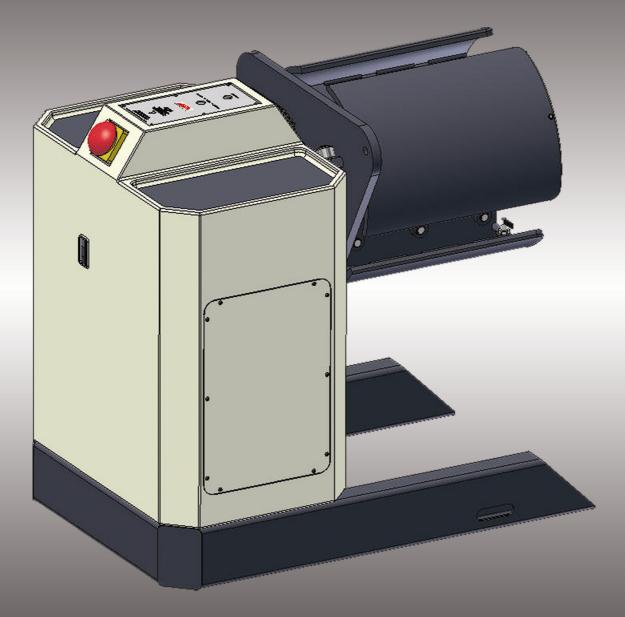
AEM DECOILER UDM4000

Instruction Manual





Head Office & Factory: 95 Bedford Street, Gillman, Adelaide, Australia T: 618 8341 0086 E: sales@aemcores.com.au



UDM4000 Decoiler Operating and Maintenance Instructions

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Safety Warnings



These instructions must be read and understood in their entirety before operating the machinery

- For SAFE OPERATION operators must be fully trained and supervised when using the machine.
- Users of the Unicore machine should also check and abide by all safety requirements of their particular state and country.
- Users should evaluate and monitor their Workplace Environment because it may influence the risks associated with the use of the machine.
- Users should create a Standard Operating Procedure (SOP) for the machine in accordance with their plant safety guidelines and the Operating Instructions and Risk Assessment provided by AEM Cores Pty. Ltd.
- AEM advises all users to erect an interlocked safety barrier around the Decoiler to the rear of the Unicore machine to prevent access to the moving strip and Decoiler.
- Contact terminals are provided on the Unicore machine to enable the connection of the safety barrier to the Unicore machine's Safety Interlock/ HOLD function.
- Users must adhere to all safety notices / warnings on the machine.
- Never put any part of your body or any other object within the area of the machine when the machine is operating.
- Do not attempt to override any safety features of the machine.
- If the machine is faulty in any way, stop using it, turn it off and contact your maintenance department and your AEM agent for further advice.

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2 Personal Protective Equipment

The minimum recommended Personal Protective Equipment (PPE) is:

- 1. Hearing protection
- 2. Safety glasses
- 3. Dust mask (Refer to the MSDS from your steel supplier)
- 4. Gloves
- 5. Safety shoes or boots





Overview 3

The decoiler model UDM4000 manufactured by AEM Cores Pty Ltd is available for use with the AEM Unicore Machine. Its capacity and speed are matched to the Unicore Machine's output. The decoiler is powered directly from the Unicore Machine and is therefore integrated with its emergency stop circuitry.

The AEM UDM4000 Decoiler can also be used as a general purpose steel strip decoiler which can be used as a standalone unit to provide a regulated supply of steel strip to any machine requiring it.



The AEM Decoiler model UDM4000 is a driven type Decoiler with inductive sensor activation.



NOTE: Material handling equipment to load the steel onto the Decoiler must be supplied by the user



NOTE: For safe use of non AEM equipment please refer to the supplier's Safety and Operating Instructions.

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4 Specifications

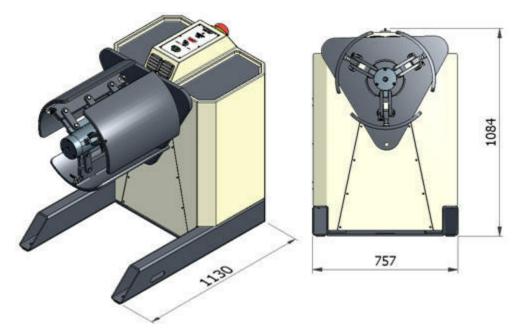
General

- Push button hydraulic expanding mandrel
- Maximum coil width 340mm
- Maximum coil weight 2000kg
- Maximum Mandrel diameter 525mm
- Minimum Mandrel diameter 460mm
- Speed range 5-30 rpm,
- Soft start and soft stop
- Strip sensing non-contact induction sensor



Close up of Mandrel

Dimensions



Weight

• 490kg

Compressed Air

• Minimum air pressure required to operate the mandrel is 3 bar

Power Requirements

- Power 380-500VAC 3 phase
- Can be powered directly from UNICORE machine



5 Controls

This section of the manual shows the location of the UDM4000 controls. The main controls are located on the top of the decoiler.



Control Panel Location

5.1 Emergency Stop Button

The E-STOP button is located on the top of the decoiler.

The red mushroom E-STOP should be used in an emergency to STOP the Decoiler.

Pull it out to release and re-apply power to the Decoiler.



5.2 Manual / Auto switch

The Auto/Manual switch allows the selection of three operating modes:

- MANUAL in this mode the Decoiler will only turn when the JOG direction buttons are pushed.
- AUTO LEFT When the inductive sensors detect no steel to be present the Decoiler will turn, feeding to the left.
- AUTO RIGHT When the inductive sensors detect no steel to be present the Decoiler will turn, feeding to the right.



5.3 Decoiler driver settings



The speed, acceleration and de-acceleration of the Decoiler are set at the factory.

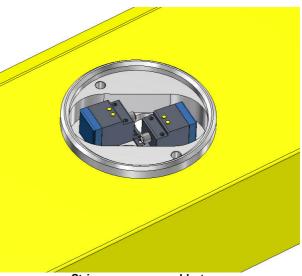
To avoid damage to the components of the drive system, these settings should NOT be changed without first contacting your AEM agent.

5.4 Inductive sensors and cable trays

Two inductive sensors in an aluminium housing are used to activate the Decoiler when it is in AUTO LEFT or AUTO RIGHT mode. When the sensors do NOT detect strip the Decoiler will turn and feed off strip. When the sensors detect strip the Decoiler will stop.

The housing may be turned to better allow the sensors to detect the strip.

This housing is fitted to yellow cable trays. These trays provide a surface for the strip to run on and also protect the sensor cables and main Decoiler power cable from any damage.



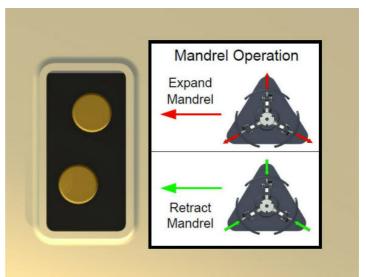
Strip sensors on cable tray

5.5 Mandrel Controls

Use the buttons provided to expand or retract the mandrel. These buttons are located on the rear of the cabinet on the opposite side to the mandrel.



Location of Mandrel Controls



5.6 Jog direction

These buttons only operate when the MANUAL / AUTO switch is in the manual position.

- Press the Left arrow button to decoil left.
- Press the Right arrow button to decoil right.

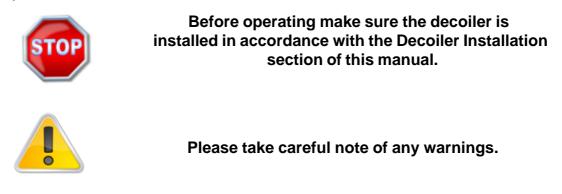


Location of Auto/Manual Mode switch



6 Operating Instructions

This section of the manual provides a step by step procedure to load and operate your UDM4000 Decoiler.



6.1 Power on



Before turning ON power to the Decoiler ensure that it is in MANUAL mode.

The Decoiler is powered from the AEM Unicore machine. When the Unicore machine is ON, power will be available to the Decoiler.

Ensure that the E-STOP is released..

Mode selection 6.2

If strip must be loaded onto the Decoiler or into the Unicore machine ensure the Decoiler is in MANUAL mode.

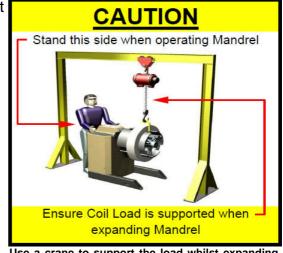
If the steel is loaded and set in the Unicore machine select the AUTO mode direction suitable to decoil the strip toward the Unicore machine.



6.3 Load strip on Decoiler

Load the steel onto the Decoiler ensuring that the strip de-coils forward from the top of the coil. Ensure the on-demand feed sensor of the Decoiler operates so that it does not place any load on the feed mechanism of the Unicore machine. Ensure that the strip is running over the inductive sensors.

Use a suitable capacity crane to load the steel onto the Decoiler and ensure its weight remains supported while the mandrel is expanded onto the coil.



Use a crane to support the load whilst expanding the mandrel

Stand at the rear of the decoiler when operating mandrel expansion 0



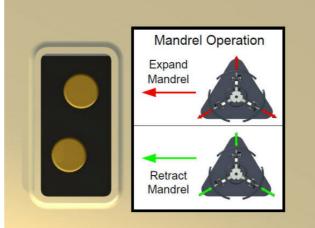
6.4 Expand Mandrel

1. Ensure the Manual / Auto switch is in MANUAL mode.



Location of Auto/Manual Mode switch

2. Use the buttons provided to expand or retract the mandrel. These buttons are located on the rear of the cabinet on the opposite side to the mandrel.



6.5 Strip end

If there is no strip loaded to detect, the inductive sensors of the Decoiler will cause the Decoiler to feed continuously. When this occurs, switch the Decoiler to Manual Mode to stop it from turning.



7 Decoiler Maintenance

7.1 Maintenance Requirements



Before performing any maintenance, ensure the power to the Decoiler is OFF by disconnecting the Decoiler from the power socket.

7.2 Air Lubrication

The decoiler mandrel requires a clean lubricated compressed air supply. The decoiler air line connection point is located on the rear of the UCM3000 UNICORE Machine cabinet. Ensure that the lubrication reservoir is filled with a suitable air tool lubricant. The reservoir will require topping up from time to time.



Location of Air Reservoir At Rear of UCM3000 Machine

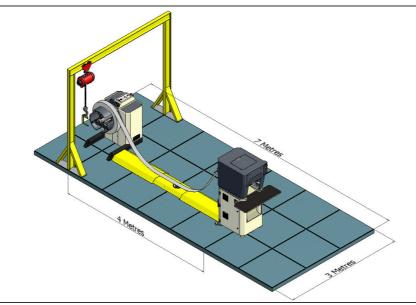


The Decoiler must not be operated when the lubricant reservoir is empty.

8 Decoiler Installation

8.1 UNICORE Production Cell Floor Plan

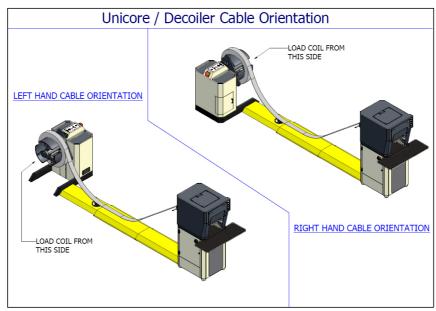
The following diagram shows the dimensions and layout of a typical UNICORE Production cell. It is recommended that interlock guarding is fitted around the production cell. See *Electrical*



Typical AEM Decoiler Installation with a Unicore machine



Note: Decoiler will be supplied pre-wired from the factory for LEFT or RIGHT Hand Cable Orientation as per the purchase order specification. If the orientation has not been specified, then the Decoiler will be wired for RIGHT Hand Cable Orientation.



Left or Right hand orientation is possible

8.2 Unpack and Place

- 1. Inspect the packaging crate for damage. Photograph and report any damage.
- 2. Unpack the Decoiler from the crate and thoroughly inspect. Again, if any damage is found, photograph and report it.
- 3. The Decoiler should ONLY be lifted by inserting a correctly load rated lifting eye into the hole in the mandrel backing plate. Use a suitably rated forklift or crane to lift the Decoiler.
- 4. The Decoiler should be positioned as per the Unicore / Decoiler Floor Plan, 4 meters from the rear of the Unicore machine. It may be bolted down.



Decoiler Lifting Point

8.3 Anchor Points

The UDM4000 is equipped with 3 anchor points. It is recommended that the machine is anchored to the floor using M16 Dyna bolts or equivalent.

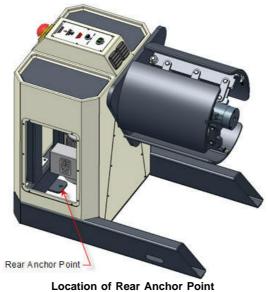
There are two front anchor points. These are located on each of the machine legs



Location of Front Anchor Points

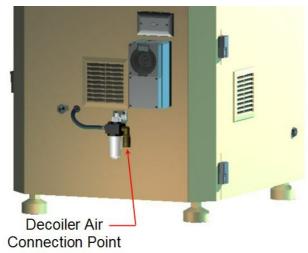


There is one rear anchor point. The side access panel must be removed to gain access to the rear anchor point.



8.4 Air Connection

The decoiler requires a clean and lubricated air supply. The connection point is located at the rear of the UCM3000 UNICORE Machine cabinet

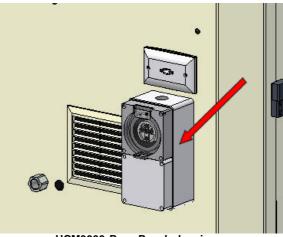


Location of Air Reservoir on Rear of UCM3000



8.5 Electrical

- 1. Lay the cable trays out so that the inductive sensor housing is positioned in the centre of the tray.
- Run the cables for the inductive sensors and the main power cables safely under the cable trays.
- Plug the Decoiler main power cable plug into the socket on the rear of the Unicore machine.



UCM3000 Rear Panel showing Power Socket for Decoiler



Erect appropriate safety enclosure around the Decoiler and cable tray area.

This should be integrated with the Interlock / Hold feature of the Unicore machine.



Safety Interlock connects here



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