

Functional Description:

During the process of head impact tests or simulation according to the FMVSS 201, the re-occurring problem arises of multiple possibilities for the positioning of the head to the targets. The combination of the forehead impact zone and the range of the horizontal and vertical firing angles theoretically open endless possibilities for positions and angles of the head to the target.

In practice determination of the worst case, as well as other relevant combinations, is based on years of experience of our testing engineers. However with the possibilities that numerical simulation offer one wants to check a multitude of variants to at least get a statistical statement of the task. With FPT, the input regarding the position and angle of the head to the target can be acquired entirely automatically..

NEW SINCE THE BEGINNING OF 2004:

In a second step, solutions can be analysed and aligned according to their distances to critical/solid components, whereby the first estimate regarding the worst-case configuration prior to the numerical simulation is possible. An evaluation based on the HIC(d) values; however still occur by means of numerical simulation.

Benefits at a Glance:

- ✓ Locating of any number of solutions as well as sequencing of the solutions according to selectable priorities.
- ✓ Independent relocation of the test point when the target is not reached
- ✓ Compliance with all legislative requirements
- ✓ Display of results in a 3 D-Viewer.
- ✓ Provision of results in every data format is possible.
- ✓ First estimation regarding worst-case configurations already possible before the FE-Simulation

Concept® - FMH-POSITIONING TOOL (FPT)



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Features of FPT:

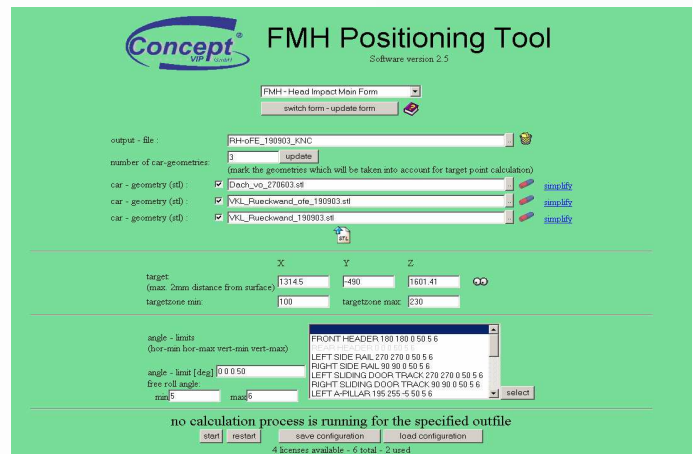
- ➔ Determination of many position and angle combinations for a defined target, complying with all legislative requirements.
- ➔ Independent relocation of the test point if the target is not reached within all the legislative requirements.
- ➔ Display of input and output in a 3D-Viewer for visual monitoring.
- ➔ Transferring of the data to a pre-processor or solver is possible.
- ➔ Determination of the shortest distance to hard or critical components (body shell etc.) – „critical distance“

References and Examples:

- ➔ Audi (Application in development project)
- ➔ DaimlerChrysler (Application in development project)
- ➔ Porsche

Workstations:

- ➔ Any required number of licenses can be assigned and the software provided via a Web-server.
- ➔ Internet Explorer or Netscape are the only system requirements



Input Panel des FMH-Positioning-Tools

point number	targetlev num	fanheader num	hor_wn deg	ver_wn deg	targ x mm	targ y mm	targ z mm	touch x mm	touch y mm	touch z mm	HCO y mm	HCO z mm	posm	poslmm	posmax	
193	1.46	33.09	342.00	4.00	1226.07	-669.45	1555.96	81.46	-28.63	33.87	1162.67	-614.45	1516.50			
194	1.46	33.09	342.00	4.00	1226.07	-669.45	1555.96	80.41	-31.78	33.48	1161.83	-615.16	1516.96			
216	1.58	33.09	342.00	4.00	1226.38	-669.07	1555.99	81.46	-28.63	33.87	1162.98	-614.07	1515.52			
217	1.58	33.09	342.00	4.00	1226.38	-669.07	1555.99	80.41	-31.78	33.48	1162.13	-614.77	1516.98			
212	1.72	26.95	335.00	5.00	1225.66	-669.87	1556.12	82.32	-25.42	34.24	1164.79	-613.43	1514.84			
213	1.72	33.09	342.00	4.00	1225.66	-669.87	1556.12	81.46	-28.63	33.87	1162.26	-614.87	1516.66			
214	1.72	33.09	342.00	4.00	1225.66	-669.87	1556.12	81.46	-28.63	33.87	1161.31	-615.98	1516.66			
215	1.72	33.09	342.00	4.00	1225.66	-669.87	1556.12	80.41	-31.78	33.48	1161.41	-615.57	1517.12			
195	1.78	23.95	332.00	5.00	1225.68	-669.79	1556.21	82.99	-22.19	34.58	1165.76	-612.80	1514.52			
196	1.78	26.95	335.00	5.00	1225.68	-669.79	1556.21	82.32	-25.42	34.24	1164.81	-613.36	1514.92			
197	1.78	33.09	342.00	5.00	1225.68	-669.79	1556.21	81.46	-28.63	33.87	1163.90	-613.96	1515.37			
198	1.78	33.09	342.00	4.00	1225.68	-669.79	1556.21	81.46	-28.63	33.87	1162.28	-614.79	1516.74			
199	1.78	33.09	342.00	4.00	1225.68	-669.79	1556.21	81.46	-28.63	33.87	1161.33	-615.91	1516.74			
200	1.78	33.09	342.00	4.00	1225.68	-669.79	1556.21	80.41	-31.78	33.48	1161.43	-615.50	1517.28			
201	1.78	33.09	342.00	4.00	1225.68	-669.79	1556.21	80.41	-31.78	33.48	1160.49	-616.63	1517.28			

Result Panel of the FMH-Positioning-Tools

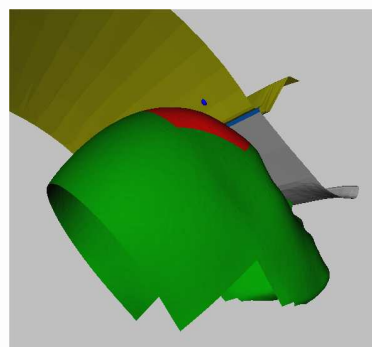
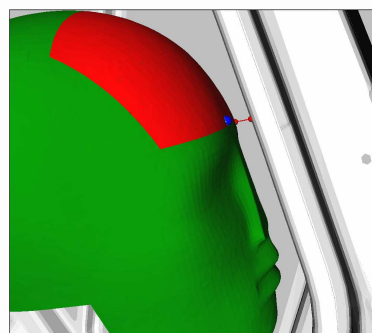


Illustration of a possible solution



Picture of a critical distance for a calculated test configuration