What is BeamClamp® and what can it do for you?

BEAMCLAMP is an extensive range of clamping products designed for making steel to steel connections without the need for drilling or welding . The clamping system gives the specifier the peace of mind that once the connection is made it has a guaranteed safe working load and it also provides flexibility for the user when installing and reduces the overall cost. The system is also ideal for areas where drilling or welding is not allowed or access and power is restricted.

Features

- **Third party approvals (Lloyds & DIBt)**
- **Guaranteed 5 to 1 Factor of Safety**
- **No special tools or skilled labour required**
- **Hot Dip Galvanised as standard**
- **Easy to adjust on site**
- **No weakening of existing steelwork**
- **No damage to protective coating on the steelwork**

Benefits

- **Peace of mind when specifying or installing**
- **Provides safe connections**
- **Savings in installation time and cost on-site**
- **Excellent long term corrosion resistance for external applications**
- **Provides flexibility to allow for site tolerances**
- **Structural integrity of steelwork remains unchanged**
- **Integrity of existing steelwork coating remains unchanged**

Technical Support

We offer a full engineering service to support our products which includes recommendation of an individual product through to a full design capability for a large project. Our technical team has **2D/3D Computer Aided Design (CAD)** capabilities combined with **Finite Element Analysis (FEA)** for the design of the more complex products or applications. Our Technical Sales Engineers perform regular **Continuous Professional Development (CPD)** seminars to educate the design engineers on how to specify our clamping products.

Approval

All the loads stated in our catalogue have been derived from physical testing and where you see an approval symbol they have also been approved by that particular body. The majority of the range is **Lloyds Register Type Approved and the Types BA, BB, BF1, BG1, BH1** have the additional approval of the **Deutsches Institut für Bautechnik (DIBt)**

BeamClamp® Connection Designer in 3 easy steps

The **Connection Designer** is a powerful tool available on our website to help design a connection and produce an engineering drawing for you without the need for any CAD capabilities.

The **BEAMCLAMP** connection designer allows you to design a unique connection in three easy steps. Providing the information entered is within the capacity of our fixings it will produce a full, detailed specification with a drawing of the connection that can be saved, printed, e-mailed or faxed. It is just as easy as 1 2 3.

STEP 1

Select the type of steel that you are connecting to the section that is intended to be at the top.

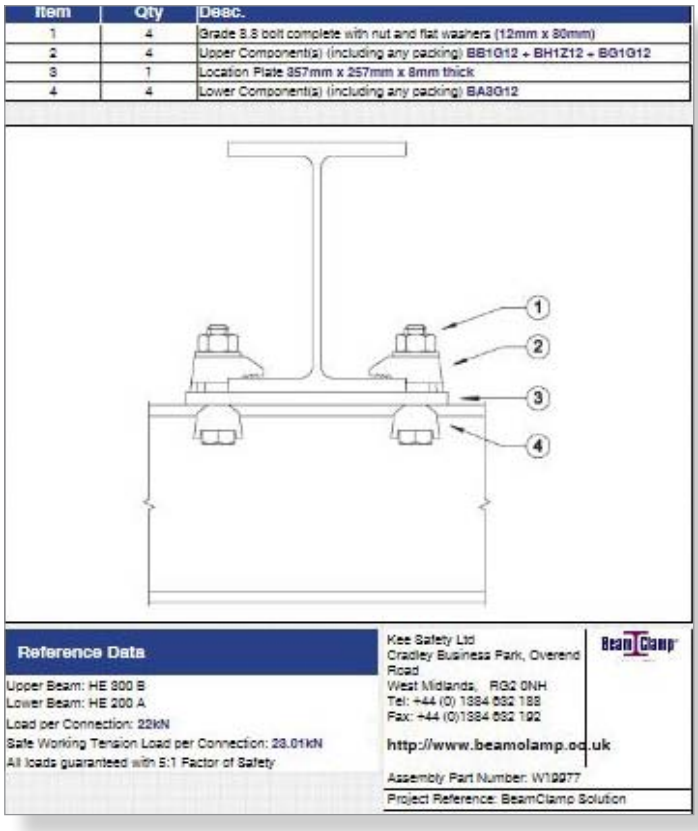
STEP 2

Select the type of connection you wish to make from the variety of common details.

STEP 3

Enter the load details and specification of your steelwork and press calculate.

Connection Designer
www.beamclamp.com/resources/beamclamp-configurator



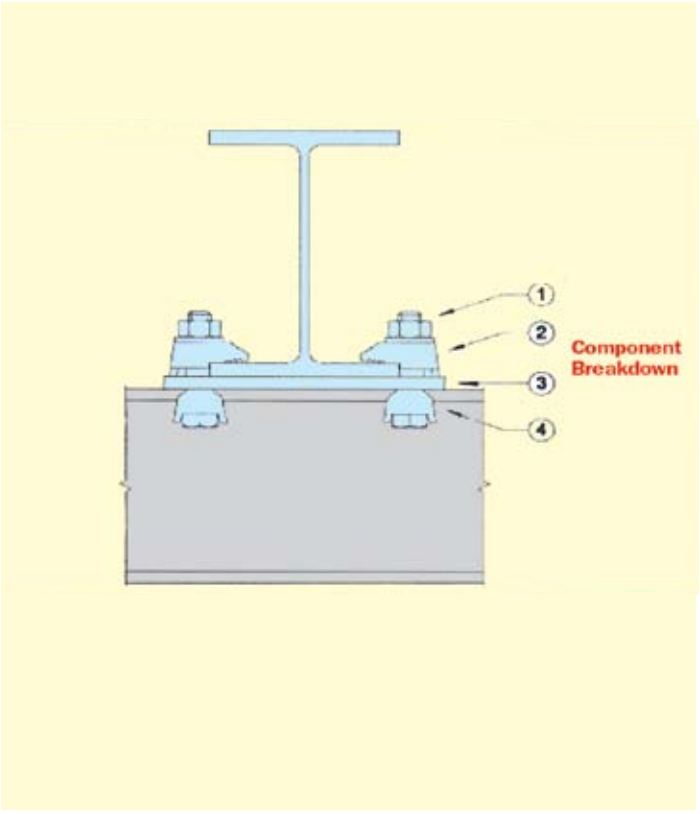
Item	Qty	Desc.
1	4	Grade 8.8 bolt complete with nut and flat washers (12mm x 80mm)
2	4	Upper Component(s) (including any packing) BB1G12 + BH1Z12 + BG1G12
3	1	Location Plate 357mm x 257mm x 8mm thick
4	4	Lower Component(s) (including any packing) BA3G12

Reference Data

Upper Beam: HE 300 B
Lower Beam: HE 200 A
Load per Connection: 22kN
Safe Working Tension Load per Connection: 23.01kN
All loads guaranteed with 5:1 Factor of Safety

Kee Safety Ltd
Cradley Business Park, Overend Road
West Midlands, RG2 0NH
Tel: +44 (0) 1384 682 188
Fax: +44 (0)1384 682 192
http://www.beamclamp.co.uk

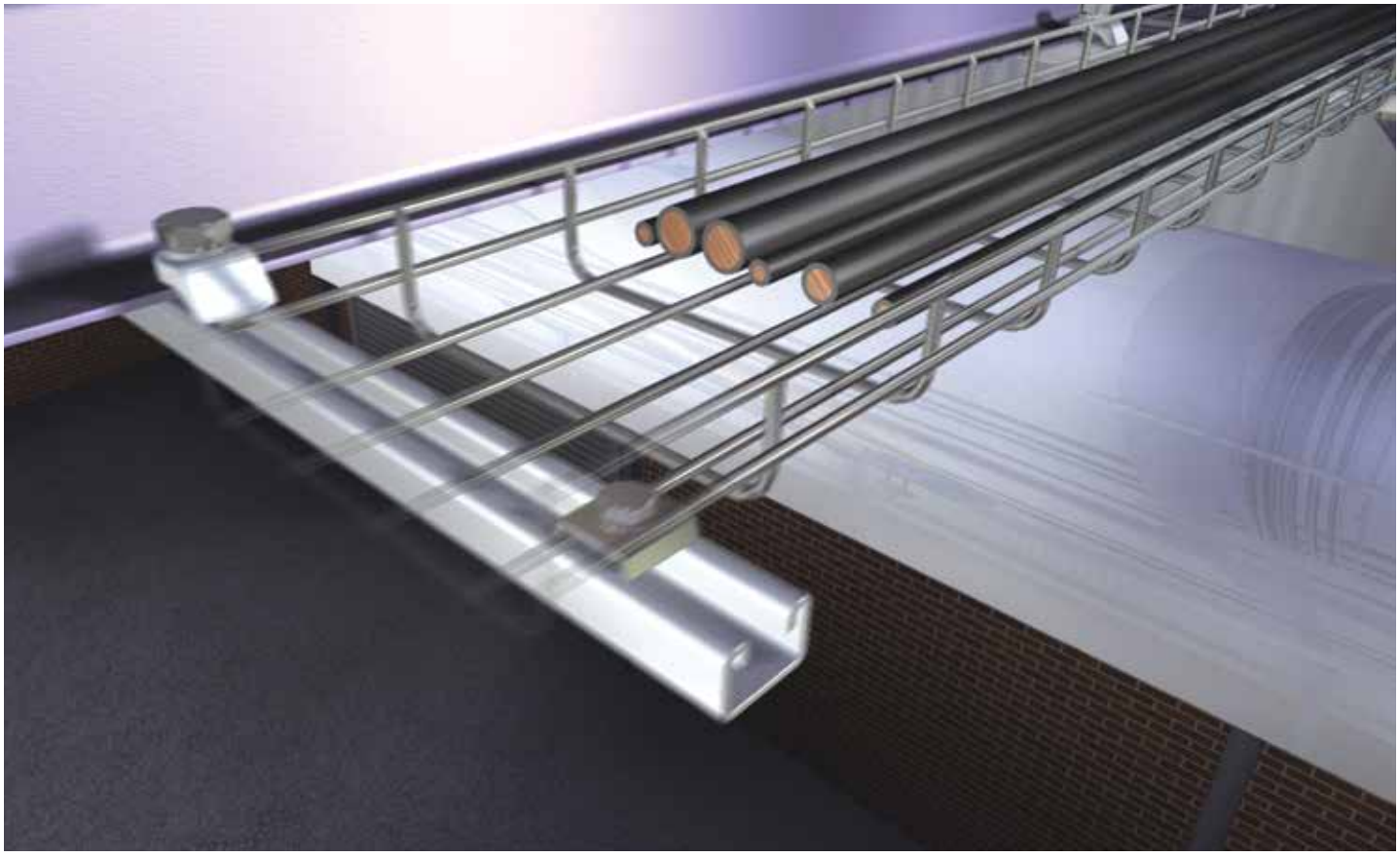
Assembly Part Number: W19977
Project Reference: BeamClamp Solution



When designing a connection using our clamps it is very useful to have a block of them that can be incorporated in to your drawings. Our CAD blocks are available on the website **www.beamclamp.com**.

BeamClamp® In Action

Installation of a new runway beam for a crane



Cable tray support to existing steelwork

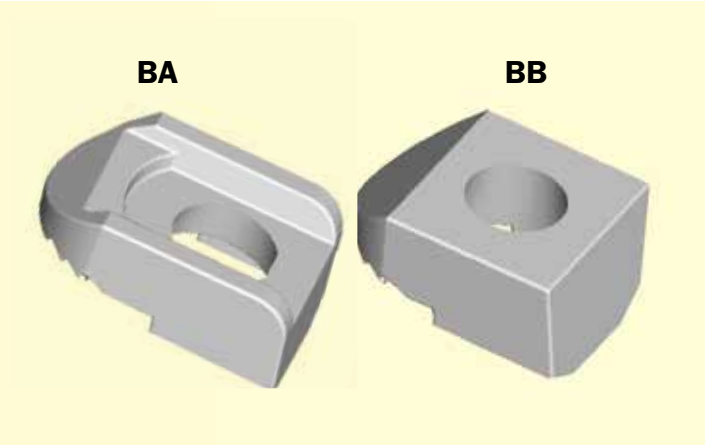
BeamClamp® In Action

Installation of lifting equipment

Hanging of industrial lighting systems

BeamClamp® Components Type BA & BB

The types **BA** and **BB** are commonly used in pairs to clamp two steel sections together**.** The type **BA** has a recessed top to grip the head of a grade 8.8 setscrew or bolt, this allows a nut and washer to be tightened down on to the flat top of the **BB** using one tool only. Both clamps are available with three tail lengths **1,2 or 3 (dim E),** this should be as near to the thickness of steel it is clamping on or slightly less if an exact match is not possible. Packing pieces **BF1, BG1** and **BH1** can be used in combination with the tail length to achieve a match to the steel flange, please see page 24 for these items. **BA** and **BB** types are suitable for parallel flanges and flanges up to 8 degrees taper. They can also be used on their own if one piece of the steelwork has been pre-drilled. To simplify the selection of tail lengths and packing pieces please see the tables on pages 30 to 31. Please note when using tapered steelwork it is the edge of the steel that we require, see our tables on pages 50 and 51 for edge thickness dimensions.

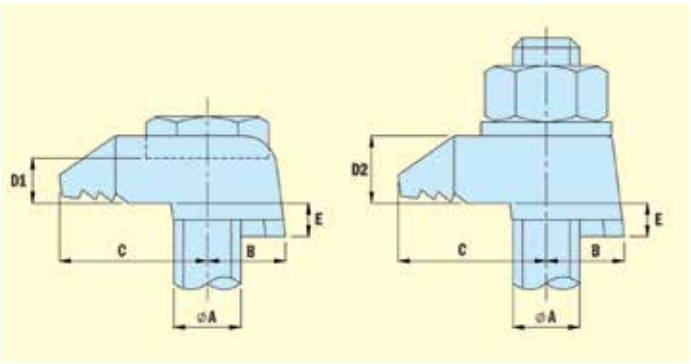


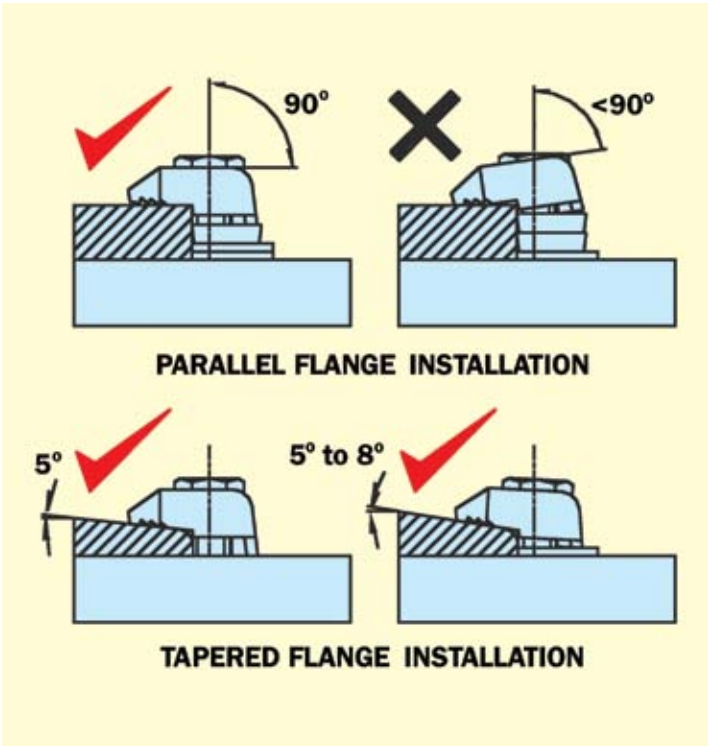
- **Hot Dip Galvanised to BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **Lloyds Register approved**
- **DIBt approved**

The Safe Working Loads are based on assemblies tested in typical conditions

Product code	Product code	A Bolt dia. (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)			Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per four bolts (5:1 Factor of Safety)
							1	2	3				
BA G08	**BB G08**	M08	9	16	5	9	/	4	/	20	6	1.25	/
BA G10	**BB G10**	M10	12	20	6	11	4	5	7	26	20	2.5	/
BA G12	**BB G12**	M12	15	25.5	7	13	4.5	6	9.5	29.5	70	5.75	1.3
BA G16	**BB G16**	M16	17	31	9	17	5.5	8	11	36	150	9.87	3.9
BA G20	**BB G20**	M20	21	35	11	21	7	10	12.5	44	290	16.47	11
BA G24	**BB G24**	M24	26	49	13	25	9	12	16	53	490	21.1	18

Do not exceed the Safe Working Load (SWL) specified





BeamClamp® Components Type BK1

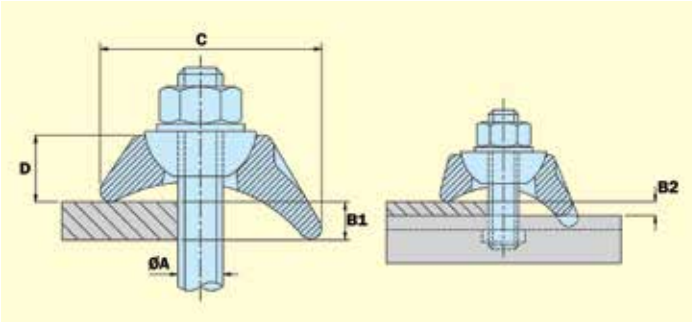
The **BK1** is a self adjusting fixing that consists of two parts. The main body provides a recess to allow a hemispherical washer to be seated. This allows the body to adjust between a specified clamping range and as the washer rotates it provides a flat surface for a nut. This mechanism makes the product suitable for clamping to tapered steelwork of up to 15 degrees, it is also extremely useful for projects where the thickness of steel may vary. The **M08, M10 and M12** versions feature a tab at the back edge that can be located in the open ends of strut products, both aiding installation and preventing rotation once installed. Should the maximum clamping range be exceeded our BF2 and BG2 packers can be used to increase it, please see page 24 for details.

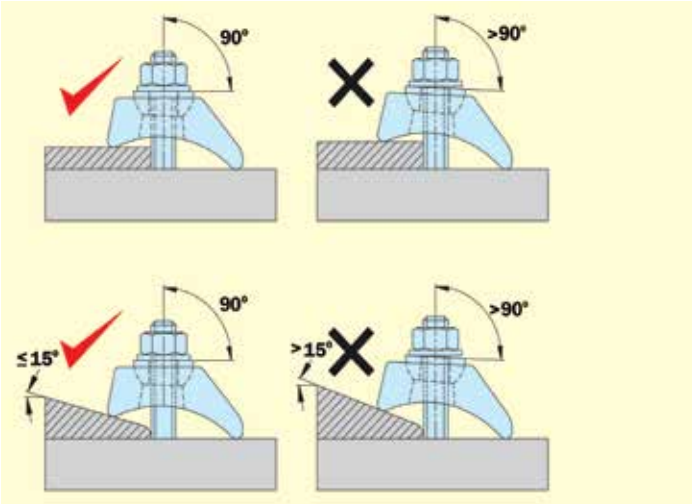
- **Hot Dip Galvanised BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **Lloyds Register approved**
- **Self adjusting body style**

The Safe Working Loads are based on assemblies tested in typical conditions.

Product code	A Bolt dia. (Grade 8.8)	B1	B2	C	D	Width	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per four bolts (5:1 Factor of Safety)
BK1G08	M08	3 to 12	3 to 9	42	14	41	6	1.25	/
BK1G10	M10	3 to 15	3 to 12	54	21	41	20	2.50	/
BK1G12	M12	3 to 18	3 to 15	48	17	41	70	6.12	1.41
BK1G16	M16	3 to 24	N/A	61	22.5	47	150	10.25	3.39
BK1G20	M20	3 to 30	N/A	73	26	58	290	22.06	5.63

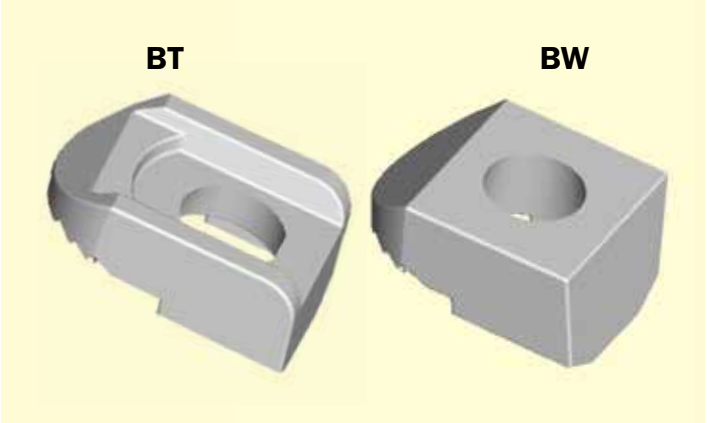
Do not exceed the Safe Working Load (SWL) specified





BeamClamp® Components Type BT & BW

The types **BT** and **BW** are specifically designed with a **10 degrees** sloping nose. This sloping nose makes them ideal for fixing on to tapered steelwork such as RSJ's or crane rail sections. The type **BT** has a recessed top to captivate the head of a grade 8.8 setscrew or bolt, the type **BW** has a flat top to allow a nut and washer to be tightened down on it. Both clamps are available with two tail lengths 1 or 2 (dim E), this should be as near to the thickness of steel it is clamping to or slightly less if an exact match is not possible. Packing pieces **BF1, BG1** and **BH1** can be used in combination with the tail length to achieve a match to the steel flange, please see page 24 for these items. The types **BT** and **BW** can also be used on their own if one piece of the steelwork has been pre-drilled. To simplify the selection of tail lengths and packing pieces please see tables on pages 30 and 31. Please note when using tapered steelwork it is the edge of the steel that we require, see our tables on pages 50 and 51 for edge thickness dimensions.

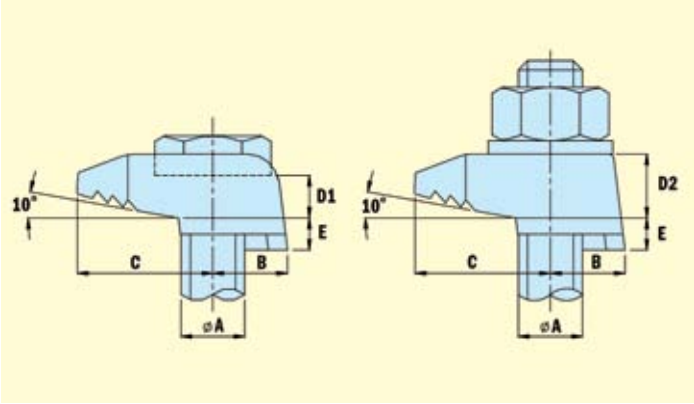


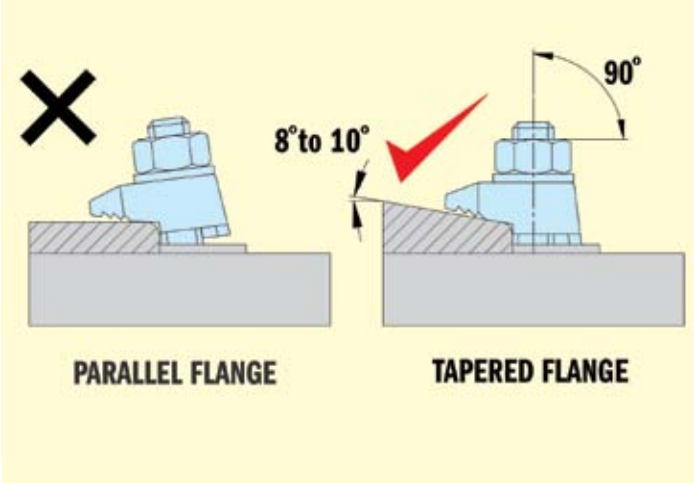
- **Hot Dip Galvanised to BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **10 degrees nose**

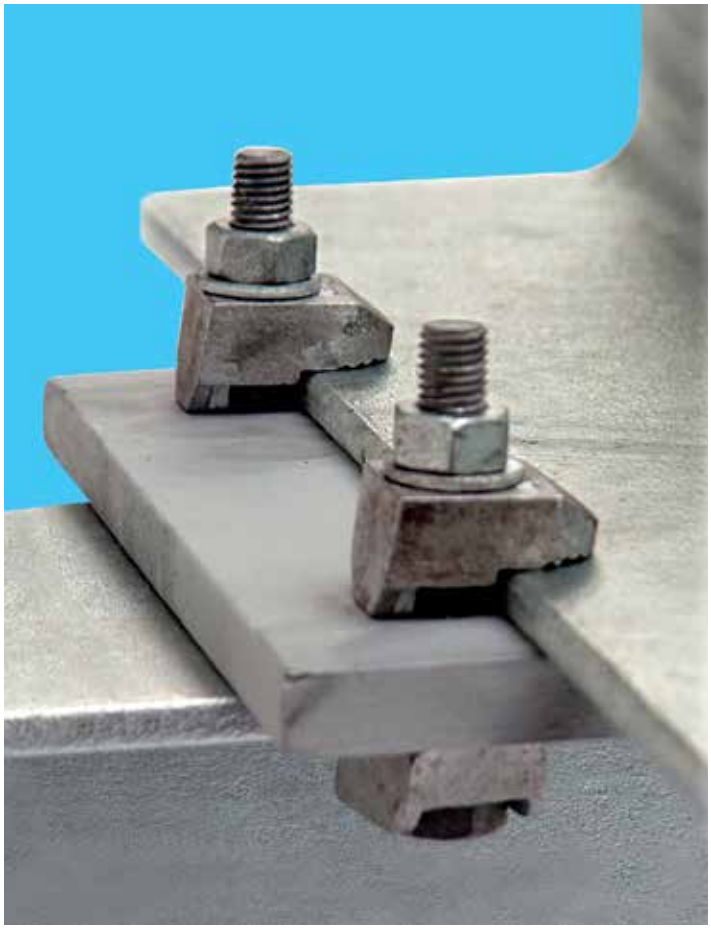
The Safe Working Loads are based on assemblies tested in typical conditions

Product code	Product code	A Bolt dia. (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)		Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per four bolts (5:1 Factor of Safety)
							1	2				
BT G12	**BW G12**	M12	15	25.5	7	13	4	6	28.5	70	5.75	1.3
BT G16	**BW G16**	M16	17	31	9	17	6	8	36	150	9.87	3.9
BT G20	**BW G20**	M20	21	35	11	21	7	10	44	290	16.47	11

Do not exceed the Safe Working Load (SWL) specified

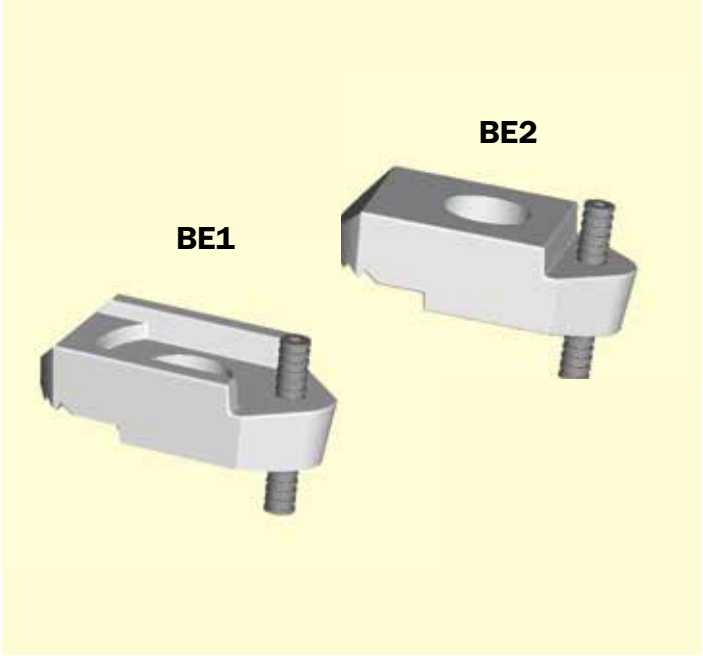






BeamClamp® Components Type BE1 & BE2

The **BE1** and **BE2** feature a socket screw at the back to provide adjustment for varying steel thicknesses. They are the ideal choice when flange thicknesses are unknown or change on a project as they eliminate the need for packing pieces up to their maximum adjustment (Dim E). Once this maximum is exceeded our **BF2** and **BG2** packers can be used to increase the clamping range, please see page 24 for details. To make the selection of tail lengths and packing pieces easy please see tables on pages 30 and 31. Please note the **BE1** and **BE2** are not suitable for steel flanges with tapers greater than 5 degrees.

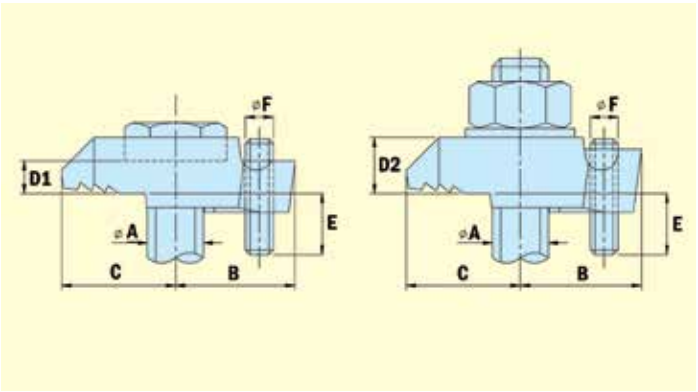


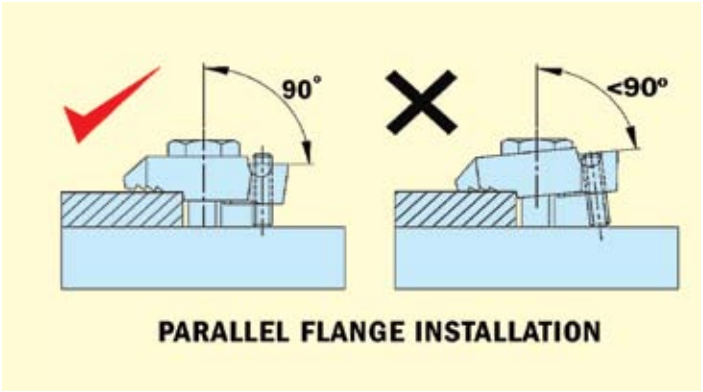
- **Hot Dip Galvanised BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **Lloyds Register approved**
- **Socket screw adjustment**

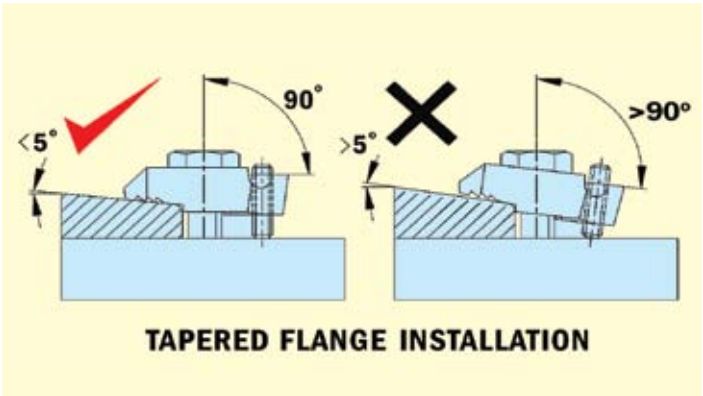
The Safe Working Loads are based on assemblies tested in typical conditions

Product code	Product code	A Bolt dia. (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)	F (dia)	Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per four bolts (5:1 Factor of Safety)
BE1G10	/	M10	20	20	6	/	5 to 20	M06	26	20	2.5	/
BE1G12	**BE2G12**	M12	26	25.5	7	13	6 to 22	M06	28.5	70	3.72	1.3
BE1G16	**BE2G16**	M16	30	31	9	17	7 to 23	M08	36	150	8.25	3.9
BE1G20	/	M20	35	34	11	/	8 to 24	M10	44	290	16.12	11
BE1G24	/	M24	49	49	13	/	10 to 30	M12	53	490	21.1	18

Do not exceed the Safe Working Load (SWL) specified

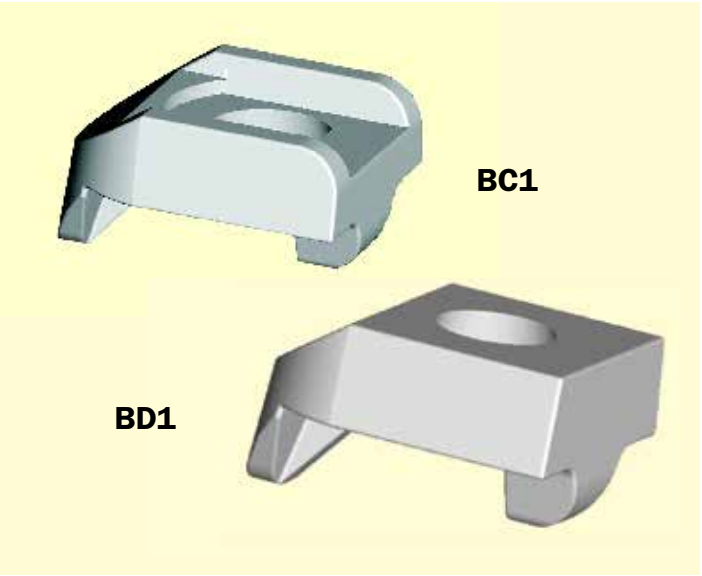






BeamClamp® Components Type BC1 & BD1

The types **BC1** and **BD1** are designed to hook over the upstanding flanges of angles or channels. They can be used together for channel to channel connections or in conjunction with our other clamping products for making angle/channel connections to other types of steel. The **BC1** features a recessed top to grip a bolt head and the **BD1** has a flat top to allow a nut and washer to be tightened on to it. It is suitable for use with studding or other threaded items but we always recommend the use of grade 8.8 high tensile threaded items.



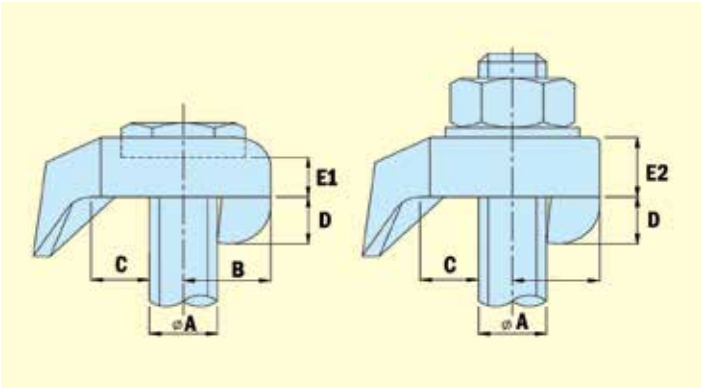
- **Hot Dip Galvanised to BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **Lloyds Register approved**

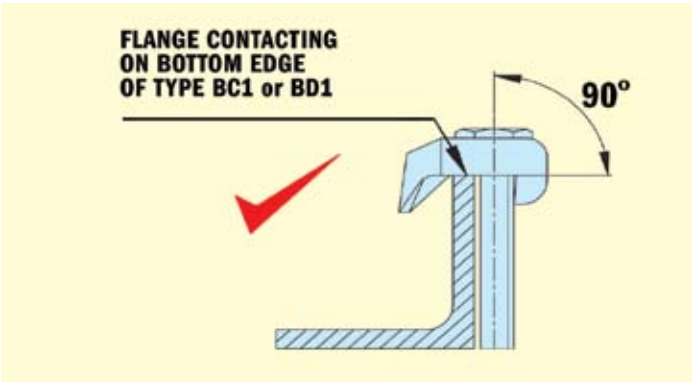
NB These products are not recommended for frictional loads

The Safe Working Loads are based on assemblies tested in typical conditions

Product code BC1	Product code BD1	A Bolt dia. (Grade 8.8)	B (mm)	C (mm)	D (mm)	E1 (mm)	E2 (mm)	Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)
BC1G08	**BD1G08**	M08	9	5	6	5	9	22	3	1.25
BC1G10	**BD1G10**	M10	12	4	7.5	6	11	29	10	2.5
BC1G12	**BD1G12**	M12	15	6.5	9.5	7	12	31.5	35	4.32
BC1G16	**BD1G16**	M16	17	8	11.5	9	17	41	75	7.5
BC1G20	**BD1G20**	M20	21	9	13.5	11	21	49.5	145	11
BC1G24	**BD1G24**	M24	26	13	17	13	25	60	245	17.17

Do not exceed the Safe Working Load (SWL) specified





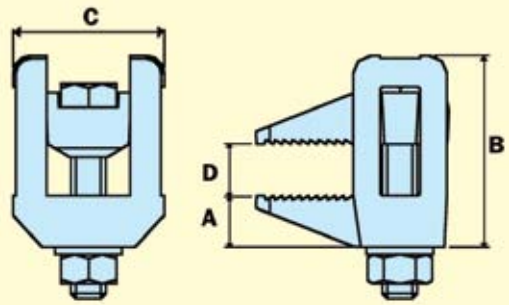
BeamClamp® BL Flange Clamp

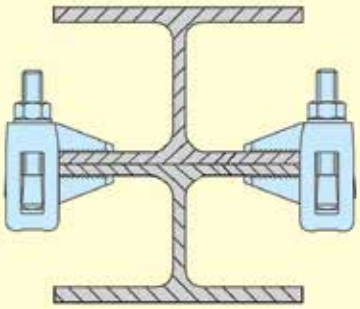
The **BL** Flange Clamp is a heavy duty clamping assembly that is used for securing steel together without the need for a location plate. The two piece design allows it to adjust to different combinations of steel thickness but still ensuring it clamps at 90 degrees to the steel.

Typical applications would be clamping two steel sections of the same width running parallel or for clamping down pressure vessel lids. The recessed part of the clamp captivates the hexagon head of the bolt or nut to prevent rotation and means that installation can be achieved by the use of one tool only.

BL

- **Only requires one tool for installation**
- **Hot Dip Galvanised to BS EN ISO 1461**
- **Extensive fixing range**
- **Can accomodate clips/brackets**
- **Tested for Tensile and Lateral Loading**





The Safe Working Loads are based on assemblies tested in typical conditions

						3 to 1 Factor of safety applied		
Product Code	**A (mm)**	**B (mm)**	**C (mm)**	**D (mm)**	**Tightening torque (Nm)**	**Tensile load in line with rod (kN)**	**Tensile load at nose (kN) (per pair)**	**Lateral load (kN)**
BLG08A	12.5	45	40	5 to 20	10	1.0	7.4	0.25
BLG10A	14	58	47	6 to 30	20	2.5	9.3	0.40
BLG12A	15	65	51.5	7 to 35	40	5.0	11.0	0.60
BLG16A	20	95	58	8 to 55	90	7.5	20.3	0.70
BLG20A	23	116	66	8.5 to 70	180	9.0	23.3	0.75
BLG24A	26	147	75	9 to 95	200	10.5	34.3	0.80

Do not exceed the Safe Working Load (SWL) specified

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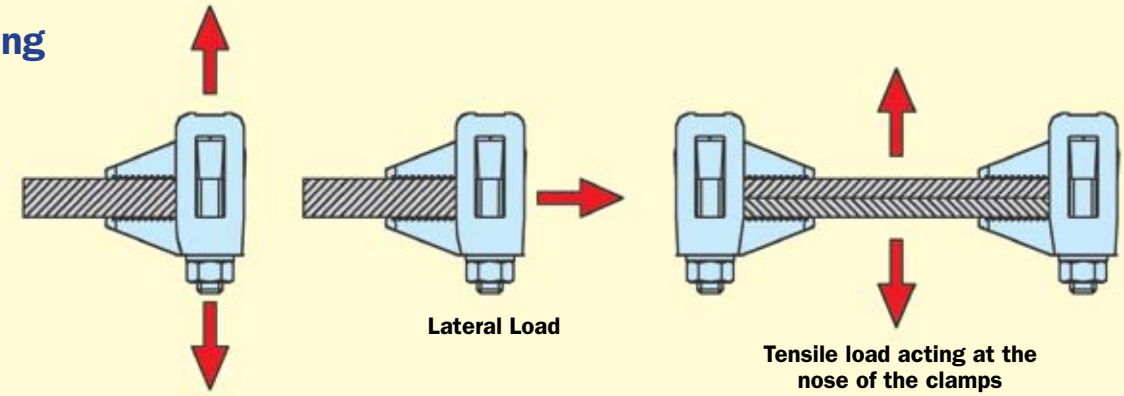


BeamClamp® Packing Pieces

Short packers for Types BA, BB, BT and BW

Product code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
BF1G08	M08	4	14	22	10
BF1G10	M10	5	18	28	12
BF1G12	M12	6	22	30	14
BF1G16	M16	8	29	35	18
BF1G20	M20	10	33	43	21
BF1G24	M24	12	45	55	26

BF1

Product code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
BG1G08	M08	8	14	22	10
BG1G10	M10	10	18	28	12
BG1G12	M12	12	22	30	14
BG1G16	M16	16	29	35	18
BG1G20	M20	20	33	43	21
BG1G24	M24	24	45	55	26

BG1

Product code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
BH1Z08	M08	2	15	22	10
BH1Z10	M10	2	20	28	12
BH1Z12	M12	2.5	24	31	14
BH1Z16	M16	3	29	38	18
BH1Z20	M20	4	33	44	21
BH1Z24	M24	4	45	55	26

BH1

Long packers for Types BE1, BE2 and BK1

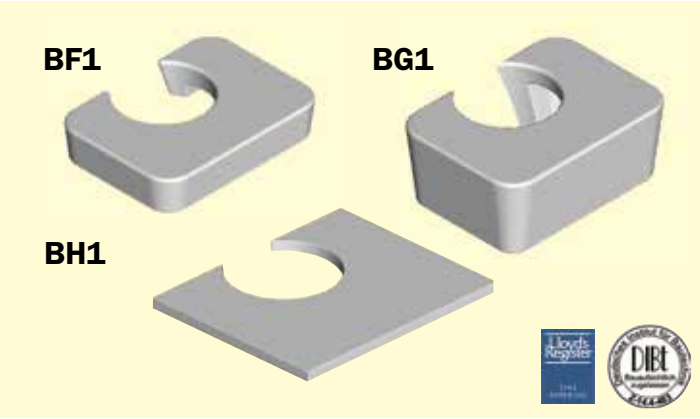
Product code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
BF2G08	M08	4	24	22	10
BF2G10	M10	5	30	28	12
BF2G12	M12	6	39	30	14
BF2G16	M16	8	49	35	18
BF2G20	M20	10	58	43	21
BF2G24	M24	12	77	55	26

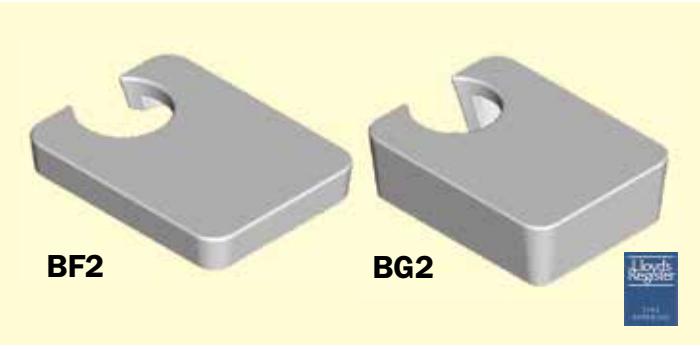
BF2

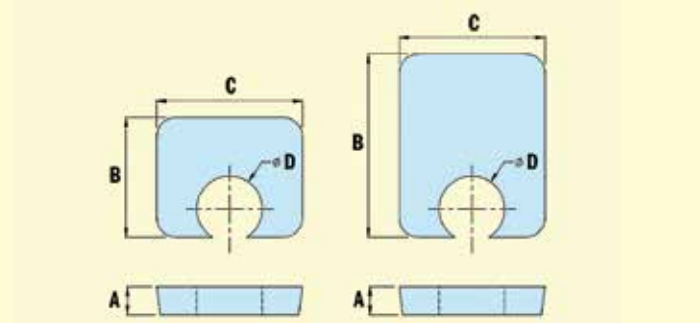
Product code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
BG2G08	M08	8	24	22	10
BG2G10	M10	10	30	28	12
BG2G12	M12	12	39	30	14
BG2G16	M16	16	49	35	18
BG2G20	M20	20	58	43	21
BG2G24	M24	24	77	55	26

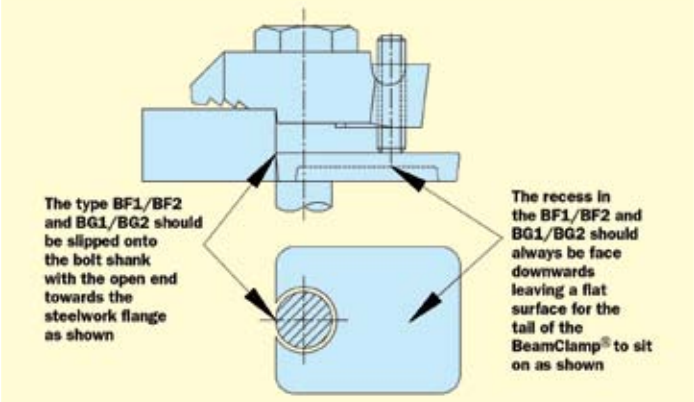
BG2

Our range of packing pieces is designed to provide support to the underside of clamps to ensure they clamp on to the steel at the correct angle. We have a series of short packers designed for the **BA, BB, BT and BW** clamps and a long series for the **BE1, BE2** and **BK1** clamps that reach further back on to the supporting steel. The packers can be used in combination with the fixing range of the clamp to ensure a correct fixing. See tables on pages 30 & 31 for the correct combinations for different steel thicknesses.







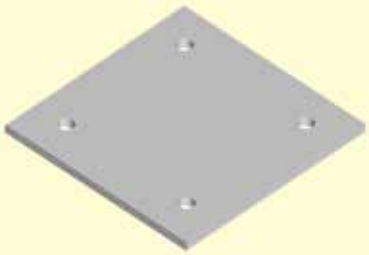


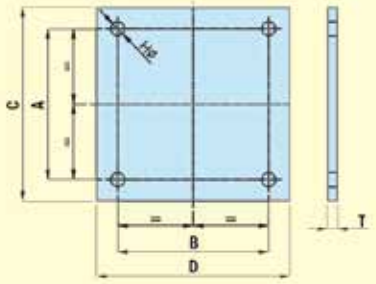
BeamClamp® Location Plate & Spacers

The location plate is an important part of a **BEAMCLAMP** assembly. It provides support for the rear of the **BEAMCLAMP** fixings to react against while the front of the product clamps down on to the steel.

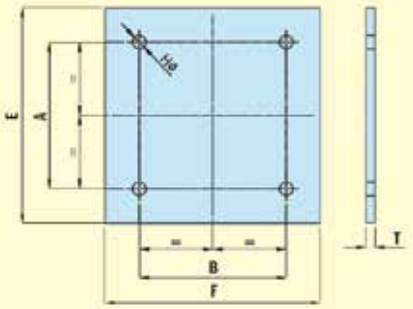
The hole centres are designed to suit the widths of both the upper and lower members and to ensure that the fixings are located as close to the edge of the steel as possible.

Location plate for Types BA, BB, BT, BW & BBLN





Location plate for Types BK1 ,BE1 & BE2

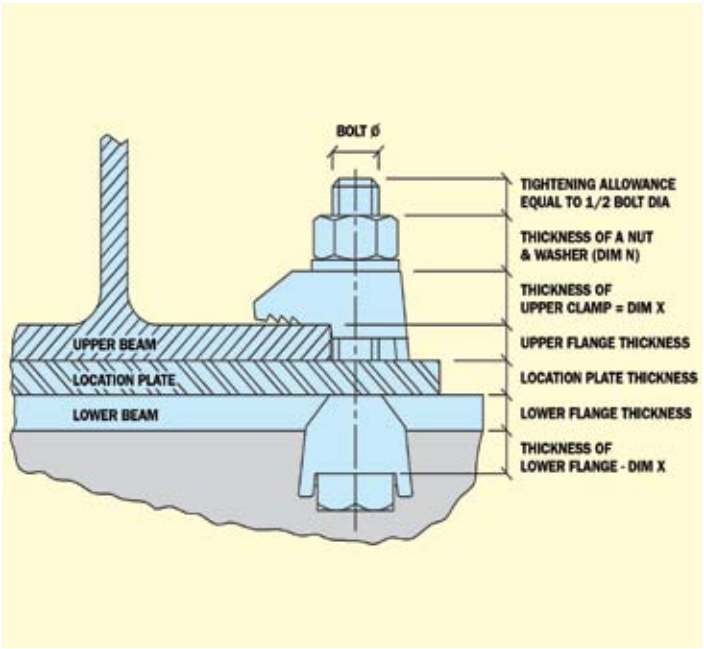


Dimension Table for BEAMCLAMP Location Plates

Bolt Dia.	A (mm) Upper Beam Width +	B (mm) Lower Beam Width +	C (mm) Upper Beam Min width +	D (mm) Lower Beam Min width +	E (mm) Upper Beam Min width +	F (mm) Lower Beam Min width +	H (mm) Dia	T (mm) Min
M08	10	10	40	40	60	60	10	8
M10	12	12	48	48	72	72	12	8
M12	14	14	56	56	84	84	14	8
M16	18	18	72	72	108	108	18	10
M20	22	22	88	88	132	132	22	12
M24	26	26	104	104	156	156	26	15

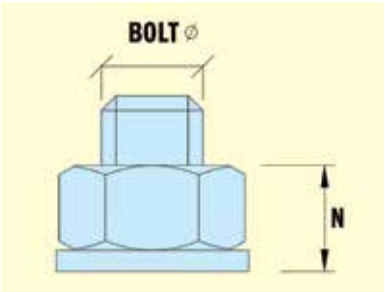
Thickness of clamps (Dim X)

Bolt Dia	Type BA & BE1	Type BB, BE2 & BBLN	Type BK1
M08	4	8	18
M10	5	10	22
M12	6	12	25
M16	8	16	28
M20	10	20	35
M24	12	24	46



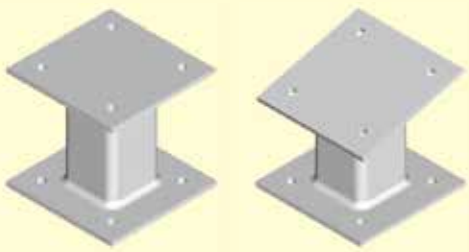
Thickness of nut/washer (Dim N)

Bolt Dia	N
M08	8
M10	10
M12	12
M16	16
M20	20
M24	24



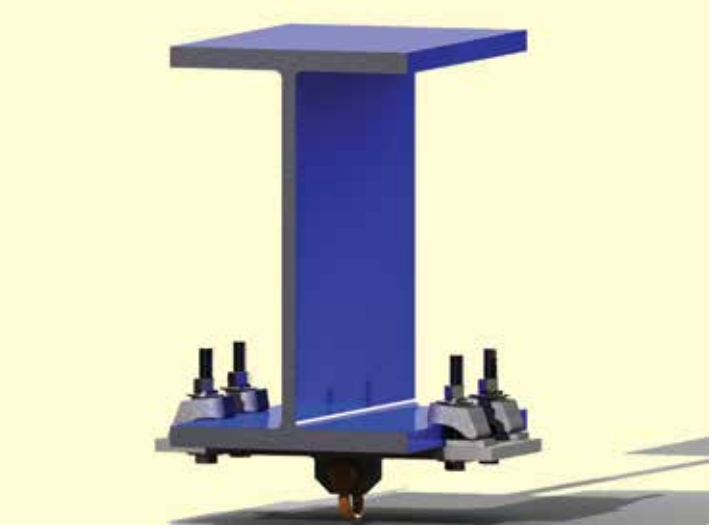
Location plates can be fabricated to suit a variety of applications with different angles of cross over and gaps between sections. We will be happy to assist free of charge with detailing these brackets for your individual applications.

Location Spacers



Rigging Clamps

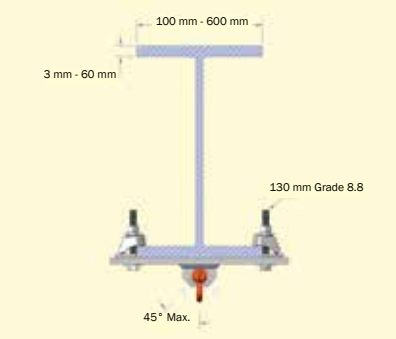
The **Adjustable Rigging Clamp** is a self adjusting, ready to install clamp capable of safe working loads of up to 22.2 kN. The shackle connection allows loads to be applied up to 45°. The Adjustable Rigging Clamp can accommodate a variety of flange widths and thicknesses and is installed without the need for any drilling or welding to the support beam.



The Adjustable Rigging Clamp is available in five standard sizes to accommodate any flange width from 100 mm to 600 mm. The Adjustable Rigging Clamp is designed to be self adjusting to the flange thickness from as little as 3mm to as thick as 60 mm.

The Adjustable Rigging Clamp is designed to accommodate a safe working load not to exceeding 22.2 kN.

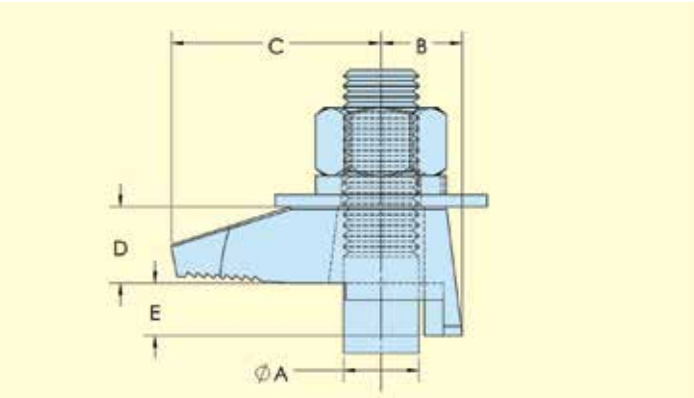
Product Code	Flange Width	Bolt Torque	Safe Working Load
	mm	Nm	kN
BKRCM16-A	100 to 200	150	22,2
BKRCM16-B	200 to 300	150	22,2
BKRCM16-C	300 to 400	150	22,2
BKRCM16-D	400 to 500	150	22,2
BKRCM16-E	500 to 600	150	22,2



Note: The structural integrity of the existing steelwork should be verified by a licensed structural Engineer

BeamClamp® Component Type BB Long Nose (BBLN)

The BB Long Nose is very similar to our standard type BB but with an extended nose. This distributes more contact on the flanges of parallel beams providing, contact closer to the web. Packing pieces BH1, BF1 and BG1 can be used with this product to make it fit to various thickness's of steel at 90 degrees, see page 24 for details.

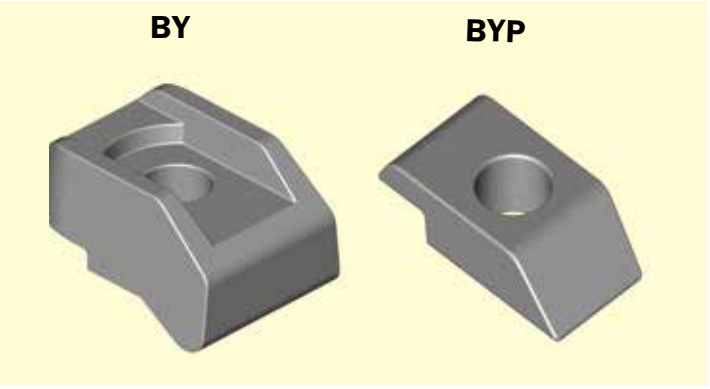


- **Hot Dip Galvanised to BS EN ISO 1461**
- **Manufactured from Ductile Iron to BS EN 1563**
- **5 to 1 Factor of Safety**
- **Independently tested**

Product Code	Bolt Grade	A Bolt Dia.	B (mm)	C (mm)	D (mm)	E (mm)	Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per two bolts Painted Steel (2:1 Factor of Safety)
BB1LNG12	8.8	M12	14.0	46.0	17.5	6.5	28.5	69	5.75	1.28
BB1LNG16	8.8	M16	17.5	44.5	16	11.0	36.5	147	9.87	3.88

BeamClamp® Components Type BY & BYP

The Type BY clamp is designed for High Friction and Tensile applications that exceed the capacities of the standard **BEAMCLAMP** products. It features a recessed top that prevents the head of the bolt from rotating during installation therefore requires the use of only one wrench. The Type BYP washer can be used to fill in the recess of the Type BY to provide a flat surface for a washer and nut. This also allows the Type BY clamps to be used together in beam to beam connections. The full width tail of the BY allows for use with slotted holes and the Type BY may also be used in unison with other **BEAMCLAMP** products for greater diversity in applications.

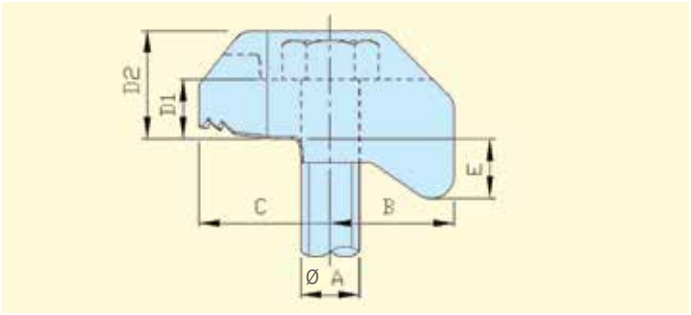


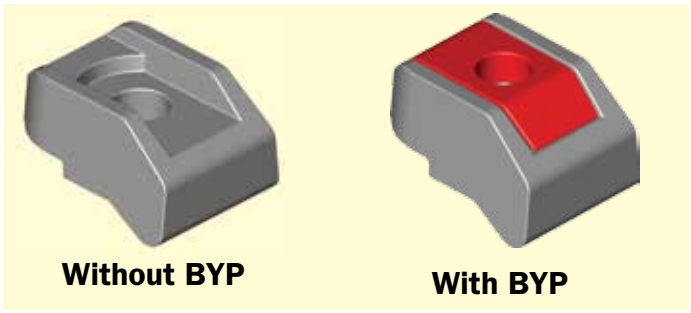
- **Hot Dip Galvanised to BS EN ISO 1461.**
- **Manufactured from Ductile Iron to BS EN 1563.**

These products are independently tested in situations to simulate typical site conditions.

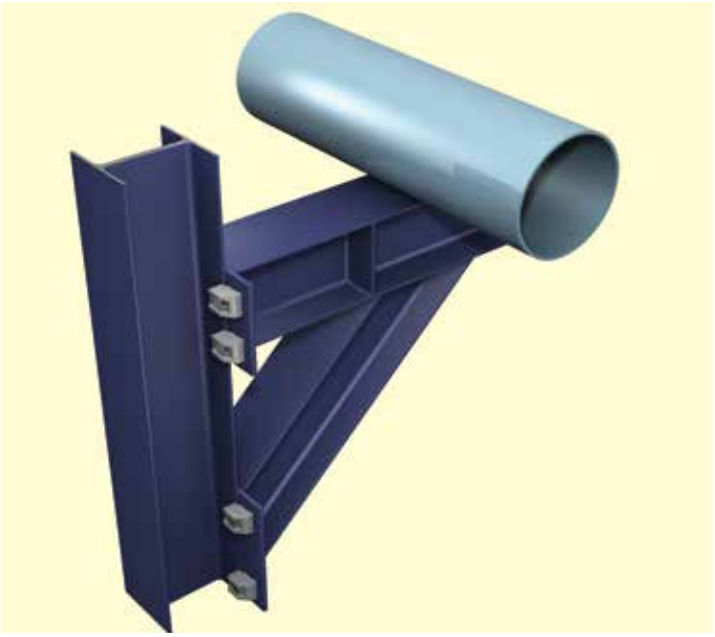
Product Code	Product Grade	A Bolt Dia.	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E 1 mm	E 2 mm	Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per two bolts Painted Steel (2:1 Factor of Safety)
BY G12	**8.8**	M12	27	28.5	13	23	5	12.5	40	90	10.60	4.29
BY G16	**8.8**	M16	33	33	17	30	8	15	49	240	17.29	8.02
BY G20	**8.8**	M20	39	39	22	37	10	18	55	470	29.58	11.94
BY G12	**10.9**	M12	27	28.5	13	23	5	12.5	40	130	11.65	7.88
BY G16	**10.9**	M16	33	33	17	30	8	15	49	300	19.41	15.50
BY G20	**10.9**	M20	39	39	22	37	10	18	55	647	32	23.76

Add "1" or "2" to the product code to indicate the desired tail length. For example, a M16 bolt diameter with 8mm tail would be code BY1G16.
***Frictional failure for the Type BY clamp is 1mm slip from its original position.**
Frictional capacities are based on shot blast and painted steelwork.
Due to variance in thickness of Hot Dip Galvanised coatings please contact Kee Safety for frictional capacities based on Hot Dip Galvanised steelwork.
Independently tested at Ceram and approved for use by Lloyds Register.





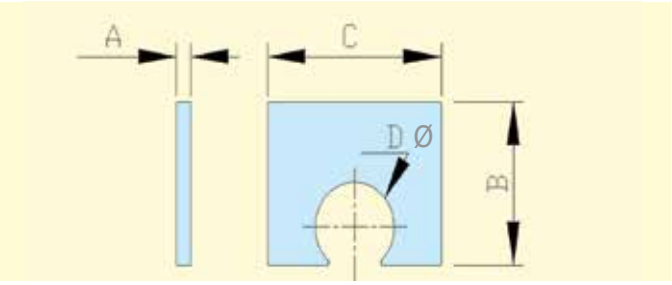
The BY recess is suitable for the hexagonal head of standard grade 8.8 and 10.9 bolts. The Type BYP may be used to fill in the recess allowing for any grade bolt or nut to be tightened down to its surface.



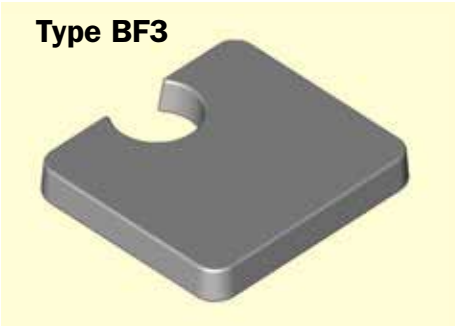
Typical end plate cantilevered connection supporting heavy duty pipe work.

BeamClamp® Packing Pieces for BY Clamps

The range of packing pieces below are designed to provide support to the underside of type BY clamps to ensure they clamp at 90 degrees to the steel and provide a flat surface for the bolt head or nut to be tightened down on to. These can be used in various combinations with the two tail lengths of BY clamps to achieve the best clamping position.

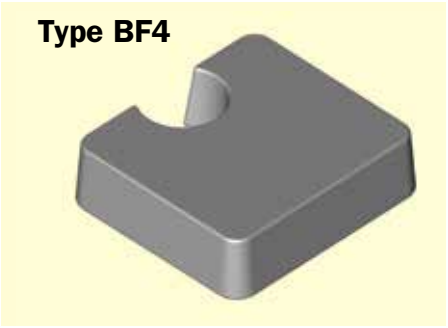


Type BF3



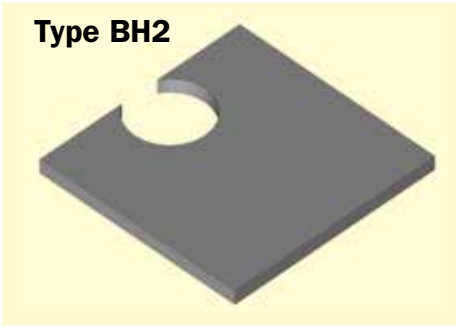
Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
BF3G12	5	40	40	14
BF3G16	5	50	52	18
BF3G20	5	55	56	21

Type BF4



Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
BF4G12	10	40	40	14
BF4G16	10	50	52	18
BF4G20	10	55	56	21

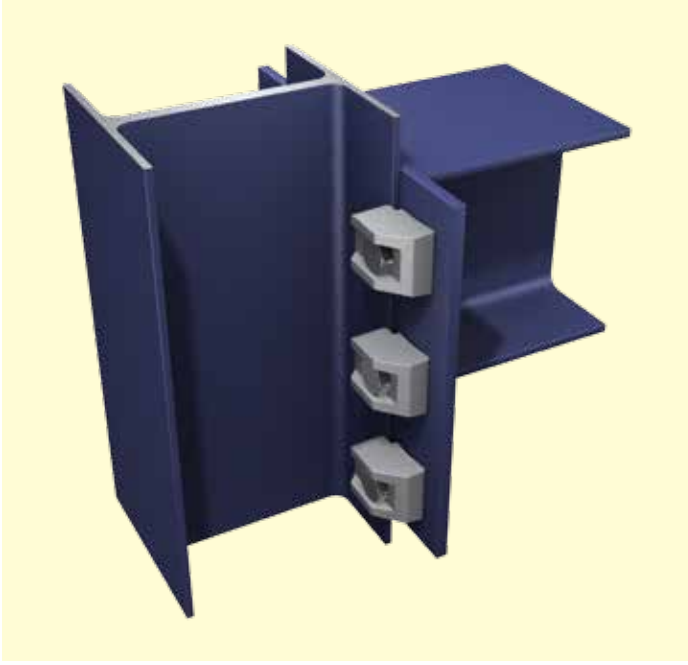
Type BH2



Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
BH2G12	2	40	40	14
BH2G16	2	48	48	18
BH2G20	2	50	50	21

The Type BY can be used in a variety of applications and our design team will be pleased to configure a connection specific to your requirements. Please see pages 30 to 31 for packing and tail length combinations, and page 29 for location plate and bolt length details.

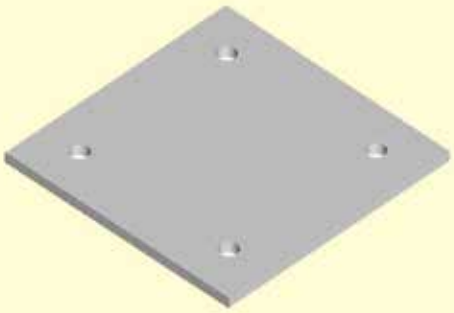
Type BY Typical Applications

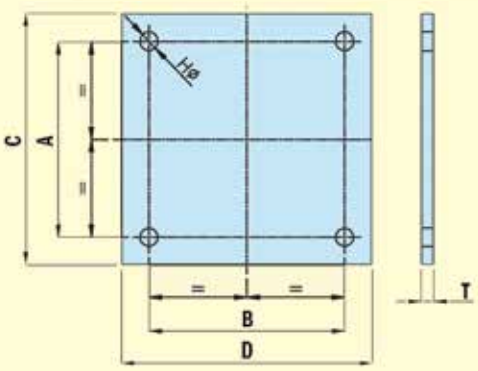


Typical End Plate frictional connection using BY clamps.

Typical sloping beam connection using BY clamps.

BeamClamp® Type BY - Location Plate & Spacers





Location Plate Dimensions for Type BY

Bolt dia.	Bolt Grade	A (mm)	B (mm)	C (mm)	D (mm)	H (mm)	T (mm)
		Upper Beam Width	Lower Beam Width	Upper Beam Width	Lower Beam Width	Diameter	Min.
M12	8.8	14	14	95	95	14	12
M12	10.9	14	14	95	95	14	12
M16	8.8	18	18	118	118	18	15
M16	10.9	18	18	118	118	18	15
M20	8.8	22	22	127	127	22	20
M20	10.9	22	22	127	127	22	25

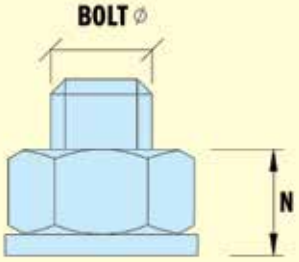
Note: Cap/End plate thickness will vary based on the design code followed, the flange width of the applicable beam and the type of load acting on the connection. Please contact a structural engineer for further details.

Thickness of Clamps

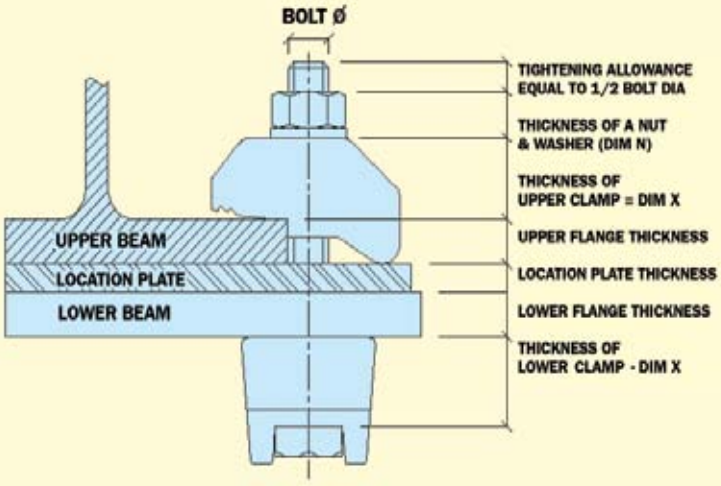
Bolt dia.	Type BY (X)	Type BY + BYP (X)
M12	13	23
M16	17	30
M20	22	37

Thickness of Nut & Washer

Bolt dia.	N
M12	12
M16	16
M20	22



Bolt Length Calculation



Location Spacers

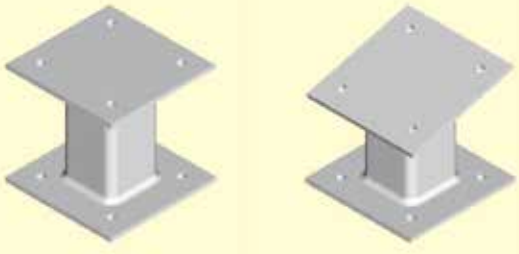


Table 1 For Parallel Beams up to and including 5° slope

Flange thicknes (mm)	M08		M10			M12			
	BA & BB	BK1	BA & BB	BE1	BK1	BA & BB	BY	BE1 & BE2	BK1
4	2	OK	1	X	OK	X	X	X	OK
5	2	OK	2	OK	OK	1	1	OK	OK
6	2+BH1	OK	1+BH1	OK	OK	2	1	OK	OK
7	2+BH1	OK	3	OK	OK	1+BH1	1+BH2	OK	OK
8	2+BF1	OK	1+2BH1	OK	OK	2+BH1	1+BH2	OK	OK
9	2+BF1	OK	1+BF1	OK	OK	2+BH1	1+2BH2	OK	OK
10	2+BH1+BF1	OK	2+BF1	OK	OK	3	1+BF3	OK	OK
11	2+BH1+BF1	OK	3+2BH1	OK	OK	2+2BH1	1+3BH2	OK	OK
12	2+BG1	OK	3+BF1	OK	OK	3+BH1	1+BH2+BF3	OK	OK
13	2+BG1	+BF2	3+3BH1	OK	OK	1+BH1+BF1	2	OK	OK
14	2+BH1+BG1	+BF2	1+BG1	OK	OK	2+BF1+BH1	2+BH2	OK	OK
15	2+BH1+BG1	+BF2	2+BG1	OK	OK	2+BF1+BH1	1+BF4	OK	OK
16	2+BF1+BG1	+BF2	1+BH1+BG1	OK	+BF2	3+BF1	2+2BH2	OK	OK
17	2+BF1+BG1	+BG2	3+BG1	OK	+BF2	2+2BH1+BF1	2+BF3	OK	OK
18	2+BH1+BF1+BG1	+BG2	1+2BH1+BG1	OK	+BF2	2+BG1	2+BF3	OK	OK
19	2+BH1+BF1+BG1	+BG2	1+BF1+BG1	OK	+BF2	1+BH1+BG1	2+BH2+BF3	OK	+BF2
20	2+2BG1	+BG2	2+BF1+BG1	OK	+BF2	1+BH1+BG1	1+BF3+BF4	OK	+BF2
21	2+2BG1	+BF2+BG2	3+2BH1+BG1	+BF2	+BG2	3+BF1+2BH1	2+2BH2+BF3	OK	+BF2
22	2+BH1+2BG1	+BF2+BG2	3+BF1+BG1	+BF2	+BG2	3+BG1	2+2BH2+BF3	OK	+BF2
23	2+BH1+2BG1	+BF2+BG2	3+BF1+BG1	+BF2	+BG2	2+2BH1+BG1	2+BF4	+BF2	+BF2
24	2+BF1+2BG1	+BF2+BG2	1+2BG1	+BF2	+BG2	2+BF1+BG1	2+BH2+BF4	+BF2	+BF2
26	2+BH1+BF1+2BG1	+2BG2	1+BH1+2BG1	+BG2	+BF2+BG2	3+2BH1+BG1	2+2BH2+BF4	+BF2	+BG2
28	2+3BG1	+2BG2	3+2BG1	+BG2	+BF2+BG2	3+BF1+BG1	2+BF3+BF4	+BF2	+BG2
30	2+BH1+3BG1	+BF2+2BG2	2+BF1+2BG1	+BG2	+BF2+BG2	2+2BG1	1+BF3+2BF4	+BG2	+BG2

Table 2 For Beams with 5° to 8° slope

Flange thickness (mm)	M08		M10		M12			M16		
	BA & BB	BK1	BA & BB	BK1	BA & BB	BY	BK1	BA & BB	BY	BK1
4	X	OK	X	OK	X	X	OK	X	X	OK
5	2	OK	1	OK	X	1	OK	X	X	OK
6	2	OK	2	OK	1	1	OK	X	X	OK
7	2+BH1	OK	1+BH1	OK	2	1+BH2	OK	1	1	OK
8	2+BH1	OK	3	OK	1+BH1	1+BH2	OK	1	1	OK
9	2+BF1	OK	1+2BH1	OK	2+BH1	1+2BH2	OK	2	1	OK
10	2+BF1	OK	3+BH1	OK	2+BH1	1+BF3	OK	1+BH1	1+BH2	OK
11	2+BH1+BF1	OK	2+BF1	OK	3	1+3BH2	OK	1+BH1	1+BH2	OK
12	2+BH1+BF1	OK	3+2BH1	OK	2+2BH1	1+BH2+BF3	OK	3	1+2BH2	OK
13	2+BG1	+BF2	3+BF1	OK	3+BH1	2	OK	1+2BH1	1+BF3	OK
14	2+BG1	+BF2	3+3BH1	OK	1+BF1+BH1	2+BH2	OK	1+2BH1	1+3BH2	OK
15	2+BH1+BG1	+BF2	1+BG1	OK	3+2BH1	1+BF4	OK	1+BF1	2	OK
16	2+BH1+BG1	+BF2	2+BG1	+BF2	2+BF1+BH1	2+2BH2	OK	1+3BH1	2	OK
17	2+BF1+BG1	+BG2	1+BH1+BG1	+BF2	1+BG1	2+BF3	OK	1+3BH1	2+BH2	OK
18	2+BF1+BG1	+BG2	3+BG1	+BF2	2+2BH1+BF1	2+BF3	OK	1+BH1+BF1	1+BF4	OK
19	2+BH1+BF1+BG1	+BG2	1+2BH1+BG1	+BF2	2+BG1	2+BH2+BF3	+BF2	3+2BH1	2+2BH2	OK
20	2+BH1+BF1+BG1	+BG2	3+BH1+BG1	+BF2	1+BH1+BG1	1+BF3+BF4	+BF2	3+2BH1	2+BF3	OK
21	2+2BG1	+BF2+BG2	2+BF1+BG1	+BG2	1+BH1+BG1	2+2BH2+BF3	+BF2	1+2BH1+BF1	2+BF3	OK
22	2+2BG1	+BF2+BG2	3+2BH1+BG1	+BG2	2+BH1+BG1	2+2BH2+BF3	+BF2	3+3BH1	2+BH2+BF3	OK
23	2+BH1+2BG1	+BF2+BG2	3+BF1+BG1	+BG2	3+BG1	2+BF4	+BF2	1+BG1	2+BH2+BF3	OK
24	2+BH1+2BG1	+BF2+BG2	1+2BH1+BF1+BG1	+BG2	2+2BH1+BG1	2+BH2+BF4	+BF2	3+BH1+BF1	2+BF4	OK
26	2+BF1+2BG1	+2BG2	2+2BG1	+BF2+BG2	1+BH1+BF1+BG1	2+2BH2+BF4	+BG2	1+BH1+BG1	2+BF4	+BF2
28	2+BH1+BF1+2BG1	+2BG2	3+2BG1	+BF2+BG2	3+2BH1+BG1	2+BF3+BF4	+BG2	3+2BH1+BF1	1+2BF4	+BF2
30	2+3BG1	+BF2+2BG2	3+BH1+2BG1	+BF2+BG2	3+3BH1+BG1	1+BF3+2BF4	+BG2	3+2BH1+BG1	2+BF3+BF4	+BF2

Instruction how to use these tables, when specifying the correct BEAMCLAMP product, are on page 32.

BeamClamp® Product Selection Tables

Flange thickness (mm)	M16				M20				M24		
	BA & BB	BY	BE1 & BE2	BK1	BA & BB	BY	BE1	BK1	BA & BB	BE1	BK1
4	X	X	X	OK	X	X	X	OK	X	X	OK
5	1	X	X	OK	X	X	X	OK	X	X	OK
6	1	X	X	OK	1	X	X	OK	X	X	OK
7	1	1	OK	OK	1	X	X	OK	X	X	OK
8	2	1	OK	OK	1	X	OK	OK	1	X	OK
9	1+BH1	1	OK	OK	2	1	OK	OK	1	X	OK
10	1+BH1	1+BH2	OK	OK	2	1	OK	OK	1	OK	OK
11	3	1+BH2	OK	OK	1+BH1	1	OK	OK	2	OK	OK
12	1+2BH1	1+2BH2	OK	OK	1+2BH1	1+BH2	OK	OK	2	OK	OK
13	1+BF1	1+BF3	OK	OK	3	1+BH2	OK	OK	1+BH1	OK	OK
14	3+BH1	1+3BH2	OK	OK	2+BH1	1+2BH2	OK	OK	1+BH1	OK	OK
15	1+3BH1	2	OK	OK	1+2BH1	1+BF3	OK	OK	3	OK	OK
16	2+BF1	2	OK	OK	3+BH1	1+3BH2	OK	OK	3	OK	OK
17	3+2BH1	2+BH2	OK	OK	1+BF1	2	OK	OK	1+2BH1	OK	OK
18	3+2BH1	1+BF4	OK	OK	2+2BH1	2	OK	OK	1+2BH1	OK	OK
19	3+BF1	2+2BH2	OK	OK	1+3BH1	2	OK	OK	3+BH1	OK	OK
20	3+3BH1	2+BF3	OK	OK	2+BF1	2+BH2	OK	OK	3+BH1	OK	OK
21	3+3BH1	2+BF3	OK	OK	1+BH1+BF1	2+BH2	OK	OK	1+BF1	OK	OK
22	3+BH1+BF1	2+BH2+BF3	OK	OK	2+3BH1	2+2BH2	OK	OK	1+BF1	OK	OK
23	3+BH1+BF1	2+BH2+BF3	OK	OK	3+BF1	2+BF3	OK	OK	2+BF1	OK	OK
24	2+BG1	2+BF4	+BF2	OK	2+BH1+BF1	2+BF3	OK	OK	2+BF1	OK	OK
26	3+2BH1+BF1	2+BF4	+BF2	+BF2	1+2BH1+BF1	2+BH2+BF3	+BF2	OK	1+BH1+BF1	OK	OK
28	1+2BH1+BG1	1+2BF4	+BF2	+BF2	2+2BH1+BF1	2+BF4	+BF2	OK	3+BF1	OK	OK
30	3+BH1+BG1	2+BF3+BF4	+BF2	+BF2	2+BG1	2+BH2+BF4	+BF2	OK	3+BF1	OK	OK

Table 3 For Beams with 8° to 10° slope

Flange thickness (mm)	M20			M24	
	BA & BB	BY	BK1	BA & BB	BK1
4	X	X	OK	X	OK
5	X	X	OK	X	OK
6	X	X	OK	X	OK
7	X	X	OK	X	OK
8	X	X	OK	X	OK
9	1	1	OK	X	OK
10	1	1	OK	1	OK
11	2	1	OK	1	OK
12	2	1+BH2	OK	1	OK
13	1+BH1	1+BH2	OK	1	OK
14	3	1+2BH2	OK	2	OK
15	3	1+BF3	OK	2	OK
16	2+BH1	1+3BH2	OK	1+BH1	OK
17	1+2BH1	2	OK	1+BH1	OK
18	3+BH1	2	OK	3	OK
19	1+BF1	2	OK	3	OK
20	2+2BH1	2+BH2	OK	1+2BH1	OK
21	1+3BH1	2+BH2	OK	1+2BH1	OK
22	2+BF1	2+2BH2	OK	3+BH1	OK
23	1+BH1+BF1	2+BF3	OK	3+BH1	OK
24	2+3BH1	2+BF3	OK	3+BF1	OK
26	2+BH1+BF1	2+BH2+BF3	OK	2+BF1	OK
28	1+2BH1+BF1	2+BF4	OK	1+BH1+BF1	OK
30	2+2BH1+BF1	2+BH2+BF4	OK	3+BF1	OK

Flange thickness (mm)	M12	M16	M20
	BT oder BW	BT oder BW	BT oder BW
4	1	X	X
5	1	X	X
6	2	1	X
7	1+BH1	1	1
8	2+BH1	2	1
9	1+2BH1	1+BH1	1
10	1+BF1	1+BH1	2
11	2+2BH1	2+BH1	1+BH1
12	2+BF1	1+BF1	1+BH1
13	1+BH1+BF1	1+BF1	2+BH1
14	2+BH1+BF1	1+BF1	2+BH1
15	2+BH1+BF1	1+3BH1	1+2BH1
16	1+BG1	2+BF1	1+2BH1
17	2+2BH1+BF1	1+BH1+BF1	1+BF1
18	2+BG1	1+BH1+BF1	2+2BH1
19	1+BH1+BG1	2+BH1+BF1	1+3BH1
20	2+BH1+BG1	1+2BH1+BF1	2+BF1
21	2+BH1+BG1	1+2BH1+BF1	2+BF1
22	1+BF1+BG1	1+BG1	2+3BH1
23	1+BF1+BG1	1+3BH1+BF1	2+3BH1
24	2+BF1+BG1	2+BG1	2+BH1+BF1
26	2+BH1+BF1+BG1	1+BH1+BG1	1+BG1
28	1+2BG1	2+BH1+BG1	1+3BH1+BF1
30	2+2BG1	1+BF1+BG1	2+BG1

Specifying the Correct BeamClamp® Product

Correct product specification stating type, size and tail length together with packing piece combinations are essential to achieve a safe fixing solution. However before creating a **BEAMCLAMP** bill of materials the following information is required:

1) Diameter of fixings or the required Safe Working Load (SWL) of the connection

2) Details of the steel sections being connected

Types **BA/BB & BT/BW** are the most economic solutions when beam details are known. **Types BK, BE1 & BE2** are solutions when beam details are unknown, these adjustable types require a check to ensure that the maximum clamping thickness has not been exceeded; if it has then reference to the tables are necessary to choose the correct packing pieces.

Tables on pages 30 and 31 in conjunction with the Safe Working Loads (SWL) stated in the individual product pages assist this selection without using calculations. Dimensions and section properties can be obtained from Steelwork Dimensions pages 50 and 51 or Structural Steel Handbooks.

Example

What products are required when using a **M12** bolt to connect two different steel sections together?
Top flange = 7mm thick **(BA),** Bottom flange = 9mm thick **(BB)**

Refer to adjacent Table 1 extracts

Select Flange Thickness | **Select Clamp Type** | **Select Bolt Diameter**

Top Section Solution

1) Select bolt diameter **(M12)**
2) Select Clamp type **(BA)**
3) Select Flange thickness **(7)**

ANSWER
1 No. BA1 G12
1 No. BH1 Z12

Flange (t) mm	M12			M16		
	BA or BB	BK1	BK1	BA or BB	BE1	BK1
4	X	X	OK	X	X	OK
5	1	OK	OK	1	X	OK
6	2	OK	OK	1	X	OK
7	**1+BH1**	OK	OK	1	OK	OK
8	2+BH1	OK	OK	2	OK	OK
9	2+BH1	OK	OK	1+BH1	OK	OK
10	3	OK	OK	1+BH1	OK	OK

Select Flange Thickness | **Select Clamp Type** | **Select Bolt Diameter**

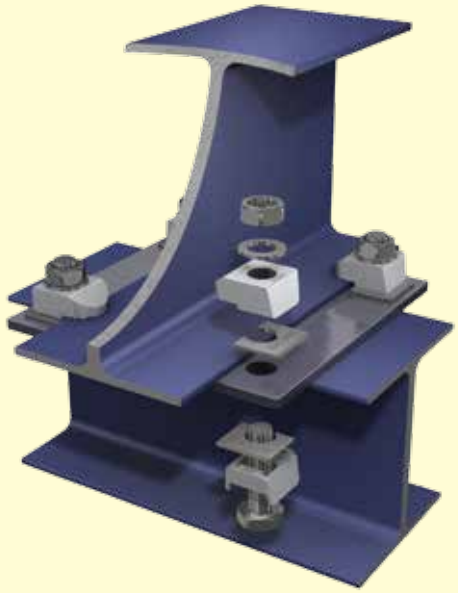
Bottom Section Solution

1) Select bolt diameter **(M12)**
2) Select Clamp type **(BB)**
3) Select Flange thickness **(9)**

ANSWER
1 No. BB2 G12
1 No. BH1 Z12

Flange (t) mm	M12			M16		
	BA or BB	BK1	BK1	BA or BB	BE1	BK1
4	X	X	OK	X	X	OK
5	1	OK	OK	1	X	OK
6	2	OK	OK	1	X	OK
7	1+BH1	OK	OK	1	OK	OK
8	2+BH1	OK	OK	2	OK	OK
9	**2+BH1**	OK	OK	1+BH1	OK	OK
10	3	OK	OK	1+BH1	OK	OK

Safe Fixing Solutions



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 inserted between the two steel sections. An upper set of **BEAMCLAMP** components clamp down on the lower flange of the upper beam while a lower set of components work in the opposite direction, clamping the underside of the upper flange of the lower member. Additional packing shims may be used to adjust the clamp to the thickness of the flange being connected. The connection is secured by inserting a bolt 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 predrilled location plates.

10

Two I-Sections of equal width running parallel

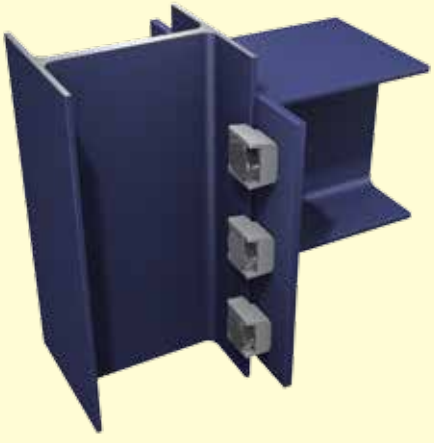
11

Two I-Sections at 90 degrees to each other using a location spacer bracket

12

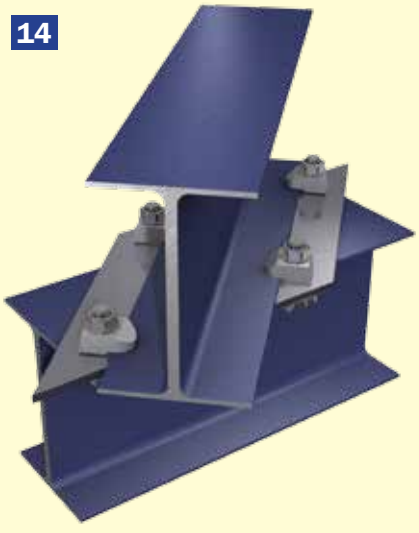
Two I-sections at 90 degrees with a sloping top beam using two location plates

13



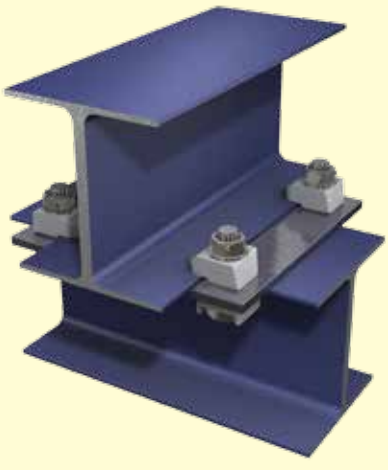
I-Section with end plate to column at 90 degrees

14



I-Section to I-Section with an angled cross over

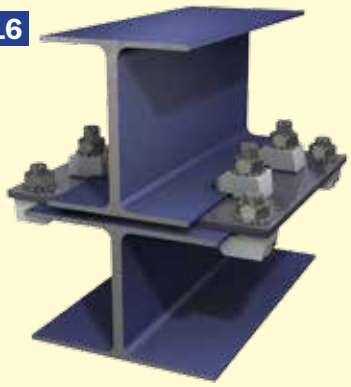
15



I-Section to I-Section at 90 degrees to each other

Safe Fixing Solutions

16



I-Sections of different widths running parallel

17

I-Section to top of a column end plate

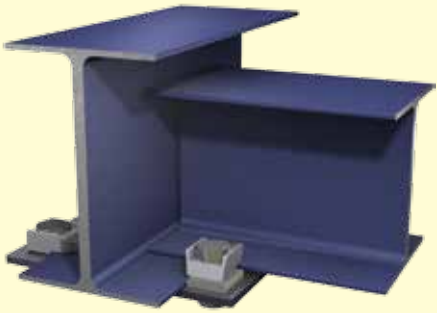
18

Sloping I-section with a gap to another I-section using a spacing bracket

19

Two I-Sections at 90 degrees with a gap between using threaded bar and location plates

20

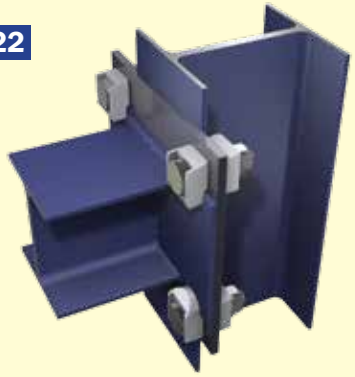


I-Section secured to the inside flange of another I-Section

21

Column end plate to sloping I-Section

22



I-Section to I-Section column using a location plate

23

Heavy duty pipe support to I-Section

24

Cantilevered angle support to I-Section

25

Drilled I-Section running parallel to another I-Section

26

Fixed rigging point below an I-Section

27

Swivel rigging point below an I-Section

Safe Fixing Solutions

28

Column end plate to I-Section

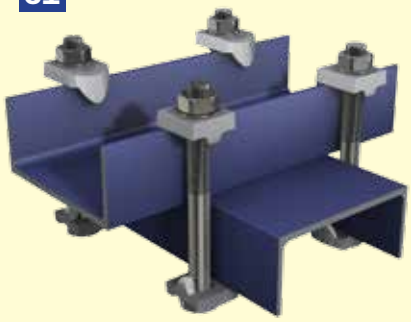
29

Hemispherical cup/washer hanging an I-Section underneath a sloping section

30

Hollow section below an I-Beam at 90 degrees using a combination of BoxBolt and BeamClamp fixings

31



Two channels secured back to back

32

Angle section below an I-Section at 90 degrees

33

Channel section secured above an I-Section using two location plates

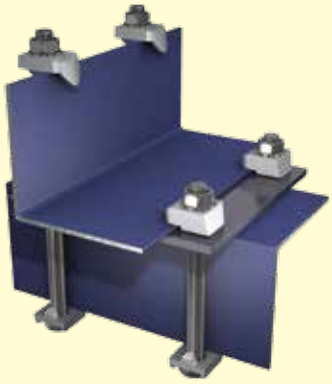
34

Channel section at 90 degrees below an I-Section

35

Channel section underneath another channel section at 90 degrees

36



Angle section to another angle section at 90 degrees

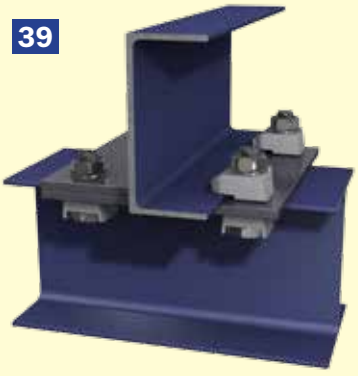
37

Channel section below I-Section at 90 degrees

38

Channel section face upwards below I-Section at 90 degrees

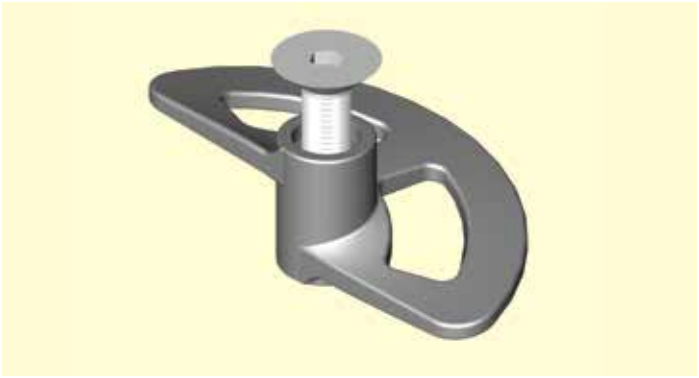
39



Channel positioned above I-Section at 90 degrees

Steel Floor Fixings

FloorFix HT

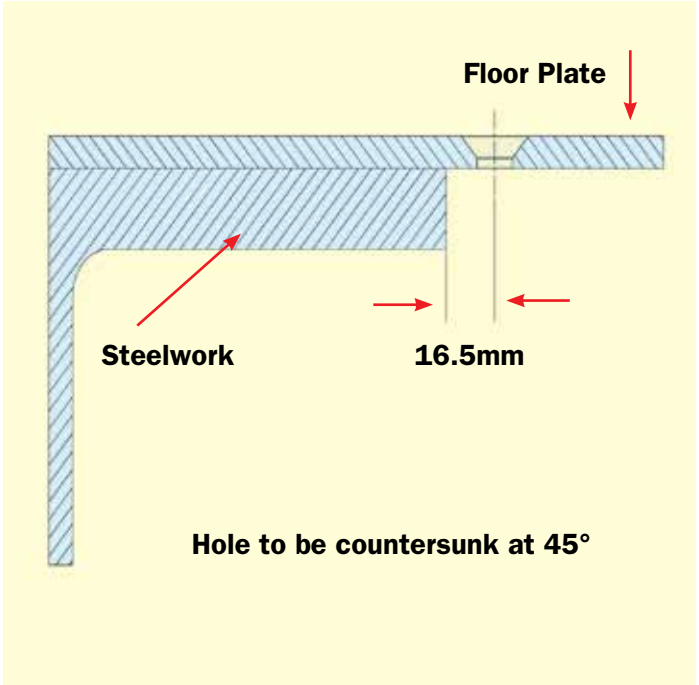


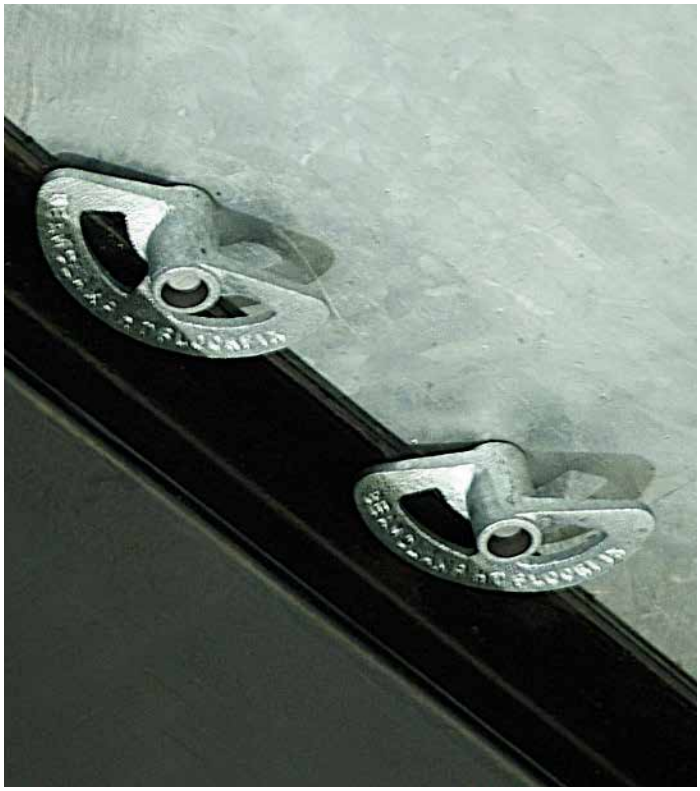
- **Allows for +/- 6mm construction tolerance**
- **Can fix up to 25mm thick steel as standard**
- **Hot Dip Galvanised finish as standard**
- **Easily installed from the top side only**
- **No drilling, no tapping or welding required**
- **Allows easy repositioning or lifting of floor plate**
- **No special tools or skilled labour required**
- **No access to the underside required**
- **Tested for vibration conditions at TÜV**

THE FLOORFIX HT has been developed following customer feedback to provide a fixing with increased functionality to suit a wider range of applications. **FLOORFIX HT** is designed to fix flooring plate to supporting steelwork from the topside only without the need for time consuming on site drilling, tapping, bolting or welding. It works on a cam mechanism that can be operated using a basic hexagon key drive.

FLOORFIX HT is so named because it allows steel erectors a high degree of tolerance, it retains all the benefits of our widely renowned original design but is far more user friendly. **FLOORFIX HT** allows for floor plates to be fixed to new steelwork that is erected within +/- 6mm of its intended position. It is capable of fixing to steel flanges from 3 to 25mm without the need for additional packing pieces.

Plate Preparation

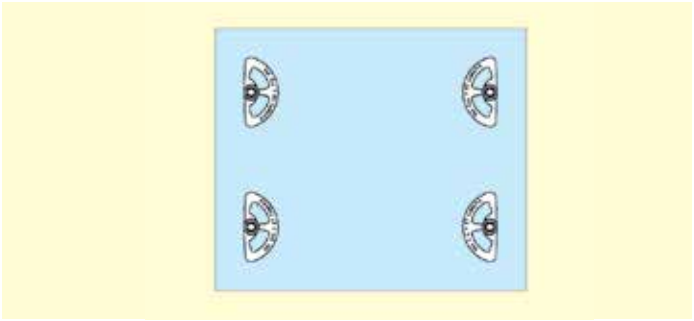




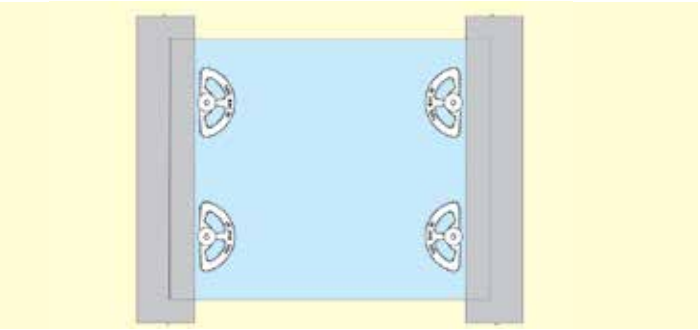
Product code	Screw dia	Floor Plate Thickness min	Floor Plate Thickness max	Steelwork Flange Thickness min	Steelwork Flange Thickness max	Tightening torque (Nm)
FloorFix M08HT	**M08**	3	12	3	25	20
FloorFix M10HT	**M10**	5	12	3	25	25
FloorFix M12HT	**M12**	6	12	3	25	30

FLOORFIX HT has been tested for vibration conditions to simulate the most common applications where the fixings would be used e.g. **walk-ways, machine shops** and **press shops.** Please ask our technical department for a copy of the certificate should you require this.

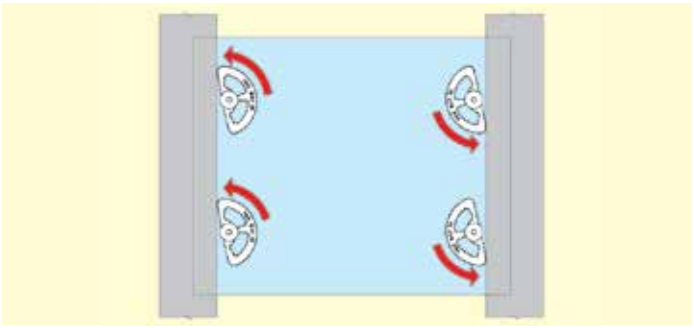
FloorFix HT Installation Instructions



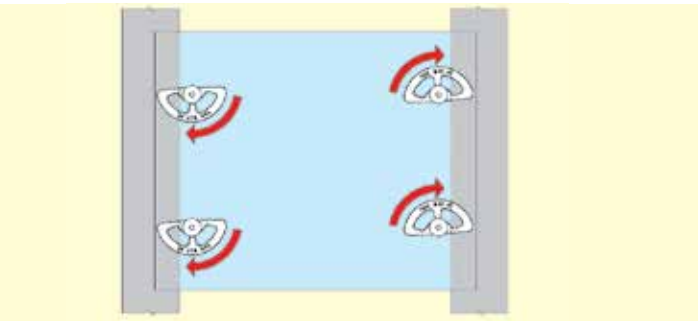
Step 1 Assemble the **FLOORFIX HT** to the underside of the floor plate making sure the markings **"THIS WAY UP"** are facing the underside. Loosely tighten the bolt making sure the flat edge of the fixing is in line with the edge of the steelwork it is going to fix to.



Step 2 Lower the plate in to position over the supporting steelwork.



Step 3 Once the floor plate is in the desired position rotate the countersunk bolt one full turn anti-clockwise.



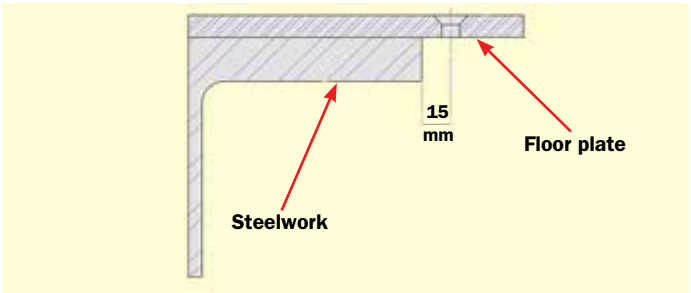
Step 4 Tighten the countersunk screw until the plate is secured, for guaranteed performance use the recommended tightening torques given in the table on page 41.

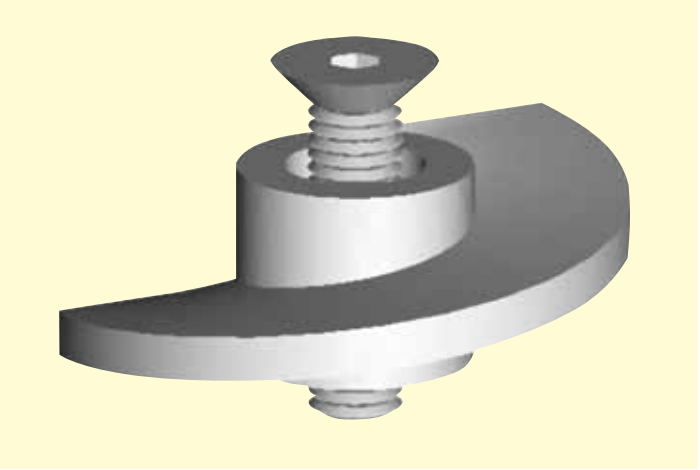
Note 1 We would recommend using the M12 version when vibration conditions are incurred as this can be tightened to a higher torque.

Note 2 If the steelwork being connected to is thicker than 25mm then we can supply packers and a longer bolt to increase the fixing range.

FloorFix

- **Installation from one side only**
- **Manufactured from Ductile Iron**
- **Hot Dip Galvanised**
- **Allows for easy maintenance**



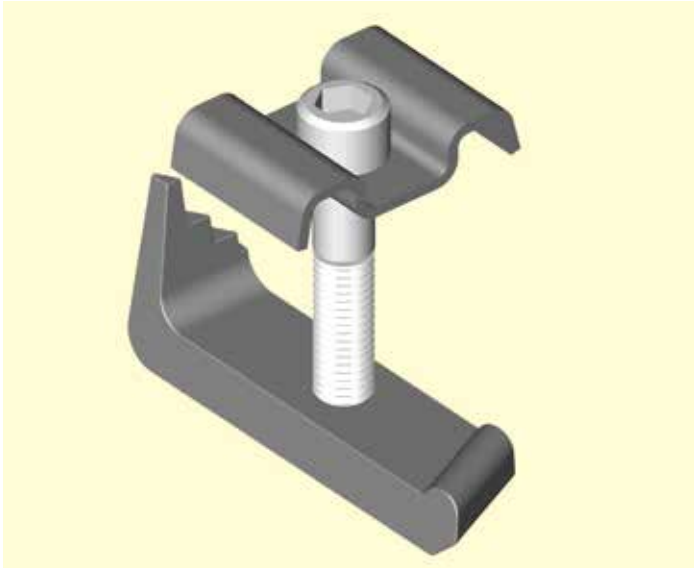


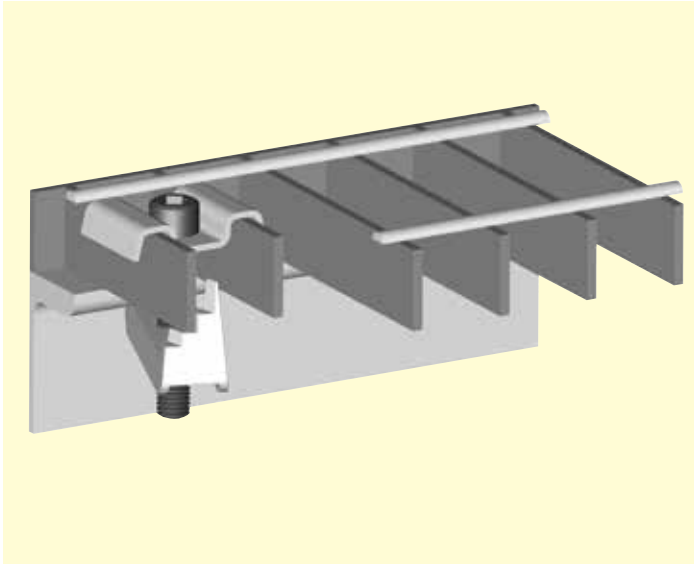
Product Code	Screw Diameter	Floor Plate Thickness		Steelwork Flange Thickness		Tightening Torque (Nm)
		min	max	min	max	
FloorFix M08	M08	3	12	3	15	20
FloorFix M10	M10	5	12	3	15	25
FloorFix M12	M12	6	12	3	15	30

FloorFix HT to Connect Plate Flooring on the Top of a Mezzanine Floor

The **FLOORFIX HT** (High Tolerance) was used to secure the chequer plate flooring onto to the supporting steelwork from the top side only requiring no access to the underside and no need to drill or weld the supporting structure. The **FLOORFIX HT** allows for steel erection tolerances of plus and minus 6mm without compromising the integrity of the fixing.

Gratefix





- **Mechanical Galvanised Malleable Iron**
- **Stainless Steel Grade 304**
- **Easily installed from the top side only**
- **No drilling, no tapping or welding required**
- **Allows easy repositioning or lifting of grating**
- **No special tools or skilled labour required**
- **No access to the underside required**
- **Tested for vibration conditions at TÜV**

THE GRATEFIX is a heavy-duty fixing that allows open floor grating to be fixed to the supporting steelwork from the topside only. **The Gratefix** features a cast bottom piece that provides additional strength to clamp on to the steelwork flange. The Gratefix is available in several different styles to suit the grating dimensions and the application. A mechanical galvanised **M10** version is available with a symmetrical top bracket to suit **30mm ctrs** grating or with an offset bracket to suit **30-41mm ctrs** grating most commonly found in the UK. The **M08** version is also available in grade **304** stainless steel with a top bracket to suit **30mm ctrs.**

Option 1

Pressed Top Bracket – Stainless Steel to EN 10088 Grade 1.4301 (AISI 304)

Cast Bottom Bracket – Stainless Steel to ASTM A743 Grade CF-8 (S30400)

Option 2

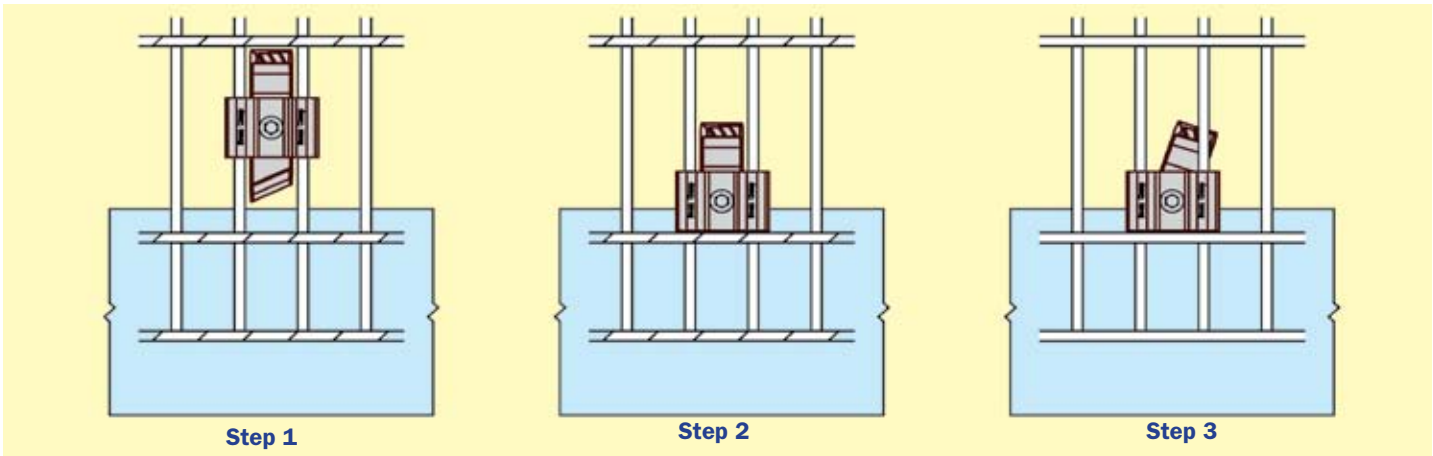
Pressed Top bracket – Material: Mild steel to EN 10025 grade S275

Cast Bottom Bracket – Material: Malleable iron to BS 1562: Grade EN-GJMB-300-06

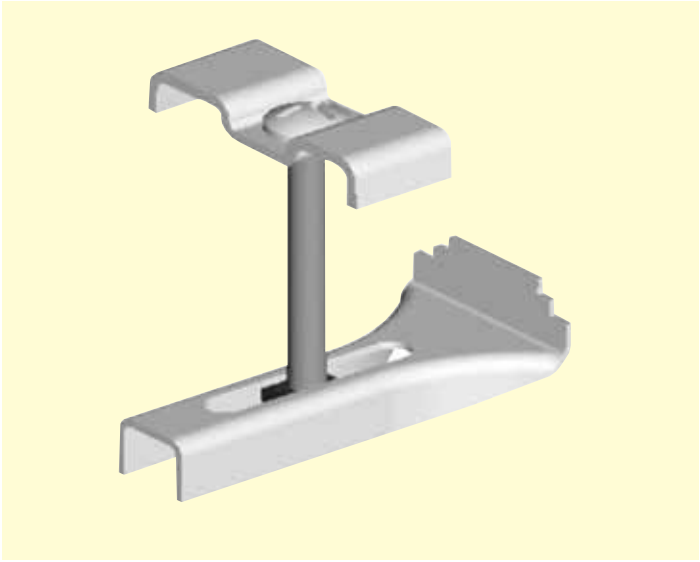
Both finished in: Mechanical Galv to ASTM B695

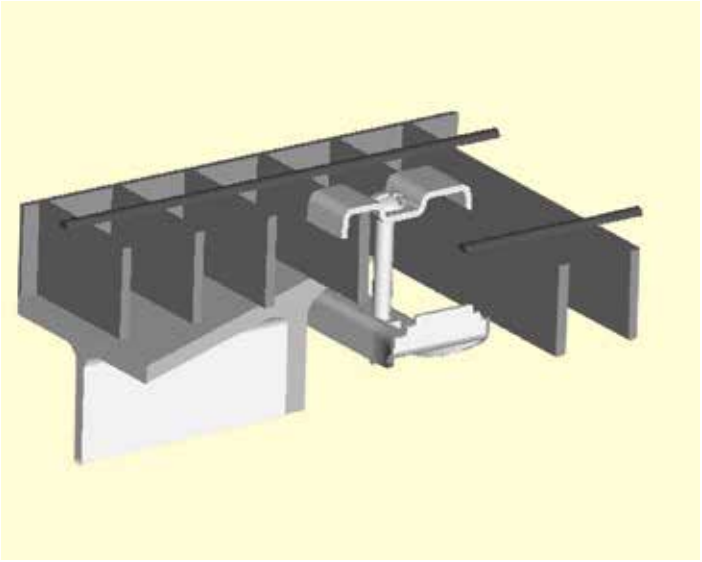
Product code	Material/ Finish	Screw dia	To suit Grating Bar centres	To suit Grating Bar depths (mm)	Tightening torque (Nm)
GF3 S08 ASSY	Option 1	M08	30mm	50	8
GF1 G10 ASSY	Option 2	M10	30 to 41mm	50	5

Installation



Grating Clip





THE GRATING CLIP is the most common style of clip used for fixing down open steel flooring in the UK. It provides a quick and cost effective method of fixing. It is **Hot Dip Galvanised** and comes as standard with a top bracket to suit **30-41mm ctrs grating bars.**

Product code	Screw dia	Grating width min	Grating width max	Grating depth Maximum
GRAT1G08	**M08**	30	41	50

Testing

As previously mentioned the **Floorfix HT , FloorFix** and **Gratefix** have been tested in conditions to simulate the typical applications of these fixings. The fixings were tested for performance in both vertical and horizontal axis to ensure they did not work loose when subjected to vibration conditions. The test set-up can be seen below, the certificates are available on request.

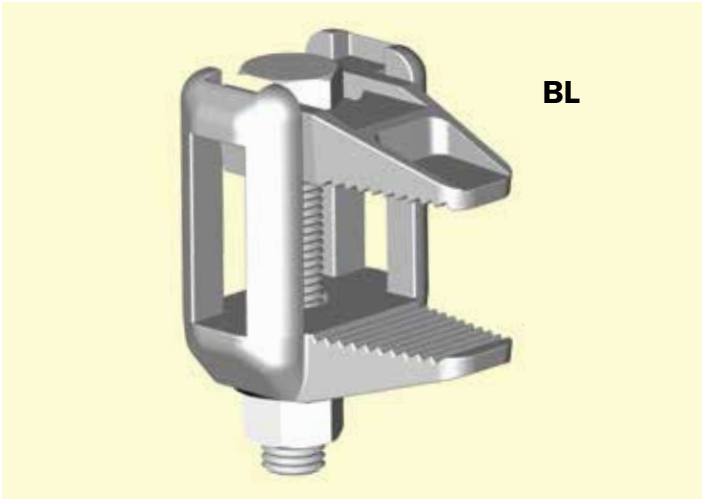
Horizontal Axis Test

Vertical Axis Test

BeamClamp® BL Flange Clamp

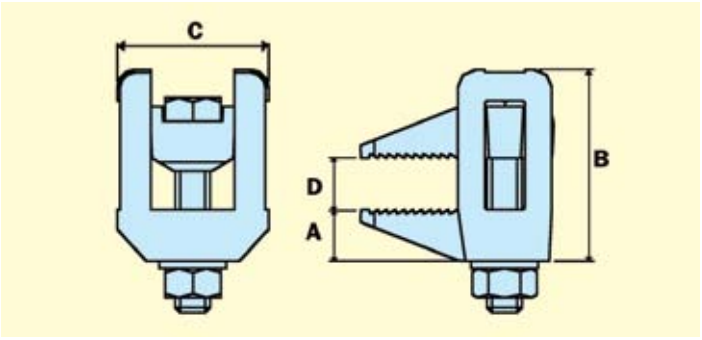
The **BL** Flange Clamp is a clamping system that is used for the suspension of threaded bar to support building services such as cable trays, HVAC systems and lighting. The BL can be supplied as an assembly with a bolt and nut or as a two piece clamp where the user can install their own central threaded product.

The BL Flange Clamp is commonly used with threaded bar as shown on the diagram below but it can be used with other threaded items such as eyebolts or J-Bolts. The BL can also be used with brackets underneath the washer/nut and has been tested for backwards pull off loads to allow it to be used in this condition.



BL

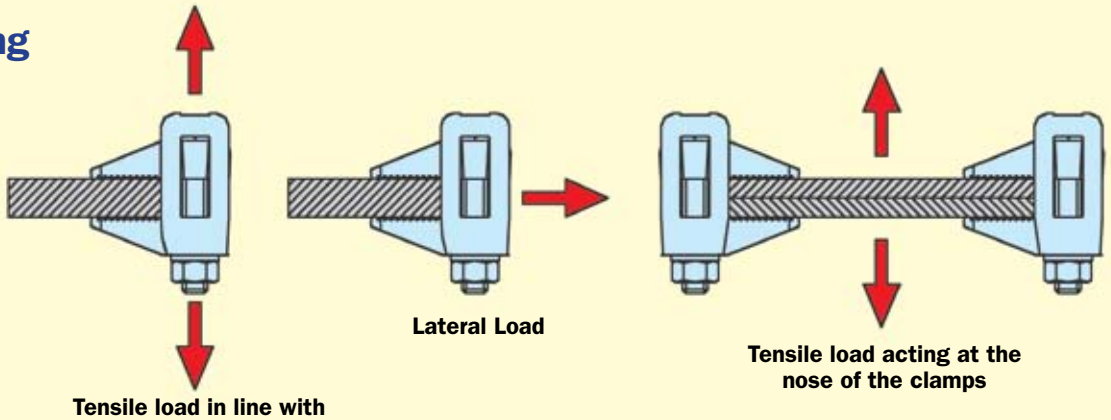
- **Only requires one tool for installation**
- **Hot Dip Galvanised to BS EN ISO 1461**
- **Extensive fixing range**
- **Can accomodate clips/brackets**
- **Tested for Tensile and Lateral Loading**



The Safe Working Loads are based on assemblies tested in typical conditions						3 to 1 Factor of safety applied		
Product Code	**A (mm)**	**B (mm)**	**C (mm)**	**D (mm)**	**Tightening torque (Nm)**	**Tensile load in line with rod (kN)**	**Tensile load at nose (kN) (per pair)**	**Lateral load (kN)**
BLG08A	12.5	45	40	5 to 20	10	1.0	7.4	0.25
BLG10A	14	58	47	6 to 30	20	2.5	9.3	0.40
BLG12A	15	65	51.5	7 to 35	40	5.0	11.0	0.60
BLG16A	20	95	58	8 to 55	90	7.5	20.3	0.70
BLG20A	23	116	66	8.5 to 70	180	9.0	23.3	0.75
BLG24A	26	147	75	9 to 95	200	10.5	34.3	0.80

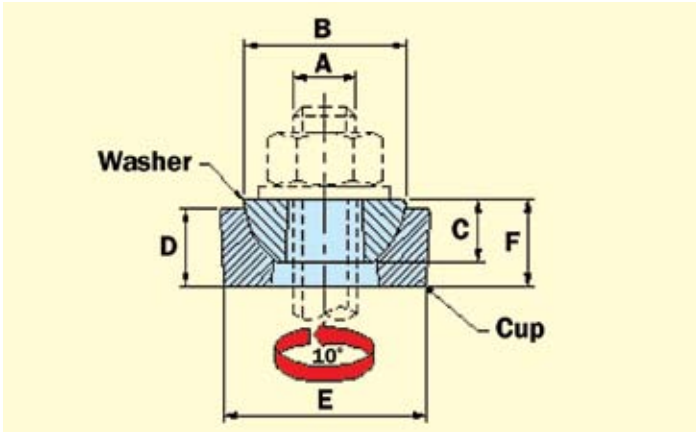
Do not exceed the Safe Working Load (SWL) specified

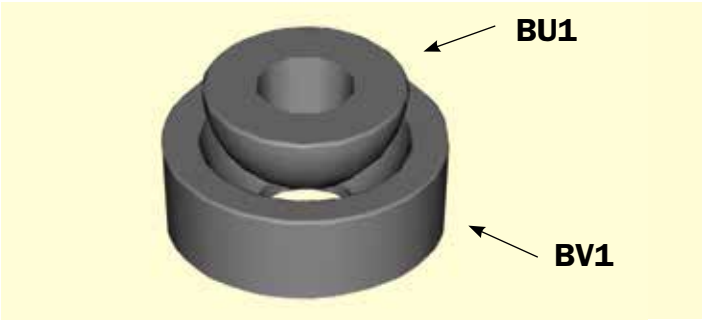
Loading



Building Services Fixings

Hemispherical Cups and Washers - BV1 & BU1





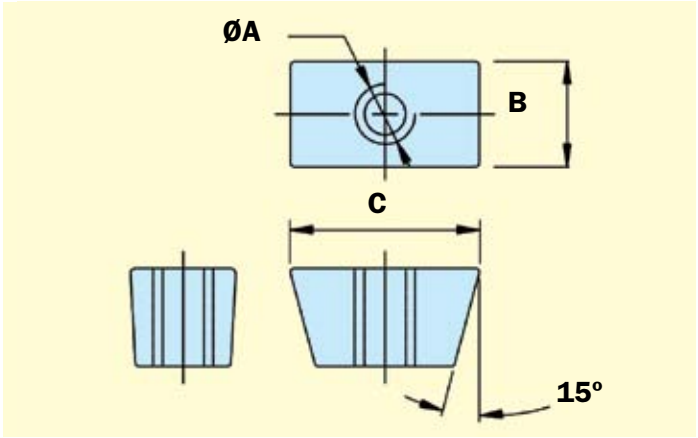
- **Allows a swing of 10° in all directions**
- **Prevents the need to bend threaded bar**
- **Provides pivotable element for adjustment**

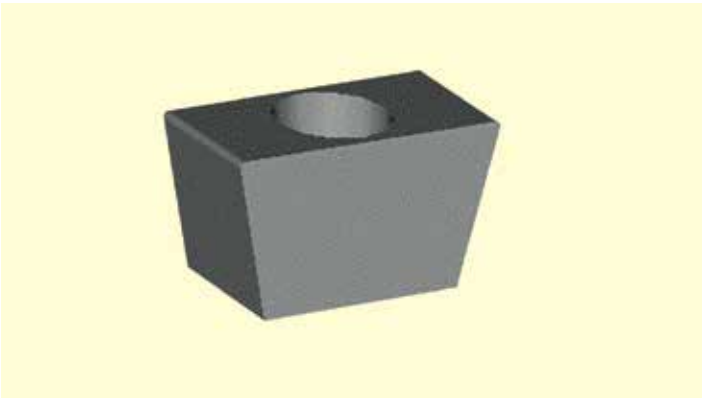
The hemispherical washers **(BU1)** and cups **(BV1)** provide a pivotable action when used with threaded bar. They allow a 10 degree swing in all directions from vertical and when used in pairs can provide a locked connection as shown on page 48. Typical applications would be connecting to a roof rafter where the threaded bar needs to be hanging perpendicular to the floor or for making a ball socket on the legs of air conditioning support frames to allow adjustability for sloping roofs.

Washer part code	Cup part code	A Bolt dia	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Tensile load (kN)
BU1G08	**n/a**	8	22	8	n/a	n/a	n/a	1.25
BU1G10	**BV1G10**	10	25	10	12	32	14	2.5
BU1G12	**BV1G12**	12	29	12	12	35	14	4.12
BU1G16	**BV1G16**	16	34	14	16	41	19	6.6
BU1G20	**BV1G20**	20	44	19	20	54	23.5	9.57
BU1G24	**BV1G24**	24	57	24	25	67	29	12.75

All of the above loads have been subject to a 5:1 Factor of Safety.

Vee Nuts - BX1





Part code	A Bolt dia	B (mm)	C (mm)	Tensile load (kN)
BX1Z06	M06	13	25	2.4
BX1Z08	M08	13	25	2.4
BX1Z10	M10	13	25	2.4

All of the above loads have been subject to a 3:1 Factor of Safety.

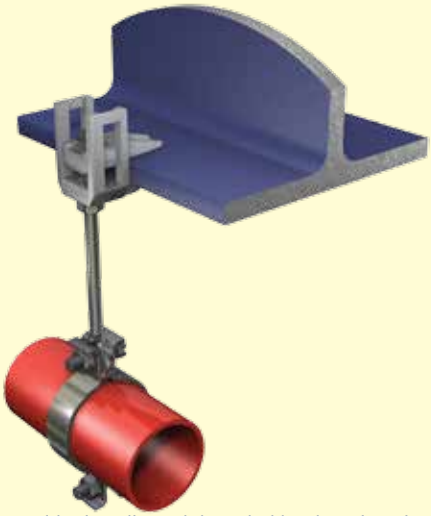
- **M06, M08 and M10 tapped holes**
- **Allows easy fixing to decking**
- **No penetration of the deck required**

Vee nuts have tapered sides at 15° to fit in to the re-entrant channels of metal decking. They are used for fixing light duty building services equipment to the underside of the decking profile.

Suspension Fixings - Applications

Hemispherical cup/washer hanging an I-Section underneath a sloping section

Cantilevered angle support for running cable tray



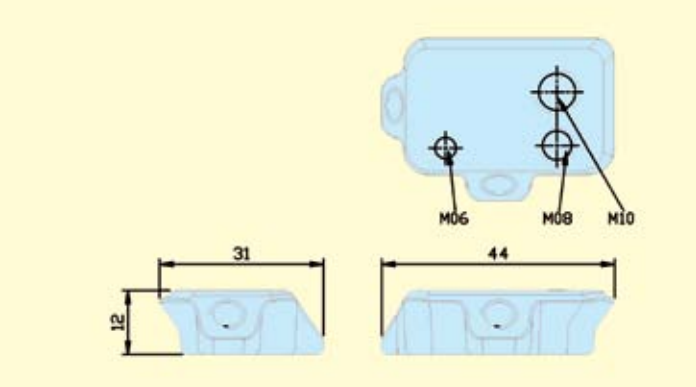
BL Flange clamp with pipe clip and threaded bar hanging pipework

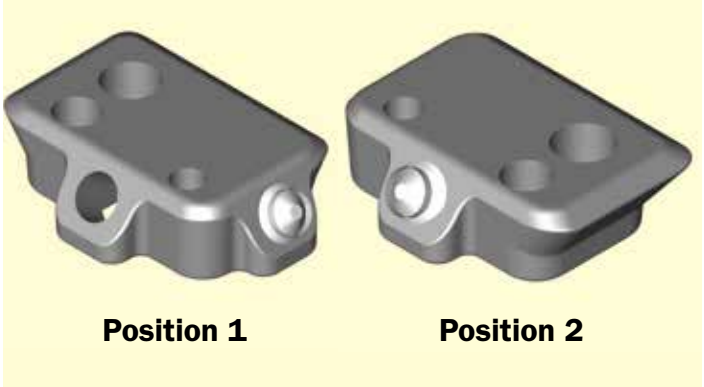
BL Flange clamp with strap hanger and threaded bar hanging pipework

Uni-Wedge® - BN2

- **One fixing suits seven most popular decking profiles**
- **Allows for manufacturing tolerances in the deck profile**
- **Single piece construction**
- **Separate fixing screw to ease final adjustment**
- **M06, M08 & M10 threaded fixing holes**
- **Requires no site power or skilled labour**
- **Tested at the British Board of Agrément**

Uni-Wedge® - BN2





Uni-Wedge has been specifically designed as a single universal fixing suitable for the seven most popular deck profiles available in the UK. These decking profiles are nearly always present on steel constructed multi-storey buildings and **Uni-Wedge** provides a solution to fix building services equipment without penetrating the decking membrane. This fixing provides a guaranteed safe working load and simply requires a standard hexagon key and spanner with no requirement for power, special tools or highly skilled labour. **Uni-Wedge** has a unique body style that allows it to fix to seven decking profiles, making it easy to use and specify. The specific type of decking is not always easy to identify on site and has caused installers problems when trying to acquire the correct fixing to use, but **Uni-Wedge** provides the ideal solution *(see table below).* **Uni-Wedge** has been designed for the end user to ensure that whatever the situation the right connection can be made as quickly as possible. **Uni-Wedge** has a fixing screw that is assembled in the body and provides a positive location in the decking re-entrant channel. This screw is assembled as standard in position 1 but can easily be removed and placed in to position 2 to suit the other decking profiles, see table below:

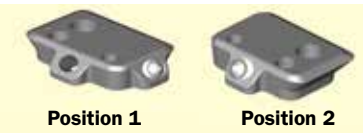
			M06, M08 & M10	Tightening torque (Nm)
Decking Manufacturer	**Decking type**	**Screw position**	**Tensile SWL (kN) (3 to 1 Factor of safety)**	**Use 4mm Hexagon key to tighten grubscrew**
KINGSPAN	Multi deck 60 - V2	1	1.0	8
	Multi deck 80 - V2	1	1.0	8
HARE DECKING	Rib deck 80	1	1.0	8
	Rib deck AL	1	1.0	8
	Rib deck E60	1	1.0	8
SMD	TR60	2	1.0	8
	TR80	2	1.0	8

FINISH: Zinc Plated to BS EN 12329:2000 Grade Fe//Zn5//A (Clear)
MATERIAL: SG (Ductile) Iron to BS EN 1563 Grade EN-GJS-450-10

IMPORTANT!

- **Only use one threaded bar per fixing**
- **The decking must not be damaged and have a fully formed re-entrant channel**
- **Ensure the cone point grub screw is fully engaged into the corner of the re-entrant channel**
- **Do not screw the threaded bar any further in than the top surface of the fixing**
- **Ensure the fixing is a minimum 300mm from any edges of the decking**

Uni-Wedge® Installation Steps



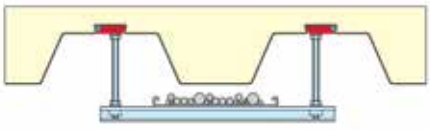
1. Select the correct position for the grub screw to suit decking profile as shown on the left Position 1 or 2.

2. Insert **Uni-Wedge** in to the re-entrant channel of the deck. Ensure the point of the grub screw is not exposed at the top of the hole as this will stop **Uni-Wedge** fitting.

3. Tighten the grub srew to secure the fixing. We recommend a tightening torque of 8Nm to achieve a guaranteed SWL.

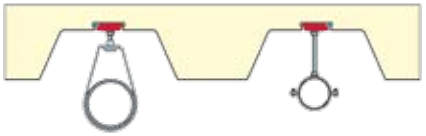
4. Once the grub screw is secured one of the **M06, M08 or M10** threaded holes can be fixed to. This maybe threaded bar, eyebolts, J-bolts or any other threaded items used for suspending building services. We always recommend the threaded item is locked in to position using a lock nut to the underside of **Uni-Wedge.**

Uni-Wedge® Applications



Strut support for cable tray

Suspended ceiling detail using hook bolts

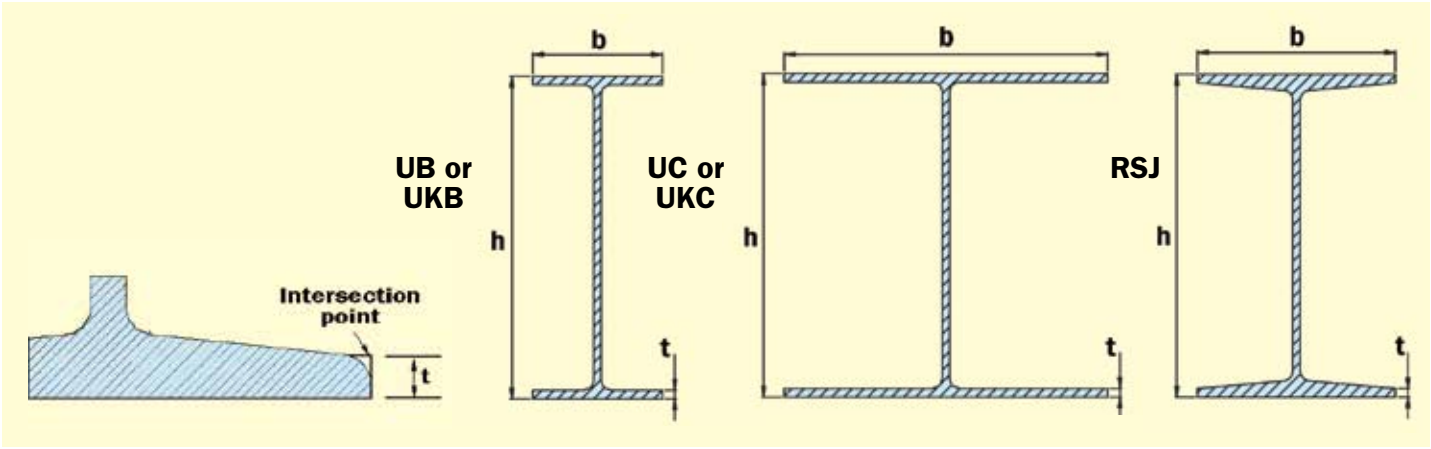


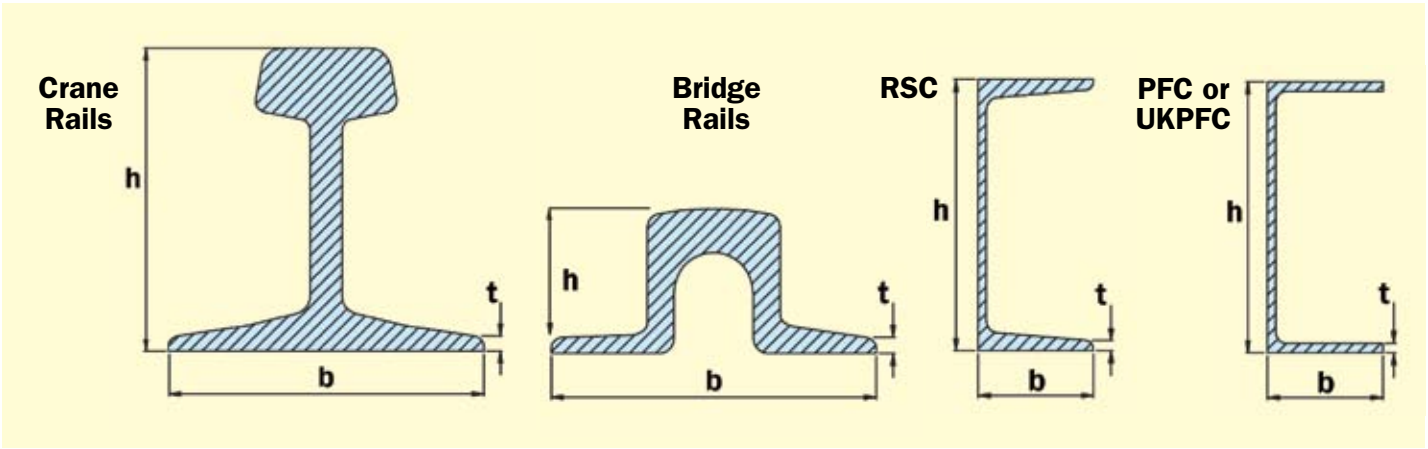
Typical pipe supports

Steelwork Dimensions

These two pages are designed to give a quick reference to the most important dimensions of the steelwork required for making a **BeamClamp** connection.

All the dimensions given for 't' are based on the dimension at the edge of the steel flange, even for tapered steelwork as this is the critical dimension.





UB / UKB - Universal Beams

Designation	Weight (kg/m)	h (mm)	b (mm)	t (mm)
1016x305x487	487	1036.1	308.5	54.1
1016x305x438	438	1025.9	305.4	49
1016x305x393	393	1016	303	43.9
1016x305x349	349	1008.1	302	40
1016x305x314	314	1000	300	35.9
1016x305x272	272	990.1	300	31
1016x305x249	249	980.2	300	26
1016x305x222	222	970.3	300	21.1
914x419x388	388	921	420.5	36.6
914x419x343	343	911.8	418.5	32
914x305x289	289	926.6	307.7	32
914x305x253	253	918.4	305.5	27.9
914x305x224	224	910.4	304.1	23.9
914x305x201	201	903	303.3	20.2
838x292x226	226	850.9	293.8	26.8
838x292x194	194	840.7	292.4	21.7
838x292x176	176	834.9	291.7	18.8
762x267x197	197	769.8	268	25.4
762x267x173	173	762.2	266.7	21.6
762x267x147	147	754	265.2	17.5
762x267x134	134	750	264.4	15.5
686x254x170	170	692.9	255.8	23.7
686x254x152	152	687.5	254.5	21
686x254x140	140	683.5	253.7	19
686x254x125	125	677.9	253	16.2
610x305x238	238	635.8	311.4	31.4
610x305x179	179	620.2	307.1	23.6

Designation	Weight (kg/m)	h (mm)	b (mm)	t (mm)
610x305x149	149	612.4	304.8	19.7
610x229x140	140	617.2	230.2	22.1
610x229x125	125	612.2	229	19.6
610x229x113	113	607.6	228.2	17.3
610x229x101	101	602.6	227.6	14.8
533x210x122	122	544.5	211.9	21.3
533x210x109	109	539.5	210.8	18.8
533x210x101	101	536.7	210	17.4
533x210x92	92	533.1	209.3	15.6
533x210x82	82	528.3	208.8	13.2
457x191x98	98	467.2	192.8	19.6
457x191x89	89	463.4	191.9	17.7
457x191x82	82	460	191.3	16
457x191x74	74	457	190.4	14.5
457x191x67	67	453.4	189.9	12.7
457x152x82	82	465.8	155.3	18.9
457x152x74	74	462	154.4	17
457x152x67	67	458	153.8	15
457x152x60	60	454.6	152.9	13.3
457x152x52	52	449.8	152.4	10.9
406x178x74	74	412.8	179.5	16
406x178x67	67	409.4	178.8	14.3
406x178x60	60	406.4	177.9	12.8
406x178x54	54	402.6	177.7	10.9
406x140x46	46	403.2	142.2	11.2
406x140x39	39	398	141.8	8.6
356x171x67	67	363.4	173.2	15.7

Designation	Weight (kg/m)	h (mm)	b (mm)	t (mm)
356x171x57	57	358	172.2	13
356x171x51	51	355	171.5	11.5
356x171x45	45	351.4	171.1	9.7
356x127x39	39	353.4	126	10.7
356x127x33	33	349	125.4	8.5
305x165x54	54	310.4	166.9	13.7
305x165x46	46	306.6	165.7	11.8
305x165x40	40	303.4	165	10.2
305x127x48	48	311	125.3	14
305x127x42	42	307.2	124.3	12.1
305x127x37	37	304.4	123.3	10.7
305x102x33	33	312.7	102.4	10.8
305x102x28	28	308.7	101.8	8.8
305x102x25	25	305.1	101.6	7
254x146x43	43	259.6	147.3	12.7
254x146x37	37	256	146.4	10.9
254x146x31	31	251.4	146.1	8.6
254x102x28	28	260.4	102.2	10
254x102x25	25	257.2	101.9	8.4
254x102x22	22	254	101.6	6.8
203x133x30	30	206.8	133.9	9.6
203x133x25	25	203.2	133.2	7.8
203x102x23	23	203.2	101.8	9.3
178x102x19	19	177.8	101.2	7.9
152x89x16	16	152.4	88.7	7.7
127x76x13	13	127	76	7.6