

Contents

MAGO Anchor Channel

Anchor Channel	1
Hot-Rolled Anchor Channel - ACH	2
Stainless steel Cold rolled Anchor channel ACF-S	3
Standard lengths and anchor spacing	3
T-bolt	4
Tightening Torque	5
Framing Channels	6
Channel Profiles	7
Channel Nuts and Set Screws	7
Allowable loads	8
Dynamic Loading	10
Spacings and edge distances	10
Reduced edge distances ar for maximum allowable pull out loads FZ	11
MAGO Reduced edge distances ae for maximum allowable loads FZ and FQ	12
Failure Method for Mago Channel and T-Bolt	13
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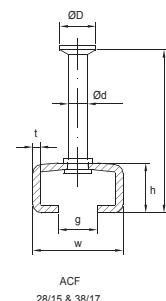
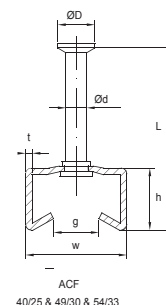
MAGO Anchor Channel

Anchor channel is a flexible and effective solution to fix various items to precast concrete. The Anchor channels are made of C-shaped channels with anchor bolts swaged on to transfer the load into the concrete. 5 load ranges and different channel lengths cover most of the typical applications. Polyethylene foam filler is filled in the channel to prevent the ingress of concrete during pouring.

Cold rolled Anchor channel - ACF

ACF Profile Dimensions

Profile	Dimensions (mm)							Load Class (kN)
	W	h	g	t	L	D	d	
ACF 28/15	28	15	12	2.3	48	12	6	3.00
ACF 38/17	38	17	18	3	68	16	8	4.50
ACF 40/25	40	25	18	2.75	74	16	8	6.00
ACF 49/30	49	30	22	3.25	90	20	10	10.00
ACF 54/33	54	33	22	5	152	24	11	22.00
ACF 72/48	72	48	33	6	195	36	16	35.00



The cold Rolled Anchor Channel is made from Cold-rolled Profile (St37), zinc-plated or hot-dip Galvanized. it's an economical and simple solution for most applications.

Features:

1. Mechanical swaged anchors ensure the maximum performance of the channel.
2. One Piece Polythene foam makes it easier and faster to remove the foam for installation of fixings, as well as keeping a clean work environment.
3. Hot-dip Galvanization is available for better anti-corrosion performance.



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MAGO Hot-Rolled Anchor Channel - ACH

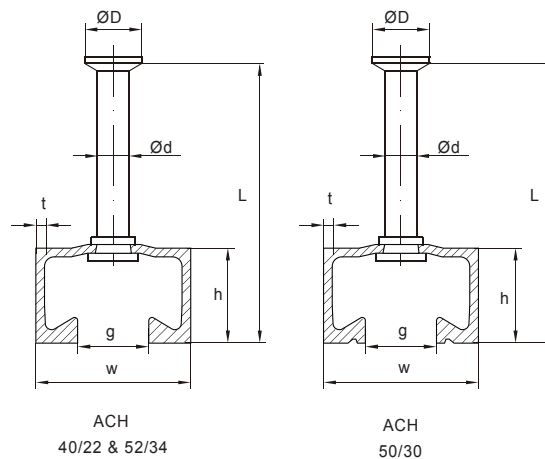
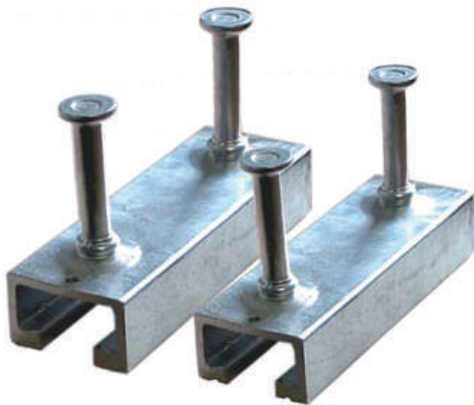
ACF Profile Dimensions

Profile	Dimensions (mm)							Load Class (kN)
	W	h	g	t	L	D	d	
ACH 40/22	40	22	18	2.5	74	16	8	6.00
ACH 50/30	50	30	22	2.8	90	20	10	10.00
ACH 52/34	52	34	22	4.2	152	24	11	22.00
ACH 55/42	55	42	26	5	190	32	14	26.00
ACH 72/48	72	48	33	5	195	36	16	35.00

The Hot Rolled Anchor Channel is made from Hot-rolled Profile, which provides better performances for dynamic loads and shock loads.

Features:

1. Hot-Rolled Profile provides better performance for dynamic loads and shock loads.
2. The Mechanical swaged anchors ensures the maximum Performance of the Hot-rolled profile.
3. One Piece Polythene foam makes it easier and faster to remove the foam for installation of fixings, as well as keeping a clean work environment.



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MAGO Stainless steel Cold rolled Anchor channel ACF-S

The Stainless Steel cold rolled Anchor Channel is made from Stainless steel Profile (AISI 304/316) with mechanical swaged anchors. All stainless steel guarantees no rust leakage for good.

Features:

1. Both the profile and the mechanical swaged anchors are stainless steel, 100% prevent the facades from any leakage of rust.
2. The Stainless steel Mechanical swaged anchors ensure the maximum Performance of the Stainless steel profile.
3. One Piece Polythene foam makes it easier and faster to remove the foam for installation of fixings, as well as keeping a clean work environment.



MAGO Standard lengths and anchor spacing

Channel Length (mm)	Spacer between centres
100	25 50 25
150	25 100 25
200	25 150 25
250	25 200 25
>250	25 ≤250 25 25 ≤250 ≤250 ≤250 25

Note: Long length upto 6 meters available with all our 3 types of anchor channels (ACF-C Carbon steel Cold rolled profile, ACF-S Stainless steel and ACH Hot rolled profile).



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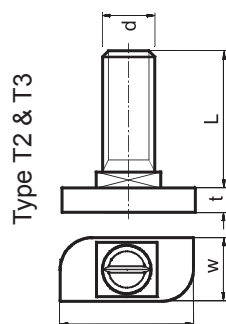
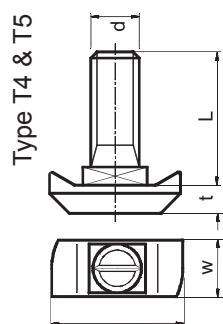
MAGO T-bolt

2 types of T-Bolts cover the full range of our anchor channels: Flat Head T-Bolts (T2 & T3) to cover the profile sizes 28/15 and 38/17 and Hook Head T-Bolts (T4 & T5) for all other profile sizes.

Material: Normal steel bolt grade 4.6/8.8, Zinc-plated / Hot-dip Galvanized
Stainless steel grade 304-316-A4

Anchor Channel	T Bolt Type	d (mm)	Head Length l (mm)	Head Width w (mm)	Head Thickness t (mm)	Length L (mm)	Bolt Tension Load (kN)	Bolt Shear Load (kN)
ACF 28 / 15	T 2	M 8	22.5	10	4	20-150	7.3	2.9
		M 10		10	5	20-150	11.9	5.3
		M 12		10	6	20-200	16.9	8.4
ACF 17 / 38	T 3	M 10	31	13	6	20-150	11.9	5.3
		M 12		13	7	20-200	16.9	8.4
		M 16		16	7	20-200	31.4	12.1
ACF 25 / 40 ACH 25 / 40	T 4	M 10	32.5	14	7	20-150	11.6	5.3
		M 12		14	7	20-250	16.9	8.4
		M 16		17	8	30-250	31.4	12.1
ACF 54 / 33 ACH 52 / 34 ACF 49 / 30 ACH 50 / 30 ACH 55 / 42 ACF 72 / 48 ACH 72 / 48	T 5	M 12	41	13	10	30-200	16.9	12.1
		M 16		17	11	30-250	31.4	22.6
		M 20		21	12	30-300	49	35.3
		M 24	58	25	16	30-300	70.6	50.7
		M 27		27	18	50-500	91.8	66
		M 40		31	20	50-500	112.2	80.6

Note: When The Bolt Allow. Load is bigger than that of the Anchor channel, the Allow. Load of the Anchor channel must not be exceeded.



HDG

Z.Plated

304-316-A4

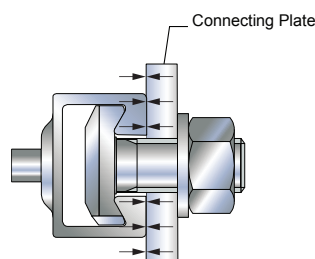
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Tightening Torque

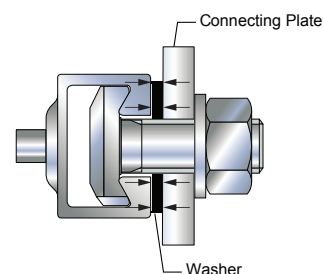
General

If the connecting plate is braced to the concrete or to the anchor channel, the torque moments according to the following table shall be applied.



Steel - Steel Contact

If the connecting plate is braced to the anchor channel by suitable washer, the torque moments according to the following table shall be applied. For bolts grade 316-A4-70 higher torque moments may be applied.



Profile and Type of Bolt	Bolts Ø	Tightening Torque		
		General	Steel - Steel Contact	
		4.6 316-A4-50 316-A4-70 F4-70	4.6 316-A4-50	316-A4-70 F4-70
	[mm]	[Nm]	[Nm]	[Nm]
ACF 28 / 15	M 6	—	3	—
	M 8	8	8	20
	M 10	13	15	40
	M 12	15	25	70
ACF 38 / 17	M 10	15	15	40
	M 12	25	25	70
	M 16	40	65	180
ACH 40 / 22 ACF 40 / 25	M 10	15	15	40
	M 12	25	25	70
	M 16	45	65	180
ACH 50 / 30 ACF 50 / 30	M 10	15	15	40
	M 12	25	25	70
	M 16	60	65	180
	M 20	75	130	360
ACH 52 / 34 ACF 54 / 33	M 10	15	15	40
	M 12	25	25	70
	M 16	60	65	180
	M 20	120	130	360
ACH 55 / 42	M 10	15	15	40
	M 12	25	25	70
	M 16	60	65	180
	M 20	120	130	360
	M 24	200	230	620
ACH 72 / 48 ACF 72 / 48	M 20	120	130	360
	M 24	200	230	620
	M 27	300	340	900
	M 30	380	460	1200



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MAGO Framing Channels

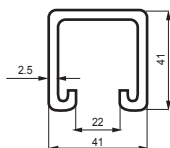
Mago framing channel system provides an efficient and economical solution for structural support and attachment with its full adjustability and detachability. It can be used for supporting almost all kinds of building services such as piping, cabling and ducting etc. With our complete range of channels, fasteners and brackets, even no welding or drilling on site is needed.

Channel Profiles

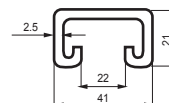
2 basic channel profiles are available for different load capacities.



NCL 41 x 41



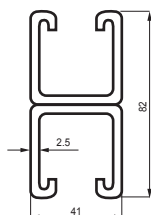
NCL 41 x 21



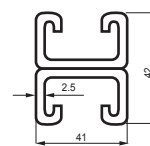
Single Profile										
Description	Material /Finish	Width mm	Height mm	Weight kg/m	Cross section cm ²	Max. Allowable Point Loading		Bending Capacity (kN) at Span L		
						Load kN	at span ≤L mm	0.5m kN	1.0m kN	1.5m kN
NCL 41 x 41	G,S,V	41	41	2.6	3.2	5.6	47	5.3	2.6	1.6
NCL 41 x 21	G,S,V	41	22	1.8	2.3	5.6	15	1.8	0.6	0.2



NCL 41 x 41 Double



NCL 41 x 21 Double



Double Profile										
Description	Material /Finish	Width mm	Height mm	Weight kg/m	Cross section cm ²	Max. Allowable Point Loading		Bending Capacity (kN) at Span L		
						Load kN	at span ≤L mm	0.5m kN	1.0m kN	1.5m kN
NCL 41 x 41	G,S,V	41	82	5.2	6.4	5.6	121	12	8	5.6
NCL 41 x 21	G,S,V	41	44	3.6	4.6	5.6	42	4.7	2.3	1.3

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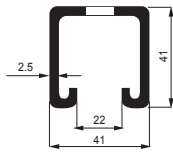
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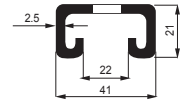


MAGO Perforatd Channel Profiles

NCL 41 x 41 Slotted



NCL 41 x 21 Slotted



Single Profile										
Description	Material /Finish	Width mm	Height mm	Weight kg/m	Cross section cm ²	Max. Allowable Point Loading		Bending Capacity (kN) at Span L		
						Load kN	at span ≤L mm	0.5m kN	1.0m kN	1.5m kN
NCL 41 x 41	G,S,V	41	82	2.4	2.9	5.6	41	4.6	2.3	1.4
NCL 41 x 21	G,S,V	41	44	1.6	1.9	5.6	12	1.5	0.5	0.2

MAGO Channel Nuts and Set Screws

3 types of channel nuts are used to meet different application needs: long, short and plain spring types. All types can be supplied in M8, M10 and M12 thread.

GNR 41



GNR 41SR



GNR 41SL



GNR 41 fo channel NCL 41 x 41 and 41 x 21 Ref. No.	GNR 41 fo channel NCL 41 x 41 Ref. No.	GNR 41 fo channel NCL 41 x 21 Ref. No.	Material /Finish	Thread size	Nut thickness t mm	Nut width b mm	Max. central pull load kN	Max. longitudinal Load kN
GNR -41M6	GNR -41M6	GNR -41M6	G,S,V	M6	6	20	4	1
GNR -41M8	GNR -41M8	GNR -41M8	G,S,V	M8	8	20	5	2.4
GNR -41M10	GNR -41M10	GNR -41M10	G,S,V	M10	10	20	6	3.1
GNR -41M12	GNR -41M12	GNR -41M12	G,S,V	M612	12	20	7	3.6

With above channel nuts most fixing jobs can done with standard fasteners such as hex bolts, washers, hex nuts, threaded rods etc...



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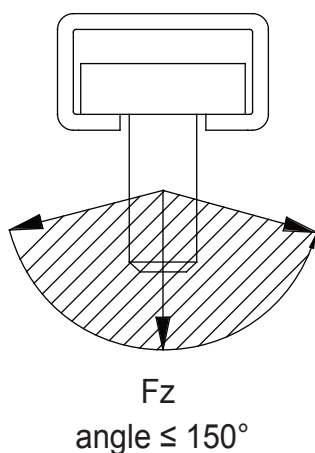
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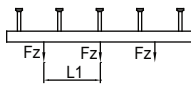
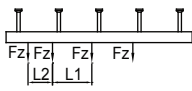
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MAGO Allowable loads

The allowable loads are determined by the following tables (Pull and shear loads) by choosing the right anchor channels and bolts. Also the load can be individually calculated by using the concrete capacity design (CCD) procedure taking into account the concrete strength, the anchor depth and the edge and center spacings.

Allowable direct pull out and angled pull out Loads Fz



Channel	Long lengths		Short length		
	Point loads	Load pairs	Point loads		Load pairs
					
	$L1 \geq 250$	$L1 \geq 250, L2 \geq 100$	$L \leq 250$	$L > 250$	$L = 300$ $L1 \geq 100$
28/15	3	2	3.5	3	2
38/17	4.5	3	7	4.5	3
40/22 40/25	6	4	8	6	4
49/30	10	5	12	10	5
50/30	12	5	12	10	5
52/34 54/33	22	11	22	20	11
55/42	27	13	27	25	12
72/48	32	16	32	27	13

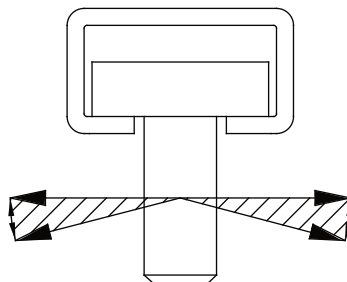
Note:

Please contact MAGO engineering department for any technical support for special individual application.

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Allowable transverse shear and angled shear Loads F_Q



F_Q
angle $\leq 15^\circ$

	Long lengths		Short length	
	Point loads	Load pairs	Point loads	Load pairs
Channel	$L1 \geq 250$	$L1 \geq 250, L2 \geq 100$	$L \geq 150$	$L \geq 200$ $L1 \geq 100$
28/15	3.5	3	3.5	3
38/17	8	4.5	8	4.5
40/22 40/25	10	6	10	6
49/30	12	7	12	7
50/30	12	7	12	7
52/34 54/33	22	11	22	11
55/42	27	13.5	27	13.5
72/48	32	16	32	16

Note:

1. The above allowable loads are for concrete 25Mpa. For lower concrete strength 15Mpa or 20Mpa, the load shall be reduced by a factor of 0.68 or 0.83 respectively.
2. The above allowable loads might be bigger than the allowable loads of the bolts, to reach the allowable loads, other bolts must be used.
3. For concrete strength > 35Mpa, additional crack prevention reinforcement (min. 8mm bars grade BSt500S around each anchor channel) must be applied.



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MAGO Dynamic Loading.

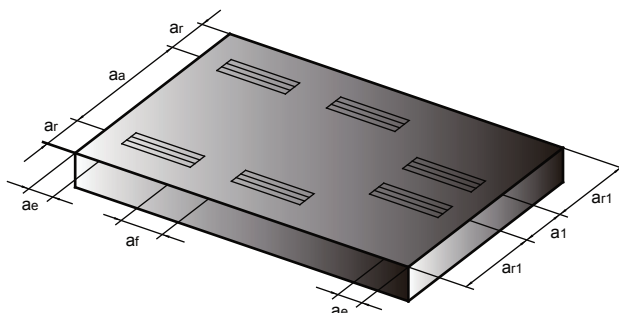
The Hot-Rolled Anchor Channel ACH is suitable for dynamic loading. The adjacent table gives the allowable cyclic loads (Tension) under $N = 2 \times 10^6$,

Anchor Channel Size	Allowable Amplitude (Tensile Loading) kN
ACH 40/22	2,0
ACH 50/30	2,4
ACH 52/34	7,0

Note: ACH 52/34 w/t I shaped anchor welded on.

Spacings and edge distances

The spacings and edge distances given in the table below are for reinforced concrete min. strength 25Mpa, standard reinforcement is required for the element.



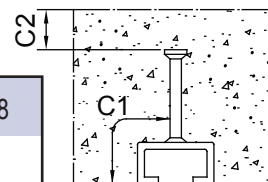
Center spacing and edge distances (cm)

Channel	ar	aa	ae	af	ar1	a1
28/15	50	100	40	80	50	100
38/17	75	150	50	100	100	100
40/25 100/22	100	200	80	200	140	125
49/30	150	300	103	250	225	150
50/30	150	300	130	250	225	150
52/34 54/33	200	400	175	350	-	-
55/42 74/48	250	500	225	450	-	-

Note:

1. For unreinforced concrete, the min. spacings should be increased by 30% for the values given in the table.
2. For a transverse or diagonal load, the edge distance of the unloaded edge ar may be reduced to min. 5 cm provided additional reinforcement is applied.
3. The thickness of the concrete element depends on the length of the anchor and the necessary concrete cover "c" shown in the table below.

Anchor Channel Size	28/15	38/17	40/25 40/22	49/30 50/30	52/34 54/33	55/42	72/48
Concrete Cover c1 (mm)	>40	>40	>50	>55	>60	>65	>70

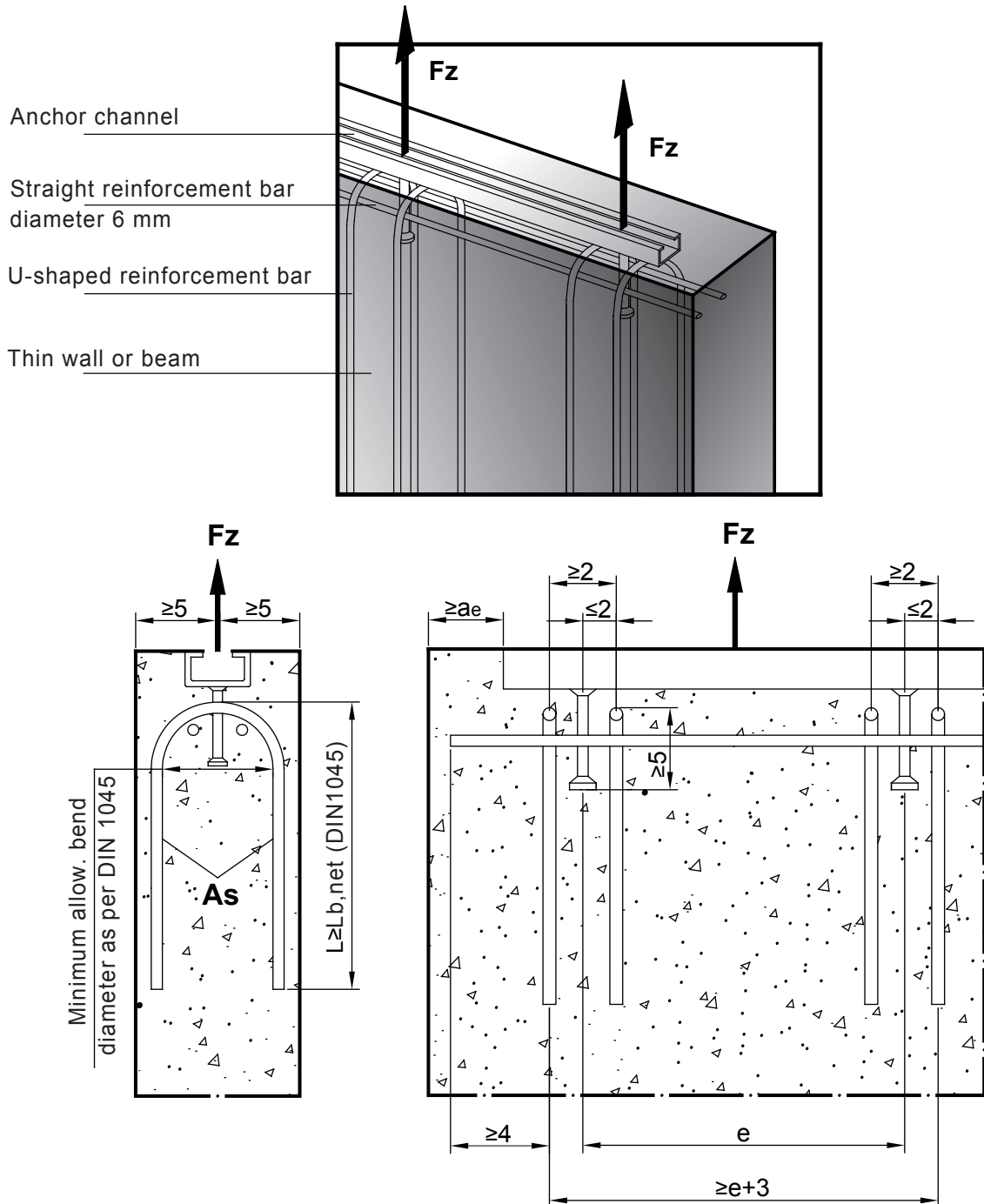


c2 can be according to DIN 1045

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MAGO Reduced edge distances ar for maximum allowable pull out loads Fz

For thin walls or beams, the edge distance a_r can be reduced to 5cm, provided additional reinforcement is applied as shown in the following figures.



Requ. A_s [cm²]:

$$\text{cross-sectional area of reinforcement Requ. } A_s = \frac{\text{allow. } F_z}{4 \times \sigma_s}$$

Note: σ_s = Allow. steel stress, Allow. F_z [kN] = Allowable load.



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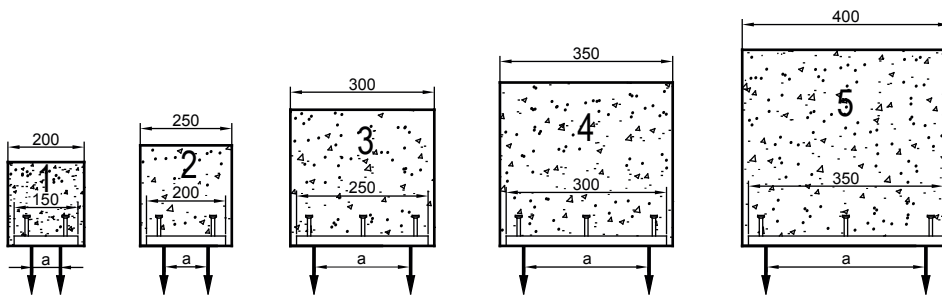
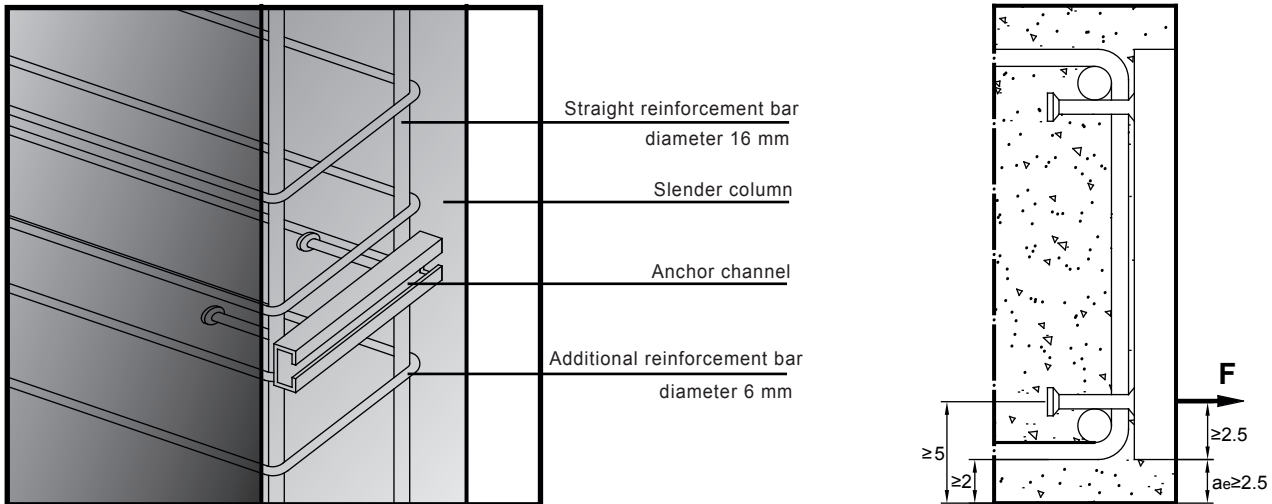
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MAGO Reduced edge distances a_e for maximum allowable loads FZ and FQ

For anchor channels 28/15, 38/17 and 40/25, The end edge distance a_e can be reduced for applications like in thin and long reinforced concrete columns, provided 2 additional reinforcement bars (see figures below) are installed just above and below the length of the anchor channel.

The distance from the edge of the concrete column to the centre of the anchor must be at least 42 mm.



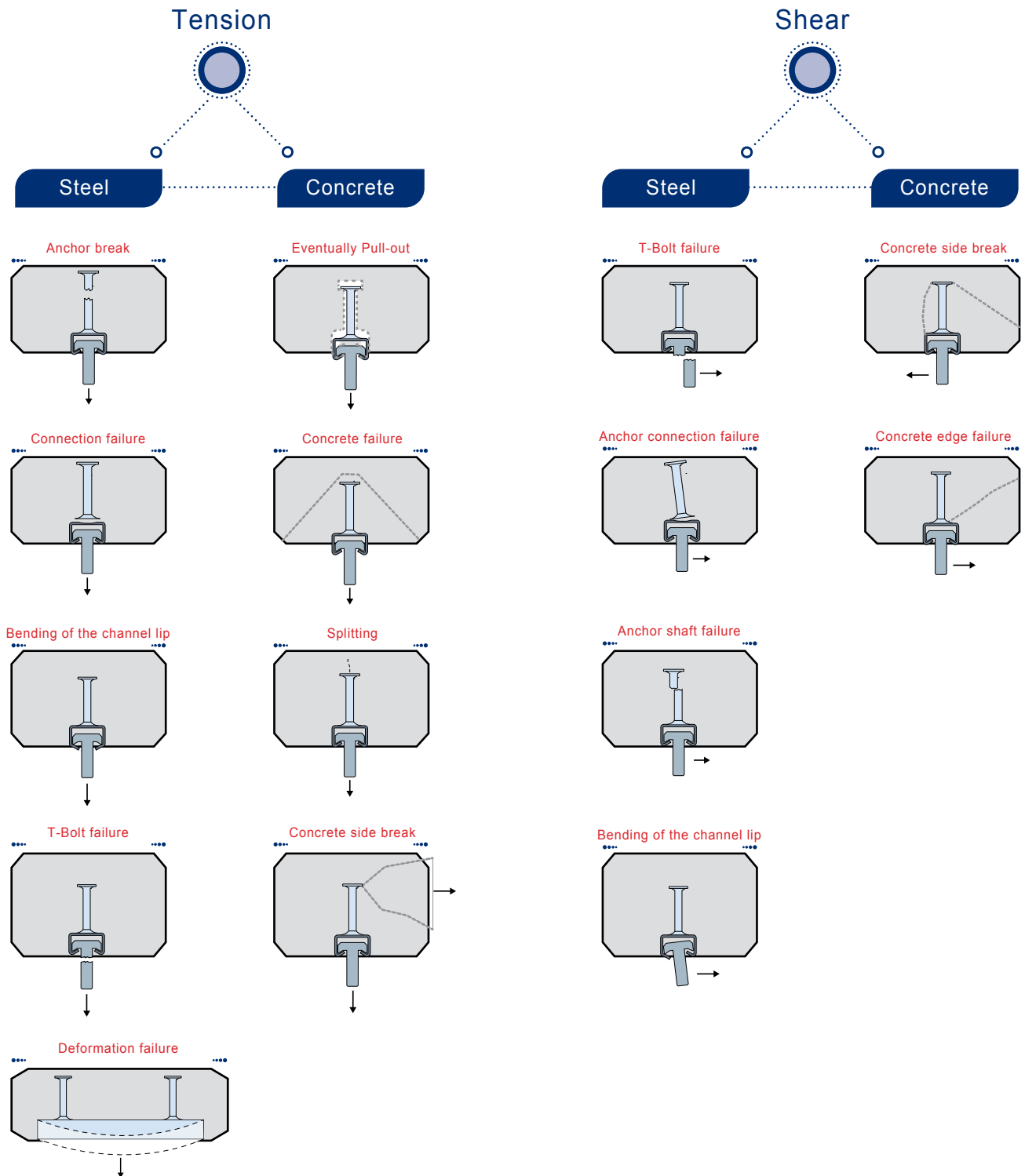
Allowable loads Fz, Fq
and load spacing a

		①	②	③	④	⑤
Load spacing a	Max.	100	150	200	250	300
	Min.	100	100	100	125	150
Anchor channel	Load angle	Allowable loads F [kN]				
28/15	Fz	3.2	2.5	2.2	3.3	3.3
	Fq	3.0	2.3	2.0	3.0	3.0
38/17	Fz	4.1	3.4	3.6	5.0	5.4
	Fq	3.2	2.4	2.2	3.2	3.2
40/25	Fz	4.1	3.5	3.8	5.3	5.8
	Fq	3.2	2.4	2.2	3.2	3.2

Due to our consistent technical development and improvement, the technical data might be changed without notice.

Failure Method for Mago Channel and T-Bolt

In lean CEN / TS 1992 - 4



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