Red-D-Arc
Weld Automation™

Red-D-Arc Weld Automation™

OPERATION & MAINTENANCE MANUAL

WELDING ROTATOR

MODEL: CR-30

Certificate – Сертификат – 證明書 – Certificat – 증명서 – شهادة

Certificate of Compliance

No. 3J200102.YLI0013

Certificate's Holder:	Yixing Linde Import And Export Co., Ltd. No.173 Yangxian E. Rd, Yixing City Jiangsu, P.R. China
Manufacturer:	Wuxi Weldsuccess Automation Equipment Co., Ltd. 63-2, Changtai International Industrial Park, Xishan District, Wuxi City, Jiangsu, P.R. China
Certification ECM Mark:	ENTE CERTIFICAZIONE MACCHINE – European Conformity – SAFETY COMPLIANCE MARK – Type Approved
Product: Model(s):	Welding Rotator (see the following annex I)
Verification to:	Standard: EN ISO 12100:2010, EN 60204-1:2018 related to CE Directive(s): 2006/42/EC (Machinery) 2014/35/EU (Low Voltage)

Remark: The product(s) has been verified on a voluntary basis. The product(s) satisfies the requirements of the Certification Mark of ECM, in reference to the above listed Standard(s). The above Compliance Mark can be affixed on the product(s) accordingly to the ECM regulation about its release and its use. The regulation can be found at www.entecerma.it. This Certificate of Compliance can be checked for validity at www.entecerma.it
This verification doesn't imply assessment of the production of the product(s).

Additional information, clarification about the CE Marking:

We attest that a TCF for the CE Marking process is in place. Whereas the Manufacturer is Responsible to start the CE *Marking Certification Procedure* and to perform all the necessary activities, as required by the Directive before placing the CE Mark on the product(s).

Date of issue 02 January 2020

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Expiry date 01 January 2025

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Annex I

No. 3J200102.YLI0013

Model(s):

CR-5, CR-10, CR-20, CR-30, CR-40, CR-50, CR-60, CR-80, CR-100, CR-120, CR-160, CR-200, CR-300, CR-500, CR-1200, SAR-5, SAR-10, SAR-20, SAR-30, SAR-40, SAR-50, SAR-60, SAR-80, SAR-100, SAR-150, FT-10, FT-20, FT-30, FT-40, FT-50, FT-60, FT-80, FT-100, FT-150, FT-200, HGK, HGZ ALL SERIES TYPE

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WARNING

This machine can be injurious to yourself and others. Take precautions when welding. Ask for your employer's safety practices which should be based on manufacturer's hazard data.

ELECTRIC SHOCK can kill.

- Install and earth the welding unit in accordance with applicable standards.
- Do not touch live electrical parts or electrodes with bare skin, wet gloves or wet clothing.

FUMES AND GASES can be dangerous to health.

- Keep your head out of the fumes.
- Use ventilation, extraction at the arc, or both, to keep fumes and gases from your breathing zone and the general area.

ARC RAYS can injure eyes and burn skin.

- Protect your eyes and body. Use the correct welding screen and filter lens and wear protective clothing.
- Protect bystanders with suitable screens or curtains.

IMPORTANT to read the user manual.

- Disregarding the safety regulations and guidelines can result in severe injury or heavy damage to the positioner or work pieces.
- Disregarding the safety regulations and guidelines can be life-threatening.
- Important information used to prevent errors.

READ AND UNDERSTAND THE INSTRUCTION & SERVICE MANUAL BEFORE INSTALLINGAND OPERATING.

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INSTRUCTION MANUAL

1. SAFETY FUNCTIONS

Users of handling equipment have ultimate responsibility for ensuring that anyone who works with or near the equipment observes all the relevant safety precautions.

The following recommendations should be observed in addition to the standard regulations that apply to the work place.

All work must be carried out by trained personnel who are familiar with the operation of the CR series Welding Rollers. Incorrect operation of the equipment may lead to a hazardous situation which can result in injury to the operator and damage to the equipment.

Staying under the work piece during the working cycle is absolutely forbidden! Staying on top of the work piece during the working cycle is forbidden without the safety equipment!

1. Anyone who uses the CR Rollers must be familiar with

- its operation
- the location of the emergency stop
- its function
- relevant safety precautions

To make this easier each switch, push button or potentiometer is marked with a symbol that indicates its function when activated.

2. The work place must

- be suitable for the purpose
- be free from loose objects
- be clean, because dust and welding flux can make the frictional force of the roller

3. Personal safety equipment

- always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
- do not wear loose-fitting items, such as scarves, bracelets, rings etc., which could become trapped or cause burns

NOTE! THE FUNCTION IS PHASE SENSITIVE!

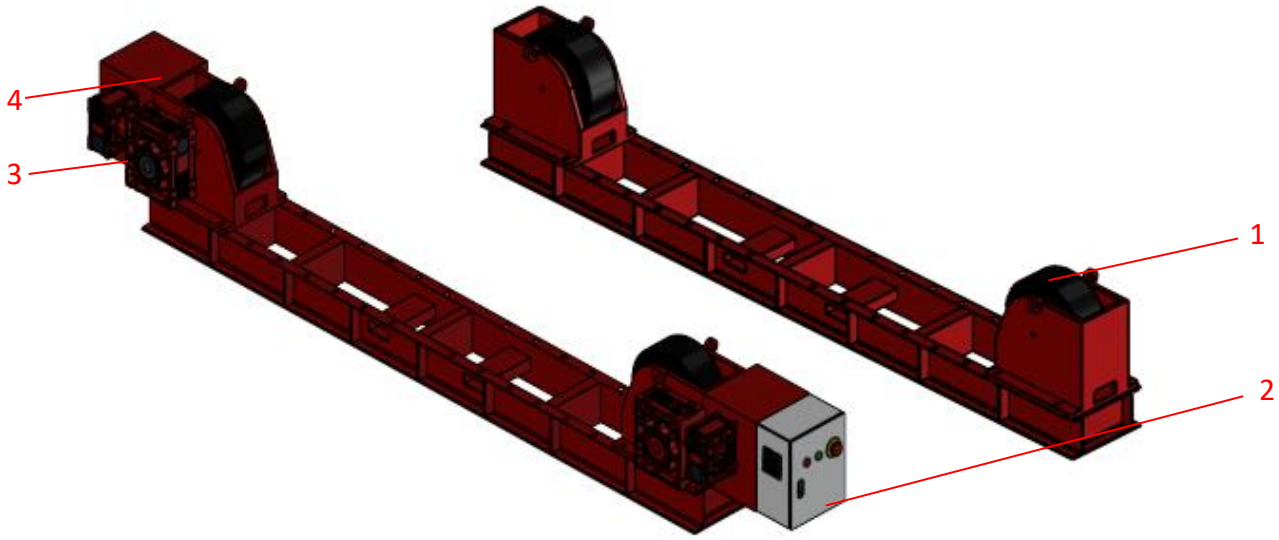
CONDUCT DAILY INSPECT ON DEVICE BEFORE START.
WARNING INSTRUCTION ON OPERATOR’S MANUAL TO REMIND OPERATOR DURING OPERATION.

2. INTRODUCTION

2.1 General

CR Welding Rollers are a basic solution for turning of the work pieces. They occupy little space and feature quick and easy to operate.

All models meet or exceed the EN occupational safety requirements.



1. Turning wheels-PU material .
2. Electrical Cabinet.
3. Main Gear box (It has to fuel before using).
4. Motor under the cover.

PS: Hand control and foot pedal will be shipped together.

2.2 Specification

Model		CR-30
Max capacity	Ton	30 Ton
Rotation speed	mm/min	100-1000 mm/min
Motor power	kw	2*1.1 KW
Tank diameter range	mm	570-6800 mm
Input voltage	V	380 to 480 V, 50/60 Hz, 3 phase
Machine type		Bolt adjustment type

2.3 Warning Information Stickers

S/N	Information Text	Picture of sticker
1.	ELECTRIC BOX ELECTRICITY DANGEROUS	
2.	DO NOT OVERLOAD! CHECK CAPACITY ON DATAPLATE!	
3.	READ THE MANUAL BEFORE OPERATION!	
4.	GROUND MACHINE TO A SUITABLE GROUND BEFORE OPERATION.	

3. INSTALLATION

IMPORTANT! READ ALL RELEVANT MANUALS AND SAFETY PRECAUTIONS CAREFULLY BEFORE STARTING TO UNPACK AND INSTALL THE EQUIPMENT!

PLEASE OIL THE GEARBOX BEFORE OPERATING THE EQUIPMENT!

NOTE! MAKE SURE INSTALLATION IS CARRIED OUT BY SUITABLY TRAINED PERSONNEL.

- The machine consists of 1 set of driving roller, 1 set of idler roller and electric control system.
- Inspect the machine to ensure that the Roller is supplied with Push Button pendant station, and that they are not damaged during transit. There are no loose items supplied with this Equipment.
- Connect Power Cable (by others) to an appropriate 3-Phase Isolator following the required Amperes based on the table above. (Incoming Power: check data plate on Main Panel.)
- Ensure that there is no obstruction along the rotating or tilting path.
- Machine is ready for power “ON”.
- The drive roller and idle roll must be put the foundation in same horizon. Two sets roller must be parallel to put, the ground horizontal plane must even. If the long-term usage base needs to be fixed.
- The worm wheel decelerator of the machine adopts lubricating oil, other gears and bearings adopt grease lubrication, periodic change. Note: the lubricating oil isn't oiled into the machine at shipping, the users must oil assigned lubricating oil, and then begin to use.
- Test Emergency Buttons on both the panel and the pendant to ensure functionality.
- Trial run the FWD and REV motions in all directions and observes if there is any unusual noise or smell.

3.1 Handling and Storage of the Machine

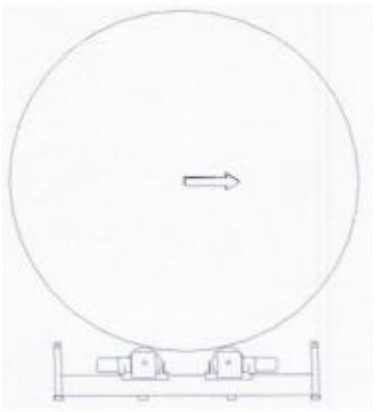
The machines are packed on a base, suitable for lifting by crane and/or forklift. Lift the machine from the lifting points (lifting loops) only.

Unload the machine from the packing and check the outer condition. Do not store the machine outside or in damp places.

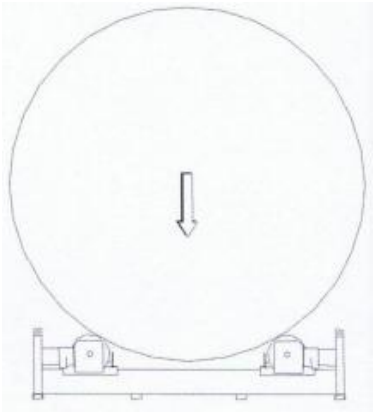
3.2 COMMON MISTAKES WHEN USING CONVENTIONAL ROTATORS

- Placing multiple drives under one vessel. This is only possible if special Master and Slave synchronised control panels have been supplied with the rotators. In which case the master panel controls the slave drive.
- Parts of the vessel come into contact with the rotators, floor or objects in the vicinity during rotation. This can cause damage to the rotators and cause the wheels to slip or overload the units.
- No proper earthing during welding. This can cause the electrics on the rotators to short out.
- Emergency Stop button is depressed. If a switch is pressed in, the operator must find out who pressed it in and for what reason, before restarting the machine. There may be a hazard that someone else has seen and stopped the machine for.
- The distance between the wheel brackets is too large, thus causing more load to be put through each wheel. This in turn can cause the rotators to be overloaded.
- Wheel brackets are too close together. (See below pics.)

This is a very unsafe position. During rotation, the vessel could now roll off the rotators causing very serious injury to anyone in the vicinity of the rotators. It can also happen if there is an out of balance load i.e. the centre of gravity of the vessel is offset from the axis of rotation. The rotators should never be operated at an included angle of less than 46°

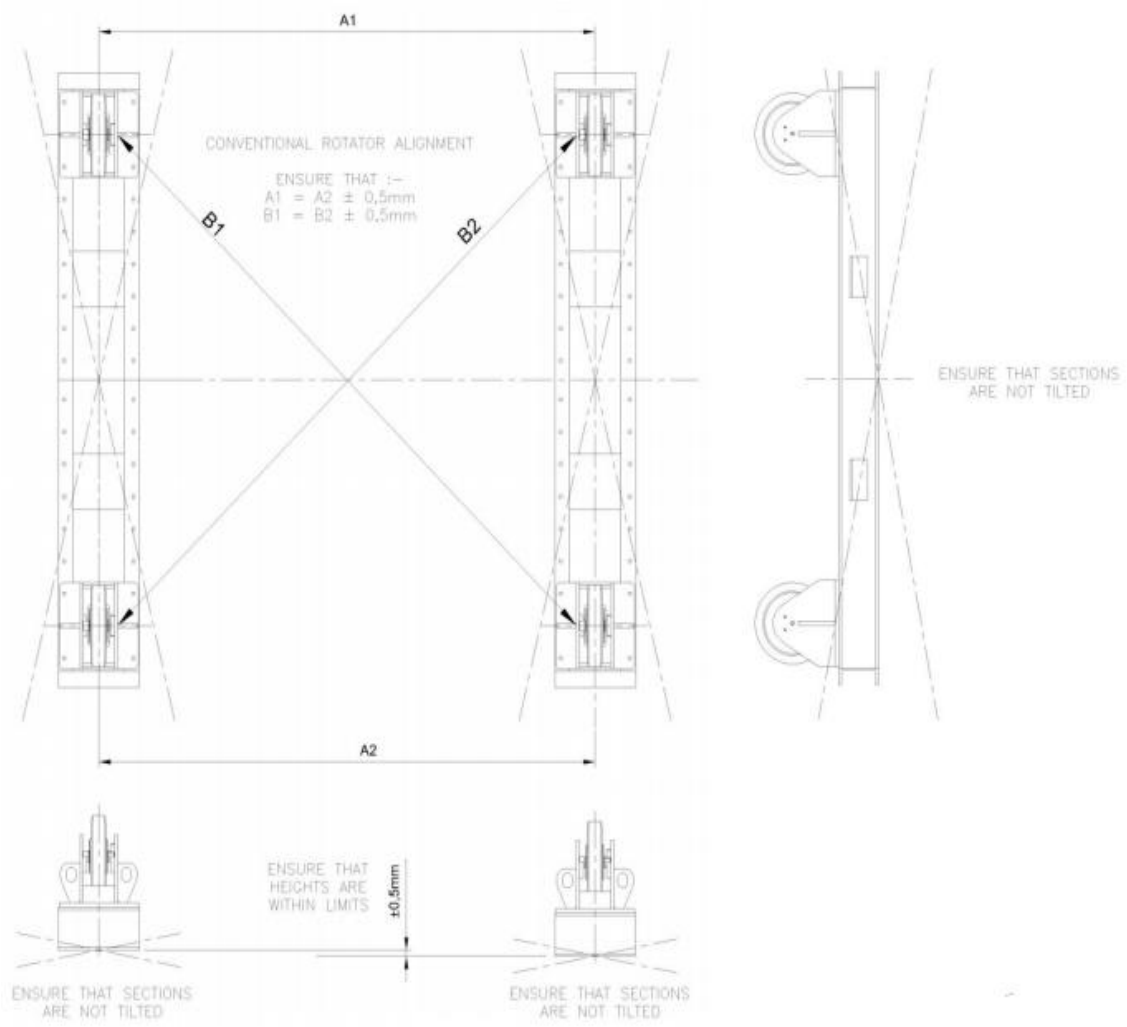


Not accept!



Good Position

- If the drive and idler units are not aligned parallel to each other then the vessel can creep lengthways and even fall off the rotators. This can also cause wear and damage to the wheels of the rotator. See below for correct alignment details.



4. STARTING-UP INSTRUCTIONS

4.1 Safety Consideration

- This machine is to be operated by authorized and trained operator only.
- Do not attempt to service the machine in the event of breakdown. Contact your Service/Maintenance Department.
- Do not wear loose clothing, as there are moving parts.
- Safety practices on electrical hazards must be observed such as no wet hands, clothing and properly insulated shoe.
- Always keep a copy of the Manual in the Electrical Panel.

4.2 Daily Checks

- Ensure that the work piece which was in the range of tank diameter.
- Check that the Emergency button is functioning.
- Check that FOR / REV Switches are functioning.

NOTE! PLUG FITS ONLY IN ONE POSITION.

DO NOT CONNECT THE WELDING RETURN CABLE THROUGH THE FRAME OF THE ROLLER BED – THE BEARINGS AND THE CONTROL MAY BE DAMAGED.

5. OPERATION INSTRUCTIONS

CR series welding roller are designed to facilitate the manual and mechanized welding. All models meet or exceed the EN occupational safety requirements. With the roller, the work piece is always turned to the most favorable position. If you intend to use the roller for any other purpose, please confirm suitability from the manufacturer or his representative.

5.1 Loading and Unloading of the Work piece

- The distance between the wheel brackets on both the drive and idler sections will depend on the diameter of the vessel. The included angle must be between 50 ° and 80° , but we recommend setting the rotators up always as close to 60° as possible.
- The included angle is the angle between two lines from the centre of the rotation axis of the vessel to the centre of each wheel on the drive or idler section. It is of importance, as the angle increases so does the resulting load on each wheel, and consequently the load on the bearings. Also by increasing the angle more torque, and therefore more power, is required to rotate the vessel.(Figure A).

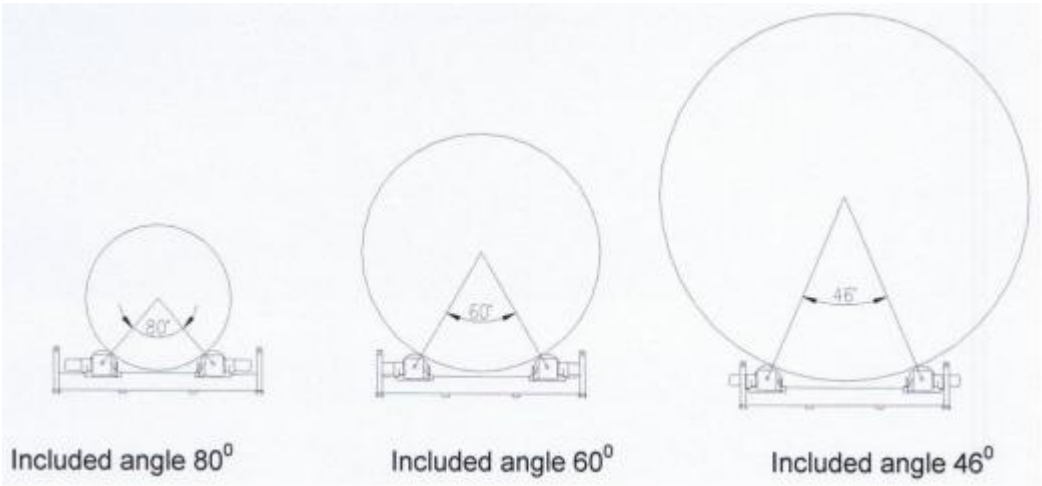


Figure A

5.2 Control Devices

5.2.1 Hand control box / Electric control panel

Figure B

Details function of hand control :

1. Rotation forward button.
2. Rotation pause button.
3. Rotation reverse button.

Note: As soon as one of the direction buttons (Forward or Reverse) are pressed then the Positioner table will begin to turn the work piece.

4. Speed Control Potentiometer.

Note: Turning the knob clockwise increases the positioner table rotation speed, and conversely rotating anti-clockwise decreases the speed.

5. Emergency button.

6. SERVICE AND MAINTENANCE

6.1 Before starting up, check the following;

- All moving parts can freely move (if your roller with manual moving wheels)
- Check oil level in the gearbox
- Check the integrity of all cables, mains and hand control pendant, make sure there are no cuts etc.
- Check the hand pendant controls all operate correctly.
- Check the Emergency Stop on the Pendant works, and locks all other controls so the machine cannot restart then reset on the panel.
- Check the Emergency Stop on the Panel works, and locks all other controls so the machine cannot restart then reset on the panel.
- Check the steel framework to ensure it is straight and free from damage.

6.2 Service, checking and cleaning procedures

Trouble	Causation	Method
Rotation act malfunction	1. input power wrong 2. motor over load 3. inverter run wrong 4. motor malfunction 5. contactor,relay malfunction	1. adjust it 2. examine gear box 3. examine it 4. examine it 5. replacing
Speed and display differ	RP2 malfunction	Adjust or replacing
Inverter or transducer act malfunction	Read its manual	Read its manual
Rotation motor run but speed can not change	1. potentiometer malfunction 2. Inverter malfunction	1. examine it 2. read its manual
Speed display is not accurately	1. No DC+5V input 2. potentiometer normal 3. indicator malfunction	1. examine it 2. replacing 3. examine it

NOTE! IN CASE OF HEAVY USE, THE CHECKING HAS TO BE DONE ONCE A MONTH!

6.3 Lubrication Instructions

INSPECTION AND MAINENANCE

1. To ensure these rotators have a long service life you should regularly check and change the oil in the gearboxes. Also, the following maintenance checks should be regularly carried out.
2. Except for the first oil change, the oil in the gearbox should be changed every 2500 hours or 6 months.
3. Check if the seal is leaking or irregular.
4. Check if there are any unusual noises during operation. If yes, the bearing may be broken.
5. Check the breathing hole of gearbox is obstruction free.
6. To aid cooling of the gearbox it is recommended that the external housing is kept clean.
7. Check the bolts, re-tighten any that are loose.

- LUBRICATION

1. The gearboxes on the rotators were filled with the proper quantity of lubricant before leaving the factory. Please
2. see the following table of recommended oils to use in the gearboxes. Note do not mix oils of different brands.
3. Instead drain the oil from the gearbox before refilling with a different brand.

6.3.1 Lubrication Instructions for Accessories

S/N	Component		Inspection Action	Lubricant & Detergent Code	Qty	Duration of Operation
1	Gear Train		See Note 1	Shell EP Grease 1128	N.A	As required
2	Grease Nipple		See Note 2	Shell EP Grease 1128	N.A	Every 6 month
3	Gear Box	Primary	Oil Change	Refer to Table 1.2.2	See line	As necessary, 2000 hours or 18 months

Notes:

1. Use white spirit to clean Gear Train during replacement of Grease
2. All Grease Nipples to be charged every 3 months
3. Before replacing the oil, the gearbox inside should be cleaned, and the old oil drained out.
4. During the operation, if the heat is over 80° or any abnormal noise is heard, please shut down and check immediately. Do not start to run again until the problem has been identified and resolved.

Temperature (℃)	Type
-30 ~ -15	No.220 industrial gear oil
-15 ~ -3	No.220 industrial gear oil
-3 ~ 23	No.220 industrial gear oil
23 ~ 40	No.220 industrial gear oil
40 ~ 48	No.220 industrial gear oil

Table 1.2.2