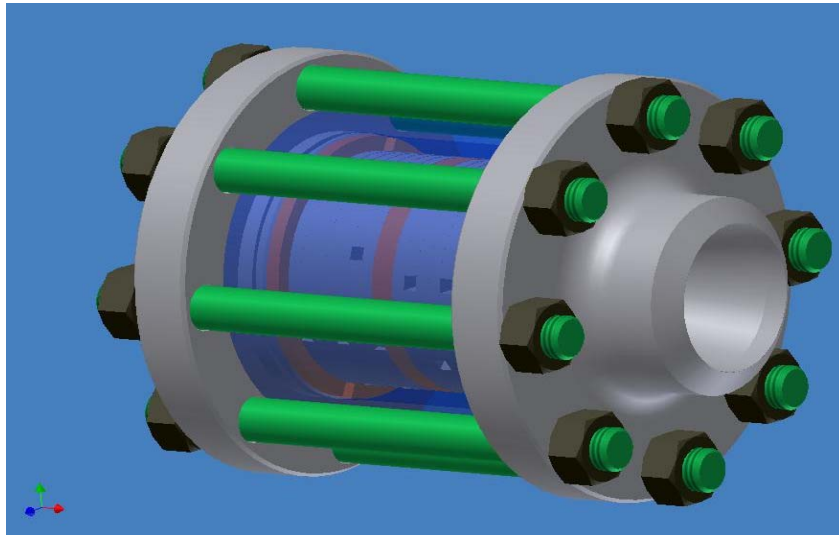


**ENERGY DISSIPATING DIFFUSER ELEMENT
INSTALLATION & MAINTENANCE MANUAL**

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ENERGY DISSIPATING DIFFUSER ELEMENT INSTALLATION & MAINTENANCE MANUAL

1. INTRODUCTION

This installation and maintenance manual covers the 3" schedule 160 inline energy dissipating diffuser elements supplied to STANWELL POWER STATION as a pressure reducing device by-passing a boiler feed water pump. The diffuser element comprises of an inline butt weld carbon steel body configuration incorporating an inline Energy Dissipating (ED) disk stack made from 316 stainless steel. The disk stack also prevents the occurrence of high velocities, noise and excessive vibration.

2. SIGNIFICANT EQUIPMENT DETAILS

- 2.1. Due to the choice of butt weld ends the unit is welded into the line.
- 2.2. The configuration of the internal elements is one larger ED disk and seven small ED disks upstream, a plate then seven small ED disks and a large ED disk downstream. The correct configuration and placements of each disk is vital. Please see attached drawing.
- 2.3. Eight pins that extend through all the disks hold them in place.

3. INSTALLATION GUIDELINES

- 3.1. The diffuser element has a specific flow direction. Please note direction on body. On each flange end it will either be stamped "IN" or "OUT" The device will not work if installed incorrectly.
- 3.2. There is no preferred orientation of the element.

4. DISASSEMBLY OF THE DIFFUSER ELEMENT

- 4.1. Isolate the unit and ensure all water is drained from the line.

As the end flanges are welded into the line the first option would be to try remove the body components without removing the welded joints. Removing the M16 nuts and eight tie bars, then forcing the flanges out, can do this. If this were not possible (line doesn't give) the welded joints would have to be removed.

- 4.2. Remove unit from line by removing butt weld joints.
- 4.3. Place the unit on its side.
- 4.4. Evenly loosen and remove M16 tie bar nuts. Remove tie bars by sliding them through the end flange plates.
- 4.5. Whilst supporting the body, lift off both the flange end plates.
- 4.6. Remove the end plate "O" rings.
- 4.7. Stand the body tube upright. Ensure that the disk stack does not slide through.
- 4.8. Remove body tube. **Be careful not to damage the internal disk stack.**
- 4.9. **Note sequence of disks and plate, and record the details.** Also note which side of the disk stack is for the inlet port.
- 4.10. If disks have to be separated, remove the eight pins that connect the disks together.

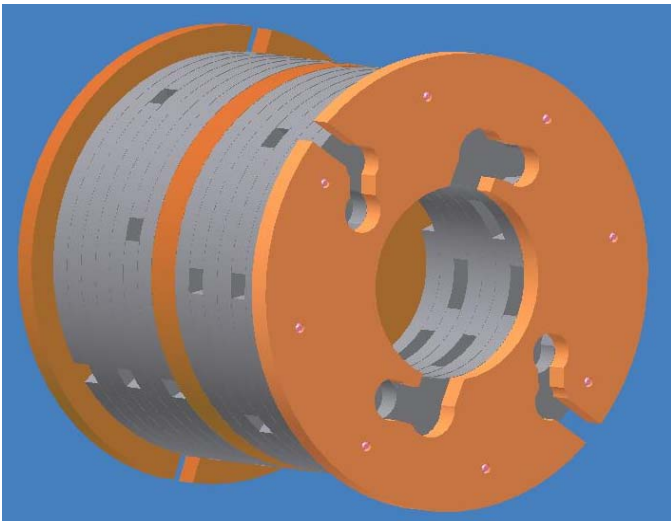
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5. REASSEMBLY OF THE DIFFUSER ELEMENT

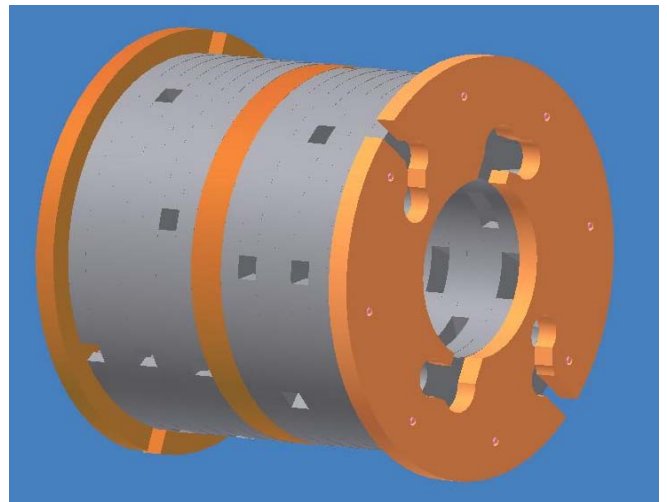
Depending on how the unit was removed from the line, will affect the reassembly. The following procedure is if the whole unit was removed.

- 5.1. The unit should be built in the vertical position.
- 5.2. Insert new "O" rings into the groove on the end plates.
- 5.3. If the ED disk stack was disassembled:
 - 5.4.1. Refer to arrangement noted earlier during disassembly.
 - 5.4.2. All the disks have been numbered. Rebuild the disk stack from disk 17 upwards. Rebuild in the vertical position.
 - 5.4.3. To get alignment correct, the numbers must be in a line.
 - 5.4.4. Once all 17 disks are in place, insert the eight pins through the disks.
- 5.4. Place Ed disk stack unit onto the end flange.
- 5.5. Slide the body tube over the disks.
- 5.6. Replace the top end flange.
- 5.7. Re insert the tie bars and evenly retighten the M16 nuts according to the conventional 8-pass system.

6. ENERGY DISSIPATING DIFFUSER ELEMENT



Disk Stack Note: solid 9th disk



Note: 1st & 17th large disks