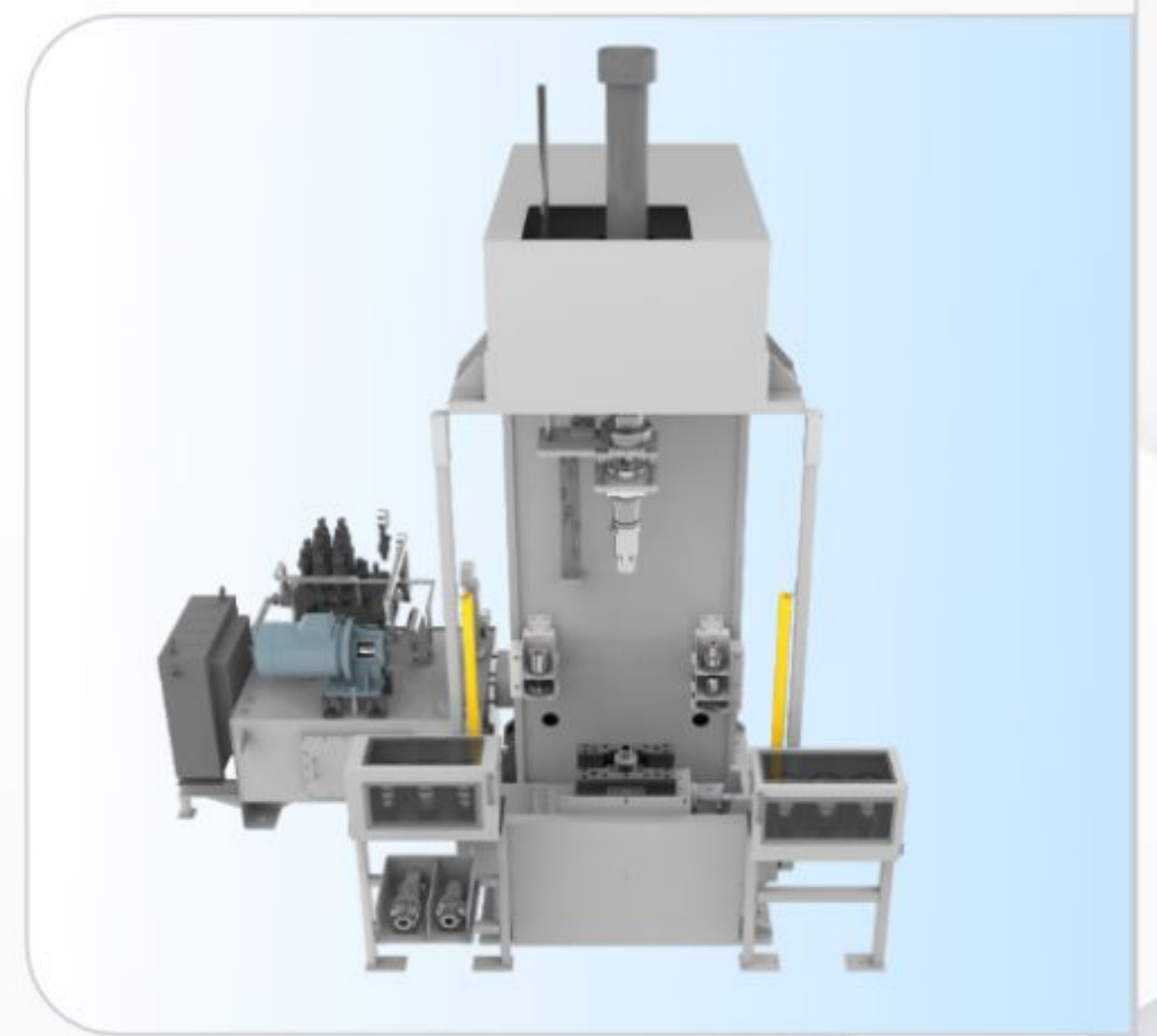
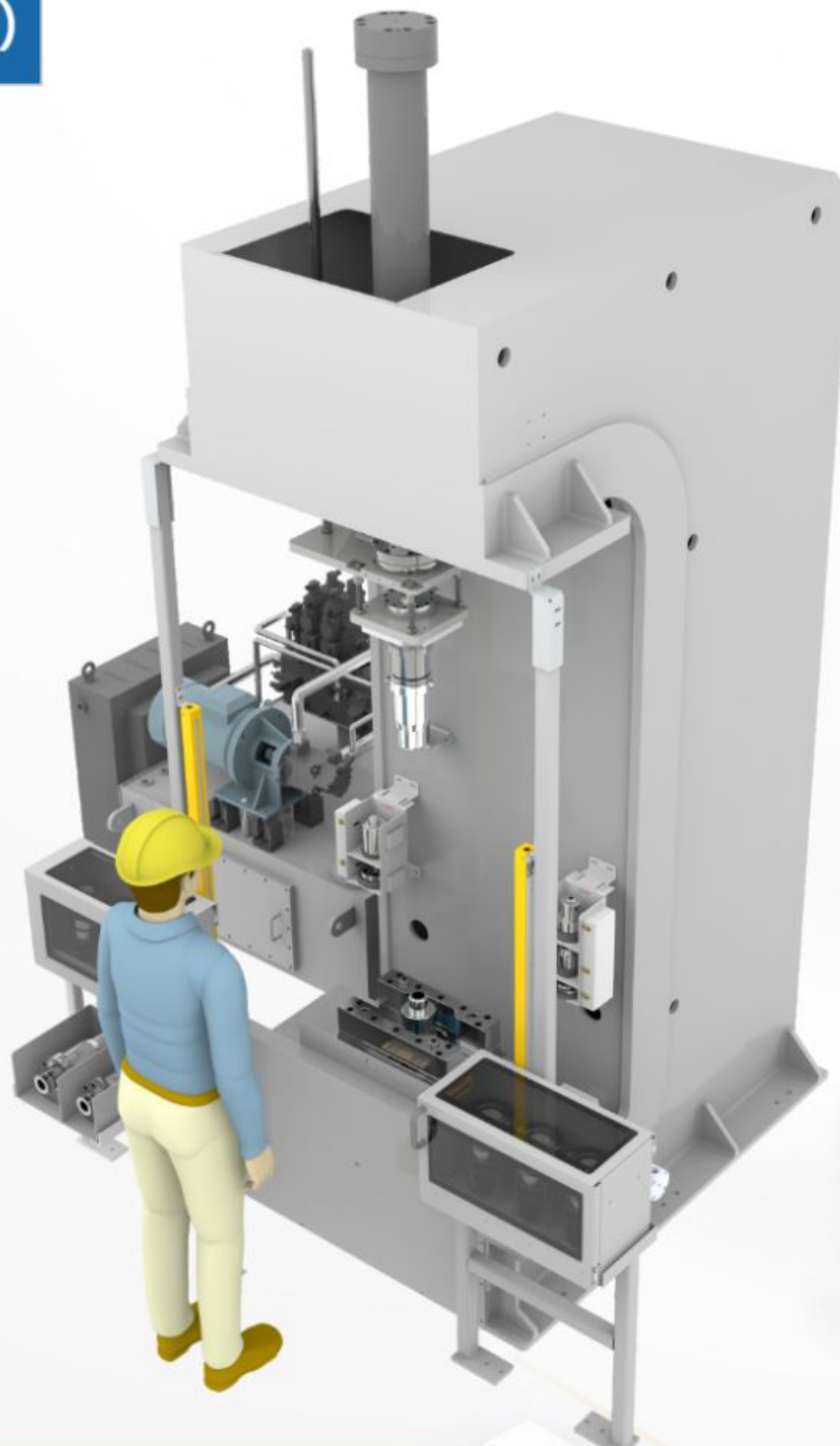
To press-fit the counter shaft into the gearbox housing with controlled force, ensuring correct seating and alignment without damaging bearings, gears, or housing bores.



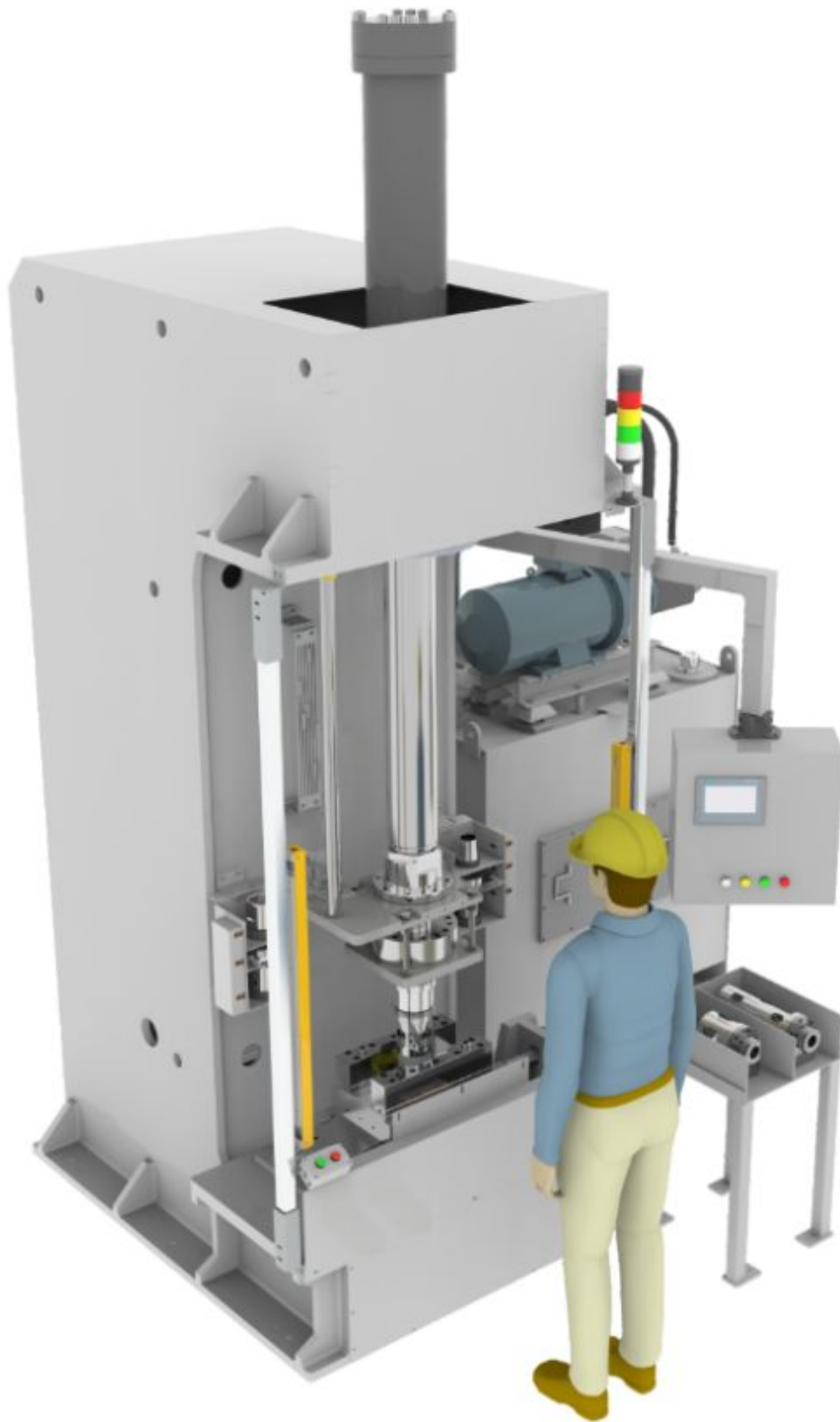
Counter Shaft Press (Model -B)

Objective:

To perform the econdary press-fit operation for the counter shaft assembly—typically pressing the opposite-side bearing/retainer or completing the final seating of the shaft within the gearbox housing. This ensures precise positioning, preload, and axial alignment after the first press operation.



Main Shaft Press (Model -A)

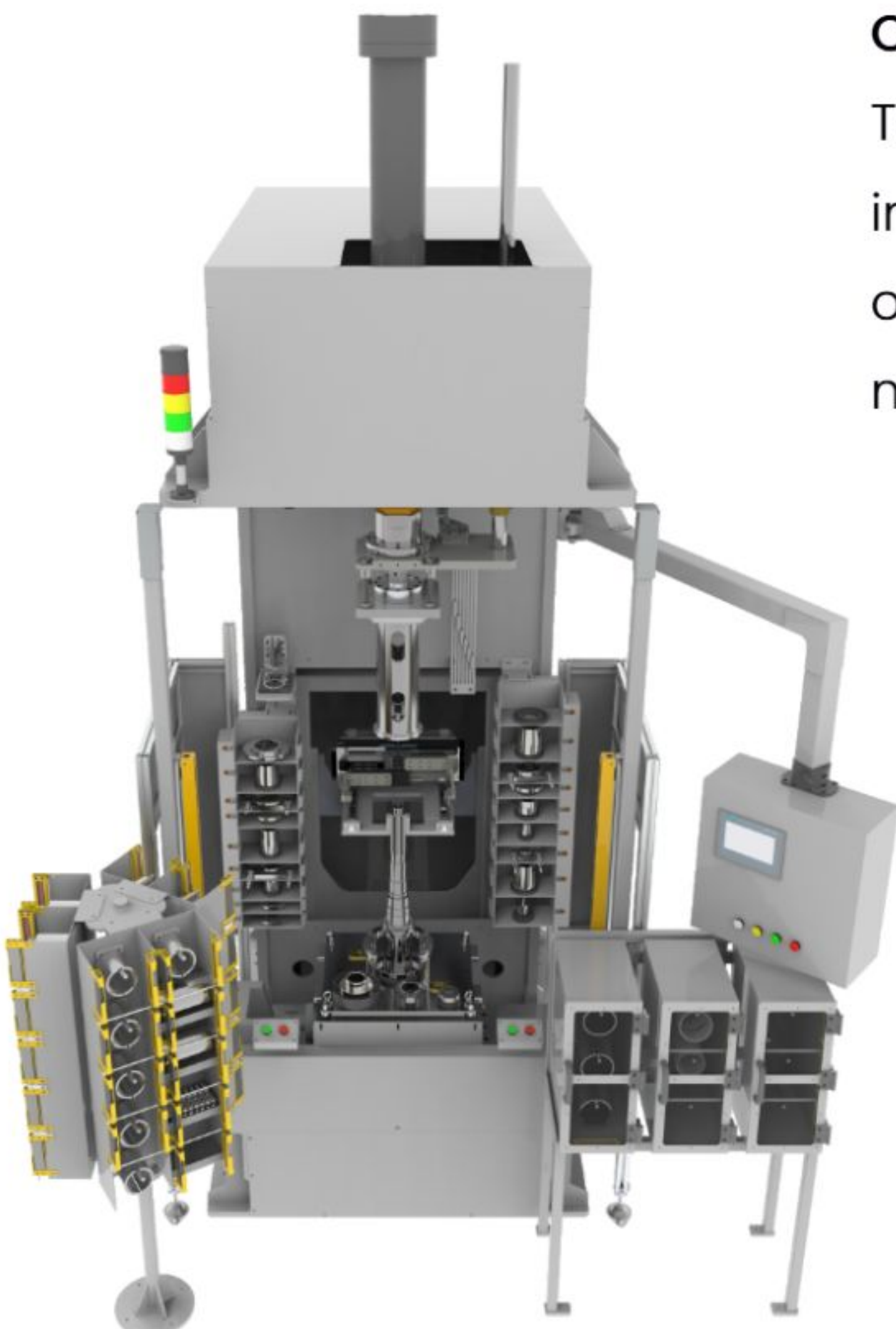


Objective:

To press-fit the main shaft assembly (with gears & bearings) into the gearbox housing for the first stage seating, ensuring accurate alignment, controlled force, and protection of internal components. This step establishes initial seating, alignment & preload positioning before final press in the next stage.



Main Shaft Press (Model -B)

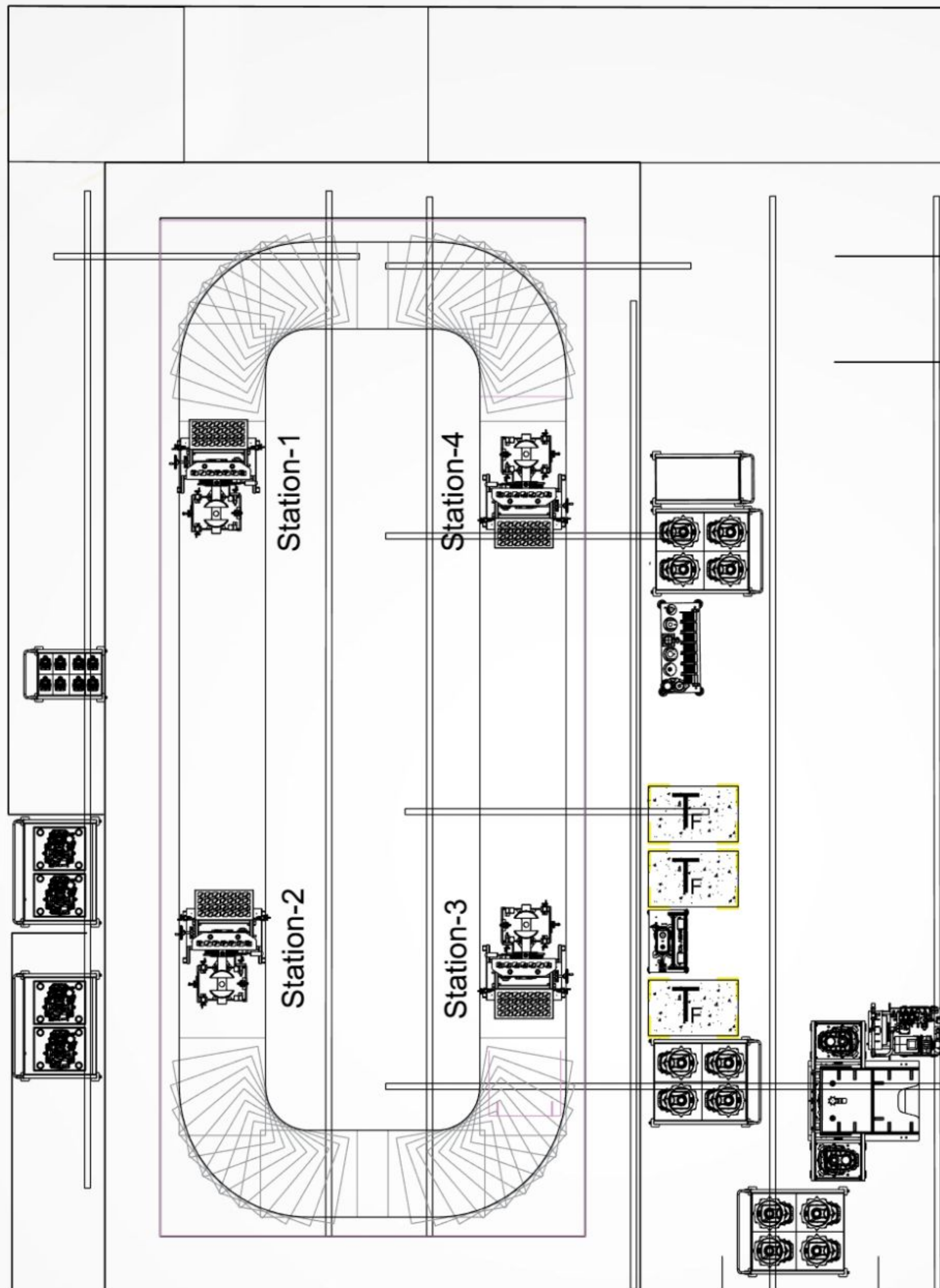


Objective:

To automate the press-fit assembly of the gearbox main shaft into its housing with high accuracy, repeatable force control, and operator safety, ensuring consistent assembly quality, reduced manual effort, and complete process traceability.



COMPONENT TO BE PROCEED



- Main Gearbox Assembly Line Station One (Inner gut assembly):-
- Front housing, inner gut assembly, and child parts are assembled at this station with hardware and verified before transfer.
- Main Gearbox Assembly Line Station Two (Shim Selection):-
- Shim selection by LVDT Measuring tool for Main Shaft /Drive Shaft and counter, And Assembles the Rear cover and Childs parts with selected shim by hardware's at this station.
- Main Gearbox Assembly Line Station Three (Online Axial Play Checking):-
- Axial play is checked up to 500 microns using the online axial play checking unit, and child parts are assembled with hardware's at this station.
- Main Gearbox Assembly Line Station Four (Air Leak Testing):-
- Rear housing, rear cover, and child parts are assembled with hardware, followed by air leak testing of the complete gearbox assembly using the air leak testing setup.

COMPONENT TO BE PROCEED

B

Counter Shaft
Assembly Station

D

Kitting Assembly

F

Chain Conveyor

Main Shaft
Assembly Station

A

Spacer Selection &
Laser Marking
Table

C

Turn Table

E

Cooling Chamber
Heating Furnace

G



KEY COMPONENTS

Main Shaft Assembly Line

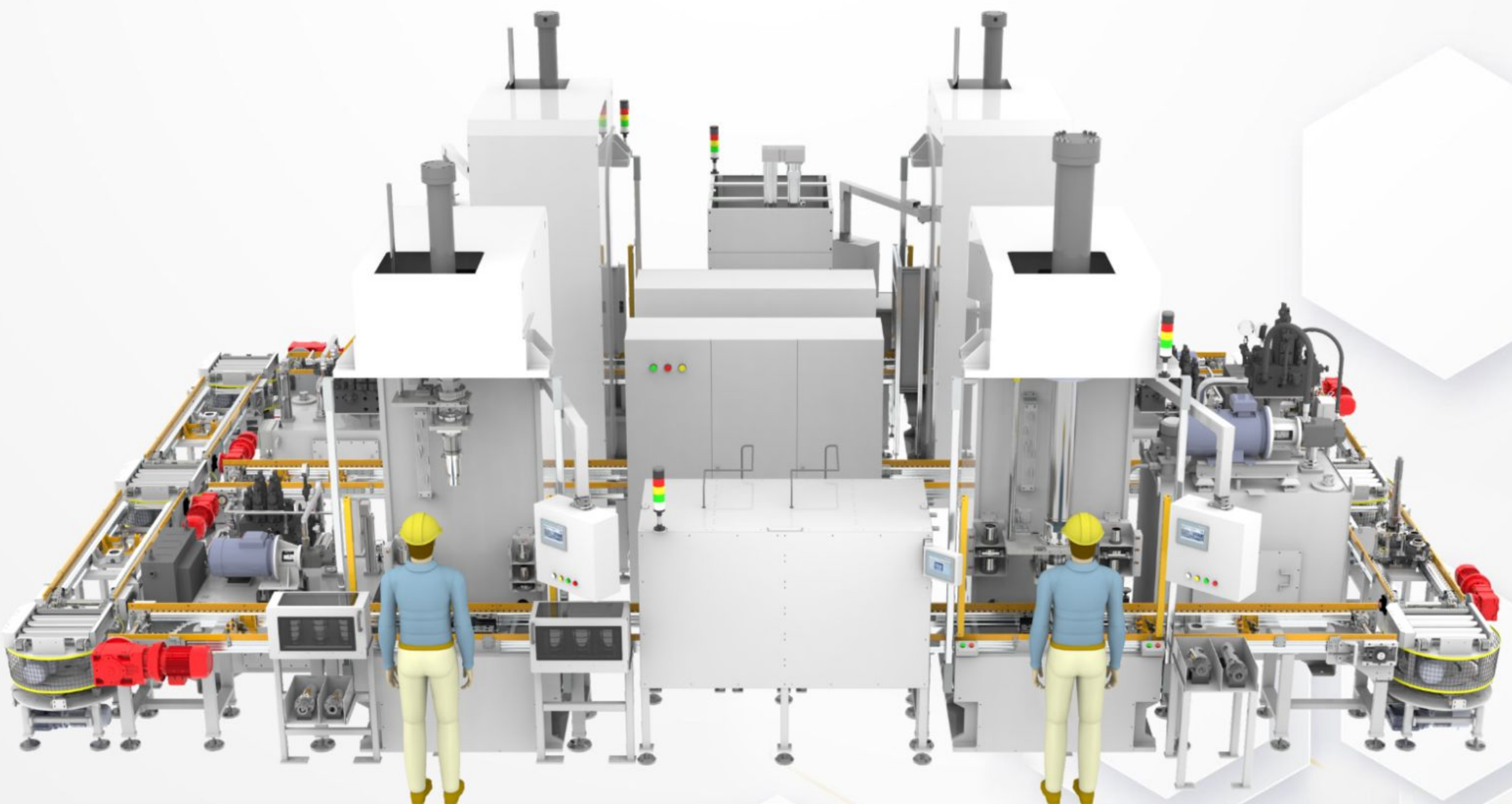
Vision System :

A camera vision system verifies the main shaft child part's presence and orientation before authorizing the next process.

Empty Pallet traffic Management : A separate pallet chain conveyor is used for the main shaft assembly and the counter shaft assembly. However, a common pallet chain conveyor is used for pallet transfer up to the unloading station.

FH/RH Assembly Station : Press the TRB outer and oil seal into the FH and RH, and press the split-type pin into the shifter for assembly.

Inner Gut Assembly : Assemble the main shaft, counter shaft, and drive shaft to prepare the inner gut assembly.





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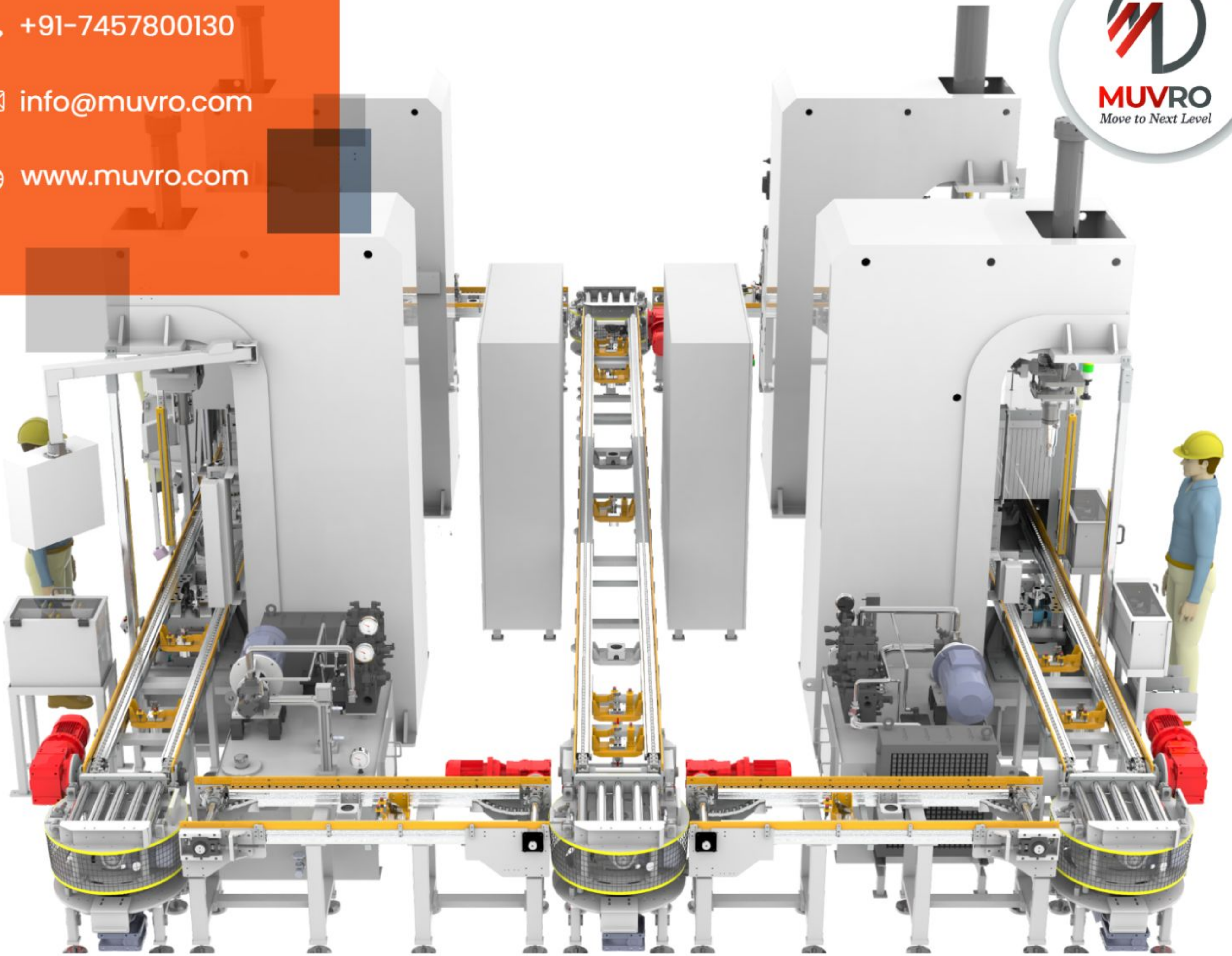
				
				
				
				
				
				
				
				

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