

FluidFlow Simulation

Inputs:

nz = 16
ntheta = 264
p_in = 0.0 (Pa)
p_out = 0.0 (Pa)
radius_rotor = 0.2 (m)
cr = 0.0001 (m)
radius_stator = radius_rotor + cr
load = 50 (N)
length = 0.5 * (2 * radius_stator) (m)
viscosity = 0.015 (Pa.s)
density = 860 (Kg/m³)
omega = 10.472 (rad/s)

Outputs:

Reynolds number: 12.00789333333201

Maximum pressure: 1183.2917342161165

Forces:

N, T = 0.7417894672909985 49.99450377500242
Fx, Fy = -2.9805936437865554e-06 50.00000659322463

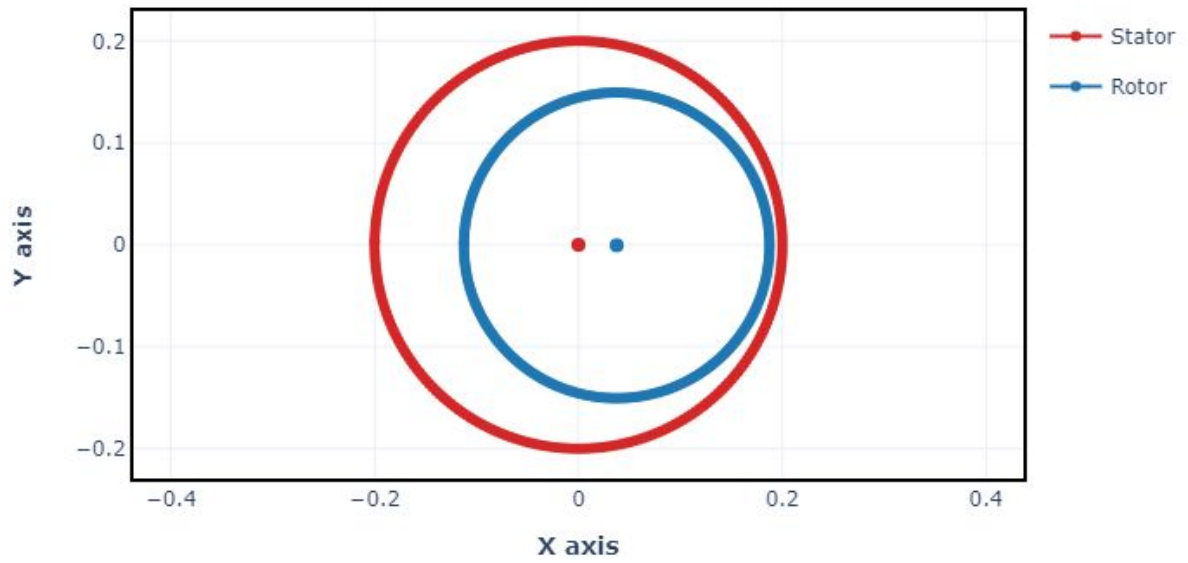
Stiffness coefficients:

kxx, kxy, kyx, kyy = 3219150.541152388 91281129.29748872
-179551595.94721675 1363940.3190424442

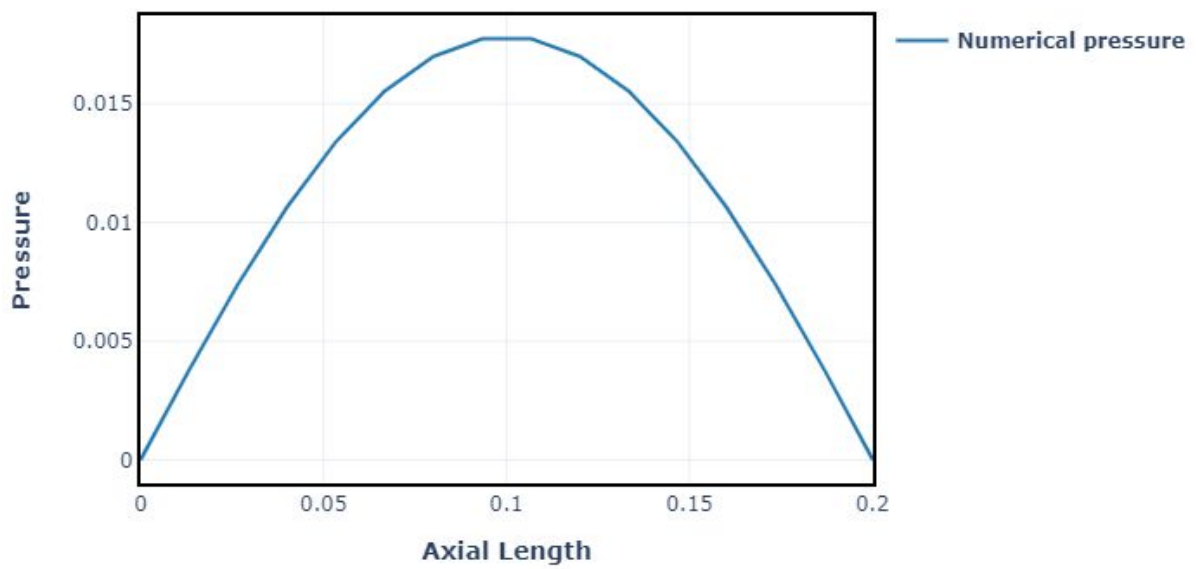
Damping coefficients:

cxx, cxy, cyx, cyy 34041376.04836056 459641.59414802876 203421.7184293568
34313949.66184302

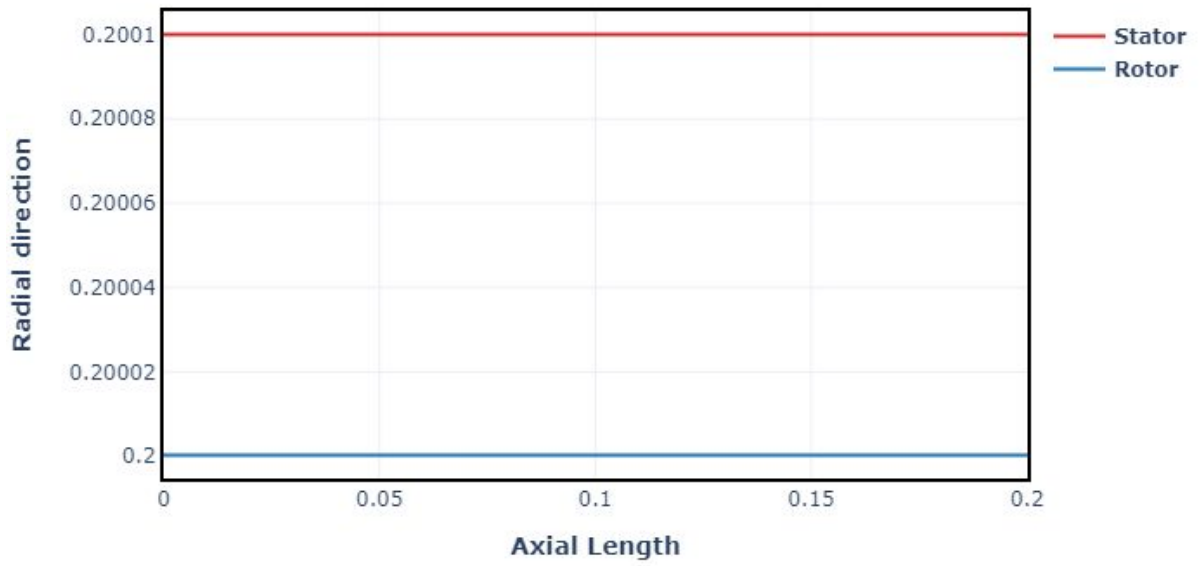
Cut in plane Z=8



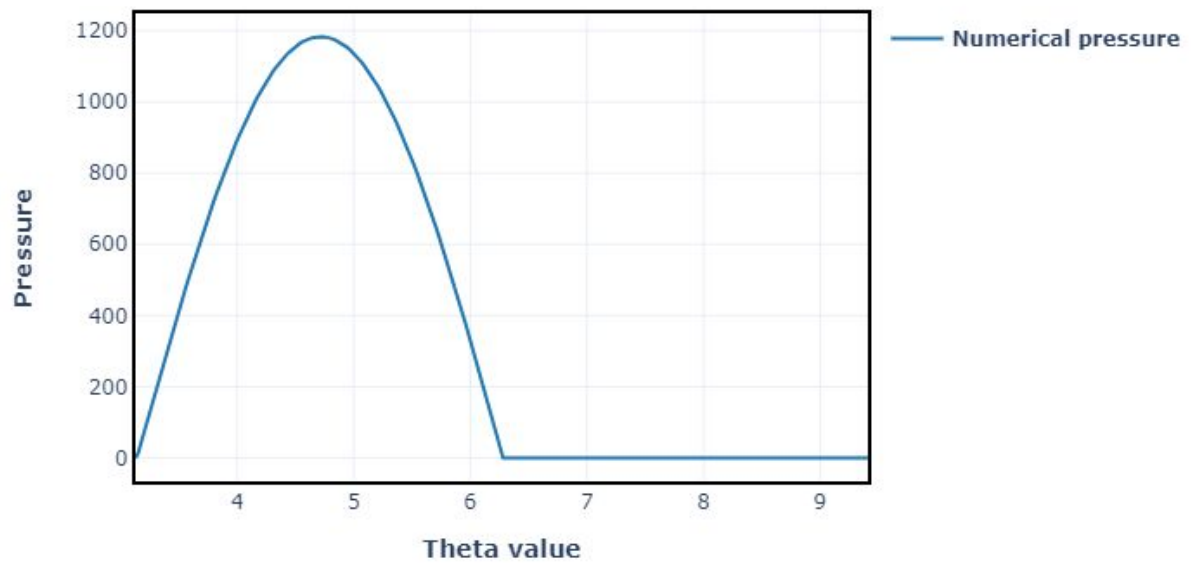
Pressure along the flow (axial direction) Theta=132

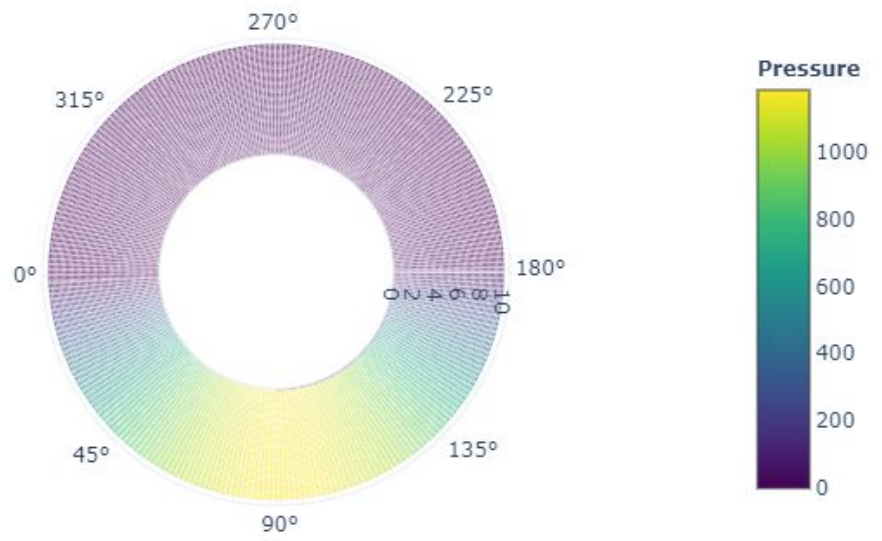


Shapes of stator and rotor - Axial direction Theta=132



Pressure along Theta | Z=8





Bearing Pressure Field

