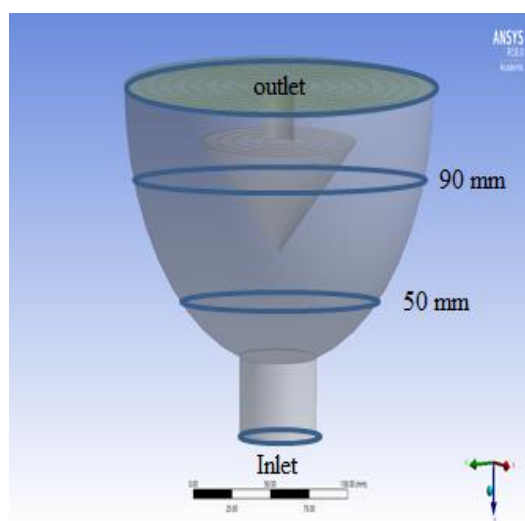
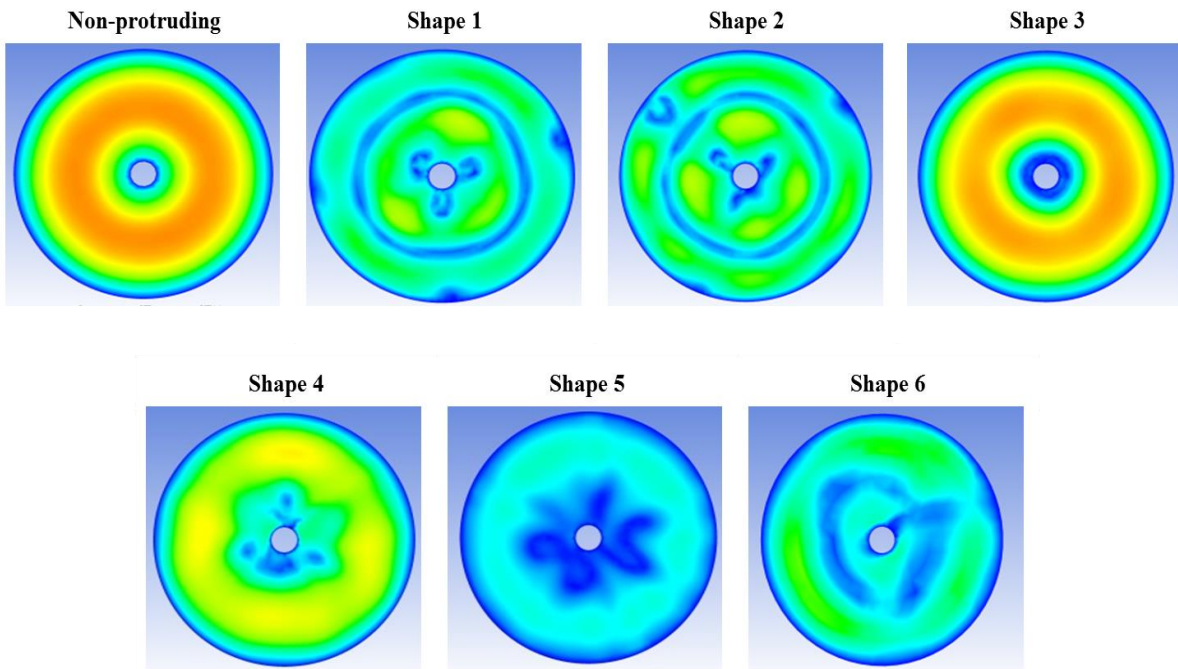


**Table S1.** Re under Laminar and Turbulent Flow Conditions

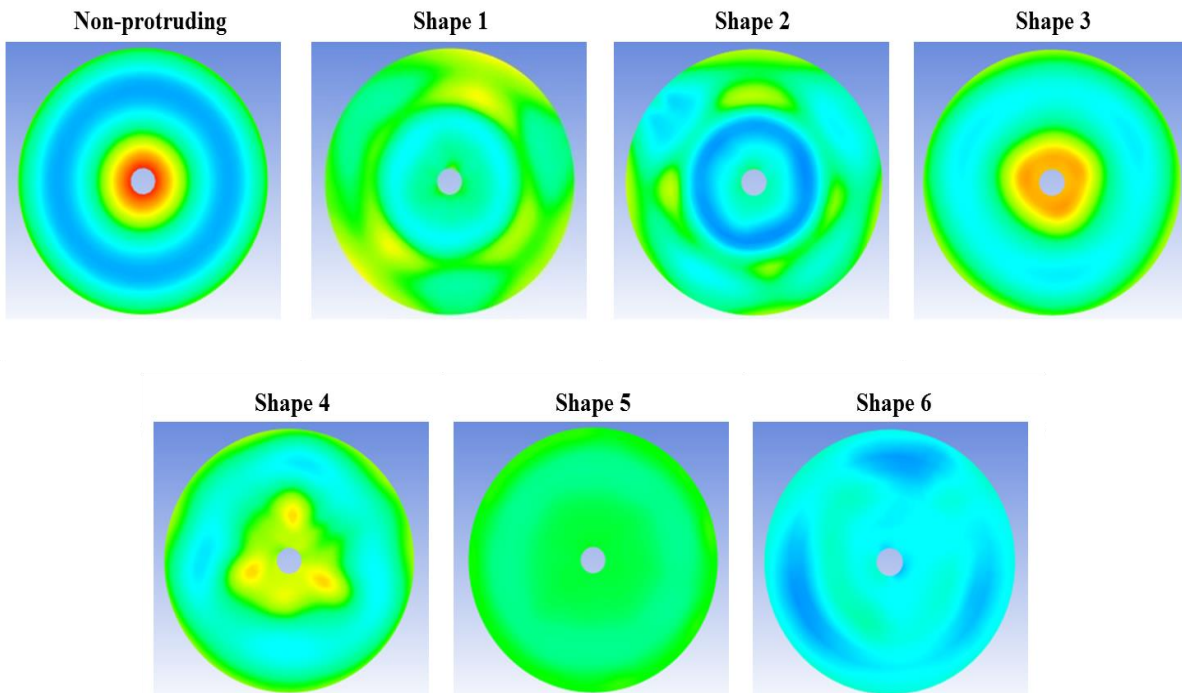
Protruding	Location	Diameter (D, m)	Velocity (u, m/s)	Re
No protruding	Inlet	0.0498	1.007	50,059
	50 mm	0.1321	0.302	39,823
	90 mm	0.1875	0.401	75,053
	Outlet	0.1990	0.601	119,385
Shape 1	Inlet	0.0498	1.008	50,109
	50 mm	0.1321	0.397	52,350
	90 mm	0.1767	0.423	74,610
	Outlet	0.1990	0.461	91,575
Shape 2	Inlet	0.0498	1.008	50,109
	50 mm	0.1321	0.442	28,284
	90 mm	0.1715	0.392	67,108
	Outlet	0.1990	0.480	95,349
Shape 3	Inlet	0.0498	1.008	50,109
	50 mm	0.1321	0.483	63,690
	90 mm	0.1861	0.528	98,085
	Outlet	0.1990	0.853	169,443
Shape 4	Inlet	0.0498	1.008	50,109
	50 mm	0.1321	0.423	55,778
	90 mm	0.1788	0.430	76,746
	Outlet	0.1990	0.736	146,202
Shape 5	Inlet	0.0498	1.008	50,109
	50 mm	0.1321	0.297	39,164
	90 mm	0.1527	0.358	54,569
	Outlet	0.1990	0.245	48,668
Shape 6	Inlet	0.0498	1.018	50,606
	50 mm	0.1168	0.576	67,156
	90 mm	0.1767	0.476	83,959
	Outlet	0.1990	0.398	79,060



**Fig. S1.** Locations used to measure the Re.



**Fig. S2.** Contour of velocity on outlet plane.



**Fig. S3.** Contour of pressure on outlet plane.