CLAIMS

1. A testing apparatus for a removable portion of a furniture, the test apparatus comprising

a holder configured to position the removable portion for testing;

an arm assembly comprising a load, a pneumatic arm and a rail, wherein the arm assembly is configured to move the load to exert a first force on the removable portion, and wherein the load is attached to the pneumatic arm; and

a programmable logic controller (PLC), wherein the PLC is configured to control a movement of the pneumatic arm to exert the first force,

wherein the load is shaped and/or textured to simulate a part of a human body, and wherein the first force is applied in a first direction along a first axis of the removable portion, and wherein the load is formed from steel or silicone, and wherein the rail is configured to facilitate the movement of the pneumatic arm along a second direction to exert a second force, and wherein the first force and the second force are exerted simultaneously at a position on the removable portion.

2. The testing apparatus of claim 1, further comprising a base plate, wherein the base plate is configured to mount the holder, and wherein the base plate comprises a rotary adjustment mechanism to fine-tune a movement of the base plate along a lateral axis.

3. The testing apparatus of claim 1 or 2, wherein the holder comprises a clamp to hold the removable portion in place during testing.

4. The testing apparatus of any one of the preceding claims, wherein the arm assembly comprises an elevated structure, and wherein the rail is mounted onto the elevated structure at an elevation from the holder, and the pneumatic arm is mounted onto the rail for moving the pneumatic arm along an axis defined by the rail.

5. The testing apparatus of any one of the preceding claims, wherein the load is configured to exert the first force of 100 Newtons on the removable portion.

6. The testing apparatus of any one of the preceding claims, wherein the pneumatic arm comprises a hydraulic unit to slidably extend the pneumatic arm from a housing.

7. The testing apparatus of claim 6, wherein the hydraulic unit is configured to urge the load towards the removable portion placed on the holder to exert the first force on the removable portion based on a force value derived from a pressure sensed by a pressure valve.

8. The testing apparatus of any one of the preceding claims, wherein the PLC comprises a digital counter, the digital counter configured to count a number of times the load exerts the first force on the removable portion and compare the number of times with a pre-determined number.

9. The testing apparatus of claim 8, wherein the PLC is configured to provide at least one of a visual and audio notification when the number of times exceeds the pre-determined number.

10. The testing apparatus of any one of the preceding claims, wherein the furniture is a chair, and the removable portion is an armrest portion.

11. The testing apparatus of claim 10, wherein the armrest portion comprises a cushioned portion.

12. The testing apparatus of claim 11, wherein the cushioned portion is formed from or of polyurethane.

13. A method for testing a removable portion of a furniture, the method comprising

providing a holder, the holder configured to position the removable portion for testing; and

providing an arm assembly comprising a load, a pneumatic arm and a rail, wherein the arm assembly is configured to move the load to exert a first force on the removable portion, and wherein the load is attached to the pneumatic arm; and

providing a programmable logic controller (PLC), wherein the PLC is configured to control a movement of the pneumatic arm to exert the first force,

wherein the load is shaped and/or textured to simulate a part of a human body, and wherein the first force is applied in a first direction along a first axis of the removable portion, and wherein the load is formed from steel or silicone, and wherein the rail is configured to facilitate the movement of the pneumatic arm along a second direction to exert a second force, and wherein the first force and the second force are exerted simultaneously at a position on the removable portion.

14. The method of claim 13, further comprising providing a base plate, wherein the base plate is configured to mount the holder, and wherein the base plate comprises a rotary adjustment mechanism to fine-tune a movement of the base plate along a lateral axis.

15. The method of claim 13 or claim 14, wherein the holder comprises a clamp to hold the removable portion in place during testing.

16. The method of any one of claims 13 to 15, wherein the load is configured to exert the first force of 100 Newtons on the removable portion.

17. The method of any one of claims 13 to 16, wherein the pneumatic arm comprises a hydraulic unit to slidably extend the pneumatic arm from a housing.

18. The method of claim 17, wherein the hydraulic unit is configured to urge the load towards the removable portion placed on the holder to exert the first force on the removable portion based on a force value derived from a pressure sensed by a pressure valve.

19. The method of any one of claims 13 to 18, further comprises configuring a digital counter of the PLC to count a number of times the load exerts the first force on the removable portion and compare the number of times with a pre-determined number.

20. The method of claim 19, further comprises configuring the PLC to provide at least one of a visual and audio notification when the number of times exceeds the pre-determined number.