

Connection diagram of beam splitter and flange



Summary of Content

A beam splitter is typically mounted to a flange using a bolted or welded connection, with the flange providing a stable interface for alignment and load transfer.

Flange Layout for Beam Splitter Chambers

In optical systems, such as the LIGO Beam Splitter Chamber (BSC), flanges are labeled (A, B, C, etc.) and positioned around the chamber to accommodate the beam splitter and associated equipment. Each flange serves as a mounting point for the beam splitter or for auxiliary components, and the layout ensures precise alignment of the optical path. The connectors on the flanges allow for secure attachment and passage of equipment through the chamber wall, maintaining vacuum integrity and mechanical stability .

Structural Connection Principles

For structural beams, a web-flange splice is commonly used to connect beams to flanges. The connection typically involves:

- Splice plates lapped across the joint and bolted to both the web and flange of the beam to transfer shear and moment loads.
- Bolt groups designed to handle shear at the centroid of the opposite bolt group, while flange bolts carry the bending moment .
- Load paths that ensure compressive and shear forces are transmitted directly through the flange and end plates, avoiding eccentricity where possible .

Article Content

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For design to the Eurocode, the moment and axial force are resisted by a combination of both the flange and web plates, with the

Beam Splice Connection

Connection design can create a splice plate on one side or both sides of the webs of the two beams being spliced. Click here for

Design of Beam to Beam End Plate Connection

Beam end-to-end connections (splices) ensure continuity and safe transfer of shear, axial, and moment forces

Bolted Beam Splice Connection Design | PDF

The document provides a design example for a bolted beam splice connection according to EC3. It summarizes the design loads,

Welded Beam Splice

Splicing a beam of differing depths will usually require the addition of a "division-plate" to which the flanges and web of the two halves

Steel Beam Splice Connection Guide

This document discusses splice connections used to join structural members. It introduces four common types of bolted splice

Free Splice Connection Calculator — Beam & Column Bolted Splices ...

The calculator reports the controlling limit state for each component (flange tension plate, flange compression plate, web plate) and

Design of Connectors in Web-Flange Beam or Girder Splices

This paper is a summary of the results of a study carried out to establish a rational design procedure for the connectors in a bolted

Microsoft Word

DESIGN GUIDE 11 Welded beam to column moment connections by T.J. Hogan
contributing author N. van der Kreek

Beam Splice Welding Guide: CJP Flange Welds, Web Connections,

How to weld beam splices per AWS D1.1. Covers CJP flange welds, web connection options, backing bars, access

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