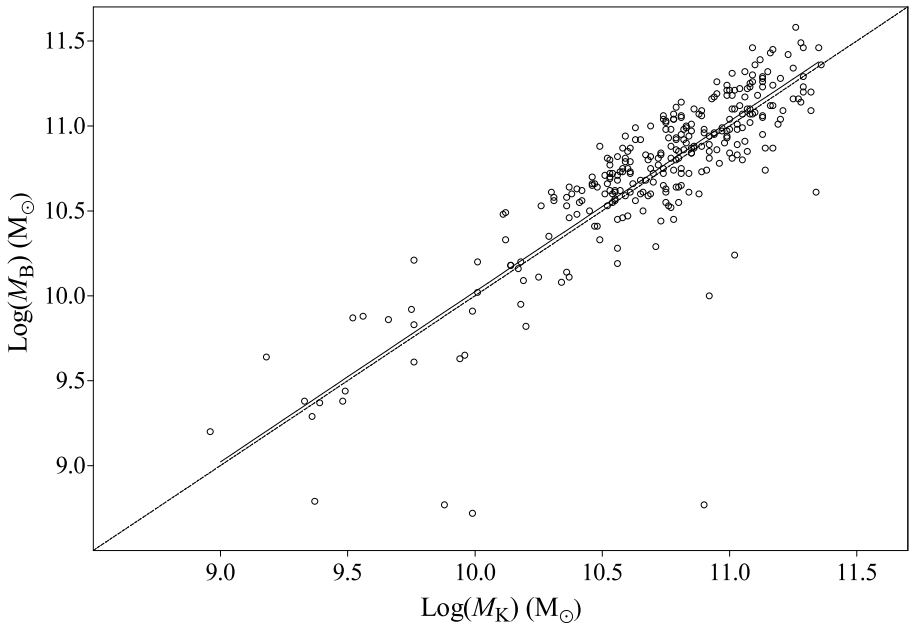

Fig. 8. Comparison of the two mass estimates. The dotted line is the one-to-one relation and the continuous line is a linear fit.

as published by Faber & Gallagher (1979). These ratios were adjusted for our adopted value of the Hubble constant. The B mass estimates appear in Column 4 of Table 4.

In Figure 8 we compare the two mass estimates. The linear relation fitted has a correlation parameter $r^2 = 0.72$, implying that 72% of the total variance of the B mass estimates is explained by the variation of the K mass estimates (and vice versa). The median values for the masses in the B and K bands are given in Table 5. They are in excellent agreement with those reported by Roberts & Haynes (1994) for galaxies having similar morphological types.

In Table 5 we see that both median masses, M_B and M_K, tend to increase from the SFGs to the AGNs. The general trend observed in the box-whisker plots presented in Figure 9 looks slightly more obvious using M_K than M_B. In Table A1 of the Appendix we see that using M_B the statistical tests detect a slightly more significant difference between the AGNs and SFGs than between the TOs and SFGs, while both differences are similarly statistically significant using M_K. No significant difference is observed between the AGNs and TOs.

In Figure 10 we compare the masses of the galaxies having different morphological types. Although we found a significant variation of the bulge mass with the morphology, the total mass M_B and M_K do not seem to vary as much between galaxies having different morphologies. In Table A2 of the Appendix, we find that the observed differences start to be statistically significant only when the comparison is done with the latest types, Sc for M_B, and even later, Sd, for M_K. We conclude that galaxies with different morphologies show only marginal differences in their total masses.

Based on our analysis, the trends observed between the AGN activity, the bulge mass and morphology does not appear to be "quantitative" (based on a difference in total mass), but more "qualitative", the AGN activity appearing more frequently when a higher fraction of the mass of the galaxy is in the form of a bulge. This seems to favor a mechanism based on different astration rates–defined as the efficiency with which a galaxy transforms its gas into stars (Sandage 1986). The higher the astration rate, the more massive the bulge and the higher the probability to observe an AGN.

3.3. *Relation with stellar populations*

In Figure 11 we compare the distributions of the mean ages of the stellar populations in galaxies showing different activity types. The stellar populations of the SFGs are dominated by young stars, with mean ages ranging from 0.32 to 1.0 Gyr. These values correspond to the 25 and 75 percentiles, respectively. The mean age of the stellar populations is observed to go up in the TOs, with values ranging