

**aLIGO QUAD SUS Mass Weights - All Metal Assembly**

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Betsy Weaver	May 30, 2014	see LIGO DCC record Status

Following are the weights that masses need to be assembled to when building an all metal QUAD suspensions. These weights are based on the average* of the ETM, ITM and ERM, CP glass test masses which have bonded prisms and ears on them. As well, these weights reflect the fact that cabling will be added to the suspension later, adding weight to certain masses. The other mass weights are calculated such that the main and reaction chains have the same total weight. Mass assemblies should be assembled to these weights to within 10g.

	ETM QUAD	ITM QUAD
Main Chain	ETM Dummy = 39,630 g PUM = 39,660 g M0 UIM = 22,000 g M0 Top Mass = 22,000 g TOTAL = 123, 290 g	ITM Dummy = 39,620 g PUM = 39,670 g M0 UIM = 22,000 g M0 Top Mass = 22,000 g TOTAL = 123,290g
Reaction Chain	ERM Dummy = 26,060 g PenRe = 53,080 g R0 UIM = 21,800 g R0 Top Mass = 22,000 g Cables on PenRe ~150g Cables on UIM ~200g TOTAL = 123,290g	CP Dummy = 20,040 g PenRe = 59,100 g R0 UIM = 21,800 g R0 Top Mass = 22,000 g Cables on PenRe ~150g Cables on UIM ~200g TOTAL = 123,290g

*Average weights were obtained from <https://galaxy.ligo.caltech.edu/optics/> during 2014. Averages included the following serial numbers.

- ETMs: ETM-01 thru ETM-16
- ITMs: ITM-01 and ITM-03 thru ITM-11
- ERMs: ERM-01 thru ERM-08
- CPs: CP01 thru CP09