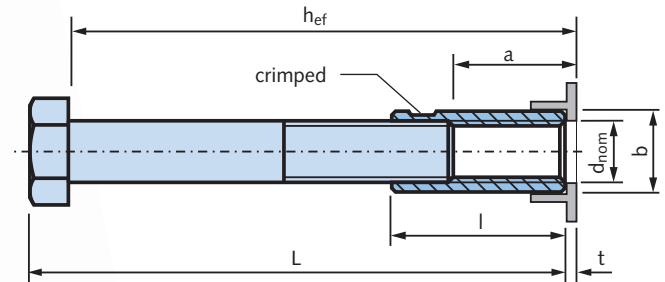


## BOLT ANCHORS

### Bolt Anchor 1988 GV



1988 GV



#### Anchor description

The bolt anchor 1988 GV consists of a bolt (untreated, quality 8.8) with screwed and crimped sleeve. The sleeve with internal metric ISO thread is zinc galvanized (GV).

The sleeve is manufactured from a steel precision tube.

For identification a grey plastic clip is attached ( $t=2$  mm).



Please download our calculation software to calculate the load capacity of this anchor according to CEN/TS 1992-4-1/2.

[www.halfen.com](http://www.halfen.com) → downloads → software.

For information about our software see page 40.

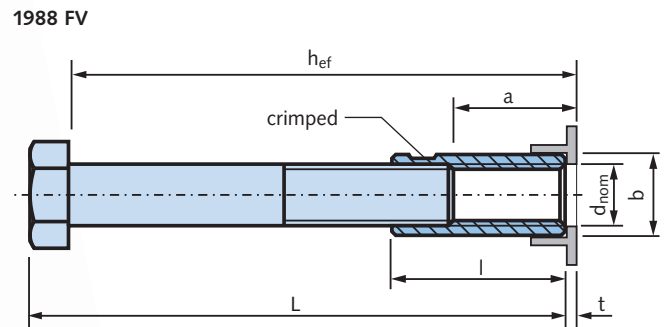
Bolt anchor 1988 GV incl. identification clip (grey)

Order no.	Dimensions					Design loads for tension <sup>①</sup>		Design loads for shear <sup>①</sup>	
	$d_{nom} \times L$ [mm]	$h_{ef}$ [mm]	a [mm]	b [mm]	l [mm]	$N_{Rd,c}$ [kN]	$N_{Rd,c}$ [kN]	$V_{Rd,c}$ [kN]	$V_{Rd,c}$ [kN]
						C20/25	C45/55	C20/25	C45/55
0020.010-00048	M12 x 55	49.0	25	15.5	35	9.7	14.4	9.7	14.4
0020.010-00001	M12 x 100	94.0	25	15.5	35	16.7	28.9	17.3	17.3
0020.010-00002	M12 x 150	144.0	25	15.5	35	16.7	28.9	17.3	17.3
0020.010-00049	M16 x 75	67.0	31	21	45	15.5	23.1	31.1	35.2
0020.010-00003	M16 x 140	132.0	31	21	45	29.8	58.8	35.2	35.2
0020.010-00004	M16 x 220	212.0	31	21	45	29.8	58.8	35.2	35.2
0020.010-00068	M20 x 90	79.0	37	26	55	19.9	29.5	39.8	52.9
0020.010-00005	M20 x 150	139.0	37	26	55	46.4	68.9	52.9	52.9
0020.010-00006	M20 x 180	169.0	37	26	55	46.5	88.2	52.9	52.9
0020.010-00007	M20 x 270	259.0	37	26	55	46.5	88.2	52.9	52.9
0020.010-00069	M24 x 110	97.0	48	32	70	27.1	40.2	54.1	80.3
0020.010-00008	M24 x 200	187.0	48	32	70	67.0	107.5	83.1	83.1
0020.010-00009	M24 x 320	307.0	48	32	70	67.0	138.7	83.1	83.1
0020.010-00070	M30 x 160	143.0	62	40	90	48.5	71.9	96.9	126.9
0020.010-00010	M30 x 240	223.0	62	40	90	94.4	140.0	126.9	126.9
0020.010-00011	M30 x 380	363.0	62	40	90	112.6	211.7	126.9	126.9
0020.010-00012	M36 x 300	279.0	76	47.5	110	132.0	195.9	185.8	185.8
0020.010-00013	M36 x 420	399.0	76	47.5	110	160.2	309.8	185.8	185.8
0020.010-00014	M42 x 300	276.0	70	54	110	129.9	192.7	222.8	222.8
0020.010-00015	M42 x 460	436.0	70	54	110	227.4	371.5	222.8	222.8

<sup>①</sup> The design load is the calculation value according to CEN/TS 1992-4-1/2 for tensile or shear force in plain concrete without load-reducing influences. Values only apply for cracked concrete; no dense reinforcement (risk of shell spalling). Design loads are valid for permanent fixings and are not permitted for lifting!

## BOLT ANCHORS

### Bolt Anchor 1988 FV



#### Anchor description

The bolt anchor 1988 FV consists of a bolt (untreated, quality 8.8) with a screwed and crimped sleeve. The sleeve with internal metric ISO thread is hot-dip galvanized (FV) and manufactured from a steel precision tube.

For identification a grey plastic clip is attached ( $t=2$  mm).



Please download our calculation software to calculate the load capacity of this anchor according to CEN/TS 1992-4-1/2.

[www.halfen.com](http://www.halfen.com) → downloads → software.

For information about our software see page 40.

Bolt anchor 1988 FV incl. identification clip (grey)

Order no.	Dimensions					Design loads for tension <sup>①</sup>		Design loads for shear <sup>①</sup>	
	$d_{nom} \times L$ [mm]	$h_{ef}$ [mm]	a [mm]	b [mm]	l [mm]	$N_{Rd,c}$ [kN]	$N_{Rd,c}$ [kN]	$V_{Rd,c}$ [kN]	$V_{Rd,c}$ [kN]
						C20/25	C45/55	C20/25	C45/55
0020.010-00071	M12 x 55	49.0	25	15.5	35	9.7	14.4	9.7	14.4
0020.010-00032	M12 x 100	94.0	25	15.5	35	16.7	28.9	17.3	17.3
0020.010-00033	M12 x 150	144.0	25	15.5	35	16.7	28.9	17.3	17.3
0020.010-00072	M16 x 75	67.0	31	21	45	15.5	23.1	31.1	35.2
0020.010-00034	M16 x 140	132.0	31	21	45	29.8	58.8	35.2	35.2
0020.010-00035	M16 x 220	212.0	31	21	45	29.8	58.8	35.2	35.2
0020.010-00073	M20 x 90	79.0	37	26	55	19.9	29.5	39.8	52.9
0020.010-00036	M20 x 150	139.0	37	26	55	46.4	68.9	52.9	52.9
0020.010-00037	M20 x 180	169.0	37	26	55	46.5	88.2	52.9	52.9
0020.010-00038	M20 x 270	259.0	37	26	55	46.5	88.2	52.9	52.9
0020.010-00074	M24 x 110	97.0	48	32	70	27.1	40.2	54.1	80.3
0020.010-00039	M24 x 200	187.0	48	32	70	67.0	107.5	83.1	83.1
0020.010-00040	M24 x 320	307.0	48	32	70	67.0	138.7	83.1	83.1
0020.010-00075	M30 x 160	143.0	62	40	90	48.5	71.9	96.9	126.9
0020.010-00041	M30 x 240	223.0	62	40	90	94.4	140.0	126.9	126.9
0020.010-00042	M30 x 380	363.0	62	40	90	112.6	211.7	126.9	126.9
0020.010-00044	M36 x 420	399.0	76	47.5	110	160.2	309.8	185.8	185.8

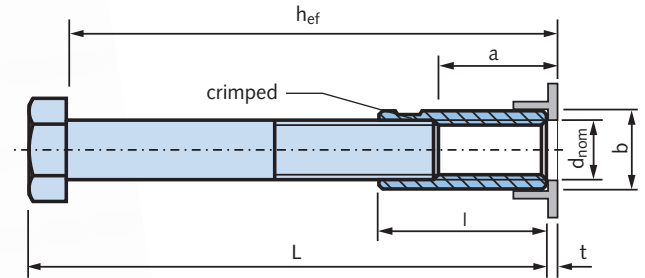
① The design load is the calculation value according to CEN/TS 1992-4-1/2 for tensile or shear force in plain concrete without load-reducing influences. Values only apply for cracked concrete; no dense reinforcement (risk of shell spalling). Design loads are valid for permanent fixings and are not permitted for lifting!

## BOLT ANCHORS

### Bolt Anchor 1988 A4-50 / A4-80



1988 A4-50 and 1988 A4-80



#### Anchor description

The bolt anchor 1988 A4 consists of a bolt (hot-dip galvanized, quality 8.8) with a screwed and crimped sleeve.

The sleeve has an internal metric ISO thread and is manufactured from stainless steel (strength class A4-50 or strength class A4-80). For identification a white/black plastic clip is attached ( $t=2\text{ mm}$ ).



Please download our calculation software to calculate the load capacity of this anchor according to CEN/TS 1992-4-1/2.

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For information about our software see page 40.

Bolt anchor 1988 A4-50 incl. identification clip (white)

Order no.	Dimensions					Design loads for tension <sup>①</sup>		Design loads for shear <sup>①</sup>	
	$d_{\text{nom}} \times L$ [mm]	$h_{\text{ef}}$ [mm]	a [mm]	b [mm]	l [mm]	$N_{\text{Rd,c}}$ [kN]	$N_{\text{Rd,c}}$ [kN]	$V_{\text{Rd,c}}$ [kN]	$V_{\text{Rd,c}}$ [kN]
						C20/25	C45/55	C20/25	C45/55
0020.010-00060	M12 x 100	94.0	25	15.5	35	15.0	15.0	9.0	9.0
0020.010-00061	M12 x 150	144.0	25	15.5	35	15.0	15.0	9.0	9.0
0020.010-00062	M16 x 140	132.0	31	21	45	26.2	26.2	15.7	15.7
0020.010-00063	M16 x 220	212.0	31	21	45	26.2	26.2	15.7	15.7
0020.010-00064	M20 x 150	139.0	37	26	55	35.6	35.6	21.4	21.4
0020.010-00065	M20 x 180	169.0	37	26	55	35.6	35.6	21.4	21.4
0020.010-00066	M20 x 270	259.0	37	26	55	35.6	35.6	21.4	21.4

Bolt anchor 1988 A4-80 incl. identification clip (black)

0020.010-00016	M12 x 100	94.0	25	15.5	35	16.7	36.8	24.0	24.0
0020.010-00017	M12 x 150	144.0	25	15.5	35	16.7	36.8	24.0	24.0
0020.010-00018	M16 x 140	132.0	31	21	45	29.8	63.7	47.2	47.2
0020.010-00019	M16 x 220	212.0	31	21	45	29.8	65.5	47.2	47.2
0020.010-00020	M20 x 150	139.0	37	26	55	46.5	68.9	73.2	73.2
0020.010-00021	M20 x 180	169.0	37	26	55	46.5	92.3	73.2	73.2
0020.010-00067	M20 x 270	259.0	37	26	55	46.5	102.4	73.2	73.2
0020.010-00022	M24 x 200	187.0	48	32	70	67.0	107.5	106.2	106.2
0020.010-00023	M30 x 240	223.0	62	40	90	94.4	140.0	168.7	168.7

① The design load is the calculation value according to CEN/TS 1992-4-1/2 for tensile or shear force in plain concrete without load-reducing influences.

Values only apply for cracked concrete; no dense reinforcement (risk of shell spalling).

Design loads are valid for permanent fixings and are not permitted for lifting!