JASTI

PRODUCT CATALOG 2021

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High-speed Capture, Track and Analyse…..

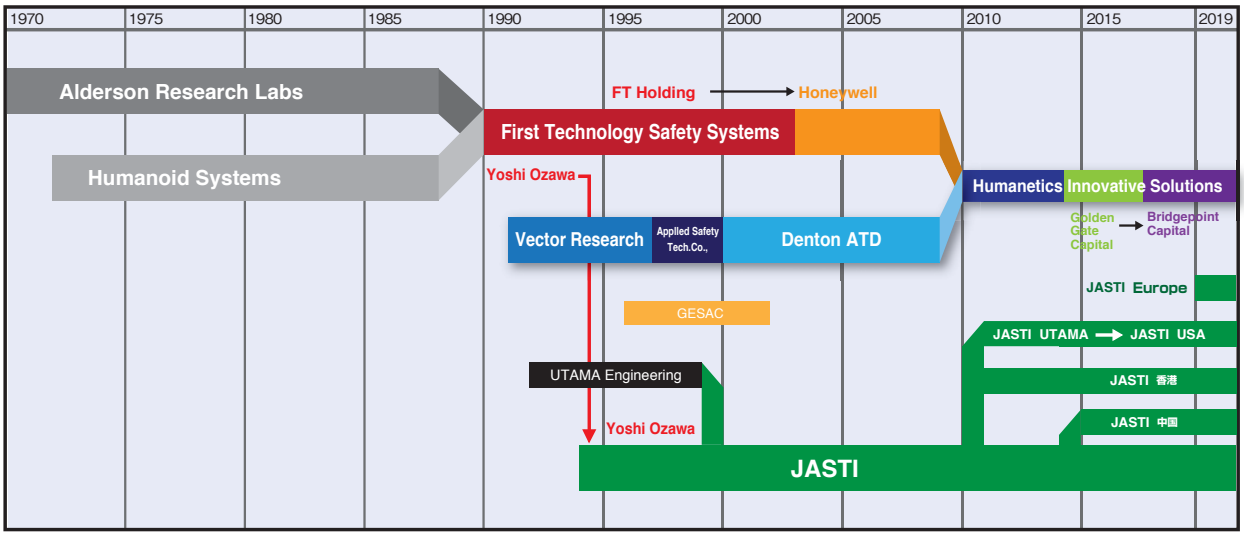
ilac-MRA PJLA Testing Accreditation#113037 ASR ANAB ISO9001

JASTI PRODUCT CATALOG

Contents

JASTI's Distinct Footsteps

The history of anthropomorphic dummies. It is the distinct road that JASTI has taken.



Ideology

We cast away "egoism" which allows caring only about ourselves, and keep the mind of "altruism" to sacrifice ourselves to help others. We consider the feelings of others, look around calmly, and extend our hands to help others. Every employee in JASTI keeps the mind of "altruism" in his or her hearts, and walks with people through works which can do good in the world.

Quality Policy —— Contribute to society through automobile collision safety evaluations ——

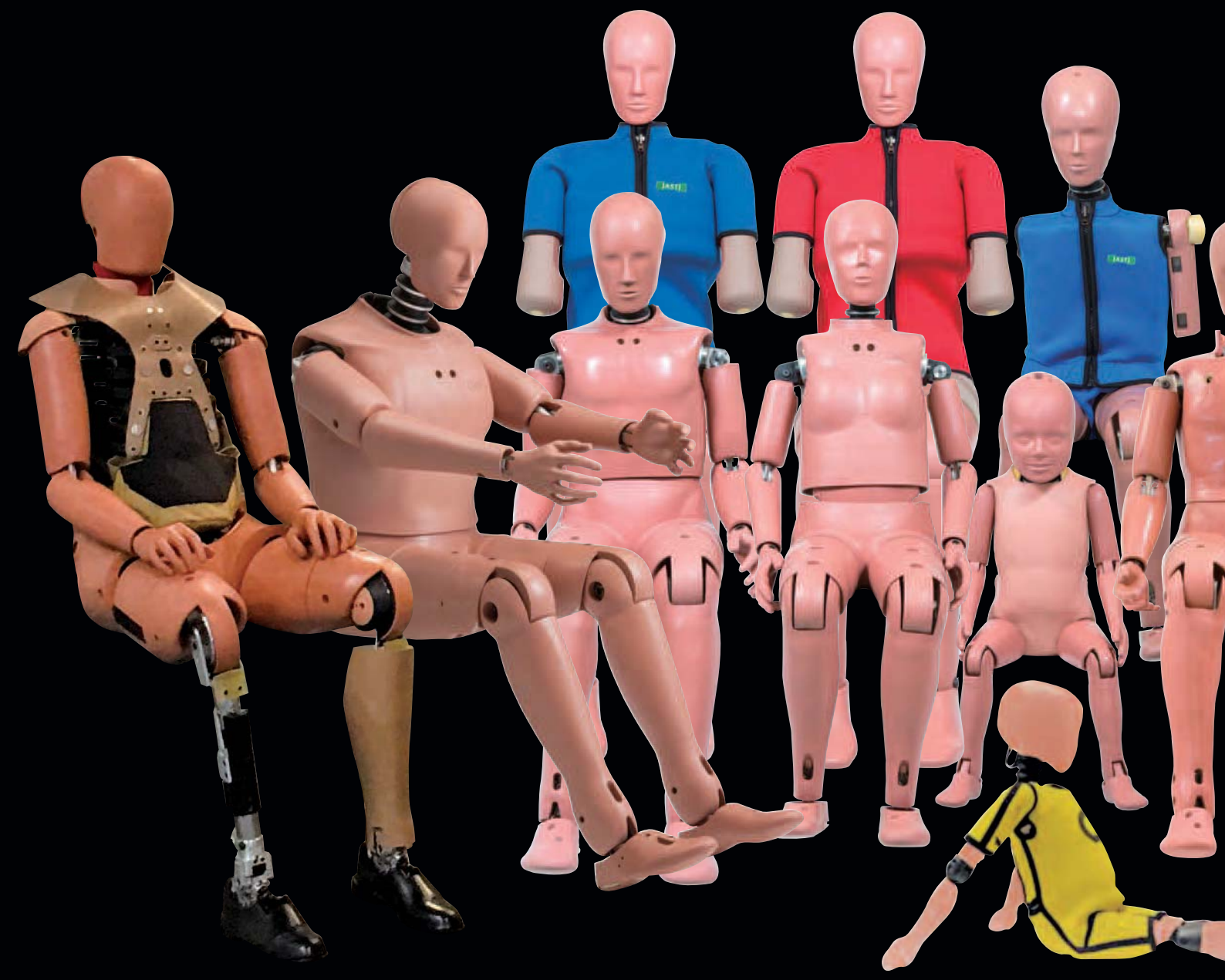
Action Policies

1. Aim at being one of a kind instead of being the number one
2. Carry out cooperate activities from customers' viewpoint
3. Increase abilities and strive for continuous quality improvemen

Goals in Production of Anthropomorphic Dummies

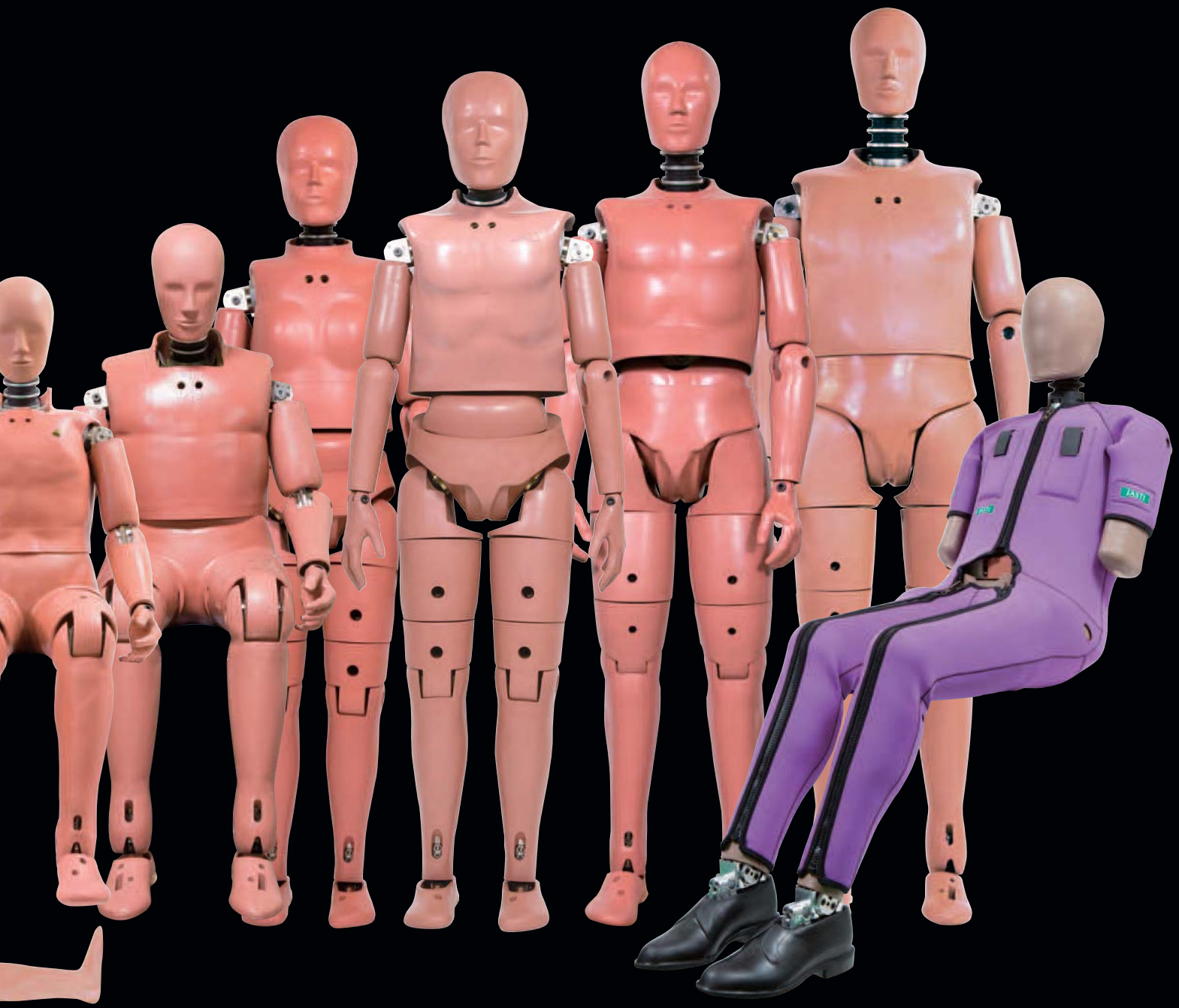
1. Anthropomorphic dummies as measuring apparatus
   (Reduce individual differences of dummies and control stability of performance levels)
2. Repeatability
   (Keep repeatability and reliability of dummies)
3. Anthropomorphic dummies with reproducibility

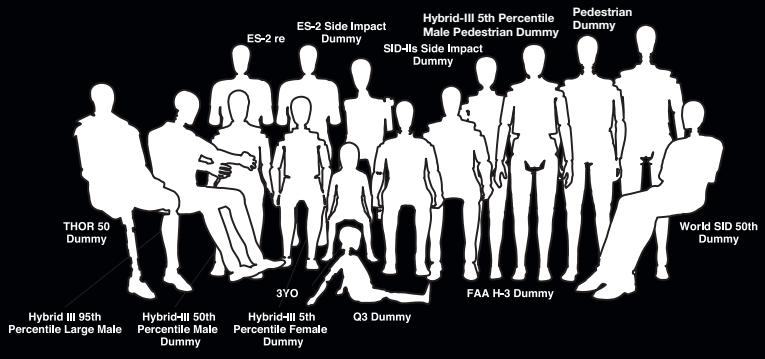
JASTI's Cutting-edge Safety Technologies S the Automobile Industry Worldwide



Supporting

JASTI





Remarkable Features of JASTI's Dummy Products

Safety of Mold Products

Since the company started manufacturing, JASTI has used DINA and DINP instead of DOP as plasticizers for molded products, which provide a high degree of safety, however, according to requirements for environmental assessment in Europe (RoHS 2), the cancer-causing property of these plasticizers is concerned because they contain phthalic acid. We switched to a new phthalic acid free plasticizer in 2015. That makes JASTI's PVC products much safer.

Damping Material

JASTI developed a new damping material which has a performance that is equal to conventional products. The combination of steel ribs and this new damping material enables issuing a Low/High Speed Impact Certification for displacement of a thorax.

● Rib unit test

Features of Rubber Products

Dummies require a high degree of biofidelity and are made up of many kinds of rubber materials to use their properties of flexion, extension, etc.

JASTI offers parts with different hardness for Lumbar Spine, Nodding Block, and Knee Flesh Insert, based on information on drawings. In a calibration test of a dummy, adjustment and calibration are possible by combining these parts with different hardness. You are welcome to try and please feel free to contact us.

* These matters are reported at ISO/TC22/SC12/WG5, etc. For details, refer to our website http://www.jasti.co.jp/.

Different Hardness Types of Rubber Products

● Lumbar Spine

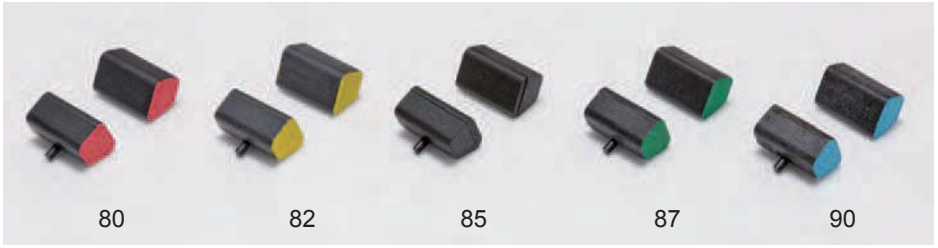
Lumbar Spine is based on rubber materials, has a role of the lumbar spine of a human body, and absorbs an impact on the thorax by deforming.
Performance requirements of Lumbar Spine include not only surface hardness, but also repeatability, reproducibility, and durability. Specially, a surface hardness test is required for Hybrid-III 50th Male, and a torso flexion test is required for 5th Female, and Chest Jacket, Rib Assembly, and Lumbar Spine, which are basic components of the dummies, largely relate to the displacement of the thorax and limit its properties. Therefore, the precision of each component is obviously important and improving the precision and reliability of each component secures the reliability of a dummy. For this reason, we always conduct various unique tests to pursuit reliability, durability, and reproducibility.

● Reliable Lumbar Spine

● Test on Lumbar Spine

● Debond test

● Fine adjustment in a neck flexion/extension test



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

● Fine adjustment in a knee impact test

The legal drawing requires a hardness of 40 to 50 (Shore A), and JASTI offers a Knee Flesh Insert with a hardness of 45, which is the intermediate value, as the standard product. If a required impact force cannot be obtained in a performance test, replace the Knee Flesh Insert with another one with different hardness for adjustment. JASTI offers 3 different types of Knee Flesh Insert: Low, Middle, and High. When a required value cannot be met in a knee impact test, we recommend to use another type of Knee Flesh Insert which differs in hardness.

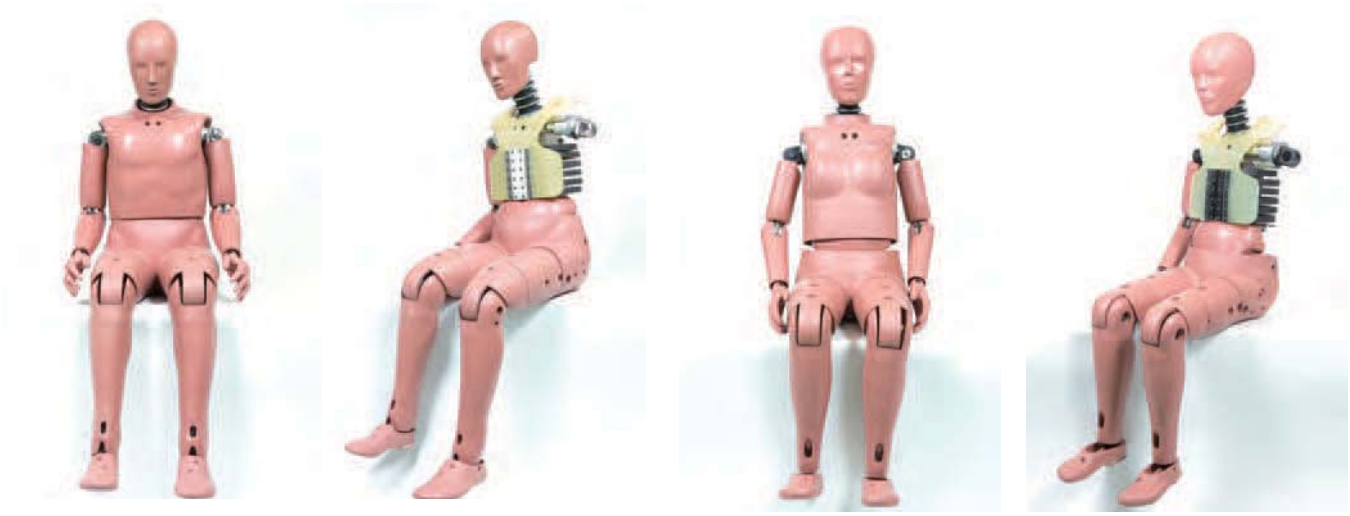
Low Middle High

Front Impact Test Dummy

● Hybrid-III 50th Percentile Male Dummy
● Hybrid-III 5th Percentile Female Dummy

Front Impact Test Dummies, Adult Male/Adult Female, CFR 49 Part 572, Euro NCAP

JASTI's Hybrid-III 50M and 5F are dummies for front collision tests specified in standards (CFR 49 Part 572 Subparts E and O) of NHTSA (National Highway Traffic Safety Administration) and manufactured in full compliance with the standards. We carry out calibration tests to prove conformity with requirements in laws and regulations in in-house facilities that ensure traceability. Each part is manufactured according to drawings that meet requirements in laws and regulations and compatible with dummies manufactured by other companies.



Hybrid-III 50th Percentile Male Dummy

Outer Size (mm)	
Sitting Height	878 ~ 889
Shoulder Pivot Height	505 ~ 521
Buttock to Knee Length	579 ~ 605
Knee Pivot Height	485 ~ 501
Shoulder Width	421 ~ 437
Head Back to Backline	40 ~ 46
Popliteal Height	429 ~ 455

Weight (kg)	
Head	4.536 ± 0.045
Neck	1.542 ± 0.045
Upper Torso	17.191 ± 0.136
Lower Torso	23.042 ± 0.136
Upper Arm (each)	1.996 ± 0.090
Lower Arm and Hand (each)	2.268 ± 0.090
Thigh (each)	5.987 ± 0.090
Lower Leg and Foot (each)	5.443 ± 0.136
Total Weight	77.700±1.180

Dummy Specifications

Hybrid-III 50M , 5F Dummy		
	USA (NHTSA)	EuroNCAP
Head	Head drop	Same
Neck	Neck Bent/ Extension	Same
Thorax	High/ (Low Speed)	High / Low Speed
Pelvis	Femur Flexion	Same
Knee Slider	Friction	Ball Bearing (High / Low)
Foot	Compression	Impact

THOR 50		
	NHTSA	EuroNCAP
Spine Box	All 3 deg teeth	Set at 9 , 0,-9,-12deg
Lower Leg	FIOR LX original	Hybrid-III 50th

Hybrid-III 5th Percentile Female Dummy

Outer Size (mm)	
Sitting Height	774 ~ 800
Shoulder Pivot Height	431 ~ 457
Buttock to Knee Length	520 ~ 546
Knee Pivot Height	393 ~ 419
Shoulder Width	350 ~ 366
Head Back to Backline	43 ~ 48
Popliteal Height	355 ~ 376

Weight (kg)	
Head	3.730 ± 0.05
Neck	0.910 ± 0.09
Upper Torso	12.020 ± 0.14
Lower Torso	13.250 ± 0.14
Upper Arm (each)	1.180 ± 0.05
Lower Arm (each)	0.900 ± 0.05
Hand (each)	0.280 ± 0.05
Thigh (each)	3.130 ± 0.09
Lower Leg	3.270 ± 0.05
Foot	0.790 ± 0.05
Total Weight	49.050 ± 0.91

Front Impact Test Dummy

● Hybrid-III 95th Percentile Large Male Dummy

Front Impact Test Dummy, Adult Large Male

The prototype of Hybrid-III 95LM dummy was developed in 1989, around the same time that Hybrid-III 5F dummy was developed, based on a basic design under a concept of scaling up while keeping the same human engineering properties as Hybrid-III 50M dummy.
Its outer size and position of the center of gravity are based on measured values, and its biomechanical properties are based on 50M. The pelvis design is different from that of 50M and a unique one to prevent sinking in a Sled test.
In 1997, SAE and NHTSA took the lead in making improvements for the purpose of increasing the performance of the dummy and optimize it as a measuring apparatus, and developed the basic design. Today, 95LM dummy is widely used primarily for safety tests for seat belts and strength tests for seats as a ballast dummy.

Hybrid-III 95th Percentile Large Male Dummy

Outer Size (mm)	
Sitting Height	927 ~ 942
Shoulder Pivot Height	541 ~ 556
Buttock to Knee Length	624 ~ 650
Knee Pivot Height	521 ~ 546
Shoulder Width	467 ~ 483
Head Back to Backline	86 ~ 91
Popliteal Height	457 ~ 483

Weight (kg)	
Head	4.94 ± 0.05
Neck	1.68 ± 0.05
Upper Torso	22.32 ± 0.36
Lower Torso	30.30 ± 0.36
Upper Arm (each)	2.81 ± 0.05
Lower Arm and Hand (each)	2.06 ± 0.05
Thigh (each)	8.21 ± 0.09
Lower Leg and Foot	5.75 ± 0.09
Total Weight	101.24 ± 1.63

● Hybrid-III 3 Year Old Child Dummy

Front Impact Test Dummy, 3 Year-old Child

Hybrid-III 3YO dummy was developed in cooperation with SAE Bio-mechanics committee and NHTSA in 1992. This dummy was designed to be able to accommodate front collision in both the seating and standing positions. After that, in 1997, it was upgraded so that it can be used to evaluate airbag injuries of out of position passengers. The size and weight specifications are based on measurements of children's bodies. The head is made of a fiberglass skull covered with PVC. The neck is a molded rubber part which extends and bends like a human body part. The thorax consists of iron spines and spring steel ribs with shock absorbers and allows attachment of a displacement gauge for the thorax. The outer skin of the thorax is a molded urethane part reinforced with nylon mesh, and the lumbar consists of a welded aluminum part and a molded rubber part and allows attaching a 6 axis load cell between the lumbar and the pelvis. The lower legs are molded urethane with aluminum and steel bones casted in.

Hybrid-III 3Year Old Dummy

Outer Size (mm)	
Sitting Height	546.1
Shoulder Pivot Height	315.0
Buttock to Knee Length	292.4
Knee Pivot Height	249.2
Shoulder Width	244.1
Head Back to Backline	53.3
Popliteal Height	226.1

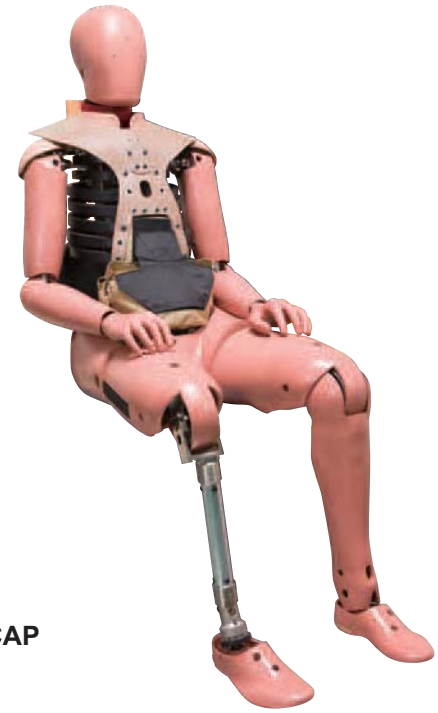
Weight (kg)	
Head	2.72
Neck	0.79
Upper Torso	7.00
Upper Arm (each)	0.44
Lower Arm (each)	0.46
Thigh (each)	1.01
Lower Leg (each)	0.61
Foot (each)	0.31
Total Weight	16.17

Front Impact Test Dummy

● THOR 50th Percentile Male Dummy

● NHTSA

● EURO NCAP



Overview

THOR 50 dummy has been developed by GESAC in Washington DC on the initiative of NHTSA since 1980s as a next generation dummy for front impact tests which enables wider evaluation of the same properties as human bodies to increase safety.
The early model was made in 1996, and evaluations were performed by NHTSA, GESAC, and the University of Virginia. Some of the major problems were regarding durability, such as debonding of the neck, and an insufficient strength of the spine box fixing part, and tearing of the pelvis skin. Development was continued and the properties were improved further. In August and November 2016, NHTSA made lists of these major problems. JASTI has been engaged in developing and manufacturing THOR 50 based on these suggestions for improvement.

THOR 50th Dummy

Outer Size (mm)		
Seated height	L1	906 ± 13
Hip pivot height	L2	116 ± 5
Hip pivot to seat back	L3	153 ± 13
Thigh clearance	L4	183 ± 9
Knee pivot to bottom of foot	L5	505 ± 7
Knee pivot to hip pivot	L6	413 ± 9
Knee centerline to knee centerline5	L7	253 ± 5
Head back to seat back	L8	91 ± 1.180
Rib 3 depth	L9	226 ± 9
Rib 7 depth	L10	229 ± 9
Shoulder-Elbow length	L11	391 ± 7
Width across arms	L12	461 ± 9
Waist width	L13	331 ± 7
Back of elbow to wrist pivot	L14	291 ± 9
Wrist pivot to tip of middle finger	L15	165 ± 9

Weight (kg)	
Head Assembly	3.88 ~ 4.28
Neck Assembly	2.66 ~ 2.94
Lower Torso Assembly	14.39 ~ 15.85
Lower Arm Assembly (including hands), (left & right)	2.69 ~ 2.97
Upper Leg Assembly, (left & right)	5.37 ~ 5.91
Lower Leg Assembly, (left & right)	4.74 ~ 5.22
Instrument Ground Straps, (4) M6 SHCS, (8) M6 FHCS	0.03 ~ 0.09
Upper Torso	24.85 ~ 26.25
Neck Foam and Skin Assembly	0.16 ~ 0.19
Front/Rear Panel Assembly, Jacket	1.67 ~ 1.85
Thermal Pants	0.21 ~ 0.27
Total Weight	73.45

Q3 Dummy

● Q3 Dummy

In 2013, Phase 1: Integral CRS (Child Restraints that have belt system in the seat) of Reg. 129 specified use of Q0, Q1, Q1.5, Q3, and Q6 dummies.

Q3 Dummy

Outer Size (mm)	
Seating height	544
Shoulder height (sitting)	329
Stature	985
Chest depth	142
Shoulder width (maximum)	259
Hip width (sitting)	200
Back of buttocks to front knee	305
Back of buttocks to popliteus, sitting	253

Weight (kg)	
Head & Neck	3.17
Torso (incl. suit)	6.40
Upper arms	0.75
Lower arms	0.73
Upper legs	2.00
Lower legs	1.54
Total Weight	14.60

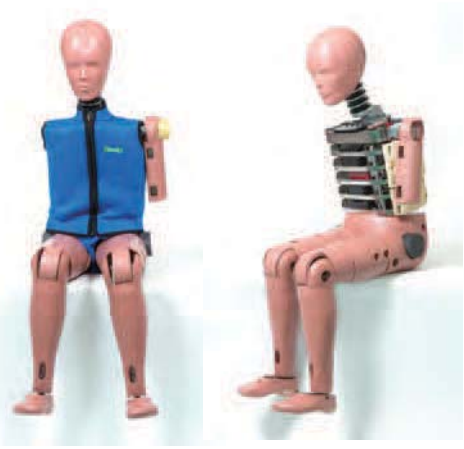
Side Impact Test Dummy

● ES-2/ES-2re/SID-IIs Side Impact Dummy

JASTI's ES-2/ES-2re and SID-IIs dummies are manufactured in full compliance with both the Federal Motor Vehicle Safety Standard (FMVSS 214) and the United States New Car Assessment Program (US NCAP), based on the American National Standards (CFR 49 Part 572 Subparts U and V). We carry out calibration tests to prove conformity with requirements in these laws and regulations in in-house facilities that ensure traceability. Each part is manufactured according to drawings that meet requirements in laws and regulations and compatible with dummies manufactured by other companies.

● EURO NCAP ES-2

● US NCAP ES-2re



● SID-IIs

ES-2 Side Impact Dummy

Outer Size (mm)	
Sitting Height	900 ~ 918
Seat to Shoulder Joint	558 ~ 572
Buttock to Front Knee	597 ~ 615
Thorax Width	322 ~ 332
Shoulder/Arm Width	461 ~ 479
Abdomen Width	273 ~ 287
Seat to Sole	433 ~ 451

Weight (kg)	
Head	4.0 ± 0.20
Neck	1.0 ± 0.05
Upper Torso	22.4 ± 1.00
Arm (each)	1.3 ± 0.10
Abdomen	5.0 ± 0.25
Leg (each)	12.7 ± 0.60
Pelvis	12.0 ± 0.60
Total Weight	72.4 ± 1.20

ES-2re Side Impact Dummy

Outer Size (mm)	
Sitting Height	900 ~ 918
Seat to Shoulder Joint	558 ~ 572
Buttock to Front Knee	597 ~ 615
Thorax Width	322 ~ 332
Shoulder/Arm Width	461 ~ 479
Abdomen Width	273 ~ 287
Seat to Sole	433 ~ 451

Weight (kg)	
Head	4.0 ± 0.20
Neck	1.0 ± 0.05
Upper Torso	22.4 ± 1.00
Arm (each)	1.3 ± 0.10
Abdomen	5.0 ± 0.25
Leg (each)	12.7 ± 0.60
Pelvis	12.0 ± 0.60
Total Weight	72.4 ± 1.20

SID-IIs Side Impact Dummy

Outer Size (mm)	
Sitting Height	772 ~ 788
Shoulder Pivot Heght	437 ~ 453
Buttock to Knee Length	514 ~ 540
Chest Width	851 ~ 881
Shoulder Width	341 ~ 357
Waist Width	761 ~ 791
Popliteal Height	343 ~ 369

Weight (kg)	
Head	3.70 ± 0.05
Neck	0.91 ± 0.09
Upper Torso	11.11 ± 0.20
Lower Torso	12.52 ± 0.18
Arm (each)	0.91 ± 0.05
Thigh (each)	3.13 ± 0.09
Lower Leg (each)	3.27 ± 0.09
Foot (each)	0.79 ± 0.05
Jacket	0.59 ± 0.07
Total Weight	44.12 ± 1.09

Side Impact Test Dummy

● WorldSID 50th Percentile Male Side Impact Dummy W50-00000

The development of WorldSID was started by ISO/TC22/SC12/WG5 in 1997, and with investments from companies in the United States, Europe, and Japan, its basic structure and design was completed and determined in March 2004. However, it has been updated many times and gone through many versions, and its final specifications have not been confirmed or agreed yet. The reason is that the physical properties of each component for required corridors do not satisfy the physical properties of human engineering, and we are still making improvements today. What are expected of WorldSID are repeatability, reproducibility, durability, and sensitivity.

Based on official drawings of ISO, JASTI has developed the product to satisfy requirements for ISO 15830 while taking RoHS 2 into consideration. We overcame many issues by adopting SPIRAL Track® (patented in 7 countries: the United States, Europe, India, China, South Korea, Taiwan, and Japan) for measuring shoulder, thorax, and abdomen displacements.

WorldSID 50th Percentile Male Dummy

Outer Size (mm)	
Sitting Height	869 ± 30
Buttock to Knee Length	670 ± 30
Chest/Arm Width	468 ± 30
Arm Length	330 ± 30
Waist Width	324 ± 30
Knee to Sole	588 ± 30

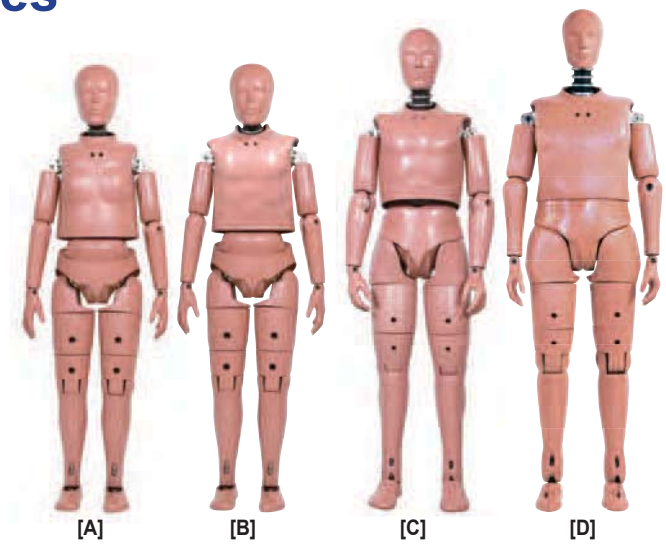
Weight (kg)	
Head	4.29 ± 0.05
Neck	2.86 ± 0.02
Upper Torso	20.56 ± 0.35
Arm	1.77 ± 0.09
Lower Torso	17.76 ± 0.20
Thigh (each)	6.71 ± 0.30
Lower Leg (each)	5.09 ± 0.13
Suit	1.54 ± 0.10
Total Weight	73.91 ± 1.02

Advanced Models of Dummies

● Pedestrian Dummy

Dummies for Pedestrian Protection Performance Test

Pedestrian dummies are standing posture dummies which are modified versions of Hybrid III 5F, 50M, and 95LM dummies, created by replacing some parts of Pelvis, Lumbar Spine, and Knee Slider. As they are anthropomorphic dummies based on Hybrid-III dummies, they are able to replicate motions of a biological body closely as before, and equipped with sensors just like Hybrid-III dummies which measure various injury values. They can be used not only for measurement of a pedestrian injury value but also for a wide range of purposes such as a test on motorcycle riders, a test on train occupants, evaluation of a fall accident, a test on impacts at the time of disaster, and durability evaluation of various products.
The large size adult male dummy 95LM is newly added to the lineup of products including the current adult female dummy 5F and the current adult male dummies 5M and 50M, and it can also be used for a durability evaluation test with a large momentary load simulating an accident involving a large adult male. We also offer Kit Parts for all of the 4 types, which can replace the parts of Hybrid-III. Please feel free to contact us.



[A] Hybrid-III 5th Percentile Female Pedestrian Dummy
[B] Hybrid-III 5th Percentile Male Pedestrian Dummy
[C] Hybrid-III 50th Percentile Male Pedestrian Dummy
[D] Hybrid-III 95th Percentile Large Male Pedestrian Dummy

FAA Dummy

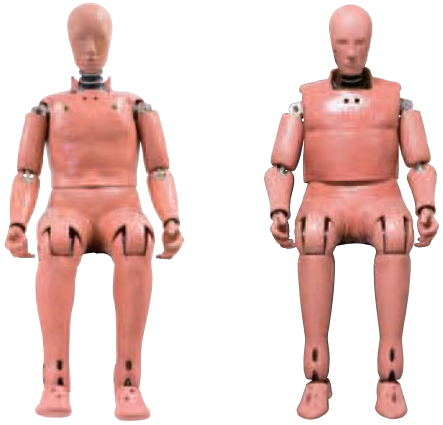
● FAA H-III 50th Dummy / FAA H-III 95th Dummy

Dummy for Airplane Seat Evaluation

FAA Dummy was developed based on Hybrid- III 50th Percentile Male Dummy for evaluation of airplane seats for aircraft safety required by the US Federal Aviation Administration. As a large difference from Hybrid-III 50th Percentile Male Dummy, it has parts such as Jacket, Lower Torso, Abdominal Insert, and Femur and Upper Leg Bone, and its total weight and sitting height specifications are different from those of Hybrid-III 50th Percentile Male Dummy.

FAA H-III 50th Dummy	Total Weight: 74.4 kg	Sitting Height: 90.7 cm
FAA H-III 95th Dummy	Total Weight: 101.2 kg	Sitting Height: 93.5 cm

* The FAA Dummy is standardized in Part 23.562, 25.562, 27.562, and 29.562 of CFR 14.



Sensor, Transducer, Potentiometer

● ES-2(re) Side Impact Dummy
Linear Position Transducer

● SID-IIs Side Impact Dummy
1/2" Potentiometer

● H-III 50M, 5F, 95LM Dummy
Chest Rotary Potentiometer

● Knee Potentiometer & String

● SPIRAL Track ®

Headform Impactor

The pedestrian headform impactors are dummies replicating heads of human bodies used for "pedestrian protection performance tests" required by car assessment programs such as NCAP in each country, and were developed by JASTI in cooperation with JARI and JAMA and approved by ISO later. They are ejected to make a collision mainly with the hood or the windshield of a car to measure the impact value in G and HIC (Head Injury Criteria). That enables measuring a head injury value in a pedestrian accident. They are also used for safety evaluations of playground equipment including mats in places such as playgrounds, other than automobile safety evaluations.

* EC type products which are in compliance with European laws and regulations are also available.

● ISO Type

● ISO Adult 4.5kg

4.5kg Comp Adult
ISO-A-CS

4.5kg Adult Skull BIA Type
ISO-A-C-BIA

4.5kg Skin
ISO-A-S

4.5kg Skull
ISO-A-C

4.5kg,3.5kg Skin
ISO-AC-S
(Adult Child common)

● ISO Child 3.5kg

3.5kg Child Comp
ISO-C-CS

3.5kg Child Skull BIA Type
ISO-C-C-BIA

3.5kg Child Skin
ISO-C-S

3.5kg Child Skull
ISO-C-C

● FMVSS201

Free Motion Headform Impactor

● FMVSS226

Mitigation Headform Impactor

Pedestrian Legform Impactor

● Flex PLI - GTR

Since it is highly possible that a pedestrian receives a severe injury to his or her legs in a vehicle-pedestrian collision accident, UNECE WP29/GRSP released standards for protecting pedestrians' legs in 2002 and a flexible type of legform impactor was added to the Global Technical Regulations (GTR) in 2009 according to the proposal of JAMA and JARI. The reason of the proposal is that it is more biofidelic than a rigid impactor and enables measuring leg injuries appropriately.
Since 2013, after specifications of Flexible Pedestrian Legform Impactor (Flex PLI-GTR), which was evaluated by organizations including Flex TEG, were determined, JASTI has been engaged in developing and manufacturing the final specification model. In the end of 2015, we completed evaluation of prototypes both in Japan and overseas and started manufacturing and selling the product in 2016.

The knee joint part is composed of machined aluminum knee block of which top and bottom ends bonded with 12 spring wires, and 4 displacement gauges measure the amount of elongation displacement of the knee joint.
To facilitate ease of data collection for the bending moment of the femur and tibia and the amount of displacement of the knee, its structure allows attaching a data collection device inside the knee and ensures a high degree of flexibility in handling.

Femur &
Bone Core / Strain Gage

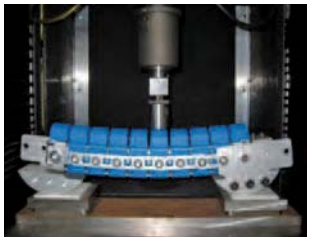
Knee Block

Flex PLI-GTR

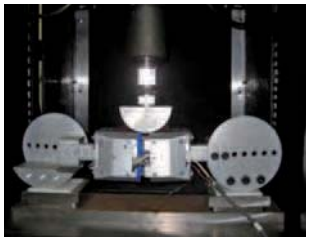
Outer Size (without flesh) (mm)	
Leg Length	982.0
Femur Length to Knee Joint	433.0
Tibia Length to Knee Joint	495.0
Knee Width	118.0
Leg Width	84.0
Knee Depth	108.0
Leg Depth	90.0
Femur Length from Top of Knee Assembly	339.0
Tibia Length from Bottom of Knee Assembly	404.0

Calibration Test on Flex PLI-GTR

We have made many improvements in the product to pass the calibration test. Please see how the test was performed.



Tibia



Knee

Femur

Pendulum

New Products

● H-III 5th Chest Jacket Harmonization J2921 JAN2013/11/08

According to a proposal of Harmonization Task Group in November 2011, the adoption of chest jackets in conformity with drawings by NHTSA (National Highway Traffic Safety Administration) was reconfirmed. Based on this agreement, JASTI made improvements in conventional products according to the drawings by NHTSA for compatibility with products of other manufacturers and started manufacturing chest jackets using new molds in 2013. To differentiate the new products from conventional products, JASTI logo is engraved in the skin for identification. The chest jacket in the picture is 5F, but the same identification mark (logo) is engraved on 50M as well.

● H-III 50th Ankle Bumper For Non Metal Contact (J2949)

A conventional ankle bumper is attached to an ankle lower shell, but the contact between metal parts of the ball ankle shaft and the lower shell caused noises. To prevent the noise, we offer an ankle bumper integrated with an ankle lower shell. This integrated ankle bumper is the standard specification in IIHS in the United States.

● H-III 50M/5F/95LM Zippered Lower Leg Flesh

● H-III 50M/5F/95LM Velcro Joined Lower Leg Flesh

● Ball Baring Knee Slider

Euro NCAP

According to the standard specifications of Hybrid-III 50th Male Dummy and 5th Female Dummy, a friction knee slider is installed in both of them, however, with the newly developed ball bearing knee sliders, both 50M and 5F can address needs in the market.

Other Products

Chairs for safekeeping

with casters and adjusters

H-III 50M
dummy

H-III 5F
dummy

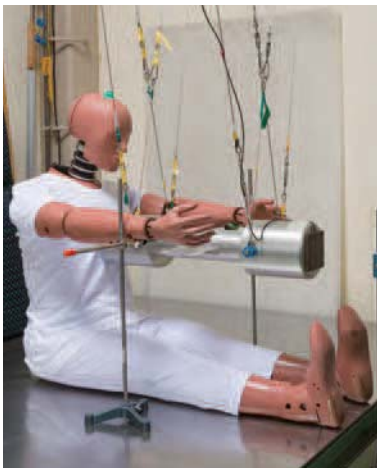
Head Drop Test System

The head of an anthropomorphic dummy consists of an aluminum skull and a PVC skin. This test is on the value of an impact on the dummy head for measuring its biofidelity. A 3-axis accelerometer is attached to the center of gravity of the head, and the head is dropped on a steel plate by free falling to check that the resultant acceleration and HIC (Head Injury Criteria) meet the standards.

Neck Flex/Extension Test System

The neck of an anthropomorphic dummy consists of some aluminum disk plates, rubber parts between them, and a wire passing through the center. This test is on forward-and-backward motions of the accordion neck of the dummy for measuring its biofidelity. A 6-component load cell is attached to the head, and displacement gauges are attached to the top and bottom of the neck. The part is set on the end of a pendulum and made to collide with an aluminum honeycomb at a certain speed to check that the moment, rotation angle, and speed meet the standards.

Thorax Impact Test System



The thorax of an anthropomorphic dummy consists of steel bones with a damping (vibration-proof) material and a PVC and urethane skin. This test is on the value of an impact on the center of the thorax of the dummy for measuring its biofidelity. The thorax part with a displacement gauge attached is made to collide with a probe (impactor) with an accelerometer to check that the displacement of the thorax, the impact value, and the hysteresis meets the standards. Also used with low speed test in Euro NCAP.

Knee Impact / Share Test

The knee of an anthropomorphic dummy consists of an aluminum bones, a PVC skin, and rubber parts between them. This test is on the value of an impact on the center of a knee of the dummy for measuring its biofidelity. The part is made to collide with a probe (impactor) with an accelerometer to check that the impact value meets the standard. Low speed test in Euro NCAP is possible as well.

■ Please contact us for details of the specifications.

Hip Joint Test System

The pelvis of an anthropomorphic dummy consists of aluminum bones and a PVC and urethane skin. This test is on bending motions of the hip joint of the dummy for measuring its biofidelity. A jig is attached to the joint and then the joint is vertically lifted at a certain speed to check that the load meets the standard.

You can see a movie of the test from the QR code on the right.

Torso Flexion Test

The lumbar of an anthropomorphic dummy consists of a rubber part corresponding to the backbone and a PVC and urethane part corresponding to internal organs. This test is on forward bending motions of the lumbar of the dummy for measuring its biofidelity. The part is pulled forward at a certain speed and then released to check that the speed of returning to the original angle meets the standard.

You can see a movie of the test from the QR code on the right.

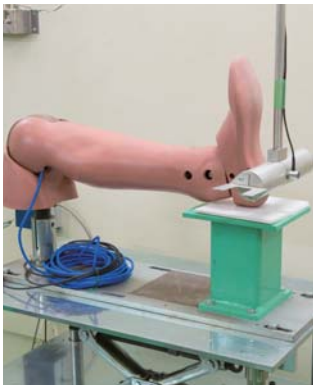
Rib Drop Test Equipment

This test is for measuring the amount of displacement of a rib (mm) by applying an impact load on the Rib Module Assembly of ES-2(Re). The design of the tester is unique, but the weight for applying the load (mass) is dropped by free falling as specified in the guideline. The mass, which is 150 +/- 1.0 mm in diameter and 7.78 +/- 0.01 kg in weight, is dropped by free falling from a height of 459 +/- 5mm and a height of 815 +/- 8 mm to measure the displacement of the rib. The method is also applicable to a rib property test on THOR50 and WorldSID.

Foot Impact Test

Euro NCAP

A foot of an anthropomorphic dummy consists of a PVC material and a shock absorber inserted in the heel. This test is on the value of an impact on a sole of the dummy for measuring its biofidelity.



Foot Compression Test

US NCAP

In a foot impact test, Euro NCAP requires measuring the biofidelity of a sole of the dummy as an impact value, but US NCAP requires measuring it as a compression force. A foot compression test checks that the part meets the standard.

Support for consistency in calibration tests

JASTI conducts calibration tests on all dummies and parts that require a calibration test certification based on CFR 49 Part 572 before delivery. However, there are many cases in the market where the same result as a calibration test certification cannot be reproduced. Many sites have the problem of difference in reproducibility even though they meet the calibration test standard in CFR 49. To minimize the problem, it is necessary to achieve consistency among many test conditions such as calibration test equipment, data acquisition system, test software, test environment, and skills. As a dummy manufacturer, we have a vast amount of experience not only with consistency in dummies, but in achieving consistency in calibration test equipment, to minimize the problem (difference). Please feel free to consult us for any problem no matter how small. As a dummy manufacturer, JASTI will support customers for consistency in test conditions.

■ Please contact us for details of the specifications.