HPM Positioning Tool
(H-Point Machine)
Introduction

Copyright Protection

A separate valid License issued by Arup or authorized Arup Software distributor is required to access the required models and use the HPM/HRMD tools in PRIMER. No extra licence is necessary to run in Ansys LS-DYNA.

Any unauthorized usage or distribution of this software is not permitted.

**For a detailed tutorial and information on the licence for this tool, please contact our support team.*

Introduction

The HPM (H-Point Machine) Positioning Tool is a script that enables users to quickly and easily set-up an LS-DYNA analysis to find the H-point of a particular seat/seating package model within the LS-DYNA suite. The script works in conjunction with Arup's H-Point Machine (HPM) model, produced in accordance with SAE J826 NOV2015, *Devices for Use in Defining and Measuring Vehicle Seating Accommodation*. The model is supplied with the script in S1 (m kg s), S2 (mm T s) and S3 (mm kg ms) units systems.

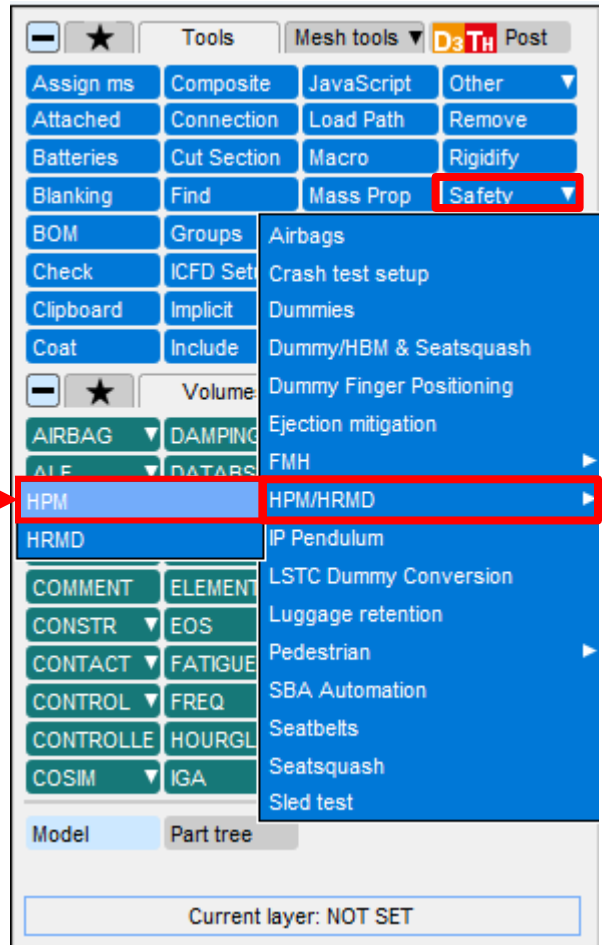
The script provides the full LS-DYNA input deck for automatic positioning of the H-point machine in a driver's seat and configures all required contacts, sensors, velocities and other boundary conditions. Based on validation and verification work performed, it is recommended to run LS-DYNA Double Precision in conjunction with this tool.

The HPM Tool can also retrieve and present the results of the analysis in a clear and simple format within PRIMER.

Run the HPM Positioning Tool in Primer

To run The HPM Tool, open PRIMER and click:

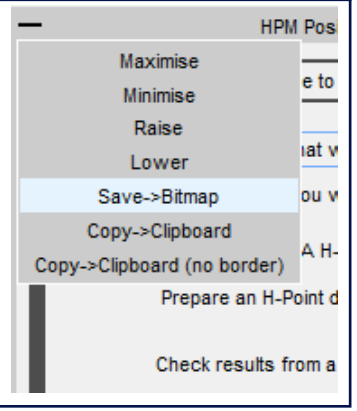
- **Tools → Safety → HPM/HRMD → HPM**



Helpful Tips:

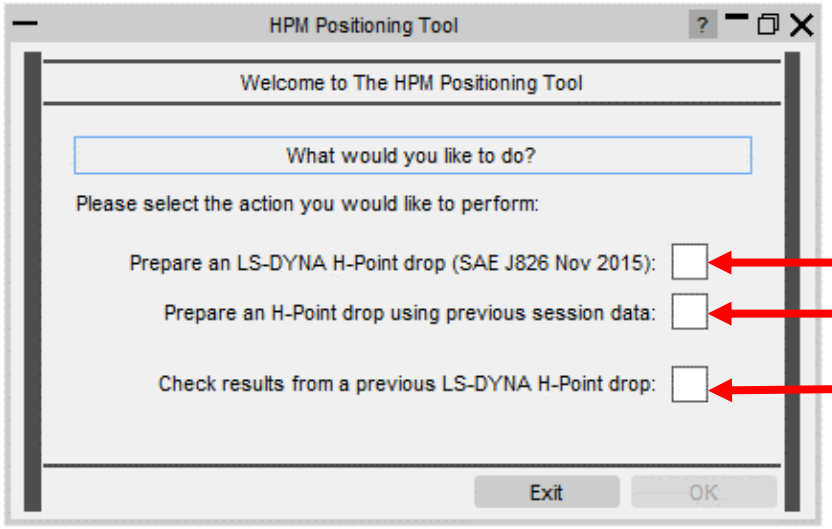
Help can be found throughout HPM Setup by clicking the ? buttons and by hovering over instructions given in the graphical interface.

If you wish to save any of the images/windows shown click in the top left corner of the window and select **Save->Bitmap.**



Welcome Window

When you run the HPM Tool you will be presented with the Welcome Window:



The Welcome Window gives you the choice of three actions:

1. Prepare Model
   Use the HPM Tool to produce the full input deck ready to submit an H-Point drop analysis to LS-DYNA. The script will put the HPM in an appropriate initial position in your seating package model and prepare all required keyword cards. The analysis will continue the positioning of the HPM as per the SAE procedure.

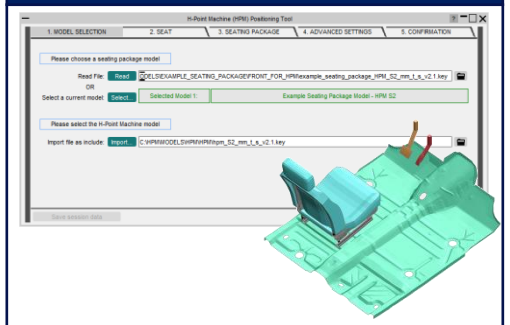
2. Retrieve a Previous Session
   As per Action 1 but retrieve all of your inputs and selections from a previous session using an hsf (HPM session file).

3. Check Results
   Once the analysis prepared in Action 1 has completed you can use this part of the HPM Tool to retrieve the H-Point and manikin back angle.

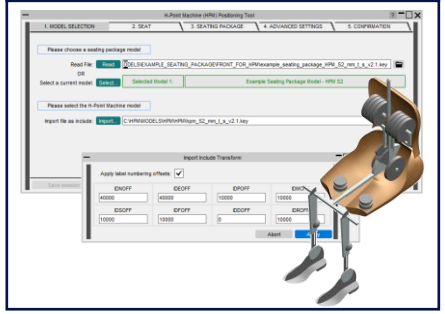
Process

PRIMER

Start by importing a seating package model:



Import the HPM model:



GO

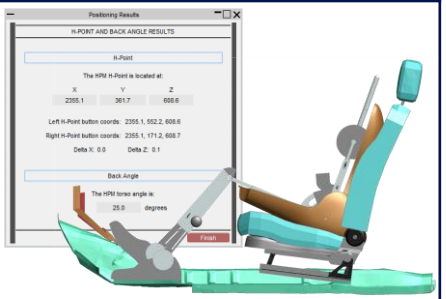
The HPM Tool positions the H-point machine and configures contact/velocity/other boundary conditions.

Completed HPM Drop model:

Submit to LS-DYNA:

LS-DYNA®

Retrieve results:



Disclaimer

PRIMER

Whilst every effort has been made to ensure that the HPM Positioning Tool accurately follows the procedures outlined in the SAE J826 document, neither Arup, nor any of its affiliates, can accept any responsibility for negative consequences resulting from the use of the HPM Positioning Tool or the associated HPM model.

Users are strongly recommended to consult the regulations to familiarise themselves with the contained actions and terminology before using the HPM Positioning Tool.

The following document was used as a basis for the HPM Positioning Tool:

- SAE, November 2015, J826_201511, *Devices for Use in Defining and Measuring Vehicle Seating Accommodation*.

Contact us

Oasys
LS-DYNA Environment

Global / UK
T: +44 121 213 3399
E: dyna.support@arup.com

India
T: +91 40 69019723 / 98
E: india.support@arup.com

China
T: +86 21 3118 8875
E: china.support@arup.com

USA
T: +1 415 940 0959
E: us.support@arup.com

Subscribe to
our newsletter:

Follow us on:

@Oasys LS-DYNA Environment

@Oasys LS-DYNA Environment

@Oasys

@Oasys

https://www.oasys-software.com/dyna/