The pressure and the shear strength acting between the two materials is shown in Fig. 13. In the sections where the total pressure increased to 501.65 MPa, 519.9 MPa, and 536.53 MPa, the shear strength value was equal to 231 N, 207 N, and 220 N, respectively, indicating only slight deviations from earlier. Furthermore, the strength of the specimens surface-treated with the Grit150 grinding blade witnessed a decrease of 12 N as compared to the specimens that were not surface-treated. Because sufficient surface roughness was not ensured on SUS316L of the internal pipe material, the API 5L X65 material, which was an external pipe material, did not penetrate. This is because penetration bonding did not facilitate itself between the two materials. In order to achieve a shear strength of 500 N or higher, the pressure between the two materials should be at least 570 MPa. This will also ensure that the shear strength can be achieved as per the material penetration phenomenon.