HTA-CE CAST-IN CHANNELS
The benefits at a glance

In addition to their excellent adjustability, Halfen Cast-in channels save considerable installation time. The result – faster construction and therefore increased cost savings.

CE European Technical Assessment ETA-09/0339

Halfen HTA-CE Cast-in channels, cold-rolled

CE European Technical Assessment ETA-09/0339

suitable for dynamic loads

Halfen HTA-CE Cast-in channels, hot-rolled

Safe and reliable

- no damage to the reinforcement
- approved for fire-resistant structural elements
- suitable for use in concrete pressure and tensile stress zones
- high corrosion resistance steels available
- hot-rolled profiles suitable for dynamic loads
- European Technical Assessment (ETA)
- precise calculation with Halfen Anchor channel software

Quick and economical

- adjustable anchoring
- bolts instead of welding
- maximum efficiency when installing matrices and rows
- cost effective installation using standard tools
- optimised pre-planning reduces construction time
- large range of types available for various requirements
- no noise, no dust and no vibration during installation

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HALFEN HTA-CE CAST-IN CHANNELS
Application Examples

CURTAIN WALL

Fixings for curtain wall façades

CURTAIN WALL

Fixings for curtain wall façades

SPORTS

Seat fixing in stadiums

LIFTS/ELEVATOR FIXINGS

Fixing guide-rails with Halfen Channels

NOISE BARRIERS

Fixings of noise barriers to concrete posts

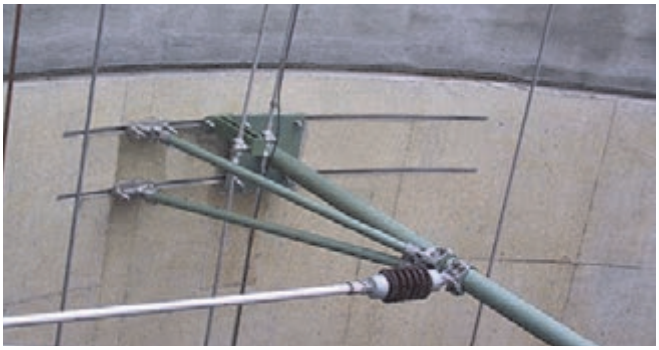
BRIDGES

Fixings for drainage systems

UTILITY TUNNELS

Utility fixings in TBM tunnels with curved anchor channels

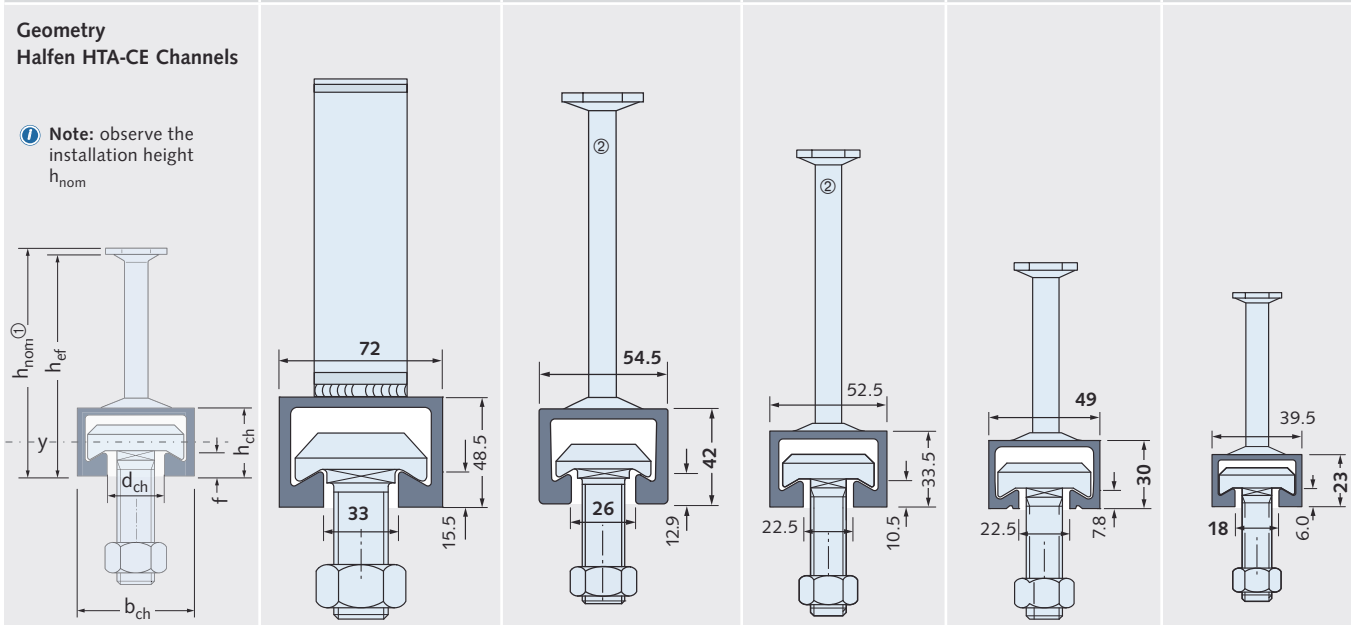
TUNNELS



Fixing of overhead cables in railway tunnels

HALFEN HTA-CE CAST-IN CHANNELS

Product Range – Overview: Channel and Bolts

Identification values HTA-CE						
Profile		HTA-CE 72/48	HTA-CE 55/42	HTA-CE 52/34	HTA-CE 50/30P	HTA-CE 40/22P
Type		hot-rolled	hot-rolled	hot-rolled	hot-rolled	hot-rolled
Geometry Halfen HTA-CE Channels **Note:** observe the installation height h_{nom}						
Material	Steel	■	■	■	■	■
material description: see page 12	A4	■	-	■	■	■
	HCR	-	-	-	-	-
Bolts		HS 72/48	HS 50/30	HS 50/30	HS 50/30	HS 40/22
Threads		M 20-M 30	M 10-M 20	M 10-M 20	M 10-M 20	M 10-M 16
$s_{l,N}$ [mm]		144	109	105	98	79
Profile load capacity*						
$N^0_{Rd,s,l}$ [kN]		66.7	61.1	40.0	23.9	21.1
$V^0_{Rd,s,l}$ [kN]		81.1	61.1	43.5	32.8	19.4
$M_{Rd,s,flex}$ [Nm]		7472	5606	2933	2437	1208
Geometry						
h_{nom} [mm] ① ②		(191)	182 (185)	162 (164)	112	97
b_{ch} [mm]		72	54.5	52.5	49	39.5
h_{ch} [mm]		48.5	42	33.5	30	23
I_y [mm⁴]	Steel	349721	187464	93262	52896	20029
	NR					
h_{ef} [mm]		179	175	155	106	91
c_{min} [mm]		150	100	100	75	50

* Concrete load capacity has to be verified for each individual case (taking the geometric boundary conditions into account).

NR = Stainless steel
c_{min} = minimal spacing channel/concrete edge
s_{slb} = axial spacing for bolts for $N^0_{Rd,s,l}$

$N^0_{Rd,s,l}$ = channel lip load capacity (tension)
$V^0_{Rd,s,l}$ = channel lip load capacity (shear)

① Nominal size and tolerance
② weld-on I- or T- anchors subject to available stock; for these (h_{nom}) values are in brackets

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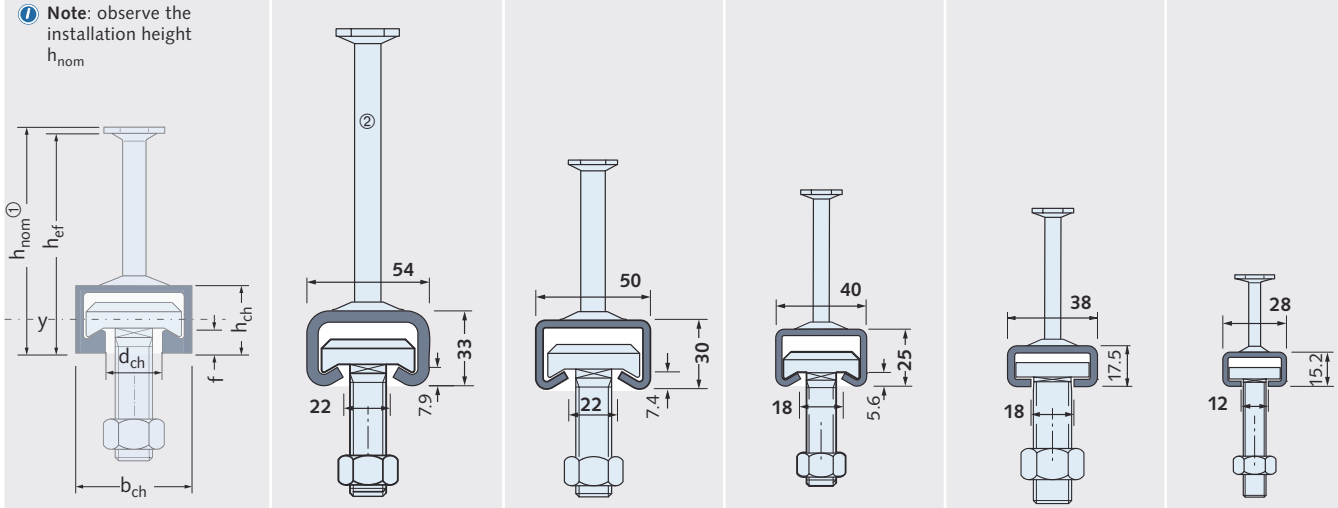
HALFEN HTA-CE CAST-IN CHANNELS
Product Range – Overview: Channel and Bolts

Identification values HTA-CE						
Profile		HTA-CE 54/33	HTA-CE 49/30	HTA-CE 40/25	HTA-CE 38/17	HTA-CE 28/15
Type		cold-rolled	cold-rolled	cold-rolled	cold-rolled	cold-rolled
Geometry Halfen Channels HTA-CE **Note**: observe the installation height h_{nom}						
Material	Steel	■	■	■	■	■
material description: see page 12	A4	■	■	■	■	■
	HCR	-	☒	-	☒	☒
Bolts		HS 50/30	HS 50/30	HS 40/22	HS 38/17	HS 28/15
Threads		M10-M20	M10-M20	M10-M16	M10-M16	M6-M12
$s_{l,N}$ [mm]		107	100	80	76	56
Profile load capacity*						
$N^0_{Rd,s,l}$ [kN]		30.6	17.2	11.1	10.0	5.0
$V^0_{Rd,s,l}$ [kN]						
$M_{Rd,s,flex}$ [Nm]		2595	1455	931	504	276
Geometry						
h_{nom} [mm] ① ②		162 (164)	103	89	81	50
b_{ch} [mm]		54	50	40	38	28.0
h_{ch} [mm]		33	30	25	17.5	15.25
I_y [mm⁴]	Steel	72079	41827	20570	8547	4060
	NR			19097		
h_{ef} [mm]		155	94	79	76	45
c_{min} [mm]		100	75	50	50	40

* Concrete load capacity has to be verified for each individual case (taking the geometric boundary conditions into account).

c_{min} = minimal spacing channel/concrete edge
NR = Stainless steel
s_{slb} = axial spacing for bolts for $N^0_{Rd,s,l}$

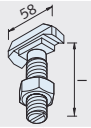
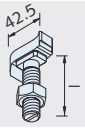
$N^0_{Rd,s,l}$ = channel lip load capacity (tension)
$V^0_{Rd,s,l}$ = channel lip load capacity (shear)

① Nominal size and tolerance
② weld-on I- or T- anchors subject to available stock; for these (h_{nom}) values are in brackets

HALFEN HTA-CE CAST-IN CHANNELS

Halfen HS Bolts

Halfen HS Bolts

Suitable for profile	HTA-CE 72/48				HTA-CE 55/42, 52/34, 54/33, 50/30P, 49/30			
Bolt	**HS 72/48**				**HS 50/30**			
Bolt dimensions								
l [mm]	**M20**	**M24**	**M27**	**M30**	**M10**	**M12**	**M16**	**M20**
20	-	-	-	-	-	-	-	-
30	- - - - -	- - - - -	- - - - -	- - - - -	- FV8.8 - -	FV4.6 - - A4-70	- - - - -	- - - - -
40	- - - - - - -	- - - - - - -	- - - - - - -	- - - - - - -	- FV8.8 - - - - -	FV4.6 FV8.8 - - - - A4-70	FV4.6 FV8.8 - - - - A4-70	- - - - - - -
45	- - -	- - -	- - -	- - -	- - -	- FV8.8 -	- - -	FV4.6 FV8.8 -
50	FV4.6 - - - -	FV4.6 - A4-50 - -	- - - - -	- - - - -	- FV8.8 - - -	FV4.6 FV8.8 - A4-70 -	FV4.6 - - A4-70 HCR-50*	- - - - -
55	- - -	- - -	- - -	- - -	- - -	- - -	- - -	FV4.6 - FA-70
60	- FV8.8 - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	FV4.6 FV8.8 - - - -	FV4.6 FV8.8 - - - A4-70	- FV8.8 - - - -
65	- -	- -	- -	- -	- -	- -	- -	FV4.6 FV8.8
70	-	-	-	-	-	FV8.8	-	-
75	FV4.6 - GVs8.8 -	FV4.6 FV8.8 - -	FV4.6 - - -	FV4.6 - - -	- - - -	- - - -	- - - -	FV4.6 - - FA-70
80	- - - - - -	- - - - - -	- - - - - -	- - - - - -	- - - - - -	FV4.6 FV8.8 - - - -	FV4.6 FV8.8 - - A4 70	FV4.6 FV8.8 - - -
100	FV4.6 - - GVs8.8 - - -	FV4.6 - - GVs8.8 A4-50 - -	- FV8.8 - - - - -	FV4.6 - - - - - -	- - - - - - -	FV4.6 FV8.8 - - - FA-70 -	FV4.6 FV8.8 - - - HCR-50*	FV4.6 FV8.8 - - - FA-70 -
125	- - -	- - -	- - -	- - -	- - -	FV4.6 FV8.8 -	- - -	FV4.6 FV8.8 -
150	FV4.6 - - - -	FV4.6 - GVs8.8 - -	- - - - -	FV4.6 - - - -	- - - - -	- GVs4.6 - - -	FV4.6 - - - FA-70 HCR-50*	- FV8.8 - - FA-70 -
175							FV8.8	
200	FV4.6 - -	FV4.6 - -	- - -	FV4.6 - -	- - -	- GVs4.6 -	- GVs4.6 -	- GVs4.6 -
250	-	-	-	-	-	-	-	-
300	-	-	-	-	-	-	GVs4.6	

Material types: see page 12–13 *on request ⓘ Other bolt lengths and materials on request!

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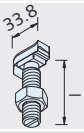
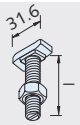
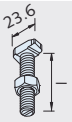
HALFEN HTA-CE CAST-IN CHANNELS
Halfen HS Bolts

Suitable for profile	HTA-CE 40/22P, 40/25			HTA-CE 38/17			HTA-CE 28/15			
Bolt	**HS 40/22**			**HS 38/17**			**HS 28/15**			
Bolt dimensions										
l [mm]	**M10**	**M12**	**M16**	**M10**	**M12**	**M16**	**M6**	**M8**	**M10**	**M12**
20	FV4.6	-	-	-	-	-	-	-	-	-
30	FV4.6 FV8.8 - A4-70	FV4.6 FV8.8 - A4-70	- - - -	FV4.6 GVs4.6 - A4-70	FV4.6 GVs4.6 - A4-70	- GVs4.6 A4-50 -	- GVs4.6 - -	- GVs4.6 - A4-70	FV4.6 GVs4.6 - A4-70	- GVs4.6 - -
40	FV4.6 FV8.8 - - - A4-70	FV4.6 FV8.8 - - - A4-70	FV4.6 FV8.8 - - - A4-70	- - GVs4.6 - - -	- - GVs4.6 - - A4-70	FV4.6 - GVs4.6 - A4-50 -	- - GVs4.6 - - -	- - GVs4.6 - - -	- FV8.8 GVs4.6 - - A4-70	- - - - - -
45	- - -	- FV8.8 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
50	FV4.6 - - A4-70 -	FV4.6 FV8.8 - A4-70 -	FV4.6 FV8.8 - A4-70 -	FV4.6 GVs4.6 - - HCR-50*	FV4.6 GVs4.6 - A4-70 -	FV4.6 GVs4.6 A4-50 - HCR-50*	- - - - -	- GVs4.6 - - -	FV4.6 GVs4.6 A4-50 - HCR-50*	- GVs4.6 - - -
55	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
60	FV4.6 FV8.8 - - - -	FV4.6 FV8.8 - - - -	FV4.6 FV8.8 - - - A4-70	- - GVs4.6 - - -	- - GVs4.6 GVs8.8 - A4-70	- FV8.8 GVs4.6 - A4-50 -	- - - - - -	- - GVs4.6 - - -	- - GVs4.6 - - A4-70*	- - - - - -
65	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
70	-	-	-	-	FV8.8	-	-	-	-	-
75	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -
80	FV4.6 - - - -	FV4.6 FV8.8 - - A4-70	FV4.6 FV8.8 - - A4-70	- - GVs4.6 - -	- - GVs4.6 - A4-70	FV4.6 - GVs4.6 A4-50 -	- - - - -	- - GVs4.6 - -	- - GVs4.6 - A4-70	- - GVs4.6 - -
100	FV4.6 - - - - -	FV4.6 FV8.8 - - - -	FV4.6 FV8.8 - - FA-70 -	- - GVs4.6 - - HCR-50*	- - GVs4.6 - A4-50 -	FV4.6 - GVs4.6 - - HCR-50*	- - - - - -	- - GVs4.6 - - -	- - GVs4.6 - A4-50* - HCR-50*	- - - - - -
125	FV4.6 - -	FV4.6 - -	FV4.6 - -	- -	GVs4.6 -	GVs4.6 -	- -	- -	GVs4.6 A4-50*	- -
150	- - - - - -	- GVs4.6 - - - -	FV4.6 - - - - -	- GVs4.6 - - - -	- GVs4.6 - - - -	- GVs4.6 - - - HCR-50*	- - - - - -	- GVs4.6 - - - -	- GVs4.6 - A4-50* - -	- - - - - -
200	- - -	- GVs4.6 -	- GVs4.6 -	- - -	- GVs4.6 -	- GVs4.6 -	- - -	- - -	- GVs4.6 A4-50*	- - -
250	-	-	GVs4.6	-	-	-	-	-	-	-
300	-	-	GVs4.6	-	-	-	-	-	-	-

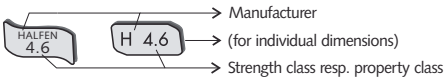
Material types: see page 12–13 *on request ⓘ Other bolt lengths and materials on request!

HALFEN HTA-CE CAST-IN CHANNELS
Halfen HS Bolts

Halfen Bolts — Type HS

Standard Halfen Bolts (no nib or serration) for all profile types HTA-CE

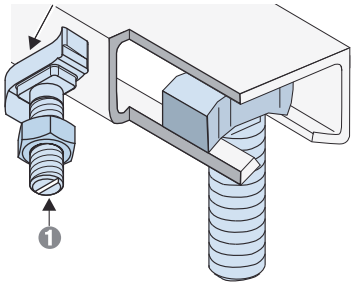
- two direction load capacity
- identified on ❶ bolt tip with **1 notch**



HALFEN 4.6 — Strength class 4.6 / 8.8 galvanized (GVs) or hot-dip galvanized (FV)

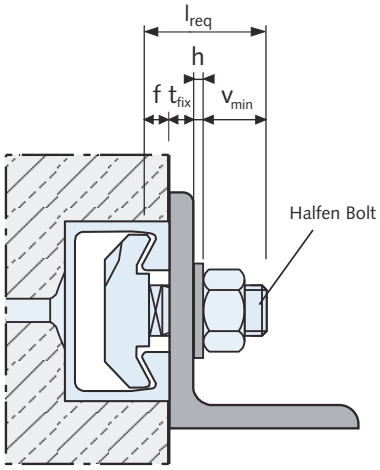
HALFEN A4-70 — Material grade A4-50 / A4-70/ FA-70 Stainless steel

HALFEN HCR50 — Strength class 50 Stainless steel (1.4529/1.4547)



Calculating the bolt length l_{req} for Halfen Bolts

$$l_{req} = t_{fix} + f + h + v_{min}$$



Dimensions V_{min}	
Bolt diameter	v_{min} [mm]
M6	11.0
M8	12.5
M10	14.5
M12	17.0
M16	20.5
M20	26.0
M24	29.0
M27	31.5
M30	33.5

Lip dimensions f	
Channel profile	**f [mm]**
28/15	2.3
38/17	3.0
40/22P	6.0
40/25	5.6
49/30	7.4
50/30P	7.9
52/34	10.5
54/33	7.9
55/42	12.9
72/48	15.5

l_{req} = required bolt length
t_{fix} = thickness of clamped component
f = profile lip height
h = washer thickness
v_{min} = nut height EN ISO 4032 + overhang approximately 5 mm (≥ M20: 7 mm)

Bolt design values

The table on the right lists the design resistance of Halfen Bolts with different thread diameters, materials and strength classes.

$N_{Rd,s,s}$ is the resistance against tension loads, $V_{Rd,s,s}$ is the the resistance against shear loads and $M^0_{Rd,s,s}$ is the flexural resistance when subjected to transverse load induced with a lever arm.

Design resistance										
Material / Strength class		M6	M8	M10	M12	M16	M20	M24	M27	M30
4.6	$N_{Rd,s,s}$ [kN]	4.0	7.3	11.6	16.9	31.4	49.0	70.6	91.8	112.2
	$V_{Rd,s,s}$ [kN]	2.9	5.3	8.3	12.1	22.6	35.2	50.7	66.0	80.6
	$M^0_{Rd,s,s}$ [Nm]	3.8	9.0	17.9	31.4	79.8	155.4	268.9	398.7	538.7
8.8	$N_{Rd,s,s}$ [kN]	10.7	19.5	28.6	44.9	83.7	130.7	188.3	244.8	299.2
	$V_{Rd,s,s}$ [kN]	6.4	11.7	17.2	27.0	50.2	78.4	113.0	146.9	179.5
	$M^0_{Rd,s,s}$ [Nm]	9.8	24.0	42.5	83.8	213.1	415.4	718.4	1065.2	1439.4
A4-50	$N_{Rd,s,s}$ [kN]	3.5	6.4	10.1	14.8	27.4	42.8	61.7	80.2	98.1
	$V_{Rd,s,s}$ [kN]	2.5	4.6	7.3	10.6	19.8	30.9	44.5	57.9	70.7
	$M^0_{Rd,s,s}$ [Nm]	3.2	7.9	15.7	27.5	70.0	136.3	235.8	349.7	472.5
A4-70	$N_{Rd,s,s}$ [kN]	7.5	13.7	21.7	31.6	58.8	91.7	132.1	171.8	210.0
	$V_{Rd,s,s}$ [kN]	5.4	9.9	15.6	22.7	42.2	66.0	95.1	123.6	151.0
	$M^0_{Rd,s,s}$ [Nm]	6.9	16.8	33.5	58.8	149.4	291.3	503.7	746.9	1009.2

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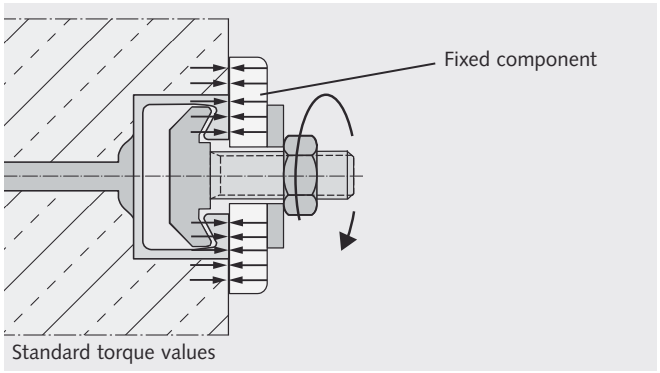
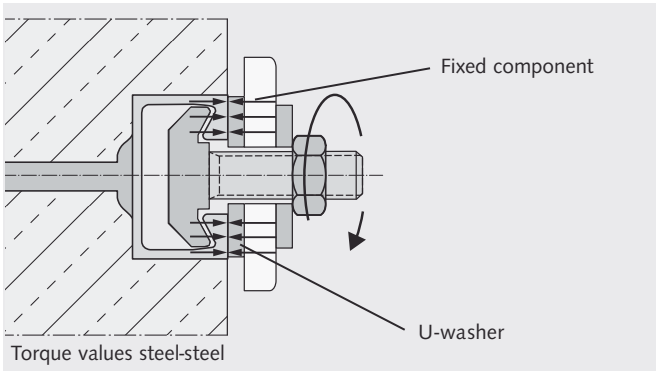
Torque values HS

Standard
Components are braced against the concrete and anchor channel.
Torque is applied as in the following table and must not be exceeded.



Standard torque values

Steel-Steel
Components are braced against the anchor channels using suitable washers.
Torque is applied as in the following table and must not be exceeded.



Torque values steel-steel

Standard: Recommended torque values T_{inst}

HTA-CE Profile	Halfen Bolt HS...**M** [mm]	Torque value T_{inst} [Nm] Steel 4.6; 8.8 Stainless steel Strength class 50 Strength class 70
28/15	6	3
	8	8
	10	13
	12	15
38/17	10	15
	12	25
	16	40
40/22P 40/25	10	15
	12	25
	16	45
49/30 50/30P	10	15
	12	25
	16	60
	20	75
52/34 54/33	10	15
	12	25
	16	60
	20	120
55/42	10	15
	12	25
	16	60
	20	120
72/48	20	120
	24	200
	27	300
	30	380

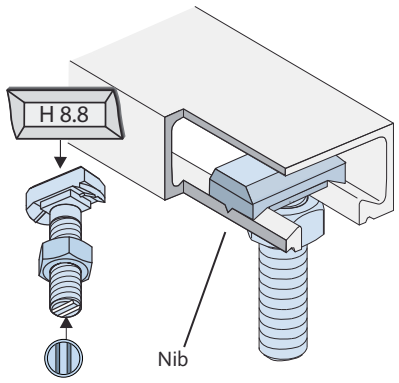
Steel-Steel: Recommended torque values T_{inst}

HTA-CE Profile	Halfen Bolt HS...**M** [mm]	Torque value T_{inst} [Nm] Steel 4.6	Steel 8.8	Stainless steel Strength class 50	Stainless steel Strength class 70
28/15	6	3	–	3	–
	8	8	20	8	15
	10	15	40	15	30
	12	25	70	25	50
38/17	10	15	40	15	30
	12	25	70	25	50
	16	65	180	60	130
40/22P 40/25	10	15	40	15	30
	12	25	70	25	50
	16	65	180	60	130
49/30 50/30P	10	15	40	15	30
	12	25	70	25	50
	16	65	180	60	130
	20	130	360	120	250
52/34 54/33	10	15	40	15	30
	12	25	70	25	50
	16	65	180	60	130
	20	130	360	120	250
55/42	10	15	40	15	30
	12	25	70	25	50
	16	65	180	60	130
	20	130	360	120	250
72/48	20	130	360	120	250
	24	230	620	200	440
	27	340	900	300	650
	30	460	1200	400	850

Tightening torques are also provided in the installation instructions, included with any box of bolts.
Torque values apply only to bolts in delivery condition (unlubricated).

HALFEN HTA-CE CAST-IN CHANNELS
Halfen HSR Bolts with Nib

Halfen Bolts — Type HSR (not part of the ETA)

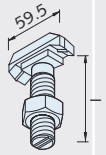
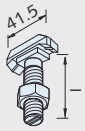
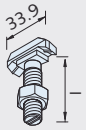


Halfen Bolts with nib

- only for hot-rolled profiles: 40/22P, 50/30P, 52/34, 72/48
- only for carbon steel: WB and FV
- load capacity in all directions
- load capacity in channel longitudinal direction according to expert report
- identification on bolt tip with 2 notches
- Tightening torques are provided also in the installation instructions, includedwith every box of bolts.

Bolt design values HSR

Available HSR

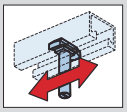
Suitable for profile	72/48	52/34, 50/30P		40/22P
Bolt	**HSR 72/48**	**HSR 50/30**		**HSR 40/22**
Bolt dimensions				
l [mm]	**M20**	**M16**	**M20**	**M16**
40	-	FV8.8	-	GVs8.8
45	-	-	GVs8.8	-
60	-	GVs8.8, FV8.8	GVs8.8	GVs8.8, FV8.8
75	FV8.8	GVs8.8	GVs8.8, FV8.8	-
80	-	FV8.8	-	-
100	-	GVs8.8	-	-

GVs = Zinc galvanized with special coating
FV = Hot-dip galvanized

Torque values HSR

HSR 8.8	Torque values [Nm]
M16	200
M20	400

Load capacity HSR

 Bolt HSR	Grade 8.8 in channel longitudinal direction F_{Rd} [kN]
40/22 - M16	7.0
50/30 - M16	7.0
50/30 - M20	10.5
72/48 - M20	10.5

If loads in the channel's longitudinal direction have to be verified, we recommend using serrated Halfen HZA Channels with serrated Halfen HZS Bolts. See pages 30–36.

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HALFEN HTA-CE CAST-IN CHANNELS
HTA-CE Dynamic Loads/Edge and Bolt Spacing

Design resistance for n = 2 × 10 ^{6} load cycles

Profile HTA-CE	Type	$\Delta N_{Rd,s,0,n}$	Allowable bolts	Material
40/22P	FV	2.94	M12 M16	8.8 4.6 / 8.8
50/30P	FV	3.6	M16 M20	4.6 / 8.8 4.6 / 8.8
52/34	FV	4.9	M16 M20	8.8 8.8

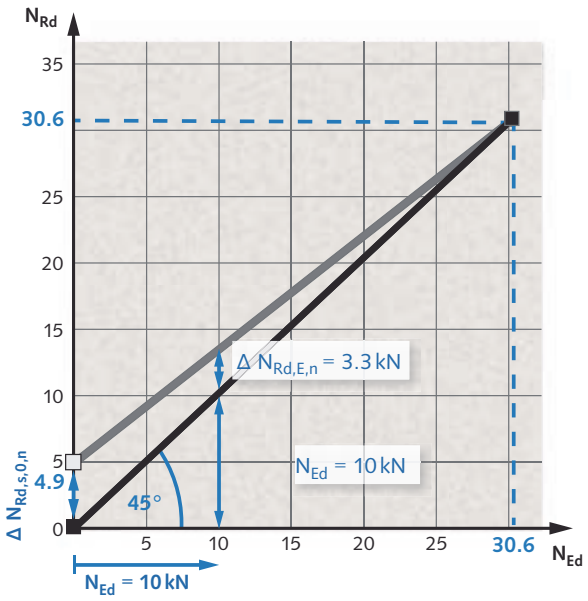
Example (also see diagram to the right):
Profile HTA-CE 52/34 - FV (standard, hot-dip galvanized), for n = 2 × 10^6 load cycles:

N_{Rd} = 55 ÷ 1.8 = 30.6 (taken from the ETA)

N_{Ed} from permanent load = 10 kN (assumption)

$\Delta N_{Rd,E,n}$ = (30.6 − 10) × 4.9/30.6 = 3.3 kN

Diagram: HTA-CE 52/34 - FV for n = 2 × 10^6 load cycles



Minimum edge distances and minimum bolt spacing

Anchors must be installed at a minimum distance from the component edges.
The distance depends on the selected channel profile.
According to the ETA, the spacing between bolts s_{cbo} must not be less than $S_{s,min} = 5 \times d_s$.
Reduction of the load bearing capacity is required if $s_{cbo} < s_{sl,N}$*.
The concrete load-bearing capacity must be verified for each individual case using the Halfen Software!

*$s_{sl,N}$ = centre distance of the bolts subject to $N_{Rd,s,l}$
See tables pages 20–21

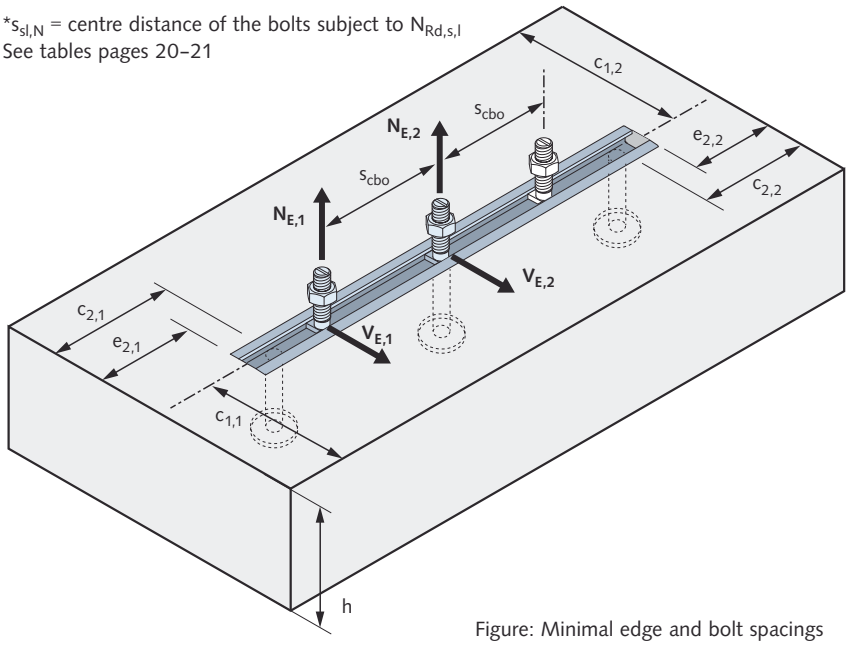


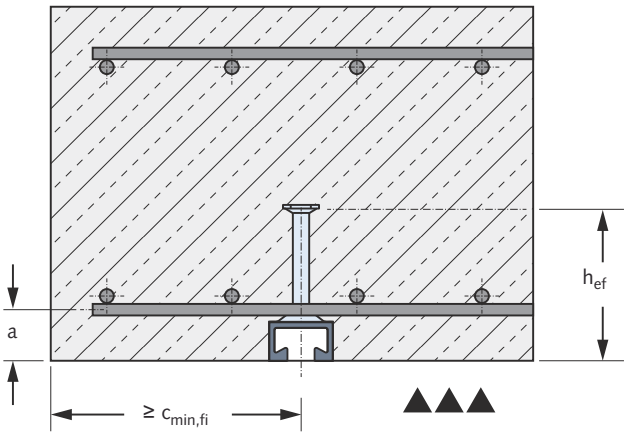
Figure: Minimal edge and bolt spacings

Edge and bolt spacing [mm]				
HTA-CE Profiles	M	$s_{s,min}$	c_{min}	e_{min}
28/15	6	30	40	15
	8	40	40	15
	10	50	40	15
	12	60	40	15
38/17	10	50	50	25
	12	60	50	25
	16	80	50	25
40/25 40/22P	10	50	50	25
	12	60	50	25
	16	80	50	25
49/30	10	50	75	50
	12	60	75	50
	16	80	75	50
	20	100	75	50
50/30P	10	50	75	40
	12	60	75	40
	16	80	75	40
	20	100	75	40
52/34 54/33	10	50	100	65
	12	60	100	65
	16	80	100	65
	20	100	100	65
55/42	10	50	100	65
	12	60	100	65
	16	80	100	65
	20	100	100	65
72/48	20	100	150	115
	24	120	150	115
	27	135	150	115
	30	150	150	115

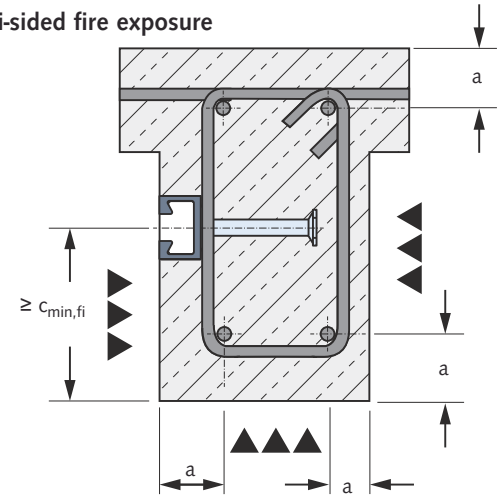
HALFEN HTA-CE CAST-IN CHANNELS
HTA-CE Fire Resistances

Halfen HTA-CE Cast-in channels have been tested and classified for direct exposure to fire in accordance with EAD 330008 using the Standard ISO time-temperature curve (STC). The values shown in the table below are taken from ETA-09/0339.

Single-sided fire exposure



Multi-sided fire exposure



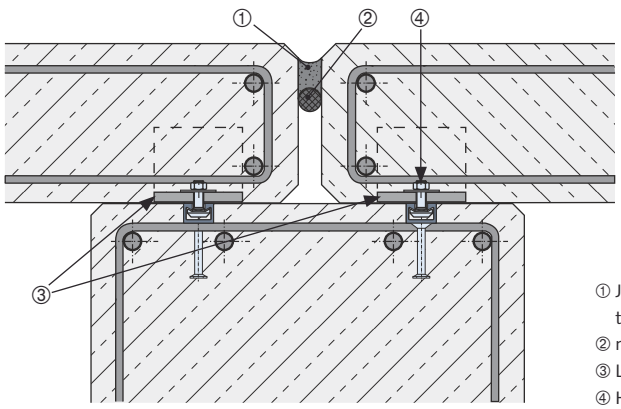
▲▲▲ fire exposure direction

Fire resistance capacities for HTA-CE Cast-in channels — steel failure*

Fire protection classes depending design resistances $N_{Rd,s,fi} = V_{Rd,s,fi}$ [kN]	**HTA-CE**	**28/15**	**38/17**	**40/25**	**40/22P**	**49/30**	**50/30P**	**54/33**	**52/34**	**55/42**	**72/48**
	Halfen Bolt	**M12**	**M16**	**M16**	**M16**	**M16**	**M20**	**M20**	**M20**	**M20**	**M24**
	R30	1,9	3,2	3,6	6,0	4,0	9,5	8,9	10,1	10,3	14,8
	R60	1,3	2,4	3,6	4,5	3,5	7,1	6,5	7,5	7,6	11,1
	R90	0,7	1,4	2,0	2,9	2,5	4,8	4,2	4,8	4,9	7,3
	R120	0,5	1,0	1,2	1,6	2,1	3,6	3,0	3,5	3,6	5,4
Minimum axial spacing **a** [mm]	**R30**	35						50			
	R60	35						50			
	R90	45						50			
	R120	60						65	70		
Minimum edge spacing $c_{min,fi}$ [mm]	**fire exposure single-sided**	90	152	158	182	188	212	310	310	350	358
	fire exposure multi-sided	300	300	300	300	300	300	310	310	350	358

Load capacities are valid for Halfen Cast-in channels made of steel and stainless steel.
* Concrete load capacity under fire exposure has to be verified for each individual case in accordance with EOTA TR 047 for strength classes C20/25 to C50/60.

Halfen Cast-in channels are suitable for design connections of non-load bearing fire walls to concrete walls or columns, if the anchorage conforms to the standards set in DIN 4102-4 section 5.12.5.



① Joint sealing compound acc. to EN ISO6927
② mineral fibre sealing rope
③ L-bracket ≥ 60 x 5 mm
④ Halfen Bolt diam. ≥ 10 mm

Note: For fire wall connections of brickwork to concrete, see page 86 or technical product information Halfen FM Brickwork connections www.halfen.com/downloads

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HALFEN HTA-CE CAST-IN CHANNELS
HTA-CE Standard Lengths/HTA-CS – Curved Solution

HTA-CE Standard lengths

Our standard lengths are optimized lengths to reduce cut-offs. Standard lengths, with order numbers can be found in our current price list.

We deliver Halfen HTA-CE Cast-in channels in any length from 100 mm to 6070 mm. The number and spacing of the anchors can be freely defined. Please contact us at www.halfen.com or see the back inside cover of this catalogue for contact information.

The calculation program for Halfen Cast-in channels in accordance with the ETA. The tool is a powerful, user-friendly program for calculation of any channel length, anchor spacing and concrete cover. Free download at www.halfen.com downloads/software-cad/...

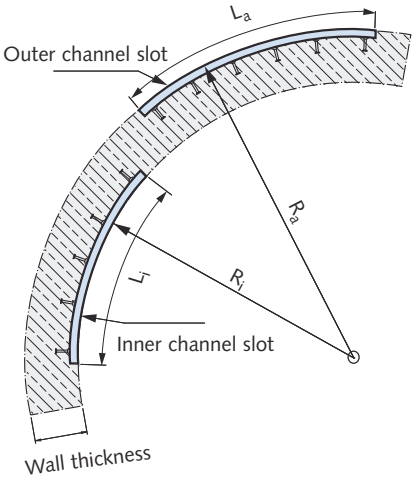
① Does not apply to HTA-CE 52/34, HTA-CE 54/33
② Does not apply to HTA-CE 40/22P - A4

HTA-CE standard lengths and number of anchors

Length [mm] / Number of anchors				
HTA-CE 72/48	HTA-CE 55/42	HTA-CE 40/25, 50/30P, 49/30, 52/34, 54/33	HTA-CE 40/22P	HTA-CE 28/15, 38/17
150/2	150/2	150/2	150/2	100/2
200/2	200/2	200/2	200/2	150/2
250/2	250/2	250/2	250/2	200/2
300/2	300/2	300/2	300/2	250/2
350/3	350/3	350/3	350/3	300/3
400/3	400/3	400/3	400/3	350/3
550/3	550/3	550/3	550/3	450/3
1050/5	1050/5	800/4	800/4②	550/4
6070/25	6070/25	1050/5	1050/5	850/5
-	-	3030/13①	1300/6②	1050/6
-	-	6070/25	1550/7②	3030/16
-	-	-	1800/8②	6070/31
-	-	-	2050/9②	-
-	-	-	2300/10②	-
-	-	-	2550/11②	-
-	-	-	3030/13②	-
-	-	-	6070/25	-
Anchor spacing ≤ 250 mm				Anchor spacing ≤ 200 mm

Halfen HTA-CS Channels — Curved Solution

Areas of application:
- tunnel construction
- precast segments for utility tunnels
- curved walls
- sewage plants



R_i = Radius of inner channel slot
R_a = Radius of outer channel slot
L = Length of channel after bending (maximum 5400 mm)

Curved Halfen Cast-in channels in tunnel segments

Ordering example:
Halfen Cast-in channel, curved
HTA-CS 52/34-Q - A4, R_i = 4000 mm, L = 1050 mm

HTA-CS Smallest radius [m]*

Profile / Material		HTA-CS 72/48	HTA-CS 54/33	HTA-CS 52/34	HTA-CS 50/30P	HTA-CS 49/30	HTA-CS 40/22P	HTA-CS 40/25	HTA-CS 38/17	HTA-CS 28/15
Inner channel slot: min. R_i	☐	on request	0.80 m	0.75 m	on request	0.80 m	on request	1.10 m	0.70 m	0.75 m
	☐	on request	0.80 m	0.80 m	on request	0.80 m	on request	0.90 m	0.70 m	0.75 m
Outer channel slot: min. R_a	☐	on request	4.00 m	3.60 m	on request	3.00 m	on request	2.20 m	3.20 m	2.00 m
	☐	on request	4.00 m	3.60 m	on request	5.70 m	on request	1.70 m	5.40 m	7.80 m

☐ hot-dip galvanized ☐ stainless A4

* please contact our technical support team for more detailed information