

# HALFEN GROUT-IN ANCHOR

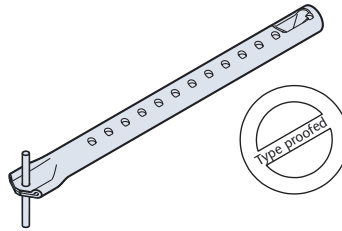
## UMA,UHA Anchors (Round Cross-Section)

### Support Anchor UMA

Thanks to its tubular cross-section, the HALFEN UMA anchor is especially suited for grouting into concrete  $\geq$  C12/15 (B15) and for concrete blockwork or brickwork M 12 / Ila\* but can be just as well suited for use in concrete. The anchors provide the same loadbearing capacity both when used in a horizontal or in a vertical joint and are available in different designs. Depending on the design, the anchors bridge up to 300 mm and are able to carry loads up to 3.8kN.

The adjustment in three directions is made inside the drill-hole. For grouting into concrete C12/15 (B15) and blockwork or brickwork M 12 / Ila\*.

The corresponding restraining anchors for fastening in the vertical or horizontal joint are designated UHA.

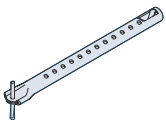


Material: 1.4571/AISI 316 (A4) or 1.4401/AISI 316 (A4)

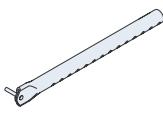


Loose pin with fixed collar for design 1,3 and 7.

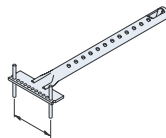
Design versions:



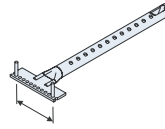
Design 1 Support anchor with loose pin and sliding sleeve



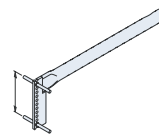
Design 2 Support anchor with half-pin, pressed



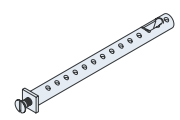
Design 3 Support anchor with 2 loose pins and 2 sliding sleeves



Design 4 Support anchor with 2 half-pins, pressed



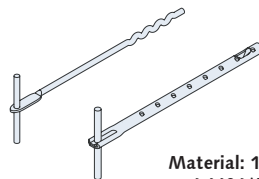
Design 7 Support anchor with L-bracket, 2 loose pins and 2 sliding sleeves



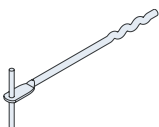
Design 8 Threaded anchor with thread and countersunk screw (from UMA-16)

### Restraint Anchor UHA

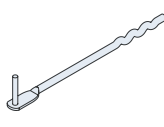
For grouting into concrete C12/15 (B15) and brickwork M 12 / Ila\*. It is equally suited for grouting into concrete or brickwork and can be used both in horizontal and in vertical joints. Design versions:



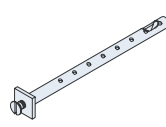
Material: 1.4571/AISI 316 (A4) or 1.4401/AISI 316 (A4)



Design 1 Restraint anchor with loose pin and sliding sleeve



Design 2 Restraint anchor with half-pin, pressed



Design 8 Threaded anchor with thread and countersunk screw (from UHA-10)

### Ordering Example

**UMA - 16 - 3 - 210**

①      ②      ③      ④

- ① Anchor Type
- ② Diameter d (mm)
- ③ Design Type
- ④ Anchor length (mm)

Type	Support anchor UMA								Restraint anchor UHA		
	UMA-10	UMA-12	UMA-16	UMA-18	UMA-22	UMA-25	UMA-28	UMA-33	UHA-5	UHA-7	UHA-10
d mm **	10	12	16	18	22	25	28	33	5	7	10
c mm **	5.0	5.5	7.0	7.0	8.0	8.0	8.0	8.0	2.0	2.5	5.0
Anchor pin for design 1.3 and 7	Ø5x70	Ø5x70	Ø6x75	Ø6x75	Ø6x75	Ø6x75	Ø6x75	Ø6x75	Ø5x70	Ø5x70	Ø5x70

\* min. compression strength 0.16 kN/cm<sup>2</sup>    \*\* for dimensions c and d refer to drawings on pages 10 and 11

# HALFEN GROUT-IN ANCHOR

## UMA, UHA Anchors (Round Cross-Section)

### Backing structure:

Concrete  $\geq$  C12/15 (B15)

$F_V$  = Vertical load per anchor (kN)

$H_D$  = Horizontal compressive load (kN)

$H_Z$  = Horizontal tensile load (kN)

$\varnothing$  = Drill-hole diameter (mm)

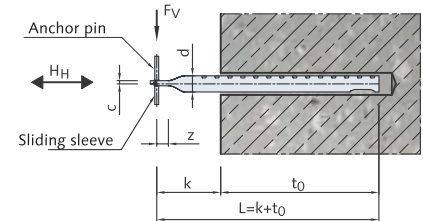
$t_0$  = Bond depth of anchor in drill-hole (mm)

$k$  = Projection (mm)

$z$  = 21 mm

### Notes regarding anchor selection:

1. Select projection  $k$
2. Choose matching vertical load  $F_V$  (per anchor) in the selected line taking into consideration  $H_D$  and  $H_Z$ .
3. Read off type of anchor and length of anchor  $L$  and compile as shown in the ordering example. (page 9)



Projection k mm	Type of anchor Drill hole Bond depth	Support anchor								Restraint anchor		
		UMA 10 $\varnothing$ 20 $t_0=80$	UMA 12 $\varnothing$ 22 $t_0=80$	UMA 16 $\varnothing$ 26 $t_0=80$	UMA 18 $\varnothing$ 28 $t_0=80$	UMA 22 $\varnothing$ 32 $t_0=80$	UMA 25 $\varnothing$ 35 $t_0=80$	UMA 28 $\varnothing$ 40 $t_0=100$	UMA 33 $\varnothing$ 45 $t_0=100$	UHA 5 $\varnothing$ 15 $t_0=80$	UHA 7 $\varnothing$ 17 $t_0=80$	UHA 10 $\varnothing$ 20 $t_0=80$
20 30	Fv	0.39	0.59	0.93	1.33							
	HD	0.60	0.90	1.30	1.90					2.10		
	HZ	1.30	1.80	3.00	3.20					1.10*		
	L	120	120	120	120					120		
40 50 60	Fv	0.30	0.46	0.60	0.96	1.53						
	HD	0.60	0.90	1.30	1.90	2.60				2.10		
	HZ	1.00	1.50	2.90	3.20	4.00				1.10*		
	L	150	150	150	150	180				150		
70 80 90	Fv	0.19	0.30	0.60	0.96	1.53						
	HD	0.60	0.90	1.30	1.90	2.60				2.10	3.00	
	HZ	0.90	1.20	2.00	3.20	4.00				1.10*	1.10*	
	L	180	180	180	180	180				180	180	
100 110 120	Fv	0.15	0.23	0.45	0.72	1.15	1.54	2.345	3.77			
	HD	0.50	0.60	1.30	1.90	2.60	2.80	4.80	4.90	1.60	3.00	
	HZ	0.90	1.20	1.80	3.00	3.70	4.30	4.90	4.90	2.10	3.00	
	L	210	210	210	210	210	210	230	230	210	210	
130 140 150	Fv	0.10	0.17	0.36	0.58	0.92	1.23	1.875	3.015			
	HD	0.50	0.60	1.00	1.50	2.00	2.80	4.40	4.90	1.60	3.00	
	HZ	0.90	1.20	1.80	3.00	3.70	4.30	4.90	4.90	2.10	3.00	
	L	240	240	240	240	240	240	260	260	240	240	
160 170 180	Fv			0.30	0.48	0.76	1.02	1.565	2.51			
	HD			1.00	1.50	2.00	2.80	4.10	4.90	1.00	3.00	3.00
	HZ			1.80	3.00	3.70	4.30	4.90	4.90	2.10	3.00	3.00
	L			270	270	270	270	290	290	270	270	270
0190 200 210	Fv				0.40	0.64	0.90	1.340	2.155			
	HD				1.20	1.60	2.50	3.70	4.90	0.85	3.00	3.00
	HZ				3.00	3.70	4.30	4.90	4.90	2.10	3.00	3.00
	L				300	300	300	320	320	300	300	300
220 230 240	Fv							1.17	1.885			
	HD							0.33	4.90		2.20	3.00
	HZ							4.90	4.90		3.00	3.00
	L							350	350		330	330
250 260 270	Fv							1.04	1.675			
	HD							3.00	4.70		1.85	3.00
	HZ							4.90	4.90		3.00	3.00
	L							380	380		360	360
280 290 300	Fv							0.935	1.505			
	HD							2.70	4.30			3.00
	HZ							4.90	4.90			3.00
	L							410	410			3900

# HALFEN GROUT-IN ANCHOR

## UMA, UHA Anchors (Round Cross-Section)

### Backing structure:

#### Brickwork M 12 / IIa ①

$F_V$  = Vertical load per anchor (kN)

$H_D$  = Horizontal compressive load (kN)

$H_Z$  = Horizontal tensile load (kN)

$\varnothing$  = Drill-hole diameter (mm)

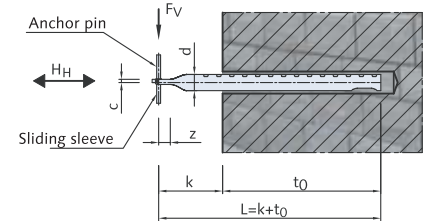
$t_0$  = Bond depth of anchor in drill-hole (mm)

$k$  = Projection (mm)

$z$  = 21 mm

### Notes regarding anchor selection:

1. Select projection  $k$
2. Choose matching vertical load  $F_V$  (per anchor) in the selected line taking into consideration  $H_D$  and  $H_Z$ .
3. Read off type of anchor and length of anchor  $L$  and compile as shown in the ordering example. (page 9)



① A separate verification is required for use in other materials. Min. compression strength 16 N/mm<sup>2</sup>

Projection k mm	Type of anchor Drill hole Bond depth	Support anchor								Restraint anchor		
		UMA 10 Ø 20 t <sub>0</sub> =80	UMA 12 Ø 22 t <sub>0</sub> =80	UMA 16 Ø 26 t <sub>0</sub> =80	UMA 18 Ø 28 t <sub>0</sub> =80	UMA 22 Ø 32 t <sub>0</sub> =80	UMA 25 Ø 35 t <sub>0</sub> =80	UMA 28 Ø 40 t <sub>0</sub> =100	UMA 33 Ø 45 t <sub>0</sub> =100	UHA 5 Ø 15 t <sub>0</sub> =80	UHA 7 Ø 17 t <sub>0</sub> =80	UHA 10 Ø 20 t <sub>0</sub> =80
20 30	Fv	0.34	0.515	0.95	1.655							
	HD	1.237	1.874	3.457	4.85					2.10		
	HZ	0.619	0.937	1.728	3.011					2.10		
	L	120	120	120	120					120		
40 50 60	Fv	0.28	0.425	0.81	1.31							
	HD	1.019	1.547	2.948	4.767					2.10		
	HZ	0.509	0.773	1.474	2.383					2.10		
	L	150	150	150	150					150		
70 80 90	Fv	0.21	0.32	0.61	0.99	1.42						
	HD	0.764	1.164	2.22	3.603	4.85				2.10	3.00	
	HZ	0.382	0.582	1.11	1.801	2.584				2.10	3.00	
	L	180	180	180	180	180				180	180	
100 110 120	Fv	0.165	0.255	0.49	0.795	1.235	1.625	2.495	3.96			
	HD	0.60	0.928	1.783	2.893	4.494	4.85	4.90	4.90	1.60	3.00	
	HZ	0.30	0.464	0.892	1.446	2.247	2.957	4.54	4.90	1.60	3.00	
	L	210	210	210	210	210	210	230	230	210	210	
130 140 150	Fv	0.10	0.17	0.41	0.665	1.035	1.360	2.085	3.225			
	HD	0.528	0.819	1.492	2.42	3.766	4.85	4.90	4.90	1.60	3.00	
	HZ	0.264	0.409	0.746	1.21	1.883	2.474	3.794	4.90	1.60	3.00	
	L	240	240	240	240	240	240	240	240	240	240	
160 170 180	Fv				0.57	0.885	1.17	1.795	2.78			
	HD				2.074	3.22	4.258	4.90	4.90		3.00	3.00
	HZ				1.037	1.61	2.129	3.266	4.90		3.00	3.00
	L				270	270	270	290	290		270	270
190 200 210	Fv				0.495	0.775	1.025	1.575	2.455			
	HD				1.801	2.82	3.730	4.90	4.90		3.00	3.00
	HZ				0.901	1.41	1.865	2.866	4.449		3.00	3.00
	L				300	300	300	320	320		300	300
220 230 240	Fv				0.44	0.69	0.91	1.40	2.175			
	HD				1.601	2.511	3.311	4.90	4.90			2.80
	HZ				0.801	1.255	1.656	2.547	3.957			2.80
	L				330	330	330	350	350			330
250 260 270	Fv				0.36	0.62	0.82	1.260	1.96			
	HD				1.31	2.256	2.984	4.585	4.90			2.40
	HZ				0.655	1.128	1.492	2.293	3.566			2.40
	L				360	360	360	380	380			360
280 290 300	Fv				0.565	0.745	1.15	1.785				
	HD				2.056	2.711	4.185	4.90				2.00
	HZ				1.028	1.355	2.092	3.248				2.00
	L				390	390	410	410				390

\* At  $t_0=120$ mm (increase L accordingly!)  $H_Z=1.70$  kN \* At  $t_0=160$ mm (increase L accordingly!)  $H_Z=2.20$  kN