

RAPTOR

FROM TOWMATE



LAYSAFE OPERATING INSTRUCTIONS



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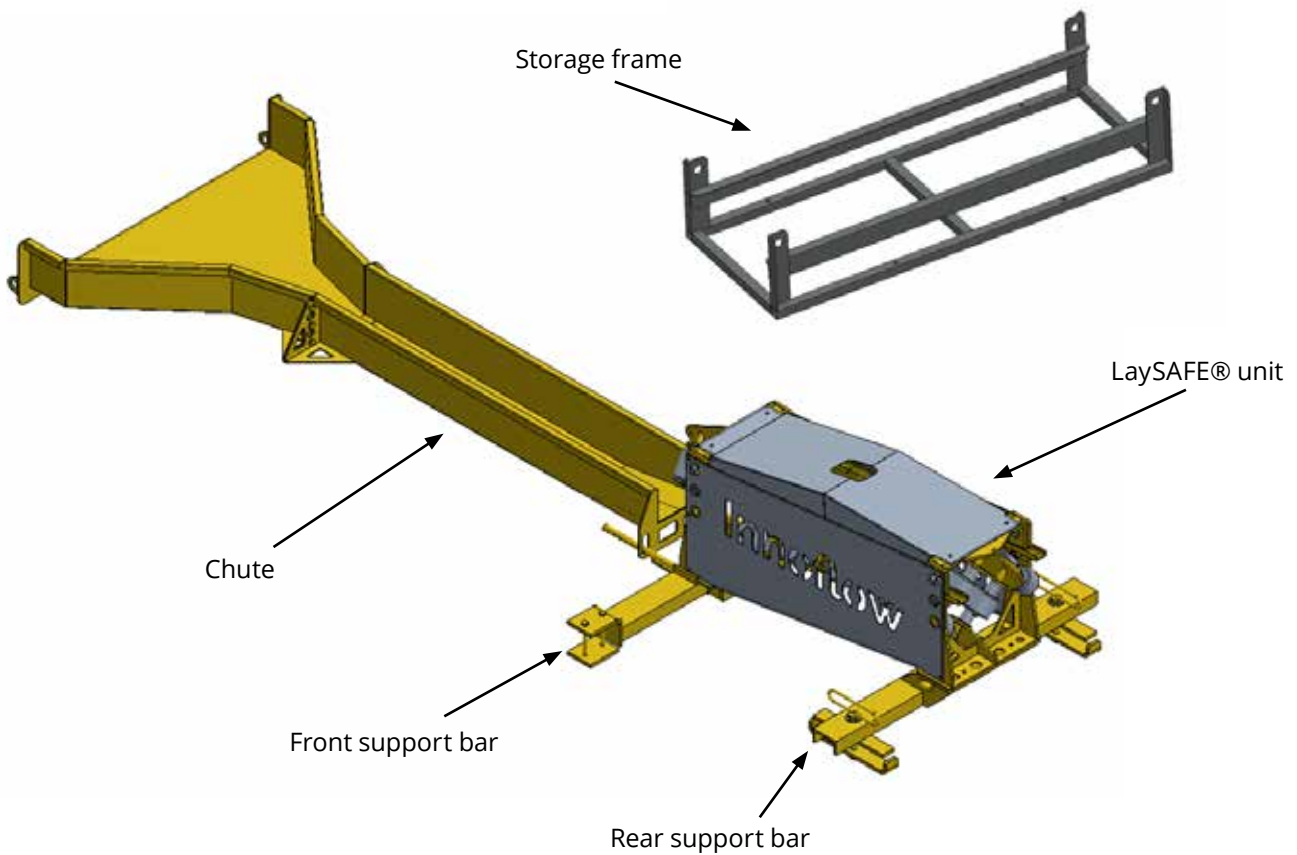
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INTRODUCTION

WARNING: These guidelines are intended to supplement and provide information towards the installation contractors Risk Assessment Method State (RAMS). These guidelines are not intended to be primary procedure for the onsite operation. In all instances the installation contractors RAMS must be followed and take precedence.

SYSTEM OVERVIEW

The LaySAFE® solution is made up of numerous components. as described below.



The Chute, Storage Frame, Front and Rear Support Bars are all trailer specific parts. The appropriate variant of these is required in order to fit the pipe trailer. The LaySAFE® Unit itself is universal.

Item	Approx weight (KG)	Approx footprint (M)
LaySAFE® Unit	110	1.2 x 0.4
Rear Support Bar	20	0.4 x 1.2
Front Support Bar	20	0.5 x 1.4
Chute	35	2.4 x 1.2
Storage Frame	15	0.4 x 1.2

* LaySafe is a patented product, registered in Great Britain, under patent number GB2604708

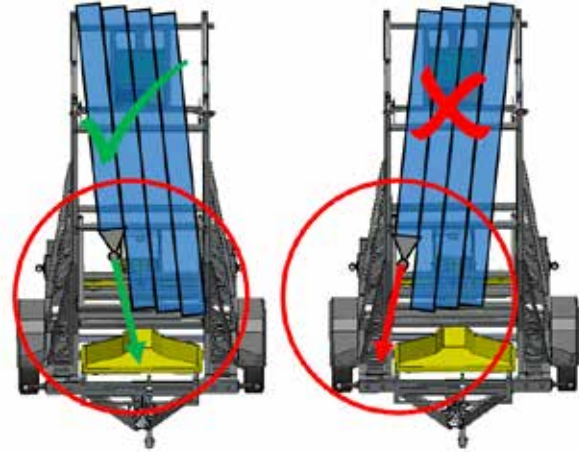
PULLING OPERATION

1. LOADING THE COIL

The LaySAFE must be be fully fitted and in position **before** loading the coil.

A towing head should be applied to **both** ends of the coil. The towing head on the outside wrap of the coil is to be connected to the towing line/wire. The towing head on the inside wrap is to be connected to the hold back wheel in the centre of the trailer.

The coil should be leaned over within the trailer to the side which the outside wrap towing head is on, as indicated on the image to the right. This points the towing head towards the chute. Load the coil in a position so the towing head is easy to access from ground level.



2. INITIAL PULL-THROUGH

The pulling load will be around 1 ton, around double when compared with not using LaySAFE.

Ensure a suitable vehicle is used to hold back the trailer or suitable wheel chocks used on both the trailer and towing vehicle.

Do not use the hand winch which comes with the trailer. A 6m+ strap should be connected from the towing head to suitable pulling equipment such as a winch, dumper or excavator. Drain rods or similar can be used to initially push the 6m strap from one end of the trailer, through the LaySAFE to the other end.

Carefully observe the towing head as it goes through the system to ensure no snags. Any rigging applied to the towing head should be optimised to reduce the risk of snagging e.g. D-shackles the correct way around etc.



3. TAIL END

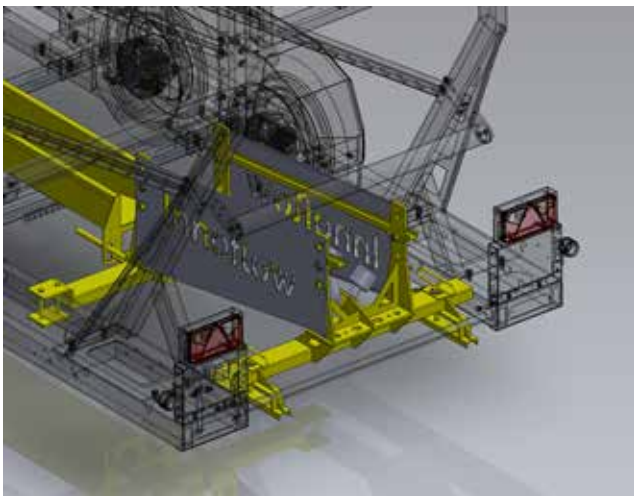
A limited amount of stored energy may still be present in the tail end, as a precautionary safety measure a strap should still be used to control the tail end as it leaves the trailer. This can be the strap connected between the second towing head and the hold back wheel in the centre of the trailer.



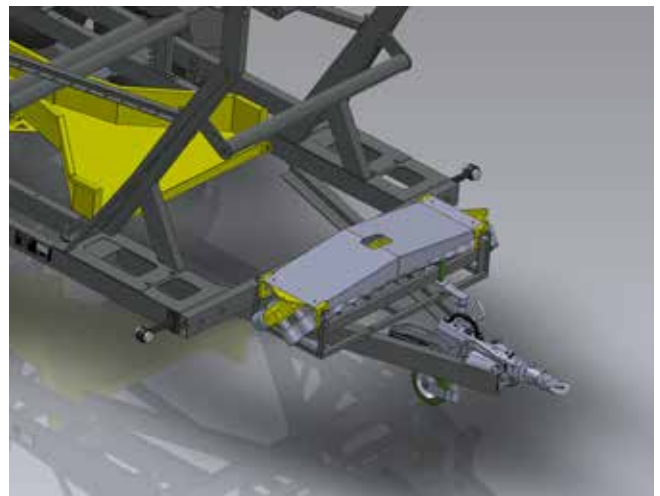
TRANSPORTATION

Due to the imbalance caused by adding weight to the rear of the trailer, there is a maximum speed limit of 20mph imposed on the pipe trailer whilst LaySAFE is fully assembled onto the rear of the trailer.

If the LaySAFE and trailer are of the variant which come with a removable top half and storage stanchion on the a-frame on the front of the trailer, this speed restriction can be removed once the top half of the LaySAFE has been safely and securely fitted to the storage stanchion. This provides a counterbalance to the weight on the rear bringing the nose weight of the trailer back in line with road transport specification.



5.1 Top half removed



5.2 Top half positioned on stanchion

Step 1 Unbolt of the x4 pins which hold the top and bottom half of the LaySAFE together. Safely set aside the pins.
Step 2 Securely holding the top rear end of the LaySAFE, slide the top half of the LaySAFE rearwards and out of the trailer, ensuring not to go past the forward legs.
Step 3 Once the forward legs are at the end of the slide rails, a second person should then lift the front end of the top of the LaySAFE. At this point the operation becomes a 2-man manual lift. Note the weight of the top half of the LaySAFE is 45kg.
Step 4 Ensuring all walkways are free and clear, carry the top half of the LaySAFE from the back of the trailer to the front.
Step 5 Position the top half of the LaySAFE down onto the storage stanchion on the a-frame of the trailer.
Step 6 Using the storage pins removed in Step 1 above, safely secure the top half of the LaySAFE onto the storage stanchion.
Step 7 After performing a general visual inspection of all parts of the LaySAFE and trailer, the trailer and system are now safe to tow away without speed restriction.

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RISK ASSESSMENT

Hazard	Phase	Affected Party	Probability	Impact	Risk Rating	Required Mitigation
Risk of injury from manual lifting. Risk of injury from falling objects, loss of control, spinning, finger traps. Failure of lifting equipment.	Attachment onto the trailer	The operator, and any persons nearby	Medium	High	Medium	Any lifting should in the first instance be carried out by mechanical means, where practicable. Any lifting appliances and equipment used must be inspected and examined in accordance with LOLER (1998). If any manual handling is employed, it must follow UK HSE guidelines. A competent person must oversee all lifting operations (both mechanical and manual) to ensure they are done safely and in compliance with all procedures and risk assessments from both Innoflow and the operator/contractor. All walking routes taken during a manual lifting operation must first be cleared, inspected, and made safe before starting the manual lift.
Trailer sway when traveling at speed with LaySAFE attached.	Transportation	Driver of the towing vehicle and other road users	Medium	High	Medium	LaySAFE, when attached to a pipe trailer will unevenly load the trailer as weight will be added to the rear. This presents a real risk of trailer sway (a continuous snaking/fishtail effect) at higher speeds, in particular over 50mph. As a result, a maximum speed restriction of 20mph is imposed onto the pipe trailer, when the LaySAFE is attached. If using the variant of LaySAFE which features a removable top half and storage stanchion on the front A-frame of the pipe trailer, the trailer can be used under normal conditions and without the 20mph speed restriction, once the top half of LaySAFE is safety secured upon the provided stanchion on the front Aframe of the pipe trailer.

<p>Risk of injury from entering or putting any body part inside the pipe trailer or LaySAFE, during a live pipe pull operation.</p>	<p>Operation: pulling the first-end of the pipe through the LaySAFE</p>	<p>The operator</p>	<p>Low</p>	<p>High</p>	<p>Low</p>	<p>Drain rods or similar should be used to feed the initial line through the system, starting at the rear end by the LaySAFE, pushing the line all the way to the front of the trailer where it can safely be connected to the pulling head on the front of the pipe. As the pulling operation starts and the pulling head moves from the front to the rear of the trailer and through the LaySAFE system, this should be closely monitored in case any part gets stuck/snagged inside the trailer or LaySAFE. In case of any snag, an “all stop” should be called and the situation assessed. Tension should be let off the pulling line, and in a safe manner the snag corrected without entering the pipe trailer where possible, using tools such as a crowbar, taking care not to damage the pipe, trailer or LaySAFE.</p>
<p>Risk of injury from the LaySAFE unit failing; becoming detached, breaking down, coming apart.</p>	<p>Operation: during pipe pull</p>	<p>The operator and any persons nearby or oncoming traffic</p>	<p>Low</p>	<p>High</p>	<p>Low</p>	<p>The LaySAFE unit has been suitably designed, analysed and tested to minimise the risk of any failure. However, compliance with all procedures and risk assessments from both Innoflow and the operator/contractor is required. In particular, the LaySAFE is designed for a maximum pulling load of 1,200kg. This load should not be exceeded. Furthermore, the pipe should be pulled in a mostly straight (inline) angle from the trailer.</p>

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<p>The LaySAFE not suitably removing enough stored energy to limit significant movement/release of the second-end as it departs the trailer.</p>	<p>Operation: pulling the second-end of the pipe through the LaySAFE</p>	<p>The operator and any persons nearby or oncoming traffic</p>	<p>Medium</p>	<p>Medium</p>	<p>Medium</p>	<p>The LaySAFE unit (with accompanied chute) has been designed to reduce the risk of the second-end departing from the trailer in an uncontrolled manner. As a result, Innoflow always advise that extra care is taken as the last 5-10 meters of pipe is pulled off the trailer. The pulling operation should be slowed down, and a safety line should be connected to the second-end of the pipe (in the same way as if no LaySAFE is being used), as a safety precaution.</p>
<p>Risk of injury from the pipe starting to “recoil” once it has been pulled out from the trailer.</p>	<p>Operation: after the pipe pull</p>	<p>The operator and any persons nearby or oncoming traffic</p>	<p>Medium</p>	<p>High</p>	<p>Medium</p>	<p>The pipe will be at its straightest immediately after being dispensed from the trailer, through the LaySAFE. Once it has been fully dispensed, if left on a flat surface or unrestrained it will over time slowly start to move and return to a more coiled state (roughly x2 larger than its original coiled state). This process will start immediately however may take up to 24 hours. In order to mitigate risk from the pipe moving on the ground, the pipe should ideally be installed immediately into a trench or duct. If pulled out onto a flat surface, suitable restraints should be used to prevent the pipe from moving and returning to a more coiled state.</p>