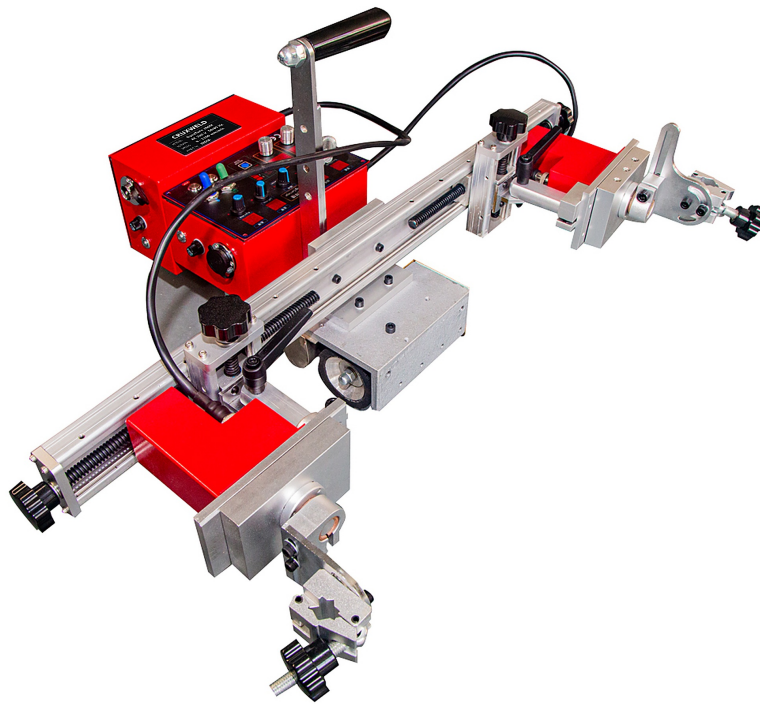


CO₂ Gas-Shielded Double Swing Welding Trolley

DynaTwin 200M

Twin-torch box-girder welding carriage

User Manual



Read this manual carefully before using the welding trolley and keep it at hand, so that the machine always gives its best performance.

Preface

Thank you for purchasing this Cruxweld automatic welding product. We will accompany you throughout the use of this product with sincere service.

In order to support our service, we recommend that you read this manual carefully before using the product. It provides detailed information about the basic structure, product functions, methods of use and technical parameters of the machine, for your reference and study during actual use.

During use, we recommend that you keep this manual at hand so that you can refer to it at any time.

If you have any doubts or corrections regarding the contents of this manual, or regarding the product itself, please contact our service team. Our customer service staff will provide you with professional support and will sincerely accept your comments and corrections. Feel free to contact us at any time.

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Before Use, Please Read

To ensure safe operation, be sure to observe the following points.



Warning! Be careful to avoid major personal accidents

- **Clothing and safety equipment**

To prevent eye inflammation and skin burns, be sure to follow the labour safety and hygiene rules and wear the appropriate protective equipment.

- **Precautions for ventilation**

To prevent poisoning and suffocation from harmful gases (welding fumes and gases are harmful to human health), comply with the applicable rules on dust and fume hazards, install local exhaust devices or use effective respiratory protective equipment.



Attention! Prevent machine burnout and fire-related accidents

- **Prevent fire and machine burnout caused by overheating**

Keep flammable items at least 50 cm away from the machine.

- **Prevent fire accidents and machine damage caused by sparks**

Do not let sparks (spatter and flashes) reach flammable materials.

- **Prevent bumps and machine damage caused by drops**

When installing this machine on the workpiece or rack, make sure it is secure so that it cannot slip off.

- **The operation manual must be read**

Read this manual carefully before using the machine.

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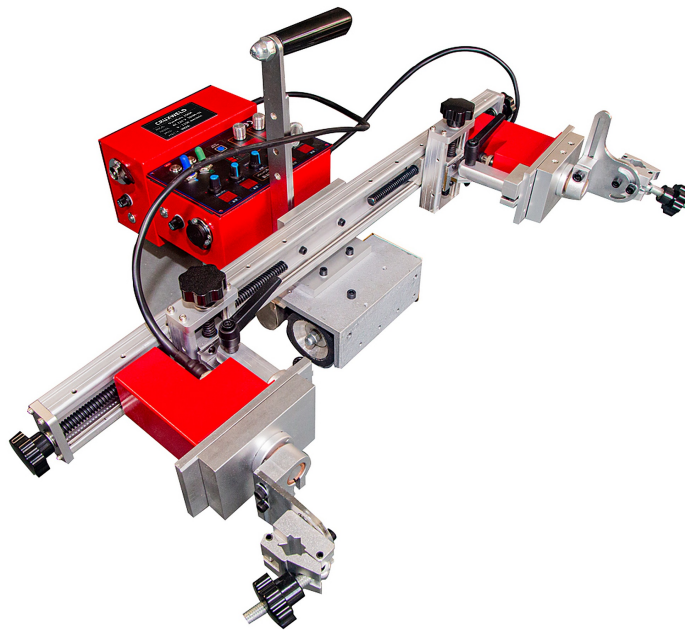
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1. Summary

The Cruxweld **DynaTwin 200M** CO₂ automatic welding trolley is widely used in industries such as shipbuilding, bridges, locomotives, steel structures and petrochemicals. It is suitable for welding a variety of welded structures such as stiffened plates, ribbed plates, intersections and box girders. Its main advantages include:

- It reduces labour intensity and improves the working environment.
- It boosts working efficiency to about 1.5 times that of manual welding.
- It avoids the poor weld quality caused by human factors. The defect rate of manual operation is generally around 20%, and there is practically no such defect rate when an automatic welding trolley is used.
- As a result, the overall benefit is nearly 200% higher than that of manual welding.
- The high level of automation ensures the stability of welding quality.
- No highly skilled technical workers are required.

The DynaTwin 200M box-girder welding trolley is designed for the lap joints of box girders with flat plates. During operation the trolley moves on the flat surface of the box beam and welds simultaneously with **two welding torches**, which not only improves working efficiency but also reduces welding deformation.



Cruxweld DynaTwin 200M double swing welding trolley

2. Features

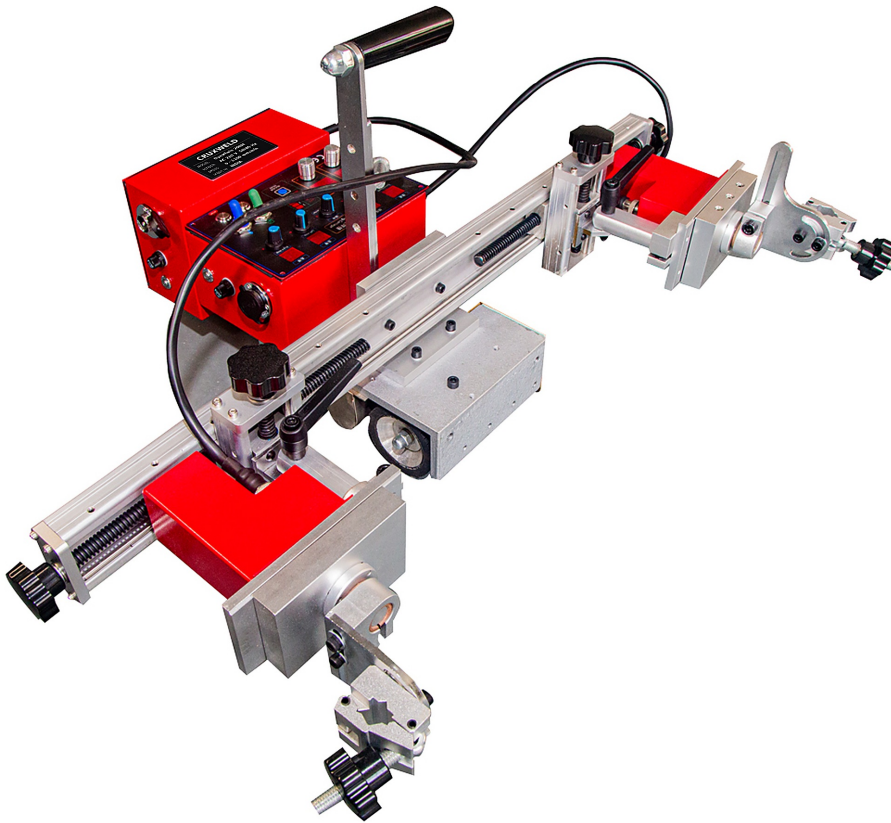
1. The trolley is suitable for double-sided continuous welding (corner joints and lap joints) of box-beam reinforcements. It is equipped with two welding torches controlled from the same control panel, and it is best that the two welding torches follow the same welding specification.
2. No track is needed for the movement — the set-up is simple.
3. A mechanical tracking system is used. Guide wheels run on the walls and plates of the box beam, allowing flexible tracking of the weld seam.
4. The trolley can travel on surfaces with an inclination of less than 20° and greater than 10°.
5. The welding torch fixture can be used with a water-cooled or an air-cooled welding torch.
6. Trolleys can be customised according to the dimensions of different U-shaped reinforcing parts.
7. It is equipped with permanent magnets that work together with the guide wheels, to better ensure that the welding torch travels along the weld seam.

3. Applicable Environment

Suitable for lap joints and corner joints of box beams.

Typical applications: box girders and box beams, stiffened and ribbed plates, ship panel sections, bridge girder assemblies, crane and structural-steel fabrication, and any long straight fillet or lap weld where two parallel seams have to be welded at the same time.

4. Outline Drawing



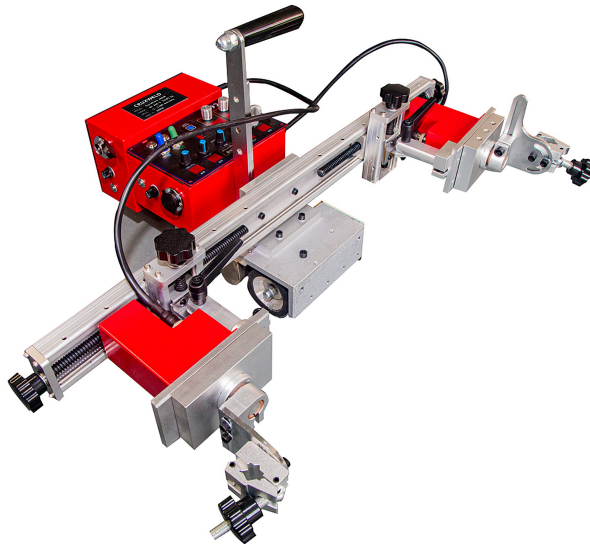
Overall view of the DynaTwin 200M trolley with both welding torch arms fitted

Overall dimensions (L × W × H): **320 × 270 × 270 mm** · Weight: **18 kg** · Supply: **AC 220 V**

5. Description of Main Components

Main body components: drive section, X-Y slider, welding torch holder, control box, control panel, guide wheels and other accessories.

No.	Component	Function
(1)	Drive unit	The power unit for the trolley's movement, consisting of four rubber wheels and copper gears.
(2)	X-Y slider part	A device that adjusts the position of the welding torch, allowing fine adjustment up, down, left and right during welding. Each of the two welding torches is adjusted separately.
(3)	Welding torch fixture	The clamping device of the welding torch, which can also adjust the angle of the welding torch.
(4)	Guide wheel	A device that guides the trolley along the welding line. There are two pairs of guiding mechanisms, in the horizontal and in the vertical direction, so that the trolley can be adjusted to the actual condition of the workpiece.
(5)	Control box	All movements of the trolley can be adjusted from here, and the two welding torches are controlled together. For details, refer to the operation method on the control panel.



Main assemblies of the DynaTwin 200M

6. Control Panel Instructions



DynaTwin 200M control panel — item numbers correspond to the descriptions on the following pages
(Image for reference only; the right is reserved to modify the design without notice.)

6.1 Switches and controls

(1) “Weld / Non-weld” switch

When the “Weld” position is selected, the machine enters the welding-ready state; press the “Start” switch to begin welding. When the “Non-weld” position is selected and the “Start” switch is pressed, the trolley only travels and does not weld.

(2) “Start” switch

When this switch is operated, the trolley begins to move. If the “Weld / Non-weld” selector switch is in the “Weld” position at that time, welding begins; if the selector is in the “Non-weld” position, only the trolley moves and no welding takes place.

(3) “Stop” switch

If the stop switch is pressed while the trolley is moving, the trolley stops all of its movements.

(4) Travel direction selection switch

Used to select movement forward or backward (up or down along the seam).

(5) Travel (walking) speed display

The speed value is shown digitally. The maximum walking speed is 1040 mm/min, corresponding to a digital display value of 999.

(6) Swing speed adjustment knob

Turning the knob clockwise increases the swing speed, up to a maximum of 1520 mm/min. The setting is indicated by the scale; the maximum scale value is 10.

(7) Swing amplitude (swing width) adjustment knob

Turning the knob clockwise increases the swing amplitude, up to a maximum of 20 mm. The setting is indicated by the scale; the maximum scale value is 10.

(8) Left dwell (left stop) time adjustment knob

The adjustment range is 0 to 2 seconds; the dwell time increases when the knob is turned clockwise.

(9) Right dwell (right stop) time adjustment knob

The adjustment range is 0 to 2 seconds; the dwell time increases when the knob is turned clockwise.

(10) Centre movement adjustment knob

When the knob is turned clockwise the swing centre moves to the right; when it is turned anticlockwise the swing centre moves to the left. The maximum range of movement is ± 5 mm.

(14) Swing mode selection knob

This knob selects the swing mode. The trolley has five swing modes. Except for the first one, which is the non-swing (straight travel) mode, the remaining four are shown below.



Swing modes 2 to 5 (mode 1 = no swing, straight travel)

7. Main Technical Parameters

Assembly	Item	Data / notes
Trolley	Walking mode	Four-wheel drive
	Overall specifications	320 × 270 × 270 mm
	Applicable workpiece	Box-beam reinforcements 200 – 800 mm
	Welding torch adjustment range	Horizontal: 65 mm; vertical: 65 mm Welding torch angle: $\pm 15^\circ$ · Welding torch operating angle: $\pm 45^\circ$
	Weld seam tracking	Guide wheels run along the side of the workpiece
	Weight	18 kg
Control box	Operating functions	Walking speed adjustment: 0 – 1200 mm/min
		Two welding torches can be used at the same time, or just one
		Start and stop function
	Power supply	AC 220 V

Swing function	Range
Swing speed	0 – 1520 mm/min (scale 0 – 10)
Swing amplitude (width)	0 – 20 mm (scale 0 – 10)
Left dwell time	0 – 2 s
Right dwell time	0 – 2 s
Swing centre shift	± 5 mm
Swing modes	5 (mode 1 = no swing)

8. Installation

8.1 Necessary equipment for welding

1. Two welding power sources and two wire feeding devices are required. To achieve the same welding quality on both sides, the two sets of equipment must use the same welding wire and the same welding specification.
2. A control power supply for the travel drive is required (AC 220 V).
3. Two CO₂ gas cylinders are required for welding.
4. Two CO₂ automatic welding torches (curved torches are preferred).
5. Other necessary tools.

8.2 Trolley connection method

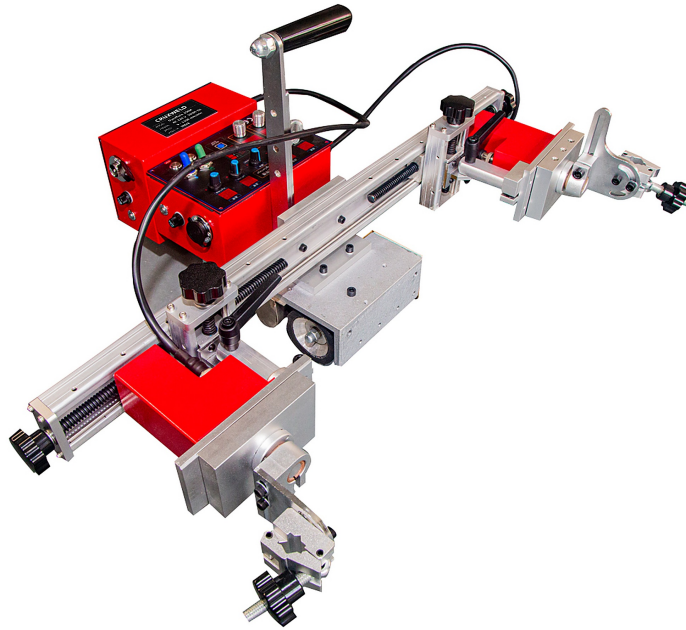
1. Connect the welding gun port to the wire feeder.
2. Connect the welding gun switch lead coming out of each of the two welding guns to the respective **2P** port on the control panel of the trolley.
3. Connect the control power line to the **3P** port on the control panel of the trolley.
4. Connect the control power connection line to the **AC 220 V** supply.



Attention

Switch off the welding power sources and the AC 220 V control supply before making or changing any connection. Make sure that all plugs are fully seated and that the earth (ground) connection of both welding power sources is correct.

8.3 Connection diagram



Position of the control box, the 2P welding-gun switch ports and the 3P control-power port on the trolley

Connection	Connected to
Welding gun port	Wire feeder (one per torch)
2P port (two off)	Welding gun switch lead of each of the two welding guns
3P port	Control power line
Supply lead	AC 220 V control power

9. Inspection and Maintenance

To ensure the long-term safe use of the welding trolley, it is necessary to inspect and maintain the trolley frequently and regularly.

1. Is there any dust?

The control box and the welding torch adjustment position switch should be kept clean and wiped frequently; there should be no dust.

2. Is there any accumulation of dirt?

Deposits should be removed from the ends, the welding gun heads, the guide wheels and the slider areas, as they can affect the safe operation of the trolley.

3. Are there any loose screws on the welding gun mounts and rails?

Loose screws can cause poor trolley movement and uneven weld seams. The screws should be checked frequently to make sure they are tight.

4. Are any joints, connecting wires, hoses or welding torches broken or damaged?

Check for loose joints and for broken or damaged connection wires, hoses and welding torches.

5. Is there any abnormal noise or overheating?

Regularly check the motor, the welding torches and so on for abnormalities.

6. Is there any wear on the rack and pinion track?

Wear on the rack can be a cause of poor travel and the rack should be replaced regularly.

7. Is the fuse blown?

If the power lamp does not light after wiring, check the fuse first.

8. Is the swing working properly?

Check the motor of the oscillator and all the adjustment knobs.

10. Faults and Countermeasures

1) The power lamp in the control box does not light

Cause	Repair measure
Poor contact of the control connecting wires	Replace the connection wire
The fuse in the control box is blown	Replace the fuse
The 220 V supply is switched off	Confirm the power supply

2) The welding start button does not work

Cause	Repair measure
Poor contact of the welding wire	Remove the welding slag
Poor switch at the start of the weld	Inspect and replace the switch, or inspect and repair the wiring
Poor drive unit	Inspect and repair the motor drive unit

3) The weld point of the welding torch does not match the target position

Cause	Repair measure
The welding torch holder is not aligned with the target position	Tighten the welding torch holder

4) The slider adjustment is not flexible

Cause	Repair measure
There is sediment in the slider area	Remove the deposits or add lubricating oil

5) The trolley stops during automatic welding

Cause	Repair measure
There is an obstacle on the trolley track	Remove the obstacle
There is sediment on the track wheel	Clean the track wheels

6) The welding stop switch is pressed and the welding arc is not extinguished

Cause	Repair measure
The welding stop switch has malfunctioned	Inspect and replace the switch
The self-protection circuit switch is in the “on” position	Set the self-protection circuit switch to the “none” position

7) The trolley does not travel along the vertical plane

Cause	Repair measure
The wheel position is not fixed properly	Reposition the wheels

8) The swing does not work properly

Cause	Repair measure
There is a problem with the swing motor	Check the motor, the wiring and the various adjustment knobs

If a fault persists, or is not listed above, stop work immediately and contact Cruxweld service.



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The specifications and technical content of this product are subject to change without notice.