Chapter6_example3

The Reynolds Number is 651

The hydrodynamic entry length is 43.6 cm

The heat flux is 11446 W/sq.m

The power required is 2891.3 W

A 3000 W heater would suffice

The Prandtl Number is 13.6

The length required for flow to be thermally developed is 5.9 m

Summary of Calculations to Find the Wall Temperature of the Tube

1/Gz	Nu	z (m)	h W/(sq.m.K)		Tbz (degree celsius)	Twz (degree celsius)
0.002		12.0	0.237	537	22.0	43.3
0.004		10.0	0.475	447	24.1	49.7
0.010		7.5	1.187	335	30.2	64.3
0.040		5.2	4.747	232	60.9	110.1
0.050		4.5	5.934	201	71.1	127.9