

Cavity Fixings

In the late 1940's Lindapter revolutionised the concept of 'blind' fixing, or where limited access is available, with the development of the Lindibolt. Some time later, following the introduction and wide acceptance of hollow section steelwork, the range was expanded to include the Holo-Bolt®.

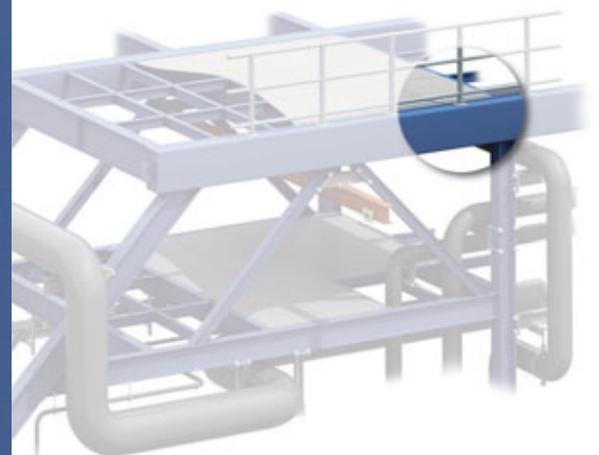
Due to the continued development and expansion of SHS into the wide variety which is available today from square, rectangular, circular to oval this product group has also seen a rapid expansion in diameters, lengths, finishes, and head types finally culminating in the Design Councils Millennium Products Award for Innovation which the Holo-Bolt® attained in 2000.

Following comprehensive testing the Holo-Bolt® is now included in the BCSA/SCI publication 'Joints in Steel Construction – Simple Connections', more commonly known simply as the Green Book, as well as being approved by the Deutsches Institut für Bautechnik.

The Holo-Bolt® is ideal for use on any steel structure eliminating the need for unsightly welding or strapping, installation is simple and quick requiring only the type of hand tools commonly available on site.

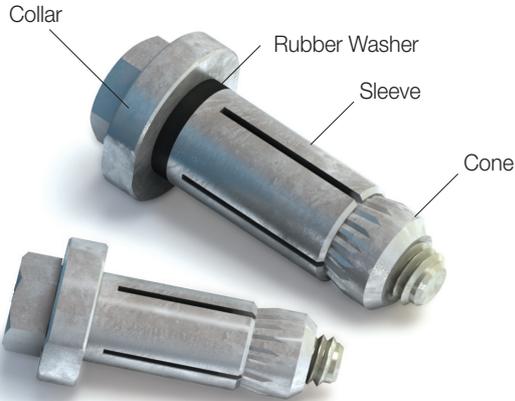
Typical Holo-Bolt® applications include:

- Primary Steelwork
- Secondary Steelwork
- Bridges
- Cladding
- Balconies
- Towers and masts
- Staircases and handrails



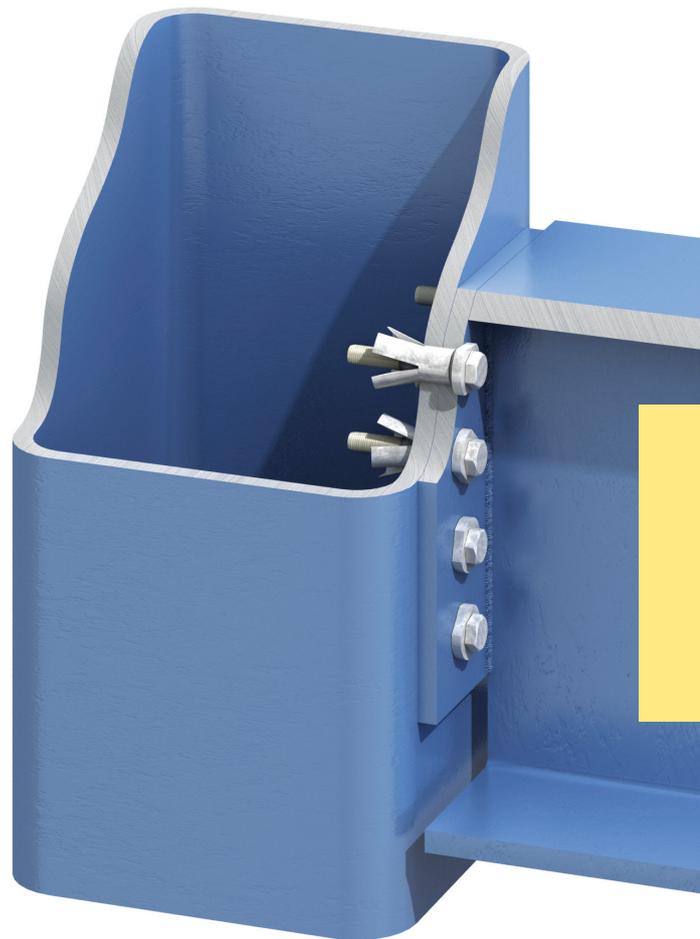
Type HB - Hollo-Bolt®

Steel, bright zinc plated plus JS 500
 Steel, hot dip galvanised
 Stainless Steel Grade 316

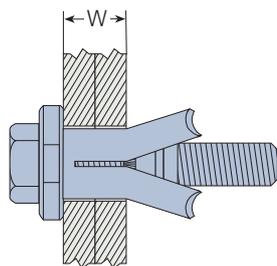
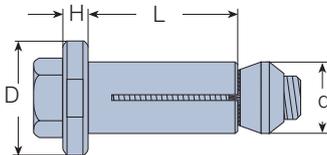


Suitable for hollow sections, tubes and where access is available from one side only. For corrosion protection the Hollo-Bolt® comes with additional JS500 protection as standard or hot dip galvanised. Sizes M16 and M20 have a patented collapse mechanism for optimised clamping force. Speedy installation with standard tools and for the Type Hollo-Bolt® Flush Fit with installation nut. (One free per box)

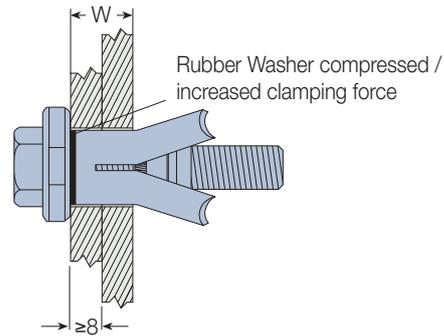
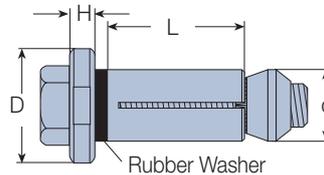
Awarded the Design Council's Millennium Product status for innovation in the year 2000.



Hollo-Bolt®: M8, M10, M12



Hollo-Bolt®: M16, M20



Head Variations



Flush Fit

M8-M12



Countersunk (Head)

M8-M16



Hexagonal Head

M8-M20



Socket Head Cap Screw

Supplied to order



Button Head Security

Supplied to order

Type HB - Hollo-Bolt®

Product Code	Bolt	Clamping Thickness	Outer Ply ¹⁾	Sleeve		Collar		Torque	SHS Section		Safe Working Loads ²⁾ (5:1 Factor of Safety)		
				Length	Outer Ø	Height Ø	A/F		Material	Dimensions	Tensile	Single Shear	
				L mm	d mm	H mm	D mm						mm
HB08-1	M8x50	3 - 22	-	30							4.0		
HB08-2	M8x70	22 - 41	-	49	13.75	5	22	19	23	S275	140x140x5.0 150x150x6.3	4.0	5.0
HB08-3	M8x90	41 - 60	-	68							200x200x10.0	4.0	
HB10-1	M10x55	3 - 22	-	30							100x100x6.3 140x140x5.0	7.0 6.0	
HB10-2	M10x75	22 - 41	-	48	17.75	6	29	24	45	S275	140x140x8.0	8.5	10.0
HB10-3	M10x90	41 - 60	-	67							150x150x6.3 180x180x8.0 200x200x10.0	8.0 7.0 8.0	
HB12-1	M12x60	3 - 25	-	35							140x140x5.0 140x140x8.0	6.5 10.5	
HB12-2	M12x90	25 - 47	-	57	19.75	7	32	30	80	S275	150x150x6.3	10.0	15.0
HB12-3	M12x110	47 - 69	-	79							180x180x8.0 200x200x10.0	10.0 10.5	
HB16-1	M16x75	12 - 29	8	41.5							100x100x6.3 100x100x10.0 140x140x5.0 140x140x6.3	13.5 18.5 8.0 15.0	
HB16-2	M16x100	29 - 50	8	63	25.75	8	38	36	190	S275	140x140x8.0	20.0	30.0
HB16-3	M16x120	50 - 71	8	84							140x140x12.5 150x150x6.3 180x180x8.0 200x200x10.0	21.0 11.5 17.0 15.0	
HB20-1	M20x90	12 - 34	8	50							140x140x6.3 140x140x8.0 140x140x10.0	16.0 23.0 25.0	
HB20-2	M20x120	34 - 60	8	76	32.75	10	51	46	300	S275	140x140x12.5	35.0	40.0
HB20-3	M20x150	60 - 86	8	102							150x150x6.3 180x180x8.0 200x200x10.0	12.5 18.0 19.0	

Type HBFF - Hollo-Bolt® Flush Fit

Product Code	Counter Sunk Bolt	Clamping Thickness	Outer Ply	Sleeve		Collar		Installation Tool A/F	Torque	SHS Section		Safe Working Loads (5:1 Factor of Safety)		
				Length	Outer Ø	Height Ø	A/F			Material	Dimensions	Tensile	Single Shear	
				L mm	d mm	H mm	D mm							mm
HBFF08-1	M8x50	5	10 - 27	8	30	13.75	5	24	19	23	S275	140x140x5.0 150x150x6.3 180x180x8.0 200x200x10.0	4.0 4.0 4.0 4.0	5.0
HBFF10-1	M10x60	6	12 - 27	10	30	17.75	6	30	24	45	S275	100x100x6.3 140x140x5.0 140x140x8.0 150x150x6.3 180x180x8.0 200x200x10.0	7.0 6.0 8.5 8.0 7.0 8.0	10.0
HBFF12-1	M12x60	8	12 - 30	10	35	19.75	7	33	30	80	S275	140x140x5.0 140x140x8.0 150x150x6.3 180x180x8.0 200x200x10.0	6.5 10.5 10.0 10.0 10.5	15.0

Order example: HB08-1 BZP plus JS 500
HBFF08-1 BZP plus JS 500 without / with ____ installation nut(s)

- 1) The thickness of the outer ply needs to be at least 8mm. If necessary spacer washers should be used beneath the collar to increase the thickness to 8mm.
- 2) The Hollo-Bolt® can be used on a wide variety of SHS sections; those shown above are only representative to give an indication of variations in Hollo-Bolt® capacity.
The safe working loads, in both tension and shear, are applicable to the Hollo-Bolt® only, failure of the section, particularly on those with thin walls and a wide chord face, could occur at a lower figure and its strength should be checked using the 'Green Book' design guide.

■ Joints in Steel Construction - Simple Connections

The tables on the opposite page state the SWL with a 5:1 factor of safety and should be used for secondary applications, for primary design please consult the guide Joints in Steel Construction - Simple Connections.

The guide provides design guidance for the use of Hollo-Bolt® and gives essential information for structural steelwork connections for use in buildings designed by the 'Simple Method' i.e. braced frames where connections carry mainly shear and axial loads only.

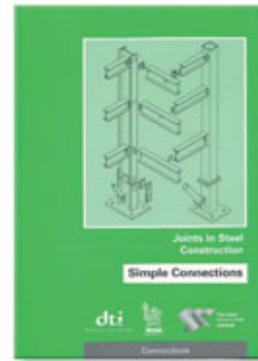
To obtain further details on the Simple Connections guide please contact:

The Steel Construction Institute

Tel: +44 (0) 1344 636 525

Fax: +44 (0) 1344 636 570

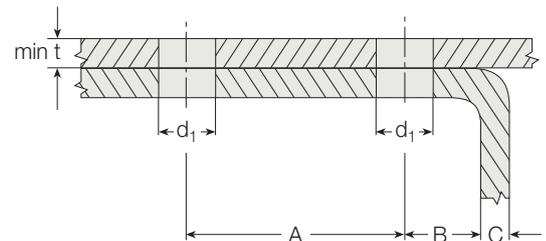
www.steel-sci.org



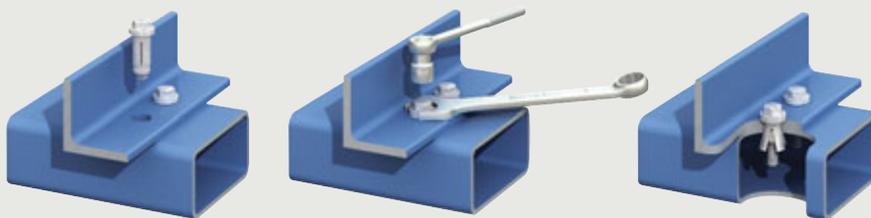
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■ Bolt Diameter, Hole and Edge Distances Type HB

Type	Clearance	Hole Distances		Edge Distances
	Hole Ø d_1 mm	min A mm	min B mm	B+C mm
HB08	14 (+1.0 / -0.2)	35	13	B + C > 17.5
HB10	18 (+1.0 / -0.2)	40	15	B + C > 22.5
HB12	20 (+1.0 / -0.2)	50	18	B + C > 25.0
HB16	26 (+2.0 / -0.2)	55	20	B + C > 32.5
HB20	33 (+2.0 / -0.2)	70	25	B + C > 33.0



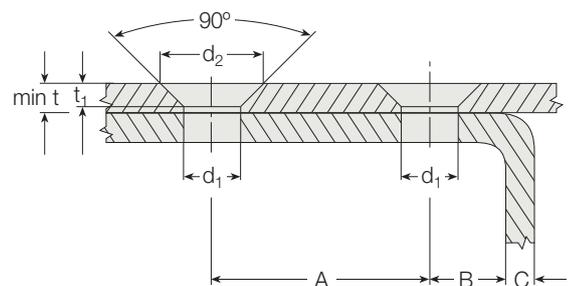
Installation Hollo-Bolt®



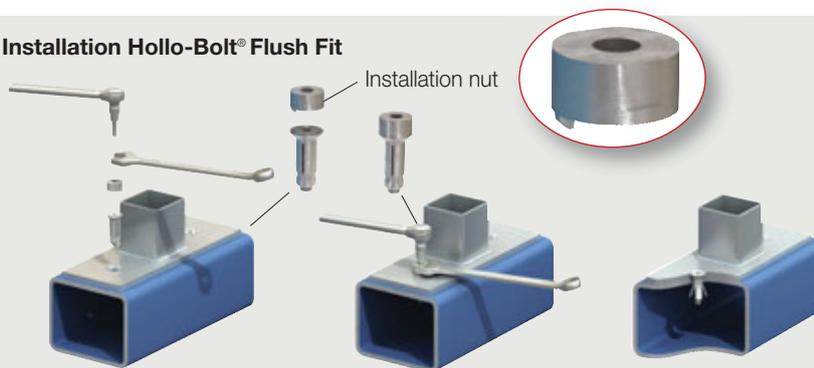
1. Align pre-drilled fixture and steelwork. Insert Hollo-Bolt® through fixture and steelwork.
2. Grip the Hollo-Bolt® collar with an open ended spanner.
3. Using a torque wrench, tighten the central bolt to the recommended torque.

■ Bolt Diameter, Hole and Edge Distances Type HBFF

Type	Clearance	Countersunk		Hole Distances		Edge Distances
	Hole Ø d_1 mm	Ø d_2 mm	Depth t_1 mm	min A mm	min B mm	B+C mm
HBFF08	14 (+1.0 / -0.2)	27	6.5	35	13	B + C > 17.5
HBFF10	18 (+1.0 / -0.2)	31	6.5	40	15	B + C > 22.5
HBFF12	20 (+1.0 / -0.2)	35	7.5	50	18	B + C > 25.0



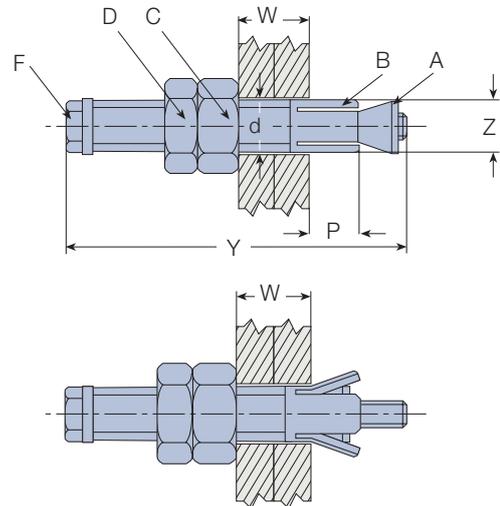
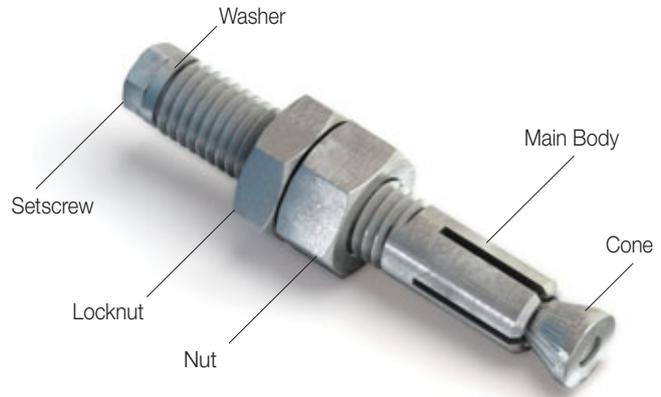
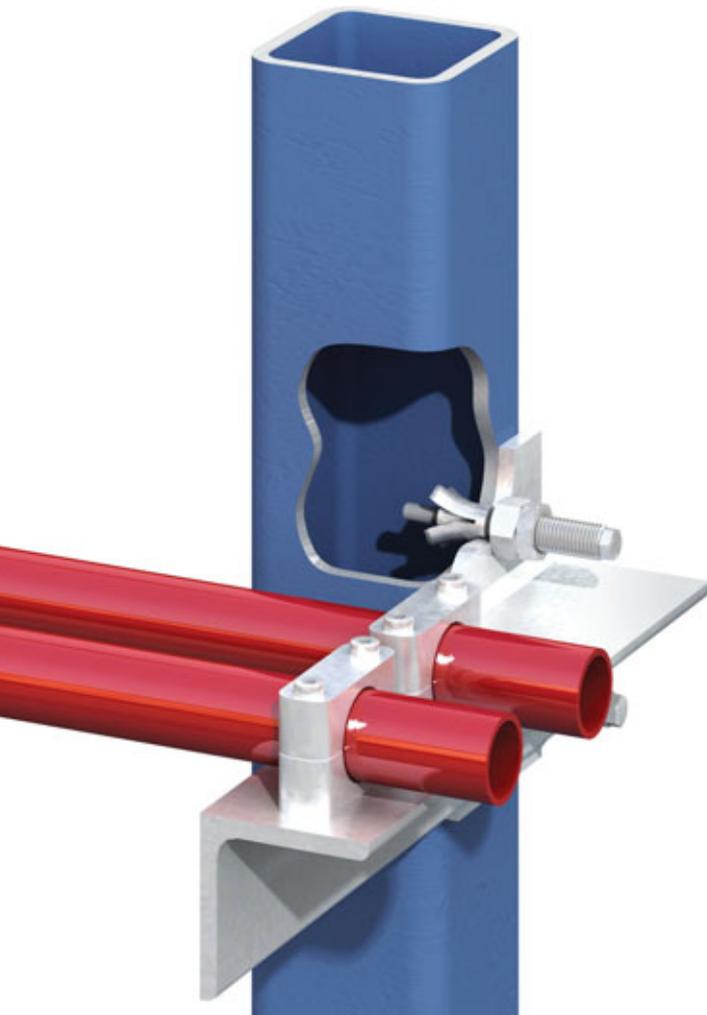
Installation Hollo-Bolt® Flush Fit



1. Align pre-drilled fixture and steelwork. Insert Hollo-Bolt® through fixture and steelwork.
2. Apply installation nut and grip nut with an open ended spanner.
3. Using a torque wrench, tighten the central counter-sunk bolt to the recommended torque.

Type LB2 - Lindibolt 2®

Steel, Stainless Steel Grade 316, bright zinc plated



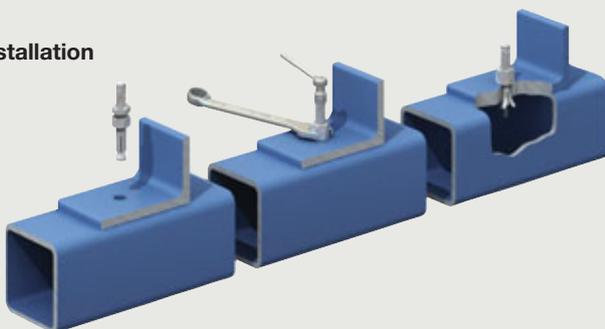
Self heading bolt suitable for fixing to hollow-sections, tubes and where access is available from one side only. The Lindibolt® uses a standard clearance hole.

Product Code	Lindibolt®		Hole Ø d mm	Safe Working Load ¹⁾ (Factor of Safety 5:1)		Clamping Length W mm	Projection P mm	Torque					
	Size Z	Length Y mm		Tensile kN	Single Shear kN			Main Body B and Nut C&D Thread			Setscrew F		
								Z	Torque Nm	A/F mm	Bolt F	Torque Nm	A/F mm
LB10	M10	69	11	3.0	3.4	7 - 30	7.5 - 10	M10	20	17	M5	6	8
LB12	M12	80	13	5.0	5.0	10 - 36	9 - 12	M12	31	19	M6	11	10
LB16	M16	105	17	8.0	9.8	12 - 48	12 - 16	M16	81	24	M8	23	13
LB20	M20	128	21	14.0	15.2	14 - 60	15 - 20	M20	129	30	M10	45	17
LB24	M24	158	25	20.0	22.5	18 - 72	18 - 24	M24	203	36	M12	80	19

1) The safe working loads, in both tension and shear, shown above are applicable to the Lindibolt 2® only. Failure of the section, particularly on those with thin walls and a wide chord face, could occur at a lower figure and its strength should be checked.

Order example: LB10 BZP

Installation



1. Set nut (C) at (W) plus projection (P). Tighten Locknut (D).
2. Align pre-drilled fixtures. Insert Lindibolt® through both fixtures, cone end first.
3. Hold nut (C) with spanner and tighten bolt (F). Loosen off locknut (D) and tighten nut (C). Secure by re-tightening locknut (D).

