



RADIUS ROLLER RRM2

SAFETY INSTRUCTIONS MANUAL



Distributed by: **Trick-Tools.com**

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SAFETY MANUAL

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OPERATOR AND SUPERVISOR INFORMATION

This is one of four manuals supplied with your machine.

- **Installation Manual**
- **Safety Instructions Manual**
- **Operations Manual**
- **Maintenance Manual**

READ ALL MANUALS BEFORE OPERATING MACHINERY. Operating machinery before reading and understanding the contents of all four manuals greatly increases the risk of injury.

Each of the four machine manuals describes 'best practices' in handling, installing, operating and maintaining your machine. The contents of each manual is subject to change without notice due to improvements in the machinery or changes in National or International standards.

All rights reserved. Reproduction of this manual in any form, in whole or in part, is not permitted without the written consent of Edwards Manufacturing Company.

Keep all manuals close to the machine to allow for easy reference when necessary.

Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

Do not allow for operation of the machine by unqualified personnel. Edwards Manufacturing Company is not liable for accidents arising from unskilled, untrained operation.

Do not modify or change the machine without written authorization from Edwards Manufacturing Company. Unauthorized modification to a machine may result in serious operator injury, machine damage and will void your machine warranty.

Never leave a powered machine unattended. Turn machinery **OFF** before walking away.

This machine is manufactured for use by able bodied and able minded operators only. Never operate machinery when tired or under the influence of drugs or alcohol.

Do not resell, relocate or export to a destination other than to the original point of sale. Edwards has designed this machine to meet the standards of the original receiving country and is not liable for meeting any governing body or performance standards beyond those of the original receiving country.

SIGNAL WORD DEFINITION

DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation that, if not avoided, could result in mild or moderate injury.

NOTICE

Indicates information considered important, but not hazard related.



WARNING: This product can expose you to chemicals including Methyl Isobutyl Ketone which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <http://www.p65warnings.ca.gov>.



WARNING: Some dust, fumes and gases created by power sanding, sawing, grinding, drilling, welding and other construction activities contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead based paint
- crystalline silica from bricks, cement and other masonry products
- arsenic and chromium from chemically treated lumber

Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles. For more information go to <http://www.p65warnings.ca.gov/> and <http://www.p65warnings.ca.gov/wood>.

SIGNAL WORD PANEL ON MACHINE

DANGER

Critical machine safety information is identified on signal word labels. Labels are attached adjacent to the potentially hazardous locations of the machine. Reference the Safety Instruction Manual for additional information regarding the potentially hazardous condition identified on the label.

Review ALL labels on the machinery, reference the operational precautions and safe operations sections within this manual before any operation activity is initiated.

Failure to read and understand the signal word labels affixed to the machinery may result in operator death or injury.

RADIUS ROLLER • SIGNAL WORD PANEL



⚠ DANGER		⚠ WARNING		NOTICE	
	Hydraulic accessory controls powered by Ironworker/ Porta-Power.		Pinch/Crush Hazard Moving parts can pinch and crush. Keep hands clear of moving parts.		Read, understand, and follow all labels shown on the machine and described in the: • Safety Instructions Manual • Installation Manual • Operations Manual • Maintenance Manual
	Lockout power at Ironworker/ Porta-Power before servicing.		Fluid Injection Hazard Hydraulic fluid is under pressure. Hydraulic fluid powers moving parts.		Keep all manuals close for easy reference.
			Keep guards in place		Trained and authorized personnel are to install, operate and service this machinery. Do not allow for operation of the machine by unqualified personnel. Personal protective equipment must be worn at all times during machinery operation.



DANGER PANEL

DANGER



Electrical Hazard

This is the electrical hazard symbol. It indicates there are dangerous high voltages present inside the enclosure of this product. ONLY qualified, authorized, maintenance, service or Certified Electricians should gain access to electrical panel.



Lockout Power

Danger circuits are live. Lockout/Tagout the upstream power source.

Lockout / Tagout machinery according to Employer procedures.

WARNING PANEL

WARNING



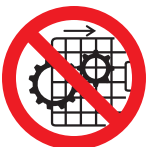
Pinch/Crush Hazard

Moving parts can pinch and crush. Keep hands clear of moving parts.



Fluid Injection Hazard

Hydraulic hoses and cylinders are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service.



Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect the Operator from moving parts that can pinch, cut and crush. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service to moving parts.

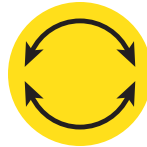


Shear/Crush Hazard

Moving parts can cut and crush. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service.

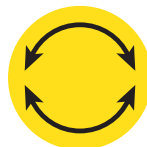
CAUTION PANEL

CAUTION



Tilting Operation

The head-frame of your Edwards Radius Roller is mounted with a friction plate and pin stop mechanism in the roller base. This mounting configuration allows for the roller head-frame to be operated in either a horizontal or vertical orientation. Exercise care when changing the operating position of the roller and during operation of the roller.



Roll Speed Adjustment

Rotate the Roll Speed Adjustment knob to change the speed at which the drive rollers spin.

NOTICE PANEL

NOTICE



Refer to All Manuals

Each manual that comes with this machine contains critical instructions regarding proper operations, safety, installation and maintenance procedures. Understand the contents of each manual thoroughly. Failure to follow proper procedures may result in serious operator injury, machine damage and will void your machine warranty. Keep the manuals close to the machine for easy reference.



Wear Personal Protective Equipment

To avoid physical hazard, always wear personal protective equipment. Wear protective eyewear, clothing, gloves, footwear, head-gear and hearing protection while operating or servicing this machinery.

OPERATIONS



DANGER

Safe Operation

Observe the following guidelines when performing roll forming operations with your Edwards RRM2 Radius Roller.

- **Operator Safety / Safe Work Zone** Roll forming parts or can fail the part being worked, fail a part adjacent to the work or fail the forming tool. Failed parts can become airborne projectiles with deadly force. Protect yourself with appropriate personal protective equipment when operating the press. Protect others by defining a safe work zone for Radius Roller use and limiting access to the operator. Identify a safe working zone from the working area of the roller equal to or greater than the finished diameter of the piece being rolled $\times 1.5$ e.g. 5' finished diameter $\times 1.5 = 7.5'$. Keep un-authorized individuals clear of the safe working zone when roll forming.
- **Radius Roller Inspection** Roll forming operations may generate concussive failure to mechanical parts. Although Edwards machinery is fabricated with both bolted and welded construction, concussive failure is a possibility over time or with extreme use. Prior to any roll forming operation, visually check all bolted and welded connections for failure. All bolts must be tight and welds intact. Failure to verify the structural integrity of the machinery may result in workpiece shift, part ejection, operator injury or machinery damage.
- **Workpiece Inspection** your Radius Roller is designed for forming A36 steel. Take time to thoroughly understand the workpiece. Never apply roll forming pressure to unstable sections, spring steel or any item with elastic, spring-back tendencies. Confirm the material properties of the workpiece will withstand the pressure to be exerted by the roller. Confirm that workpiece items are stripped down to their simplest form. Never double up material. Workpiece must be clean and free of substances that would allow the forming surfaces to slip under load.
- **Workpiece Support** Workpiece failure may be a result of improper or inadequate workpiece support. Adequate support for the workpiece must be present through the entirety of the roll forming operation. Understand your workpiece and confirm that the workpiece support system you employ will withstand the pressure being exerted through the roll forming operation.
- **Safe Use of Tooling** Your Radius Roller is equipped with a Universal, 15 piece roll forming die set. This roll form tooling is designed to provide for basic roll forming applications. These tools are not designed to provide for all roll forming applications. Custom tooling is available for your Radius Roller. Care must be taken when selecting roll form tooling. Select tooling that is designed and rated for the specific application. To avoid undue stresses upon the structural components of the Radius Roller,

select tooling with the shortest, most compact, tool depth available. Confirm that tooling and workpiece are aligned and follows a direct path. Misaligned loads may fail the tooling or workpiece and cause operator injury or damage to the machinery.

- **Do Not Force Radius Roller** Consider the rating of the Radius Roller and the work at hand. Gradually build pressure being applied to the workpiece. Carefully observe the workpiece to avoid tooling misalignment or workpiece failure. Observe the roller as it reacts under load. Do not overload the roller. Under heavy rolling operation built up force may be released if the part breaks free of its die. This release of pressure can be sudden and can appear to shake the machinery. Take care to avoid parts falling from the workpiece.



IRONWORKERS



RADIUS ROLLER RRM2

INSTALLATION MANUAL



INSTALLATION MANUAL

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RADIUS ROLLER INSTALLATION

This manual provides installation requirements for the Edwards Radius Roller

All Edwards Hydraulic Accessory Tools are powered by an Edwards Ironworker outfitted with a Hydraulic Accessory Pack or an Edwards Porta Power, portable hydraulic power unit.

Refer to Safety, Installation, Operations and Maintenance manuals for the Edwards power-plant you are using to operate your Edwards Hydraulic Accessory Tool.

Environmental Requirements at Work Station

NOTICE

The work station environment for your Edwards Radius Roller must meet the following minimum requirements:

- **Ambient temperature:** 7.2°C - 43.3°C [45°F - 110°F]
- **Relative humidity:** No greater than 90% relative humidity.
- **Floor area:** Assure that the machinery work area provides for a stable, adequately sized and load rated floor area for material movement to and from the machinery work stations.
- **Shelter:** Protect your Ironworking and accessory machinery from water, salts and corrosive elements.
- **Lighting:** 500LUX (50 footcandles) minimum.

Receiving the Radius Roller

! WARNING

Edwards Hydraulic Accessory Tools are fully assembled and are shipped either by palletized custom wooden crate or by shrink-wrapped wooden pallet for ease of transport and receiving.

Inspect the packaging for damage and follow shipping/receiving instructions as listed on the packaging prior to receiving the tool into your facility.

When receiving your Hydraulic Accessory Tool, be prepared to safely move your machinery with a fork-lift rated for the following equipment weights:

Minimum Machinery Weights

Radius Roller 430.91kg/950lb

Utilize best practices for fork-lift operation. Handle material as close to the drive surface as possible with the widest spread and deepest penetration of forks effective to service the pallet. Forks should be adjusted and locked into the safety detent closest to the maximum available fork spread.

Unpacking/Moving the Radius Roller

Your Edwards Radius Roller includes surface and remotely mounted electrical cabling and hydraulic lines. Exercise caution when removing the factory supplied packaging. Do not cut electrical wires or hydraulic hoses.

1. *Carefully remove packaging.*
2. *Carefully remove the lagbolts and washers attaching the Roller to the shipping pallet.*
3. *Locate the fork-lift areas directly under the Radius Roller base assembly*
4. *Carefully insert forks under the roller base assembly. Do not allow forks to hit roller assembly. Confirm that forks are in contact with both front and rear frame surfaces. Install clamps (not included) to forks so that the RRM2 is stable while moving and lift the RRM2 from the pallet.*
5. *Locate your Roller directly adjacent to the Edwards Ironworker or Porta Power. **Ensure that power controls of the Ironworker or Porta Power are within arms-reach of the Radius Roller tool.***

Installing the Radius Roller

! WARNING

1. *The Radius Roller is designed with a rolling base. The floor rating should be a minimum multiplier of 2.5 times the weight of the Roller plus the weight of any tooling being used within the Roller, plus the material being pressed.*

**(Roller weight (950 lb.) + Tooling weight + Material weight)
x 2.5 = Dedicated, weight rated floor system**

2. **Safe Work Zone** *Roll forming can fail the part being worked, fail a part adjacent to the work or fail the forming tool. Failed parts can become airborne projectiles with deadly force. Protect yourself with appropriate personal protective equipment when operating the press. **Protect others by defining a safe work zone for Radius Roller use and limiting access to the operator.** Identify a safe working zone from the working area of the roller equal to or greater than the finished diameter of the piece being rolled x 1.5 e.g. 5' finished diameter x 1.5 = 7.5'. Keep un-authorized individuals clear of the safe working zone when roll forming.*

Hydraulic Power



Your Edwards Radius Roller is factory assembled and tested for optimum performance when powered by Edwards Manufacturing Company rated hydraulic power supplies.

The Radius Roller is powered by either an Edwards Ironworker with the factory installed Hydraulic Accessory Control Package or an Edwards Porta-Power, 5hp, 3000psi, portable power unit.

ALTERNATE POWER SOURCES ARE NOT RECOMMENDED AND MAY COMPROMISE MACHINE OPERATION, MACHINE HYDRAULIC WARRANTY AND OPERATOR SAFETY.

Follow electrical connection installation instructions for power supply as set forth within the Installation Manual of the Edwards Ironworker or Porta-Power.

Powering with an Edwards Ironworker

Power selection controls are located adjacent to the starter on the feed side of the machine. Hydraulic quick connections and accessory controls are located on the drop-off side or end cap of the machine.

With the Ironworker power off, install Radius Roller hoses, power and control. **Assure your M12 connections are seated properly. Align M12 male and female fittings so that keyed surfaces align. Misalignment of surfaces will prohibit correct operation.**

- Install the Radius Roller male and female accessory hydraulic hoses to the ironworker male and female quick-connect hydraulic fittings. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Radius Roller hand control male mil. spec. control cable to the female mil. spec. accessory control port at your Ironworkers Hydraulic Accessory package.

With all Ironworker and Radius Roller stations clear of hands, tools, tooling, material or debris, power up the Ironworker by depressing the green button on the starter box.

With the power on, your Ironworker machine will return to a neutral position.

Turn the 3-position switch on the front of the machine case to the Accessory position. This operation disables the Ironworker and switches control to the accessory hand control.

With the Radius Roller work station clear of hands, tools, tooling, material or debris, test the Radius Roller operation by pressing the OUT control button. Once pressed, the lower drive rolls of the Radius Roller will rotate counter clockwise. Releasing pressure on the OUT control button will stop roller rotation. Test the Radius Roller operation by pressing the IN control button. Once pressed, the lower drive rolls of the Radius Roller will rotate clockwise. Releasing pressure on the IN control button will stop roller rotation.

Press the red e-stop button to kill power at the Ironworker. To reset power, twist the e-stop button and push start button at the Ironworker.

When disconnecting your Radius Roller simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Ironworker.**

Powering with an Edwards Porta-Power

Your Edwards Porta-Power 5hp / 3000psi / Portable Power Unit will power all your Edwards Hydraulic Accessories.

Follow electrical connection installation instructions as set forth within these sections of the Installation Manual:

With the Edwards Porta-Power off, install accessory hoses, power and control. **Assure your M12 connections are seated properly. Align M12 male and female fittings so that keyed surfaces align. Misalignment of surfaces will prohibit correct operation.**

- Install the male and female Radius Roller hydraulic hoses to the Porta-Power male and female quick connect hydraulic fittings adjacent to the starterbox. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Radius Roller hand control, male mil. spec. control cable to the female mil. spec. accessory push button port on the Porta-Power case.

With all Ironworker and Radius Roller stations clear of hands, tools, tooling, material or debris, power up the Porta-Power by depressing the green button on the starter box.

With the power on, your Radius Roller is in a neutral position.

With the Radius Roller work station clear of hands, tools, tooling, material or debris, test the Radius Roller operation by pressing the OUT control button. Once pressed, the lower drive rolls of the Radius Roller will rotate counter clockwise. Releasing pressure on the OUT control button will stop roller rotation. Test the Radius Roller operation by pressing the IN control button. Once pressed, the lower drive rolls of the Radius Roller will rotate clockwise. Releasing pressure on the IN control button will stop roller rotation.

If the machine fails to cycle, power down the Porta-Power by pressing the red button on the starterbox, consult the trouble shooting section of the Operations Manual.

Press the red e-stop button on the hand control to kill power at the Porta Power. To reset power, twist the e-stop button and push start button at Porta Power.

When disconnecting your Radius Roller, simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Porta Power.**



IRONWORKERS



RADIUS ROLLER RRM2

OPERATIONS MANUAL

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- Signal Word Panel
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- Roll Forming Angle Sections
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COMPANY PROFILE



Edwards Manufacturing Company manufactures a full line of high quality, low maintenance hydraulic ironworking machines, associated tooling and accessories that are used in the steel fabrication industry. With proper operation, care, and maintenance, your Edwards Ironworker or Hydraulic Accessory

Tool will provide consistent, long-term service. Please take time to study this Operator's Manual carefully to fully understand Ironworker and Hydraulic Accessory Tool safety procedures, set-up, operation, care, maintenance, troubleshooting and warranty coverage prior to putting the machine into production. Any questions not answered within this manual can be directed to your local Edwards Ironworker dealer or factory representative.

Contact the factory:

EDWARDS MANUFACTURING COMPANY

1107 Sykes Street

Albert Lea, MN 56007

507 373 8206 PHONE

507 373 9433 FAX

www.edwardsironworkers.com

General Questions:

sales@edwardsmfg.us

Service Questions:

service@edwardsmfg.us

Contact your dealer:

WARRANTY

Edwards Manufacturing Company will, within one (1) year of date of original purchase (proof of purchase required), replace F.O.B. the factory, any goods, excluding punches, dies and shear blades, which are defective in materials or workmanship provided that the buyer return the defective goods, freight pre-paid, to the seller, which shall be the buyer's sole and exclusive remedy for the defective goods. Hydraulic components are subject to their manufacturer's warranty.

Edwards Manufacturing Company will, within thirty (30) days of date of original purchase (proof of purchase required), replace F.O.B. the factory, any punches, dies and/or shear blades, which are defective in materials or workmanship.

This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to abusive and abnormal use, inadequate maintenance and lubrication, or subjected to use beyond seller recommended capacities and specifications. Edwards Manufacturing Company shall not be liable for labor costs expended on such goods or consequential damages. Edwards Manufacturing Company shall not be liable to the purchaser or any other person for loss, down-time, or damage directly or indirectly arising from the use of the goods or from any other cause. No officer, employee, or agent of Edwards Manufacturing Company is authorized to make any oral representations or warranty of fitness or to waive any of the foregoing terms and none shall be binding on Edwards Manufacturing Company.

NOTE: Edwards Manufacturing is a division of JPW Industries, Inc. References in this document to Edwards also apply to JPW Industries, Inc., or any of its successors in interest to the Edwards brand.

MACHINE IDENTIFICATION

Your Edwards Radius Roller has been serialized for quality control, product traceability and warranty enforcement. Please refer to the aluminum identification tag with engraved serial number, electrical and power specifications when ordering parts or filing a warranty claim.

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OPERATIONAL PRECAUTIONS



Reasonable, common sense safety precautions should be observed when operating the Ironworker or Hydraulic Accessory Tool. The following precautions are described in order of their hazard.

Electrical Hazard

Dangerous high voltages are present inside the electrical enclosure of this product. Only qualified, authorized, maintenance or service personnel should gain access to the electrical panel.

Lockout Power

Danger, circuits are live. Lockout / tagout upstream power source before any maintenance activity is performed.

Shear / Crush Hazard

Moving parts can cut and crush. Keep hands clear when servicing and maintaining the Ironworker or Hydraulic Accessory Tool.

Hydraulic Fluid Hazard

Hydraulic hoses are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment when servicing / maintaining the Ironworker or Hydraulic Accessory Tool.

Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect operator and maintenance personnel from moving parts that can pinch, cut and crush. If it is necessary to remove guarding when servicing your Hydraulic Accessory Tool, immediately replace guards after service and prior to power being restored to the machinery.

Refer to Manuals

For safe installation, operation and maintenance of the machine, read:

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

Wear Personal Protective Equipment

To avoid physical hazard wear protective eyewear, clothing, gloves, footwear, head-gear and hearing protection.

MACHINE OPERATIONS



Edwards Radius Roller is a quick-connect, hydraulic accessory tool capable of rolling flat, angle, pipe and tube sections to variable radiuses. This manual outlines the basic functions associated with typical rolling operations and is neither intended to create a comprehensive list of, nor describe every operation possible with a roller tool. **Roller operations are dangerous and require extreme care and caution in the preparation of the material being worked, the roller set-up and the rolling operation.** Please refer to the following setup, safe operation and roller operation sections of this Manual for an understanding of the potential hazards present in any rolling operation.

Edwards Radius Roller features robust design and construction and is designed for years of service when powered by an Edwards Ironworker or Porta Power portable hydraulic unit. Please refer to all Edwards power source manuals as well as the Safety, Installation, Operation and Maintenance Manuals of the Radius Roller prior to operation of the machinery.

The Radius Roller is constructed of four basic assemblies. The rolling base holds the tilting head frame which houses the pyramid roller assembly and the control components. The un-powered top pressure roller descends with a hand crank to apply pressure to the material being worked. The bottom two, knurled, drive rollers are stationary and move the material clockwise and counterclockwise.

The following pages detail proper procedures for setting up and safely operating the Edwards Radius Roller.



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- crystalline silica from bricks, cement and other masonry products
- arsenic and chromium from chemically treated lumber

Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles. For more information go to <http://www.p65warnings.ca.gov/> and <http://www.p65warnings.ca.gov/wood>.

HYDRAULIC POWER SOURCES



Hydraulic Accessory Tool Controls



Ironworker Hydraulic Accessory Package

WARNING

Your Edwards Radius Roller is factory assembled and tested for optimum performance when powered by Edwards Manufacturing Company rated hydraulic power supplies.

The Radius Roller is powered by either an Edwards Ironworker with the factory installed Hydraulic Accessory Control Package or an Edwards Porta-Power, 5hp, 3000psi, portable power unit.

ALTERNATE POWER SOURCES ARE NOT RECOMMENDED AND MAY COMPROMISE MACHINE OPERATION, MACHINE HYDRAULIC WARRANTY AND OPERATOR SAFETY.

Follow electrical connection installation instructions for power supply as set forth within the Installation Manual of the Edwards Ironworker or Porta-Power.

Powering with an Edwards Ironworker

Power selection controls are located adjacent to the starter on the feed side of the machine. Hydraulic quick connections and accessory controls are located on the drop-off side or end cap of the machine.

With the Ironworker power off, install Radius Roller hoses, power and control. **Assure your M12 connections are seated properly. Align M12 male and female fittings so that keyed surfaces align. Misalignment of surfaces will prohibit correct operation.**

- Install the Radius Roller male and female accessory hydraulic hoses to the ironworker male and female quick-connect hydraulic fittings. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Radius Roller hand control male mil. spec. control cable to the female mil. spec. accessory control port at your Ironworkers Hydraulic Accessory package.

With all Ironworker and Radius Roller stations clear of hands, tools, tooling, material or debris, power up the Ironworker by depressing the green button on the starter box.

With the power on, your Ironworker machine will return to a neutral position.

Turn the 3-position switch on the front of the machine case to the Accessory position. This operation disables the Ironworker and switches control to the accessory hand control.

With the Radius Roller work station clear of hands, tools, tooling, material or debris, test the Radius Roller operation by pressing the OUT control button. Once pressed, the lower drive rolls of the Radius Roller will rotate counter clockwise. Releasing pressure on the OUT control button will stop roller rotation. Test the Radius Roller operation by pressing the IN control button. Once pressed, the lower drive rolls of the Radius Roller will rotate clockwise. Releasing pressure on the IN control button will stop roller rotation.

Press the red e-stop button to kill power at the Ironworker. To reset power, twist the e-stop button and push start button at the Ironworker.

When disconnecting your Radius Roller simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Ironworker.**



Edwards Porta-Power

Powering with an Edwards Porta-Power

Your Edwards Porta-Power 5hp / 3000psi / Portable Power Unit will power all your Edwards Hydraulic Accessories.

Follow electrical connection installation instructions as set forth within these sections of the Installation Manual:

With the Edwards Porta-Power off, install accessory hoses, power and control. **Assure your M12 connections are seated properly. Align M12 male and female fittings so that keyed surfaces align. Misalignment of surfaces will prohibit correct operation.**

- Install the male and female Radius Roller hydraulic hoses to the Porta-Power male and female quick connect hydraulic fittings adjacent to the starterbox. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Remove the safety cap at the push button port. Attach the Radius Roller hand control, male mil. spec. control cable to the female mil. spec. accessory push button port on the Porta-Power case.

With all Ironworker and Radius Roller stations clear of hands, tools, tooling, material or debris, power up the Porta-Power by depressing the green button on the starter box.

With the power on, your Radius Roller is in a neutral position.

With the Radius Roller work station clear of hands, tools, tooling, material or debris, test the Radius Roller operation by pressing the OUT control button. Once pressed, the lower drive rolls of the Radius Roller will rotate counter clockwise. Releasing pressure on the OUT control button will stop roller rotation. Test the Radius Roller operation by pressing the IN control button. Once pressed, the lower drive rolls of the Radius Roller will rotate clockwise. Releasing pressure on the IN control button will stop roller rotation.



If the machine fails to cycle, power down the Porta-Power by pressing the red button on the starterbox, consult the trouble shooting section of the Operations Manual.

Press the red e-stop button on the hand control to kill power at the Porta Power. To reset power, twist the e-stop button and push start button at Porta Power.

When disconnecting your Radius Roller, simply reverse procedure. **Replace the safety cap at the push button port to restore power to your Porta Power.**

RADIUS ROLLER OPERATIONS DIAGRAM



COMPONENT / BASE OPERATIONS

CAUTION



Horizontal Operating Position



Vertical Operating Position



Left: Kickstand up (disengaged) Right: Kickstand down (engaged)

Base Operation

The heavy duty, ½" formed steel plate design is balanced like a tripod and rolls on 3 wheels. The "kickstand" at the rear of the Radius Roller base allows you to push the kickstand down with your foot to deploy the swiveling caster and easily roll the bender to your work station. When located in the ideal location, flip the kickstand up to disengage the swiveling caster and stabilize the Radius Roller on the floor.

Tilting Head-Frame Operation

The head-frame of your Edwards RRM2 Radius Roller is mounted with a yoke and pin to a sleeve and stop mechanism in the roller stand. This mounting configuration allows for the Roller enclosure to be operated in either a horizontal or vertical orientation. Positive stops at 0 and 90 degrees provide for a flexible and stable operation of the roller when working with light or heavy weight shapes or long setups.

Rotate the tilting head frame with caution. To rotate the head frame, release the hand screw on the sides of the rotational sleeves. Release the four friction plate bolts (do NOT remove).

Rotate the tilting head frame by lifting from the base of the roller. Once the roller is in its horizontal position, secure the hand screws on both yokes into their respective detent locations. For extra support of the enclosure, tighten the four 1/2" bolts on the friction plates. To return to vertical, repeat this sequence in reverse while supporting the head frame to its' vertical resting place.

DIE SET OPERATIONS

WARNING

Your Edwards Radius Roller will roll-form flat, angle, pipe and tube sections to variable radiuses when equipped with the proper, matched die sets and careful operation.

The Edwards RRM2 Radius Roller is shipped with one un-keyed, smooth, universal pressure die and spacer kit as well as two keyed, knurled, universal drive die and spacer kit. Die sets are designed to center the forming work within the pyramid roller assembly.



Die sets are wearing parts. Periodic cleaning and/or replacement of wearing surfaces is required to maintain the highest quality finished parts.

DIE SET INSTALLATION

Drive Dies

With the head frame in its vertical position, carefully load the two, keyed, knurled, universal drive die and spacer kits (3 pieces) onto the lower, paired, keyed drive shafts. Dies must never touch the face of the enclosure and must have the same orientation to the face of the enclosure. Arrange the 3 pieces to accommodate the work at hand.

Always orient the mass of your section being formed towards the face of the enclosure. This orientation greatly reduces the cantilever forces being applied to the drive shafts and internal bearings.

Install shafting washers and nuts to hand tight.



Pressure Dies

With the pressure die adjustment towards its upper limit, carefully load the single, un-keyed, smooth, universal pressure die and spacer kit (3 pieces) onto the fully lubricated idler shaft. It is critical that the idler shaft be thoroughly lubricated with NLGI#2 extreme pressure grease

LUBRICATE PRESSURE DIE SET WITH NLGI#2 EXTREME PRESSURE GREASE. FAILURE TO ADEQUATELY LUBRICATE THE PRESSURE DIES AND IDLER SHAFT MAY RESULT IN DAMAGE TO THE DIE SET, DAMAGE TO THE IDLER SHAFT OR BOTH.

Dies must never touch the face of the enclosure. Arrange the pressure dies to complement the drive roller orientation. If utilizing an eccentric section, ensure that the mass of the section being formed is placed towards the face of the enclosure. This orientation greatly reduces cantilever forces being applied to the idler shaft and internal screw.

Install shafting washers and nuts to hand tight.



- Arrange the 3 die sets to accommodate the work at hand.
- Note: Confirm complimentary alignment of upper and lower dies.



Alignment Pin

Coordinates inner and outer die surfaces of the pressure roller. Insert pin to outer die. Rotate die to engage inner die surface.



ROLL FORMING

WARNING

Loading Material

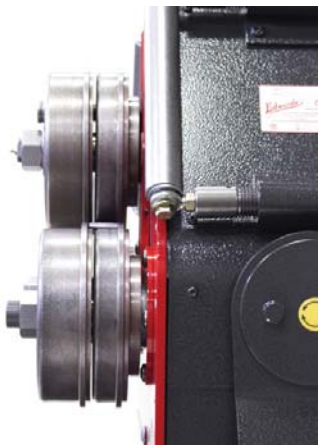
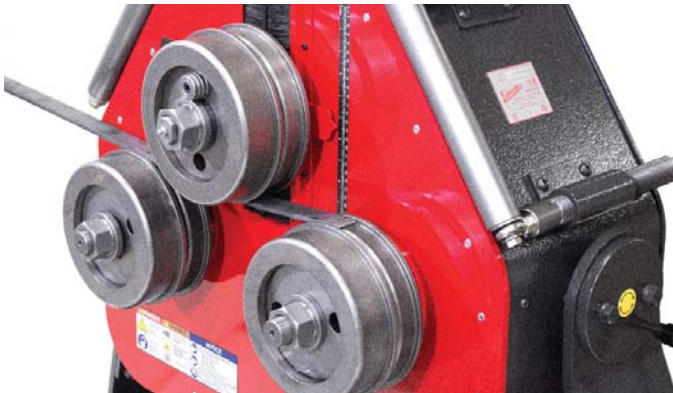
Prepare your work by cleaning the material and die surfaces.

Rotate and secure the roller head frame in either the vertical or horizontal working position. If working with long sections of material, be prepared to support your material with a material rest or roller stand (provided by user). Place the material to be formed on top of the two drive roll dies. Adjust dies to accommodate material size. Capture the material within the drive rolls by nesting the drive roll sets and spacers.

Bring the pressure roll down to meet the material being formed.



Adjust the pressure roll to capture the material being roll formed by nesting the roll set and spacer.



With the roller dies configured to the material, tighten the dies onto the drive and idler shafts with the wrench provided. DO NOT OVERTIGHTEN SECURING NUTS TO SHAFTING.

LUBRICATION

The dies and shafting on your RRM2 are hardened to provide wearing surface durability. The hardened surfaces of dies where they meet shafting must be cleaned and lubricated prior to each tooling change. Hardened wearing surfaces will wear prematurely and fail if metal scale, shavings, dirt and grime are allowed to build up on these wearing surfaces.

Lubricate the pressure roller generously at every tooling / setup change by applying NLGI#2 Extreme Pressure Grease to the idler shaft and idler shaft grease zerk fitting. Visually confirm that grease is lubricating the full shaft and each of the components that comprise the pressure die.

DO NOT LUBRICATE THE DRIVE OR PRESSURE ROLLER SURFACES THAT CONTACT THE MATERIAL BEING ROLL FORMED



ROLL FORMING

Provide adequate test material to support your successful project.

Clean your material of all surface contaminants, grease, dirt and debris.

LUBRICATE PRESSURE DIE SET WITH NLGI#2 EXTREME PRESSURE GREASE. FAILURE TO ADEQUATELY LUBRICATE THE PRESSURE ROLLER AND IDLER SHAFT MAY RESULT IN DAMAGE TO THE DIE SET, DAMAGE TO THE IDLER SHAFT OR BOTH.

Dies must never touch the face of the enclosure. Arrange the 3 pieces to complement the drive roller orientation. If utilizing an eccentric section, ensure that the mass of the section being formed is placed towards the face of the enclosure. This orientation greatly reduces cantilever forces being applied to the idler shaft and internal screw wear.

Install shafting washers and nuts to hand tight.

See diagrams or photographs

ROLLING COMMON SECTIONS



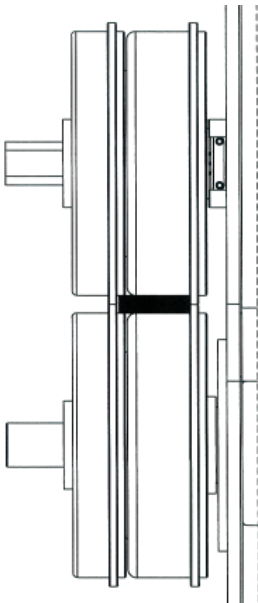
ROLL FORMING FLAT SECTIONS

Roll forming is a multi-pass process. Patience and test material are required to provide for a successful part.

Identify your target profile by creating a full scale template of the proposed radius. With your radius template or profile gauge available, lay your material over the coordinated drive dies. Lower the pressure roller to meet the surface of your section. Apply additional pressure to the section to gently prebend the material. Prebending the material will be seen as raising the tail stock of your section. **DO NOT OVER APPLY PRESSURE AT THE PREBENDING STAGE.**

With adequate pressure applied to the section, push the OUT button on the hand control and adjust the roller speed to slowly roll the material through the die set. Once your first pass is complete, compare your prebend outcome with your radius template and adjust the pressure roller accordingly. If additional radius is required, apply additional pressure to the material by lowering the pressure die set further onto the section. Push the IN button on the hand control to return the section to its original starting position. Compare the radius outcome with your template or radius gauge and adjust the pressure roller accordingly.

Repeat the aforementioned process until your desired radius is achieved.



ROLL FORMING ANGLE SECTIONS

Roll forming angle sections is a multi-pass process. Patience and test material are required to provide for a successful part.

Identify your target profile by creating a full scale template of the proposed radius. With your radius template or profile gauge available, lay your material over the coordinated drive dies. **CONFIRM THAT THE GREATEST CROSS SECTIONAL DIMENSION OF THE ANGLE IS ADJACENT TO THE MACHINE FACE.**

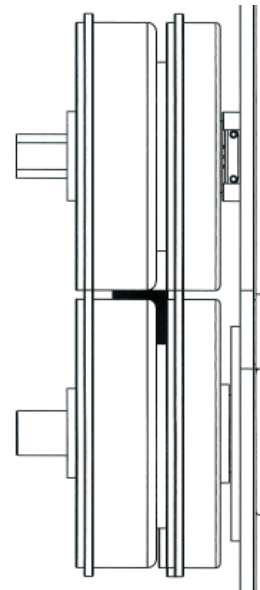
Lower the pressure roller to meet the surface of your section. Apply additional pressure to the section to gently prebend the material. Prebending the material will be seen as raising the tail stock of your section. **DO NOT OVER APPLY PRESSURE AT THE PREBENDING STAGE.**

With adequate pressure applied to the section, push the OUT button on the hand control and adjust the roller speed to slowly roll the material through the die set. Once your first pass is complete, compare your prebend outcome with your radius template and adjust the pressure roller accordingly. If additional radius is required, apply additional pressure to the material by lowering the pressure die set further onto the section. Push the IN button on the hand control to return the section to its original starting position. Compare the radius outcome with your template or radius gauge and adjust the pressure roller accordingly.

With increased pressure you may see your angle twist as a result of the roll forming process.

To attempt to limit this occurrence, utilize the thrust rollers at the lead in and lead out edges of the machine face. With your angle placed within the roller dies, extend the thrust rollers to meet the up or down leg of the material by extending the support screws of the thrust roller assembly. Roll your angle material through the die sets to observe the materials tendency to twist. Additional pressure may be required to control twist.

Repeat the aforementioned process until your desired radius is achieved.



ROLL FORMING ROUND SECTIONS

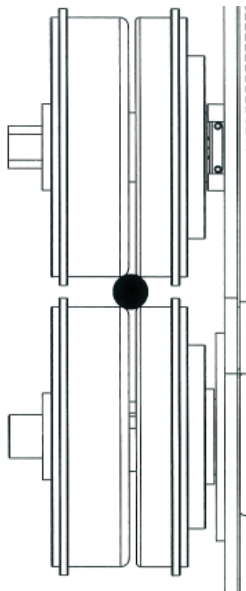
Roll forming solid round, pipe and tube sections is possible with the Universal Die Set. Custom die sets created specifically for the round pipe and tube sections are recommended for minimum distortion of the cross section and maintenance of the surface quality.

Roll forming round sections is a multi-pass process. Patience and test material are required to provide for a successful part.

Identify your target profile by creating a full scale template of the proposed radius. With your radius template or profile gauge available, lay your material over the coordinated drive dies. **WHEN ROLL FORMING PIPE OR TUBE SECTIONS ORIENT THE SEAM OF THE MATERIAL TO THE DIE CENTERLINE.** Lower the pressure roller to meet the surface of your section. Apply additional pressure to the section to gently prebend the material. Prebending the material will be seen as raising the tail stock of your section. **DO NOT OVER APPLY PRESSURE AT THE PREBENDING STAGE.**

With adequate pressure applied to the section, push the OUT button on the hand control and adjust the roller speed to slowly roll the material through the die set. Once your first pass is complete, compare your prebend outcome with your radius template and adjust the pressure roller accordingly. If additional radius is required, apply additional pressure to the material by lowering the pressure die set further onto the section. Push the IN button on the hand control to return the section to its original starting position. Compare the radius outcome with your template or radius gauge and adjust the pressure roller accordingly.

Repeat the aforementioned process until your desired radius is achieved.



TROUBLESHOOTING



Quality parts are dependent upon conscientious setup, operation and maintenance of your RRM2 Radius Roller. Physically review your Radius Roller prior to any operation. Confirm all static components are tight in the assembly. Confirm all moving components are free of obstruction. Confirm all tooling and assemblies are properly seated within the assembly.

Problem	Solution
Roller Inoperable	Check accessory control switch at Ironworker Check Roller mil. spec. control cable is connected to female mil. spec. port. Check variable speed control. Check E-Stop button at Ironworker, Porta Power, or accessory hand control. Note: Auto Cut port will NOT power the RRM2 accessory.
Rough Roller Operation	Check Hydraulic fluid level at power source. Check variable speed control



IRONWORKERS



RADIUS ROLLER RRM2

MAINTENANCE MANUAL



1 GENERAL

Operator and Supervisor Information

Signal Word Definition

Signal Word Panel

Maintenance Precautions

2 MAINTENANCE SCHEDULE

Daily/Shift Change Visual Observation

General Maintenance - Daily

OPERATOR AND SUPERVISOR INFORMATION

This is one of four manuals supplied with your machine.

- **Installation Manual**
- **Safety Instructions Manual**
- **Operations Manual**
- **Maintenance Manual**

Each of the four machine manuals describes 'best practices' in handling, installing, operating and maintaining your machine. The contents of each manual is subject to change without notice due to improvements in the machinery or changes in National or International standards.

All rights reserved. Reproduction of this manual in any form, in whole or in part, is not permitted without the written consent of Edwards Manufacturing Company.

Understand the contents of each manual thoroughly. Keep all manuals close to the machine to allow for easy reference when necessary.

Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

Do not allow for operation of the machine by unqualified personnel. Edwards Manufacturing Company is not liable for accidents arising from unskilled, untrained operation.

Do not modify or change the machine without written authorization from Edwards Manufacturing Company. Unauthorized modification to a machine may result in serious operator injury, machine damage and will void your machine warranty.

This machine is manufactured for use by able bodied and able minded operators only. Never operate machinery when tired or under the influence of drugs or alcohol.

Do not resell, relocate or export to a destination other than to the original point of sale. Edwards has designed this machine to meet the standards of the original receiving country and is not liable for meeting any governing body or performance standards beyond those of the original receiving country.

SIGNAL WORD DEFINITION



DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



CAUTION

Indicates a hazardous situation that, if not avoided, could result in mild or moderate injury.

NOTICE

Indicates information considered important, but not hazard related.

SIGNAL WORD PANEL ON MACHINE



DANGER

Critical machine safety information is identified on signal word labels. Labels are attached adjacent to the potentially hazardous locations of the machine. Reference the Safety Instruction Manual for additional information regarding the potentially hazardous condition identified on the label.

Review ALL labels on the machinery, reference the operational precautions and safe operations sections within this manual before any operation activity is initiated.

Failure to read and understand the signal word labels affixed to the machinery may result in operator death or injury.

MAINTENANCE PRECAUTIONS



DANGER

Reasonable, common sense safety precautions should be observed when maintaining the Ironworker or hydraulic accessory tool. The following precautions are described in order of their hazard.

Electrical Hazard

Dangerous high voltages are present inside the electrical enclosure of this product. Only qualified, authorized, maintenance or service personnel should gain access to the electrical panel.

Lockout Power

Danger, circuits are live. Lockout / tagout upstream power source before any maintenance activity is performed.

Shear / Crush Hazard

Moving parts can cut and crush. Keep hands clear when servicing and maintaining the Ironworker.

Hydraulic Fluid Hazard

Hydraulic hoses are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment when servicing / maintaining the Ironworker.

Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect maintenance personnel from moving parts that can pinch, cut and crush. If it is necessary to remove guarding when servicing the Ironworker, immediately replace guards after service and prior to power being restored to the machinery.

Refer to Manuals

For safe installation, operation and maintenance of the machine, read:

- Installation Manual
- Safety Instructions Manual
- Operations Manual
- Maintenance Manual

Wear Personal Protective Equipment

To avoid physical hazard wear protective eyewear, clothing, gloves, footwear, head-gear and hearing protection.



WARNING: This product can expose you to chemicals including Methyl Isobutyl Ketone which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <http://www.p65warnings.ca.gov>.



WARNING: Some dust, fumes and gases created by power sanding, sawing, grinding, drilling, welding and other construction activities contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead based paint
- crystalline silica from bricks, cement and other masonry products
- arsenic and chromium from chemically treated lumber

Your risk of exposure varies, depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area and work with approved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles. For more information go to <http://www.p65warnings.ca.gov/> and <http://www.p65warnings.ca.gov/wood>.

MAINTENANCE SCHEDULE

CAUTION

Your RRM2 Radius Roller will benefit from reasonable care and periodic maintenance. Reasonable care includes daily visual observation, as well as general maintenance procedures at daily intervals by operator/maintenance personnel. Perform inspections and maintenance of the electrical, hydraulic, and mechanical systems of the Edwards hydraulic accessory connected to the Ironworker or Porta-Power as follows:

Daily/Shift Change Visual Observation

CAUTION

Electrical System

Visually inspect controls and power cording to the Ironworker or Porta-Power for signs of damage. Cut, abraded or crushed electrical cords may present an electrical hazard to the Operator and/or damage the machinery.

Hydraulic System

Visually inspect exposed or surface mounted hydraulic hoses and fittings for signs of damage. Cut, abraded or crushed hydraulic hoses or leaking fittings may present a hydraulic fluid hazard to the Operator and/or damage the machinery.

Mechanical System

Visually inspect moving parts. Guards and material hold-downs must remain on the machine for safe operation. Clear any material obstructions at the work station prior to visually inspecting moving parts of the machine. Cycle the machine. Machine should operate smoothly in both clockwise and counter clockwise direction. Grease identified locations daily.

Failure of any element of the daily/shift change visual observation will require maintenance of the affected accessory componentry. Please follow the following maintenance procedures.

General Maintenance - Daily

WARNING

Disconnect RRM2 Radius Roller from power source.

Check wiring harness for loose connections or damaged control wiring.

Replace damaged control wiring as necessary. Order replacement control wiring assembly from your Edwards distributor or through Edwards Manufacturing Company.

Check hydraulic fittings and hoses for wear or damage. Replace damaged or worn hydraulic hoses and fittings as necessary. Order replacement hydraulic components from your Edwards distributor or through Edwards Manufacturing Company.

Check bolted connections and secure as necessary.

Check welded connections.

Check bearing surface quality.

Visually inspect die surfaces for chips or galling in the bearing surface.

Verify tooling is secure. Edwards tooling is manufactured from billet steel for enhanced strength and durability. These are wearing parts that will fail over time and will require replacement. Order additional tooling through your Edwards distributor or through Edwards Manufacturing Company. Install replacement parts according to the Operations Manual.

Clean your RRM2 Radius Roller daily. Disconnect the unit from its power source first. Do not use liquid cleaners, aerosols, abrasive pads, scouring powders or solvents such as benzene or alcohol. Clean your machine with a brush and soft cloth lightly moistened with a mild, water-based detergent solution. Remove filings, dirt, dust and grime from working surfaces. Ensure the surfaces are fully dry before reconnecting power.

Lubricate the pressure roller generously at every tooling / setup change by applying NLGI#2 Extreme Pressure Grease to the idler shaft and the idler shaft grease zerk fitting. Visually confirm that grease is lubricating the full shaft and each of the components that comprise the pressure die.



IRONWORKERS