

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-16/0790
of 7 October 2021

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

Anchor Devices of the SPA and AP series

Product family
to which the construction product belongs

Anchor Devices for Personal Fall Protection Systems
Fastened to Concrete Structures

Manufacturer

SKYLOTEC GmbH
Im Mühlengrund 6-8
56566 Neuwied
DEUTSCHLAND

Manufacturing plant

SKYLOTEC GmbH
Wiesengärtenweg 50
56566 Neuwied
DEUTSCHLAND

This European Technical Assessment
contains

47 pages including 42 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

This version replaces

ETA-16/0790 issued on 1 November 2018

European Technical Assessment

ETA-16/0790

English translation prepared by DIBt

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Specific part

1 Technical description of the product

The subject of this assessment are anchor devices from the SPA and AP series. They are made made of stainless steel. The eyelet of the anchor devices SPA series is made of stainless steel 1.4301 / 1.4307. 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 anchor devices from the SPA and AP series are fastened to the concrete with the different fasteners or injection adhesives 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	Material
2	SPA-TYP-4-300/400/500/600	Würth Concrete screw W-BS A4 SW15-5-35-10x90	1.4307
3	SPA-TYP-26-300/400/500/600/800	Würth Concrete screw W-BS A4 SW15-5-35-10x90	1.4307
4	SPA-TYP-1-300/400/500/600	Würth Fixanchor W-FAZ/A4 M10x90	1.4307
5	SPA-TYP-23-300/400/500/600/800	Würth Fixanchor W-FAZ/A4 M10x90	1.4307
6	SPA-TYP-5-300/400/500	Kunkel K 55 M10/0-10 D A4	1.4307
7	SPA-TYP-33-300/500/750	Würth WIT-PE 500, WIT-PE 1000, WIT-VM 250 oder WIT-UH 300	1.4571
8	SPA-TYP-36-300	Würth WIT-VM 100 or WIT-VIZ	1.4307
9	SPA-TYP-37-500		1.4307
10	SPA-TYP-38-300/400/500	Würth WIT-PE 1000, WIT-VM 250 oder WIT-UH 300	1.4307
11	SPA-TYP-39-300/400/500/600	SPA-TYP-39-300/400/500/600	1.4401 1.4404
12	AP-TYP-52	Würth WIT-PE 500, WIT-PE 1000, WIT-VM 250 oder WIT-UH 300	1.4571
13	AP-TYP-44/46	Würth W-VIZ	1.4401
14	AP-TYP-45/49	Würth W-VIZ-IG	1.4401
15	AP-TYP-63	Würth Fixanchor W-FAZ/A4 M10x90	1.4401
16	AP-TYP-64	Würth Concrete screw W-BS A4 SW15-5-35-10x90	1.4401

The components and the system setup of the product are given in Annex (1-16).

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

The anchor devices from the SPA and AP series are used to protect operators working at height (max. 3 persons at once), by arresting them in a fall. The operators attach themselves to the eyelet using e.g. ropes and karabiners. In the case of a fall the fall protection system prevents the fall and resulting physical damage assuming the correct usage by the operator. The anchor devices from the SPA and AP series are 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 anchor devices from the SPA and AP series 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 2-16
Dynamic loading	Annexes 2-16
Check of deformation capacity in case of constraining forces	Annexes 2-16
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 given in EAD Nr. 331072-00-0601 "Table 3.1 Control plan for the manufacturer; cornerstones".

Issued in Berlin on 7 October 2021 by Deutsches Institut für Bautechnik

Dr.-Ing. Ronald Schwuchow
Head of Section

beglaubigt:
Hahn

This ETA includes the products listed in Table 1:

Table 1: Products

Annex	Trade name (Product of this ETA)	Fasteners	Substructure
2	SPA-TYP-4-300/400/500/600	Würth concrete screw W-BS A4 SW15-5-35- 10x90 c.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
3	SPA-TYP-26-300/400/500/600/800	Würth concrete screw W-BS A4 SW15-5-35- 10x90 c.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
4	SPA-TYP-1-300/400/500/600	Würth Fixanchor W-FAZ/A4 M10x90 d.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
5	SPA-TYP-23-300/400/500/600/800	Würth Fixanchor W-FAZ/A4 M10x90 d.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
6	SPA-TYP-5-300/400/500	Kunkel K 55 M10/0-10 D A4	Prestressed hollow core slabs C45 /55 e.)
7	SPA-TYP-33/34/35-XXX	Würth WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300 a.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
8	SPA-TYP-36-300	Würth WIT-VM 100 or WIT-VIZ b.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
9	SPA-TYP-37-500	Würth WIT-VM 100 or WIT-VIZ b.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
10	SPA-TYP-38-300/400/500	Würth WIT-PE 1000, WIT-VM 250 or WIT-UH 300 a.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
11	SPA-TYP-39-300/400 and SPA-TYP-40-500/600	SPA-TYP-39-300/400 and SPA-TYP-40-500/600	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)
12	AP-TYP-52	Würth WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300 a.)	Reinforced normal- weight concrete C20/25 to C50/60 (cracked or non-cracked) e.)

Skylotec Fall Protection Systems

Overview and rated values

Annex 1.1

Continuation of Table 1: Products

Annex	Trade name (product of this ETA)	Fasteners	Substructure
13	AP-TYP-44/46	Würth W-VIZ ^{b.)}	Reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked) ^{e.)}
14	AP-TYP-45/49	Würth W-VIZ-IG ^{b.)}	Reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked) ^{e.)}
15	AP-TYP-63	Würth Fixanchor W-FAZ/A4 M10x90 ^{d.)}	Reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked) ^{e.)}
16	AP-TYP-64	Würth concrete screw W-BS A4 SW15-5-35-10x90 ^{c.)}	Reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked) ^{e.)}

The setup of the system and the components of the products are shown in Annexes 2 to 16.

Design values of the action

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

The recommended safety factor γ_F is 1,5.

The recommended safety factor is used to determine the respective design load capacities unless there is a specification of a partial safety factor in national regulations or national annexes to EN 1990. This leads to the following values:

Example:

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

For two users $F_{Ed} = F_{Ek} \times \gamma_F = (6 + 1) \text{ kN} \times 1,5 = 10,5 \text{ kN}$

For three users $F_{Ed} = F_{Ek} \times \gamma_F = (6 + 2) \text{ kN} \times 1,5 = 12 \text{ kN}$

^a ETA-09/0040, ETA-07/0313, ETA-19/0542/,
ETA-12/0164 und ETA-17/0127.

^b ETA-04/0095

^c ETA-16/0043

^d ETA-99/0011

^e EN 206:2016 + A1:2016

WIT-PE 500/1000, WIT-VM 250 und WIT-UH 300

WIT-VM 100 und WIT-VIZ

Würth concrete screw W-BS A4 SW15-5-35-10x90

Würth Fixanker W-FAZ/A4 M10x90

Concrete definition, properties, manufacture
and conformity

Skylotec Fall Protection Systems

Overview and rated values

Annex 1.2

Table 2: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-4-300	300	Würth concrete screw W-BS A4 SW15-5-35- 10x90	150	130
SPA-TYP-4-400	400			
SPA-TYP-4-500	500			
SPA-TYP-4-600	600			

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 100 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,51}{1,5} = 13,00 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,10 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for actions under shear load and 1,25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-16/0043

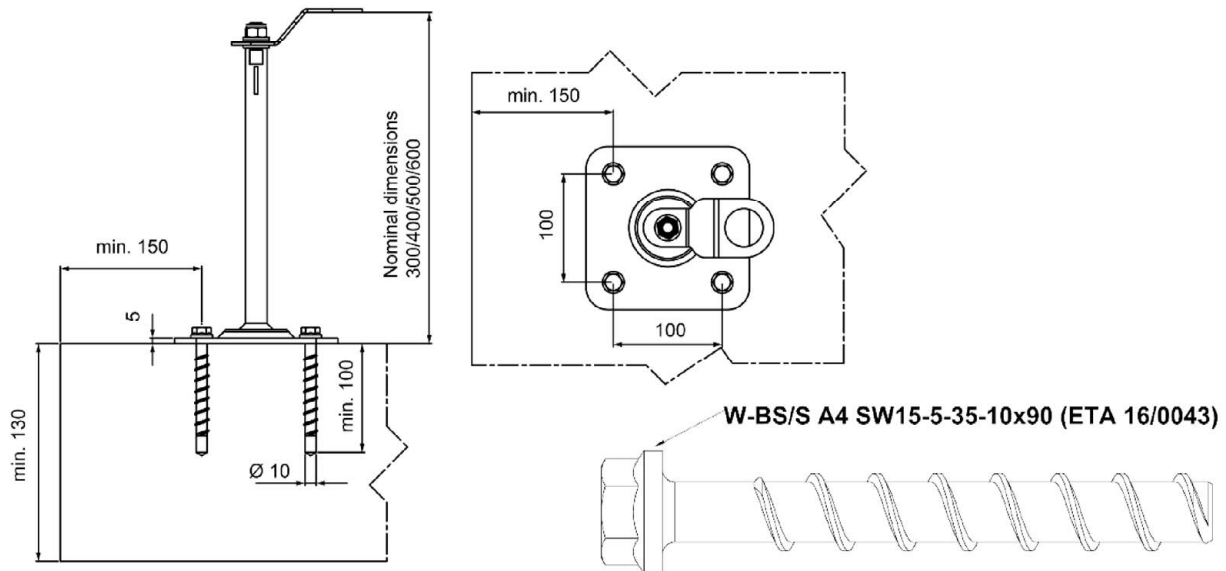
Würth concrete screw W-BS A4 SW15-5-35-10x90

Skylotec Fall Protection Systems

SPA-TYP-4-XXX for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

Annex 2.1

Anchor point Skylotec Secupin SPA-TYP-4-300/400/500/600 installed with Würth concrete screw W-BS A4 SW15-5-35-10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec Secupin SPA-TYP-4-300/400/500/600/800 with Würth concrete screw W-BS A4 SW15-5-35-10x90

1		<p>Pay attention to fixing installation instructions and approval (ETA-16/0043).</p> <p>Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=10$ mm and bore hole depth of $h_1 \geq 100$ mm vertically to the surface of the anchor base</p>
2		<p>Remove the bore dust, e.g. by blowing it out.</p>
3		<p>Insert the concrete screw in the anchor base through the anchor point's 4 through-holes.</p>
4		<p>Manually, or using a tangential impact wrench, secure the concrete screw until the anchor point's base plate is pressed against the concrete base. Recommended torque: 55 Nm.</p>

Skylotec Fall Protection Systems

**SPA-TYP-4-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components / Installation instructions**

Annex 2.2

Table 3: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-26-300	300	Würth concrete screw W-BS A4 SW15-5-35- 10x90	150	130
SPA-TYP-26-400	400			
SPA-TYP-26-500	500			
SPA-TYP-26-600	600			
SPA-TYP-26-800	800			

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.
The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 100 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,51}{1,5} = 13,00 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,10}{1,25} = 14,10 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for actions under shear load and 1,25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-16/0043

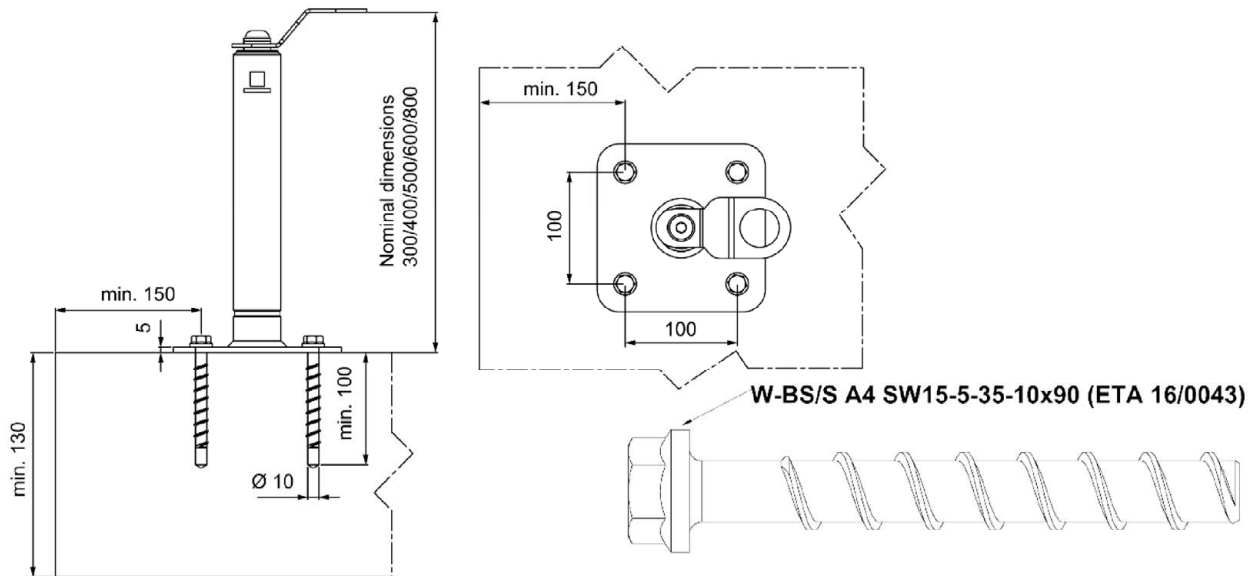
Würth concrete screw W-BS A4 SW15-5-35-10x90

Skylotec Fall Protection Systems

**SPA-TYP-26-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

Annex 3.1

Anchor point Skylotec Secupin SPA-TYP-26-300/400/500/600/800 installed with Würth concrete screw W-BS A4 SW15-5-35-10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec Secupin SPA-TYP-26-300/400/500/600/800 with Würth concrete screw W-BS A4 SW15-5-35-10x90

1		Pay attention to fixing installation instructions and approval (ETA-16/0043). Using a hammer drill, create a bore hole with a drill nominal diameter of $d_0=10$ mm and bore hole depth of $h_1 \geq 100$ mm vertically to the surface of the anchor base
2		Remove the bore dust, e.g. by blowing it out.
3		Insert the concrete screw in the anchor base through the anchor point's 4 through-holes.
4		Manually, or using a tangential impact wrench, secure the concrete-screw until the anchor point's base plate is pressed against the concrete base. Recommended torque: 55 Nm.

Skylotec Fall Protection Systems

**SPA-TYP-26-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components / Installation instructions**

Annex 3.2

Table 4: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

Anchor device	Rod height [mm]	Fasteners	Edge distance c_{min} [mm]	Minimum component thickness h_{min} [mm]
SPA-TYP-1-300	300	Würth Fixanchor W-FAZ/A4 M10x90	150	120
SPA-TYP-1-400	400			
SPA-TYP-1-500	500			
SPA-TYP-1-600	600			

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 75 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,51}{1,5} = 13,00 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,10 \text{ kN}$$

Therecommendedsafetyfactor γ_M is 1.5 for actions under shear load and 1,25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-99/0011

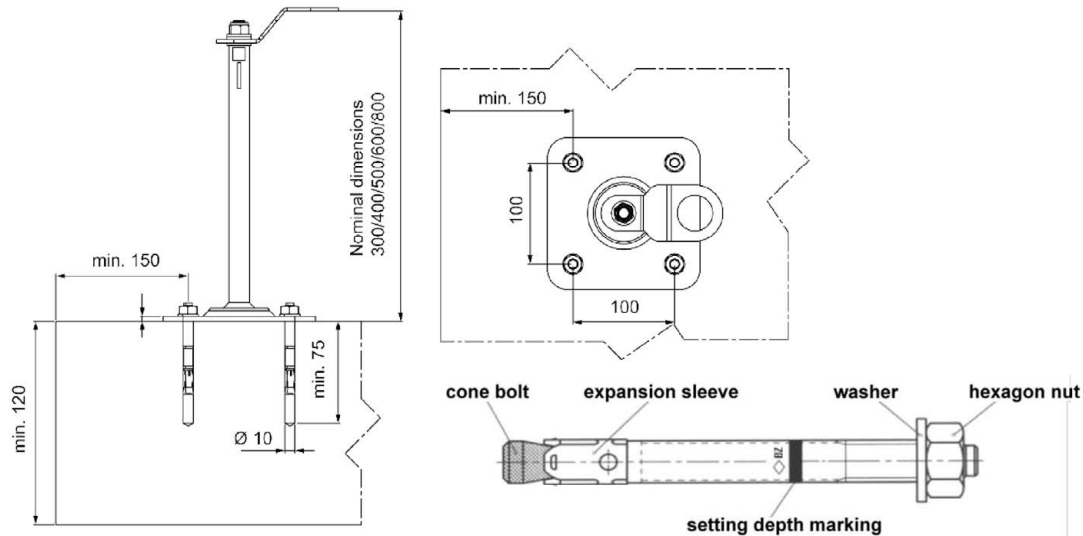
Würth Fixanchor W-FAZ/A4 M10x90

Skylotec Fall Protection Systems

SPA-TYP-1-XXX for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

Annex 4.1

Anchor point Skylotec Secupin SPA-TYP-1-300/400/500/600 installed with Würth Fixanchor W-FAZ/A4 M10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec Secupin SPA-TYP-1-300/400/500/600 with Würth Fixanchor W-FAZ/A4 M10x90

1		<p>Pay attention to fixing installation instructions and approval (ETA-99/0011).</p> <p>Create a bore hole with a drill nominal diameter of $d_0=10$ mm and bore hole depth of $h_1 \geq 75$ mm vertically to the surface of the anchor base.</p>
2		<p>Remove the bore dust, e.g. by blowing it out.</p>
3		<p>Using a hammer or machine setting tool, insert the anchor in the anchor base through the anchor point's 4 designated through-holes</p>
4		<p>Apply torque of 35 Nm with a calibrated torque wrench</p>

Skylotec Fall Protection Systems

**SPA-TYP-1-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components / Installation instructions**

Annex 4.2

Table 5: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-23-300	300	Würth Fixanchor W-FAZ/A4 M10x90	150	120
SPA-TYP-23-400	400			
SPA-TYP-23-500	500			
SPA-TYP-23-600	600			
SPA-TYP-23-800	800			

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 75 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,51}{1,5} = 13,00 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,10 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for actions under shear load and 1,25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-99/0011

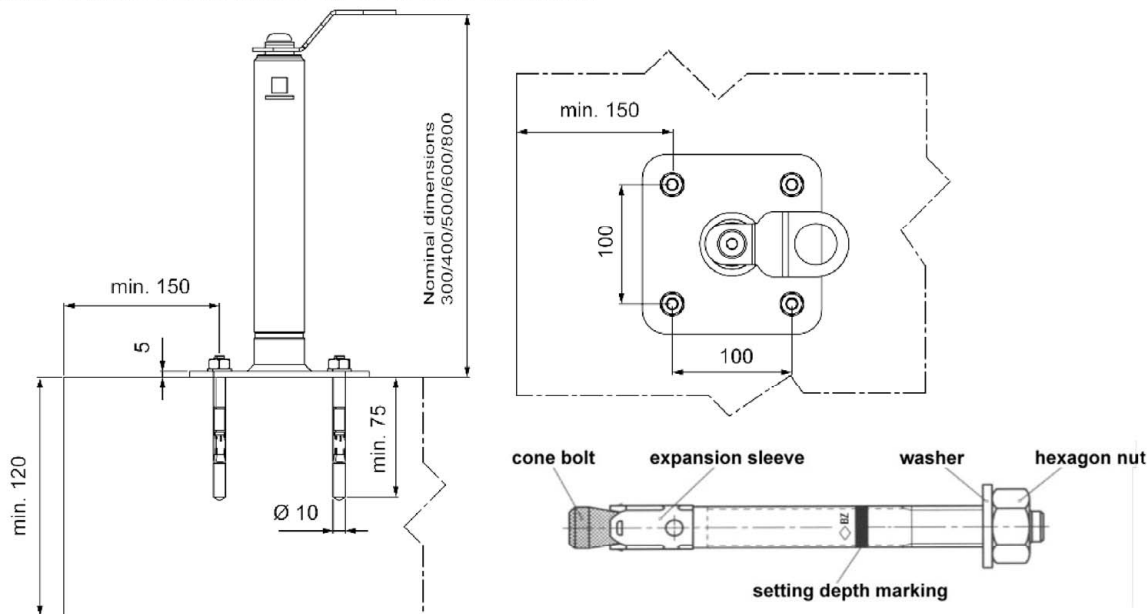
Würth Fixanchor W-FAZ/A4 M10x90

Skylotec Fall Protection Systems

SPA-TYP-23-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)

Annex 5.1

Anchor point Skylotec Secupin SPA-TYP-23-300/400/500/600/800 installed with Würth Fixanchor W-FAZ/A4 M10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec Secupin SPA-TYP-23-300/400/500/600/800 with Würth Fixanchor W-FAZ/A4 M10x90

1		<p>Pay attention to fixing installation instructions and approval (ETA-99/0011).</p> <p>Create a bore hole with a drill nominal diameter of $d_o=10$ mm and bore hole depth of $h_1 \geq 75$ mm vertically to the surface of the anchor base.</p>
2		<p>Remove the bore dust, e.g. by blowing it out.</p>
3		<p>Using a hammer or machine setting tool, insert the anchor in the anchor base through the anchor point's 4 designated through-holes</p>
4		<p>Apply torque of 35 Nm with a calibrated torque wrench.</p>

Skylotec Fall Protection Systems

**SPA-TYP-23-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components / Installation instructions**

Annex 5.2

Table 6: Prestressed hollow core slabs C45/55

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of lower surface h_{min} [mm]
SPA-TYP-5-300	300	Kunkel K 55 M10/0-10 D A4	150	40
SPA-TYP-5-400	400			
SPA-TYP-5-500	500			

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,0}{1,8} = 9,44 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{16,60}{1,8} = 9,20 \text{ kN}$$

The recommended safety factor γ_M is 1,8, unless there is no partial safety factor in national regulations.

Dynamic strength

1 person at maximum

Deformation capacity

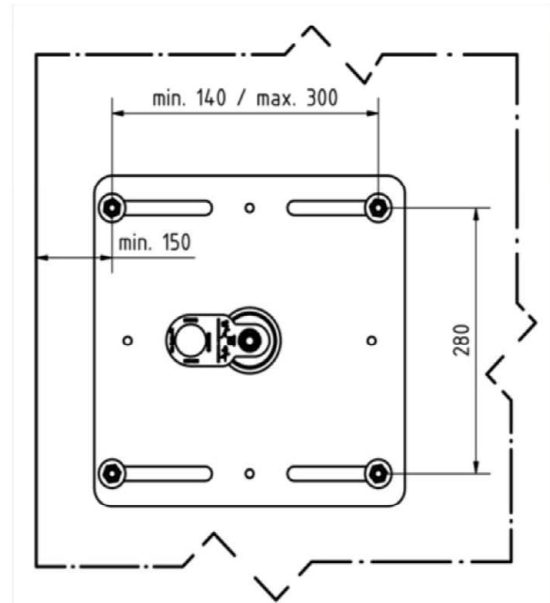
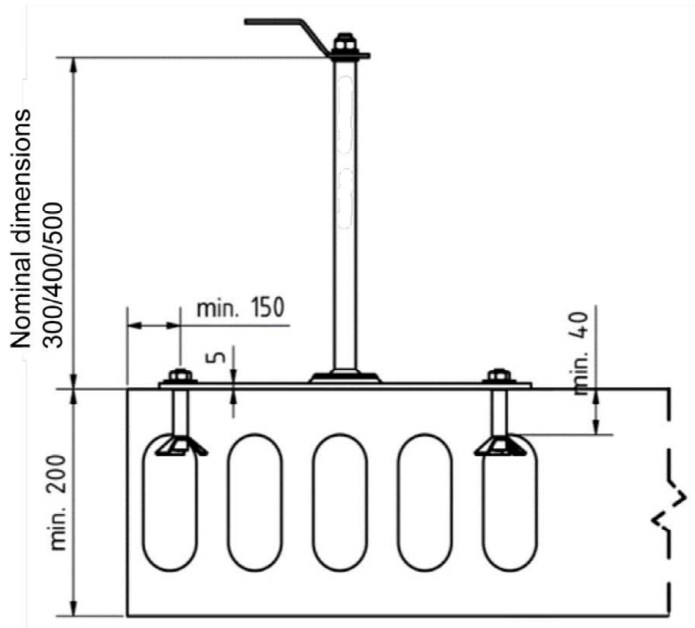
≤ 10 mm at 0,70 kN

Skylotec Fall Protection Systems

SPA-TYP-5-XXX for Prestressed hollow core slabs C45/55

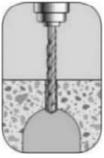
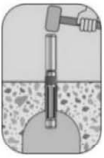
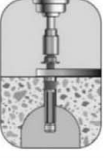

Annex 6.1

Anchor point Skylotec Secupin SPA-TYP-5-300/400/500 installed with cavity anchor K 55 M10/0-10 D A4



All dimensions in mm.

Installation instructions for anchor point Skylotec Secupin TYP-5-300/400/500 with cavity anchor K 55 M10/0-10 D A4

1		Pay attention to fixing installation instructions.
		Create a bore hole with a drill nominal diameter of $d_o=14$ mm.
2		Insert the anchor and knock in flush with the setting tool.
3		Mount the anchor point SPA-TYP-5-XXX and apply a torque of 20 Nm with a calibrated torque wrench.
4		Prestressed concrete anchor in the expanded state.

Skylotec Fall Protection Systems

SPA-TYP-23-XXX for prestressed hollow core slabs C45/55
Fitted state/ System components / Installation instructions

Annex 6.2

Table 7: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-33-300	300	Würth injection system WIT-PE 500 WIT-PE 1000 WIT-VM 250 WIT-UH 300	120	130
SPA-TYP-34-500	400		125	150
SPA-TYP-35-750	500		125	155

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 18 mm for TYP-33 and TYP-34 of 24mm and for TYP-35 of 28mm and a drilling depth of ≥ 110 mm.

Design values of the load bearing capacity

anchor device	transverse forces	tensile forces
SPA-TYP-33-300	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{13,7}{1,5} = 9,0 \text{ kN}$	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,1}{1,8} = 11,2 \text{ kN}$
SPA-TYP-34-500	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{13,7}{1,5} = 9,0 \text{ kN}$	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,0}{2,1} = 9,5 \text{ kN}$
SPA-TYP-35-750	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{13,6}{1,5} = 9,0 \text{ kN}$	$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,0}{2,1} = 9,5 \text{ kN}$

The recommended safety factor γ_M is 1.5 for WIT-PE 1000 and WIT-UH 300 in all directions and for WIT-PE 500 and WIT-VM 250 in the transverse direction, 1.8 for WIT-VM 250 and WIT-PE 500 to Size M16 in the direction of pull and 2.1 for WIT-PE 500 from size M20 in the direction of pull, unless a partial safety factor is specified in national regulations.

Dynamic strength

1 person at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-09/0040, ETA-19/0542,
ETA-12/0164 and ETA-17/0127

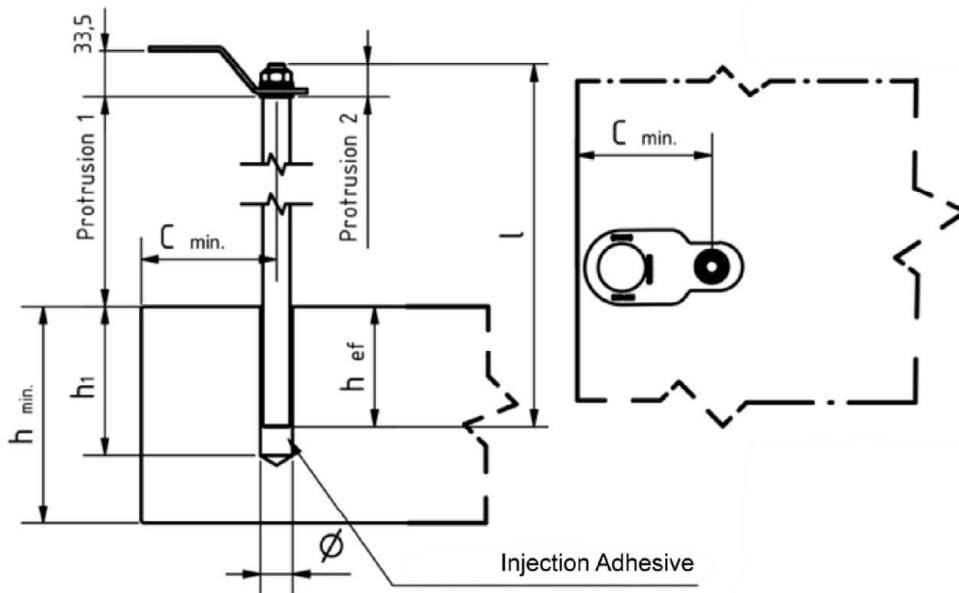
WIT-PE 500, WIT-PE 1000, WIT-VM 250 and WIT-UH 300

Skylotec Fall Protection Systems

SPA-TYP-33/34/35-XXX for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

Annex 7.1

Anchor point Skylotec Monopin SPA-TYP-33/34/35-XXX, installed, with Würth injection adhesive WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300



All dimensions in mm.

Anchor point SPA-TYP-33/34/35-XXX characteristics

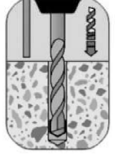
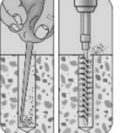
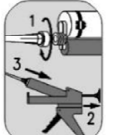
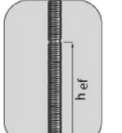

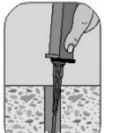
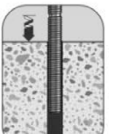
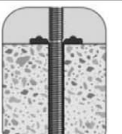
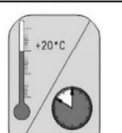
Type	SPA-TYP-33-300	SPA-TYP-34-500	SPA-TYP-35-750
Diameter Ø [mm]	16	20	24
Overall length l [mm]	424	624	874
Effective anchoring depth h_{ef} [mm] ≥	100	100	100
Nominal Ø, drill d_0 [mm]	18	24	28
Bore hole depth h_1 [mm] ≥	110	110	110
Protrusion 1 [mm]	300	500	750
Protrusion 2 [mm]	24	24	24
Total protrusion [mm]	324	524	774
Edge distance c_{min} [mm]	120	125	125
Spacing s_{min} [mm]	650	678	706
Minimum component thickness h_{min} [mm]	130	150	155

Skylotec Fall Protection Systems

**SPA-TYP-33/34/35-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 7.2

Installation instructions for anchor point Skylotec Monopin SPA-TYP-33/34/35-XXX with Würth Injection Adhesive WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300

1		<p>Pay attention to fixing installation instructions and approval (ETA-09/0040, ETA-19/0542, ETA-12/0164 und ETA-17/0127).</p> <p>Using a hammer drill, make a bore hole vertically to the anchor base surface.</p>
2		<p>Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.</p>
3		<p>Attach the mixer to the cartridge using the dispenser.</p>
4		<p>Pay attention to the setting depth.</p>
5		<p>Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.</p>
6		<p>Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.</p>
7		<p>Push in the Monopin SPA-TYP-33/34/35-XXX with a slight turning movement down to the setting depth marking.</p>
8		<p>Visually check the amount of adhesive or setting depth marking respectively. The adhesive must reach the surface. If no adhesive is visible at the surface, the Monopin SPA-TYP-33/34/35-XXX must be removed immediately and injection adhesive injected again.</p>
9		<p>Comply with the curing time of the injection adhesive. See the processing notes on the cartridge and the installation instructions.</p>

Skylotec Fall Protection Systems

**SPA-TYP-33/34/35-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 7.3

Table 8: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-36-300	300	Würth WIT-VM 100 or WIT-VIZ	120	150

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 18 mm and a drilling depth of ≥ 120 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{18,26}{1,5} = 12,2 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,6}{1,25} = 14,1 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for actions under shear load and 1,25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-04/0095

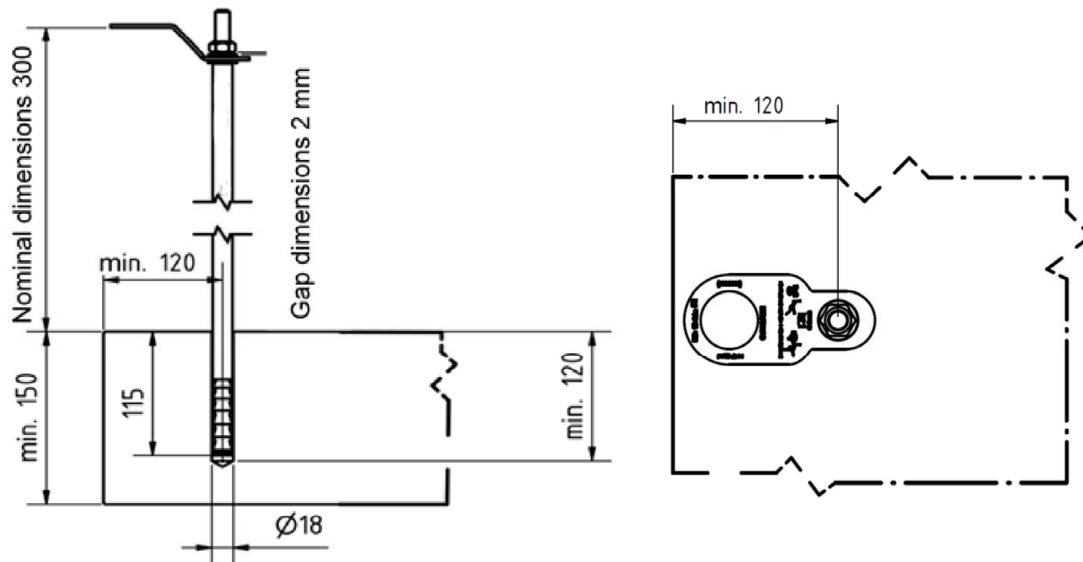
WIT-VM 100 and WIT-VIZ

Skylotec Fall Protection Systems

SPA-TYP-36-300 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)

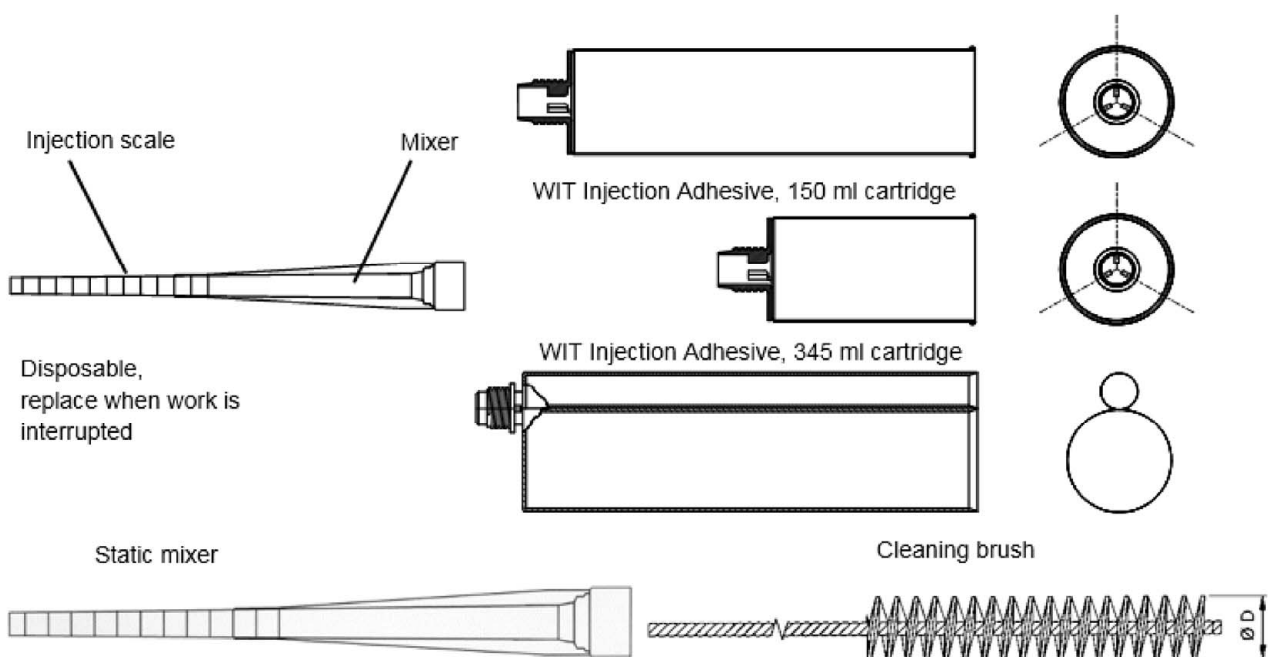
Annex 8.1

**Anchor point Skylotec Monopin SPA-TYP-36-300, installed,
with Würth injection adhesive WIT-VM 100 or WIT-VIZ**



All dimensions in mm.

Würth injection adhesive WIT-VM 100 and WIT-VIZ (different container sizes)
WIT injection adhesive cartridge (different container sizes)



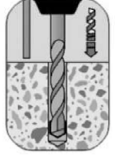
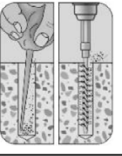
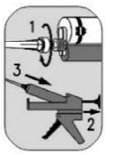
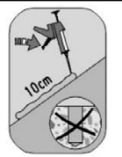
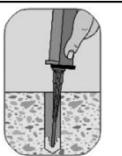


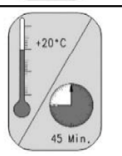
Cartridge imprint: processing data, storage life, batch no.,
hazard code, travel scale, curing and processing time

Skylotec Fall Protection Systems

**SPA-TYP-36-300 for Reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 8.2

Installation instructions for anchor point Skylotec Monopin SPA-TYP-36-300 with Würth injection adhesive WIT-VM 100 or WIT-VIZ

1		<p>Pay attention to fixing installation instructions and approval (ETA-04/0095).</p> <p>Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=18$ mm and bore hole depth of $h_1 \geq 120$ mm vertically to the surface of the anchor base.</p>
2		Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.
3		Attach the mixer to the cartridge using the dispenser.
4		Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.
5		Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.
6		Push in the SPA-TYP-36-300 with a slight turning movement down to the bore hole base.
7		Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor point must be removed immediately and injection adhesive injected again.
8		Comply with the curing time of the injection adhesive. Processing is possible only from a temperature of $\geq +5^\circ\text{C}$. See the processing notes on the cartridge and the installation instructions.

Skylotec Fall Protection Systems

**SPA-TYP-36-300 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 8.3

Table 9: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-37-500	500	Würth WIT-VM 100 oder WIT-VIZ	120	160

All components of the personal protection device (fastening system and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 24 mm and a drilling depth of ≥ 120 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{18,4}{1,5} = 12,3 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,6}{1,25} = 14,1 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for actions under shear load and 1.25 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0.70 kN

ETA-04/0095

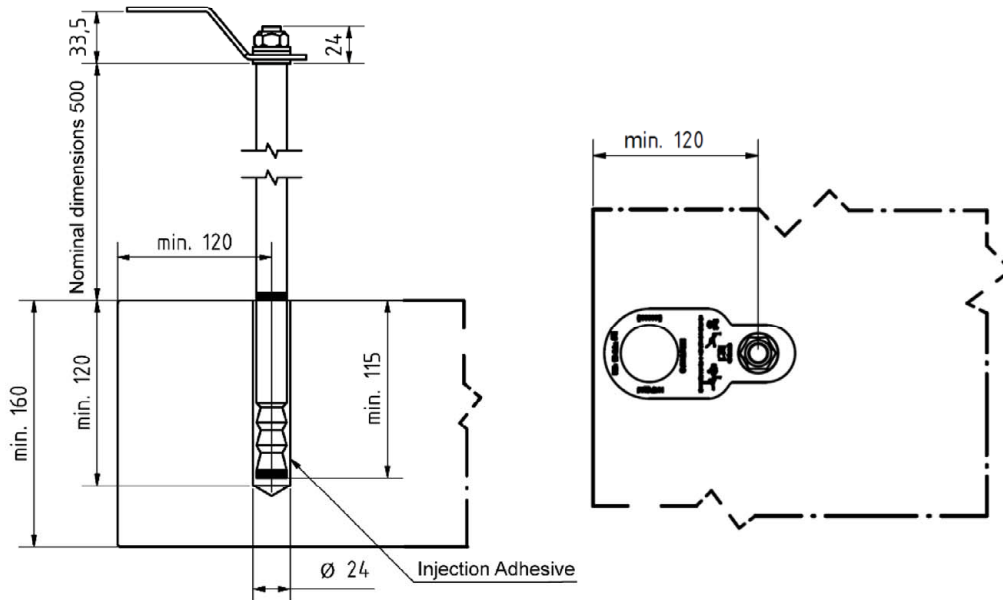
WIT-VM 100 and WIT-VIZ

Skylotec Fall Protection Systems

**SPA-TYP-37-500 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

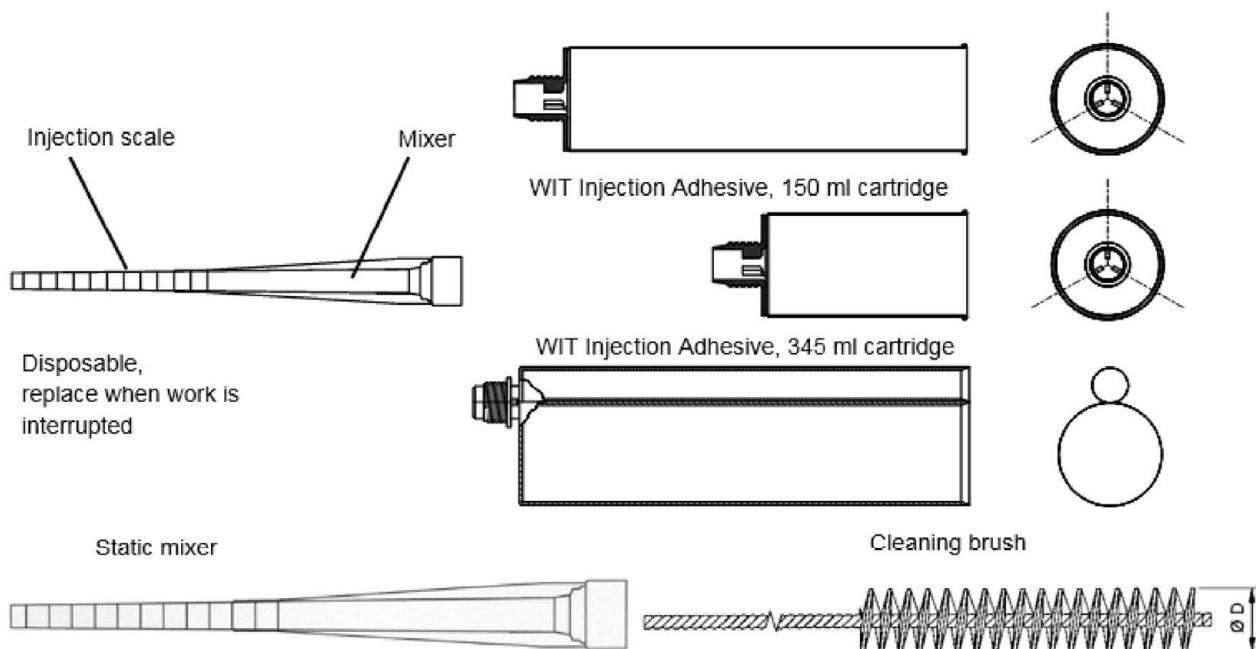
Annex 9.1

Anchor point Skylotec Monopin SPA-TYP-37-500, installed, with Würth injection adhesive WIT-VM 100 or WIT-VIZ



All dimensions in mm.

Würth injection adhesive WIT-VM 100 and WIT-VIZ (different container sizes)



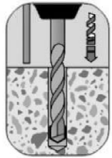

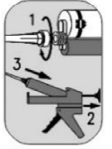





Cartridge imprint: processing data, storage life, batch no., hazard code, travel scale, curing and processing time

Skylotec Fall Protection Systems

SPA-TYP-37-500 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components

Annex 9.2

Installation instructions for Skylotec Monopin SPA-TYP-37-500 with Würth injection adhesive WIT-VM 100 or WIT-VIZ

1		Pay attention to fixing installation instructions and approval (ETA-04/0095).
		Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=24$ mm and bore hole depth of $h_1 \geq 120$ mm vertically to the surface of the anchor base.
2		Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.
3		Attach the mixer to the cartridge using the dispenser.
4		Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.
5		Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.
6		Push in the SPA-TYP-37-500 with a slight turning movement down to the bore hole base.
7		Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor point must be removed immediately and injection adhesive injected again.
8		Comply with the curing time of the injection adhesive. Processing is possible only from a temperature of $\geq +5^\circ\text{C}$. See the processing notes on the cartridge and the installation instructions.

Skylotec Fall Protection Systems

**SPA-TYP-37-500 for reinforced normal-weight concrete C20/25 to C5060
(cracked or non-cracked) Installation instructions**

Annex 9.3

Table 10: Substrate reinforced normal weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-38-300	300	Würth injection system, WIT-PE 1000, WIT-VM 250, WIT-UH 300	200	140
SPA-TYP-38-400	400			
SPA-TYP-38-500	500			

All components of the personal protection device (injection system and concrete) are applicable in the weathered outdoor area.

The concrete substructure has a drill hole diameter of 24 mm and a drilling depth pre-drilling of ≥ 110 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,1 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{22,6}{1,8} = 12,6 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for WIT-PE 1000 and WIT-UH 300 as well as 1.8 for WIT-VM 250 in tensile direction and for all mortars 1.25 in transverse direction, unless a partial safety factor is specified in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0.70 kN

ETA-19/0542, ETA-12/0164
and ETA-17/0127

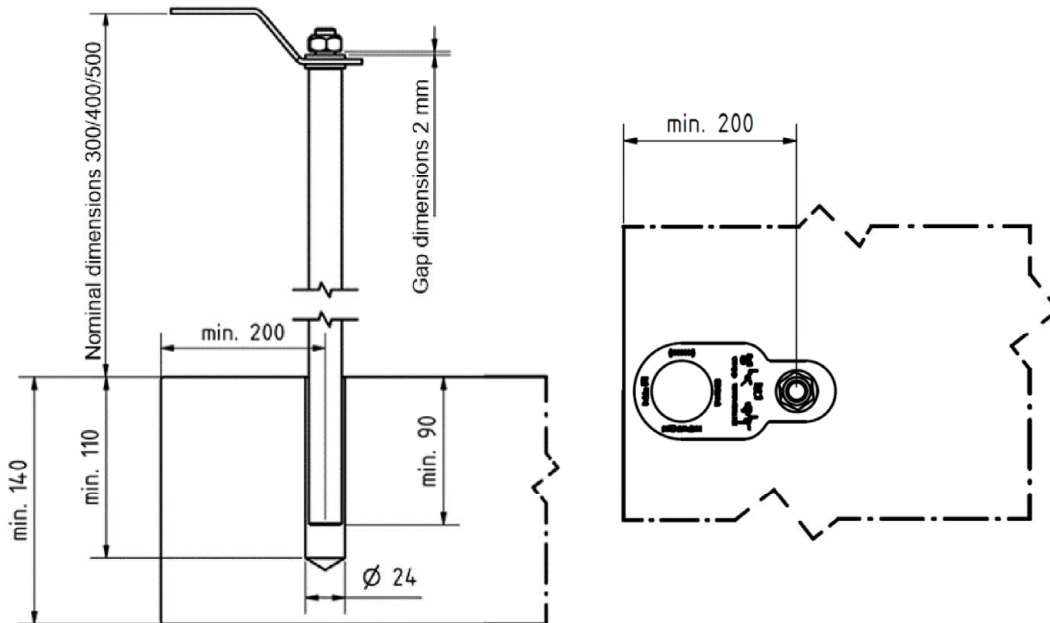
WIT-PE 1000, WIT-VM 250 and WIT-UH 300

Skylotec Fall Protection Systems

SPA-TYP-38-300/400/500 for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

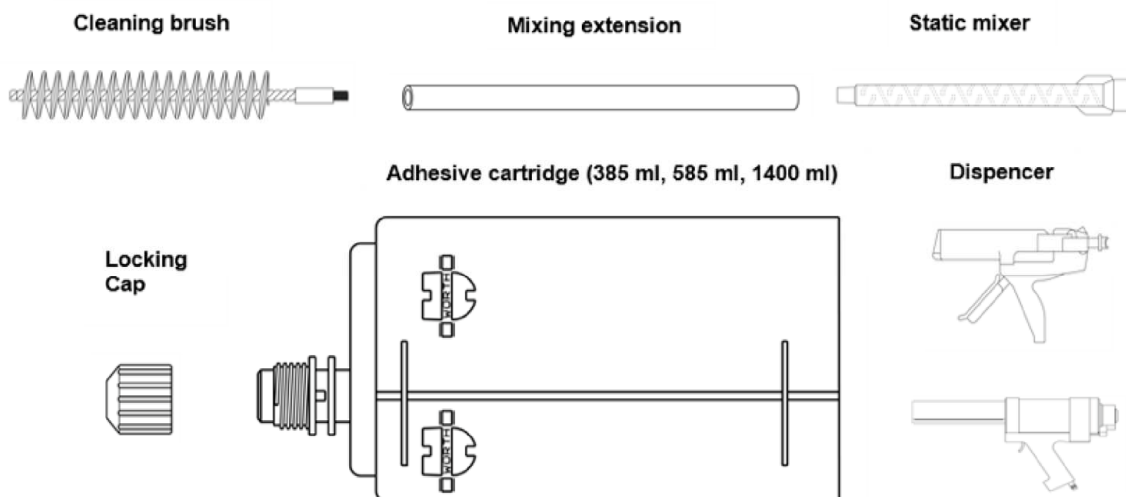
Annex 10.1

Anchor point Skylotec SPA-TYP-38-300/400/500, installed, with Würth injection adhesive WIT-PE 1000, WIT-VM 250 or WIT-UH 300



All dimensions in mm.

Würth injection adhesive WIT-PE 1000, WIT-VM 250 or WIT-UH 300 (different container sizes)



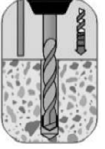
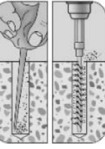
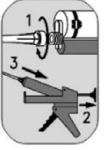
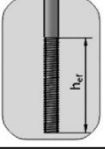

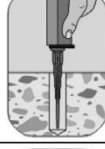
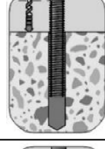


**Cartridge imprint: processing data, storage life, batch no.,
hazard code, travel scale, curing and processing time**

Skylotec Fall Protection Systems

**SPA-TYP-38-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 10.2

Installation instructions for anchor point Skylotec SPA-TYP-38-300/400/500 with injection adhesive WIT-PE 1000, WIT-VM 250 or WIT-UH 300

1		<p>Pay attention to fixing installation instructions and approval (ETA-19/0542, ETA-12/0164 und ETA-17/0127).</p> <p>Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=24$ mm and bore hole depth of $h_1 \geq 110$ mm vertically to the surface of the anchor base.</p>
2		<p>Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.</p>
3		<p>Attach the mixer to the cartridge using the dispenser.</p>
4		<p>Pay attention to the setting depth.</p>
5		<p>Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.</p>
6		<p>Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.</p>
7		<p>Push in the SPA-TYP-38-300/400/500 with a slight turning movement down to the bore hole base.</p>
8		<p>Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor point must be removed immediately and injection adhesive injected again.</p>
9		<p>Comply with the curing time of the injection adhesive. Processing is possible only from a temperature of $\geq +5^\circ\text{C}$. See the processing notes on the cartridge and the installation instructions.</p>

Skylotec Fall Protection Systems

**SPA-TYP-38-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 10.3

Table 11: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
SPA-TYP-39-300 _{a.)}	300	SPA-TYP-39-300	135	140
SPA-TYP-39-400 _{a.)}	400	SPA-TYP-39-400	135	140
SPA-TYP-40-500 _{b.)}	500	SPA-TYP-40-500	135	200
SPA-TYP-40-600 _{b.)}	600	SPA-TYP-40-600	135	200

All components of the anchorage device (fastening system and concrete) are in the weathered outdoor area applicable.

The concrete substructure has to be drilled using a drill hole diameter of $a_{16} / 20_b$ mm and a drilling depth of $h_0 \geq a_{110} / 130_b$ mm.

Design values of the load bearing capacity

Transverse forces

$$^a F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,1 \text{ kN}$$

$$^b F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{17,60}{1,25} = 14,1 \text{ kN}$$

Tensile forces

$$^a F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{18,1}{1,5} = 12,1 \text{ kN}$$

$$^b F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{18,3}{1,5} = 12,2 \text{ kN}$$

The recommended safety factor γ_M is 1.25 for actions under shear load and 1.5 for tensile actions, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

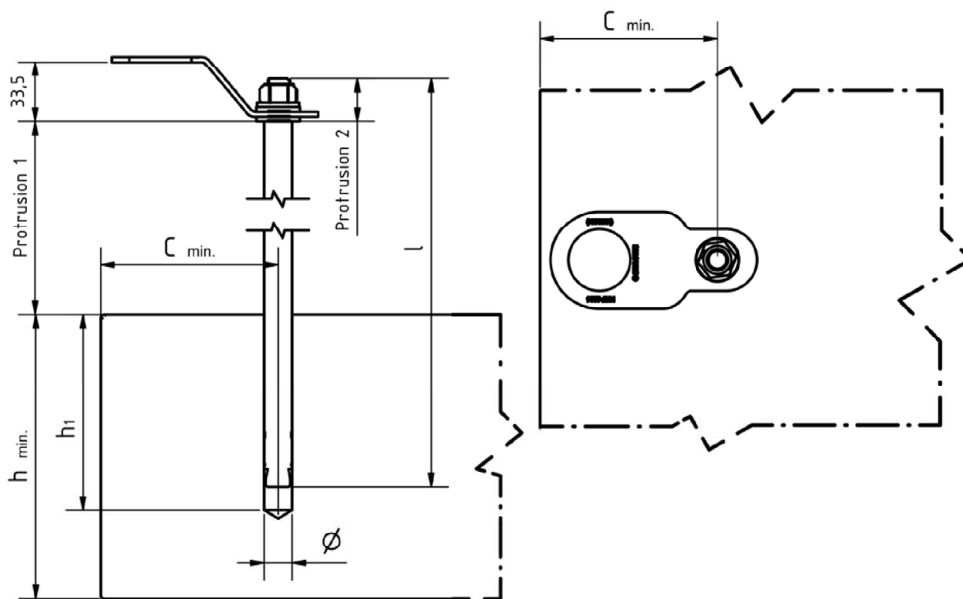
≤ 10 mm at 0.70 kN

Skylotec Fall Protection Systems

SPA-TYP-39/40-XXX for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

Annex 11.1

Anchor point Skylotec SPA-TYP-39-XXX and SPA-TYP-40-XXX, installed



All dimensions in mm.

Anchor point SPA-TYP-39-XXX and SPA-TYP-40-XXX characteristics

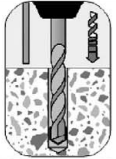
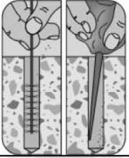

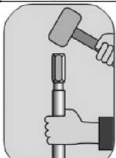

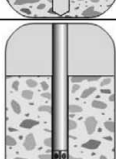
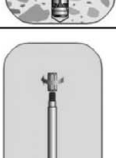
Type	SPA-TYP-39-300	SPA-TYP-39-400	SPA-TYP-40-500	SPA-TYP-40-600
Diameter Ø [mm]	16	16	20	20
Overall length l [mm]	421	521	638	738
Nominal Ø, drill d ₀ [mm]	16	16	20	20
Bore hole depth h ₁ [mm] ≥	110	110	130	130
Protrusion 1 [mm]	300	400	500	600
Protrusion 2 [mm]	24	24	24	24
Total protrusion [mm]	324	424	524	624
Edge distance c _{min} [mm]	135	135	135	135
Spacing s _{min} [mm]	255	255	300	300
Minimum component thickness h _{min} [mm]	140	140	200	200

Skylotec Fall Protection Systems

**SPA-TYP-39/40-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 11.2

Installation instructions for anchor point Skylotec SPA-TYP-39-XXX and SPA-TYP-40-XXX

1		Pay attention to the installation instructions.
		Using a hammer drill, make a bore hole vertically to the anchor base surface.
2		Remove the bore dust, e.g. by blowing it out.
3		Fit the spacer sleeve on anchor point SPA-TYP-39/40-XXX. Without the spacer sleeve the thread can become damaged.
4		Hold the SPA-TYP-39/40-XXX with your hand whilst knocking it in.
5		Knock in the SPA-TYP-39/40-XXX anchor point.
6		Visual check: The anchor point has to be inserted down to the setting depth marking.
7		Remove the spacer sleeve by unscrewing it.

Skylotec Fall Protection Systems

**SPA-TYP-39/40-XXX for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 11.3

Table 12: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	Minimum thickness of concrete h_{min} [mm]
AP-TYP-52	Mounting part	Würth WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300	140	170

All components of the personal protection device (injection system and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 24 mm and a drilling depth of ≥ 130 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{23,0}{1,5} = 15,3 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{24,9}{2,1} = 12,0 \text{ kN}$$

The recommended safety factor γ_M is 1.5 for WIT-PE 1000 and WIT-UH 300 in all directions and for WIT-PE 500 and WIT-VM 250 in the transverse direction, 1.8 for WIT-VM 250 and WIT-PE 500 to Size M16 and 2.1 for WIT-PE 500 from size M20 in tensile direction, unless a partial safety factor is specified in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0.70 kN

ETA-09/0040, ETA-19/0542,
ETA-12/0164 and ETA-17/0127

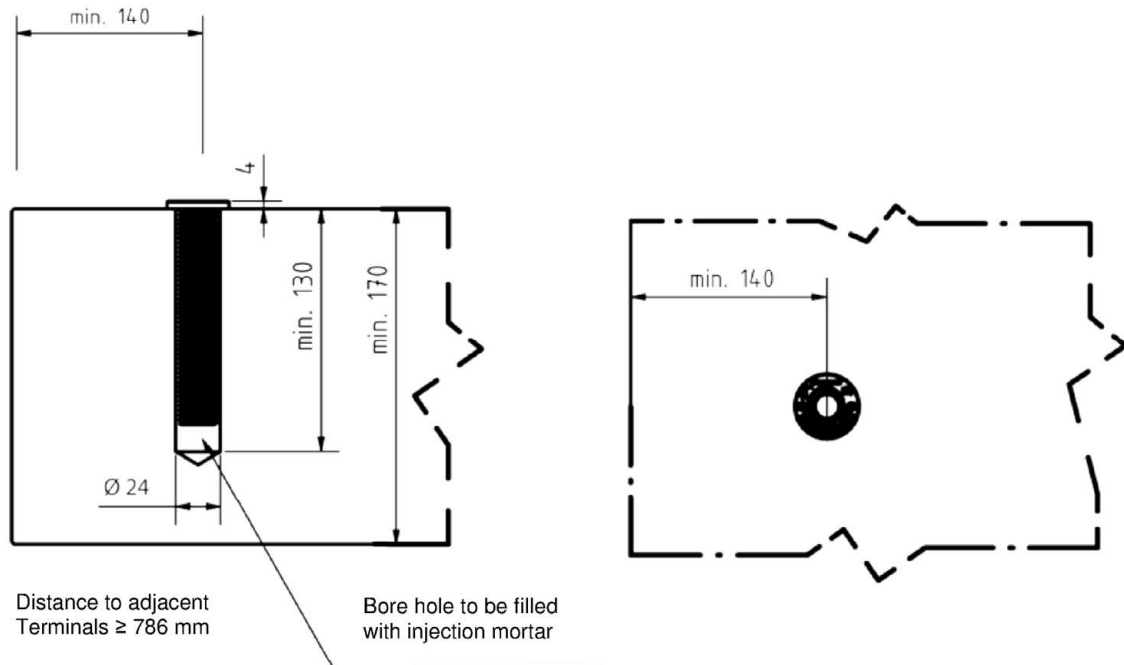
WIT-PE 500, WIT-PE 1000, WIT-VM 250 and WIT-UH 300

Skylotec Fall Protection Systems

**SPA-TYP-52 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

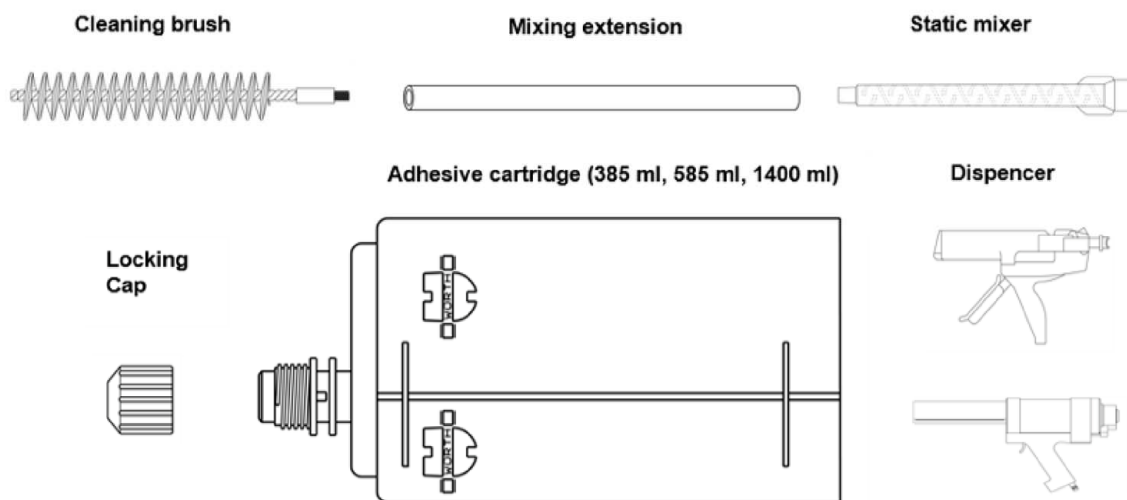
Annex 12.1

Anchor point Skylotec AP-TYP-52 installed, with Würth injection adhesive WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300



All dimensions in mm.

Würth injection adhesive WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300 (different container sizes)



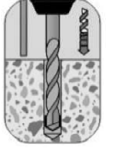
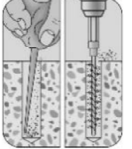
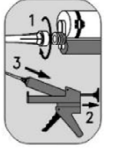


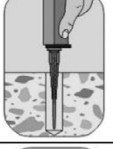



**Cartridge imprint: processing data, storage life, batch no.,
hazard code, travel scale, curing and processing time**

Skylotec Fall Protection Systems

**AP-TYP-52 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 12.2

Installation instructions for anchor point Skylotec AP-TYP-52 with injection adhesive WIT-PE 500, WIT-PE 1000, WIT-VM 250 or WIT-UH 300

1		<p>Pay attention to fixing installation instructions and approval (ETA-09/0040, ETA-19/0542, ETA-12/0164 und ETA-17/0127).</p> <p>Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=24$ mm and bore hole depth of $h_1 \geq 130$ mm vertically to the surface of the anchor base.</p>
2		<p>Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.</p>
3		<p>Attach the mixer to the cartridge using the dispenser.</p>
4		<p>Pay attention to the setting depth.</p>
5		<p>Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.</p>
6		<p>Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.</p>
7		<p>Press in AP-TYP-52 Terminal while turning slightly until the collar touches the concrete substrate</p>
8		<p>Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor point must be removed immediately and injection adhesive injected again.</p>
9		<p>Comply with the curing time of the injection adhesive. Processing is possible only from a temperature of $\geq +5^\circ\text{C}$. See the processing notes on the cartridge and the installation instructions.</p>

Skylotec Fall Protection Systems

**AP-TYP-52 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 12.3

Table 13: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
AP-TYP-44	Mounting part	Würth W-VIZ	200	170
AP-TYP-46	Mounting part			

All components of the personal protection device (injection system and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 24 mm and a drilling depth of ≥ 130 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,0}{1,5} = 12,7 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{43,9}{1,5} = 29,3 \text{ kN}$$

The recommended safety factor γ_M is 1.5, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-04/0095

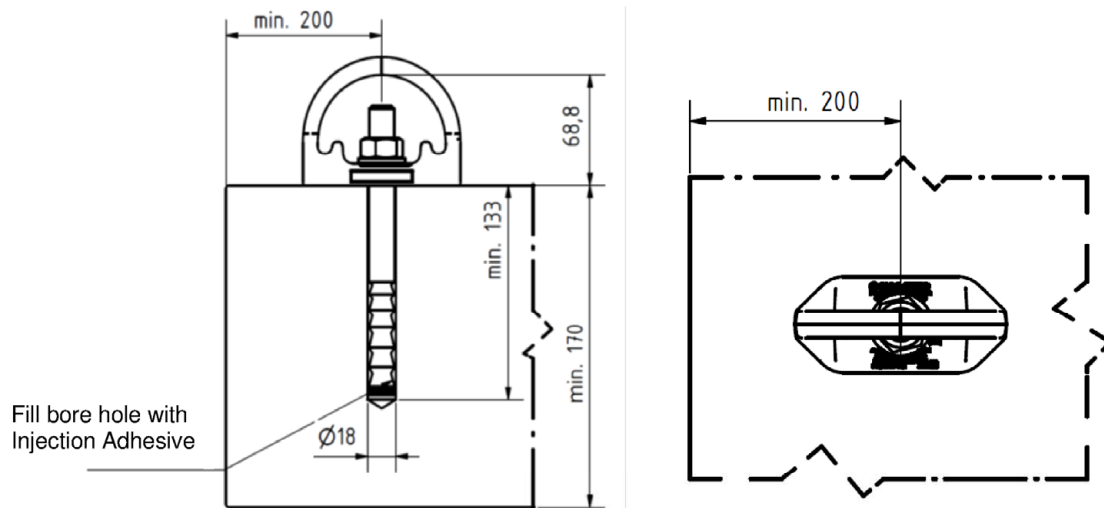
WIT-VM 100 and WIT-VIZ

Skylotec Fall Protection Systems

**AP-TYP-44/46 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

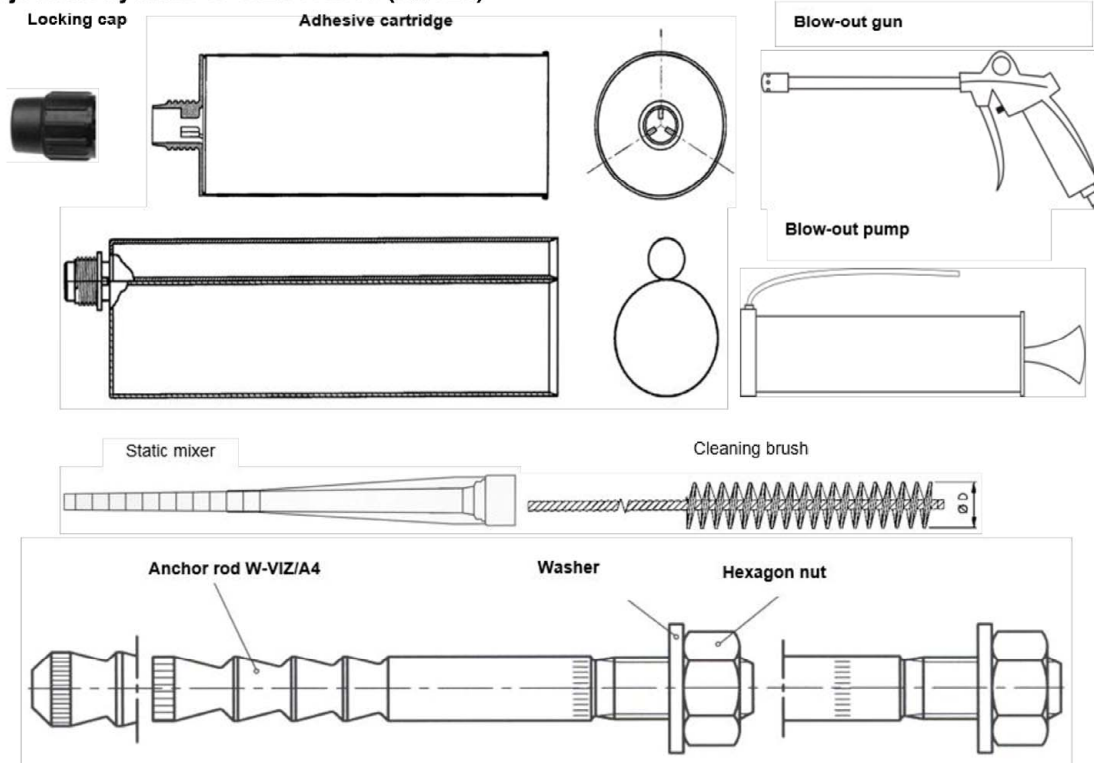
Annex 13.1

Anchor point Skylotec D-Bolt AP-TYP-44/46 installed, with Würth injection system W-VIZ/A4 M16 (h_{ef} 125)



All dimensions in mm.

Würth injection system W-VIZ/A4 M16 (h_{ef} 125)




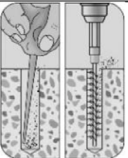
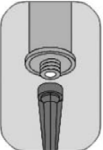

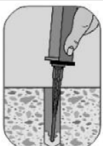




Cartridge imprint processing data, storage life, batch no.,
hazard code, travel scale, curing and processing time

Skylotec Fall Protection Systems

**AP-TYP-44/46 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components**

Annex 13.2

Installation instructions for anchor point Skylotec D-Bolt AP-TYP-44/46 with Würth injection system W-VIZ/A4 M16 (h_{ef} 125)

1		Pay attention to fixing installation instructions and approval (ETA-04/0095).
		Using a hammer drill, create a bore hole with a drill nominal diameter of d ₀ =18 mm and bore hole depth of h ₁ ≥ 130 mm vertically to the surface of the anchor base.
2		Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.
3		Attach the mixer to the cartridge using the dispenser.
4		Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.
5		Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.
6		Push in the anchor rod with a slight turning movement down to the bore hole base.
7		Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor rod must be removed immediately and injection adhesive injected again.
8		Comply with the curing time of the injection adhesive. Processing is possible only from a temperature of ≥ +5°C. See the processing notes on the cartridge and the installation instructions.
9		Install the AP-TYP-44/46, do not exceed max. torque of 50 Nm.

Skylotec Fall Protection Systems

**AP-TYP-44/46 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 13.3

Table 14: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
AP-TYP-45	Mounting part	Würth W-VIZ-IG	250	160
AP-TYP-49	Mounting part			

All components of the personal protection device (injection system and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 22 mm and a drilling depth of ≥ 120 mm.

Design values of the load bearing capacity

Transverse forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{19,0}{1,5} = 12,7 \text{ kN}$$

Tensile forces

$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{39,9}{1,5} = 26,6 \text{ kN}$$

The recommended safety factor γ_M is 1.5, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-04/0095

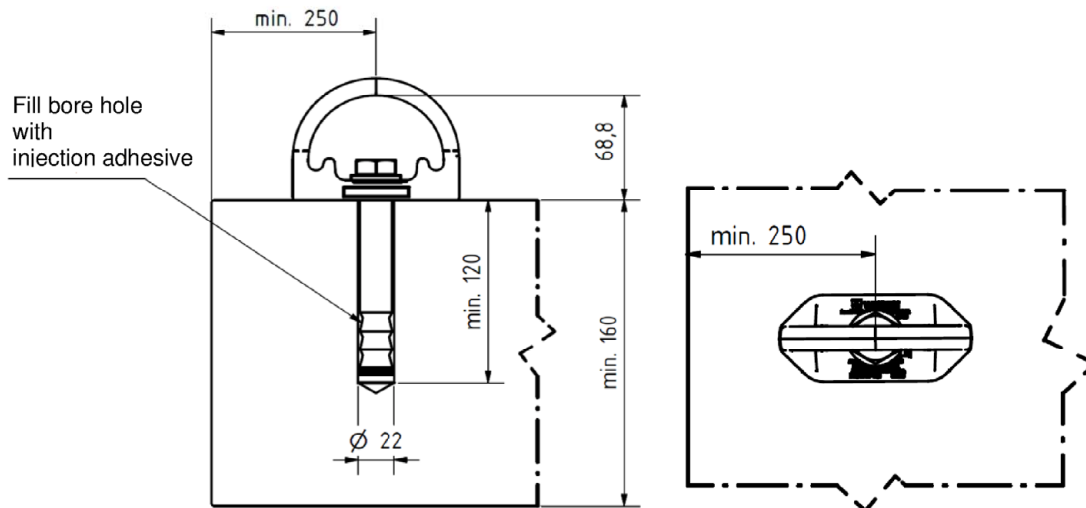
WIT-VM 100 and WIT-VIZ

Skylotec Fall Protection Systems

AP-TYP-45/49 for reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

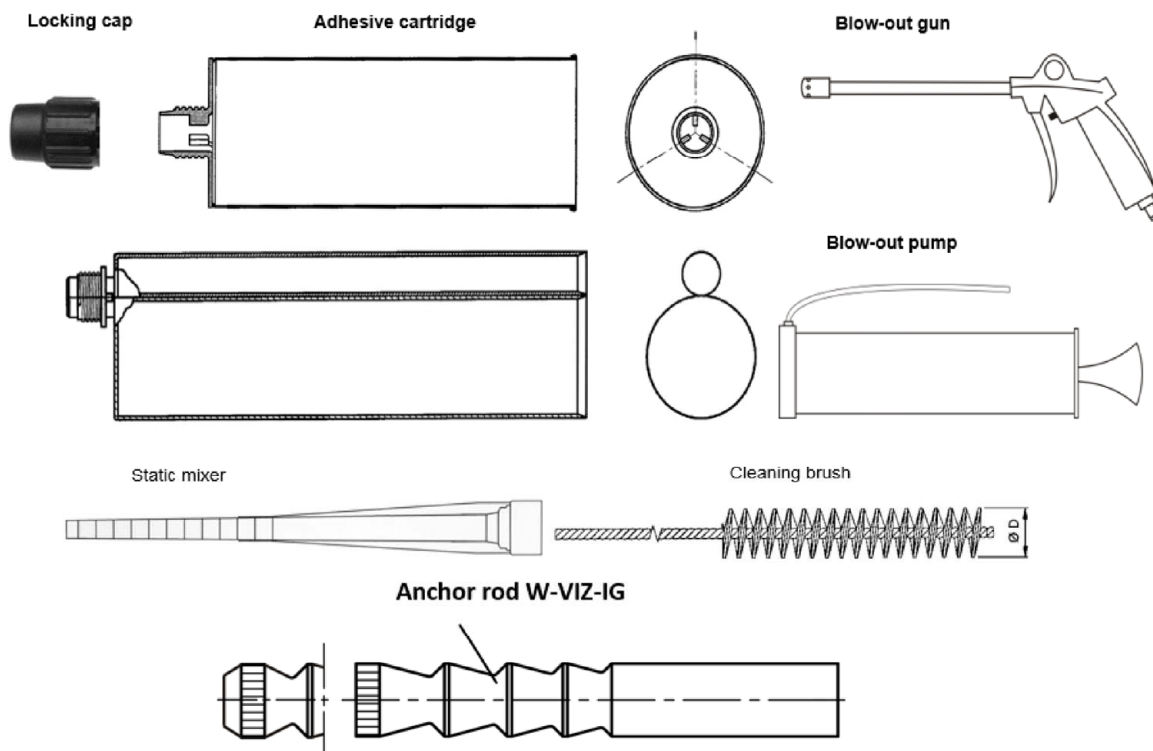
Annex 14.1

Anchor point Skylotec D-Bolt AP-TYP-45/49 installed with Würth injection system W-VIZ-IG/A4 M16X120



All dimensions in mm.

Würth injection system W-VIZ-IG/A4 M16X120




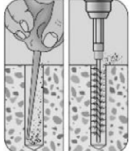
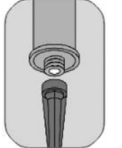

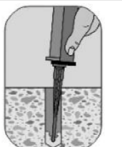



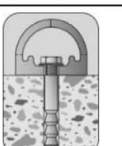
Cartridge imprint: processing data, storage life, batch no., hazard code, travel scale, curing and processing time

Skylotec Fall Protection Systems

AP-TYP-45/49 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components

Annex 14.2

Installation instructions for anchor point Skylotec D-Bolt AP-TYP-45/49 with Würth injection system W-VIZ-IG/A4 M16X120

1		Pay attention to fixing installation instructions and approval (ETA-04/0095).
		Using a hammer drill, create a bore hole with a drill nominal diameter of $d_o=22$ mm and bore hole depth of $h_1 \geq 120$ mm vertically to the surface of the anchor base.
2		Clean drill hole, the corresponding ETA or the manufacturers installation instructions have to be considered.
3		Attach the mixer to the cartridge using the dispenser.
4		Before use, dispense a strand of around 10 cm but do not inject it into the bore hole.
5		Checking the temperature of the anchor base: The minimum temperature acc. to the ETA has to be considered. Starting from the base of the bore hole, fill the hole with injection adhesive. The filling quantity has to be chosen acc. to the corresponding ETA.
6		Push in the anchor with internal thread with a slight turning movement down to the bore hole base.
7		Visually check the amount of adhesive or setting depth marking respectively. The adhesive has to reach the surface. If no adhesive is visible at the surface, the anchor with internal thread must be removed immediately and injection adhesive injected again. Comply with the curing time of the injection adhesive.
8		Remove excess adhesive and protective cap.
9		Install the AP-TYP-45/49, do not exceed max. torque of 50Nm

Skylotec Fall Protection Systems

**AP-TYP-45/49 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 14.3

Table 15: Substrate reinforced normal weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge spacing c_{min} [mm]	minimum thickness of lower surface h_{min} [mm]
AP-TYP-63	Screw-on part	Würth Fixanchor W-FAZ/A4 M10x90	150	120

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 75 mm.

Design values of the load capacity

Transverse forces

Longitudinal
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{21,95}{1,5} = 14,6 \text{ kN}$$

In the transverse direction
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,99}{1,5} = 14,0 \text{ kN}$$

Tensile forces
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{18,37}{1,5} = 12,2 \text{ kN}$$

The recommended safety factor γ_M is 1.5, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-99/0011

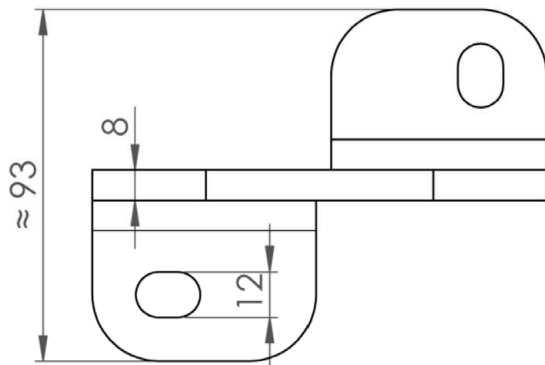
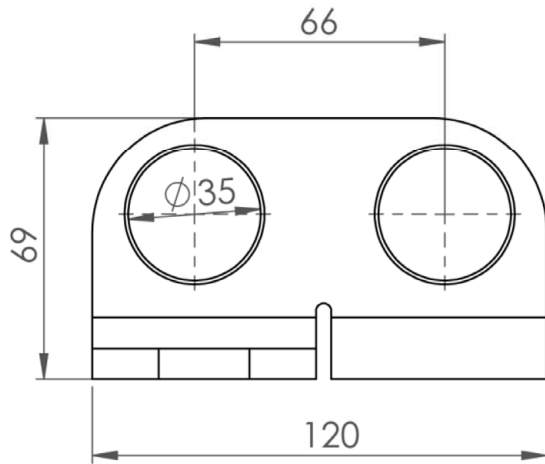
Würth Fixachor W-FAZ/A4 M10x90

Skylotec Fall Protection Systems

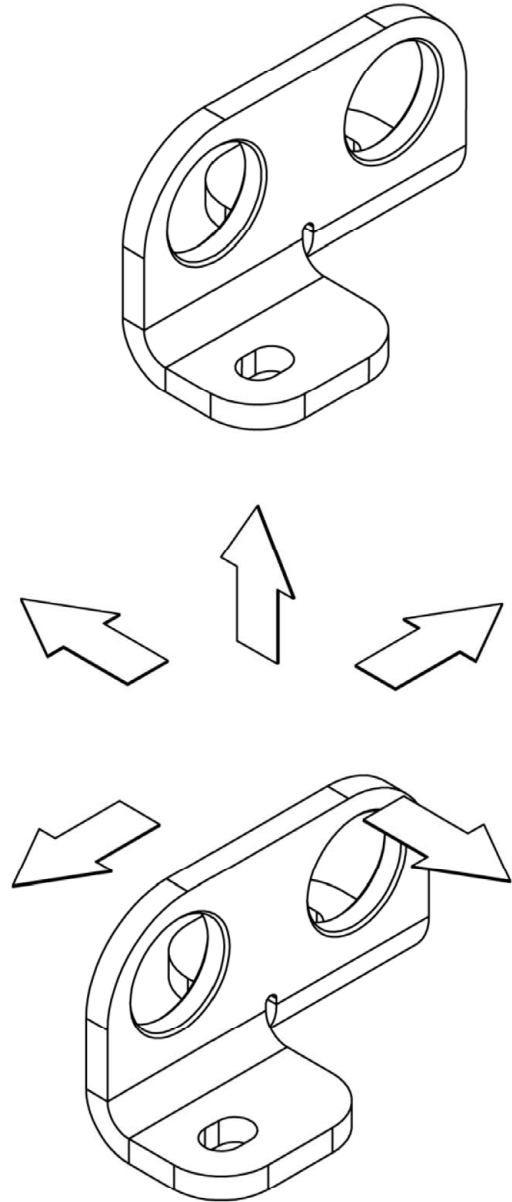
**AP-TYP-45/49 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

Annex 15.1

anchor point Skylotec SKYFIX AP-TYP-63



All dimensions in mm.

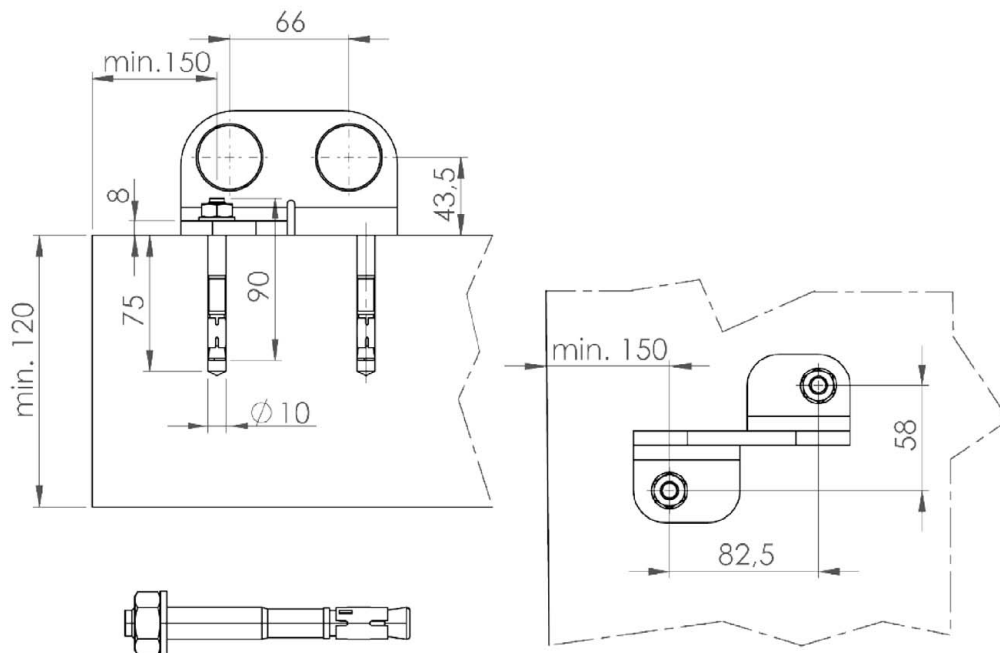


Skylotec Fall Protection Systems

AP-TYP-63 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Dimensions

Annex 15.2

Anchor point SKYFIX AP-TYP-63 installed with Würth Fixanchor W-FAZ/A4 M10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec SKIFIX AP-TYP-63 with Würth Fixanchor W-FAZ/A4 M10x90

1		Pay attention to fixing installation instructions and approval (ETA-99/0011). Create a bore hole with a drill nominal diameter of $d_o=10$ mm and bore hole depth of $h_1 \geq 75$ mm vertically to the surface of the anchor base.
2		Remove the bore dust, e.g. by blowing it out.
3		Using a hammer or machine setting tool, insert the anchor in the anchor base through the anchor point's 2 designated through-holes
4		Apply torque of 35 Nm with a calibrated torque wrench.

Skylotec Fall Protection Systems

**AP-TYP-63 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Fitted state/ System components / Installation instructions**

Annex 15.3

Table 16: Substrate reinforced normal-weight concrete C20/25 to C50/60 (cracked or non-cracked)

anchor device	rod height [mm]	fasteners	edge distance c_{min} [mm]	minimum thickness of concrete h_{min} [mm]
AP-TYP-64	Screw-on part	Würth concrete screw W-BS A4 SW15-5-35 10x90	150	130

All components of the personal protection device (fastener and concrete) are applicable in the weathered outdoor area.

The concrete substructure has to be drilled using a drill hole diameter of 10 mm and a drilling depth of ≥ 92 mm.

Design values of the load bearing capacity

Transverse forces

Longitudinal
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,84}{1,5} = 13,9 \text{ kN}$$

In the transverse direction
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{20,87}{1,5} = 13,9 \text{ kN}$$

Tensile forces
$$F_{Rd} = \frac{F_{Rk}}{\gamma_M} = \frac{21,82}{1,5} = 14,5 \text{ kN}$$

The recommended safety factor γ_M is 1.5, unless there is no partial safety factor in national regulations.

Dynamic strength

3 persons at maximum

Deformation capacity

≤ 10 mm at 0,70 kN

ETA-16/0043

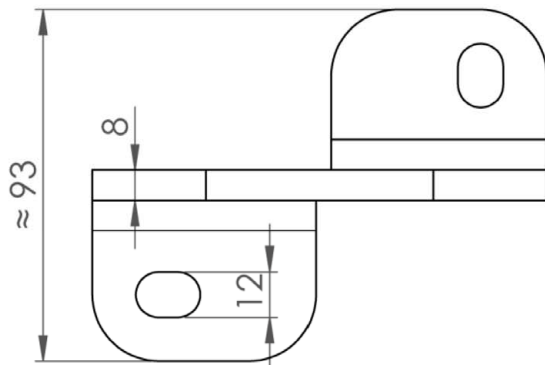
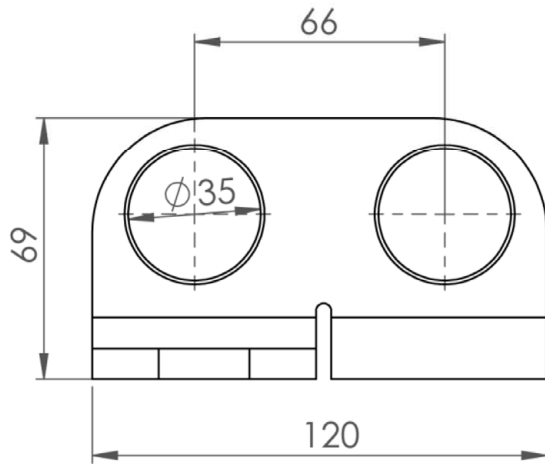
Würth concrete screw W-BS A4 SW15-5-35-10x90

Skylotec Fall Protection Systems

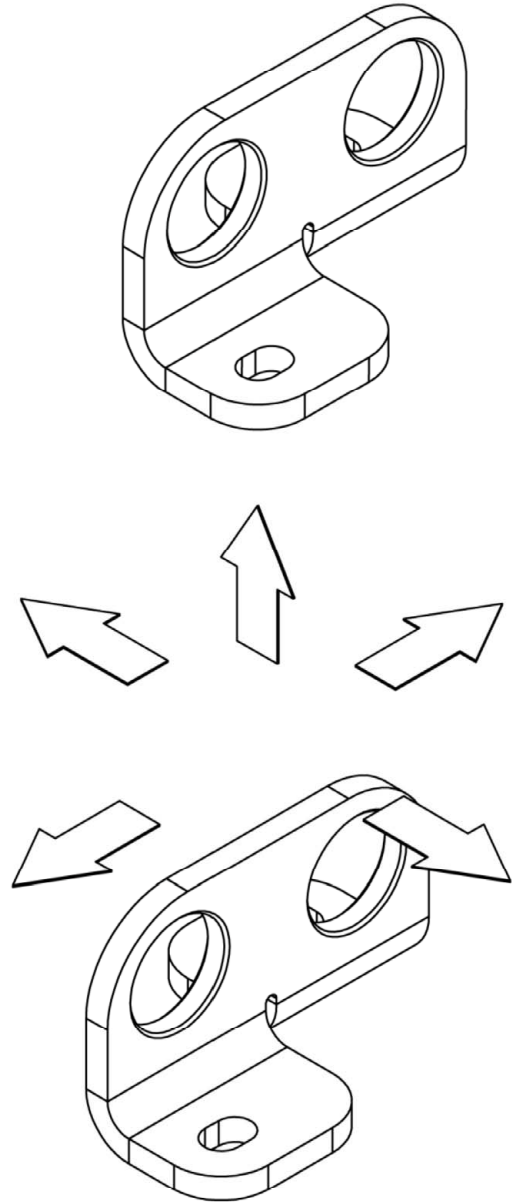
**AP-TYP-64 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked)**

Annex 16.1

Anchor point Skylotec SKYFIX AP-TYP-64



All dimensions in mm.

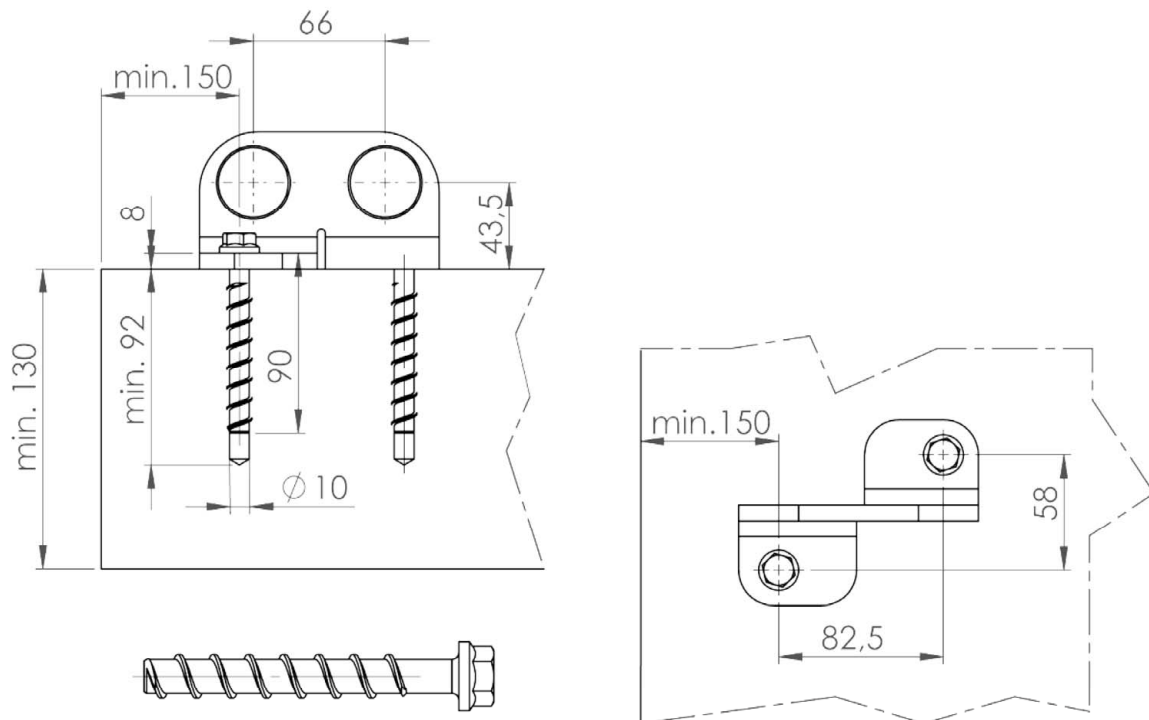


Skylotec Fall Protection Systems

AP-TYP-64 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Dimensions


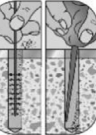
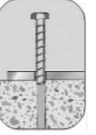
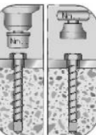
Annex 16.2

Anchor point Skylotec SKYFIX AP-TYP-64 installed with Würth concrete screw W-BS A4 SW15-5-35-10x90



All dimensions in mm.

Installation instructions for anchor point Skylotec Skyfix with Würth concrete screw W-BS / A4 Typ S 10-35 / 90 2x100/10

1		<p>Pay attention to fixing installation instructions and approval (ETA-16/0043).</p> <p>Using a hammer drill, create a bore hole with a drill nominal diameter of $d_b=10$ mm and bore hole depth of $h_1 \geq 92$ mm vertically to the surface of the anchor base</p>
2		<p>Remove the bore dust, e.g. by blowing it out.</p>
3		<p>Insert the concrete screw in the anchor base through the anchor point's 2 through-holes.</p>
4		<p>Manually, or using a tangential impact wrench, secure the concrete screw until the anchor point's base plate is pressed against the concrete base. Recommended torque: 55 Nm.</p>

Skylotec Fall Protection Systems

**AP-TYP-64 for reinforced normal-weight concrete C20/25 to C50/60
(cracked or non-cracked) Installation instructions**

Annex 16.3