

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-20/0602
of 9 October 2020

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

Personal Fall-Protection System "ABS Lock"

Product family
to which the construction product belongs

Anchor Devices for Fastening Personal Fall Protection
Systems to Concrete Structures

Manufacturer

ABS Safety GmbH
Gewerbering 3
47623 Kevelaer
DEUTSCHLAND

Manufacturing plant

ABS Safety GmbH
Gewerbering 3
47623 Kevelaer
Germany

This European Technical Assessment
contains

17 pages including 13 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 331072-00-0601, Edition October 2017

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Specific part

1 Technical description of the product

The subject of this assessment is the fall protection system ABS Lock. This fall protection system is made of stainless steel 1.4301 / 1.4307. The clip of the ABS-Lock III-Be-Pro-24 an ABS-Lock III-Be-Pro fall protection device is made of stainless steel 1.4016. It is fastened to reinforced normal concrete (cracked or uncracked), strength classes C20/25 to C50/60 and pre-stressed concrete with at least the strength class C45/55 according to EN 206.

The fall protection system ABS Lock is fastened to the concrete with the different fasteners which can be seen in the annexes.

This ETA includes the products listed in the following Table 1:

Table 1: Products of this ETA

Annex No.	Trade Name (Product of this ETA)	Fastener
2	ABS Lock III	Würth UH 300
3	ABS-Lock III-R	Würth WIT-VM 250 or WIT Nordic
4	ABS-Lock II	Würth WIT-VM 250 or WIT Nordic
5	ABS-Lock III-Be-Pro-24	ABS-Lock III-Be-Pro-24
6	ABS-Lock III-Be-Pro	ABS-Lock III-Be-Pro
7	ABS-Lock X-SR-HD	Fischer FH Y M10 A4

The components and the system setup of the product are given in Annex (1-7).

2 Specification of the intended use in accordance with the applicable European Assessment Document 331072-00-0601

The fall protection system ABS Lock is used to protect operators working at height (max. 3 persons at once), by arresting them in a fall. The operators attach themselves to the eye using e.g. ropes and karabiners. In the case of a fall the fall protection system ABS Lock prevents the fall and resulting physical damage assuming the correct usage by the operator. The fall protection system ABS Lock is designed for use in all areas of industry, construction and maintenance.

The intended use of the fall protection systems listed in Table 1 is the attachment to flat roofs or other flat surfaces (e.g. concrete walls) made of concrete. The force applied should usually be perpendicular ($90^\circ \pm 5\%$) to the fastener. Another load direction is possible if this is specified in the annexes to this ETA.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fall protection system ABS Lock of at least 25 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 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Static loading	Annexes 2-7
Dynamic loading	Annexes 2-7
Check of deformation capacity in case of constraining forces	Annexes 2-7
Durability	No performance assessed

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

In accordance with EAD No. 331072-00-0601, the applicable European legal act is: Decision (EU) 2018/771.

The system to be applied 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 with Deutsches Institut für Bautechnik.

Issued in Berlin on 9 October 2020 by Deutsches Institut für Bautechnik

LBD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Hahn

This ETA includes the products listed in Table 1:

Table 1: Products included in this ETA

Annex	Tradename (Product of this ETA)	Fastener	Supporting Structure
2	ABS Lock III	Würth UH 300 ^{a)}	Reinforced normal concrete C20/25 to C50/60 (cracked or uncracked) ^{c)}
3	ABS-Lock III-R	Würth WIT-VM 250 or WIT Nordic ^{b)}	
4	ABS-Lock II	Würth WIT-VM 250 or WIT Nordic ^{b)}	
5	ABS-Lock III-Be-Pro-24	ABS-Lock III-Be-Pro-24	
6	ABS-Lock III-Be-Pro	ABS-Lock III-Be-Pro	
7	ABS-Lock X-SR-HD	Fischer FHY M10 A4	pre-stressed concrete hollowcore slabs C45/55

Annexe 2-7 shows the components and the system structure of the products.

Design values of actions

$$F_{Ed} = F_{Ek} \cdot \gamma_F$$

The recommended partial factor γ_F is 1,5.

The recommended partial factor is used in order to determine the corresponding design actions, provided no partial factor is given in national regulations or national Annexes to Eurocode 0. That leads to the following values:

Example:

For one user: $F_{Ed} = F_{Ek} \cdot \gamma_F = 6kN \cdot 1,5 = 9kN$

For two Users: $F_{Ed} = F_{Ek} \cdot \gamma_F = (6 + 1) kN \cdot 1,5 = 10,5 kN$

For three Users: $F_{Ed} = F_{Ek} \cdot \gamma_F = (6 + 2) kN \cdot 1,5 = 12 kN$

^a ETA-17/0127

Würth WIT-UH 300/ WIT-VH 300 / WIT-VM 300 for concrete

^b ETA-12/0164

Würth WIT-VM 250 or WIT-Nordic for concrete

^c EN 206:2013 + A1:2016

Concrete - Specification, performance, production and conformity

ABS-Lock fall protection system

Overview and design values of action

Annex 1

Table 2: Supporting Structure C20/25 to C50/60 (cracked or uncracked)

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock III	50 – 900	Würth UH 300 ^{a)}	160 ¹⁾	140
			200 ²⁾	

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 18 mm and a drill hole depth of ≥ 100 mm.

Design resistance

Transverse forces:

$$1) F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{15,81 \text{ kN}}{1,5} = 10,54 \text{ kN}$$

resp.

$$2) F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{19,12 \text{ kN}}{1,5} = 12,75 \text{ kN}$$

depending on the edge distance.

Tensile forces:

$$1) F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{18 \text{ kN}}{1,5} = 12 \text{ kN}$$

resp.

$$2) F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{18 \text{ kN}}{1,5} = 12 \text{ kN}$$

The recommended partial factor γ_M is 1,5, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum two user for edge distance 1) maximum three user for edge distance 2)

Deformation capacity

≤ 10 mm at 0,70 kN maximum length above insulation layer 300 mm

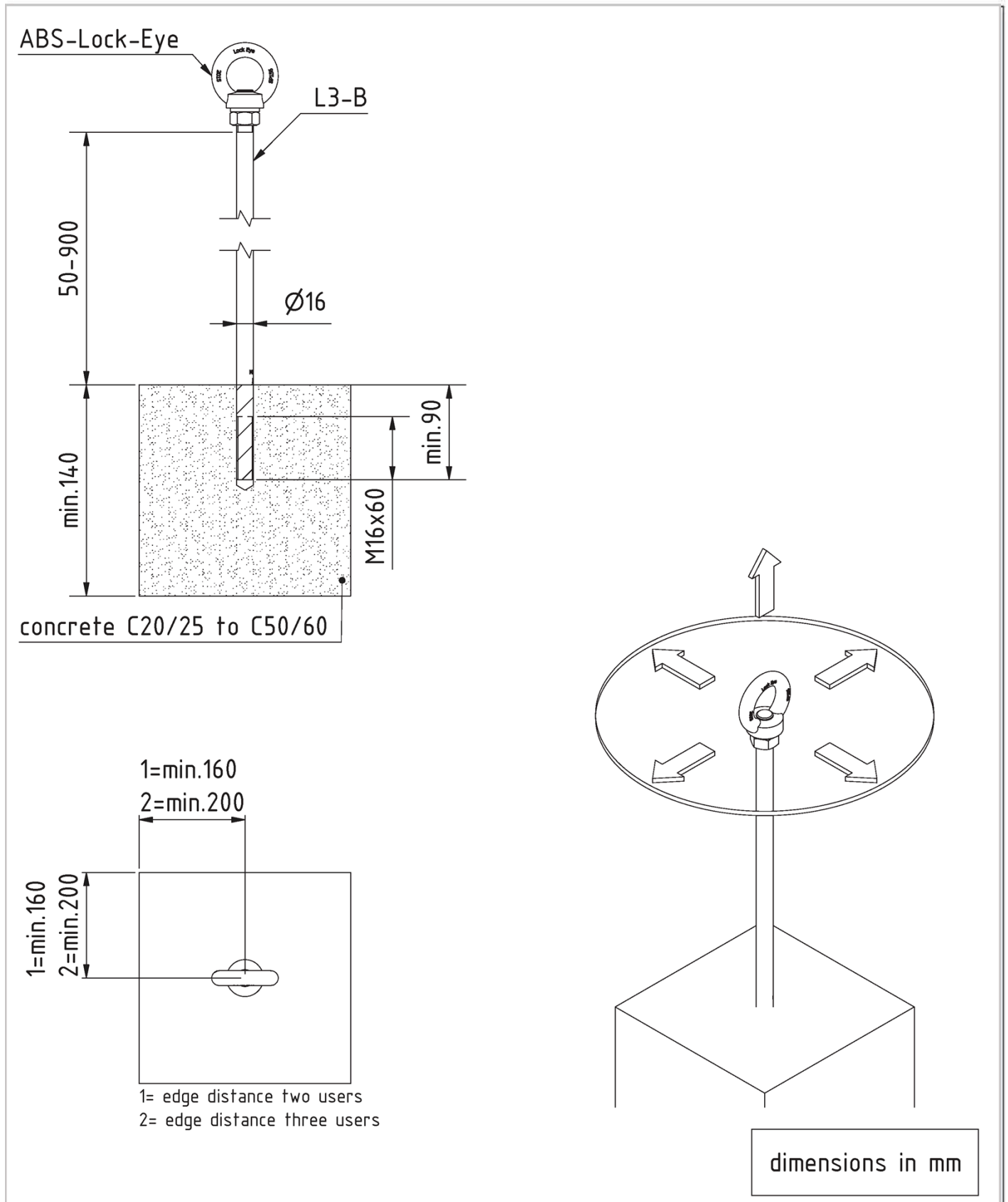
^a ETA-17/0127

Würth WIT-UH 300/ WIT-VH 300 / WIT-VM 300 for concrete

ABS-Lock as fall protection system

ABS-Lock III for reinforced normal concrete C20/25 to C50/60 (cracked or uncracked)

Annex 2.1



ABS-Lock fall protection system

ABS-Lock III for reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 2.2

Table 3: Supporting Structure C20/25 to C50/60 (cracked or uncracked)

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock III-R	Built-in component	Würth WIT-VM 250 or WIT Nordic ^{b)}	400	120

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 18 mm and a drill hole depth of ≥ 80 mm

Design resistance

Transverse and tensile forces:

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{15,75 kN}{1,5} = 10,5 kN$$

The recommended partial factor γ_M is 1,5, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum two user

Deformation capacity

No performance assessed

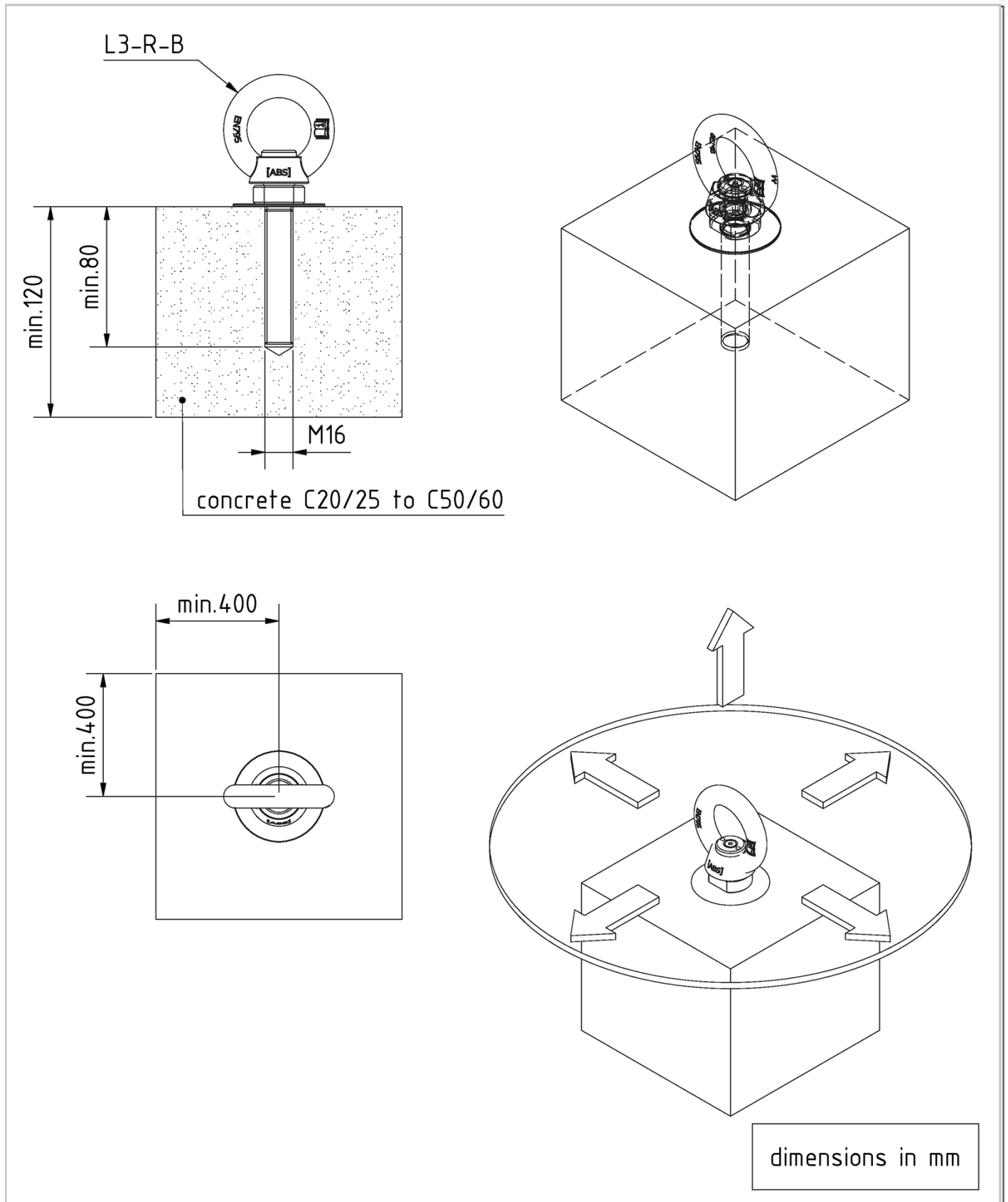
^{b)} ETA-12/0164

Würth WIT-VM 250 or WIT-Nordic for concrete

ABS-Lock fall protection system

ABS-Lock III-R for normal concrete C20/25 to C50/60 (cracked or uncracked)

Annex 3.1



ABS-Lock fall protection system

ABS-Lock III-R for normal reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 3.2

Table 4: Supporting Structure C20/25 to C50/60 (cracked or uncracked)

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock II	Built-in component	Würth WIT-VM 250 or WIT Nordic ^{b)}	100/160 ¹	120
			140/140 ²	

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 24 mm and a drill hole depth of ≥ 102 mm

Design resistance

Transverse forces:

$$1) \quad F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{13,78 \text{ kN}}{1,5} = 9,19 \text{ kN}$$

$$2) \quad F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{15,86 \text{ kN}}{1,5} = 10,58 \text{ kN}$$

Tensile forces:

$$1) \quad F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{34,9 \text{ kN}}{1,8} = 19,4 \text{ kN}$$

$$2) \quad F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{34,9 \text{ kN}}{1,8} = 19,4 \text{ kN}$$

The recommended partial factor γ_M is 1,5 for transverse forces and for tensile forces γ_M is 1,8, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum one user for edge distance 1) maximum two user for edge distance 2)

Deformation capacity

No performance assessed

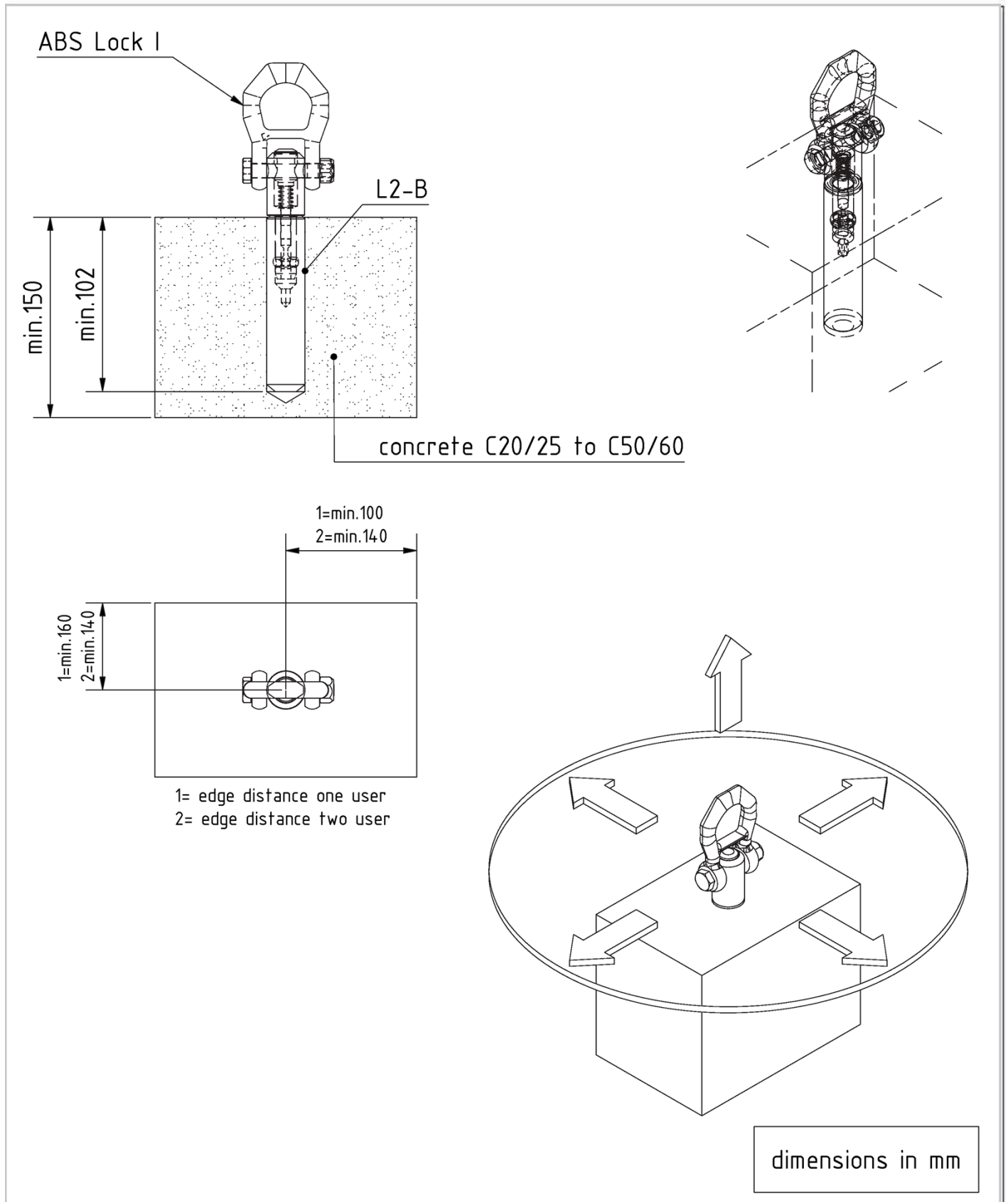
^{b)} ETA-12/0164

Würth WIT-VM 250 or WIT-Nordic for concrete

ABS-Lock fall protection system

ABS-Lock II for normal reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 4.1



ABS-Lock fall protection system

ABS-Lock II for normal reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 4.2

Table 5: Supporting Structure C20/25 to C50/60 (cracked or uncracked)

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock III-Be-Pro-24	210-1010	ABS-Lock III-Be-Pro-24	400	160

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 24 mm and a drill hole depth of ≥ 110 mm.

Design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{31,75 \text{ kN}}{1,5} = 21,2 \text{ kN}$$

The recommended partial factor γ_M is 1,5, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum three user

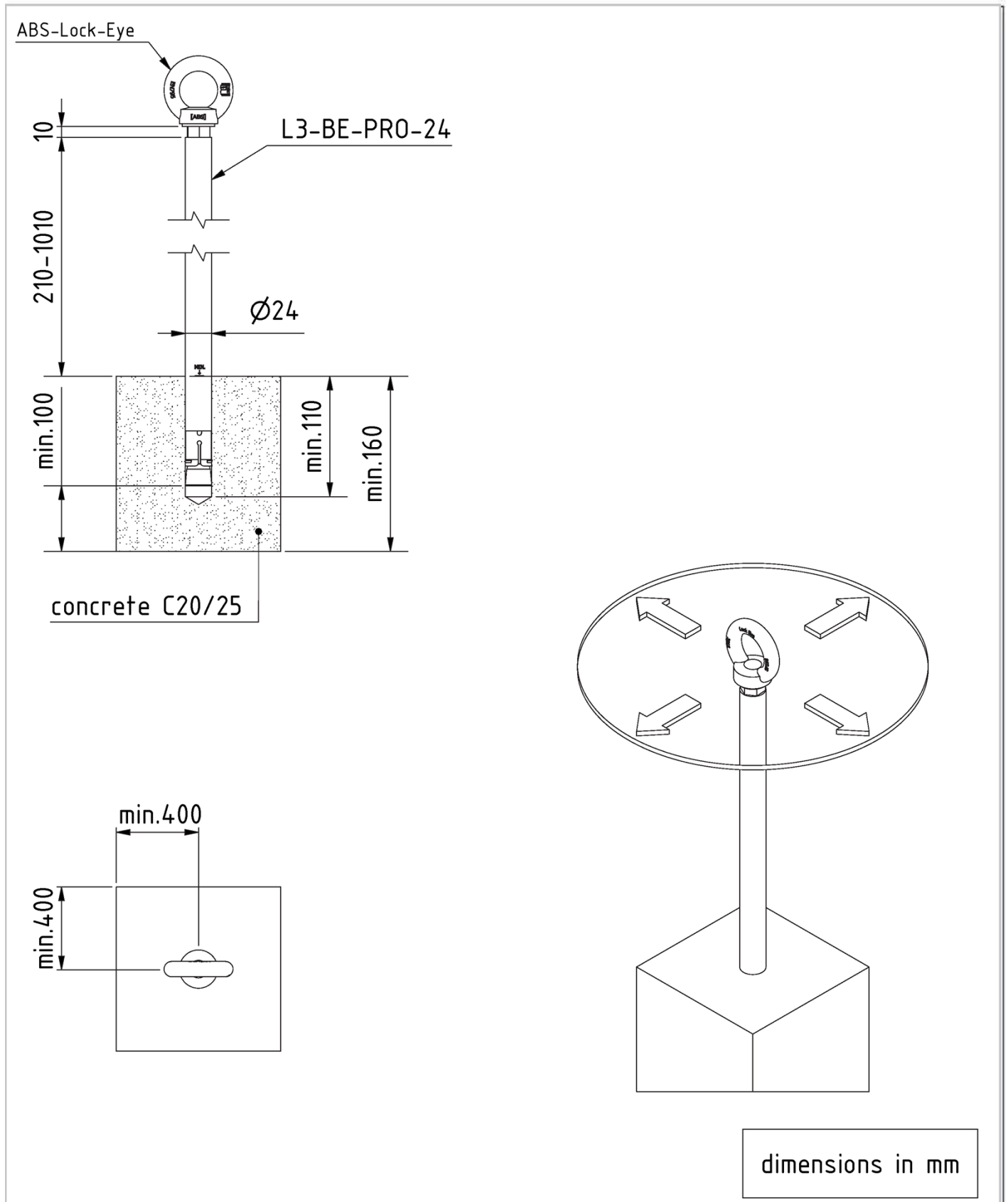
Deformation capacity

6 mm at 0,70 kN

ABS-Lock fall protection system

ABS-Lock III-Be-Pro 24 for normal reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 5.1



ABS-Lock fall protection system

ABS-Lock III-Be-Pro 24 for normal reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 5.2

Table 6: Supporting Structure C20/25 to C50/60 (cracked or uncracked)

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock III-Be-Pro	200-930	ABS-Lock III-Be-Pro	300	120

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 16 mm and a drill hole depth of ≥ 90 mm.

Design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{31,75 \text{ kN}}{1,5} = 21,2 \text{ kN}$$

The recommended partial factor γ_M is 1,5, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum three user

Deformation capacity

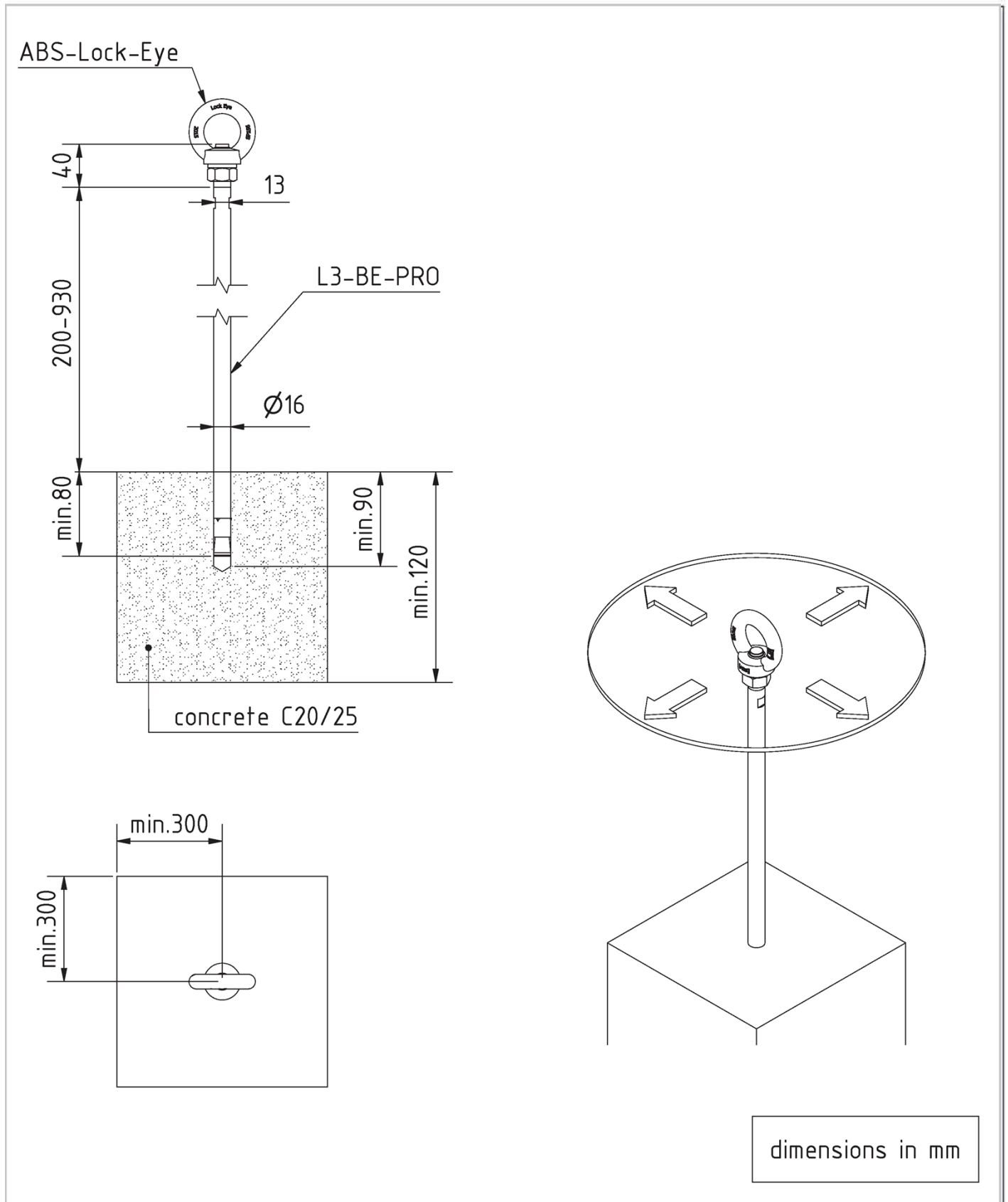
1 mm at 0,70 kN^e

^e maximum length above insulation layer 300mm

ABS-Lock fall protection system

ABS-Lock III-Be-Pro for reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 6.1



ABS-Lock fall protection system

ABS-Lock III-Be-Pro for reinforced concrete C20/25 to C50/60 (cracked or uncracked)

Annex 6.2

Table 7: pre-stressed concrete hollowcore slabs C45/55

Anchor Device	Bar height [mm]	Fastener	Edge Distance c_{min} [mm]	Minimum thickness of supporting structure h_{min} [mm]
ABS-Lock X-SR-HD	300-1000	Fischer FHY M10 A4	100/150	25

All components can be used in weathered outdoor areas.

The concrete supporting structure must be pre-drilled with a drill hole diameter of 16 mm.

Design resistance

$$F_{R,d} = \frac{F_{R,k}}{\gamma_M} = \frac{18 \text{ kN}}{1,5} = 12 \text{ kN}$$

The recommended partial factor γ_M is 1,5, provided no partial factor is given in national regulations or national Annexes to Eurocode 2.

Dynamic capacity

Maximum three user

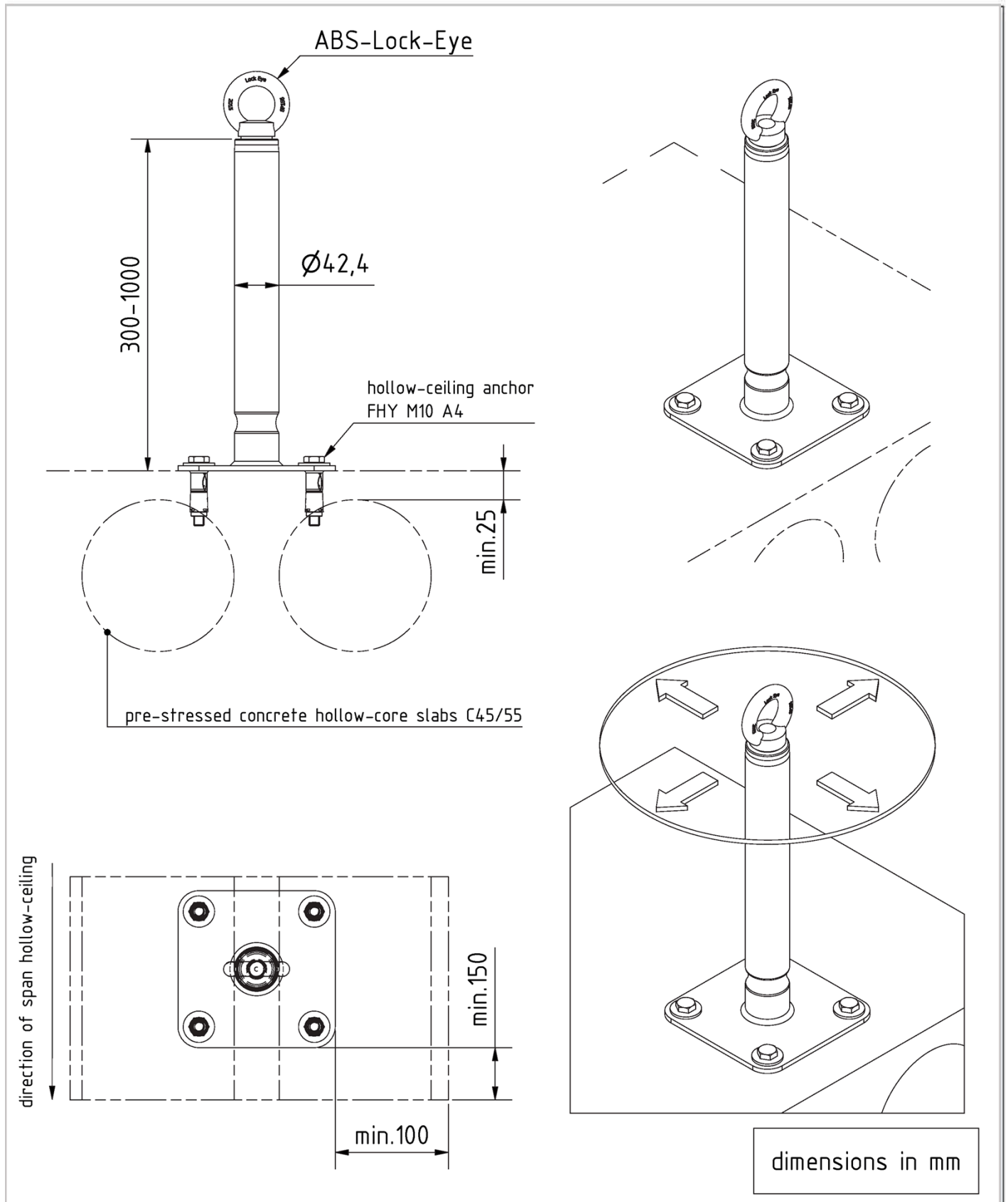
Deformation capacity

No performance assessed

ABS-Lock fall protection system

ABS-Lock X-SR-HD for pre-stressed concrete hollowcore slabs C45/55

Annex 7.1



ABS-Lock fall protection system

ABS-Lock X-SR-HD for pre-stressed concrete hollowcore slabs C45/55

Annex 7.2