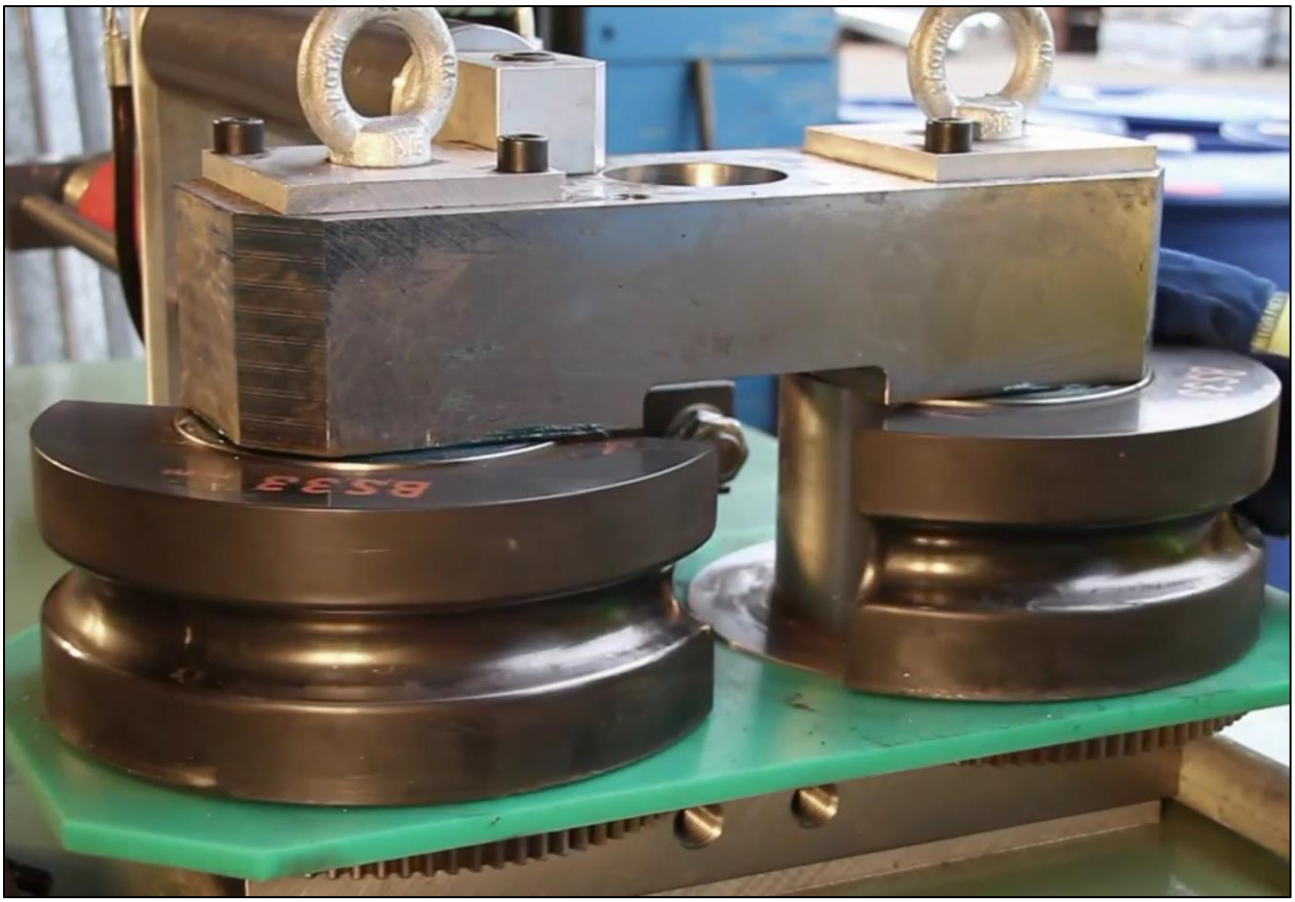
SafeDirection
CRASH BARRIER SOLUTIONS

BRIFEN®

MASH Wire Rope Safety Barrier



Swaging Procedure

Ref: IM 009/02

Introduction

Safe Direction recommends that only suitably trained personnel carry out this operating procedure. In addition, risk assessments should be carried out prior to use. Before each session use, check hydraulic oil level and inspect the machine for any damage. The machine should be operated without a fitting inserted to evaluate its full travel and ensure that parts are operating correctly. Check that dies rotate fully about their bearings. The machine should not be operated if faulty or damaged.

Please note: All coiled wire rope should be handled with care. It is recommended that the wire rope reel be suitably mounted on a frame to ensure ease of use and handling. To disengage the end of the wire rope from the reel, it is recommended that a firm hold is kept on the rope end as it is released.

We recommend the following:

- Hearing protection;
- Safety footwear;
- Safety gloves;
- Safety glasses;
- No loose jewellery;
- Tie long hair back;
- Follow the step by step instructions provided; and
- Familiarise yourself with the machine before starting.

Tools required:

- Disc cutter when cutting rope;
- Marker pen;
- Tape measure; and
- Pliers.

In addition:

- Swager provided by Safe Direction is not fitted with a generator and will require 240V with a 10A plug.
- Only dies and swaging machine provided by Safe Direction are to be used.
- Only components supplied/approved by Safe Direction are to be used in this swaging process including all nuts.
- For swaging operations carried out with dies/machines NOT provided by Safe Direction, it is required that sample tensile testing to failure is carried out using calibrated equipment to confirm the minimum required swaged fitting capacity of 164kN. Sampling rate to be determined by relevant overseeing testing agency.
- At all times the swaging machine/components must be protected from the environment i.e. rain, corrosive salts, sand, etc. It is recommended that the machine is operated at a comfortable height and used/stored in a dry, dust free environment.

Swaging Process

1. Ensure the swager is operated on a level, sturdy surface.

2. Uncoil the foot pedal and power cables.

3. Rotate the dies manually so that the flat faces of both dies face towards the hydraulic ram. This ensures the swaging starts from the 'neck' of the fitting.

4. Feed the threaded section of the fitting through the middle of the dies and through the hole in the pulling block until it will not go any further. Screw the M24 nut supplied onto the end of the fitting ensuring the thread of the fitting is through at least the full depth of the nut. Hold the fitting securely in place.

   The Brifen system uses both right-hand and left-hand swage fittings. The right-hand swage fitting is identified by a black cap and is used in the tension bay and end terminal assembly.

   The left-hand swage fitting is identified by a green cap and is used in the tension bay assembly only.

   Colour coded M24 nuts matching the right-hand and left-hand fittings are provided to secure the fittings to the pulling block.

5. Ensure the end of the wire rope is cut square and free from burrs. Care should be taken not to allow the rope/strand to unwind during cutting.

6. Mark the swaging depth with a permanent marker 120mm from the end of the rope.

7. Insert the end of the wire rope into the fitting until it reaches the permanent marker line.

8. Check that the rope will feed freely whilst being drawn into the machine and has not moved out of position at the end of the fitting.

9. Ensure the hydraulic lever is in the closed (up) position.

10. Operate the hydraulic cylinder by depressing the foot pedal to start pulling the fitting through the dies. This will reduce the fitting diameter and elongate it by approximately 25mm, swaging it onto the rope with a force applied of around 15 tonnes.

11. When the fitting has pulled through fully it will go slack.

12. Stop the hydraulic ram by taking foot off the pedal.

13. Realign the dies so that the flat faces are facing each other.

14. Return the hydraulic ram to its original position by opening (lowering) the hydraulic lever.

15. Undo the nut and remove the swaged fitting.

16. Unplug the machine.

17. Secure the tensioner tool box and coil the foot pedal cable and power cable for shipping.

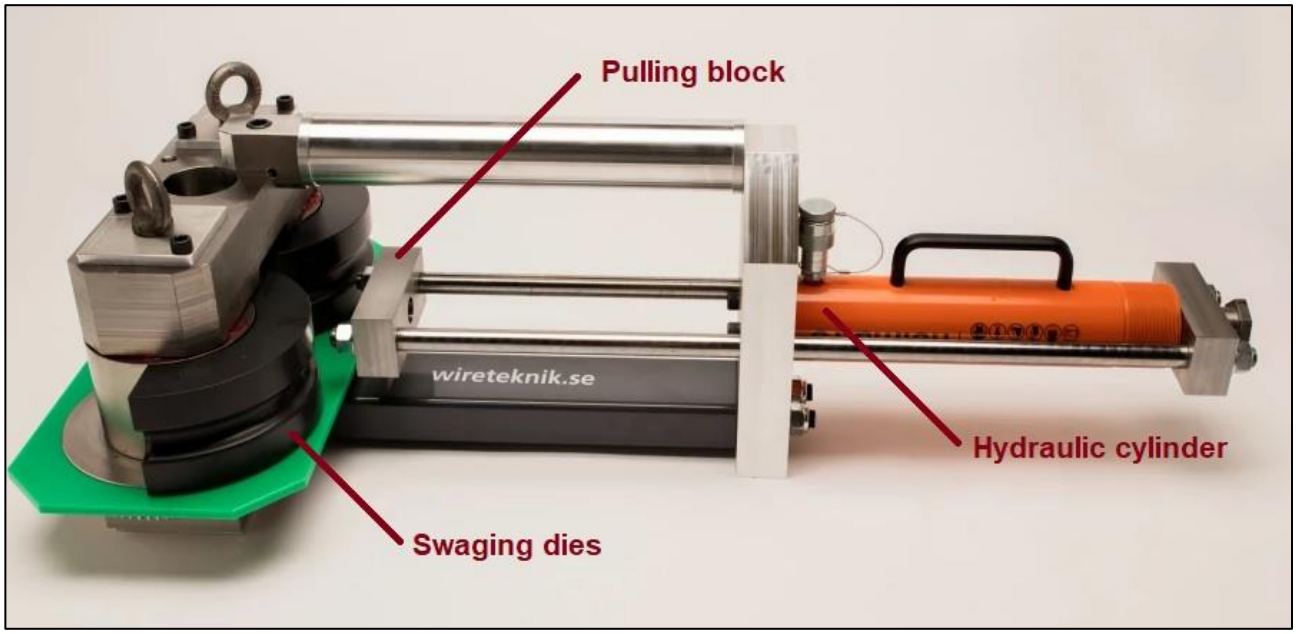


Figure 1: Swager parts identification

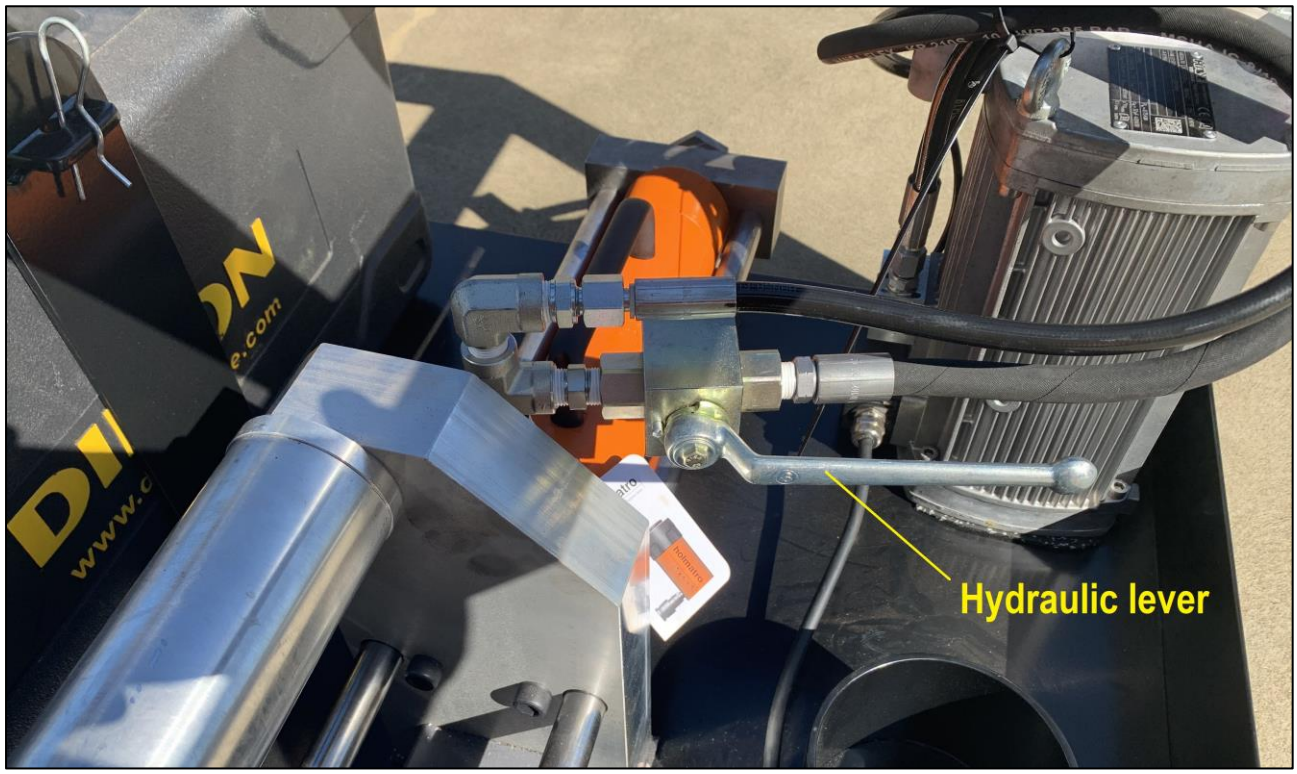


Figure 2: Hydraulic lever

Figure 3: Swager dies starting position - front view

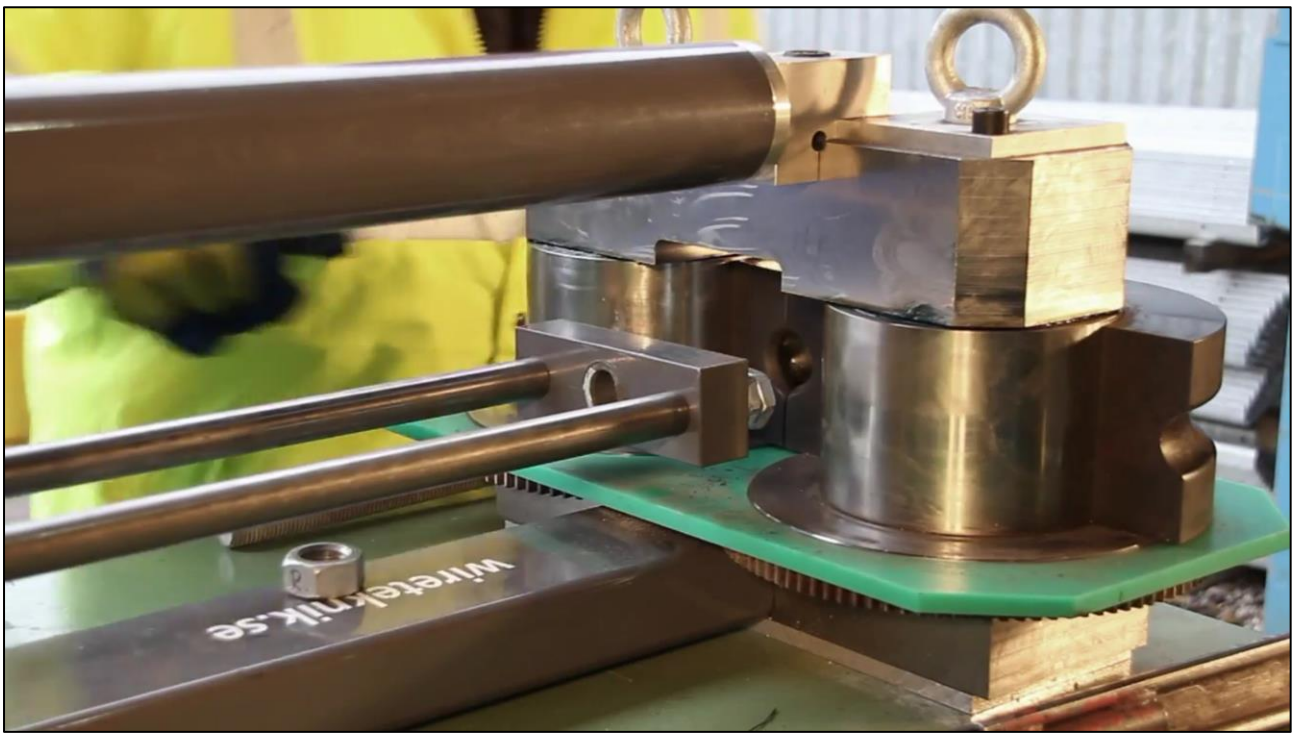


Figure 4: Swager dies starting position - rear view

Figure 5: Fitting attachment to pulling block

Figure 6: Swaging depth of 120mm

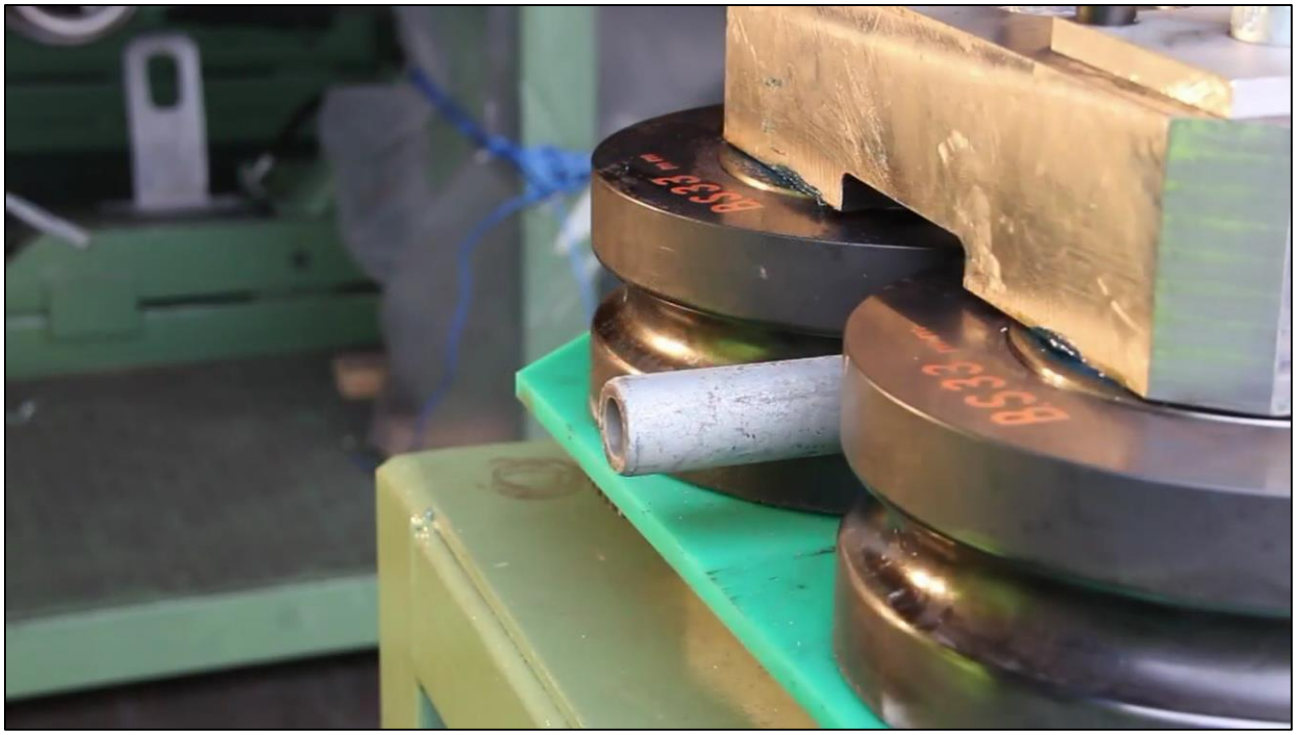


Figure 7: Fitting attached to pulling block - front view

Figure 8: Insert wire rope into fitting to the required depth of 120mm

Figure 9: Swaging commenced

Figure 10: Swaging complete

Figure 11: Rotate dies back to starting position after swaging

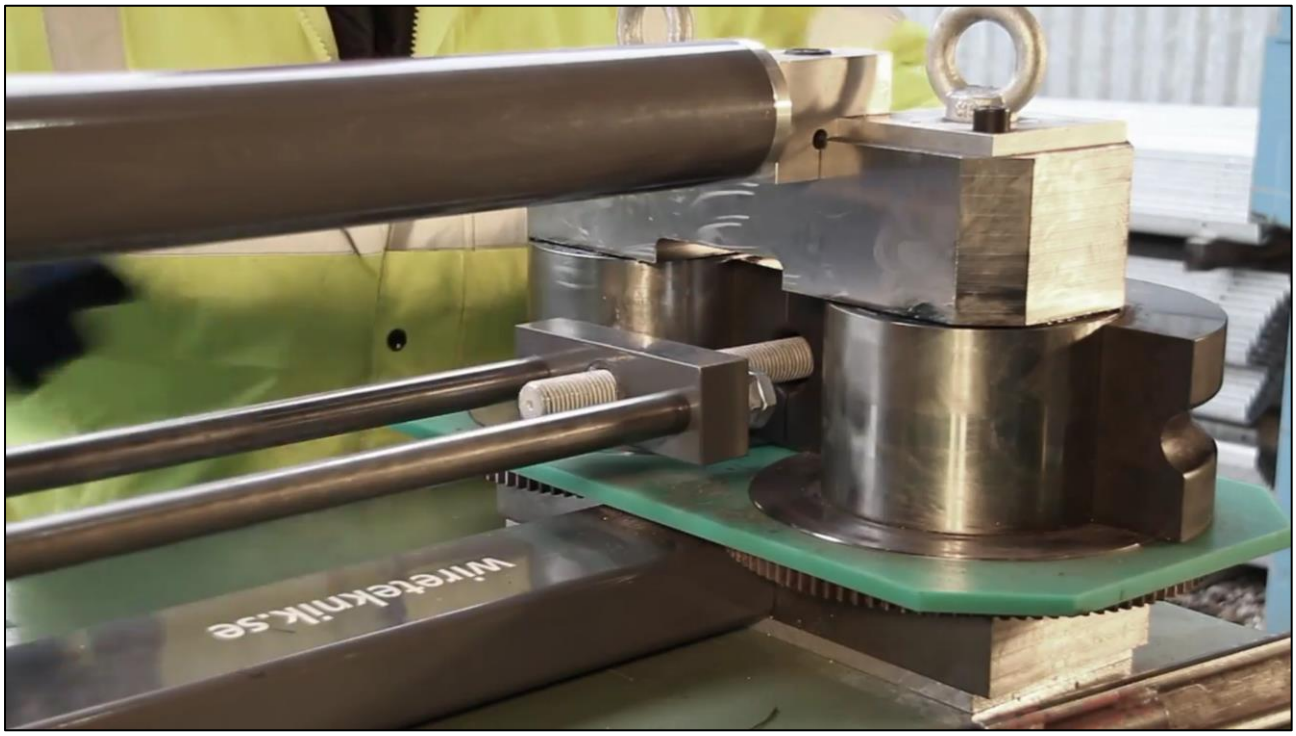


Figure 12: Remove fitting from pulling block

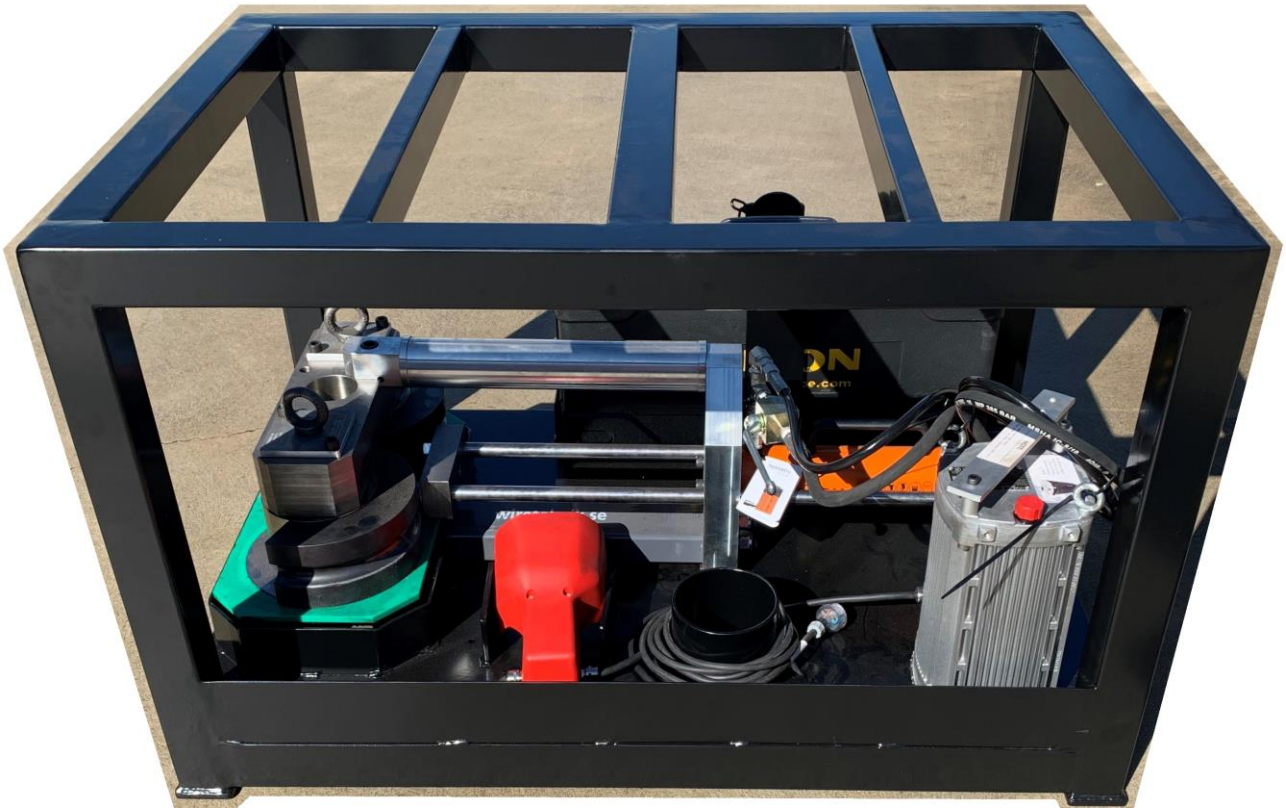


Figure 13: Packing of swager for shipping

Figure 14: Tension meter packing

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