Name of the presentation:

FREQUENCY RESPONSE FUNCTION SIMULATION AND EVALUATING IN BORING

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Introduction: frequency responses of machining center's structures (tool, workpiece, spindle etc.) play important role in research of dynamically appearing vibrations in such systems.

Aim of the stady: Object of the study is simulation of responses of boring cutting tool and its edge to FRF analysis. Aim is to obtain frequency response function as amplitude and phase representation and real and imaginary part representation. And its evaluation.
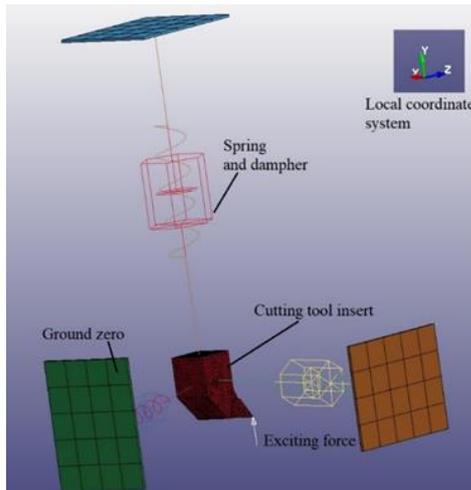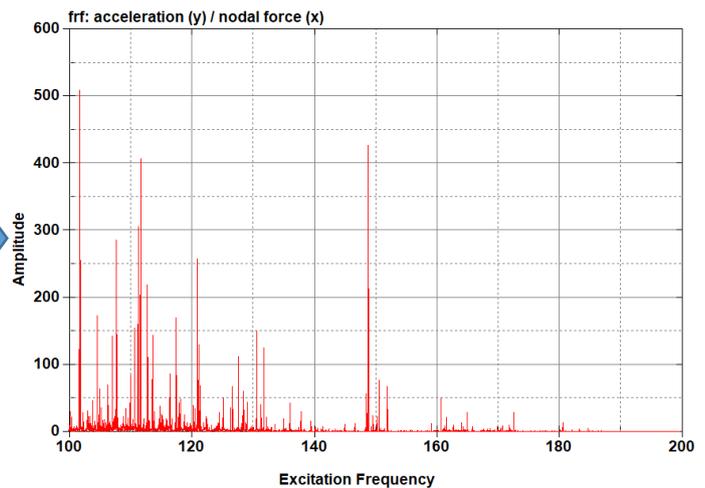

Fig. 1 Boring simulation model

Fig.2 Frequency response function

Frequency response function have been modeled using soft LS-Dyna to obtain exited force / acceleration response of the simulated structure in boring. The parameter to change in study is dynamic stiffness of the system.
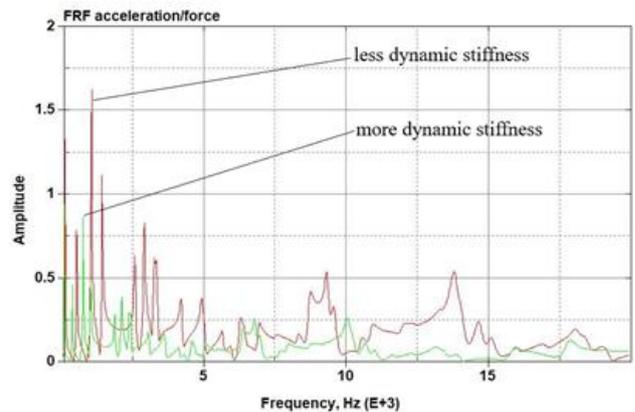

Fig.3 Frequency response for

different material stiffness of the model

Conclusion: FRF for boring can be obtained from computer simulation in LS-Dyna nonlinear solver. Structural dynamic responses of simple one-mass boring system with full degrees of freedom have been simulated. Amplitude, phase angle, real and imaginary part of FRF with different dynamic stiffness of system have been determined. With luck of dynamic stiffness of the system, amplitude of responses is increased.