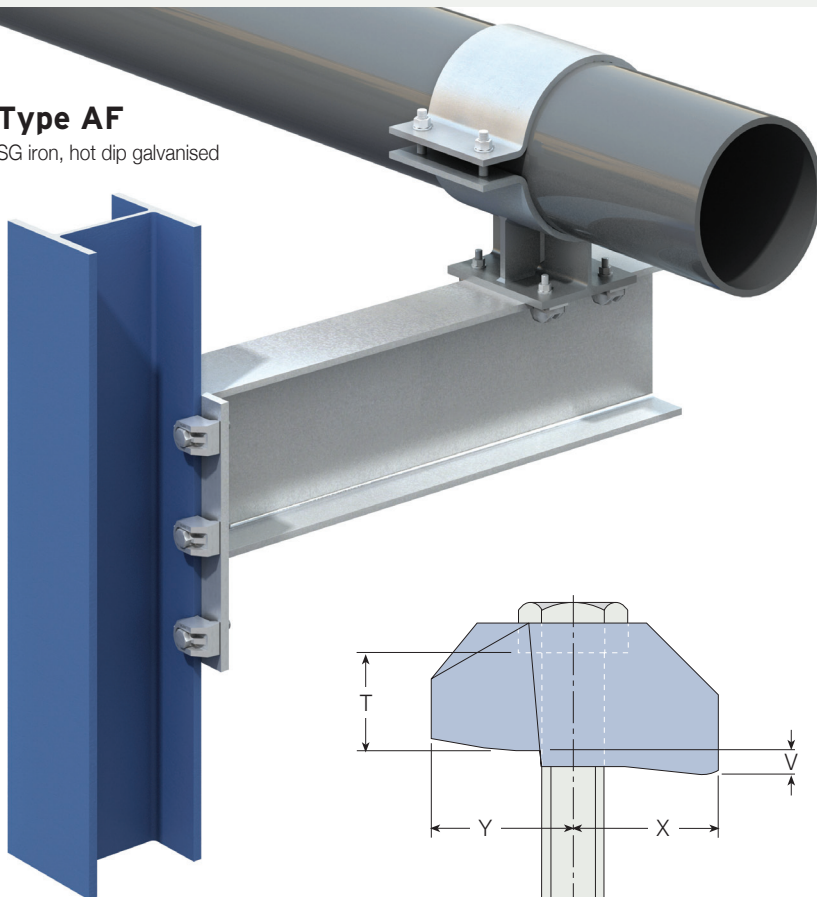


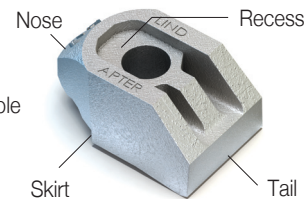
Type AF

SG iron, hot dip galvanised



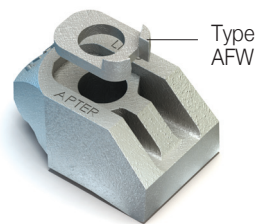
Type AF

The recess holds the bolt head of non-pre-loadable bolts to BS EN 15048 captive



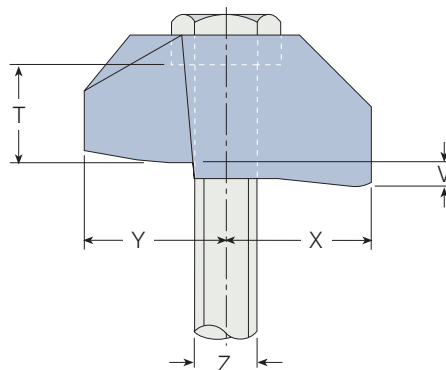
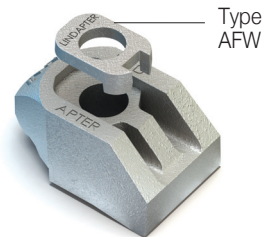
Type AF & AFW (inverted)

Holds the head of M12-M20 pre-loadable bolts to BS EN 14399 captive

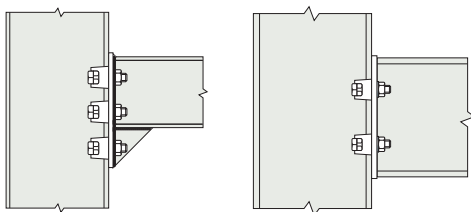


Type AF & AFW

Converts the recess to a flat top (also required for M24 pre-loadable bolts to BS EN 14399)



Typical Applications (see also page 34-37)



A High Slip Resistance (HSR) clamp with a recessed top to hold the bolt head captive while the nut is tightened. Washer Type AFW available (see illustrations above and page 18). The skirt prevents the clamp rotating during installation. The tail of the AF spans across slotted holes. Suitable for flanges up to 10°, ideal for S-beams. The clamp can be combined with Type CF.

For correct tail length/packing combinations, please see page 19.

The Type AF is compatible with Grade 8.8 and 10.9 bolts: please refer to the table below for performance comparisons.

Product Code	Bolt Z	Bolt Grade	Safe Working Loads				Tightening Torque ⁴⁾	Dimensions					
			Tensile / 1 Bolt	Factor of Safety (2:1)		Tail Length V		T		Width			
				(5:1)	Painted Steelwork ²⁾	Galv. Steelwork		short	medium		Type AF	Type AF with AFW	
AF12	M12	8.8	kN	kN	kN	Nm	mm	mm	mm	mm	mm	mm	mm
AF16	M16	8.8	8.5	3.4	3.9	90	27	27	5	12.5	17	22	39
AF20	M20	8.8	16.0	8.0	10.0	240	35	37	8	15	22	27	49
AF24	M24	8.8	26.3	13.0	16.0	470	40	39	10	18	25	31	56
			40.0	24.0	30.0	800	48	60	15	30	32	42	82
AF12	M12	10.9	10.0	4.0	5.2	130	27	27	5	12.5	17	22	39
AF16	M16	10.9	19.5	11.0	12.0	300	35	37	8	15	22	27	49
AF20	M20	10.9	30.0	20.0	25.0	647	40	39	10	18	25	31	56
AF24	M24	10.9	62.5 ³⁾	28.0	35.0	1000	48	60	15	30	32	42	82

1) Frictional Load figures are based on Type AF and Location plates in hot dip galvanised finish calculated against slip (movement exceeding 0.1mm).

2) Shot blast and painted steelwork

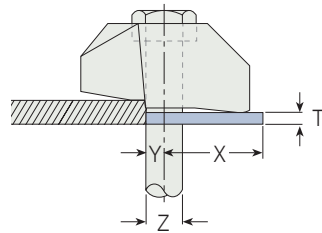
3) 3.2:1 factor of safety

4) For pre-loadable bolts to BS EN 14399 (hot dip galvanised and lubricated) please refer to manufacturers' recommendation for torque figures.

Order example: AF12 short

Type AFCW

Mild Steel, hot dip galvanised



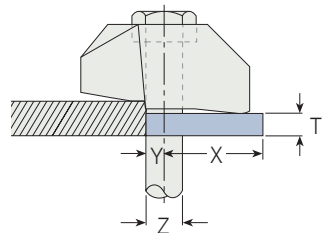
Product Code	Bolt Z	Dimensions			
		Y mm	X mm	T mm	Width mm
AF12CW	M12	6	33	2	40
AF16CW	M16	8	40	2	50
AF20CW	M20	10	40.5	2	55

Order example: AF12CW

A packing used to adjust the tail length of the clamp to meet differing beam flange thicknesses; it has a slight bend along its centre line which flattens out during installation.

Type AFP1 / AFP2

Mild Steel, hot dip galvanised



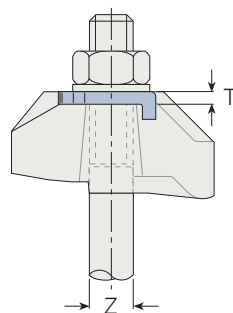
Product Code (P1)	Product Code (P2)	Bolt Z	Dimensions				Width mm
			Y mm	X mm	T (P1) mm	T (P2) mm	
AF12P1	AF12P2	M12	6	33	5	10	40
AF16P1	AF16P2	M16	8	42	5	10	52
AF20P1	AF20P2	M20	10	45.5	5	10	56
AF24P1	AF24P2	M24	12	73	5	10	85

Order example: AF12P1

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

Type AFW

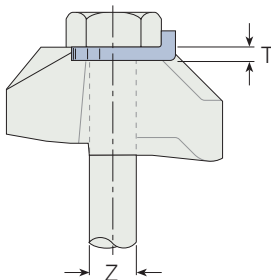
SG iron, malleable iron, mild steel, hot dip galvanised



Product Code	Bolt Z	Dimensions
		T mm
AFW12	M12	5
AFW16	M16	5
AFW20	M20	6
AFW24	M24	10

Order example: AFW12

A washer used to fill the recess of the Type AF. The washer features two projections which, when the AFW is inverted, will captivate the larger hexagons of pre-loadable bolts to BS EN 14399 (M12 – M20 only). The M24 version has no projections.



Location and End Plates

- L_1 = Plate length
- L_2 = Plate width
- l_{1M}, l_{2M} = Hole centres
- b_1, b_2 = Flange width
- d = Hole \varnothing
- s = Plate thickness

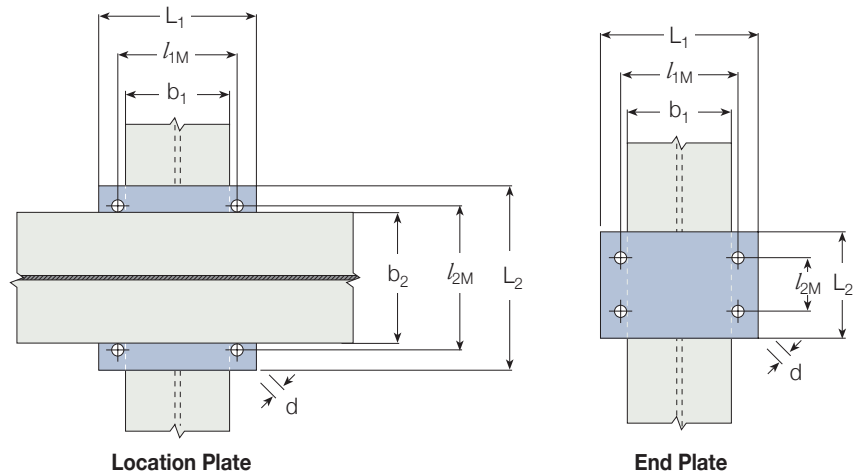


Plate Dimensions

Material: Mild Steel Grade S355 JR (for other grades please contact Lindapter)

Bolt Z	Hole \varnothing d mm	Location Plate			End Plate ¹⁾				
		Plate Thickness s mm	Hole Centres l_{1M}, l_{2M} mm	Length/Width min $L_1, \min L_2$ mm	Plate Thickness s mm	Hole Centre l_{1M} mm	Length min L_1 mm	Hole Centre min l_{2M} mm	Width min L_2 mm
M12	13	10	$b + 13$	$b + 90$	15	$b_1 + 13$	$b_1 + 90$	80	$l_{2M} + 80$
M16	18	15	$b + 18$	$b + 110$	25	$b_1 + 18$	$b_1 + 110$	100	$l_{2M} + 100$
M20	22	20	$b + 22$	$b + 130$	30	$b_1 + 22$	$b_1 + 130$	180	$l_{2M} + 180$
M24	26	25	$b + 26$	$b + 180$	40	$b_1 + 26$	$b_1 + 180$	200	$l_{2M} + 200$

1) Depending on the type of connection and associated end plate use, the thickness may need to be modified to comply with accepted local design codes.

➤ Type CF can be used in combination with the Type AF (see plate dimensions above), Types A, B, and BR (see page 15 for plate dimensions) and Types D2, D3 and LR (see page 23 for plate dimensions).

■ Calculation of bolt length see page 10

Tail Length / Packing Combinations for Type AF

Parallel flanges and beams of up to 10° slope

Flange Thickness mm	Type AF														
	M12			M16			M20			M24					
	AF	AFCW	AFP1	AFP2	AF	AFCW	AFP1	AFP2	AF	AFCW	AFP1	AFP2	AF	AFP1	AFP2
5	s	-	-	-	■	-	-	-	■	-	-	-	■	-	-
6	s	-	-	-	■	-	-	-	■	-	-	-	■	-	-
7	s	1	-	-	s	-	-	-	■	-	-	-	■	-	-
8	s	1	-	-	s	-	-	-	■	-	-	-	■	-	-
9	s	2	-	-	s	-	-	-	s	-	-	-	■	-	-
10	s	-	1	-	s	1	-	-	s	-	-	-	■	-	-
11	s	3	-	-	s	1	-	-	s	-	-	-	■	-	-
12	s	1	1	-	s	2	-	-	s	1	-	-	s	-	-
13	m	-	-	-	s	-	1	-	s	1	-	-	s	-	-
14	m	1	-	-	s	3	-	-	s	2	-	-	s	-	-
15	s	-	-	1	m	-	-	-	s	-	1	-	s	-	-
16	m	2	-	-	m	-	-	-	s	3	-	-	s	-	-
17	m	-	1	-	m	1	-	-	m	-	-	-	s	-	-
18	m	-	1	-	s	-	-	1	m	-	-	-	s	1	-
19	m	1	1	-	m	-	1	-	m	-	-	-	s	1	-
20	s	-	1	1	m	-	1	-	m	1	-	-	s	1	-
21	m	2	1	-	m	-	1	-	m	1	-	-	s	1	-
22	m	2	1	-	m	1	1	-	m	2	-	-	s	1	-
23	m	-	-	1	m	1	1	-	m	-	1	-	s	-	1
24	m	1	-	1	m	-	-	1	m	1	1	-	s	-	1
25	s	-	-	2	m	-	-	1	m	1	1	-	s	-	1
26	m	2	-	1	m	-	-	1	s	1	1	1	s	-	1
27	m	2	-	1	m	1	-	1	s	1	1	1	m	-	-

Flange Thickness mm	Type AF														
	M12			M16			M20			M24					
	AF	AFCW	AFP1	AFP2	AF	AFCW	AFP1	AFP2	AF	AFCW	AFP1	AFP2	AF	AFP1	AFP2
28	m	-	1	1	s	-	-	2	m	-	-	1	m	-	-
29	m	1	1	1	m	-	1	1	m	-	-	1	m	-	-
30	s	-	1	2	m	-	1	1	m	1	-	1	m	-	-
31	s	-	1	2	m	-	1	1	m	1	-	1	m	-	-
32	m	-	-	2	m	1	1	1	m	-	1	1	m	1	-
33	m	-	-	2	m	1	1	1	m	-	1	1	m	1	-
34	m	1	-	2	m	-	-	2	m	-	1	1	m	1	-
35	s	-	-	3	m	-	-	2	s	-	1	2	m	1	-
36	s	-	-	3	m	-	-	2	m	1	1	1	m	1	-
37	m	-	1	2	m	1	-	2	m	-	-	2	m	1	-
38	m	-	1	2	s	-	-	3	m	-	-	2	m	-	1
39	m	1	1	2	m	-	1	2	m	-	-	2	m	-	1
40	s	-	1	3	m	-	1	2	m	1	-	2	m	-	1
41	s	-	1	3	m	-	1	2	m	1	-	2	m	-	1
42	m	-	-	3	m	1	1	2	m	-	1	2	m	-	1
43	m	-	-	3	s	-	1	3	m	-	1	2	m	1	1
44	m	1	-	3	m	-	-	3	m	-	1	2	m	1	1
45	s	-	-	4	m	-	-	3	m	1	1	2	m	1	1
46	s	-	-	4	m	-	-	3	m	1	1	2	m	1	1
47	m	-	1	3	m	1	-	3	m	-	-	3	m	1	1
48	m	-	1	3	s	-	-	4	m	-	-	3	m	-	2
49	s	-	1	4	m	-	1	3	m	-	-	3	m	-	2
50	s	-	1	4	m	-	1	3	m	1	-	3	m	-	2

s = short m = medium ■ = Type not applicable

➤ For thicker flanges please contact Lindapter.