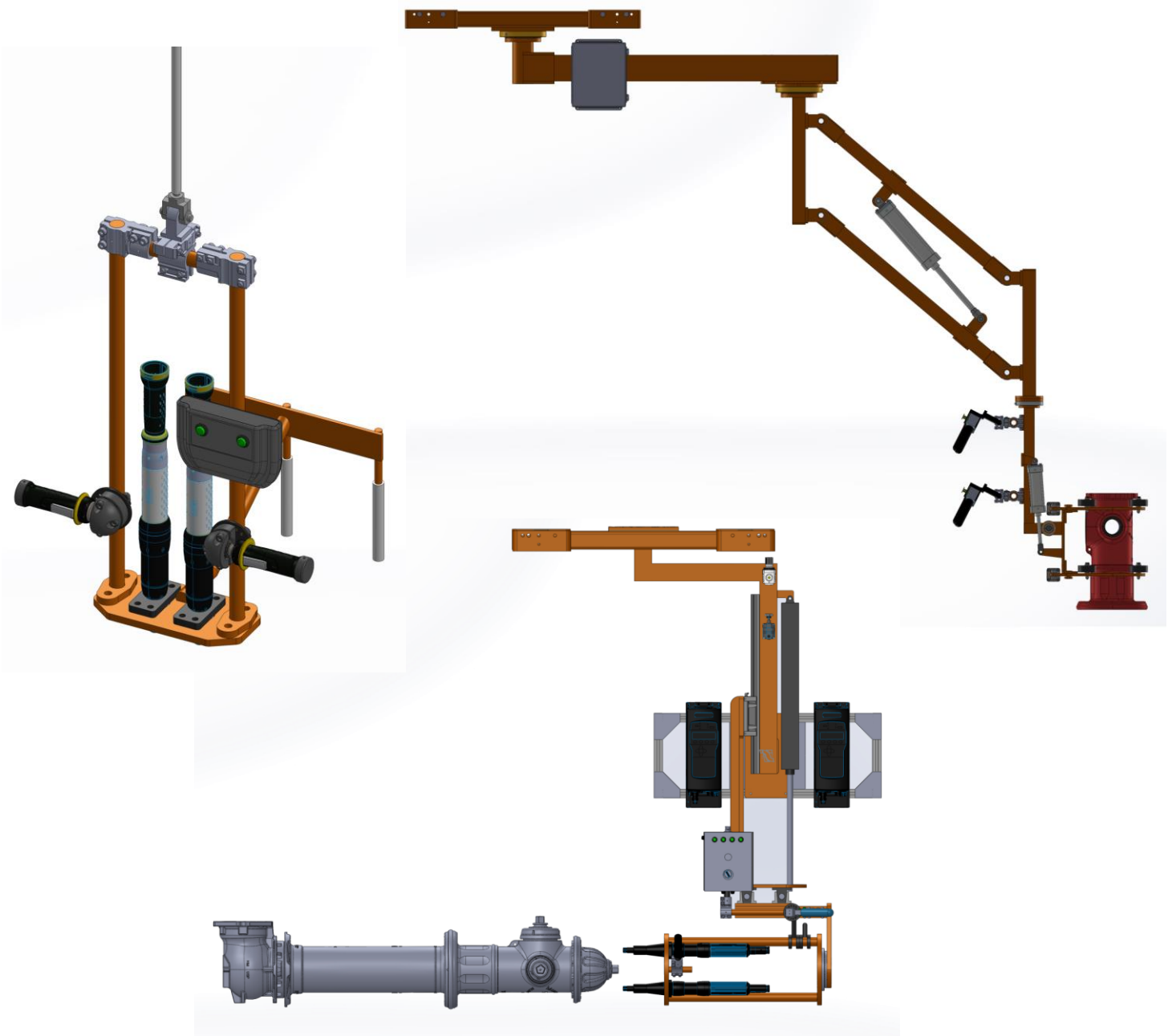
Tool-Smith

Engineered Solutions



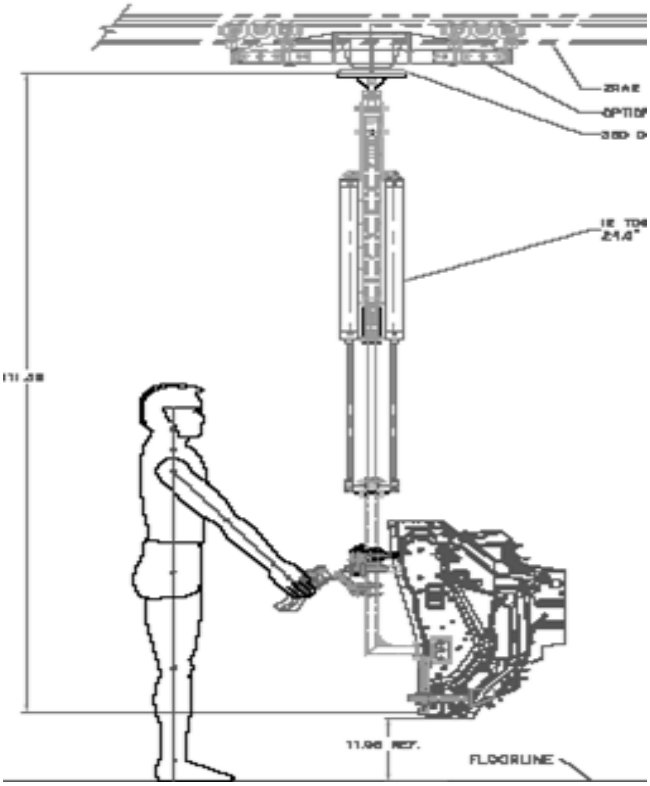
Handling Devices **Torque Systems**

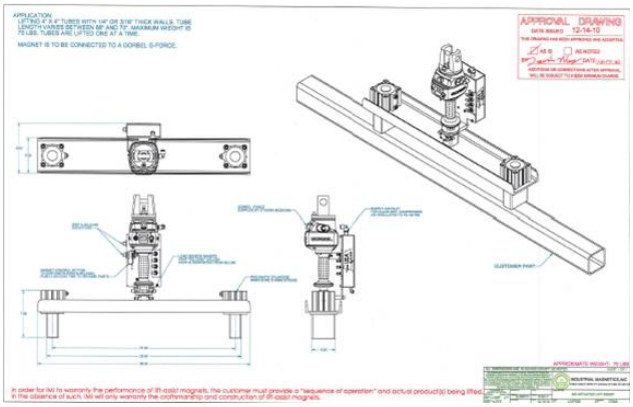
Tool-Smith
Engineered Solutions

Tool-Smith designs and builds multi-spindle torque systems and ergonomic handling devices. Each system is custom designed specifically for your application and we deliver Approval to Build Drawings and Final Detailed Component Drawings in 3D.

After the customer approves the design, Tool-Smith builds the device in Birmingham, Alabama. We use laser cut steel plates to provide long term durability, and enclosed air lines to guard against snags and damage. Each system ships with documentation and permanent labeling to guide operators.

Once built, all testing and runoffs for final approval take place locally so you spend less time traveling. Tool-Smith can either install the approved system or provide project management for a customer's installation team. A Professional Engineer (PE) Stamp can be provided upon request.

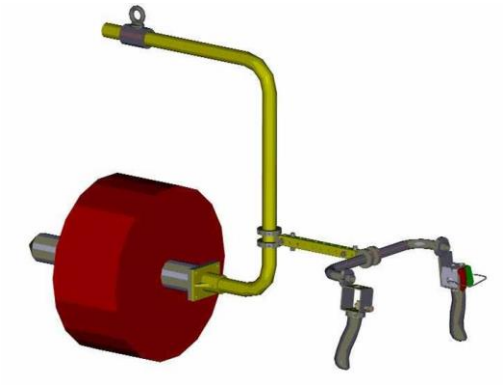




Handling Devices

Tool-Smith can incorporate mechanical, magnetic, vacuum, or cylinder actuated clamping to grasp the load. This flexibility ensures that our devices can lift a particular part without marring or otherwise damaging it, while still allowing the fastest operation for the user.

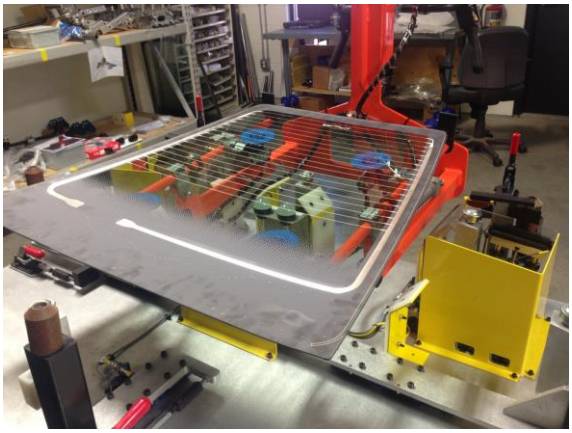
Clamping device actuated with pneumatic cylinders



Probe picks up a roll, gripping through the center

A different cylinder actuated clamping configuration

Basic hook device



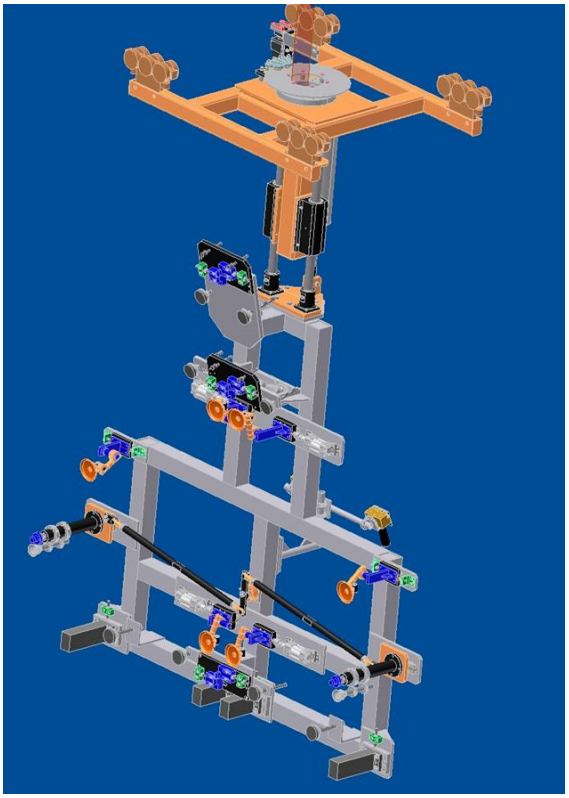
Vacuum cups grip this rear car window from below

Handling Devices

In addition to standard “straight transfer” lifting devices, Tool-Smith has the capability to design end effectors that can pivot, rotate, swivel, or otherwise position a part. In addition, adjustments can be made to allow one handling device to lift multiple, different sized parts. For applications with faster movement requirements, we can incorporate intelligent ergonomic control handles to deliver weightless manipulation.

After this device lifts a watercraft, a motor rotates it 180 degrees

Cylinders tilt windshield 90 degrees into an upright position



This gap-setting device ensures rear van doors are properly spaced upon installation on the vehicle

This device’s adjustable center of gravity allows it to pick up different sized parts

Safety Features

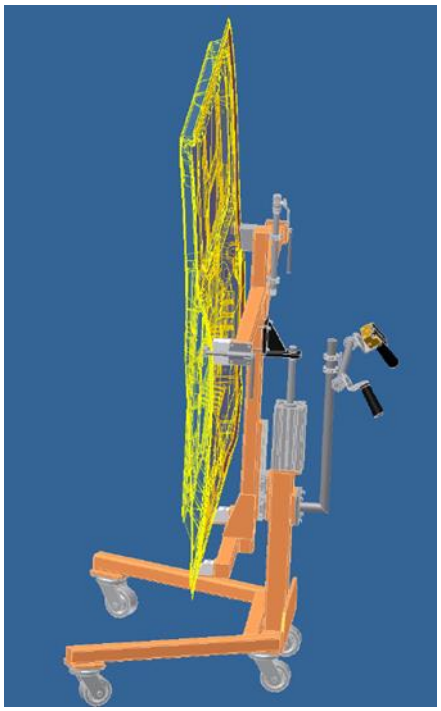
- Safety interlocks prevent accidental release of loads
- Load deflection calculations determine weight limits
- “Up Disabled Circuit” disables lift until gage sense proper vacuum has been achieved

Specialty Applications

Less complicated off the shelf lean solutions

Sheet Lifters

High capacity vacuum lifts



Floor Mounted Systems

Torque Systems

Tool-Smith can create multi-spindle powerheads to match any bolt configuration. We can make unique torque arms and fixtures to protect operators from DC tools' torque reactions.

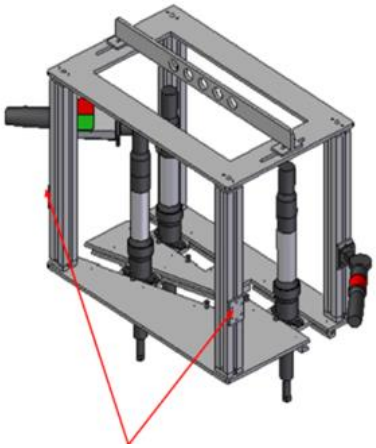
To save money on assembly stations running several different parts, Tool-Smith can build frames with adjustable centers. Touch screens, position sensor, and socket trays are just some of the electrical PLC controlled accessories that can be used to select the proper torque for the part being assembled.

In addition, Tool-Smith can make truly unique systems that do not involve fastening. We worked with an automotive manufacturer to design a machine that could test a crankshaft's drag torque.

Torque reaction fixture

Custom Reaction Arms

Crankshaft drag torque tester



Adjustable centers

Touch screen controls

Complete Assembly Fixtures

Tool-Smith also creates complete assembly fixtures. In the application featured on this page, the PLC only enables the operator to proceed when proximity sensors determine that all parts are correctly placed on the fixture. Two-handed anti-tie-down controls protect the operator's hands from being caught in the machine. The torque reaction arm contains sensors to determine the tool's position in three dimensional space. If the tool is positioned over the correct bolt, the controller selects the appropriate torque and enables the tool for the operator to run down the fastener. E-Stop and manual reset controls provide extra safety and flexibility.

Tool-Smith

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