

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body
for construction products



European Technical Assessment

ETA-18/0957
of 5 September 2024

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

Würth cable and pipe fixings

Product family to which the construction product belongs

Power-actuated fastener in concrete for redundant non-structural applications

Manufacturer

Adolf Würth GmbH & Co. KG
Reinhold-Würth-Straße 12-17
74653 Künzelsau
DEUTSCHLAND

Manufacturing plant

Würth Herstellwerke

This European Technical Assessment contains

24 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 330083-03-0601, Edition 06/2022

This version replaces

ETA-18/0957 issued on 22 June 2020

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

The Würth cable and pipe fixings consists of the power-actuated fastener (Nails NG CSM-1 HFB, NG CS-2/3 HFB, NG CSM-1 HFBX and NG CS-2/3 HFBX) made of galvanized steel and the fixture according to Annex A1 and A2 made of galvanized steel or polyamide. The power-actuated fasteners are placed into the concrete without previous drill by using a gas-actuated fastening tool (Würth DIGA CSM-1, Würth DIGA CS-2 POWER or Würth DIGA CS-3). They are anchored in the concrete by sintering and mechanical interlock.

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 |
|---|---|
| Characteristics for resistance <ul style="list-style-type: none"> - Characteristic resistance - Resistance to steel failure under shear load with lever arm - Spacing, edge distances, member thickness, embedment depth | F_{Rk} see Annex C1 to C13 $M^0_{Rk,s}$ No performance assessed. $c_{min}, s_{min}, h_{min}, h_{ef}$: see Annex B2 |
| Displacements | No performance assessed. |

3.2 Safety in case of fire (BWR 2)

| Essential characteristic | Performance |
|---|--------------------------------------|
| Reaction to fire <ul style="list-style-type: none"> - fasteners and fixtures made of metal - fixtures made of polyamide | Class A1 No performance assessed. |
| Resistance to fire | No performance assessed. |

3.3 Aspects of durability

| Essential characteristic | Performance |
|--------------------------|--------------|
| Durability | See Annex B1 |

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

In accordance with EAD No. 330083-03-0601, the applicable European legal act is: 1997/463/EC (EU).

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document

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




Issued in Berlin on 5. September 2024 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Baderschneider

Würth cable and pipe fixings: Description of the product

Table A1: Fixtures made of plastics

| No. | Power tool | Material | Product | Nail length | Picture of the fixture |
|-----|------------|----------|---|------------------------------------|---|
| [-] | [-] | [-] | [-] | [mm] | [-] |
| 1 | DIGA CS | Plastics | W-GFIXBK-929 0864 929 xxx | $l_{\text{nail}} \geq 27\text{mm}$ |  |
| 2 | DIGA CS | Plastics | W-GFIXBDK-939 0864 939 xxx | $l_{\text{nail}} \geq 27\text{mm}$ |  |
| 3 | DIGA CS | Plastics | W-QUICLIP 0864 930 xxx W-QUICLIP Plus 0864 935 xxx | $l_{\text{nail}} \geq 27\text{mm}$ |  |
| 4 | DIGA CS | Plastics | W-KKB Plus 0864 930 255 | $l_{\text{nail}} \geq 27\text{mm}$ |  |
| 5 | DIGA CS | Plastics | W-KSH-935 Plus 0864 935 102 | $l_{\text{nail}} \geq 32\text{mm}$ |  |
| 6 | DIGA CS | Plastics | W-KSH-935 Plus Double 0864 935 105 | $l_{\text{nail}} \geq 32\text{mm}$ |  |
| 7 | DIGA CS | Plastics | W-KBB-935 Plus 0864 935 110 | $l_{\text{nail}} \geq 32\text{mm}$ |  |
| 8 | DIGA CS | Plastics | W-KBB_935 Plus double 0864 935 120 | $l_{\text{nail}} \geq 32\text{mm}$ |  |
| 9 | DIGA CS | Plastics | KSH-Allrounder-Hoch 0971 651 xxx | $l_{\text{nail}} \geq 32\text{mm}$ |  |
| 10 | DIGA CS | Plastics | ELMO 0971 555 0xx | $l_{\text{nail}} \geq 27\text{mm}$ |  |

Würth cable and pipe fixings

Annex A1

Description of the products

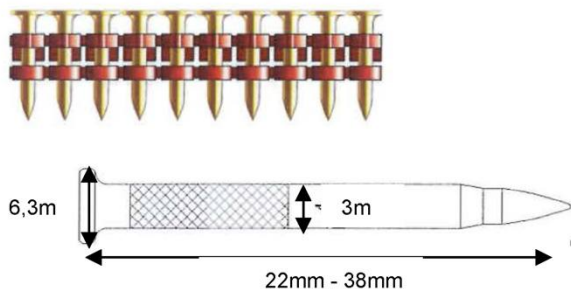
Würth cable and pipe fixings: Description of the product

Table A2: Fixtures made of steel

| No. | Power tool | Material | Product | Nail length | Picture of the fixture |
|-----|------------|----------|--------------------------|------------------------------------|---|
| [-] | [-] | [-] | [-] | [mm] | [-] |
| 11 | DIGA CS | Steel | W-GFIXB-927 0864 927 | $l_{\text{nail}} \geq 22\text{mm}$ |  |
| 12 | DIGA CS | Steel | W-GFIXBD-927 0864 927 | $l_{\text{nail}} \geq 22\text{mm}$ |  |
| 13 | DIGA CS | Steel | W-GWA-M8 0864 911 008 | $l_{\text{nail}} \geq 27\text{mm}$ |  |

Nail types

NG CS-2/3 HFB und NG CSM-1 HFB



NG CS-2/3 HFBX und NG CSM-1 HFBX

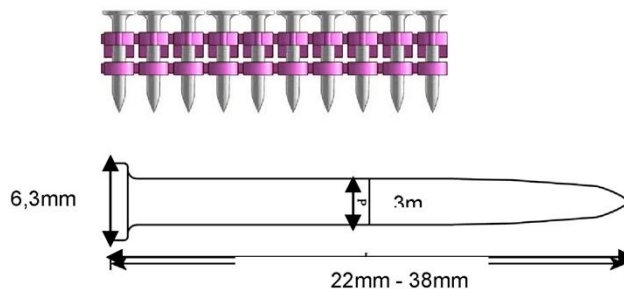


Table A3: Dimensions and Material

| Würth DIGA | | HFB nail | HFBX nail |
|------------------------------------|------|-----------------------------------|-----------------------------------|
| Use for gas tool | [-] | CSM-1, CS-2 POWER and CS-3 | CSM-1, CS-2 POWER and CS-3 |
| Length of nail | [mm] | 22-38 | 22-38 |
| Shaft diameter | [mm] | 3,0 | 3,0 |
| Head diameter | [mm] | 6,3 | 6,3 |
| Material | [-] | Hardened C-steel | Hardened C-steel |
| Plastic collation | [-] | Polyethylene (red/green/yellow) | Polyethylene (red/green/yellow) |
| Electro or mechanical zinc plating | [-] | $\geq 5\mu\text{m}$ | $\geq 5\mu\text{m}$ |

Würth cable and pipe fixings

Description of the products

Annex A2

Würth cable and pipe fixings: Dimensions and materials

Table A4: Fixtures made of steel

| No. | Power tool | Material | Concrete strength class | Min. member thickness | Min. hef | Product | Sizes and dimensions |
|-----|------------|-------------------------------|--|-----------------------|----------|---|----------------------|
| [-] | [-] | [-] | [-] | [mm] | [mm] | [-] | [-] |
| 1 | DIGA CS | HDPE, grey | C50/60 with DIGA CSM-1 and DIGA CS-3 (HFBX) C40/50 with DIGA CS-2 POWER and DIGA CS-3 (HFB) | 80 | 15 | W-GFIXBK-929 0864 929 xxx | see Annex C1 |
| 2 | DIGA CS | HDPE, grey | | 80 | 15 | W-GFIXBDK-939 0864 939 xxx | see Annex C2 |
| 3 | DIGA CS | Polyamide PA, grey | | 80 | 15 | W-QUICLIP 0864 930 xxx W-QUICLIP Plus 0864 935 xxx | see Annex C3 |
| 4 | DIGA CS | Polyamide PA 6, White/grey | | 80 | 15 | W-KKB Plus 0864 930 255 | see Annex C4 |
| 5 | DIGA CS | Polyamide PA, grey | | 80 | 15 | W-KSH 935 Plus 0864 935 102 | see Annex C5 |
| 6 | DIGA CS | Polyamide PA, grey | | 80 | 15 | W-KSH 935 Plus 0864 935 105 | see Annex C6 |
| 7 | DIGA CS | Polyamide PA, white | | 80 | 15 | W-KBB_935 Plus 0864 935 110 | see Annex C7 |
| 8 | DIGA CS | Polyamide PA, white | | 80 | 15 | W-KBB_935 Plus Doppel 0864 935 120 | see Annex C8 |
| 9 | DIGA CS | Polyamide PA, grey | | 80 | 15 | KSH-Allrounder-Hoch 0971 651 xxx | see Annex C9 |
| 10 | DIGA CS | Polyamide PA, grey white | | 80 | 15 | ELMO 0971 555 0xx | see Annex C10 |

Würth-Electro-Fixings made of metal

| No. | Power tool | Material | Concrete strength class | Min. member thickness | Min. hef | Product | Dimensions |
|-----|------------|-------------------------|---|-----------------------|----------|------------------------------|---------------|
| [-] | [-] | [-] | [-] | [mm] | [mm] | [-] | [-] |
| 11 | DIGA CS | Steel zinc plated > 5µm | C50/60 with DIGA CSM-1 and DIGA CS-3 (HFBX) C40/50 with DIGA CS-2 POWER and DIGA CS-3 (HFB) | 80 | 15 | W-GFIXB-927 0864 927 xxx | see Annex C11 |
| 12 | DIGA CS | Steel zinc plated > 5µm | | 80 | 15 | W-GFIXBD-927 0864 927 xxx | see Annex C12 |
| 13 | DIGA CS | Steel zinc plated > 5µm | | 80 | 15 | W-GWA-M8 0864 911 008 | see Annex C13 |

Würth cable and pipe fixings

Dimensions and Materials

Annex A3

Specifications of Intended Use

Anchorage subject to

- Fixtures for dead loads acting on the fasteners by stiff or flexible cables and pipes.

Base material

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2000.
- Strength classes C20/25 to C50/60 according to EN 206-1:2000 for use of setting tools DIGA CSM-1 or DIGA CS-3 (in combination with HFBX nails).
- Strength classes C20/25 to C40/50 according to EN 206-1:2000 for use of setting tools DIGA CS-2 POWER and DIGA CS-3 (in combination with HFB nails).
- For cracked and non-cracked concrete.
- Anchorages in two-dimensional load-bearing structures (slabs and walls).

Use conditions (Environmental conditions)

- Structures subject to dry conditions
- Minimum long-term temperature of 0 °C (Short term temperature is - 20 °C)
- Maximum long-term temperature of +80 °C for fixtures made of steel and +24 °C for fixtures made of plastic (short term temperature is 35°C)

Design

- The anchorages are designed in accordance with EN 1992-4:2018 Design Method C.
- The fastener is to be used only for multiple use for non-structural applications with following definition:
 - Number of fixing points $n_1 \geq 6$,
 - Number of fasteners per fixing point $n_2 = 1$,
 - Design value of actions per fixing point $F_{Ed} \leq 0,3 \text{ kN}$.
- The design of the fixture is such that in the case of excessive slip or failure of one fastener the load can be transmitted to neighboring fasteners without significantly violating the requirements on the fixture in the serviceability and ultimate limit state.
- The resistances are given in the Annexes C1 to C13 are valid for one fixture. A potential influence of an eccentric load introduction into the power-actuated nail is taken into consideration for the given resistances.

Würth cable and pipe fixings

Intended use: Specifications

Annex B1

Table B1: Installation parameters

| Würth DIGA | | | HFB nail | | |
|--|------------|------|--------------|-------------------|-------------|
| Use for gas tool | | [-] | CSM-1 | CS-2 Power | CS-3 |
| Maximum concrete strength class | | [-] | C50/60 | C40/50 | |
| Effective embedment depth | h_{ef} | [mm] | ≥ 15 | | |
| Average anchorage depth when used in maximum concrete strength class | $h_{ef,m}$ | [mm] | 25 | 22 | |
| Diameter of clearance hole in the fixture | d_f | [mm] | 3,5 | | |
| Max. thickness of the fixture | t_{fix} | [mm] | L – 21 mm | | |
| Minimum member thickness | h_{min} | [mm] | 80 | | |
| Minimum spacing | s_{min} | [mm] | 200 | | |
| Minimum edge distance | c_{min} | [mm] | 150 | | |

| Würth DIGA | | | HFBX nail | | |
|--|------------|------|--------------|-------------------|-------------|
| Use for gas tool | | [-] | CSM-1 | CS-2 Power | CS-3 |
| Maximum concrete strength class | | [-] | C50/60 | | |
| Effective embedment depth | h_{ef} | [mm] | ≥ 15 | | |
| Average anchorage depth when used in maximum concrete strength class | $h_{ef,m}$ | [mm] | 22 | | |
| Diameter of clearance hole in the fixture | d_f | [mm] | 3,5 | | |
| Max. thickness of the fixture | t_{fix} | [mm] | L – 18 mm | L – 21 mm | |
| Minimum member thickness | h_{min} | [mm] | 80 | | |
| Minimum spacing | s_{min} | [mm] | 200 | | |
| Minimum edge distance | c_{min} | [mm] | 150 | | |

Installation:


- Fastener installation carried out by appropriately qualified personnel.
- Fastener installation in accordance with the manufacturer's specifications and drawings and using the specified installation device.
- Fasteners to be installed perpendicular to the surface of the base material.
- When setting, pay attention to setting defects. A setting defect is present if the nail can be pull out of the concrete by hand.
- Fasteners to be installed ensuring not less than the minimum effective anchorage depth of 15 mm. If the embedment depth is smaller than the minimum effective anchorage depth the nail must be assumed as a setting defect and it must not be loaded.
- Damages on the concrete surface, caused by setting defects, have to be repaired according to EN 1504-3:2005. A new fastener is set at a minimum distance away of 100 mm of the edge of the damaged surface.
- Use of setting tools according to Annex B3.

| | |
|--|----------|
| Würth cable and pipe fixings | Annex B2 |
| Intended use: Installation parameters | |

Würth-cable-pipe-fixings: Installation tools

Table 6: Tools and nails

| DIGA CSM-1 | DIGA CS-2 Power |
|--|---|
|  |  |
| <p>Würth DIGA CSM-1 Gas actuated tool</p> | <p>Würth DIGA CS-2 POWER (long track version) Würth DIGA CS-2 POWER (short track version) Gas actuated tool</p> |

| DIGA CS-3 |
|---|
|  |
| <p>Würth DIGA CS-3 Gas actuated tool</p> |

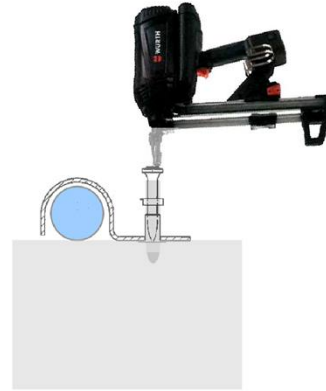
| | |
|---|------------------------|
| <p>Würth cable and pipe fixings</p> | |
| <p>Intended use: Installation parameters</p> | <p><u>Annex B3</u></p> |

Installation of the product

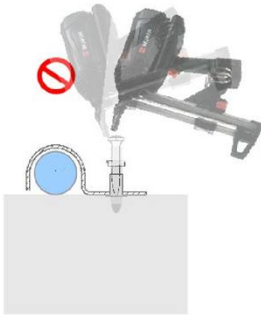
(1) Take the tools, nails, and fixtures acc. to the ETA-18/0957



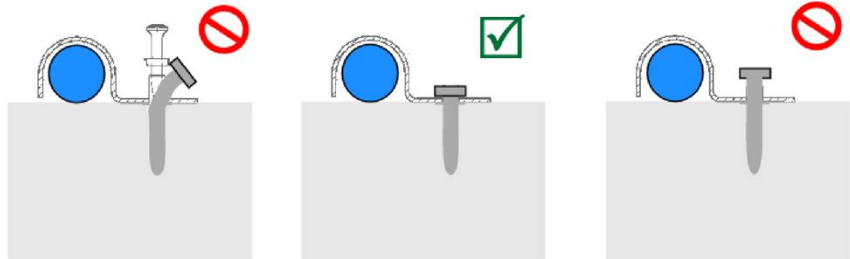
(2) fix the fixture on the concrete



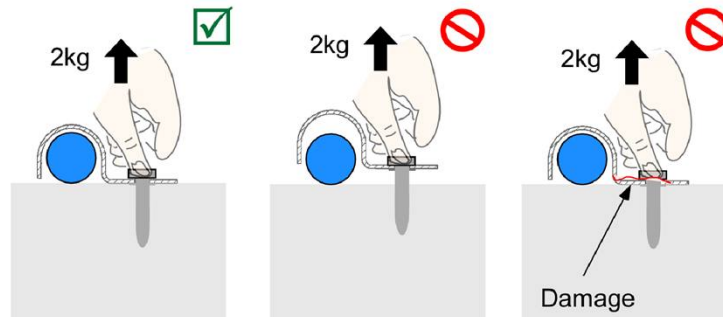
(3) fix perpendicular to the surface



(4) control visible setting defects



(5) control not visible setting defects



Würth cable and pipe fixings

Intended use: Installation procedure

Annex B4

Würth W-GFIXBK 929

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | A [mm] | B [mm] | C [mm] | D [mm] |
|--|----------------------|--------|--------|--------|--------|
| | 16 | 41 | 23 | 30 | 16 |
| | 18 | 42,5 | 23 | 30,75 | 18 |
| | 20 | 44,5 | 23 | 31,75 | 20 |
| | 22 | 46,5 | 23 | 32,75 | 22 |
| | 25 | 49 | 23 | 34 | 25 |
| | 28 | 51,5 | 23 | 35,25 | 28 |
| | 32 | 55 | 23 | 37 | 32 |
| | Material: HDPE, grey | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| GFIXBK 929 | | 16 | 18 | 20 | 22 | 25 | 28 | 32 |
|---------------------------|--------------------------|-------------------|----|----|----|----|----|----|
| Power Tool | [-] | DIGA CS | | | | | | |
| Nail | [-] | acc. to Annex A2 | | | | | | |
| Characteristic resistance | $F_{Rk,21^{\circ}C}$ [N] | 17,6 | | | | | | |
| Characteristic resistance | $F_{Rk,35^{\circ}C}$ [N] | 14,1 | | | | | | |
| Partial factor | γ_M [-] | 1,5 ¹⁾ | | | | | | |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C1

Würth W-GFIXBDK-939

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | A [mm] | B [mm] | C [mm] | D [mm] |
|----------------------|------|--------|--------|--------|--------|
| | 16 | 58 | 20 | 19 | 16-19 |
| | 18 | 68 | 20 | 19 | 20-23 |
| | 20 | 81 | 20 | 20 | 25-28 |
| Material: HDPE, grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| W-GFIXBDK 929 | | | 16 | 18 | 20 | 22 | 25 | 28 | 32 |
|---------------------------|---------------------|-----|-------------------|----|----|----|----|----|----|
| Power Tool | | [-] | DIGA CS | | | | | | |
| Nail | | [-] | acc. to Annex A2 | | | | | | |
| Characteristic resistance | $F_{Rk,21^\circ C}$ | [N] | 17,6 | | | | | | |
| Characteristic resistance | $F_{Rk,35^\circ C}$ | [N] | 14,1 | | | | | | |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ | | | | | | |

¹⁾ In Absence of other national regulations

| | |
|------------------------------|----------|
| Würth cable and pipe fixings | Annex C2 |
| Performances | |

Würth W-QUICLIP and W-QUICLIP Plus

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | A [mm] | B [mm] | C [mm] | D [mm] |
|------------------------------|------|--------|--------|--------|---------|
| | 15 | 24 | 16 | 23 | 15 – 18 |
| | 20 | 29 | 16 | 29 | 20 – 25 |
| | 26 | 36 | 16 | 33 | 26 – 32 |
| | 35 | 42 | 17 | 37 | 35 – 40 |
| | 47 | 51,5 | 17 | 46 | 47 – 50 |
| Material: Polyamide PA, grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| W-QUICLIP and W-QUICLIP Plus | | | 15 | 20 | 26 | 35 | 47 |
|------------------------------|----------------------|-----|-------------------|----|----|----|----|
| Power Tool | | [-] | DIGA CS | | | | |
| Nail | | [-] | acc. to Annex A2 | | | | |
| Characteristic resistance | $F_{Rk,21^{\circ}C}$ | [N] | 19,8 | | | | |
| Characteristic resistance | $F_{Rk,35^{\circ}C}$ | [N] | 15,8 | | | | |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ | | | | |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C3

Würth W-KKB Plus

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
|----------------------------|------|--------|--------|--------|--------|
| | 27,7 | - | 3,5 | 13 | 27,5 |
| Material: PA 6, white/grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{RK}):

| W-KKB Plus | | | 27,7 |
|---------------------------|----------------------|-----|----------------------|
| Power Tool | | [-] | DIGA CS |
| Nail | | [-] | acc. to Annex A2 |
| Characteristic resistance | $F_{RK,21^{\circ}C}$ | [N] | 44 |
| Characteristic resistance | $F_{RK,35^{\circ}C}$ | [N] | 35,2 |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ |
| Remark | | [-] | Tension loading only |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C4

Würth W-KSH 935 Plus

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
|------------------------------|------|--------|--------|--------|--------|
| | 20 | 115 | 19 | 45 | - |
| Material: Polyamide PA, grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{RK}):

| W-KSH 935 | | | 20 |
|---------------------------|----------------------|-----|-------------------|
| Power Tool | | [-] | DIGA CS |
| Nail | | [-] | acc. to Annex A2 |
| Characteristic resistance | $F_{RK,21^{\circ}C}$ | [N] | 10,1 |
| Characteristic resistance | $F_{RK,35^{\circ}C}$ | [N] | 8,1 |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C5

Würth W-KSH 935 Plus

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
|------------------------------|------|--------|--------|--------|--------|
| | 40 | 216 | 19 | 58 | - |
| Material: Polyamide PA, grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{RK}):

| W-KSH 935 | | | 40 |
|---------------------------|----------------------|-----|-------------------|
| Power Tool | | [-] | DIGA CS |
| Nail | | [-] | acc. to Annex A2 |
| Characteristic resistance | $F_{RK,21^{\circ}C}$ | [N] | 10,1 |
| Characteristic resistance | $F_{RK,35^{\circ}C}$ | [N] | 8,1 |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C6

Würth W-KBB 935 Plus

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | K [mm] | B [mm] | H [mm] | D [mm] |
|-------------------------------|------|--------|--------|--------|--------|
| | 8 | 100 | 17 | 19 | - |
| | 16 | 100 | 17 | 19 | - |
| Material: Polyamide PA, white | | | | | |

Characteristic resistance of the fastener including fixture (F_{RK}):

| W-KBB 935 | | 8 | |
|---------------------------|--------------------------|----------------------|--|
| Power Tool | [-] | DIGA CS | |
| Nail | [-] | acc. to Annex A2 | |
| Characteristic resistance | $F_{RK,21^{\circ}C}$ [N] | 7,0 | |
| Characteristic resistance | $F_{RK,35^{\circ}C}$ [N] | 5,6 | |
| Partial factor | γ_M [-] | 1,5 ¹⁾ | |
| Remark | [-] | Tension loading only | |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C7

Würth W-KBB 935

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
|-------------------------------|------|--------|--------|--------|--------|
| | 16 | 100 | 17 | 19 | - |
| Material: Polyamide PA, white | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| W-KBB 935 | | 16 | |
|---------------------------|----------------------|----------------------|-------------------|
| Power Tool | [-] | DIGA CS | |
| Nail | [-] | acc. to Annex A2 | |
| Characteristic resistance | $F_{Rk,21^{\circ}C}$ | [N] | 7,0 |
| Characteristic resistance | $F_{Rk,35^{\circ}C}$ | [N] | 5,6 |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ |
| Remark | [-] | Tension loading only | |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C8

Würth KSH-Allrounder

Picture of the fixture:



Cable collector
KSH-Allrounder



Quick Installation
Clip DIGA CS

Dimensions and material of the fixture:

| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
|------------------------------|------|--------|--------|--------|--------|
| | 20 | 48 | 28 | 93 | - |
| | 40 | 60 | 28 | 128 | - |
| | 50 | 68 | 28 | 138,5 | - |
| Material: Polyamide PA, grey | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| KSH-Allrounder | | | 20-H | 40-H | 50-H | 20-Q | 40-Q | 50-Q |
|---------------------------|---------------------|-----|----------------------|------|------|------------------------|------|------|
| | | | Application vertical | | | Application transverse | | |
| Power Tool | | [-] | DIGA CS | | | | | |
| Nail | | [-] | acc. to Annex A2 | | | | | |
| Characteristic resistance | $F_{Rk,21^\circ C}$ | [N] | 13,2 | | | 8,8 | | |
| Characteristic resistance | $F_{Rk,35^\circ C}$ | [N] | 10,6 | | | 7,0 | | |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ | | | | | |

1) In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C9

Würth ELMO

Picture of the fixture:



Dimensions and material of the fixture:

| | | | | | |
|--------------------------------------|-------------|---------------|---------------|---------------|---------------|
| | Size | L [mm] | B [mm] | H [mm] | D [mm] |
| | 16 | 23 | 14,6 | - | 16 |
| | 20 | 28 | 14,6 | - | 20 |
| | 25 | 34 | 14,6 | - | 25 |
| | 32 | 42 | 14,6 | - | 32 |
| | 40 | 52 | 14,6 | - | 40 |
| | 50 | 63 | 19 | - | 50 |
| | 63 | 78 | 20 | - | 63 |
| Material: Polyamide PA, grey / white | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| ELMO | | 16 | 20 | 25 | 32 | 40 | 50 | 63 | |
|---------------------------|----------------------|------------------|-------------------|----|----|----|----|----|--|
| Power Tool | [-] | DIGA CS | | | | | | | |
| Nail | [-] | acc. to Annex A2 | | | | | | | |
| Characteristic resistance | $F_{Rk,21^{\circ}C}$ | [N] | 22,0 | | | | | | |
| Characteristic resistance | $F_{Rk,35^{\circ}C}$ | [N] | 17,6 | | | | | | |
| Partial factor | γ_M | [-] | 1,5 ¹⁾ | | | | | | |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C10

Würth W-GFIXB-927

Picture of the fixture:



Dimensions and material of the fixture:

| | Size | A [mm] | B [mm] | C [mm] | D [mm] |
|--|--------------------|--------|--------|--------|--------|
| | 16 | 45 | 20 | 19 | 16 |
| | 18 | 48 | 20 | 19 | 18 |
| | 20 | 52 | 20 | 19 | 20 |
| | 22 | 52 | 20 | 19 | 22 |
| | 24 | 55 | 20 | 19 | 24 |
| | 28 | 60 | 20 | 19 | 28 |
| | Steel, zinc plated | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| W-GFIXD-927 | | 16 | 18 | 20 | 22 | 24 | 28 |
|---------------------------|--------------------------------------|-------------------|----|----|----|----|----|
| Power Tool | [-] | DIGA CS | | | | | |
| Nail | [-] | acc. to Annex A2 | | | | | |
| Characteristic resistance | $F_{Rk,24^{\circ}C-80^{\circ}C}$ [N] | 15,0 | | | | | |
| Partial factor | γ_M [-] | 1,5 ¹⁾ | | | | | |

¹⁾ In Absence of other national regulations

| | |
|------------------------------|-----------|
| Würth cable and pipe fixings | Annex C11 |
| Performances | |

Würth W-GFIXBD-927

Picture of the fixture:



Dimensions and material of the fixture:

|  | Size | A [mm] | B [mm] | C [mm] | D [mm] |
|--|------|--------|--------|--------|--------|
| | 16 | 64 | 20 | 26 | 16 |
| 18 | 70 | 20 | 26 | 18 | |
| 20 | 72 | 20 | 26 | 20 | |
| 22 | 76 | 20 | 26 | 22 | |
| 24 | 80 | 20 | 26 | 24 | |
| 28 | 90 | 20 | 26 | 28 | |
| Steel, zinc plated | | | | | |

Characteristic resistance of the fastener including fixture (F_{RK}):

| W-GFIXBD-927 | | 16 | 18 | 20 | 22 | 24 | 28 |
|---------------------------|--|-------------------|----|----|----|----|----|
| Power Tool | [-] | DIGA CS | | | | | |
| Nail | [-] | acc. to Annex A2 | | | | | |
| Characteristic resistance | $F_{RK,24^{\circ}\text{C}-80^{\circ}\text{C}}$ [N] | 15,0 | | | | | |
| Partial factor | γ_M [-] | 1,5 ¹⁾ | | | | | |

¹⁾ In Absence of other national regulations

| | |
|------------------------------|-----------|
| Würth cable and pipe fixings | Annex C12 |
| Performances | |

Würth W-GWA – M8

Picture of the fixture:



Dimensions and material of the fixture:

| | d1 [-] | A [mm] | B [mm] | t [mm] | Lg [mm] |
|--------------------|--------|--------|--------|--------|---------|
| | M8 | 64 | 18 | 1,5 | 15 |
| Steel, zinc plated | | | | | |

Characteristic resistance of the fastener including fixture (F_{Rk}):

| W-GWA – M8 | | M8 |
|---------------------------|--------------------------------------|-------------------|
| Power Tool | [-] | DIGA CS |
| Nail | [-] | acc. to Annex A2 |
| Characteristic resistance | $F_{Rk,24^{\circ}C-80^{\circ}C}$ [N] | 13,2 |
| Partial factor | γ_M [-] | 1,5 ¹⁾ |

¹⁾ In Absence of other national regulations

Würth cable and pipe fixings

Performances

Annex C13