SPA DYNAMOMETERS

CALIBRATION INSTRUCTIONS

BTP-99 IMPERIAL CRANK DYNO

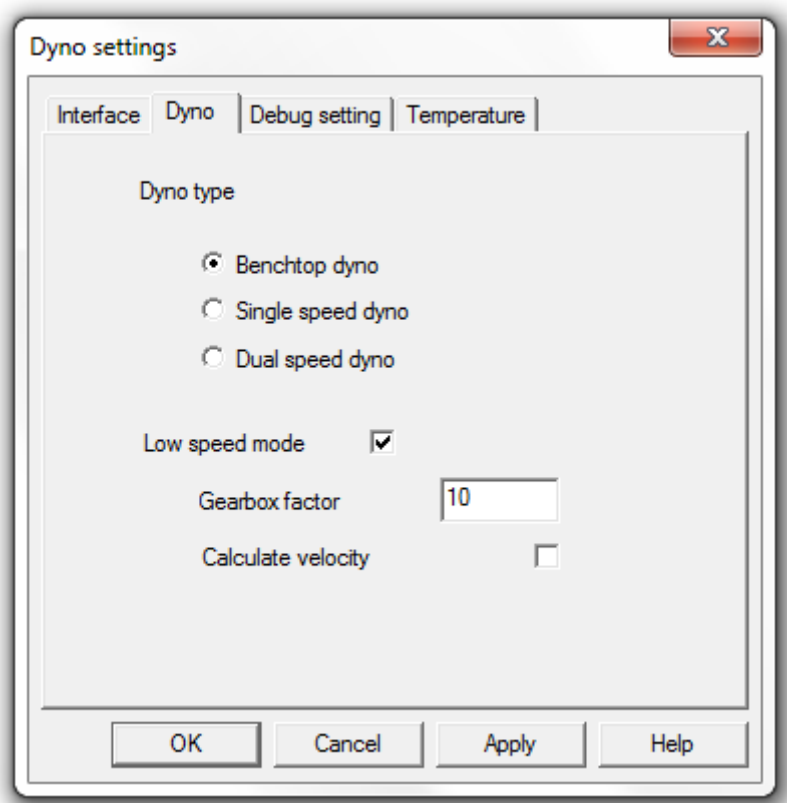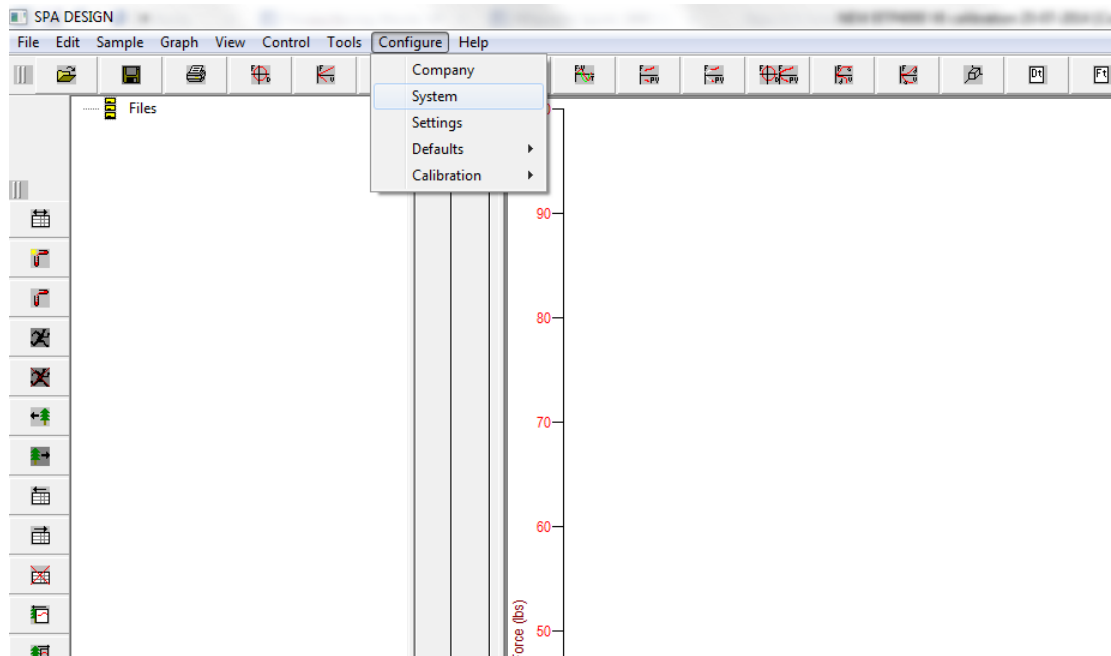# V6 SOFTWARE
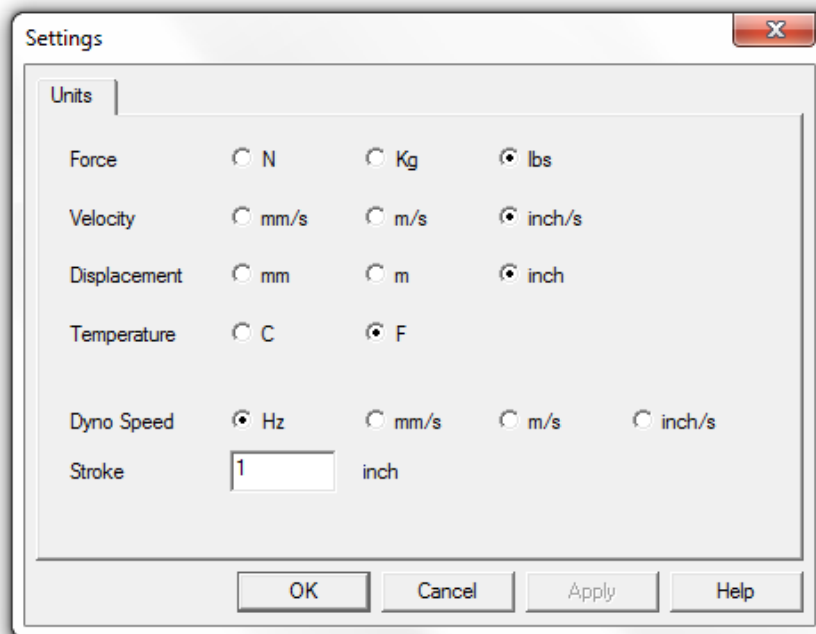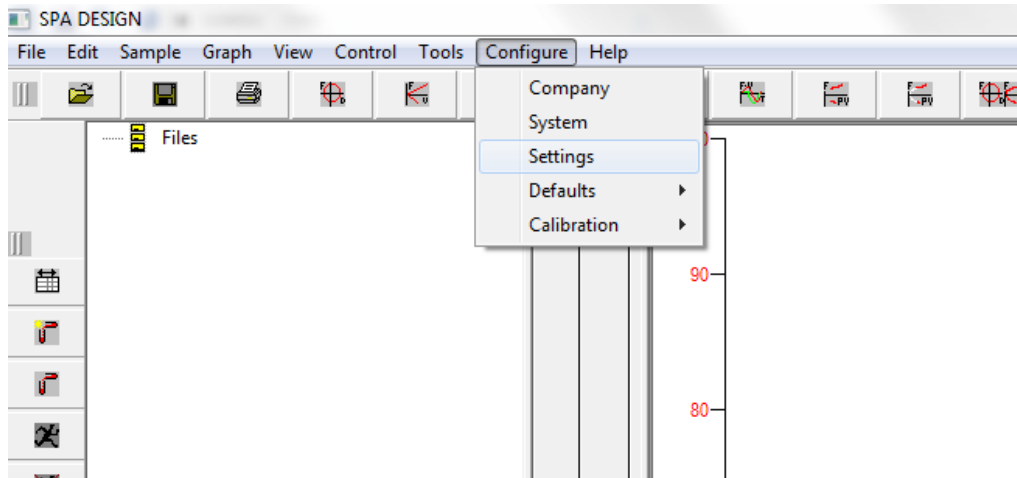
Contents

1. Configuring the Dyno Type

Select Configure>System and then click the 'Dyno' tab.

Select 'Benchtop Dyno'. Tick 'Low Speed mode' put the gearbox factor as '10.00'.
When finished click 'OK'.

## 2. Configure the Dyno Settings - Imperial
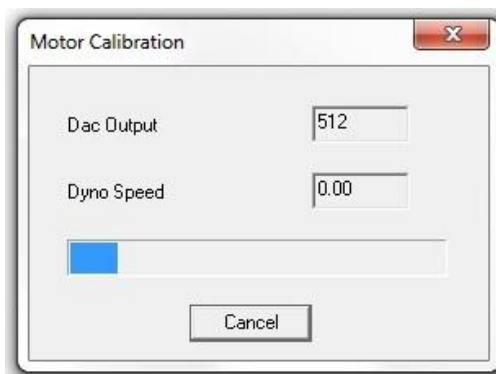
Click Configure>Settings

Configure the units when running the dyno calibration. The dyno should be calibrated in its base units i.e. an imperial crank dyno should be calibrated in imperial. Values can then be converted within the software if required. Leave the dyno speed set in 'Hz' and the stroke value can be left at the stroke value you normally run tests.

3. Calibrating the Motor Speed

Click Configure>Calibration>Re-calibrate>Motor speed.
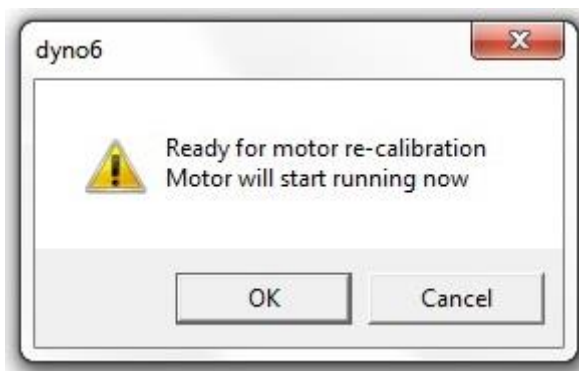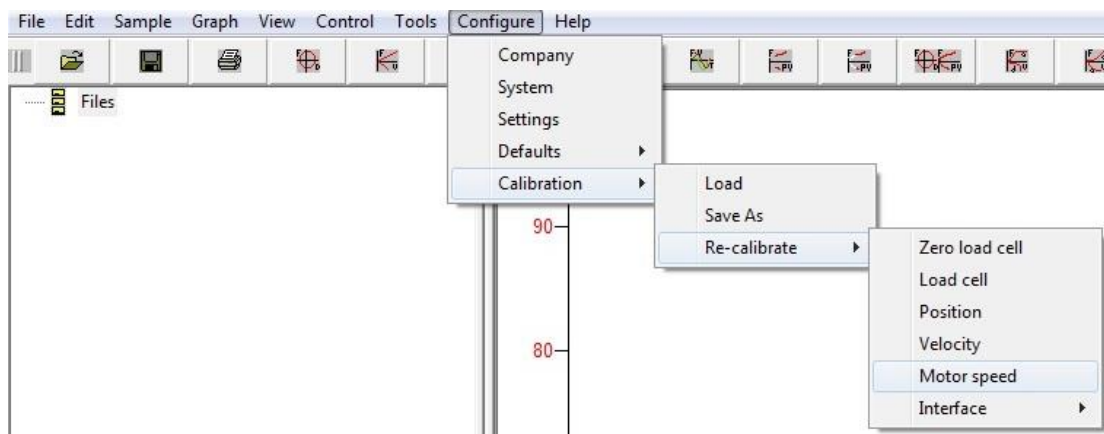
A warning window will open telling you that the motor is going to run. Click 'OK' and the motor speed calibration will start. When the calibration is complete the window will close.
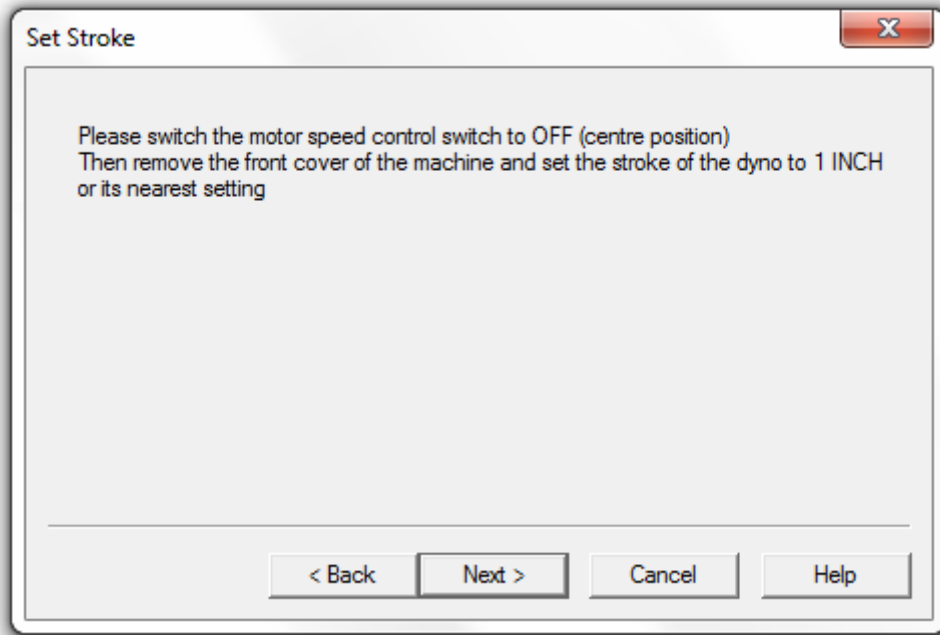

Calibrating the Motor Speed automatically updates the gearbox factor under Configure>System>Dyno.

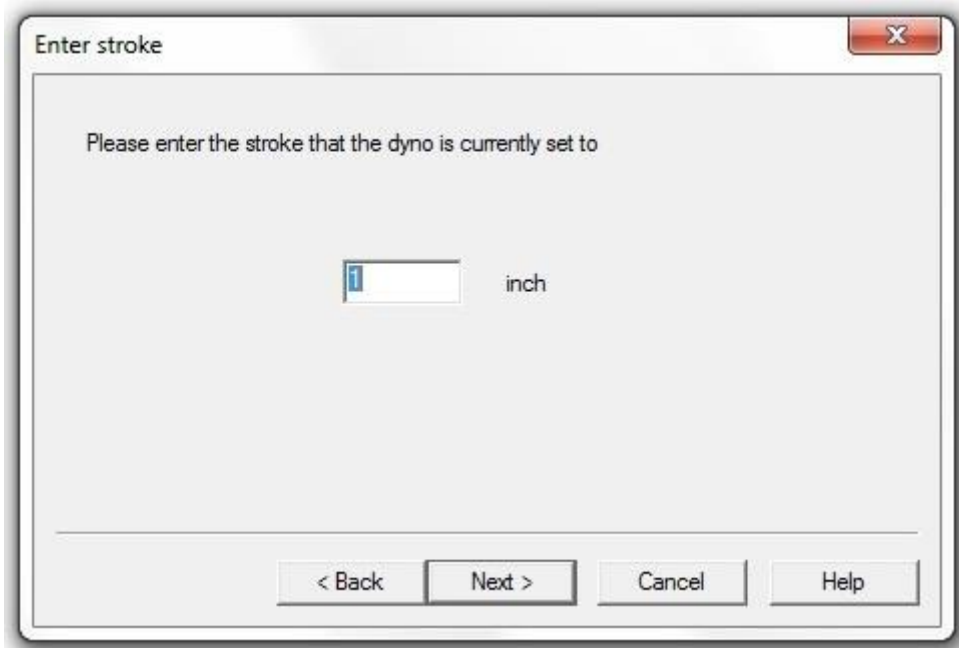## 4. Calibrating the x1 Velocity Gain – 1.0" Stroke

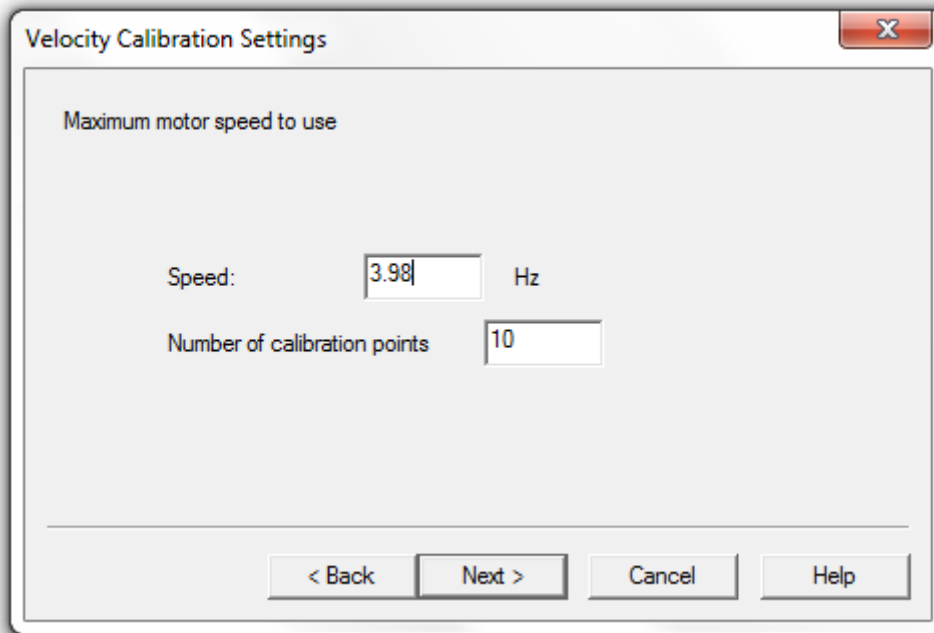Click Configure>Calibration>Re-calibrate>Velocity.
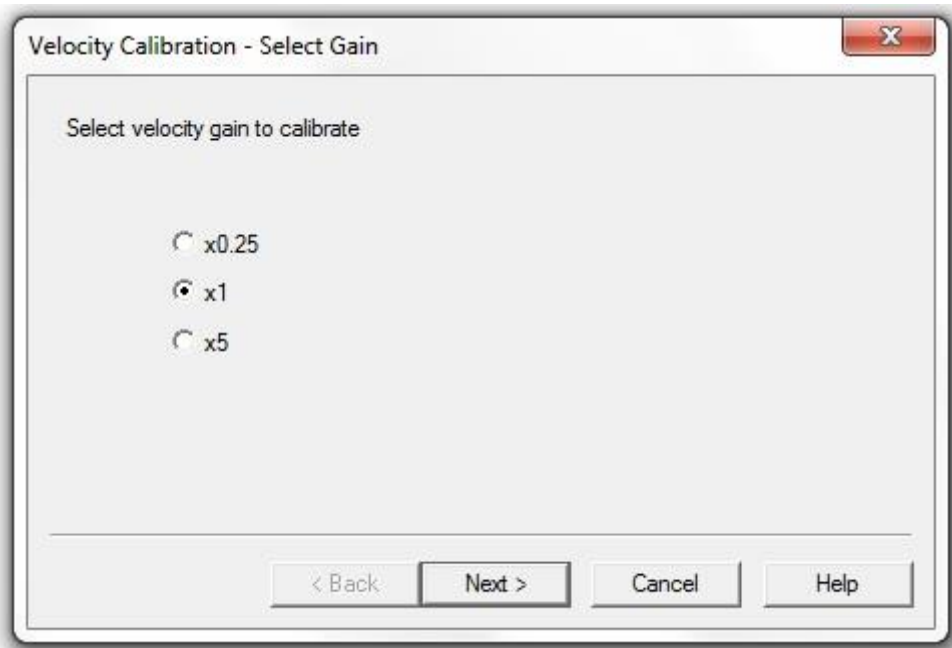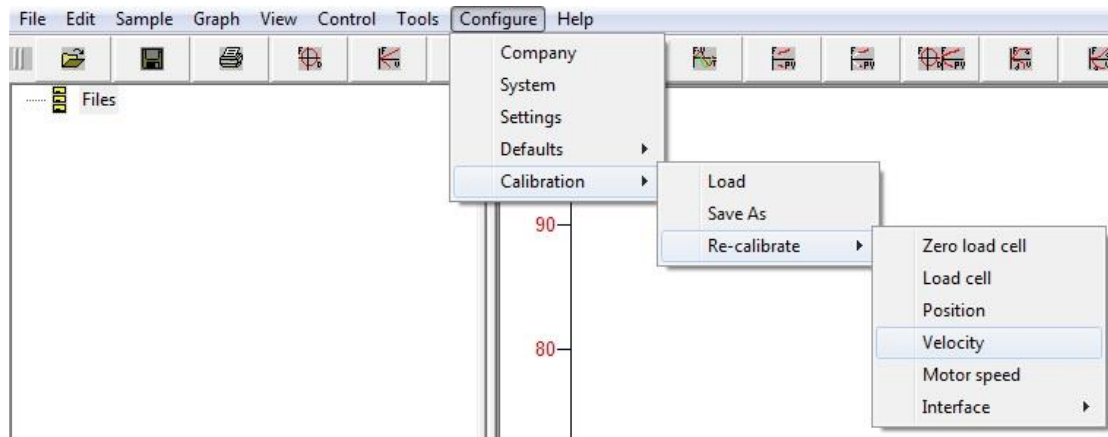
To calibrate the velocity on a 1" stroke select the x1 velocity gain and click 'Next'.

Set Stroke   ✕

Please switch the motor speed control switch to OFF (centre position)
Then remove the front cover of the machine and set the stroke of the dyno to 1 INCH
or its nearest setting

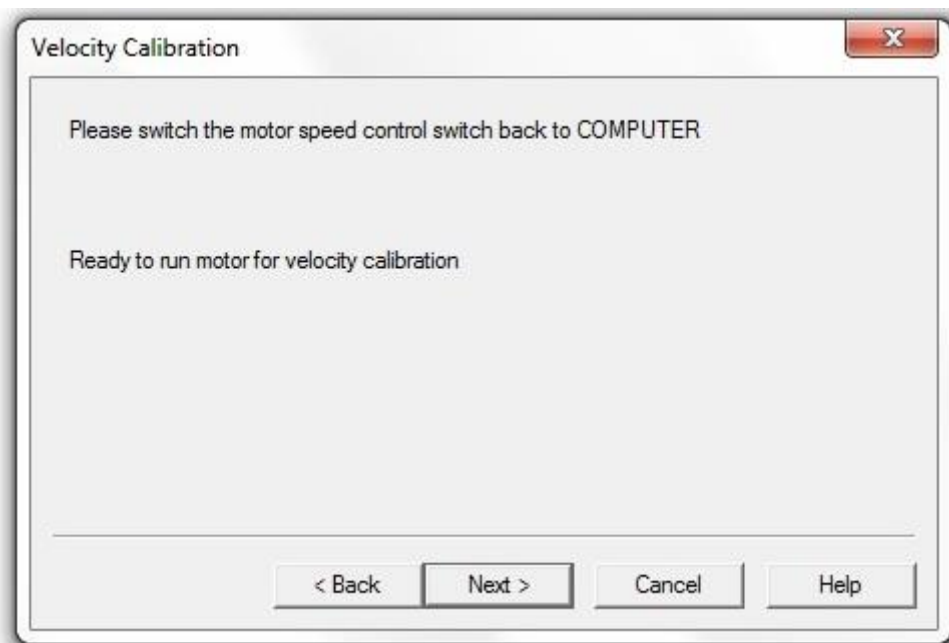< Back   Next >   Cancel   Help

On the control panel on the dyno set the motor speed control switch to the OFF position (centre position). Remove the front cover of the dyno and then change the stroke to 1.0". Replace the front cover and then click 'Next'.

Enter stroke   ✕

Please enter the stroke that the dyno is currently set to

1   inch

< Back   Next >   Cancel   Help

Enter the current stroke setting and then click 'Next'.

The x1 velocity gain calibrates the sensor in the 0-12.5in/s velocity range. Enter a value of 3.98Hz to give a maximum velocity of 12.5in/s. Enter '10' for the number of calibration points and then click 'Next'.

On the dyno control panel switch the motor speed control switch to the COMPUTER position and then click 'Next'.
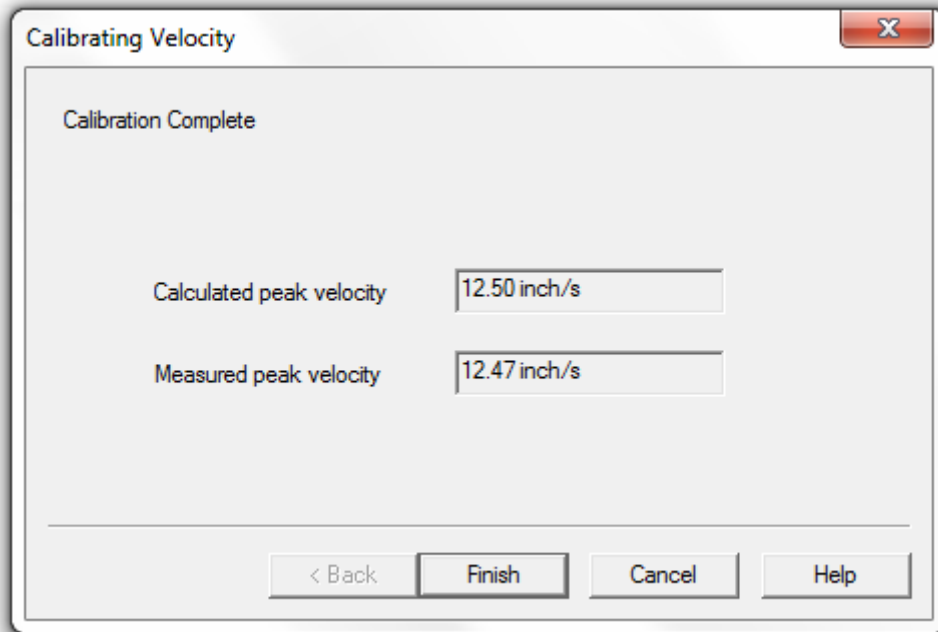
The dyno will now run through the 10 calibration points up to the maximum speed entered. Once this is completed click 'Finish'.

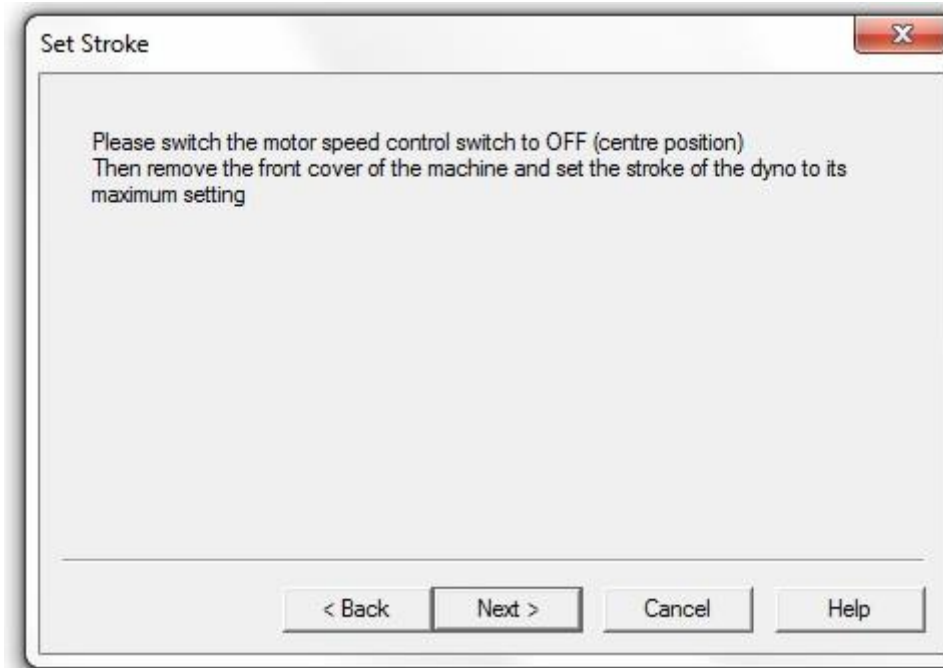The x1 velocity gain has now been calibrated on a 1.0" stroke.

5. Calibrating the x1 Position Gain – 1.0" Stroke

Click Configure>Calibration>Re-calibrate>Position.

Position Calibration - Select Gain

Select position gain to calibrate

- ⦿ x1
- ○ x4

[< Back] [Next >] [Cancel] [Help]
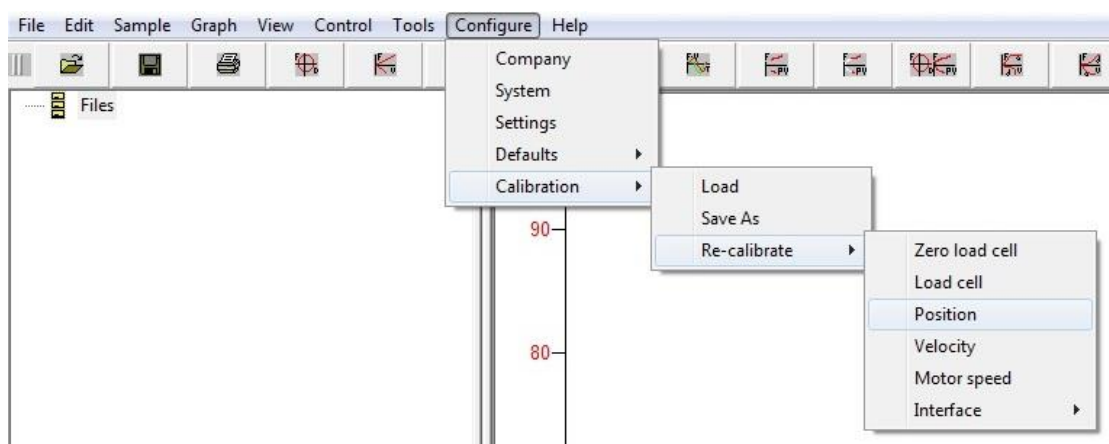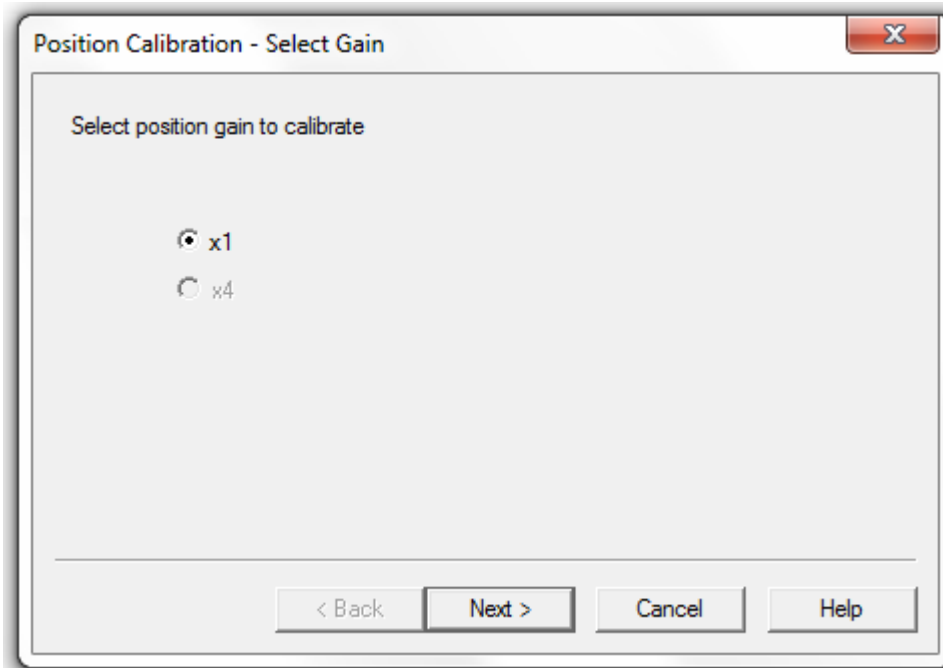
Select x1 position gain to calibrate the position on a 1.0" stroke.

Set Stroke

Please switch the motor speed control switch to OFF (centre position)
Then remove the front cover of the machine and set the stroke of the dyno to its maximum setting

[< Back] [Next >] [Cancel] [Help]

On the control panel on the dyno set the motor speed control switch to the OFF position (centre position). Remove the front cover of the dyno and then change the stroke to 1.0" if it is not set already. Replace the front cover and then click 'Next'.
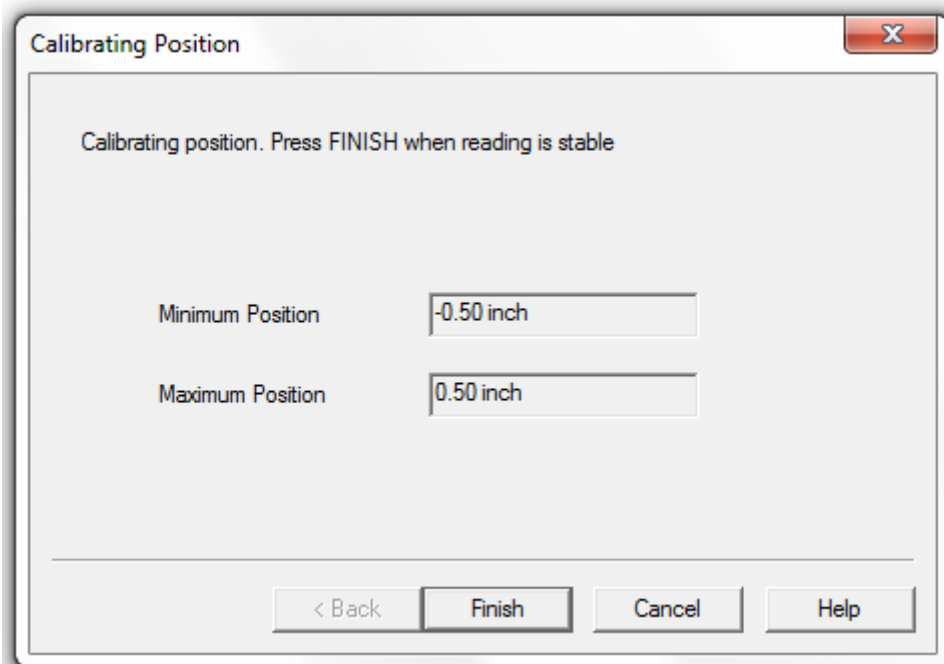
Enter the current stroke setting and then click 'Next'.
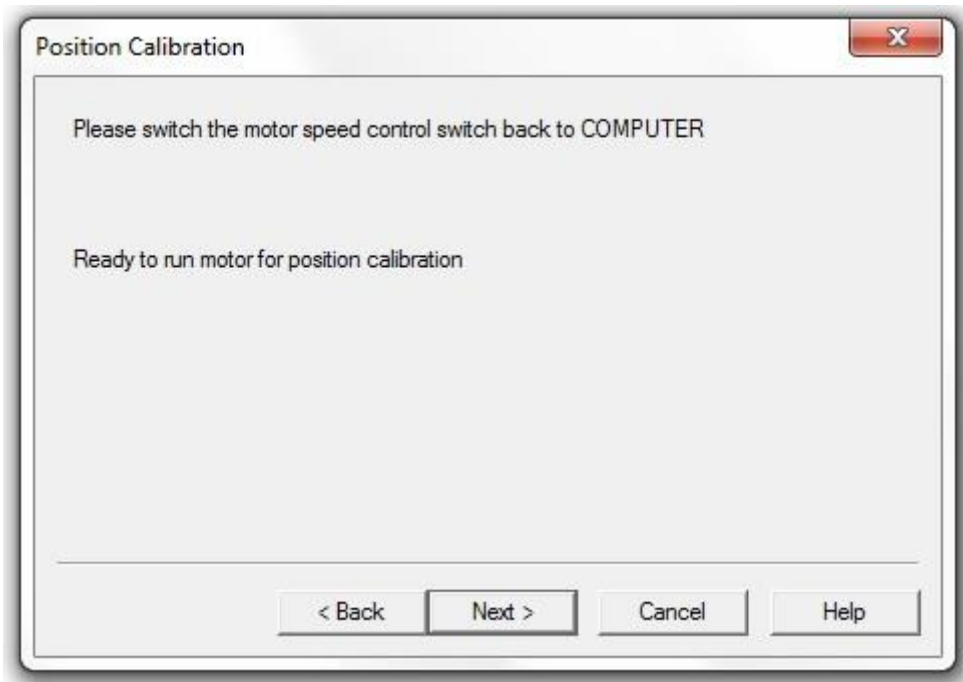
On the dyno control panel switch the motor speed control switch to the COMPUTER position and then click 'Next'.
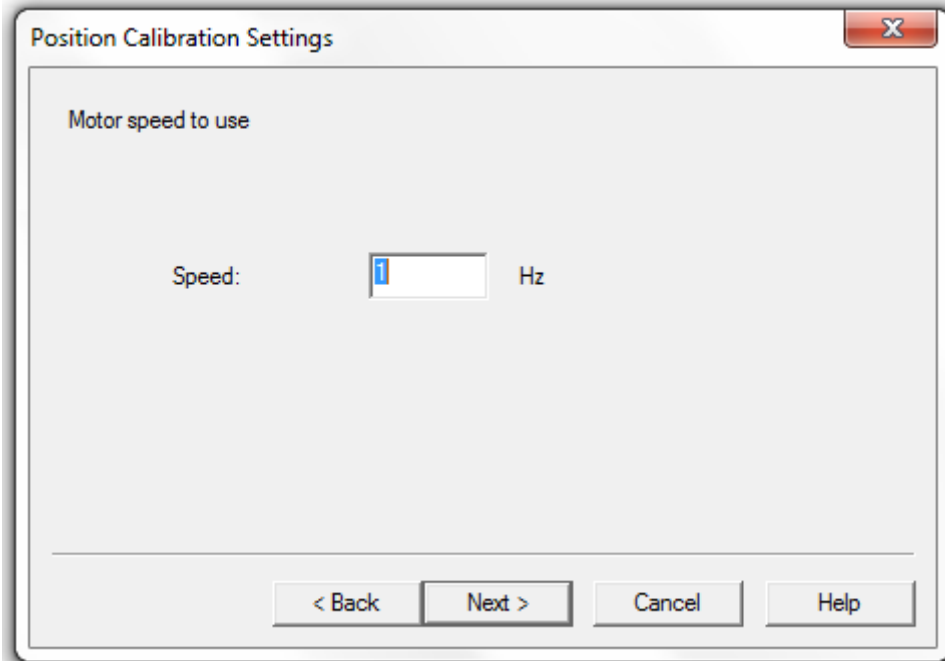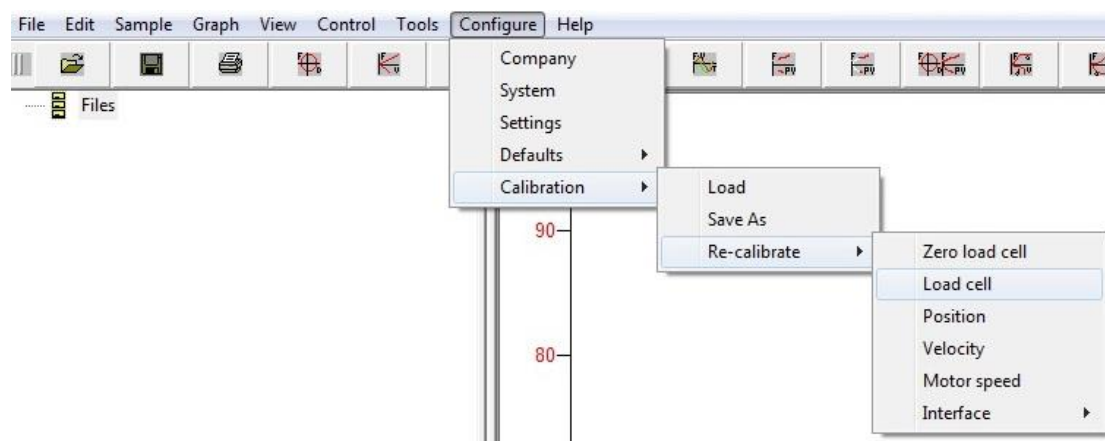
Set the motor speed to 1.0Hz and then click 'Next'.

The dyno will now run at 1.0Hz to calibrate the position sensor. Once the maximum and minimum readings stabilise click 'Finish'.

The x1 position gain has now been calibrated on 1.0" stroke.

6. Calibrating the Load Cell

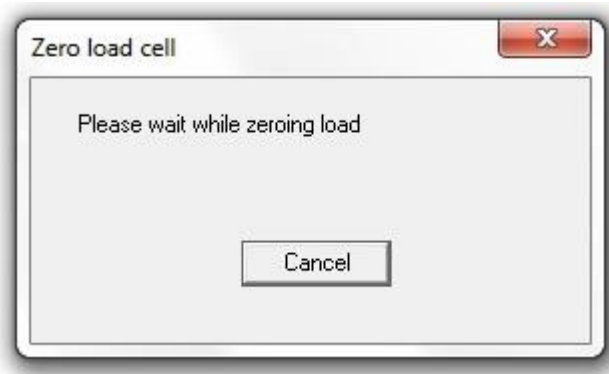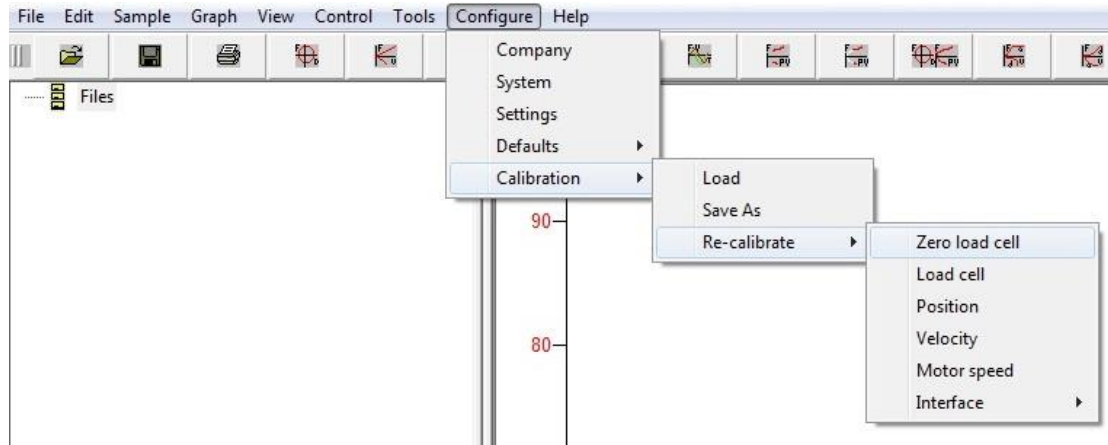Click Configure>Calibration>Re-calibrate>Load-cell.

Enter the load cell sensitivity value in mV/V – this value can be found in the folder supplied with the dyno or on a sticker on the load cell. Then enter the load cell FSD – this is the load cell rating which is usually 1500 Kgf for standard load cells. Once the data has been entered click 'Finish'.

The load cell has now been calibrated.

7. Zeroing the Load Cell

To fully zero the load cell first remove the clevis/attachments so there is no weight acting on the load cell.
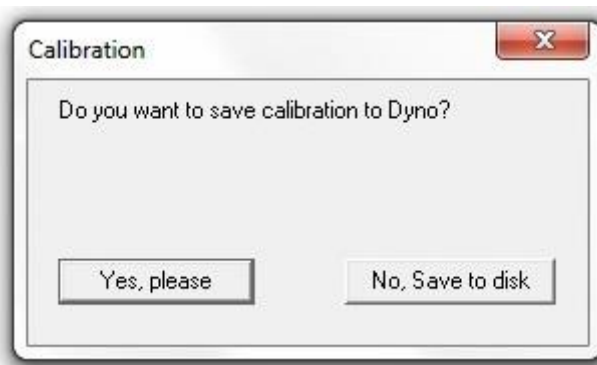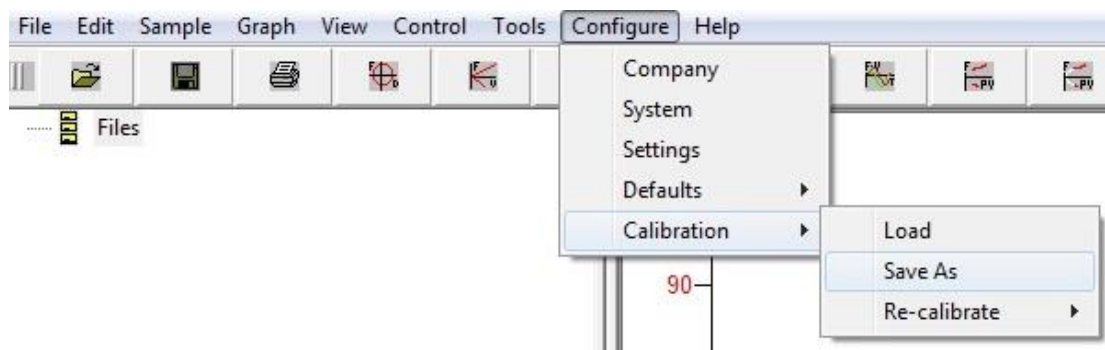
Click Configure,>Calibration>Re-calibrate>Zero load-cell. The load-cell will now zero.



The load cell has now been zeroed.
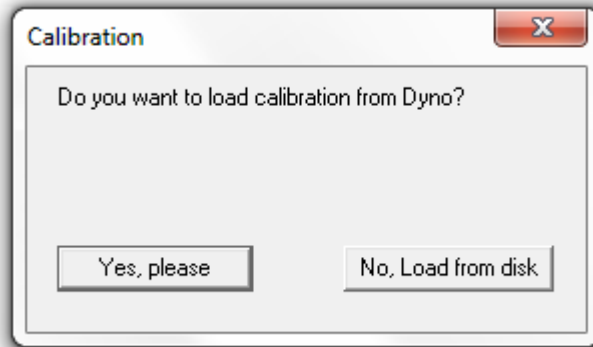
8. Saving the Calibration

Click Configure>Calibration>Save As.

You can save the calibration directly to the dyno interface memory or save it to the PC. We recommend saving it to the dyno and keeping a copy on the PC.

To Load a saved calibration file Click Configure>Calibration>Load

Calibration

Do you want to load calibration from Dyno?

[Yes, please]   [No, Load from disk]
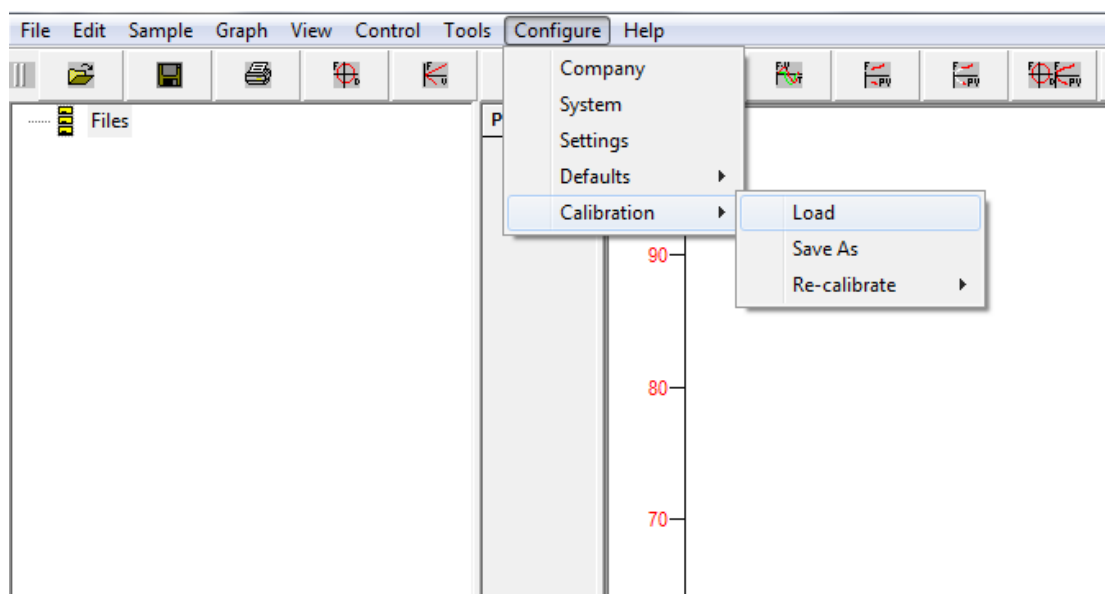
You will now have the option to load the stored calibration from the dyno or alternatively load a saved calibration file from the PC.

Once you have saved the calibration the dyno is ready to use!