

# Box Bolt®

A KEE SAFETY PRODUCT

SAFE STEELWORK CONNECTIONS

## Expansion Anchor for Curtain Wall



- LLOYDS REGISTER & DIBt APPROVED CONNECTIONS
- GUARANTEED SAFE WORKING LOAD
- SAFETY FACTOR OF 5:1

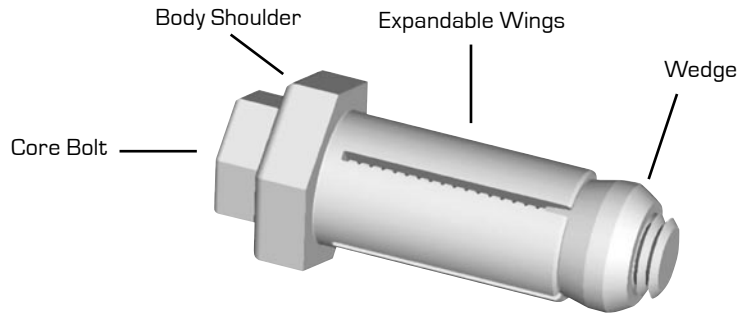


CSI 05050  
September 2008





BOXBOLT steelwork connections offer designers and installers a range of approved and independently tested blind bolts suitable for securing structural glazing and curtain wall brackets directly to structural tube sections or where access to the rear of the connection is limited or not available. Installations need to accommodate a wide variance in loadings and the BOXBOLT range of products provides effective solutions for everything from small low rise buildings to multi-story high rise structures.



## Simple Installation

The BOXBOLT is inserted into a pre-drilled or pre-formed hole in the glazing or curtain wall bracket, continuing through into a hole in the main steel structure. While the hexagon shoulder is gripped with an open ended wrench, the core bolt is simply tightened to the recommended torque; the wedge is pulled up the length of the bolt which in turn expands the wings forming a secure connection.

While BOXBOLT connections are designed to be made using simple hand tools, KEE SAFETY can supply the BOXSOK, a unique installation tool that will attach to standard air tools to reduce installation time even further.

## Extensive Testing

BOXBOLT connection products have been extensively tested, and certified by Lloyds Register Type Approval and DIBt (Deutsches Institut für Bautechnik) for use within Shear and Tensile applications.

## Engineered Design

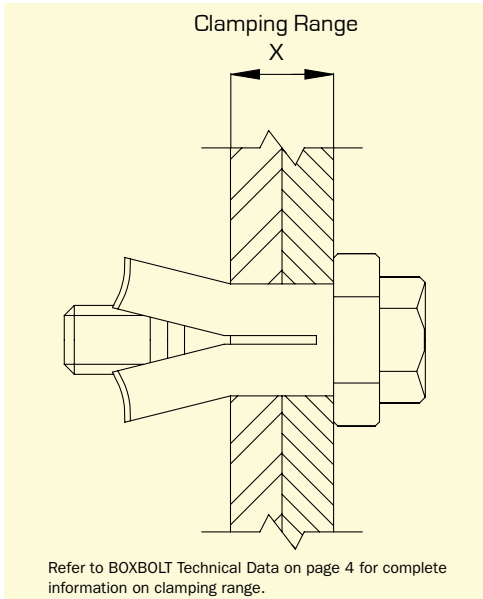
BOXBOLT products have been engineered to offer a guaranteed Safe Working Load and a Factor of Safety of 5:1 (load and dimensional data can be found on page 4). The BOXBOLT is available in six different bolt diameters ranging from 1/4" to 3/4". Within each bolt diameter, the BOXBOLT can be supplied in three overlapping lengths to accommodate a wide range of combined material thicknesses being connected together.

## Material & Finish Options

The BOXBOLT can be supplied in mild steel with a bright zinc or hot dip galvanized finish or in Grade 316 Stainless Steel.

## Head Options

The BOXBOLT can be supplied with a range of different head options where aesthetic appearance is essential.



## Head Options



Button Head Socket



Countersunk Socket



Hexagon Head

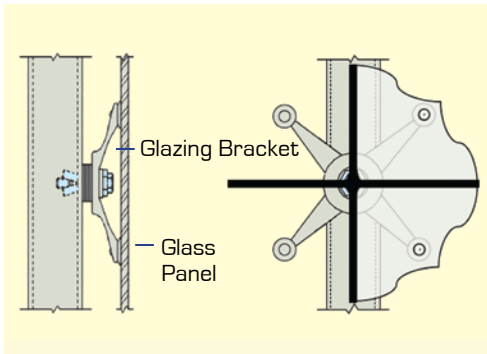


Socket Head Cap Screw

## Glazing Bracket

### Secured to Square, Rectangular, or Circular Tube

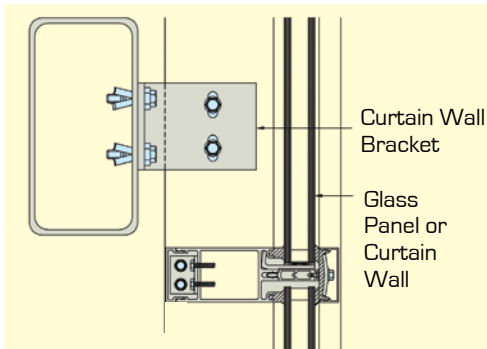
BOXBOLT expansion anchors can be used to secure glazing brackets directly to the steel structure. Glazing brackets are typically cast, profiled or machined with one to four arms spaced around a central hole through which the BOXBOLT can be inserted.



## Curtain Wall Bracket

### Secured to Square or Rectangular Structural Tube

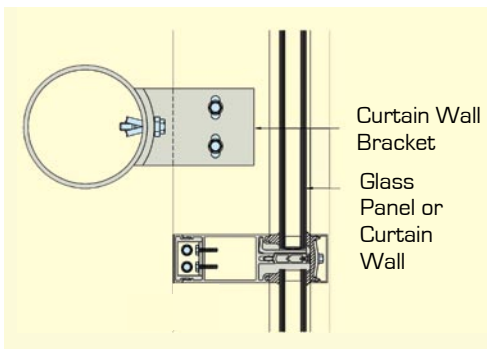
The BOXBOLT expansion anchor provides engineers and designers a method of connecting curtain wall brackets that allow a high degree of multidirectional on site adjustment.



## Curtain Wall Bracket

### Secured to Circular Structural Tube

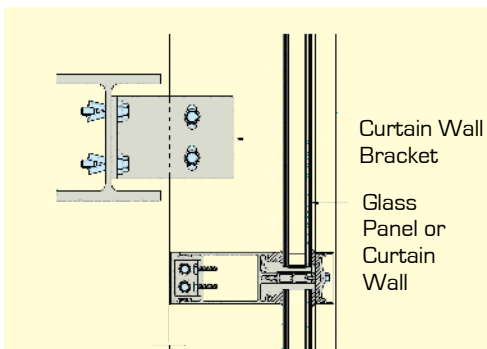
The use of the BOXBOLT expansion with fabricated or machined brackets provides a simple solution when connecting to circular structural tube.



## Curtain Wall Bracket

### Secured to Beams, Columns, or Channels

The BOXBOLT expansion with fabricated or machined brackets provides engineers and designers a method of connecting curtain wall brackets that allow a high degree of multidirectional on site adjustment.



# BoxBolt® Technical Data

part number & description			dimensional information						load information				
product code	bolt dia	description	screw length	clamping range (X)		across flats of shoulder	shoulder thickness	hole dia	Box Bolt dia	structural tube	safe working load (lbs)		torque (ft lb)
				min	max						tensile	shear	
BQ1Z06	1/4	1/4 Box Bolt Size 1	1-3/4	1/8	7/8	11/16	3/16	1/2	1/4	4 x 4 x 1/8	495	1275	14
										4 x 4 x 5/16	764		
BQ1Z08	5/16	5/16 Box Bolt Size 1	2	1/8	1	7/8	1/4	5/8	5/16	4 x 4 x 3/16	607		
BQ2Z08	5/16	5/16 Box Bolt Size 2	2-3/4	1/2	1-13/16	7/8	1/4	5/8	5/16	4 x 4 x 1/4 or 5/16	1012	1574	18
BQ3Z08	5/16	5/16 Box Bolt Size 3	3-9/16	1	2-5/8	7/8	1/4	5/8	5/16	4 x 4 x 3/8 or 1/2	1349		
BQ1Z10	3/8	3/8 Box Bolt Size 1	2	1/8	7/8	15/16	1/4	3/4	3/8	4 x 4 x 3/16	1012		
BQ2Z10	3/8	3/8 Box Bolt Size 2	2-3/4	5/8	1-11/16	15/16	1/4	3/4	3/8	4 x 4 x 1/4	1888	2922	33
BQ3Z10	3/8	3/8 Box Bolt Size 3	3-9/16	1-3/16	2-1/2	15/16	1/4	3/4	3/8	4 x 4 x 5/16, 3/8 or 1/2	2585		
BQ1Z12	1/2	1/2 Box Bolt Size 1	2-3/16	1/8	1	1	5/16	13/16	1/2	4 x 4 x 3/16	1012		
BQ2Z12	1/2	1/2 Box Bolt Size 2	3-1/8	3/4	2	1	5/16	13/16	1/2	4 x 4 x 1/4	1753		
BQ3Z12	1/2	1/2 Box Bolt Size 3	4	1-7/16	2-3/4	1	5/16	13/16	1/2	4 x 4 x 5/16	2945	3372	59
									1/2	4 x 4 x 3/8 or 1/2	3462		
BQ1Z16	5/8	5/8 Box Bolt Size 1	3	1/8	1-3/8	1-7/16	3/8	1-1/8	5/8	4 x 4 x 3/16	1439		
BQ2Z16	5/8	5/8 Box Bolt Size 2	4	1	2-3/8	1-7/16	3/8	1-1/8	5/8	4 x 4 x 1/4	1843		
BQ3Z16	5/8	5/8 Box Bolt Size 3	4-3/4	1-7/8	3-1/8	1-7/16	3/8	1-1/8	5/8	4 x 4 x 5/16	3125	7868	140
									5/8	4 x 4 x 3/8	5328		
									5/8	4 x 4 x 1/2	6969		
BQ1Z20	3/4	3/4 Box Bolt Size 1	4	1/8	1-5/8	1-13/16	7/16	1-3/8	3/4	4 x 4 x 1/4	1798		
BQ2Z20	3/4	3/4 Box Bolt Size 2	4-3/4	1-3/16	2-13/16	1-13/16	7/16	1-3/8	3/4	4 x 4 x 5/16	3439		
BQ3Z20	3/4	3/4 Box Bolt Size 3	6	2-3/8	4	1-13/16	7/16	1-3/8	3/4	4 x 4 x 3/8	6384	8992	221
									3/4	4 x 4 x 1/2	9824		



Do not exceed the Safe Working Loads (SWL) specified. All loads include a safety factor of 5:1. The tensile load of the BOXBOLT connector is based upon the strength of the structure being connected to. Please consult a licensed structural engineer to establish the load for steel sections other than those shown above.

## Product Notes:

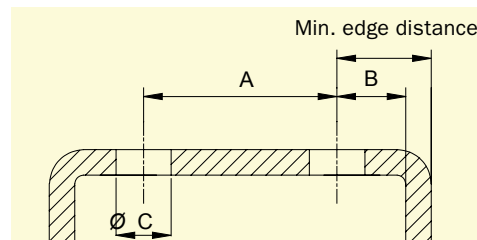
The standard finish for the BOXBOLT connector is zinc plate, this is indicated by the letter **Z** in the product code. If you require the BOXBOLT connector with a hot dip galvanized finish, please substitute with the letter **G**. If you require the BOXBOLT in stainless steel, use the letter **S**. For example, 5/8" bolt diameter, Size 1 BOXBOLT connector, with a hot dip galvanized finish will be product code **BQ1G16** and a 3/8" bolt diameter, Size 1 BOXBOLT connector in stainless steel will be **BQ1S10**. *The BOXBOLT connector is only available with a metric internal bolt. Bolt diameters shown above in inches are converted from metric sizes.*

## Clamping Range

The clamping range of the BOXBOLT connector is the combined thickness of the steel being connected and the steelwork being connected to. (Refer to page 2 for Clamping Range diagram.) Each diameter of the BOXBOLT connector has three overlapping lengths designed to accommodate a wide range of material thicknesses. If your clamping range exceeds those stated above, special lengths are available. Contact KEE SAFETY for further information.

## Hole Dimensions & Positioning

It is important that the correct hole size is drilled to accommodate the body of the BOXBOLT connector. Dimensions are shown in the table below. If a BOXBOLT connector is being used close to the edge of a section or in close proximity to another BOXBOLT connector, a minimum spacing is required to ensure that the wings are free to expand correctly.



Box Bolt size	dim A	dim B	dim C
1/4	1-3/16	7/16	1/2
5/16	1-3/8	1/2	5/8
3/8	1-9/16	9/16	3/4
1/2	2	13/16	13/16
5/8	2-3/16	13/16	1-1/8
3/4	2-3/4	1	1-3/8



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