

Balzers ESQ110/113 Upgrade

The Kit contains all of the parts required to replace the old ESQ110/113 positioning system to allow the use of modern Ferrotec rotation controls

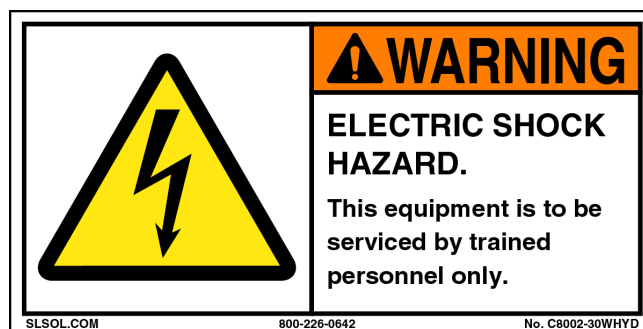


To change the gun rotation system is a relatively simple task however this task should be carried out by trained and authorised personnel

Before Starting

- 1) Vent the chamber and open the chamber door
- 2) Use the earth wand to discharge any residual energy
- 3) Switch off the power at the main isolator
- 4) Switch off the water supply to the evaporator

If in any doubt please contact Wordentec



Tools Required

Tools are not supplied however the following items will be needed to complete the upgrade



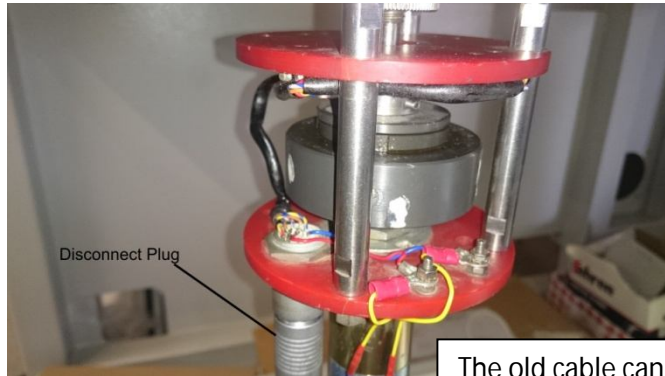
These instructions assume an upgrade of a Balzers ESQ110 e-beam gun using a Ferrotec Genius Controller.

The motor and encoder module is suitable for single, four, six, eight and twelve pocket crucibles. The Genius controller will recognise the new module as a Ferrotec EVM6 evaporator.

Using the Genius hand remote navigate to "system setup", then "source type" and choose option 1, "EVM6"



1) Disconnect the old positioning cable



The old cable can be discarded as it is no longer needed

2) Using the 2mm allen key loosen the switch actuator screws (2)



There are two screws that must be unscrewed at least three turns

3) Using the 8mm spanner remove the dome nuts (4)



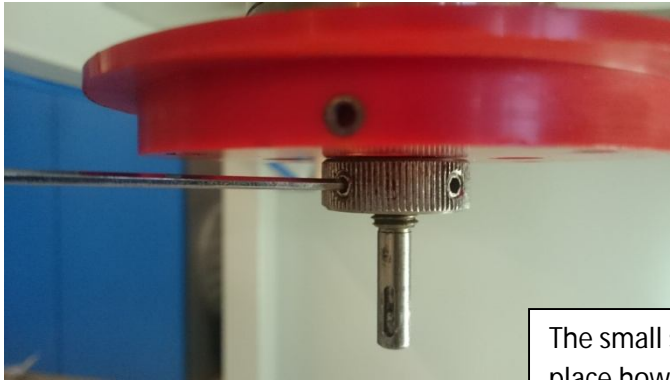
It may be necessary to hold the stud with another spanner

4) Pull down on the motor assembly and remove



The lower assembly may be stuck to the shaft. Caution if levering free

5) Loosen the grub screws in the knurled nut with the 2.5mm key



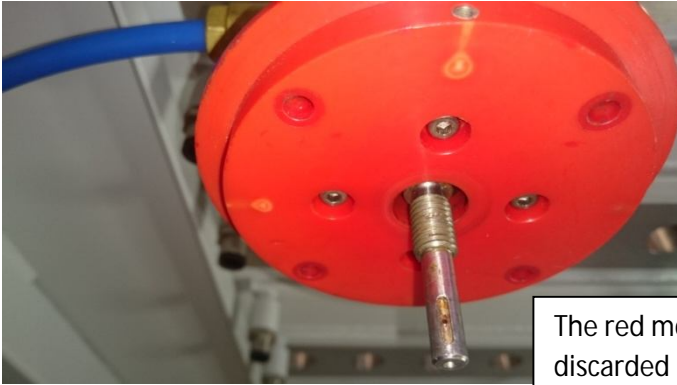
The small shaft key can be left in place however a new key is supplied

6) Unscrew and remove the knurled nut and spacer



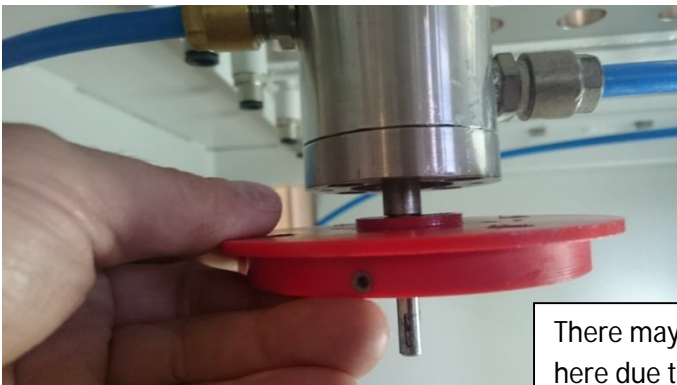
The thread may be tight where it has been damaged by the screws

7) Using the 3mm key remove the bolts for the red mounting plate



The red mounting plate can be discarded

8) Remove the red mounting plate



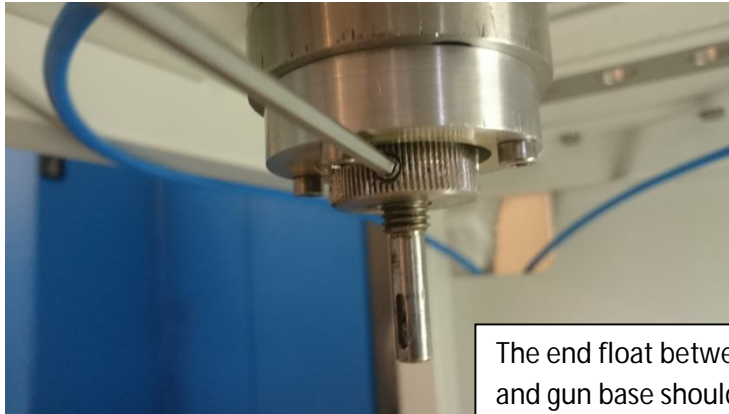
There may be some drips of water here due to the loose crucible shaft

9) Fit the new motor adaptor with the new 4x 20 allen screws



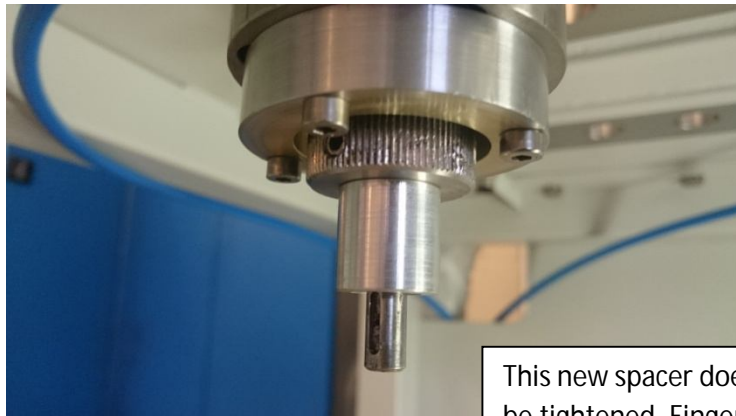
Please do not over tighten, a torque setting of only 3nm is required

- 10) Refit the knurled nut and spacer. Adjust crucible end float and tighten the grub screws



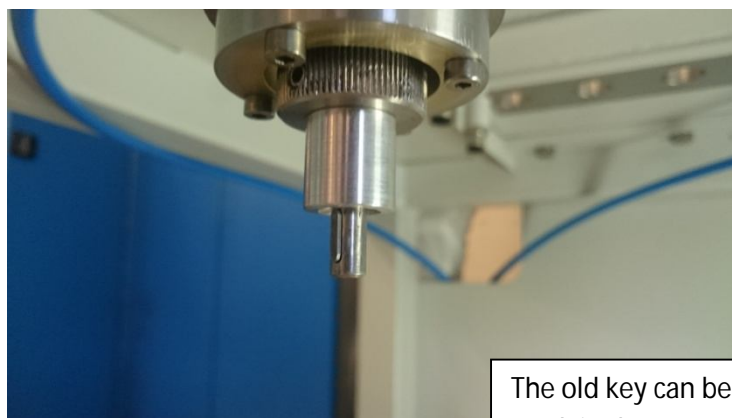
The end float between the crucible and gun base should be 0.3-0.6mm

- 11) Screw the new spacer up to meet the knurled nut



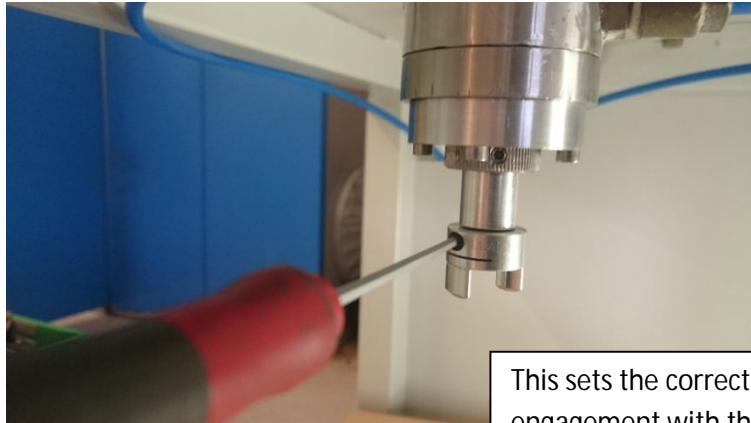
This new spacer does not need to be tightened. Finger tight only

- 12) Fit the new shaft key into the keyway if needed



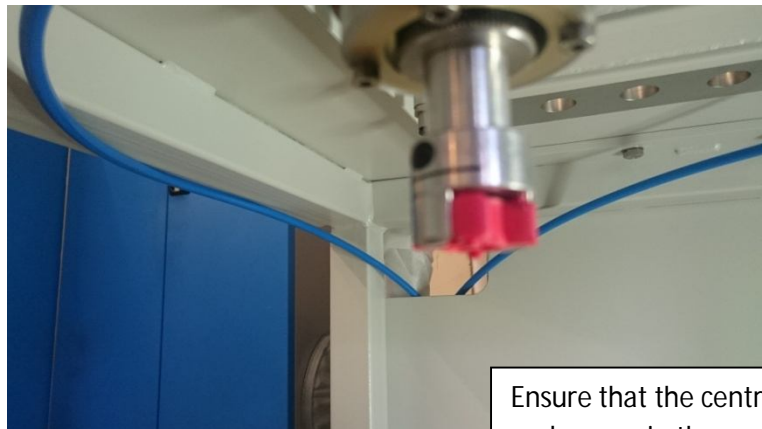
The old key can be reused if it is stuck in the groove

13) Push the drive coupling up to meet the spacer and tighten



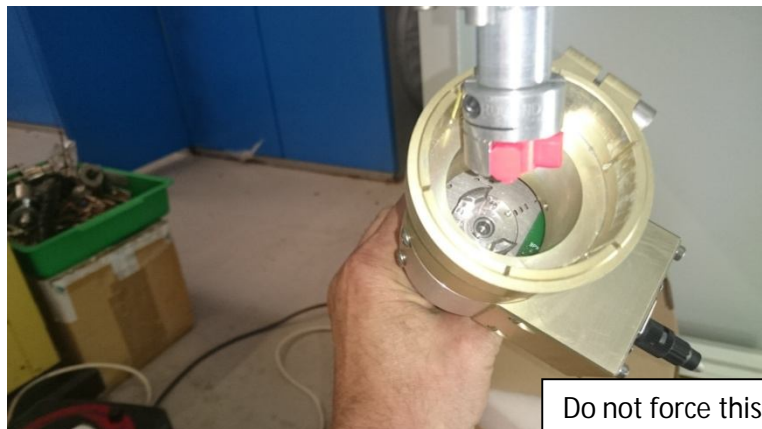
This sets the correct distance for full engagement with the lower coupling

14) Fit the coupling centre into the drive coupling



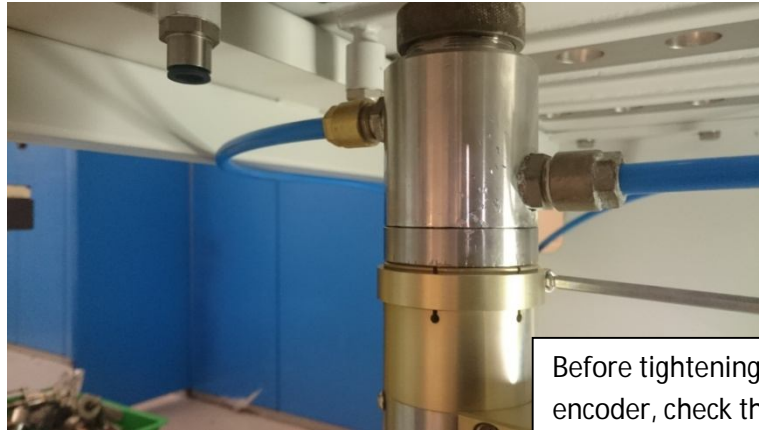
Ensure that the centre part is square and secure in the upper section

15) Align the lower coupling with the centre disc and push the encoder motor assembly over the motor adaptor



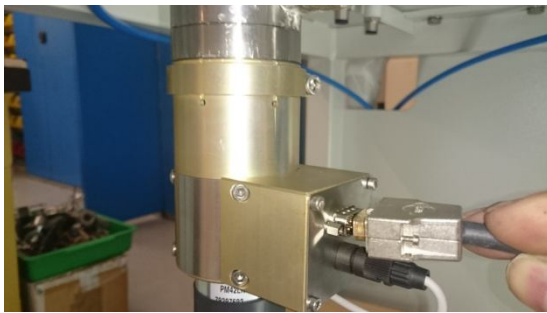
Do not force this, rotate the encoder whilst fitting to ensure alignment

- 16) When the encoder section is up against the water distributor tighten the clamp



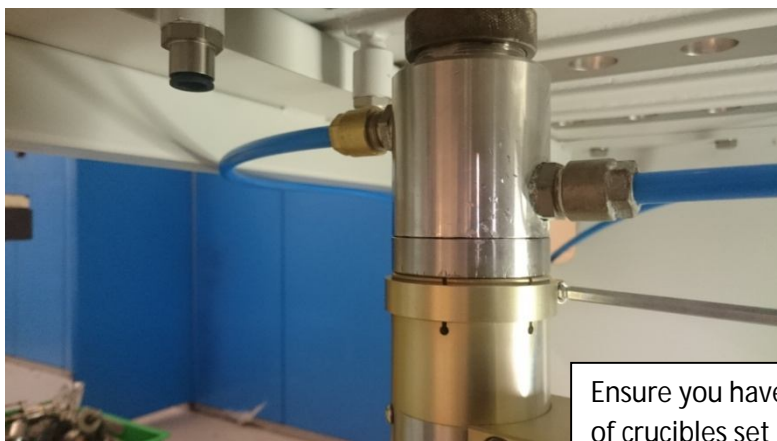
Before tightening rotate the encoder, check the crucible rotates

- 17) Plug the cable into the encoder and Genius



If used with a single pocket crucible no alignment is necessary

- 18) Power up the controller. Set the Genius to pocket 1 then loosen the clamp and rotate the crucible to align



Ensure you have the correct number of crucibles set in the controller

- 19) Cycle through the pockets and check the alignment.