

## European Technical Assessment

**ETA-05/0053  
of 13/08/2015**

### General Part

Nom commercial  
*Trade name*

**SPIT GRIP**

Famille de produit  
*Product family*

**Cheville métallique en acier galvanisé, à expansion par déformation contrôlée, pour fixation dans le béton non fissuré: diamètres M6, M8, M10, M12 et M16.**

***Deformation-controlled expansion anchor, made of galvanised steel, for use in non-cracked concrete: sizes M6, M8, M10, M12 and M16.***

Titulaire  
*Manufacturer*

Société Spit  
Route de Lyon  
F-26501 BOURG-LES-VALENCE  
France

Usine de fabrication  
*Manufacturing plants*

Société Spit  
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F-26501 BOURG-LES-VALENCE  
France

Cette évaluation contient:  
*This Assessment contains*

10 pages incluant 7 annexes qui font partie intégrante de cette évaluation  
*10 pages including 7 annexes which form an integral part of this assessment*

Base de l'ETE  
*Basis of ETA*

ETAG 001, Version April 2013, utilisée en tant que EAD  
*ETAG 001, Edition April 2013 used as EAD*

Cette évaluation remplace:  
*This Assessment replaces*

ATE-05/0053 valide du 17/06/2013 au 17/06/2018  
ETA-05/0053 with validity from 17/06/2013 to 17/06/2018

## Specific Part

### 1 Technical description of the product

The SPIT GRIP anchor in the range of M6 to M16 is an anchor made of galvanised steel, which is placed into a drilled hole and anchored by deformation-controlled expansion. The SPIT GRIP anchor is produced in two versions (SPIT GRIP and SPIT GRIP L) differing only by a shoulder at the top of the SPIT GRIP L body.

The fixture shall be fixed with a fastening screw or threaded rod.

The illustration and the description of the product are given in Annexes A.

### 2 Specification of the intended use

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

The provisions made in this European technical assessment are based on an assumed 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, 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

#### 3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic tension resistance acc. ETAG001, Annex C or CEN/TS 1992-4	See Annex C1
Characteristic shear resistance acc. ETAG001, Annex C or CEN/TS 1992-4	See Annex C2
Displacements	See Annex C3

#### 3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A1

#### 3.3 Hygiene, health and the environment (BWR 3)

Regarding dangerous substances contained in this European technical approval, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

#### 3.4 Safety in use (BWR 4)

For Basic requirement Safety in use the same criteria are valid as for Basic Requirement Mechanical resistance and stability.

#### 3.5 Protection against noise (BWR 5)

Not relevant.

#### 3.6 Energy economy and heat retention (BWR 6)

Not relevant.

**3.7 Sustainable use of natural resources ( BWR 7)**

For the sustainable use of natural resources no performance was determined for this product.

**3.8 General aspects relating to fitness for use**

Durability and Serviceability are only ensured if the specifications of intended use according to Annex B1 are kept.

**4 Assessment and verification of constancy of performance (AVCP)**

According to the Decision 96/582/EC of the European Commission<sup>1</sup>, as amended, the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Product	Intended use	Level or Class	System
Metal anchors for use in concrete	For fixing and/or supporting to concrete, structural elements (which contributes to the stability of the works) or heavy units	—	1

**5 Technical details necessary for the implementation of the AVCP system**

Technical details necessary for the implementation of the Assessment and verification of constancy of performance (AVCP) system are laid down in the control plan deposited at Centre Scientifique et Technique du Bâtiment.

The manufacturer shall, on the basis of a contract, involve a notified body approved in the field of anchors for issuing the certificate of conformity CE based on the control plan.

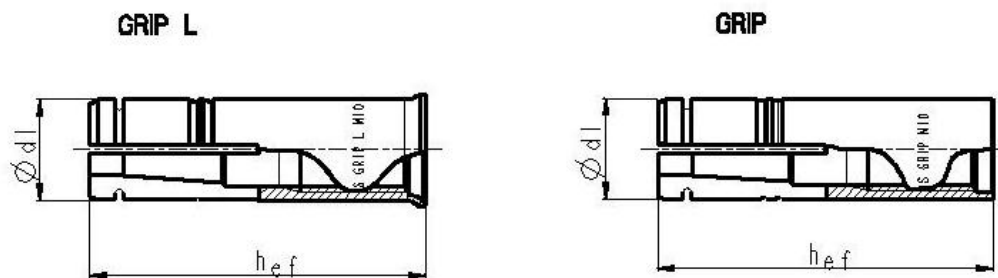
Issued in Marne La Vallée on 13-08-2015 by  
Charles Baloché  
Directeur technique

*The original French version is signed*

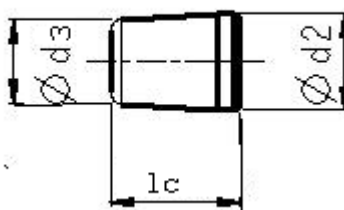
<sup>1</sup>

Official Journal of the European Communities L 254 of 08.10.1996

Parts and dimensions



Expansion sleeve - 1



Tapered expansion plug - 2

Table 1 : Dimensions

GRIP L and GRIP	L M6x30 M6x30	L M8x30 M8x30	L M10x30	L M10x40 M10x40	L M12x50 M12x50	L M16x65 M16x65
$h_{ef}$ [mm]	30	30	30	40	50	65
$d_1$ [mm]	7.95	9.95	11.95	11.95	14.9	19.8
$d_2$ [mm]	5	6.5	8.2	8.2	10.3	13.8
$d_3$ [mm]	4.1	5.8	7.1	7.1	9.3	12.9
$l_c$ [mm]	10	9.5	11	11	14	21

Table 2 : Material

Part	Designation	Material	Protection
1	Expansion sleeve M6 to M16	Steel 11SMnPb30	Galvanized $\geq 5 \mu\text{m}$
2	Tapered expansion plug M6 to M16	FB10 NFA 35-053	Galvanized $\geq 5 \mu\text{m}$

Requirements for the fastening screw or threaded rod :

Minimum strength class 4.6 acc. to EN ISO 898-1

<b>SPIT GRIP</b>	<b>Annex A1</b>
<b>Product description</b> Product, dimensions and materials	

## Specifications of intended use

### Anchorage subject to:

- Static or quasi-static loads

### Base materials:

- Reinforced or unreinforced normal weight concrete of strength classes C 20/25 at least to C50/60 at most according to EN 206: 2000-12.
- Non-cracked concrete

### Use conditions (Environmental conditions):

- Structures subject to dry indoor conditions, indoor with temporary condensation.

### Design:

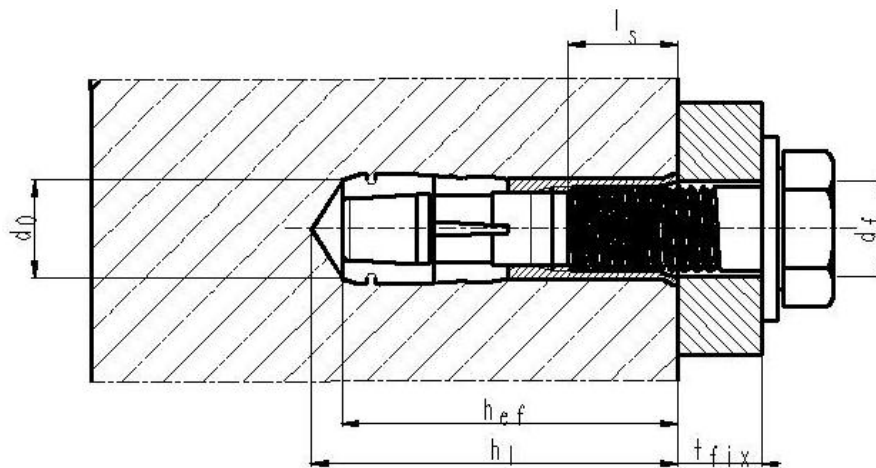
- The anchorages are designed in accordance with the ETAG001 Annex C "Design Method for Anchorages" or CEN/TS 1992-4-4 "Design of fastenings for use in concrete" under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings.

### Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Use of the anchor only as supplied by the manufacturer without exchanging the components of an anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools (Annexes A and B).
- Effective anchorage depth, edge distances and spacing not less than the specified values without minus tolerances.
- The effective setting depth is complied with if the expansion sleeve does not exceed the concrete surface;
- In case of aborted hole, drilling of new hole at a minimum distance of twice the depth of the aborted hole, or smaller distance provided the aborted drill hole is filled with high strength mortar and no shear or oblique tension loads in the direction of aborted hole.

<b>SPIT GRIP</b>	
<b>Intended Use</b> Specifications	<b>Annex B1</b>

**Schema of the anchor in use**



- $h_{ef}$  : effective anchorage depth
- $d_0$  : drill hole diameter
- $h_1$  : depth of drill hole
- $d_f$  : diameter of clearance hole
- $t_{fix}$  : fixture thickness

**Table 3 : Installation data**

Size	Drill hole diameter	Diameter of the thread	Depth of drill hole	Effective anchorage depth	Minimum thickness of concrete	Available internal thread	Minimal screwing depth	Setting torque	diameter of clearance hole
	$d_0$ [mm]	$d$ [mm]	$h_1$ [mm]	$h_{ef}$ [mm]	$h_{min}$ [mm]	$L_{th}$ [mm]	$L_{sdmin}$ [mm]	$T_{inst}$ [Nm]	$d_f$ [mm]
M6x30	8	6	32	30	100	13	10	5	7
M8x30	10	8	33	30	100	13	10	10	9
M10x30	12	10	33	30	100	12	11	22	12
M10x40	12	10	43	40	100	15	12	22	12
M12x50	15	12	54	50	100	21	14	36	14
M16x65	20	16	70	65	130	28	18	80	18

**Table 4: Minimum spacing and edge distance**

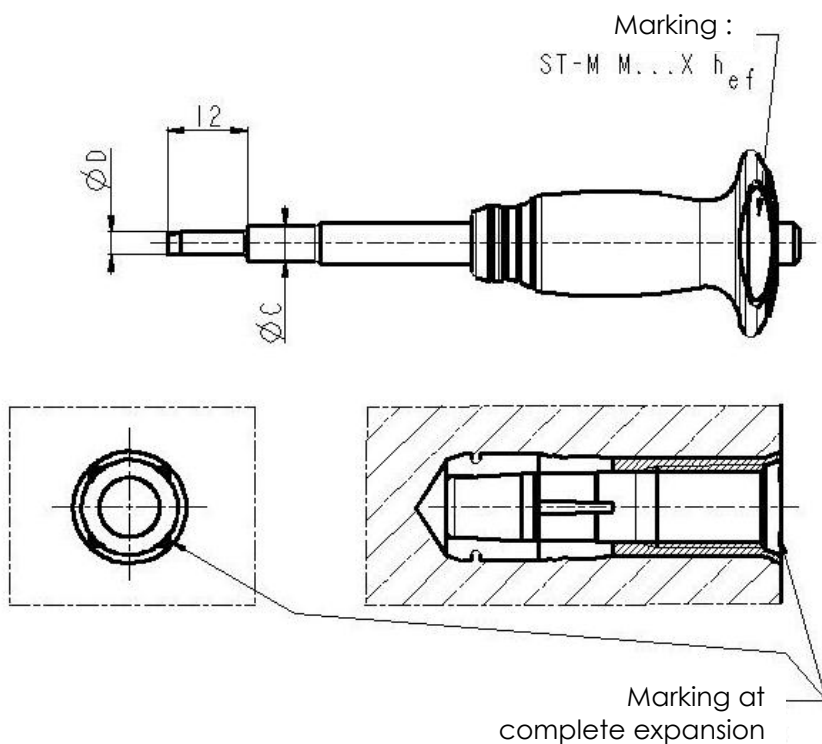
			M6x30	M8x30	M10x30	M10x40	M12x50	M16x65
Minimum spacing	$S_{min}$	[mm]	60	70	80	95	125	130
Minimum edge distance	$C_{min}$	[mm]	105	105	140	140	195	227

**SPIT GRIP**

**Intended Use**  
 Installation data

**Annex B2**

**Setting tool and marking at complete expansion**



**Table 5: Dimensions of the setting tools**

Setting tool	Anchor size	Ø D [mm]	Ø C [mm]	l <sub>2</sub> [mm]
ST-M M6x30	M6x30	4.9	8.3	20.0
ST-M M8x30	M8x30	6.4	10.3	20.5
ST-M M10x30	M10x30	8.2	12.5	19.0
ST-M M10x40	M10x40	8.2	12.5	29.0
ST-M M12x50	M12x50	10.0	15.0	36.0
ST-M M16x65	M16x65	13.5	20.0	44.0

**SPIT GRIP**

**Intended Use**  
 Installation tools

**Annex B3**

**Table 6 : Characteristic resistances in tension loads**

**Design method A, acc. to ETAG001, Annexe C or CEN/TS 1992-4**

Anchor size			M6x30*	M8x30*	M10x30*	M10x40	M12x50	M16x65
<b>Steel failure</b>								
Characteristic resistance <b>steel 4.6</b>	$N_{Rk,s}$	[kN]	8,0	14,6	23,2	33,7	62,8	
Partial safety factor	$\gamma_{Ms}^{1)}$	-	2,0					
Characteristic resistance <b>steel 5.6</b>	$N_{Rk,s}$	[kN]	10,1	18,3	29	42,2	78,5	
Partial safety factor	$\gamma_{Ms}^{1)}$	-	2,0					
Characteristic resistance <b>steel 5.8</b>	$N_{Rk,s}$	[kN]	10,1	20,6	26,9	45,6	76,3	
Partial safety factor	$\gamma_{Ms}^{1)}$	-	1,5	1,82	1,82	1,98	1,91	
Characteristic resistance <b>steel 8.8</b>	$N_{Rk,s}$	[kN]	15	20,6	26,9	45,6	76,3	
Partial safety factor	$\gamma_{Ms}^{1)}$	-	1,63	1,82	1,82	1,98	1,91	
<b>Pull-out failure = non decisive failure mode</b>								
<b>Concrete cone failure and splitting failure <sup>2)</sup></b>								
Effective anchorage depth	$h_{ef}$	[mm]	30	30	30	40	50	65
Factor for non-cracked concrete	$k_{ucr}^{3)}$	-	10,1					
Increasing factor	C30/37	$\psi_c$	-	1,22				
	C40/50			1,41				
	C50/60			1,55				
Partial safety factor	$\gamma_{Mc}^{1)}$	-	1,8 <sup>4)</sup>					
Spacing	$s_{cr,N}$	[mm]						
	$s_{cr,sp}$	[mm]	210	210	210	280	350	454
Edge distance	$c_{cr,N}$	[mm]						
	$c_{cr,sp}$	[mm]	105	105	105	140	175	227

\* use restricted to anchoring of structural elements statically indeterminate

1) In absence of other national regulations

2) To give proof of splitting failure due to loading use the smaller value of  $N_{Rk,p}$  and  $N_{Rk,c}^0$  in equation 5.3 according to ETAG001 Annex C

3) Parameter relevant only for design according to CEN/TS 1992-4:2009

4) Partial safety factor  $\gamma_2 = 1,2$  is included

**SPIT GRIP**

Design acc. to **ETAG001, Annexe C** or **CEN/TS 1992-4**  
Characteristic resistances under tension loads

**Annex C1**



**Table 7: Characteristic resistances in shear loads**

Design method A, acc. to **ETAG001, Annexe C** or **CEN/TS 1992-4**

Anchor size			M6x30*	M8x30*	M10x30*	M10x40	M12x50	M16x65	
<b>Steel failure without lever arm</b>									
Factor considering ductility <sup>1)</sup>	$k_2$	-	1,0						
Characteristic resistance <b>steel 4.6</b>	$V_{Rk,s}$	[kN]	4,0	7,3	11,6	16,9	31,4		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,67						
Characteristic resistance <b>steel 5.6</b>	$V_{Rk,s}$	[kN]	5,0	9,2	14,5	21,1	39,2		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,67						
Factor considering ductility <sup>1)</sup>	$k_2$	-	0,8						
Characteristic resistance <b>steel 5.8</b>	$V_{Rk,s}$	[kN]	4,2	10,3	13,4	22,8	38,2		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,36	1,52	1,52	1,65	1,59		
Characteristic resistance <b>steel 8.8</b>	$V_{Rk,s}$	[kN]	4,2	10,3	13,4	22,8	38,2		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,36	1,52	1,52	1,65	1,59		
<b>Steel failure with lever arm</b>									
Characteristic resistance <b>steel 4.6</b>	$M^0_{Rk,s}$	[N.m]	5,1	15	30	52	133		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,67						
Characteristic resistance <b>steel 5.6</b>	$M^0_{Rk,s}$	[N.m]	6,4	19	37	65	166		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,67						
Characteristic resistance <b>steel 5.8</b>	$M^0_{Rk,s}$	[N.m]	6,4	19	37	65	166		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,25						
Characteristic resistance <b>steel 8.8</b>	$M^0_{Rk,s}$	[N.m]	10,2	30	60	105	266		
Partial safety factor	$\gamma_{Ms}$ <sup>2)</sup>	-	1,25						
<b>Concrete pry-out failure</b>									
k factor	$k$ <sup>3)</sup> $k_3$ <sup>4)</sup>	-	1						2
Partial safety factor	$\gamma_{Mc}$ <sup>2)</sup>	-	1,5 <sup>5)</sup>						
<b>Concrete edge failure</b>									
Effective length of anchor under shear loading	$l_f$	[mm]	30	30	30	40	50	65	
Outside diameter of anchor	$d_{nom}$	[mm]	7,95	9,95	11,95	14,9	19,8		
Partial safety factor	$\gamma_{Mc}$ <sup>2)</sup>	-	1,5 <sup>5)</sup>						

\* use restricted to anchoring of structural elements statically indeterminate

<sup>1)</sup> Parameter relevant only for design according to CEN/TS 1992-4:2009, 6.3.3.1

<sup>2)</sup> In absence of other national regulations

<sup>3)</sup> Parameter relevant only for design according to ETAG 001 Annex C, factor in equation (5.6) of 5.2.3.3

<sup>4)</sup> Parameter relevant only for design according to CEN/TS 1992-4:2009

<sup>5)</sup> Partial safety factor  $\gamma_2 = 1,0$  is included

**SPIT GRIP**

Design acc. to **ETAG001, Annexe C** or **CEN/TS 1992-4**  
Characteristic resistances under shear loads

**Annex C2**

**Table 8: Displacements under tension loads**

Anchor size		M6x30*	M8x30*	M10x30*	M10x40	M12x50	M16x65
Tension load in non-cracked concrete C20/25 to C50/60 [kN]		5,1	5,1	5,1	7,8	11,0	16,2
Displacement	$\delta_{N0}$ [mm]	0,10					
	$\delta_{N\infty}$ [mm]	0,15					

\* use restricted to anchoring of structural elements statically indeterminate

**Table 9: Displacements under shear loads**

Anchor size		M6x30*	M8x30*	M10x30*	M10x40	M12x50	M16x65
Shear load in non-cracked concrete C20/25 to C50/60 [kN]		5,1	5,1	5,1	7,8	11,0	16,2
Displacement	$\delta_{V0}$ [mm]	0,10					
	$\delta_{V\infty}$ [mm]	0,15					

**SPIT GRIP**

**Design, method A**  
 Displacements

**Annex C3**