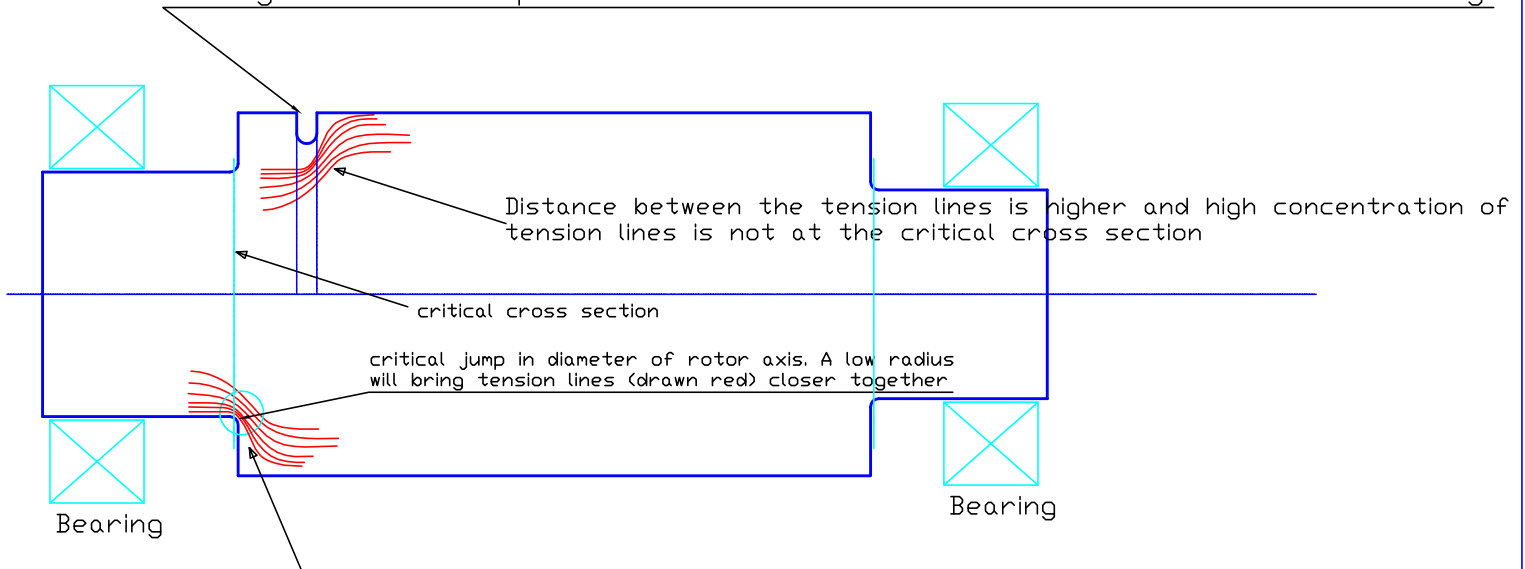


Simplified image of a rotor axis

Heavy rotoraxis feel high bending moment. Due to its rotational speed fatigue is a problem. A good design is very important. By making a notch in the axis with higher diameter a better tension situation will occur at the transition form higher to lower diameter of the rotor axis. Due to the notch the higher tensions are transferred more towards the middle of the axis. There the axis is stronger because at the surface of the axis the material has no support because there is no material. Due to this redesign the rotor axis is stronger and cheaper. The material from which the axis is made is very expensive. Due to the notch more material can be recycled.

adding a notch has positive effect on tension lines (red lines in the drawing)



Distance between the tension lines is small. This means high tensions at the rounding. This is a problem with fatigue. Rotoraxis can rotate at 25 revelations pro second and the rotoraxis has a lot of weight also due to all the copper to be placed on axis.

By milling an extra notch at the higher diameter of the rotor axis you push the high concentration of tension lines away from the edges of the axis. The edges are the weak point because the material has no support from surrounding material. Air will not help supporting the axis. The notch will lower the high tensions in the critical diameter. As a consequenz the tensions will rise a little in the not critical part of the axis. The total product is now made much stronger.