

Components of a Girder Clamp

1. Standard Grade 8 Hex Nut

2. Standard Hardened Washer

3. Lindapter Clamp

Dependent on the application different clamps could be used i.e. Types A, B, BR, AF, LR, LS, D2 or D3.

4. Packing Piece

In combination with the clamps mentioned above these parts increase the tail length to enable the product to sit correctly on the beam.

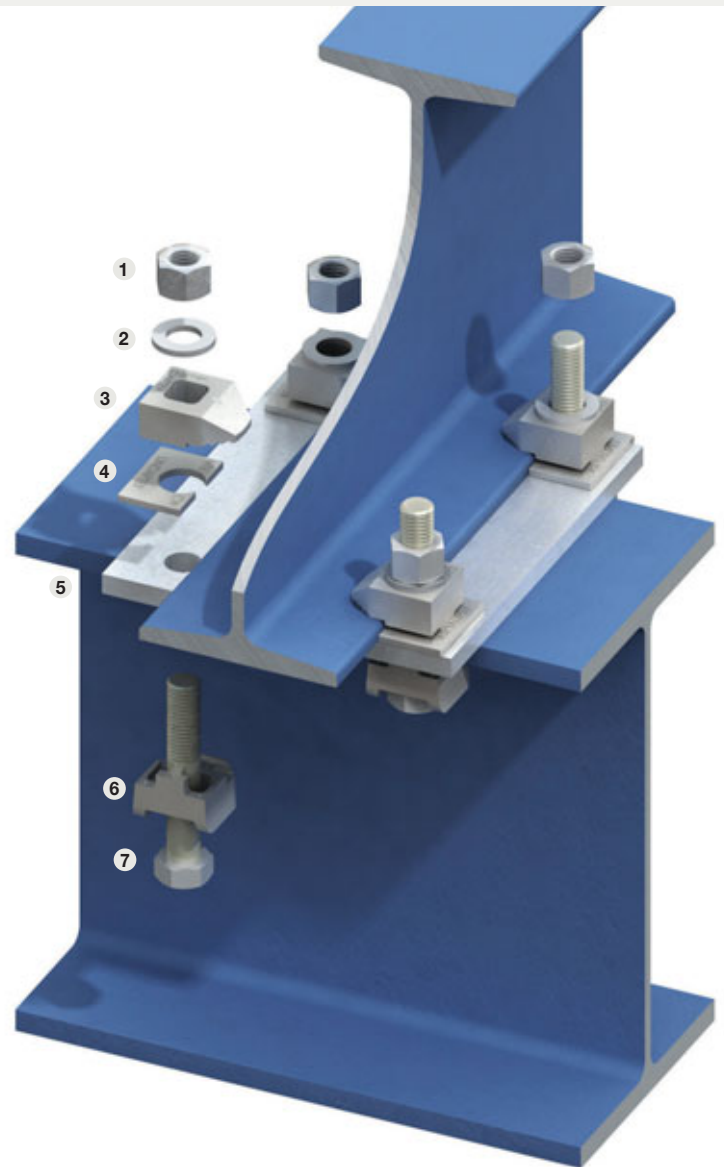
5. Location Plate (can be supplied if required)

This is an essential part of the girder clamp assembly that enables all the components to be located in the correct position. The hole centres and plate thickness are calculated to suit the individual application.

6. Lindapter Clamp

This can be of a similar type as 3 (above), although certain products are designed to specifically work together i.e. A + B.

7. Standard Grade 8.8 Hex Bolt or Setscrew



Loads

The table beneath shows tensile and frictional load capabilities for a standard four bolt Girder Clamp using 4 bolts and 8 clamps at a 90° crossover angle. Lindapter is only too pleased to carry out all design work for individual connections free of charge based on the following details:

- Load per connection
- Size and type of both beams
- Angle of crossover
- Distance between beams
- Inclination of beams

Clamps	Bolt size	Types A, B, BR, LR				Type AF	
		M12	M16	M20	M24	M24	M24
Bolt grade		8.8	8.8	8.8	8.8	8.8	10.9
Tensile / for 4 bolts	kN	23.2	29.2	59.0	78.8	160.0	250.0 ¹⁾
Friction / for 4 bolts	kN	1.4	3.0	6.0	9.0	60.0 ²⁾	70.0 ²⁾
Torque	Nm	69	147	285	491	800	1000

1) Factor of safety 3.2:1

2) Factor of safety 2:1

➔ All loads are based on actual test data having a factor of safety for friction against slip and for tensile against ultimate failure (typically 5:1). Use of lower safety factor is not recommended.

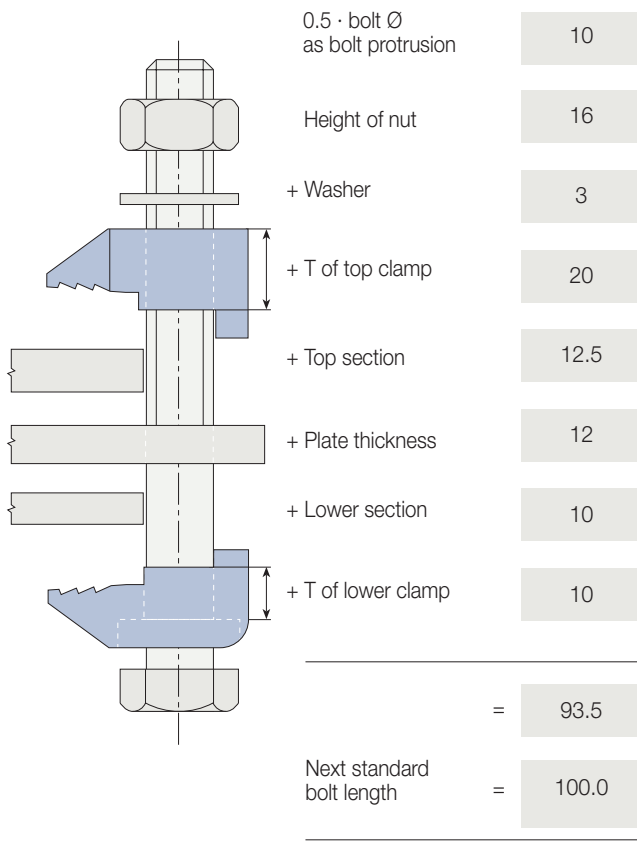
Approvals

All approvals apply to Girder Clamps using types A and B only, in sizes from M12 to M24 Further information is available upon request.



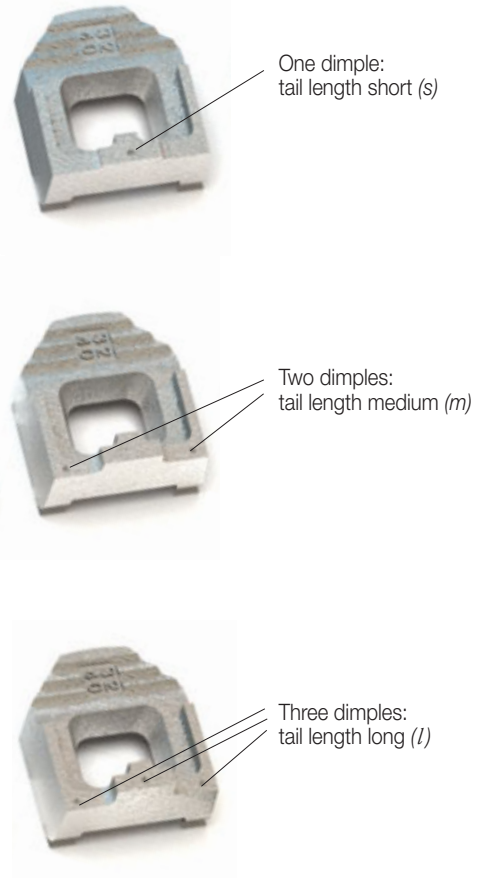
Bolt length calculation for a standard Lindapter Girder Clamp, example shows Type A and B M20

To calculate the bolt length all parts the bolt will go through have to be added up. The next longer standard bolt length should be used.



Tail length

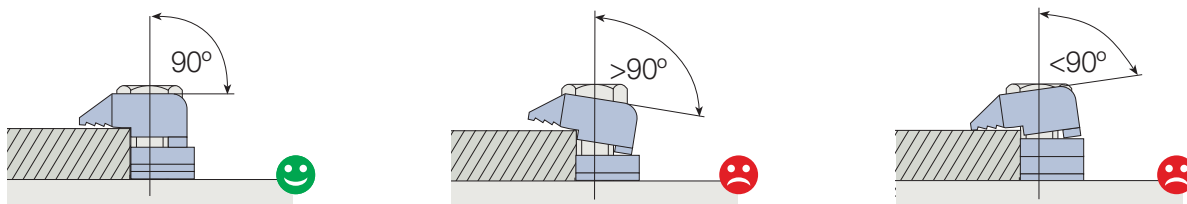
The different tail length can be identified by a code of dimples underneath the clamps.



Correct installation of types A and B

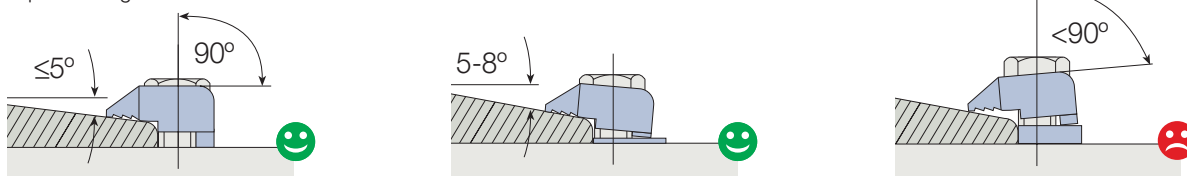
showing type A as an example

Parallel flanges



Maximum tail length tolerance of -1mm (up to M16) and -1.5mm (M20, M24) before applying the torque is acceptable.

Tapered flanges

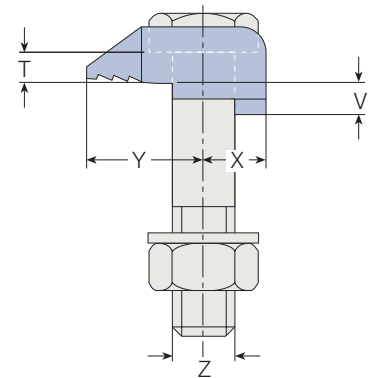
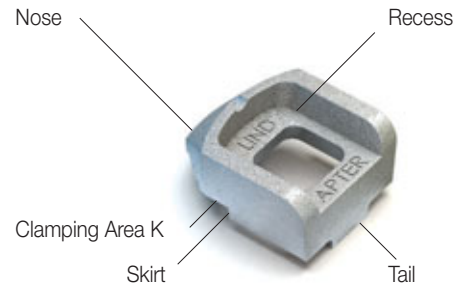
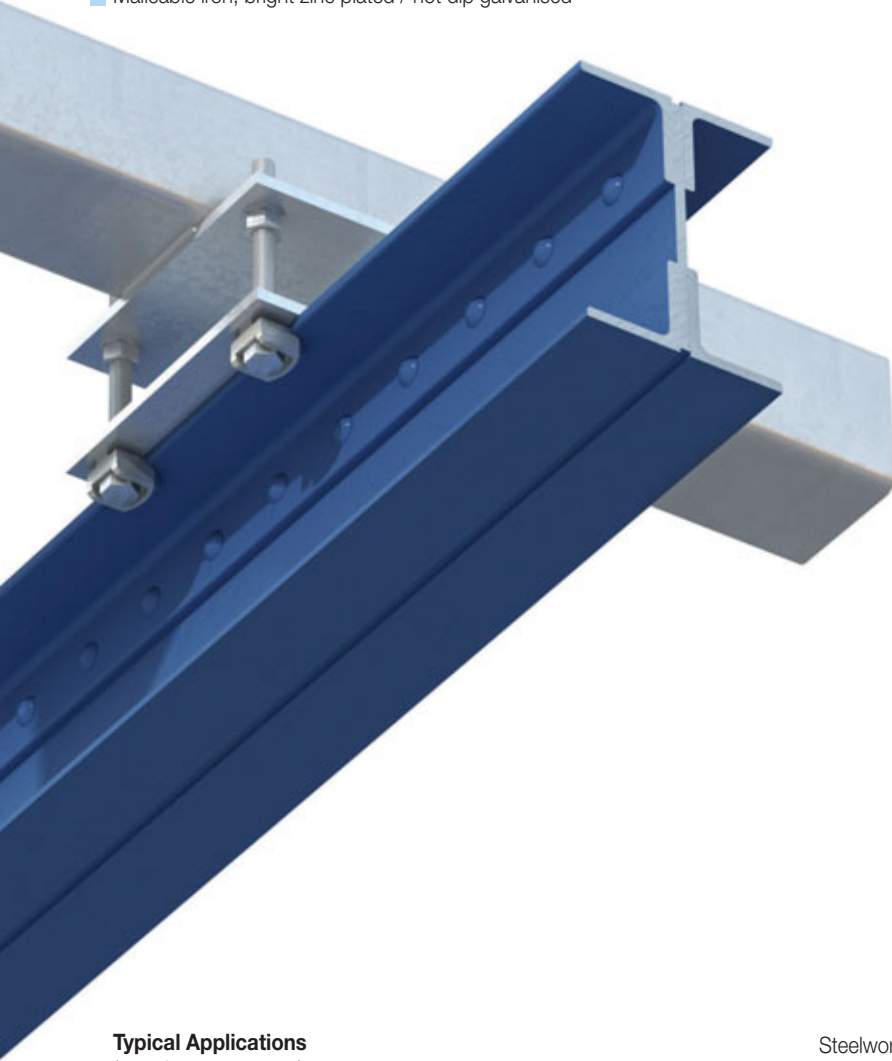


On 6° and 8° slopes types A and B require a special tail length/packing combination which will allow the clamp to tilt back slightly (incorporated into the combination table on page 15).

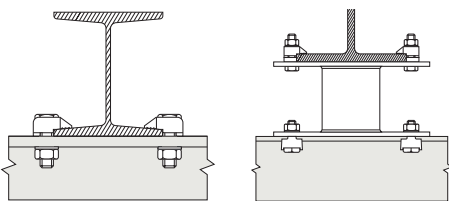
For applications above 8° please see types AF, LR and LS.

Type A

Malleable iron, bright zinc plated / hot dip galvanised



Typical Applications
(see also page 36-39)



Steelwork clamp with recessed top to hold the bolt head captive whilst the nut is tightened. The skirt prevents the clamp rotating during installation. Suitable for flanges up to 8°. The clamp is installed correctly when the area 'K' grips the flange. The tail must be chosen to suit the thickness of the flange being gripped. For correct tail length/packing combinations please see page 15.

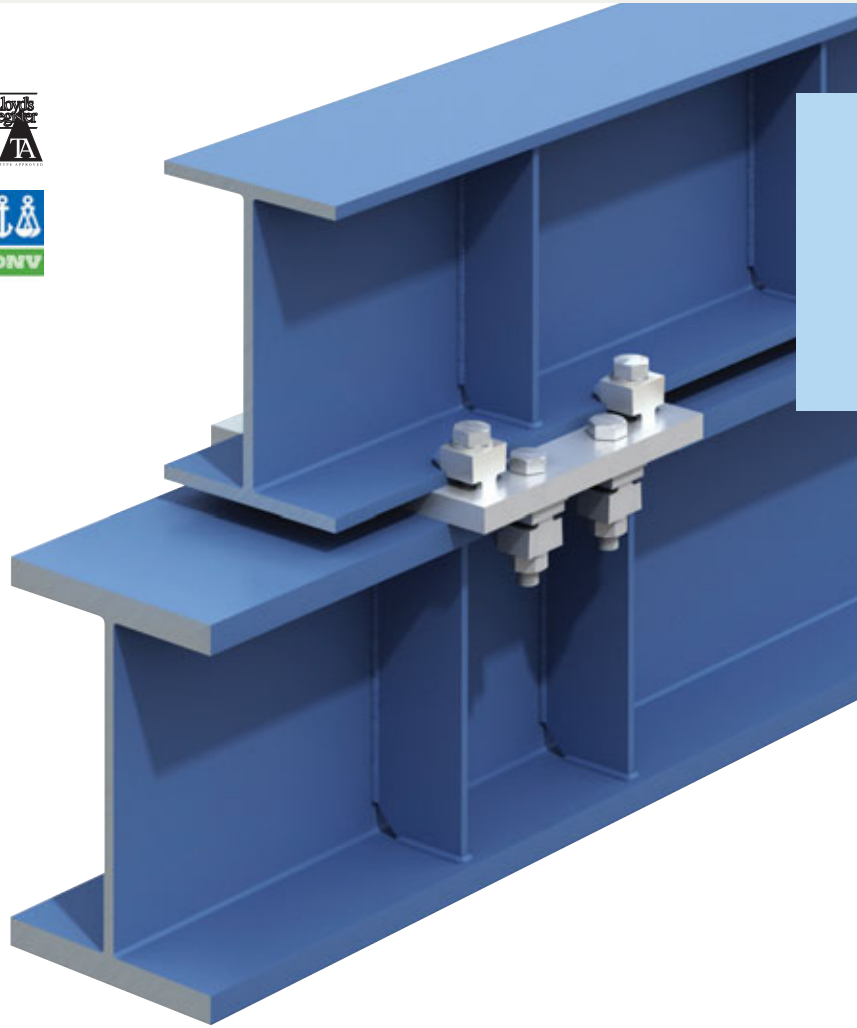
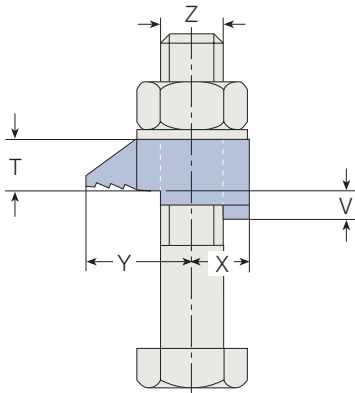
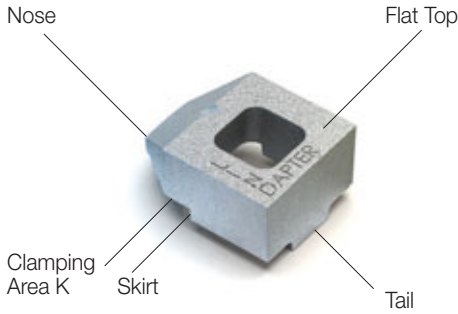
Product Code	Bolt 8.8 Z	Safe Working Loads (5:1 Factor of Safety)			Torque Nm	Y mm	X mm	Dimensions Tail Length V			T mm	Width mm
		Tensile / 1 Bolt kN	Frictional / 2 Bolts kN	short mm				medium mm	long mm			
A08	M8	1.0	-	6	16	8	-	4	-	4	20	
A10	M10	1.5	-	20	20	11	4	5	7	5	26	
A12	M12	5.8	0.7	69	26	13	4.5	6	9.5	6	29	
A16	M16	7.3	1.5	147	30	16	5.5	8	11	8	36	
A20	M20	14.7	3	285	36	19	7	10	12.5	10	46	
A24	M24	19.7	4.5	491	48	25	9	12	16	12	55	

➤ For higher loads the type AF should be used (see page 16).

■ Order example: A16 medium HDG

Type B

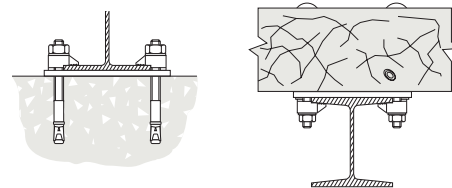
Malleable iron, bright zinc plated / hot dip galvanised



Steelwork clamp with flat top which allows the bolt head or nut to be rotated. Suitable for use with all bolts, studs, tie rods and J-bolts, and flanges up to 8°. The clamp is installed correctly when the area 'K' grips the flange. The tail must be chosen to suit the thickness of the flange being gripped. For correct tail length/packing combinations please see page 15.

Typical Applications

(see also page 36-39)



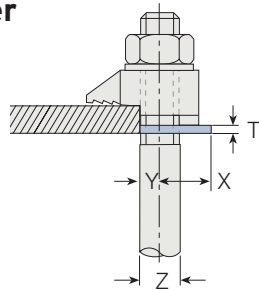
Product Code	Bolt 8.8 Z	Safe Working Loads (5:1 Factor of Safety)			Torque Nm	Y mm	X mm	Dimensions Tail Length V			T mm	Width mm
		Tensile / 1 Bolt kN	Frictional / 2 Bolts kN	short mm				medium mm	long mm			
B08	M8	1.0	-	6	16	8	-	4	-	8	20	
B10	M10	1.5	-	20	20	11	4	5	7	10	26	
B12	M12	5.8	0.7	69	26	13	4.5	6	9.5	12	29	
B16	M16	7.3	1.5	147	30	16	5.5	8	11	16	36	
B20	M20	14.7	3	285	36	19	7	10	12.5	20	46	
B24	M24	19.7	4.5	491	48	25	9	12	16	24	55	

➤ For higher loads the type AF should be used (see page 16).

■ Order example: B16 medium HDG

Type CW - Clipped Washer

Mild Steel, bright zinc plated / hot dip galvanised



Packing used to adjust the tail length of the clamp to meet differing beam flange thicknesses.

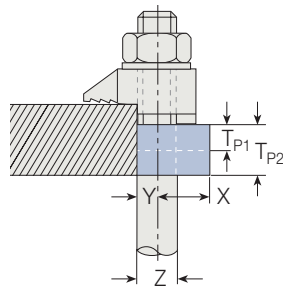


Product Code	Bolt Z	Dimensions			
		Y mm	X mm	T mm	Width mm
CW08	M8	4	9,5	2	19
CW10	M10	5	14	2	25
CW12	M12	6	19,5	2,5	31
CW16	M16	8	17,5	3	38
CW20	M20	10	22	4	44
CW24	M24	12	29	4	57

Order example: CW08 BZP

Type P1 short / P2 short

Mild Steel, malleable iron, bright zinc plated / hot dip galvanised



Packing used to adjust the tail length of the clamp to meet differing beam flange thicknesses.

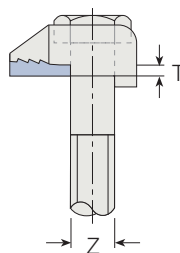


Product Code	Bolt Z	Dimensions				
		Y mm	X mm	TP1 mm	TP2 mm	Width mm
P1S08 P2S08	M8	4	10	4	8	21
P1S10 P2S10	M10	5	13	5	10	24
P1S12 P2S12	M12	6	16	6	12	30
P1S16 P2S16	M16	8	21	8	16	35
P1S20 P2S20	M20	10	23	10	20	43
P1S24 P2S24	M24	12	32	12	24	54

Order example: P1S16 HDG

Type T

Malleable iron, bright zinc plated / hot dip galvanised



To fill the nose of type A and B making it horizontal. For parallel flanges only. The thickness 'T' should be added for tail length and bolt length calculations. The product is for aesthetic purposes only and technically not necessary.

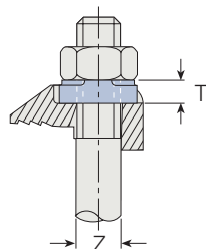


Product Code	Bolt Z	Dimensions
		T mm
T12	M12	3
T16	M16	4
T20	M20	5
T24	M24	6,5

Order example: T12 BZP

Type W

Mild Steel, malleable iron, bright zinc plated / hot dip galvanised



Washer to fill the recess of type A to enable the nut to be tightened. When calculating the bolt length please add 'T'.

Product Code	Bolt Z	Dimensions
		T mm
W08	M8	4
W10	M10	5,5
W12	M12	6,5
W16	M16	8
W20	M20	9,5

Order example: W08 BZP