

Rubber parts

ATD (Anthropomorphic Test Device) should be measuring apparatus.

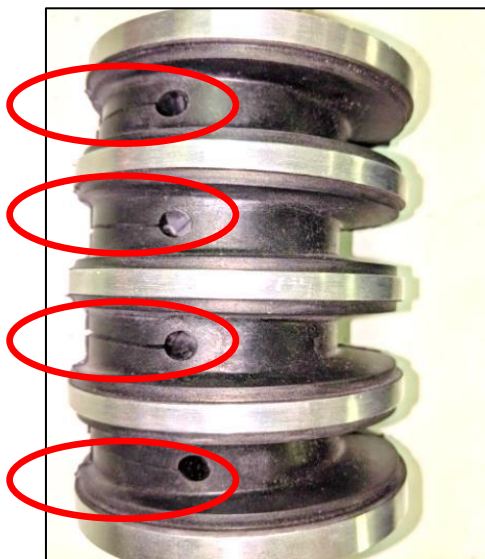
- Each dummy can be adjusted into middle of corridor.
- Required adjustable parts for being set at middle of corridor.
 - ①. 5 Different hardness of Nodding blocks (Shor A 80, 82, 85, 87, 90)
 - ②. 3 different hardness of Knee insert (Shor A 40, 43, 45)
 - ③. Lumbar spine is confirmed by bending test. or (Shor A 80+/-1)
 - ④. Molded parts have been delivered at middle of corridor..
- **Pelvis, Head skin, Knee Flesh, Foot can be requested softer/ harder.**

ATD should not be individual performance, being almost all same performance by using the adjustable ATD parts.

Chapter 1. Rubber development since 1995 -1997

JASTI had worked with one of Rubber company to specify the best ingredients and mixture ratio. JASTI and a rubber company had tried total 63 different rubber types for two years. The follows are our results.

- ①. The last development was very small % of mixture material was changed **from 0.2% to 0.15% to eliminate Hybrid-III50th Neck cut opened and keep parallel shape** The rubber material are so sensitive to keep the performance.



Picture 1.: Cut area opened



Picture 2 : Reduce down to (0.15%)
GOOD Neckl

②. Lumbar spine durability to keep 45.5 ± 0.5 deg.

The below test equipment for test the durability, plate debond, **inside weld quality issue**, One of ATD manufacture used sand blasted treatment in order to **conceal the weld line on the surface**.

The sand blasted Lumbar spine has not a hard surface and very weak as durability.



Picture 3 :
Weld line NG



Picture 4 : **Sand blasted NG**



Picture 5 : Our roducts **GOOD**

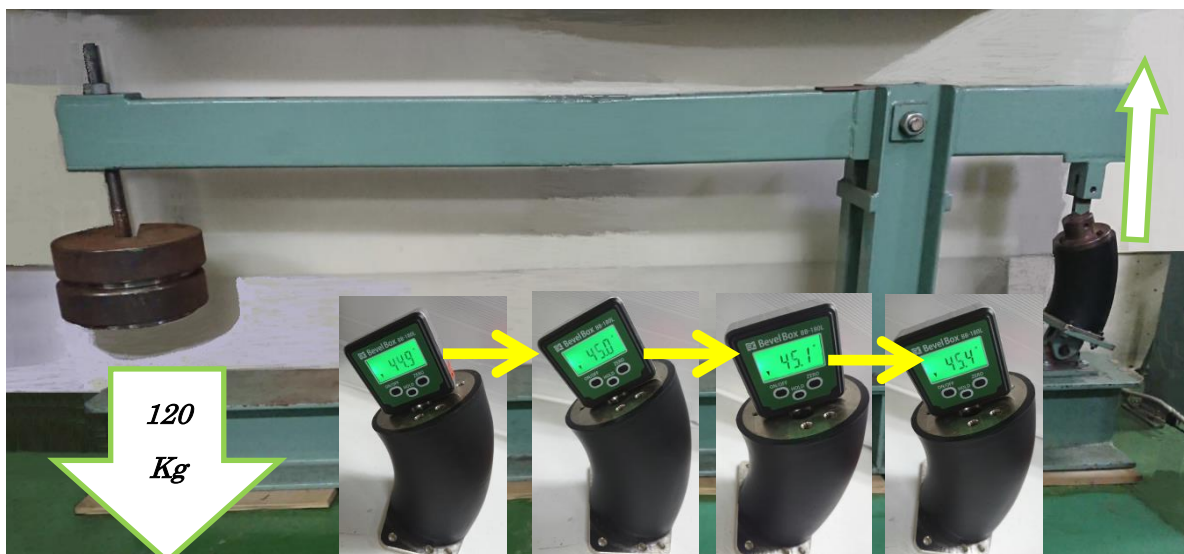
Sand blasted Lumbar spine is bent shortly and short life as no hard top skin.

③. Lumbar Spine Bonding and durability test

Loaded arm ratio 1:4 One weight is 15kg.

Two weights (30kg) x4=120kg Checking points as bellow

- No separation of top metal plate
- Top angle should be returned to (45.5 ± 0.5 deg.) within 30 minutes

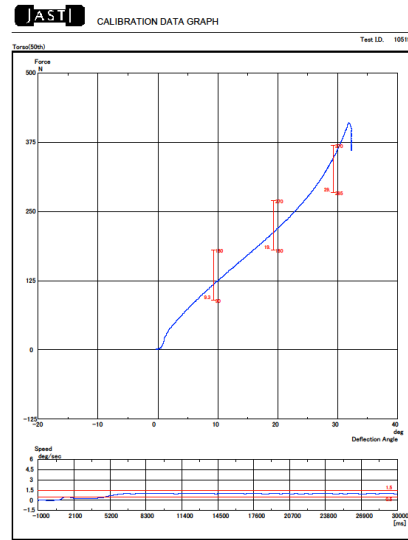


Picture 6 :Lumbar Spine Bonding and durability test

④. Lumbar spine bending test (Hybrid-III 50th and 95th)



Picture 7 : Test on Lumbar Spine



Picture 8 : Calibration Data Graph

③. ATD chair for protecting Lumbar Spine by the upper body weight loaded.

JASTI developed ATD chair as PATENTED structure.

The keys are ; To reduce the load on Lumbar spine by two points,



Picture 9 : ATD chair



Picture 9 : To reduce the load on Lumbar spine by two points

Adjustable parts to get the same set up by certification result.



• Nodding Blocks with different hardness for fine adjustment in a neck flexion/extension test

Picture 10. : 5 different hardness of Nodding blocks

Remarks: Please refer [ATD Technical report: Nodding block hardness & Neck test results



Picture 11. : 3 different hardness of Knee inserts (Shor A 40-50)

Any question and/or request to info@jasti.co.jp

URL <http://www.jasti.co.jp/product/dummy.html>

Thank you for your cooperation.