

Test Devices for Seating and Seat Testing

The H-Point-Manikin (TE-HPM) is an essential tool for the correct measurements and dummy positioning for many test applications. Naturally, this device needs to be built and calibrated to the tightest tolerances possible. The Humanetics brand HPM fulfills the SAE J826 (11-2008) as well as the recommended VDA 304 (01-2010) requirements. In combination with the Measuring Head (TE-MK) model, customers get the most accurate solution available.

TE-HPM Overview

The H-point is used as a key reference point in seated occupant location, seating package configurations, EPA volumes and crash test positioning. The HPM II H-point machine provides the physical representation of this reference point and is a vital element for design, auditing and benchmarking of seating and interior packages. The HPM II machine is used in conjunction with J 4002 rev. Aug. 2005, which includes many design changes and enhancements over the OSCAR H-Point machine. This new design includes; reformed shells for a consistent and reliable fit in bucket seats, articulating back for lumber support measurement, ability to measure H-point without use of leg and better design for ease of installation. Since the HPM II is not yet reference in the FMVSS or ISO standards it is primarily used in advance design applications.

Calibration

Fechnical Product Sheet

The calibration of the hip point dummy (HPM) and the measuring head (MK or HRMD) meets VDA304 recommendation of the German Association of the Automotive Industry (VDA), which means particularly close tolerances on the instrument. In addition, it is according to the standard SAE J826 of the Society of Automotive Engineers, which is the central specification for hip point manikins worldwide, and the GLORIA standard for the Euro

Page 1 of 7



NCAP tests.

A rework if necessary and regular calibration leads to a reproducible measuring standard in use during development and serial production. Almost every HPM and HRMD can be modified to achieve VDA 304 standard.

Prior to the actual calibration of the device, an inspection including documentation (measurements & pictures) is carried out. Depending on the outcome of the inspection possible modificati ons or corrections can be done as needed. During the time for calibration, customers can get a rental device if needed. The calibration interval for the HPM is done on an annual basis.



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TE-MK Measuring Head

The Humanetics Measuring Head (MK) is an advanced tool for precise and repeatable back set measurement. The device can be used on any H-Point machine that fulfills SAE J826 requirements. With its multiple adjustment possibilities it allows for correct installation as well as positioning. A proper handle simplifies the installation onto the HPM (H-Point Manikin), too. The device fulfills the VDA 304 calibration requirements.

Measurement Capabilities:

X-Direction 14 – 200 mm Z-Direction 70 – 100 mm Torso Angle 0° – 35°

Physical:

Total Mass (incl. Inclinometer)	8300 g
Mass Inclinometer	185 g
Additional Torso Weights	2x 4800 g
Additional Pelvis Weights	2x 2770 g

Inclinometer:

Accuracy 0,1

HPM Transport Box

TE-HPM-Box-1 (for HPM) TE-HPM-Box2 (for weights)

- 1) H-Point Device
- 2) Head Room Probe
- 3) 1 Set Legs
- 4) 1 Set torso weights 3920g (10x)
- 5) 1 Set weights upper leg 3420g (2x)
- 6) 1 Set weights lower leg 1230g (2x)







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TE-KSM Head Restraint Measuring Device

To determine the head restraint height / width according to the legal requirements of ECE R17 and FMVSS202a.

The measuring device can be applied to all HPM's with standard HRP shaft (\emptyset 22,3 mm).

Physical:

weight	875 g ±25 g
scale	120 – 280 mm



TE-FGI-AD Force Gauge Indicator (FGI)

Optimized FGI with integrated bubble level and best visibility during seating process of the HPM.



TE-RHRP Plug-in Head Room Probe (HRP)

The measurement according to EuroNCAP has to be done without the HRP. The plug-in HRP can be mounted or dismounted without influence on the calibration of the HPM. It is placed on the guidance of the plastic bushings and fixed with safety pins. The HRP can be retrofitted on all common HPM.

Advantages:

- Removal of HRP, without dismantling of H-point axis
- Dismantling of the HRP doesn't affect the HPM calibration.

Physical:

weight	2300 g
scale	760 - 1070 mm



TE-TBW Extended T-Bar

H-point measurement with extended T-Bar

The T-bar was widened from 420 mm to 560 mm without weight influence.

- Positioning of the HPM is also possible for the center seat by the heel points.
- H-point measurement can be performed reproducible with mounted legs.



TE-HPM-Teststand H-Point Test Stand W/ Adjustable Footstand

Universal fixture for seat adaptation Scope:

- H-point measurement
- Seat function tests
- Presentation

Advantages:

Seat adapter for vehicle-specific adapter plates which can be produced on request. Due to significant adjustment range each vehicle geometry can be adjusted.

Physical:

weight	70kg
width	600mm
ground level	520mm
adjustable foot range height	250mm
depth	1500mm
adjustable range for adaptation plate	500mm
adjustable range foot angle length	0 -300mm
adjustable range foot angle	0 - 30°
power supply	12V

TE-FTM-PRV038 Durability Manikin

For functional testing of seats

Advantages:

- Using interchangeable weights 5%, 50%, and 95% heavier manikins are realized.
- Shell geometry according to VDA304
- Force applied in H-point direction

Physical:

total weight max.	140 kg
weight unloaded	19,5 Kg
cushion to torso angle	105°
shell contour	VDA304
force application points	3





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TE-DCT DISCOMFORT TOOL W/O PROTRACTOR

Measuring device to check the Discomfort and to determine the actual value of comfort at rear seat head restraints in accordance with the EuroNCAP "REAR Whiplash Test Protocol", Version 1.0 July 2013

Scope of supply:

Gauge with integrated Stabmass

DISCOMFORT TOOL W/ PROTRACTOR

Scope of supply:

- Discomfort gauge with measuring scale
- Dig. Protractor
- Transport Box

MEASUREMENT

In the recess of the meter create a digital inclinometer downward and backward stable and both are similar to the test instructions as shown in the picture to be brought to bear on the headrest of the back seat with a tilt angle of 25 ° to the headrest of the back seat. The top front corner of the instrument and the top edge of the bar Masses will touch the headrest.

The rule is applicable pushed until it comes to rest on the seat back under the headrest. This possible exert any pressure, otherwise the result will be falsified in the positive direction. The discomfort value is read on the scale on the front edge of the measuring tool. The threshold value for discomfort is 40 mm







Product Family

HPM & Accessories		Comment
TE-HPM	H-POINT-MACHINE INCL. HEAD ROOM PROBE	
TE-HPM-Box1	TRANSPORT BOX FOR HPM	incl. In TE-HPM
TE-HPM-Box2	TRANSPORT BOX FOR HPM WEIGHTS	incl. In TE-HPM
TE-HPM-CAD	3D H-POINT MACHINE, HUM SAEJ826 VDA304	
TE-HPM-CAL	CALIBRATION HPM W/O HRMD/MEASURING HEAD	Calibration
TE-HPM-CHECK	MEASURING OF AN HPM WITH PROTOCOL	
TE-HPM-Teststand	H-POINT TEST STAND W AJUSTABLE FOOTSTAND	
TE-HPM-Tuch	CLOTH TO THE BASE FOR HPM	incl. In TE-HPM
TE-KSM	HEAD RESTRAINT MEASURING UNIT	
TE-TB	T-BAR FOR HPM, STANDARDVERSION	incl. In TE-HPM
TE-TBW	T-BAR FOR HPM, WIDE VERSION	for use of the HPM on the middle seat
TE-HPM-WEIGHT01	H-POINT-MACHINE DISC WEIGHT 2270G	incl. In TE-HPM
TE-HPM-WEIGHT02	H-POINT-MACHINE DISC WEIGHT 3920G	incl. In TE-HPM
TE-FGI-AD	FORCE GAUGE INDICATOR W/ BUBBLE LEVEL	incl. In TE-HPM
TE-RHRP	REMOVABLE HEAD ROOM PROBE FOR HPM	incl. In TE-HPM
TE-HRP-Scale-AD	INCLINATION SCALE FOR RHRP INCL. LEVEL	incl. In TE-RHRP
HRMD & Accesories		Comment
TE-MK	MEASURING HEAD FOR MOUNTING ON HPM	
TE-MK-CAL	CALIBRATION HRMD/MEASUREMENT HEAD	Calibration
TE-MK-Meter	DIGITAL ANGLE METER FOR MEASURING HEAD	incl. In TE-MK
TE-MK-WEIGHT	HRMD DISC WEIGHT 4800G	incl. In TE-MK
HPM & HRMD Combo		Comment
TE-HPM-MK	H-POINT-MACHINE INCL. HRMD	Combination of TE-HPM & TE-MK, cheaper than single
TE-HPM-MK-CAL	CALIBRATION HPM WITH HRMD/MEASURING HEAD	Calibration of combination
Durtability manikin		Comment
TE-FTM	FUNKTIONAL TEST MANIKIN, BACKR. ANG. ADJ	backrest angle adjustable from 26° to 30°
TE-FTM-LG	FUNKT. TEST MANIKIN, BACKR ANG ADJ, LEGS	like TE-FTM, but with HPM T-Bar and feet
TE-FTM-PRV038	FUNKTIONAL TEST MANIKIN, BACKR. ANG. FIX	like TE-FTM but backrest angle not adjustable
Special Products		Comment