Creep of RF-contact Slide Finger Due to Baking

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In vacuum chambers for the SPring-8 storage ring, bellows assemblies are set in order to accommodate thermal expansion of the chambers due to baking and compensate for installation errors in the longitudinal and the transverse directions between chambers. RF-contact slide fingers, which are made from BeCu (C1720P-1/4HT), are attached for smooth streams of wall current. Two types of finger are 5 mm wide, 0.7 mm thick and 107 mm long, and 5 mm, 0.6 mm and 87 mm, respectively. In order to decrease the contact resistance, the contact force of a finger must be larger than a certain force, 30 gf per finger when using this

of 200 gf/strip are shown in Fig.1. We defined the time, when the temperature of strips reached the required value, as start time of measurements (t=0). Therefore, contact forces somewhat were decreased during the temperature of strips rose. There was lack of the data at 250 °C on the initial stage of measurements because we could not measure the contact force owing to a defect of measuring device. The contact force at 120 °C was constant during experiments. That at 150 °C slowly decreased and was reduced to about 165 gf/strip after 9000 hours. That at 250 °C rapidly decreased particularly more than 10 hours and was reduced to about 50 gf/strip after 1000 hours.

500 hours at most. The contact force after the 150

°C baking procedure of 500 hours is reduced to about