## May 28, 2025

## Abstract

1

Results for a model D=20mm. Flexibility can reduce drag in these cases.

In experiences with D=50mm, two elastic modes can be found. Mode 1 small lengths. We found, for  $B=4.43\cdot 10^{-5}{\rm N\,m}$  Mode 1 in  $\ell/D=0.75$ . For  $B=23.4\cdot 10^{-5}{\rm N\,m}$   $\ell/D\leq 1.00$ .

It is important in order to define a reduce velocity number  $U_R = f_n D/u_\infty$ Defining a Cauchy number

$$Ca = \frac{\rho u_{\infty}^2 \ell^3}{8B}$$

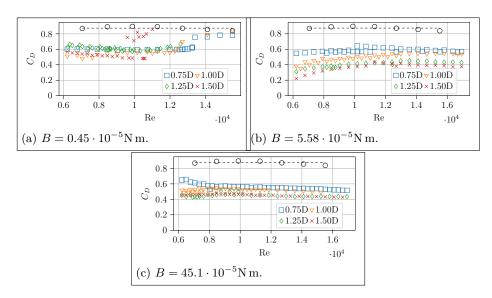


Figure 1: Drag coefficient obtained for three flexural rigidities in function of Reynolds number. The varyng parameter for each plot is the length of the flexible flaps  $\ell/D$  attached to the D-shaped cylinder.

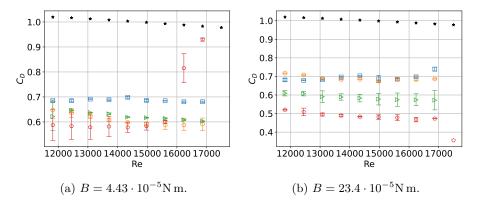


Figure 2: Results for a model D = 50mm.