Beam Clamp®

A KEE SAFETY PRODUCT

SAFE STEELWORK CONNECTIONS

Flexible Steelwork Connection Solutions

- NO DRILLING
- NO WELDING
- GUARANTEED SAFE WORKING LOADS WHERE APPLICABLE
- DIBt AND LLOYDS REGISTER TYPE APPROVAL

Lloyd's Register TYPE APPROVED

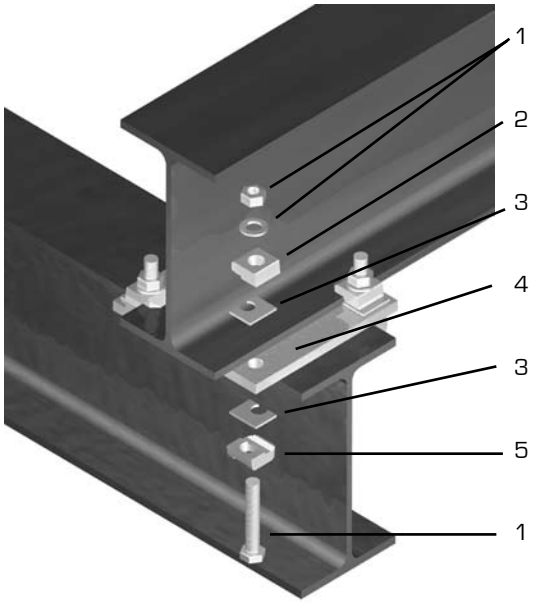
CSI 05050
January 2009

DIBt Bauaufsichtlich zugelassen Z-14.4-483

Introduction

Benefits of BeamClamp® Versus Traditional Connection Methods:

- All load capacities clearly stated
- Guaranteed loads with safety factor of 5:1
- Hot Dip Galvanized for corrosion protection where applicable
- Hot work permits not required
- No special tools or specialized labor required
- On site adjustments easily made
- Steelwork not weakened
- Protective coatings or steelwork not damaged
- Major savings in installation time
- Major savings in installation cost
- Engineering service for connection design
- DIBT and Lloyds Register type approval



BEAMCLAMP products offer an alternative method of securing secondary steelwork and building services equipment to primary steelwork. The BEAMCLAMP product range, as the name suggests, clamps new steel in position eliminating the need for drilling and welding while providing a high degree of adjustability. The BEAMCLAMP range features technical innovations that provide a steelwork connection that is stronger, quicker and easier to install than traditional or competitive methods.

Load Capacity for BeamClamp® Connection

product type	tensile load for a four bolt assembly (lbs) See individual product pages for recommended torque values					
	5/16″	3/8″	1/2″	5/8″	3/4″	1″
BA, BB, BT or BW	1124	2248	5172	8876	14812	18972
BE1 & BE2	N/A	2248	3344	7420	14496	18972
BC1 & BD1	1124	2248	3884	6744	9892	15440
BK1	1124	2248	3704	5936	8604	11464

When combining different products, please use the Safe Working Loads (SWL) of the product with the lowest load capacity stated in the table above, i.e. 5/8″ diameter load capacity of a combination of Type BA & BK1 will be 5936 lbs.

Caution Do not exceed the SWL specified.

All BEAMCLAMP Safe Working Loads have been determined from an extensive testing program based on typical usage. The values shown offer a safety factor of 5:1 based on two standard deviations below the mean outcome of all our test results.

Customer Service

BEAMCLAMP offers more than just a catalog of parts. We offer a complete, free of charge engineering service where we are able to provide extensive technical assistance and recommendations for individual problems and connection requirements. BEAMCLAMP products are stocked throughout the USA and Canada. Please contact KEE SAFETY for your nearest distributor. BEAMCLAMP has an ongoing product development program. If you have an application that cannot be solved with the products shown, please contact us to discuss your application in greater detail.

Typical BeamClamp® Assembly

The diagram to the left is an example of a typical BEAMCLAMP assembly used to connect two steel sections together. The assembly consists of a pre-drilled location plate [4] inserted between the two steel sections. An upper set of BEAMCLAMP components [2] clamp down on the lower flange of the upper beam while a lower set of components [5] work in the opposite direction, clamping the underside of the upper flange of the lower member. Additional packing shims [3] may be used to adjust the clamp to the thickness of the flange being connected. The connection is secured by inserting a bolt [1] through each of the lower clamps, the location plate, the upper clamps and then tightening a nut to the recommended torque. BEAMCLAMP is pleased to offer a free design service to advise on the appropriate components for your particular assembly. In addition, we are pleased to include a quotation for your supply of bolts, nuts, washers and pre-drilled location plates.

1 = Nut and flat washer

2 = BA, BB, BT, or BW; BE1 or BE2 or BK1

3 = BH1, BF1, BG1, BF2 or BG2

4 = Location plate

5 = BA, BB, BT, or BW; BE1 or BE2 or BK1

6 = SAE Grade 5 Bolt

Product Range

BA

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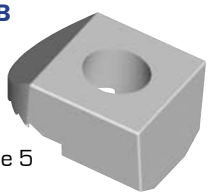
BB



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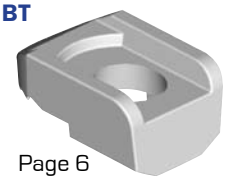
BT



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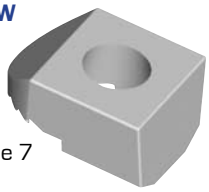
BW



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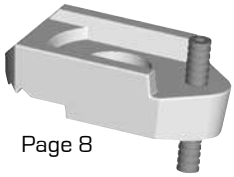
BE1



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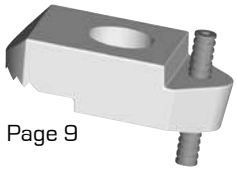
BE2



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BK1

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BC1

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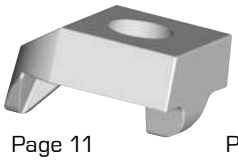
BD1



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BF1, BG1, BH1

Page 12

BF2, BG2

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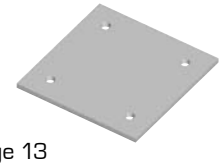
Location Plates



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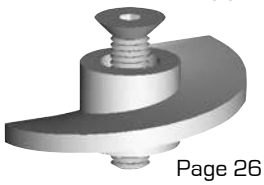
FLOORFIX



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GRATEFIX

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G-CLIP GG

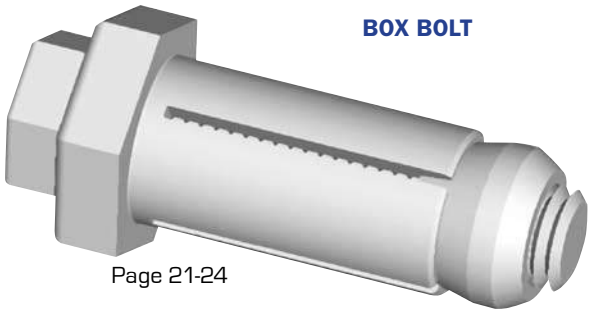
Page 27

Steelwork Connection Products

These products are used mainly for connecting secondary steel sections to existing steel structures. A location plate or bracket is normally used with these products to provide a base for the clamp to react against. Pre-drilling holes in the plate to suit the widths of the steel sections being connected ensures that the clamps are positioned correctly. With a bolt going through the clamps and the location plate, the individual components cannot move independently of the whole connection. This allows the connection to be adjustable until the bolts are securely tightened. The location plate is manufactured off site so that no drilling or welding is required on site. The need for hot work permits or on site power is eliminated as the connection can be installed with simple hand tools without the need for specialized labor.

There are many applications for the BEAMCLAMP line of products. Several examples are shown on pages 17 to 20, including some of the most common connection solutions. If you require assistance in selecting the appropriate components, or if your particular application is not shown, please contact KEE SAFETY for further information. You can also use the BEAMCLAMP Fax Inquiry Sheet shown on page 14 or the BEAMCLAMP configurator website at www.beamclamp.com/configurator.

BOX BOLT



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Cavity Connections With BoxBolt®

The BOXBOLT fastener is an expansion anchor for steel that can be used to make connections to structural tube sections or where access is available from only one side. BOXBOLT fasteners are available in six bolt diameters from 1/4″ to 3/4″ and can be supplied in both mild steel and 316 stainless steel. The mild steel version can be supplied either zinc plated or hot dip galvanized.

Steel Floor Connections

BEAMCLAMP has several floor connection products. The GRATEFIX and GRATING CLIP products are a simple method of securing steel, aluminum or fiberglass grating to existing structures. The FLOORFIX and FLOORFIX HT offer a means of connecting raised pattern floor plate to existing steel with out the need for welding or drilling of the supporting steelwork.

All floor connection products are quick and easy to install using only basic hand tools. Both eliminate the need for access to the underside of the steel flooring or grating.

Type BA

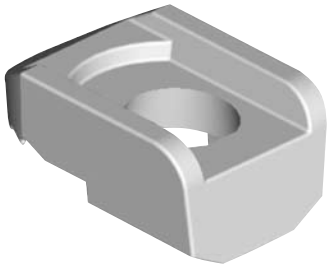
- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BA clamp has a recessed upper surface that is designed to hold the head of a bolt in place while the nut is tightened. The rear section of the clamp is called the tail and is available in three different tail lengths: size 1, size 2 and size 3 [see Dimension E on the table below]. By selecting the appropriate tail length and with the use of BEAMCLAMP shims, any thickness of steel flange can be connected.

For selection of correct tail length please refer to Table 1 on page 16.

The Type BA clamp is designed to suit parallel flanges such as wide flange beams and angles. For tapered flanges, please use the Type BT or BK1 products. BEAMCLAMP recommends that SAE Grade 5 bolts be used with the Type BA clamp.

Type BA
For Flanges

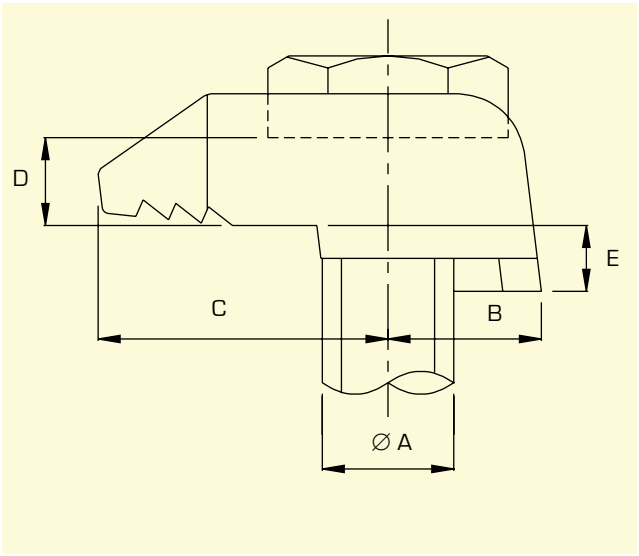


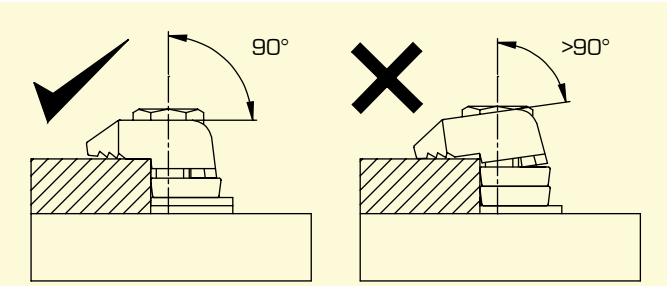
The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

product code	A bolt dia	B	C	D	E			width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
					1	2	3				
BA G08	5/16	3/8	5/8	3/16	/	1/8	/	13/16	4	281	/
BA G10	3/8	1/2	13/16	1/4	1/8	3/16	5/16	1	14	562	/
BA G12	1/2	5/8	1	5/16	3/16	1/4	3/8	1-1/8	51	1293	292
BA G16	5/8	11/16	1-1/4	3/8	3/16	5/16	7/16	1-7/16	109	2219	877
BA G20	3/4	13/16	1-3/8	7/16	5/16	3/8	1/2	1-3/4	210	3703	2473
BA G24	1	1	1-15/16	1/2	3/8	1/2	5/8	2-1/8	355	4743	4047

Add 1, 2 or 3 to the product code to indicate the desired tail length. For example, a 5/8" bolt diameter with a 5/16" tail would be product code BA**2**G16.

Caution Do not exceed the Safe Working Loads (SWL) specified.





Installation Guide

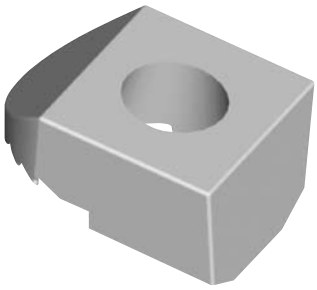
Type BB

- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BB clamp has a flat upper surface that allows a nut to be tightened down and is often used in conjunction with the recessed Type BA. This flat surface makes the Type BB clamp ideal for use with studs, J-Bolts or threaded rod. This flat surface also makes the product suitable for use with ASTM A325 bolts where the oversized head is too large to be held by the recess of the Type BA clamp.

The rear section of the clamp is called the tail and is available in three different tail lengths: size 1, size 2 and size 3 [see Dimension E on the table below]. By selecting the appropriate tail length and with the use of BEAMCLAMP shims, any thickness of steel flange can be connected. For selection of the correct tail length, please refer to Table 1 on page 16.

The Type BB clamp is designed to suit parallel flanges such as wide flange beams and angles. For tapered flanges, please use the Type BW or BK1 products.



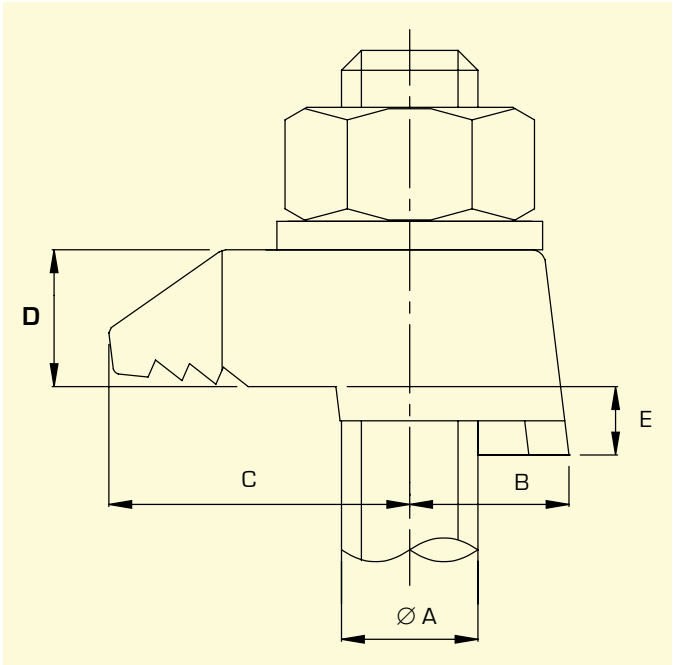
Type BB
For Flanges

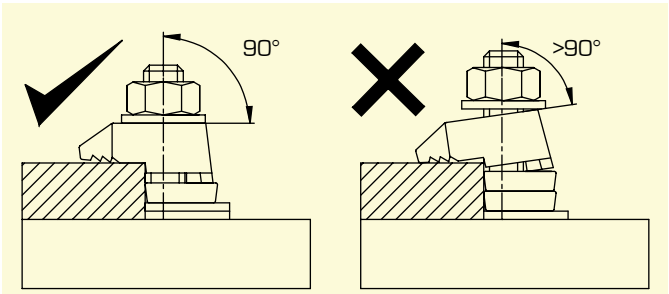
The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

product code	A bolt dia	B	C	D	E			width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
					1	2	3				
BB G08	5/16	3/8	5/8	3/8	/	1/8	/	13/16	4	281	/
BB G10	3/8	1/2	13/16	7/16	1/8	3/16	5/16	1	14	562	/
BB G12	1/2	5/8	1	1/2	3/16	1/4	3/8	1-1/8	51	1293	292
BB G16	5/8	11/16	1-1/4	11/16	3/16	5/16	7/16	1-7/16	109	2219	877
BB G20	3/4	13/16	1-3/8	13/16	5/16	3/8	1/2	1-3/4	210	3703	2473
BB G24	1	1	1-15/16	1	3/8	1/2	5/8	2-1/8	355	4743	4047

Add 1, 2 or 3 to the product code to indicate the desired tail length. For example, a 3/4" bolt diameter with a 1/2" tail would be product code BB**3**G20.

Caution Do not exceed the Safe Working Loads (SWL) specified.





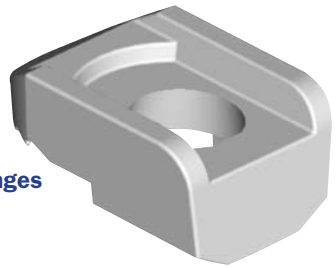
Installation Guide

Type BT

- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BT clamp is specifically designed to clamp to the tapered flanges of Structural I-Beams and steel channels. The clamp has a recessed upper surface that is designed to hold the head of a bolt in place while the nut is tightened. The rear section of the clamp is called the tail and is available in two different tail lengths: size 1 and size 2 [see Dimension E on the table below]. By selecting the appropriate tail length and with the use of BEAMCLAMP shims, any thickness of steel flange can be connected. To make selecting the correct tail length easier, please refer to Tables 2 and 3 on page 17.

Type BT
For Tapered Flanges



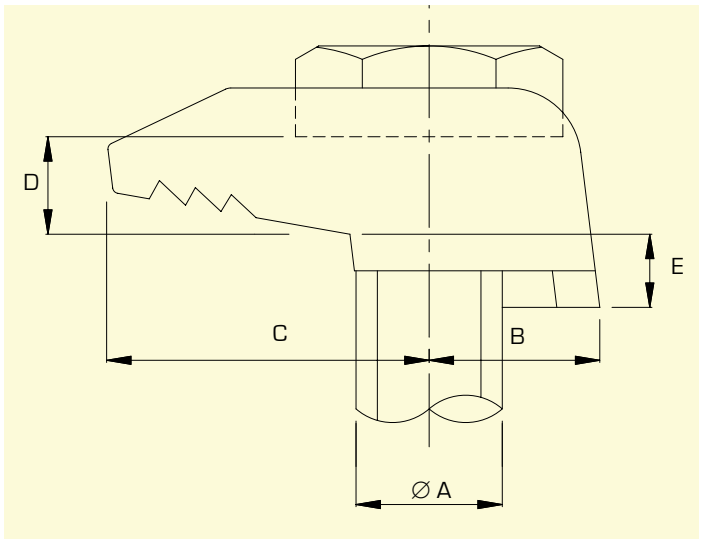
The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

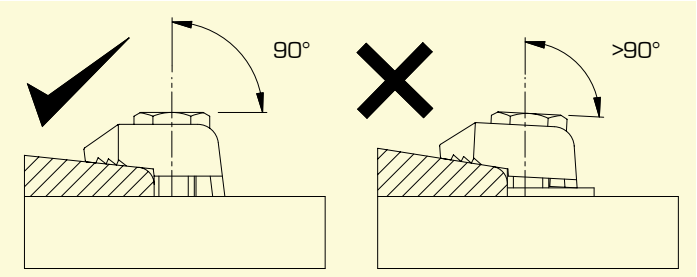
product code	A bolt dia	B	C	D	E		width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
					1	2				
BT G12	1/2	5/8	1	5/16	3/16	1/4	1-1/8	51	1293	292
BT G16	5/8	11/16	1-1/4	3/4	1/4	5/16	1-7/16	109	2219	877
BT G20	3/4	13/16	1-3/8	7/16	1/4	3/8	1-3/4	210	3703	2473

Add 1 or 2 to the product code to indicate the desired tail length. For example, a 1/2" bolt diameter with a 1/4" tail would be product code BT**2**G12.

The Type BT is available in 1/2", 5/8", and 3/4" diameters only.

Caution Do not exceed the Safe Working Loads (SWL) specified.





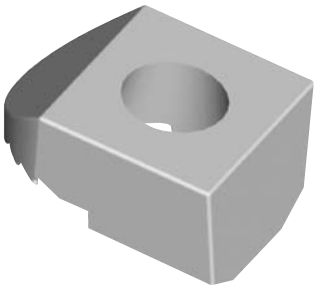
Installation Guide

Type BW

- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BW clamp is specifically designed to clamp to the tapered flanges of Structural I-Beams and steel channels. The clamp has a flat upper surface that allows a nut to be tightened down. The rear section of the clamp is called the tail and is available in two different tail lengths: size 1 and size 2 [see Dimension E in the table below]. By selecting the appropriate tail length and with the use of BEAMCLAMP packing shims, any thickness of steel flange can be connected. To make selecting the correct tail length easier, please refer to Tables 2 and 3 located on page 17.

Type BW
For Tapered Flanges



The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

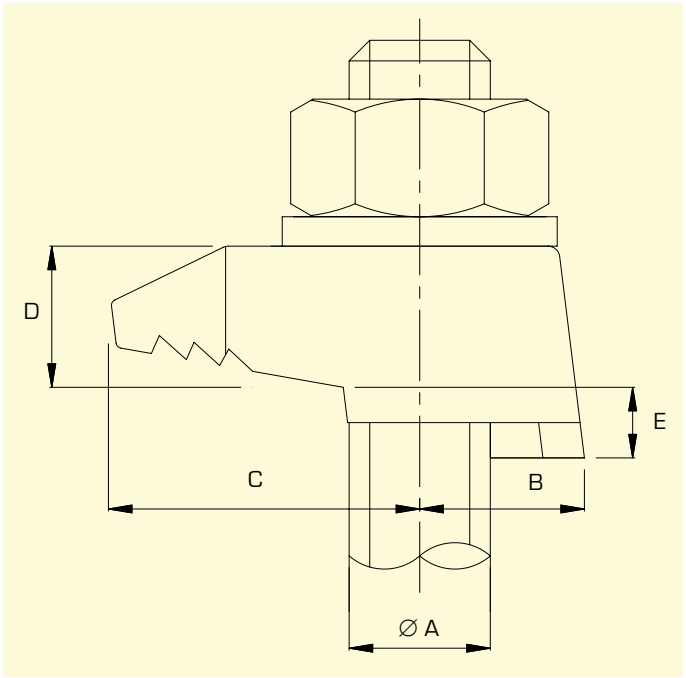
product code	A bolt dia	B	C	D	E		width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
					1	2				
BW G12	1/2	5/8	1	1/2	3/16	1/4	1-1/8	51	1293	292
BW G16	5/8	11/16	1-1/4	11/16	1/4	5/16	1-7/16	109	2219	877
BW G20	3/4	13/16	1-3/8	13/16	1/4	3/8	1-3/4	210	3703	2473

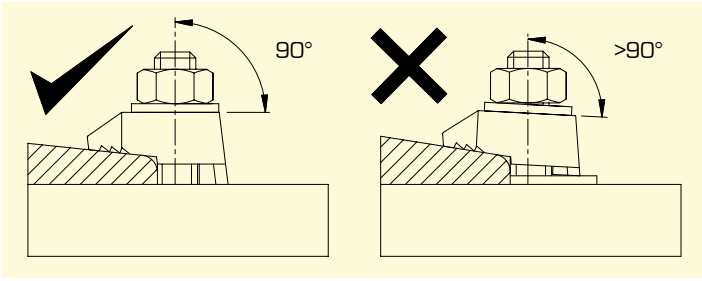
Add 1 or 2 to the product code to indicate the desired tail length. For example, a 1/2" bolt diameter with a 1/4" tail would be product code BW**2**G12.

The Type BW is available in 1/2", 5/8", and 3/4" diameters only.

Caution

Do not exceed the Safe Working Loads (SWL) specified.





Installation Guide

Type BE1

- **Adjustable Clamp to suit any thickness of steel**
- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BE1 clamp has a recessed upper surface, similar to the Type BA product, to hold the head of a bolt in place while the nut is tightened. However, it has the additional feature of a fully threaded screw at the rear of the product that can be adjusted so the grip range of the product matches the flange thickness being connected. The fully threaded screw can be adjusted with a hexagon socket key. This product is ideal for applications where the flange thickness can not easily be measured or where the flange thickness may vary throughout a project. The Type BE1 clamp is designed to suit parallel flanges such as wide flange beams and angles. For tapered flanges, please use the Type BK1.

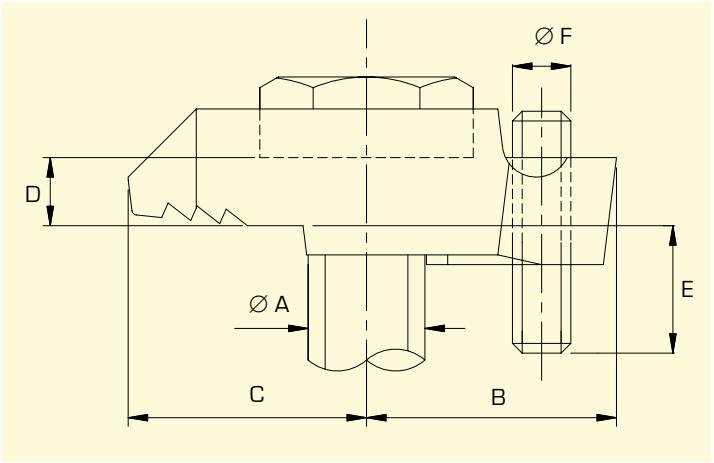
Long shims (BF2 and BG2) can be used to increase the clamping range. See page 12 for details. To make selecting the appropriate shims easier, please refer to Table 1 on page 16.

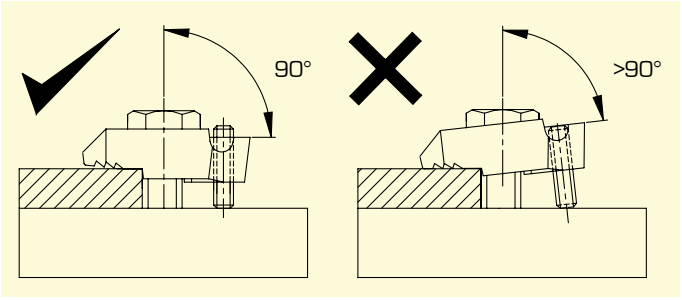
Type BE1
Adjustable Clamp
for Parallel Flanges

The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

product code	A bolt dia	B	C	D	E	F screw dia	width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
BE1G10	3/8	13/16	13/16	1/4	1/8 to 13/16	1/4	1	14	562	/
BE1G12	1/2	1	1	5/16	3/16 to 7/8	1/4	1-1/8	51	836	292
BE1G16	5/8	1-3/16	1-1/4	3/8	3/16 to 15/16	5/16	1-7/16	109	1855	877
BE1G20	3/4	1-3/8	1-3/8	7/16	3/16 to 1	3/8	1-3/4	210	3624	2473
BE1G24	1	1-15/16	1-15/16	1/2	1/4 to 1-3/16	1/2	2-1/8	355	4743	4047

Caution Do not exceed the Safe Working Loads (SWL) specified.





Installation Guide

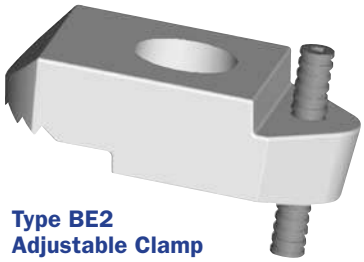
Type BE2

- **Adjustable Clamp to suit any thickness of steel**
- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BE2 clamp has a flat upper surface that allows a nut to be tightened down, similar to the Type BB product. However, it has the additional feature of a fully threaded screw at the rear of the product that can be adjusted so the grip range of the product matches the flange thickness being connected. The fully threaded screw can be adjusted with a hexagon socket key. This product is ideal for applications where the flange thickness cannot easily be measured or where the flange thickness may vary throughout a project.

The Type BE2 clamp is designed to suit parallel flanges such as wide flange beams and angles. For tapered flanges, please use the Type BK1.

Long shims (BF2 and BG2) can be used to increase the clamping range. See page 12 for details. To make selecting the appropriate shims easier please refer to Table 1 on page 16.

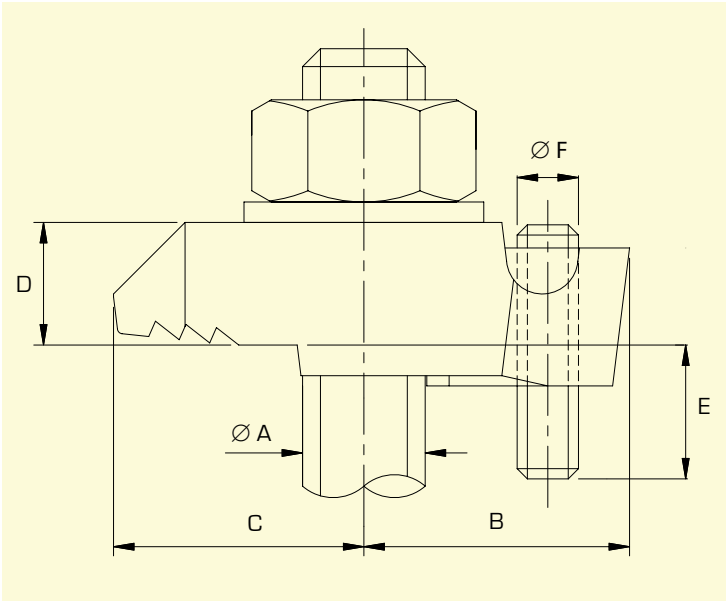


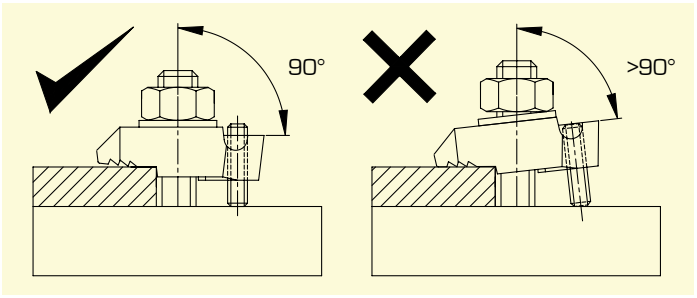
Type BE2
Adjustable Clamp for Parallel Flanges

The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

product code	A bolt dia	B	C	D	E	F screw dia	width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
BE2G12	1/2	1	1	1/2	1/4 to 7/8	1/4	1-1/8	51	836	292
BE2G16	5/8	1-3/16	1-1/4	11/16	1/4 to 15/16	5/16	1-7/16	109	1855	877

Caution Do not exceed the Safe Working Loads (SWL) specified.





Installation Guide

Type BK1

- **Self Adjusting Clamp to suit any thickness of steel**
- **Will suit parallel or tapered flanges**
- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

Type BK1
Adjustable Clamp for all Steelwork Types

5/16˝, 3/8˝, 1/2˝

5/16˝, 3/4˝, 1˝

The Type BK1 clamp is a self adjusting clamp consisting of two parts. The body has a spherical seat cast into it to allow a hemispherical washer to sit in and rotate. This allows the body to adjust to any clamping thickness while providing a flat surface for a nut or bolt to be tightened down onto it. This product is ideal for applications where the flange thickness cannot easily be measured or where the flange thickness may vary throughout a project. Due to its clamping action, it is also suitable for clamping tapered flanges and rails up to 15 degrees.

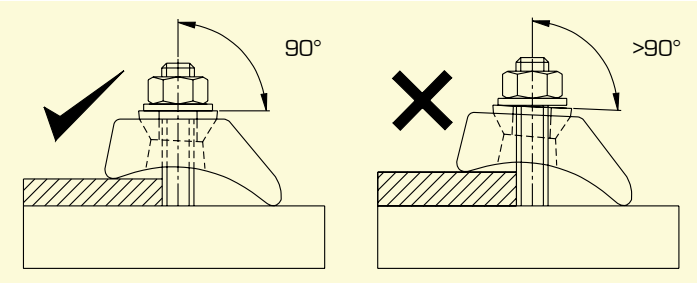
All sizes of BK1 clamps have a wide back tail section to allow the clamp to bridge the gap of a slotted hole and also to connect to the open face of metal framing strut channel. The 5⁄16", 3⁄8" and 1⁄2" products have an additional cut out in the tail to provide a tab that fits inside the open face of the strut.

Long shims (BF2 and BG2) can be used to increase the clamping range. See page 12 for details. To make selecting the appropriate shims easier, please refer to Table 1 on page 16.

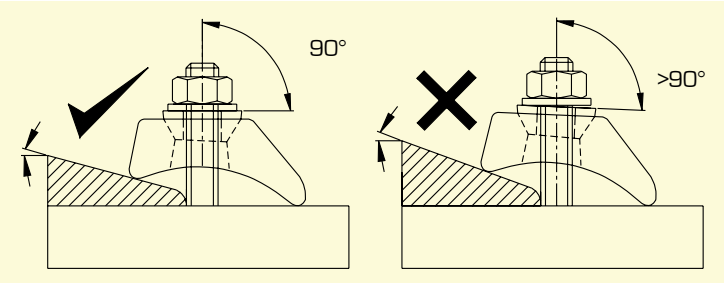
The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

product code	A bolt dia	B1	B2	C	D	width	torque (ft lb)	tensile SWL (lbs) (per bolt)	friction SWL (lbs) (per 4 bolts)
BK1G08	5/16	1/8 to 1/2	1/8 to 3/8	1-5/8	11/16	1-5/8	4	281	/
BK1G10	3/8	1/8 to 5/8	1/8 to 1/2	2-1/8	7/8	1-5/8	14	562	/
BK1G12	1/2	1/8 to 11/16	1/8 to 5/8	1-7/8	1	1-11/16	51	926	292
BK1G16	5/8	1/8 to 15/16	N/A	2-3/8	1-1/8	1-7/8	109	1484	877
BK1G20	3/4	1/8 to 1-3/16	N/A	2-7/8	1-3/8	2-7/16	210	2151	2473
BK1G24	1	1/8 to 1-7/16	N/A	3-3/8	1-13/16	2-15/16	355	2866	4047

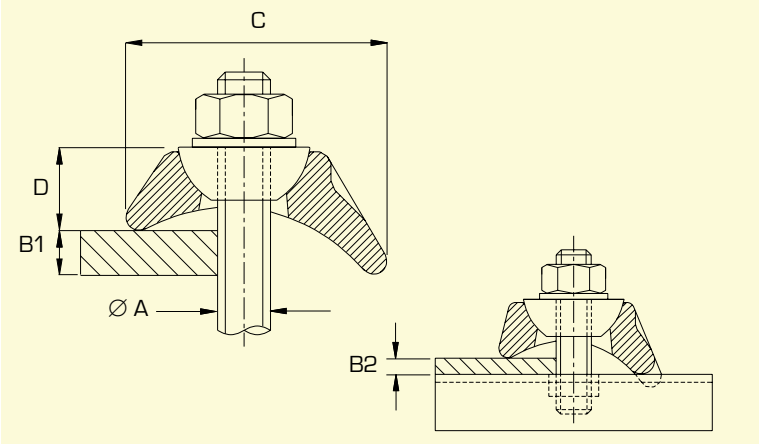
Caution Do not exceed the Safe Working Loads (SWL) specified.



Installation Guide for Parallel Flanges



Installation Guide for Tapered Flanges



Type BC1/BD1

- **Manufactured from high strength ductile iron**
- **Hot Dip Galvanized for corrosion protection**
- **All loads guaranteed with a safety factor of 5:1**

The Type BC1 and BD1 clamps are designed for hooking over the flanges of angles and channels. The Type BC1 clamp has a recessed upper surface that is designed to hold the head of a bolt in place while the nut is tightened. The Type BD1 clamp has a flat upper surface that allows a nut to be tightened down onto it. The nose of the BC1 and BD1 has a rib section that can be removed when clamping thick sections of steel [see Dimension C2 in the table below]. This product is not recommended for frictional applications.

Hook Nose clamps for Angles

BC1

BD1

The Safe Working Loads (SWL) are based on assemblies in typical application conditions.

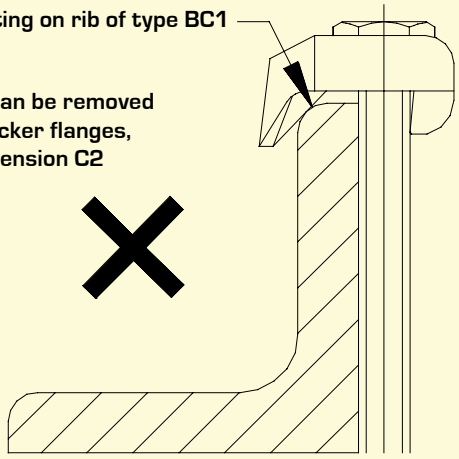
product code	product code	A bolt dia	B	C1	C2	D	E1	E2	width	torque (ft lb)	friction SWL (lbs) (per 4 bolts)
BC1G08	BD1G08	5/16	3/8	3/16	5/16	1/4	3/16	3/8	7/8	2	281
BC1G10	BD1G10	3/8	1/2	3/16	3/8	5/16	1/4	7/16	1-3/16	7	562
BC1G12	BD1G12	1/2	5/8	1/4	1/2	3/8	5/16	1/2	1-1/4	25	971
BC1G16	BD1G16	5/8	11/16	5/16	1/2	7/16	3/8	11/16	1-5/8	54	1686
BC1G20	BD1G20	3/4	13/16	3/8	9/16	9/16	7/16	13/16	1-15/16	105	2473
BC1G24	BD1G24	1	1	1/2	11/16	11/16	1/2	1	2-3/8	178	3860

Caution

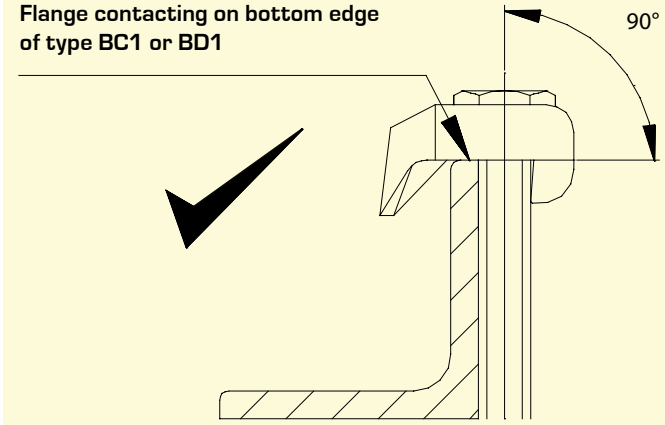
Do not exceed the Safe Working Loads (SWL) specified.

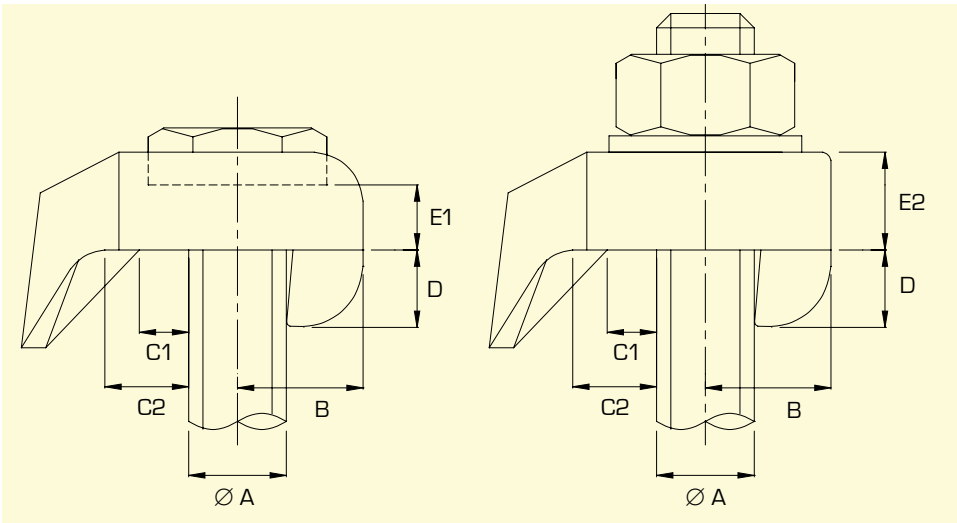
Flange contacting on rib of type BC1 or BD1

Note: The rib can be removed to allow for thicker flanges, please see dimension C2 for details



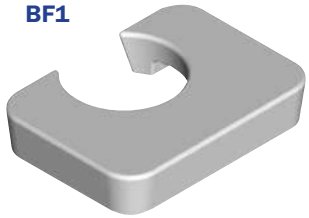
Flange contacting on bottom edge of type BC1 or BD1



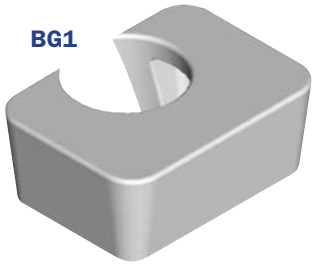


BF1, BG1, BF2, BG2 & BH1

BF1



BG1



BF2

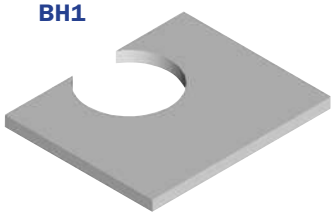
BG2

The Type BF1, BG1, BH1, BF2, and BG2 products act as shims to support the underside of clamps and to adjust the grip of the clamp to accurately suit the thickness of steel being connected. Type BF1, BG1, and BH1 act as shims to support the underside of the Type BA, BB, BT and BW clamps. The BH1 is the thinnest shim, followed by the BF1 and then the BG1. All shims are hot dipped galvanized except the BH1, which is zinc plated.

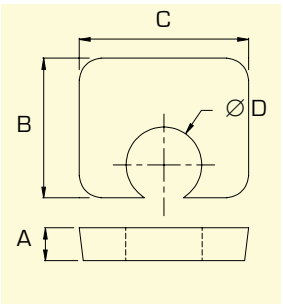
Type BF2 and BG2 act as shims to support the underside of the Type BE1, BE2 and BK1 clamps. The BF2 and BG2 shims are similar to the BF1 & BG1, but they are longer so they will reach further back and support the longer BE1, BE2 and BK1 products.

These shims can be used separately or combined together depending on the thickness of steel being connected and which clamp type is used. All shims fit over the shank of the bolt so they cannot be removed. Dimensions for the shims are shown below. Tables showing which shim is required to suit a given flange thickness are shown on pages 16 and 17.

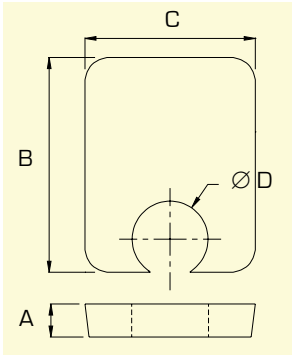
BH1



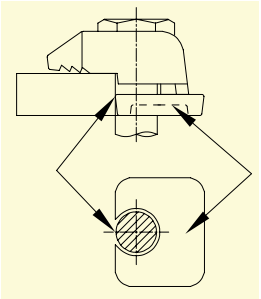
BF1, BG1, BH1



BF2, BG2

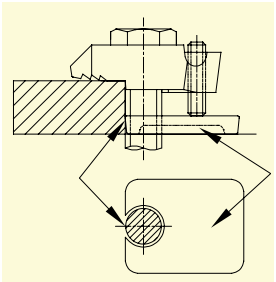


The Type BF1, BG1 and BH1 should be slipped onto the bolt shank with the open end towards the beam steelwork flange as shown.



The recess in the BF1 and BG1 should always be face downward leaving a flat surface for the tail of the clamp to sit on as shown.

The Type BF2 and BG2 should be slipped onto the bolt shank with the open end towards the steel-work flange as shown.



The recess in the BF2 and BG2 should always be face downward leaving a flat surface for the tail of the clamp to sit on as shown.

Tables for BF1, BG1, BF2, BG2 and BH1

product code	bolt dia	A	B	C	D dia
BF1G08	5/16	1/8	9/16	7/8	3/8
BF1G10	3/8	3/16	11/16	1-1/8	7/16
BF1G12	1/2	1/4	7/8	1-3/16	9/16
BF1G16	5/8	5/16	1-1/8	1-3/8	11/16
BF1G20	3/4	3/8	1-5/16	1-11/16	13/16
BF1G24	1	1/2	1-3/4	2-3/16	1-1/16

product code	bolt dia	A	B	C	D dia
BG1G08	5/16	5/16	9/16	7/8	3/8
BG1G10	3/8	3/8	11/16	1-1/8	7/16
BG1G12	1/2	1/2	7/8	1-3/16	9/16
BG1G16	5/8	5/8	1-1/8	1-3/8	11/16
BG1G20	3/4	3/4	1-5/16	1-11/16	13/16
BG1G24	1	1	1-3/4	2-3/16	1-1/16

product code	bolt dia	A	B	C	D dia
BH1Z08	5/16	1/16	5/8	7/8	3/8
BH1Z10	3/8	1/16	13/16	1-1/8	7/16
BH1Z12	1/2	1/8	15/16	1-3/16	9/16
BH1Z16	5/8	1/8	1-1/8	1-3/8	11/16
BH1Z20	3/4	3/16	1-5/16	1-11/16	13/16
BH1Z24	1	3/16	1-3/4	2-3/16	1-1/16

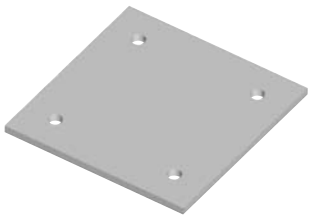
product code	bolt dia	A	B	C	D dia
BF2G08	5/16	1/8	1	7/8	3/8
BF2G10	3/8	3/16	1-3/16	1-1/8	7/16
BF2G12	1/2	1/4	1-1/2	1-3/16	9/16
BF2G16	5/8	5/16	1-15/16	1-3/8	11/16
BF2G20	3/4	3/8	2-1/4	1-11/16	13/16
BF2G24	1	1/2	3	2-3/16	1-1/16

product code	bolt dia	A	B	C	D dia
BG2G08	5/16	5/16	1	7/8	3/8
BG2G10	3/8	3/8	1-3/16	1-1/8	7/16
BG2G12	1/2	1/2	1-1/2	1-3/16	9/16
BG2G16	5/8	5/8	1-15/16	1-3/8	11/16
BG2G20	3/4	3/4	2-1/4	1-11/16	13/16
BG2G24	1	1	3	2-3/16	1-1/16

Location Plates

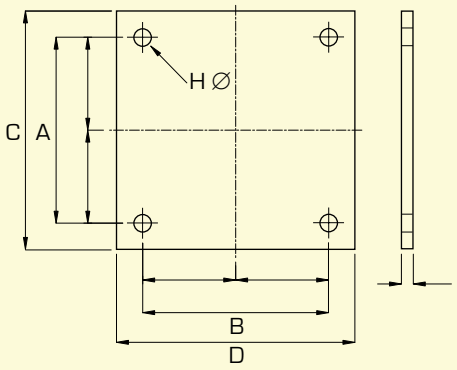
The location plate is an important part of a BEAMCLAMP assembly. It provides support for the rear of the BEAMCLAMP product to react against while the front of the product clamps down on the steel. The hole centers of the location plate are designed to suit the width of the upper and lower members being connected. This ensures that the bolts are correctly positioned against the edges of the beam flanges. BEAMCLAMP will be pleased to provide the location plates to suit your application. Dimensions for the location plates are provided below.

Location Plate

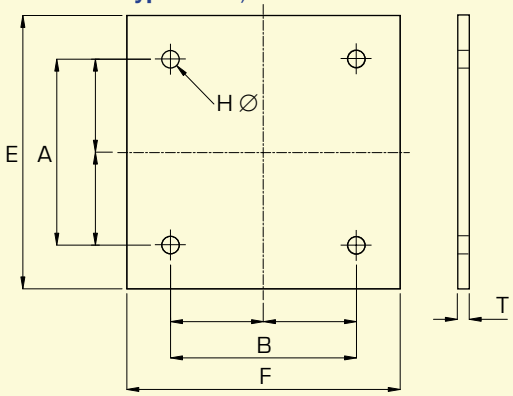


Location plates supplied by KEE SAFETY are primed finish. Hot dip galvanized or powder coat finish location plates can be supplied upon request.

Location Plate for Types BA, BB, BT & BW



Location Plate for Types BK1, BE1 & BE2

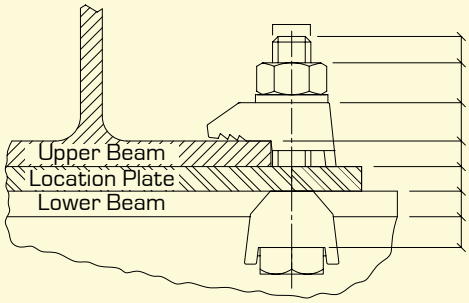


Thickness of Upper and Lower Beam Clamps

bolt dia	type BA, BT & BE1 (X)	type BB, BW, & BE2 (X)	type BK1 (X)
5/16	3/16	3/8	11/16
3/8	1/4	7/16	7/8
1/2	5/16	1/2	1
5/8	3/8	11/16	1-1/8
3/4	7/16	13/16	1-3/8
1	1/2	1	1-13/16

Dimension table for Beam Clamp location plates

bolt dia	A upper beam width +	B lower beam width +	C upper beam width +	D lower beam width +	E upper beam widh +	F lower beam width +	H dia	T
5/16	3/8	3/8	1-1/2	1-1/2	2-1/4	2-1/4	3/8	5/16
3/8	7/16	7/16	1-3/4	1-3/4	2-5/8	2-5/8	7/16	5/16
1/2	9/16	9/16	2-1/4	2-1/4	3-3/8	3-3/8	9/16	5/16
5/8	11/16	11/16	2-3/4	2-3/4	4-1/8	4-1/8	11/16	3/8
3/4	13/16	13/16	3-1/4	3-1/4	4-7/8	4-7/8	13/16	1/2
1	1-1/8	1-1/8	4-1/2	4-1/2	6-3/4	6-3/4	1-1/8	5/8



Tightening Allowance Equal to 1/2˝ Bolt Dia

Thickness of Nut, Flat & Split Lock Washer = Dim N

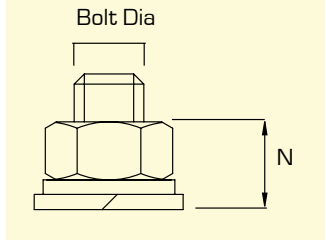
Thickness of Upper Clamp = Dim X
Upper Flange Thickness
Location Plate Thickness
Lower Flange Thickness
Thickness of Lower Clamp = Dim X

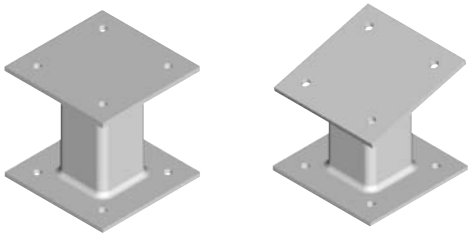
*After adding above dimensions, round dimension to nearest standard bolt length to find needed bolt length.

Location spacers are two location plates joined together with a gap to allow for spaces between the upper and lower steel members. This gap between the two plates can be bridged with a section of beam or tube. The plates can be welded at different angles to allow for pitched roofs or sloping steelwork. Other variations can be manufactured to suit special applications. Contact KEE SAFETY for further information.

Thickness of Nut, Flat & Split Lock Washer

bolt dia	N
5/16	7/16
3/8	1/2
1/2	11/16
5/8	13/16
3/4	1
1	1-3/4





fax inquiry

BeamClamp®
A KEE SAFETY PRODUCT

Fax Your Technical Request to SIMPLIFIED BUILDING CONCEPTS at (585) 672 7313.

Please check the following boxes as needed: ❑ Catalog Request ❑ Technical advice ❑ Quotation

The BEAMCLAMP Division provides the customer with the best possible service from product specification through purchase and delivery to installation advice.

Company Name _____

Your Name _____ Position _____

Street Address _____

City _____ State/Prov _____ Zip/Postal Code _____

Telephone _____ Ext. _____ Fax _____

Email Address _____ Website _____

Please supply as much information as possible so we can properly process your request.

Steelwork Size & Type (please give flange width and thickness if section size is unknown)

Upper Beam _____ Lower Beam _____

Load To Be Carried _____ Angle of Crossover _____
(Please specify units)

Number of Connections _____ Is there a height difference between the beams? _____

Is your connection similar to an illustration shown on pages 17-20? Please specify _____

Use the space below to provide additional information or a sketch of your application. You can add any additional data sheets that may be useful. Number of pages faxed _____

Visit www.beamclamp.com/configurator and use the BEAMCLAMP Connection Configurator. Enter the type and size of the steel you are connecting along with the load to be carried to have your personal assembly information determined instantly.

Specifying the Correct BeamClamp®

Specifying the Correct BeamClamp® Product

It is important to select the correct Product Type, tail length, and packing shim requirement to suit your application. Unless using an adjustable tail Type BK1, BE1 or BE2, the combined tail length plus the thickness of the shim(s) must be equal to the thickness of steel being clamped.

The following tables are designed to assist you in selecting the appropriate combination.

For wide flange beams and parallel steel - Table 1
For Structural I-Beams - Table 2
For C-Channels - Table 3
Tables are located on pages 16 and 17.

The following steps will help in using these tables correctly:

1) Select the type of clamp you wish to use: BA, BB, BT, BW, BE1, BE2 or BK1.
2) Select the bolt size you wish to use. The load capacity for each product is stated on the individual product pages. BEAMCLAMP recommends that SAE Grade 5 Bolts are used.
3) When connecting to wide flange beams or parallel flanges refer to steel guides to find the flange thickness.
4) Using the Tables 1, 2, or 3, select the appropriate tail length and packing.

Table 1: Example For Wide Flange and Parallel Steel:

If you wish to use a 3/8″ diameter Type BB Clamp to secure a W10 x 45 wide flange beam you would:

1) Referring to steel guides look up the thickness of the flange, for a W10 x 45 the thickness is 5/8″.
2) Read down the 3/8″ BA & BB Column and read across the 5/8″ thickness row until they intersect.
3) The correct tail length is a Size 2 complete with a Type BG1 Packing.

flange thickness	5/16″ bolt dia		3/8″ bolt dia		
	BA & BB	BK1	BA & BB	BE2 & BE2	BK1
1/8	X	OK	X	OK	OK
3/16	2	OK	2	OK	OK
1/4	2 + BH1	OK	1 + BH1	OK	OK
5/16	2 + BF1	OK	1 + [2 x BH1]	OK	OK
3/8	2 + BH1 + BF1	OK	3 + BH1	OK	OK
7/16	2 + BH1 + BF1	OK	1 + BH1 + BF1	OK	OK
1/2	2 + BG1	+ BF2	2 + BH1 + BF1	OK	OK
9/16	2 + BH1 + BG1	+ BF2	1 + BG1	OK	OK
5/8	2 + BF1 + BG1	+ BF2	2 + BG1	OK	+ BF2
11/16	2 + BH1 + BF1 + BG1	+ BG2	3 + BG1	OK	+ BF2
3/4	2 + BH1 + BF1 + BG1	+ BG2	1 + BF1 + BG1	OK	+ BF2
13/16	2 + [2 x BG1]	+ BF2 + BG2	2 + BF1 + BG1	+ BF2	+ BG2
7/8	2 + BH1 + [2 x BG1]	+ BF2 + BG2	3 + BF1 + BG1	+ BF2	+ BG2
15/16	2 + BF1 + [2 x BG1]	+ BF2 + BG2	1 + [2 x BG1]	+ BF2	+ BG2
1	2 + BF1 + [2 x BG1]	+ [2 x BG2]	2 + [2 x BG1]	+ BF2	+ BG2

Table 2: Example For Structural I-Beams and C-Channels

If you wish to use a 1/2" diameter Type BT Clamp to secure an S12 x 50 you would:

1) Read down the 1/2" Type BT & BW column and read across the S12 x 50 row until they intersect.
2) The correct tail length is a Size 2 complete with two Type BH1 Packings.

s-beam size	1/2″ bolt dia BT & BW	5/8″ bolt dia BT & BW
S18 x 70	2 + [2 x BH1]	2 + BH1
S18 x 54.7	2 + [2 x BH1]	2 + BH1
S15 x 50	1 + BF1	1 + BH1
S15 x 42.9	1 + BF1	1 + BH1
S12 x 50	2 + [2 x BH1]	2 + BH1
S12 x 40.8	2 + [2 x BH1]	2 + BH1
S12 x 35	2 + BH1	2
S12 x 31.8	2 + BH1	2

Key

1	=	Short Tail Type BA, BB, BT, or BW
2	=	Medium Tail BA, BB, BT, or BW
3	=	Long Tail BA or BB
BF1	=	Type BF1 packing must be used
BG1	=	Type BG1 packing must be used
BH1	=	Type BH1 packing must be used
BF2	=	Type BF2 packing must be used
BG2	=	Type BG2 packing must be used
OK	=	Product is suitable without any additional packings
X	=	Not recommended

Notes:

A plus sign (+) between any of the above designations means that there is a packing required in addition to the clamp. Combinations of BH1, BF1, BG1, BF2 and BG2 packings are used. Where ″2 x″ or ″3 x″ is indicated, use 2 or 3 as the multiplier to get the number of packings needed to suit the given flange thickness.

Product Selection Charts

Table 1 - To Suit Wide Flange Beams

flange thickness	5/16″ bolt dia		3/8″ bolt dia			1/2″ bolt dia		
	BA & BB	BK1	BA & BB	BE1 & BE2	BK1	BA & BB	BE1 & BE2	BK1
1/8	X	OK	X	OK	OK	X	X	OK
3/16	2	OK	2	OK	OK	1	OK	OK
1/4	2 + BH1	OK	1 + BH1	OK	OK	2	OK	OK
5/16	2 + BF1	OK	1 + [2 x BH1]	OK	OK	1 + BH1	OK	OK
3/8	2 + BH1 + BF1	OK	3 + BH1	OK	OK	3	OK	OK
7/16	2 + BH1 + BF1	OK	1 + BH1 + BF1	OK	OK	1 + BF1	OK	OK
1/2	2 + BG1	+ BF2	2 + BH1 + BF1	OK	OK	3 + BH1	OK	OK
9/16	2 + BH1 + BG1	+ BF2	1 + BG1	OK	OK	3 + [2 x BH1]	OK	OK
5/8	2 + BF1 + BG1	+ BF2	2 + BG1	OK	+ BF2	3 + BF1	OK	OK
11/16	2 + BH1 + BF1 + BG1	+ BG2	3 + BG1	OK	+ BF2	2 + BG1	OK	OK
3/4	2 + BH1 + BF1 + BG1	+ BG2	1 + BF1 + BG1	OK	+ BF2	1 + BH1 + BG1	OK	+ BF2
13/16	2 + [2 x BG1]	+ BF2 + BG2	2 + BF1 + BG1	+ BF2	+ BG2	2 + BH1 + BG1	OK	+ BF2
7/8	2 + BH1 + [2 x BG1]	+ BF2 + BG2	3 + BF1 + BG1	+ BF2	+ BG2	3 + BG1	OK	+ BF2
15/16	2 + BF1 + [2 x BG1]	+ BF2 + BG2	1 + [2 x BG1]	+ BF2	+ BG2	3 + BH1 + BG1	+ BF2	+ BF2
1	2 + BF1 + [2 x BG1]	+ [2 x BG2]	2 + [2 x BG1]	+ BF2	+ BG2	1 + BH1 + BG1 + BF1	+ BF2	+ BG2
1-1/16	2 + BH1 + BF1 + [2 x BG1]	+ [2 x BG2]	3 + [2 x BG1]	+ BG2	+ BF2 + BG2	2 + BH1 + BG1 + BF1	+ BF2	+ BG2
1-1/8	2 + [3 x BG1]	+ BF2 + [2 x BG2]	1 + BF1 + [2 x BG1]	+ BG2	+ BF2 + BG2	1 + [2 x BG1]	+ BG2	+ BG2
1-3/16	2 + BH1 + [3 x BG1]	+ BF2 + [2 x BG2]	2 + BF1 + [2 x BG1]	+ BG2	+ BF2 + BG2	2 + [2 x BG1]	+ BG2	+ BG2
1-1/4	X	X	X	X	X	2 + [2 x BG1]	+ BG2	+ BF2 + BG2
1-5/16	X	X	X	X	X	3 + [2 x BG1]	+ BG2	+ BF2 + BG2
1-3/8	X	X	X	X	X	1 + BF1 + [2 x BG1]	+ BF2 + BG2	+ BF2 + BG2
1-7/16	X	X	X	X	X	2 + BF1 + [2 x BG1]	+ BF2 + BG2	+ [2 x BG2]
1-1/2	X	X	X	X	X	X	+ BF2 + BG2	+ [2 x BG2]

flange thickness	5/8″ bolt dia			3/4″ bolt dia			1″ bolt dia		
	BA & BB	BE1 & BE2	BK1	BA & BB	BE1 & BE2	BK1	BA & BB	BE1 & BE2	BK1
1/8	X	X	OK	X	X	OK	X	OK	OK
3/16	X	OK	OK	X	OK	OK	X	OK	OK
1/4	1	OK	OK	1	OK	OK	X	OK	OK
5/16	2	OK	OK	1	OK	OK	X	OK	OK
3/8	1 + BH1	OK	OK	2	OK	OK	1	OK	OK
7/16	3	OK	OK	1 + BH1	OK	OK	1	OK	OK
1/2	1 + [2 x BH1]	OK	OK	3	OK	OK	2	OK	OK
9/16	3 + BH1	OK	OK	2 + BH1	OK	OK	1 + BH1	OK	OK
5/8	2 + BF1	OK	OK	1 + [2 x BH1]	OK	OK	3	OK	OK
11/16	3 + [2 X BH1]	OK	OK	1 + BF1	OK	OK	1 + [2 x BH1]	OK	OK
3/4	3 + BF1	OK	OK	1 + [3 x BH1]	OK	OK	3 + BH1	OK	OK
13/16	3 + [3 X BH1]	OK	OK	2 + BF1	OK	OK	3 + BH1	OK	OK
7/8	3 + BH1 + BF1	OK	OK	3 + BF1	OK	OK	1 + BF1	OK	OK
15/16	2 + BG1	+ BF2	OK	2 + BH1 + BF1	OK	OK	2 + BF1	OK	OK
1	2 + BG1	+ BF2	+ BF2	2 + BH1 + BF1	+ BF2	OK	1 + BH1 + BF1	OK	OK
1-1/16	2 + BH1 + BG1	+ BF2	+ BF2	1 + BG1	+ BF2	OK	3 + BF1	OK	OK
1-1/8	1 + [2 x BH1] + BG1	+ BF2	+ BF2	2 + [2 x BH1] + BF1	+ BF2	OK	3 + BF1	OK	OK
1-3/16	3 + BH1 + BG1	+ BF2	+ BF2	2 + BG1	+ BF2	OK	3 + BF1	+ BF2	OK
1-1/4	2 + BF1 + BG1	+ BG2	+ BF2	1 + BH1 + BG1	+ BF2	+ BF2	3 + BH1 + BF1	+ BF2	OK
1-5/16	2 + BF1 + BG1	+ BG2	+ BG2	2 + BH1 + BG1	+ BF2	+ BF2	1 + BG1	+ BF2	OK
1-3/8	3 + BF1 + BG1	+ BG2	+ BG2	2 + BH1 + BG1	+ BG2	+ BF2	1 + BG1	+ BF2	OK
1-7/16	3 + BF1 + BG1	+ BG2	+ BG2	3 + BH1 + BG1	+ BG2	+ BF2	2 + BG1	+ BF2	+ BF2
1-1/2	3 + BH1 + BF1 + BG1	+ BG2	+ BG2	2 + [2 x BH1] + BG1	+ BG2	+ BF2	1 + BH1 + BG1	+ BF2	+ BF2

Beam to Beam Connections

Table 2 - To Suit S-Beams

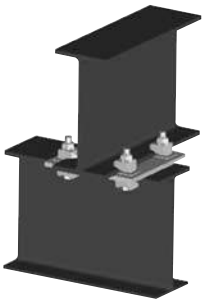
S-beam size	1/2″ bolt dia BT & BW	5/8″ bolt dia BT & BW	3/4″ bolt dia BT & BW
S24 x 121	1 + BH1 + BG1	2 + BH1 + BF1	1 + [3 x BH1]
S24 x 106	1 + BH1 + BG1	2 + BH1 + BF1	1 + [3 x BH1]
S24 x 100	2 + BH1 + BF1	1 + BF1	1 + [2 x BH1]
S24 x 90	2 + BH1 + BF1	1 + BF1	1 + [2 x BH1]
S24 x 80	2 + BH1 + BF1	1 + BF1	1 + [2 x BH1]
S20 x 96	1 + BG1	1 + [3 x BH1]	1 + [2 x BH1]
S20 x 86	1 + BG1	1 + [3 x BH1]	1 + [2 x BH1]
S20 x 75	2 + [3 x BH1]	1 + BF1	2 + BH1
S20 x 66	2 + [3 x BH1]	1 + BF1	2 + BH1
S18 x 70	2 + [2 x BH1]	2 + BH1	1 + BH1
S18 x 54.7	2 + [2 x BH1]	2 + BH1	1 + BH1
S15 x 50	1 + BF1	1 + BH1	2
S15 x 42.9	1 + BF1	1 + BH1	2
S12 x 50	2 + [2 x BH1]	2 + BH1	2
S12 x 40.8	2 + [2 x BH1]	2 + BH1	2
S12 x 35	2 + BH1	2	1
S12 x 31.8	2 + BH1	2	1
S10 x 35	1 + BH1	2	1
S10 x 25.4	1 + BH1	2	1
S8 x 23	2	1	1
S8 x 18.4	2	1	1
S7 x 20	2	1	1
S7 x 15.3	2	1	1
S6 x 17.25	1	1	X
S6 x 12.5	2	1	X
S5 x 14.75	1	1	X
S5 x 10	1	1	X
S4 x 9.5	1	X	X
S4 x 7.7	1	X	X
S3 x 7.5	1	X	X
S3 x 7.5	1	X	X

Table 3 - To Suit C-Channels

channel size	1/2″ Bolt Dia BT & BW	5/8″ Bolt Dia BT & BW	3/4″ Bolt Dia BT & BW
C15 x 50	1 + [2 x BH1]	1 + BH1	2
C15 x 40	1 + [2 x BH1]	1 + BH1	2
C15 x 33.9	1 + [2 x BH1]	1 + BH1	2
C12 x 30	2	1	1
C12 x 25	2	1	1
C12 x 20.7	2	1	1
C10 x 30	2	1	1
C10 x 25	2	1	1
C10 x 20	2	1	1
C10 x 15.3	2	1	1
C9 x 20	2	1	1
C9 x 15	2	1	1
C9 x 13.4	2	1	1
C8 x 18.75	2	1	1
C8 x 13.75	2	1	1
C8 x 11.5	2	1	1
C7 x 14.75	1	1	X
C7 x 12.25	1	1	X
C7 x 9.8	1	1	X
C6 x 13	1	1	X
C6 x 10.5	1	1	X
C6 x 8.2	1	1	X
C5 x 9	1	1	X
C5 x 6.7	1	1	X
C4 x 7.25	1	X	X
C4 x 5.4	1	X	X
C3 x 6	1	X	X
C3 x 5	1	X	X
C3 x 4.1	1	X	X

Beam To Beam Connection Examples

1



Wide Flange Beam to Wide Flange Beam

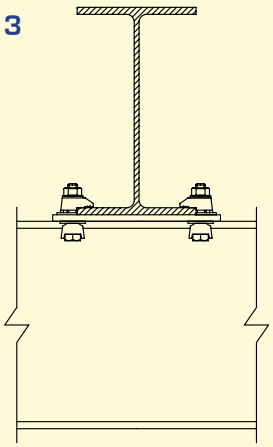
2

S-Beam Below Wide Flange Beam

BeamClamp® Connection Examples

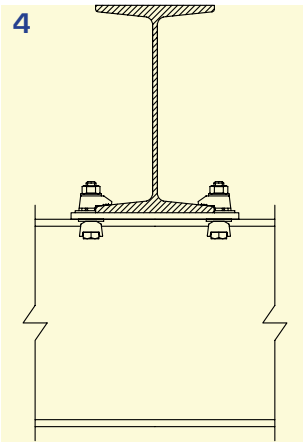
Beam To Connection Examples (Cont'd)

3



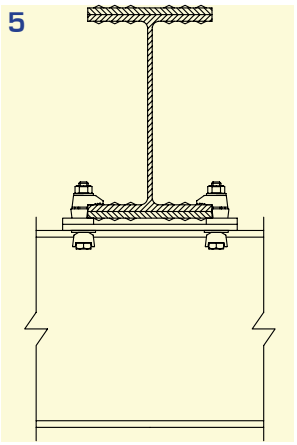
Wide Flange Beam to Wide Flange Beam

4



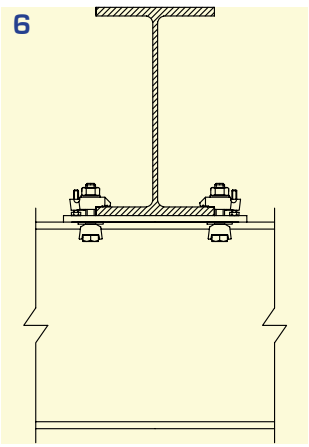
S-Beam to S-Beam

5



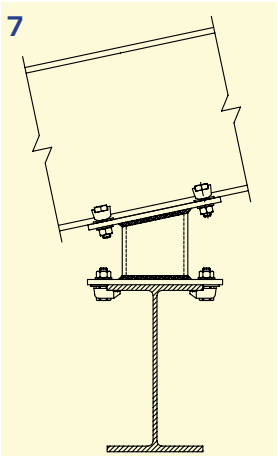
Wide Flange Beam below Fabricated Beam

6



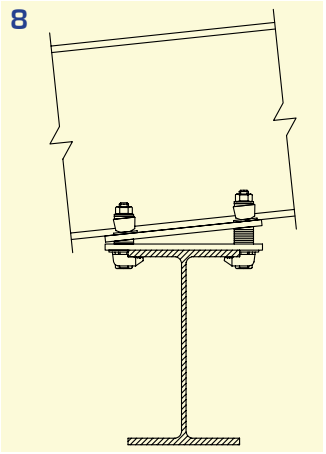
Wide Flange Beam to Wide Flange Beam
Upper flange thickness unknown – adjustable tail

7



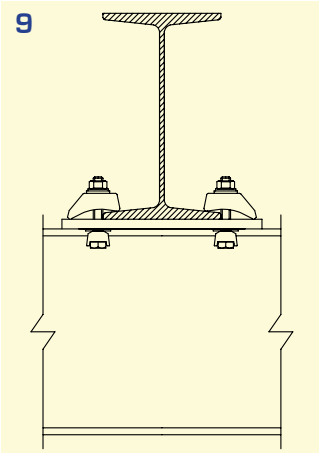
Wide Flange Beam to Wide Flange Beam
Upper beam sloped – location spacer shown.

8



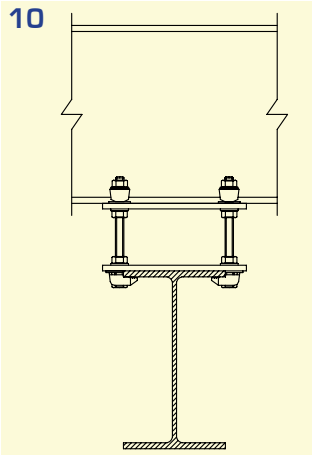
Wide Flange Beam to Wide Flange Beam
Upper beam sloped – two location plates shown.

9



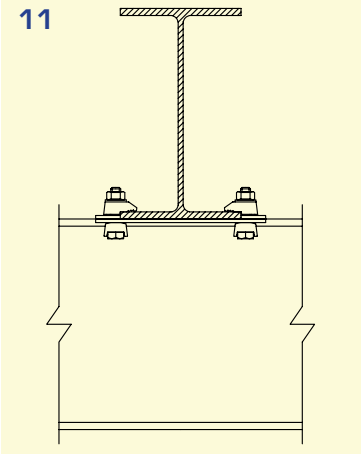
Wide Flange Beam to S-Beam
Upper flange thickness unknown – adjustable tail Beam Clamp shown.

10



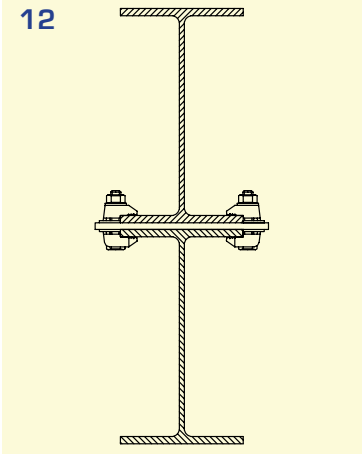
Wide Flange Beam to Wide Flange Beam
With gap between members.

11



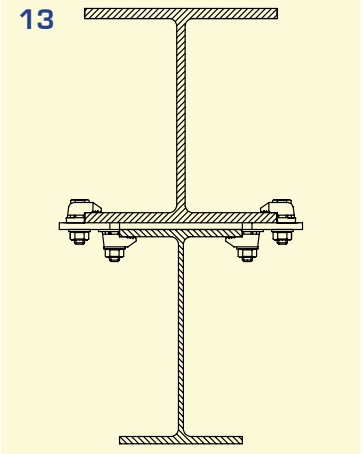
Wide Flange Beam to Wide Flange Beam
Beams flush with special location plate arrangement.

12



Wide Flange Beam to Wide Flange Beam
Beams with same width running parallel.

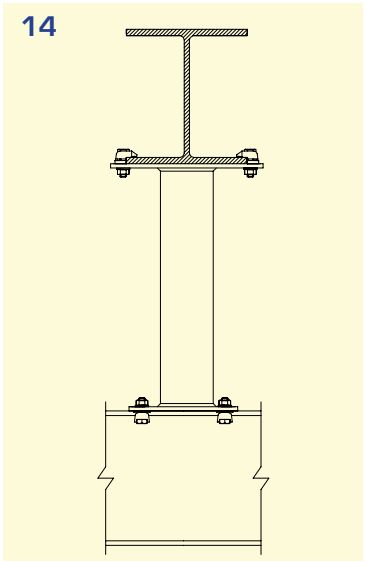
13



Wide Flange Beam to Wide Flange Beam
Beams with different width running parallel.

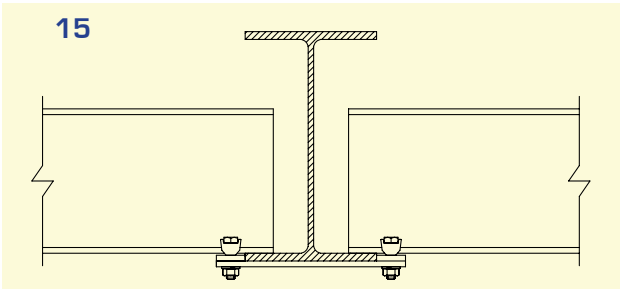
BeamClamp® Connection Examples

14



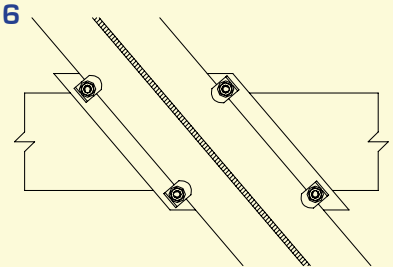
Wide Flange Beam to
Wide Flange Beam
Large gap between members.
location spacer used to bridge gap.

15



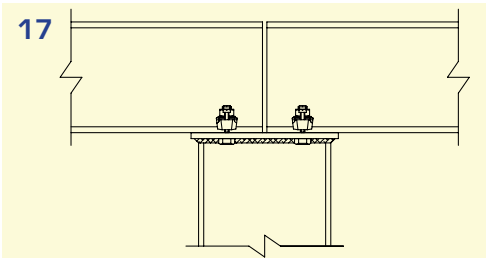
Two Wide Flange Beams Intersecting a Wide Flange Beam

16



Plan View of Wide Flange Beams Crossing at an Angle

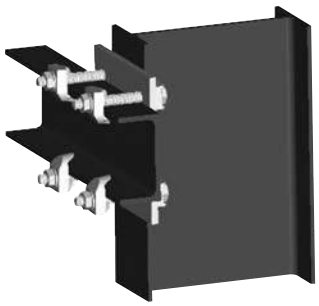
17



Two Wide Flange Beams Connecting to a Column Cap Plate

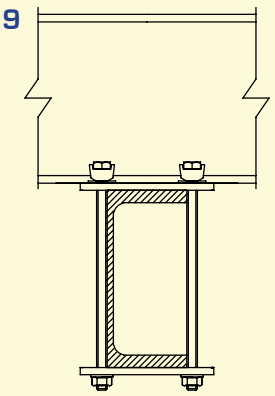
Channel and Angle To Beam Connections

18



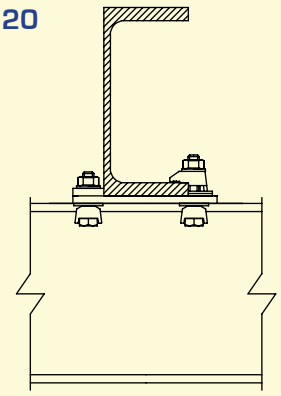
Channel to Vertical Wide Flange Beam

19



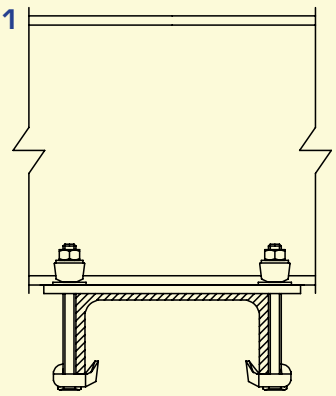
Channel Clamped Below Wide Flange Beam

20



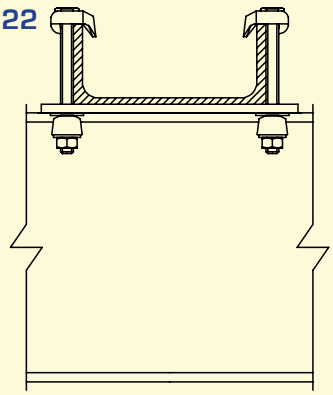
Channel Clamped Above Wide Flange Beam

21



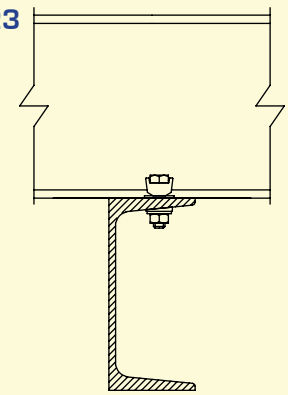
Channel With Flanges Facing Downward Below Wide Flange Beam

22



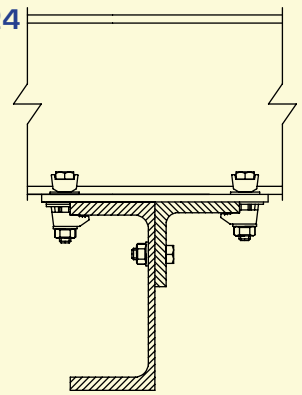
Channel With Flanges Facing Upward Clamped to Wide Flange Beam

23



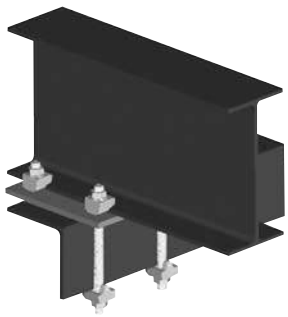
Pre-drilled Channel to Wide Flange Beam

24



Channel & Angle to Wide Flange Beam

25

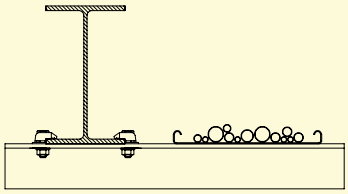


Angle to Wide Flange Beam

BeamClamp® Connection Examples

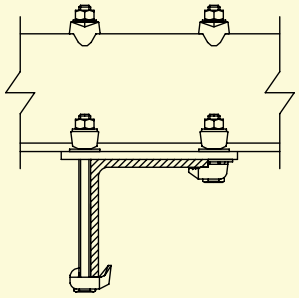
Channel and Angle To Beam Connections (Cont'd)

26



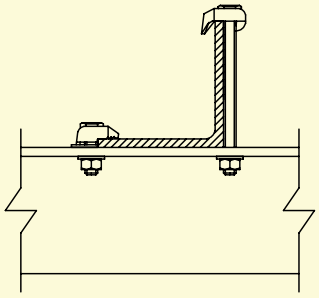
Cantilevered Angle to Wide Flange Beam

27



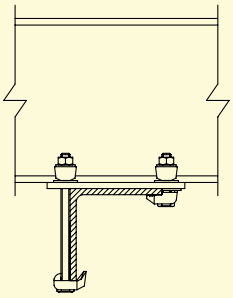
Angle to Angle

28



Angle to Pre-drilled Angle

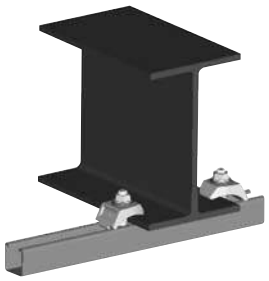
29



Angle to Wide Flange Beam

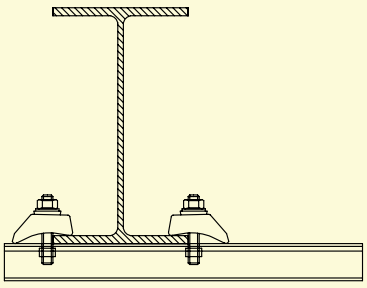
Strut to Beam & Other Connections

30



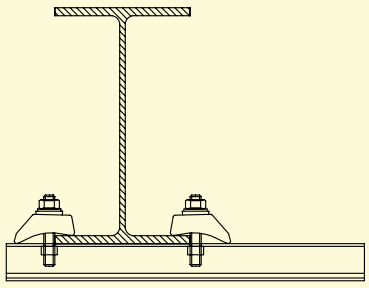
Strut to Wide Flange Beam

31



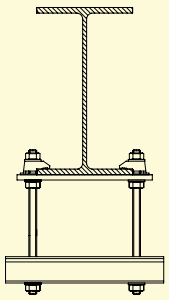
Strut to Wide Flange Beam Strut Facing Upward

32



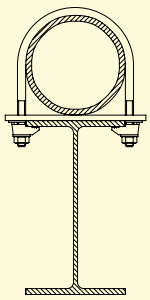
Strut to Wide Flange Beam Strut Facing Downward

33



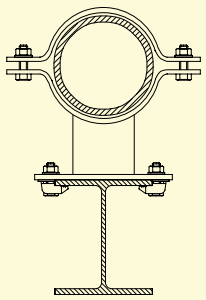
Strut Support With Spacing to Wide Flange Beam

34



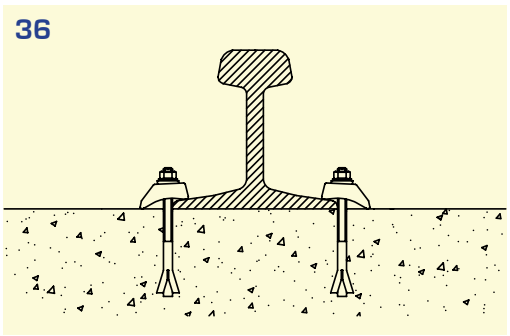
Pipe to Wide Flange Beam

35



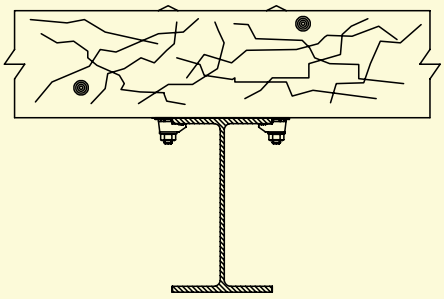
Pipe Support Using Fabricated Bracket

36



Rail to Concrete

37



Timber to Wide Flange Beam

BoxBolt®

BoxBolt® The Expansion Bolt For Structural Tube

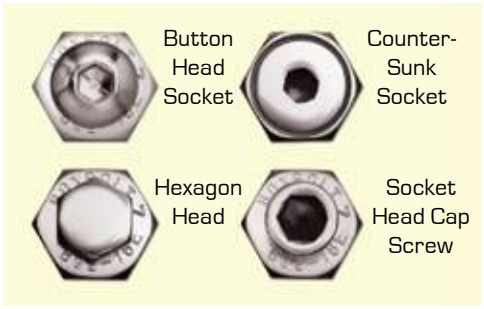
The BOXBOLT connector is an expansion anchor for steel that can be used to make connections to structural tube sections. The BOXBOLT connector is suitable for use with rectangular, square and circular sections, or other types of steelwork where access is restricted to one side only.

The shoulder of the BOXBOLT connector is hexagonal. This allows it to be held in position with an open ended wrench while a torque wrench is used to tighten the core bolt. As the core bolt is tightened the threaded wedge is drawn up inside the body, the fins expand, and a secure connection is made. To reduce installation time, BEAMCLAMP can provide a one piece easy installation tool called the BOXSOK that will attach to most air and power tools. Contact KEE SAFETY for further information.

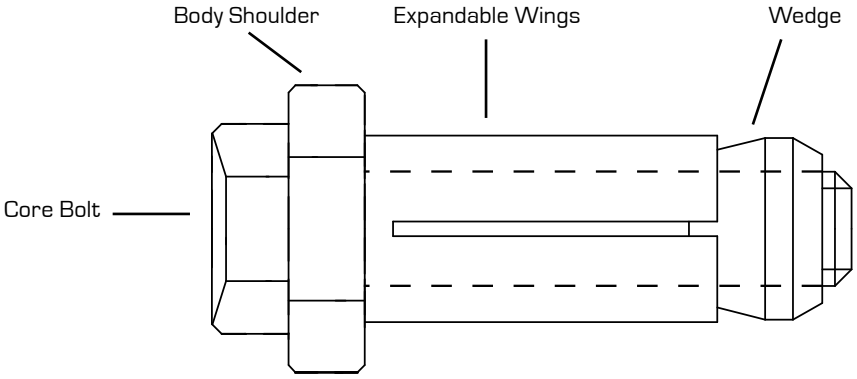
BoxBolt® Advantages:

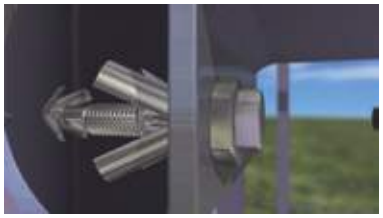
- **Simple connections to structural tube**
- **Guaranteed Safe Working Load**
- **Safety factor of 5:1**
- **No close tolerance holes required**
- **Available in zinc plate finish**
- **Available in hot dip galvanized finish**
- **Available in stainless steel**
- **Large combined material clamping range**
- **Special lengths available**

BOXBOLT connectors ensure safe and secure steel to steel connections.



The BOXBOLT is often used on high profile projects where the aesthetics of the building are essential. For this reason the BOXBOLT can be adapted to suit the requirements of the Client and the Architect to make the connection pleasing to the eye. The most common head options are shown here. If you require a different style, please contact our technical department.





A freeze frame from our computer animated BOXBOLT video

Stories of balconies all hung up by BOXBOLT connectors

BOXBOLT connections are suitable for use with a wide variety of steelwork.

BoxBolt® Technical Data

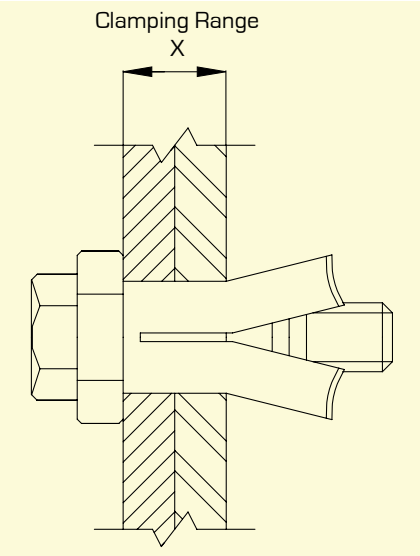
part number & description			dimensional information						load information				
product code	bolt dia	description	screw length	clamping range (X) min	clamping range (X) max	across flats of shoulder	shoulder thickness	hole dia	Box Bolt dia	structural tube	safe working load (lbs) tensile	safe working load (lbs) shear	torque (ft lb)
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	1574	18
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		
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	2922	33
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		
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	3372	59
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		
									1/2	4 x 4 x 3/8 or 1/2	3462	7868	140
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		
									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	8992	221
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		
									3/4	4 x 4 x 1/2	9824		

Caution

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.*

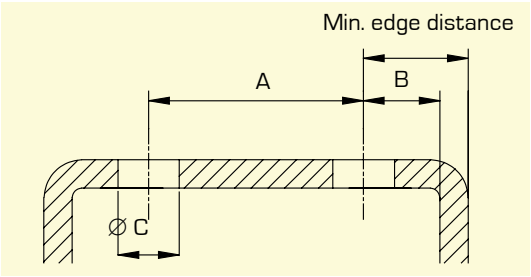


Clamping Range

The clamping range of the BOXBOLT connector is the combined thickness of the steel being connected and the steelwork being connected to. 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.

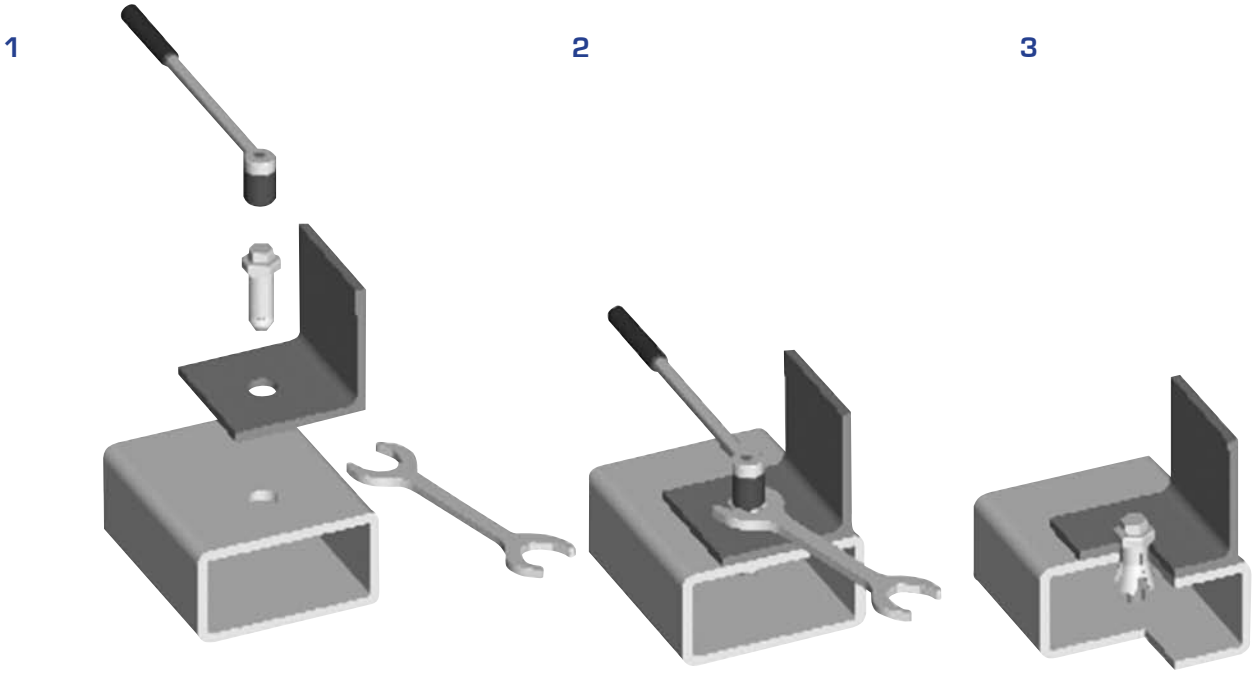


Box Bolt size	dim A	dim B	dim C
1/4	1-3/16	7/16	1/2
5/16	1-3/8	1/2	5/8
3/8	1-9/16	9/16	3/4
1/2	2	13/16	13/16
5/8	2-3/16	13/16	1-1/8
3/4	2-3/4	1	1-3/8

Minimum edge distance = Dim B + structural tube thickness

BoxBolt®

BoxBolt® Installation Instructions



Step 1:

Align the hole in the bracket to be secured with the pre-drilled hole in the structural tube. Insert the BOXBOLT connector through both pieces of steel until the underside of the shoulder is flush with the outside of the steel.

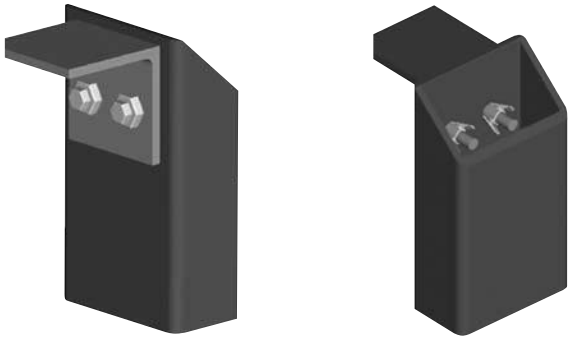
Step 2:

Hold the hexagon shoulder of the BOXBOLT connector with an open ended wrench. Use a torque wrench to tighten the core bolt.

Step 3:

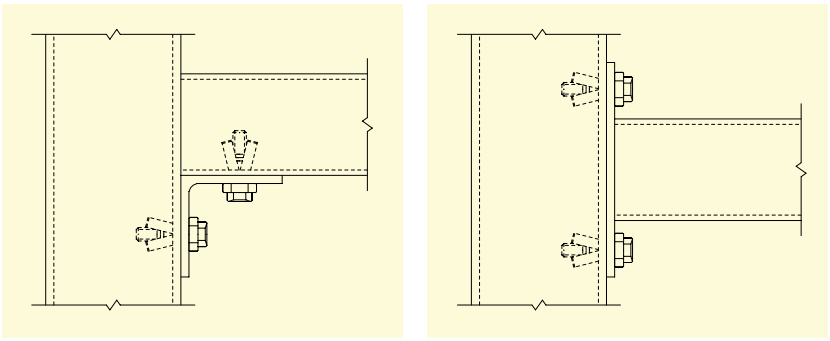
Remove the open ended wrench and check to ensure that the core bolt is tightened to the recommended torque.

BoxBolt® Application Examples



BOXBOLT connectors are used here to secure a bracket to structural tube.

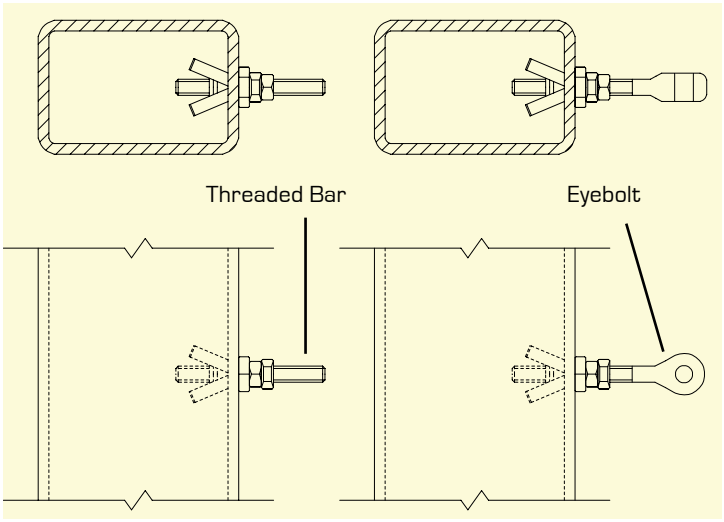
The BOXSOK is a unique installation tool for the BOXBOLT expansion anchor. It attaches to standard air and power tools and reduces the installation time for the BOXBOLT. This specially designed socket holds the hexagon shoulder of the BOXBOLT in place while a second socket tightens the core bolt pulling the threaded wedge up inside the body to expand the fins.



Far left: Structural tube to structural tube sections being connected with an angle bracket.

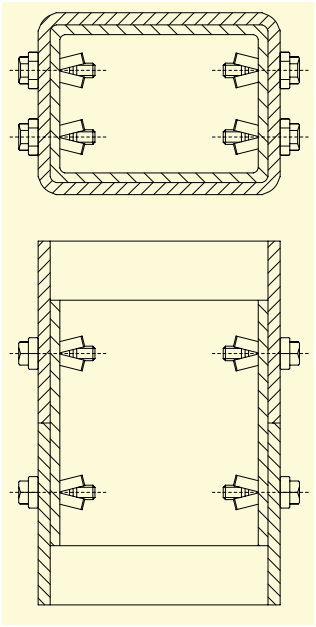
Left: Structural tube with drilled end plate being connected to vertical structural tube.

BoxBolt® Application Examples



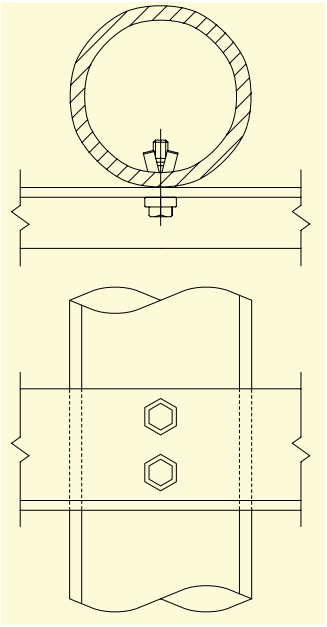
Replacing the Core Bolt

The core bolt down the center of the BOXBOLT connector can be replaced with threaded rod, eyebolts or other threaded items.



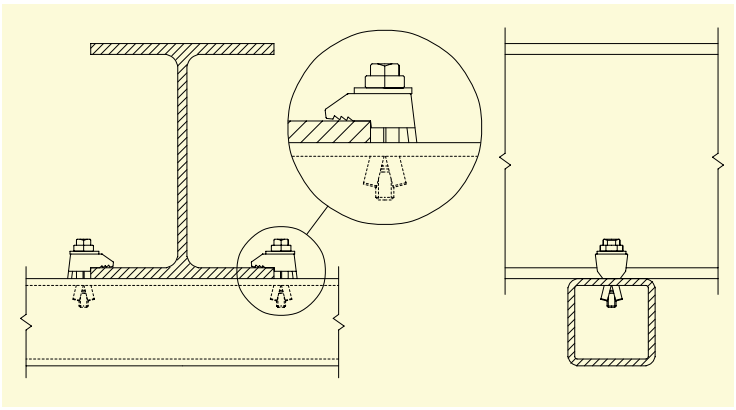
Structural Tube Sleeve Connection

By inserting one structural tube inside another, a sleeve connection can be easily made using the BOXBOLT connector.



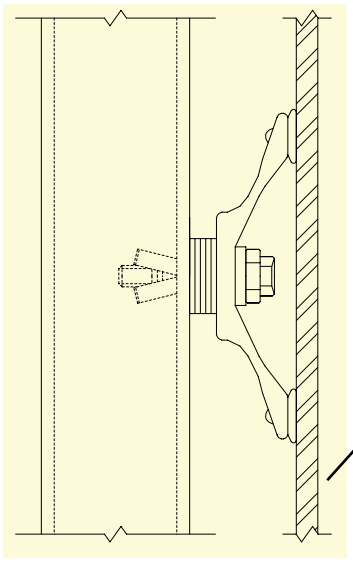
Angle to Tubular Post

The BOXBOLT connector is suitable for most profiles of structural tube, including circular sections.



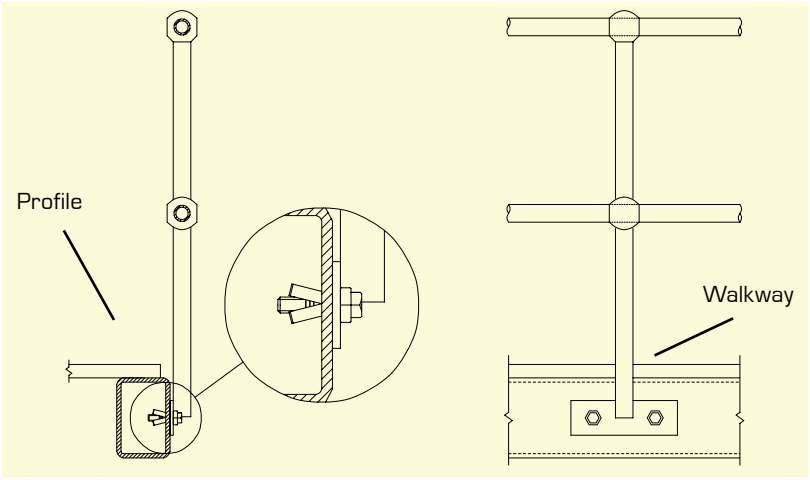
Structural Tube to Wide Flange Beam

The BOXBOLT connector can be used with other BEAMCLAMP products to connect structural tube sections to existing steel without the need for site drilling and welding.



Securing Glazing Bracket

The BOXBOLT connector can be used to secure glazing panel brackets to building structures with access only required from one side.

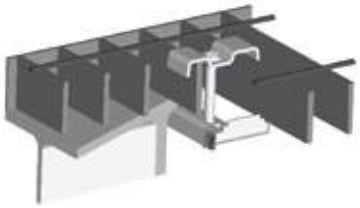


Handrails to Structural Tube

The BOXBOLT connector can be used to connect any bracket, such as the mounting plate of handrails to structures, with access only required from one side.

Grating Clip

Secures Steel Grating to Existing Steel Structure



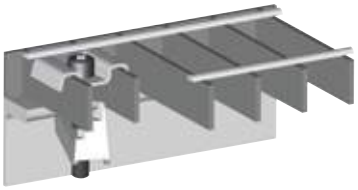
The GRATING CLIP fastener by BEAMCLAMP is a cost effective method of securing steel grating to existing structural steel members. Clamping the grating eliminates costly and time consuming welding and drilling. Access below the grating is not required, resulting in a quick and simple installation.

The GRATING CLIP fastener can be installed with a screwdriver and can be easily removed allowing the grating to be repositioned or removed for maintenance purposes. The GRATING CLIP fastener will suit grating bar widths from 1-3/16″ to 1-5/8″ and grating bar depths up to 2″ to ensure that most standard grating sections can be accommodated. This product is supplied with a galvanized finish.

product code	screw dia (in.)	grating width (in.)		grating depth (in.)
		min	max	max
GRAT 1G08	5/16	1-3/16	1-5/8	2

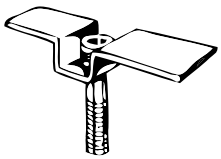
GrateFix

Clamp for Steel, Aluminum and Fiberglass Grating



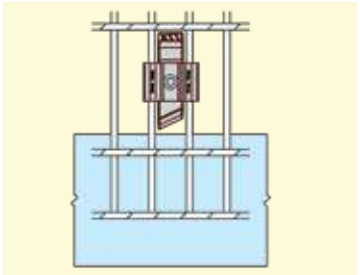
The GRATEFIX fastener is used to securely fasten steel, aluminum and fiberglass grating to supporting steelwork. Using only a hexagon key to install, grating can be secured without welding or drilling. The GRATEFIX fastener is designed to be installed from above the grating by one person. No access below the grating is required resulting in a quick and simple installation. The GRATEFIX fastener consists of stepped malleable iron or stainless steel bottom casting complete with screw and saddle clip bracket. All items are available galvanized or in grades 304 and 316 stainless steel.

product code	material/finish	screw diameter (in.)	body width (in.)	tightening torque (ft. lb.)
GF3 S08 ASSY	304 stainless steel	5/16	5/8	6
GF1 S08 ASSY	316 stainless steel	5/16	5/8	6
GF1 G10 ASSY	galvanized malleable iron	3/8	3/4	4



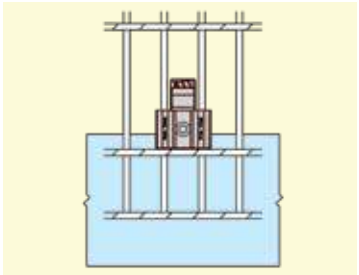
Bracket Options

In addition to the standard symmetrical bracket for aluminum and fiberglass grating, the stainless steel GRATEFIX fastener can be supplied with alternative bracket styles to suit varying bearing bar widths.



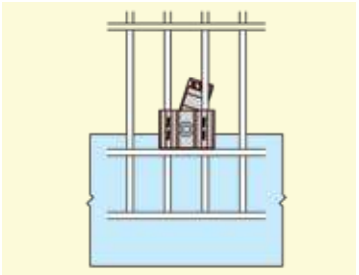
Step 1

Lower the GRATEFIX through the open part of the grating, ensure the bracket is seated over the adjacent bearing bars.



Step 2

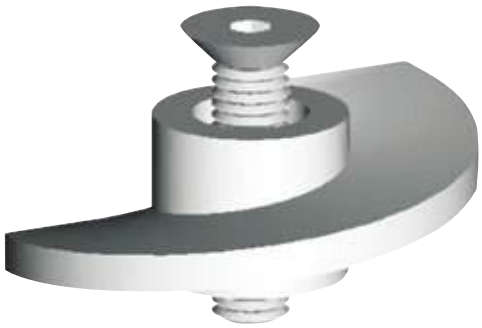
Slide the GRATEFIX towards the supporting steelwork flange as far as it will go to ensure maximum clamping force.



Step 3

Tighten the screw and ensure that the lower casting rotates until one of the steps locates on the bearing bar.

FloorFix



Secures Steel Floor Plate to Existing Steel

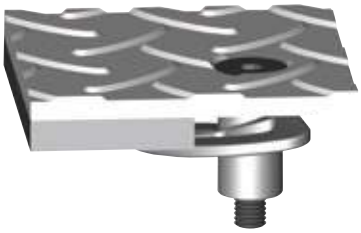
The FLOORFIX connector is designed for positioning raised pattern floor plates without the need for welding or drilling of the supporting steelwork. With simple hand tools, it can be installed by one person working from above and eliminates the need for access to the underside of the floor plate. The FLOORFIX is TÜV certified for vibration. The FLOORFIX connector can be secured quickly and likewise removed or repositioned with ease. The FLOORFIX connector is supplied with a galvanized finish.

Made to suit plates ranging from 1/8" to 1/2" thick and steelwork flanges up to 5/8" thick.
For thicker flanges, spacers can be provided.

product code	screw diameter (in.)	floor plate thickness (in.)		steelwork flange thickness (in.)		tightening torque (ft. lb.)
		min	max	min	max	
FLOORFIXMO8	5/16	1/8	1/2	1/8	5/8	15
FLOORFIXM10	2/8	3/16	1/2	1/8	5/8	15
FLOORFIXM12	1/2	1/4	1/2	1/8	5/8	22

FloorFix HT

High Tolerance FloorFix



The FLOORFIX HT connector is designed primarily to secure raised pattern floor plates to supporting steelwork from the top side only, with no need for drilling, tapping, bolting or welding. Working on a cam mechanism, it can be installed by one person working from above using a basic hexagon key drive.

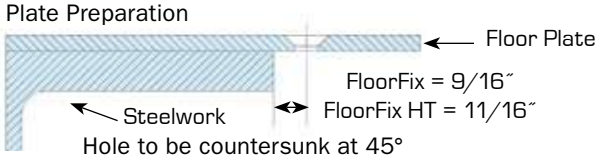
FLOORFIX HT connector allows for a high degree of tolerance when installing steel flooring, up to +/- 0.25" of its intended position. The FLOORFIX HT connector is supplied with a galvanized finish.

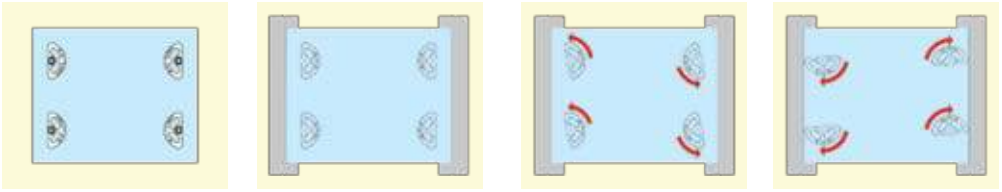
Made to accept plates ranging from 1/8" to 1/2" thick and steelwork flanges up to 1" thick.
For thicker flanges, spacers can be provided.

product code	screw diameter (in.)	floor plate thickness (in.)		steelwork flange thickness (in.)		tightening torque (ft. lb.)
		min	max	min	max	
FLOORFIX M08HT	5/16	1/8	1/2	1/8	1	15
FLOORFIX M10HT	3/8	3/16	1/2	1/8	1	18
FLOORFIX M12HT	1/2	1/4	1/2	1/8	1	22

Installation Instructions for FLOORFIX and FLOORFIX HT connector

Plate Preparation





Step 1

Place the FLOORFIX or FLOORFIX HT on the underside of the floor plate. Loosely tighten the bolt, making sure the flat edge of the casting is in line with the edge of the steelwork.

Step 2

Lower the plate into position over the supporting steelwork.

Step 3

Once the floor plate is in the desired position rotate the countersunk screw one full turn counterclockwise.

Step 4

Tighten the countersunk screw until the plate is secured. For guaranteed performance tighten to recommended torque.

G-Clip GG

Fastens Bar Grating to Structural Members

The G-CLIP GG fastener is a galvanized, carbon steel grating fastener for securing steel grating to existing steel. Hand tools can be used for ease of installation. To install, simply drop the clip in place above the grating, slide the clip toward the beam flange, and tighten the G-CLIP fastener using a 7/16″ nut driver. Clips are also available in stainless steel for more corrosive environments.

Custom sizes are available on a special order basis.

product code	bolt diameter (in.)	grating thickness (in.)	tightening torque (ft. lb.)
KSGG-1A	1/4	1	5
KSGG-1B	1/4	1 1/4	5
KSGG-1C	1/4	1 1/2	5

G-Clip GM

Mounts Devices onto Floor Grating

The G-CLIP GM fastener is a galvanized steel fastener used to mount devices onto the grating surface. The G-CLIP GM fastener consists of three parts; the stamped top, threaded stud, and the lower body assembly. The lower body assembly holds in place a 1/2″ nut, making installation hassle-free. Install using a spanner wrench or an adjustable open end wrench to tighten in place. This clip eliminates the need for J-bolts. The G-CLIP GM fastener can withstand 1,000 pounds of direct upward pull force with no distortions.

Lock washer and second threaded nut needed in installation not provided.

product code	stud diameter (in.)	stud length (in.)	body width (in.)
KSGM-12	1/2	3	7/8

The lower body assembly is constructed with a specially designed stamped wing component that keeps a 1/2″ nut from turning.