

## The Original Expansion Bolt for Structural Steel is ICC-ES approved for compliance with the International Building Code®

This document includes extracts from ESR-3330 (right), including Hollo-Bolt Design Data:

- > Load and Resistance Factor Design (LRFD) Method
- > Allowable Strength Design (ASD) Method

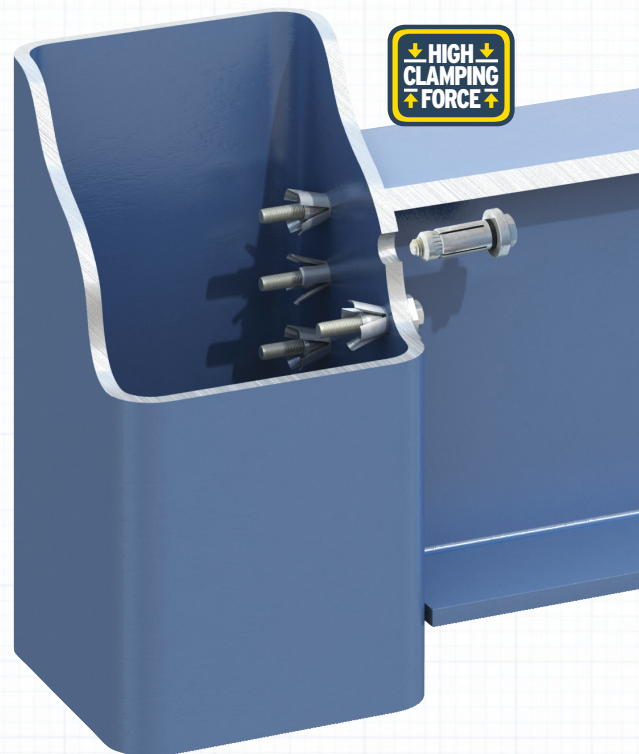
Download the full report from [www.LindapterUSA.com](http://www.LindapterUSA.com) or the ICC-ES website: [www.icc-es.org/Reports/pdf\\_files/ESR-3330.pdf](http://www.icc-es.org/Reports/pdf_files/ESR-3330.pdf)



### ■ Exclusive Hollo-Bolt features:

- ✓ Highest resistance to tensile loading in accordance with AC437
- ✓ For use in Seismic Design Categories (SDC) A, B & C
- ✓ Hot Dip Galvanized corrosion protection
- ✓ Standard product at standard pricing
- ✓ All product sizes from 5/16" to 3/4"
- ✓ Available off-the-shelf from your local distributor
- ✓ Patented High Clamping Force design (5/8" & 3/4")

Please refer to the Hollo-Bolt brochure for project experience and information about Lindapter's patented High Clamping Force Hollo-Bolt. Download at [www.hollo-bolt.com](http://www.hollo-bolt.com)



Available from **Edge Construction Supply**, your Authorized Lindapter Distributor. Contact details on rear.

## ■ ICC-ES approved use

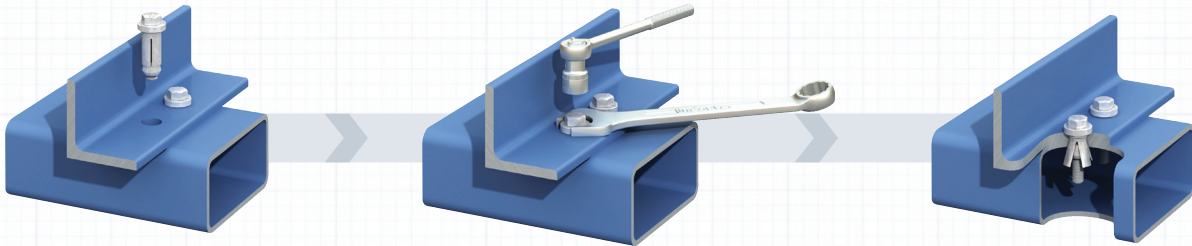


*Hollo-Bolt fasteners are designed for connecting structural steel to hollow structural section (HSS) steel members and other structural steel elements where access is difficult or restricted to one side only. Hollo-Bolt fasteners are intended for use with rectangular or square HSS members and are recognized for resisting static tension and shear loads in bearing-type connections. The fasteners are alternatives to bolts described in Section J3 of AISC 360, which is referred in Section 2205.1 of the 2009 International Building Code (IBC) for bearing-type connections.*

*The Hollo-Bolt fasteners may be used to resist wind loads, and seismic loads in Seismic Design Categories A, B and C.*



Extract from ESR-3330



## ■ Testing and ICC-ES Evaluation

Product testing was carried out by an independent ISO 17025 accredited test facility. ICC-ES has thoroughly examined independent test reports, calculations, quality control methods and other factors to ensure the product is code-compliant.

The ICC-ES evaluation of the Lindapter Hollo-Bolt included the following:

1

*Evaluation in accordance with ICC-ES Acceptance Criteria (AC437) for 'Expansion Bolts in Structural Steel Connections (Blind-Bolts)'*

2

*Compliance with the 2009 International Building Code*

## ■ Significance of ESR-3330

ICC-ES, a subsidiary of the International Code Council, is the United States' leading evaluation service for innovative building products and provides evidence that products meet the requirements of building codes and technical standards.

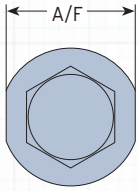
Building officials, architects, contractors, specifiers, designers and fabricators utilize ICC-ES Evaluation Report ESR-3330 to provide a basis for using or approving the Hollo-Bolt in construction projects under the International Building Code®.

ICC-ES President Shahin Moinian explains why ICC-ES Evaluation Report ESR-3330 is so important: "Lindapter USA can now reference the evaluation report to assure building officials and the building industry that the product meets I-Code requirements," Moinian said. "Building departments have a long history of using evaluation reports, and ICC-ES operates as a technical resource with the highest quality of product review for the building department."

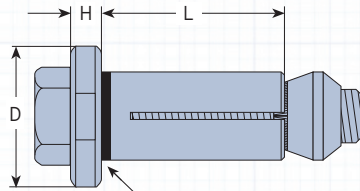




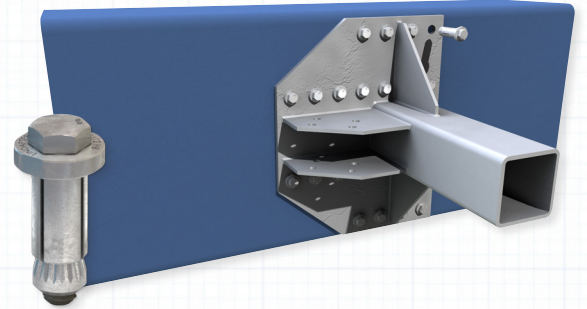
## Hollo-Bolt Allowable Loading (LRFD & ASD Methods)



Across Flats



High Clamping Force Mechanism: Sizes  $\frac{5}{8}$ " -  $\frac{3}{4}$ "

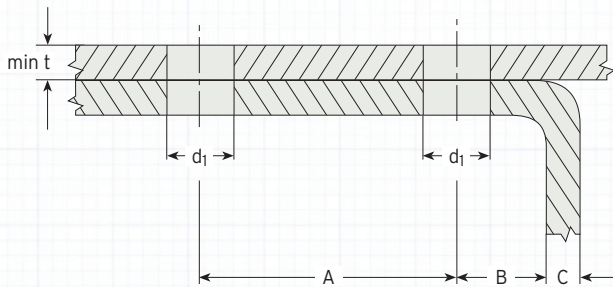


									ALLOWABLE LOADING			
Product Code	Bolt	Max Clamping Range W	Outer Ply min t	Sleeve Length L	Collar			Tightening Torque ft lb	LRFD Method		ASD Method	
					Height H	Ø D	A/F		Tensile lbs	Shear lbs	Tensile lbs	Shear lbs
LHBM08#1	$\frac{5}{16}$ " x 2"	$\frac{1}{8}$ " - $\frac{7}{8}$ "	-	$1\frac{3}{16}$ "								
LHBM08#2	$\frac{5}{16}$ " x $2\frac{3}{4}$ "	$\frac{7}{8}$ " - $1\frac{5}{8}$ "	-	$1\frac{15}{16}$ "	$\frac{3}{16}$ "	$\frac{7}{8}$ "	$\frac{3}{4}$ "	17	3775	3215	2340	2000
LHBM08#3	$\frac{5}{16}$ " x $3\frac{5}{8}$ "	$1\frac{5}{8}$ " - $2\frac{3}{8}$ "	-	$2\frac{11}{16}$ "								
LHBM10#1	$\frac{3}{8}$ " x $2\frac{1}{4}$ "	$\frac{1}{8}$ " - $\frac{7}{8}$ "	-	$1\frac{3}{16}$ "								
LHBM10#2	$\frac{3}{8}$ " x 3"	$\frac{7}{8}$ " - $1\frac{5}{8}$ "	-	$1\frac{7}{8}$ "	$\frac{1}{4}$ "	$1\frac{1}{8}$ "	$1\frac{5}{16}$ "	33	6160	5485	3820	3415
LHBM10#3	$\frac{3}{8}$ " x $3\frac{5}{8}$ "	$1\frac{5}{8}$ " - $2\frac{3}{8}$ "	-	$2\frac{5}{8}$ "								
LHBM12#1	$\frac{1}{2}$ " x $2\frac{3}{8}$ "	$\frac{1}{8}$ " - 1"	-	$1\frac{3}{8}$ "								
LHBM12#2	$\frac{1}{2}$ " x $3\frac{5}{8}$ "	1" - $1\frac{13}{16}$ "	-	$2\frac{1}{4}$ "	$\frac{1}{4}$ "	$1\frac{1}{4}$ "	$1\frac{3}{16}$ "	59	8545	7485	5305	4675
LHBM12#3	$\frac{1}{2}$ " x $4\frac{1}{4}$ "	$1\frac{13}{16}$ " - $2\frac{3}{4}$ "	-	$3\frac{1}{8}$ "								
High Clamping Force (HCF)	LHBM16#1	$\frac{5}{8}$ " x 3"	$\frac{1}{2}$ " - $1\frac{1}{8}$ "	$\frac{5}{16}$ "	$\frac{5}{16}$ "	$1\frac{1}{2}$ "	$1\frac{3}{8}$ "	140	13915	11645	8635	7285
	LHBM16#2	$\frac{5}{8}$ " x 4"	$1\frac{1}{8}$ " - 2"	$\frac{5}{16}$ "								
	LHBM16#3	$\frac{5}{8}$ " x $4\frac{3}{4}$ "	2" - $2\frac{13}{16}$ "	$\frac{5}{16}$ "								
	LHBM20#1	$\frac{3}{4}$ " x $3\frac{5}{8}$ "	$\frac{1}{2}$ " - $1\frac{5}{16}$ "	$\frac{5}{16}$ "								
	LHBM20#2	$\frac{3}{4}$ " x $4\frac{3}{4}$ "	$1\frac{5}{16}$ " - $2\frac{3}{8}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	2"	$1\frac{13}{16}$ "	221	19985	18390	12410	11490
	LHBM20#3	$\frac{3}{4}$ " x $5\frac{7}{8}$ "	$2\frac{3}{8}$ " - $3\frac{3}{8}$ "	$\frac{5}{16}$ "								

- Sizes  $\frac{5}{8}$ " and  $\frac{3}{4}$ ", known as the Hollo-Bolt HCF, feature a patented High Clamping Force mechanism to produce up to three times more clamping force than the same sized product without the mechanism. The significance of clamping force and the superior performance of Lindapter's unique Hollo-Bolt HCF is illustrated on page 7 of the Hollo-Bolt brochure, available for download at [www.hollo-bolt.com](http://www.hollo-bolt.com)

## Drilling and Preparation

Ensure that holes are drilled in both the fixture and the section according to the drilling guidelines below. Please note that clearance holes are slightly larger than standard bolt clearance holes to accommodate the sleeve and cone.



Size	Outer Ply min t	Clearance Hole Ø d <sub>1</sub>	Hole Distances		Edge Distances B + C
$\frac{5}{16}$ "	-	$\frac{9}{16}$ "	$1\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{11}{16}$ "
$\frac{3}{8}$ "	-	$\frac{3}{4}$ "	$1\frac{9}{16}$ "	$\frac{9}{16}$ "	$\frac{7}{8}$ "
$\frac{1}{2}$ "	-	$\frac{13}{16}$ "	2"	$\frac{3}{4}$ "	1"
$\frac{5}{8}$ "	$\frac{5}{16}$ "	$1\frac{1}{16}$ "	$2\frac{3}{16}$ "	$\frac{13}{16}$ "	$1\frac{5}{16}$ "
$\frac{3}{4}$ "	$\frac{5}{16}$ "	$1\frac{5}{16}$ "	$2\frac{3}{4}$ "	1"	$1\frac{5}{16}$ "

- Clearance holes can be drilled with a  $-0 / +\frac{1}{16}$ " tolerance
- Sizes  $\frac{5}{8}$ " and  $\frac{3}{4}$ ", require the thickness of the outer ply (min t) to be at least  $\frac{5}{16}$ ". If necessary, spacer washers should be used beneath the collar to increase the thickness to  $\frac{5}{16}$ ".

## Other Approvals for Hollo-Bolt



**CE Marking** provides additional security for Engineers, Architects & Specifiers by demonstrating that product performance is tested and confirmed by a third party to meet a standard renowned on a European scale.



**DIBt - Deutsches Institut für Bautechnik** is a respected organization that approves construction products for use in Structural and Civil Engineering industries in Germany.



**TÜV** are the certifying authority for safety, quality and environmental protection in Germany. Hollo-Bolts are produced under strict quality and environment management systems to ensure consistently high manufacturing standards across the range.

## Project Experience



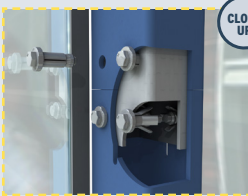
**CASE STUDY 1: KIMMEL CENTER**

**Location:**

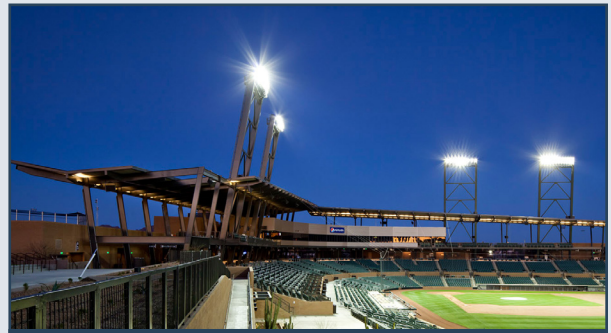
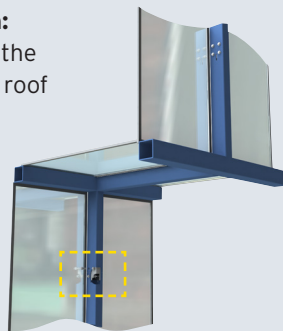
Philadelphia,  
PA, USA

**Application:**

Connecting the  
barrel-vault roof



CLOSE  
UP



**CASE STUDY 2: SALT RIVER FIELDS**

**Location:**

Scottsdale,  
AZ, USA

**Application:**

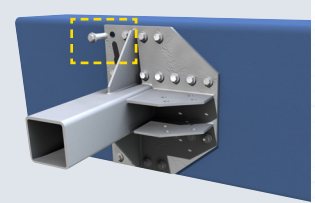
HSS connections for  
floodlighting frame



*Hollo-Bolt (HCF) used*



CLOSE  
UP



## Contact your Authorized Distributor: Edge Construction Supply



**Edge Construction Supply (Head Office):** 1503 E. Riverside Avenue. Spokane, WA 99202

**T:** (509) 535-9841 / 800-348-4808 (toll free) **E:** sales@edgecs.com **W:** www.edgecs.com