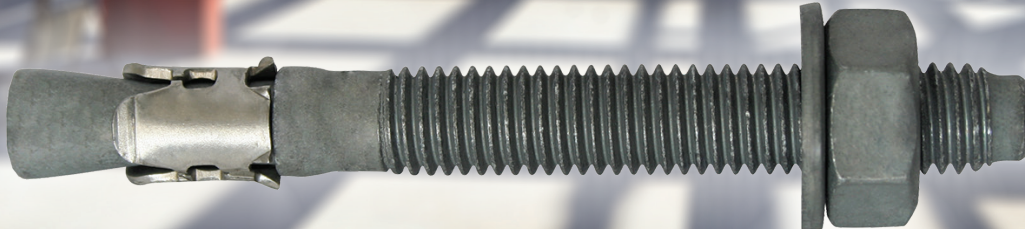# FM753 3DG
Heavy Duty Through-bolt Anchor

BASE MATERIALS

- **Concrete**

- **Solid stone**

FRIULSIDER
YOUR FIXING FACTORY

Materials	
Type	3DG *Special anti-corrosion coating
Anchor body	Steel grade min. Class 5.8
Clip	Stainless steel AISI 316 (A4)
Hex nut	DIN 934 grade 8
Washer	DIN 125/1
Coating	> 10µm ISO 4042*

Anchor body mechanical characteristics			
Anchor diameter			M20
Tensile stressed cross-section	$A_{s,N}$	[mm²]	214
Shear stressed cross-section	$A_{s,V}$	[mm²]	245
Zinc plated anchor body - bending moment	M	[Nm]	167

NCC NATIONAL CODE COMPLIANT

ETA ETA-13/0367 Option 7
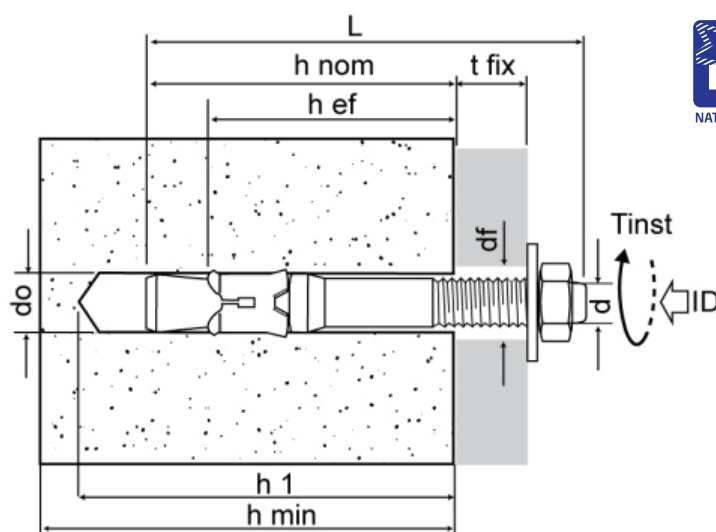
t_{fix}	= fixture thickness
d_o	= hole diameter
h_1	= minimum hole depth
h_{nom}	= nominal embedment depth
h_{ef}	= minimum depth of anchorage
d_f	= hole diameter of fixing element
h_{min}	= minimum support thickness
T_{inst}	= torque
d	= bolt diameter
L	= anchor length
sw	= wrench
ID	= ident. mark, product length

d	size d x L [mm]	ID	tfix [mm]	do [mm]	h1 [mm]	hnom [mm]	hef [mm]	df [mm]	hmin [mm]	Tinst [Nm]	sw	Part No.
M20	M20 x 170	A	30	20	130	115	95	22	200	160	30	**FM75320170G** (75320c20170)
	M20 x 215	B	75									**FM75320215G** (75320c20215)

DESIGN [1] and RECOMMENDED [2] LOADS

Single anchor with large anchor spacing and edge distances in non-cracked concrete C20/25

Design Method acc.to ETAG001 annex C.

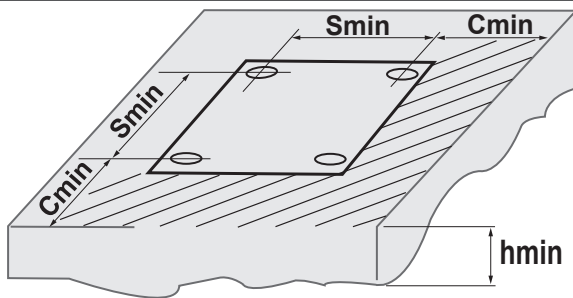| Anchor diameter	Depth of anchorage	Spacing	Edge distance	Tension		Shear	
				N_{rd} [1]	N [2]	V_{rd} [1)+3)]	V [2)+3)]
M20	95 mm	290 mm	145 mm	26.6 kN	19.0 kN	34.3 kN	24.5 kN

1kN = 100 kgf

1.) The design loads Nrd and Vrd are derived from the characteristic loads from ETA-13/0367 certification and are inclusive of the partial safety factors γ_m (see ETA).

2.) The recommended loads N and V are derived from the characteristic loads from ETA-13/0367 certification and are inclusive of the partial safety factors γ_f=1.4 and γ_m (see ETA).
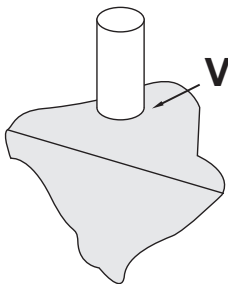
3.) Shear values valid with distance from the edge C≥10xhef.

Minimum installation parameters

| Anchor diameter		M20
Depth of anchorage	h_{ef} [mm]	95
Minimum distance between anchors	S_{min} [mm]	200
Minimum distance from edge	C_{min} [mm]	145

Example (according to annex C of the ETAG 001) of shear load in C20/25 concrete with edge distance C_{min}


Anchor diameter		M20
Depth of anchorage	h_{ef} [mm]	95
Minimum distance from edge	C_{min} [mm]	145
Shear C = C_{min}	$V_{rd,cmin}$ [kN]	17.1
	V_{cmin} [kN]	12.2

The load values are only valid if the installation has been carried out correctly. The design engineer is responsible for the designing and calculation of the fixing. The designing and calculation of the anchorage should be carried out in accordance with annex C, of the ETAG001, design method A.
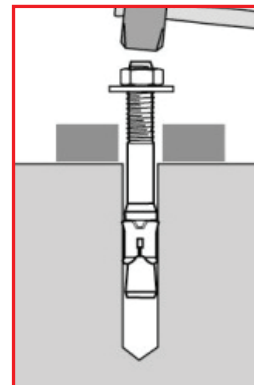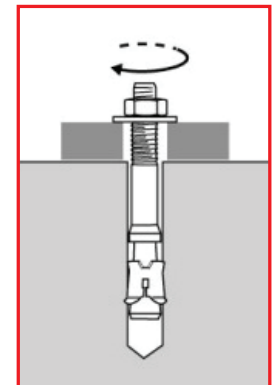
Installation
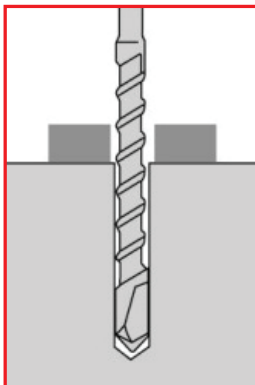
1. Drill hole with correct drill bit to the correct hole depth
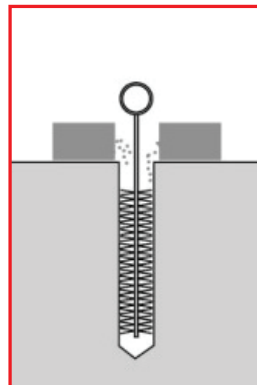
2. Clean dust and other material from hole

3. Install anchor through fixture into position

4. With correct size socket tighten anchor to the specified torque