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European Technical Assessment

ETA 18/0371
of 11/04/2021

General Part

Technical Assessment Body issuing the European Technical Assessment

Technický a zkušební ústav stavební Praha, s.p.

Trade name of the construction product	WSPD, WSPD-T WFK, WFP, WFP-RT, MPZ, MPZ-P, MPZ-IW, MPT, MPT-P, MPT-IW, MPX, MPTC, MPTC-IW, BPMNT, BPSMNT, WSPC, WSPST, BSZ, BST, BSX, SP-MRP
Product family to which the construction product belongs	Product area code: 33 Fastening screws for metal members and sheeting
Manufacturer	Marcopol sp.zoo. Producent Śrub Ul. Oliwska 100 80-209 Chwaszczyno Republic of Poland
Manufacturing plant	1. Plant 1 2. Plant 2 3. Plant 3 4. Plant 4 5. Plant 5 6. Plant 6 7. Marcopol sp.zoo Producent Śrub Ul. Oliwska 100, 80-209 Chwaszczyno Republic of Poland
This European Technical Assessment contains	122 pages including 4 Annexes, which form an integral part of this European Technical Assessment
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of	EAD 330046-01-0602 Fastening Screws for Metal Members and Sheetting
This version replaces	ETA 18/0371, version 01 issued on 15/02/2019

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

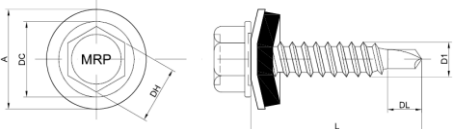
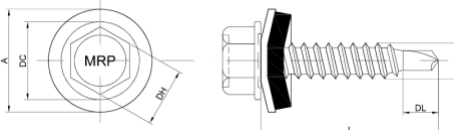
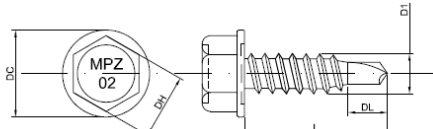
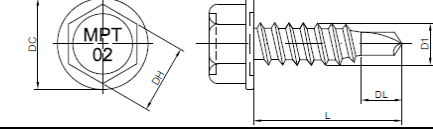
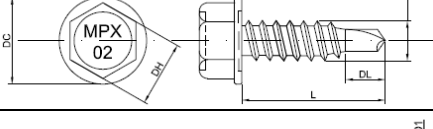
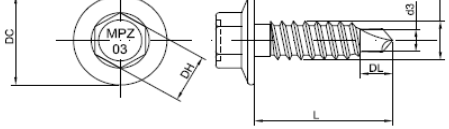
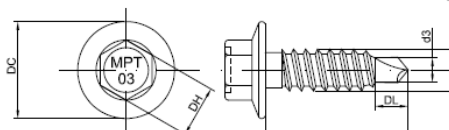
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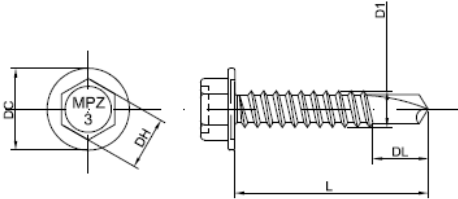
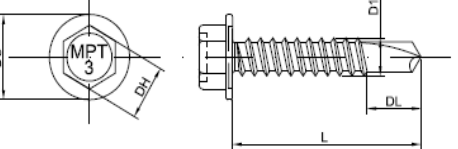
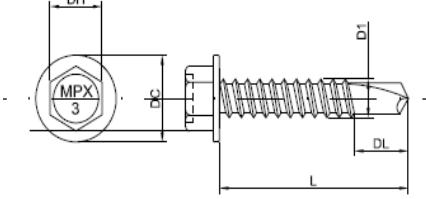
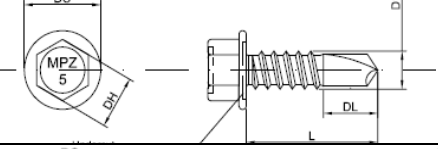
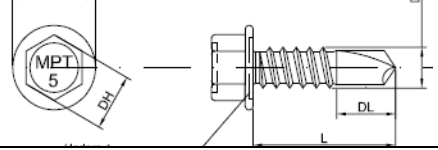
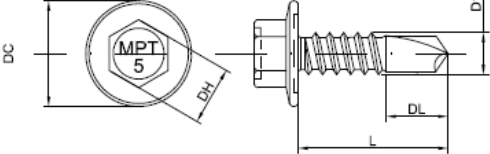
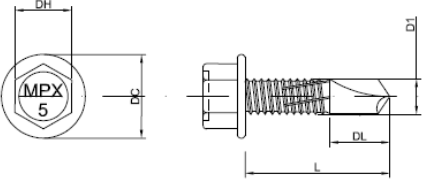
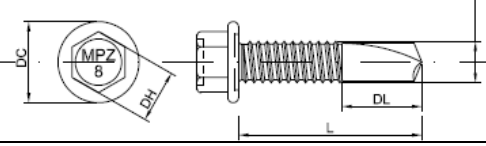
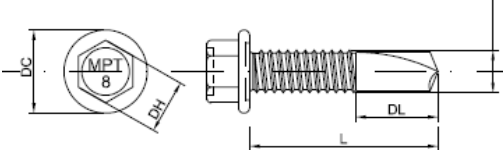
Specific Parts

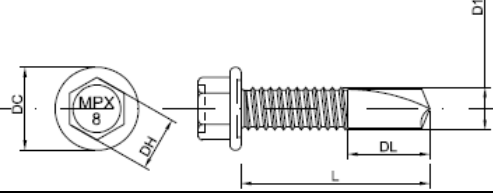
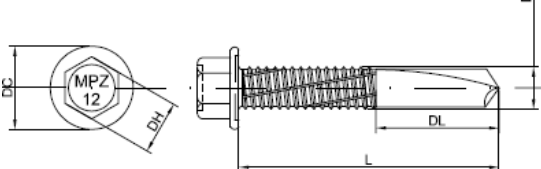
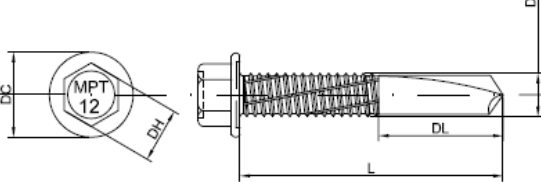
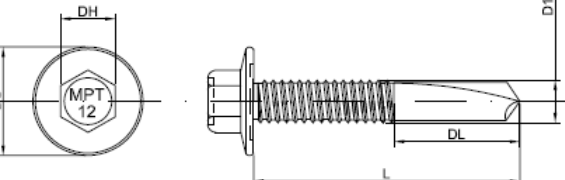
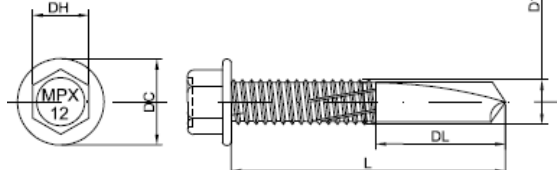
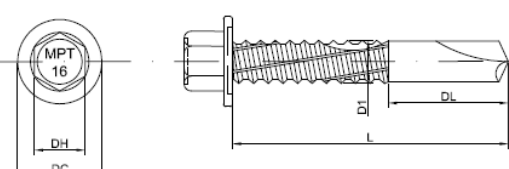
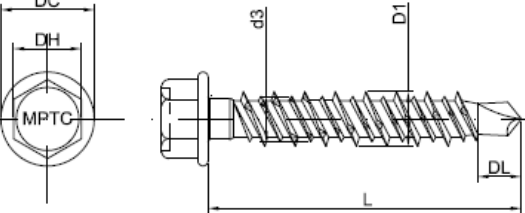
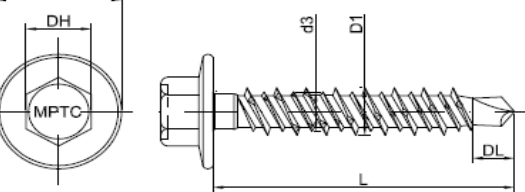
1 Technical description of the product

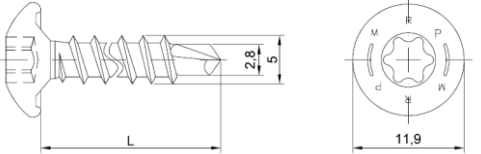
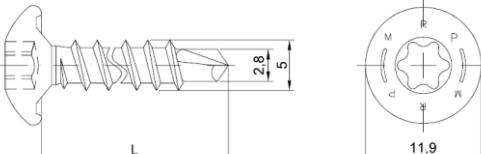
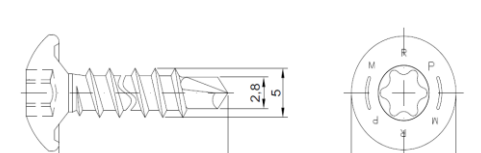
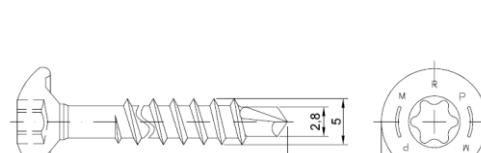
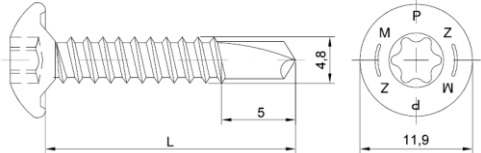
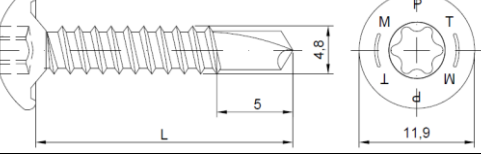
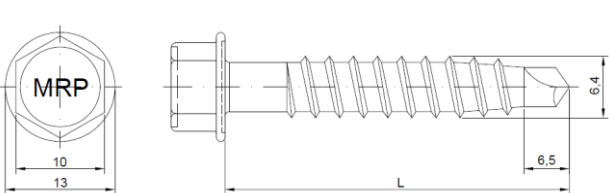
The fastening screws **WSPD, WSPD-T, WFK, WFP, WFP-RT, MPZ, MPZ-P, MPZ-IW, MPT, MPT-P, MPT-IW, MPX, MPTC, MPTC-IW, BPMNT, BPSMNT, WSPC, WSPST, BSZ, BST, BSX, SP-MRP** are a self-drilling screws. The screws are made of carbon steel SAE1022 (SAE10B21, SAE10B23, 23MNB4, 19MNB4), stainless steel A2 or are Bi-Metal. Some of them are supplied with aluminum, pre-galvanized carbon steel or stainless steel washer or integrated washer and with an EPDM sealing ring with metal top made of coated carbon steel/stainless steel/aluminium. The screws are zinc-coated with min 5 μm , 8 μm or 12 μm or are zinc-nickel coated with min 5 μm or with Ruspert Silver 500h coating or Geomet coating. For details see table below. Examples of fastening screws and the corresponding connections are shown in Annex 2. The screws and the corresponding connections are subject to tension and shear forces.

Specification of samples

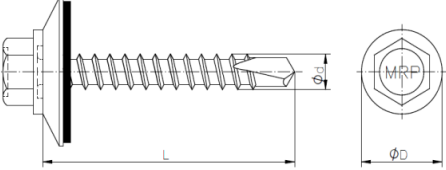
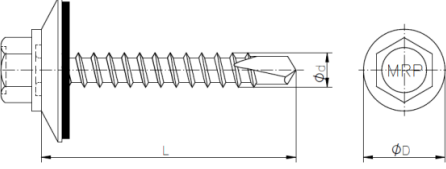
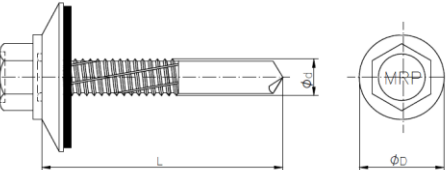
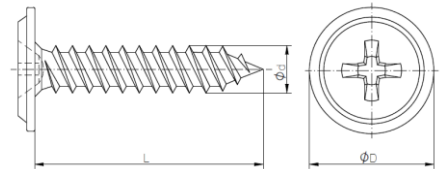
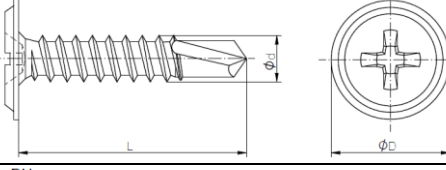
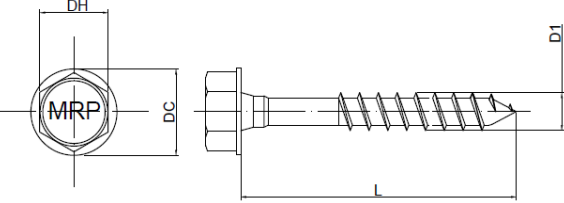
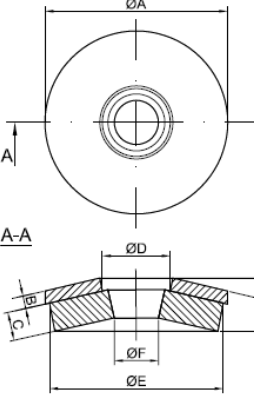
Element	Drawing	Material
Screw WSPD 4,8xL		Carbon steel SAE 1022 zinc plate
Screw WSPD-T 4,8xL		Carbon steel SAE 1022 Ruspert Silver 500h
Screw MPZ02 4,8xL		Carbon steel SAE 1022 zinc plate
Screw MPT02 4,8xL		Carbon steel SAE 1022 Ruspert Silver 500h
Screw MPX02 4,8xL		Bi-Metal Stainless steel, Ruspert Silver 500h
Screw MPZ03 IW 6,3xL		Carbon steel SAE 1022 zinc plate
Screw MPT03 IW 6,3xL		Carbon steel SAE 1022 Ruspert Silver 500h

Element	Drawing	Material
Screw MPZ3 4,8xL		Carbon steel SAE 1022 zinc plate
Screw MPT3 4,8xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPX3 4,8xL		Bi-Metal Stainless steel, Ruspert Silver 500h
Screw MPZ5 5,5xL		Carbon steel SAE 1022 zinc plate
Screw MPT5 5,5xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPT5 IW 5,5xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPX5 5,5xL		Bi-Metal Stainless steel, Ruspert Silver 500h
Screw MPZ8 5,5xL		Carbon steel SAE 1022 zinc plate
Screw MPT8 5,5xL		Carbon steel SAE 1022, Ruspert Silver 500h

Element	Drawing	Material
Screw MPX8 5,5xL		Bi-Metal stainless steel, Ruspert Silver 500h
Screw MPZ12 5,5xL		Carbon steel SAE 1022 zinc plate
Screw MPT12 5,5xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPT12 IW 5,5xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPX12 5,5xL		Bi-Metal stainless steel, Ruspert Silver 500h
Screw MPT16 6,3xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPTC 6,4xL		Carbon steel SAE 1022, Ruspert Silver 500h
Screw MPTC IW 6,4xL		Carbon steel SAE 1022, Ruspert Silver 500h
		Carbon steel SAE1022, SAE10B21, SAE10B23,

Element	Drawing	Material
Screw MPZ02-P 4,8×L		23MNB4, 19MNB4 zinc plate or Geomet
Screw MPT02-P 4,8×L		Carbon steel SAE 1022, Ruspert Silver 500h
Screw WFP 4,8×L		Carbon steel SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 zinc plate, Ruspert silver 500h or Geomet
WFP-RT 4,8×L		Carbon steel SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 zinc plate, Ruspert silver 500h or Geomet
Screw MPZ3-P 4,8×L		Carbon steel SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 zinc plate
Screw MPT3-P 4,8×L		Carbon steel SAE1022 Ruspert Silver 500h
Screw WFK 6,4×L		Carbon steel SAE1022 zinc plate or Ruspert Silver 500h

Element	Drawing	Material
Screw BSZ 4,8×L		Carbon steel SAE1022 zinc plate
Screw BST 4,8×L		Carbon steel SAE1022 Ruspert Silver 500h
Screw BSZ 5,5×L		Carbon steel SAE1022 zinc plate
Screw BST 5,5×L		Carbon steel SAE1022 Ruspert silver 500h
Screw BSZ 6,3×L		Carbon steel SAE1022 zinc plate
Screw BST 6,3×L		Carbon steel SAE1022 Ruspert silver 500h
Screw BSX 5,5× L		Stainless steel – SAE304 Ruspert silver 500h
Screw WSPST 4,8×L		Carbon steel SAE1022 zinc plate

Element	Drawing	Material
Screw WSPST 5,5×L		Carbon steel SAE1022 zinc plate
Screw WSPST 6,3×L		Carbon steel SAE1022 zinc plate
Screw WSPC 5,5×L		Carbon steel SAE1022 zinc plate
Screw BPMNT 4,2×L		Carbon steel SAE1022 zinc plate
Screw BPSMNT 4,2×L		Carbon steel SAE1022 zinc plate
Screw SP-MRP		Carbon steel SAE 1022 zinc or zinc-nickel plate
Washer AL ø14 Washer AL ø16 Washer AL ø22 Type A		Aluminum
Washer C ø14 Washer C ø16 Type S		Pregalvanized carbon steel
Washer A2 ø14 Washer A2 ø16 Type I		Stainless steel A2

1.1 Characteristics of the product

The fastening screws shall correspond to the drawings given in table under clause 1. The characteristic material values, dimensions and tolerances of the fastening screws shall correspond to the respective values laid down in technical documentation deposited at Technický a zkušební ústav stavební Praha, s.p. The characteristic values of the shear and tension resistance of the connections made with the fastening screws are given in the Annex 3.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The fastening screws are intended to be used for fastening steel sheeting to steel and timber supporting structures. The sheeting can either be used as wall or roof cladding or as load bearing wall and roof element. The fastening screws can also be used for the fastening of any other thin gauge metal members. The component to be fastened is component I and the supporting structure is component II. The intended use comprises connections for indoor and outdoor applications. Fastening screws which are intended to be used in external environments shall be protected against corrosion. Furthermore, the intended use comprises connections with predominantly static loads (e.g. wind loads, dead loads).

The intended use comprises fastening screws and connections for indoor and outdoor applications. Fastening screws and washers which are intended to be used in external environments with \geq C2 corrosion according to the standard EN ISO 12944-2 are made of stainless steel.

Fastening screws types: WSPD, WSPD-T, WFK, WFP, WFP-RT, MPZ, MPZ-P, MPZ-IW, MPT, MPT-P, MPT-IW, MPTC, MPTC-IW, BPMNT, BPSMNT, WSPC, WSPST, BSZ, BST, SP-MRP made of pregalvanized carbon steel or aluminum washers integrated with EPDM can be used in internal environment with C1, C2 corrosion according to the standard EN 12944-2. For using to different environment corrosion class producer should perform additional tests which will confirm proper corrosion resistance.

Fastening screws and washer type MPX, BSX which are intended to be used in external environment corrosion class: C3, C4, C5 according to the standard EN 12944-2 are made of stainless steel (bi-metal).

The assessment methods included or referred to in the EAD have been written based on the manufacturer's request to take into account a working life of the fastening screws for metal members and sheeting for the intended use of 25 years when installed in the works. The provisions are based upon the current state of the art and the available knowledge and experience.

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting the EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

3 Performance of the product and references to the methods used for its assessment

The assessment of the fitness for use of the fastening screws according to the basic work requirements (BWR) were carried out in compliance with EAD 330046-01-0602.

The European Technical Assessment is issued for the fastening screws on the basis of agreed data and information, deposited at Technický a zkušební ústav stavební Praha, s.p., which identifies fastening screws that has been assessed and judged. Changes to the fastening screws or production process which could result in this deposited data and information being incorrect should be notified to Technický a zkušební ústav stavební Praha, s.p. before the changes are introduced. Technický a zkušební ústav stavební Praha, s.p. will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment or alternations to the ETA shall be necessary.

Table 1 Essential characteristics of the product

	Essential characteristic	Performance
3.1 BWR 1: Mechanical resistance and stability		
3.1.1	Shear Resistance of the Connection	See Annex 3
3.1.2	Tension Resistance of the Connection	See Annex 3
3.1.3	Design Resistance in case of combined Tension and Shear Forces (interaction)	No performance assessed
3.1.4	Check of Deformation Capacity in case of constraining forces due to temperature	No performance assessed
3.1.5	Durability	See point 3.1.5
3.2 BWR 2: Safety in case of fire		
3.2.1	Reaction to fire	The performance of the product is Class A1 according to EN 13501-1

3.1 Mechanical resistance and stability (BWR 1)

Annex 3 contains essential characteristics for MARCOPOL fastening screws for metal members and sheeting. The design and construction shall be carried out according to national provisions that apply at the installation site in line with the partial safety factor format.

3.1.1 Shear Resistance of the Connection

The test of shear resistance of the connection was performed according to provisions in EAD 330046-01-0602, clause 2.2.1.1 and evaluated according to clause 2.2.1.3. The test results are documented in tables under Annex 3.

3.1.2 Tension Resistance of the Connection

The test of tension resistance of the connection was performed according to provisions in EAD 330046-01-0602, clause 2.2.2.1 and clause 2.2.2.3 and evaluated according to clause 2.2.2.4. The test results are documented in tables under Annex 3.

3.1.3 Design Resistance in case of combined Tension and Shear Forces (interaction)

No performance assessed.

3.1.4 Check of Deformation Capacity in case of constraining forces due to temperature

No performance assessed.

3.1.5 Durability

The screws are made from carbon steel SAE1022 (SAE10B21, SAE10B23, 23MNB4, 19MNB4), stainless steel A2 or are Bi-Metal. Some of them are supplied with aluminum, pre-galvanized carbon steel or stainless steel washer or integrated washer and with an EPDM sealing ring with metal top made of coated carbon steel/stainless steel/aluminium. The screws are zinc-coated with min 5 μm , 8 μm or 12 μm or are zinc-nickel coated with min 5 μm or with Ruspert Silver 500h coating or Geomet coating.

For the corrosion protection the rules given in EN 1993-1-3, EN 1993-1-4 and EN 1999-1-4 shall be taken into account. Fastening screws and washers which are made of stainless steel are intended to be used in external environments \geq C2 corrosion according to the standard EN ISO 12944-2.

3.2 Safety in case of fire (BWR 2)

3.2.1 Reaction to fire

The fastening screws are considered to satisfy the requirements for performance Class A1 of the characteristic reaction to fire, in accordance with the EC Decision 96/603/EC (as amended) without the need for further testing on the basis of its conformity with the specification of the product detailed in that Decision and its intended end use application being covered by that Decision.

Therefore, the performance of the product is class A1 according to EN 13501-1.

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

According to the Decision 1998/0214/EC¹, of the European Commission the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table applies:

Product(s)	Intended use(s)	Level(s) or class(es)	Attestation of conformity system(s)
<i>Structural connectors</i> metallic rivets, bolts (nuts and washers) and H. R. bolts (high strength friction grip bolts), studs, screws, railway fasteners	for uses in structural metallic works		2+

¹ 1998/0214/EC – European Commission decision of 18/3/1998, published in the Official Journal of the European Communities No L 80/46

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at the Technický a zkušební ústav stavební Praha, s.p.

Issued in Prague on 11/04/2021

By
Mária Schaan
Head of the TAB

Annexes:

- Annex 1 Manufacturing, installation, storage and maintenance
- Annex 2 Examples for screws, types of connection
- Annex 3 Tension and shear resistances of the connections
- Annex 4 Reference documents

Annex 1 Manufacturing, installation, storage and maintenance

Manufacture

This European Technical Assessment is issued for fastening screws for metal members and sheeting produced by the Marcopol sp.zoo. Producent Šrub on the basis of agreed data, deposited with the Technický a zkušební ústav stavební Praha, s.p., which identifies the screws that has been assessed and evaluated. Changes to the screws or production process which could result in this deposited data being incorrect, shall be notified to the Technický a zkušební ústav stavební Praha, s.p., before the changes are introduced. Technický a zkušební ústav stavební Praha, s.p. will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA, and if so, whether further assessment or alterations to the ETA shall be necessary.

Design and installation

The installation instructions including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation.

Design, installation and execution of Marcopol fastening screws must confirm with national documents. Such documents and the level of their implementation in member states legislation are different. Therefore, the assessment and declaration of performance are done taking into account the general assumptions included in EAD 330046-01-0602, which summarizes how information included in the ETA and related documents are intended to be used in the construction process and gives advice to all parties interested when normative documents are missing.

Packaging, transport and storage

Information on packaging, transport and storage is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer to ensure that this information is made known to the people concerned.

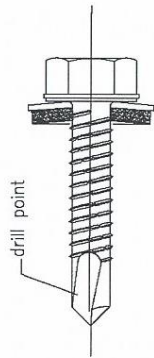
Marcopol fastening screws must be stored indoors and protected from the weather, damage and/or breakage.

Marcopol fastening screws should be transported in such a way as to protect against damage or breakage.

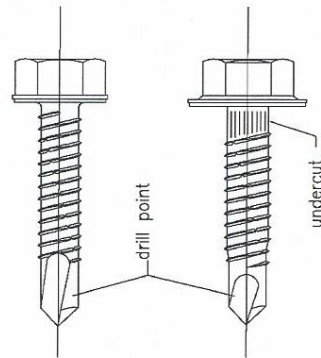
Use, maintenance and repair

Information on use, maintenance and repair is given in the manufacturer's technical documentation. It is the responsibility of the manufacturer to ensure that this information is made known to the people concerned.

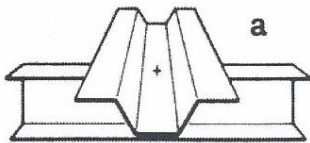
Annex 2 Examples for screws, types of connection



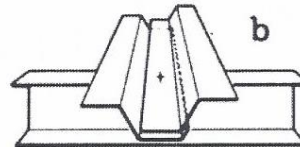
self-drilling screw
with sealing washer



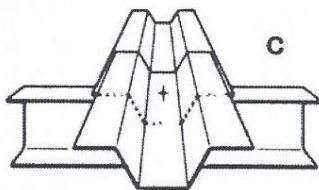
self-drilling screw
with integrated washer



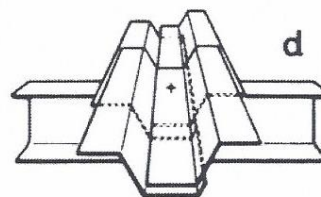
Single connection



Side lap connection



End overlap connection



Side lap + end overlap connection

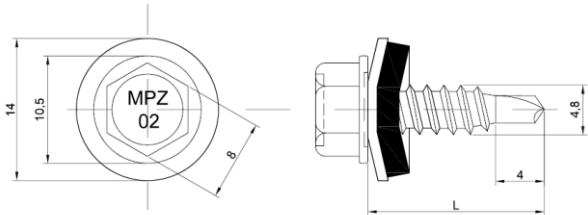
Annex 3 Tension and shear resistances of the connections

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346
	Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$
Timber substructures no performance determined	

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,54	0,54	0,54	0,54	0,54	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ02 4,8 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: EPDM sealing ring with metal top made
 of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

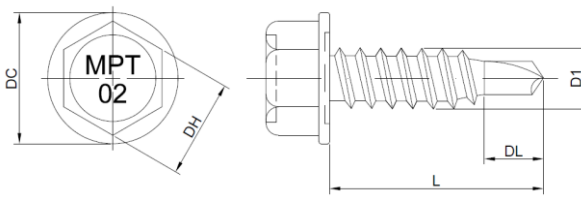
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ02 4,8 × L + S14 with hexagon head and sealing washer $\geq \varnothing 14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)

Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,54	0,54	0,54	0,54	0,54	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,54	0,54	0,54	0,54	0,54	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

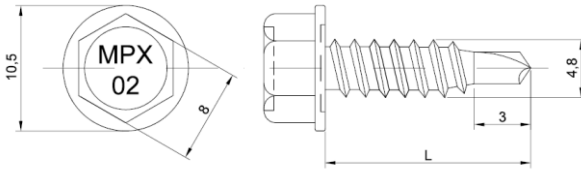
MPT02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT02 4,8 × L with hexagon head	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h) Washer: EPDM sealing ring with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346
	Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$
	Timber substructures no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT02 4,8 × L +A14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of aluminum	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S280GD, S320GD or S350GD – EN 10346

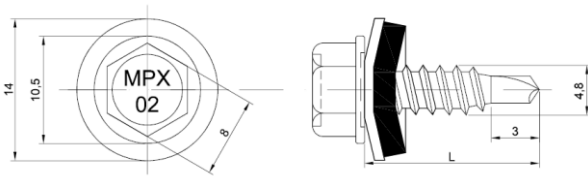
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,40	0,48	0,48	0,48	0,54	0,54	0,54	0,54	0,54	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX02 4,8 × L with hexagon head	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S280GD, S320GD or S350GD – EN 10346

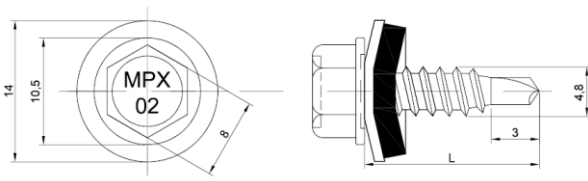
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX02 4,8 × L + I14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S280GD, S320GD or S350GD – EN 10346

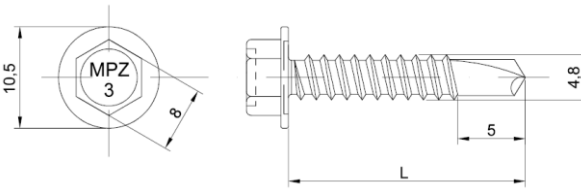
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	—	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX02 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX02 4,8 × L + A14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
 S235 – EN 10025-1

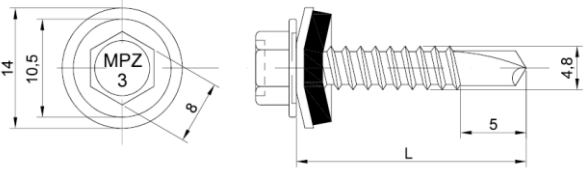
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,21	1,21	1,21	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,43	1,43	1,43	—	—	—	—	—	—	
	1,00	1,91	1,91	1,91	—	—	—	—	—	—	
	1,13	1,91	1,91	1,91	—	—	—	—	—	—	
	1,25	2,03	2,03	2,03	—	—	—	—	—	—	
	1,50	2,03	2,03	2,03	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ3 4,8 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: EPDM sealing ring with metal top
 made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
 S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,03	3,03	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,03	3,03	4,00	—	—	—	—	—	—	
	1,00	3,03	3,03	4,13	—	—	—	—	—	—	
	1,13	3,03	3,03	4,13	—	—	—	—	—	—	
	1,25	3,03	3,03	4,13	—	—	—	—	—	—	
	1,50	3,03	3,03	4,13	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

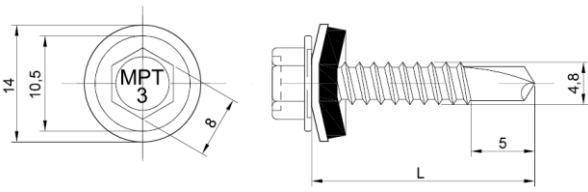
MPZ3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ 3 4,8 × L + S14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of coated carbon steel	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,21	1,21	1,21	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,43	1,43	1,43	—	—	—	—	—	—	
	1,00	1,91	1,91	1,91	—	—	—	—	—	—	
	1,13	1,91	1,91	1,91	—	—	—	—	—	—	
	1,25	2,03	2,03	2,03	—	—	—	—	—	—	
	1,50	2,03	2,03	2,03	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3 4,8 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver)
Washer: EPDM sealing ring with metal top
made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

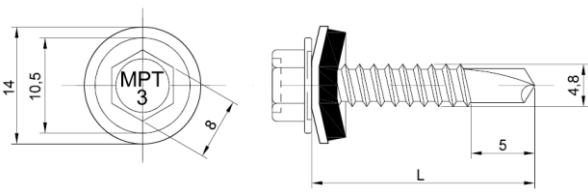
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	3,03	3,03	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,03	3,03	4,00	—	—	—	—	—	—	
	1,00	3,03	3,03	4,13	—	—	—	—	—	—	
	1,13	3,03	3,03	4,13	—	—	—	—	—	—	
	1,25	3,03	3,03	4,13	—	—	—	—	—	—	
	1,50	3,03	3,03	4,13	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3 4,8 × L + S14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver)
Washer: EPDM sealing ring with metal top
made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

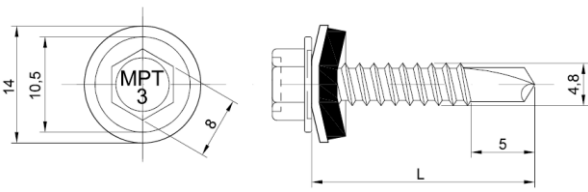
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	3,03	3,03	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,03	3,03	4,00	—	—	—	—	—	—	
	1,00	3,03	3,03	4,13	—	—	—	—	—	—	
	1,13	3,03	3,03	4,13	—	—	—	—	—	—	
	1,25	3,03	3,03	4,13	—	—	—	—	—	—	
	1,50	3,03	3,03	4,13	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3 4,8 × L + I14 with hexagon head and sealing washer \geq Ø14 mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver)
Washer: EPDM sealing ring with metal top
made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24			
$M_{t,nom}$	3 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,03	3,03	3,30	—	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,03	3,03	4,00	—	—	—	—	—	—	—	
	1,00	3,03	3,03	4,13	—	—	—	—	—	—	—	
	1,13	3,03	3,03	4,13	—	—	—	—	—	—	—	
	1,25	3,03	3,03	4,13	—	—	—	—	—	—	—	
	1,50	3,03	3,03	4,13	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3 4,8 × L +A14 with hexagon head and sealing washer \geq Ø14 mm with metal top made of aluminum	

	Materials Fastener: stainless steel – A2 galvanized Ruspert Silver 500h Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,64	1,64	1,64	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,21	1,21	1,21	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,43	1,43	1,43	—	—	—	—	—	—	
	1,00	1,91	1,91	1,91	—	—	—	—	—	—	
	1,13	1,91	1,91	1,91	—	—	—	—	—	—	
	1,25	2,03	2,03	2,03	—	—	—	—	—	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX3 4,8 × L with hexagon head	

	Materials Fastener: stainless steel – A2 galvanized Ruspert Silver 500h Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h Washer: EPDM sealing ring with metal top made of stainless steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24			
$M_{t,nom}$	3 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm] 0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	1,64	1,64	1,64	—	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II	
	1,80	1,80	1,80	—	—	—	—	—	—	—		
	1,96	1,96	1,96	—	—	—	—	—	—	—		
	1,96	1,96	1,96	—	—	—	—	—	—	—		
	1,96	1,96	1,96	—	—	—	—	—	—	—		
	1,96	1,96	1,96	—	—	—	—	—	—	—		
	—	—	—	—	—	—	—	—	—	—		
	—	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm] 0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	2,52	2,52	3,17	—	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I	
	2,52	2,52	3,17	—	—	—	—	—	—	—		
	2,52	2,52	3,17	—	—	—	—	—	—	—		
	2,52	2,52	3,17	—	—	—	—	—	—	—		
	2,52	2,52	3,17	—	—	—	—	—	—	—		
	—	—	—	—	—	—	—	—	—	—		
	—	—	—	—	—	—	—	—	—	—		
	—	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX3 4,8 × L + I14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of stainless steel	

	Materials Fastener: stainless steel – A2 galvanized Ruspert Silver 500h Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h Washer: EPDM sealing ring with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	1,64 1,80 1,96 1,96 1,96 1,96 — —	1,64 1,80 1,96 1,96 1,96 1,96 — —	1,64 1,80 1,96 1,96 1,96 1,96 — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	2,52 2,52 2,52 2,52 2,52 — — —	2,52 2,52 2,52 2,52 2,52 — — —	3,17 3,17 3,17 3,17 3,17 — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	— — — — — — — —	*bearing resistance of component II **bearing resistance of component I

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX3 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX3 4,8 × L + A14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of aluminum	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50 \text{ mm}$
	Timber substructures no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	—	—	—	—	—	—	
	1,00	2,00	2,00	2,00	—	—	—	—	—	—	
	1,13	2,00	2,00	2,00	—	—	—	—	—	—	
	1,25	2,06	2,06	2,06	—	—	—	—	—	—	
	1,50	2,06	2,06	2,06	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ5 5,5 × L with hexagon head	

Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: EPDM sealing ring with metal top
made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

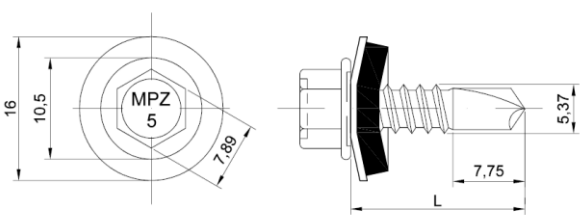
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ5 5,5 × L + S14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
 Washer: EPDM sealing ring with metal top
 made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

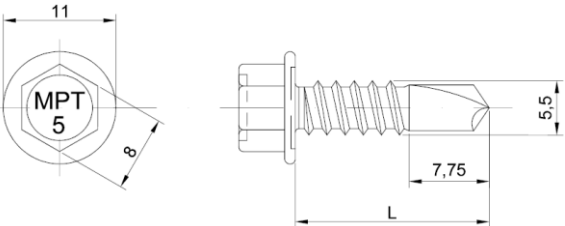
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,68	4,04	4,04	—	—	—	—	—	—	
	1,00	3,68	4,23	4,23	—	—	—	—	—	—	
	1,13	3,68	4,23	4,23	—	—	—	—	—	—	
	1,25	3,68	4,26	4,26	—	—	—	—	—	—	
	1,50	3,68	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ5 5,5 × L + S16 with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$ with metal top made of coated carbon steel	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

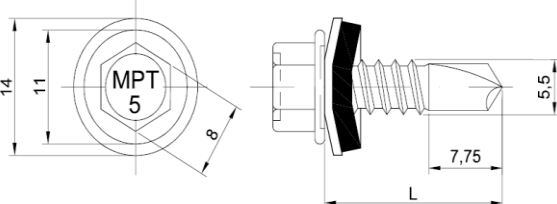
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	—	—	—	—	—	—	
	1,00	2,00	2,00	2,00	—	—	—	—	—	—	
	1,13	2,00	2,00	2,00	—	—	—	—	—	—	
	1,25	2,06	2,06	2,06	—	—	—	—	—	—	
	1,50	2,06	2,06	2,06	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
quenched tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

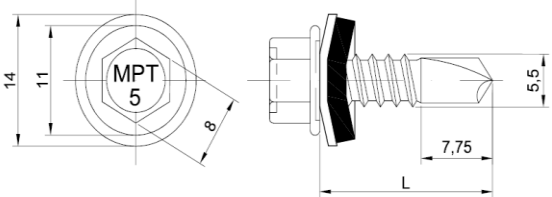
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + S14 with hexagon head and sealing washer \geq Ø14 mm with meta top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

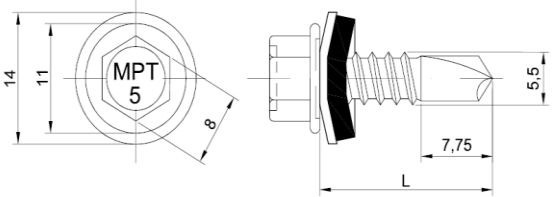
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + A14 with hexagon head and sealing washer \geq Ø14 mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

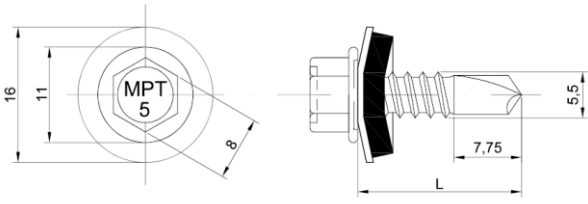
MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + I14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of stainless steel	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h) Washer: EPDM sealing ring with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,68	4,04	4,04	—	—	—	—	—	—	
	1,00	3,68	4,23	4,23	—	—	—	—	—	—	
	1,13	3,68	4,23	4,23	—	—	—	—	—	—	
	1,25	3,68	4,26	4,26	—	—	—	—	—	—	
	1,50	3,68	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + S16 with hexagon head and sealing washer \geq \varnothing 16 mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

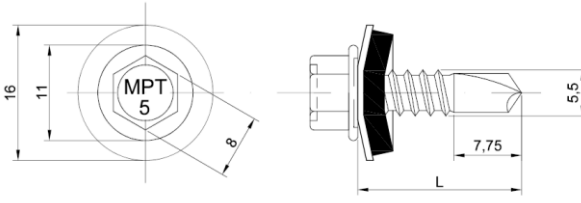
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,68	4,04	4,04	—	—	—	—	—	—	
	1,00	3,68	4,23	4,23	—	—	—	—	—	—	
	1,13	3,68	4,23	4,23	—	—	—	—	—	—	
	1,25	3,68	4,26	4,26	—	—	—	—	—	—	
	1,50	3,68	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + I16 with hexagon head and sealing washer \geq Ø16 mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

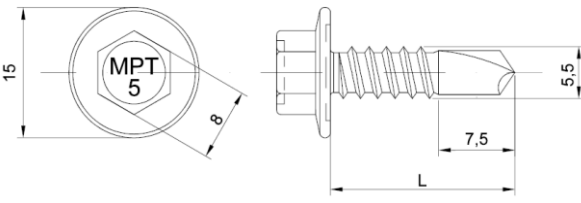
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,68	4,04	4,04	—	—	—	—	—	—	
	1,00	3,68	4,23	4,23	—	—	—	—	—	—	
	1,13	3,68	4,23	4,23	—	—	—	—	—	—	
	1,25	3,68	4,26	4,26	—	—	—	—	—	—	
	1,50	3,68	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 5,5 × L + A16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of aluminum	



Materials
 Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

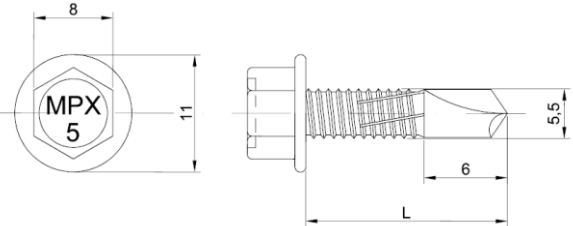
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	2,56	2,56	2,56	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,28	3,28	3,28	—	—	—	—	—	—	
	1,00	3,43	3,43	3,43	—	—	—	—	—	—	
	1,13	3,43	3,43	3,43	—	—	—	—	—	—	
	1,25	3,45	3,45	3,45	—	—	—	—	—	—	
	1,50	3,45	3,45	3,45	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT5 IW fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT5 IW 5,5 × L with hexagon washer head	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel - SAE1022 galvanized Ruspert Silver 500h
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

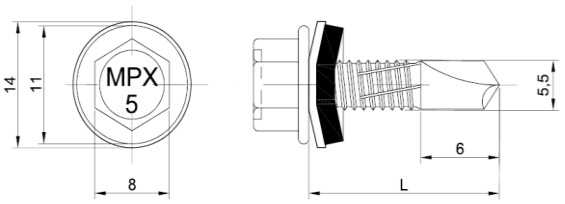
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	—	—	—	—	—	—	
	1,00	2,00	2,00	2,00	—	—	—	—	—	—	
	1,13	2,00	2,00	2,00	—	—	—	—	—	—	
	1,25	2,06	2,06	2,06	—	—	—	—	—	—	
	1,50	2,06	2,06	2,06	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX5 5,5 × L with hexagon head	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

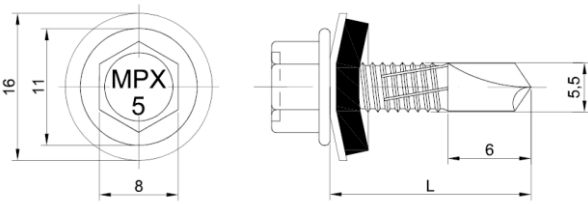
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX5 5,5 × L + I14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

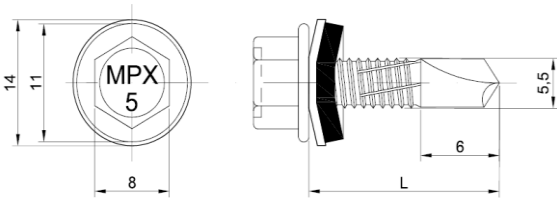
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	—	—	—	—	—	—	
	1,00	4,23	4,23	4,23	—	—	—	—	—	—	
	1,13	4,23	4,23	4,23	—	—	—	—	—	—	
	1,25	4,26	4,26	4,26	—	—	—	—	—	—	
	1,50	4,26	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX5 5,5 × L + I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

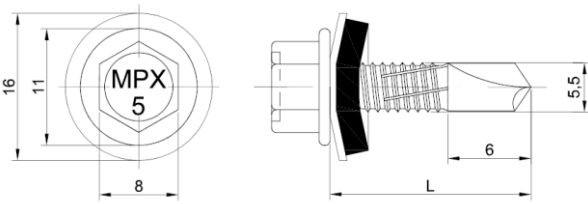
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX5 5,5 × L + A14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of aluminum	



Materials
 Fastener: stainless steel – A2 galvanized Ruspert Silver 500h
 Fastener: carbon steel SAE1022 galvanized Ruspert Silver 500h
 Washer: EPDM sealing ring with metal top made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

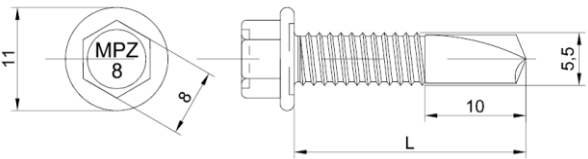
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 6,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	—	—	—	—	—	—	
	1,00	4,23	4,23	4,23	—	—	—	—	—	—	
	1,13	4,23	4,23	4,23	—	—	—	—	—	—	
	1,25	4,26	4,26	4,26	—	—	—	—	—	—	
	1,50	4,26	4,26	4,26	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX5 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX5 5,5 × L + A16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

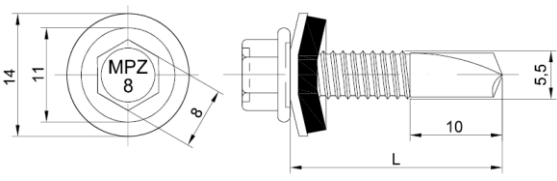
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 8,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,38	1,38	1,38	1,38	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	—	—	—	—	—	
	1,00	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,13	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,25	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,50	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ8 5,5 × L with hexagon head	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
 Washer: EPDM sealing ring with metal top
 made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

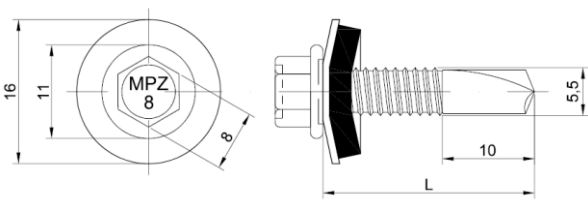
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ8 5,5 × L + S14 with hexagon head and sealing washer $\geq \varnothing 14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 12\mu\text{m}$)
Washer: EPDM sealing ring with metal top
made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

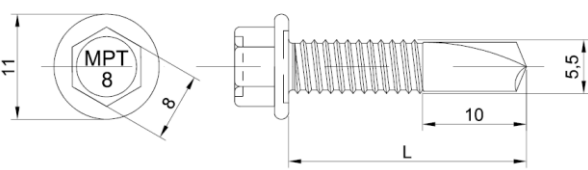
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 8,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ8 5,5 × L + S16 with hexagon head and sealing washer $\geq \varnothing 16 \text{ mm}$ with metal top made of coated carbon steel	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

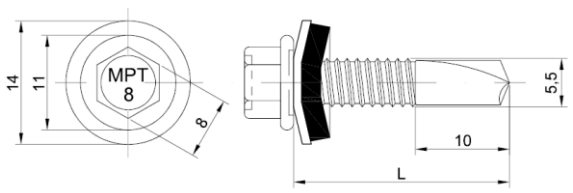
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	1,38	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	—	—	—	—	—	
	1,00	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,13	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,25	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,50	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

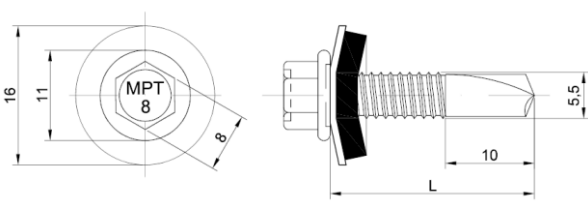
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L + S14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

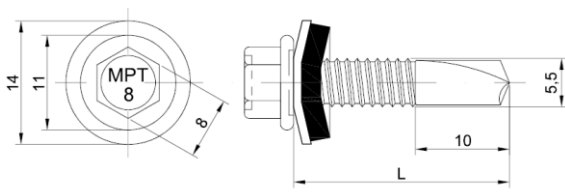
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L + S16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

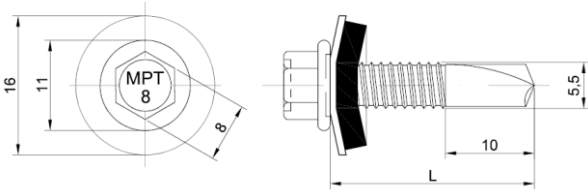
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
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MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L + I14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

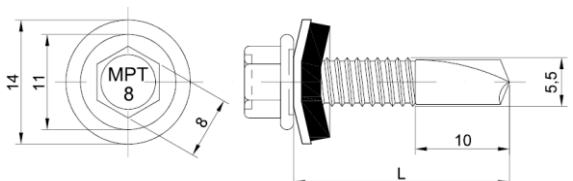
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L +I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

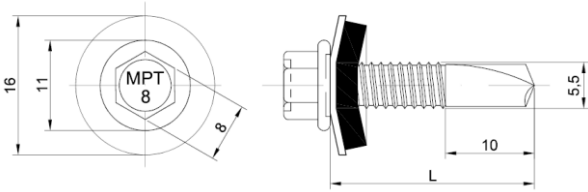
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 8,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L + A14 with hexagon head and sealing washer \geq Ø14 mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

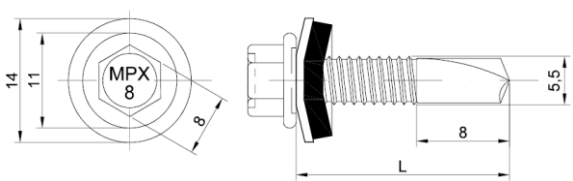
MPT8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT8 5,5 × L + A16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of aluminum	

	Materials Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h) Fastener: carbon steel – SAE1022 galvanized (Ruspert Silver 500h) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 8,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	1,38	1,38	1,38	1,38	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	—	—	—	—	—	
	1,00	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,13	2,00	2,00	2,00	2,00	—	—	—	—	—	
	1,25	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,50	2,06	2,06	2,06	2,06	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX8 5,5 × L with hexagon head	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

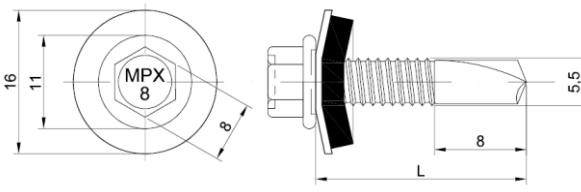
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX8 5,5 × L + I14 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

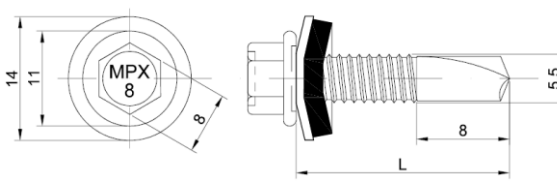
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX8 5,5 × L + I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

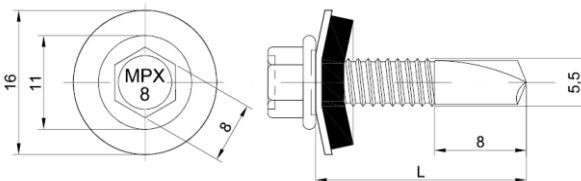
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	—	—	—	—	—	
	1,00	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,13	4,19	4,19	4,19	4,19	—	—	—	—	—	
	1,25	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,50	4,21	4,21	4,21	4,21	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
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MPX8 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX8 5,5 × L + A14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of aluminum	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of aluminum
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 Component II: S235 – EN 10025-1

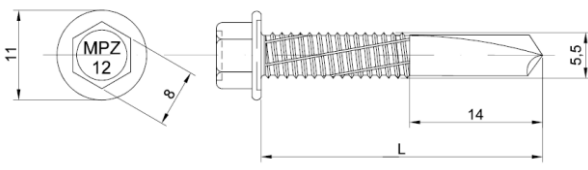
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,23	1,23	1,23	1,23	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,31	1,31	1,31	1,31	—	—	—	—	—	
	1,00	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,13	1,64	1,64	1,64	1,64	—	—	—	—	—	
	1,25	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,50	1,72	1,72	1,72	1,72	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	—	—	—	—	—	
	1,00	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,13	4,23	4,23	4,23	4,23	—	—	—	—	—	
	1,25	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,50	4,26	4,26	4,26	4,26	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

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Materials
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quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

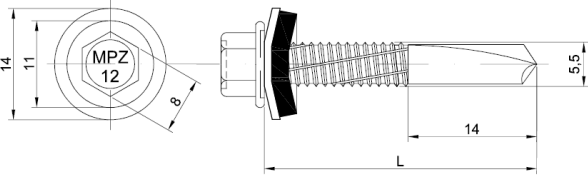
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	—	—	
	1,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,13	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,25	2,06	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,50	2,06	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ 12 5,5 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
Washer: EPDM sealing ring with metal top
made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

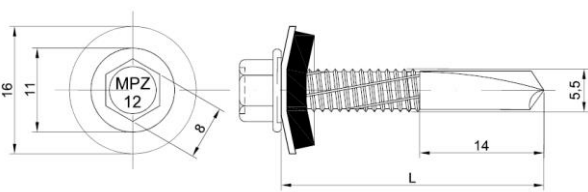
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{T,nom}$	5 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	3,30	3,30	3,30	3,30	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	—	—	
	1,00	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,13	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,25	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,50	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ 12 5,5 × L + S14 with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
 Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 12 \mu\text{m}$)
 Washer: EPDM sealing ring with metal top made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

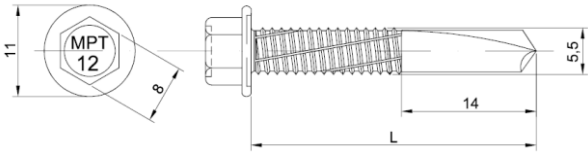
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{T,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ12 5,5 × L + S16 with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

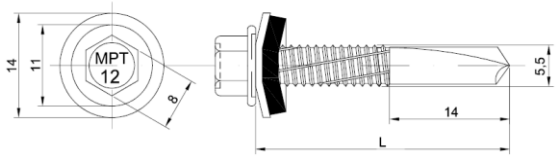
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	1,38	1,38	1,38	1,38	1,38	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	1,45	1,45	1,45	1,45	—	—	
	1,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,13	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,25	2,06	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,50	2,06	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT 12 5,5 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

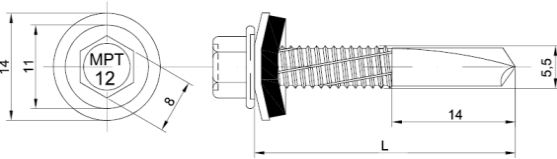
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	3,30	3,30	3,30	3,30	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	—	—	
	1,00	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,13	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,25	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,50	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 5,5 × L + S14 with hexagon head and sealing washer \geq Ø14 mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel

Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

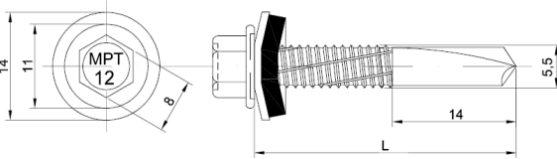
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	3,30	3,30	3,30	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	4,00	4,00	4,00	—	—	
	1,00	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,13	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,25	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,50	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 5,5 × L + I14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of aluminum

Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

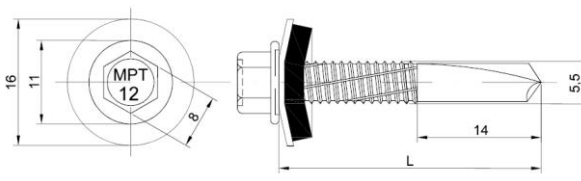
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	3,30	3,30	3,30	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	4,00	4,00	4,00	—	—	
	1,00	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,13	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,25	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,50	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 5,5 × L + A14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

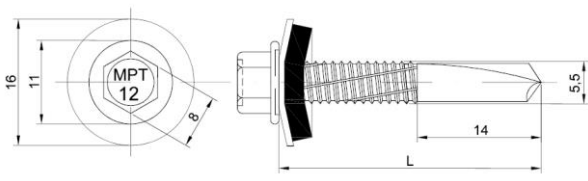
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 5,5 × L + S16 with hexagon head and sealing washer \geq \varnothing 16 mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

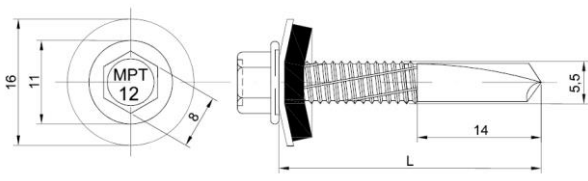
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT 12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT 12 5,5 × L + I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

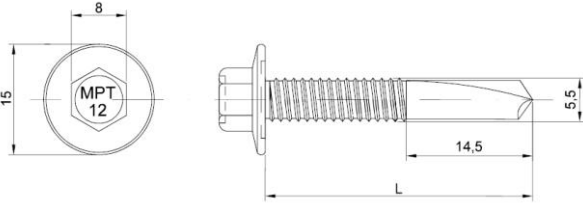
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 5,5 × L + A16 with hexagon head and sealing washer \geq \varnothing 16 mm with metal top made of aluminum	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

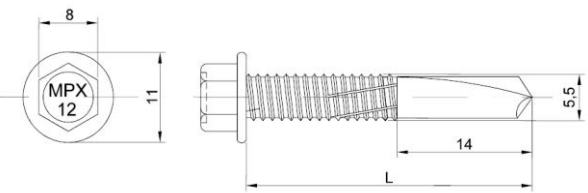
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	2,56	2,56	2,56	2,56	2,56	2,56	2,56	2,56	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	3,28	3,28	3,28	3,28	3,28	3,28	3,28	3,28	—	—	
	1,00	3,43	3,43	3,43	3,43	3,43	3,43	3,43	3,43	—	—	
	1,13	3,43	3,43	3,43	3,43	3,43	3,43	3,43	3,43	—	—	
	1,25	3,45	3,45	3,45	3,45	3,45	3,45	3,45	3,45	—	—	
	1,50	3,45	3,45	3,45	3,45	3,45	3,45	3,45	3,45	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT12 IW fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT12 IW 5,5 × L with hexagon washer head	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

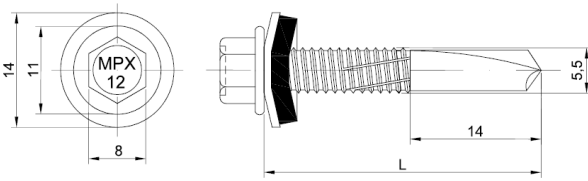
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,38	1,38	1,38	1,38	1,38	1,38	1,38	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,45	1,45	1,45	1,45	1,45	1,45	1,45	—	—	
	1,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,13	2,00	2,00	2,00	2,00	2,00	2,00	2,00	—	—	
	1,25	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,50	2,06	2,06	2,06	2,06	2,06	2,06	2,06	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX12 5,5 × L with hexagon head	



Materials
Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

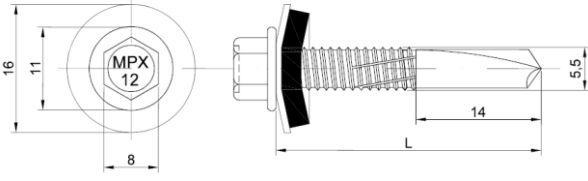
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,30	3,30	3,30	3,30	3,30	3,30	3,30	3,30	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,00	4,00	4,00	4,00	4,00	4,00	4,00	4,00	—	—	
	1,00	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,13	4,19	4,19	4,19	4,19	4,19	4,19	4,19	4,19	—	—	
	1,25	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,50	4,21	4,21	4,21	4,21	4,21	4,21	4,21	4,21	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX12 5,5 × L + I14 with hexagon head and sealing washer \geq \varnothing 14 mm with with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of stainless steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

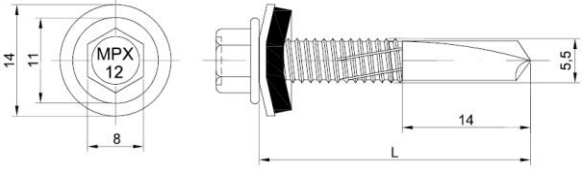
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX12 5,5 × L + I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
 Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h)
 Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	1,13 1,48 1,86 1,86 1,98 1,98 — —	— — — — — — — —	— — — — — — — —	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75 0,88 1,00 1,13 1,25 1,50 1,75 2,00	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	3,30 4,00 4,19 4,19 4,21 4,21 — —	— — — — — — — —	— — — — — — — —	*bearing resistance of component II **bearing resistance of component I

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

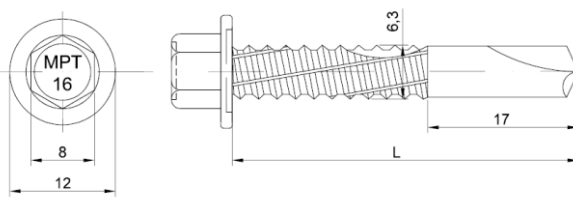
MPX12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX12 5,5 × L + A14 with hexagon head and sealing washer $\geq \varnothing 14$ mm with metal top made of aluminum	

	Materials Fastener: stainless steel – A2 galvanized (Ruspert Silver 500h) Fastener: carbon steel - SAE1022 galvanized (Ruspert Silver 500h) Washer: EPDM sealing ring with metal top made of aluminum Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 12,50$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	Wood class \geq C24			
$M_{t,nom}$	5 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,13	1,13	1,13	1,13	1,13	1,13	1,13	1,13	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,48	1,48	1,48	1,48	1,48	1,48	1,48	1,48	—	—	
	1,00	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,13	1,86	1,86	1,86	1,86	1,86	1,86	1,86	1,86	—	—	
	1,25	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,50	1,98	1,98	1,98	1,98	1,98	1,98	1,98	1,98	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,33	3,33	3,33	3,33	3,33	3,33	3,33	3,33	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,04	4,04	4,04	4,04	4,04	4,04	4,04	4,04	—	—	
	1,00	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,13	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
	1,25	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,50	4,26	4,26	4,26	4,26	4,26	4,26	4,26	4,26	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPX12 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPX12 5,5 × L + A16 with hexagon head and sealing washer \geq Ø16 mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

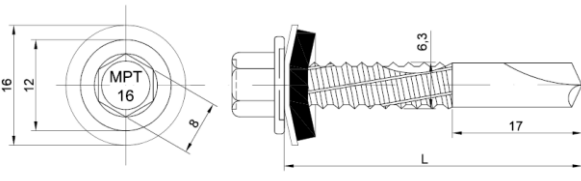
Drilling capacity: $\Sigma(t_{N2} + t_{t1}) \leq 16,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	$\geq 11,00$	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	—	—	
	1,00	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,13	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,25	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,50	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,60	1,60	1,60	1,60	1,60	1,60	1,60	1,60	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	1,96	1,96	1,96	1,96	1,96	1,96	1,96	1,96	—	—	
	1,00	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	—	—	
	1,13	2,14	2,14	2,14	2,14	2,14	2,14	2,14	2,14	—	—	
	1,25	2,17	2,17	2,17	2,17	2,17	2,17	2,17	2,17	—	—	
	1,50	2,17	2,17	2,17	2,17	2,17	2,17	2,17	2,17	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT16 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT16 5,5 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

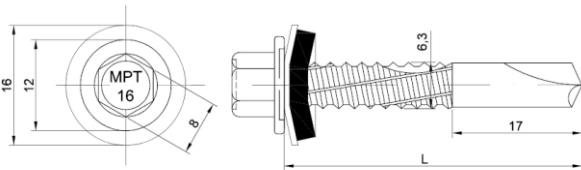
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 16,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	$\geq 11,00$	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	—	—	
	1,00	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,13	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,25	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,50	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,44	3,44	3,44	3,44	3,44	3,44	3,44	3,44	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,68	4,68	4,68	4,68	4,68	4,68	4,68	4,68	—	—	
	1,00	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,13	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,25	5,96	5,96	5,96	5,96	5,96	5,96	5,96	5,96	—	—	
	1,50	6,83	6,83	6,83	6,83	6,83	6,83	6,83	6,83	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT16 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT16 5,5 × L + S16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

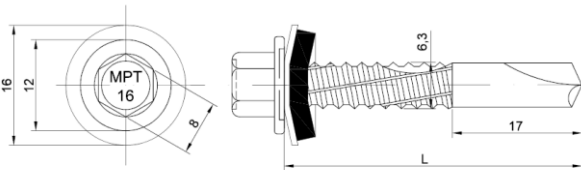
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 16,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	$\geq 11,00$	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	—	—	
	1,00	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,13	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,25	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,50	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,44	3,44	3,44	3,44	3,44	3,44	3,44	3,44	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,68	4,68	4,68	4,68	4,68	4,68	4,68	4,68	—	—	
	1,00	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,13	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,25	5,96	5,96	5,96	5,96	5,96	5,96	5,96	5,96	—	—	
	1,50	6,83	6,83	6,83	6,83	6,83	6,83	6,83	6,83	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT16 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT16 5,5 × L + I16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of stainless steel	



Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

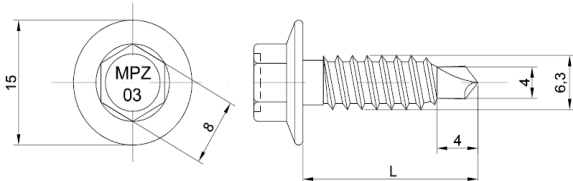
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 16,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	9,00	10,00	$\geq 11,00$	Wood class \geq C24			
$M_{t,nom}$	5 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	1,65	1,65	1,65	1,65	1,65	1,65	1,65	1,65	—	—	
	1,00	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,13	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	—	—	
	1,25	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,50	2,30	2,30	2,30	2,30	2,30	2,30	2,30	2,30	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	3,44	3,44	3,44	3,44	3,44	3,44	3,44	3,44	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	4,68	4,68	4,68	4,68	4,68	4,68	4,68	4,68	—	—	
	1,00	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,13	5,56	5,56	5,56	5,56	5,56	5,56	5,56	5,56	—	—	
	1,25	5,96	5,96	5,96	5,96	5,96	5,96	5,96	5,96	—	—	
	1,50	6,83	6,83	6,83	6,83	6,83	6,83	6,83	6,83	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT16 fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT16 5,5 × L + A16 with hexagon head and sealing washer $\geq \varnothing 16$ mm with metal top made of aluminum	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized zinc (≥ 12 μm)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S280GD, S320GD or S350GD – EN 10346

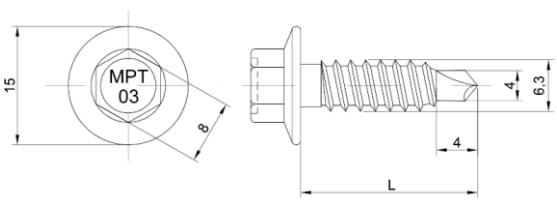
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 3,00$ mm

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,39	1,39	1,39	1,39	1,39	1,39	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	2,30	2,30	2,30	2,30	2,30	2,30	—	—	—	
	1,00	2,56	2,56	2,56	2,56	2,56	2,56	—	—	—	
	1,13	2,56	2,56	2,56	2,56	2,56	2,56	—	—	—	
	1,25	2,70	2,70	2,70	2,70	2,70	2,70	—	—	—	
	1,50	2,77	2,77	2,77	2,77	2,77	2,77	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,47	0,47	0,47	0,47	0,47	0,47	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	0,63	0,63	0,63	0,63	0,63	0,63	—	—	—	
	1,00	0,90	0,90	0,90	0,90	0,90	0,90	—	—	—	
	1,13	0,90	0,90	0,90	0,90	0,90	0,90	—	—	—	
	1,25	1,20	1,20	1,20	1,20	1,20	1,20	—	—	—	
	1,50	1,36	1,36	1,36	1,36	1,36	1,36	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ03 IW fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ03 IW 6,3 × L with hexagon washer head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

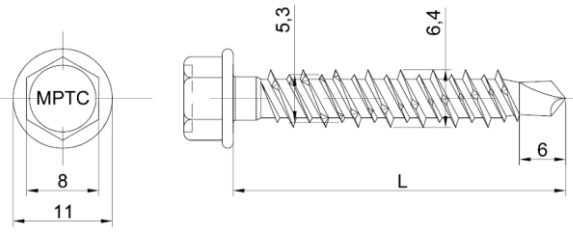
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 3,00$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24			
$M_{t,nom}$	7 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	1,39	1,39	1,39	1,39	1,39	1,39	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,88	2,30	2,30	2,30	2,30	2,30	2,30	—	—	—	—	
	1,00	2,56	2,56	2,56	2,56	2,56	2,56	—	—	—	—	
	1,13	2,56	2,56	2,56	2,56	2,56	2,56	—	—	—	—	
	1,25	2,70	2,70	2,70	2,70	2,70	2,70	—	—	—	—	
	1,50	2,77	2,77	2,77	2,77	2,77	2,77	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,47	0,47	0,47	0,47	0,47	0,47	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,88	0,63	0,63	0,63	0,63	0,63	0,63	—	—	—	—	
	1,00	0,90	0,90	0,90	0,90	0,90	0,90	—	—	—	—	
	1,13	0,90	0,90	0,90	0,90	0,90	0,90	—	—	—	—	
	1,25	1,20	1,20	1,20	1,20	1,20	1,20	—	—	—	—	
	1,50	1,36	1,36	1,36	1,36	1,36	1,36	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT03 IW fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT03 IW 6,3 × L with hexagon washer head	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

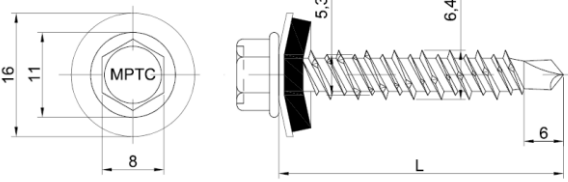
Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 9,28 \text{ Nm}$
 $f_{ax,k} = 15,76 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								30 mm	40 mm	
$V_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	0,96	0,96	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	1,18	1,18	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	1,60*	1,60*	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	1,96*	1,96*	
	—	—	—	—	—	—	—	—	2,14*	2,14*	
	—	—	—	—	—	—	—	—	2,14*	2,14*	
	—	—	—	—	—	—	—	—	2,17*	2,17*	
	—	—	—	—	—	—	—	—	2,17*	2,17*	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPTC fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPTC 6,4 × L with hexagon head	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top
 made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

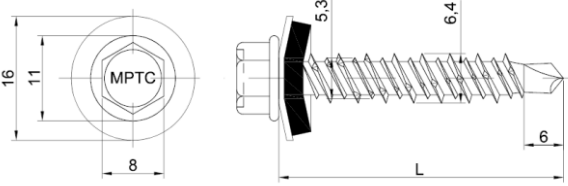
Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 9,28 \text{ Nm}$
 $f_{ax,k} = 15,76 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								30 mm	40 mm	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	0,96	0,96	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	1,18	1,18	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	3,03**	3,44*	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPTC fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPTC 6,4 × L + S16 with hexagon head and sealing washer \geq Ø16 mm with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of stainless steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

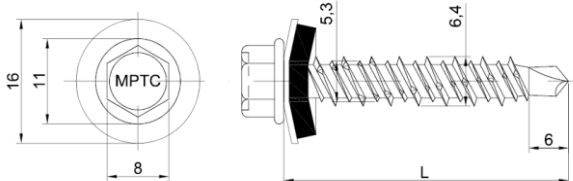
Drilling capacity: -

Timber substructures
For timber substructures performance determined with
 $M_{y,Rk} = 9,28 \text{ Nm}$
 $f_{ax,k} = 15,76 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								30 mm	40 mm	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	0,96	0,96	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	1,18	1,18	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	3,03**	3,44*	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPTC fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPTC 6,4 × L + I16 with hexagon head and sealing washer $\geq \text{Ø}16 \text{ mm}$ with metal top made of stainless steel	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: EPDM sealing ring with metal top
 made of aluminum
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

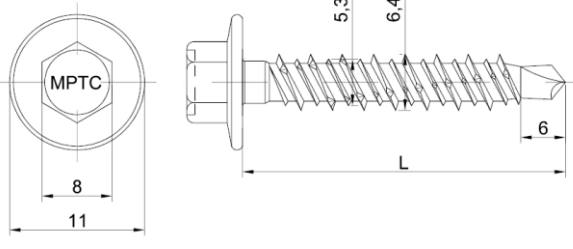
Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 9,28 \text{ Nm}$
 $f_{ax,k} = 15,76 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								30 mm	40 mm	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	0,96	0,96	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	1,18	1,18	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	3,03**	3,44*	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPTC fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPTC 6,4 × L +A16 with hexagon head and sealing washer \geq Ø16 mm with metal top made of aluminum	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized (Ruspert Silver 500h)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

Drilling capacity: -

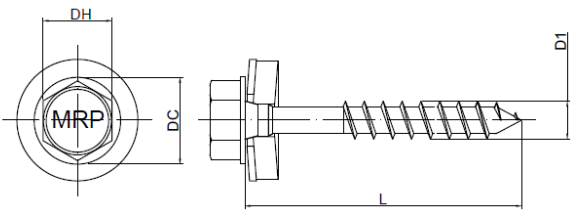
Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 9,28 \text{ Nm}$
 $f_{ax,k} = 15,76 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	7 Nm								30 mm	40 mm	
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	0,96	0,96	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	1,18	1,18	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,42	1,42	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	1,44	1,44	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	2,76*	2,76*	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	3,03**	3,60*	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	3,03**	3,84**	
	—	—	—	—	—	—	—	—	—	—	
	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPTC IW fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPTC IW 6,4 × L with hexagon washer head	

	Materials Fastener: carbon steel 1022 galvanized zinc ($\geq 5 \mu\text{m}$) or galvanized zinc-nickel ($\geq 5 \mu\text{m}$) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: structural timber – EN 14081																																																																																
	Drilling capacity: $\Sigma t_i \leq 1.0 \text{ mm}$																																																																																
Timber substructures For timber substructures performance determined with $M_{y,Rk} = 3.88 \text{ Nm}$ $f_{ax,k} = 18.99 \text{ N/mm}^2$ for $l_{eff} \geq 21 \text{ mm}$ $M_{y,Rk} = 3.89 \text{ Nm}$ $f_{ax,k} = 18.62 \text{ N/mm}^2$ for $l_{eff} \geq 34 \text{ mm}$																																																																																	
	<table border="1"> <thead> <tr> <th>$t_{N,II} [\text{mm}]$</th> <th>0.50</th> <th>0.75</th> <th>1.00</th> <th>1.50</th> <th colspan="2">Wood class $\geq \text{C24}$</th> </tr> <tr> <td></td> <td colspan="4">$M_{t,nom}$</td> <td>21 mm</td> <td>34 mm</td> <td></td> </tr> </thead> <tbody> <tr> <td rowspan="5">$V_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$</td> <td>0.50</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td rowspan="5">*bearing resistance of component I **bearing resistance of component II</td> </tr> <tr> <td>0.75</td> <td>—</td> <td>—</td> <td>—</td> <td>1.15</td> <td>1.28</td> </tr> <tr> <td>1.00</td> <td>—</td> <td>—</td> <td>—</td> <td>1.15</td> <td>1.65</td> </tr> <tr> <td>1.50</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>1.50</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td rowspan="5">$N_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$</td> <td>0.50</td> <td>—</td> <td>—</td> <td>—</td> <td>1.58**</td> <td>1.58**</td> <td rowspan="5">*bearing resistance of component II **bearing resistance of component I</td> </tr> <tr> <td>0.75</td> <td>—</td> <td>—</td> <td>—</td> <td>1.58**</td> <td>1.58**</td> </tr> <tr> <td>1.00</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>1.50</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> <tr> <td>1.50</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> </tbody> </table>	$t_{N,II} [\text{mm}]$	0.50	0.75	1.00	1.50	Wood class $\geq \text{C24}$			$M_{t,nom}$				21 mm	34 mm		$V_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0.50	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II	0.75	—	—	—	1.15	1.28	1.00	—	—	—	1.15	1.65	1.50	—	—	—	—	—	1.50	—	—	—	—	—	$N_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0.50	—	—	—	1.58**	1.58**	*bearing resistance of component II **bearing resistance of component I	0.75	—	—	—	1.58**	1.58**	1.00	—	—	—	—	—	1.50	—	—	—	—	—	1.50	—	—	—	—	—	
$t_{N,II} [\text{mm}]$	0.50	0.75	1.00	1.50	Wood class $\geq \text{C24}$																																																																												
	$M_{t,nom}$				21 mm	34 mm																																																																											
$V_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0.50	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II																																																																										
	0.75	—	—	—	1.15	1.28																																																																											
	1.00	—	—	—	1.15	1.65																																																																											
	1.50	—	—	—	—	—																																																																											
	1.50	—	—	—	—	—																																																																											
$N_{R,k} [\text{kN}]$ for $t_{N,II} [\text{mm}]$	0.50	—	—	—	1.58**	1.58**	*bearing resistance of component II **bearing resistance of component I																																																																										
	0.75	—	—	—	1.58**	1.58**																																																																											
	1.00	—	—	—	—	—																																																																											
	1.50	—	—	—	—	—																																																																											
	1.50	—	—	—	—	—																																																																											
If both components I and II are made of S280GD the values $V_{R,k}$ may be decreased by 8.3% If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 8.3%																																																																																	
SP-MRP fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371																																																																															
SP-MRP 4,8 × L with hexagon head and integrated washer																																																																																	



Materials
Fastener: carbon steel 1022 galvanized zinc ($\geq 5 \mu\text{m}$) or galvanized zinc-nickel ($\geq 5 \mu\text{m}$)
Washer: EPDM sealing ring with metal top made of aluminium
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

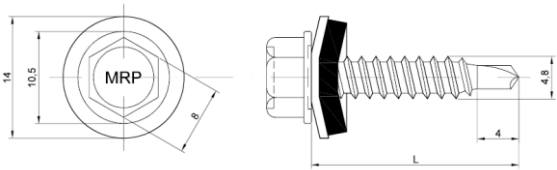
Drilling capacity: $\Sigma t_i \leq 1.0 \text{ mm}$

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 3.88 \text{ Nm}$
 $f_{ax,k} = 18.99 \text{ N/mm}^2$ for $l_{eff} \geq 21 \text{ mm}$
 $M_{y,Rk} = 3.89 \text{ Nm}$
 $f_{ax,k} = 18.62 \text{ N/mm}^2$ for $l_{eff} \geq 34 \text{ mm}$

$t_{N,II}$ [mm]	0.50	0.75	1.00	1.50	Wood class \geq C24		
$M_{t,nom}$	3 Nm				21 mm	34 mm	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]							*bearing resistance of component I **bearing resistance of component II
0.50	—	—	—	—	1.15	1.28	
0.75	—	—	—	—	1.15	1.65	
1.00	—	—	—	—	—	—	
1.50	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]							*bearing resistance of component II **bearing resistance of component I
0.50	—	—	—	—	1.58**	1.58**	
0.75	—	—	—	—	1.58**	1.58**	
1.00	—	—	—	—	—	—	
1.50	—	—	—	—	—	—	

If both components I and II are made of S280GD the values $V_{R,k}$ may be decreased by 8.3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 8.3%

SP-MRP fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
SP-MRP 4,8 × L + 14 AL (22 AL) with hexagon head, integrated washer and sealing washer $\geq \text{Ø}14 \text{ mm}$, 22 mm with metal top made of aluminium	



Materials: carbon steel – SAE1022
 Fasteners: quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)

Washer: EPDM sealing ring with metal top made of pregalvanized carbon steel

Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

Drilling capacity: -

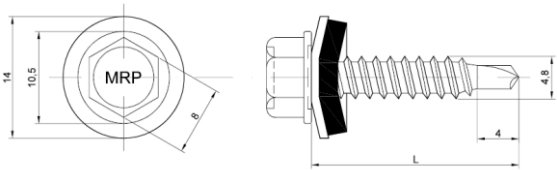
Timber substructures
 For timber substructures performance determined with

$M_{y,Rk} = 4,39 \text{ Nm}$
 $f_{ax,k} = 15,08 \text{ N/mm}^2$ for $l_{ef} \geq 19,2 \text{ mm}$

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								19,2 mm	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69**	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69**	—	
	0,63	0,69	0,69	1,08	1,08	1,08	1,08	1,08	1,08	0,69**	—	
	0,75	0,69	0,69	1,08	1,21	1,21	1,21	1,21	1,21	0,69**	—	
	0,88	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,00	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,13	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,25	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,50	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	1,39**	—	*bearing resistance of component II **bearing resistance of component I
	0,55	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	1,39**	—	
	0,63	0,69	0,69	1,08	1,08	1,08	1,08	1,08	1,08	1,39**	—	
	0,75	0,69	0,69	1,08	1,21	1,21	1,21	1,21	1,21	1,39**	—	
	0,88	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,00	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,13	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,25	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,50	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—		

If component II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If component II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

WSPD farmer screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WSPD 4,8 × L with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of pregalvanized carbon steel	



Materials: carbon steel – SAE1022
Fasteners: quenched, tempered and galvanized (Ruspert Silver 500h)

Washer: EPDM sealing ring with metal top made of aluminum

Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
For timber substructures performance determined with

$M_{y,Rk} = 4,39 \text{ Nm}$
 $f_{ax,k} = 15,08 \text{ N/mm}^2$ for $l_{ef} \geq 19,2 \text{ mm}$

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								19,2 mm	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69**	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69**	—	
	0,63	0,69	0,69	1,08	1,08	1,08	1,08	1,08	1,08	0,69**	—	
	0,75	0,69	0,69	1,08	1,21	1,21	1,21	1,21	1,21	0,69**	—	
	0,88	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,00	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,13	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,25	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,50	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	0,69**	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	1,39**	—	*bearing resistance of component II **bearing resistance of component I
	0,55	0,69	0,69	0,69	0,69	0,69	0,69	0,69	0,69	1,39**	—	
	0,63	0,69	0,69	1,08	1,08	1,08	1,08	1,08	1,08	1,39**	—	
	0,75	0,69	0,69	1,08	1,21	1,21	1,21	1,21	1,21	1,39**	—	
	0,88	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,00	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,13	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,25	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,50	0,69	0,69	1,08	1,21	1,66	1,66	1,66	1,66	1,39**	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
2,00	—	—	—	—	—	—	—	—	—	—		

If component II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If component II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

WSPD-T farmer screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WSPD-T 4,8 × L with hexagon head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of aluminum	

Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 5 \mu\text{m}$) or (Geomet) coating)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

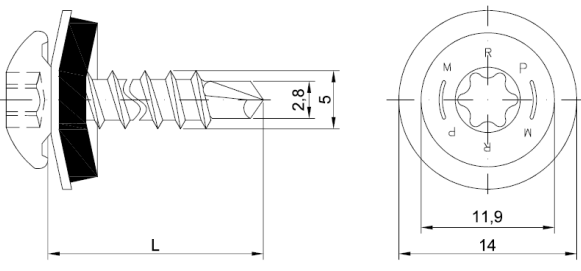
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,40	0,40	0,40	0,40	0,40	0,40	0,40	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,50	0,50	0,50	0,50	0,50	0,50	0,50	—	—	
	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	—	—	
	0,63	0,63	0,63	0,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,75	0,75	0,75	1,72	1,72	1,72	1,72	—	—	
	0,88	0,88	0,88	0,88	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,44	0,44	0,44	0,44	0,44	0,44	0,44	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,53	0,53	0,53	0,53	—	—	
	0,55	0,48	0,48	0,48	0,53	0,53	0,53	0,53	—	—	
	0,63	0,48	0,48	0,48	0,53	0,53	0,53	0,53	—	—	
	0,75	0,48	0,48	0,48	0,75	0,75	0,75	0,75	—	—	
	0,88	0,48	0,48	0,48	0,75	0,75	0,75	0,75	—	—	
	1,00	0,48	0,48	0,48	0,75	0,75	0,75	0,75	—	—	
	1,13	0,48	0,48	0,48	0,75	0,75	0,75	0,75	—	—	
	1,25	0,48	0,48	0,48	0,75	0,75	0,75	0,75	—	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ02-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ02-P 4,8 × L with pan head	



Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 5 \mu\text{m}$) or Geomet coating
Washer: EPDM sealing ring with metal top made of pregalvanized carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	0,55	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	0,63	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	0,75	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	0,88	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,00	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,13	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,25	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ02-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ02-P 4,8 × L + S12 or 14 with pan head and sealing washer ϕ 12 or 14 mm with metal top made of pregalvanized carbon steel	

Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 5 \mu\text{m}$) (Geomet coating)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm									—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	0,55	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	0,63	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	0,75	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	0,88	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	1,00	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	1,13	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	1,25	0,48	0,48	0,48	0,72	0,75	0,75	0,75	0,75	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

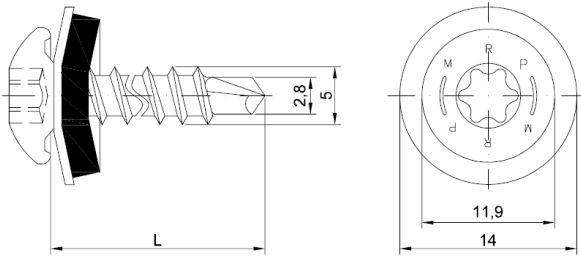
MPZ02-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ02-P 4,8 × L + A12 or 14 with pan head and sealing washer ϕ 12 or 14 mm with metal top made of aluminum	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized (Ruspert Silver 500h) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346
	Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$
	Timber substructures no performance determined

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,44	0,44	0,44	0,44	0,44	0,44	0,44	0,44	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,53	0,53	0,53	0,53	0,53	—	—	
	0,55	0,48	0,48	0,48	0,53	0,53	0,53	0,53	0,53	—	—	
	0,63	0,48	0,48	0,48	0,53	0,53	0,53	0,53	0,53	—	—	
	0,75	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	0,88	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,00	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,13	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,25	0,48	0,48	0,48	0,75	0,75	0,75	0,75	0,75	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT02-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT02-P 4,8 × L with pan head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346

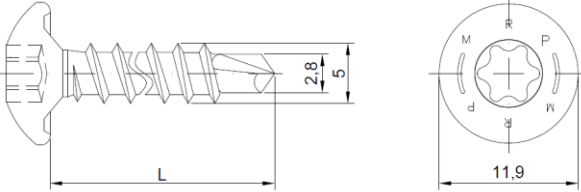
Drilling capacity: $\Sigma t_i \leq 2 \times 1,25 \text{ mm}$

Timber substructures
no performance determined

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								—	—		
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	0,87	0,87	0,87	0,87	0,87	0,87	0,87	0,87	—	—	*bearing resistance of component I **bearing resistance of component II
	0,50	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,55	0,96	0,96	0,96	0,96	0,96	0,96	0,96	0,96	—	—	
	0,63	0,96	0,96	0,96	1,63	1,63	1,63	1,63	1,63	—	—	
	0,75	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	0,88	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,00	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,13	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,25	0,96	0,96	0,96	1,72	1,72	1,72	1,72	1,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,55	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,63	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,75	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	0,88	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,00	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,13	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,25	0,48	0,48	0,48	0,72	0,72	0,72	0,72	0,72	—	—	
	1,50	—	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT02-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT02-P 4,8 × L + A14 with pan head and sealing washer $\geq \text{Ø}14 \text{ mm}$ with metal top made of aluminum	



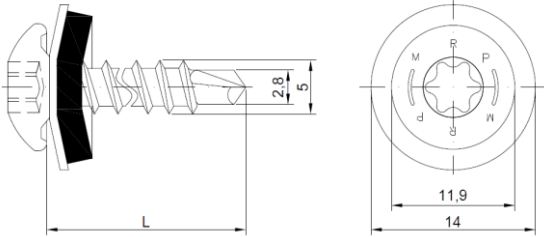
Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 8 \mu\text{m}$) (Ruspert Silver or Geomet coating)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 4,39 \text{ Nm}$
 $f_{ax,k} = 13,88 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	3 Nm								20 mm	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,87**	—	*bearing resistance of component I **bearing resistance of component II
	0,50	—	—	—	—	—	—	—	0,96**	—	
	0,55	—	—	—	—	—	—	—	0,96**	—	
	0,63	—	—	—	—	—	—	—	0,96**	—	
	0,75	—	—	—	—	—	—	—	0,96**	—	
	0,88	—	—	—	—	—	—	—	0,96**	—	
	1,00	—	—	—	—	—	—	—	0,96**	—	
	1,13	—	—	—	—	—	—	—	0,96**	—	
	1,25	—	—	—	—	—	—	—	0,96**	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,90**	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	—	—	—	—	1,33**	—	
	0,55	—	—	—	—	—	—	—	1,33**	—	
	0,63	—	—	—	—	—	—	—	1,33**	—	
	0,75	—	—	—	—	—	—	—	1,33**	—	
	0,88	—	—	—	—	—	—	—	1,33**	—	
	1,00	—	—	—	—	—	—	—	1,33**	—	
	1,13	—	—	—	—	—	—	—	1,33**	—	
	1,25	—	—	—	—	—	—	—	1,33**	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

WFP fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
WFP 4,8 × L with pan head		



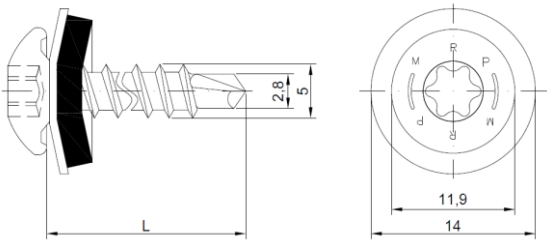
Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 4,39 \text{ Nm}$
 $f_{ax,k} = 13,88 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	3 Nm								20 mm	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,87**	—	*bearing resistance of component I **bearing resistance of component II
	0,50	—	—	—	—	—	—	—	0,96**	—	
	0,55	—	—	—	—	—	—	—	0,96**	—	
	0,63	—	—	—	—	—	—	—	0,96**	—	
	0,75	—	—	—	—	—	—	—	0,96**	—	
	0,88	—	—	—	—	—	—	—	0,96**	—	
	1,00	—	—	—	—	—	—	—	0,96**	—	
	1,13	—	—	—	—	—	—	—	0,96**	—	
	1,25	—	—	—	—	—	—	—	0,96**	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,90**	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	—	—	—	—	1,33**	—	
	0,55	—	—	—	—	—	—	—	1,33**	—	
	0,63	—	—	—	—	—	—	—	1,33**	—	
	0,75	—	—	—	—	—	—	—	1,33**	—	
	0,88	—	—	—	—	—	—	—	1,33**	—	
	1,00	—	—	—	—	—	—	—	1,33**	—	
	1,13	—	—	—	—	—	—	—	1,33**	—	
	1,25	—	—	—	—	—	—	—	1,33**	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

WFP fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WFP 4,8 × L + S14 with pan head and sealing washer $\phi 14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized (Ruspert Silver 500h or Geomet coating)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

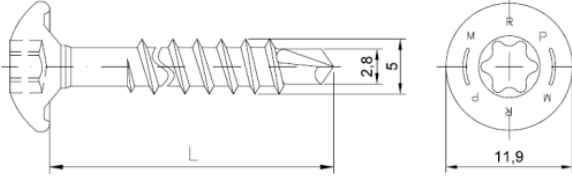
Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 4,39 \text{ Nm}$
 $f_{ax,k} = 13,88 \text{ N/mm}^2$ for $l_{ef} \geq 20 \text{ mm}$

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24			
$M_{t,nom}$	3 Nm								20 mm	—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	0,87**	—	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
	—	—	—	—	—	—	—	—	—	0,96**	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	0,90**	—	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	
	—	—	—	—	—	—	—	—	—	1,33**	—	

WFP fastening screws for metal members and sheeting

WFP 4,8 × L + A14
 with pan head and sealing washer $\varnothing 14 \text{ mm}$
 with metal top made of aluminum

Annex 3
 of European
 Technical Assessment
 ETA 18/0371



Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized (Ruspert Silver or Geomet coating)
Washer: -
Component I: 1050A – EN 7504
Component II: 1050A – EN 7504

Drilling capacity: $\Sigma t_i \leq 2 \times 3,00 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm			—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
0,50	—	—	—	—	—	
0,55	—	—	—	—	—	
0,63	—	—	—	—	—	
0,75	—	—	—	—	—	
0,88	—	—	—	—	—	
1,00	—	—	—	—	—	
1,13	—	—	—	—	—	
1,25	—	—	—	—	—	
1,50	—	—	—	—	—	
1,75	—	—	—	—	—	
2,00	0,62	0,62	0,62	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]						
0,40	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
0,50	—	—	—	—	—	
0,55	—	—	—	—	—	
0,63	—	—	—	—	—	
0,75	—	—	—	—	—	
0,88	—	—	—	—	—	
1,00	—	—	—	—	—	
1,13	—	—	—	—	—	
1,25	—	—	—	—	—	
1,50	—	—	—	—	—	
1,75	—	—	—	—	—	
2,00	0,62	0,62	0,62	—	—	

WFP-RT fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
WFP-RT 4,8 × L with pan head		

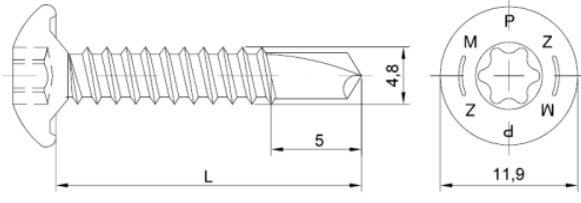
Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized (Ruspert Silver or Geomet coating)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: 1050A – EN 7504
Component II: 1050A – EN 7504

Drilling capacity: $\Sigma t_i \leq 2 \times 3,00 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm			—	—	
$V_{R,k}$ [kN] for $t_{N,i}$ [mm]						
0,40	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
0,50	—	—	—	—	—	
0,55	—	—	—	—	—	
0,63	—	—	—	—	—	
0,75	—	—	—	—	—	
0,88	—	—	—	—	—	
1,00	—	—	—	—	—	
1,13	—	—	—	—	—	
1,25	—	—	—	—	—	
1,50	—	—	—	—	—	
1,75	—	—	—	—	—	
2,00	0,62	0,62	0,62	—	—	
$N_{R,k}$ [kN] for $t_{N,i}$ [mm]						
0,40	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
0,50	—	—	—	—	—	
0,55	—	—	—	—	—	
0,63	—	—	—	—	—	
0,75	—	—	—	—	—	
0,88	—	—	—	—	—	
1,00	—	—	—	—	—	
1,13	—	—	—	—	—	
1,25	—	—	—	—	—	
1,50	—	—	—	—	—	
1,75	—	—	—	—	—	
2,00	0,62	0,62	0,62	—	—	

WFP-RT fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WFP-RT 4,8 × L + A12 or 14 with pan head and sealing washer ϕ 12 or 14 mm with metal top made of aluminum	



Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE 10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1

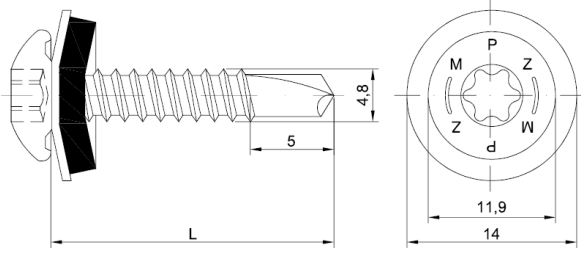
Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	0,96	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,96	0,96	0,96	—	—	—	—	—	—	
	0,63	1,63	1,63	1,63	—	—	—	—	—	—	
	0,75	1,64	1,64	1,64	—	—	—	—	—	—	
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,53	0,53	0,53	—	—	—	—	—	—	
	0,55	0,53	0,53	0,53	—	—	—	—	—	—	
	0,63	0,76	0,76	0,76	—	—	—	—	—	—	
	0,75	0,76	0,76	0,76	—	—	—	—	—	—	
	0,88	0,76	0,76	0,76	—	—	—	—	—	—	
	1,00	0,76	0,76	0,76	—	—	—	—	—	—	
	1,13	0,76	0,76	0,76	—	—	—	—	—	—	
	1,25	0,76	0,76	0,76	—	—	—	—	—	—	
	1,50	0,76	0,76	0,76	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ3-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ3-P 4,8 × L with pan head	



Materials
Fastener: carbon steel – SAE1022, SAE10B21, SAE10B23, 23MNB4, 19MNB4 quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)
Washer: EPDM sealing ring with metal top made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1

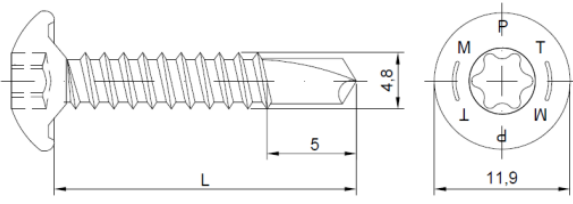
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	0,96	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,96	0,96	0,96	—	—	—	—	—	—	
	0,63	1,63	1,63	1,63	—	—	—	—	—	—	
	0,75	1,64	1,64	1,64	—	—	—	—	—	—	
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,90	0,90	0,90	—	—	—	—	—	—	
	0,55	0,90	0,90	0,90	—	—	—	—	—	—	
	0,63	0,90	0,90	0,90	—	—	—	—	—	—	
	0,75	0,90	0,90	0,90	—	—	—	—	—	—	
	0,88	0,90	0,90	0,90	—	—	—	—	—	—	
	1,00	0,90	0,90	0,90	—	—	—	—	—	—	
	1,13	0,90	0,90	0,90	—	—	—	—	—	—	
	1,25	0,90	0,90	0,90	—	—	—	—	—	—	
	1,50	0,90	0,90	0,90	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPZ3-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPZ3-P 4,8 × L + S14 with pan head and sealing washer $\phi 14 \text{ mm}$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

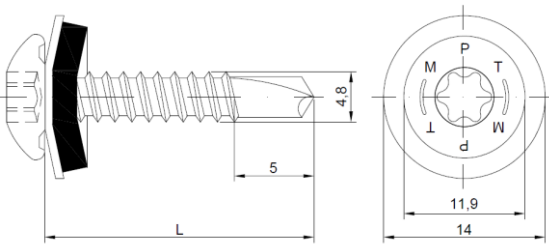
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	0,96	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,96	0,96	0,96	—	—	—	—	—	—	
	0,63	1,63	1,63	1,63	—	—	—	—	—	—	
	0,75	1,64	1,64	1,64	—	—	—	—	—	—	
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,53	0,53	0,53	—	—	—	—	—	—	
	0,55	0,53	0,53	0,53	—	—	—	—	—	—	
	0,63	0,76	0,76	0,76	—	—	—	—	—	—	
	0,75	0,76	0,76	0,76	—	—	—	—	—	—	
	0,88	0,76	0,76	0,76	—	—	—	—	—	—	
	1,00	0,76	0,76	0,76	—	—	—	—	—	—	
	1,13	0,76	0,76	0,76	—	—	—	—	—	—	
	1,25	0,76	0,76	0,76	—	—	—	—	—	—	
	1,50	0,76	0,76	0,76	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3-P 4,8 × L with pan head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top
made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 4,50$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	2,00	2,50	3,00	4,00	5,00	6,00	7,00	8,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,96	0,96	0,96	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	0,96	0,96	0,96	—	—	—	—	—	—	
	0,63	1,63	1,63	1,63	—	—	—	—	—	—	
	0,75	1,64	1,64	1,64	—	—	—	—	—	—	
	0,88	1,80	1,80	1,80	—	—	—	—	—	—	
	1,00	1,96	1,96	1,96	—	—	—	—	—	—	
	1,13	1,96	1,96	1,96	—	—	—	—	—	—	
	1,25	1,96	1,96	1,96	—	—	—	—	—	—	
	1,50	1,96	1,96	1,96	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	0,90	0,90	0,90	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,55	0,90	0,90	0,90	—	—	—	—	—	—	
	0,63	0,90	0,90	0,90	—	—	—	—	—	—	
	0,75	0,90	0,90	0,90	—	—	—	—	—	—	
	0,88	0,90	0,90	0,90	—	—	—	—	—	—	
	1,00	0,90	0,90	0,90	—	—	—	—	—	—	
	1,13	0,90	0,90	0,90	—	—	—	—	—	—	
	1,25	0,90	0,90	0,90	—	—	—	—	—	—	
	1,50	0,90	0,90	0,90	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

MPT3-P fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
MPT3-P 4,8 × L + A14 with pan head and sealing washer \varnothing 14 mm with metal top made of made of aluminum	

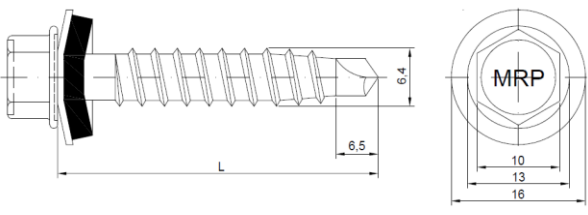
Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)
(or Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
For timber substructures performance determined with
 $M_{y,Rk} = 8,91 \text{ Nm}$
 $f_{ax,k} = 13,28 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	6 Nm								30 mm	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	—	—	—	—	—	—	—	—	0,54	—	*bearing resistance of component I **bearing resistance of component II
	—	—	—	—	—	—	—	—	0,82	—	
	—	—	—	—	—	—	—	—	0,82	—	
	—	—	—	—	—	—	—	—	0,96	—	
	—	—	—	—	—	—	—	—	0,96	—	
	—	—	—	—	—	—	—	—	1,18	—	
	—	—	—	—	—	—	—	—	1,42	—	
	—	—	—	—	—	—	—	—	1,42	—	
	—	—	—	—	—	—	—	—	1,44	—	
	—	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	—	—	—	—	—	—	—	—	0,54	—	*bearing resistance of component II **bearing resistance of component I
	—	—	—	—	—	—	—	—	0,82	—	
	—	—	—	—	—	—	—	—	0,82	—	
	—	—	—	—	—	—	—	—	1,17	—	
	—	—	—	—	—	—	—	—	1,60	—	
	—	—	—	—	—	—	—	—	1,96	—	
	—	—	—	—	—	—	—	—	2,14	—	
	—	—	—	—	—	—	—	—	2,14	—	
	—	—	—	—	—	—	—	—	2,17	—	
	—	—	—	—	—	—	—	—	—	—	

WFK fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WFK 6,4 × L with hexagon head	



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 8 \mu\text{m}$)

Washer: EPDM sealing ring with metal top
made of coated carbon steel

Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
For timber substructures performance determined with

$M_{y,Rk} = 8,91 \text{ Nm}$
 $f_{ax,k} = 13,28 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	6 Nm								30 mm	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,87	—	*bearing resistance of component I **bearing resistance of component II
	0,50	—	—	—	—	—	—	—	0,87	—	
	0,55	—	—	—	—	—	—	—	0,87	—	
	0,63	—	—	—	—	—	—	—	0,96	—	
	0,75	—	—	—	—	—	—	—	0,96	—	
	0,88	—	—	—	—	—	—	—	1,18	—	
	1,00	—	—	—	—	—	—	—	1,42	—	
	1,13	—	—	—	—	—	—	—	1,42	—	
	1,25	—	—	—	—	—	—	—	1,44	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	2,51	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	—	—	—	—	2,51	—	
	0,55	—	—	—	—	—	—	—	2,51	—	
	0,63	—	—	—	—	—	—	—	2,51	—	
	0,75	—	—	—	—	—	—	—	2,51	—	
	0,88	—	—	—	—	—	—	—	2,51	—	
	1,00	—	—	—	—	—	—	—	2,51	—	
	1,13	—	—	—	—	—	—	—	2,51	—	
	1,25	—	—	—	—	—	—	—	2,51	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

WFK fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
WFK 6,4 × L + S14 or 16 with hexagon head and sealing washer ϕ 14 or 16 mm with metal top made of coated carbon steel		

Materials
Fastener: carbon steel – SAE1022 quenched, tempered and galvanized Ruspert Silver 500h)
Washer: EPDM sealing ring with metal top made of aluminum
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: structural timber – EN 14081

Drilling capacity: -

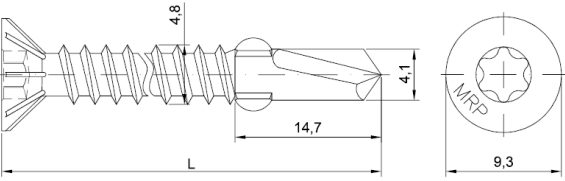
Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 8,91 \text{ Nm}$
 $f_{ax,k} = 13,28 \text{ N/mm}^2$ for $l_{ef} \geq 30 \text{ mm}$

$t_{n,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	6 Nm								30 mm	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,87	—	*bearing resistance of component I **bearing resistance of component II
	0,50	—	—	—	—	—	—	—	0,87	—	
	0,55	—	—	—	—	—	—	—	0,87	—	
	0,63	—	—	—	—	—	—	—	0,96	—	
	0,75	—	—	—	—	—	—	—	0,96	—	
	0,88	—	—	—	—	—	—	—	1,18	—	
	1,00	—	—	—	—	—	—	—	1,42	—	
	1,13	—	—	—	—	—	—	—	1,42	—	
	1,25	—	—	—	—	—	—	—	1,44	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,40	—	—	—	—	—	—	—	2,51	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	—	—	—	—	2,51	—	
	0,55	—	—	—	—	—	—	—	2,51	—	
	0,63	—	—	—	—	—	—	—	2,51	—	
	0,75	—	—	—	—	—	—	—	2,51	—	
	0,88	—	—	—	—	—	—	—	2,51	—	
	1,00	—	—	—	—	—	—	—	2,51	—	
	1,13	—	—	—	—	—	—	—	2,51	—	
	1,25	—	—	—	—	—	—	—	2,51	—	
	1,50	—	—	—	—	—	—	—	—	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

WFK fastening screws for metal members and sheeting

WFK 6,4 × L + A14 or 16
 with hexagon head and sealing washer \varnothing 14 or 16 mm
 with metal top made of aluminum

Annex 3
 of European
 Technical Assessment
 ETA 18/0371



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized ($\geq 5\mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 3,00 \text{ mm}$

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,22	0,22	0,22	0,22	0,22	0,22	1,42	1,42	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,22	0,22	0,22	0,22	0,22	0,22	1,42	1,42	—	—	*bearing resistance of component II **bearing resistance of component I

BSZ fastening screws for metal members and sheeting

BSZ 4,8 × L
with countersunk head

Annex 3
of European
Technical Assessment
ETA 18/0371

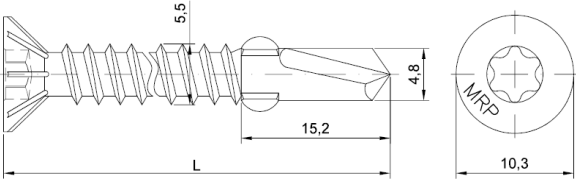
Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 3,00$ mm

Timber substructures
no performance determined

$t_{N,II}$ [mm]	0,75	0,88	1,00	1,13	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,22	0,22	0,22	0,22	0,22	0,22	1,42	1,42	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,22	0,22	0,22	0,22	0,22	0,22	1,42	1,42	—	—	*bearing resistance of component II **bearing resistance of component I

BST fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
BST 4,8 × L with countersunk head	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 5\mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
 S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 5,00 \text{ mm}$

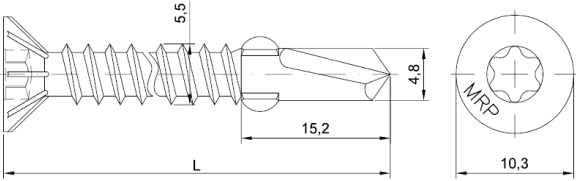
Timber substructures
 no performance determined

$t_{n,II}$ [mm]	0,75	1,00	1,25	1,50	2,00	3,00	4,00	5,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,31	0,31	0,31	0,31	0,31	3,15	3,15	3,15	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,31	0,31	0,31	0,31	0,31	3,15	3,15	3,15	—	—	*bearing resistance of component II **bearing resistance of component I

BSZ fastening screws for metal members and sheeting

BSZ 5,5 × L
with countersunk head

Annex 3
of European
Technical Assessment
ETA 18/0371



Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 5,00$ mm

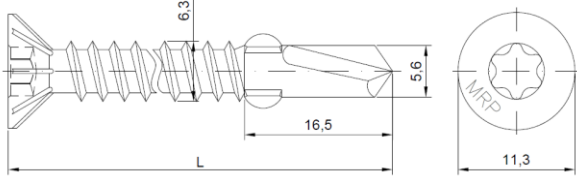
Timber substructures
no performance determined

$t_{n,II}$ [mm]	0,75	1,00	1,25	1,50	2,00	3,00	4,00	5,00	Wood class \geq C24		
$M_{t,nom}$	5Nm								—	—	
$V_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,31	0,31	0,31	0,31	0,31	3,15	3,15	3,15	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{n,I}$ [mm]	0,31	0,31	0,31	0,31	0,31	3,15	3,15	3,15	—	—	*bearing resistance of component II **bearing resistance of component I

BST fastening screws for metal members and sheeting

BST 5,5 × L
with countersunk head

Annex 3
of European
Technical Assessment
ETA 18/0371



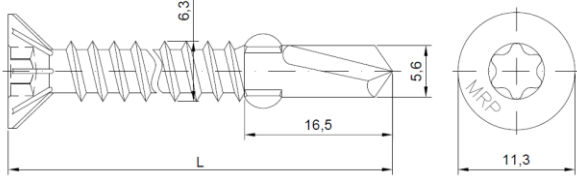
Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 5\mu\text{m}$)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
 S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 6,00 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	0,75	1,00	1,50	2,00	3,00	4,00	5,00	6,00	Wood class \geq C24		
$M_{t,nom}$	6 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,60	0,60	0,60	0,60	4,82	4,82	4,82	4,82	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,60	0,60	0,60	0,60	4,82	4,82	4,82	4,82	—	—	*bearing resistance of component II **bearing resistance of component I

BSZ fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
BSZ 6,3 × L with countersunk head	



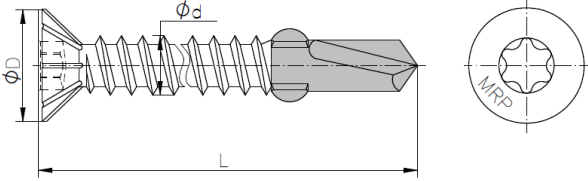
Materials
Fastener: carbon steel – SAE1022
quenched, tempered and galvanized (Ruspert Silver 500h)
Washer: -
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S280GD, S320GD or S350GD – EN 10346
S235 – EN 10025-1

Drilling capacity: $\Sigma t_i \leq 6,00$ mm

Timber substructures
no performance determined

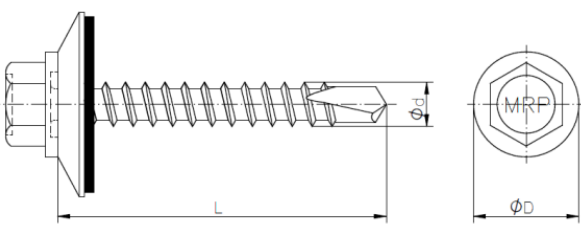
$t_{N,II}$ [mm]	0,75	1,00	1,50	2,00	3,00	4,00	5,00	6,00	Wood class \geq C24		
$M_{t,nom}$	6 Nm								—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,60	0,60	0,60	0,60	4,82	4,82	4,82	4,82	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,60	0,60	0,60	0,60	4,82	4,82	4,82	4,82	—	—	*bearing resistance of component II **bearing resistance of component I

BST fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371ETA
BST 6,3 × L with countersunk head	

	Materials Fastener: stainless steel – SAE304 quenched, tempered and galvanized (Ruspert Silver 500h) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma t_i \leq 6,00$ mm
	Timber substructures no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	Wood class \geq C24		
$M_{t,nom}$	6 Nm				—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	1,21	1,21	1,21	1,21	—	—	*bearing resistance of component I **bearing resistance of component II
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	2,13	2,13	2,13	2,13	—	—	*bearing resistance of component II **bearing resistance of component I

BSX fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
BSX 5,5 × L with countersunk head		



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 8\mu\text{m}$)
 Washer: EPDM sealing ring with metal top
 made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

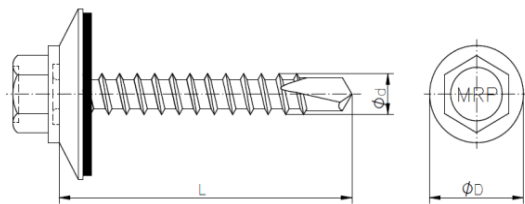
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 5,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	1,00	1,25	1,50	2,00	3,00	Wood class \geq C24		
$M_{t,nom}$	3 Nm					—	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	
	0,75	1,21	1,21	1,21	1,21	—	—	
	0,88	1,21	1,21	1,21	1,21	—	—	
	1,00	1,21	1,21	1,21	1,21	—	—	
	1,13	—	1,21	1,21	1,21	—	—	
	1,25	—	1,21	1,21	1,21	—	—	
	1,50	—	—	1,21	1,21	—	—	
	1,75	—	—	—	1,21	—	—	
	2,00	—	—	—	1,21	—	—	
	2,50	—	—	—	1,21	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,55	—	—	—	—	—	—	
	0,63	—	—	—	—	—	—	
	0,75	2,38	2,56	2,70	3,51	—	—	
	0,88	2,38	2,56	2,70	3,51	—	—	
	1,00	2,38	2,56	2,70	3,51	—	—	
	1,13	—	2,56	2,70	3,51	—	—	
	1,25	—	2,56	2,70	3,51	—	—	
	1,50	—	—	2,70	3,51	—	—	
	1,75	—	—	—	3,51	—	—	
	2,00	—	—	—	3,51	—	—	
	2,50	—	—	—	3,51	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

WSPST fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WSPST 4,8 × L with hexagon head and sealing washer $\phi 14$ with metal top made of coated carbon steel	



Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 8\mu\text{m}$)
 Washer: EPDM sealing ring with metal top
 made of coated carbon steel
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: S235 – EN 10025-1

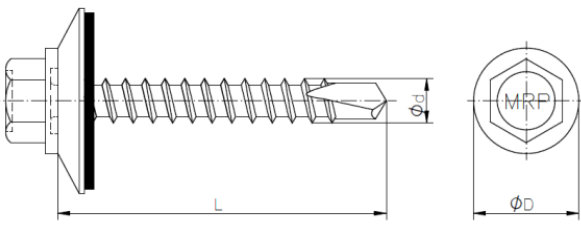
Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 7,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm				—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	—	—	—	—	—	
	0,63	—	—	—	—	—	
	0,75	1,21	1,21	1,21	1,21	—	
	0,88	1,66	1,66	1,66	1,66	—	
	1,00	2,38	2,38	2,38	2,38	—	
	1,13	2,38	2,38	2,38	2,38	—	
	1,25	2,38	2,38	2,38	2,38	—	
	1,50	2,38	2,38	2,38	2,38	—	
	1,75	2,38	2,38	2,38	—	—	
	2,00	2,38	2,38	2,38	—	—	
	2,50	2,38	2,38	2,38	—	—	
3,00	2,38	2,38	—	—	—		
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,55	—	—	—	—	—	
	0,63	—	—	—	—	—	
	0,75	4,23	4,23	4,23	4,23	—	
	0,88	4,65	4,65	4,65	4,65	—	
	1,00	5,49	5,49	5,49	5,49	—	
	1,13	5,49	5,49	5,49	5,49	—	
	1,25	5,49	5,49	5,49	5,49	—	
	1,50	5,49	5,49	5,49	5,49	—	
	1,75	5,49	5,49	5,49	—	—	
	2,00	5,49	5,49	5,49	—	—	
	2,50	5,49	5,49	5,49	—	—	
3,00	5,49	5,49	—	—	—		

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

WSPST fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371ETA
WSPST 5,5 × L with hexagon head and sealing washer $\phi 16$ with metal top made of coated carbon steel	



Materials
Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 8\mu\text{m}$)
Washer: EPDM sealing ring with metal top
 made of coated carbon steel
Component I: S280GD, S320GD or S350GD – EN 10346
Component II: S235 – EN 10025-1

Drilling capacity: $\Sigma(t_{N2} + t_{I1}) \leq 8,50 \text{ mm}$

Timber substructures
 no performance determined

$t_{N,II}$ [mm]	3,00	4,00	5,00	6,00	7,00	Wood class \geq C24	
$M_{t,nom}$	6 Nm					—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—
	0,55	—	—	—	—	—	—
	0,63	—	—	—	—	—	—
	0,75	1,21	1,21	1,21	1,21	1,21	—
	0,88	1,66	1,66	1,66	1,66	1,66	—
	1,00	2,38	2,38	2,38	2,38	2,38	—
	1,13	2,38	2,38	2,38	2,38	2,38	—
	1,25	2,38	2,38	2,38	2,38	2,38	—
	1,50	2,38	2,38	2,38	2,38	2,38	—
	1,75	2,38	2,38	2,38	2,38	—	—
	2,00	2,38	2,38	2,38	2,38	—	—
	2,50	2,38	2,38	2,38	2,38	—	—
3,00	2,38	2,38	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—
	0,55	—	—	—	—	—	—
	0,63	—	—	—	—	—	—
	0,75	4,53	4,53	4,53	4,53	4,53	—
	0,88	5,16	5,16	5,16	5,16	5,16	—
	1,00	7,35	7,35	7,35	7,35	7,35	—
	1,13	7,35	7,35	7,35	7,35	7,35	—
	1,25	7,35	7,35	7,35	7,35	7,35	—
	1,50	7,35	7,35	7,35	7,35	7,35	—
	1,75	7,35	7,35	7,35	7,35	—	—
	2,00	7,35	7,35	7,35	7,35	—	—
	2,50	7,35	7,35	7,35	7,35	—	—
3,00	7,35	7,35	7,35	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
 If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

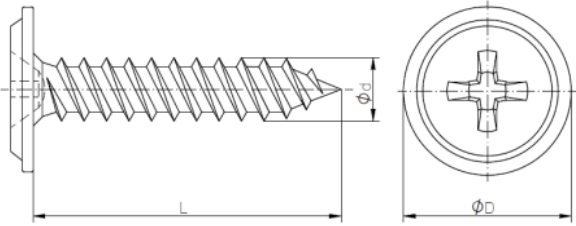
WSPST fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WSPST 6,3 × L with hexagon head and sealing washer $\phi 19$ with metal top made of coated carbon steel	

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 8\mu\text{m}$) Washer: EPDM sealing ring with metal top made of coated carbon steel Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 13,00 \text{ mm}$
	Timber substructures no performance determined

$t_{N,II}$ [mm]	4,00	5,00	6,00	7,00	8,00	10,0	11,00	12,00	Wood class \geq C24		
$M_{t,nom}$	5 Nm								—		
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	—	—	—	—	—	—	—	—	—	—	*bearing resistance of component I **bearing resistance of component II
0,50	—	—	—	—	—	—	—	—	—	—	
0,55	—	—	—	—	—	—	—	—	—	—	
0,63	—	—	—	—	—	—	—	—	—	—	
0,75	1,21	1,21	1,21	1,21	1,21	1,21	1,21	1,21	—	—	
0,88	1,66	1,66	1,66	1,66	1,66	1,66	1,66	1,66	—	—	
1,00	2,38	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	
1,13	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	
1,25	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	
1,50	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	
1,75	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	
2,00	2,38	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	
2,50	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	—	
3,00	2,38	2,38	2,38	2,38	2,38	2,38	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	—	—	—	—	—	—	—	—	—	—	*bearing resistance of component II **bearing resistance of component I
0,50	—	—	—	—	—	—	—	—	—	—	
0,55	—	—	—	—	—	—	—	—	—	—	
0,63	—	—	—	—	—	—	—	—	—	—	
0,75	4,23	4,23	4,23	4,23	4,23	4,23	4,23	4,23	—	—	
0,88	4,65	4,65	4,65	4,65	4,65	4,65	4,65	4,65	—	—	
1,00	5,24	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	
1,13	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	
1,25	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	
1,50	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	
1,75	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	
2,00	5,24	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	
2,50	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	—	
3,00	5,24	5,24	5,24	5,24	5,24	5,24	—	—	—	—	

If both components I and II are made of S320GD the values $V_{R,k}$ may be increased by 8,3%
If both components I and II are made of S350GD the values $V_{R,k}$ may be increased by 16,6%

WSPC fastening screws for metal members and sheeting	Annex 3 of European Technical Assessment ETA 18/0371
WSPC 5,5 × L with hexagon head and sealing washer $\phi 16$ with metal top made of coated carbon steel	



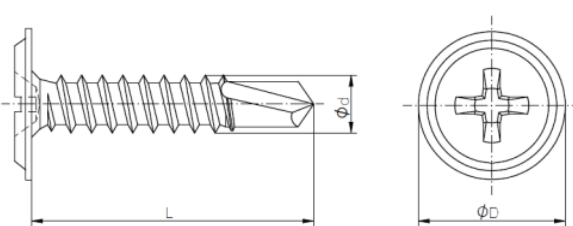
Materials
 Fastener: carbon steel – SAE1022
 quenched, tempered and galvanized ($\geq 5\mu\text{m}$)
 Washer: -
 Component I: S280GD, S320GD or S350GD – EN 10346
 Component II: structural timber – EN 14081

Drilling capacity: -

Timber substructures
 For timber substructures performance determined with
 $M_{y,Rk} = 3,10 \text{ Nm}$
 $f_{ax,k} = 8,43 \text{ N/mm}^2$ for $l_{ef} \geq 16,8 \text{ mm}$

$t_{N,II}$ [mm]	0,50	0,55	0,63	0,75	0,88	1,00	1,13	1,25	Wood class \geq C24		
$M_{t,nom}$	2 Nm								16,80 mm	—	
$V_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,50	—	—	—	—	—	—	—	0,68	—	*bearing resistance of component I **bearing resistance of component II
	0,55	—	—	—	—	—	—	—	0,68	—	
	0,63	—	—	—	—	—	—	—	0,68	—	
	0,75	—	—	—	—	—	—	—	0,68	—	
	0,88	—	—	—	—	—	—	—	0,68	—	
	1,00	—	—	—	—	—	—	—	0,68	—	
	1,13	—	—	—	—	—	—	—	0,68	—	
	1,25	—	—	—	—	—	—	—	0,68	—	
	1,50	—	—	—	—	—	—	—	0,68	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	
$N_{R,k}$ [kN] for $t_{N,I}$ [mm]	0,40	—	—	—	—	—	—	—	0,68	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	—	—	—	—	0,68	—	
	0,55	—	—	—	—	—	—	—	0,68	—	
	0,63	—	—	—	—	—	—	—	0,68	—	
	0,75	—	—	—	—	—	—	—	0,68	—	
	0,88	—	—	—	—	—	—	—	0,68	—	
	1,00	—	—	—	—	—	—	—	0,68	—	
	1,13	—	—	—	—	—	—	—	0,68	—	
	1,25	—	—	—	—	—	—	—	0,68	—	
	1,50	—	—	—	—	—	—	—	0,68	—	
	1,75	—	—	—	—	—	—	—	—	—	
	2,00	—	—	—	—	—	—	—	—	—	

BPMNT fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
BPMNT 4,2 × L with washer head		

	Materials Fastener: carbon steel – SAE1022 quenched, tempered and galvanized ($\geq 5\mu\text{m}$) Washer: - Component I: S280GD, S320GD or S350GD – EN 10346 Component II: S280GD, S320GD or S350GD – EN 10346 S235 – EN 10025-1
	Drilling capacity: $\Sigma(t_{N2} + t_{II}) \leq 4,00 \text{ mm}$
	Timber substructures no performance determined

	$t_{N,II} [\text{mm}]$	2,00	Wood class $\geq \text{C24}$		
	$M_{t,nom}$	2 Nm	—	—	
$V_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,50	—	—	—	*bearing resistance of component I **bearing resistance of component II
	0,55	—	—	—	
	0,63	—	—	—	
	0,75	—	—	—	
	0,88	—	—	—	
	1,00	0,68	—	—	
	1,13	0,68	—	—	
	1,25	0,68	—	—	
	1,50	0,68	—	—	
	2,00	0,68	—	—	
$N_{R,k} [\text{kN}]$ for $t_{N,I} [\text{mm}]$	0,40	—	—	—	*bearing resistance of component II **bearing resistance of component I
	0,50	—	—	—	
	0,55	—	—	—	
	0,63	—	—	—	
	0,75	—	—	—	
	0,88	—	—	—	
	1,00	2,07	—	—	
	1,13	2,07	—	—	
	1,25	2,07	—	—	
	1,50	2,07	—	—	
1,75	2,07	—	—		
2,00	2,07	—	—		

BPSMNT fastening screws for metal members and sheeting		Annex 3 of European Technical Assessment ETA 18/0371
BPSMNT 4,2 × L with washer head		

Annex 4 Reference documents

- [1] European Assessment Document EAD 330046-01-0602 Fastening screws for metal members and sheeting (edition January 2016)