

It is essential that all personnel working with, or in close proximity to, the saw have read and understood the contents of the operator's manual before commencing operations.

This short manual does not replace the operator's manual.



1. MOUNTING THE PENTRUDER 3P8 WIRE SAW

1.1 Positioning the Pentrunder 3P8 wire saw

Consider the following for positioning the Pentrunder 3P8 wire saw:

- a) Should it be a direct cut or should satellite pulleys be used?
 - o The wire saw can often be mounted on the cut object without satellite pulleys, a "direct cut". This is often very efficient.



- b) Position base plate with slack side as far from a sharp corner as possible. The angle from edge of concrete to slack side swivelling pulley should be as straight as possible. This will reduce vibration and catching.
- c) The swivelling pulleys should guide the wire. The fine adjusting will take place when the complete wire saw is assembled.
- d) The base plate slot length will allow for some adjustment of the position of the wire saw.
- e) The angle of the base plate in combination with the swivelling column allows for a lot of adjustment of the position of the wire saw.

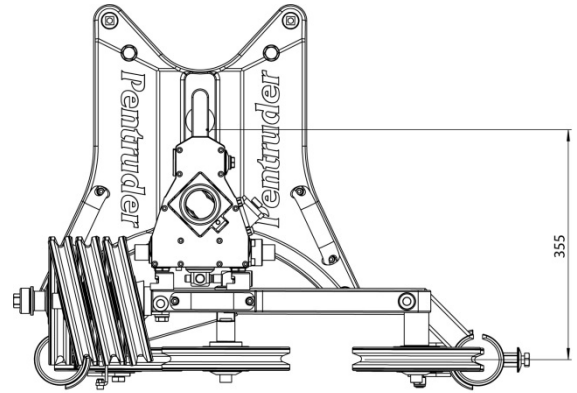


Position slack side pulley outside of concrete.



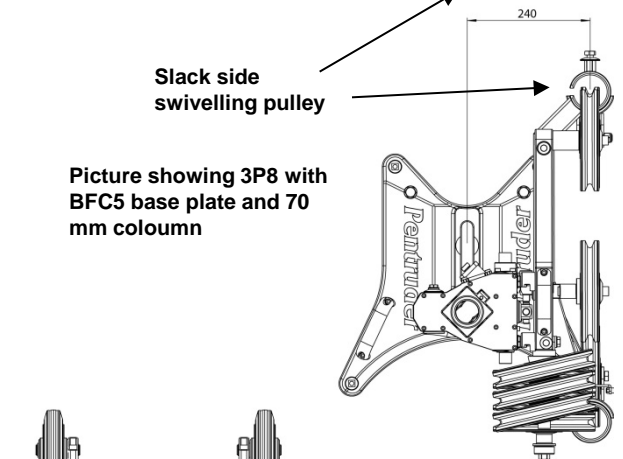
In this setup there is a lot of friction on the slack side.

Measurements for positioning. Rig built on 70 mm column



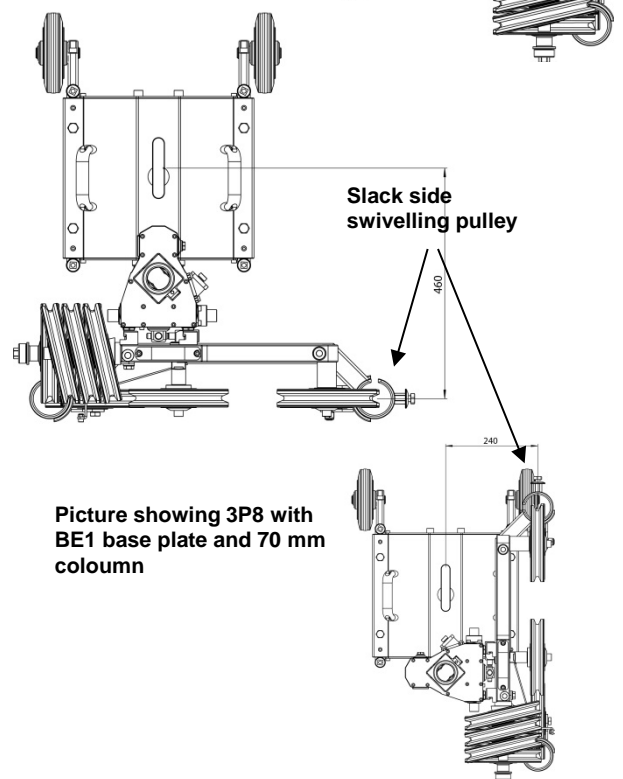
Slack side swivelling pulley

Picture showing 3P8 with BFC5 base plate and 70 mm column



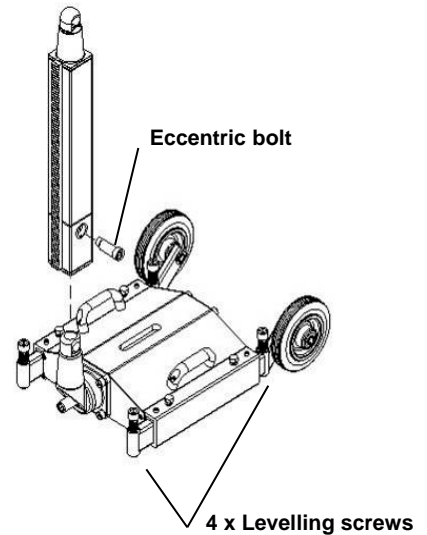
Slack side swivelling pulley

Picture showing 3P8 with BE1 base plate and 70 mm column



1.2 Mounting base plate

- a) Choose the proper fastening for the material the base plate should be fastened on.
For safety reasons it is very important that the base plate is properly fastened on a solid foundation. Follow the instructions in the Operator's manual and the instructions from the anchor manufacturer.
- b) Just fasten the base plate loosely until the complete wire saw is assembled and the fine adjusting of the positioning is done.
- c) Adjust the support legs.
- d) Level the base plate using the four levelling screws



1.3 Mount the column or columns.

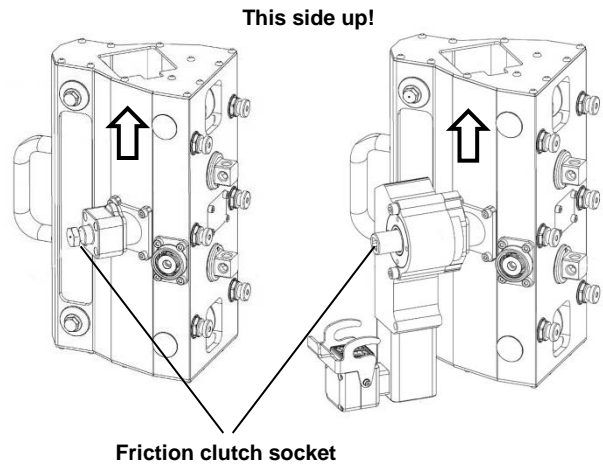
- a) The wire magazine stores 8 m of wire per 1 m of stroke of the tensioning carriage (the upper carriage). Choose the right length of column for storing enough wire for the size of the cut. See chart to the right.
- b) The column is locked by turning the eccentric bolt Clockwise.
- b) To release the column, the eccentric bolt is turned Counter Clockwise until it lifts from the cone.
- c) To remove the eccentric bolt, turn it slightly Clockwise again until the load on the bolt is gone, and then pull out the bolt, and the column can be removed.

Column length	Wire storage capacity (8:1)
0	7 m in magazine rollers
1.2 m	7 + 9.6 = 16.6 m
1.7 m	7 + 13.6 = 20.6 m
2 m	7 + 16 = 23 m

1.4 Mount the carriages on the column.

- Make sure the carriages are turned in the right direction. See picture.
- Loosen the socket on the friction clutch one turn. (19 mm / 3/4" spanner)
- Slide the carriage over the column.
- Adjust the height of the carriage by turning the feed shaft socket with a ratchet or knuckle bar.
- Tighten the friction clutch socket to 20-25 Nm / 15-18 ft-lbs.

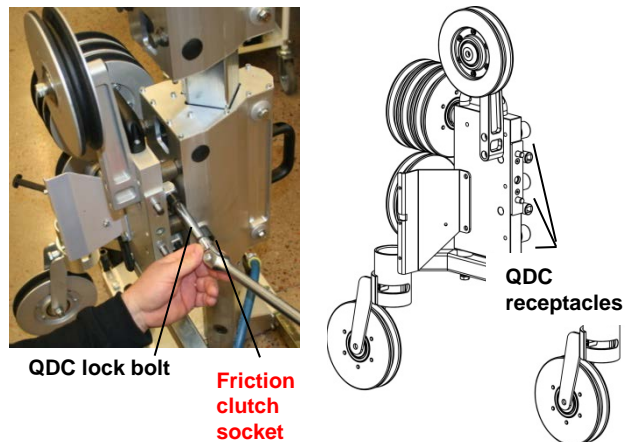
➡ **Note!** Do not over tighten as the friction brake should also work as a slip clutch.



1.5 Mounting 3P8 wire saw modules

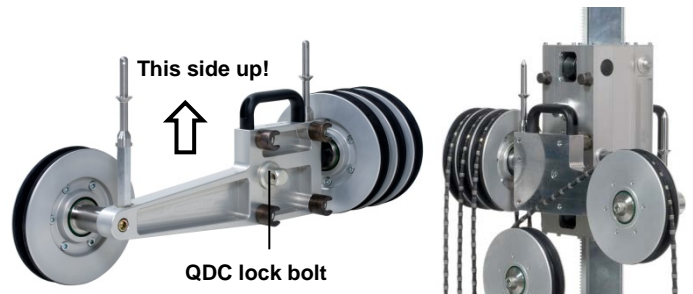
1.5.1 Attach the lower assembly to the lower carriage

- Make sure the lower carriage is properly fastened!
- Slide the complete lower assembly sideways with the QDC receptacles engaging with the locator studs on the carriage.
- Fasten the QCD lock bolt firmly, but do NOT over tighten.



1.5.2 Upper assembly

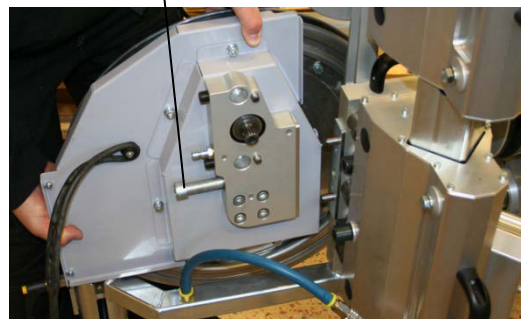
- Attach the upper assembly by sliding the assembly sideways onto the lower four locator studs on the upper carriage.
- Fasten the QCD lock bolts firmly, but do NOT over tighten.



1.5.3 Main drive pulley

- Attach main drive pulley on lower assembly by mating the two dowel pins to the dowel holes in the magazine plate.
- Tighten the QDC lock bolt with a 14 mm Allen key socket and a long 1/2" extension.

Lock bolt 14 mm Allen socket



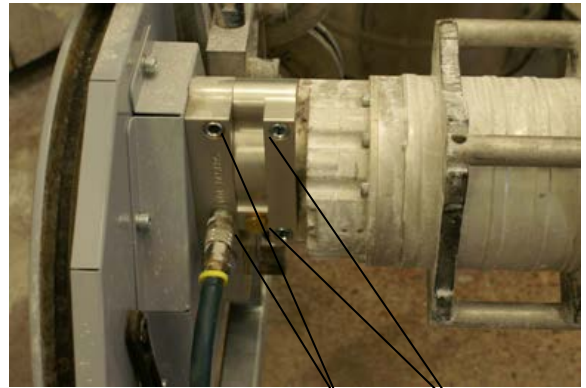
1.6 Mounting slip clutch and HF-motor

1.6.1 Fit slip clutch

- Align the splined drive shaft and clamp studs with the holes in the drive pulley assembly plate.
- Rotate the main drive pulley very slowly by hand until the spline fits and HF-motor seats properly.
- Tighten the clamp screws with an 8 mm Allen key / 5/16".

1.6.2 Fit HF-motor

Repeat the procedure as with the slip clutch.



b) Move main pulley a little to make the spline shaft mesh with slip clutch / HF-motor

c) Tighten clamp screws 8 mm allen key / 5/16"

1.7 Connecting

⇒ Connectors should be clean and dry.
Do not lubricate pins and sockets as this attracts dirt!

5.1 High voltage, low voltage, water and remote control connections

- Small diameter orange color cord to feed and travel motors
- Big diameter orange color cord to HF-motor
- Grey remote control cord to the power pack
- Connect water hose to HF-motor
Make sure water flow is sufficient



5.2 Power supply

- Connect 380 – 480V 3-phase cable to power supply
OR 200 – 230 V
- LED's on power pack will light up in a sequence to show that power is connected

2 Thread the wire

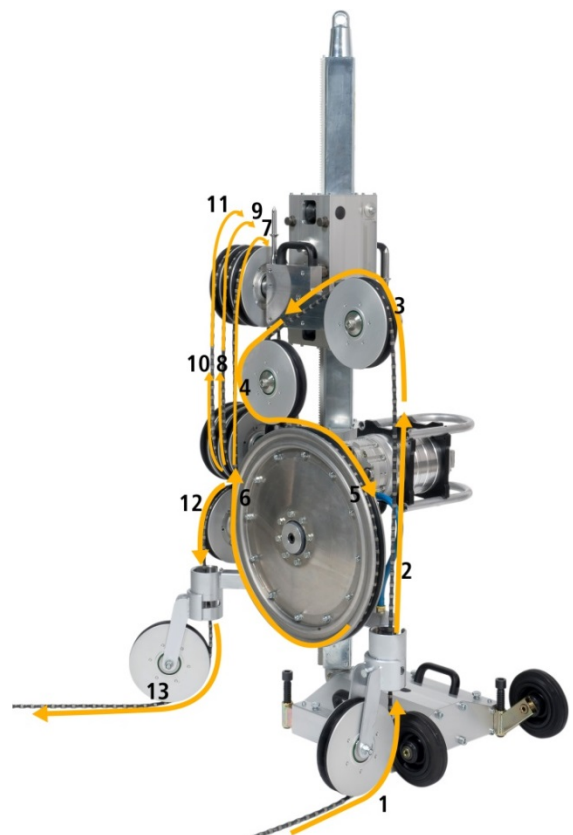
⇒ Make sure the wire is properly spliced. Use high quality crimp sleeves. Follow the directions from the manufacturer.

2.1 Thread the wire in the order showed in the picture.

The wire can be open or a closed loop when threading.

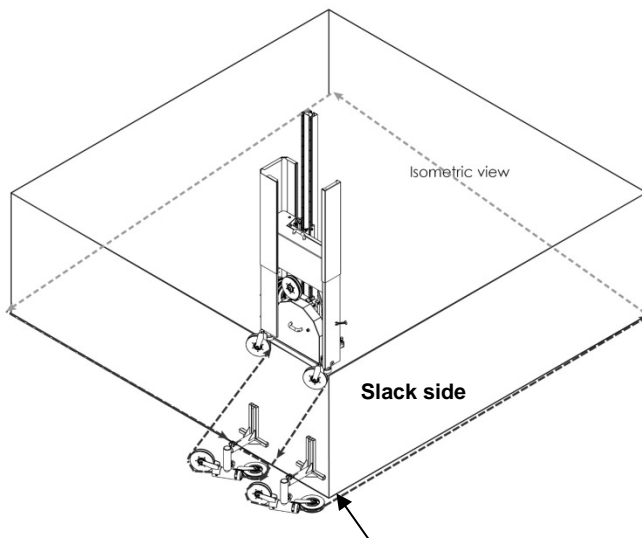
Four loops of wire are tensioned, three in the magazine, and one on the slack side

All rollers in the magazine must always be used as the feed regulation works the best when all rollers have wire on them.



3 Satellite pulleys

- a) Use satellite pulleys if the wire saw cannot be positioned to do a direct cut.
- b) Position satellite pulley so that the slack side is as far from a sharp corner as possible.
Try to create as little friction on the slack side as possible.



Note that in both pictures the wire saw is positioned so that the slack side is outside of the first corner of the concrete.



Satellite pulley on pull side to get a more controlled cut by limiting the area cut.

Very smooth result below.



4 Final alignment and check

4.1 Final alignment

- a) Make sure the wire is guided by the swivelling pulleys.
- b) Check the alignment of the swivelling pulleys with the cut line.
- c) To get a **bigger angle** on the pull side move the **lower carriage** a bit up on the column if possible. See picture.

4.2 Check fastening of bolts

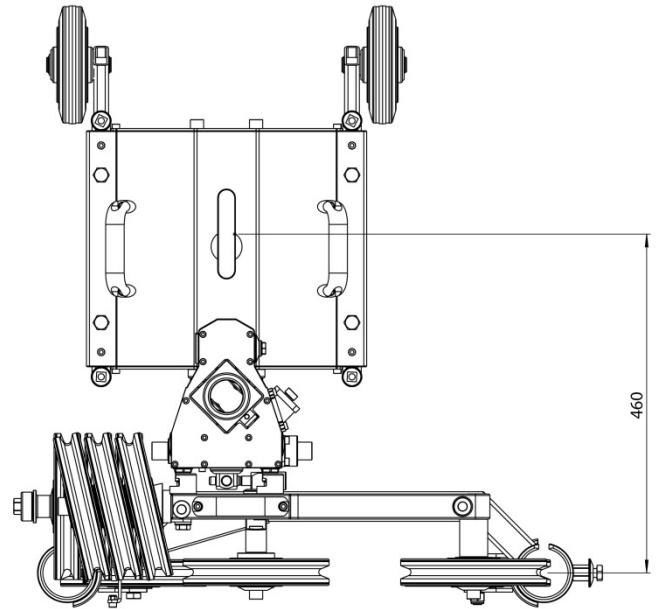
- a) Make sure both swivelling guide wheels are tightened.
- b) Make sure the base plate is fastened properly. See 1.2.
- c) Check that the carriages and friction brake is not too loose or tight.

4.3 Wire tensioning

- a) Move the upper carriage up on the column per hand or with the remote control until the wire tension is good for starting. There should be a little slack on the slack side before the wire is started.
- b) You should be able to move the wire sideways about 10 cm.

4.4 Water cooling of cut

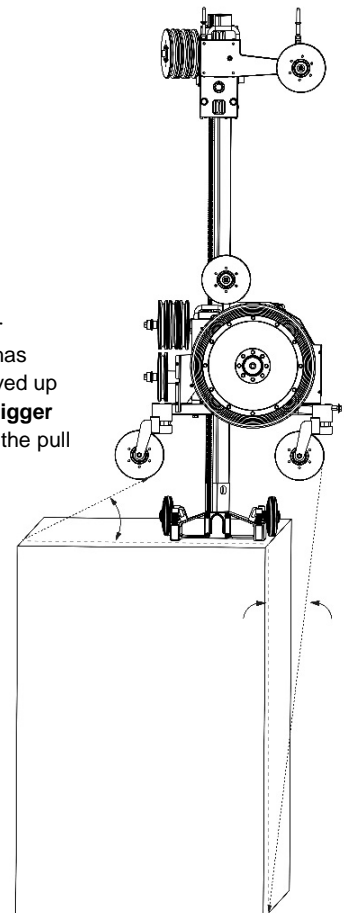
- a) Normally extra cooling of the cut is needed.
- b) Use soft garden hose and press the free end into the cut groove. Use as many hoses as possible to cool and clean the wire.



Here it would have been ideal to move the lower carriage up a bit to get a bigger angle on the pull side.

Position slack side swivelling pulley outside of concrete.

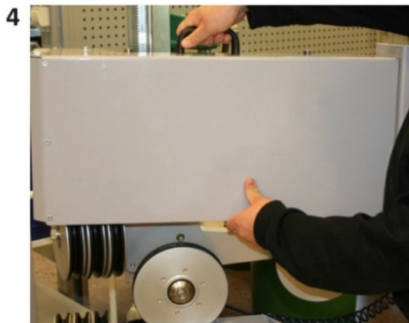
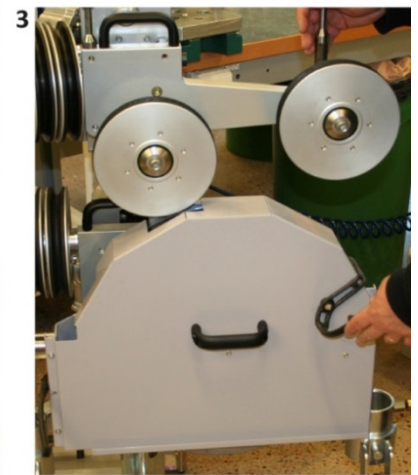
The lower carriage has been moved up to get a **bigger angle** on the pull side



5 Attach guards

Follow the sequence described in the pictures below.

- 1) Fit the drive pulley guard
- 2-3) Fasten straps on both sides of guard.
- 4) Mount the top guards on the guard guide pins.
- 5) Secure the guard with the locking pins.
- 6) Fit the slack side telescoping guard and secure with the locking pin.
- 7) Fit the telescoping magazine guard.



6 Starting the machine

6.1 Starting the Pentpak power pack

- a) Emergency stop button on remote should be out
- b) Push green start button on Pentpak
- c) Press green push button on the power pack.
- d) The green light will shine if correct.

6.2 Starting the HF-motor

- a) Turn both potentiometers to zero
- b) Bring switches and joystick to neutral



- c) Push blue switch (water ON/OFF) forward and keep pressed
- d) Push red switch (blade ON/OFF) forward and then let go of both switches to start the wire



9:3a



9:3b

7 Starting to cut

7.1 Adjust wire speed

- a) Turn the left potentiometer (wire speed control) to 85-100%.

7.2 Adjusting power output

- b) Turn the right potentiometer (feed and power regulation) to 100%.
- c) When you consider the wire to be running smoothly, set speed and power pots to 100%, unless the cut object is small, then you must reduce the setting for the RH potentiometer to 25% – max 75%.

- Best to get the speed of the wire up as high as possible as quickly as possible – aim for 85-100% almost immediately
- Carriage begins to move immediately when the motor is started, to tension the wire. This can be surprising but is correct behavior.
- The upper carriage moves slowly upwards. The ratio is 1:8 so a little movement of the carriage still means that cutting is progressing. Do not use the joystick to overrule the automatic feed unnecessarily.



Make a mark on the column to see the carriage move!

- If there is a problem with the wire jumping or lots of vibration then there is usually a problem with the set up. Or possibly with combination of speed and wire tensioning.

Remote controll with cable

Potentiometer for wire speed control

Potentiometer for feed and power regulation



Movement of saw arm/ along the track

Water ON/OFF

Blade ON/OFF

Wireless remote control

Potentiometer for wire speed control

Potentiometer for power regulation



Movement of saw arm/ along the track/column

Water ON/OFF

HF-motor ON/OFF



- All guards must be fitted on the machine and properly locked while it is running and the wire must be protected by deflectors over its whole free length, as well and to the cut object.
- Never stand in the cut line!