iBMB MPA TU BRAUNSCHWEIG
Institute of Building Materials, Concrete Construction and Fire Safety
Braunschweig Civil Engineering Materials Testing Institute

Statement on fire safety

– Translation –

Document number:	MPABS-250251 – CM dated 06/03/2025
Client:	Adolf Würth GmbH & Co. KG Approvals and Technical Data Reinhold-Würth-Straße 12-17 74653 Künzelsau
Order date:	03/02/2024
Order ref.:	2025/02/03_Aybike.Elverdi_Sahin
Subject:	Assessment of loaded Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with threaded rods and fastened in solid structural elements, with regard to their load-bearing capacity and deformation under exposure to fire along the standard temperature-time curve (ETK) in accordance with DIN EN 1363-1
Basis for assessment:	See Section 1

This statement on fire safety comprises 8 Seiten pages including cover sheet, and 9 annexes.

Materialprüfanstalt für das Bauwesen (MPA BS)
Beethovenstraße 52
D-38106 Braunschweig

Phone +49 (0)531-391-5400
Fax +49 (0)531-391-5900
info@mpa.tu-bs.de
www.mpa.tu-bs.de

Norddeutsche LB Hannover
IBAN: DE58 2505 0000 0106 0200 50
BIC: NOLADE2H
VAT ID No.: DE183500654
Tax Reg. No.: 14/201/22859

Niedersachsen

1 General

With letter of 03/02/2024, Adolf Würth GmbH & Co. KG, 74653 Künzelsau, placed an order with MPA Braunschweig for the preparation of a fire-safety-related statement for assessing loaded Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with threaded rods fastened in solid structural elements with regard to their load-bearing capacity and deformation under exposure to fire along the standard temperature-time curve (ETK) in accordance with DIN EN 1363-1.

2 Documents serving as basis for the statement on fire safety

The statement on fire safety for the construction to be assessed is made on the basis of the following documents:

[1] DIN EN 1363-1 : 2020-05, Fire resistance tests – Part 1: General Requirements;

[2] Specimen guideline on fire protection requirements pertaining to conduits (Specimen Conduit Guideline [German designation: MLAR]), edition of 10/02/2015;

[3] Test Report No. (3611/5516)-CM dated 24/03/2009, issued for Adolf Würth GmbH & Co. KG, 74653 Künzelsau; and

[4] Technical Data Sheets for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps from Adolf Würth GmbH & Co. KG, 74653 Künzelsau.

The assessment for the Würth TIPP-pipe clamps combined with threaded rods was conducted on the basis of the fire tests carried out. According to Adolf Würth GmbH & Co. KG, 74653 Künzelsau, there is currently no complete building authority certificate (e.g., ETA) for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with threaded rods fastened in solid structural elements that lays down the regulations to be met by the execution described here in the event of fire.

3 Description of the construction

Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps are mounting systems made of galvanized steel that are used for fastening pipes. The loads are applied via the pipe clamp and the connected threaded rods combined with a suitable fastener into the anchoring base.

A pipe clamp consists of two metal strips (galvanized strip steel). The upper clamp strip is provided with a welded connecting head for M8/M10 threads (metric internal thread). The strip parts are connected to each other on both sides with a locking screw on each side. Würth TIPP®-Robust pipe clamps are provided with a pre-installed EPDM profile rubber insert, while Würth TIPP®-Robust Silicon

pipe clamps are provided with a pre-installed silicone insert, and Würth TIPP®-VDS pipe clamps are executed without insert.

According to the client, the related technical specifications for Würth TIPP-pipe clamps – for the normal purpose of use – can be taken from the respective technical data sheets [4] from Adolf Würth GmbH & Co. KG, 74653 Künzelsau.

The table below as well as the annexes summarize the technical data (manufacturer data) for Würth TIPP-pipe clamps. Further information can be taken from the technical data sheets [4] (e.g., mounting instructions from Adolf Würth GmbH & Co. KG, 74653 Künzelsau.

Table 1: Product range of Würth TIPP®-Robust pipe clamps

Würth TIPP®-Robust pipe clamps		**Clamp strip**	**Connecting head**	**Article number**		
Clamping range	**Nominal size [mm]**	**Width x Thickness [mm]**				
14-18 to 29-36	69 to 85	25 x 2.5	M8 / M10	0543 210 018	to	0543 210 036
40-45 to 65-73	97.5 to 128	25 x 2.5	M10 / M12	0543 210 045	to	0543 210 073
73-78 to 196-203	131.5 to 257.5	30 x 3.0	M10 / M12	0543 210 078	to	0543 210 203
205-214 to 320-328	295 to 409	40 x 4.0	M10 / M12	0543 210 214	to	0543 210 328

Table 2: Product range of Würth TIPP®-Robust Silicon pipe clamps

Würth TIPP®-Robust Silicon pipe clamps		**Clamp strip**	**Connecting head**	**Article number**		
Clamping range	**Nominal size [mm]**	**Width x Thickness [mm]**				
88-93 to 196-203	147 to 257.5	30 x 3.0	M10 / M12	0543 211 093	to	0543 211 203
205-214 to 219-225	295 to 306	40 x 4.0	M10 / M12	0543 211 214	to	0543 211 225

Table 3: Product range of Würth TIPP®-VDS pipe clamps

Würth TIPP®-VDS pipe clamps		Clamp strip	Connecting head	Article number
Clamping range	Nominal size [mm]	Width x Thickness [mm]		
20-26 to 60-67	63 to 103	25 x 2.5	M10	0543 518 021 to 0543 518 060
74-80 to 108-118	125 to 163	30 x 3.0	M10	0543 518 076 to 0543 518 114
135-145 to 267-273	208.8 to 342	40 x 4.0	M12 M16 M20	0543 518 139 to 0543 518 273

For a more detailed description of the construction, reference is made to the annexes and the technical data sheets [4] for Würth TIPP-pipe clamps from Adolf Würth GmbH & Co. KG, 74653 Künzelsau.

4 Assessment with regard to fire safety

4.1 General

The subject matter of this statement on fire safety are Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with threaded rods and fastened in solid structural elements, with regard to their load-bearing capacity and deformation under exposure to fire along the standard temperature-time curve (ETK) in accordance with DIN EN 1363-1.

Independent of the fire-safety-related statement, the suitability of Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with threaded rods, fasteners and the underground must also be proved for the cold as-installed condition. If for the normal purpose of use, smaller loads apply according to the Technical Data Sheets [4] from Adolf Würth GmbH & Co. KG, 74653 Künzelsau, these shall be binding.

The fire-safety-related statement is limited to mainly static (non-moving) loads combined with solid structural elements the fire resistance class of which must be at least the same as the one of the fastening systems.

The following will not be considered for the deformations stated:

- Protrusions below the pipe clamps (e.g., protrusion of an insulation of a conduit system),
- Deformations of the conduit systems (e.g., pipes, cable routes, …); and
- Deformations of the raw ceiling.

The fire-safety-related statement excludes an application for structures, which, as a total system (e.g., for cable systems designed to maintain circuit integrity and cable trunking/ducts in accordance with DIN 4102-12: 1998-11) are required to meet the requirements of a fire resistance class or for functional integrity. For these types of applications, further assessments and tests of the system as a whole are necessary.

4.2 Requirements to be fulfilled by fasteners and mounting systems

Requirements to be fulfilled by fasteners and mounting systems (e.g., pipe clamps, mounting rails, etc.) with regard to the load-bearing capacity and the deformation are imposed in conjunction with conduit systems (see, for example, Specimen guideline on fire protection requirements pertaining to conduits [German designation: MLAR]), edition of 10/02/2015, Sections 2.1 and 3.5). According to MLAR, fasteners are part of the conduit system; special requirements may result in conjunction with suspended ceilings (MLAR, Section 3.5). In conjunction with penetration seals, too, requirements to be fulfilled by the fastening of conduit systems may result from the related building authority certificate.

Based on the deformations determined for the tested Würth TIPP-pipe clamps, the individually necessary minimum distance min. a can be determined.

Necessary minimum distance min. a ≥ w(t) + ΔL(T)

f(t) = w(t) + ΔL(T):	Deformation of the pipe clamp including change in length ΔL(T) of the threaded rod
w(t):	Deformation of the pipe clamp as a function of the temperature
ΔL(T):	Linear expansion of the suspension as a function of the temperature and the suspension height ha

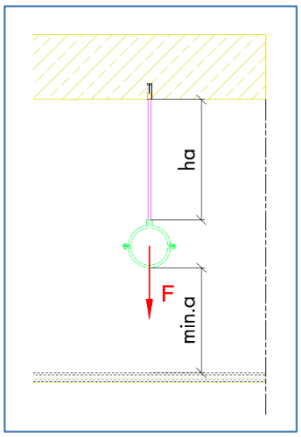


Fig. 1: Installation situation with pipe clamp

Figure 1 shows an example of a Würth TIPP-pipe clamp in the plenum of a suspended ceiling construction, in accordance with the Specimen guideline on fire protection requirements pertaining to conduits (Specimen Conduit Guideline [German designation: MLAR]), edition of 10/02/2015, section 3.5.3.)

Minimum distance min. a: minimum distance between topside of a ceiling and the underside of the Würth TIPP-pipe clamp.

Suspension height ha: clear suspension height between pipe clamp and ceiling underside (raw ceiling).

4.3 Assessment of Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps

The design proposals for Würth TIPP-pipe clamps under tensile load and exposure to fire in accordance with DIN EN 1363-1 can be taken from the annexes.

With regard to the load-bearing capacity under exposure to fire in accordance with DIN EN 1363-1, steel failure and underground failure can be distinguished.

For the Würth TIPP®-Robust pipe clamps assess here, the failure of the Würth TIPP-pipe clamps combined with threaded rods (steel failure) was decisive. The proof of the fastening system to the underground is to be furnished separately.

$N_{fire(t)}$ ⇒ load as a function of fire resistance, centric tensile load referred to the threaded rod.

For the Würth TIPP-pipe clamps combined with threaded rods, the maximum deformations under exposure to fire in accordance with DIN EN 1363-1 can be specified as a function of the fire resistance time.

f(t) ⇒ deformations as a function of load and time. The deformations of the conduit system (e.g., ventilation pipes) are not subject matter of this statement on fire safety

4.3.1 Assessment with regard to the maximum load for a fire resistance time of 30 – 120 minutes

Annex 7 specifies the maximum deformations for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps as a function of the fire resistance time.

Annex 8 specifies the maximum deformations for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps as a function of the load and the suspension height.

4.3.2 Assessment with regard to the reduced load for a fire resistance time of 30 minutes

Annex 9 specifies the loads for Würth Rohrschellen TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps for a fire resistance time of 30 minutes and minor deformations.

5 Special notes

5.1 This Statement on Fire Safety is not subject to notification and is no substitute for a classification report.

5.2 This Statement on Fire Safety is no proof of usability for use in a building control procedure. The statement on fire safety can, for example, serve for general preliminary planning or support in the assessment of the principle of execution / the construction. The manufacturer/erector of the construction is obliged to furnish the respective proof.

5.3 When applying for a project-related construction technique permit (vBG), the preparation of a project-related expert opinion will be required, taking the individually prevailing boundary conditions for planning into account.

5.4 This Statement on Fire Safety applies only in conjunction with the documents specified in Section 2 and cannot be transferred to other constructions without further verification.

5.5 This Statement on Fire Safety applies only in terms of fire protection. Further requirements may result from the technical building regulations applicable for conduit systems and the individual state building code and regulations for special constructions, e.g., with regard to building physics, statics, electrical engineering, ventilation engineering, and similar.

5.6 The above assessment applies only for Würth TIPP-pipe clamps taking the boundary conditions from the technical datasheets from Adolf Würth GmbH & Co. KG, 74653 Künzelsau, into account.

5.7 The above assessment applies only for Würth TIPP-pipe clamps fastened in solid structural elements. The underground and the fastening to the underground must have at least the same fire resistance as the related mounting systems.

5.8 Modifications of and supplements to design details (derived from this Statement on Fire Safety) shall only be possible after consultation with Materialprüfanstalt für das Bauwesen (MPA).

5.9 The executing company shall be exclusively responsible for the proper execution.

5.10 The design details as shown in the annexes shall be binding for the above assessment. Only the details relevant for the fire-safety-related assessment have been verified.

5.11 The validity of Statement on Fire Safety No. MPABS-250251 – CM dated 06/03/2025 ends on 06/03/2030 at the latest. The validity can be extended as a function of the state of the art.

This document is the translated version of Brandschutztechnische Aussage Nr. MPABS-250251 *– CM dated 06/03/2025. The legally binding text is the aforementioned German Brandschutztechnische Aussage.*

signiert/signed
Schmieder, Sven
17.04.2025

i. A.
Dipl.-Ing. Sven Schmieder
Deputy Head of Department

i. A.
Dipl.-Ing. (FH) Christian Maertins
Engineer/Official in Charge

Documents without stamp and signature bear a verifiable, qualified electronic signature.

Technical data for Würth TIPP®-Robust pipe clamps

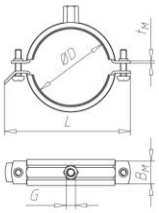
Pipe clamp TIPP® Robust

Two-screw clamp with two threaded plugs for high load requirements

- Two threaded plugs for improved adjustment to pipe dimension tolerances
- The threaded plugs do not fall out as they are secured with locking screws
- Easy insertion of pipes due to the cropped locking tab's large opening angle up to clamping range 196-203 mm
- Contributes to sound insulation for DIN 4109
- Rubber inlay resistant to ozone in accordance with DIN 53509-1 or ISO 1431/1 and to ageing in accordance with DIN 53508

Proof of Performance

Min./max. temperature resistance	-30 to 100 °C
Material	Steel
Surface	Zinc plated
Fire protection certified	Yes
Halogen-free	Yes
Silicone-free	Yes
Ultraviolet resistance	Yes
Chlorine-free	Yes
Material of sound insulation	EPDM - Ethylene propylene diene terpolymer natural rubber
DIN	4109
Sustainability	Resources, Pollutants/Emissions



Details/Application

Ideally suited for heating system construction, plumbing installations, plant construction, mechanical engineering and pipeline construction.

Notice

- Dimension for smallest possible pipe diameter for each individual size
- Rubber insert not resistant to oils, greases and fuels
- Our products with the Cradle to Cradle Certified certificate conserve resources and are low in harmful substances. The standard assesses the safety, circularity and pollutant content of materials in the end product. The main focus here is on conserving resources, e.g. by using recycled material in the manufacturing process.

CL01_8001060603, Rev.: 0.825, State: 04. 01. 2025

Technical data for Würth IPP®-Robust pipe clamps

Min./max. grip range (ØD)	Length (L)	Connection thread (G)	Metal-band width (B_M)	Metal belt thickness (t_M)	Weight	Thread type x nominal diameter x screw length	Art. no.	P. Qty.
14-18 mm	69 mm	M8 x M10	25 mm	2,5 mm	96 g	M6 x 25 mm	**0543 210 018**	50
19-23 mm	74,5 mm	M8 x M10	25 mm	2,5 mm	106 g	M6 x 25 mm	**0543 210 023**	50
24-28 mm	80 mm	M8 x M10	25 mm	2,5 mm	114 g	M6 x 25 mm	**0543 210 028**	50
29-36 mm	85 mm	M8 x M10	25 mm	2,5 mm	120 g	M6 x 25 mm	**0543 210 036**	50
40-45 mm	97,5 mm	M10 x M12	25 mm	2,5 mm	157 g	M6 x 25 mm	**0543 210 045**	20
47-52 mm	105 mm	M10 x M12	25 mm	2,5 mm	170 g	M6 x 25 mm	**0543 210 052**	20
53-58 mm	111 mm	M10 x M12	25 mm	2,5 mm	185 g	M6 x 25 mm	**0543 210 058**	20
60-65 mm	118 mm	M10 x M12	25 mm	2,5 mm	192 g	M6 x 25 mm	**0543 210 065**	20
65-73 mm	128 mm	M10 x M12	25 mm	2,5 mm	198 g	M6 x 25 mm	**0543 210 073**	20
73-78 mm	131,5 mm	M10 x M12	30 mm	3 mm	307 g	M8 x 35 mm	**0543 210 078**	20
79-85 mm	138,5 mm	M10 x M12	30 mm	3 mm	329 g	M8 x 35 mm	**0543 210 085**	20
88-93 mm	147 mm	M10 x M12	30 mm	3 mm	351 g	M8 x 35 mm	**0543 210 093**	20
100-106 mm	160 mm	M10 x M12	30 mm	3 mm	395 g	M8 x 35 mm	**0543 210 106**	20
108-116 mm	169,5 mm	M10 x M12	30 mm	3 mm	407 g	M8 x 35 mm	**0543 210 116**	20
124-129 mm	183 mm	M10 x M12	30 mm	3 mm	449 g	M8 x 35 mm	**0543 210 129**	20
131-137 mm	191 mm	M10 x M12	30 mm	3 mm	474 g	M8 x 35 mm	**0543 210 137**	20
138-145 mm	199 mm	M10 x M12	30 mm	3 mm	484 g	M8 x 35 mm	**0543 210 145**	20
156-162 mm	216 mm	M10 x M12	30 mm	3 mm	524 g	M8 x 35 mm	**0543 210 162**	20
165-171 mm	225 mm	M10 x M12	30 mm	3 mm	569 g	M8 x 35 mm	**0543 210 171**	20
175-185 mm	240,5 mm	M10 x M12	30 mm	3 mm	593 g	M8 x 35 mm	**0543 210 185**	10
188-194 mm	248,5 mm	M10 x M12	30 mm	3 mm	613 g	M8 x 35 mm	**0543 210 194**	10
196-203 mm	257,5 mm	M10 x M12	30 mm	3 mm	633 g	M8 x 35 mm	**0543 210 203**	10
205-214 mm	295 mm	M10 x M12	40 mm	4 mm	1219 g	M12 x 40 mm	**0543 210 214**	10
219-225 mm	306 mm	M10 x M12	40 mm	4 mm	1289 g	M12 x 40 mm	**0543 210 225**	10
244-250 mm	331 mm	M10 x M12	40 mm	4 mm	1389 g	M12 x 40 mm	**0543 210 250**	10
267-273 mm	354 mm	M10 x M12	40 mm	4 mm	1499 g	M12 x 40 mm	**0543 210 273**	10
275-285 mm	362 mm	M10 x M12	40 mm	4 mm	1530 g	M12 x 40 mm	**0543 210 285**	10
297-304 mm	385 mm	M10 x M12	40 mm	4 mm	1626 g	M12 x 40 mm	**0543 210 304**	10
310-320 mm	399 mm	M10 x M12	40 mm	4 mm	1679 g	M12 x 40 mm	**0543 210 320**	10
320-328 mm	409 mm	M10 x M12	40 mm	4 mm	1716 g	M12 x 40 mm	**0543 210 328**	10

CL01_8001060603, Rev: 0.825, State: 04. 01. 2025

Technical data for Würth TIPP®-Robust Silicone pipe clamps

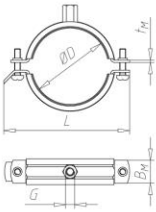
TIPP® robust silicone pipe clamp

Two-screw clamp with two threaded plugs for high load requirements

- Two threaded plugs for improved adjustment to pipe dimension tolerances
- The threaded plugs do not fall out as they are secured with locking screws
- Silicone insert resistant to high temperatures up to +225 °C
- Contributes to sound insulation for DIN 4109

Connection thread (G)	M10 x M12
Material	Steel
Min./max. temperature resistance	-60 to 225 °C
Surface	Zinc plated
Thread type	Metric thread
Building material class	B2 - Normally inflammable
DIN	4109
Sustainability	Resources, Pollutants/Emissions

ECO LINE



Proof of Performance

CERTIFIED cradle to cradle SILVER

TYPE APPROVED PRODUCT DNV DNV.COM/AF

Green Product Award Winner 2017

Details/Application

Ideally suited for heating construction, pipeline construction, plumbing installations, hot water systems and steam pipes.

Notice

- Dimension for smallest possible pipe diameter for each individual size
- Our products with the Cradle to Cradle Certified certificate conserve resources and are low in harmful substances. The standard assesses the safety, circularity and pollutant content of materials in the end product. The main focus here is on conserving resources, e.g. by using recycled material in the manufacturing process.

CL01_8001060606, Rev: 0.580, State: 04. 01. 2025

Technical data for Würth TIPP®-Robust Silicone pipe clamps

Min./max. grip range (ØD)	Length (L)	Metal-band width (B_M)	Metal belt thickness (t_M)	Weight	Art. no.	P. Qt
88-93 mm	147 mm	30 mm	3 mm	371 g	**0543 211 093**	20
100-106 mm	160 mm	30 mm	3 mm	435 g	**0543 211 106**	20
108-116 mm	169.5 mm	30 mm	3 mm	457 g	**0543 211 116**	20
124-129 mm	183 mm	30 mm	3 mm	472 g	**0543 211 129**	20
131-137 mm	191 mm	30 mm	3 mm	501 g	**0543 211 137**	20
138-145 mm	199 mm	30 mm	3 mm	529 g	**0543 211 145**	20
156-162 mm	216 mm	30 mm	3 mm	593 g	**0543 211 162**	20
165-171 mm	225 mm	30 mm	3 mm	605 g	**0543 211 171**	20
188-194 mm	248.5 mm	30 mm	3 mm	680 g	**0543 211 194**	10
196-203 mm	257.5 mm	30 mm	3 mm	694 g	**0543 211 203**	10
205-214 mm	295 mm	40 mm	4 mm	1362 g	**0543 211 214**	10
219-225 mm	306 mm	40 mm	4 mm	1413 g	**0543 211 225**	10

CL01_8001060606, Rev: 0.580, State: 04. 01. 2025

Technical data for Würth TIPP®-VDS pipe clamps

Tipp® VDS sprinkler clamp

Two-screw clamp similar to pipe clamp TIPP® Robust, but without insert for the attachment of sprinkler lines in fixed water-based fire extinguishing systems according to VdS guidelines

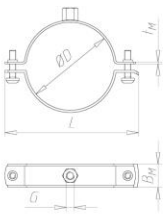
Cradle to Cradle®-certified

- Upgrading the building using non-hazardous materials
- Wider range of applications for GreenBuilding and building certification in accordance with LEED®, BREEAM® and DGNB

Our products certified as Cradle to Cradle Certified® are resource-conserving and environmentally compatible. The standard assesses the safety, recyclability and pollutant content of materials in the final product. The focus here is on conserving resources, for example, by using recycled material in the manufacturing process.

ECO LINE

Material	Sheet steel
Surface	Zinc plated
Sustainability	Resources, Pollutants/Emissions



Proof of performance

VdS certification no.: G414026

Details/Application

- For stationary fire protection in fixed water-based fire extinguishing systems – primarily in sprinkler system construction
- Spray-water fire extinguishing systems
- CO_2 and halon fire extinguishing systems
- Foam and powder fire extinguishing systems

CL01_8001100201, Rev.: 0.311, State: 05. 09. 2024

Technical data for Würth TIPP®-VDS pipe clamps

Art. no.	0543 518 021	0543 518 026	0543 518 033	0543 518 042	0543 518 048	0543 518 060
P. Qty.	50	50	50	30	30	30
Min./max. grip range	20-26 mm	26-33 mm	30-36 mm	37-44 mm	48-53 mm	60-67 mm
Length (L)	63 mm	69 mm	76 mm	85 mm	91 mm	103 mm
Grip range in inches	1/2 in	3/4 in	1 in	11/4 in	11/2 in	2 in
Connection thread (G)	M10	M10	M10	M10	M10	M10
Metal-band width (B_M)	25 mm	25 mm	25 mm	25 mm	25 mm	25 mm
Metal belt thickness (t_M)	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm	2.5 mm
Approval mark	VDS	FM, VDS	FM, VDS	FM, VDS	FM, VDS	FM, VDS
Weight	92 g	102 g	108 g	125 g	134 g	152 g

Art. no.	0543 518 076	0543 518 088	0543 518 114	0543 518 139	0543 518 159	0543 518 169
P. Qty.	30	30	30	10	10	10
Min./max. grip range	74-80 mm	85-96 mm	108-118 mm	135-145 mm	159-167 mm	167-173 mm
Length (L)	125 mm	138 mm	163 mm	208.8 mm	237 mm	237 mm
Grip range in inches	21/2 in	3 in	4 in	5 in	6 in	6 in
Connection thread (G)	M10	M10	M10	M12	M12	M12
Metal-band width (B_M)	30 mm	30 mm	30 mm	40 mm	40 mm	40 mm
Metal belt thickness (t_M)	3 mm	3 mm	3 mm	4 mm	4 mm	4 mm
Approval mark	FM, VDS	FM, VDS	FM, VDS	FM, VDS	FM, VDS	FM, VDS
Weight	261 g	288 g	330 g	778 g	871 g	915 g

Art. no.	0543 518 216	0543 518 219	0543 518 273
P. Qt	1	10	10
Min./max. grip range	216-226 mm	219-226 mm	267-273 mm
Length (L)	310	288.5 mm	342 mm
Grip range in inches	8 in	8 in	10 in
Connection thread (G)	M20	M16	M20
Metal-band width (B_M)	60 mm	40 mm	40 mm
Metal belt thickness (t_M)	6 mm	4 mm	4 mm
Approval mark	FM	VDS	VDS
Weight	2225 g	1148 g	1379 g

Scope of delivery: Up to clamping range 60–65 mm, sealing plug M6 x 25 mm, from 76–116 mm sealing plug, sealing plug M8 x 35 mm, from 133–273 mm sealing plug M12 x 40 mm

CL01_8001100201, Rev: 0.311, State: 05. 09. 2024

Fire-safety-related assessment for Würth TIPP®-Robust pipe clamps under tensile load and exposure to fire in accordance with DIN EN 1363-1 (max. load)

Table 4 specifies the maximum loads for Würth TIPP®-Robust pipe clamps.

Table 4: Fire-safety-related assessment for Würth TIPP®-Robust pipe clamps combined with threaded rods as a function of the fire resistance time (max. load)

Würth ®-Robust pipe clamp	**Würth TIPP®-Robust 14-18 mm to 320-328 mm**	**TIPP®-Robust Silicone 88-93 mm to 219-225 mm**	**TIPP®-VDS 20-26 mm to 267-273 mm**
Threaded rod (strength class ≥ 4.8)	≥ M10[2)]	≥ M10	M10 / ≥ M12
Fire resistance time in minutes	Tensile load $N_{fire(30)}$[1)][kN]		
30	≤ 0.52		
60	≤ 0.30		
90	≤ 0.20		
120	≤ 0.15		

1) Design value of the load-bearing capacity under exposure to fire as a function of time, centric tensile load referred to the threaded rod.

2) The pipe clamps with clamping range 14-18 to 29-33 can be executed with threaded rods ≥ M8.

Minimum distance min. a to the pipe clamp corresponds to deformation $f_{max(t)}$, if the deformation of the mounting system is decisive.

The deformations for the pipe clamps can be taken from Table 5, as a function of the load and the suspension height.

Table 5: Fire-safety-related assessment for Würth TIPP®-Robust pipe clamps combined with threaded rods[1)] as a function of the fire resistance time (deformations)

TIPP®-Robust / TIPP®-Robust Silicone[3)] / TIPP®-VDS[4)]		**Time**	**Load $N_{fire(30)}$[2)] [kN]**	**Deformations $f_{max(t)}$ as a function of the maximum load max. $N_{fire(t)}$ and the length of the suspension h_a**					
14-18 bis 320-328		**t**	**max $N_{fire(t)}$**	**ha ≤ 250**	**ha ≤ 500**	**ha ≤ 750**	**ha ≤ 1000**	**ha ≤ 1250**	**ha ≤ 1500**
[mm]	**[mm]**	**[min]**	**[kN]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**
14-18	**65-73**	**30**	**0.52**	42	45	48	51	54	57
73-78	**196-203**			50	53	56	59	63	66
205-214	**320-328**			58	61	64	67	70	73
14-18	**65-73**	**60**	**0.30**	55	58	61	64	67	70
73-78	**196-203**			63	66	69	72	76	79
205-214	**320-328**			71	74	77	80	83	86
14-18	**65-73**	**90**	**0.20**	55	58	61	64	67	70
73-78	**196-203**			63	66	69	72	76	79
205-214	**320-328**			71	74	77	80	83	86
14-18	**65-73**	**120**	**0.15**	55	58	61	64	67	70
73-78	**196-203**			63	66	69	72	76	79
205-214	**320-328**			71	74	77	80	83	86

1) Connected via the connecting thread combined with threaded rods according to Table 4.

2) Design value of the load-bearing capacity under exposure to fire as a function of time, with centric tensile load referred to the threaded rod acc. to Table 4.

3) The various design variants of TIPP®-Robust Silicone pipe clamps can be taken from Table 2.

4) The various design variants of TIPP®-VDS pipe clamps can be taken from Table 3.

Fire-safety-related assessment for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps under tensile load (reduced load)

Minimum distance min. a to the pipe clamp corresponds to deformation $f_{red(30)}$, if the deformation of the mounting system is decisive.

Table 6: Design proposal for Würth TIPP®-Robust / TIPP®-Robust Silicone / TIPP®-VDS pipe clamps combined with related threaded rods[1)] made of galvanized steel, for a fire resistance time of 30 minutes and reduced load

TIPP®-Robust / TIPP®-Robust Silicone[3)] / TIPP®-VDS[4)]		**Load[2)]**	**Deformations f_{red} as a function of a reduced load red. $N_{fire(30)}$[2)] and the suspension height**						
14-18 bis 320-328		**red.$N_{fire(30)}$**	**ha ≤ 150**	**ha ≤ 250**	**ha ≤ 500**	**ha ≤ 750**	**ha ≤ 1000**	**ha ≤ 1250**	**ha ≤ 1500**
[mm]	**[mm]**	**[kN]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**	**[mm]**
14-18 to 320-328		**0.34**	20	23	25	28	30	33	35
		0.42	25	28	30	33	35	38	40
		0.49	30	33	35	38	40	43	45

1) Connected via the connecting thread combined with threaded rods according to Table 4.

2) Design value of the load-bearing capacity under exposure to fire as a function of time, with centric tensile load referred to the threaded rod acc. to Table 4.

3) The various design variants of TIPP®-Robust Silicone pipe clamps can be taken from Table 2.

4) The various design variants of TIPP®-VDS pipe clamps can be taken from Table 3.