

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-18/0975
of 18 April 2019

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

PFEIFER Fastener for push-pull props MoFi 12/16

Product family
to which the construction product belongs

Fastener for push-pull props for precast wall/column
elements

Manufacturer

Pfeifer Seil- und Hebeteknik GmbH
Dr.-Karl-Lenz-Str. 66
87700 Memmingen
DEUTSCHLAND

Manufacturing plant

Production plant A
Production plant B

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 332277-00-0601

This version replaces

ETA-18/0975 issued on 21 December 2018

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Specific Part

1 Technical description of the product

The PFEIFER Fastener for push-pull props MoFi 12/16 is an anchor consisting of a plastic device in different sizes with an internal hexagon nut made of steel. The nut is placed in the circular shaped plastic device as load introduction element. The fastener is embedded in precast wall/column elements made of concrete.

The product description is given in Annex A.

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 fastener is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fastener 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
Load bearing capacity under static and quasi-static actions	See Annex C 1

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

In accordance with the European Assessment Document EAD No. 332277-00-0601 the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

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 18 April 2019 by Deutsches Institut für Bautechnik

Dr.-Ing. Lars Eckfeldt
p. p. Head of Department

beglaubigt:
Tempel

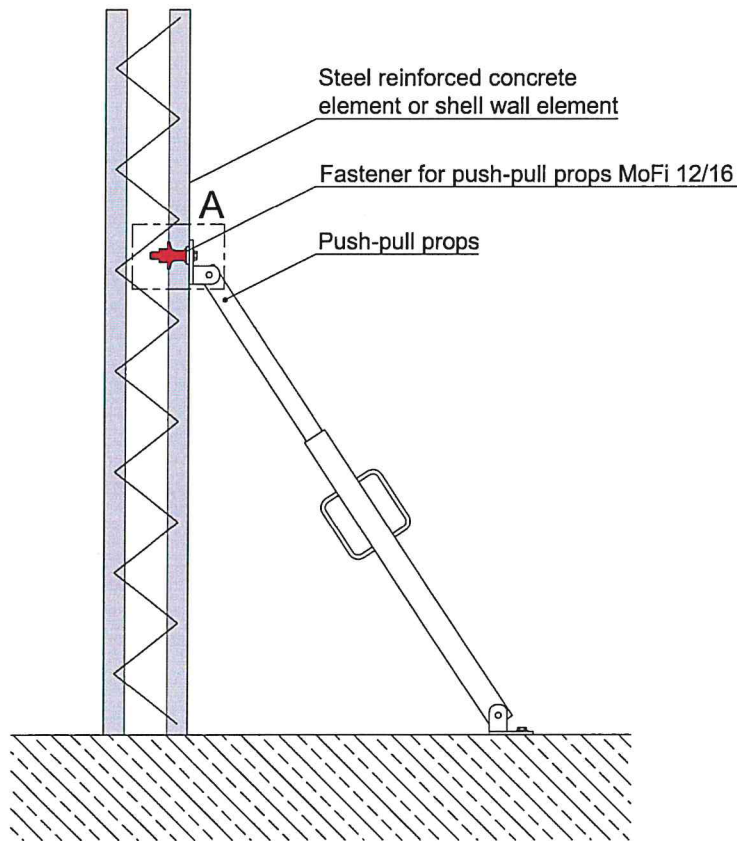


Fig. A1: Application (example)

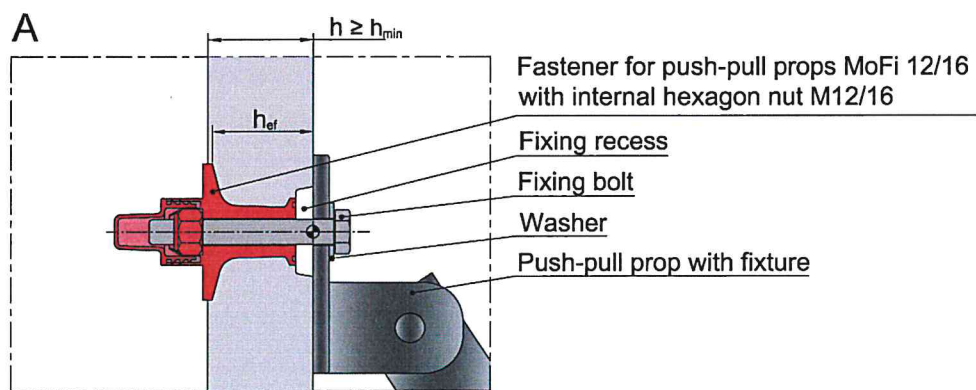


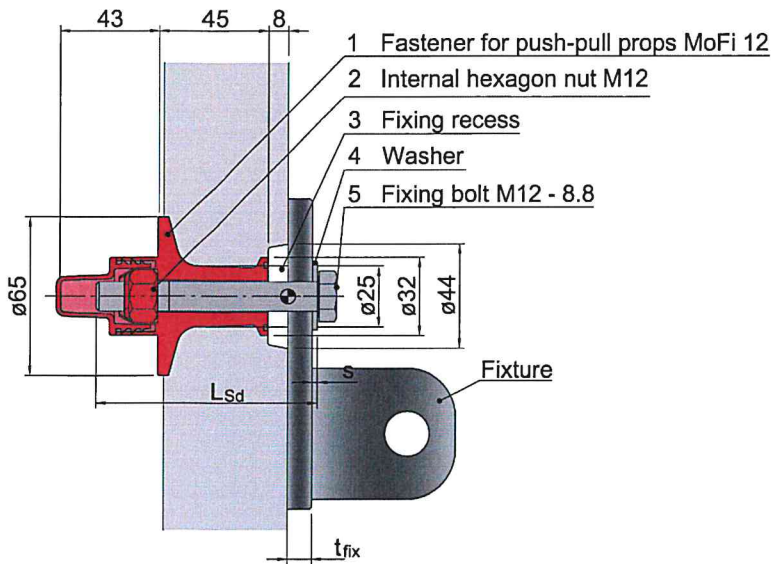
Fig. A2: Connection detail

- h = thickness of concrete member
- h_{min} = minimum thickness of concrete member = 50 mm
- h_{ef} = embedment depth

PFEIFER Fastener for push-pull props MoFi 12/16

Product description
Installed condition

Annex A1



L_{sd} = Bolt length
 t_{fix} = Thickness of fixture
 s = Washer thickness



Fig. A3: Description, dimensions MoFi 12

Fig. A4: Fixing for push-pull props MoFi 12 with labeling

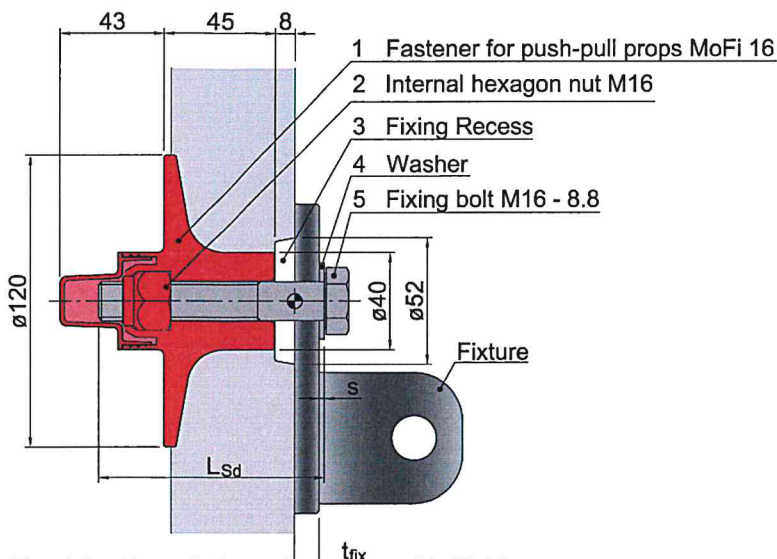


Fig. A5: Description, dimensions MoFi 16

Fig. A6: Fixing for push-pull props MoFi 16 with labeling

Table A1: Description and materials of Fixing for push-pull props and fixing accessories

Pos.	Description	Material
1	Fixing for push-pull props MoFi 12/16	Glass fibre reinforced polyamide, black
2	Internal hexagon nut M12/16	Hexagon nut with clamping piece (non-metal insert)
3	Fixing recess resulting from mounting accessories, thickness = 8 mm	Plastic or steel

PFEIFER Fastener for push-pull props MoFi 12/16

Product description
Components, dimensions, materials

Annex A2

Specifications of intended use

Fastener subject to

- Static and quasi-static load

Anchoring base material

- Reinforced normal concrete of strength class C20/25 to C50/60 without fibers according to EN 206:2013
- Cracked or uncracked concrete
- Minimum reinforcement according to Annex B2, Table B1

Use conditions (Environmental conditions)

- Components subject to dry internal conditions, external atmospheric exposure or permanently damp internal conditions
- The internal part of the fastener has to be protected against water penetration
- Temperature range: -20°C to +40°C
- UV-Exposure for maximum 1 year

Design

- The anchorage design is carried out under the responsibility of an engineer experienced in the field of anchorages and concrete construction and with the material partial safety factors set out in Annex C1 (unless other national regulations exist).
- Verifiable calculations and design drawings are made taking into account the loads to be anchored. In the design drawings the position of the anchorages as well as the required anchoring reinforcement are specified.

Installation

- Installation of fasteners in the precast plant is carried out by appropriately trained workers
- Fastening of push-pull props on the construction site is carried out by trained workers
- Fastening bolt according to Annex B3

PFEIFER Fastener for push-pull props MoFi 12/16		Annex B1
Intended use Specifications		

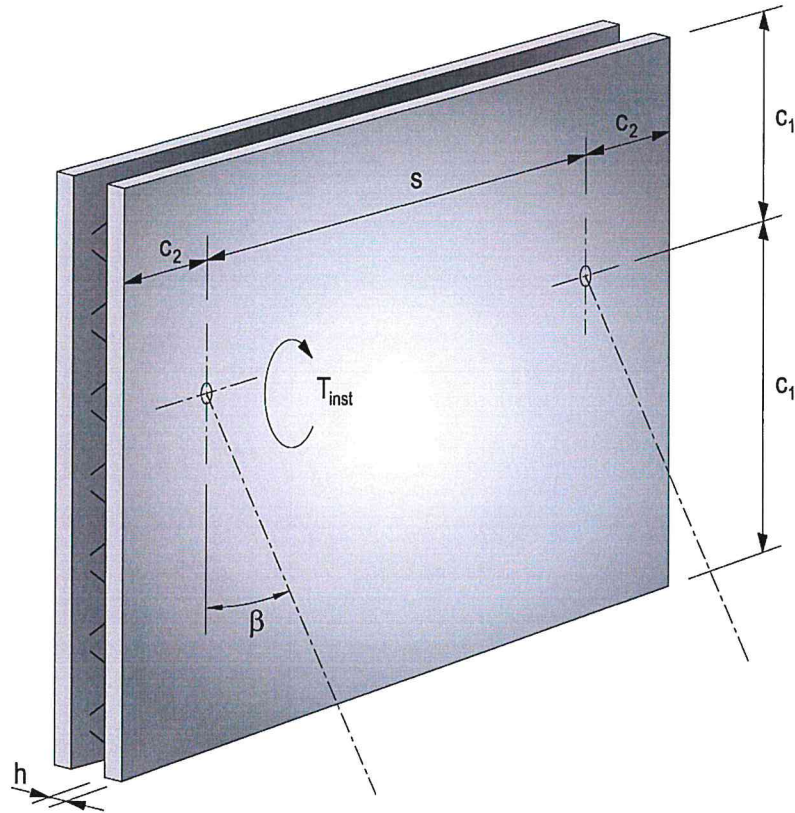


Fig. B1: Minimum distances, inclination angle β of push-pull props

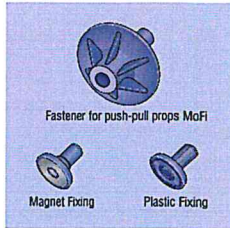
Table B1: Installation parameters

		MoFi 12	MoFi 16
Minimum thickness of concrete member	h_{min} [mm]	50	50
Minimum effective embedment depth	$h_{ef,min}$ [mm]	48	
Minimum edge distance in load direction	$c_{1,min}$ [mm]	300	500
Minimum edge distance transversal to load direction	$c_{2,min}$ [mm]	200	400
Minimum distance between fasteners	s_{min} [mm]	400	800
Installation torque	T_{inst} [Nm]	≤ 15	≤ 25
Minimum bolt length (Annex A2, Fig. A3/5)	$L_{Sd,min}$ [mm]	$t_{fix} + s + 70$ mm	
Maximum bolt length (Annex A2, Fig. A3/5)	$L_{Sd,max}$ [mm]	$t_{fix} + s + 90$ mm	
Minimum mesh reinforcement	[mm ² /m]	188	

PFEIFER Fastener for push-pull props MoFi 12/16

Intended use
Installation parameters

Annex B2



Mounting components

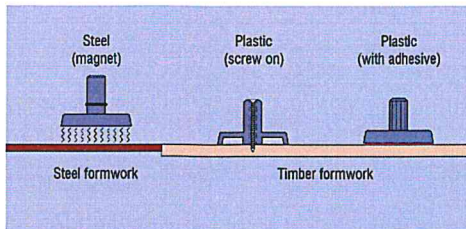
Fastener:

Black Fastener for push-pull prop MoFi 12/16 incl. rear pressed in threaded nut M12/M16 and rear plugged yellow/blue cover cap

Mounting accessories:

Magnet Fixing (MoFi 12: $\varnothing 44$, MoFi 16: $\varnothing 52$, thickness 8 mm) with rubber clamping ring and rear magnetic fixing

Plastic Fixing (MoFi 12: $\varnothing 44$, MoFi 16: $\varnothing 52$, thickness 8 mm) with clamping blades, through-bore and adhesive surface

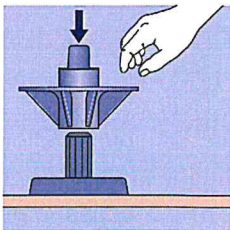


Fixing to formwork

Option 1: Magnet Fixing for steel formwork

Option 2: Through-bore for nailing or screwing

Option 3: Fixing attached by means of adhesive

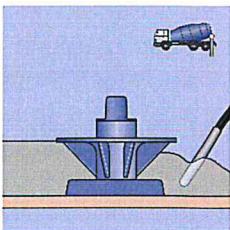


Installation of Fastener for push-pull props

Attach the Fastener for push-pull prop to the fixing

→ Magnet Fixing: safe position due to rubber clamping ring

→ Plastic Fixing: safe positioning due to longitudinal lamellae

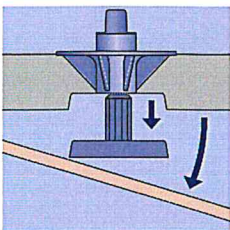


Placing and compacting of concrete

1. Pour concrete carefully, observing the built-in elements!

2. Compact the concrete carefully avoiding direct contact between vibrator and fastener!

→ Do not move or damage the fastener!

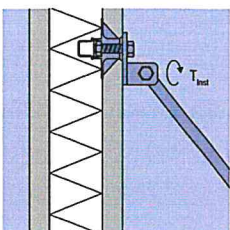


Formwork removal

Remove the formwork carefully

→ Avoid to damage built-in elements!

→ Remove Fixing



Installation of push-pull props

1. Choose suitable fixing bolts M12/16 - 8.8 according to the EN ISO 898-1:2013

→ Minimum length in accordance with Annex B2, Table B1!

2. Secure the push-pull prop to MoFi with the fixing bolt

→ Do not exceed installation torque as specified in Annex B2, Table B1!

PFEIFER Fastener for push-pull props MoFi 12/16

Intended use
Installation instructions

Annex B3

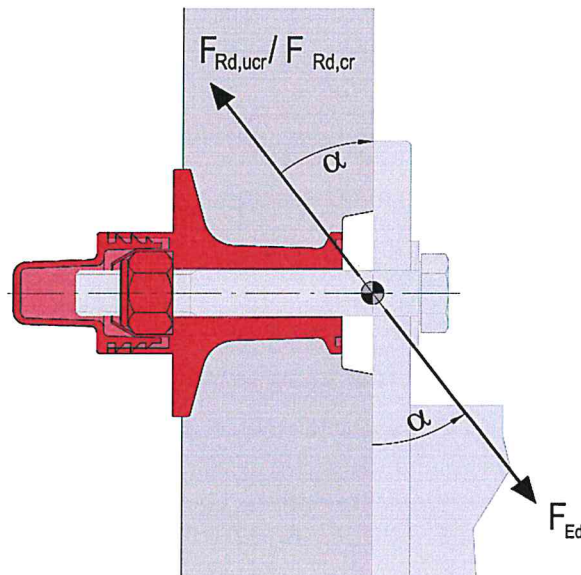


Fig. C1: Definition of resistance with angle of inclination α

$$F_{Rd} = F_{Rk} / \gamma_M = \text{Design resistance}$$

$$F_{Ed} = \text{Design load}$$

Table C1: Characteristic resistance in all load directions

			<i>MoFi 12</i>	<i>MoFi 16</i>
characteristic resistance in uncracked concrete C20/25 to C50/60	$F_{Rk,ucr}$ [kN]		26,0	33,0
characteristic resistance in cracked concrete C20/25 to C50/60	$F_{Rk,cr}$ [kN]		18,6	23,6
partial safety factor	γ_M [-]		2,0 ¹⁾	1,5 ²⁾

¹⁾ suggested partial safety factor in absence of other national regulations (decisive for plastic)

²⁾ suggested partial safety factor in absence of other national regulations (decisive for steel according to EN 1992-4:2018)

PFEIFER Fastener for push-pull props MoFi 12/16

Performances
Characteristic resistances

Annex C1