

## Weld Fixtures



Northern Valley Machine has built numerous welding fixtures for various customers that range from fully automated to manually actuated, or combinations of each. In this particular instance, our customer supplied our engineering staff with an IGES solid model of their product, along with a detail print of welding callouts and GD&T. We used this information to generate a quote. After acceptance of the quote, we started with an initial design review with our customer to highlight goals of the fixture; welding access, safety controls, components to use, etc. Our Engineering staff then created a first revision of the fixture in SolidWorks, which was reviewed by our customer, and necessary changes were made to the model. Once the second revision was complete, a final design review was conducted. The model was then completed with detail prints, hardware requests, and assembly instructions. Once assembly of the fixture was complete, our customer came to our facility to verify the finished product with production parts. From acceptance of the quote to a finished product took place in just under 8 weeks. As an added bonus to our customers, they have the option of taking a complete fixture documentation package, which includes: SolidWorks based solid model and detail prints, DXF format prints of all machined components, BOM of all purchased components, and an IGES format solid model to be opened with any CAD system. This fixture has approximately 120 unique machined components and 50 purchased components. Two-hand pneumatic safety controls were used to actuate the fixture. The controls were labeled and sequenced to ensure the operator loads components in the correct order, and unclamps in a specific order to reduce the chance of part damage. Pneumatic ejectors release the welded product from its hardened tool steel details.

## Turnkey Solution

Northern Valley Machine provides turnkey assembly line fixture solutions for several manufacturing companies in :

- Minnesota
- North Dakota
- South Dakota
- Iowa
- Wisconsin

These fixtures can be either manual or automated, and have electric or pneumatic controls. These fixtures include:

- Weld Fixtures
- Saws
- Drills
- Copes
- Presses
- Quality and Inspection Fixtures
- Welding Lathes
- Machining Fixtures

Provide Northern Valley Machine with your specifications, and models of part, and Northern Valley Machine will provide you with a solution.

Northern Valley Machine Engineers utilize the latest in 3D solid modeling software to eliminate interference problems and ensure access by robotic welders and other external processes.



Hydraulic Fixture



## Automation



## Machining and Automation

1124 15th Ave NE  
East Grand Forks, MN 56721  
Tel: (218) 773-4010  
Fax: (218) 773-3425  
[www.northernvalleymachine.com](http://www.northernvalleymachine.com)

We use only top quality electrical components such as



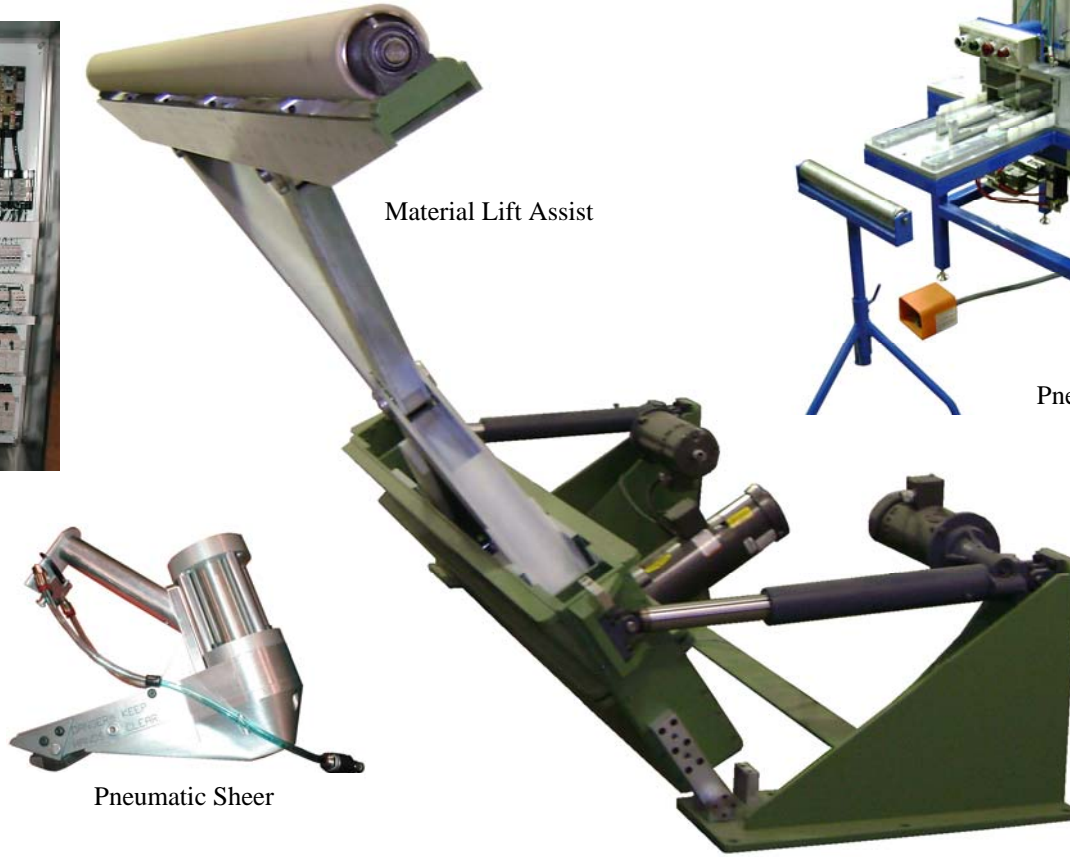
- ABB
- Allen Bradley
- Banner
- Cutler Hammer
- Crouzet
- Entelec
- GE
- Hoffmann
- Idec
- Omron
- Sola
- Square D
- Telemecanique
- Turck
- Wiegmann

### PLC's and Smart Relays

#### UL Listed



As a UL Listed Panel Shop, Northern Valley Machine uses only quality UL listed electrical components. All electrical panels include schematics, parts lists, software diagrams, field wiring diagrams, pneumatic schematics, and operating instructions where applicable.



Material Lift Assist

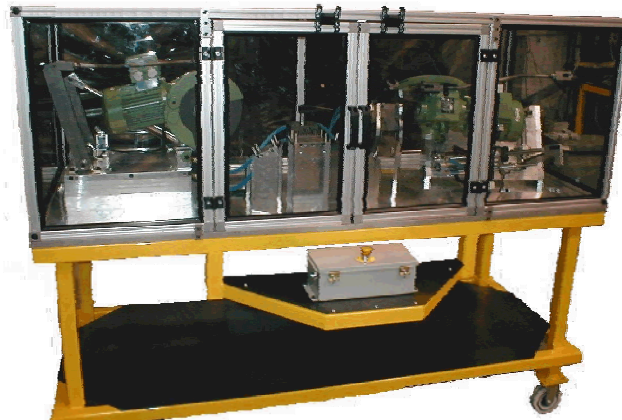
Pneumatic Sheer



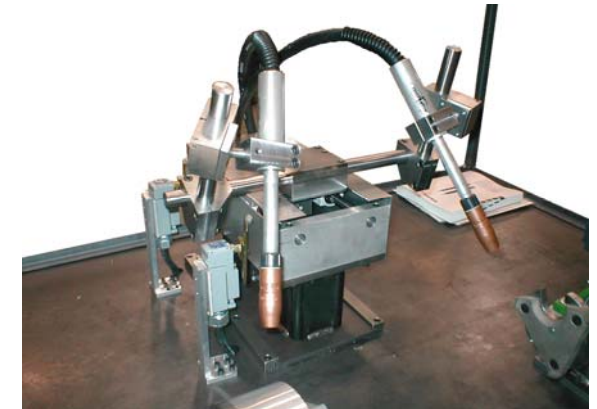
Pneumatic Drill and Punch



Hydraulic Press



A Typical Turnkey Solution



Weld Head from a Welding Lathe