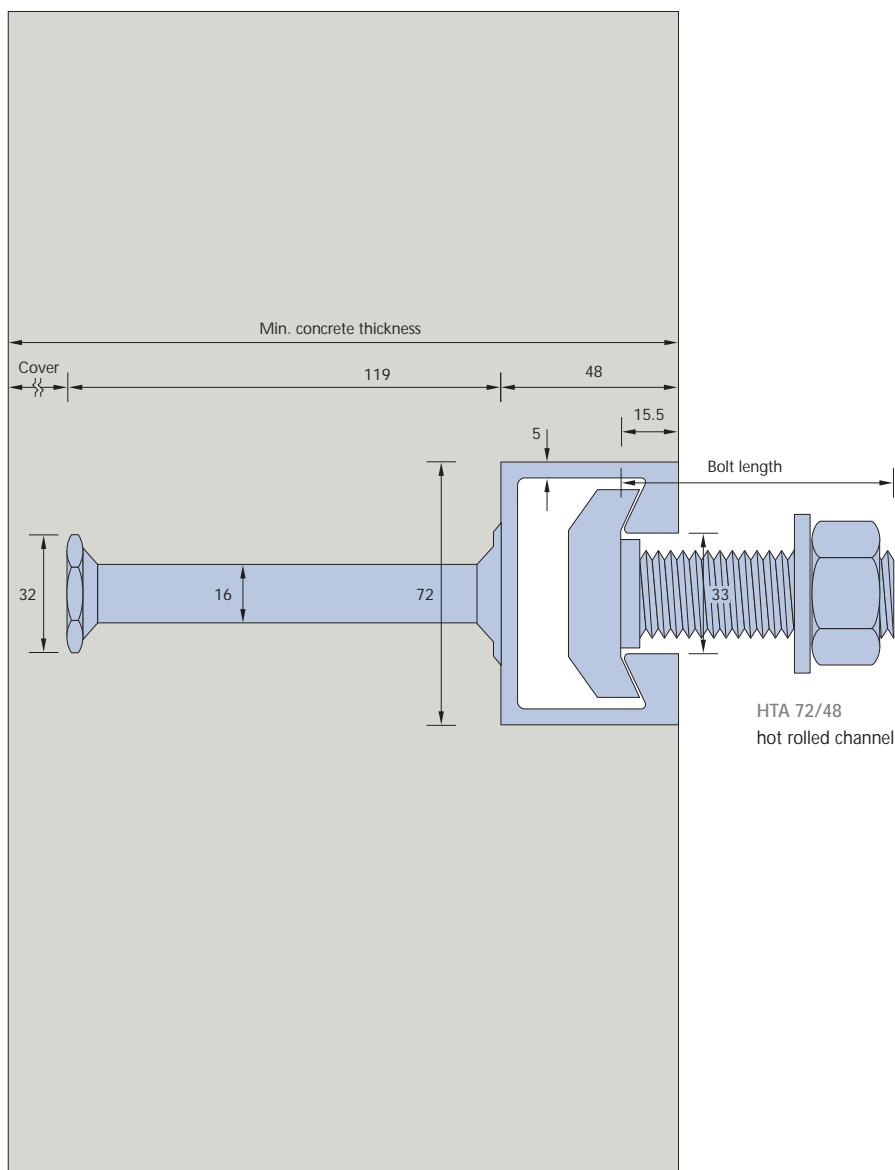


# Halfen channels and T-head bolts

Channel type: HTA 72/48



## HTA 72/48 channel

The channel shown on this page is heavy duty and is typically used with M24 T-head bolts. However, diameters M20, M27 and M30 are also available, as shown opposite.

### Pull-out and transverse shear loads

The allowable single bolt loads range from 25 to 32 kN (or 64 kN for bolt pairs), as shown opposite. Any resultant load must not exceed the allowable pull-out load. The shank of a small bolt in a large channel may limit the allowable load; check the allowable bolt load in the table on page 4.

### Longitudinal loads

This channel has smooth lips, therefore longitudinal loads are relatively small. These may be increased by the use of high torque on 8.8 bolts, see the table on page 4. For channels with toothed lips, see page 18.

### Materials

Channel HTA 72/48 is available in carbon steel hot dip galvanised (hdg) and stainless steel.

### Edge distances and spacing

Channels are particularly efficient when cast-in close to edges and close to each other, see the dimensions in the table opposite.

### Available channel lengths

The channel is available in two standard rolled lengths, 3050 and 6070 mm. Any length formed of (multiples of 250 mm) + 50 mm can be cut to order. For common applications the following standard stock short lengths of channel are available:

Order code for cast-in channels				
HTA type	72/48 size (mm)	hdg material/finish	550 length (mm)	5 Number of anchors*

**Note**  
\* Number of anchors need only be stated for standard special short lengths, as required to achieve the load data quoted in the table opposite.

Standard stock short lengths (mm)	Anchor centres (mm)	No of anchors
100*	60	2
150	100	2
200	150	2
250	200	2
300	250	2
350	150	3
400	175	3
550	250	3
800	250	4

\*Channel HTA 72/48 is not normally available in 100 mm lengths. If required, please consult Halfen Limited. For standard special short lengths, see page 7.

Allowable load (single bolt): 32 kN

Allowable load (bolt pair): 64 kN

T-head bolts for channel HTA 72/48				
Bolt diameter	Carbon steel bolt lengths available (mm) Grade 4.6 (HS)	Grade 8.8 (HS)	Grade 8.8 (HSR)	Stainless steel bolt lengths available (mm) A4 (HS)
M30	75, 100, 150, 200			
M27	75, 100	100		
M24	50, 75, 100, 150, 200	75, 100, 150		50, 100
M20	50, 75, 100, 150, 200	75, 100	50	

Notes

Mild steel bolts are available in two finishes: bright zinc plated (bzp) and hot dip galvanised (hdg). In the above table availability is shown as follows:

**bold** = bright zinc plated or hot dip galvanised      plain = bright zinc plated only      *italic* = hot dip galvanised only

HS = standard head; HSR = nibbed head (grade 8.8 only)

All bolts are supplied with hexagonal nuts. T-head width: 58 mm.

Examples

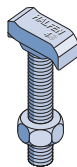
Order code for carbon steel T-head bolts					
HS	72/48	hdg	4.6	M24	100
bolt prefix	size (mm)	finish	strength grade*	diameter	length (mm)

\* Strength grade 4.6 will be supplied unless stated otherwise.

Order code for stainless steel T-head bolts					
HS	72/48	stainless	A4	M24	100
bolt prefix	size (mm)	material	quality	diameter	length (mm)

All stainless steel bolts in this group are strength grade 50.

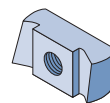
T-head bolt



Locking plates

For fixing applications using threaded rod or studding, locking plates are available in carbon steel bright zinc plated (bzp) only. The locking plates are face-entered into the lips of the channel.

Locking plate



Heavy duty GWP 72/48

Rod/stud diameter	Allowable loads (kN) for locking plates Heavy duty Type GWP 72/48
M20	22.0
M16	17.3
M12	9.3

Bolt diameter	Channel profile (HTA)	Allowable loads in reinforced concrete (kN) (pull-out, transverse shear or resultant loads)					(longitudinal loads)		Minimum spacing in reinforced concrete (mm)				
		Long length or single bolt	Short channel with bolt pair		Single bolt 4.6 and stainless	8.8	Channel spacing			Extreme bolt position/ min. cut edge distance			
			3-anchor	4-anchor				Normal pair	Parallel edge*	End edge	eb	ec	
M30	72/48	32.0	54.0	64.0	8.25	-	200	150 (200)	90	40	30		
M27	72/48	32.0	54.0	64.0	6.25	12.5	200	150 (200)	90	40	30		
M24	72/48	32.0	54.0	64.0	4.25	12.5	200	130 (200)	90	40	30		
M20	72/48	27.0	54.0	54.0	3.5	-	200	130 (200)	90	40	30		

Notes:

\* Parallel edge – two dimensions are given: the first applies to pull-out loads, the second (in brackets) applies to transverse shear loads.

Optimum channel/bolt combinations are highlighted in red.

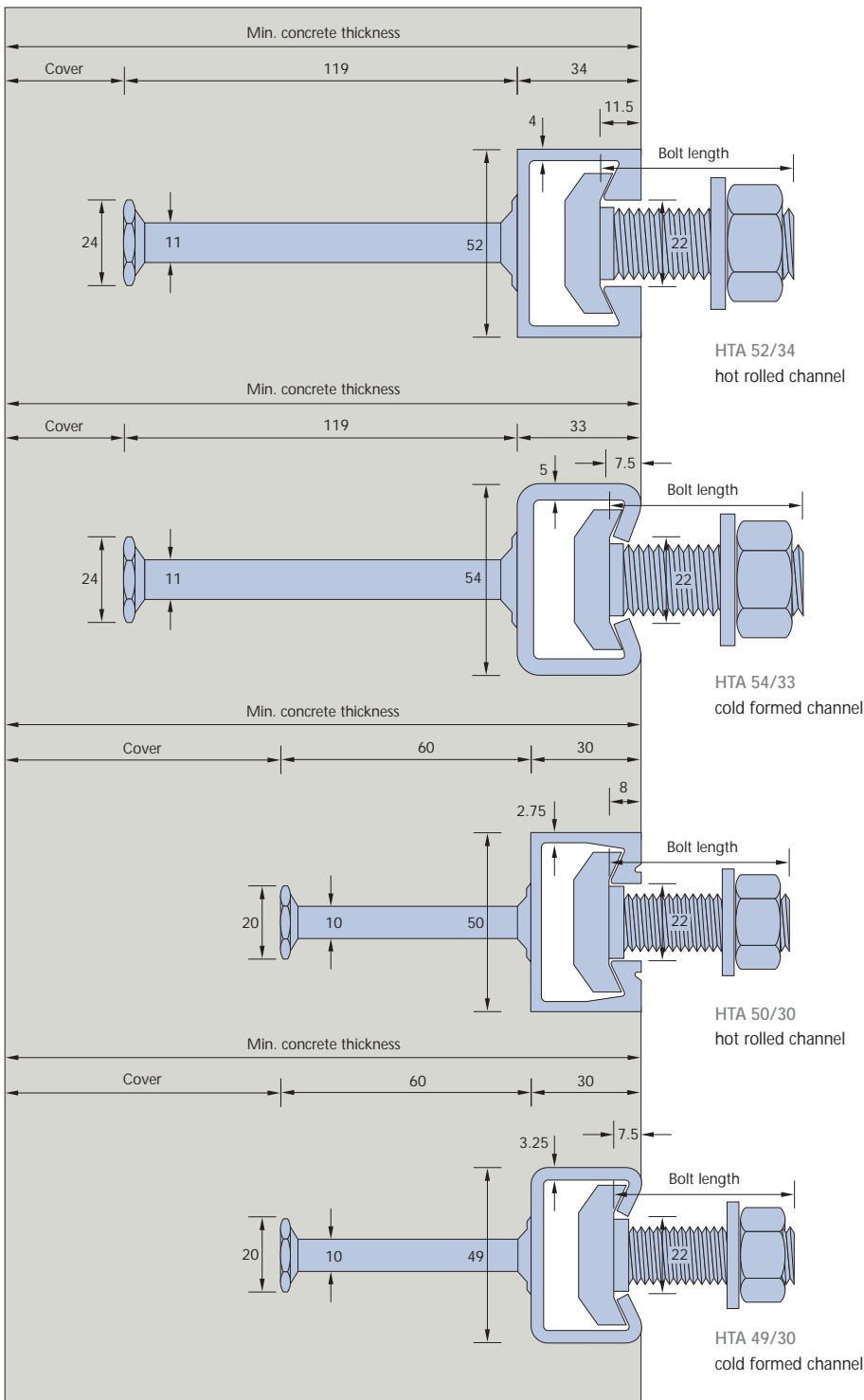
Allowable loads quoted are after application of a Safety Factor of approximately 2.5 on test in reinforced concrete.

For applications using 3 or 4 bolts in a short length of HTA channel, please consult Halfen Limited.

The channels on this page have smooth lips. For toothed channels, see page 18. For suggested torque values, see page 4.

# Halfen channels and T-head bolts

Channel types: HTA 52/34 HTA 54/33 HTA 50/30 HTA 49/30



## The group

All the channels shown on this page use the same T-head bolt, which is available in diameters M10 to M20 and in the range of lengths shown opposite.

## Pull-out and transverse shear loads

The allowable single bolt loads range from 12.5 to 25 kN (or 50 kN for bolt pairs), as shown opposite. Any resultant load must not exceed the allowable pull-out load. The shank of a small bolt in a large channel may limit the allowable load; check the allowable bolt load in the table on page 4.

## Longitudinal loads

The channels in this group have smooth lips, so longitudinal loads are relatively small. These may be increased by the use of high torque on 8.8 bolts, see the table on page 4. For channels with toothed lips, see page 18.

## Materials

The channels are available in carbon steel hot dip galvanised (hdg) and stainless steel.

## Edge distances and spacing

Channels are particularly efficient when fixed close to edges and close to each other, see the dimensions in the table opposite.

## Available channel lengths

The channels are available in two standard rolled lengths, 3050 and 6070 mm. Any length formed of (multiples of 250 mm) + 50 mm can be cut to order. For common applications the following standard stock short lengths of channel are available:

Standard stock short lengths (mm)	Anchor centres (mm)	No of anchors
100 (not all channel sizes*)	60	2
150	100	2
200	150	2
250	200	2
300	250	2
350	150	3
400	175	3
550	250	3
800	250	4

\*Channels HTA 52/34 and 54/33 are not normally available in 100 mm lengths. If required, please consult Halfen Limited.

For standard special short lengths, see page 7.

## Order code for cast-in channels

HTA type	52/34 size (mm)	hdg material/finish	550 length (mm)	5 Number of anchors*

## Note to Order Code

\* Number of anchors need only be stated for standard special short lengths, as required to achieve the load data quoted in the table opposite.

Allowable load (single bolt): 25 kN

Allowable load (bolt pair): 50 kN

T-head bolts for channels HTA 52/34, 54/33, 50/30, 49/30						
Bolt diameter	Carbon steel bolt lengths available (mm)			Grade 8.8 (HS)	Grade 8.8 (HSR)	Stainless steel bolt lengths available (mm) A4 (HS)
	Grade 4.6 (HS)					
M20	35, 45, <b>55</b> , 65, 75, <b>100</b> , 125, 150, 200, 300			45, 60, 80, 100, 150	45, 60, 75	45, 55, 75, 100, 125, 150
M16	30, <b>40</b> , <b>50</b> , 60, 80, <b>100</b> , 125, <b>150</b> , 200, 300			40, 60, 80, 100	40, 60	30, 40, 50, 60, 80, 150
M12	30, <b>40</b> , 50, 60, 80, 100, 125, 150, 200			45, 60, 80		30, 40, 50, 100
M10	<b>30</b> , 40, 50					

Notes

Mild steel bolts are available in two finishes: bright zinc plated (bzp) and hot dip galvanised (hdg). In the above table availability is shown as follows:

**bold** = bright zinc plated or hot dip galvanised plain = bright zinc plated only

*italic* = hot dip galvanised only

HS = standard head; HSR = nibbed head (grade 8.8 only)

All bolts are supplied with hexagonal nuts. T-head width: 41 mm.

Examples

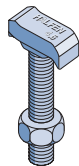
Order code for carbon steel T-head bolts					
HS	50/30	bzp	4.6	M20	100
bolt prefix	size (mm)	finish	strength grade*	diameter	length (mm)

\* Strength grade 4.6 will be supplied unless stated otherwise.

Order code for stainless steel T-head bolts					
HS	50/30	stainless	A4	M20	100
bolt prefix	size (mm)	material	quality	diameter	length (mm)

All stainless steel bolts in this group are strength grade 50.

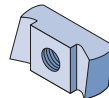
T-head bolt



Locking plates

For fixing applications using threaded rod or studding, locking plates are available in both carbon steel bzp and stainless steel. The locking plates are face-entered into the lips of the channel.

Locking plates



Heavy duty GWP 50/30



Light duty GWP 50/40

Rod/stud diameter	Allowable loads (kN) for locking plates	
	Heavy duty Type GWP 50/30	Light duty Type GWP 50/40
M16	9.3	6.4
M12	9.3	6.4
M10	6.4	6.4
M8	4.0	4.0

Bolt diameter	Channel profile (HTA)	Allowable loads in reinforced concrete (kN)				(longitudinal loads)		Minimum spacing in reinforced concrete (mm)			Extreme bolt position/ min. cut edge distance	
		Long length or single bolt	Short channel with bolt pair		Single bolt 4.6 and stainless	8.8	Normal pair $a_a$	Parallel edge* $a_r$	End edge $a_e$	eb	ec	
M20	52/34	25.0	40.0	50.0	3.3	10.5	150	100 (150)	75	30	25	
	54/33	25.0	40.0	50.0	3.3	-	150	100 (150)	75	30	25	
	50/30	12.5	22.0	25.0	3.3	8.0	125	85 (110)	60	25	20	
	49/30	12.5	22.0	25.0	3.3	-	125	85 (110)	60	25	20	
M16	52/34	17.3	34.6	34.6	2.5	8.0	130	100 (130)	60	30	25	
	54/33	17.3	34.6	34.6	2.5	-	130	100 (130)	60	30	25	
	50/30	12.5	22.0	25.0	2.5	6.0	125	85 (110)	60	25	20	
	49/30	12.5	22.0	25.0	2.5	-	125	85 (110)	60	25	20	
M12	52/34	9.3	18.6	18.6	1.5	-	125	85 (100)	50	30	25	
	54/33	9.3	18.6	18.6	1.5	-	125	85 (100)	50	30	25	
	50/30	9.3	18.6	18.6	1.5	-	100	75 (100)	50	25	20	
	49/30	9.3	18.6	18.6	1.5	-	100	75 (100)	50	25	20	

Notes:

\* Parallel edge – two dimensions are given: the first applies to pull-out loads, the second (in brackets) applies to transverse shear loads.

Optimum channel/bolt combinations are highlighted in red.

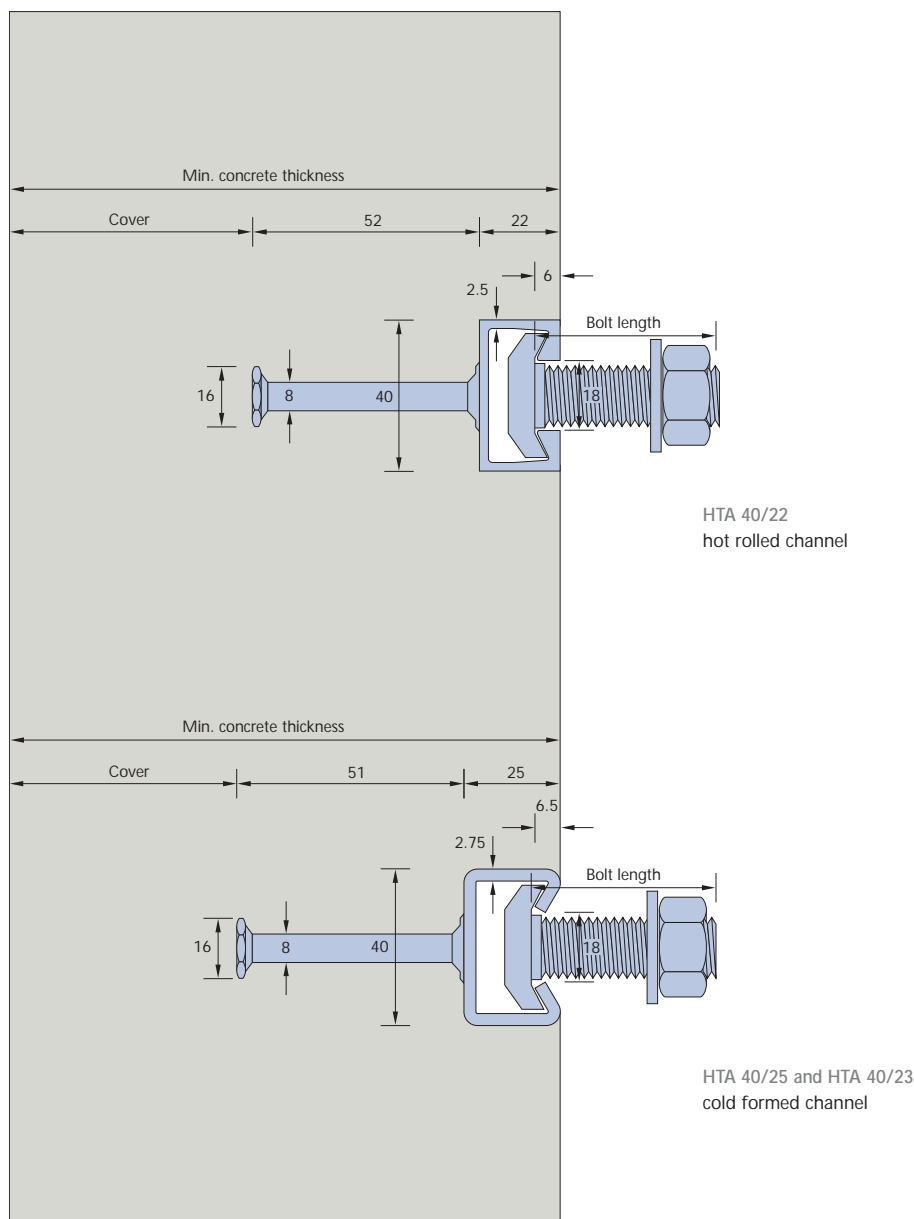
Allowable loads quoted are after application of a Safety Factor of approximately 2.5 on test in reinforced concrete.

For applications using 3 or 4 bolts in a short length of HTA channel, please consult Halfen Limited.

The channels on this page have smooth lips. For toothed channels, see page 18. For suggested torque values, see page 4.

# Halfen channels and T-head bolts

Channel types: HTA 40/22 HTA 40/25 HTA 40/23



## The group

All the channels shown on this page use the same T-head bolt, which is available in diameters M10 to M16 and in the range of lengths shown opposite. Channels HTA 40/25 and HTA 40/23 are the same profile: HTA 40/25 is finished hot dip galvanised (hdg); HTA 40/23 is pre-galvanised, i.e. it has a thinner zinc coating, and is particularly suitable for fixing lift guides.

## Pull-out and transverse shear loads

The allowable single bolt loads range from 8 to 10 kN (or 20 kN for bolt pairs). Any resultant load must not exceed the allowable pull-out load. The shank of a small bolt in a large channel may limit the allowable load; check the allowable bolt load in the table on page 4.

## Longitudinal loads

The channels in this group have smooth lips, so longitudinal loads are relatively small. These may be increased by the use of high torque on 8.8 bolts, see the table on page 4. For channels with toothed lips, see page 18.

## Materials

The channels are available in carbon steel hot dip galvanised (hdg), pre-galvanised and stainless steel.

## Edge distances and spacing

Channels are particularly efficient when fixed close to edges and close to each other, see the dimensions in the table opposite.

## Available channel lengths

The channels are available in two standard rolled lengths, 3050 and 6070 mm. Any length formed of (multiples of 250 mm) + 50 mm can be cut to order. For common applications standard stock short lengths of channel are available in the lengths shown in the adjacent table, left.

Order code for cast-in channels				
HTA type	40/25 size (mm)	hdg material/finish	550 length (mm)	5 Number of anchors*

**Note**  
\* Number of anchors need only be stated for standard special short lengths, as required to achieve the load data quoted in the table opposite.

Standard stock short lengths (mm)	Anchor centres (mm)	No of anchors
100	60	2
150	100	2
200	150	2
250	200	2
300	250	2
350	150	3
400	175	3
550	250	3
800	250	4

For standard special short lengths, see page 7.

Allowable load (single bolt): 10 kN

Allowable load (bolt pair): 20 kN

Bolt diameter	Carbon steel bolt lengths available (mm)			Grade 8.8 (HS)	Grade 8.8 (HSR)	Stainless steel bolt lengths available (mm) A4 (HS)
	Grade 4.6 (HS)					
M16	30, 40, <b>50</b> , 60, 80, <b>100</b> , 125, 150, 200, 250, 300			60, 80	40, 60	30, 40, 50, 60, 80, 100, 150, 200
M12	20, <b>30</b> , 40, <b>50</b> , 60, 80, 100, 125, 150, 200			45, 60, 80, 100		30, 40, 50, 80, 100, 150
M10	20, 30, 40, 50, 60, 80, 100					30, 40, 50

Notes

Mild steel bolts are available in two finishes: bright zinc plated (bzp) and hot dip galvanised (hdg). In the above table availability is shown as follows:  
**bold** = bright zinc plated or hot dip galvanised plain = bright zinc plated only *italic* = hot dip galvanised only

HS = standard head; HSR = nibbed head (grade 8.8 only)

All bolts are supplied with hexagonal nuts. T-head width: 32.5 mm.

Examples

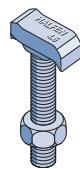
Order code for carbon steel T-head bolts					
HS	40/22	bzp	4.6	M12	100
bolt prefix	size (mm)	finish	strength grade*	diameter	length (mm)

\* Strength grade 4.6 will be supplied unless stated otherwise.

Order code for stainless steel T-head bolts					
HS	40/22	stainless	A4	M12	100
bolt prefix	size (mm)	material	quality*	diameter	length (mm)

All stainless steel bolts in this group are strength grade 50.

T-head bolt



Locking plates

For fixing applications using threaded rod or studding, locking plates are available in both carbon steel bzp and stainless steel. The locking plates are face-entered into the lips of the channel.

Locking plates



Heavy duty GWP 40/22



Light duty GWP 38/17

Rod/stud diameter	Allowable loads (kN) for locking plates	
	Heavy duty Type GWP 40/22	Light duty Type GWP 38/17
M12	9.3	5.7
M10	6.4	5.7
M8	4.0	4.0
M6	2.2*	2.2

\* Not available in stainless steel.

Bolt diameter	Channel profile (HTA)	Allowable loads in reinforced concrete (kN) (pull-out, transverse shear or resultant loads)				(longitudinal loads)		Minimum spacing in reinforced concrete (mm)			Extreme bolt position/ min. cut edge distance	
		Long length or single bolt	Short channel with bolt pair		Single bolt 4.6 and stainless	8.8	Normal pair	Parallel edge*	End edge	eb	ec	
M16	40/22	8.0	16.0	20.0	2.5	7.0	100	75 (100)	50	20	20	
	40/25	8.0	16.0	20.0	2.5	-	100	75 (100)	50	20	20	
	40/23	8.0	16.0	-	2.0	-	100	75 (100)	50	20	20	
M12	40/22	8.0	16.0	18.6	1.5	-	100	75 (100)	50	20	20	
	40/25	8.0	16.0	18.6	1.5	-	100	75 (100)	50	20	20	
	40/23	8.0	16.0	-	1.5	-	100	75 (100)	50	20	20	

Notes:

\* Parallel edge – two dimensions are given: the first applies to pull-out loads, the second (in brackets) applies to transverse shear loads.

Optimum channel/bolt combinations are highlighted in red.

Allowable loads quoted are after application of a Safety Factor of approximately 2.5 on test in reinforced concrete.

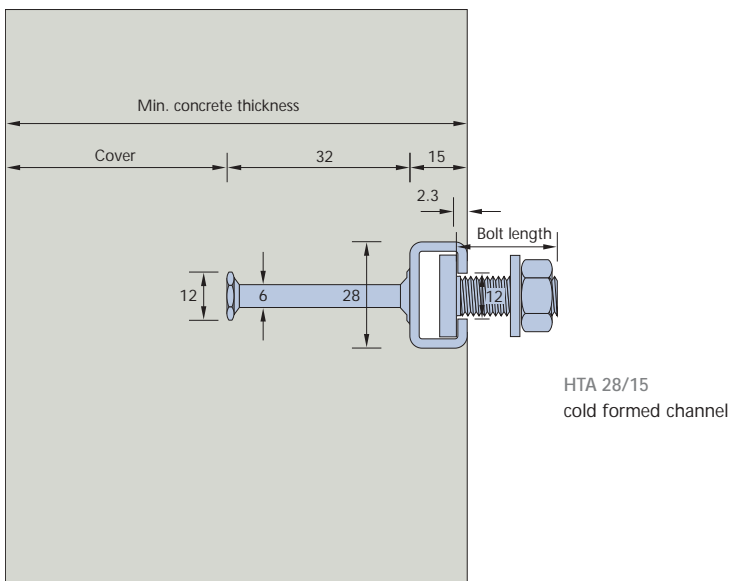
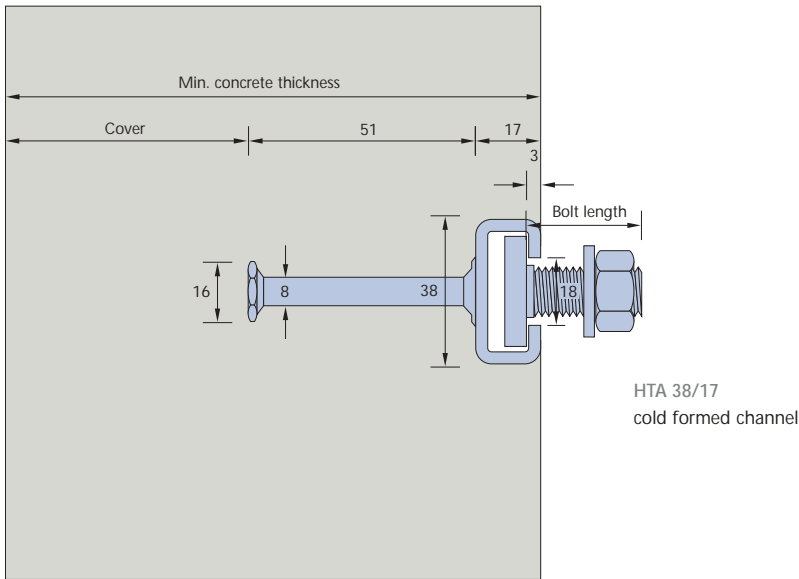
For applications using 3 or 4 bolts in a short length of HTA channel, please consult Halfen Limited.

The channels on this page have smooth lips. For toothed channels, see page 18.

For suggested torque values, see page 4.

# Halfen channels and T-head bolts

Channel types: HTA 38/17 HTA 28/15



### The light load group

The channels shown on this page have flat, not hooked lips. They are relatively light duty and low profile so that they are easy to place in the reinforcement cage. Fixings for channel HTA 38/17 are not the same as for HTA 28/15. Channel HTA 38/17 takes bolts from M10 to M16 diameter. Channel HTA 28/15 takes bolts from M6 to M12 diameter.

### Pull-out and transverse shear loads

The allowable single bolt loads range from 3.5 to 7 kN, as shown opposite. Any resultant load must not exceed the allowable pull-out load. The shank of a small bolt in a large channel may limit the allowable load; check the allowable bolt load in the table on page 4.

### Longitudinal loads

The channels in this group have smooth lips, therefore longitudinal loads are relatively small. These may be increased by the use of high torque on 8.8 bolts, see the table on page 4. For channels with toothed lips, see page 18.

### Materials

The channels are available in carbon steel hot dip galvanised (hdg) and stainless steel.

### Channel HTA Type K

Channel HTA 38/17 is stocked in a Type K version in stainless steel with anchors at standard 200 mm nominal centres on long lengths; this version is designed for use with brick support systems. Allowable loads can therefore be used at 200 mm centres.

### Edge distances and spacing

Channels are particularly efficient when fixed close to edges and close to each other, see the dimensions in the table opposite.

### Available channel lengths

The channels are available in two standard rolled lengths, 3050 and 6070 mm. Any length formed of (multiples of 250 mm) + 50 mm can be cut to order. For common applications standard stock short lengths of channel are available in the lengths shown in the adjacent table, left.

### Brick ties

Channel HTA 28/15 is commonly used for brick ties. For this use and for Ribslot cast-in self-anchoring channel, please refer to the Halfen Brick Support and Restraint brochure.

Order code for cast-in channels				
HTA type	38/17 size (mm)	hdg material/finish	550 length (mm)	5 Number of anchors*

**Note**  
\* Number of anchors need only be stated for standard special short lengths, as required to achieve the load data quoted in the table opposite.

Standard stock short lengths (mm)	Anchor centres (mm)	No of anchors
100	60	2
150	100	2
200	150	2
250	200	2
300	250	2
350	150	3
400	175	3
550	250	3
800	250	4

For standard special short lengths, see page 7.

Allowable load (single bolt): 7 kN

Allowable load (bolt pair): 14 kN

T-head bolts for channels HTA 38/17 and 28/15					
Channel profile	Bolt diameter	Carbon steel bolt lengths available (mm) Grade 4.6 (HS)	Grade 8.8 (HS)	Stainless steel bolt lengths available (mm) A4 (HS)	A2 (HS)
38/17	M16	20, <b>30</b> , <b>40</b> , <b>50</b> , 60, 80, <b>100</b> , 125, 150, 200	60	25, 30, 40, 50, 60, 80, 100, 150, 200	30, 40, 50
	M12	20, <b>30</b> , 40, <b>50</b> , 60, 80, 100, 125, 150, 200	70	25, 30, 40, 50, 60, 80, 100, 150, 200	30, 40, 50
	M10	20, <b>30</b> , 40, 50, 60, 80, 100, 150		30, 40, 50, 60	
28/15	M12	30, 50, 80			
	M10	15, 20, 25, <b>30</b> , 40, <b>50</b> , 60, 80, 100, 125, 150, 200	40	20, 25, 30, 40, 50, 60, 80, 100, 125, 150, 200	20, 25, 30, 40, 50
	M8	15, 20, 25, 30, 40, 50, 60, 80, 100, 150		30	30
	M6	15, 20, 25, 30, 40, 50, 60			

Notes

Mild steel bolts are available in two finishes: bright zinc plated (bzp) and hot dip galvanised (hdg). In the above table availability is shown as follows:

**bold** = bright zinc plated or hot dip galvanised      plain = bright zinc plated only      *italic* = hot dip galvanised only

HS = standard head; HSR = nibbed head (grade 8.8 only)

All bolts are supplied with hexagonal nuts. T-head widths: 38/17 = 30.5 mm; 28/15 = 22.5 mm.

Examples

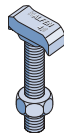
Order code for carbon steel T-head bolts					
HS	38/17	bzp	4.6	M12	100
bolt prefix	size (mm)	finish	strength grade*	diameter	length (mm)

\* Strength grade 4.6 will be supplied unless stated otherwise.

Order code for stainless steel T-head bolts					
HS	28/15	stainless	A2	M10	50
bolt prefix	size (mm)	material	quality*	diameter	length (mm)

\* Stainless bolts quality A2 will be supplied unless stated otherwise. Stainless bolts are available in strength grades 50 or 70. (50 will be supplied unless stated otherwise.)

T-head bolts



38/17



28/15

Locking plates

For fixing applications using threaded rod or studding, locking plates are available in both carbon steel bzp and stainless steel. The locking plates are face-entered into the lips of the channel.

Locking plates



GWP 38/17



GWP 28/15

Rod/stud diameter	Allowable loads (kN) for locking plates	
	Light duty Type GWP 38/17	Light duty Type GWP 28/15
M12	5.7	Not available
M10	5.7	3.0
M8	4.0	2.8
M6	2.2	1.9

Bolt diameter	Channel profile (HTA)	Allowable loads in reinforced concrete (kN) (pull-out, transverse shear or resultant loads)			(longitudinal loads) Single bolt		Minimum spacing in reinforced concrete (mm)				
		Long length or single bolt	Short channel with bolt pair 3-anchor	4-anchor	4.6 and stainless	8.8	Channel spacing Normal pair $a_a$	Parallel edge* $a_r$	End edge $a_e$	Extreme bolt position/ min. cut edge distance eb, ec	
M16	38/17	6.0	12.0	14.0	2.0	4.5	100	75 (100)	50	18	15
M12	38/17	6.0	12.0	14.0	1.5	3.0	100	75 (100)	50	18	15
	Type K (anchors at 200 c/c)	7.0	-	-	1.5	-	100	75 (100)	50	18	15
M10	28/15	3.5	7.0	8.5	1.0	3.0	75	65 (75)	40	18	15

Notes:

\* Parallel edge – two dimensions are given: the first applies to pull-out loads, the second (in brackets) applies to transverse shear loads.

Allowable loads on M12 bolts in 28/15 channel are as for M10 bolts.

Allowable loads quoted are after application of a Safety Factor of approximately 2.5 on test in reinforced concrete.

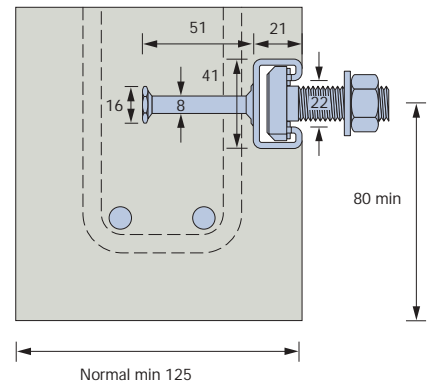
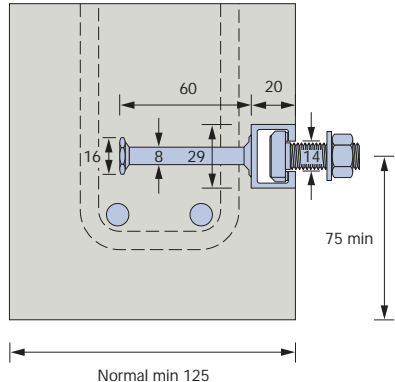
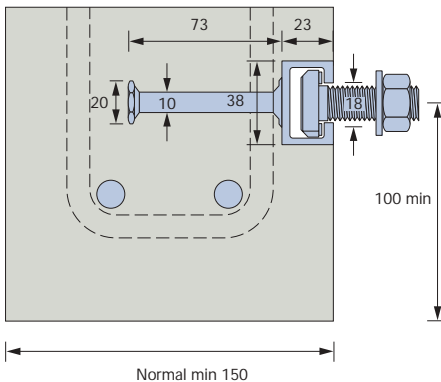
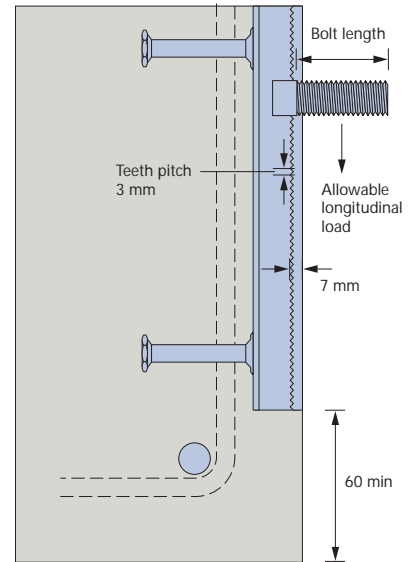
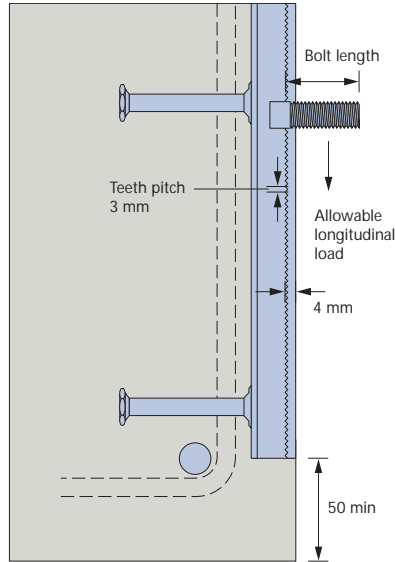
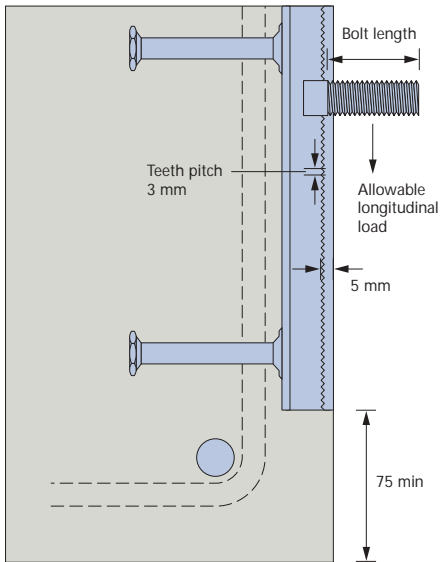
For applications using 3 or 4 bolts in a short length of HTA channel, please consult Halfen Limited.

The channels on this page have smooth lips. For toothed channels, see page 18.

For suggested torque values, see page 4.

# Halfen channels and T-head bolts

Channel types: HZA 38/23 HZA 29/20 HZA 41/22



HZA 38/23  
hot rolled channel

HZA 29/20  
hot rolled channel

HZA 41/22  
cold formed channel

### The longitudinal group

The channels shown on this page are a range of three different sizes, all with toothed lips and specially designed to take longitudinal loads. Channels HZA 38/23 and HZA 29/20 are manufactured from hot rolled carbon steel. Channel HZA 41/22 is cold formed.

### Longitudinal loads

The longitudinal loads allowable on the teeth of the channels are shown in the table opposite; they range from 5.5 to 12 kN. Two bolts may be fixed close together in the channel to double the longitudinal load (provided the resultant does not exceed the pull-out load).

### Pull-out and transverse shear loads

The allowable single bolt loads in pull-out and transverse shear range from 8 to 12 kN, see the table opposite. Any resultant load must not exceed the allowable pull-out load.

### Materials

Channel 38/23 is hot rolled in both carbon steel and stainless steel.

Channel 29/20 is hot rolled in carbon steel only.

Channel 41/22 is cold formed in carbon steel and stainless steel.

### Edge distances and spacing

Channels are particularly efficient when fixed close to edges and close to each other, see the dimensions in the table opposite.

### Available channel lengths

The channels are available in two standard rolled lengths, 3050 and 6070 mm. Any length formed of (multiples of 250 mm) + 50 mm can be cut to order. For standard stock short lengths of channel see page 7.

Order code for cast-in channels				
<b>HZA</b>	<b>38/23</b>	<b>hdg</b>	<b>550</b>	<b>5</b>
type	size (mm)	material/finish	length (mm)	Number of anchors*

### Note

\* Number of anchors need only be stated for standard special short lengths, as required to achieve the load data quoted in the table opposite.

Allowable load (single bolt): 12 kN

Allowable load (bolt pair): 24 kN

T-head bolts for channels HZA 38/23, 29/20 and 41/22				
Channel profile	Bolt diameter	Carbon steel bolt lengths available (mm) Grade 8.8 (HZS)	Stainless steel bolt lengths available (mm) A4 (HZS)	A2 (HZS)
38/23	M16	30, 40, 50, 60, 80, 100, 125, 150, 200, 300	60	
	M12	30, 40, 50, 60, 80, 100, 125, 150, 200, 300		
29/20	M12	30, 40, 50, 60, 80, 100, 125, 150, 200, 250, 300		
41/22	M16	50, 100	35, 50	40, 50, 60, 75
	M12	35, 50	35, 50, 80	50

Notes

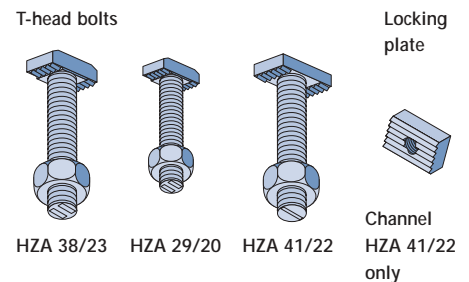
Carbon steel bolts for channels 38/23 and 29/20 are finished bright zinc plated (bzp) with a special coating.  
Carbon steel bolts for channel 41/22 are finished hot dip galvanised (hdg).  
All bolts are supplied with hexagonal nuts.

Examples

Order code for carbon steel T-head bolts					
HZS	38/23	hdg	8.8	M16	100
bolt prefix	size (mm)	finish	strength grade	diameter	length (mm)

Order code for stainless steel T-head bolts (41/22)					
HZS	41/22	stainless	A2	M12	50
bolt prefix	size (mm)	material	quality*	diameter	length (mm)

\* Quality A2 will be supplied unless stated otherwise.  
All stainless steel bolts in this group are strength grade 50.



Bolt diameter	Channel profile (HZA)	Allowable loads in reinforced concrete (kN) (pull-out, transverse shear or resultant loads)			(longitudinal loads)			Minimum spacing in reinforced concrete (mm) Channel spacing		
		Long length or single bolt	Short channel with bolt pair 3-anchor		Long length or single bolt	Bolt pair 2-anchor*	3-anchor*	Normal pair $a_a$	Parallel edge $a_r$	End edge $a_e$
Carbon steel bolts Grade 8.8										
M16	38/23	12.0	20.0		12.0	20.0	24.0	125	85	75
	41/22	8.0	14.0		5.5	8.0	11.0	100	75	60
M12	38/23	12.0	20.0		12.0	20.0	24.0	125	85	75
	29/20	8.0	14.0		8.0	14.0	16.0	100	75	50
	41/22	8.0	14.0		5.5	8.0	11.0	100	75	50
Stainless steel bolts										
M16	41/22	8.0	14.0		5.5	8.0	11.0	100	75	60
M12	41/22	8.0	14.0		4.0	8.0	8.0	100	75	50

Notes:

\* Subject to check on resultant load.

Allowable loads quoted are after application of a Safety Factor of approximately 2.5 on test in reinforced concrete.

For extreme bolt positions and minimum cut edge distances, please consult Halfen Limited.

Two bolts on the same channel taking longitudinal loads can be as little as 50 mm apart; please consult Halfen Limited.

For suggested torque values, see page 4.