I.N.G. FIXATIONS

ÉVALUATION TECHNIQUE EUROPÉENNE

ETE - 25/0338

RAPIDO® M6
Piton de suspension direct béton

I.N.G. Fixations - 320 rue de Chassende, ZI de Chassende 43000 Le Puy en Velay - France
Tél: +33 (0)4 71 05 59 03 - Fax: +33 (0)4 71 09 35 46 - ing@ingfixations.fr - www.ingfixations.fr

ETA-Danmark A/S
Göteborg Plads 1
DK-2150 Nordhavn
Tel. +45 72 24 59 00
Internet www.etadanmark.dk

Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

MEMBER OF EOTA

European Technical Assessment ETA-25/0338 of 2025/06/20

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S

Trade name of the construction product:	Rapido
Product family to which the above construction product belongs:	Concrete screw for use in concrete for redundant non-structural systems
Manufacturer:	ING Fixations Z. I. de Chassende BP 90168 F-43005 Le Puy-En-Velay Cedex France
Manufacturing plant:	ING Fixations Z. I. Chavanon F-43120 Monistrol-sur-Loire France
This European Technical Assessment contains:	15 pages including 9 annexes which form an integral part of the document
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 330232-01-0601; Mechanical fasteners for use in concrete
This version replaces:	-

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product

The Rapido concrete screw is a screw fastener of size 6 for use in concrete for redundant non-structural systems. It has a nominal embedment depth of h_{nom}=35 mm and the fastener shall only be used in dry internal conditions.

The Rapido concrete screw consists of steel with a zinc plated coating and the following steel characteristics: f_{uk}=400 MPa; f_{yk}=320 MPa.
The fastener is suitable for use in both cracked and uncracked concrete of strength classes C20/25 to C50/60.

The product description is given in Annex A and the intended use specifications of the product are detailed in Annex B.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed intended working life of the anchor of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Characteristic	Assessment of characteristic
3.1 Mechanical resistance and stability (BWR1)	
Characteristic resistance to tension load (static and quasi-static loading) Method A	
Resistance to steel failure	**Annex C**
Resistance to pull-out failure	**Annex C**
Resistance to concrete cone failure	**Annex C**
Robustness	**Annex C**
Minimum edge distance and spacing	**Annex C**
Edge distance to prevent splitting under load	**Annex C**
Characteristic resistance to shear load (static and quasi-static loading)	
Resistance to steel failure under shear load	**Annex C**
Resistance to pry-out failure	**Annex C**
Characteristic resistance for simplified design	
Method B	**Not relevant**
Method C	**Not relevant**
Displacements	
Displacements under static and quasi-static loading	**No performance assessed**
Characteristic resistance and displacements for seismic performance categories C1 and C2	
Resistance to tension load, displacements	**No performance assessed**
Resistance to shear load, displacements	**No performance assessed**
Factor for annual gap	**No performance assessed**
3.2 Safety in case of fire (BWR2)	
Reaction to fire	The fastener is made from steel classified as performance C**lass A1** of the characteristic reaction to fire, in accordance with the provisions of EC decision 96/603/EC, amended by EC Decision 2000/605/EC.

Characteristic	Assessment of characteristic
Resistance to fire	
Fire resistance to steel failure (tension load)	**Annex C**
Fire resistance to pull-out failure (tension load)	**Annex C**
Fire resistance to steel failure (shear load)	**Annex C**
3.3 Aspects of durability	
Durability	**Annex B**

See additional information in section 3.9

3.9 General aspects related to the performance of the product

The European Technical Assessment is issued for the product on the basis of agreed data/information, deposited with ETA-Danmark, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to ETA-Danmark before the changes are introduced. ETA-Danmark will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alterations to the ETA, shall be necessary.

4 Assessment and verification of constancy of performance (AVCP) (hereinafter AVCP) system applied, with reference to its legal base

4.1 AVCP system

According to the decision 1996/582/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No. 305/2011) is 1.

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

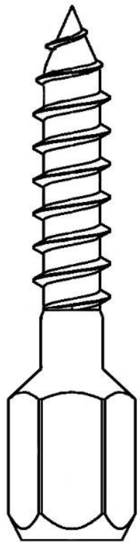
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at ETA-Danmark prior to CE marking

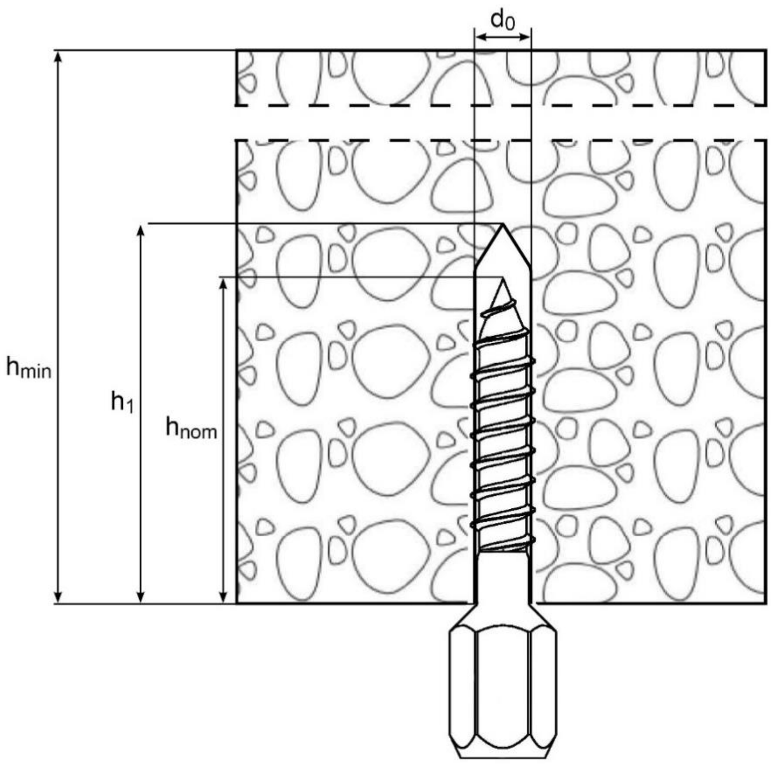
Issued in Copenhagen on 2025-06-20 by

Thomas Bruun
Managing Director, ETA-Danmark

Specifications

Carbonitrated structural steel and zinc plated





d_0 = nominal drill hole diameter

h_{nom} = nominal anchorage depth

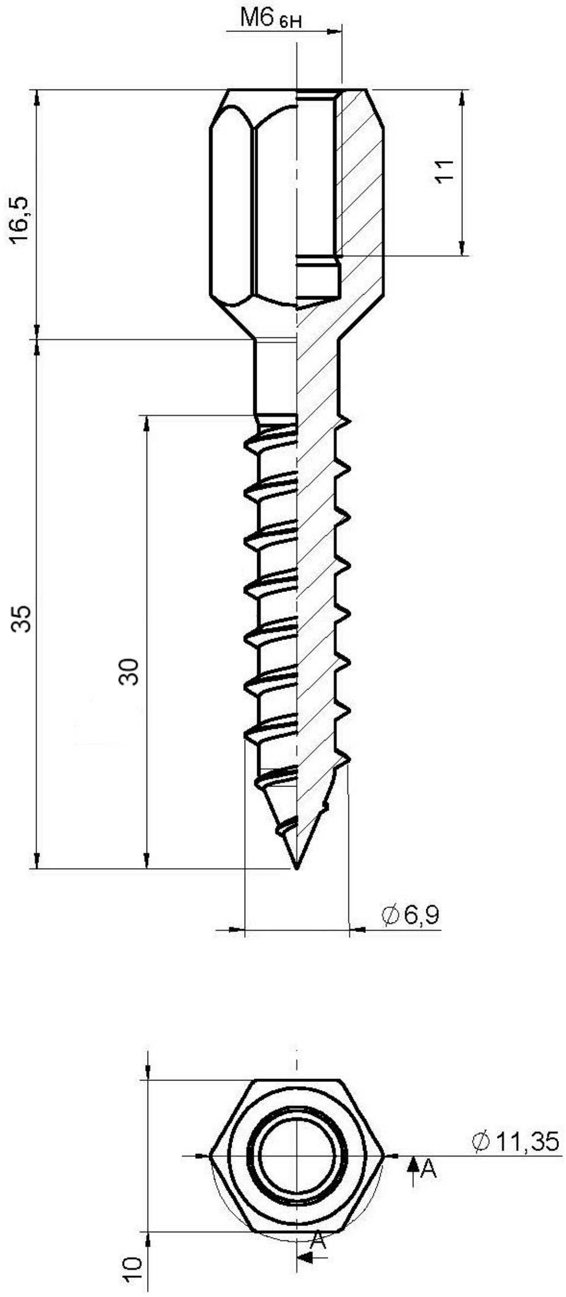
h_1 = drill hole depth

h_{min} = minimum thickness of member

RAPIDO Concrete screw	**Annex A1** of European Technical Assessment ETA-25/0338
Product description Product and installed conditions	

Material and screw

Rapido is made out of carbonitrated structural steel and zinc plated



RAPIDO Concrete screw

Product description
Material and screw

Annex A2
of European
Technical Assessment
ETA-25/0338

Specifications

Anchor subject to:
- Static and quasi static loads
- For use in redundant non-structural systems
- Anchorages with requirements related to resistance to fire

Base materials:
- Compacted reinforced and compacted unreinforced concrete without fibers according to EN 206:2013.
- Strength classes C20/25 to C50/60 according to EN 206:2013.
- Cracked or uncracked concrete.

Use conditions:
- Anchorages subjected to dry internal exposure conditions.

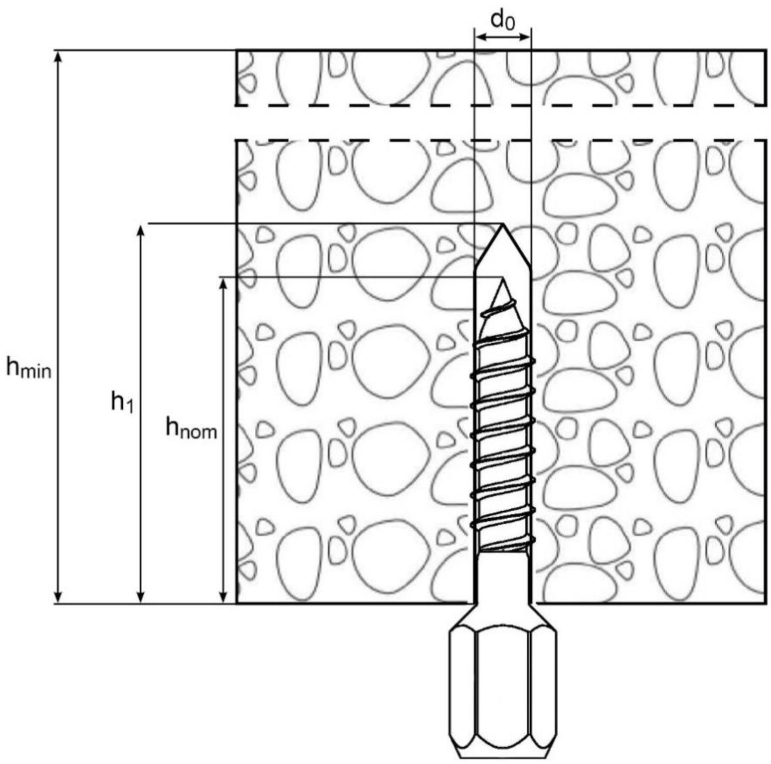
Design:
- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation rules and drawings are prepared taking into account of the loads to be anchored. The position of the fastener is indicated on the design drawings (e.g., position of the fastener relative to reinforcement or to supports, etc.).
- Anchorages under static or quasi static actions and under fire exposure are designed in accordance with EN 1992-4:2018.

Installation:
- Hammer drilling only
- Anchor installation carried out by appropriately qualified personal and under the supervision of the person responsible for technical matters of the site.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of aborted hole or smaller distance if the aborted hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of the load application.
- After installation further turning of the anchor must not be possible.
- The head of the fastener must be in contact with the substrate and is not damaged.

Installation parameters

Rapido concrete screw			
Nominal anchorage depth	h_{nom}	[mm]	35
Nominal drill hole diameter	d_0	[mm]	6
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	6,4
Drill hole depth	$h_1 \geq$	[mm]	40
Installation torque [1)]	$T_{inst} \geq$	[Nm]	3
	$T_{inst, max} \leq$	[Nm]	9

[1)] *Apply the minimum torque required to set the fastener till the head is in contact with concrete surface.*



d_0 = nominal drill hole diameter

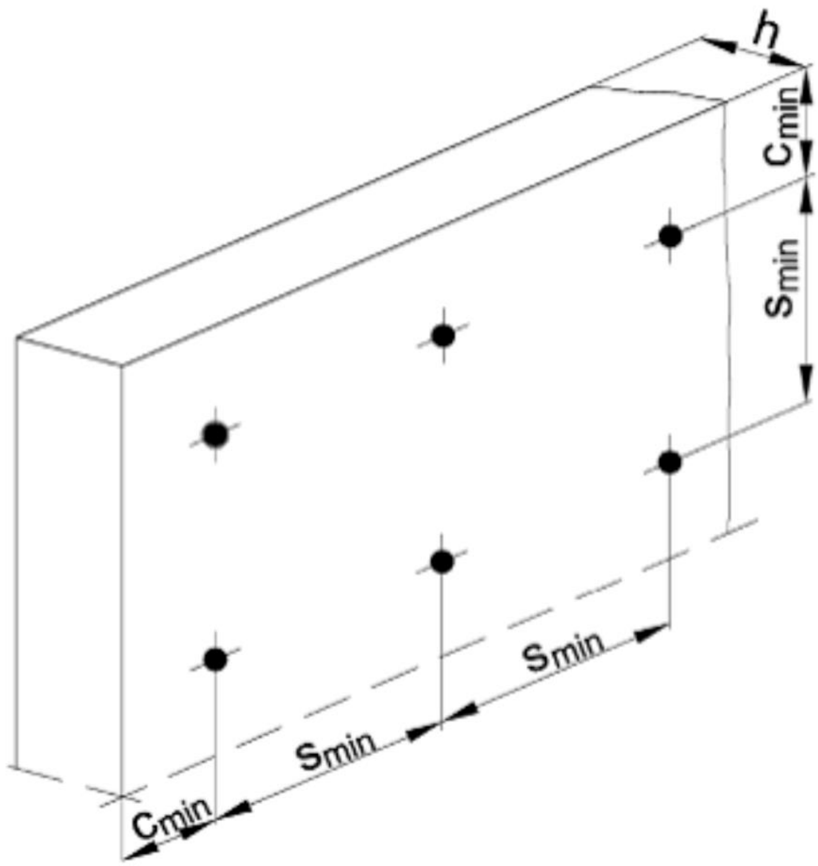
h_{nom} = nominal anchorage depth

h_1 = drill hole depth

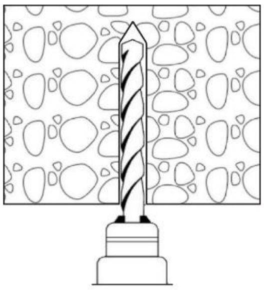
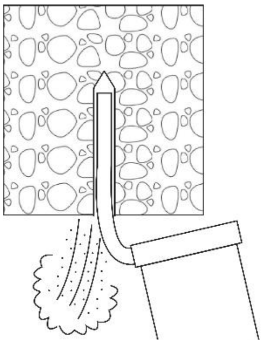
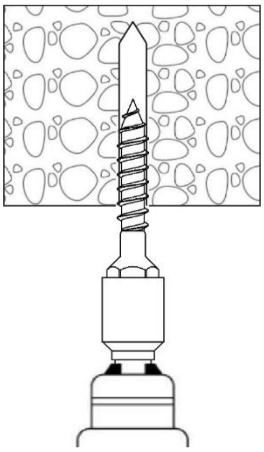
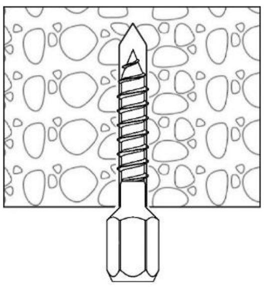
h_{min} = minimum thickness of member

Minimum thickness of member, minimum spacing and edge distance

Rapido concrete screw			
Minimum thickness of member	h_{min}	[mm]	80
Minimum edge distance	c_{min}	[mm]	150
Minimum spacing	s_{min}	[mm]	150



Installation instructions

1		Drill a hole with hammer drilling machine with nominal drill Ø 6 mm to the required depth 40 mm.
2		Remove drill dust by vacuuming or blowing of.
3		Install with rotary screwdriver or torque wrench (**not with** impact screwdriver). Apply the minimum torque required to set the fastener till the head is in contact with concrete surface.
4		Rapido is installed.

The use of impact screwdriver is not allowed.
Apply the minimum torque required to set the fastener till the head is in contact with concrete surface.

Characteristic values for static and quasi-static loading

Rapido concrete screw				6
Nominal embedment depth h_{nom}			[mm]	35
Steel failure for tension an shear loading				
Characteristic tension load		$N_{Rk,s}$	[kN]	9,9
Partial factor		$\gamma_{MS,N}$	[-]	1,5
Characteristic shear load		$V_{Rk,s}$	[kN]	6,8
Partial factor		$\gamma_{MS,V}$	[-]	1,25
Ductility factor[1)]		k_7	[-]	-
Characteristic bending load		$M^0_{Rk,s}$	[Nm]	8,3
Pull-out failure				
Characteristic tension load C20/25	cracked	$N_{Rk,p}$	[kN]	0,9
	uncracked	$N_{Rk,p}$	[kN]	1,5
Increasing factor ψ_c for $N_{Rk,p}$= $N_{Rk,p(C20/25)}*\psi_c$	C30/37	ψ_c	[-]	1,22
	C40/50			1,41
	C50/60			1,58
Concrete failure: Splitting failure, concrete cone failure and pry-out failure				
Effective embedment depth		h_{ef}	[mm]	22,4
k-factor	cracked	k_{cr}	[-]	7,7
	uncracked	k_{ucr}	[-]	11,0
Concrete cone failure	spacing	$s_{cr,N}$	[mm]	3 x h_{ef}
	edge distance	$c_{cr,N}$	[mm]	1,5 x h_{ef}
	spacing	$s_{cr,sp}$	[mm]	300
	edge distance	$c_{cr,sp}$	[mm]	150
Factor for pry-out failure		k_8	[-]	1,0
Installation factor		γ_{inst}	[-]	1,2
Concrete edge failure				
Effective length in concrete		$l_f = h_{ef}$	[mm]	22,4
Nominal outer diameter of screw		d_{nom}	[mm]	6

1) the socket head fastener is installed directly in the concrete without a base steel plate, therefore factor k_7 to account for the ductility of the fastener for group of fasteners is not given.

RAPIDO Concrete screw	**Annex C1** of European Technical Assessment ETA-25/0338
Performances Characteristic values for static and quasi-static loading	

Fire exposure - characteristic values of resistance

Optional fire tests were not performed, therefore the fire resistance for normal weight concrete C20/25 to C50/60 is calculated.

Characteristic values for tension loading under fire exposure – normal weight concrete

Size			6
h_{nom} (mm)			35
Steel failure			
R30	$N_{Rk,s,fi}$	(kN)	0,25
R60	$N_{Rk,s,fi}$	(kN)	0,22
R90	$N_{Rk,s,fi}$	(kN)	0,17
R120	$N_{Rk,s,fi}$	(kN)	0,12
Pullout failure			
R30	$N_{Rk,p,fi}$	(kN)	0,23
R60	$N_{Rk,p,fi}$	(kN)	
R90	$N_{Rk,p,fi}$	(kN)	
R120	$N_{Rk,p,fi}$	(kN)	0,18
Concrete cone failure			
R30	$N_{Rk,c,fi}$	(kN)	0,41
R60	$N_{Rk,c,fi}$	(kN)	
R90	$N_{Rk,c,fi}$	(kN)	
R120	$N_{Rk,c,fi}$	(kN)	0,33
Spacing			
	$s_{cr,N}$	mm	4*hef
Edge distance			
	$c_{cr,n}$	mm	2*hef
	c_{min}	mm	Fire attack from one side: 2hef
			Fire attack from more than one side: max (300;2hef)

Fire exposure - characteristic values of resistance

Optional fire tests were not performed, therefore the fire resistance for normal weight concrete C20/25 to C50/60 is calculated.

Characteristic values for shear loading under fire exposure – normal weight concrete

Size			6
h_{nom} (mm)			35
Steel failure without lever arm			
R30	$V_{Rk,s,fi}$	(kN)	0,25
R60	$V_{Rk,s,fi}$	(kN)	0,22
R90	$V_{Rk,s,fi}$	(kN)	0,17
R120	$V_{Rk,s,fi}$	(kN)	0,12
Steel failure with lever arm			
R30	$M^0_{Rk,s,fi}$	(kN)	0,21
R60	$M^0_{Rk,s,fi}$	(kN)	0,19
R90	$M^0_{Rk,s,fi}$	(kN)	0,14
R120	$M^0_{Rk,s,fi}$	(kN)	0,10
Pryout Failure			
R30	$V_{Rk,cp,fi}$	(kN)	0,41
R60	$V_{Rk,cp,fi}$	(kN)	
R90	$V_{Rk,cp,fi}$	(kN)	
R120	$V_{Rk,cp,fi}$	(kN)	0,33
Concrete Edge Failure			
The initial value $V_{0Rk,c,fi}$ of the characteristic resistance in concrete C20/25 to C50/60 under fire exposure may be determined by: $V_{0Rk,c,fi}$ = 0,25 x $V_{0Rk,c}$ (≤ R90) $V_{0Rk,c,fi}$ = 0,20 x $V_{0Rk,c}$ (≤ R120) With $V_{0Rk,c}$ initial value of the characteristic resistance in cracked concrete C20/25 under normal ambient temperature.			