

LIGO beamtube costs 1994 dollars

References: LIGO Cost Book, L.Jones notes, F.Assiri notes

item	total cost \$M	length dep cost \$M
Management	5.5	~1.0
Design	0.83	
Tube factory	8.05	
Tube material	9.02	9.02
Bellows	0.77	0.77
Assembly	1.66	1.66
Leak check	0.87	0.87
Anchors+supports	3.05	3.05
Pump ports	1.83	1.83
Handling/shipping	0.92	0.92
Moblization/demobilization	0.46	
Installation in field	7.2	7.2
Insulation and bake	7.0	7.0
Acceptance tests	1.1	
CB&I profit (10%)	5.2	3.3
Beamtube enclosure design	0.64	
BTE QA and survey	0.32	0.32
BTE, berm, slab construction	18.6	18.6
TOTAL 1	72.4 16.8 fixed	55.5 3.47/km
Vac equipment for beamtube		
gate valves	0.72	0.72
ion pumps	0.24	0.24
cryo traps	0.80	
roughing pumps	0.24	0.16
turbo pumps	0.18	0.12
gauges, electronics	0.02	0.02
Total vac equip for beamtube	2.2 0.94 fixed	1.26 0.08/km
TOTAL 2	74.6 17.7 fixed	56.8 3.55/km