



# FIXTURLASER® OL2R

USER'S MANUAL



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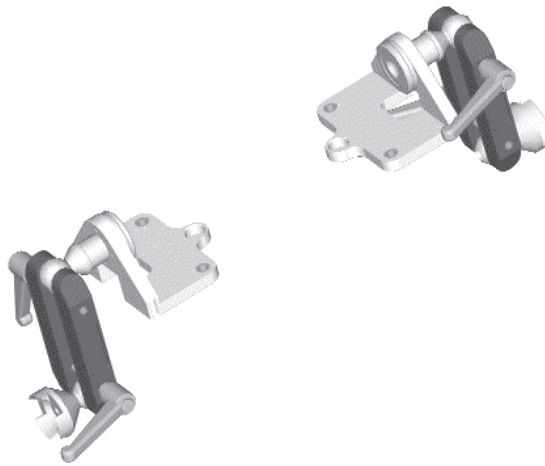


# FIXTURLASER® OL2R

OFF LINE TO RUNNING FIXTURE

PAT. PENDING 0201224-3

Thanks for choosing Fixturlaser OL2R for your dynamic measurements. This will give your Shaft alignment system a new dimension. OL2R is an option to Fixturlaser Shaft 100 and Fixturlaser Shaft 200.



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### **Important Note**

Make sure that all safety equipment is fully mounted on the machine before starting the measurements. Cables must be away from couplings and other moving parts.

If there are strong vibrations in the machine or high temperature you have to remove the TD-units before starting the machine.

## ***MOUNTING***

Draft Procedure for Mounting OL2R Fixtures on a Horizontal Shaft Machine.

1. Choose a location on the main body of the machine (bearing housings or adjacent casing) where the fixtures can maintain a clear line-of-sight and the TD-units can be rotated 9, 12 and 3 o'clock without the cable/s binding on adjacent structures.
2. Obtain proper permission to drill and tap a 6M thread (or 1/4" UNC) x 15 mm deep for each tooling ball on a flat surface, or glue a Fixturlaser OL2R adapter on to the machine housing when it is not possible to drill. Fix the tooling ball ensuring that the bolt is as tight as possible using an allen key.
3. Align the fixtures to the axis of the shaft using as much visual assistance as possible (eg. horizontal machine structures) to get the axis of the rotating brackets in line and flat. The brackets should ideally be arranged as a mirror image of the machine.
4. Connect the cables to the TD-units and go to the Real Time Data Transfer program in Shaft 200 to keep the lasers on continuously. For Shaft 100 go to the Horizontal Shaft Alignment program.



Real Time Data Transfer



Shaft Alignment Horizontal Machines

5. The following procedure should be followed to 'cone-in' each TD in turn to the fixture target on the opposite end.
  - 5.1 Mount the TD-S on what is determined as the Stationary side fixture. Rotate it to 9 o'clock using the bubble on the side of the fixture. Adjust the fixture so that the laser is shining on the centre of the target on the other OL2R bracket (the TD-M should not be in place).

- 5.2 Rotate the TD-S to 3 o'clock and find the new location of the beam. Using a wide ruler or a piece of paper determine the half-way position between the centre of the target and where the beam is now located and adjust the beam to that point using the blue thumbwheels.
- 5.3 Move the Stationary end fixture to bring the beam to the centre of the target.
- 5.4 Repeat the procedure until the beam stays precisely in the centre of the target when the TD-S is rotated from 9 o'clock to 3 o'clock.
- 5.5 Remove the TD-S and install the TD-M. Repeat the same coning procedure for the TD-M so that when it is rotated the beam stays precisely on the target at the TD-S end.
6. Install the TD-S and set both TD-units to 12 o'clock. The laser beams should now be located directly under and over the crosshair targets on the respective TD-units.
7. Adjust the top thumbwheel on the TD-M until the beam is precisely in the centre of the target on the TD-S.
8. Adjust the bottom thumbwheel on the TD-S until the beam is precisely on the TD-M target.
9. Check the set-up by rotating the TD-units together to 9 o'clock, 12 o'clock and 3 o'clock. The beams should stay centred on the opposite targets at all three positions.
10. The set-up is now complete and the OL2R procedure can be followed.

***Now it is very important that you not move the brackets. You will now start measuring the movement between them!***

## **MEASURING OL2R**

The measurement may be performed either from cold to hot conditions (OL2R) or from hot to cold conditions (R2OL) whichever is the most convenient.



### Shaft Alignment Horizontal Machines

1. Perform a Horizontal Shaft Alignment measurement, clock method, according to procedure in manual.
2. Note angular and parallel offset.
3. Go to the Thermal Offset function in toolbox.



### Thermal Offset


4. Enter the misalignment values (coupling values, angular and parallel offset). Enter both vertical and horizontal values according to manual. See note below.
5. Confirm Thermal Offsets (OK) and return to the Horizontal Shaft Alignment. Misalignment values should now read zero in the display and the thermal offset icon is seen in the upper right corner. If values are not zero go back and change signs in the Thermal Offset function. See note below.
6. Dismount the TD-units if necessary. Do not exit the measurement.
7. Start the machine and make sure running conditions are reached.
8. Mount the TD-units on the brackets again. Touch the re-measurement icon and perform a second measurement.
9. The result shown is the misalignment difference between hot and cold conditions.

**Note 1: Angular and parallel offset**

In the Thermal Offset function values are inserted with signs. The misalignment symbols are translated as,


Angular offset

 + value

 - value

Parallel offset

 + value

 - value

**Note 2: Using two different systems**

If you use two different systems for the OL2R measurement or the system is turned off between the measurements make sure that you print or note the results from the first measurement. Save the print-out. When performing the second measurement either enter thermal offset values in the program as above or manually calculate the difference.

**SHAFT ALIGNMENT WITH OL2R**

Perform the shaft alignment in cold conditions. The OL2R values are used as follows.

- When the offset value is obtained as OL2R (cold to hot conditions), invert the offset value in the Thermal Offset function.
- When the offset value is obtained as R2OL (hot to cold conditions), the offset value is entered as it is (no inversion) in the Thermal Offset function.

### *TO THINK ABOUT*

- It is worth spending some time aligning the OL2R fixtures. The accuracy will be less using a large range on the detector.
- Try to make sure that the laser stays in the detector from off line to running if the machine movements are big.
- If you mount the TD-units near each other it is not possible to use the coning technique. In that case it is easier to use a flat part and hold it under the bracket. You could visual align the brackets to each other in a simple way.
- When you have a lot of heat radiation from the machine the accuracy will be better if you insulate between the brackets and the machine.
- Do not use coolant air, the fixture should be homogeny warm. It may bend if you get big differences in the temperature between top and bottom.
- Try to mount the fixtures close to the same height as the rotate able shafts.