



COVART 6.1: FASTGEN Legacy Mode User's Manual

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**ASC/ENDA
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14. ABSTRACT The prediction of damage to a target caused by the ballistic impact of projectiles has long been a goal of military analysts. One of the more widely accepted approaches to this problem is the shotline method. This method involves projecting rays of a specified direction through a target and describing the interactions along each ray. The Fast Shotline Generator (FASTGEN) is computer program that executes the shotline method. The user inputs a geometric description of the desired target and specifies a threat type (whether KE or HE). The code then uses this information to generate rays representing the threat and traces these rays through the target. The end result of this process is the generation of files containing shotlines, ordered lists of components intersected by each ray. This manual describes how to use the FASTGEN5 legacy mode of the COVART6 computer program.				
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5.6.9 CLINE

Description: Defines a line (rod) shaped element.

Format, Example, and Data Type:

1	2	3	4	5	6	7	8	9	10
CLINE	eid	mid	g1	g2			th	r1	
CLINE	55	14	991	992			0.04	3.0	
C	I	I	I	I			R	R	

<u>Parameters</u>	<u>Units</u>	<u>Description</u>
eid		Element identification number (eid > 0).
mid		Material identification number (mid > 0).
g1, g2		Grid point identification numbers (g1 and g2 > 0, no repeated grid identification numbers).
th		Normal thickness (th >= 0.0 and th <= r1). If th equals 0.0, then the element must be in a volume mode component.
r1		Normal radius (r1 > 0.0)

REMARKS

1. Element identification numbers must be unique with respect to all other element identification numbers within a component.
2. The maximum difference between the highest and lowest element identification number is parameter ILOS within a component. ILOS elements are allowed within a component. The FORTRAN parameter, ILOS, is further explained in the Software Size Limits section of this manual. This element counts as one element.
3. The radius is assumed to be small, i.e., less than 2 inches.
4. The zero thickness volume mode option is supported to simplify the translation of FASTGEN-3 target descriptions into FASTGEN-4 target descriptions. New models should use volume mode components when modeling solid CLINE elements.
5. The material identification numbers for several materials are defined in the FASTGEN Materials Chart (Table 5-4).

Figure 5-9 CLINE Geometry Definitions

