

Introduction

Compression tests were performed on polymeric packers supplied by Marches Global. One sample of two packer designs from 1 to 10 mm in thickness were loaded up to a maximum of about 120 kN, though most test were stopped at a lower load

Method

Tests were performed using an Instron type 4507 general purpose screw driven test machine at a loading rate of 1 mm per minute. Load and deflection were measured and recorded using the inbuilt transducers and software. The machine has a compliance of approximately 0.5 mm per 100 kN, meaning that the measured deflection is greater than the compression of the packers by this amount. Separate tests were performed to measure the compliance, and the compression of the samples found by subtracting the compliance from the indicated displacement.

Zero deflection is arbitrary in tests of this type. A straight line was fitted to the data in the 5–15 kN range and an offset added such that this line passed through the origin.

Results

The results are shown in Figures 1 and 2.

Figure 3 is a plot of the machine compliance data. The data was checked by measuring compliance four times, see Figure 4. The four sets of data agree to about 0.01 mm over the range 10–200 kN.

Compression tests on packers

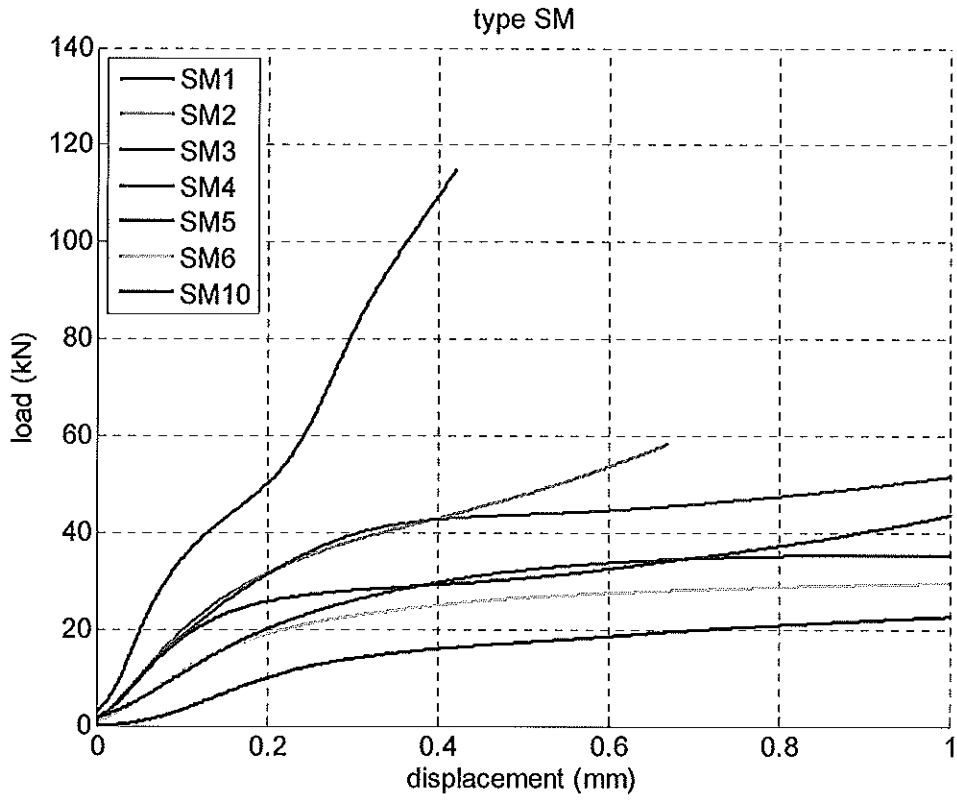


Figure 1 Results for type SM packers.

Compression tests on packers

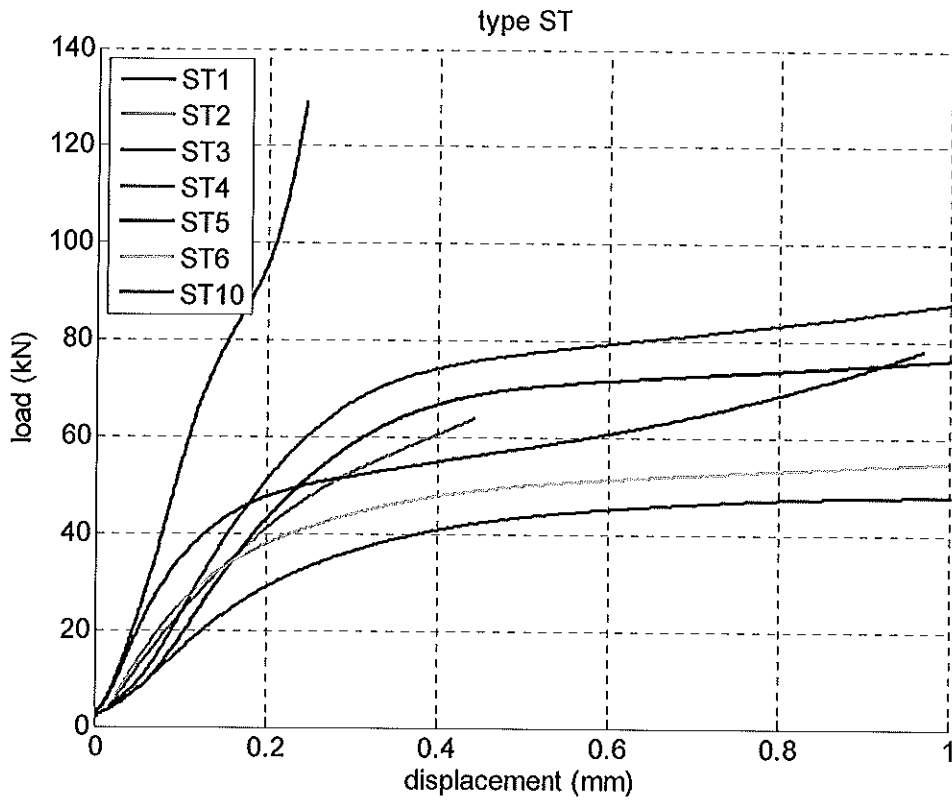


Figure 2 Results for type ST packers

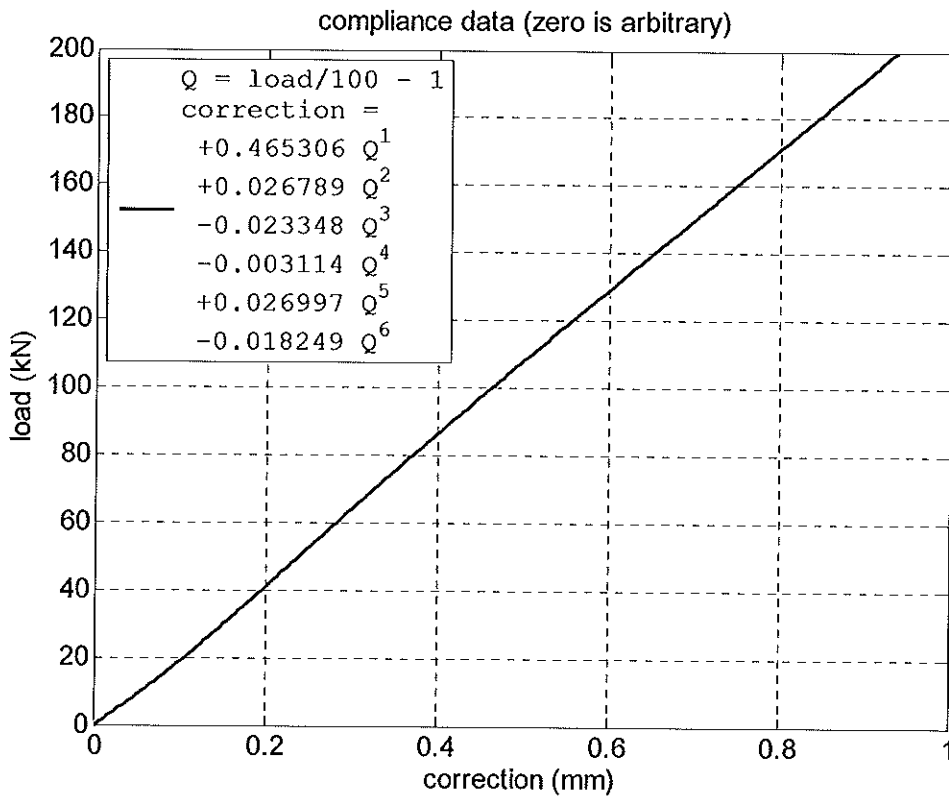


Figure 3 Compliance data