



Marshall Machines Ltd.

AFFORDABLE AUTOMATION

Without Robots



SOLUTION'S AVAILABLE FOR



BUSH TYPE JOBS



HEX NUTS & CONNECTORS



TUBE TYPE JOBS



LONG SHAFTS WITH
MACHINING ON ENDS



SMALL TUBULAR
COMPONENTS



BEARING ROLLERS, BRAKE
PARTS & PISTON PINS

& Many more...

WHY is Affordable Automation needed?

#1



Shortage of Skilled Operators

#2



Social Distancing after COVID Pandemic

#3



Need to have higher OEE to improve profits. (Automated machines have 25-40% extra output)

NOTE: Affordable Automation WITHOUT Robots is the **NEED OF THE HOUR**.
Some more facts:

1. Investment Payback Period (ROI) of less than 1 year.
2. OEE (Overall Equipment Efficiency) 20-30% more than machines run by Operators.
3. No losses because of absenteeism.

Basic Design Principles of Marshall's Affordable Automation

#1

Design Simple Infeed System which uses gravity or vibrations to convey material inside machine enclosure.

#2

Design CNC machine to use ITS OWN SYSTEMS & MOVING ASSEMBLIES to unload machined parts and load raw material (No need of Gantry or Robot).

PRINCIPLE #1

of Affordable Automation



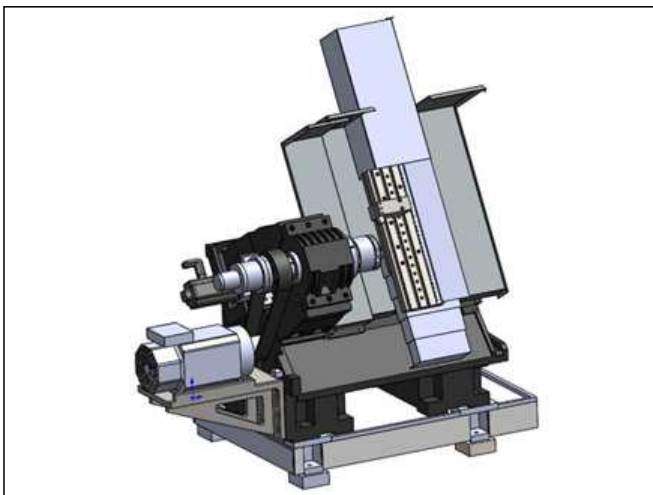
Vibration based Infeed System



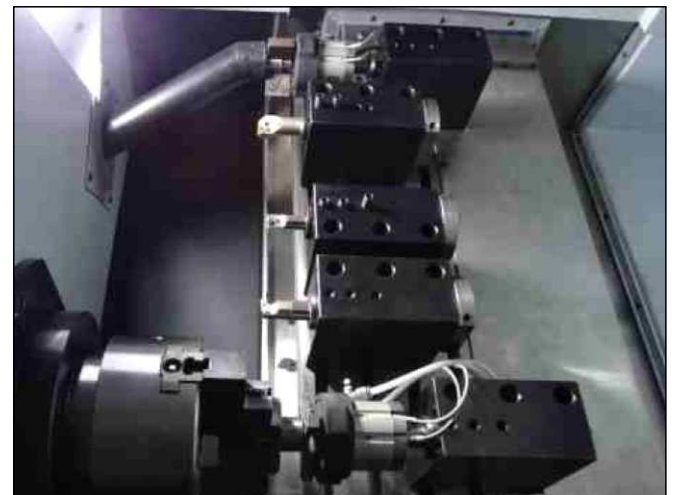
Using Chutes with Gravity feed into machine enclosure

PRINCIPLE #2

of Affordable Automation



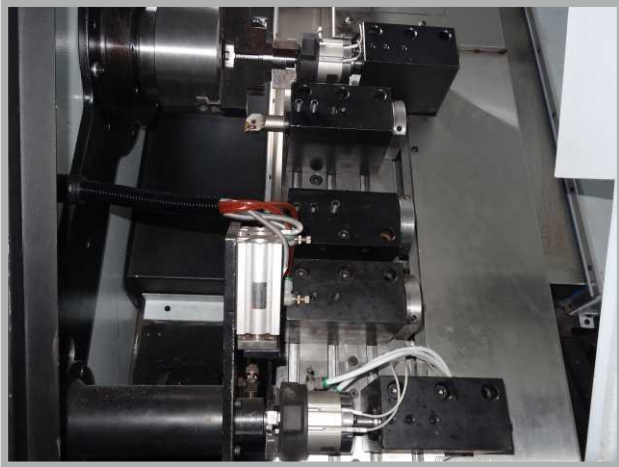
Design machine to use its own system to load / unload



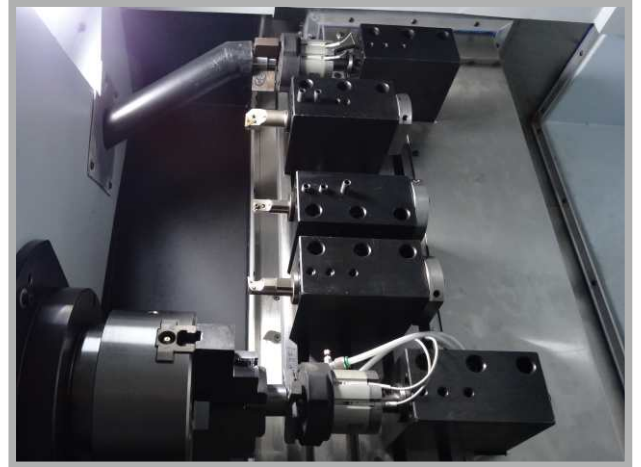
60 Degrees Slant with large stroke

Use machines own system & Moving Assemblies to unload / load

Twin Grip



Twin Release

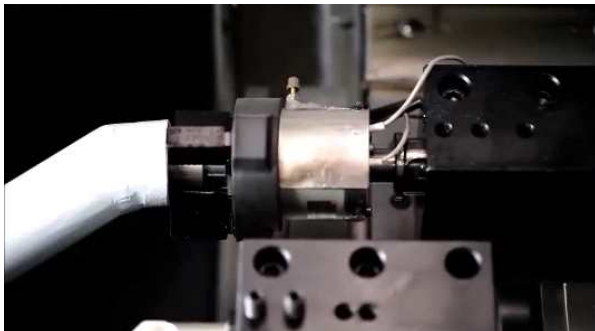


UNIQUE TWIN GRIP- TWIN RELEASE system (Patent Filed)

Option after 1st operation

THREE Options after Machining

Option #1 EXIT through Chute



Option #2

Job Removed, Flipped & Reloaded for 2nd operation in same workholding

Option #3

Job transferred to second spindle by TRANSFER ARM in case where clamping with different workholding required for 2nd operation.

To Check Video Solution

CLICK HERE



To Check Video Solution

CLICK HERE



- **RELIABILITY** is the # 1 feature required in AUTOMATION.
- Apart from Gantry (Japanese) & Robots, Marshall's SmartLoad which uses the CNC machines OWN systems for loading & unloading is the **ONLY** reliable system.



- Systems which use a combination of Pneumatic cylinders & actuators or a mix or servo & pneumatic actuators are unreliable and breakdown frequently.
- OEE of such 'Jugaad' automation systems is worse than manually operated Machines



'Jugaad' is NOT Affordable Automation

WHAT are the Solutions available

SOLUTION #1 Bush Type Jobs



To Check Video Solution

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SOLUTION 2# Hex Nuts & Connectors



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CLICK HERE



SOLUTION 3# Tube Type Jobs



To Check Video Solution

CLICK HERE



SOLUTION #4 Long Shafts with Machining on ends



To Check Video Solution

CLICK HERE



SOLUTION #5 Seat Pipe & Small Tubular Components



To Check Video Solution

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SOLUTION 6# Bearing Rollers, Brake Parts & Piston Pins



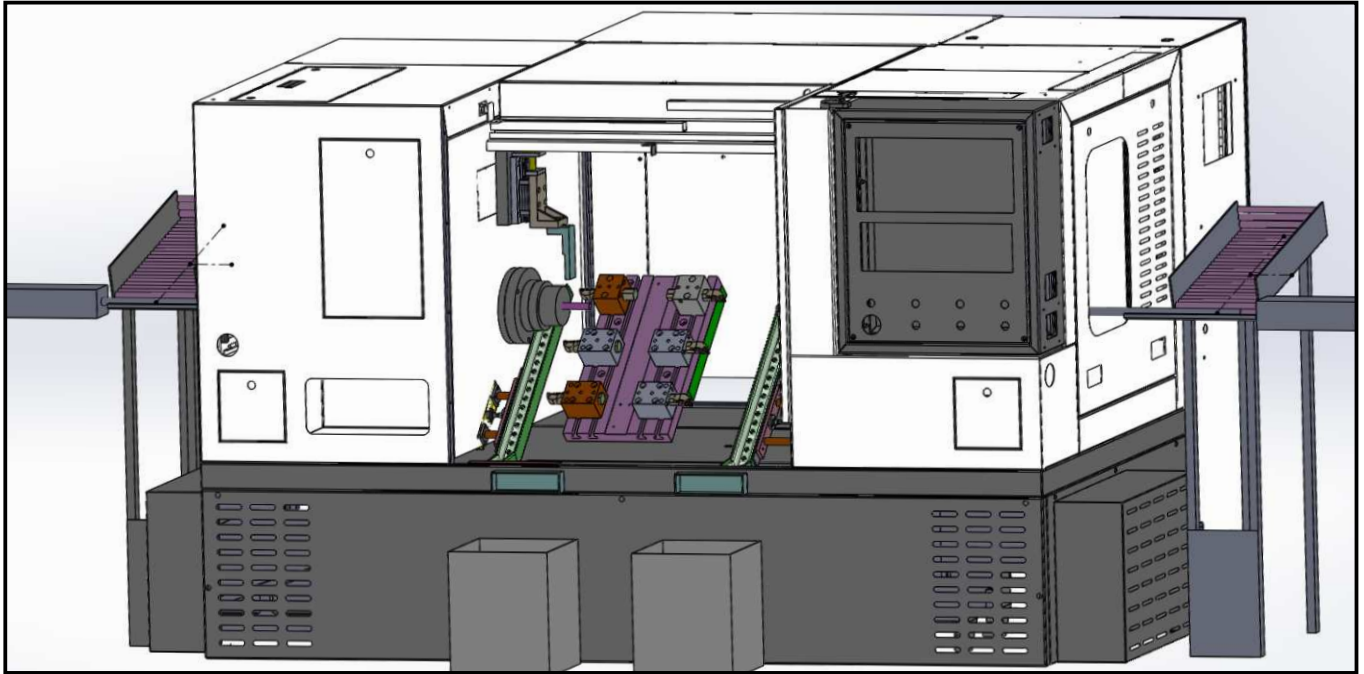
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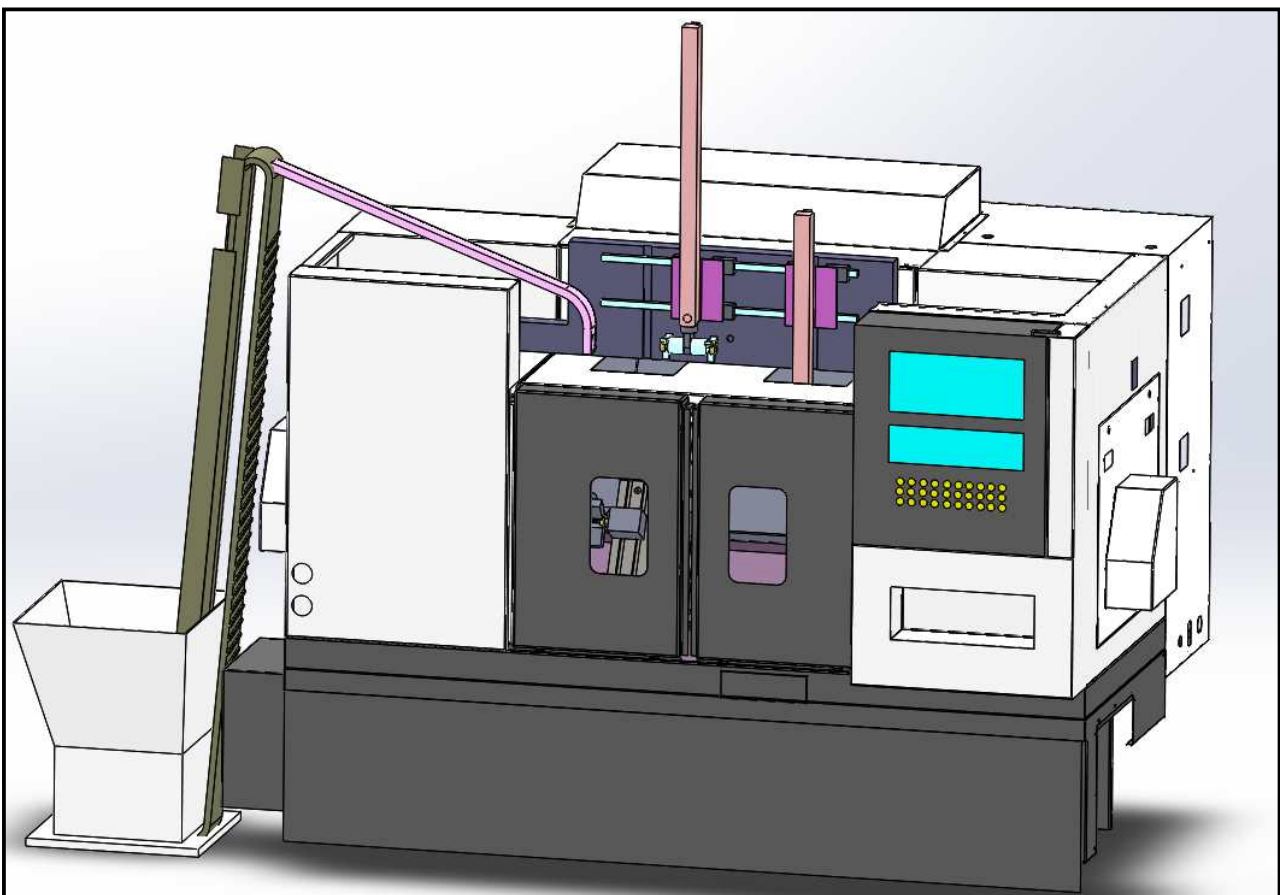


Affordable automation on Rapidturn series (2 Head with 1 Saddle Assembly)

1# Automation for Small Shafts with machining on ends
(E.g. Piston Rods of Shock Absorbers)



2# DOUBLE GANTRY AUTOMATION for Short Cycle Time Jobs
(Bearing Rings, Gear Blanks, Spacers, Bushes, etc.)



3# GANTRYTURN 12D. External Gantry for loading & unloading of all kinds of jobs.



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