



CDH/AUTOSPOT V1.0

July 2017

1. Introduction

CDH/AUTOSPOT V1.0 has been developed based on a subset of basic capabilities in the existing SPOT Version 4.5x. A new capability has also been implemented to connect grids within a user-defined influence zone. The standard mesh size for the FE structures in the automotive industry has become much finer than at the time when the original CDH SPOT was developed. A new capability is introduced in AUTOSPOT to address the loss of structural stiffness which manifests itself with the use of finer meshes. AUTOSPOT supports three nugget models, where nugget model 1 and 2 are same as those supported by SPOT 4.5x. The new nugget model, with the correction for loss of stiffness, is referred to in AUTOSPOT as nugget model 3.

AUTOSPOT is also able to connect flanges that are meshed with shell and solid elements. Solid element flanges are connected using the grids of their free outer surfaces.

AUTOSPOT is a completely new code written in modern object orientated C++ and includes an enhanced capability for internal data management. This solves previously known software issues, for example excessive memory usage.

AUTOSPOT supports only Nastran-format input data.

2. Installation guide

Executable

AUTOSPOT is available for Linux and Windows platform. Download the latest AUTOSPOT release and unpack it to a folder. Edit the path definitions in the run script 'autospot.csh' in accordance with the requirements of your installation.

License

Download the latest CDH license server for AUTOSPOT. The following environmental variables are needed:

SPOT_SERVER	the license server
SPOT_SERVER_PORT	default 0

The run script 'autospot.csh' in the AUTOSPOT release includes an example for setting all required variables.

Note that existing CDH/SPOT licenses may be used with AUTOSPOT.

3. Usage

autospot structure.dat grid.dat -parameters

structure.dat

Nastran input data.

Following elements are supported:

GRID, CTRIA3, CQUAD4, CTETRA, CPENTA, CHEXA , PSHELL, MAT1

grid.dat

This data format is similar to the old SPOT version:

GRID, ID, DIA, X, Y, Z, PID1, PID2

Two flange PIDs are supported, connections on same PID are possible.

Parameters

[-nmodel=int] [-tole=float] [-told=float] [-dndia=float] [-elemf=int] [-gridf=int] [-rbe3f=int]

[-matf=int] [-npid=int] [-izrsf1=float] [-izrsf2=float] [-izradius1=float] [-izradius2=float]

[-izdist=float] [-izas=int] [-forcerbe=int] [-scalenug=float] [-movemsg=float] [-shrinkf=float]

Please refer AUTOSPOT manual for details of parameters.