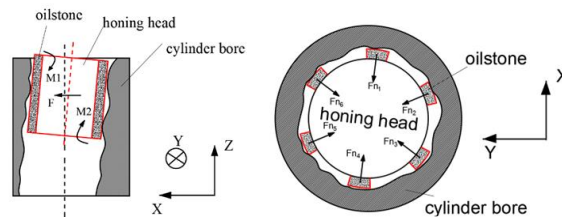
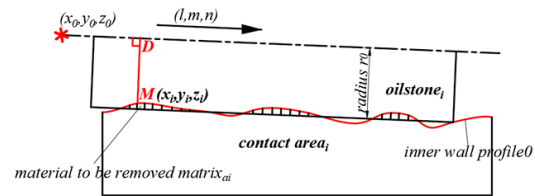


Floating structure of honing machine



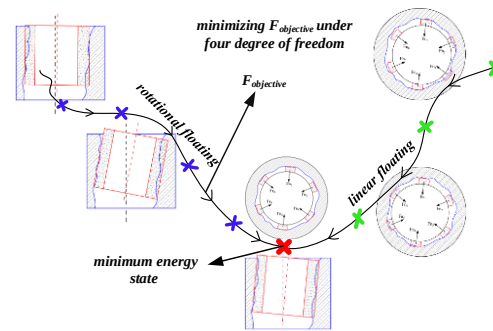
Four unconstrained degrees of freedom



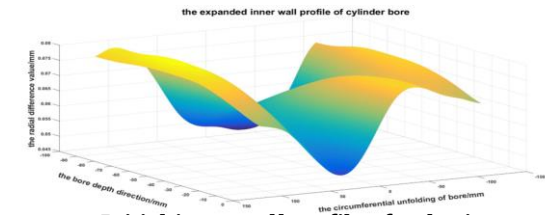
$$matrix_{ai} = r_0 - MD = func1(x_0, y_0, z_0, l, m, n, r_0, innerWall)$$

$$F_{\text{objective}} = \sum_{i=1}^6 \text{matrix}_{ai} = \text{func2}(x_0, y_0, z_0, l, m, n, r_0, \text{innerWall})$$

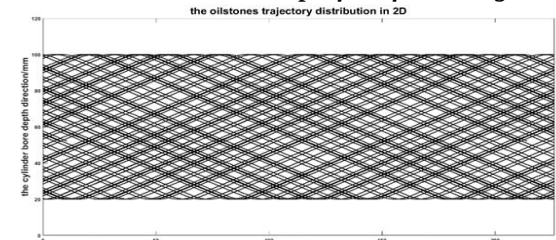
Constructing $F_{\text{objective}}$ from material removal matrix



Minimizing $F_{\text{objective}}$ to obtain stable spatial position of honing head

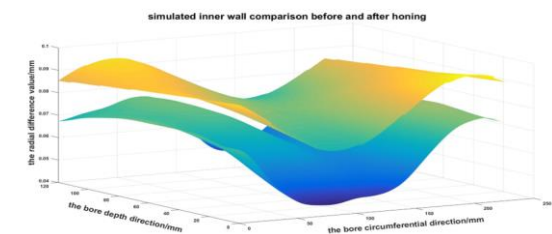


Initial inner wall profile after boring



the cylinder bore circumferential direction/mm

Honing motion trajectory



Simulated honed surface profile based on dynamic material removal model