Deutsches Institut für Bautechnik DIBt

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European Technical Assessment Body for construction products

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European Technical Assessment

ETA-25/0827 of 5 December 2025

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General Part

Technical Assessment Body issuing the European Technical Assessment:	Deutsches Institut für Bautechnik
Trade name of the construction product	EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g
Product family to which the construction product belongs	DOWEL-TYPE FASTENERS WITH RESIN COATING
Manufacturer	Robert Bosch Power Tools GmbH 70538 Stuttgart GERMANY
Manufacturing plant	Plant 1
This European Technical Assessment contains	9 pages including 3 annexes which form an integral part of this assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 130019-00-0603

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Specific Part

1 Technical description of the product

EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g are dowel type fasteners made of non-alloy steel rods according to EN ISO 16120 or made of stainless steel drawn from austenitic steel rods in accordance with EN 10088-1 for timber constructions. The staples have a special resin coating with a minimum length of 50 % of the legs.

The diameters of the staple legs are d = 1.51 mm ± 0.03 mm. Further dimensions are shown in Annex 1.

2 Specification of the intended use in accordance with the applicable European Assessment Document

The performances given in Section 3 are only valid if the EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g are used in compliance with the specifications and conditions given in Annex 1 to 3.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of staples of at least 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 and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Dimensions	See Annex 1
Characteristic yield moment	See Annex 3
Withdrawal capacity for short-term and medium-term loads	See Annex 3
Withdrawal capacity for long term and permanent loads	See Annex 3
Characteristic head pull-through parameter	See Annex 3
Minimum tensile strength of the wire	See Annex 3
Minimum and maximum thickness of the connected material	See Annex 3
Durability against corrosion	See Annex 2
Durability of the resin coating	See Annex 2

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Euroclass A1

3.3 Safety and accessibility in use (BWR 4)

The essential characteristics of BWR 4 have been covered by BWR 1.

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

In accordance with EAD No.130019-00-0603, the applicable European legal act is: [1997/176/EC(EU)].

The system to be applied is: 3

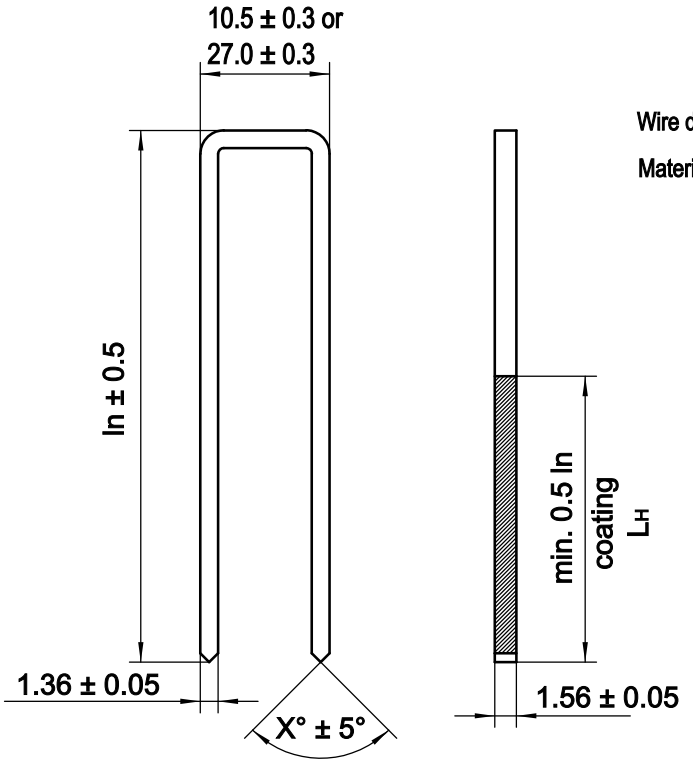
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 5 December 2025 by Deutsches Institut für Bautechnik

Anja Dewitt
Head of Section

beglaubigt:
Stützer



Wire d = Ø 1.51 mm ± 0.03 mm

Material:

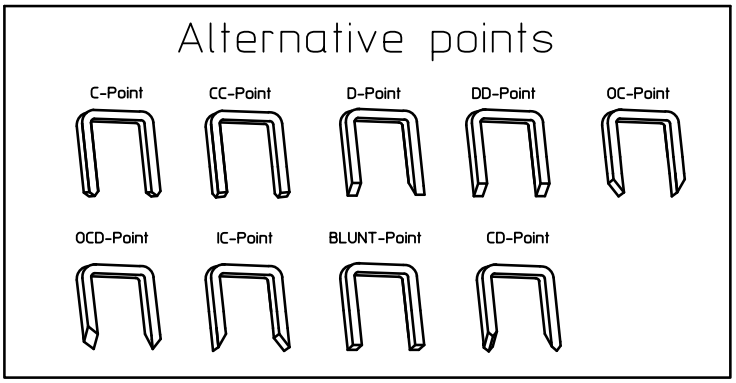
galvanized round steel wire
tensile strengh min. 900 N/mm²

zinc coating min. 87 g/m²

or
stainless steel wire,
material no. 1.4301
tensile strengh min. 900 N/mm²

ln = min. 20 mm
max. 98 mm

x = 50° - 120°



Dimensions in mm

EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g	Annex 1
Technical description of the product	

Annex 2 Specifications of intended use

A.2.1 Loading

- Static and quasi-static loads (not relevant to fatigue)
- Short, medium, long term and permanent load duration withdrawal as well as shear

A.2.2 Connection material

EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g tack staples d = 1.51 mm are used for load bearing connections of the following material.

Material for base building components

- Solid timber (softwood) according to EN 338[1]/ EN 14081-1[2],
- Glued laminated timber (softwood) according to EN 14080[3],
- Glued solid timber according to EN 14080,
- Laminated veneer lumber LVL according to EN 14374[4],
- Cross-laminated timber according to European Technical Assessments.

Material for connected building components

- Oriented Strand Board (OSB) according to EN 300[5] and EN 13986[6],
- Plywood according to EN 636[7] and EN 13986,
- Cement-bonded particle boards according to EN 634-2[8] and EN 13986,
- Fibre boards according to EN 622-2[9], EN 622-3[10] and EN 13986,
- Laminated veneer lumber LVL according to EN 13986 in connection with EN 14279[11],
- Solid-wood panels according to EN 13353[12] and EN 13986,
- Gypsum boards according to EN 520[13], density ρ ≥ 680 kg/m³ but without type D
- Gypsum boards type D with a density of ρ ≥ 800 kg/m³
- Gypsum boards with mat reinforcement according to EN 15283-1[14] and Gypsum fibre boards according to EN 15283-2[15]
- Fibre cement flat sheets – Product specification and test methods according to EN 12467[16]
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1	EN 338:2016	Timber structures - Strength classes
2	EN 14081-1:2016	Timber structures – Strength graded structural timber with rectangular cross section – Part 1: General requirements
3	EN 14080:2013	Timber structures - Glued laminated timber and glued solid timber - Requirements
4	EN 14374:2004	Timber structures - Structural laminated veneer lumber - Requirements
5	EN 300:2006	Oriented strand boards (OSB) – Definition, classification and specifications
6	EN 13986:2004+A1:2015	Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking
7	EN 636:2012+A1:2015	Plywood - Specifications
8	EN 634-2:2007	Cement-bonded particleboards – Specifications – Part 2: Requirements for OPC bonded particleboards for use in dry, humid and external conditions
9	EN 622-2:2004	Fibreboards - Specifications - Part 2: Requirements for hardboards
10	EN 622-3:2004	Fibreboards - Specifications - Part 3: Requirements for medium boards
11	EN 14279:2009	Laminated Veneer Lumber (LVL) – Definitions, classification and specifications
12	EN 13353:2008+A1:2011	Solid wood panels (SWP) – Requirements
13	EN 520:2004+A1:2009	Gypsum plasterboards – Definitions, requirements and test methods
14	EN 15283-1:2008+A1:2009	Gypsum boards with fibrous reinforcement – Definitions, requirements and test methods – Part 1: Gypsum boards with mat reinforcement Part 2: Gypsum fibre boards
15	EN 15283-2:2008+A1:2009	Gypsum boards with fibrous reinforcement – Definitions, requirements and test methods – Part 2: Gypsum fibre boards
16	EN 12467:2012+A1:2016	Fibre-cement flat sheets – Product specification and test methods

A.2.3 Use conditions (environmental conditions)

A.2.3.1 Durability against corrosion

EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g tack staples d = 1.51 mm made of non-alloy steel rods are galvanized. The mean thickness of the zinc coating is 87 g/m^2. Steel no. 1.4301 is used for EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g staples d = 1.51 mm made of stainless steel.

A.2.3.2 Durability of the resin coating

The resin coating l_H of EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g staples d = 1.51 mm, has a minimum length of 50 % of the legs according to Annex 1. The following kinds of resin are used:

ETA-Diamond-Coating.

Data sheets of chemical compositions (as well as the process of application and drying for resin coatings) are deposited at Deutsches Institut für Bautechnik.

The resin coating fulfills the requirements of the EAD 130019-00-0603, clause 2.2.9 "durability of the resin coating".

A.2.3.3 Installation

EN 1995-1-1[17] applies for the installation of constructions with EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g staples d = 1.51 mm.

The point side penetration length t_2 of the staples has to be at least 14 · d.

[17] EN 1995-1-1:2004+A1:2008+A2:2014 Eurocode 5: Design of timber structures – Part 1-1: General - Common rules and rules for buildings

Annex 3 Specifications of essential characteristics

A.3.1 Characteristic yield moment according to EN 14592

Table A.3.1 Characteristic yield moment $M_{y,k}$ [Nm] of one leg of EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g, d = 1.51 mm

Type	**Nominal Diameter** d [mm]	**Characteristic yield moment** $M_{y,k}$ [Nm]	
		galvanised	**stainless steel**
"16g" galvanised	1.51	0.67	-
"16g" stainless steel		-	0.64

A.3.2 Withdrawal capacity for short-term and medium-term loads

The characteristic withdrawal parameter $f_{ax,k}$ of one leg (at an angle of at least 30° between the width of staple crown and the direction of the grain) for material with a characteristic density $\rho_k \geq 350$ kg/m³ as well as for short-term and medium-term withdrawal loads can be taken from Table A.3.2.

Table A.3.2 Characteristic withdrawal parameter $f_{ax,k}$ of one leg EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g, d = 1.51 mm

Type	**Nominal Diameter** d in mm	**Withdrawal parameter short- and medium-term load** $f_{ax,k}$ in N/mm²	
		galvanised	**stainless steel**
"16g" galvanised	1.51	5.8	-
"16g" stainless steel		-	6.5

The withdrawal parameter according to Table A.3.2 have been determined for a maximum length of staples in the base building components of $t_2 \leq 20 \cdot d$.

A.3.3 Design value of withdrawal capacity for long-term and permanent loads

The design value of withdrawal capacity for long-term and permanent loads for service class 1 and 2 for one staple may be taken to:

$$R_{ax,d} = 70 \text{ N, with } \gamma_M = 1.3$$

The design value of withdrawal capacity applies for a characteristic density of $\rho_k \geq 350$ kg/m³.

A.3.4 Maximum thickness of base building components

The maximum thickness t_1 according to Table A.3.3 applies for base building components (made of material according to chapter A.2.2) depending on the density of base building components.

Table A.3.3 Maximum thickness of connected material

Maximum thickness t_1 in mm	**Range of density** ρ_k in kg/m³	**Material of connected components Examples**
80	$\rho_k \leq 400$	Solid timber of softwood
60	$400 < \rho_k \leq 650$	Wood-based panels and solid timber of hard- and softwood
40	$650 < \rho_k \leq 900$	Wood-based panels and gypsum boards
25	$900 < \rho_k \leq 1200$	Hardboards, gypsum fibreboards, cement-bonded particleboards
20	$1200 < \rho_k \leq 1600$	Highly compressed gypsum fibreboards

A.3.5 Head pull-through capacity of wood and wood-based panels

The characteristic head pull-through parameters $f_{head,k}$ for one staple of EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g, d = 1.51mm, for a minimum thickness of material according to Table A.3.4 (for material with a characteristic density of $\rho_k \geq 350$ kg/m³) shall be taken from Table A.3.5:

Table A.3.4 Minimum thickness of wood and wood-based panels

Wood or wood-based panels	**Minimum thickness** t_1 in mm
Solid timber (softwood)	24
Solid wood panels	7d*
Plywood	6*
Oriented Strand Boards OSB	8*
Resin-bonded particleboards	8*
Cement-bonded particleboards	8*

* if staple crown is countersunk it has to be increased by 2 mm

The characteristic head pull-through capacity may be calculated according to equation (1)

$$R_{ax,2,k} = f_{head,k} \cdot b \cdot d \qquad \text{[N]} \qquad (1)$$

with:
- $f_{head,k}$ characteristic head pull-through parameter in N/mm²
- b width of staple crown [mm], b ≤ 27 mm
- d nominal diameter of raw staple wire in mm

Table A.3.5 Characteristic head pull-through parameter $f_{head,k}$ for material $\rho_k \geq 350$ kg/m³, b ≤ 27 mm

Type	**Nominal Diameter** d in mm	**Width of staple crown** b in mm	**Head pull-through parameter** $f_{head,k}$ in N/mm²
"16g" galvanised "16g" stainless steel	1.51	10.5	37
		27.0	23

A.3.6 Minimum tensile strength of the wire

The minimum tensile strength of the raw wire EXPERT MC16-KG G ETA, Medium Crown Staple 1.6/16g d = 1.51 mm galvanized or from stainless steel is f_u = 900 N/mm².