pryda

OPERATION MANUAL

HIP END ROLLER (HER)

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WARNING

ALL OPERATORS SHOULD READ AND FULLY UNDERSTAND THIS MANUAL, BEFORE THE USE OF THIS ITEM OF EQUIPMENT.

If the operator believes this machine is in an unsafe condition or it is unsafe to use, you are under no obligation to use this equipment.
Please report such conditions of this equipment to your employer.

1. MANUAL REGISTER

I confirm that I have read and understood the contents of this operation manual.

NAME	SIGNATURE	DATE

2. SAFE OPERATING CONDITIONS

Read the following safety information before using this equipment.

WARNING	CAUTION	NOTICE	NOTICE
Indicates a hazardous situation that, if not avoided, will result in death or serious injury.	Indicates a hazardous situation that, if not avoided, will result in minor or moderate injury.	Operator's important practices and failure to follow the instruction may result in damage to the equipment.	Important installation, operation, or maintenance information.

	Caution: Be sure that all operators who are to use the machine have familiarised themselves with this manual and fully understand the operation of the machine prior to starting it. To reduce the possibility of injury, pay special attention to and follow all safety precautions mentioned in this manual.
	Be alert and aware of any human movement around the machine. Know where your co workers are when operating the machine.
	Wear clothes which are not loose fitting; your machine has moving components which may snag any loose-fitting clothing resulting in possible injury. Keep hands away from moving parts.
	When shutting down the machine after each shift, remove any foreign objects such as tools and wood scraps from the machine area.
	Do not leave the machine running when unattended. Turn the power off at the main isolator when not in use.
	Long hair should not be worn around moving machinery. Wear a hat or net which will contain cover loose hair in compliance with OHS regulations.
	Hearing protection & safety glasses should be worn.
	Before starting the machine at the beginning of each shift: Do a general overall machine inspection for loose fittings, fasteners. Ensure that the machine is not running at excessive speed or is vibrating. Check that safety control equipment is working properly. Report all faults immediately and ensure repairs of any faults that are found are completed before starting work.
	Only trained personnel should operate the machine.
	Never perform any maintenance on the machine while it is running.
	Observe and obey all warning decals.
	Do not adjust nailplates whilst the machine is operating.
	Ensure that all personnel are outside the safety area of the machine when it is working.

2. SAFE OPERATING CONDITIONS

When locating the machine within the factory production area, due attention should be given to a clear working area around the machine and the movement of completed trusses from the work area.

The operation of the machine should be confined to competent trained personnel only, who are responsible for the safe operation of the machine and its environment. These operators are to be responsible for a routine inspection of components and ensuring that the machine is not operated in an unsafe condition.

NOTE	**IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT. CALL PRYDA'S EQUIPMENT SERVICE TEAM IF YOU NEED ANY FURTHER INFORMATION.**

3. SAFETY AND HAZARD ANALYSIS

The purpose of the design is to press nailplates into timber evenly and quickly in a uniform and repeatable manner. The operator is required to turn the Finish Roller (FNR) ON and OFF. This roller process is continuous. When the truss is pressed, it continues through FNR and out onto the gravity fed roller system (optional equipment).

The following is a summary of the hazards and risks identified on Finish Roller press. A full Plant Hazard Identification, Risk Assessment and Controls Measure Checklist is available on request.

HAZARD	HOW SEVERE	HOW LIKELY	RISK REDUCTION
Electrical shock caused by power cable failure	If cable can be allowed to drag and snag rubbish, cable breach could leave cable live causing electrocution	Very Unlikely	Operator to be responsible to ensure the the cables have no defects before turning ON the machine Installation electrician is to ensure appropriate safety switches and all parts (especially cable) earthed correctly
Machine has high Voltage power supply	Unauthorised access to electrical controls could result in death by electrocution	Very Unlikely	Ensure all power cabinets are locked and key removed. Use warning decals to warn of danger
Trusses being conveyed strike personnel	Up to minor bruising	Very Unlikely	Ensure all power cabinets are locked and key removed. Use warning decals to warn of danger
Roller crushing operator hand/ appendage	Severe crushing	Unlikely	Operator training to educate hazard. Place warning stickers on the HER press
Personnel being caught in Hip End Roller Press	Severe crushing	Unlikely	Zone perimeter guarding, emergency stops and siren all in place. Educate operators on correct use of machine and all fitted safely devices

Systems of work consist of timber being brought up to the press on trolleys or forklifts, which introduce hazards of falling timber and forklifts operating in the area. The timber is loaded manually into the jig and nailplates are located in position. There is a hazard of minor cuts from the sharp edges of the nailplates during this process. The trusses are removed and manually stacked nearby which includes lifting the truss off the outfeed rollers. This induces potential hazards of back strain caused by lifting and bending with loads.

3. SAFETY AND HAZARD ANALYSIS

The operator should be a mature and responsible person who should have substantial experience in all facets of truss making and be of sound body and mind and alert at all times. Operators who have medical (i.e. drug and alcohol problems) or other stress-related conditions which can cause the operator to lose concentration, should be avoided at all costs. The operator should also have an understanding of English and be trained in the basic daily maintenance of the machinery.

Before shipping, the press is to be inspected and results written by the Pryda test quality assurance system as detailed for the job. The press cannot be allowed to be removed from the manufacturing premises until all checks and tests have been completed and properly documented.

In the event of an emergency occurring, the machine can be stopped immediately by either pulling the safety lanyard on the infeed side of the machine, breaking the safety scanner range on the infeed/outfeed zones, or pressing one of the emergency stop buttons.

In the case of personnel being injured, the machine should be isolated, have the power isolated and should not be restarted until a full report and investigation have been carried out. In the event of minor or severe mechanical failure, the machine should be isolated and tagged off until the appropriate repair personnel can safely and competently repair the machinery and re-commission it.

4. INTRODUCTION

The Australian-designed and manufactured Hip End Roller (HER) is designed to press the nailplates into the timber for timber roof truss manufacturing. The initial process involves preparing the roof truss using the timber components and metal connector plates on the infeed table which are then transferred to the Hip End roller press for the final pressing.

The HER carries out the pressing operation when the truss is fed into the press opening. This means that pressing is done on a continuous basis.

The standard HER system is a robust fabricated steel pressing system specifically designed to increase the levels of productivity within the truss plant.

The systems typically have a 4.35 m (approx.) wide pressing capacity.

5. STANDARD MACHINE SPECIFICATIONS

SPACE REQUIREMENTS/SYSTEM	
Minimum height overall	2.3m
Minimum width overall	4.96m
Length overall (approx.)	Standard 14.5m including infeed table/outfeed
Weight (approx.)	6 tonnes

PERFORMANCE	
Effective pressing length	Unlimited (typically 6m nom.)
Effective pressing width	4.35m
Standard timber thickness	35mm
Pressing speed	32 m/min (nom.)
Operation hours/day	8hr typically
Safety features	• Sick safety scanners • Operator lanyard emergency stop • Zone perimeter guarding • Infeed sensor bar (optional) • Stack light • Standard emergency stop push buttons

POWER REQUIREMENTS	
HER max running load	Supply -20 Amps max
Voltage	415V, 3-phase with a neutral (5-wire), 50 cycles

For specific layout and quantities refer preliminary G.A. drawing.

It is expected the customer will supply site electrical installation and connections, within a sheltered site.

6. SAFETY COMPONENTS

The standard 4.96 wide x 610 dia. HER is a robust, heavy duty nail plate roller press designed to achieve a linear throughput pressing speed of 32 metres/minute at the lowest practical power consumption. The advantages of continuous pressing over the more common stop-start platen pressing system include minimal labor for the operation, more uniform power consumption, less wear and tear on machinery, and significantly higher production output.

Safety has been one of the major design considerations in the development of the standard PRYDA HER.

Safety scanners, emergency stop controls and guarding arrangements ensure a high level of operator protection from moving parts. These rapidly stop the machine in the event of an emergency or obstruction.

When fitted (optional feature), a warning buzzer is additionally installed to signal when a truss is approaching; letting the operator in the middle of the machine know when a possible truss is approaching them.

The selection of power transmission components has been based on generous service factors being applied to already proven drive gear. The entire transmission has been designed with longevity and durability in mind.

6. SAFETY COMPONENTS

The Hip End roller press is enclosed behind sheet metal guarding, which ensures optimum protection from moving parts. These can be removed for maintenance purposes but must be fixed in place during operation. When carrying out maintenance of the press, the isolator switch on side of the control cabinet should be locked out with a tag and padlock.

The safety system shall consist of, safety scanners mounted on each side of the machine that will open the safety circuit should the scanner identify an obstruction within its programmed field and emergency stop buttons located in the operators areas.

The safety sequence is as follows:

- When the scanner is activated, the system will instantly brake and halt the machine.
- A warning LED is illuminated RED on the scanner to advise its activation and the RED stack light will illuminate solid. This scanner resets to GREEN when the field is clear again and the stack light will clear.
- Once the scanner is GREEN, the BLUE reset button on the operator controls will start flashing. This signifies that the safety system can be reset, and the machine restarted.



As with the safety scanners, the system also includes an operator lanyard on the infeed side. This allows the operator to stop the machine across the width of the unit without activation of the safety scanners or emergency stop buttons. The stack light will remain RED until the safety lanyard is reset. Resetting is as per the scanners above.

Once a safety circuit has been opened, the machine will stop immediately until the BLUE reset control is pressed. The machine is fitted with an amber flashing light that will illuminate when the machine is running.

There are also sensors mounted to the operating table (optional for 3-zone use) which will sound a buzzer when they are obstructed (eg. truss components passing over them).

There are two emergency stops on the Hip End roller Press. The machine is also enclosed by Zone Guarding around and underneath.


E-stop (Optional for 3rd operator use)

E-Stop on Electrical Cabinet

E-stop on external guarding.

7. OPERATING INSTRUCTIONS

The basic operation of the FNR press is very simple. Before operating the press, the operator must have read the Operating & Maintenance Manual specifically regarding safety and have ensured that the relevant maintenance checklists have been carried out.

The press has a main power isolator mounted on the side of the electrical control box. This switch should be turned OFF at the end of each shift. Before any maintenance or inspection is carried out on the press, the isolator should be tagged in the off position.

On the front door of the electrical control cabinet is an illuminated push button that, when the FNR press is first turned ON, it illuminates to show that the emergency system requires resetting. When the emergency system has been activated and then cleared, the Blue colour RESET button will flash and will require pressing to reset.

When the button is illuminated, the safety system has been actuated or the main power has been turned OFF and then restored; the machine should not function.

Mounted on the electrical cabinet control panel is a mushroom-head emergency stop button which, when struck, activates the emergency shut-down system, and immobilises the press.

The control cabinet has the following functions:

Roller Reset	Will flash BLUE when safety system has been activated and is ready to be reset.
Roller Start / Jog	When in “Roller Start” mode, pressing this will initiate roller start-up. The roller will take approximately 5 seconds to achieve full speed. When in “Roller Jog” mode, pressing this button will start the drive for the period the button is held down.
Roller Stop	Will stop the rolling function and initiate a rundown period. At a production break or the end of production, the stop button is pressed to turn off the drive. This is not intended to be used in an emergency stop situation.
Roller Run / Jog (selector switch)	This allows the press to be switched from run in one direction to jog mode. It is intended that the jog function is used to clear jambs and not for normal operation.
Roller Fwd / Rev (selector switch)	This determines the drive direction. Fwd - When the “Start” button is pressed, the press will continuously operate in the forward direction. Rev - The reverse function is used to clear jambs and not for normal operation. “Start” button need to be held on for the reverse function to work.

CAUTION	**THE OPERATOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF ALL PERSONNEL WHILST IN CONTROL OF THE MACHINE.**

8. SHUT DOWN/ISOLATION

1. Inform employees that will be affected by the shutdown of the equipment.
2. If the machine is running, Press “STOP” button on the control cabinet otherwise skip to next step.
3. Turn OFF the Isolator switch which is located on the side of the control cabinet and perform lockout/ tagout procedure.
4. If required, Electrical contractor to perform lockout/tagout procedure at the main distribution board.

9. TROUBLESHOOTING

CONDITION	CORRECTIVE ACTION
Machine will not start	Check the following items in the below mentioned order 1. Check emergency stops are all released and RED status light is not illuminated 2. Power isolator on Control Box is ON 3. Safety system “Reset” button is illuminating in Blue 4. Emergency Stop lanyard reset 5. Main power supply turned ON 6. Electrician to check the following a. Check thermal overloads in control box b. Check circuit breakers in control box c. Check all 3 phases of incoming power 7. Check chain for damage
Machine starts & immediately stops	Electrician to check the following 1. Check overhead supply cable system for damage 2. Check wiring for loose, damaged connections
Machine strains when pressing	1. Check timber thickness 2. Check roller to roller gap is set between 35 – 36 mm
Nailplates not completely pressed	1. Check timber thickness to specification 2. Check if all timber components consistent thickness 3. Check upper/lower roller bearing mounts secure 4. Check roller to roller gap is set between 35 – 36 mm

10. OPTIONAL EQUIPMENT

10.1 ASSEMBLY TABLES

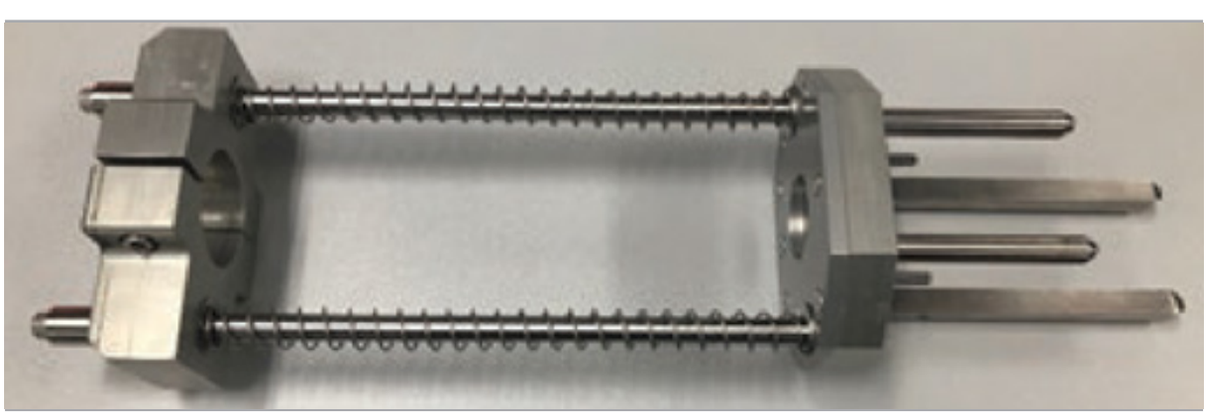
The assembly tables are where the operators build the truss before sending it through the HER press. Picture shown below is an indicative reference only and the table design will change according to plant layout and custmer specifications.

10.2 TRANSFER ROLLERS

The transfer rollers act as the outfeed for the machine. Pryda can supply these lengths to your specifications.

10.3 SPEEDTRUSS JIGGING

Various options for drill guides and jigs are available. Please see image below of a horizontal drill guide.



10. OPTIONAL EQUIPMENT

10.4 PRYDA DRILL JIG

The Pryda Drill Jig is designed to be set up at the end of the transfer tables allowing an easy transition from the HER Press to the Drill Jig. The operator can then use the Drill Jig to drill the screw holes through the top and bottom chords of the trusses.

11. SCHEDULE A - OPERATOR CHECKLIST

Operator Name: Date Week Beginning:

AREA	ITEM	M	T	W	T	F
General	Check all guards are fitted correctly	☐	☐	☐	☐	☐
	Check correct operation of machine. Run it forward and in reverse.	☐	☐	☐	☐	☐
Safety	Ensure all e-stops are functioning properly	☐	☐	☐	☐	☐
	Ensure truss alarm operating when covered (if fitted)	☐	☐	☐	☐	☐
	Check all electrical cables for damage	☐	☐	☐	☐	☐
Mechanical	Check thrust wheel damage.	☐	☐	☐	☐	☐
	Check cat track tray is free of debris.	☐	☐	☐	☐	☐

PLEASE MAKE PHOTOCOPIES OF THIS FORM FOR LOGGING MAINTENANCE

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