



STRUCTURAL ANALYSIS AND COMPUTATIONS FOR

ADHACO "6-WAY" BLAST RESISTANT HINGE - TYPE H-412 -

The following analysis and computations indicate the key phase of the structural strength of the adhaco type H-412 hinge.

This analysis is based on an ultimate tensile strength of 40,000 P.S.I. and an ultimate shear strength of 20,000 P.S.I.

$$2 \frac{\pi}{4} \left(\frac{5}{8}\right)^2 (20,000) = 12,250 \text{ lb.}$$

The pintle bracket is attached with two 1/2" ϕ . Capacity is therefore:

$$2 (40,000) (.126) = 10,100 \text{ lb.}$$

The connection of the hinge to the door is made with two 1/2" ϕ . Load capacity would be:

$$2 (40,000) (.126) = 10,100 \text{ lb.}$$

The hinge is loaded with a force at the location of the first bolts. Therefore the hinge must be designed for a moment equal to the force x 4-1/2 inches at the location of the first bolts.

$$M = 4 \frac{1}{2} P$$

The hinge strap is made of 15" x 3" ductile iron with a standard offset to accommodate for a flush mount

For h = 2-1/2 inches a point of maximum moment

Based on our calculations the blast resistant hinge is structurally sound for 10,100 lbs. in either direction

ADHACO

HARDWARE

Manufacturers of Special Duty Door Hardware

17620 Chicago Ave. • Lansing, Ill. 60438