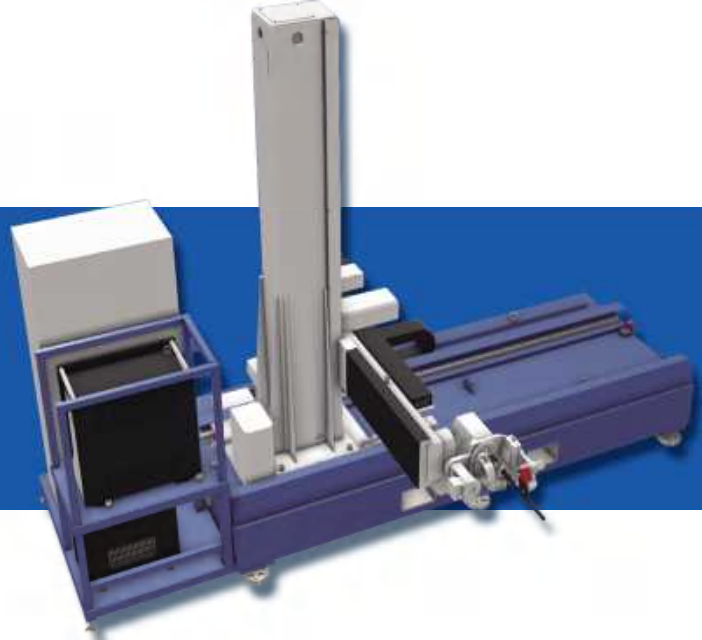


Tube-to-Tubesheet Welding



Performance Characteristics and Advantages

● Technical Documentation:

"The vision-guided system achieves $\pm 0.1\text{mm}$ alignment accuracy by compensating for tube sheet hole positional errors, significantly reducing rework rates in heat exchanger manufacturing."

● Flexible Production: Rapid Task Switching

When switching product models, simply import new drawings to automatically adjust welding paths, eliminating reprogramming or tooling replacement (reducing changeover time by over 60%).

● Efficiency Improvement

(1) Automated Path Planning

Technical Implementation:

Generates optimal welding sequences by analyzing CAD drawing data, significantly reducing non-productive tool movement (improves welding speed by 20%-30%)

(2) Continuous Operation Capability

Industrial Advantages:

Enables 24/7 production with stable quality, ideal for high-volume components like power plant boiler tube sheets

● Quality Consistency Assurance

Intelligent Parameter Matching: Automatically invokes welding parameters (current, speed, oscillation pattern) based on material, thickness, and other specifications annotated in the drawings, eliminating manual operation variations

● Cost Optimization

Reduced rework rate:

Vision-guided correction achieves welding defect rate below 1% through real-time deviation compensation, significantly reducing material and labor-hour waste

Labor savings:

A single unit replaces 2-3 senior welders, achieving long-term labor cost reduction through 24/7 automated operation

● Technical Scalability

Digital integration:

Drawing data directly interfaces with MES/PLM systems (Manufacturing Execution System/Product Lifecycle Management), enabling digital management of welding parameters and quality traceability



| technical feature | parameter |
|---|---|
| External dimensions (mm) | 4210*1300*3000 |
| Mobile travel (mm) | 2150*490*1780 |
| weight (kg) | 3000 |
| Longitudinal linear velocity | 15 |
| Height direction line moving line speed (m/min) | 15 |
| Linear speed in the forward and backward extension and retraction direction (m/min) | 15 |
| Scope of welded pipe (mm) | $\varnothing 10$ to $\varnothing 80$ (configure the camera with the corresponding focal length according to the pipe corresponding focal length according to the pipe diameter) |
| Welding current (A) | 5-500 |
| Welding material | Carbon steel, stainless steel, titanium alloy |
| Joint type | Pipe Flush with Plate/Surface and Pipe Protruding from Plate/Surface |
| Welding procedure | TIG self-resilience or wire addition |
| Shielding gas | Argon |
| Angular welding range | Adjustable from -10°C to 30°C |
| Wire diameter (mm) | $\varnothing 0.8$ to $\varnothing 1.0$ |
| Tungsten Electrode Diameter | $\varnothing 2.4$ and $\varnothing 3.2$ |
| Number of Weld Layers | Multi-Layer Welding |
| Welding Position | All-Position Welding |
| Welding Gun Cooling Method | Water Cooling |
| Welding Gun Rotation Speed | 0.35 to 6 rpm |

Metalleco Japan: JRp Hakata Bldg. 3f, 8-1 Chuogai, Hakata-eki, Hakata-ku, Fukuoka City

Headoffice: 3185 Dundas St W, Oakville Ontario Canada L6M 4J4

Phone: +1-514-550-1191

Metalleco US: 350 Terry St, Longmont, Colorado 80501 United States of America

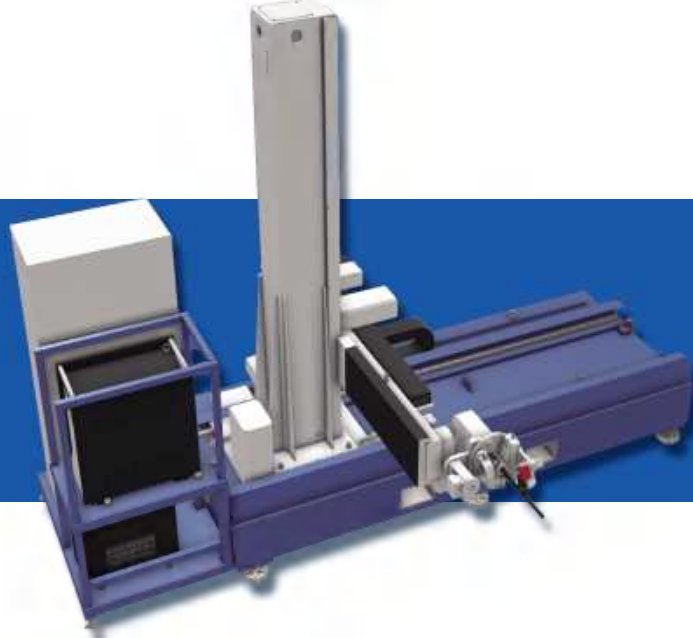
Phone: +1-514-550-1191

Phone: +81-90-9516-0894

Mail to: nick.xiao@metalleco.ca

Metalleco

Tube-to-Tubesheet Welding



Metalleco

METALLECO INC.

Ship to: 3185 Dundas St W, Oakville Ontario L6M 4J4
CANADA

Mail to: nick.xiao@metalleco.ca

Phone: +1-514-550-1191

| | | |
|----------------|------------|-----------|
| REQUESTED BY | DEPARTMENT | GLACCOUNT |
| | | |
| SOURCE | | |
| METALLECO INC. | | |

PURCHASE REQUISITION

| | |
|---------------|---------|
| DATEREQUESTED | SHIPVIA |
| | |
| ORDERBY | DATE |
| | |

| | | |
|------------|------|-------------------------------------|
| ORDER FROM | | |
| | | |
| PO# | DATE | <input type="checkbox"/> PREPAID PO |
| | | |

| QUANTITY | UNIT | STOCK NUMBER | DESCRIPTION | UNIT COST | TOTAL COST |
|----------|------|--------------|-------------|-----------|------------|
| | | | | | |

TOTAL ORDER COST:

| |
|--------------|
| VENDOR NOTES |
| |



Metalleco Japan: JRp Hakata Bldg. 3f, 8-1 Chuogai, Hakata-eki, Hakata-ku, Fukuoka City

Headoffice: 3185 Dundas St W, Oakville Ontario Canada L6M 4J4

Phone: +1-514-550-1191

Metalleco US: 350 Terry St, Longmont, Colorado 80501 United States of America

Phone: +1-514-550-1191

Phone: +81-90-9516-0894

Mail to: nick.xiao@metalleco.ca

Metalleco