PERFORMANCE GUARANTEED

WA MultiSurfacer™
Custom designed automated welding equipment
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 WA MultiSurfacer™ machines improving performance and accuracy of the welding process. This technology complements the precision engineering mechanics resulting in maximum performance from our welding machines.

- OEM
- Full mix of welding processes
- Reduction in labour costs
- Reduction in post weld processing
- Reduction in weld setup time
- Superior weld quality
- Quick recall of saved parameters & positions
- 3D Geometry import
- Precise speed & position control
- Global support network

About this brochure

This Welding Alloys brochure describes the innovative design process undertaken through to the features and integrated components of the MultiSurfacer™ machine range; from our stationary workstations, to those used in-situ and portable equipment, plus the key options available when specifying your customised welding solutions.

About Welding Alloys

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

The WA Performance guarantee means we will always recommend the product and service with the highest performance for our customers’ applications.

Contents

Innovation Driven 3
From concept to reality 4
WA MultiSurfacer™ Range 6
WA D3-Touch™ control technology 14
WA MultiSurfacer™ welding 15
Technical support 15
From concept to reality

Committed to your success

Welding Alloys Group is a strategic partner for your long-term growth and component manufacture/refurbishment. Providing high-performance welding technologies and inherent reliability to help your business gain a sustainable competitive advantage.

Customer oriented design

From the very first meeting, our design engineers are establishing your machine specification, tailored to your individual requirements ensuring you have a machine which is fit for purpose and aids your business growth. Every machine is designed using:

- 3D CAD modelling software
- Stress analysis simulations

At every stage, Welding Alloys engineers are testing each part, guaranteeing its performance when installed on site.

Design: Sophisticated technology

Key to the success of WA MultiSurfacer™ Machines is the quality of the components and the suitability of the design. Working closely with the customer at the initial stages and all through the build, our designers and engineers develop a clear understanding of the weld deposit requirements.

The value a WA Machine brings...

- High quality weld deposits every time with minimal post weld processing
- Productivity in manufacturing for profitability
- Innovative welding automation
- Unmatched reliability
- Industry experience in design & manufacture
- Global supply & service
- Repeatable programming for process simplicity
WA MultiSurfacer™ Range

WA MultiSurfacer™ Welding Machines, optimised for automated, defect free, repeatable welding first time and every time.

Any axis, any component, manipulated to always weld in the downhand position.

For complex multi-axis applications, the tight integration of the D3-Touch™ architecture and proven electromechanical components provides the ultimate welding automation solution - enabling you to achieve faster, more consistent, high accuracy welding deposits and machine performance.

All WA MultiSurfacer™ Machines are designed and built for stability and suitability to ensure that the weld deposit is as consistent and dependable as possible.

Cutting edge welding automation at the touch of a screen.

With welding machines available in both standard and bespoke configurations, Welding Alloys Group can offer a complete automated machine package. With its intelligent D3-Touch™ control system based on the EtherCAT™ protocol, each welding machine offers the ability to weld components of varying size and shape with the maximum of ease and no programming knowledge. This eliminates costly rework and minimises the volume of skilled labour required to clad/hardface components exposed to wear phenomena.

<table>
<thead>
<tr>
<th>[ Roll Cladder ]</th>
<th>[ Plate Cladder ]</th>
<th>[ SF/RY Welding Machine ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roll cladding performance and reliability for standard and bespoke machines.</td>
<td>Hardfaced and clad flat components welded to exceptional quality.</td>
<td>Hardface and clad rotary components with helical geometries perfectly every time.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industries</th>
<th>Steel</th>
<th>Steel, Cement, Security, Transport</th>
<th>Oil &amp; Gas, Brick, Agriculture, Power, Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>Single: 500kg - 50,000kg Twin: 2 x 500kg - 2 x 50,000kg</td>
<td>-</td>
<td>500kg - 10,000kg</td>
</tr>
<tr>
<td>Control System</td>
<td>D3-Touch™ + Pendant</td>
<td>D3-Touch™ + Pendant</td>
<td>D3-Touch™ + Pendant</td>
</tr>
<tr>
<td>Welding Process</td>
<td>Open, Gas, Submerged</td>
<td>Open, Gas</td>
<td>Open, Gas, Submerged, Hot Wire TIG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>[ M Series Welding Machine ]</th>
<th>[ H-Frame ]</th>
<th>[ Portable Equipment ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manipulate components through multiple axes, perfect for non-cylindrical components.</td>
<td>Hardface and clad flat, round or any shapes of components.</td>
<td>For in-situ welding where space is restricted or conditions are harsh.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industries</th>
<th>Oil &amp; Gas, Nuclear, Power, Cement, Steel</th>
<th>Steel, Cement, Power, Agriculture, Mines, Oil &amp; Gas</th>
<th>Cement, Sugar, Agriculture, Steel, Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>500kg - 10,000kg</td>
<td>Standard footprint 2.5m x 2.5m or 3.0m x 3.0 m. Other sizes also possible if required</td>
<td>-</td>
</tr>
<tr>
<td>Control System</td>
<td>D3-Touch™ + Pendant</td>
<td>D3-Touch™ + Pendant or D3 Pendant</td>
<td>D3 Pendant</td>
</tr>
<tr>
<td>Welding Process</td>
<td>Open, Gas, Submerged, Hot Wire TIG</td>
<td>Open, Gas, Submerged</td>
<td>Open, Gas, Submerged</td>
</tr>
</tbody>
</table>
WA MultiSurfacer™ Roll Cladder Welding Machine

The Welding Alloys Roll Cladding Machines are designed to enable efficient and economical cladding of new and worn process rolls.

Every Roll Cladding system is available with single or multiple welding heads for welding multiple rolls simultaneously.

This range of machines is designed to promote high efficiency and high quality with minimal/no rework required, ease of use and repeatable process control.

Features include:
- Accurate welding torch angle position
- Top dead centre adjustment
- Mix of welding processes
- D3-Touch® + Pendant control
- Flux recovery, recirculation & slag separation
- Heavy or medium duty construction
- Frame & floor mounted head stock/tail stock configurations

WA MultiSurfacer™ Plate Cladder Welding Machine

Plate Cladder Welding Machines, designed and manufactured by Welding Alloys provide automated solutions for wear repair in flat components.

Each machine utilises WA tubular wire technology and the advanced control system, D3-Touch®. This means that as a manufacturer of flat components, it is possible to quickly and easily change programs, weld patterns and parameters without compromising the infinite repeatability of production.

Features include:
- Multi-Axis synchronisation
- Single & Twin wire configuration
- Multiple welding head set-up
- Mix of welding processes
- Bulk welding compatible
- D3-Touch® + Pendant control
- Multiple weld patterns: Oscillated, Straight & Zig Zag
- Heavy or light duty construction
WA MultiSurfercer™ SF/RY Welding Machine

The Welding Alloys Screwflight & Stabilizer Welding Machines are designed to manipulate and weld complex components with high precision.

Controlled with the precision of D3-Touch™, the 7 axis Screwflight and 6 axis Stabilizer Welding Machines offer a superior weld deposit, promoting high efficiency and minimal rework.

With our CWC™ (Component Wise Control) technology, it is now possible to import geometries from 3D part files in their native format; enabling the system to carry out complex calculations so the operator doesn’t have to.

Features include:
- D3-Touch™ + Data logging software
- Component Wise Control (CWC™) - Import 3D geometry files
- Swap in/swap out capability during weld program
- Arc Voltage Control (AVC) & Built-in condition monitoring
- Mix of welding processes (including Hot Wire TIG & PTA)
- Auto diameter functionality
- 6 & 7 axis movement & control

WA MultiSurfercer™ M Series Welding Machine

M Series Welding Machines offer a fully automated welding and component manipulation solution for small and large components.

M Series Welding Machines offer a full welding and manipulation solution for components of varying sizes and weights.

By combining both the welding head and manipulator into one machine, the M Series range of welding machines can be completely controlled, automated and synchronised by the advanced WA control system D3-Touch™. This allows for constant feedback on axis position and welding parameters, perfect for quality control/assurance.

Features include:
- Heavy duty component manipulation
- Mix of welding processes (including Hot Wire TIG)
- D3-Touch™ + Data logging software
- Angle rotation (α-Axis) for positioning of welding torch
- Heavy duty construction
- Customised design/configuration
- Spindle & faceplate with through bore
WA MultiSurfarcer™ H-Frame

Welding Alloys MultiSurfarcer™ H-Frame is probably our most polyvalent machine perfectly designed for the workshop floor. In combination with a working bench, turntable or positioner it allows enumerable welding applications.

All machines are built to work with WA tubular wire technology and the advanced control system D3-Touch™ or D3-pendant will give the best weld result and quality you could expect.

Features include:
- Multi-Axis Synchronisation
- Single & Twin wire configuration
- Multiple welding head set-up
- Mix of welding processes
- Bulk welding compatible
- Multiple weld patterns: Oscillated-beads, Stringer beads, square waves, Chevron, shape welding
- Heavy duty (built with a steel frame) or light duty (built with Aluminum profiles)

WA MultiSurfarcer™ Portable Welding Equipment

Portable WA MultiSurfarcer™ equipment is easy to transport, install, disassemble and reassemble for in-situ welding.

The portable range of welding equipment from Welding Alloys covers many industries and levels of requirement thanks to the advanced D3 control system. Each portable system can be configured to suit the individual requirements of the customer, the component and the environment.

The system is light enough in weight to be transported to different sites with ease, whether in a mill, workshop or rail system.

The modular build system truly offers the customer a machine that can meet their exact requirements, custom-built to their specific needs.

Features include:
- Mix of welding processes
- Single & Twin wire configuration
- Multiple welding head set-up
- D3-Touch™ + Pendant control or D3-Pendant
- Packing case for easy storage & transport
- Data logging software
- Lightweight construction
- Expandable modular design
WA MultiSurfacer™ welding

Flexibility is a key feature in the WA MultiSurfacer™ range of machines whereby all machines are adaptable to operate with a variety of welding processes. These machines can be used with single or multiple heads and operate with single or twin wire for maximum productivity.

The extensive experience in machine electronics held by WA has helped create machines that produce complex and precise welding patterns that are easily programmed into the D3-Touch® control system.

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 supervisors 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 operational lifespan of your production line.

WA D3-Touch® control technology

A new control technology designed & developed specifically for effective and efficient welding automation.

Operator login
Every system supports multi-user set up, enabling procedure access to be restricted.

Position screen
Basic axis movement control and position feedback.

Intuitive menu
Program and control any setting or motorised axis at the touch of a screen.

Monitor
Monitor any axis, process or setting in real time during welding.

EtherCAT® Based control technology.
- Real time axis synchronisation - feedback in under 100µm
- Data logging
- Self/Remote diagnostics
- Quick program save/recall
- Touch screen with intuitive GUI (Graphical User Interface)
- Built-in condition monitoring
- Remote monitoring

Pendant control
Program, manipulate axes and weld either from the control screen or from the pendant.

WA MultiSurfacer™

Machine wide cable and cable management inspection.

Power source inspection and OEM calibration, complementing ISO 9001 certification.

Check and calibrate all axes on the machine.

Customer feedback session, your questions answered.

General machine inspection.

Each machine which leaves WA is covered by our guarantee, giving you the confidence in knowing that we provide a quality product which meets the specified needs and standards of your production.