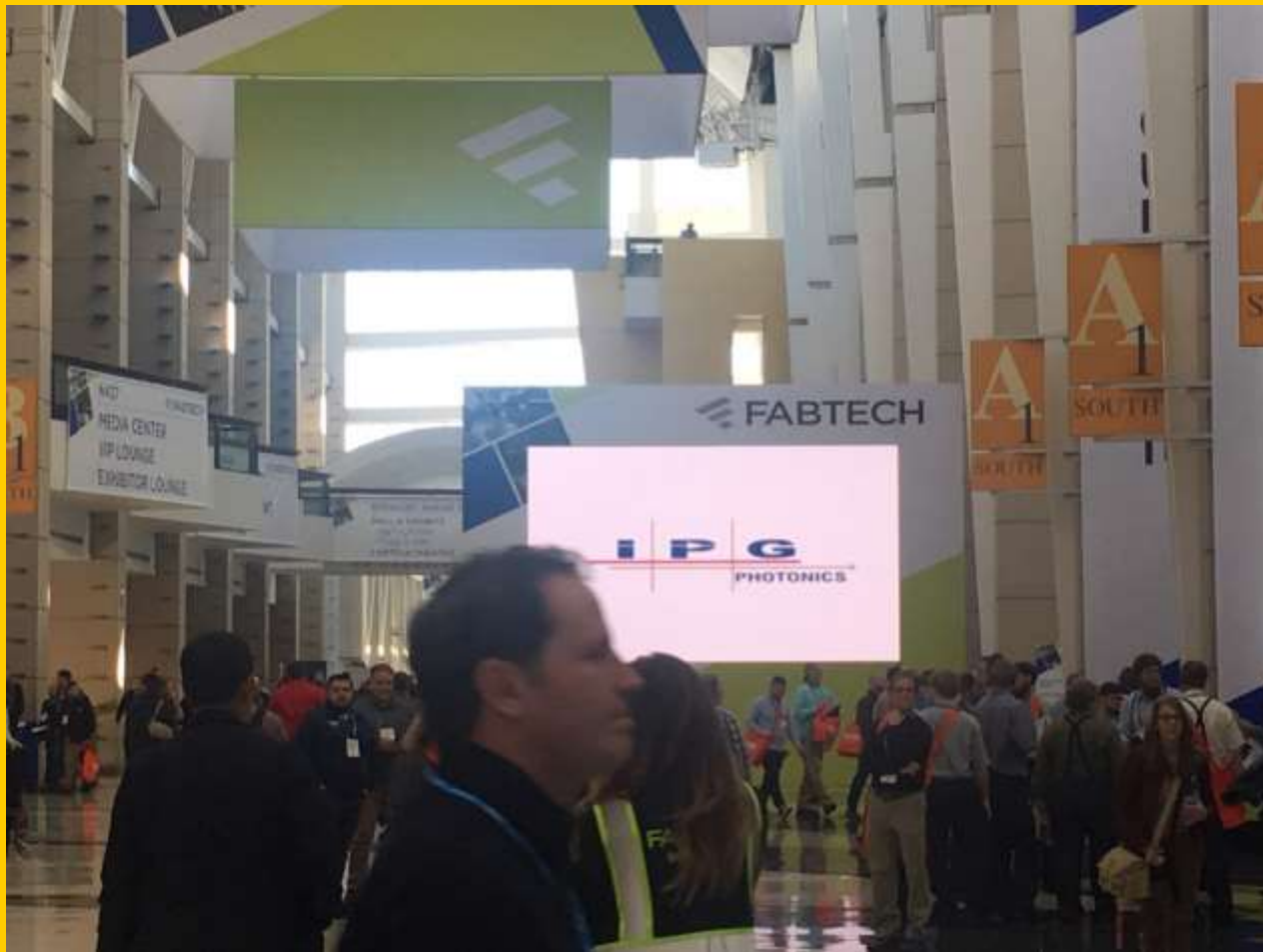


FABTECH EXPO 2019 MCCORMICK PLACE CHICAGO, IL.



HOLBERT ENGINEERING COMPANY CELEBRATING 55 YEARS OF CUSTOM ENGINEERED SOLUTIONS



DESIGN AND BUILD SERVICES FOR

- ***MACHINING FIXTURE DESIGN***
- ***WELD FIXTURE DESIGN***
- ***LASER FIXTURE DESIGN***
- ***AUTOMATION ROBOTIC WELD CELL DESIGN***
- ***TEMPLATE AND PICK OFF FIXTURE DESIGN***
- ***ASSEMBLY TOOL DESIGN***
- ***PLANT LAYOUT DRAWINGS***
- ***PART AND ASSEMBLY RACKS***
- ***PART DETAILING***
- ***DRAWING CONVERSIONS***

ADDITIONAL SERVICES

- ***TURN KEY DESIGN AND BUILD PACKAGES***
- ***CONSULTATION FOR MACHINING CENTER SELECTION AND TOOLING***
- ***CONSULTATION FOR POSITIONER SELECTION AND SAFETY APPLICATIONS***
- ***CONSULTATION FOR ROBOT WELD CELLS AND FIXTURE INTEGRATION***
- ***SPECIALIZING IN POSITIONING, HOLDING, WELDING AND MACHINING OF LARGE PARTS***
- ***HYDRAULIC PUMP SPEC AND DESIGN***

PROJECT MANAGEMENT

- ***INITIAL KICK OFF MEETING***
- ***DESIGN CONCEPT REVIEWS***
- ***DESIGN COMPLETE FOR REVIEW***
- ***BUILD COMPLETE***
- ***WEEKLY PROGRESS REPORTS***
- ***WEBEX MEETING / GOTO MEETINGS***
- ***CUSTOMER IN FOR RUN OFF / BUY OFF.
ADDRESS ANY UNFORESEEN ISSUES.***
- ***PACKAGE FOR TRANSPORTATION***

TOOL DESIGN CAPACITY

- ***16 SEATS OF PRO-ENGINEER / CREO***
- ***12 SEATS OF AUTO CAD***
- ***4 SEATS OF SOLID WORKS***
- ***12 SEATS OF ANVIL***
- ***LEGACY PENCIL DRAWINGS***

EXAMPLES OF OUR WORK

(LARGE MACHINING FIXTURES)

- ***COMPLETELY AUTOMATED DESIGN***
- ***FIXTURE WILL RUN 4 DIFFERENT MODELS WITH NO CHANGE OVER***
- ***WEIGHT RANGE IS 12,000 TO 42,000 POUNDS***

NEXT THREE SLIDES

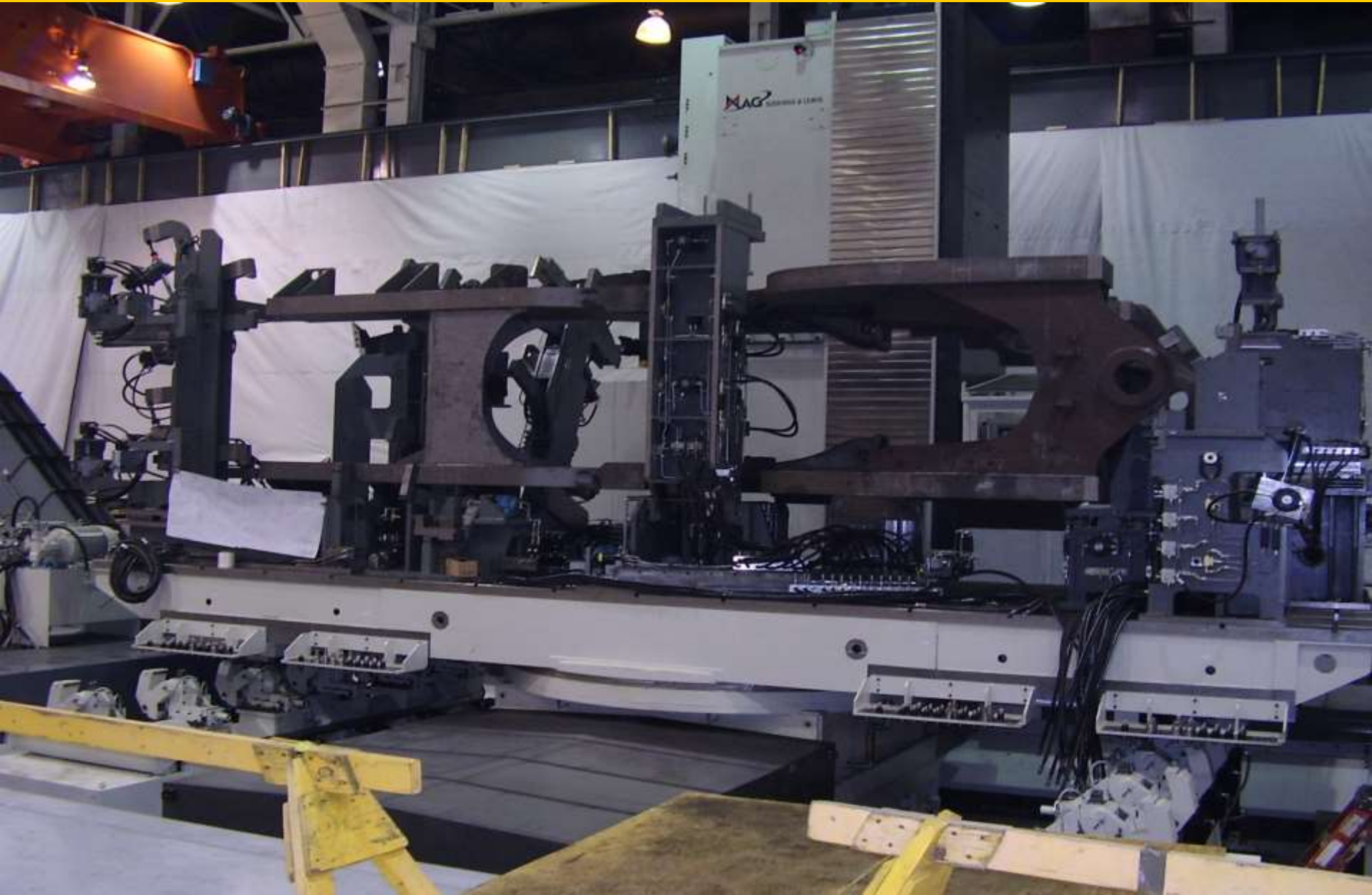
E.E.F. MACHINING CENTER



NEW EEF MACHINING FIXTURES



NEW EEF MACHINING FIXTURES

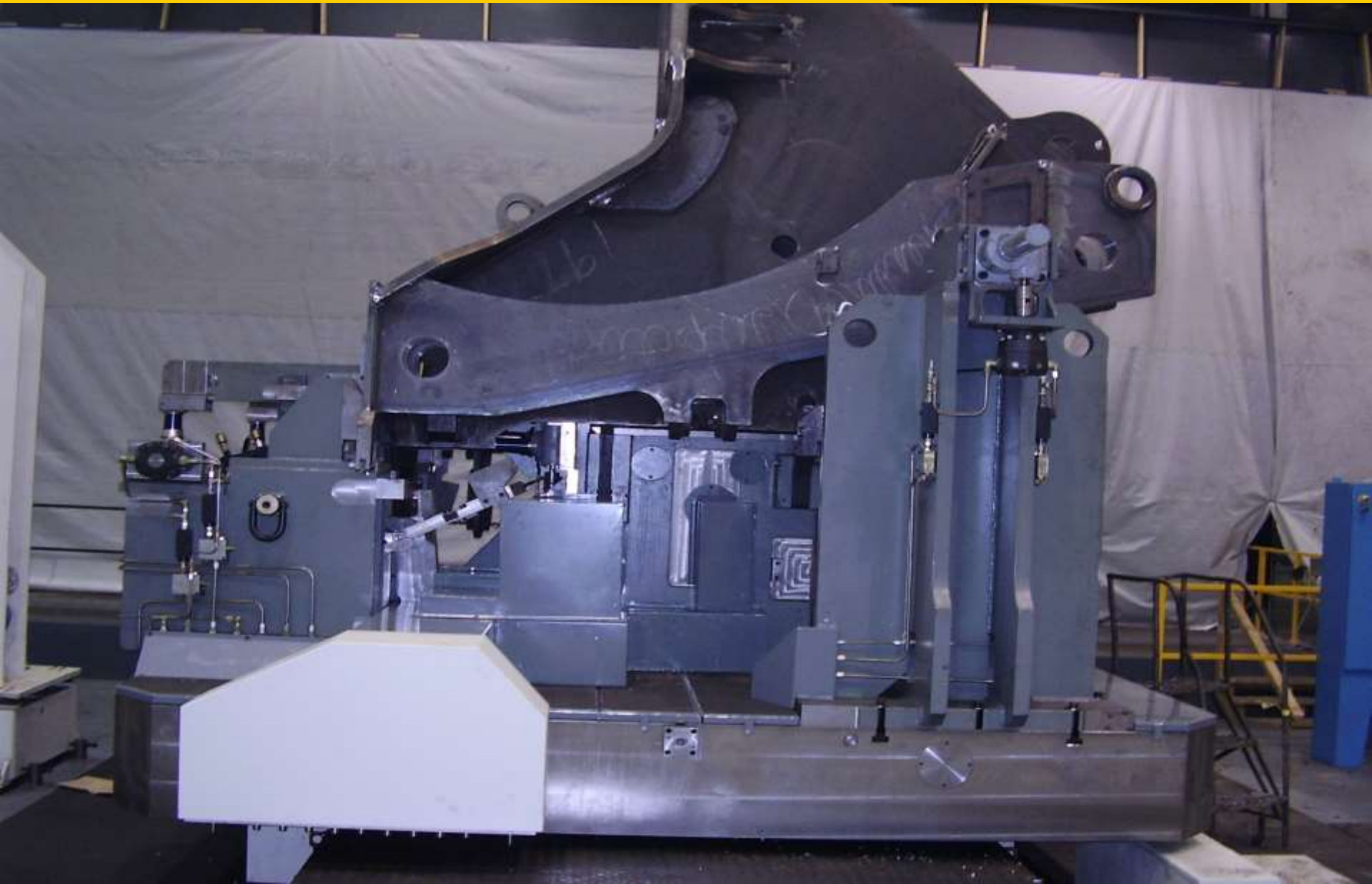


EXAMPLES OF OUR WORK

(LARGE MACHINING FIXTURES)

- ***COMPLETELY AUTOMATED DESIGN***
- ***FIXTURE WILL RUN 4 DIFFERENT MODELS WITH NO CHANGE OVER***
- ***WEIGHT RANGE IS 10,000 TO 21,000 POUNDS***

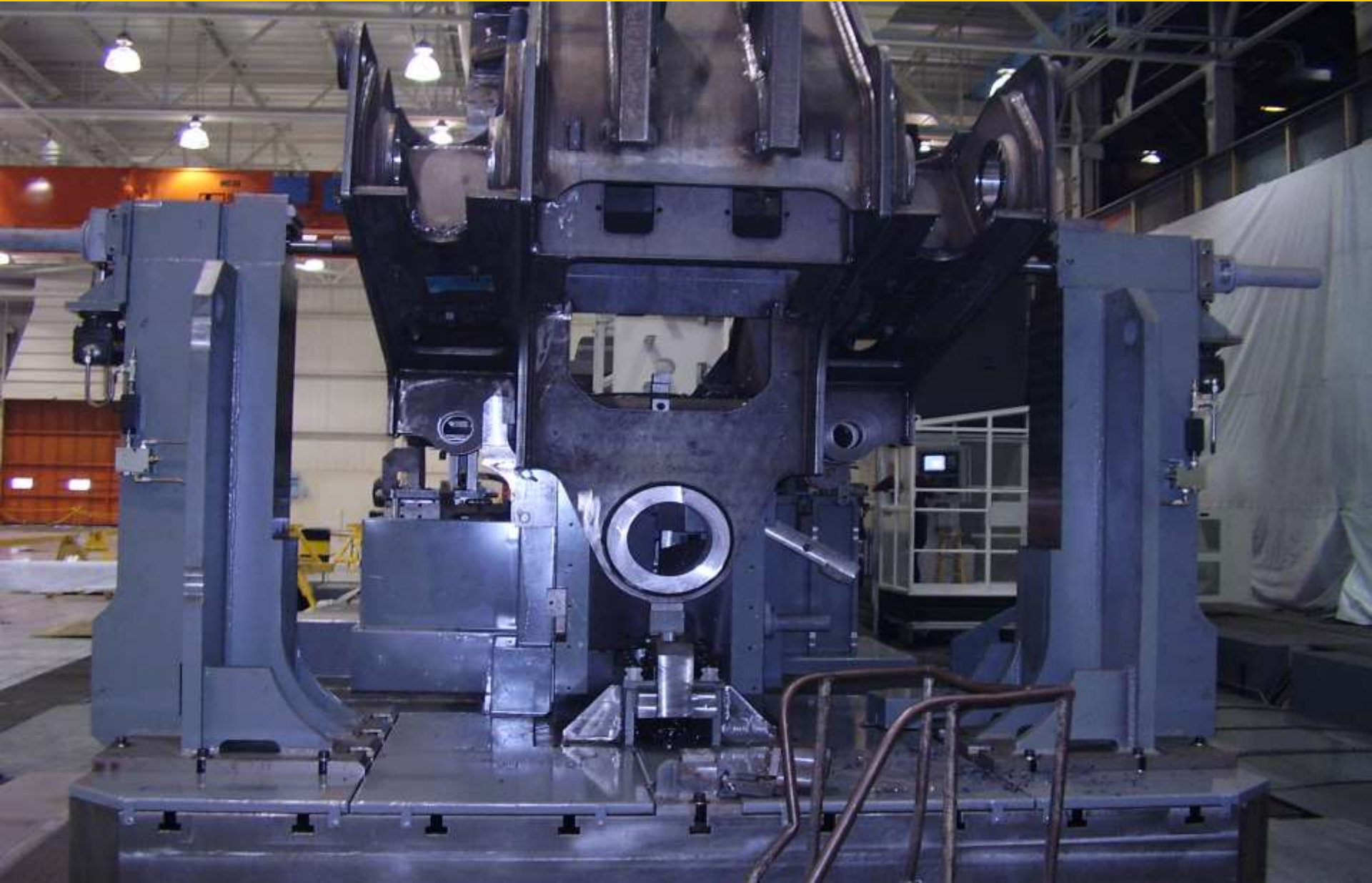
N.E.E.F PART SHOWN



PART HYDRAULICALLY CLAMPED



FRONT VIEW



LARGE HYDRAULIC BUCKET MACHINING FIXTURE



EXAMPLES OF OUR WORK

***(FLEXIBILITY ON FIXTURE PLC
CONTROLLED FIXTURES)***

**Samples of our Large Machining
Fixtures With Hydraulics. All Design and
Hydraulic Schematics are given to the
customer for their files. After all, you
paid for this service.**



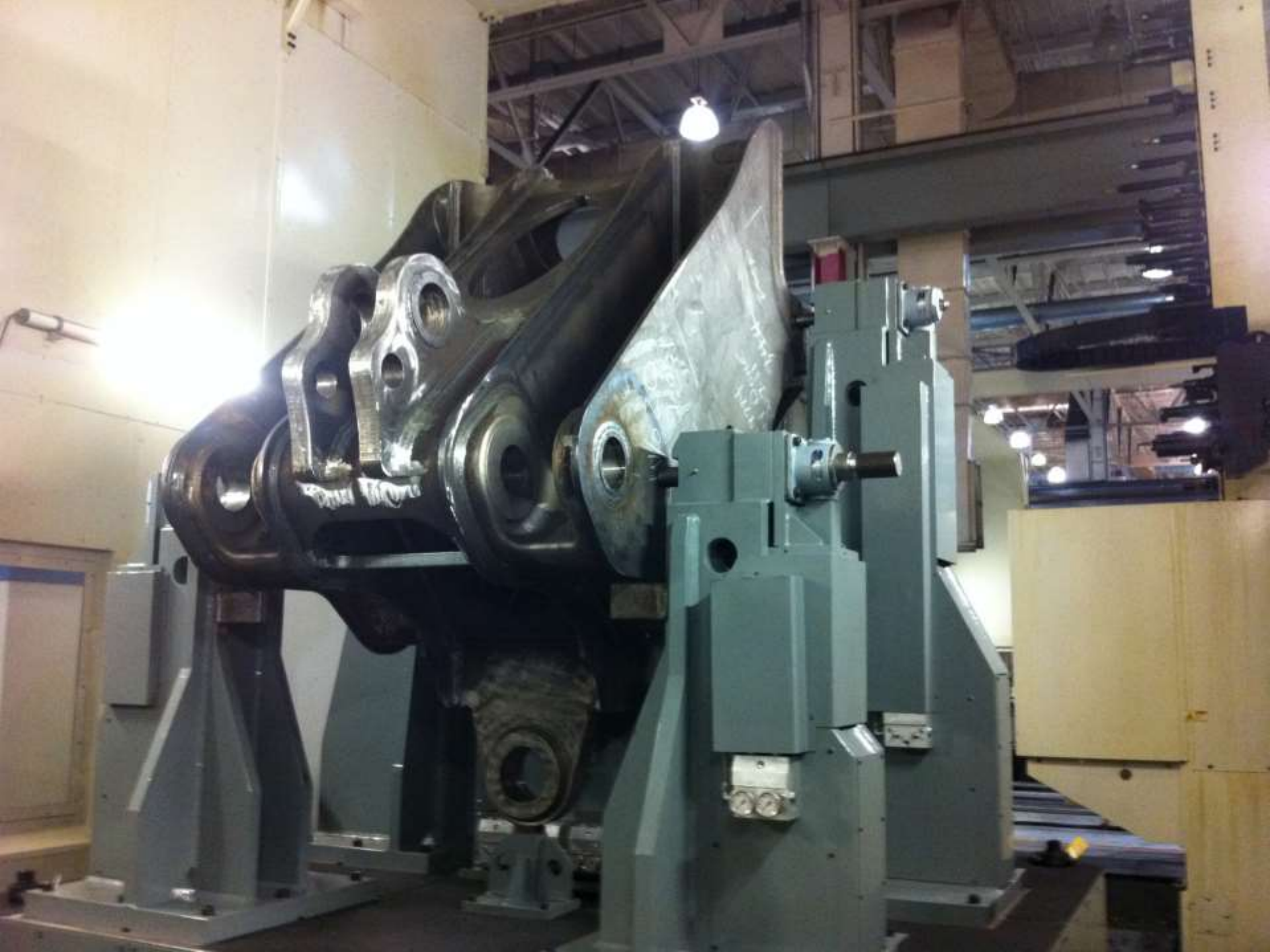


EXAMPLES OF OUR WORK

(MEDIUM SIZED MACHINING FIXTURES)

**WE DESIGN BOTH MANUAL AND
HYDRAULIC MACHINING FIXTURES TO
FIT OUR CUSTOMERS REQUIREMENTS.**

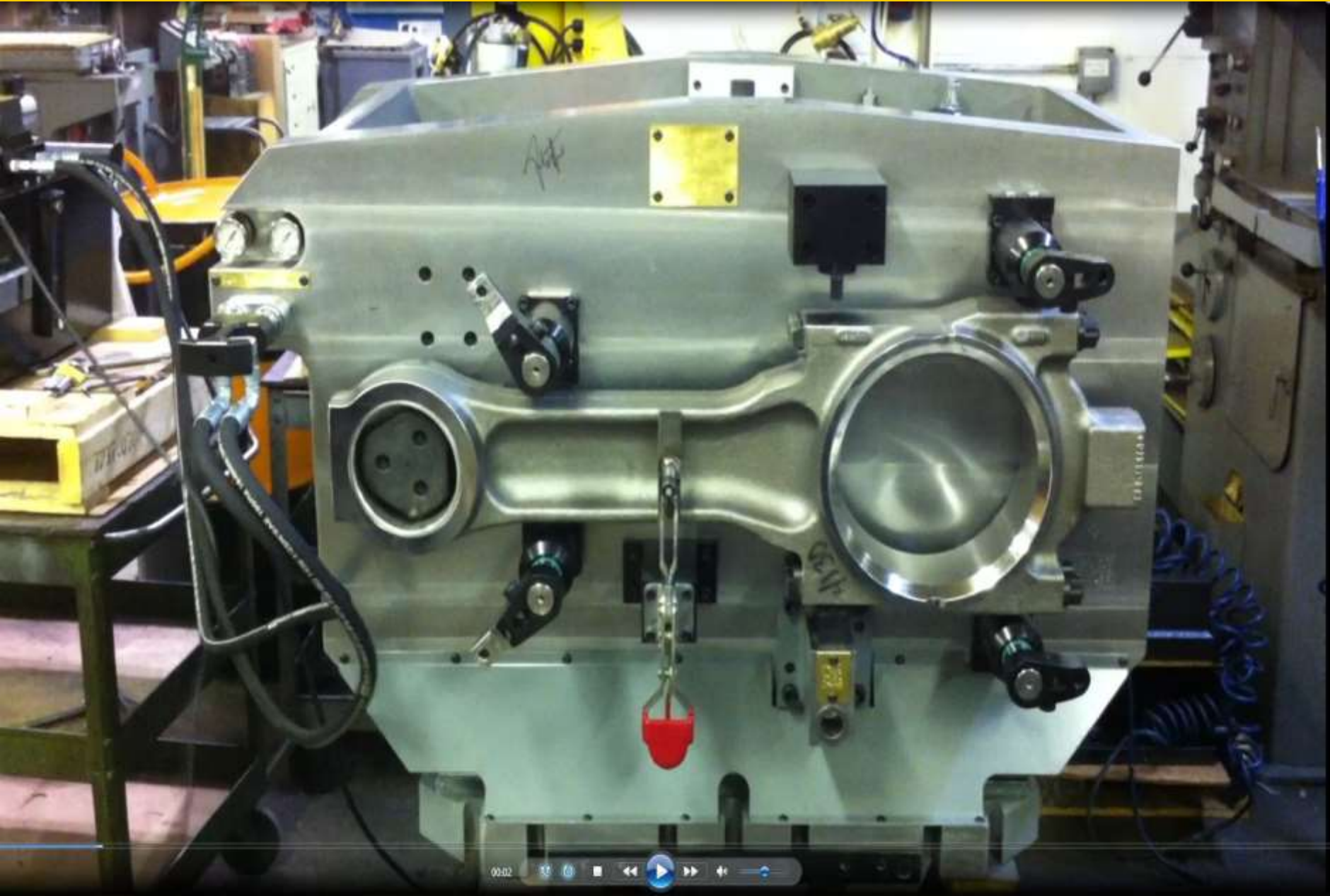




EXAMPLES OF OUR WORK

***(SMALLER SIZED MACHINING FIXTURES)
FOR VARIOUS CNC APPLICATIONS.
WORKING IN PARTNERSHIP WITH OUR
CUSTOMERS, WE CAN CREATE A
SOLUTION TO YOUR CNC MACHINING
NEEDS.***

CONN ROD FIXTURE



00:02



1/1

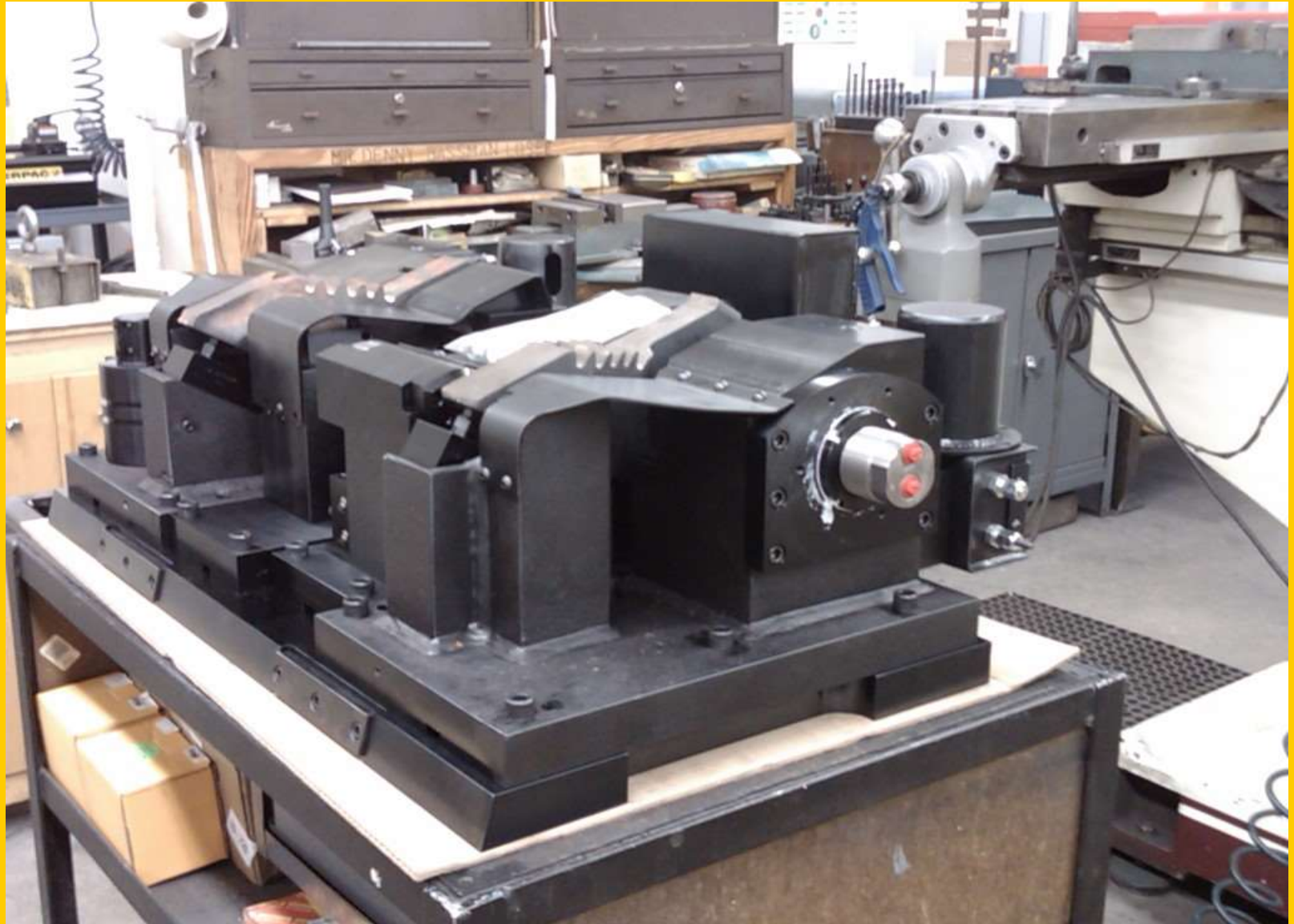
ENGINE BLOCK MACHINING FIXTURE



CASCADING MANIFOLD DESIGN



HYDRAULIC GRINDING FIXTURE



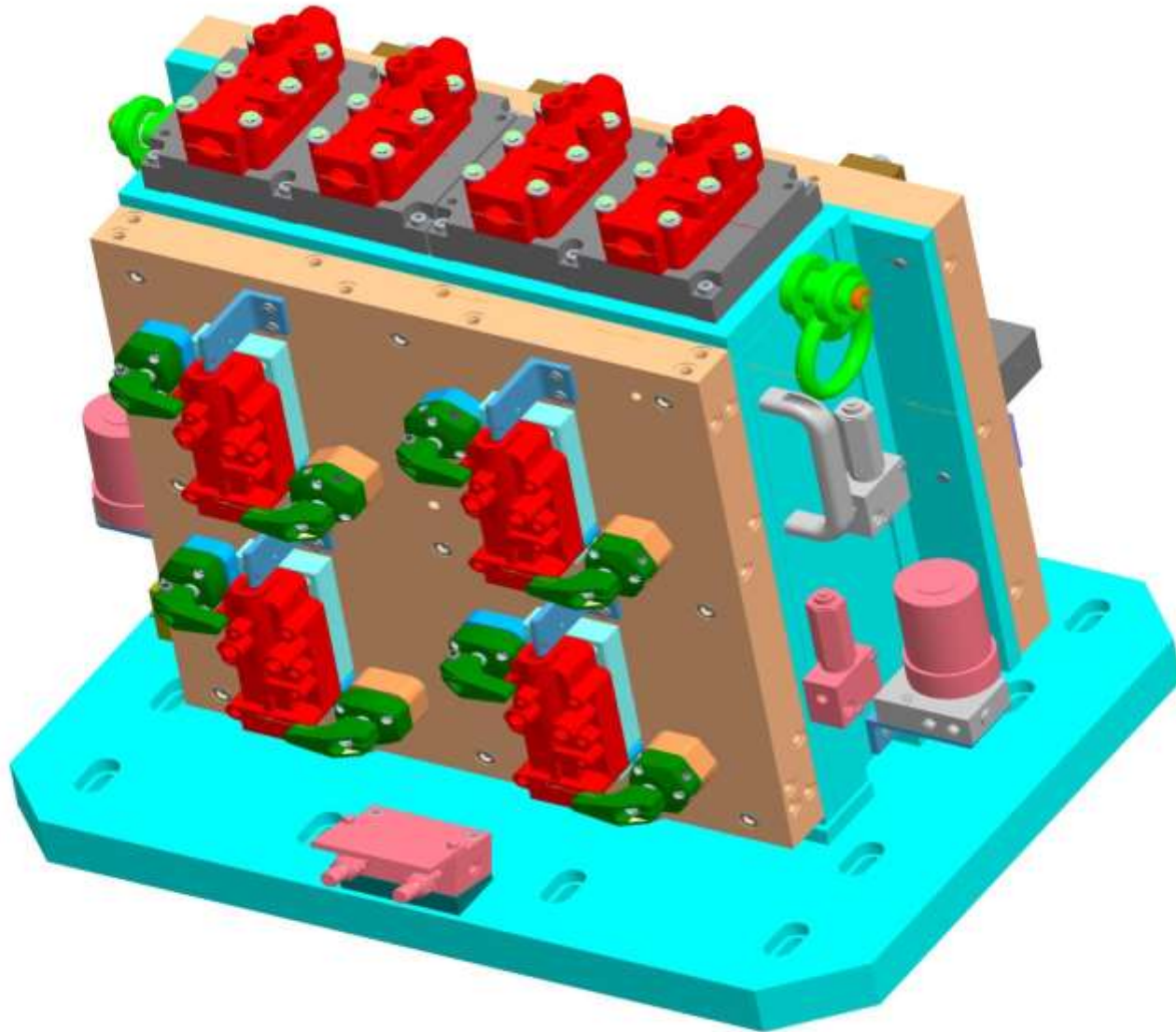
GRINDING FIXTURE JUST OUT OF MACHINE CELL



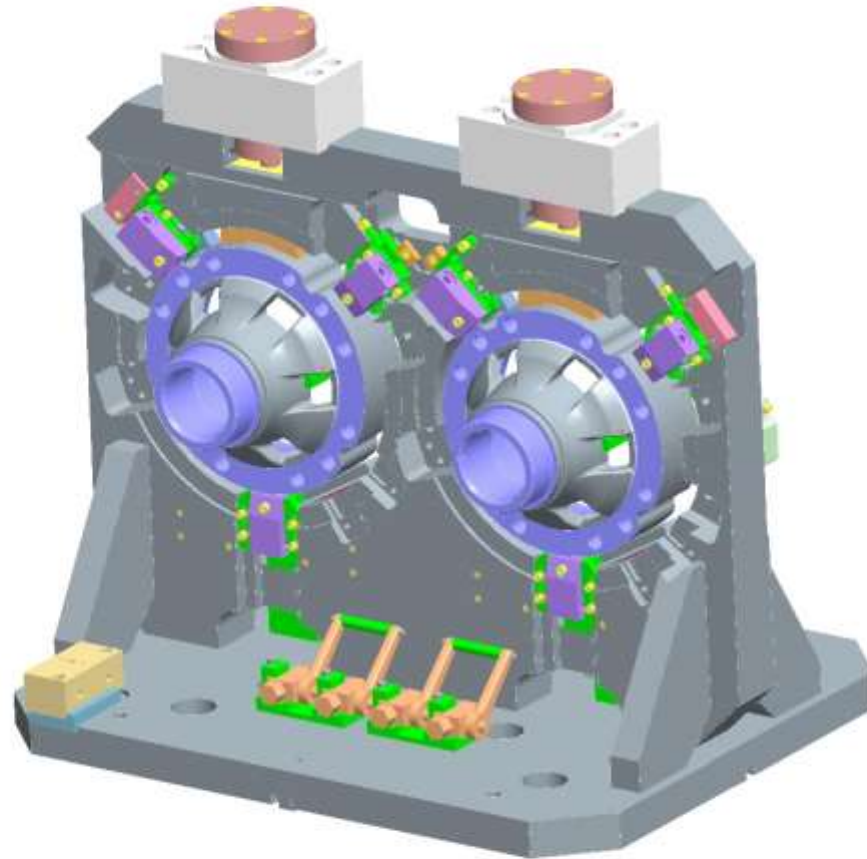
***TOMBSTONE FIXTURE DESIGN AND BUILD
SERVICES***

***(HYDRAULICALLY LOCATED
AND CLAMPED AS WELL AS
PNEUMATIC FIXTURE NEEDS)***

3 STATION FIXTURE

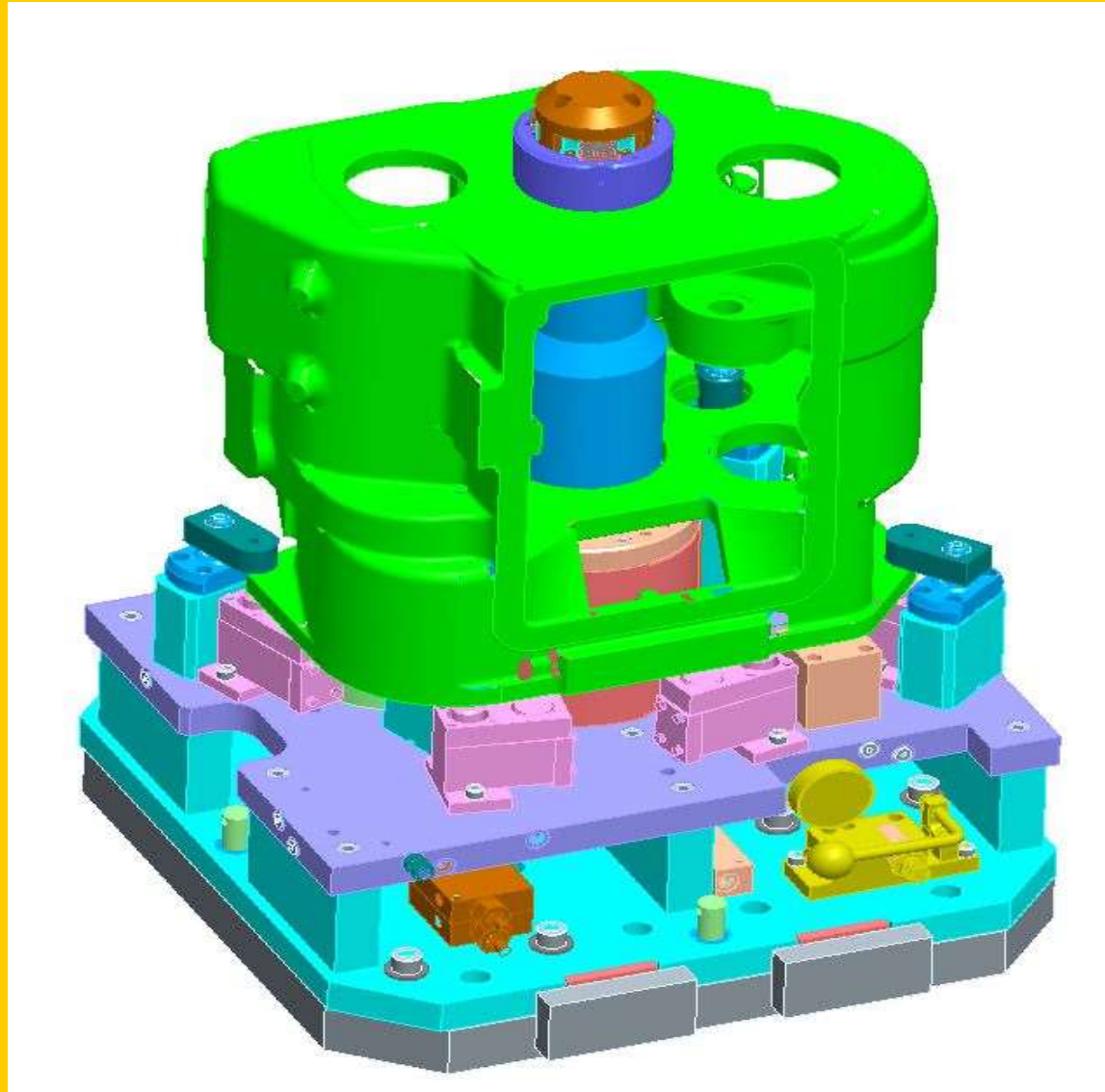


HYD CHUCKING FIXTURE



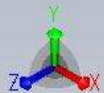
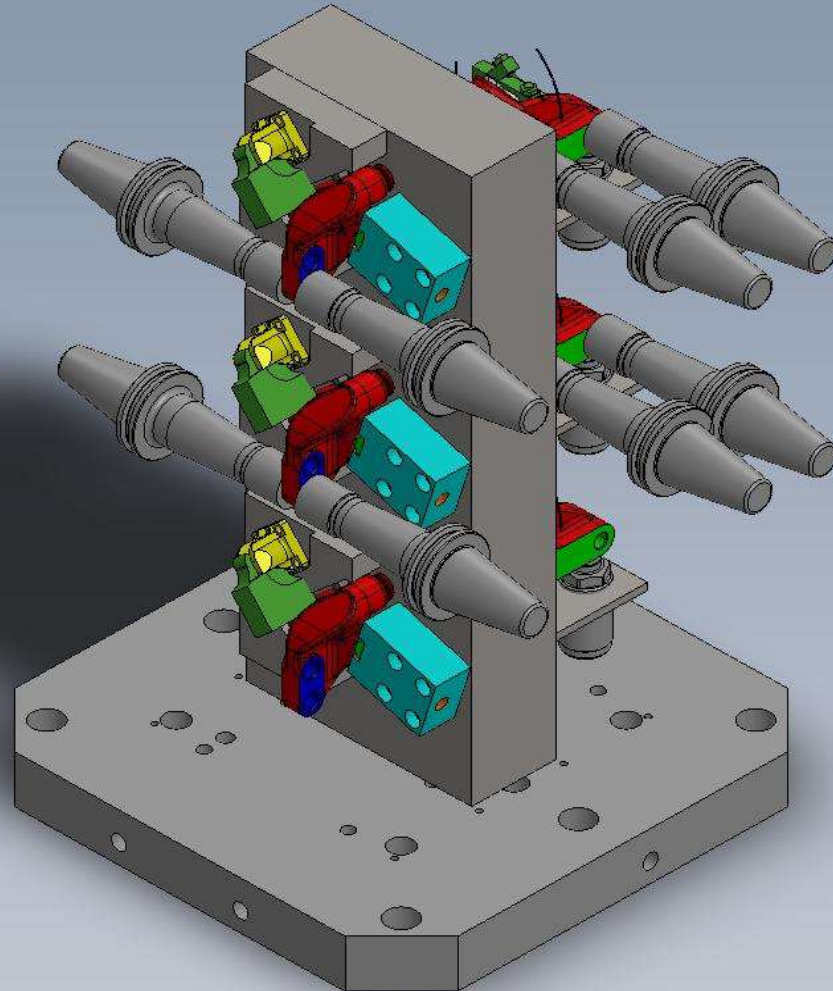
.XX +0.1
X.XX +0.01
X.XXX +0.001
ANG. +0.5

TRANSMISSION CASE



WITH TOOL CLEARANCE

CONSIDERED AT ALL TIMES



CNC FIXTURE COMPLETE



LARGE MANUAL CNC FIXTURE



***QUALITY FIXTURE BUILDS
FOR WELD ENVIRONMENT***

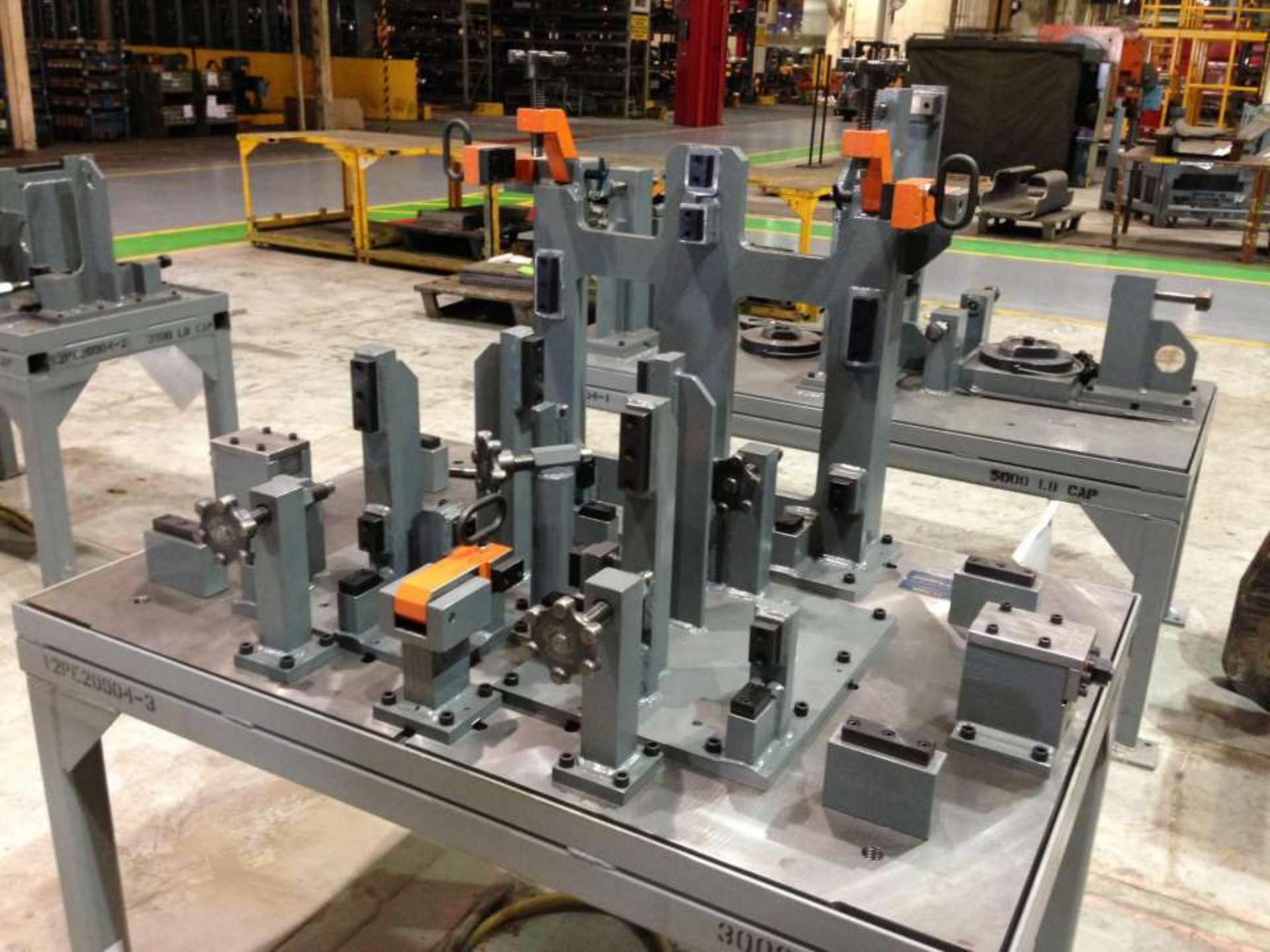






SIMPLE BENCH TOP TACK FIXTURES

**VERY RUGGED AND DURABLE
FOR A MANUFACTURING
ENVIRONMENT**



12PC20004-2 3000 LB CAP

5000 L.B. CAP

12PC20004-3

3000





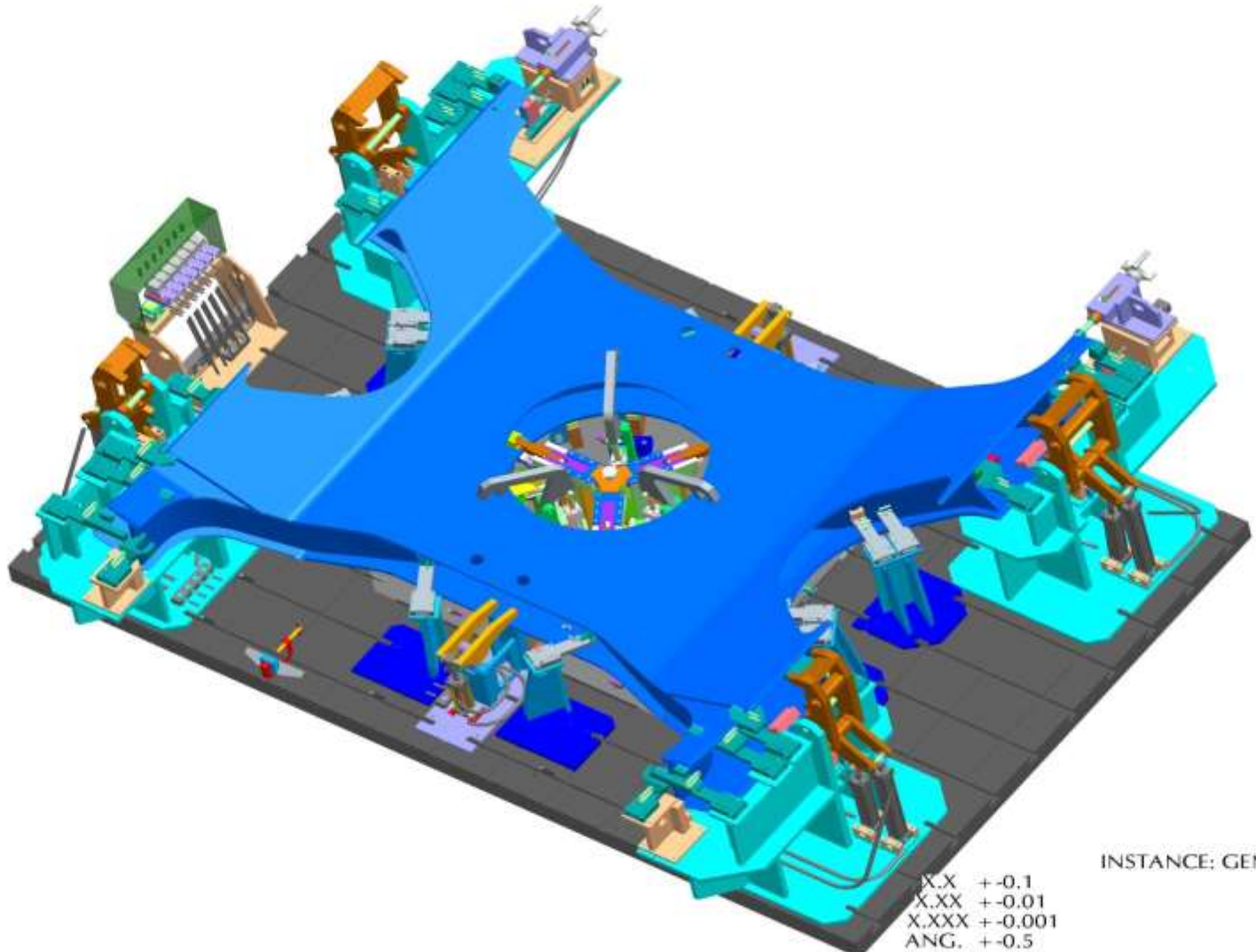
LARGE EXCAVATOR TOOLING AND FIXTURING



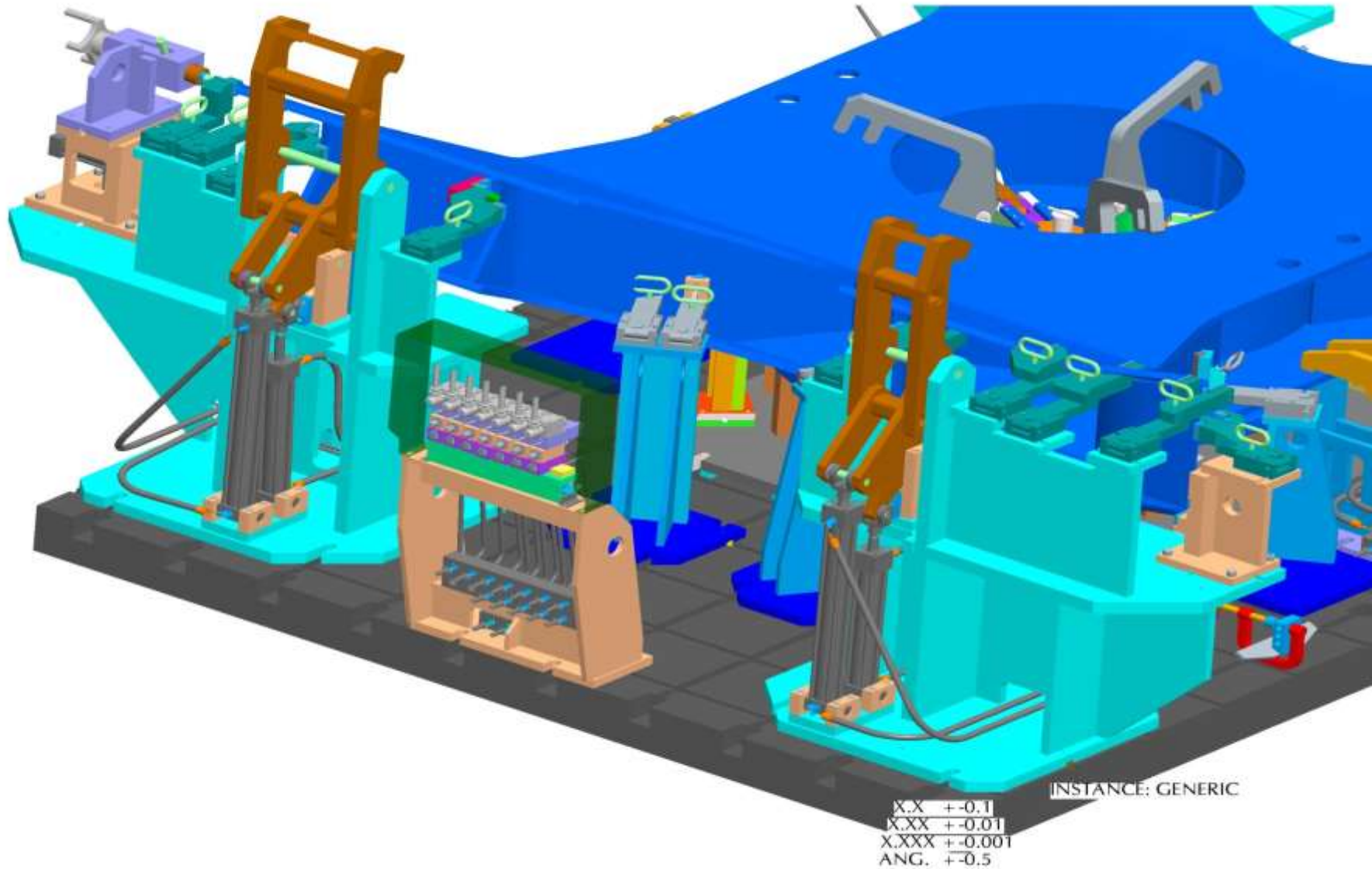
HYDRAULIC TACK WELD FIXTURE

- ***100% HYDRAULICALLY CLAMPED AND LOCATED***
- ***RUNS TWO MODELS WITH MINIMAL CHANGE OVER ON THESE CARBODY SAMPLES AS SHOWN.***

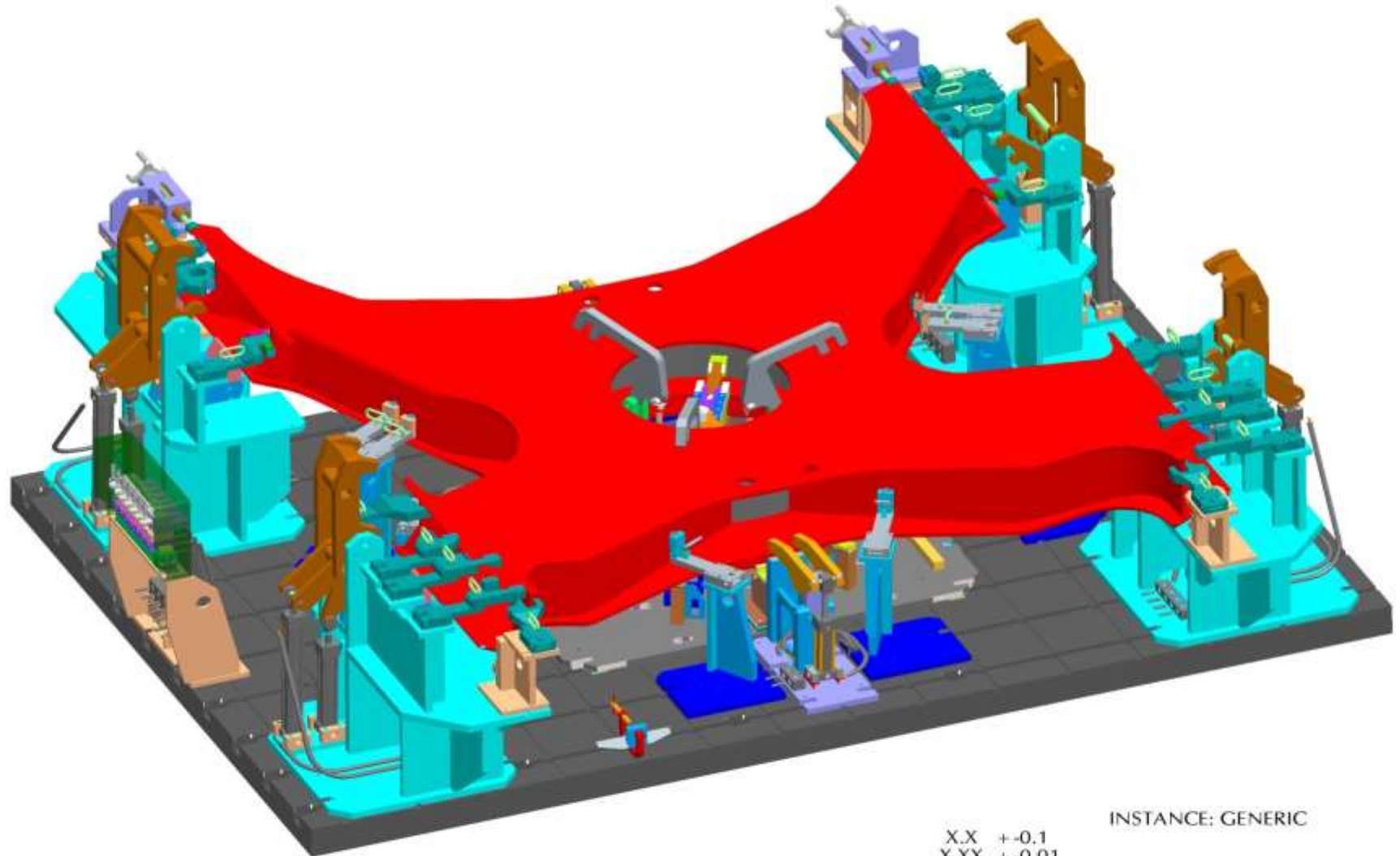
CAR BODY TACK WELD FIXTURE



CAR BODY TACK WELD FIXTURE



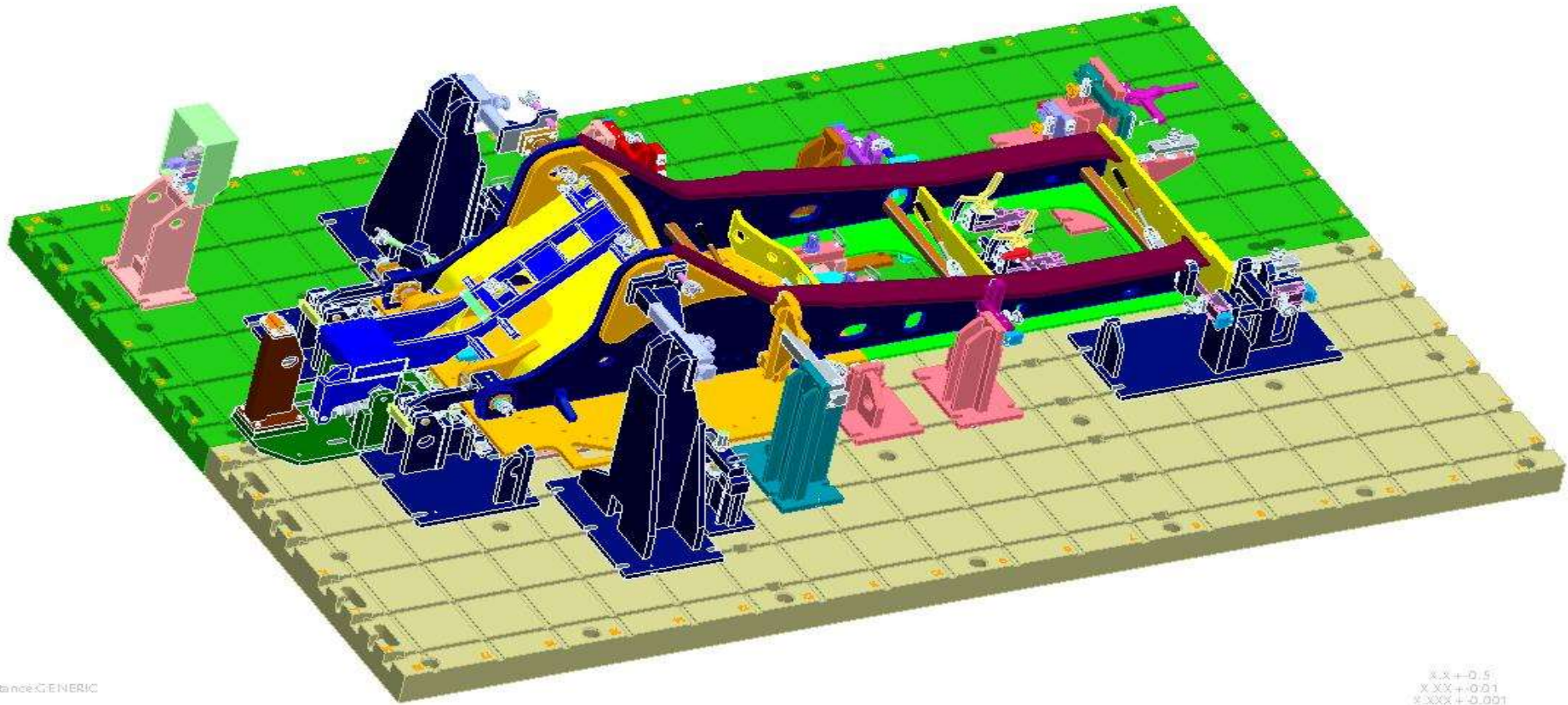
EXCAVATOR CAR BODY TACK WELD FIXTURE



X.X +0.1
X.XX +0.01
X.XXX +0.001
ANG. +0.5

INSTANCE: GENERIC

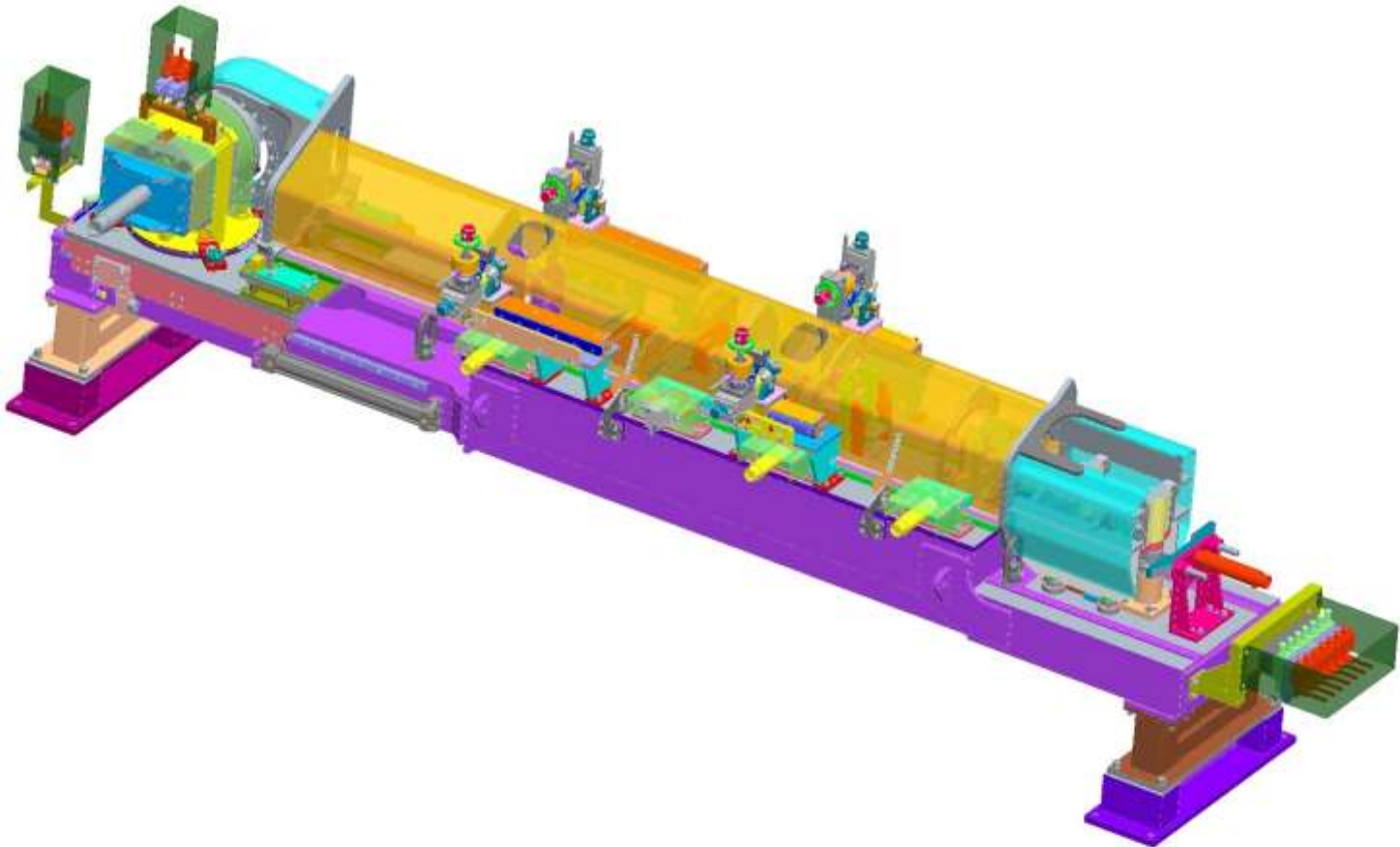
EXCAVATOR CENTER CORE FRAME



Instance:GENERIC

XX+0.5
X.XX+0.01
X.XXX+0.001
ANG.4+0.5

EXCAVATOR TRACK ROLLER FRAME



CUSTOM LARGE WHEEL LOADER TOOLING AND FIXTURING

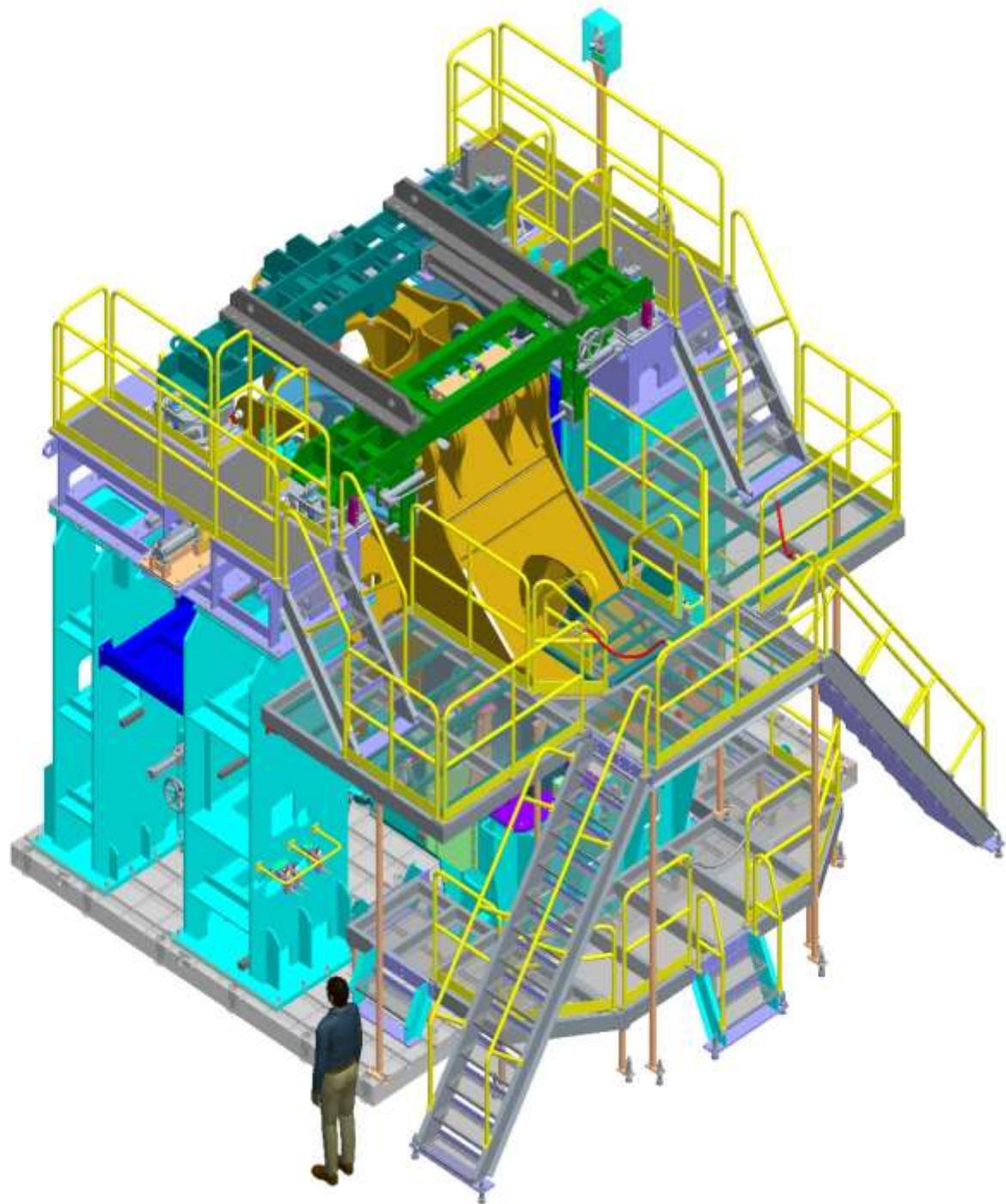


EXAMPLES OF OUR WORK

(LARGE TACK FIXTURES)

- **From the Pro-E Model to completion and installation on the customers production floor.**

At Holbert Engineering, we offer Custom Engineered Solutions to your most Challenging Design and Build needs. Some Fixtures are two stories tall.

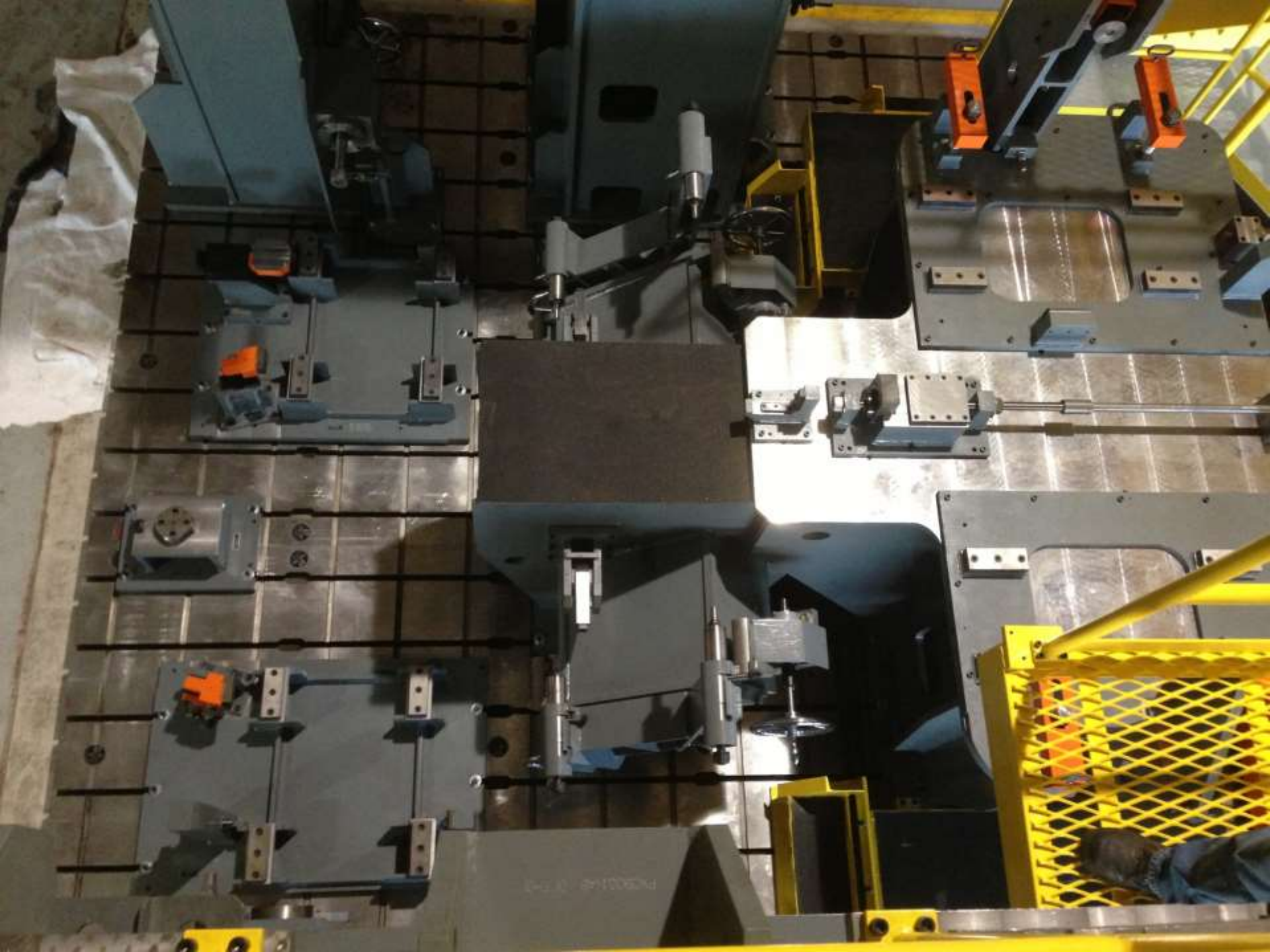


Instance:GENERIC





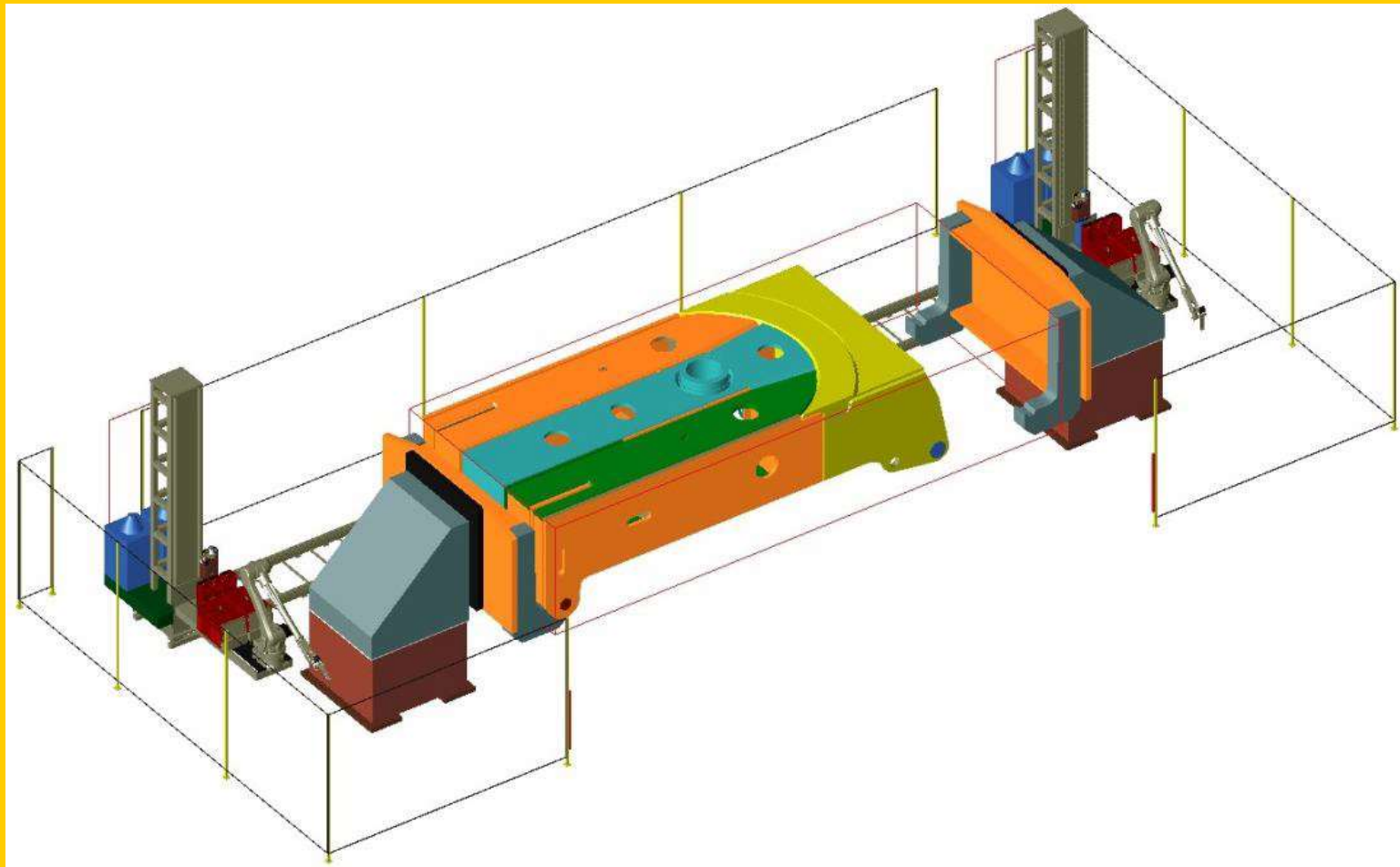




ROBOTIC WELD CELL APPLICATIONS

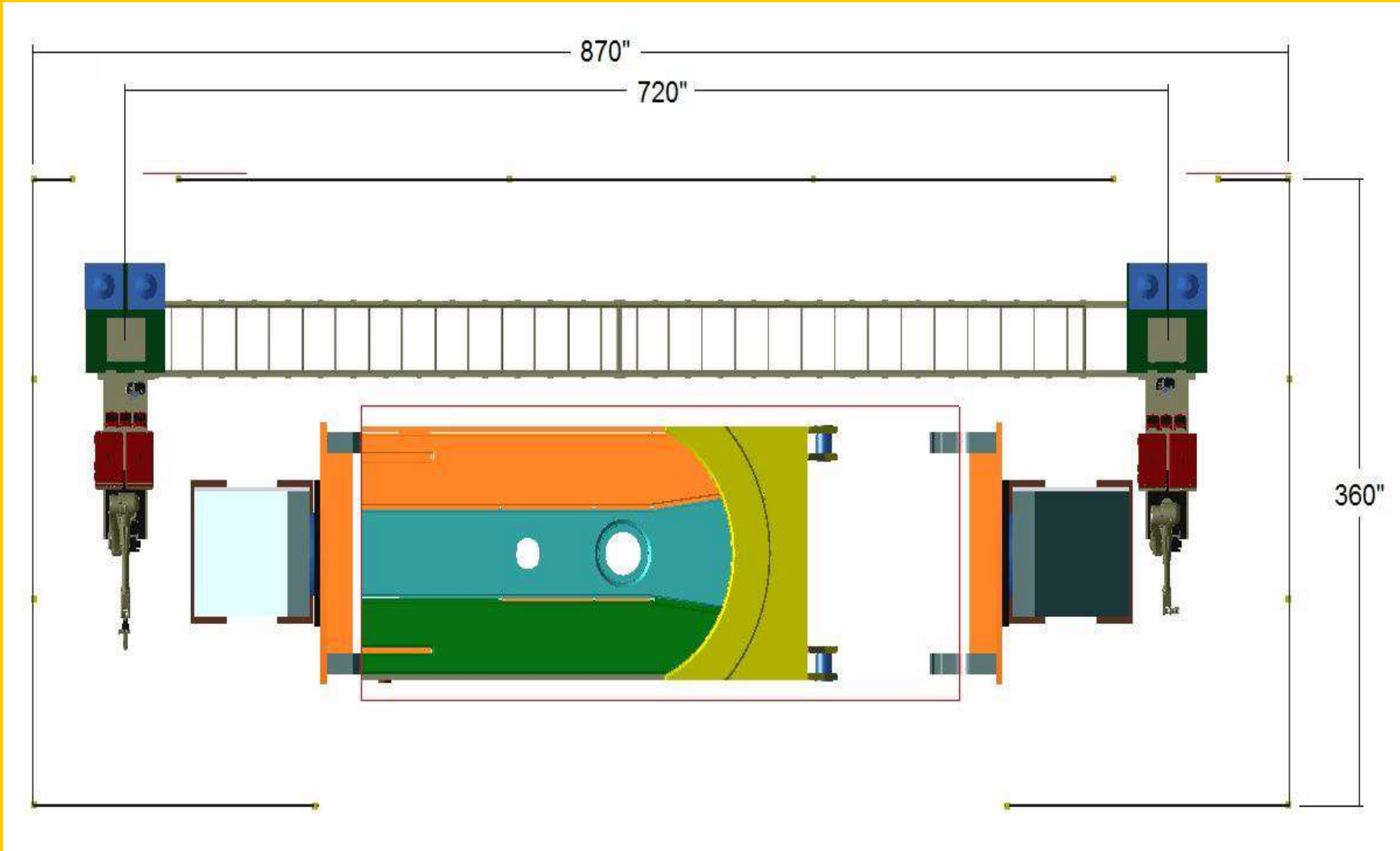
***WE OFFER COMPLETE TURN KEY SYSTEMS
WORKING WITH OUR PARTNER
INTEGRATORS.***

**LARGE WELD CELL 870" OR (72 FEET), FOOT
PRINT. PART WEIGHT OVER 200,000LBS**

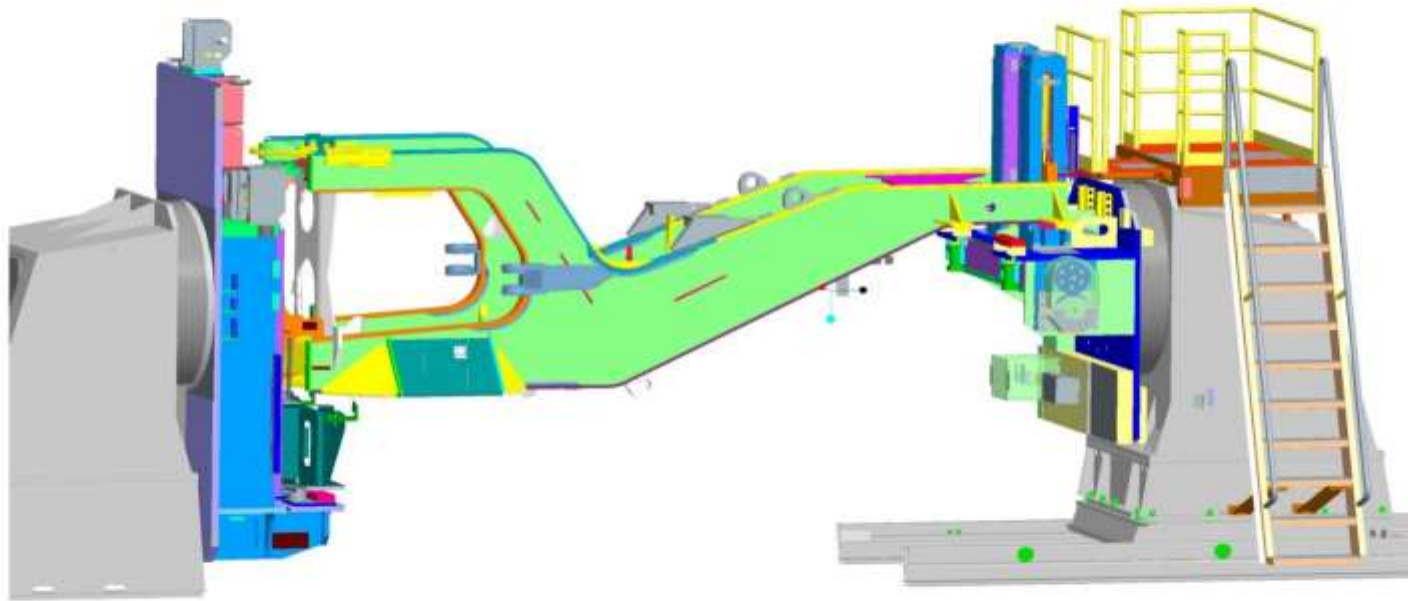


WELD CELL PLAN VIEW

PART WEIGHT OVER 200,000LBS



ROBOT WELD FIXTURE. WELD CELL IS 42' FEET LONG

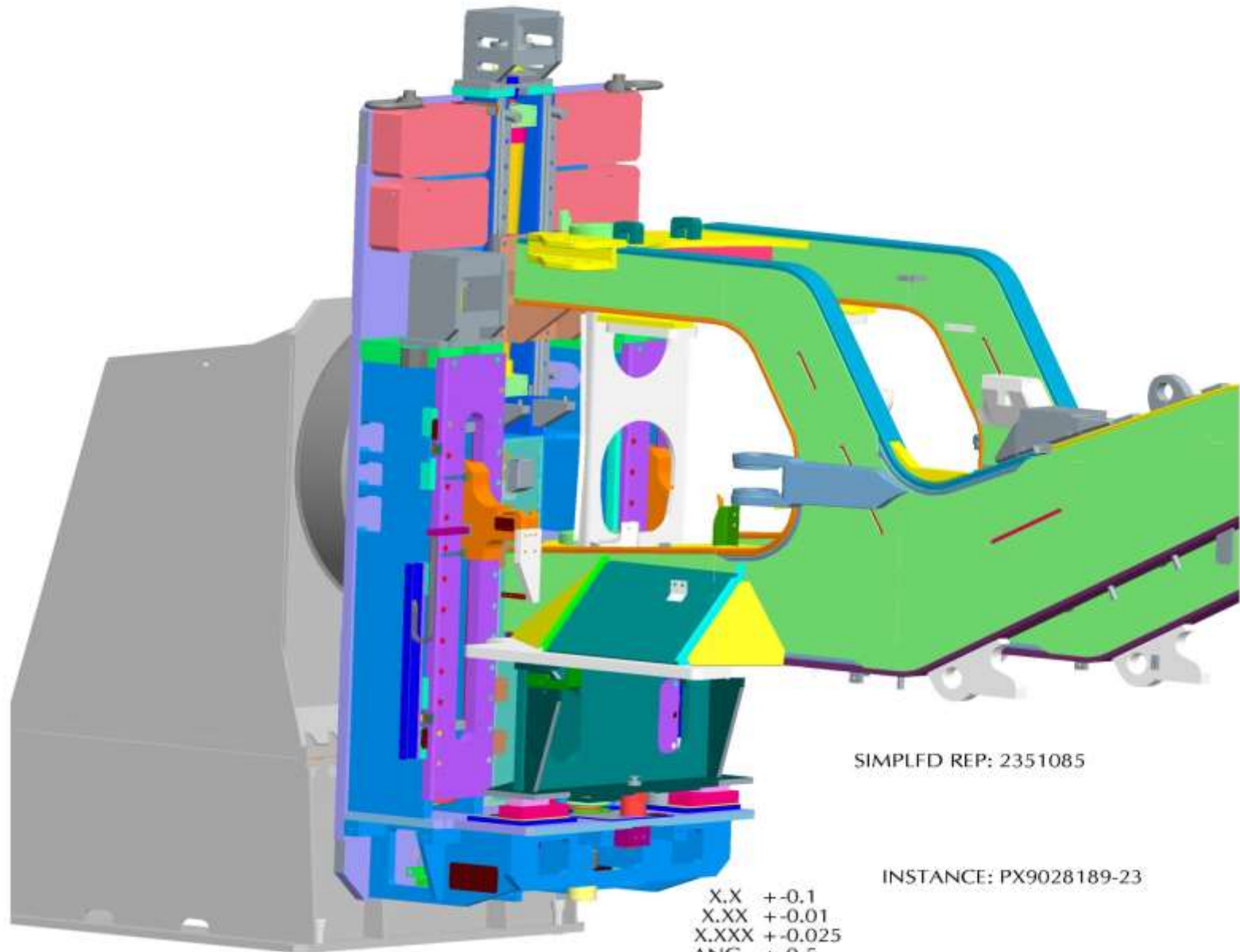


SIMPLFD REP: 2351085

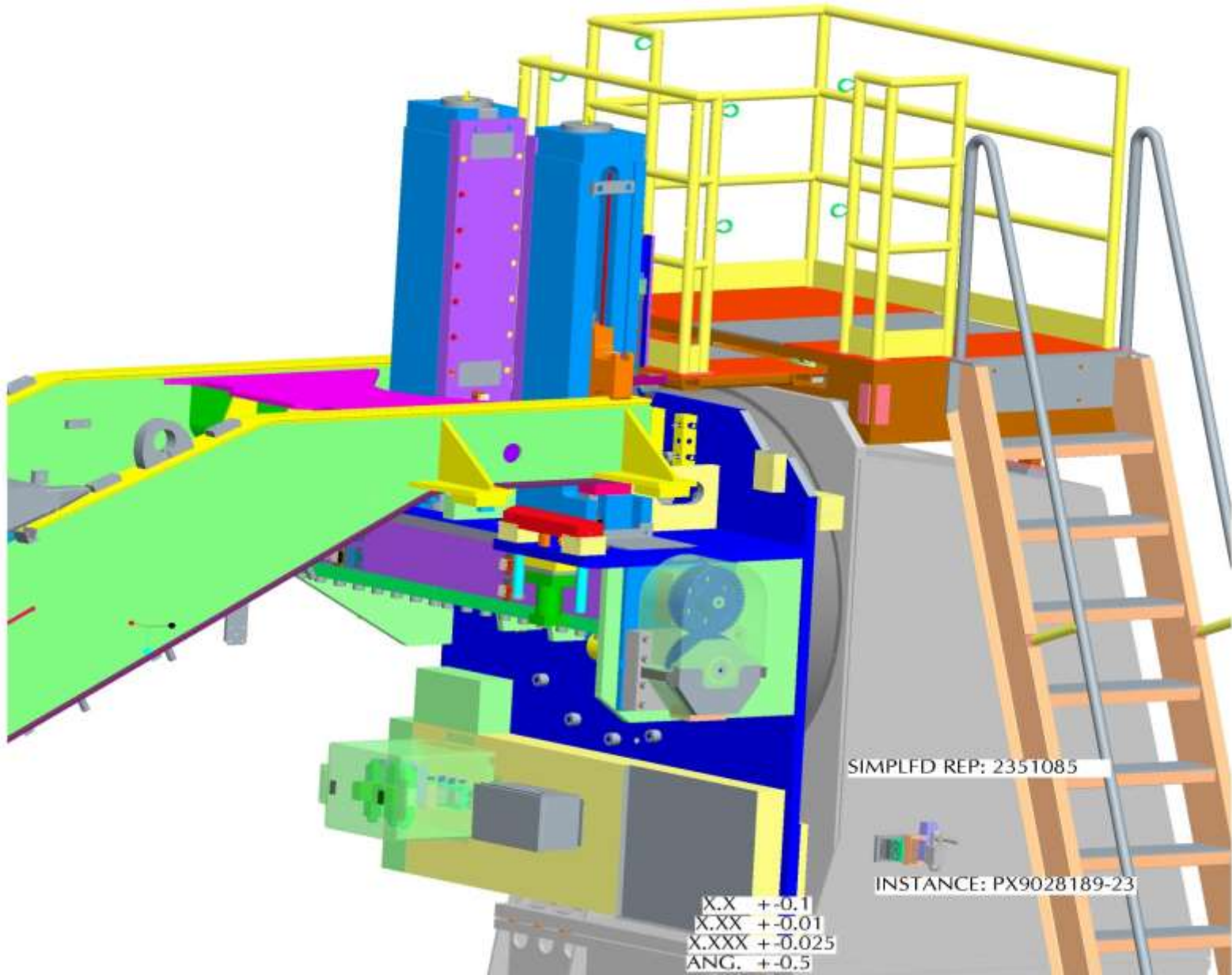
INSTANCE: PX9028189-23

X.X +/-0.1
X.XX +/-0.01
X.XXX +/-0.025
ANG. +/-0.5

HEAD STOCK FIXTURE



TAIL STOCK FIXTURE



SIMPLFD REP: 2351085



INSTANCE: PX9028189-23

X.X +-0.1
X.XX +-0.01
X.XXX +-0.025
ANG. +-0.5

ROBOT WELD CELL COMPLETE



ONE ARM POSITIONER DESIGNED FOR CHANGE OVER FROM MANUAL TO HYDRAULIC FOR HIGHER PRODUCTION NEEDS.



THE ADJUSTABLE MANUAL FIXTURE TO NUMATIC.



TAIL STOCK FIXTURE



HEAD STOCK





CRANE
800-642-7478

25

NOT

FULL ROBOTIC CELL AT WORK



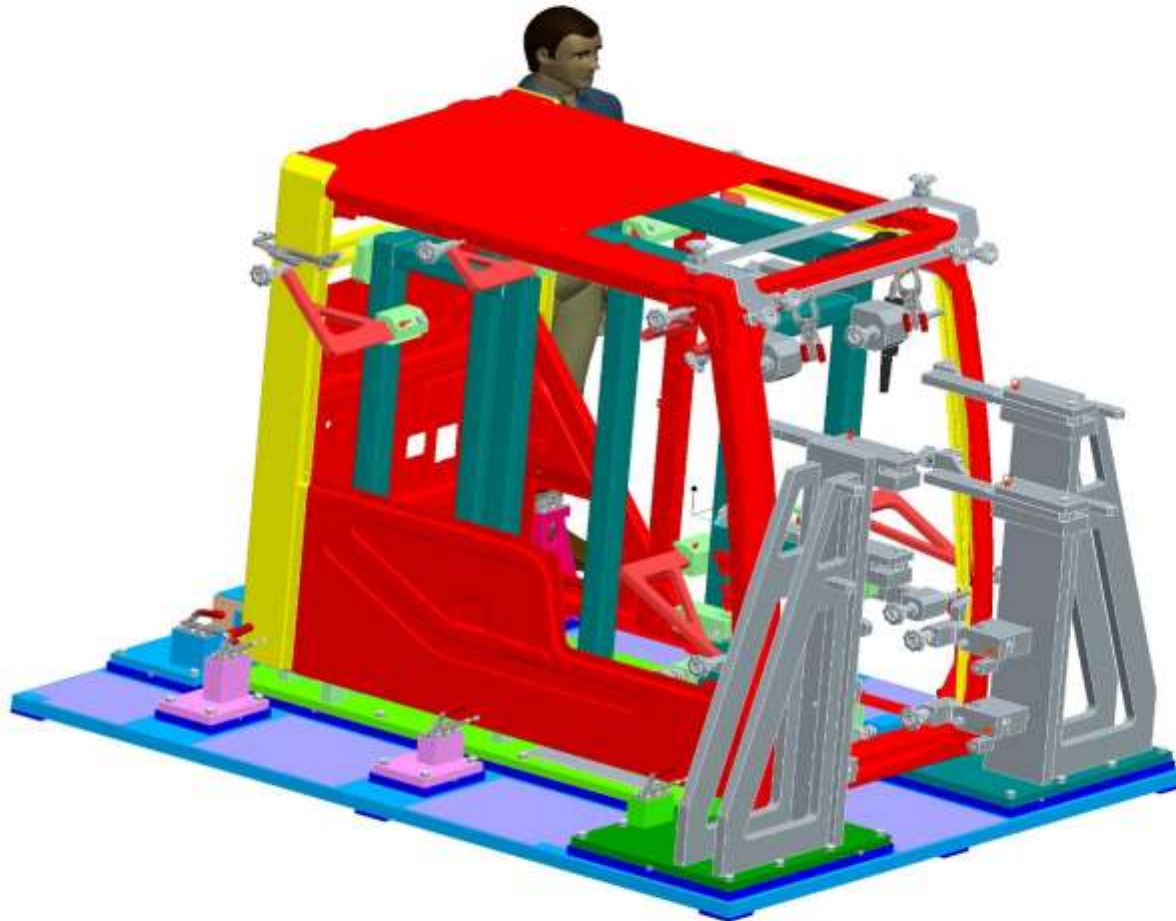
END OF ARM TOOLING WITH QUICK CHANGE OVER FOR ROBOTIC CELLS



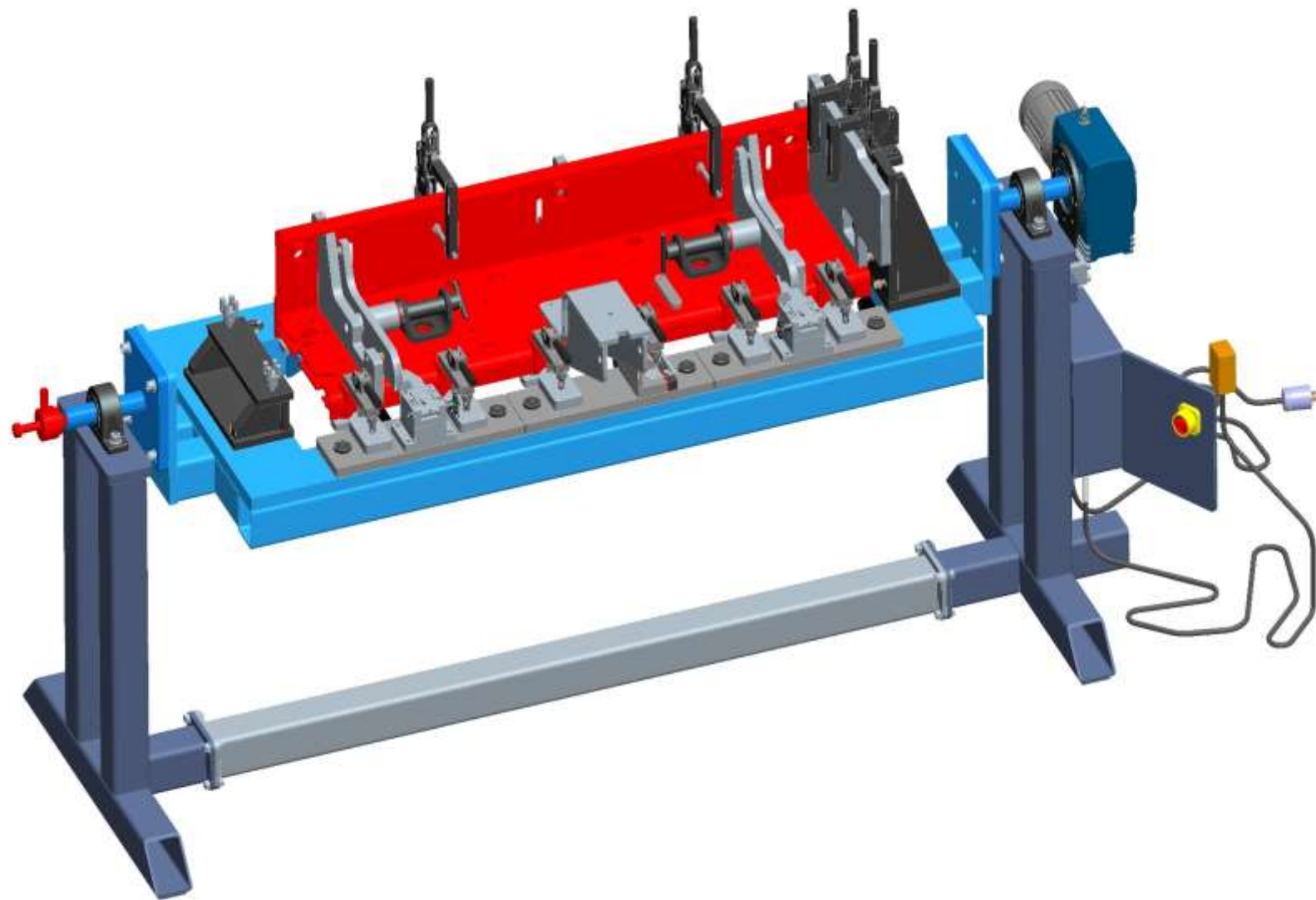
ROLLOVER FIXTURES

- **Various Roll Over and Tack Fixture**
- **Manual**
- **Pneumatic**
- **Hydraulic**
- **Electric**
- **COMPLETE TURN KEY ROBTIC
WELD CELL INTERGRATION**

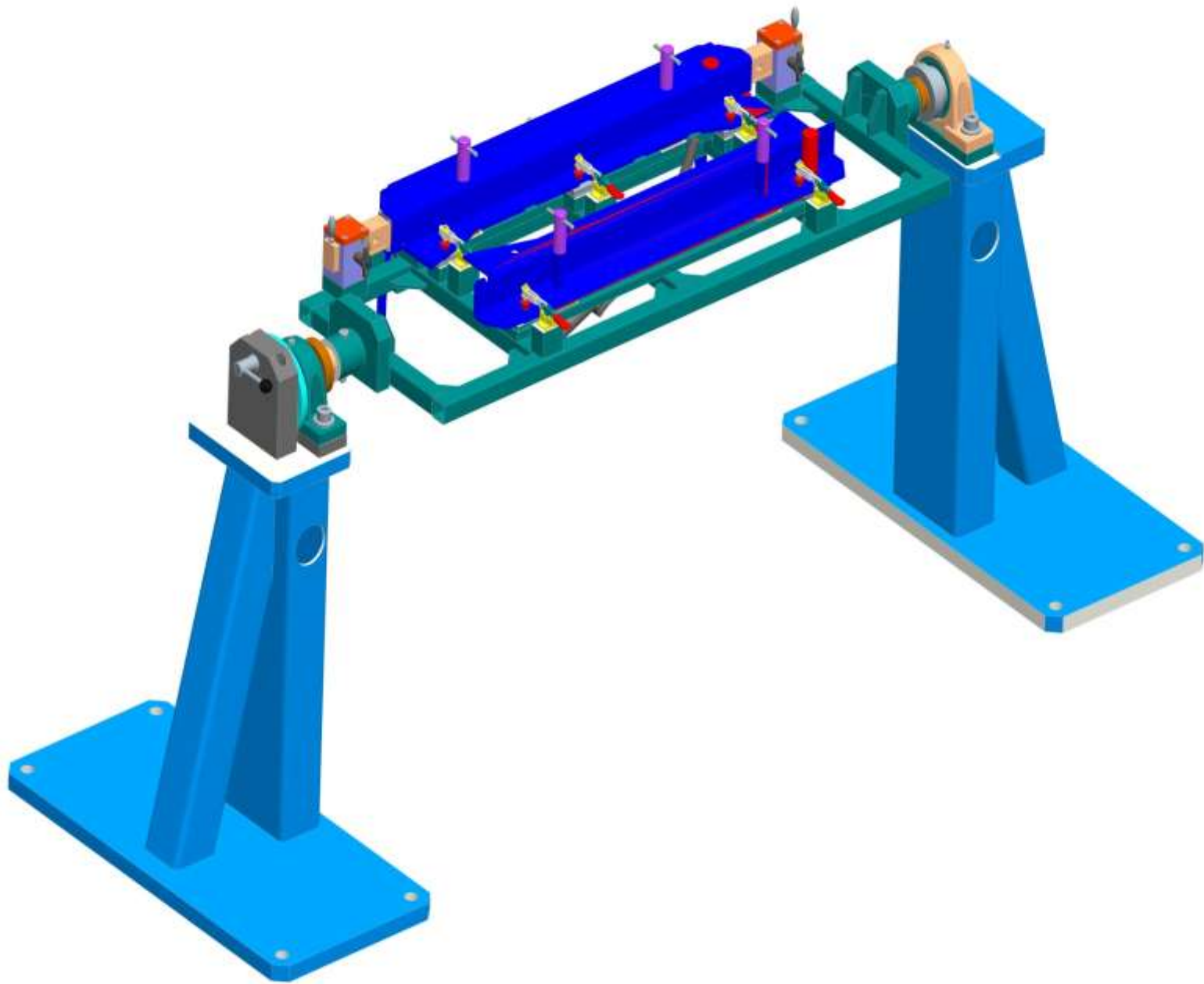
CAB MAIN TACK FIXTURE



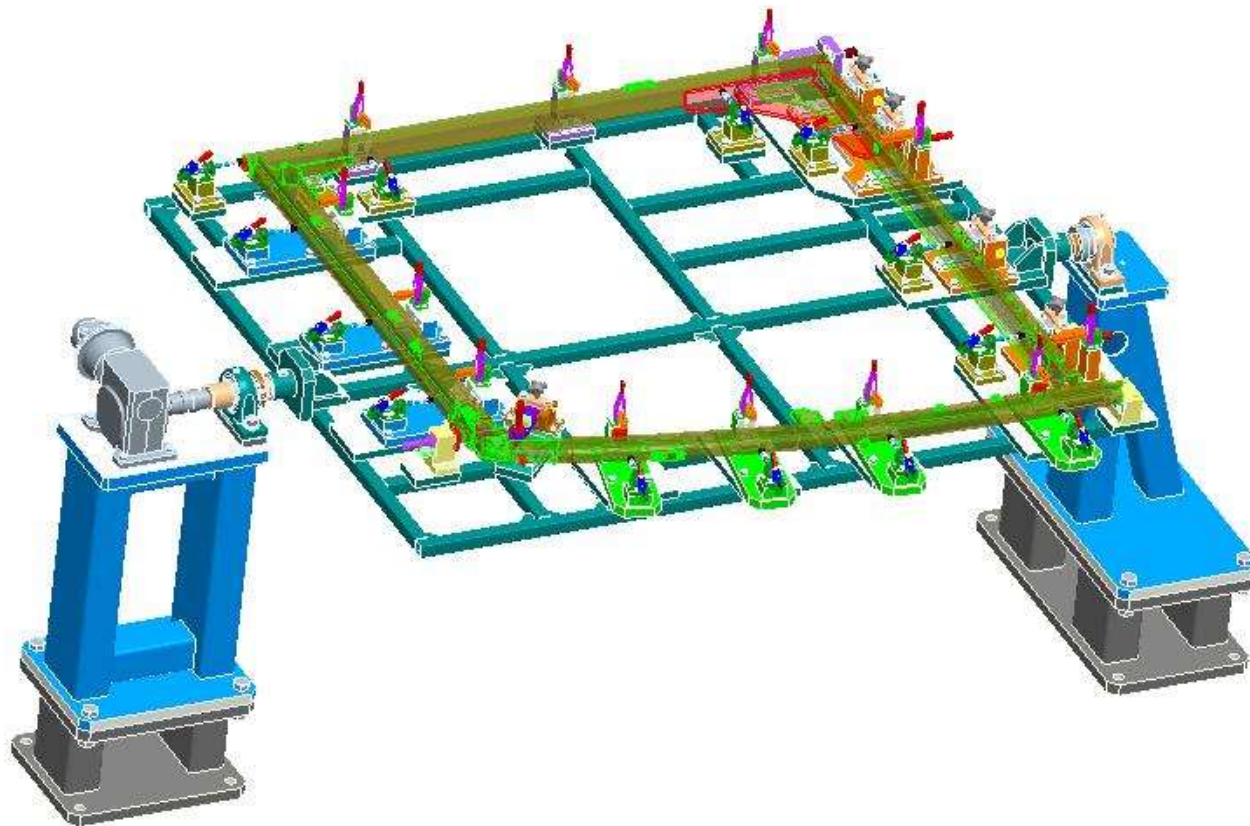
X.X ±0.1
X.XX ±0.01
X.XXX ±0.003
ANG ±0.3



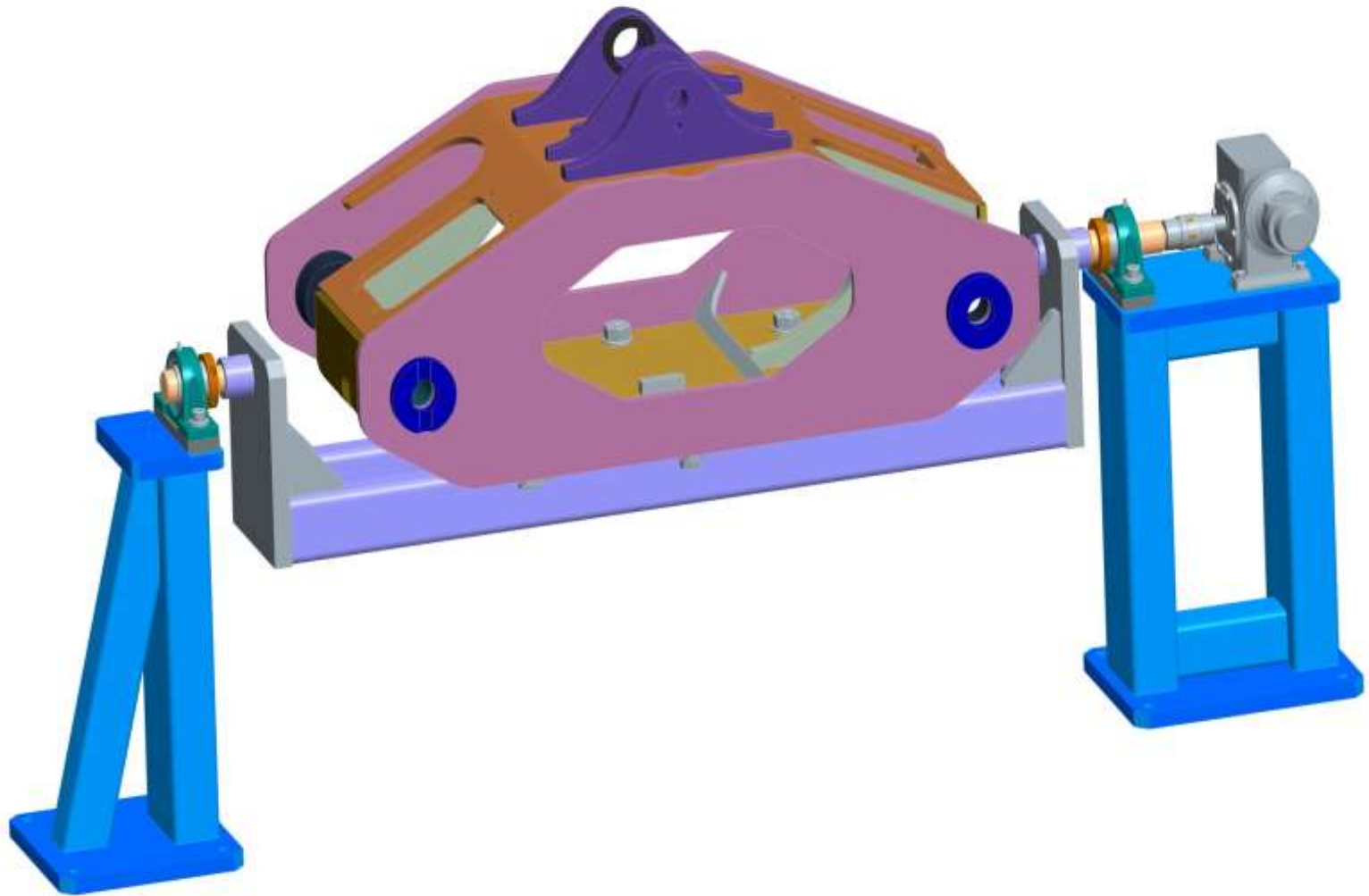
XX+0.1
X.XX+0.01
X.XXX+0.001
ANG.+0.5



XX+0.1
X.XX+0.01
K.XXX+0.025
ANG.+0.5

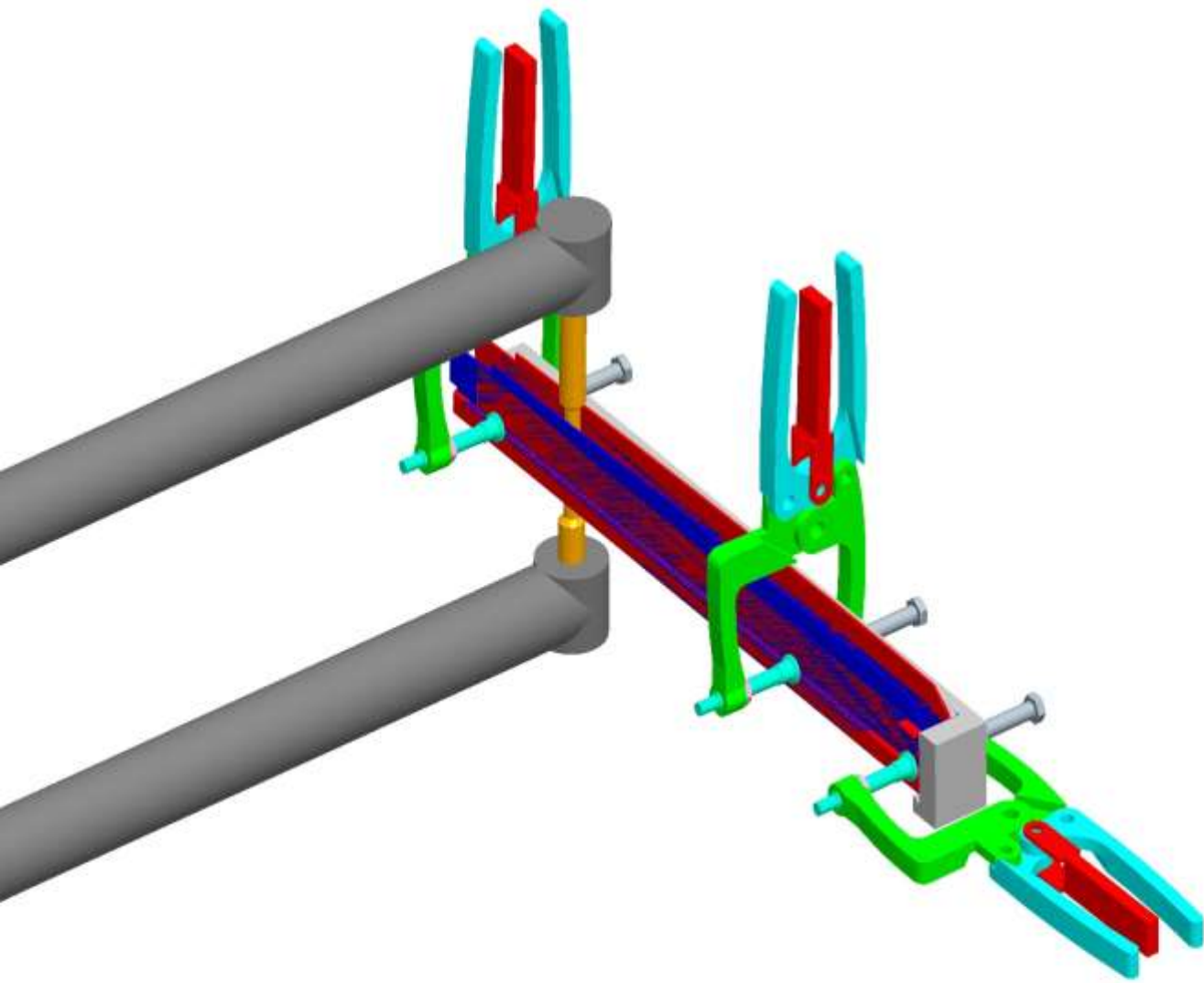


XX +0.1
XXX +0.01
XXXX +0.025
ANG. +0.5



X.X+0.1
X.XX+0.01
X.XXX+0.005
ANG. +0.5

SMALL PICK OFF FIXTURES

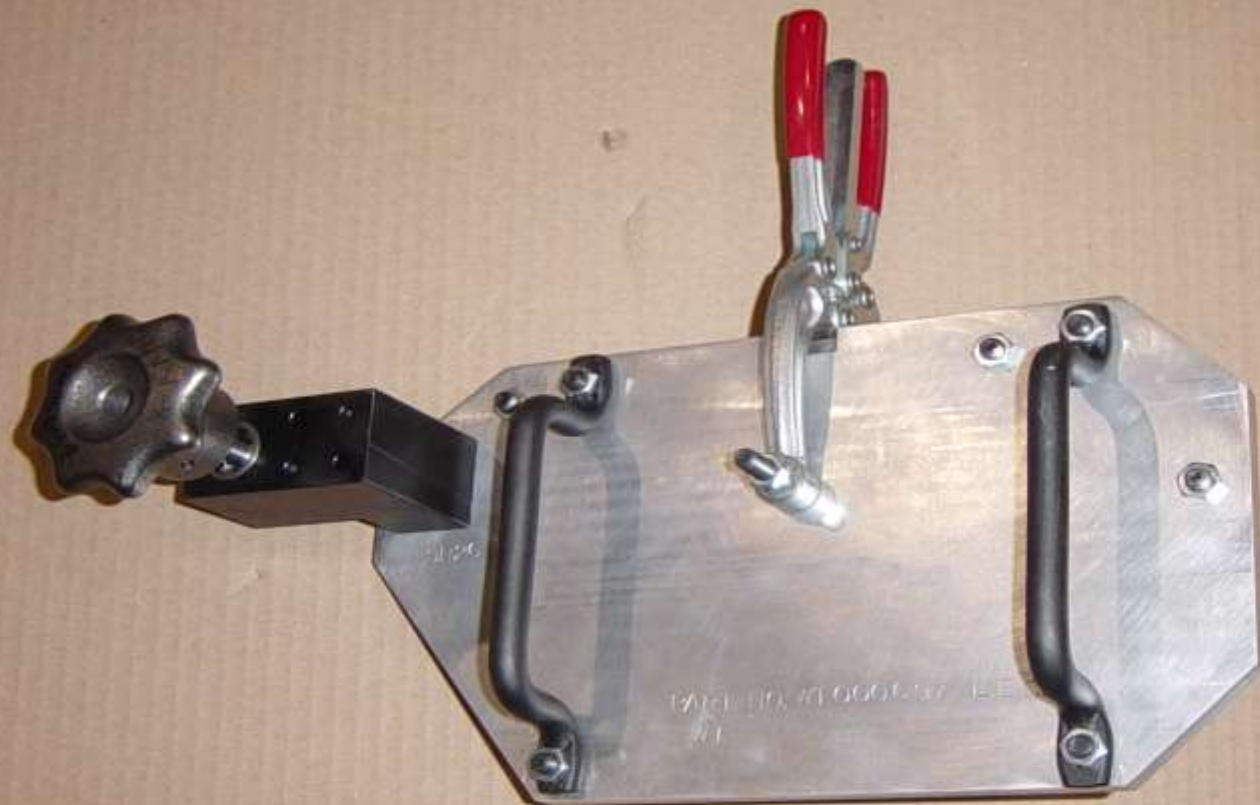


XX+0.1
X.XX+0.01
X.XXX+0.025
ANG.+0.5

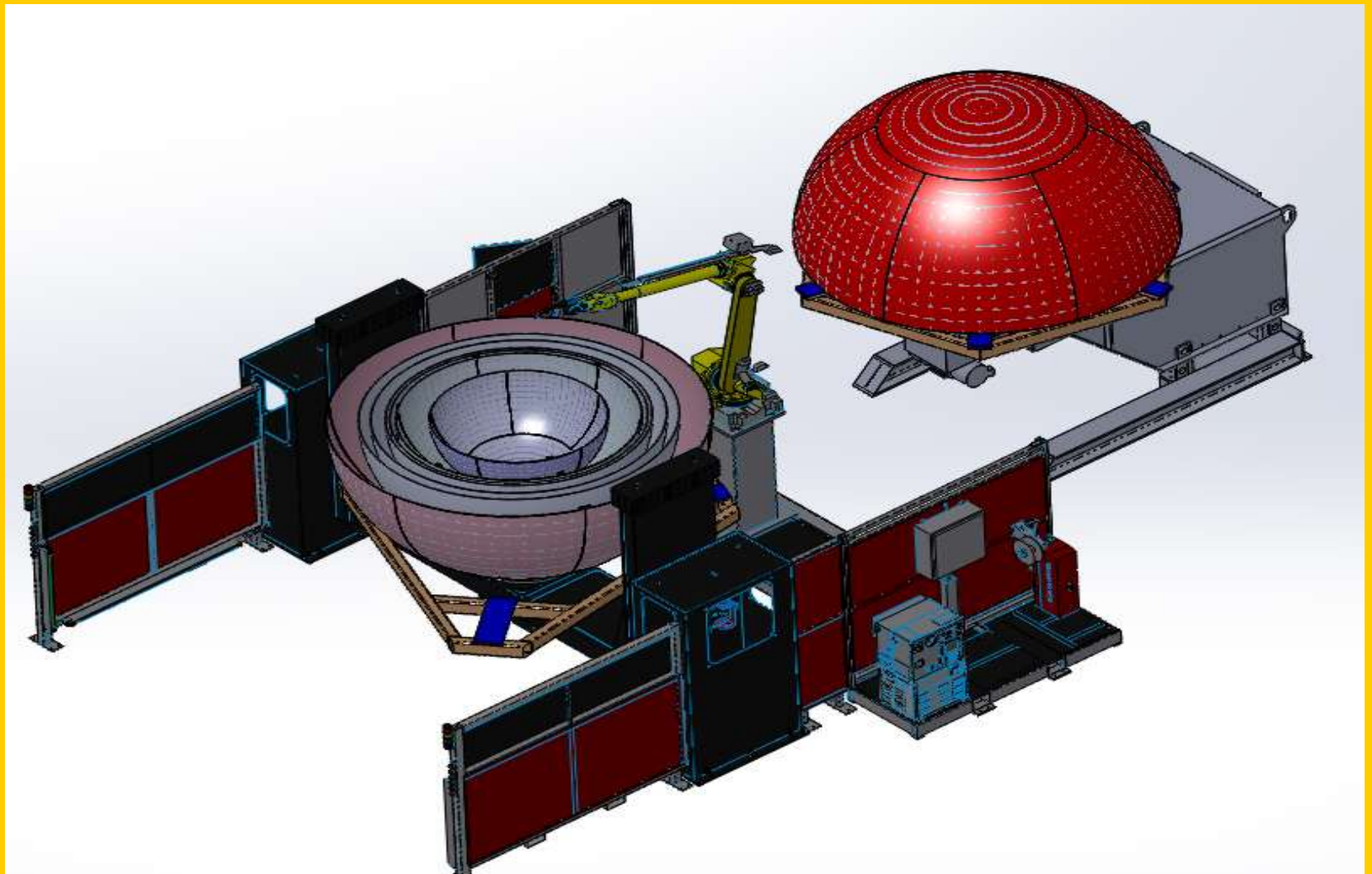
LARGER LOCATING FIXTURE



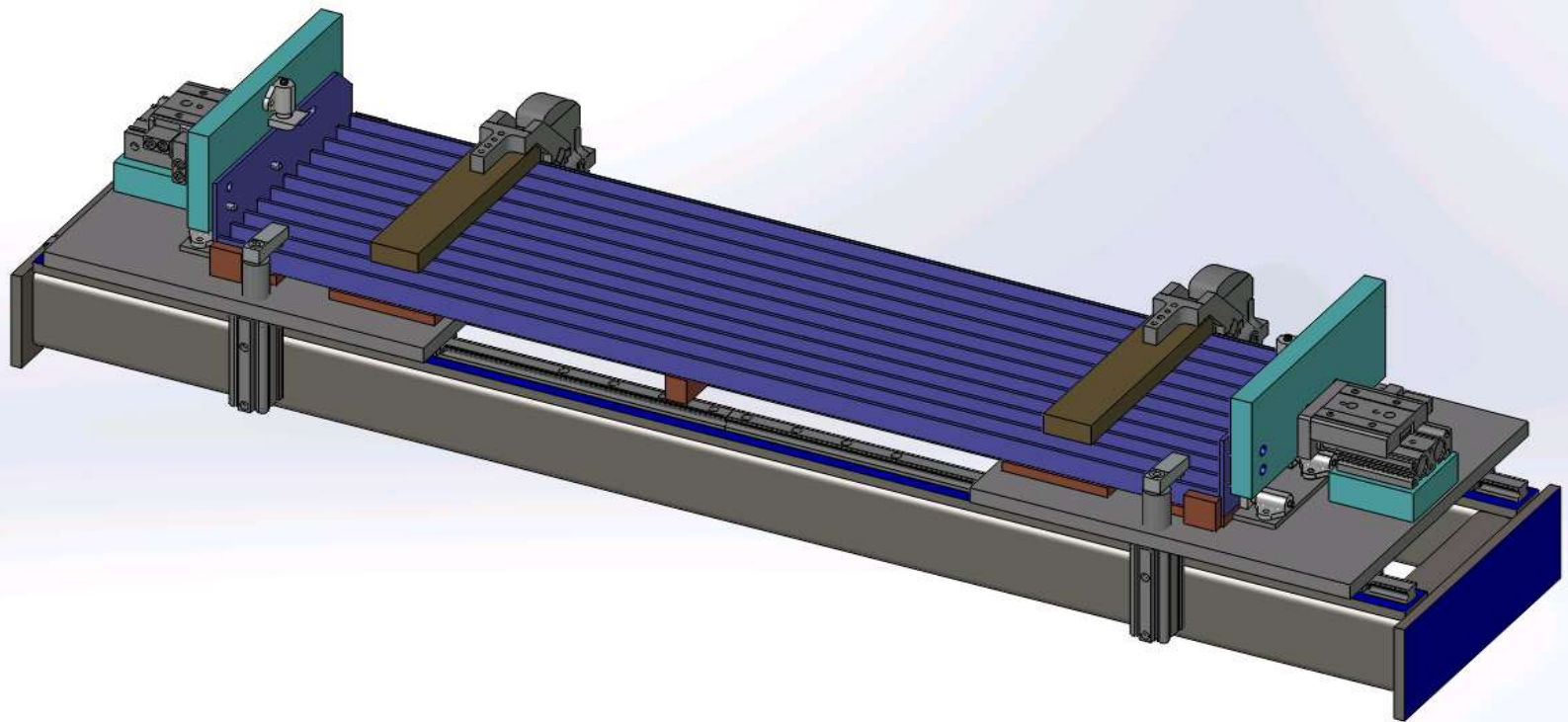
SMALL LOCATING FIXTURES



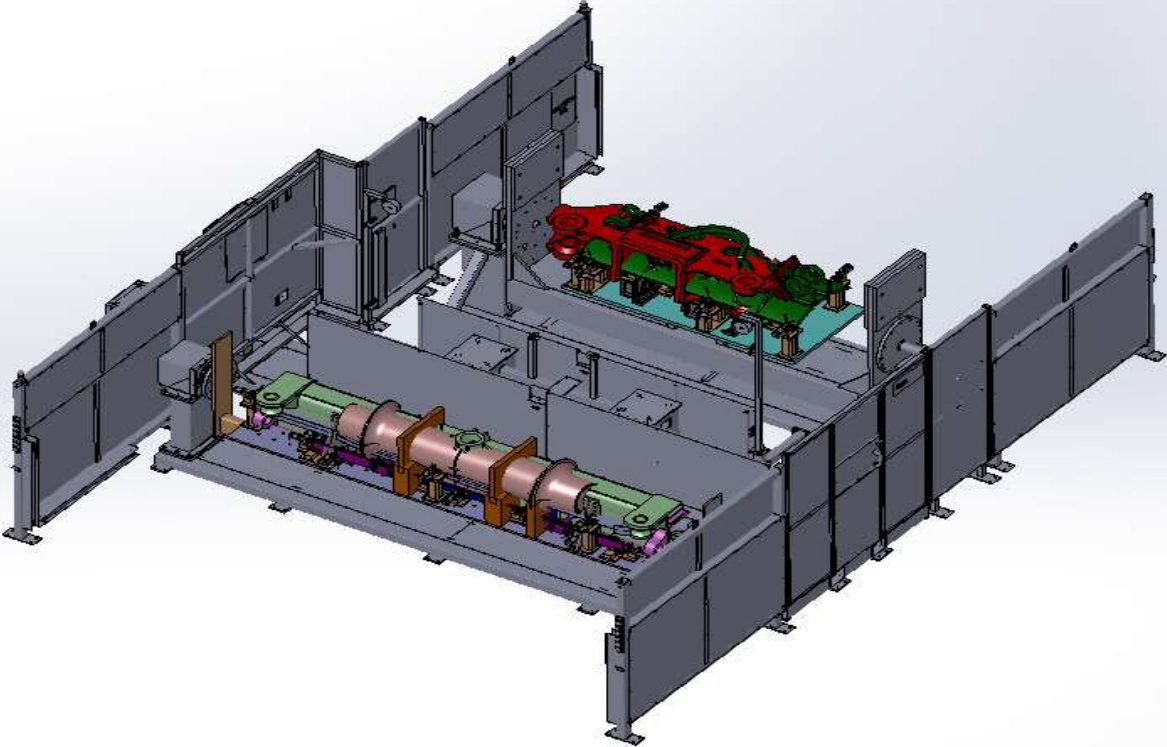
**Sample Concepts for Various Automation Applications.
Part Expanded from 66" to 132" in this cell for Weld**



LARGE GRATING WELD FIXTURE



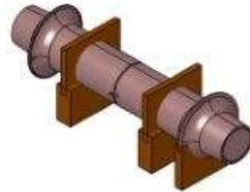
LARGE WELD CELL APPLICATION PROGRAM



LARGE MINING TRUCK COMPONENTS FOR WELD CELL APPLICATION



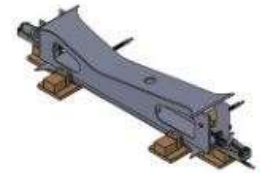
Concept 53084AK Main
Assembly.SLDASM



Concept 533-8520-00 Main
Assembly.SLDASM



Concept 533-8210-00 Main
Assembly.SLDASM



Concept 533-6210-00 Main
Assembly.SLDASM



Concept 533-6206-00 Main
Assembly.SLDASM



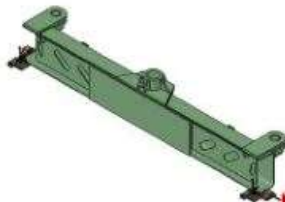
Concept 533-6201-01 Main
Assembly.SLDASM



Concept 533-3210-00 Main
Assembly.SLDASM



Concept 533-3202-00 Main
Assembly.SLDASM



Concept 532-8201-02 Main
Assembly.SLDASM



Concept 532-6207-00 Main
Assembly.SLDASM

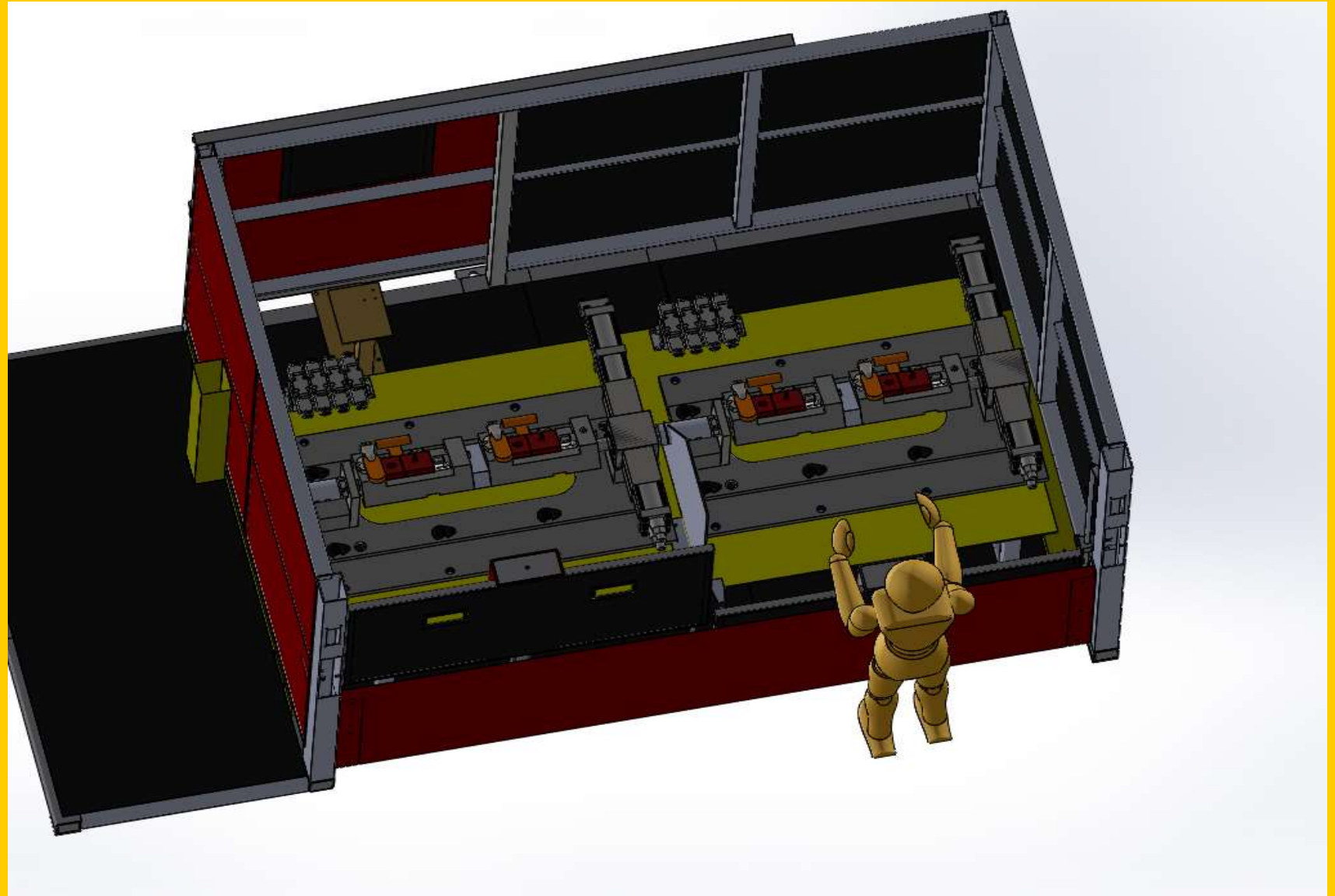


Concept 531-3203-01 Main
Assembly.SLDASM

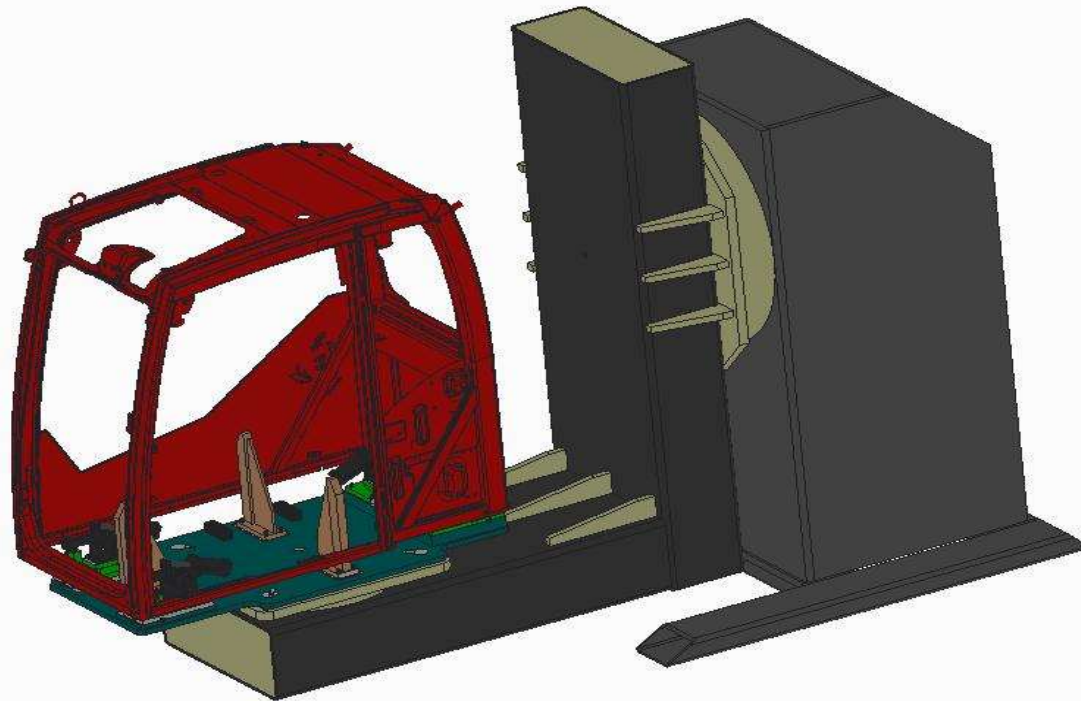


Concept 531-3201-01 Main
Assembly.SLDASM

STAND ALONE WELD CELL APPLICATION COMPLETE

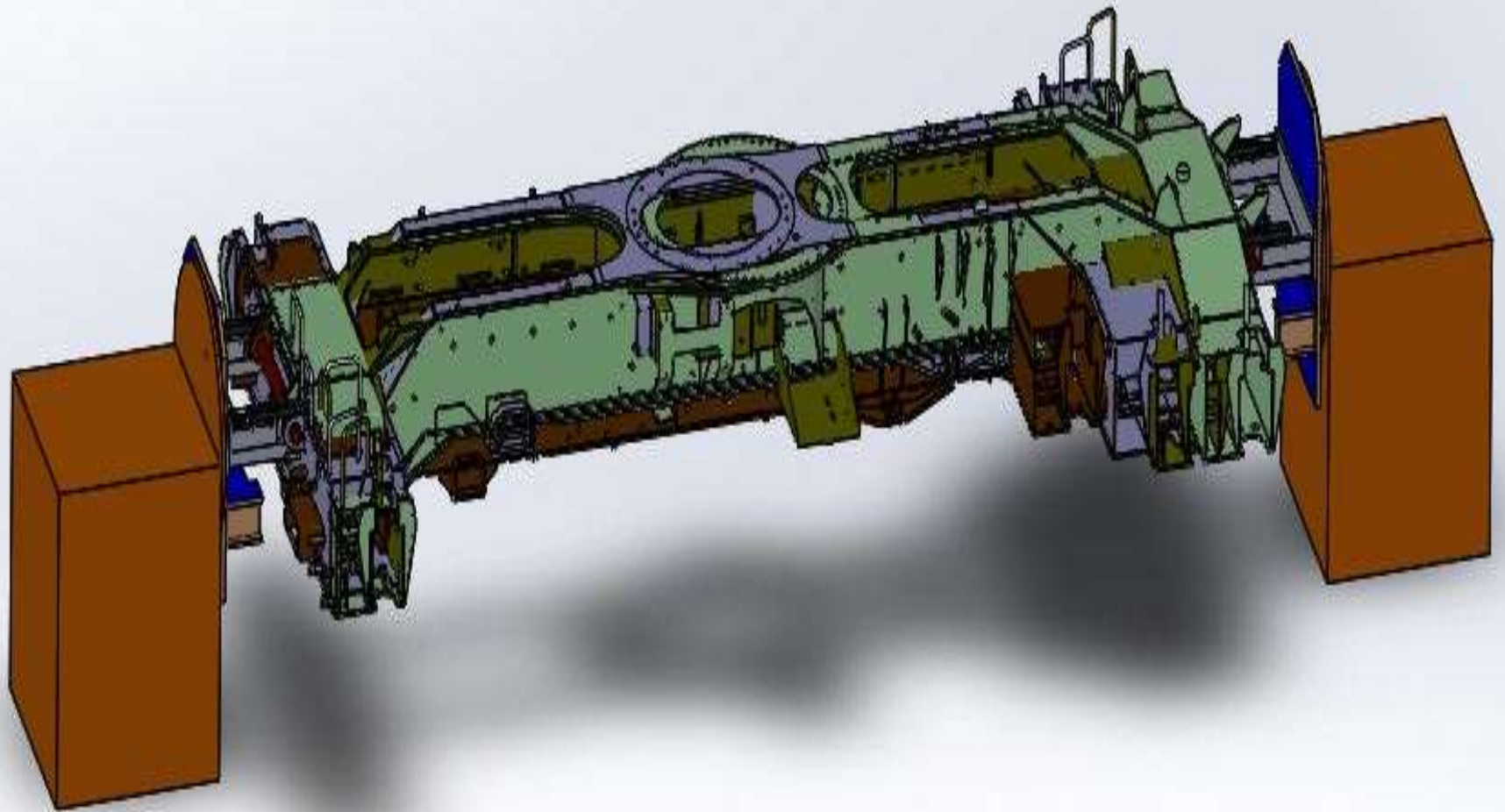


Custom Cab Robotic Weld Cell



Instance: 0ENERIC

100,000 Pound Frame Fixture



Custom Pneumatic Rollover Weld Fixture



Custom Pneumatic Rollover Weld Fixture



Custom Pneumatic Rollover Weld Fixture



Custom Pneumatic Rollover Weld Fixture



Custom Pneumatic Rollover Weld Fixture



THANK YOU FOR THIS OPPORTUNITY TO GET WITH YOUR FIRM

- Thank you for your time and consideration today. We look forward to working with you soon on your tooling and fixturing needs.
- Please call and ask for Max Podell at 574-287-2377.