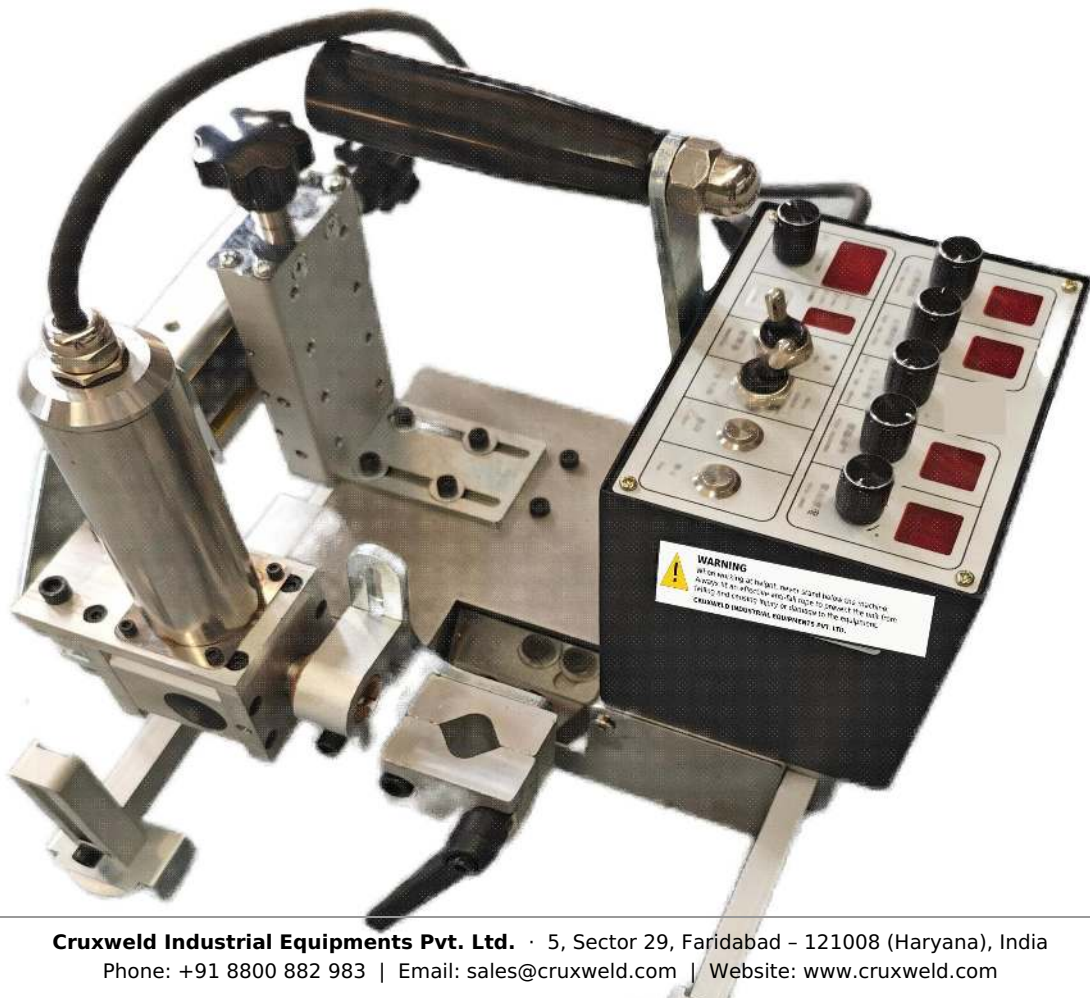


Welding Carriage

Dynex 5M

Instruction Manual



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This manual applies to the Cruxweld Dynex 5M welding carriage and its angle oscillator.
Read it completely before installing, operating or servicing the machine.

1. Introduction

Thank you very much for purchasing this Cruxweld product. Read this manual carefully to ensure the correct, safe and effective use of the equipment. When reading, first understand how to operate and maintain the equipment. On the job site, cooperation between colleagues is essential for safe and smooth operation. Be sure to read this manual, thoroughly understand it and comply with all the relevant operating and safety precautions.

Safety precautions before operation (be sure to read and fully understand this manual)

The product is designed to be safe, but it can still lead to serious accidents if it is operated incorrectly. Operating and maintenance personnel must read this manual carefully before operating, inspecting and maintaining the equipment.

- ★ Do not operate the machine in any way other than the methods of use described in this manual.
- ★ Do not use this equipment without thoroughly understanding the instructions in this manual.
- ★ For safety reasons, installation, maintenance, inspection and repair of the equipment must be carried out by trained, qualified personnel who fully understand welding machinery.
- ★ If you have any questions, please contact your Cruxweld dealer or our service department.

2. Safety statement

Many accidents are caused by disregard of the basic safety rules when operating, inspecting and maintaining equipment. Therefore, before operating, inspecting and maintaining this machine, carefully read, fully understand and comply with the safety measures and precautions described in this manual and marked on the machine.

- ★ Please read this manual carefully before use.
- ★ Observe the relevant laws and regulations concerning the installation of the power supply, the choice of installation location, the storage of high-pressure gas, the storage of products after pipe installation and welding, and the disposal of waste materials.
- ★ This manual contains the precautions that apply to safe operation of the machine. Understanding them before operation prevents accidents.



WARNING

Strictly comply with the following, in order to prevent serious casualties. This equipment is designed and manufactured with safety in mind; even so, be sure to comply with the warnings and safety precautions described in this manual, otherwise serious injury may result.

- ◆ Be sure to keep other people away from the operating space and the work area.
- ◆ This equipment generates a magnetic field around it, which may affect certain types of sensor and clock. For the same reason, no person with a cardiac pacemaker may approach the machine or the welding area while it is operating without the permission of a doctor.
- ◆ For safety, installation, maintenance, inspection and repair must be carried out by trained, qualified personnel who fully understand welding machinery.
- ◆ For safety, the machine must be operated by a person who fully understands these operating instructions or who has the necessary skills.
- ◆ This equipment must not be used for any purpose other than the arc welding operations described in this manual.
- ◆ This equipment must not be modified.
- ◆ Check that the surrounding area is safe before operation, to prevent accidents.
- ◆ When handling the equipment, hold it by the handle, move it smoothly and do not shake it.
- ◆ During welding, and immediately after operation, wear leather protective gloves when touching the equipment. Do not touch the welded surface before it has cooled.



WARNING — ELECTRIC SHOCK

Strictly observe the following to prevent electric shock accidents.

- ◆ Do not touch live parts; this causes serious electric shock or burns. When the input power is switched on, the input circuit and the device are live. Even after the input power is switched off, the capacitors remain charged. When the welding power source output is energised, the electrode, the metal base and the metal parts in contact with them are live.
- ◆ The welding power distribution box and the metal base, and the positioning fixtures electrically connected to them, must be earthed by a qualified electrician in accordance with the applicable regulations.

- ◆ Before installation, maintenance and inspection, cut off all power at the input end. After the input power has been cut off, the capacitors are not discharged immediately, so confirm that there is no residual voltage before maintenance and inspection.
- ◆ Carry out maintenance and inspection regularly; repair damaged parts before continuing operation.
- ◆ Do not use cables of insufficient rating or cables with safety defects.
- ◆ Cable connectors must be firm, tight and insulated. Connect the welding return cable firmly to the metal base, as close to the workpiece as possible.
- ◆ Do not use the equipment with the housing or cover plate removed.
- ◆ Be sure to cover the power input and output terminals before use.
- ◆ Do not use damaged or wet protective gloves, and do not wear wet clothing.
- ◆ Do not work outdoors with the equipment after rain, and do not stand on or touch a wet floor while working.
- ◆ Be sure to use a lifeline when working at height.
- ◆ When the equipment is not in use, switch off the power to all facilities and cut off the input power.
- ◆ Be sure to install a safety switch or breaker at the input power supply end.
- ◆ Check the input voltage before use. The allowable range of the input voltage is $\pm 10\%$ of the rated voltage. It is strictly prohibited to use the equipment outside this range.
- ◆ The aviation plug on the rubber-sheathed cable is threaded; it must be firmly tightened, and no external force may pull on the power plug during use.
- ◆ Be sure to earth the AC 220 V power socket that supplies the equipment.
- ◆ In the following cases the power supply must be cut off, operation stopped, and a qualified electrician asked to repair the machine: the cable is damaged or worn; damage or an accident is caused by leakage of water or other liquids; a fault appears even though the machine has been operated exactly as described in this manual.



WARNING — ARC RAYS AND NOISE

Use protective equipment to protect yourself and others from arc rays, spatter, slag and noise.

- ◆ Arc light contains harmful ultraviolet and infrared rays that may cause eye inflammation or burns.
- ◆ Spatter and slag can damage the eyes and cause burns; noise can cause hearing impairment.
- ◆ During welding, or while monitoring welding, wear anti-glare goggles that effectively protect the eyes.
- ◆ The protective equipment worn during operation should be complete: leather gloves, long-sleeved clothing, leg covers, leather apron, mask and safety shoes. When the noise level is too high, wear hearing protection.



CAUTION — GAS CYLINDERS

Strictly observe the following rules to prevent a gas cylinder from tipping over or exploding. A gas cylinder that tips over can cause an accident resulting in death or serious injury; a cylinder contains high-pressure gas, and improper handling can lead to explosion or violent gas release.

- ◆ Dispose of gas cylinders in accordance with the applicable high-pressure gas regulations.
- ◆ Do not expose gas cylinders to high temperatures.
- ◆ Place the cylinder on its special support stand so that it cannot tip over.
- ◆ Do not strike an arc on the gas cylinder; do not hang the torch on the cylinder, and do not allow the electrode to touch it.
- ◆ When opening the cylinder valve, keep your head away from the outlet.
- ◆ When the cylinder is not in use, fit the protective cap.
- ◆ Use a gas flow regulator made or recommended by the welding machine manufacturer, and read its instructions before use.
- ◆ Do not use a leaking or damaged gas cylinder, and use cylinders only for their specified purpose.
- ◆ Do not apply oil or grease to the cylinder valve.
- ◆ If the cylinder valve is difficult to open, contact the gas supplier.



CAUTION — ROTATING PARTS

Strictly observe the following to prevent injuries caused by rotating parts.

- ◆ Keep hands, hair and clothing away from the cooling fan of the welding power source and from the feed rollers of the wire feeder, otherwise they may be caught.
- ◆ While the welding wire is being fed, do not bring your head close to the torch end, otherwise the wire may injure your eye.
- ◆ A wire reel that comes loose may cause injury.
- ◆ Do not use the equipment with the housing or cover removed.
- ◆ Only a person who fully understands the equipment and has passed the relevant training may remove the housing for maintenance, inspection or repair.
- ◆ When storing or moving a wire reel, or fitting it to the wire feeder, secure the end of the wire to the reel with the wire stop.
- ◆ When the wire is inserted into the guide wheel of the wire feeder, tighten it firmly so that it cannot come loose.



CAUTION — FIRE AND EXPLOSION

Strictly observe the following rules to prevent fire and explosion.

- ◆ Spatter and the hot metal base after welding can cause a fire.
- ◆ If the welding return cable or other conductors are poorly connected, or the circuit makes poor contact, overheating resistance can cause a fire.
- ◆ Striking an arc on a container that holds petrol or other flammable material can cause an explosion.
- ◆ Welding sealed containers or pipes will cause them to burst.
- ◆ Do not weld where spatter can reach flammable material, and do not weld near flammable gas.
- ◆ Tighten the cable joints firmly, and connect the welding return cable to the metal base as close to the weld as possible.
- ◆ Do not weld gas pipes that are filled with gas, and do not weld sealed containers or pipes.
- ◆ The welding area must be equipped with fire extinguishers.
- ◆ Do not carry lighters, matches or other flammable items during and after welding.
- ◆ This product is not explosion-proof and must not be used in explosion-hazard areas, otherwise a safety accident may occur.

3. Product overview

The Cruxweld **Dynex 5M** is a rubber-wheel driven, trackless fillet welding carriage fitted with an angle oscillator (weaver). The model designation is read as follows: rubber-wheel driven fillet welding carriage, third-generation control, one welding torch, angle swing rod, no track required.

This product is widely used in steel structures, construction machinery, nuclear power engineering, pressure vessels, oil tank installation, pipeline engineering, shipbuilding, environmental protection engineering, civil air-defence engineering, automobile manufacturing, power engineering, casting machinery and engineering installation. Typical applications are steel structure welding, plate butt welding, fillet welding, shipbuilding welding, steel structure vertical welding and the welding of special parts.

Cruxweld products are designed to reduce the labour intensity of welders, improve the quality of welds and increase working efficiency. In short, wherever there is welding, there is a place for this machine: the welding carriage works like a welder's hand that never tires and is always steady.

Advantages of the Dynex 5M in service:

1. It reduces the labour intensity of welders, improves the working environment and reduces the risk of occupational illness.
2. A high degree of automation: all parameters are shown on digital displays and are simple to understand, so that even a general worker quickly produces good welds.
3. Improved working efficiency: a single carriage works about 1.5 times faster than manual welding. A skilled operator can run several units at the same time, which greatly improves labour utilisation.
4. It avoids the poor weld quality caused by human factors. Manual operation has a defect rate of about 20%, while the carriage produces practically no weld defects, so the overall benefit is close to 200% higher than manual welding.
5. Internal permanent magnet with a friction-drive, high-temperature-resistant rubber wheel. The magnet does not lose its holding force below 300 °C, and the special structure and magnetic pole arrangement ensure that the magnetic field has no effect on the weld. Wear is low and no track has to be laid, which makes the machine convenient to use.
6. This equipment can only be used on magnetically permeable workpieces, such as carbon steel, chromium-molybdenum steel and low-alloy steel. Non-magnetic materials such as stainless steel can also be welded if the corresponding tooling is fitted.
7. The main application is continuous gas-shielded welding (CO₂, MAG, MIG). The carriage works directly with the customer's existing welding machine, wire feeder and welding torch, so no additional investment is required.
8. All controls have an anti-interference design and can also be matched with TIG (argon arc welding), plasma cutting and flame cutting; the nozzle only has to be held in the jig.
9. The product can also be supplied with a battery pack for mobile power supply, which allows quick welding operations in many situations.
10. Interrupted (skip) welding is also possible: the carriage welds at the set speed and, where no weld is required, travels at maximum speed to the next welding position. Only the skip-welding controller has to be selected.

4. Configuration and function

The standard configuration of the Cruxweld Dynex 5M welding carriage includes: host machine ×1, power supply unit ×1, angle oscillator ×1, two-dimensional adjustment assembly ×1, universal welding torch fixture ×1, tool kit ×1, manual ×1 and packing case ×1. Each component is described below.

① Host machine (Dynex 5M)



The host machine and the controller form an integrated structure. The mechanical part comprises the main frame body and the travelling system. The main frame is made of cast aluminium alloy and consists of the handle, dust cover, flame baffle and external support wheel frame. A large proportion of high-strength aluminium alloy is used, so the assembly is strong, light in weight and accurately made.

The travelling system consists of the drive motor (long-life motor rated for more than 100,000 working hours), the reduction gear, the travelling rubber wheels and the high-strength magnet. Together they hold the host machine on the workpiece and provide forward and reverse travel.

The controller part comprises the housing, the control panel, the program control board and the integrated control wiring. The controller and the host machine use integrated control, so operation is more compact and lighter and the cumbersome plugging and unplugging of separate control cables is avoided. The program control board uses a large number of high-grade chips for stable performance and strong anti-interference capability. The control panel uses a fully digital display, and knob control that is flexible and comfortable to use. All external cable interfaces are aviation plugs with an anti-misinsertion design, so the wiring cannot be confused.

② Power supply unit



The power supply includes: three-pin power cable ×1, transformer ×1, housing ×1, safety component ×1 and control power cable ×1 (standard length 5 metres). The anti-misinsertion design has no positive or negative orientation to confuse. The three-pin power cable is plugged directly into an AC 220 V 50 Hz socket; its length is 1.5 metres. The transformer input voltage is AC 220 V 50 Hz and the output voltage is DC 24 V (an AC 110 V version can be supplied to order). The low operating voltage ensures the safety of both the equipment and the operator.

③ Safety component

The safety component is a $\phi 5 \times 20$ mm, 1 A fuse. In the event of leakage or overload, the fuse blows and so protects both the equipment and personnel.

④ Ignition control cable

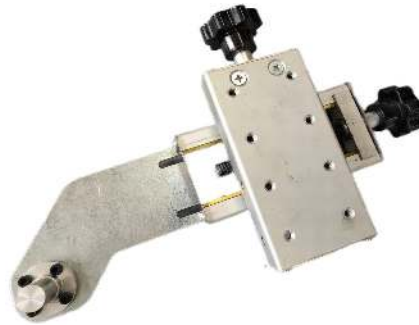


The machine is supplied with a two-pin welding torch ignition control cable (standard length 1 metre). Remove the plastic covering of the welding torch switch, connect the plug wire in parallel with the switch wire of the torch trigger, and insulate the joint. Connect the plug to the corresponding two-pin aviation socket on the host machine (the socket is marked on the machine). The torch ignition is then controlled by the carriage. This does not affect manual ignition from the original torch trigger.

⑤ Angle oscillator (weaver)



⑥ Two-dimensional adjustment assembly



The two-dimensional device includes the up-and-down adjusting slide table, the left-and-right adjusting slide table, the transverse adjusting plate and the steering shaft. The upper/lower and left/right adjusting slide tables have an aluminium alloy shell with a built-in double bearing and a T-form screw, so that they turn with little effort. The slide block and slideway are designed with a dovetail groove and both sides are lined with copper strips, which makes the movement easier and more stable. A large proportion of aluminium alloy is used, giving high hardness and low weight, and making it easy to adjust the position of the welding torch.

⑦ Universal welding torch fixture



The universal welding torch clamp includes the torch clamp, the torch plate, the shaft clip and the heat insulation sleeve. A large proportion of aluminium alloy is used, giving high hardness, low weight and easy handling. The torch holder diameter is $\varnothing 18 - \varnothing 25$ mm, which corresponds to the outer diameter of the tip of a 200 A – 500 A welding torch.

⑧ Tool kit



The standard tool kit supplied with the Dynex 5M contains:

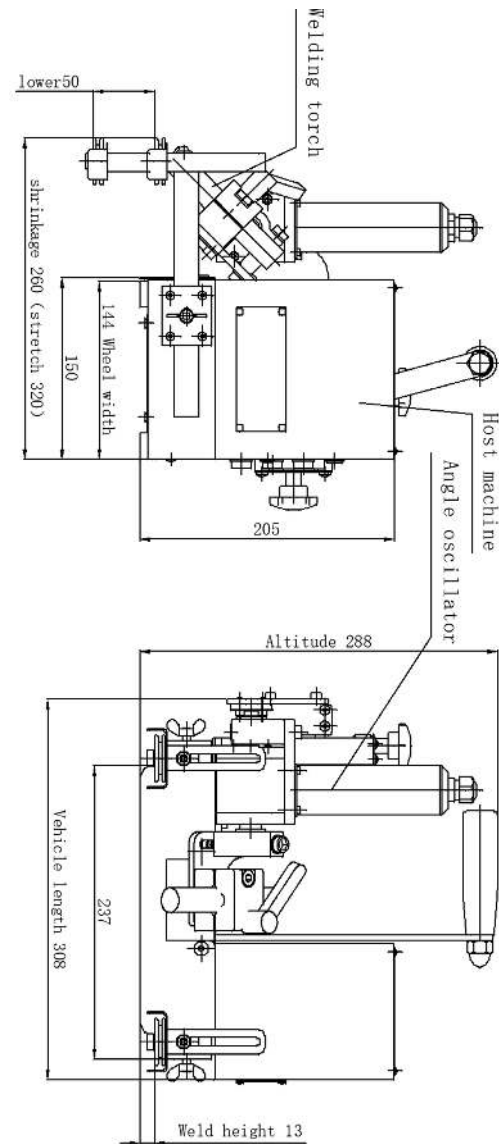
- L-shaped hexagon wrenches, sizes 3 mm, 4 mm, 5 mm and 6 mm — one of each;
- $\phi 5 \times 20$ mm, 3 A fuses — 10 pieces;
- Anti-fall wire rope $\phi 3$ mm, length 5000 mm — 1 piece;
- Stainless steel rope clamps — 2 pieces;
- Stainless steel climbing buckles — 2 pieces.

⑨ Packing



Packing: wooden case ×1, containing host machine ×1, power supply unit ×1, angle oscillator ×1, two-dimensional adjustment assembly ×1, universal welding torch fixture ×1, tool kit ×1, manual ×1. The package size is 510 × 410 × 420 mm (length × width × height) and the gross weight is 16.4 kg including the product. The contents of the wooden case are packed in sealed bags to protect them against rain and moisture.

Dimension drawing (all dimensions in mm)

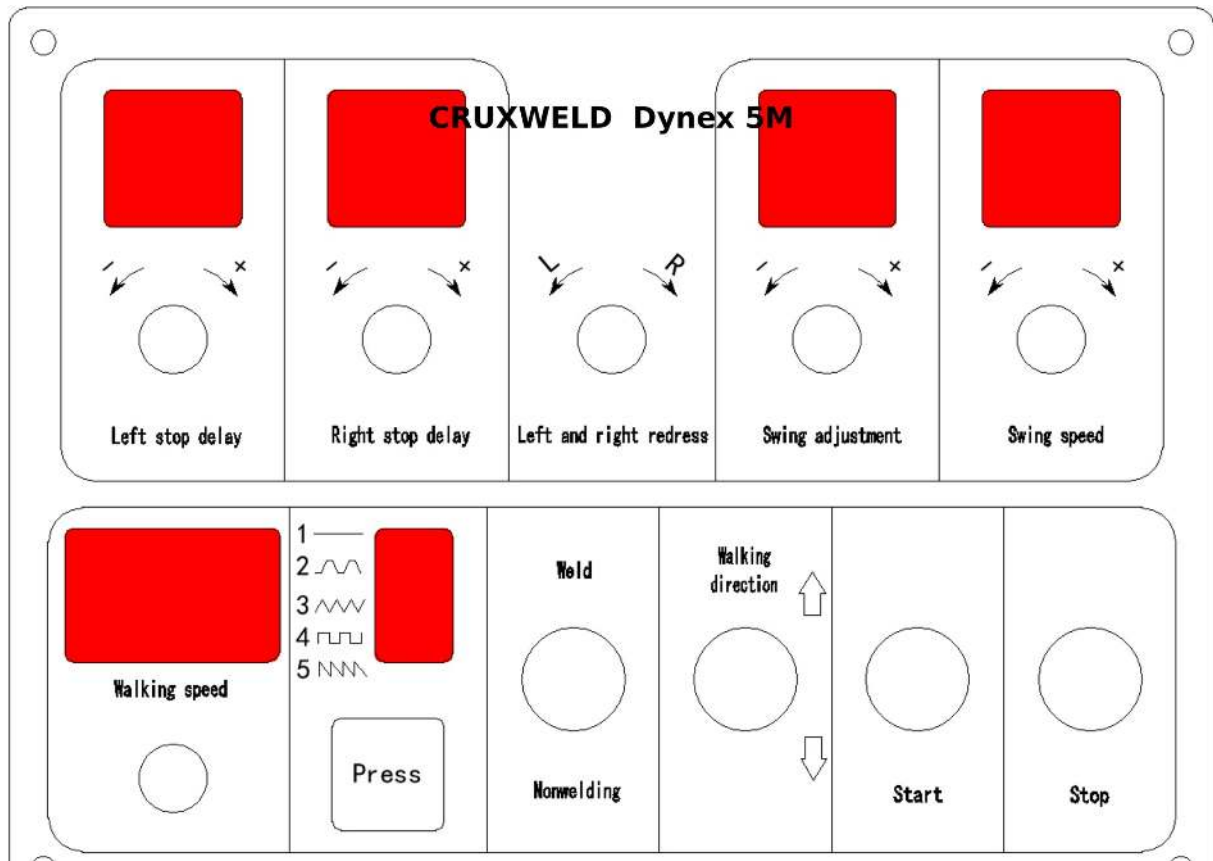


Overall dimensions of the Dynex 5M host machine with angle oscillator and welding torch

5. Technical parameters

Item		Content	Remark
External power supply		AC 220 V, 50 Hz	voltage tolerance $\pm 10\%$
Operating voltage		DC 24 V	actuating voltage
Ambient temperature		$-20\text{ }^{\circ}\text{C}$ to $+60\text{ }^{\circ}\text{C}$	dry bulb temperature
Ambient humidity		0 - 90%	relative humidity
Driving mode		Rubber wheel drive	host machine travel
Welding (travel) speed		0 - 990 mm/min	digital display
Minimum plate thickness for adhesion		4 mm	magnetic metal only
Equipment weight		9.2 kg	host machine
Welding torch adjustment range	Up and down	65 mm	adjusting slide, up and down
	Left and right	140 mm	left and right slide
	Swing angle	$\pm 60^{\circ}$	rotatable
	Travel (lead) angle	$\pm 25^{\circ}$	angle of nozzle travel
	Oscillating form	Angular pendulum	swing mode
Operating function	Oscillating speed	0 - 100	digital display, analogue value
	Left and right dwell	0 - 99	digital display, analogue value
	Swing angle	30°	digital display, analogue value

6. Control specification



Dynex 5M control panel

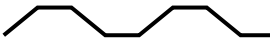
- ◆ The control system uses a fully digital display: all parameters are shown digitally, and the last settings are memorised. After the power is switched off, the previous data is restored automatically the next time the machine is used. Five welding (weave) forms are available.
- ◆ “Stop / Start” is controlled by the reset buttons; “Walking direction” and “Welding / non-welding” are controlled by the three-position switches; the welding form is set with the “Press” button. All remaining functions are set with knobs, which gives the most flexible and comfortable operation.
- ◆ “Swing adjustment”, “Swing speed”, “Walking speed”, “Left and right redress”, “Left stop delay” and “Right stop delay” are shown as digital display analogue values.

- ◆ **“Stop” switch:** while the host machine is moving, pressing “Stop” stops all actions, including welding and wire feeding. In the “Stop” state the operating parameters can be set, and the machine then runs directly with those settings when it is started.
- ◆ **“Start” switch:** when “Start” is pressed, the host machine begins to travel. If the “Welding / non-welding” switch is in the “Welding” position, welding starts. If the switch is in the “Non-welding” position, the host machine only travels and simulates the welding action without striking an arc.
- ◆ **“Welding / non-welding” switch:** select the “Welding” position to enter the welding-ready state; welding then begins as soon as the “Start” switch is operated. In the “Non-welding” position the machine travels and simulates the welding action without igniting the arc.
- ◆ **“Walking direction” switch:** selects forward or backward travel of the host machine.
- ◆ **“Walking speed”:** displayed as an analogue value; the knob adjustment range is 0 – 100 and the speed range is 0 – 990 mm/min. Turning the knob to the left reduces the speed; turning it to the right increases the speed.
- ◆ **“Swing speed”:** displayed as an analogue value; the knob adjustment range is 0 – 99 and the speed range is 0 – 2700 mm/min. Turning the knob to the left reduces the speed; turning it to the right increases the speed.
- ◆ **“Swing amplitude” (swing adjustment):** displayed as an analogue value; the adjustment range is 0 – 99 and the angle range of the oscillator is 0 – 30°. Turning the knob to the left reduces the angle; turning it to the right increases it. At the minimum setting, 0 means the oscillator does not swing, 1 corresponds to about 1.5° and 99 corresponds to 30°.
- ◆ **“Left and right redress”:** adjusted with the analogue knob while the oscillator is swinging. Turning the knob to the left moves the swing centre to the left; turning it to the right moves the centre to the right.
- ◆ **“Left stop delay”:** displayed as an analogue value; the adjustment range is 0 – 99 and the time range is 0 – 4 s. Turning the knob to the left shortens the dwell time; turning it to the right lengthens it.
- ◆ **“Right stop delay”:** displayed as an analogue value; the adjustment range is 0 – 99 and the time range is 0 – 4 s. Turning the knob to the left shortens the dwell time; turning it to the right lengthens it.

Welding (weave) forms

The “welding form” setting selects how the torch is weaved. Five forms are provided. Press the “Press” key on the control panel; the selected form 1 – 5 is shown on the digital display and is marked on the left-hand side of the panel.

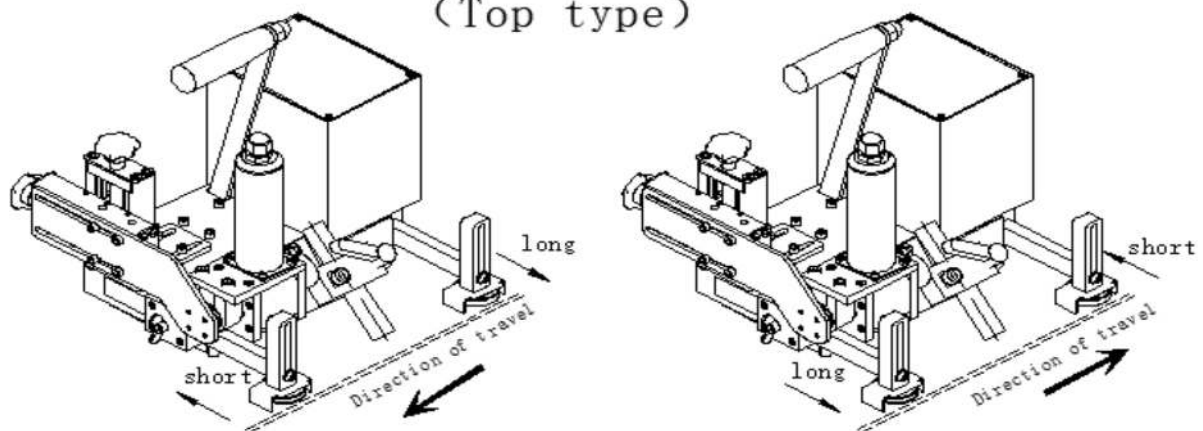
Note: the welding form may only be changed while the host machine is in the “Stop” state.

No.	Weave pattern	Description
1		Straight line (no weave)
2		Trapezium
3		Positive saw tooth
4		Square wave (“Great Wall”)
5		Mitre saw tooth

7. External mounting

(Top type)

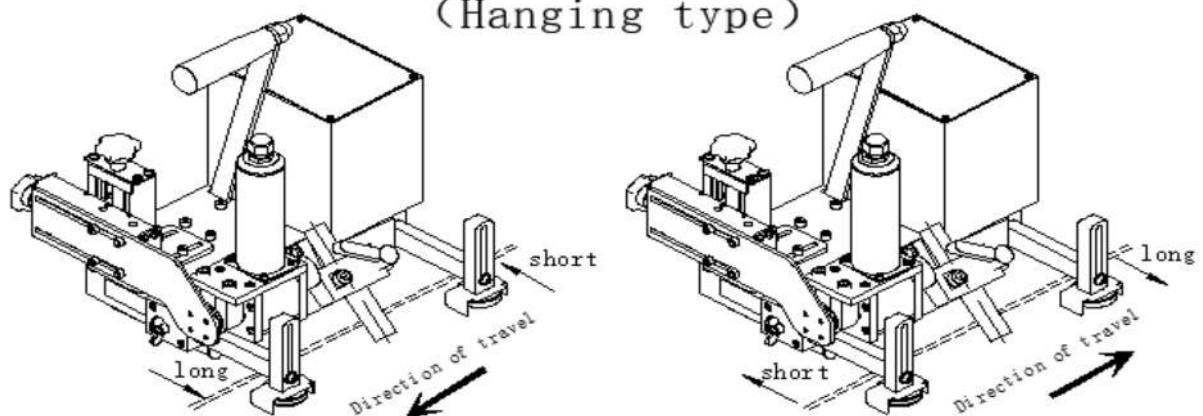
(Top type)



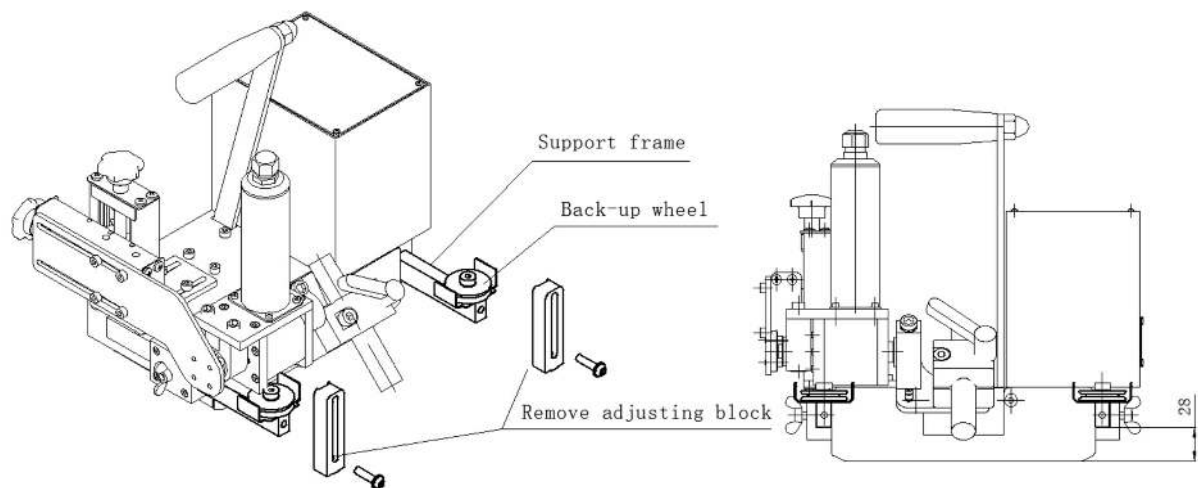
Note: it is recommended that the difference in adjustment between the two ends of the external support is about 5 mm, and that this difference is not made too large. Too large a difference makes the torque on the equipment too high and can damage the power system.

(Hanging type)

(Hanging type)



Note: it is recommended that the difference in adjustment between the two ends of the external support is about 5 mm, and that this difference is not made too large. Too large a difference makes the torque on the equipment too high and can damage the power system.

(Support wheel height adjustment)

Note: when the top type is used and the weld height is too great, the upper and lower adjustment aluminium block can be removed and the support wheel attached directly to the external support rod.

8. Welding run

- ◆ Place the machine on the workpiece (the example here is right-angle fillet welding, top type). With the welding torch fixture positioned roughly over the weld area, adjust the external mount of the host machine to the correct position as shown in the drawings above, so that the four wheels of the host machine are fully attracted to the steel plate, and push the whole machine onto the top of the workpiece. If the wheels are suspended clear of the plate, or the external mount is not correctly positioned, the magnetic hold will be poor or the machine will run off line. The same principle applies when welding a box section in the hanging position. **Note: rough handling is strictly prohibited, as it damages the external pulley.**
- ◆ Fit the anti-fall wire rope, depending on the application, whenever it is needed.
- ◆ Confirm the choice of handle for the welding torch fixture. The bolts and handles assembled on the torch fixture as supplied suit a 350 A welding torch ($\phi 19$ mm). If a 500 A welding torch ($\phi 25$ mm) is used, replace them with the M8 $\times$ 40 hexagon bolt and the seven-shape handle from the tool kit, so that the thread is not too short and the torch clamp is not damaged.
- ◆ Clamp the welding torch protective cover in the torch fixture. Clamp the fixture as far up the protective cover as possible, so that the oscillator is kept well away from the weld pool. This prevents high-temperature damage to the internal parts of the oscillator and makes it harder for spatter to jam the oscillator.

- ◆ Adjust the height and angle of the welding torch and set the torch to the weld. The distance between the torch protective sleeve and the welding wire is generally about ten times the diameter of the welding wire; a larger multiple effectively reduces the chance of spatter blocking the nozzle.
- ◆ Lay the welding torch cable smoothly, without bending or dragging it, according to the wire feeding conditions of the torch. Leave enough free movement for the motion of the oscillator.
- ◆ Set the control panel three-position switch to the non-welding position and run a preliminary simulation. Then set the welding form, weave width, swing speed, travel speed and the left and right dwell times.
- ◆ Press the “Start” button on the control panel to begin welding. Observe the formation of the weld and fine-tune the relevant parameters until the weld reaches the ideal condition.
- ◆ Record the weld parameters, the welding machine parameters and the control panel parameters, so that they can be used directly the next time the same weld is made.
- ◆ If the welding machine has an arc-restart function, it must be switched off, otherwise welding will not stop.
- ◆ For argon arc welding, choose or match a suitable argon arc wire feeding device.

Note: for a gas-shielded welding torch, an argon arc welding torch or plasma cutting control, the original torch or cutting tool trigger must be opened by hand and the control cable of the carriage connected in parallel with the control wire in the handle (polarity does not matter), so that ignition control is taken over by the carriage.

9. Maintenance

In order to ensure long-term safe and stable operation of the equipment, some key parts need regular or occasional maintenance. Because working and environmental conditions differ, users should set their own maintenance intervals to suit their conditions.

- ◆ Check regularly whether the surfaces of the power cord and control cables are scratched, damaged or exposed, so as to avoid injury or equipment failure.
- ◆ Check the aviation plugs and sockets of the control cables regularly for foreign matter, contamination or looseness, so as to avoid operating failures.
- ◆ Check regularly whether any bolts on the equipment are loose or slipping; tighten or replace them as required, so as to avoid instability or failure of the equipment.

- ◆ Pay attention to the travelling rubber wheels, the oscillator and the up-and-down adjustment device: check for spatter or debris, so as to prevent the equipment from being jammed by foreign bodies, which causes instability or failure.
- ◆ Open the side cover of the oscillator gear box regularly, check for welding slag, clean out any impurities and apply grease. This effectively prevents the swing mechanism from locking and reduces mechanical wear.
- ◆ Clean the impurities from the slide block of the two-dimensional slide table regularly. Grease the slider and the screw to make sliding easier and reduce wear. If the slider gap becomes large, it can be adjusted with the three set screws on the shell.
- ◆ Open the side cover of the host machine regularly to check and adjust the sprocket and chain tension of the travelling drive. This effectively reduces mechanical wear and also makes the host machine travel more smoothly. To adjust the chain tension, loosen the assembly screw of the middle press wheel and adjust the tension with the middle set screw.
- ◆ Check the rubber-and-iron wheel set in good time and make sure that no foreign matter from the welded workpiece is picked up. Clean it off promptly to avoid material sticking to the wheel, which causes jamming and damage to the drive motor.

Recommended maintenance intervals

Item	Interval
Cables, plugs and sockets — visual check	Before every shift
Rubber wheels and magnet face — clean off spatter	Daily
Bolts and torch fixture — check tightness	Weekly
Two-dimensional slide — clean and grease	Monthly
Oscillator gear box — clean and grease	Every 3 months
Drive chain and sprocket — check tension	Every 3 months

10. Faults and remedies

◆ The control panel display does not light up (no power)

Cause of occurrence	Repair measure
The control cable connector makes poor contact	Check the connector or replace the control cable
The fuse has blown	Change the fuse
The AC 220 V power supply is faulty	Check and confirm the power supply

◆ The start switch does not work during welding

Cause of occurrence	Repair measure
The welding wire makes poor contact	Remove the slag
The drive motor has burned out	Replace or repair the drive motor
The welding / non-welding switch is damaged	Check the wiring or replace the switch

◆ The weld is not in line with the target position

Cause of occurrence	Repair measure
The welding torch fixture is not tightened	Tighten the grip and the bolts of the fixture
The gap between the upper and lower adjustment slides is too large	Adjust the three set screws outside the slide shell

◆ The welding stop switch is operated but the arc is not extinguished

Cause of occurrence	Repair measure
The welding stop switch is faulty	Check and replace the switch
The self-protecting loop switch of the welding machine is in the "on" position	Set the self-protecting loop switch to the "off" position

◆ **The host machine travels unevenly or stops during operation**

Cause of occurrence	Repair measure
Spatter or debris on the travelling surface or the rubber wheels	Clean the wheels and the workpiece surface
The drive chain is too loose	Adjust the chain tension with the middle set screw
The wheels are not fully in contact with the plate	Re-adjust the external support so that all four wheels sit on the plate

◆ **The oscillator does not swing, or the weave is irregular**

Cause of occurrence	Repair measure
The swing amplitude knob is set to 0	Increase the swing amplitude setting
The oscillator control plug is loose or dirty	Check the aviation plug and clean the contacts
Welding slag inside the oscillator gear box	Open the side cover, clean the gears and re-grease

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.