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Stronger by Design

Resulting from over 20 years of extensive research and development investment by the Hadley Group, the UltraSTEEL™ process is a major technical breakthrough developed for use on virtually any cold rolled formed metal section. It is used in thousands of products manufactured globally. Because the UltraSTEEL™ process is applied to the standard base metal and in-line in the cold rolled forming process, it does not increase manufacturing cost and is ideal for high volumes. In fact, over 1 billion metres of UltraSTEEL™ are manufactured each year.

The UltraSTEEL™ process is protected by global patents and trademarks, owned exclusively by the Hadley Group.

Visual Index



KS610
ULTRA STRUT
Page 1



KS610
CHANNEL (STRUT)
Page 1



KS610
SLOTTED CHANNEL
Page 1



KS610
CHANNEL
Page 2



KS610
CHANNEL (STRUT)
Page 2



KS610
CHANNEL
Page 2



KS640
CHANNEL
SPRING NUT
Page 8



KS643
CHANNEL NUT
Page 8



KS643
BUTTERFLY NUT
Page 8



KS643
SLICK STRUT NUT
Page 8



KS643
WEDGE NUT
Page 8



KS670102
Angle Fitting
Page 9



KS672013
ANGLE FITTING
ASYMMETRICAL
Page 9



KS672014
BASE FITTING LARGE
Page 9



KS217003
PLATE WASTE
Page 9



KS672009
STRAIGHT CONNEC-
TOR SHORT
Page 9



KS672010
FLAT PLATE FITTINGS
Page 9



KS672011
STRAIGHT
CONNECTOR LONG
Page 9



KS672000
FLAT TEE FITTING
Page 9



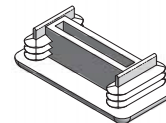
KS672004
FLAT ANGLE FITTING
Page 9



KS68002
PLASTIC CLOSURE
STRIP 3M*
Page 9



KS68003
PLASTICE END CAP*
Page 9



KS680004
PLASTIC END CAP
Page 9



KS672031
ANGLE FITTING SMALL
Page 9



KS672030
BASE FITTING LARGE
Page 9



KS672032
SLOTTED CHANNEL
Page 9



KS672027
ANGLE FITTING
Page 10



KS672005
ANGLE FITTING
Page 10



KS672006
ANGLE FITTING
Page 10



KS672001
ANGLE FITTING
Page 10

Visual Index



KS672015
FLAT PLATE FITTINGS
Page 10



KS672016
FLAT PLATE FITTINGS
Page 10



KS672017
FLAT PLATE FITTINGS
Page 10



KS672008
U FITTING
Page 10



KS672007
FLAT PLATE FITTINGS
Page 10



KS672034
BEAM CLAMP
Page 10



KS672035
BEAM CLAMP
Page 10



KS672036
BEAM CLAMP
Page 10



KS620
CANTILEVER
BRACKETS
Page 11



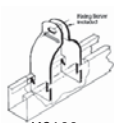
KS620
CANTILEVER
BRACKETS
Page 11



KS340
SLOTTED ANGLE
Page 12



KS246
SLOTTED FLAT BAR
Page 12



KS600
CHANNEL CLIP
Page 13



KS600
CHANNEL CLIP FOR
COPPER PIPE
Page 14



KS600
CHANNEL CLIP FOR
PVC PIPE
Page 14



KS680
ISOLATION BARRIER
Page 15



KS681
BINDERSIL TAPE
Page 15



KS682
PE BLOCK
Page 15



KS - 116
Type A Cork Block
Page 15



KS - 116
Type A Wood Block
Page 15



KS - 116
Type B Cork Block
Page 15



KS - 116
Type B Wood Block
Page 15



KS613
KWIK CLIP
Page 16



KS613
DUAL CLIP (FOR
PLASTIC PIPE)
Page 17



KS630
BINSULCLAMP
Page 17



KS614
NUT CLIP FOR
COPPER PIPE
Page 18



KS614
NUT CLIP FOR
PVC PIPE
Page 18



KS662
YOKE CLAMP FOR
PVC PIPE
Page 18



KS663
YOKE CLAMP FOR
COPPER PIPE
Page 19



KS664
YOKE CLAMP FOR
PVC PIPE
Page 19

Visual Index



KS616
FILBOWS
Page 19



BG100
LIGHT DUTY
2-BOLT PIPE
CLAMP
PAGE 20



BG106
SADDLE CLAMP
Page 21



BG107
U BOLT CLAMP
LIGHT DUTY
Page 22



BG107
107 CONDUIT
BOLT CLAMP
Page 22



KS135
PIPE STAND
Page 23



KS136
PIPE STAND
Page 23



KS190
LIGHT DUTY SLIDE
GUIDE
Page 24



KS191
HEAVY DUTY SLIDE
GUIDE
Page 24



KS195
NOISE RESILIENT
PAD
Page 25



KS195
NOISE RESILIENT
WASHER
Page 25



KS28
VERTICAL WALL
PLATE
Page 26



KS25
WALL PLATE
Page 26



KS32
SUSPENSION EYE
Page 26



KS30
WALL PLATE
Page 26



KS650N
'C' PURLIN CLIP
Page 27



KS650
'Z' PURLIN CLIP
Page 27



KS734
FLANGE CLAMP
Page 27



KS904
THREADED ROD
Page 28



KS206
HEX CONNECTOR
Page 28



KS670
CLEVIS HANGER
Page 28



KS340
DROP IN ANCHOR
Page 29



KS1380
HANGER BOLT
Page 29



KS900
NUT
Page 29



KS902
WASHER
Page 29



KS902
M/G WASHER
Page 29



KS900
HEX HEAD SET
SCREW
Page 30



KS691
TWINLOK TEST PLUG
Page 31



KS691
PRESSURE GAUGE
Page 31



KS691025
PRESSURE GAUGE
ADAPTOR
Page 31

Visual Index



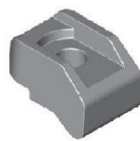
KS691
DIAL TEST THERMOMETER
Page 31



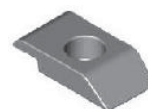
KS691029
DIFFERENTIAL
DIGITAL
THERMOMETER
Page 31



KS691
EXTENSION
PIECE
Page 31



BEAM CLAMP
BY
Page 34



BEAM CLAMP
BYP
Page 34



BEAM CLAMP
BF3
Page 35



BEAM CLAMP
BF4
Page 35



BEAM CLAMP
BH2
Page 35



BEAM CLAMP
BA
Page 36



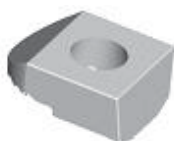
BEAM CLAMP
BB
Page 37



BEAM CLAMP
BK1
Page 38



BEAM CLAMP
BT
Page 39



BEAM CLAMP
BW
Page 39



BEAM CLAMP
BE1
Page 40



BEAM CLAMP
BE2
Page 40



BEAM CLAMP
BC1
Page 41



BEAM CLAMP
BD1
Page 41



BEAM CLAMP
BF1
Page 42



BEAM CLAMP
BG1
Page 42



BEAM CLAMP
BH1
Page 42



BEAM CLAMP
BF2
Page 42



BEAM CLAMP
BG2
Page 42



BEAM CLAMP
BL FLANGE CLAMP
Page 43



BEAM CLAMP
GRATE FIX
Page 44



BEAM CLAMP
GRATING CLIP
Page 45



BEAM CLAMP
FLOORFIX HT
Page 46



BEAM CLAMP
FLOORFIX
Page 47



BEAM CLAMP
BOX BOLT
Page 48



ULTRA STRUT

KS610

Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 5.8m

Description	Height (D)	Width (E)	Length	Binder Code	Pack Qty
	mm	mm	mm		
Slotted Channel	41	41	5800	610021	290
Slotted Channel	21	41	5800	610023	290
Channel	41	41	5800	610020	290
Channel	21	41	5800	610022	290
Stainless Channel	41	41	5800	610024	290
S/S Slotted Channel	41	41	5800	610025	290
Stainless Channel	21	41	5800	610026	290
S/S Slotted Channel	21	41	5800	610027	290

*All Price Quoted are Per Metre

CHANNEL (STRUT)

KS610



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 5.8m
- Other sizes available to order. Please enquire.
- Stainless Steel available on request

*Denotes Galvabond Finish

Description	Height (D)	Width (E)	Thickness	Length	Binder Code	Pack Qty
	mm	mm	mm	mm		
Channel	41	41	2.5	5800	610000	290
Channel	41	41	1.5	5800	610010*	290
Channel	21	41	2.5	5800	610002	290
Channel	21	41	1.5	5800	610012*	290
Channel	41	41	2.5	5800	610007	290

SLOTTED CHANNEL

KS610



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 5.8m
- Other sizes available to order. Please enquire.

Description	Height (D)	Width (E)	Thickness	Length	Binder Code	Pack Qty
	mm	mm	mm	mm		
Slotted Channel	41	41	2.5	5800	610005	290
Slotted Channel	21	41	2.5	5800	610006	290
Concrete Insert	41	41	2.5	3000	610019	150

CHANNEL

KS610



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 6m
- Other sizes available to order. Please enquire.

Description	Height (D)	Width (E)	Thickness	Length	Binder Code	Pack Qty
	mm	mm	mm	mm		
Channel	62	41	2.5	6000	610004	300

CHANNEL (STRUT)

KS610



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 6m
 - Other sizes available to order. Please enquire.
 - Stainless Steel available on request
- *Denotes Galvabond Finish

Description	Height (D)	Width (E)	Thickness	Length	Binder Code	Pack Qty
	mm	mm	mm	mm		
Channel	82	41	2.5	6000	610001	300

CHANNEL

KS610



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
Surface finish	HDG

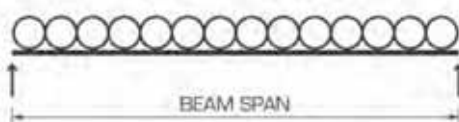
- Supplied in lengths of 6m
- Other sizes available to order. Please enquire.

Description	Height (D)	Width (E)	Thickness	Length	Binder Code	Pack Qty
	mm	mm	mm	mm		
Channel	43	41	2.5	6000	610003	300

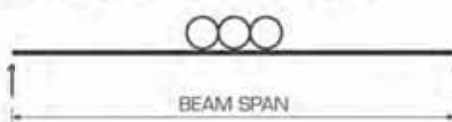
UltraSTRUT™

LOAD TABLES

UNIFORMLY DISTRIBUTED LOAD



CENTRALLY CONCENTRATED LOAD



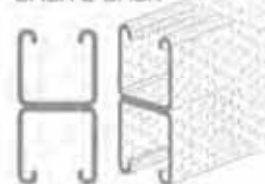
41 x 41mm



41 x 41 UNIFORMLY DISTRIBUTED LOAD

SPAN MM	SAFE LOAD					
	41 x 41 PLAIN		41 x 41 SLOTTED		41 x 41 BACK 2 BACK	
	KG	KN	KG	KN	KG	KN
500	941.6	9.234	878.6	8.597	2518.62	24.699
1000	470.8	4.617	438.3	4.298	1259.31	12.350
1500	313.9	3.078	292.2	2.866	839.54	8.233
2000	235.4	2.308	219.2	2.149	629.65	6.175
2500	188.3	1.847	175.3	1.719	503.72	4.940
3000	156.9	1.539	146.1	1.433	419.77	4.117

41 x 41mm
BACK 2 BACK



41 x 21mm



41 x 21 UNIFORMLY DISTRIBUTED LOAD

SPAN MM	SAFE LOAD					
	41 x 21 PLAIN		41 x 21 SLOTTED		41 x 21 BACK 2 BACK	
	KG	KN	KG	KN	KG	KN
500	346.8	3.401	323.0	3.168	869.3	8.525
1000	173.4	1.700	161.5	1.584	434.7	4.263
1500	115.6	1.134	107.7	1.056	289.8	2.842
2000	86.7	0.850	80.8	0.792	217.3	2.131
2500	69.4	0.680	64.6	0.634	173.9	1.705
3000	57.8	0.567	53.8	0.528	144.9	1.421

41 x 21mm
BACK 2 BACK



41 x 41mm



41 x 41 CENTRALLY CONCENTRATED LOAD

SPAN MM	SAFE LOAD					
	41 x 41 PLAIN		41 x 41 SLOTTED		41 x 41 BACK 2 BACK	
	KG	KN	KG	KN	KG	KN
500	941.6	9.234	438.3	4.298	1259.31	12.350
1000	470.8	4.617	219.2	2.149	629.65	6.175
1500	313.9	3.078	146.1	1.433	419.77	4.117
2000	235.4	2.308	109.6	1.075	314.83	3.067
2500	188.3	1.847	87.7	0.860	251.86	2.470
3000	156.9	1.539	73.1	0.716	209.88	2.058

41 x 41mm
BACK 2 BACK



41 x 21mm



41 x 21 CENTRALLY CONCENTRATED LOAD

SPAN MM	SAFE LOAD					
	41 x 21 PLAIN		41 x 21 SLOTTED		41 x 21 BACK 2 BACK	
	KG	KN	KG	KN	KG	KN
500	941.6	1.700	161.5	1.584	434.7	4.263
1000	470.8	0.850	80.8	0.792	217.3	2.131
1500	313.9	0.567	53.8	0.528	144.9	1.421
2000	43.3	0.425	40.4	0.396	106.7	1.066
2500	34.7	0.340	32.3	0.317	86.9	0.853
3000	28.9	0.283	26.9	0.264	72.4	0.710

41 x 21mm
BACK 2 BACK



As ratified by the University of Wolverhampton

SAFE LOADS CALCULATED IN ACCORDANCE WITH BS5950: PART 5: 1987

- CODE OF PRACTICE FOR DESIGN OF COLD FORMED SECTIONS

STRUT CH/ KSI1000 RA1

Available in Standard 5.8 metre lengths

Key to finishes GB = Pre Galvanised
HDG = Post Galvanised
SS = Stainless Steel

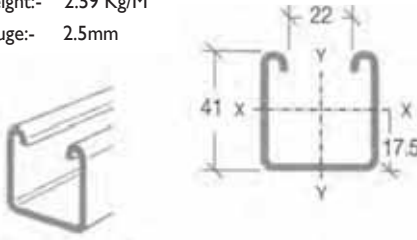
Other finishes available upon request

KS1000 41 x 41mm

Finished:- GB, HDG, SS.

Weight:- 2.59 Kg/M

Gauge:- 2.5mm



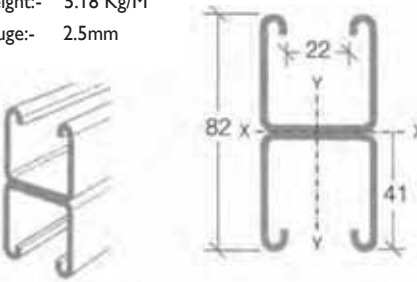
Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	954	1.02	954	954	477	0.82	477	477	5003	2129
1000	477	4.09	477	323	239	3.28	239	202	3343	1422
1500	318	9.21	259	144	159	7.38	159	90	2510	1068
2000	239	16.37	145	81	119	13.12	91	51	2009	855
2500	191	25.58	93	52	95	20.50	58	32	1674	712
3000	159	36.84	65	36	80	29.52	40	22	-	-

KSD1000 41 x 82mm

Finished:- GB, HDG, SS.

Weight:- 5.18 Kg/M

Gauge:- 2.5mm



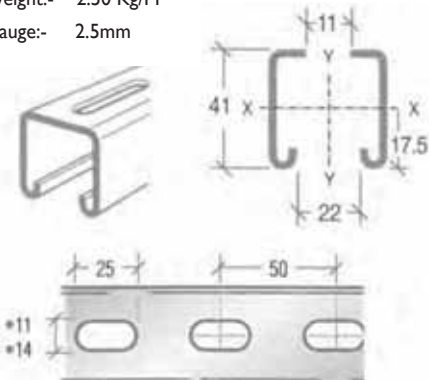
Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	2766	0.59	2766	2766	1383	0.47	1383	1383	10007	3511
1000	1383	2.35	1383	1383	691	1.88	691	691	6686	2346
1500	922	5.29	922	725	461	4.24	461	453	5020	1761
2000	691	9.40	691	408	346	7.54	346	255	4018	1410
2500	553	14.69	470	261	277	11.77	277	163	3350	1175
3000	461	21.16	326	181	230	16.95	204	113	-	-

KSL1000 41 x 41mm

Finished:- GB, HDG, SS.

Weight:- 2.50 Kg/M

Gauge:- 2.5mm



Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	887	1.12	887	887	443	0.90	443	443	4580	2029
1000	443	4.50	443	273	222	3.60	222	171	3087	1368
1500	296	10.12	219	121	148	8.11	137	76	2327	1031
2000	222	18.00	123	68	111	14.42	77	43	1868	828
2500	177	28.12	79	44	89	22.53	49	27	1560	691
3000	148	40.49	55	30	74	32.44	34	19	-	-

NB. Load carrying capacity is affected by the Hot Dipped Galvanising Process please contact the manufacturer for details

Axis

Reference	Axis X - X			Axis Y - Y			Area cm ²
	I _{xx} cm ⁴	Z _{xx} cm ³	r _{xx} cm	I _{yy} cm ⁴	Z _{yy} cm ³	r _{yy} cm	
KSI1000	7.25	3.25	1.49	9.25	4.48	1.69	325
KSD1000	36.59	9.42	2.37	18.50	8.96	1.69	6.50
KSL1000	6.13	3.02	1.45	9.19	4.45	1.78	2.90

STRUT CHANNEL

KS3300 RANGE

Available in Standard 5.8 metre lengths

Key to finishes GB = Pre Galvanised

HDG = Post Galvanised

SS = Stainless Steel

Other finishes available upon request

KS3300 41 x 21mm

Finished:- GB, HDG, SS.

Weight:- 1.76 Kg/M

Gauge:- 2.5mm



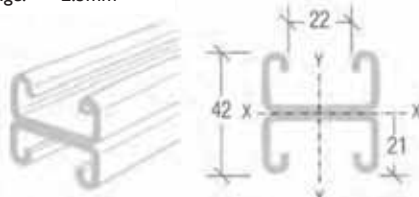
Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	330	2.14	330	214	165	1.71	165	134	3486	1326
1000	165	8.56	96	53	83	6.86	60	33	2296	873
1500	110	19.26	43	24	55	15.43	27	15	-	-
2000	83	34.24	24	13	41	27.43	15	8	-	-
2500	66	53.50	15	9	33	42.87	10	5	-	-
3000	55	77.03	11	6	28	61.73	7	4	-	-

KSD3300 41 x 42mm

Finished:- GB, HDG, SS.

Weight:- 3.58 Kg/M

Gauge:- 2.5mm



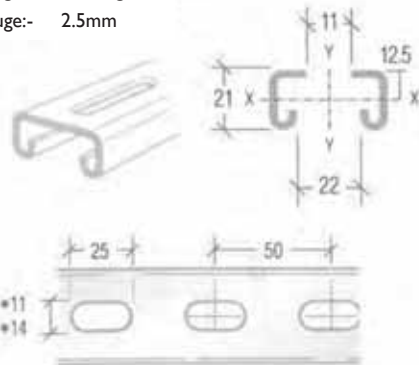
Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	975	1.33	975	975	488	1.07	488	488	6973	2375
1000	488	5.34	456	253	244	4.28	244	158	4593	1564
1500	325	12.01	203	113	163	9.63	127	70	3424	1166
2000	244	21.36	114	63	122	17.11	71	40	2729	929
2500	195	33.37	73	41	98	26.74	46	25	-	-
3000	163	48.06	51	28	81	38.51	32	18	-	-

KSD3300 41 x 21mm

Finished:- GB, HDG, SS.

Weight:- 1.69 Kg/M

Gauge:- 2.5mm



Span or Column Effective Length (mm)	UNIFORMLY DISTRIBUTED LOAD				CENTRALLY CONCENTRATED LOAD				COLUMN LOAD	
	Stress Limited Load and wDeflection		Deflection Limited Load (Kg)		Stress Limited Load and Deflection		Deflection Limited Load (Kg)		Load Applied at the centroid (Kg)	Load Applied at the face (Kg)
	Load (Kg)	Deflection (mm)	Span /200	Span /360	Load (Kg)	Deflection (mm)	Span /200	Span /360		
500	308	2.42	308	177	154	1.94	154	110	3062	1298
1000	154	9.69	79	44	77	7.76	50	28	2044	861
1500	103	21.80	35	20	51	17.47	22	12	-	-
2000	77	38.76	20	11	39	31.06	12	7	-	-
2500	62	60.56	13	7	31	48.53	8	4	-	-
3000	51	87.21	9	5	26	69.88	6	3	-	-

Axis

Reference	Axis X - X			Axis Y - Y			Area cm ²
	I _{xx} cm ⁴	Z _{xx} cm ³	r _{xx} cm	I _{yy} cm ⁴	Z _{yy} cm ³	r _{yy} cm	
KS3300	1.20	1.06	0.73	5.73	2.60	1.55	2.23
KSD3300	5.68	3.13	1.13	10.74	5.20	1.55	4.46
KSL3300	0.99	0.73	0.73	5.31	2.57	1.68	1.88

CONCRETE INSERTS (MANUFACTURED TO ORDER)

MATERIAL:-

BS 1449 HR4 PO Z25 EN10147:1992

FE

250-G275 PG

BS 1449 Part 2

Rolling Tolerances To

BS 2994

Concrete Strength

32N/M²

Finish

Standard Finish:-

HDG = BS 729

Other finishes and materials available upon request.

Concrete Inserts are available in standard lengths of 3 and 6 metres which are supplied complete with polystyrene infill and End Caps place.

Non-standard lengths can be supplied in increments of 200mm. For shorter lengths, please consult our technical/sales department.

Concrete Inserts are manufactured from standard channel sections KS1000 and KS3300.

The inclusion of Concrete Inserts into walls, floors, ceilings and ducts ect. at the initial stages of construction provides a flush surface for fixing and supporting electrical and mechanical services

RECOMMENDED LOADINGS

Results prepared from tests carried out by the department of Civil Engineering at the University of Birmingham

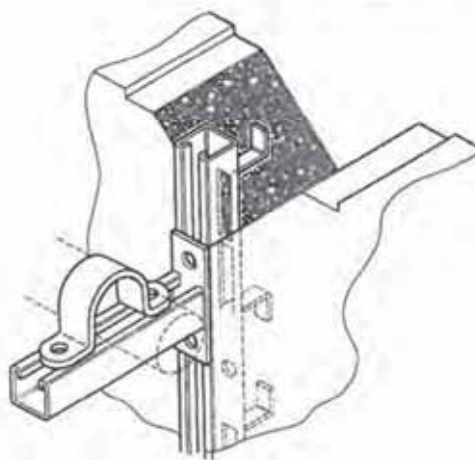
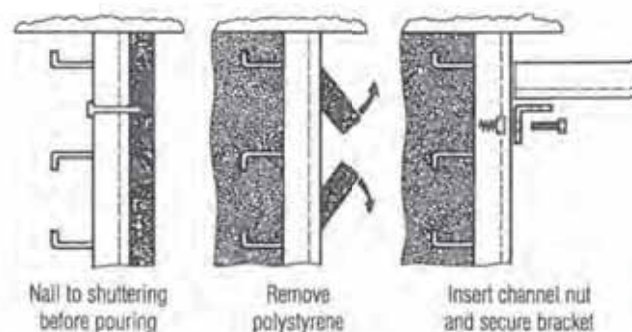
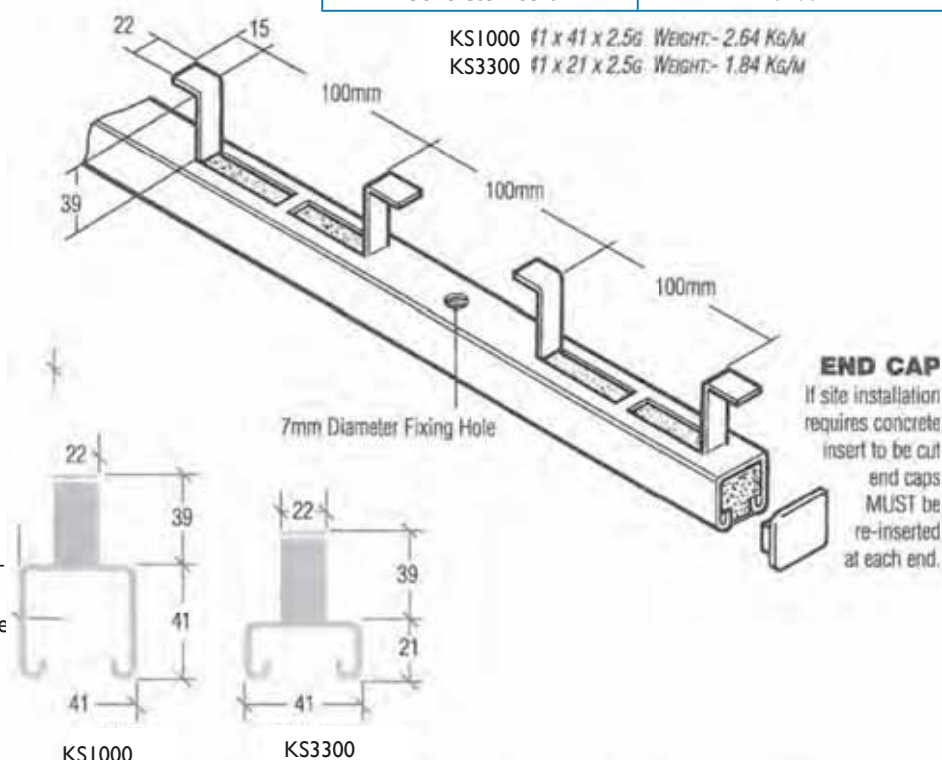
	KS3300	KS1000
Point Load (250mm centres)	550 Kgs	750 Kgs
Continuous Load (per 1000mm)	2200 Kgs	3000 Kgs

Concrete Strength 32MN/M²

Description	Binder Code
Concrete Insert	610019

KS1000 41 x 41 x 2.5G WEIGHT:- 2.64 Kg/M

KS3300 41 x 21 x 2.5G WEIGHT:- 1.84 Kg/M



Drawings not to scale.
All dimensions in mm.

CHANNEL TECHNICAL DATA

MATERIAL AND FINISH STANDARDS:-

The following materials are used In the manufacture of Hi-Stru channels:-

1. Pre-Galvanised (PG) BSEN 10147: 1992, S280 GD + Z275
2. Post Galvanised (HDG) BS 1449: 1991, BS 729.
3. Stainless Steel (SS) BSEN 10088-2: 1995, 316L X2CrNiMo17-12-2.

CHANNEL LOAD TABLE ASSUMPTIONS:-

1. All loads are calculated in accordance with BS5950:Part 5: 1998 Code of Practice, for the design of cold formed sections.
2. The minimum yield stress of pre-galvanised steel used in the manufacture of Hi-STRUT channels is $Y_s=250 \text{ N/mm}^2$.
3. Beam loads and corresponding deflections are calculated using a yielding of 250 N/mm^2 .

These values are calculated in accordance with section 3.4 of BS5950:Part 5.

4. All beam loads and deflections stated do not apply to material that has not been post galvanised i.e. (heat treatment has been applied after forming). If beam loads and deflections are required for post galvanised products please contact, the manufacturer.
5. A global safety factor of 1.6 was used to determine safe working loads from limited state analysis.
6. Column loads are calculated in accordance with section six BS5950:Part 5 Effective column lengths to be determined by the designer in accordance with Table 9 BS5950:Part 5.

7. Column loads have been calculated so that the maximum slenderness ratio L^e/r not exceed 180° .

8. Beams are assumed to be simply supported and provide adequate lateral restraint over the given span.

9. Beam loads are supplied through the shear of the section in the direction indicated in the tables.

10. Alternative beam safe load tables are provided for a uniformly distributed load or concentrated near the centre of the span. (See Figure 1.).

11. Example of how to evaluate the ultimate load on an intermediate span. Extract from the KS1000 Load Table not shown in tables.

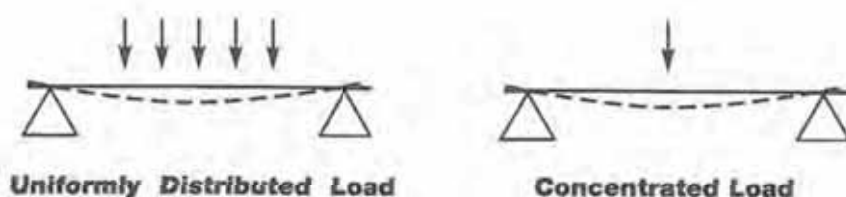
Span (mm)	Load (kg)
(a) 500	(c) 954 for 500 span
(e) 825 = New Intermediate Span	
(b) 1000	(d) 477 for 1000 span

Find the ultimate load at a span of 825mm, using the following formula.

$$\text{New Ultimate Load} = C - \left\{ \left[\frac{(c-d)}{(b-a)} \right] \times (c-a) \right\} \quad \text{New Ultimate Load} = 954 - \left\{ \left[\frac{(954-477)}{(1000-500)} \right] \times (825-500) \right\}$$

$$= 644\text{kg}$$

FIGURE 1.



CHANNEL SPRING NUT

KS640

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	HDG / Zinc

- Long spring standard, short spring available by request
- HDG and Stainless Steel POA

Description	Binder Code
Channel Spring Nut M06	640000
Channel Spring Nut M08	640001
Channel Spring Nut M10	640002
Channel Spring Nut M12	640003

KS643

CHANNEL NUT

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	HDG / Zinc

- Other sizes available on application
- HDG and Stainless Steel POA

Description	Binder Code
Channel Nut M06	643000
Channel Nut M08	643001
Channel Nut M10	643002
Channel Nut M12	643003

BUTTERFLY NUT



Description	Binder Code
Butterfly Nut M06	643005

SLICK STRUT NUT



Description	Binder Code
Slick Strut Nut M06	647000
Slick Strut Nut M08	647001
Slick Strut Nut M10	647002
Slick Strut Nut M12	647003

WEDGE NUT



Description	Binder Code
Wedge Nut M08	648000
Wedge Nut M10	648001
Wedge Nut M12	648002

CHANNEL FITTINGS

KS670
KS672
KS680

- Standard thickness 6mm*
- Holes to suit M12
- Fit standard strut channel
- Other sizes/shapes available on request
- *Except plastic cap and strip
- Channel not included

When ordering, please quote Binder code for required size.

Material	Carbon Steel*
Surface finish	HDG

		
670102	672013	672014
Angle Fitting	Angle Fitting Large	Flat Angle Asymmetrical
		
217003	672009	672010
Plate Wastler	Straight Connector Short	Flat Plate Fitting
		
672011	672000	672004
Angle Fitting Large	Angle Fitting Asymmetrical	Flat Angle Fitting
		
680002	680003	680004
Plastic Closure Strip 3m*	Plastic End Cap* (KS1000)	Plastic End Cap (KS3300)
		
672031	672030	672032
Base Fitting Small	Base Fitting Large	Base Fitting Double




CHANNEL FITTINGS

KS672

When ordering, please quote Binder code for required size.

- Standard thickness 6mm*
- Holes to suit M12
- Fit standard strut channel
- Other sizes/shapes available on request
- *Except plastic cap and strip
- Channel not included

Material	Carbon Steel*
Surface finish	HDG

		
672027	672005	672006
Angle Fitting	Angle Fitting	Angle Fitting
		
672001	672015	672016
Angle Fitting	Flat Plate Fitting	Flat Plate Fitting
		
672017	672008	672007
Flat Plate Fitting	U Fitting	Flat Plate Fitting
		
Beam Clamp	Beam Clamp	Beam Clamp
672034	672035	672036

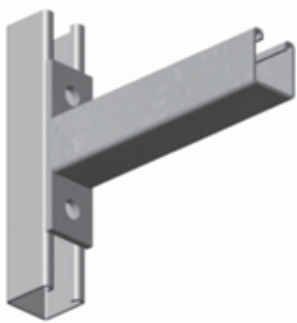
CANTILEVER BRACKETS

KS620

When ordering, please quote Binder code for required size.

Material	Carbon Steel
Surface finish	HDG

- Also available in Stainless Steel
- To fit standard strut channel
- Holes to suit M12



Un-Braced	
Length	Binder code
mm	
150	620001
300	620002
450	620003
600	620004



Braced	
Length	Binder code
mm	
300	620005
450	620006
600	620007
750	620008

CANTILEVER BRACKET KITS

KS622

Each Kit Includes:

- 2 off Cantilever Brackets
- 2 off Plastic End Caps
- 8 off M10 Flat Washers
- 4 off M10 Channel Spring Nuts
- 4 off M10 x 30mm Set Screws
- Wall fixings available on request

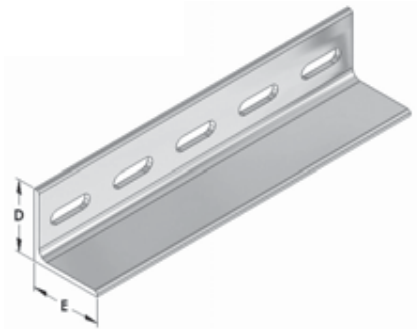
Un-Braced	
Length	Binder code
mm	
300	622001
450	622002
600	622003

Braced	
Length	Binder code
mm	
300	622004
450	622005
600	622006
750	622007

SLOTTED ANGLE

KS340

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 3750mm
- Other sizes available as special orders. Please enquire
- 240000 supplied in Zinc Plated finish
- 240000 supplied in 3000mm lengths.

Description	Height	Width (E)	Thickness	Slot	Length	Binder Code
BG240 Slotted Angle	30	30	2.5	11 x 25	3000	240000
BG240 Slotted Angle	40	40	3	8 x 25	3750	240001
BG240 Slotted Angle	40	40	5	8 x 25	3750	240002
BG240 Slotted Angle	40	40	3	11 x 25	3750	240004
BG240 Slotted Angle	40	40	5	11 x 25	3750	240005

SLOTTED FLAT BAR

KS246

When ordering, please quote Binder code for required size.

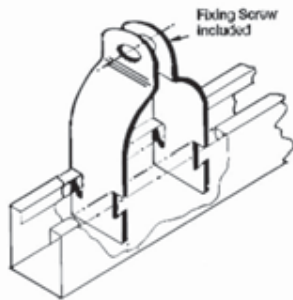


Material	Carbon Steel
Surface finish	HDG

- Supplied in lengths of 3.0m.
- Other sizes available as special orders. Please enquire.

Description	Width (E)	Thickness	Slot	Length	Binder Code
BG240 Slotted Bar	40	5	8 x 25	3000	246001
BG240 Slotted Bar	40	5	11 x 25	3000	246002

CHANNEL CLIP



Description with old code	Binder Code
KS2024 8mm Channel Clip ZP	600100
KS2025 11mm Channel Clip ZP	600101
KS2026 14mm Channel Clip ZP	600102
KS2027 17mm Channel Clip ZP	600103
KS2028 19mm Channel Clip ZP	600105
KS1111 21mm Channel Clip ZP	600106
KS2029 22mm Channel Clip ZP	600107
KS2030 25mm Channel Clip ZP	600108
KS1112 27mm Channel Clip ZP	600109
KS2031 29mm Channel Clip ZP	600110
KS2032 32mm Channel Clip ZP	600111
KS1113 34mm Channel Clip ZP	600112
KS2033 35mm Channel Clip ZP	600113
KS2034 38mm Channel Clip ZP	600114
KS1114 42mm Channel Clip ZP	600115
KS2036 44mm Channel Clip ZP	600116
KS1115 48mm Channel Clip ZP	600117
KS2037 49mm Channel Clip ZP	600118
KS2038 51mm Channel Clip ZP	600119
KS2039 54mm Channel Clip ZP	600120
KS2040 57mm Channel Clip ZP	600121
KS1117 60mm Channel Clip ZP	600122
KS2042 64mm Channel Clip ZP	600123
KS2043 67mm Channel Clip ZP	600124
KS2044 70mm Channel Clip ZP	600125
KS1118 73mm Channel Clip ZP	600126
KS2046 76mm Channel Clip ZP	600127
KS2047 79mm Channel Clip ZP	600128
KS2048 83mm Channel Clip ZP	600129
KS2049 86mm Channel Clip ZP	600130
KS1119 90mm Channel Clip ZP	600131
KS2051 92mm Channel Clip ZP	600132
KS2052 95mm Channel Clip ZP	600133
KS2053 98mm Channel Clip ZP	600134
KS1120 102mm Channel Clip ZP	600135
KS2055 105mm Channel Clip ZP	600136
KS2056 108mm Channel Clip ZP	600137
KS2057 111mm Channel Clip ZP	600138

KS600

When ordering, please quote Binder code for pipe diameter.

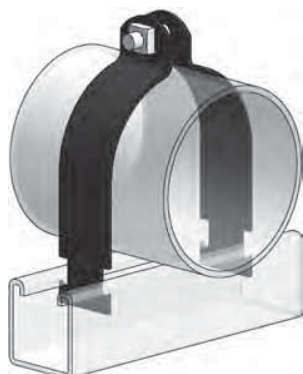
Material	Carbon Steel
Surface finish	Zinc

- Complete with nut and screw
- Fits standard strut channel
- Hot Dip Galvanised or Stainless Steel available on request

Description with old code	Binder Code
KS1121 114mm Channel Clip ZP	600139
KS2059 117mm Channel Clip ZP	600140
KS2060 121mm Channel Clip ZP	600141
KS2061 123mm Channel Clip ZP	600142
KS2062 127mm Channel Clip ZP	600143
KS2063 130mm Channel Clip ZP	600144
KS2064 133mm Channel Clip ZP	600145
KS2065 136mm Channel Clip ZP	600146
KS2066 140mm Channel Clip ZP	600147
KS2067 143mm Channel Clip ZP	600148
KS2068 146mm Channel Clip ZP	600149
KS2069 149mm Channel Clip ZP	600150
KS2070 152mm Channel Clip ZP	600151
KS2070-62 159mm Channel Clip ZP	600152
KS2070-64 165mm Channel Clip ZP	600153
KS2070-66 171mm Channel Clip ZP	600154
KS2070-70 178mm Channel Clip ZP	600155
KS2070-72 184mm Channel Clip ZP	600156
KS2070-74 191mm Channel Clip ZP	600157
KS2070-76 197mm Channel Clip ZP	600158
KS2070-80 203mm Channel Clip ZP	600159
KS2070-84 216mm Channel Clip ZP	600160
KS2070-90 232mm Channel Clip ZP	600161
KS2070-110 315mm Channel Clip ZP	600162

CHANNEL CLIP FOR COPPER PIPE

KS600



When ordering, please quote Binder code for required size and surface finish.

- Channel clip sizes 15mm to 300mm
- Standard finish Powder Coated Brown

Description	Binder Code
15Cu Channel Clip	600500
20Cu Channel Clip	600501
25Cu Channel Clip	600502
32Cu Channel Clip	600503
40Cu Channel Clip	600504
50Cu Channel Clip	600505
65Cu Channel Clip	600506
80Cu Channel Clip	600507
100Cu Channel Clip	600508
125Cu Channel Clip	600509
150Cu Channel Clip	600510
200Cu Channel Clip	600511

KS600

When ordering, please quote Binder code for required size and surface finish.

- Channel clip sizes 40mm to 375mm
- Standard finish Powder Coated White

CHANNEL CLIP FOR PVC PIPE



Description	Binder Code
40PVC Channel Clip	600600
50PVC Channel Clip	600601
65PVC Channel Clip	600602
80PVC Channel Clip	600603
90PVC Channel Clip	600604
100PVC Channel Clip	600605
150PVC Channel Clip	600606
225PVC Channel Clip	600607
300PVC Channel Clip	600608
375PVC Channel Clip	600609

CHANNEL CLIP FOR PRESSURE PVC PIPE

KS600

When ordering, please quote Binder code for required size and surface finish.

- Channel clip sizes 15mm to 250mm
- Standard finish Powder Coated White

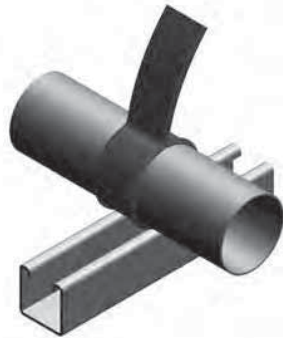
Description	Binder Code
15PVC Pressure Channel Clip	600610
20PVC Pressure Channel Clip	600611
25PVC Pressure Channel Clip	600612
32PVC Pressure Channel Clip	600613
40PVC Pressure Channel Clip	600614
50PVC Pressure Channel Clip	600615
65PVC Pressure Channel Clip	600616
80PVC Pressure Channel Clip	600617
100PVC Pressure Channel Clip	600618

ISOLATION BARRIER

KS680

When ordering, please quote Binder code for required size.

- Forms barrier between copper tube and clip / channel



Description	Binder Code
50mm x 20mm roll	680000

BINDERSIL TAPE

KS681



Description	Binder Code
50mm x 10mm roll	680001

PE BLOCK

KS682



Description	Binder Code
PE BLOCK	682000

KS - 116 Wood & Cork Insulation Blocks

Type A Wood Block

Type A Cork Block

Type B Wood Block

Type B Cork Block



- KS - 116 Insulation Blocks are Available in all Pipe/Tube Diameters
- Available in Insulation Thickness from 10mm to 100mm
- When Ordering, Please Specify the Pipe/Tube Size & the Insulation Thickness

KWIK CLIP

KS613

When ordering, please quote Binder code for required size.



Material	Carbon Steel	Stainless Steel
Surface finish	Zinc	Mill

- Suitable for Steel, Copper or PVC pipe from 15NB to 150NB
- Finish must be stated



Pipe size NB	Pipe OD mm	Size Range	Binder Code	Box Qty
		mm		
15 Cu	12.7	12-14	613200	150
20 Cu	19	15-19	613201	150
25 Cu	25.4	24-26	613202	100
32 Cu	31.8	30-33	613203	50
40 Cu / PVC	38.1	38-41	613204	50
50 Cu / PVC	51.2	50-56	613205	50
65 Cu	63.5	63-67	613206	50
65 PVC	69.1	70-73	613207	50
80 Cu / PVC	76.2	74-80	613208	50
100 Cu	101.6	101-106	613209	25
100 PVC	110.4	108-114	613210	25
150 PVC	160.5	159-164	613211	20

DUAL CLIP (FOR PLASTIC PIPE)

KS613

When ordering, please quote Binder code for pipe diameter.



Material	Carbon Steel
Surface finish	Zinc

- Smooth inner surface to allow pipe to move
- Plastic spacers prevent over tightening
- Suitable for HDPE pipe from 25mm to 150mm

Pipe Size	Size Range	Binder Code
NB	mm	
25 HDPE	25-28	613100
32 HDPE	31-35	613101
40 HDPE	38-43	613102
50 HDPE	48-53	613103
63 HDPE	64-67	613104
75 HDPE	73-78	613105
90 HDPE	86-91	613107
110 HDPE	108-116	613108
160 HDPE	158-163	613109

BINSULCLAMP

KS630

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc

- Insulates against heat loss and gain
- Reduces vibration
- Temperature range -30° C to 125° C
- Fits standard channel

Imperial Pipe Size	Pipe Diameter	Binder Code
Inches	mm	
1/4	6.35	630000
3/8	9.53	630001
1/2	12.70	630002
5/8	15.88	630003
3/4	19.05	630004
7/8	22.23	630005
1 1/8	28.58	630006
1 3/8	34.93	630007
1 5/8	42.75	630008
2 1/8	53.98	630009
2 5/8	66.68	630010
3 1/8	79.38	630011
3 5/8	92.08	630012

NUT CLIP FOR COPPER PIPE

KS614



When ordering, please quote Binder code for required size and surface finish.

- Nut clip sizes 15mm to 150mm
- Cup head fastener
- Double bolted
- Suits M10 Rod
- Standard finish powder coated brown

Description	Binder Code
15Cu Nut Clip	614100
20Cu Nut Clip	614101
25Cu Nut Clip	614102
32Cu Nut Clip	614103
40Cu Nut Clip	614104
50Cu Nut Clip	614105
65Cu Nut Clip	614106
80Cu Nut Clip	614107
100Cu Nut Clip	614108
125Cu Nut Clip	614109
150Cu Nut Clip	614110

KS614

NUT CLIP FOR PVC PIPE



- Nut clip sizes 40mm to 150mm
- Cup head fastener
- Double bolted
- Suits M10 Rod
- Standard finish powder coated white

Description	Binder Code
40PVC Nut Clip	614200
50PVC Nut Clip	614201
65PVC Nut Clip	614202
80PVC Nut Clip	614203
90PVC Nut Clip	614204
100PVC Nut Clip	614205
150PVC Nut Clip	614206

YOKE CLAMP FOR PVC PIPE

KS662



- York Clamp sizes 15mm to 100mm
- Adjustable yoke 48mm to 65mm
- Double bolted
- Suits up to M8 Rod
- Standard finish powder coated white

Description	Binder Code
15PVC Yoke Clamp	662000
25PVC Yoke Clamp	662001
32PVC Yoke Clamp	662002
50PVC Yoke Clamp	662003
80PVC Yoke Clamp	662004
100PVC Yoke Clamp	662005

YOKE CLAMP FOR COPPER PIPE

KS663



When ordering, please quote Binder code for required size and surface finish.

- York Clamp sizes 20mm to 300mm
- Adjustable yoke 48mm to 65mm
- Double bolted
- Suits up to M12 Rod
- Standard finish powder coated brown

Description	Binder Code
20Cu Yoke Clamp	663000
25Cu Yoke Clamp	663001
32Cu Yoke Clamp	663002
40Cu Yoke Clamp	663003
50Cu Yoke Clamp	663004
65Cu Yoke Clamp	663005
80Cu Yoke Clamp	663006
100Cu Yoke Clamp	663007
125Cu Yoke Clamp	663008
150Cu Yoke Clamp	663009

KS664

YOKE CLAMP FOR PVC PIPE



- York Clamp sizes 40mm to 300mm
- Adjustable yoke 48mm to 65mm
- Double bolted
- Suits up to M12 Rod
- Standard finish powder coated white

Description	Binder Code
40PVC Yoke Clamp	664000
50PVC Yoke Clamp	664001
65PVC Yoke Clamp	664002
80PVC Yoke Clamp	664003
100PVC Yoke Clamp	664004
150PVC Yoke Clamp	664005
225PVC Yoke Clamp	664006
300PVC Yoke Clamp	664007

KS616

FILBOWS



- York Clamp sizes 40mm to 300mm
- Standard finish powder coated white

Description	Binder Code
40PVC Filbow	616000
50PVC Filbow	616001
65PVC Filbow	616002
80PVC Filbow	616003
100PVC Filbow	616004
150PVC Filbow	616005
225PVC Filbow	616006
300PVC Filbow	616007

LIGHT DUTY 2-BOLT PIPE CLAMP

BG100

When ordering, please quote Binder code for pipe diameter.



Material	Carbon Steel
Surface finish	HDG

• Also available in stainless steel , zinc or powdercoated finish

Steel Pipe Size	Pipe OD	Material W/T	Binder Code
15 NB	21.3	25 × 3	100001
20 NB	26.7	25 × 3	100002
25 NB	33.4	25 × 3	100003
32 NB	42.2	32 × 3	100004
40 NB	48.3	32 × 3	100005
50 NB	60	40 × 3	100006
65 NB	76	40 × 3	100007
80 NB	89	40 × 3	100008
100 NB	114	40 × 3	100009
125 NB	140	40 × 5	100010
150 NB	168	40 × 5	100011
200 NB	220	50 × 6	100012
225 NB	245	50 × 6	100013
250 NB	273	50 × 6	100014
300 NB	324	50 × 10	100015
350 NB	356	65 × 10	100016
400 NB	406	65 × 12	100017
450 NB	457	75 × 16	100018
500 NB	508	75 × 16	100019
600 NB	610	75 × 16	100020
750 NB	762	90 × 20	100021
900 NB	914	100 × 25	100022
Copper Tube Size	Pipe OD	Material W/T	Binder Code
50 CU	51	32 × 3	100205
65 CU	63	40 × 3	100206
80 CU	76	40 × 3	100207
100 CU	102	40 × 3	100208
125 CU	127	40 × 5	100209
150 CU	152	40 × 5	100210
200 CU	255	40 × 5	100211
250 CU	257	50 × 6	100212
300 CU	304	50 × 6	100213
PVC Pipe Size	Pipe OD	Material W/T	Binder Code
48 PP	48	32 × 3	100300
50 PP	56	32 × 3	100301
65 PP	69.1	40 × 3	100302
80 PP	82.7	40 × 3	100303
100 PP	114	40 × 3	100304
150 PP	160	40 × 5	100305
200 PP	225	50 × 6	100306
225 PP	251	50 × 6	100307
250 PP	281	50 × 6	100308
300 PP	315	50 × 6	100309

SADDLE CLAMP



BG106

When ordering, please quote Binder code for required Pipe type and diameter.

Material	Carbon Steel
Surface finish	HDG

- HDPE sizes also available
- Copper tube should be isolated from galvanised steel
- Available in powder-coated finish

Steel Pipe Size		Bolt Hole Diameter	Material	Binder Code
Normal Size	Outside Diameter		Width x Thickness	
15 CU	12.7	8	25 x 3	106100
20 CU	19	8	25 x 3	106101
25 CU	25.4	8	25 x 3	106102
32 CU	31.8	8	25 X 3	106103
40 CU	38.1	11	32 x 3	106104
50 CU	51.2	11	32 X 3	106105
65 CU	63.5	14	40 x 3	106106
80 CU	76.2	14	40 x 3	106107
100 CU	101.6	14	40 x 3	106108
125 CU	152.4	14	40 x 5	106109

15 NB	21	8	25 x 3	106000
20 NB	27	8	25 x 3	106001
25 NB	34	8	25 x 3	106002
32 NB	43	11	32 X 3	106003
40 NB	48	11	32 x 3	106004
50 NB	60	11	32 X 3	106005
65 NB	75	14	40 x 3	106006
80 NB	89	14	40 x 3	106007
100 NB	114	14	40 x 3	106008
150 NB	768	14	40 x 5	106010
200 NB	220	18	50 x 6	106011
225 NB	245	18	50 x 6	106012
250 NB	273	18	50 x 6	106013

50 PVC	59	11	32 x 3	106201
65 PVC	69.1	14	40 x 3	106202
80 PVC	82.7	14	40 x 3	106203
100 PVC	110.4	14	40 x 3	106204
150 PVC	160.5	14	40 x 5	106205

U BOLT CLAMP LIGHT DUTY

BG107



When ordering, please quote Binder code for required size and surface finish.

Material	Carbon Steel
	Stainless Steel
Surface finish	HDG
	Mill

- Other sizes available to order. Please enquire.
- Mill finish available by request
- Complete with 2 hex nuts

Pipe Size		Description	Thread Size	Centres	Height to inside	Binder Code	Binder Code
Nominal Size	Outside Diameter (A)			mm	mm	Surface Finish HDG	Surface Finish S/S 316
NB	mm						
15	21.3	BG107 15NB Light Duty U-Bolt Clamp	M10	31	67	107100	107200
20	26.7	BG107 20NB Light Duty U-Bolt Clamp	M10	37	77	107101	107201
25	33.4	BG107 25NB Light Duty U-Bolt Clamp	M10	44	85	107102	107202
32	42.2	BG107 32NB Light Duty U-Bolt Clamp	M10	53	92	107103	107203
40	48.3	BG107 40NB Light Duty U-Bolt Clamp	M10	58	100	107104	107204
50	60.3	BG107 50NB Light Duty U-Bolt Clamp	M10	70	110	107105	107205
80	88.9	BG107 80NB Light Duty U-Bolt Clamp	M12	101	140	107107	107208
100	114.3	BG107 100NB Light Duty U-Bolt Clamp	M12	126	165	107108	
125	141.3	BG107 125NB Light Duty U-Bolt Clamp	M12	152	187	107109	
150	168.3	BG107 150NB Light Duty U-Bolt Clamp	M12	180	220	107110	
200	219.1	BG107 200NB Light Duty U-Bolt Clamp	M16	236	295	107111	
250	273.0	BG107 250NB Light Duty U-Bolt Clamp	M20	293	340	107112	

I07 CONDUIT BOLT CLAMP

BG107



When ordering, please quote Binder code for required size and surface finish.

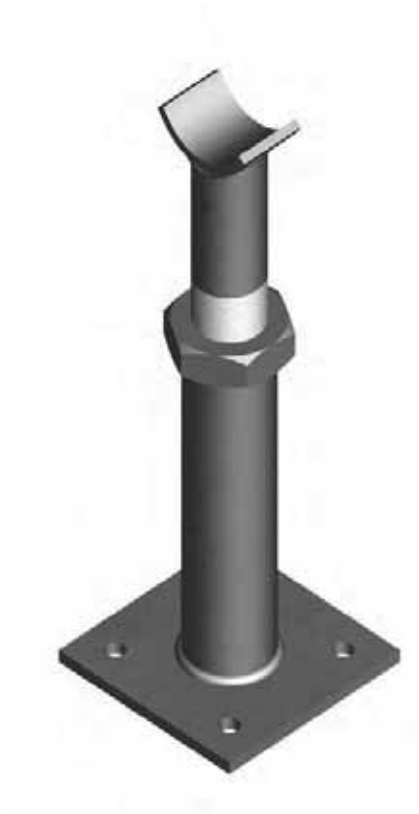
Material	Carbon Steel
	Stainless Steel
Surface finish	Zinc
	Mill

- Other sizes available to order. Please enquire.

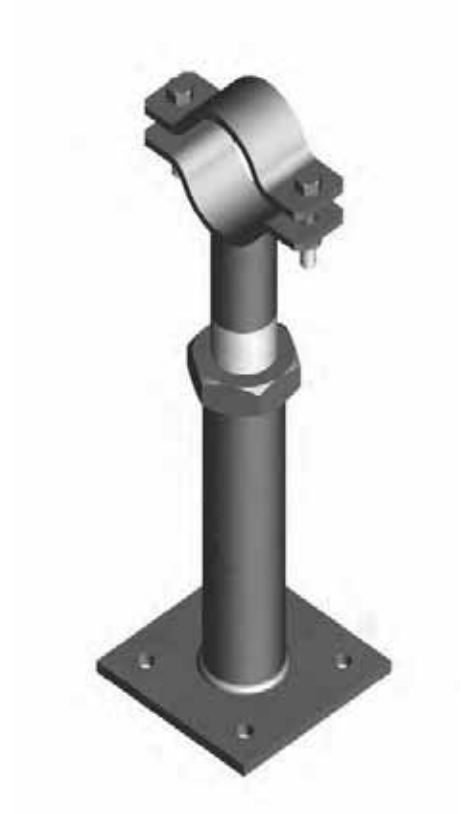
Description	Centres	Height to inside	Binder Code
	mm	mm	Surface Finish ZP
U-Bolt 20mm BG107 Conduit ZP	28	40	107000
U-Bolt 25mm BG107 Conduit S/S	34	44	
U-Bolt 25mm BG107 Conduit ZP	34	44	107001
U-Bolt 30mm BG107 Conduit S/S	42	51	
U-Bolt 30mm BG107 Conduit ZP	42	51	107002
U-Bolt 40mm BG107 Conduit S/S	50	60	107003
U-Bolt 50mm BG107 Conduit ZP	60	70	107004

Adjustable Pipe Stands

KS-135 Pipe Stand



KS-136 Pipe Stand

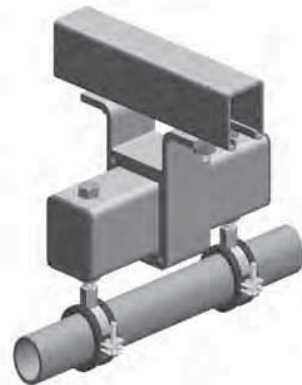
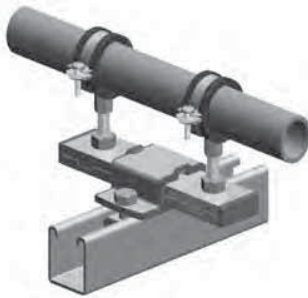


- KS-135 & KS136 Pipe Stands allow vertical adjustment of the supported pipe using the Lock Nut provided
When the desired height is achieved, the Lock Nut should be Welded to the lower Pipe
- The height from the centre of the pipe to the underside of the base plate should be nominated at the time of order
- Standard Finish Hot Dip Galvanised

Pipe Slide Guides

KS-190 Light Duty Slide Guide

KS-191 Heavy Duty Slide Guide

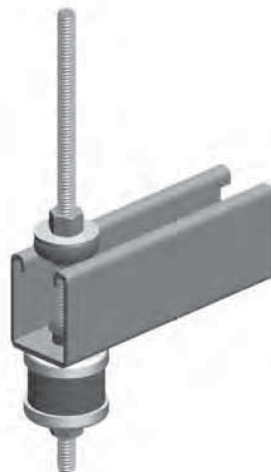


- Smooth operating Slide Guide for ceiling, wall or Floor Mounting
- Two Clamps prevents jamming and misalignment
- Large sliding distance up to 60mm thermal expansion
- Low minimum height - only 25mm
- Variable height - height is governed by thread length
- Ideal for use with Binder-Strut Channels
- Available suitable for both M10 and M12 threads

- Smooth operating Slide Guide for ceiling, wall or Floor Mounting
- Two Clamps prevents jamming and misalignment
- Large sliding distance up to 125mm thermal expansion
- Variable height - height is governed by thread length
- Ideal for use with Binder-Strut Channels
- Available in M16 thread

Anti-Vibration Components

KS-195 Noise Resilient Pad



- Reduction of structure borne noise for numerous mounting situations
- Ideally suited to insulate across and supports using Binder-Strut Channels
- Protection Nozzel prevents metal contact between Threaded Rod/Bolts and Binder Channels
- Sound insulation average 17dB (A)
- Ideally used with KS-196 for Binder Channels
- Suitable for M10 Threaded Rod or Bolts

KS-196 Noise Resilient Washer



- Highly elastic sound absorber for light compressive loads
- Ideally suited to insulate across and supports using Binder-Strut Channels
- Protection Nozzel prevents metal contact between Threaded Rod/Bolts and Binder Channels
- Sound insulation average 18dB (A)
- Ideally used with KS-195 for Binder Channels
- Suitable for M10 Threaded Rod or Bolts

VERTICAL WALL PLATE



When ordering, please quote Binder code for required size.

KS28

Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
Wall Plate M10	650001
Wall Plate M12	650006

WALL PLATE



KS25

Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
Wall Plate M10	650000
Wall Plate M12	650005

SUSPENSION EYE



KS32

Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
Suspension Eye M10	650008

WALL PLATE



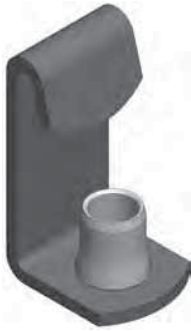
KS30

Material	Carbon Steel
Surface finish	Zinc

• Stud length 30mm

Description	Binder code
Wall Plate M10	650002

'C' PURLIN CLIP



KS650N

When ordering, please quote Binder code for required size.

Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
'C' Purlin Clip M10	650004

'Z' PURLIN CLIP



KS650

Material	Carbon Steel
Surface finish	Zinc Plated

Description	Binder Code
'Z' Purlin Clip M10	650003

FLANGE CLAMP



KS374

Material	Carbon Steel
Surface finish	Zinc Plated

Description	Binder code
Flange Clamp M08 Drilled	374002
Flange Clamp M10 Drilled	374004
Flange Clamp M12 Drilled	374006

THREADED ROD

KS904

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc Plated
	Hot Dip Galvanised - POA
	Stainless - POA
	Brass - POA
	Mill - POA

- Standard length is 3M
- Cutting available
- Other sizes available on request

Description	Binder Code
M08 Althread 3M	904200
M10 Althread 3M	904201
M12 Althread 3M	904202
M16 Althread 3M	904203

HEX CONNECTOR

KS206

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc
	HDG - POA

Description	Binder Code
Hex Connector M10 Zinc	206015
Hex Connector M12 Zinc	206016
Hex Connector M16 Zinc	206017

CLEVIS HANGER

KS670

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	HDG

Description	Material	Binder code
Clevis Hanger M10	40 x 3	670002
Clevis Hanger M12	40 x 6	670004

DROP IN ANCHOR

KS340

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
M10 X 30mm	909002

HANGER BOLT

KS1380

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
Hanger Bolt M10 x 80mm	909100
Hanger Bolt M10 x 100mm	90101

NUT

KS900



Description	Binder Code
M08 Hex Nut CL.8	900101
M10 Hex Nut CL.8	900102
M12 Hex Nut CL.8	900103

WASHER



Description	Binder Code
M08 Flat Washer CS	902551
M10 Flat Washer CS	902552
M12 Flat Washer CS	902553

M/G WASHER



Description	Binder Code
1/4 x 3/4 Mudguard Washer	902566
1/4 x 1 Mudguard Washer	902567
1/4 x 1 1/4 Mudguard Washer	902568
3/8 x 1 1/4 Mudguard Washer	902569

HEX HEAD SET SCREvv

KS900

When ordering, please quote Binder code for required size.



Material	Carbon Steel
Surface finish	Zinc

Description	Binder Code
M8 × 25 Hex bolt Gr. 4.6	900911
M8 × 30 Hex bolt Gr. 4.6	900912
M8 × 40 Hex bolt Gr. 4.6	900914

M10 × 20 Hex bolt Gr. 4.6	900935
M10 × 25 Hex bolt Gr. 4.6	900936
M10 × 30 Hex bolt Gr. 4.6	900937
M10 × 40 Hex bolt Gr. 4.6	900939
M10 × 45 Hex bolt Gr. 4.6	900940
M10 × 50 Hex bolt Gr. 4.6	900941

TEST PLUGS AND FITTINGS

KS691

When ordering, please quote Binder code.

Material	Carbon Steel
Surface finish	Zinc

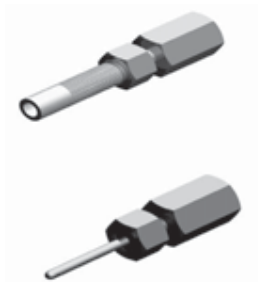
- Plugs and extensions available in stainless by request
- Gauges and thermometers available in other scales by request



Description	Binder Code
1/4 BSP Twinlok Test Plug Brass	691000
1/4 NPT Twinlok Plug Brass	691001
1/4 BSP Pete's Plug Brass DRB	691002
1/4 NPT Pete's Plug Brass	691003



Description	Binder Code
Gauge Pressure B100 0-100	691015
Gauge Pressure B100 0-250	691016
Gauge Pressure B100 0 to 400KPA	691017
Gauge Pressure B100 0 to 1000KPA	691020



Description	Binder Code
Adaptor Pressure Gauge B180	691025



Description	Binder Code
Differential Thermometer	691029



Description	Binder Code
Hexagon Plug Extension 1/4 BSP Test	691006
Extension Hex 1/4 BSP x 3/8 BSP x 65mm	691007
Extension Hex 3/8 BSPT x 3/8 BSPP x 65mm	691008



Description	Binder Code
Dial test thermometer -30 to 70	691027
Dial test thermometer -10 to 110	691028
Digital Stem Thermometer -10 to 110	691030

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Body available in Dezincification resistant Brass Alloy or Type 316 Stainless Steel

Cores available in Nordel for hydraulic installations or Neoprene for natural gas installations

Temperature Range -10°C to +135°C

Maximum Pressure 3500Kpa

Standard Plug Thread 1/4" BSP, available in 1/4" NPT

Nordel cores must not be used on natural gas installations

1. The operator should wear protective clothing i.e. gloves and goggles when using the plug in high temperature lines or where injurious liquids or gases are contained.
2. Slowly remove the cap from the plug, if whilst doing so you feel or hear gas or liquids escaping immediately retighten the cap.

Determine at this time if the plug has been used improperly and if necessary replace the plug.
3. Having determined that the plug is operating correctly, remove the cap.
4. Select the appropriate probe for pressure or temperature.

Clean and lubricate the probe with a small amount of silicone oil.

Examine the probe for any sharp burrs which could cut the plug cores. Remove any burrs before using; do not use non-standard or damaged probes.

- a) Determine approximate pressure in the pipeline and select a 1/4" BSP Male outlet pressure gauge of suitable range and securely screw onto the Binder pressure gauge adapter probe.
- b) Lubricate the probe with a small amount of silicone oil and partially insert the pressure gauge adapter probe into the test plug.

If you are not sure of the pressure behind the plug, be prepared to quickly withdraw the probe before rupturing or over-pressuring the gauge. The test plug, in its static state and without a cap can easily withstand over 3500 Kpa without leaking. Do not assume that since the plug is not leaking that it is safe to quickly and fully insert a low range pressure gauge. If you are wrong the low range gauge could explode in your hand.

- c) When the pressure gauge needle stops moving up-scale fully insert the probe and read the pressure.
- d) Do not leave the probe in the plug longer than necessary.

Always screw the adapter probe union to the top of the test plug to prevent the internal pressure from ejecting the gauge and probe.
- e) When removing the probe do not position your face near the plug.

The plug should not leak when removing the probe but always observe safety precautions.
- f) As soon as the probe is removed replace the test plug cap.



- a) Temperature probe insertion is similar to the pressure probe insertion with the exception that the operator should always first determine the pressure behind the plug before insertion of the temperature probe. This establishes that the plug is operating within its specification limits. After pressure has been determined follow the steps outlined in 5a to 5f.

7. When using a test plug which has been installed and unused for several years follow all the procedures shown above.

The test plug used in the hydraulics industries is the Twinlok Test Plug. It is normally the Dezincification resistant Brass Alloy body with the Nordel core.

Chilled Water circuits

Fan Coil Units

Pumps

Heating Water

Heat Exchangers

The test plug used in natural gas installations is a

It has the Dezincification resistant Brass Alloy body but must have the Neoprene Core.

fi

For ease of identification, the Twinlok Test Plug uses a Red Cap Strap whereas the Pete's Plug uses a Black Cap Strap

Always Insist on Twinlok ® Test Plugs

Your Absolute Guarantee

Of Leak Proof Plugs

100% Dezincification Resistant

Pipe Size Details

Plumbing Copper Tube

Tube Nominal Size	Pipe O.D.	Pipe Mass Empty kg/m	Pipe Mass Full of Water kg/m	Maximum Support Span
15	12.70	0.30	0.39	1.50
20	19.00	0.52	0.75	1.50
25	25.40	0.83	1.25	2.00
32	31.80	1.05	1.72	2.50
40	38.10	1.27	2.27	2.50
50	51.20	1.70	3.57	3.00
65	63.50	2.14	5.07	3.00
80	76.20	3.42	7.60	3.00
100	101.60	4.58	12.18	4.00
150	152.40	8.58	25.86	4.00

Refrigeration Copper Tube

Tube Nominal Size	Pipe O.D.	Pipe Mass Empty kg/m	Pipe Mass Full of Water kg/m	Maximum Support Span M
1/4"	6.35	0.14	0.16	1.00
3/8"	9.53	0.22	0.27	1.00
1/2"	12.70	0.30	0.39	1.50
5/8"	15.88	0.38	0.54	1.50
3/4"	19.05	0.46	0.69	1.50
7/8"	22.23	0.55	0.88	1.50
1 1/8"	28.58	0.71	1.27	2.00
1 3/8"	34.93	0.87	1.73	2.50
1 5/8"	42.75	1.03	2.35	2.50
2 1/8"	53.98	1.36	3.50	3.00
2 5/8"	66.68	2.25	5.55	3.00

PVC Soil / Storm Water Pipe

Pipe Nominal Size	Pipe O.D.	Pipe Mass Empty kg/m	Pipe Mass Full of Water kg/m	Maximum Support Span
40	43.10	0.41	1.55	1.00
50	56.00	0.59	2.62	1.00
65	69.10	0.89	4.02	1.20
80	82.70	1.15	5.69	1.20
100	110.40	1.30	9.70	1.20
150	160.50	3.02	21.12	1.20
225	250.70	7.35	51.21	3.00
300	315.90	11.82	81.15	3.00

Steel Pipe to Schedule 40

Pipe Nominal Size	Pipe O.D.	Pipe Mass Empty kg/m	Pipe Mass Full of Water kg/m	Maximum Support Span M
15	21.30	1.26	2.00	2.00
20	26.70	1.68	2.20	2.50
25	33.40	2.50	3.00	3.00
32	42.20	3.38	4.00	3.00
40	48.30	4.05	4.90	3.50
50	60.30	5.43	7.70	4.00
65	76.00	8.62	12.00	4.50
80	88.90	11.28	15.00	5.50
100	114.30	16.06	25.00	6.00
150	168.30	28.23	50.00	7.00
200	219.10	42.49	74.00	8.50
250	273.00	60.24	115.00	9.00
300	323.90	73.76	150.00	10.00
350	355.60	81.21	216.00	10.00
400	406.40	93.13	264.00	10.50
450	457.20	105.05	316.00	11.00
500	508.00	116.97	272.00	12.00
600	609.60	140.81	500.00	14.00

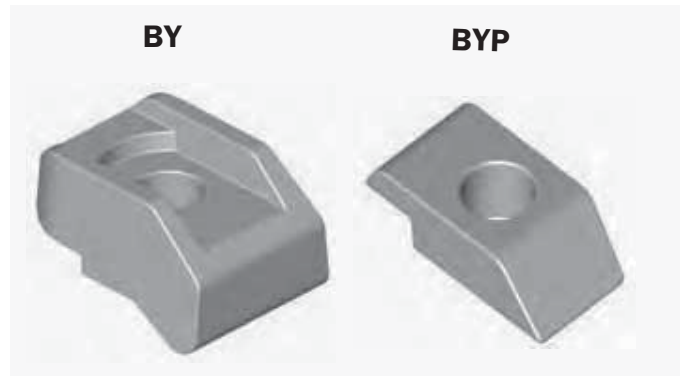
HDPE ~ PPR Pipe

Pipe Nominal Size	Pipe O.D.	Pipe Mass Empty kg/m	Pipe Mass Full of Water kg/m	Maximum Support Span @ 20 C	Maximum Support Span @ 80 C
20	20.00	0.16	0.32	0.80	0.60
25	25.00	0.24	0.49	0.85	0.70
32	32.00	0.38	0.80	1.00	0.70
40	40.00	0.61	1.27	1.10	0.85
50	50.00	0.90	1.93	1.25	0.90
63	63.00	1.44	3.09	1.40	1.05
75	75.00	2.09	4.41	1.50	1.05
90	90.00	2.98	6.34	1.65	1.15
110	110.00	4.39	9.39	1.90	1.30

The maximum span shown in the above tables should be taken as a guide only. Consult specifications and site conditions may cause variations to the above but the maximum span should not be exceeded.

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.

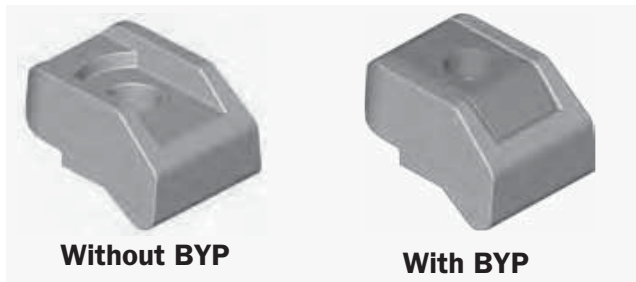
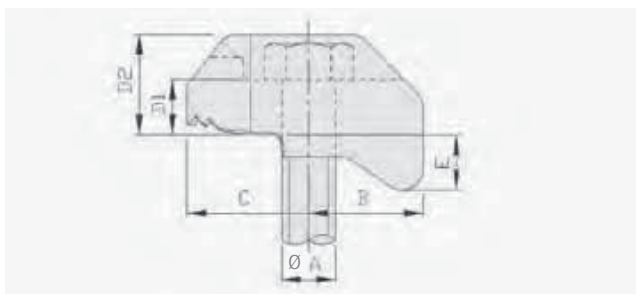
Product Code BYP	Size	Product Code	Tail Length	A Bolt Dia	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E		Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per two bolts Painted Steel (2:1 Factor of Safety)
									1 mm	2 mm				
378005	M12	378017	Short	M12	27	28.9	13	23	5	12.5	40	90	10.60	4.29
378006	M16	378000	Short	M16	33	33	17	30	8	15	49	240	17.29	8.02
378007	M20	378001	Short	M20	39	39	22	37	10	18	55	470	29.58	11.94
		378002	Medium	M12	27	28.5	13	23	5	12.5	40	130	11.65	7.88
		378003	Medium	M16	33	33	17	30	8	15	49	300	19.41	15.50
		378004	Medium	M20	39	39	22	37	10	18	55	647	32	23.76

*Frictional failure for the Type BY clamp is 1 mm 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, Lloyds Register Certification applied for and pending.



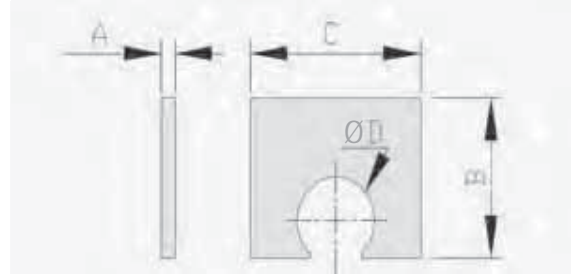
The BY recess is suitable for the hexagonal head of standard grade 8.8 and 10.9 bolts. The Type BYP may be used to fill in the recess allowing for any grade bolt or nut to be tightened down to its surface.



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



Type BF4



Type BH2



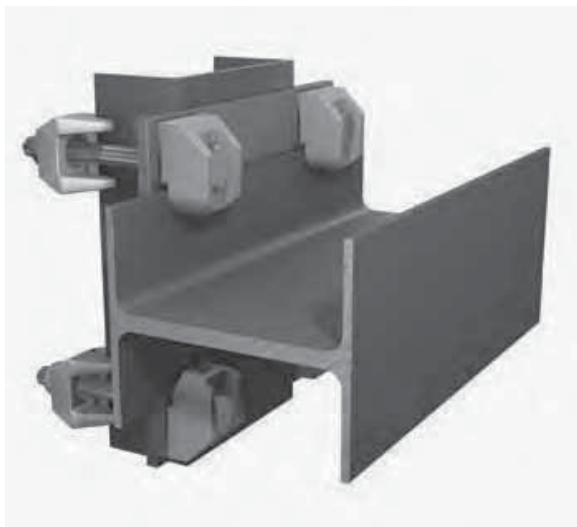
Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
378011	5	40	40	14
378012	5	50	52	18
378013	5	55	56	21

Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
378008	10	40	40	14
378009	10	50	52	18
378010	10	55	56	21

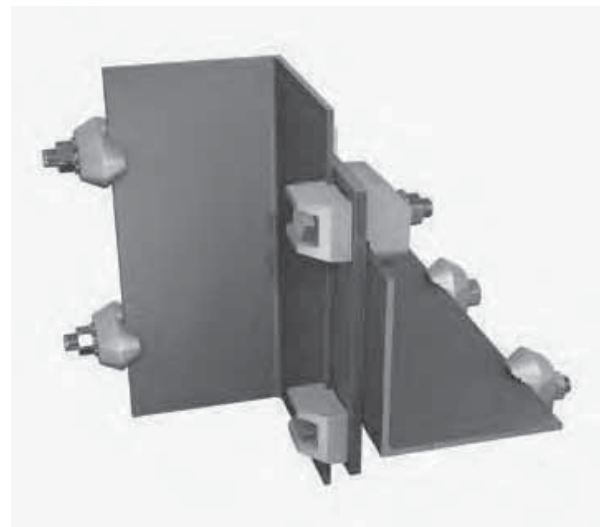
Product Code	A (mm)	B (mm)	C (mm)	Ø D (mm)
378014	2	40	40	14
378015	2	48	48	18
378016	2	50	50	21

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. A design sheet is available for manually working out of the tail length and packing piece combinations along with the bolt lengths and location plate dimensions and is available upon request.

Type BY used with Type BZ



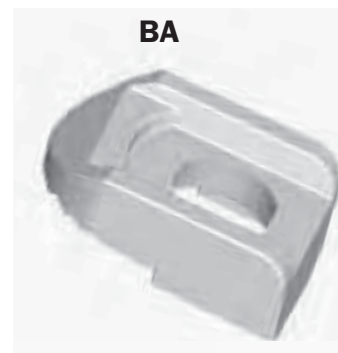
W-Beam to C-Channel using a combination of BY and BZ clamps.



Two angles connected together using a combination of BY and BZ clamps.

BeamClamp® Components Type BA

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 18 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 24 and 25. Please note when using tapered steelwork it is the edge of the steel that we require, see our tables on pages 34 and 35 for edge thickness dimensions.

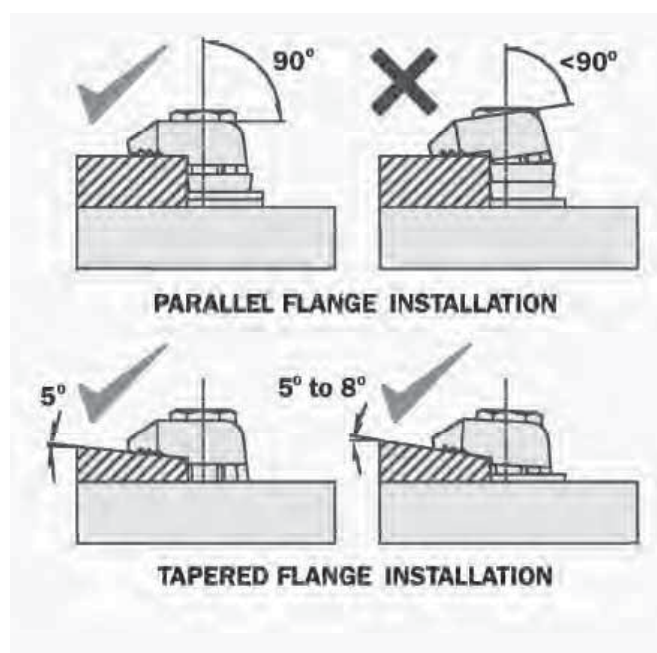
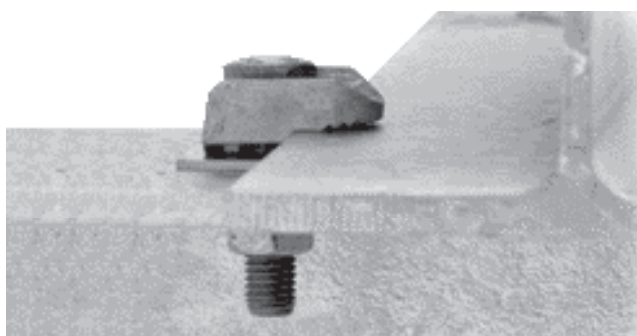
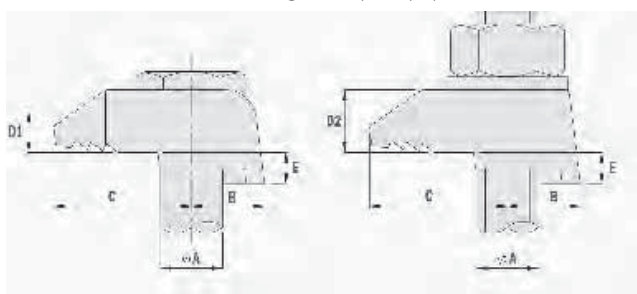


- Hot Dip Galvanised to BS EN ISO 1461
- Manufactured from Ductile Iron to BS EN1563
- 5 to 1 Factor of Safety
- Lloyds Register approved
- DIBt approved

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

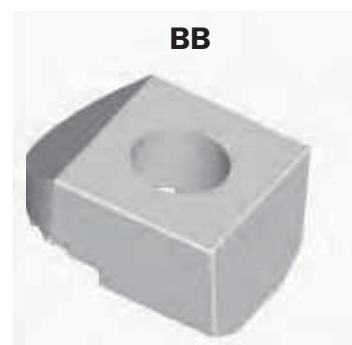
Product Code Short	Product Code Medium	Product Code Long	A Bolt Dia (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E			Width (mm)	Torque (Nm)	Tensile SWL (kN) per bolt (5:1 Factor of Safety)	Frictional SWL (kN) per two bolts Painted Steel (2:1 Factor of Safety)
								1 mm	2 mm	3 mm				
	360001		M08	9	16	5	9	/	4	/	20	6	1.25	/
360002	360003	360004	M10	12	20	6	11	4	5	7	26	20	2.5	/
360005	360006	360007	M12	15	25.5	7	13	4.5	6	9.5	29.5	70	5.75	1.3
360008	360009	360010	M16	17	31	9	17	5.5	8	11	36	150	9.87	3.9
360011	360012	360013	M20	21	35	11	21	7	10	12.5	44	290	16.47	11
360014	360015	360016	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 BB

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 BFI, BGI and BHI can be used in combination with the tail length to achieve a match to the steel flange, please see page 18 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 24 and 25. Please note when using tapered steelwork it is the edge of the steel that we require, see our tables on pages 34 and 35 for edge thickness dimensions.

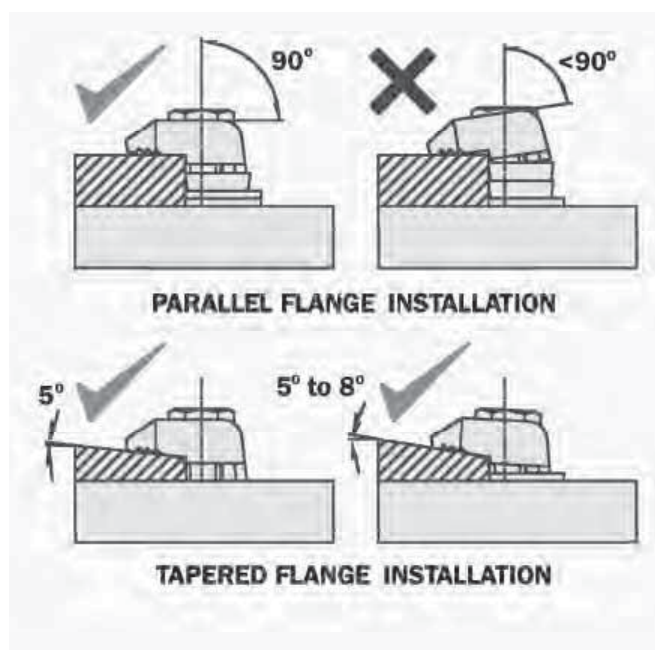
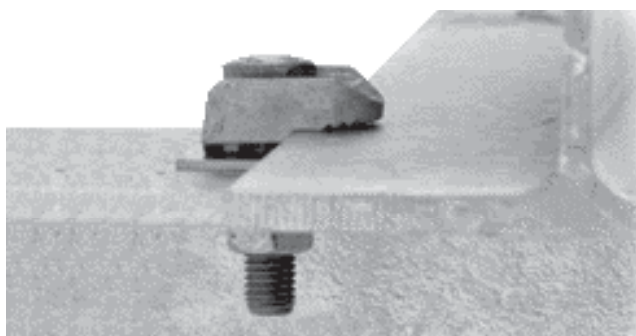
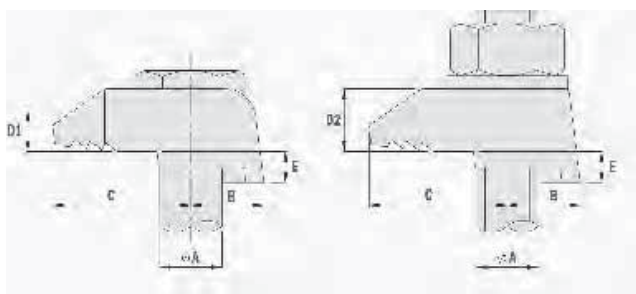


- Hot Dip Galvanised to BS EN ISO 1461
- Manufactured from Ductile Iron to BS EN1563
- 5 to 1 Factor of Safety
- 10 degrees nose

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

Product Code Short	Product Code Medium	Product Code Long	A Bolt Dia (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E			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)
								1 mm	2 mm	3 mm				
	361001		M08	9	16	5	9	/	4	/	20	6	1.25	/
361002	361003	361004	M10	12	20	6	11	4	5	7	26	20	2.5	/
361005	361006	361007	M12	15	25.5	7	13	4.5	6	9.5	29.5	70	5.75	1.3
361008	361009	361010	M16	17	31	9	17	5.5	8	11	36	150	9.87	3.9
361011	361012	361013	M20	21	35	11	21	7	10	12.5	44	290	16.47	11
361014	361015	361016	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 18 for details.

M08, M10, M12

M16, M20, M24

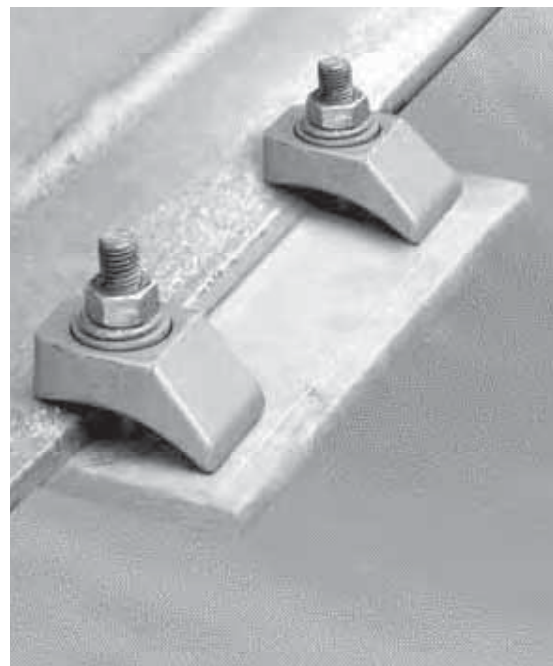
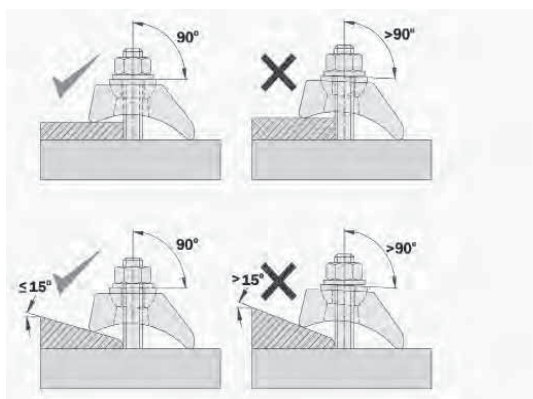
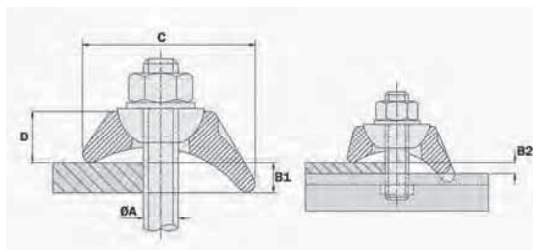


- Hot Dip Galvanised BS EN ISO 1461
- Manufactured from Ductile Iron to BS EN1563
- 5 to 1 Factor of Safety
- Lloyds Register approved
- Self adjusting body style

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 two bolts Painted Steel (2:1 Factor of Safety)
366001	M08	3 to 12	3 to 9	42	14	41	6	0.26	/
366002	M10	3 to 15	3 to 12	54	21	41	20	0.58	/
366003	M12	3 to 18	3 to 15	48	17	41	70	2.03	/
366004	M16	3 to 24	N/A	61	22.5	47	150	4.28	/
366005	M20	3 to 30	N/A	73	26	58	290	6.77	/
366006	M24	3 to 36	N/A	86	37.5	79	490	7.52	/

Do not exceed the Safe Working Load (SWL) specified



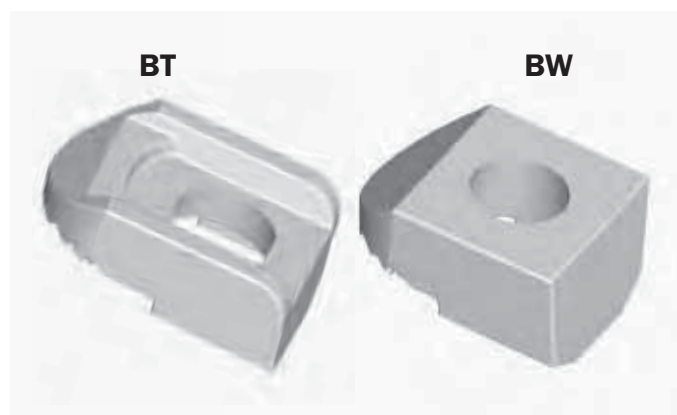
BeamClamp® Components Type BT & BW

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 RSJs 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 BFI, BGI and BHI can be used in combination with the tail length to achieve a match to the steel flange, please see page 18 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 24 and 25. Please note when using tapered steelwork it is the edge of the steel that we require, see our tables on pages 34 and 35 for edge thickness dimensions.

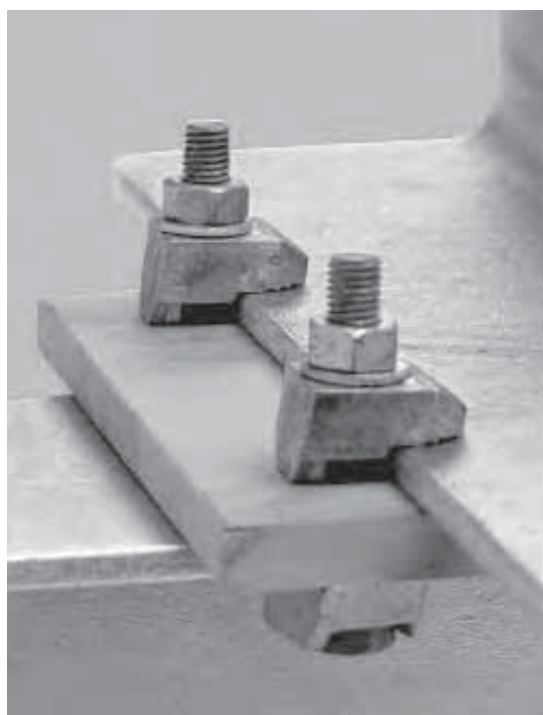
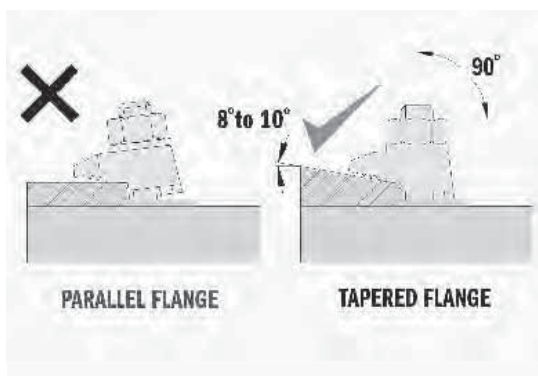
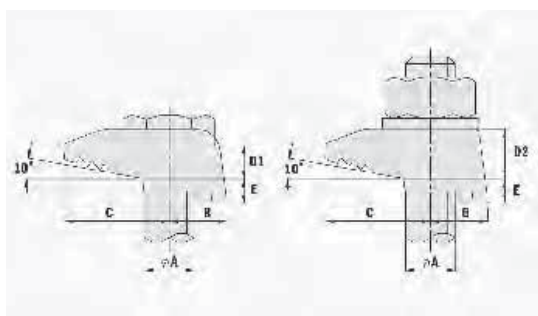
The Safe Working Loads are based on assemblies tested in typical conditions

Product Code BT	Product Code BW	A Bolt Dia (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E		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)
							1 mm	2 mm				
379000	379003	M12	15	25.5	7	13	4	6	28.5	70	5.75	1.3
379001	379004	M16	17	31	9	17	6	8	36	150	9.87	3.9
379002	379005	M20	21	35	11	21	7	10	44	290	16.47	11

Do not exceed the Safe Working Load (SWL) specified



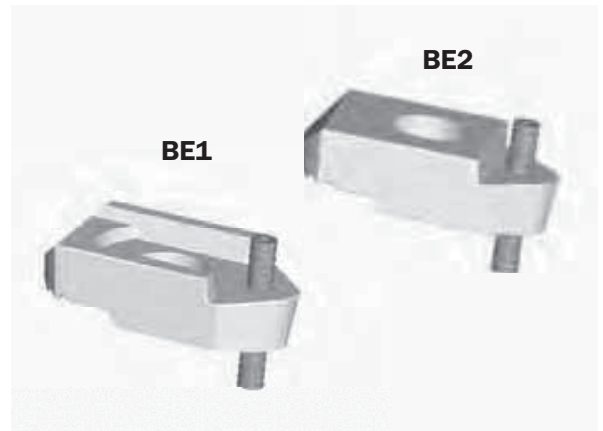
- Hot Dip Galvanised to BS EN ISO 1461
- Manufactured from Ductile Iron to BS EN1563
- 5 to 1 Factor of Safety
- 10 degrees nose



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 18 for details. To make the selection of tail lengths and packing pieces easy please see tables on pages 24 and 25. Please note the BE1 and BE2 are not suitable for steel flanges with tapers greater than 5 degrees.

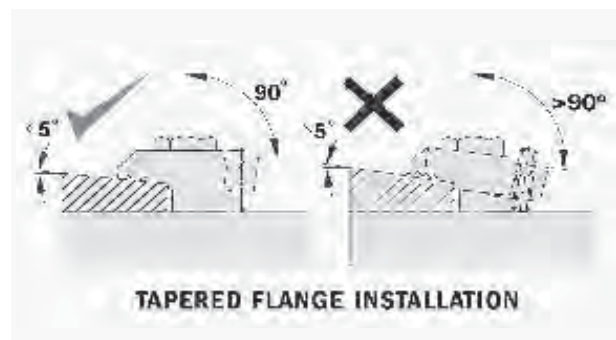
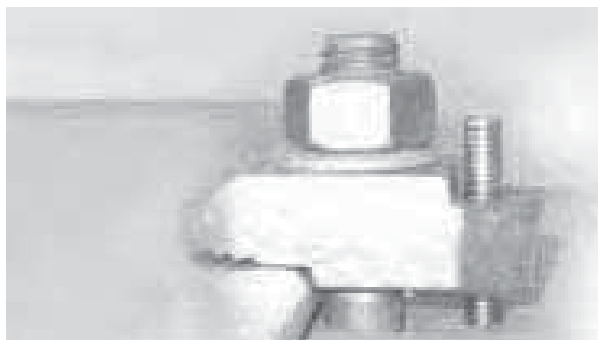
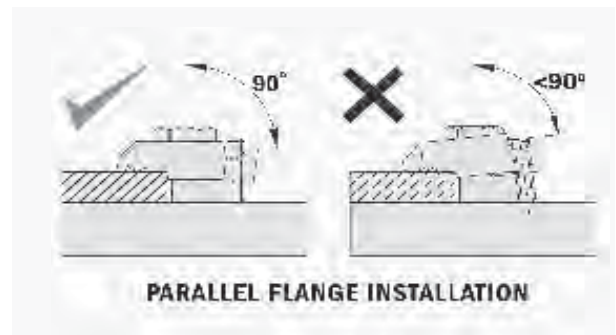
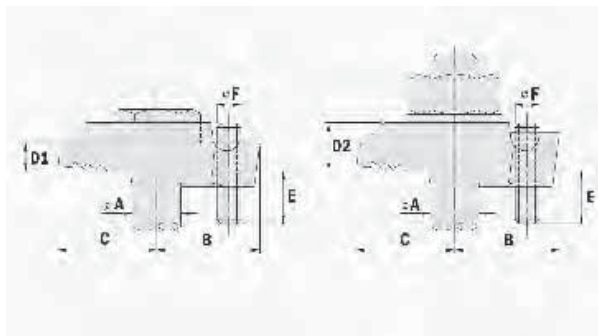
- Hot Dip Galvanised BS EN ISO 1461
- Manufactured from Ductile Iron to BS EN1563
- 5 to 1 Factor of Safety
- Lloyds Register approved
- Socket screw adjustment



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

Product Code BC1	Product Code BD1	A Bolt Dia (Grade 8.8)	B (mm)	C (mm)	D1 (mm)	D2 (mm)	E (mm)	F (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)
364001	/	M10	20	20	6	/	5 to 20	M06	26	20	2.5	/
364002	365001	M12	26	25.5	7	13	6 to 22	M06	28.5	70	3.72	1.3
364003	365002	M16	30	31	9	17	7 to 23	M08	36	150	8.25	3.9
364004	/	M20	35	34	11	/	8 to 24	M10	44	290	16.12	11
364005	/	M24	49	49	13	/	10 to 30	M12	53	490	21.1	18

Do not exceed the Safe Working Load (SWL) specified

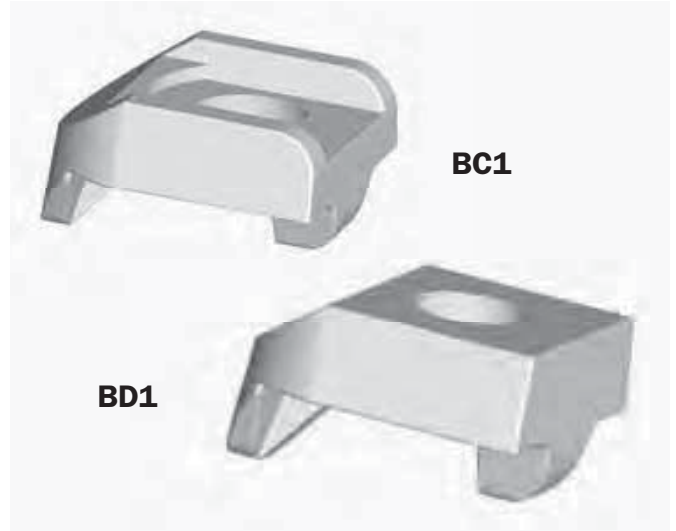


BeamClamp® Components Type BC1 & BD1

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 EN1563
- 5 to 1 Factor of Safety
- Lloyds Register approved

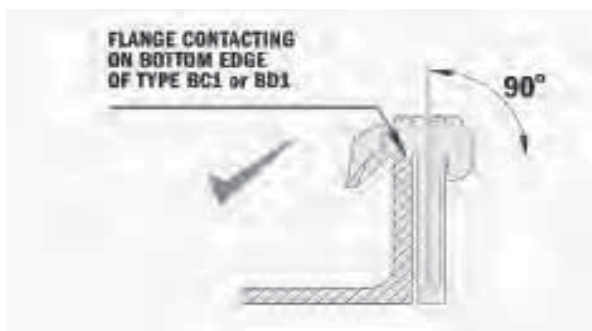
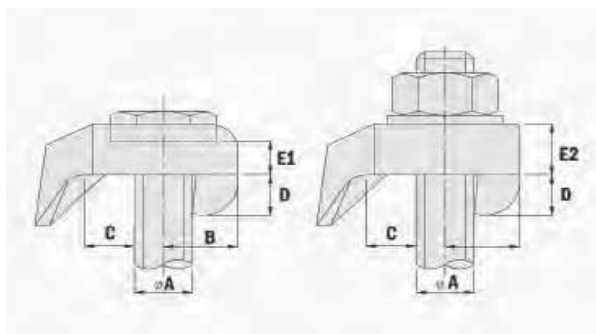
NB These products are not recommended for frictional loads



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)
362001	363001	M08	9	8.5	6	5	9	22	3	1.25
362002	363002	M10	12	10.5	7.5	6	11	29	10	2.5
362003	363003	M12	15	13.5	9.5	7	12	31.5	35	4.32
362004	363004	M16	17	14	11.5	9	17	41	75	7.5
362005	363005	M20	21	15	13.5	11	21	49.5	145	11
362006	363006	M24	26	19	17	13	25	60	245	17.17

Do not exceed the Safe Working Load (SWL) specified



BeamClamp® Packing Pieces

Short packers for Types BA, BB, BT and BW

Product Code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
372001	M08	4	14	22	10
372002	M10	5	18	28	12
372003	M12	6	22	30	14
372004	M16	8	29	35	18
372005	M20	10	33	43	21
372006	M24	12	45	55	26

Product Code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
373001	M08	8	14	22	10
373002	M10	10	18	28	12
373003	M12	12	22	30	14
373004	M16	16	29	35	18
373005	M20	20	33	43	21
373006	M24	24	45	55	26

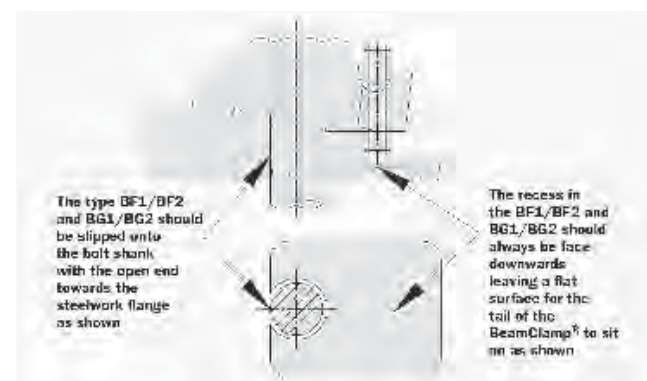
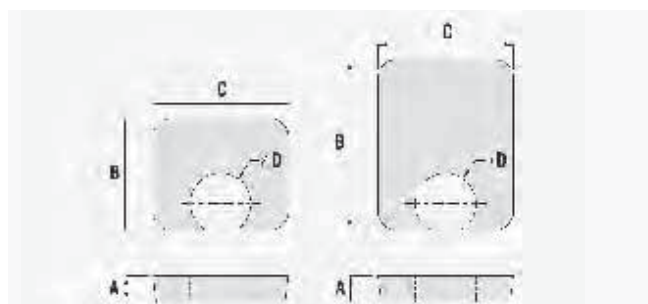
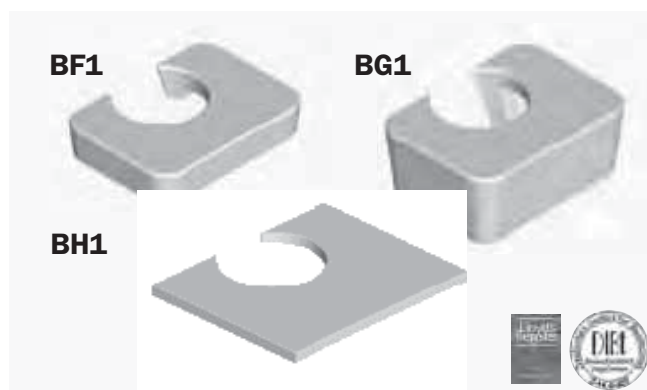
Product Code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
371001	M08	2	15	22	10
371002	M10	2	20	28	12
371003	M12	2.5	24	31	14
371004	M16	3	29	38	18
371005	M20	4	33	44	21
371006	M24	4	45	55	26

Long packers for Types BE1, BE2 and BK1

Product Code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
372007	M08	4	24	22	10
372008	M10	5	30	28	12
372009	M12	6	39	30	14
372010	M16	8	49	35	18
372011	M20	10	58	43	21
372012	M24	12	77	55	26

Product Code	Bolt dia.	A (mm)	B (mm)	C (mm)	D dia.
373007	M08	8	24	22	10
373008	M10	10	30	28	12
373009	M12	12	39	30	14
373010	M16	16	49	35	18
373011	M20	20	58	43	21
373012	M24	24	77	55	26

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 24 & 25 for the correct combinations for different steel thicknesses.

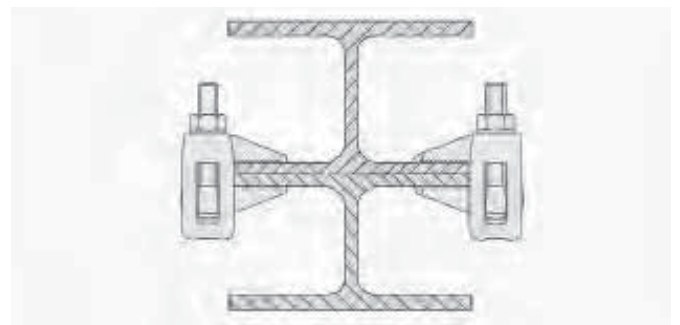
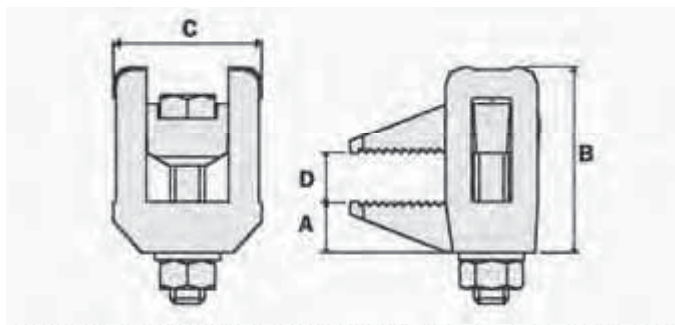


BeamClamp® BL Flange Clamp

The BL is used for clamping steelwork directly together without the need for a location plate. Typical applications would be clamping two steel sections of the same width running parallel or for clamping down pressure vessel lids. It can also be used with clips and brackets underneath the nut and washer side for fixing conduit or even pipe work. The fixing is tested for tensile and lateral loads, please see data sheet below. The BL part is specifically designed to grip the head of a bolt or nut which means the clamp can always be fixed just using one spanner. The central bolt can be replaced with other threaded items such as threaded bar, eyebolts or J-bolts to provide a suspension element.



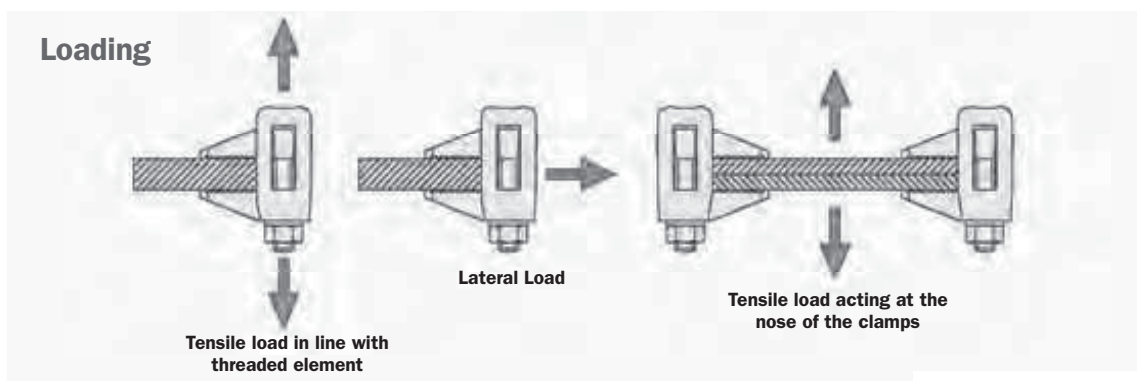
- Only requires one tool for installation
- Hot Dip Galvanised to BS EN ISO 1461
- Extensive fixing range
- Can accommodate clips/brackets
- Tested for Tensile and Lateral Loading



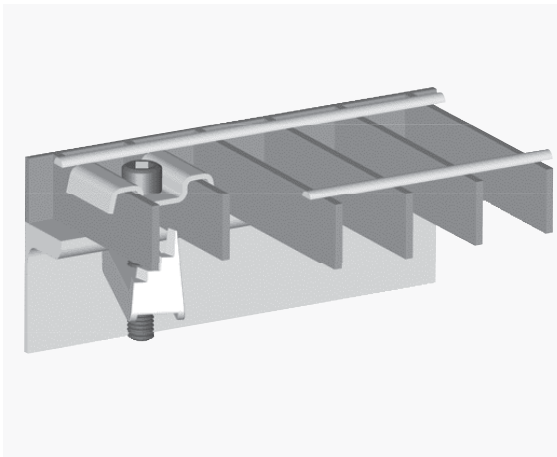
The Safe Working Loads are based on assemblies tested in typical conditions

Product Code	A (mm)	B (mm)	C (mm)	D (mm)	Tightening torque (Nm)	3 to 1 Factor of safety applied		
						Tensile load in line with rod (kN)	Tensile load at nose (kN) (per pair)	Lateral load (kN)
377001	12.5	45	40	5 to 20	10	1.0	7.4	0.25
377002	14	58	47	6 to 30	20	2.5	9.3	0.40
377003	15	65	51.5	7 to 35	40	5.0	11.0	0.60
377004	20	95	58	8 to 55	90	7.5	20.3	0.70
377005	23	116	66	8.5 to 70	180	9.0	23.3	0.75
377006	26	147	75	9 to 95	200	10.5	34.3	0.80

Do not exceed the Safe Working Load (SWL) specified



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

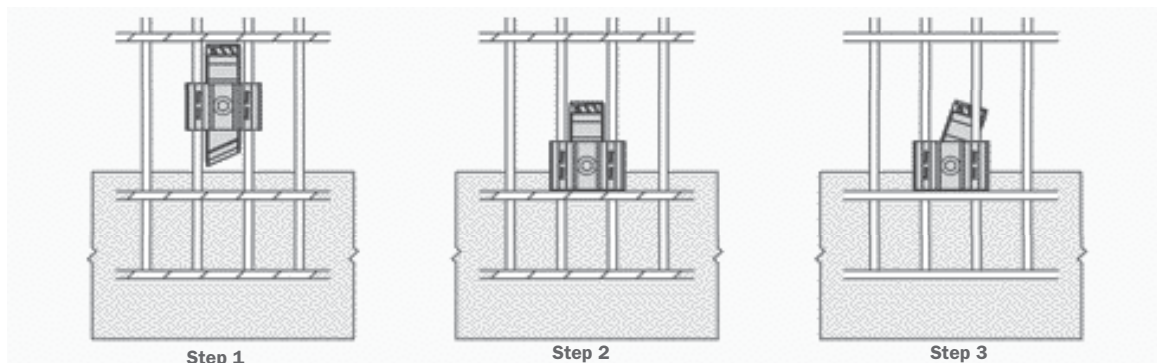
Pressed Top bracket – Material: Mild steel to EN 10025 grade S275

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

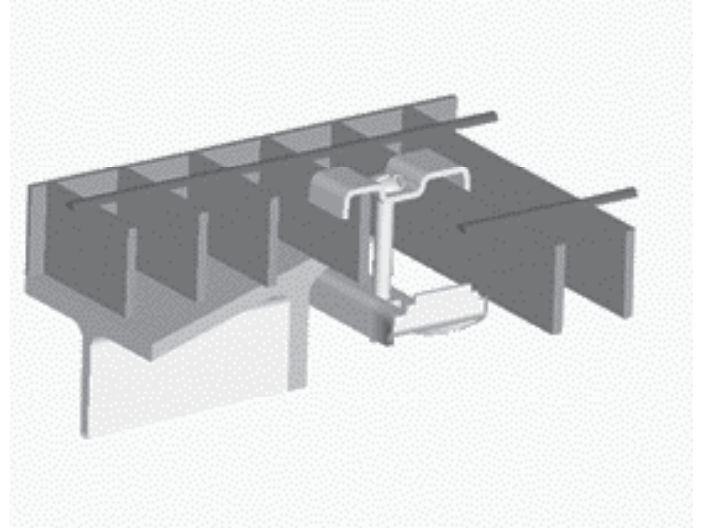
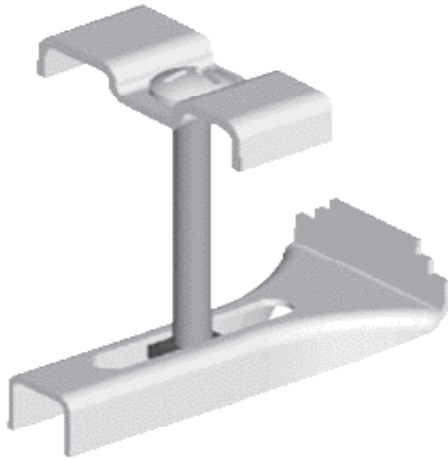
Both finished in: Mechanical Galv to ASTM B695

Product Code	Material/Finish	Screw dia	To suit Grating Bar centres	To suit Grating Bar depths (mm)	Tightening torque (Nm)
370002	Option 1	M08	30mm	50	8
370003	Option 2	M10	30 to 41mm	50	5

Installation



Grating Clip



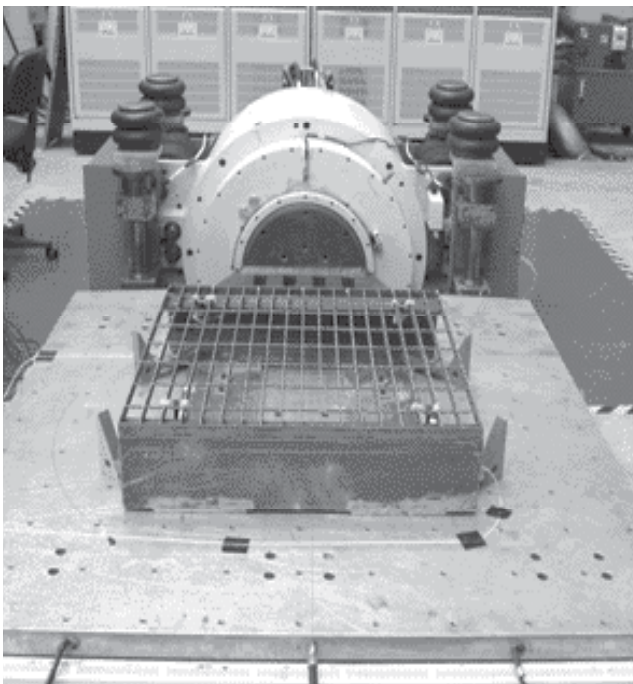
THE GRATING CLIP is the most common style of clip used for fixing down open steel flooring in the UK. It provides a quick and cost effective method of fixing. It is Hot Dip Galvanised and comes as standard with a top bracket to suit 30-41 mm ctrs grating bars.

Product Code	Screw dia.	Grating width		Grating depth Maximum
		min	max	
370001	M08	30	41	50

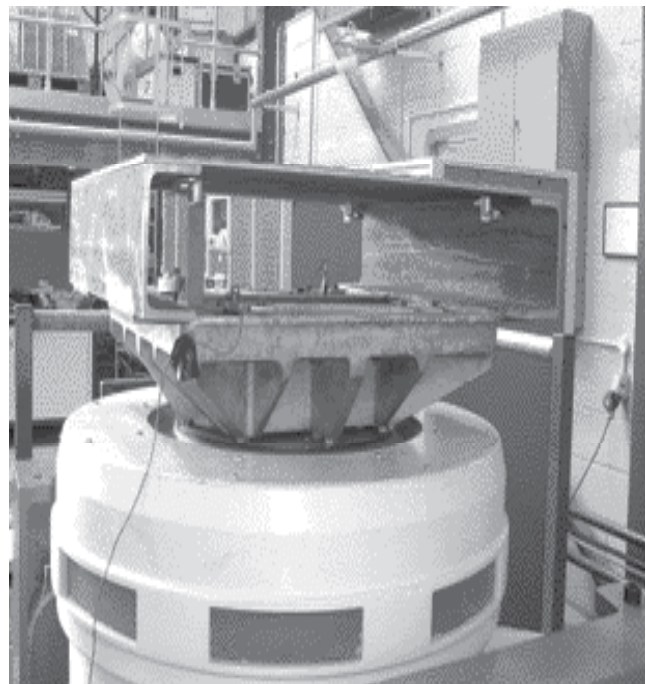
Testing

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

Steel Floor Fixings

FloorFix HT

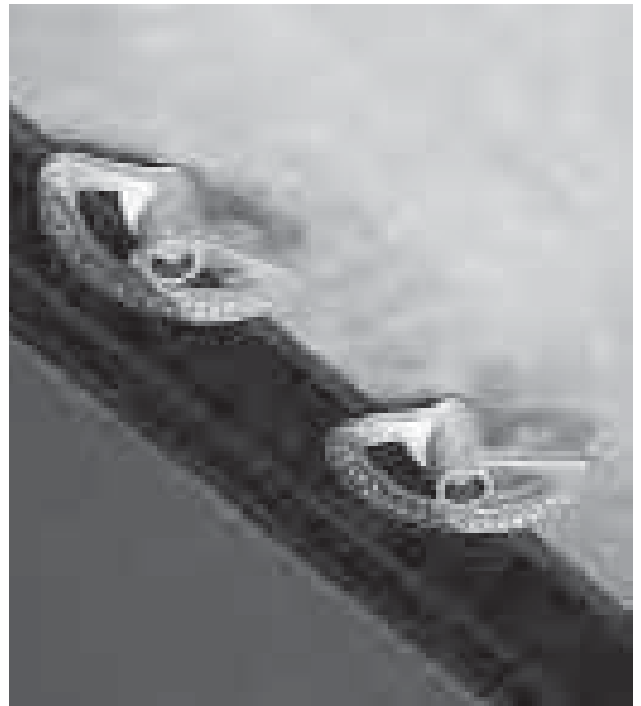
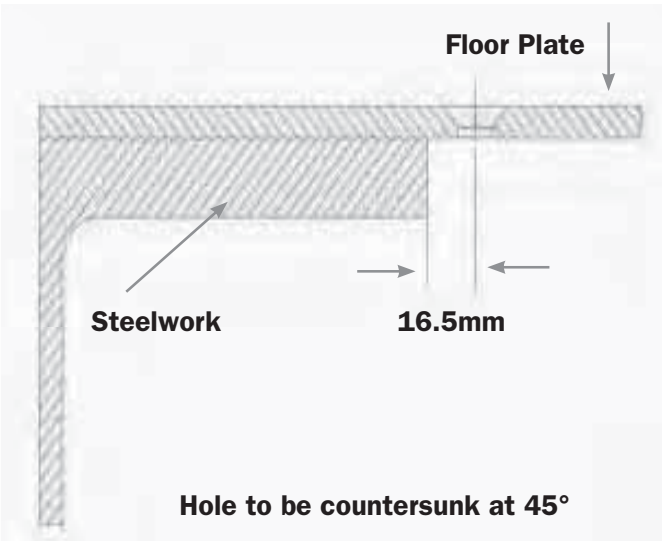


- Can fix up to 25mm thick steel as standard
- Hot Dip Galvanised finish as standard
- Easily installed from the top side only
- No drilling, no tapping or welding required
- Allows easy repositioning or lifting of floor plate
- No special tools or skilled labour required
- No access to the underside 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



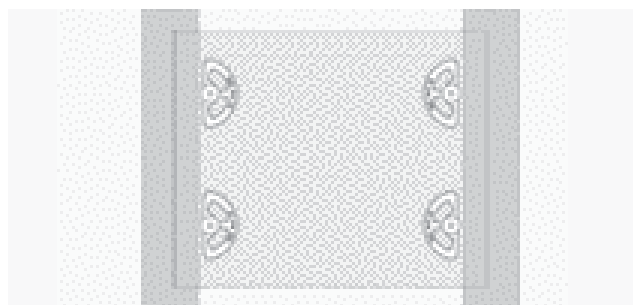
Product Code	Screw dia	Floor Plate Thickness		Steelwork Flange Thickness		Tightening torque (Nm)
		min	max	min	max	
369004	M08	3	12	3	25	20
369005	M10	5	12	3	25	25
369006	M12	6	12	3	25	30

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

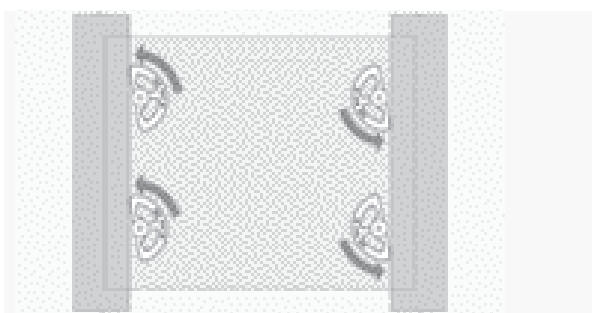
FloorFix HT Installation Instructions



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.

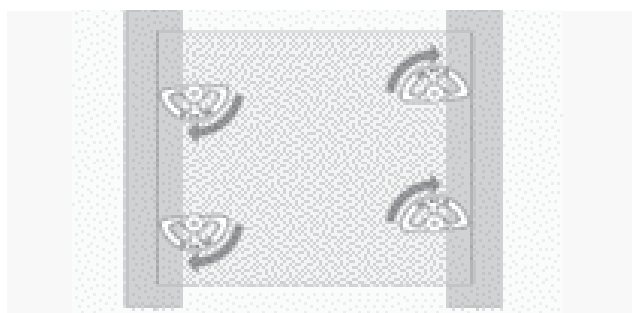


Step 2 Lower the plate in to position over the supporting steelwork.



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

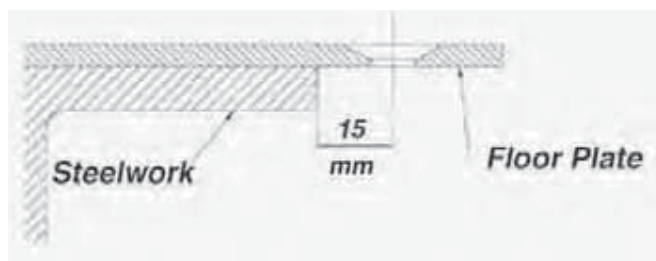
Note 1 We would recommend using the M12 version when vibration conditions are incurred as this can be tightened to a higher torque.



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 26.

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



Product Code	Screw dia	Floor Plate Thickness		Steelwork Flange Thickness		Tightening torque (Nm)
		min	max	min	max	
369001	M08	3	12	3	15	20
369002	M10	5	12	3	15	20
369003	M12	6	12	3	15	30

BoxBolt® Hollow Section Fixings



BoxBolt is a fully tested and approved blind fixing solution for connecting to hollow section steelwork or where access is restricted to one side only. The BoxBolt fixing is suitable for use with rectangular, square and even circular hollow sections. The BoxBolt features a hexagon head design to aid installation with a standard spanner but also allows it to be installed with our unique BoxSok™ installation tool for when installation time needs to be kept to an absolute minimum.

The BoxBolt is available in three finishes, these are; Zinc Plated for the less aggressive environments, Hot Dip Galvanised for the more

aggressive environments, and Stainless Steel for the most arduous of applications. These finishes combined with three lengths of BoxBolt make it extremely flexible to suit its environment and application. The BoxBolt is approved for use by Lloyds Register (LR) type approval and the Deutsches Institut für Bautechnik (DIBt) to give the specifier and user total confidence.

Select the type of finish you require on the BoxBolt by replacing the _ in the code with a Z for zinc plated, a G for Hot Dip Galvanised or an S for Stainless Steel.

Example: BQ2G12 is a M12 BoxBolt size 2 in Hot Dip Galvanised Finish.

* BQ1Z06 is tested at an external test house but is not approved by LR type or DIBt.

BoxBolt® Technical Data

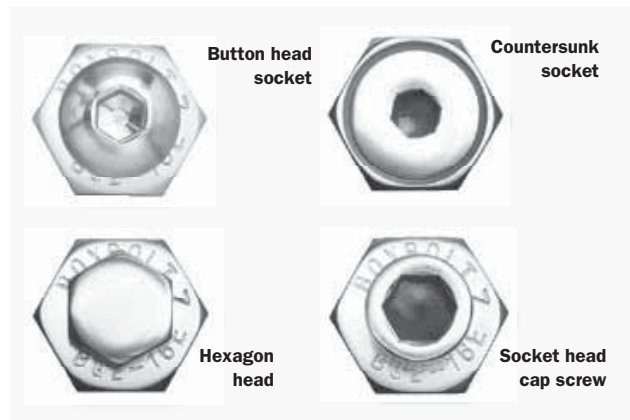
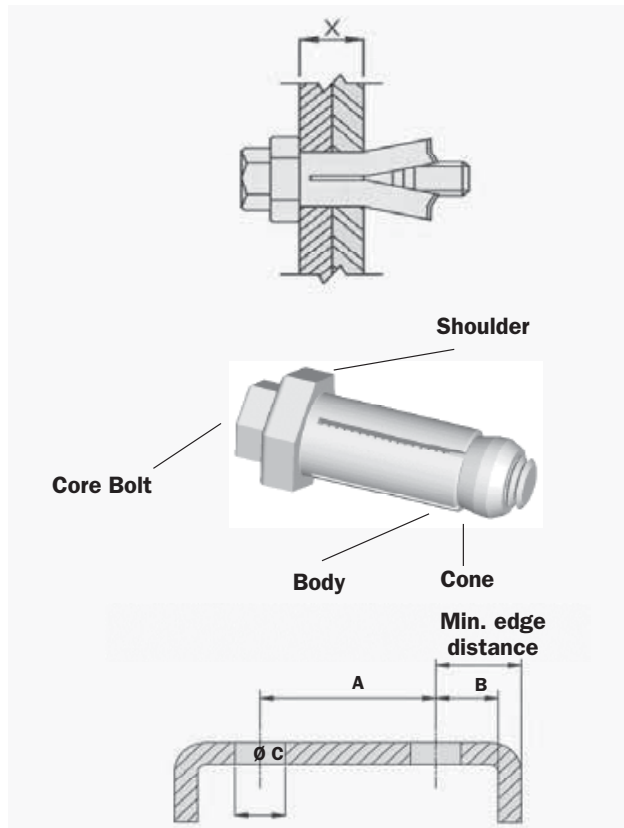
Part number and description			Dimensional Information							Technical		Load Information			
Box Bolt	Product Code Zinc	Product Code HDG	size	Setscrew length (mm)	Fixing range (dim x) Min Max	Across Flats of shoulder (mm)	Shoulder thickness (mm)	Dim A	Dim B	Hole size (mm)	Torque (Nm)	Galvanised/Zinc Plated Tensile Shear (kN)	Stainless Steel Tensile Shear (kN)		
M06			1	45	3	29	17	30	11	11 +1.0,-0.25	19	5.71	16.21	/	/
M08	368001	368016	1	50	3	28	22	35	13	14 +1.0,-0.25	25	12.86	21.07	13.29	26.14
	368002	368017	2	70	12	46	22	35	13	14 +1.0,-0.25	25	12.86	21.07	13.29	26.14
	368003	368018	3	90	24	66	22	35	13	14 +1.0,-0.25	25	12.86	21.07	13.29	26.14
M10	368004	368019	1	50	3	23	24	40	15	18 +1.0,-0.25	45	24.07	37	21.07	47.07
	368005	368020	2	70	15	43	24	40	15	18 +1.0,-0.25	45	24.07	37	21.07	47.07
	368006	368021	3	90	30	63	24	40	15	18 +1.0,-0.25	45	24.07	37	21.07	47.07
M12	368007	368022	1	55	3	25	26	50	18	20 +1.0,-0.25	80	29.43	48.29	30.64	59.88
	368008	368023	2	80	18	50	26	50	18	20 +1.0,-0.25	80	29.43	48.29	30.64	59.88
	368009	368024	3	100	36	70	26	50	18	20 +1.0,-0.25	80	29.43	48.29	30.64	59.88
M16	368010	368025	1	75	3	35	36	55	20	26 +2.0,-0.25	190	52.29	88.21	57.07	108.57
	368011	368026	2	100	24	60	36	55	20	26 +2.0,-0.25	190	52.29	88.21	57.07	108.57
	368012	368027	3	120	48	80	36	55	20	26 +2.0,-0.25	190	52.29	88.21	57.07	108.57
M20	368013	368028	1	100	3	42	46	70	25	33 +2.0,-0.25	300	92	145.36	89.07	181.79
	368014	368029	2	120	30	72	46	70	25	33 +2.0,-0.25	300	92	145.36	89.07	181.79
	368015	368030	3	150	60	102	46	70	25	33 +2.0,-0.25	300	92	145.36	89.07	181.79

The above loads are working loads that have the following Factor of Safety (FOS) Applied: Tensile = 1.925 to 1 Shear = 1.54 to 1

The loads stated above are based on our DIBt (Deutsches Institut für Bautechnik) approval document Z-14.4-482. The loads shown above are working loads based on the rated loads factored by 1.4 which is an average value between 1.35 used for static loading and 1.5 used for live loads. The rated loads stated in our approval already have a 1.375 factor for tensile and 1.1 factor for shear applied to them. This therefore means that the above loads have a $1.375 \times 1.4 = 1.925$ to 1 FOS in tensile and $1.1 \times 1.4 = 1.54$ FOS in shear.

The BoxBolt is tested and approved by DIBt (Deutsches Institut für Bautechnik) which complies with the DIN 18800 and Eurocode 3 design methods for bolted steel connections. A design guide and calculator is available when using these methods, please ask our technical team for more information. The BoxBolt is also Lloyds Register type approved for use, should you require a copy of the approval certificate our technical team will be able to assist. The strength of the material our BoxBolt is connecting into should be checked for structural capacity by a structural engineer.

BoxBolt® Technical Information



The BoxBolt is often used on high profile projects where the aesthetics of the building are essential. It is for this reason the BoxBolt can be adapted to suit the requirements of the Client and the Architect to make the connection pleasing to the eye. The most common versions we can offer are shown above. Should you require a different style then please contact our technical department.

Materials

Mild steel to BS EN 10083 Grade 1.1151

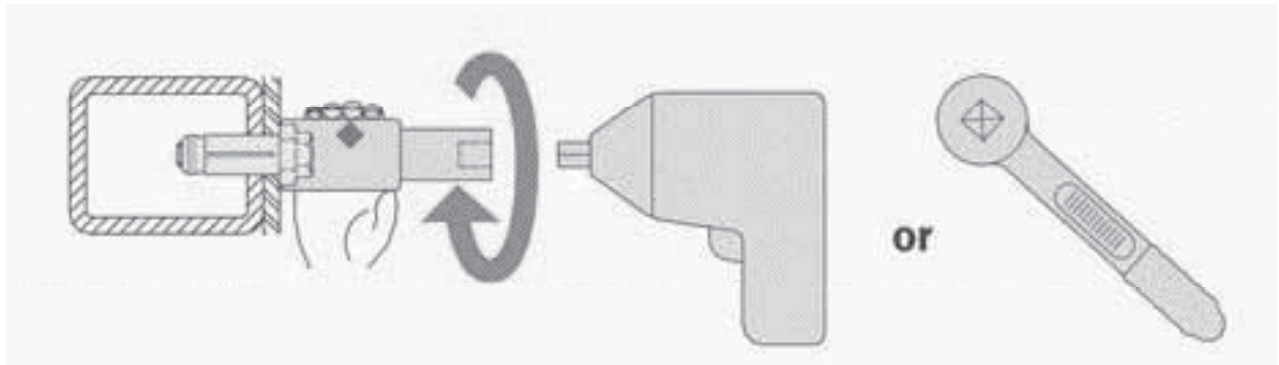
Stainless steel to BS EN 10088 Grade 1.4401

Finishes

Zinc plated to BS EN 12329 : Class Fe//Zn8//A

Hot Dip Spun Galvanised to BS EN ISO 1461

BoxSok™ Rapid Assembly Tool



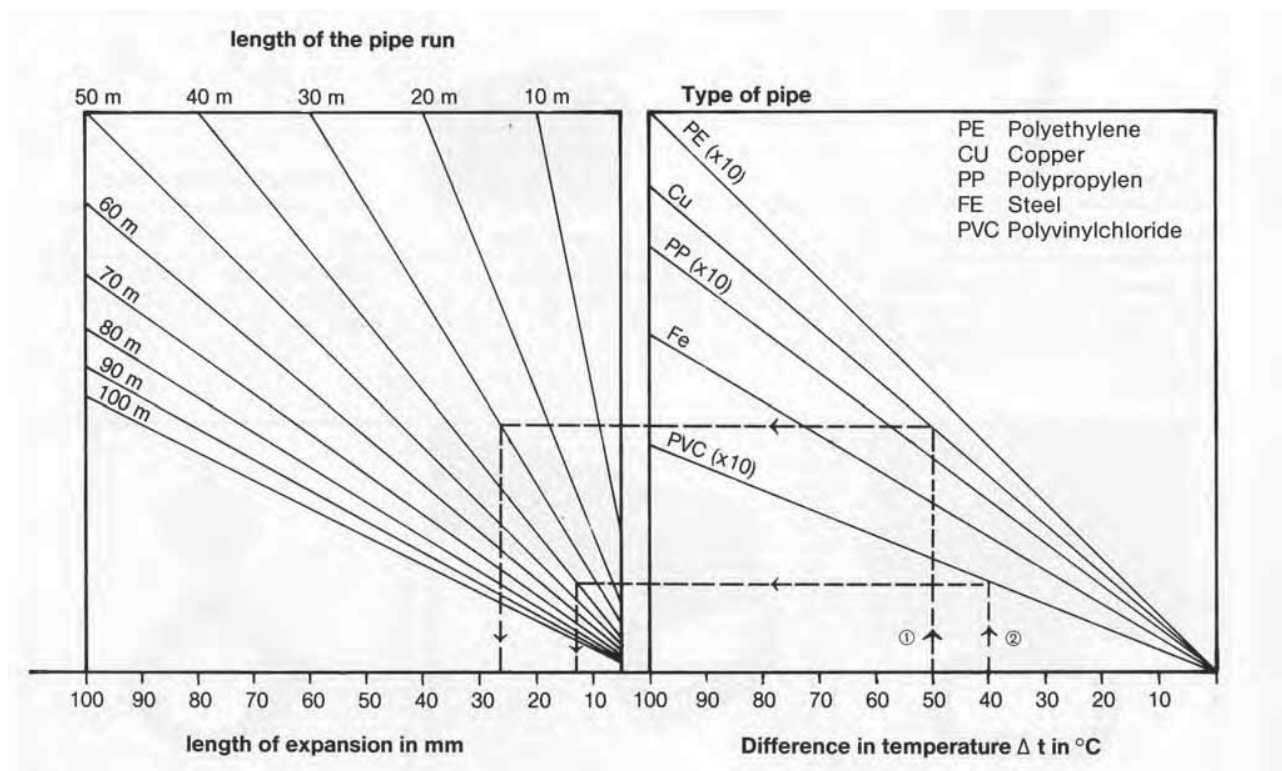
The BoxSok™ Installation Tool is a unique rapid assembly tool for the BoxBolt fixing. This specially designed socket holds the hexagon shoulder on the body to stop it rotating whilst allowing the inner socket to tighten up the core bolt. The core bolt draws the cone up inside the slotted body of the sleeve and expands the individual fins inside the connection. The BoxSok™ eliminates the need for two tools to install the BoxBolt; this considerably speeds up the installation process and also reduces the risk of trapping hands between two tools. The BoxSok™ device is available to suit all BoxBolt diameters.



Pipe Expansion Data

Expansion chart for various pipe and tubes

Metal and synthetics (plastic) pipes contract with cold and expand with heat. This particularly applies to heating and chilled water pipelines which are constantly exposed to temperature variations with the changes in ambient temperatures. Appropriate pipe supports should be selected which are able to swing or slide thus preventing a build up in tensile forces.



Example:

- 1) Copper tube (Cu) length of pipe run 30m
Difference in temperature Δt (pipe temperature minus ambient air temperature) 50°C
Pipe expansion 26mm
- 2) PVC pipe length of pipe run 40m
Difference in temperature Δt (pipe temperature minus ambient air temperature) 40°C
Pipe expansion $13\text{mm} \times 10 = 130\text{mm}$

Note

In the case of plastic pipes in the above chart (PE, PP and PVC) the linear expansion reading has to be multiplied by a factor of 10

