WA MultiSurfurcer™
Automated Roll Cladding Technology
About The Brochure

This Welding Alloys Machines brochure describes the innovative features, benefits and integrated components of the MultiSurfacer™ and roll cladding machine range.

Welding Alloys pioneered the design and manufacture of automated welding equipment; continually improving design and build quality with over 40 years of experience.

About Welding Alloys

Welding Alloys Group is the world’s leading manufacturer of automated welding equipment and flux cored consumables; providing specialised services in cladding and hardfacing.

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Taking it to the next level...

D3-Touch from Welding Alloys is a new control technology for automation allowing effective and efficient implementation of fully automated welding techniques and processes.

Welding Alloys incorporates new technology into all MultiSurfacer™ machines improving performance and accuracy of the welding process. This technology complements the precision engineered mechanics resulting in maximum performance from our welding machines.

- OEM
- Full mix of welding processes
- Reduction in labour costs, post weld processing & weld setup time
- Superior weld quality
- Quick recall of saved parameters & positions
- Precise speed & position control
- Global support network
**D3-Touch Driven Technology**

**Control System Benefits**

- Saves set-up time through the setting up of repeatable welding parameters
- Provides precision welding - reducing material / welding consumables used
- Productivity improvement through high efficiency / low downtime
- System is simple to use and program with only the requirement for one operator
- Full traceability of materials used and the welding process
- Minimises human interference during production
- Saves time and cost, increasing efficiency and reproducibility

*Further details about D3-Touch are outlined in a separate leaflet.*

**Control System Features**

- Touch screen, high degree of motion & process control
- Real-time synchronisation
- Touch screen with intuitive GUI (Graphical User Interface)
- Integrated processing
- Data logging functionality
- Built-in condition monitoring facility
- Self / remote diagnostics
- Remote monitoring
Roll Cladding

Welding Alloys new roll cladding machines are designed to operate and synchronise seamlessly with D3-Touch technology. The mechanical design stage for MultiSurfacer™ machines incorporates 3D CAD modelling software and finite element analysis for stress and strain distribution.

The product features for the latest MultiSurfacer™ machines are designed to achieve perfect quality welded materials whilst the ease of operator interaction and application requirements are kept at the centre of our design philosophy.

Flexibility is a key feature of the MultiSurfacer™ machine range and includes:

- Adaptability for open arc, submerged arc or gas shielded welding
- Configured with single or multiple welding heads
- Operate with single or twin wire for maximum productivity

A WA laser scanner unit constantly monitors the roll diameter which gives an accurate reading resulting in an evenly finished surface, minimising the welding materials used and associated costs.

Milling Unit

The WA range of MultiSurfacer™ has the ability of being expanded; one of these modular expansions available is our WA Milling Unit. The unit provides a rough machined finish during the final weld pass of the process. By carrying out the machining during the final weld pass, the roll still carries residual heat allowing the unit to cut through a softer material, extending its life and increasing the production efficiency.

- Easier machining due to softer material
- Prolongs life of the cutting tool
- Reduces additional processing of roll
- Reduces overall expenditure in manufacturing the roll

Preheating

MultiSurfacer™ preheating station benefits include:

- Provides necessary preheating of component
- Uses existing roll manipulation system with the preheater underneath the roll to maintain preheat and interpass temperatures
- Superior quality welded components

### Specifications

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<th>Rolls R500</th>
<th>R1000</th>
<th>R3000</th>
<th>R6000</th>
<th>R12000</th>
<th>R20000</th>
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### Welding Processes

| Open | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Gas | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Submerged | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
All MultiSurfacer™ machines have been fitted with the latest health and safety features. The technical features have been upgraded for maximum performance and achieve outstanding component reproducibility and quality time after time.

### Software features:

**Data Logger**
- Logs welding conditions

**Sequence Programmer**
- Saves machine parameters for welding complete components
- Welding repeatability

### Clamping System
- Pneumatic clamping system
- Easy operation
- Provides constant linear pressure to the roll up to the weight of the roll
- Precise control of clamping force
- Self centring of clamp for roll thermal expansion and contraction

### Cable management
- Features an energy chain management system
- Safely incorporates all cables within one assembly
- Ensures loose cables don’t affect moving parts of the machine
- Reduces noise interference

### Flux recovery system featuring:
- Vacuum pump
- Hopper
- Separating conveyor
- Air filter
- Self-circulating recovery system
- Flux preheat

### Pendant Control
- Jogs X, Z, Wirefeed, Spindle and Oscillator axes
- Emergency stop button
- Start & Stop weld
- Controls Spindle & Oscillator functions

### Fume Extraction & Filter Box
- Safely extracts welding fumes directly from the welding head
- Modular aluminium ducting
- Semi-automatic filter cleaning

### Quick lock grip (Chuck-jaws)
- Safely secures & clamps rolls on a suspension mounted linear slide way system
- Self centring

### Spindle Module
- Controls surface speed
- Auto Diameter adjustment
- Step angle control (forward and backward)
- Alternate movement

### Milling Unit
- Provides a rough machining process to clad rolls
- Machines roll during final weld pass

### Linear slide ways
- For smooth and trouble free operation of X-Z carriages

### Oscillator
- Fitted to provide smooth linear travel of weld head resulting in a precision weld deposit

### Machines Under The Spotlight

1. **Wire Feeder** (remotely controllable via D3-Touch)
   - Quick release feed gears
   - Integral wire straightening unit
   - Adjustable feed gear tensioning
   - Lightweight cast aluminium body
   - Ability to feed single & twin wire

2. **Spindle Module**
   - Controls surface speed
   - Auto Diameter adjustment
   - Step angle control (forward and backward)
   - Alternate movement

3. **Quick lock grip (Chuck-jaws)**
   - Safely secures & clamps rolls on a suspension mounted linear slide way system
   - Self centring

4. **Pendant Control**
   - Jogs X, Z, Wirefeed, Spindle and Oscillator axes
   - Emergency stop button
   - Start & Stop weld
   - Controls Spindle & Oscillator functions

5. **Fume Extraction & Filter Box**
   - Safely extracts welding fumes directly from the welding head
   - Modular aluminium ducting
   - Semi-automatic filter cleaning

6. **Milling Unit**
   - Provides a rough machining process to clad rolls
   - Machines roll during final weld pass

7. **Linear slide ways**
   - For smooth and trouble free operation of X-Z carriages

8. **Oscillator**
   - Fitted to provide smooth linear travel of weld head resulting in a precision weld deposit
Machines Under The Spotlight

**Wirefeeder angle unit and position adjuster**

Like all the other aspects of our roll cladding machines, the wire feeders and welding guns perform in unison with the highest quality wire feeder angle unit and position adjuster.

### Machines Under The Spotlight

**General features include:**

- Accurate welding gun angle position in two axes (α and β axis)
- Top dead centre adjustment
- Fully sealed heavy duty oscillator

**Wire Feeder features:**

- Universally suitable for flux-cored and solid wire
- Heavy duty and robust design
- Quick set-up
- True wire speed monitoring and feedback
- Ease in reproducibility in wire tension adjustment
- End of wire sensor

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**Welding Processes**

Flexibility is a key feature in the MultiSurfacer™ range of machines. All MultiSurfacer™ machines are adaptable to operate with open arc, submerged arc or gas shielded welding processes. These machines can be used with single or multiple heads and operate with single or twin wire for maximum productivity.

**Submerged Arc Welding**

Best suited for large diameter rolls which require higher weld deposition rates. Automatic flux recovery is designed to recirculate the flux back through a series of filters into the weld reducing waste and flux replenishment time.

**Open Arc Welding**

Open arc welding technology is normally applicable to cladding continuous casting rolls and small diameter rolls.

**Gas Shielded Welding**

Gas shielded welding is applied when a high quality defect free weld is required. Bearing areas of rolls are commonly clad with shielded processes.

Additional product features providing added health & safety protection in a welding environment are available, these are as follows:

- **Protective shields** - Protects the operator from the welding arc and offers protective viewing
- **Fume Extraction** - Safely extracts welding fumes from the weld head

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**Technical Support**

**WA Engineering**

The engineering department at Welding Alloys utilises the latest in mechanical, electrical and software capabilities in order to deliver a comprehensive welding solution. We undertake thorough analysis of our customers’ needs, both visible and hidden, to provide a machine designed for the customer, with the customer.

**WA Training**

In addition to delivering a welding solution, WA are able to provide optional multi-level training to operators and managers alike from our dedicated team of application specialists.

**WA Reliability**

At WA we know the importance of reliable machines and appreciate how expensive machine downtime can be. We provide a variety of maintenance and upgrade packages to maximise productivity, reduce operating costs and extend the overall operations lifespan of our production line.

Each machine which leaves WA is covered by our guarantee, giving you the confidence in knowing we provide a quality product which meets the specified needs of your production.
Our Technical ‘Spark’ Solves Your Industrial Challenges

WA Consumables
The go-to provider of advanced welding consumables

WA Machines
The go-to provider of automated equipment for wear protection

WA Integra™
The go-to provider of engineered wear protection solutions

A worldwide presence

www.welding-alloys.com