

RAPI-TEC®

SCREWS WITHOUT PRE-DRILLING



Professionals
will appreciate...



About our company

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HPM TEC, s.r.o. was founded in 1998 and has been operating in the field of trade and services since then. It deals with the sale of specialized fasteners and services in the field of engineering. The company has implemented and maintains an ISO 9001 Quality Management System.

HPM TEC offers fasteners designed primarily for professionals. The offer of fasteners is aimed at companies:

- dealing with wooden buildings, trusses and other wooden structures
- making wooden terraces and wooden cladding
- dealing with manufacturing and installation of plastic windows and doors..

Joiners, carpenters and other trades will also choose from our offer.

The fasteners we supply with high user comfort and the best utility properties are manufactured under constant quality control, so we can thus

guarantee the high quality. Our products are certified in accordance with legislation. Our fasteners are also available through an extensive network of business partners to whom we provide sales support. Our business partners are supported by lending selling stands, training sales staff, product demonstrations, supplying information materials and samples for customers, and also by technical consulting.

The introduction of our products to a new business partner can also be supported by demonstration events in stores and with customers.

HPM TEC, s.r.o. is the holder of the national and international trademark RAPI-TEC® and the national trademarks RAPI-TEC screws without pre-drilling, UNI-TEC® and TURBO-TEC® for its own product line.

HPM TEC also provides services in the following areas:

- metal heat-treatment
- material straightening after heat-treatment
- quality control according to customer requirements

All services are provided within agreed deadlines and with a guarantee of quality of processing. The provision of services is ensured on our own technological equipment and, if necessary, in cooperation with suppliers who have undergone a demanding selection process. The competence of suppliers is verified by customer audits.

www.hpmheat.eu

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Our construction screws in general

HPM TEC was the first one

HPM TEC, s.r.o. was the first to introduce new generation of screws to the Czech and Slovak markets, which were previously unknown there. At the beginning, it was necessary to introduce these screws to customers, explain their advantages and the possibilities of using them in their projects. RAPI-TEC® screws have gradually taken a significant place on the market and brought users a completely new quality of connecting wooden structures and a whole range of advantages. And because development is constantly moving forward, RAPI-TEC® screws are constantly coming up with new and new improvements that give them the best features and even greater benefit and efficiency for customers.

RAPI-TEC® screws fit every project

Among the RAPI-TEC® series screws, you can always choose the right one for your specific connection. The RAPI-TEC® screws can handle connections from very thin wooden profiles to massive wooden structures. They can also connect boards to steel and aluminum profiles. Depending on the type of connection and the environment, you can choose between carbon steel screws with a strength of 1 000 N/mm² with various types of surface treatments, and stainless steel. Stainless steel screws are available in martensitic stainless steel – type C (hardened) or austenitic stainless steel – type A2 and A4.

Quality guaranteed

Screw production is based on drawing documentation under continuous quality control. Before the finished screws are released for sale, they undergo an initial quality control. For the initial quality inspection, a plan of controls and tests and the related procedures are developed within the framework of the ISO 9001 quality system. These controls and tests monitor the verification of all parameters that have an impact on user comfort and utility and mechanical properties. For screws, the following are checked and measured: bending angle, breaking torque, core and surface hardness, groove depth, drill bit swing, screw flatness, appearance and plating layer. Tests are performed in our testing room and laboratory with calibrated measuring instruments. For special tests and independent measurements, we also use the services of accredited laboratories and testing facilities.

RAPI-TEC® screws are certified and meet the requirements of legislation

The high and stable quality of RAPI-TEC® screws is not enough for the its supply. Screws are among the specified products and therefore must



meet the requirements of standards and regulations. RAPI-TEC® screws meet all these requirements and proof of this is:

- **Declaration of performance** (CE certification) issued on the basis of Certificates and Protocols on the assessment of the properties of the construction product

Certification is carried out according to the standard EN 14592:2008+A1:2012

- **Declaration of conformity** issued on the basis of the Construction Technical Certificate (STO), Product Certificates, Protocols on certification results and Surveillance Reports

What benefits and comfort will RAPI-TEC® screws bring you

When designing RAPI-TEC® screws, not only exceptional mechanical properties are considered, but also working comfort and consumer benefit. Exceptional mechanical properties include extraordinary strength with high elasticity and high clamping force in the joint. When screwing RAPI-TEC® screws, users will appreciate the very low resistance to screwing in, high screwing speed, fast bite into the wood, low runout thanks to the straightness guarantee, as well as deep and tight grooves that minimize the risk of the drill bit spinning or popping out. Your comfort also includes solid and functional packaging. The packaging is standardized and you always receive the same goods in the same packaging. The final result of all of the above is saving working time and reducing the costs of making joints.

Business partnership, consulting

We take the best care of all our customers. Of course, we confirm receipt of the order and inform you about its status and shipment. Orders received by 12:00 are shipped on the same day. Depending on the size, the shipments are delivered in packages or on pallets. Due care is also taken with the packaging of the goods. We keep RAPI-TEC® screws in stock as standard, which is why the satisfaction rate for delivery requests, whether for smaller or larger quantities of screws, is very high.

However, it doesn't end with the delivery. We lend selling stands to business partners, train sales staff, participate in demonstration events, and provide information materials, samples, and technical advice.





How RAPI-TEC® screws are constructed

The screws are made of:

- **Carbon steel** – higher quality steel is used to produce RAPI-TEC® screws than for conventional screws. After being pressed and rolled, they must undergo a heat treatment process, during which they receive the required mechanical properties. The heat treatment process itself must be very precisely controlled to achieve the specified core and surface hardnesses, which are set so that the screws exhibit high strength and are elastic at the same time. The characteristic strength of the screws is 1 000 N/mm². The operating class of carbon steel screws is determined by the surface treatment.
- **Martensitic stainless steels** – this type of stainless steel is also heat treated. Screws made from this steel have good corrosion resistance and at the same time have mechanical properties identical to carbon steel screws. Martensitic stainless steel is not resistant to acids. Screws made from this material can be used in all operating classes – 1, 2 and 3.
- **Austenitic stainless steels** – screws made of this material cannot be heat treated and therefore have mechanical properties corresponding to the input material. Therefore, it is generally recommended to pre-drill when using them. Austenitic stainless steel marked as A2 shows good corrosion resistance, but is not resistant to acids. In contrast, steel marked as A4 is resistant to acids. Screws made of this material can be used in all operating classes – 1, 2 and 3.

Surface treatment

Screws made of carbon steel must be protected against corrosion. RAPI-TEC® screws are provided with a galvanic zinc coating with an above-standard plating thickness and subsequent special surface treatment. The surface treatment of RAPI-TEC® screws does not contain hexavalent chromium compounds and thus meets the requirements of REACH No. 1907/2006. The applicability of individual screw types and diameters for individual operating classes is stated in the Declarations of Performance.

RAPI-TEC® screws made of carbon steel for special applications and uses also have a special three-component surface treatment. This special surface treatment also allows these screws to be used in operating class 3.

Slip varnish

In order to achieve high user comfort when screwing, the resistance to screwing is reduced to the minimum in RAPI-TEC® screws. A layer of slip varnish, which is applied to their surface according to our specifications, significantly contributes to its reduction. The screws thus have very low resistance when penetrating wood and, where they remain exposed to weather conditions, serve as an additional layer of protection against corrosion.

Types of screw tips

- **Sharp needle tip** – ensures quick bite of the screw into the material, for bite a slight pressure is sufficient.
- **Sharp needle tip with offset second thread run (for double-thread)** – offset second thread run enabled slim tip design, which ensures fast screw bite into material with slight pressure.
- **Tip with a groove** – accelerates screw penetration and reduces the amount of raised fibers while the screw quickly penetrates the material.
- **Drill tip** – removes material, thereby minimizing material splitting, tearing out fibers, cracking, and the risk of screw twisting when screwing in. Combines two operations into one – pre-drilling and screwing in, thus saving time and money.

Types of threads

- **Double-start thread** – gives the screws an extra high screwing speed while maintaining the figures of pull-out forces and low screwing resistance. That is why RAPI-TEC® 2010, 2020 and SK PLUS screws are the fastest on the market.
- **Single-start fast thread – partial** – guarantees high screwing speed. Screws with partial thread allow tightening of the connected part.

Instruction screws design



- **Single-start fast thread – full** – guarantees high screwing speed. Screws with full thread do not allow tightening of the connected part. Full thread allows connecting thin parts to the base or creating a joint between two parts with a firmly fixed distance or is suitable for wall plugs. It is also used to strengthen wooden parts when subjected to compression or strengthens wood against splitting. It is also used to strengthen wooden parts when subjected to compression stress or to strengthen wood against splitting.
- **Spiral groove over the thread** – minimizes fiber tearing and material cracking
- **Milling thread** – another element that helps reduce the resistance of the screw when screwing in. The milling thread reduces shank friction. When screwing in a screw without pre-drilling, the extruded material tries to return to its original place. The milling thread mills away material that would otherwise cause high friction, and the shank slides through the material with minimal friction. The previously mentioned slip varnish also contributes to the reduction.

Types of heads

- **Countersink head** – this is a standard head design, the head is recessed into the material. When connecting metal parts, there must be a recess in the parts for the countersink head. Using a profiled washer under the countersink head can increase the clamping force in the joint.
- **60° countersink head** – a head with a small diameter. The advantage is low visibility and its easy recess into thin or hard materials. Suitable for joints where the wood can swell more and exert a large pull on the screw shaft through the head.
- **Special “bucket” head** – this is the head design that ensures perfect embedding. The head draws in raised fibers and any small burrs, resulting in a clean embedded head without extruded wood around it. Ideal where maximum cleanliness of the joint is required.
- **Washer head** – a head with a pressed-in washer. Thanks to a significantly larger surface area than a classic countersink head, it ensures significantly higher figures of pulling forces. The connected part is pressed against the base with much greater force.
- **Washer head with shoulder** - is intended for connecting metal parts to a wooden base. The metal part sits on the shoulder and is pulled by the flat surface of the head. The shoulder is provided with a pitch that ensures the shoulder slides into the hole in the metal part.
- **Cylinder head** - a head with a small diameter. When screwing, it is completely embedded in the material and its advantage is its reduced visibility. This head type has only very low figures of pulling forces. Usually found in screws with full thread.
- **Hexagonal head** – with Tx groove, washer shoulder, conical contact surface and modified hexagon design - the hexagon allows screwing in with the screw axis offset to the drill axis without the risk of damaging the screw head. The screw head rolls along the edges of the hexagon. The conical contact surface centers the washer during tightening, eliminating the need to hold the washer in the desired position. After tightening, the washer or fitting sits on the shoulder under the head.
- **Ridges under countersink head** - make it easier to recess the screws into the material and smooth out burrs and raised fibers. When recessing into metal parts, they act as “brakes”.
- **The thread under the head** – in the case of a screw with a head design that has lower pulling forces, it holds the connected part. This thread also prevents the wood from sliding along the screw shaft when it swells and dries out significantly. The head then does not protrude above the surface of the wood.
- **Marking on the head** – serves as a “seal” of quality, our screws are clearly identifiable – we know what quality we deliver, and that is why we stand behind our screws. The stamped length serves for quick identification of the screw length and as proof that the screw of the correct length was used in the joint.

Dimensioning, load-carrying capacity of screws

For the calculation of the load-carrying capacity of screws, some dimensions and characteristic figures of the specified screw properties are important. Dimensioning is carried out according to ČSN EN 1995-1-1 standard. All necessary information is given in the relevant declarations of performance. For ordinary users, informative load-carrying figures for the most unfavorable use situation are given in this catalog on pages 36 and 37. For your better orientation and imagination, we list the load-carrying capacities of the screws in kg.

RAPI-TEC® 2010



Hi-tech product

A new generation of screws that, compared to conventional screws, provides user comfort and better performance. For very fast screwing.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Special thread

Special double-start thread with asymmetrical geometry for very fast screwdriving.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling. Small packages for do-it-yourselfers are also available.

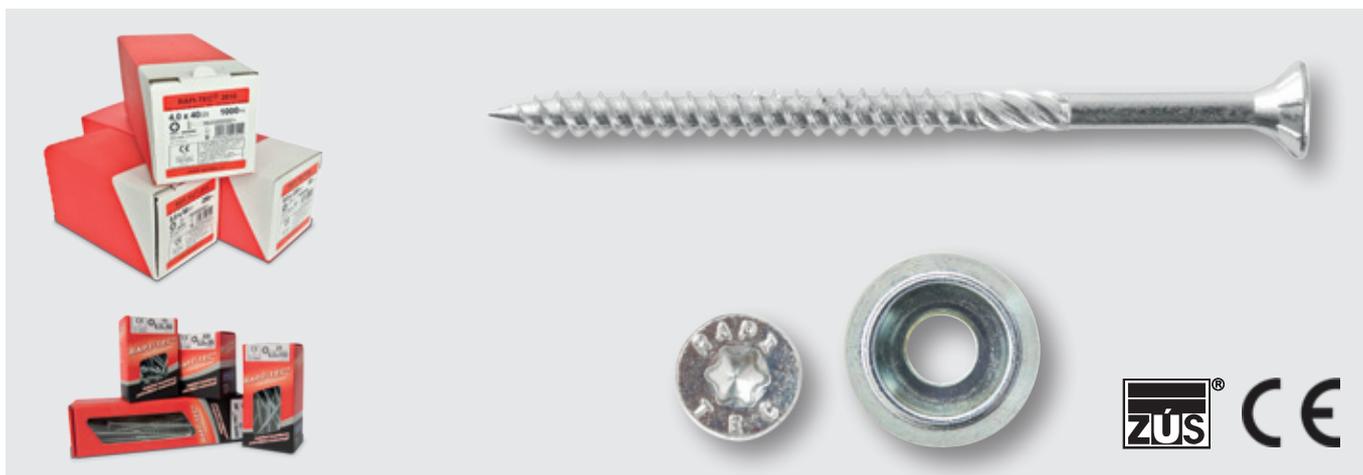


Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

characteristic dimensions	3,0	3,5	4,0	4,5	5,0	6,0
groove	T10	T10	T20	T20	T25	T30
head diameter [mm]	6,0	7,0	8,0	9,0	10,0	12,0
shank diameter [mm]	2,2	2,4	2,7	3,1	3,4	4,2
inner thread diameter [mm]	1,9	2,2	2,5	2,8	3,1	3,8
pre-drilling diameter [mm]	2,0	2,0	2,5	3,0	3,2	4,0
max. tightening torque [Nm]	1,2	2,0	3,0	4,0	6,0	10,5
operating class as per EN 1995-1-1	1	1	1	1 + 2	1 + 2	1 + 2

stated properties		3,0	3,5	4,0	4,5	5,0	6,0
characteristic yield moment	My,k [Nmm]	2 306	3 407	3 816	5 875	7 743	11 580
characteristic pull-out parameter							
load perpendicularly to the fibers	fax,k [Nmm ²]	18,43	18,71	17,54	17,78	17,13	15,74
load in the direction of the fibers	fax,k [Nmm ²]	10,67	13,87	12,73	14,43	11,73	13,02
characteristic wood density	ρk [kg/m ³]	365	365	365	365	365	365
characteristic parameter of head extension	fhead,k [N/mm ²]	25,72	23,44	22,78	22,73	20,99	22,24
characteristic wood density	ρk [kg/m ³]	450	450	450	450	450	480
characteristic tensile strength	ftens,k [kN]	3,57	5,59	5,77	8,08	10,70	12,82



dimension	big packages			small packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package		
3,0x16*	19030016	859 2662 08901 8	500	18930016	859 2662 04502 1	250	4	12
3,0x20*	19030020	859 2662 08902 5	500	18930020	859 2662 04503 8	240	8	12
3,0x25*	19030025	859 2662 08903 2	500	18930025	859 2662 04504 5	220	13	12
3,0x30/17+R	19030030	859 2662 08904 9	500	18930030	859 2662 04505 2	180	13	17
3,0x35/20+R	19030035	859 2662 08905 6	500	18930035	859 2662 04506 9	160	15	20
3,0x40/25+R	19030040	859 2662 08906 3	500	18930040	859 2662 04507 6	150	15	25
3,0x45/25+R	19030045	859 2662 00308 3	500	18930045	859 2662 04508 3	120	20	25
3,5x16*	19035016	859 2662 08907 0	500	18935016	859 2662 04509 0	230	4	12
3,5x20*	19035020	859 2662 08908 7	500	18935020	859 2662 04227 3	200	6	14
3,5x25*	19035025	859 2662 08909 4	500	18935025	859 2662 04510 6	180	11	14
3,5x30/17+R	19035030	859 2662 08910 0	500	18935030	859 2662 04228 0	150	13	17
3,5x35/22+R	19035035	859 2662 08911 7	500	18935035	859 2662 04511 3	140	13	22
3,5x40/25+R	19035040	859 2662 08912 4	500	18935040	859 2662 04229 7	120	15	25
3,5x45/30+R	19035045	859 2662 00315 1	500	18935045	859 2662 04512 0	115	15	30
3,5x50/30+R	19035050	859 2662 00316 8	500	18935050	859 2662 04230 3	110	20	30
4,0x17*	19040017	859 2662 08939 1	500				2	15
4,0x20*	19040020	859 2662 08913 1	500	18940020	859 2662 04513 7	170	4	16
4,0x25*	19040025	859 2662 08914 8	500	18940025	859 2662 04514 4	155	9	16
4,0x30/17	19040030	859 2662 08824 0	500	18940030	859 2662 04231 0	110	13	17
4,0x35/20+R	19040035	859 2662 08825 7	500	18940035	859 2662 04515 1	105	15	20
4,0x40/25+R	19040040	859 2662 08826 4	500	18940040	859 2662 04232 7	100	15	25
4,0x45/25+R	19040045	859 2662 00322 9	500	18940045	859 2662 04516 8	85	20	25
4,0x50/30+R	19040050	859 2662 00323 6	500	18940050	859 2662 04233 4	80	20	30
4,0x60/35+R	19040060	859 2662 00324 3	500	18940060	859 2662 04234 1	65	25	35
4,0x70/35+R	19040070	859 2662 00325 0	200	18940070	859 2662 04235 8	50	35	35
4,5x20*	19045020	859 2662 00326 7	500				2	18
4,5x25*	19045025	859 2662 00327 4	500				7	18
4,5x30/19+R	19045030	859 2662 00328 1	500	18945030	859 2662 04517 5	100	11	19
4,5x35/19+R	19045035	859 2662 00329 8	500	18945035	859 2662 04518 2	85	16	19
4,5x40/24+R	19045040	859 2662 00330 4	500	18945040	859 2662 04519 9	80	16	24
4,5x45/24+R	19045045	859 2662 00331 1	500	18945045	859 2662 04520 5	70	21	24
4,5x50/29+R	19045050	859 2662 00332 8	500	18945050	859 2662 04236 5	65	21	29
4,5x60/34+R	19045060	859 2662 00333 5	250	18945060	859 2662 04237 2	50	26	34
4,5x70/39+R	19045070	859 2662 00334 2	200	18945070	859 2662 04238 9	40	31	39
4,5x80/44+R	19045080	859 2662 00335 9	200	18945080	859 2662 04521 2	35	36	44
5,0x20*	19050020	859 2662 00336 6	500				2	18
5,0x25*	19050025	859 2662 00337 3	500				5	20
5,0x30/19+R	19050030	859 2662 00338 0	500	18950030	859 2662 04522 9	125	11	19
5,0x35/19+R	19050035	859 2662 00339 7	500	18950035	859 2662 04523 6	110	16	19
5,0x40/22+R	19050040	859 2662 00340 3	500	18950040	859 2662 04524 3	80	18	22
5,0x50/27+R	19050050	859 2662 00341 0	250	18950050	859 2662 04239 6	75	23	27
5,0x60/32+R	19050060	859 2662 00342 7	250	18950060	859 2662 04240 2	60	28	32
5,0x70/37+R	19050070	859 2662 00343 4	200	18950070	859 2662 04241 9	50	33	37
5,0x80/47+R	19050080	859 2662 00344 1	200	18950080	859 2662 04242 6	40	33	47
5,0x90/47+R	19050090	859 2662 00345 8	100	18950090	859 2662 04243 3	35	43	47
5,0x100/55+R	19050100	859 2662 00346 5	100	18950100	859 2662 04244 0	30	45	55
5,0x110/65+R	19050110	859 2662 00347 2	100	18950110	859 2662 04525 0	20	45	65
5,0x120/65+R	19050120	859 2662 00348 9	100	18950120	859 2662 04526 7	20	55	65
6,0x50/29+R	19060050	859 2662 00349 6	250	18960050	859 2662 04527 4	50	21	29
6,0x60/34+R	19060060	859 2662 00350 2	200	18960060	859 2662 04245 7	40	26	34
6,0x70/39+R	19060070	859 2662 00351 9	200	18960070	859 2662 04246 4	40	31	39
6,0x80/48+R	19060080	859 2662 00352 6	100	18960080	859 2662 04247 1	30	32	48
6,0x90/48+R	19060090	859 2662 00353 3	100	18960090	859 2662 04248 8	30	42	48
6,0x100/54+R	19060100	859 2662 00354 0	100	18960100	859 2662 04249 5	25	46	54
6,0x110/64+R	19060110	859 2662 00355 7	100	18960110	859 2662 04528 1	20	46	64
6,0x120/64+R	19060120	859 2662 00356 4	100	18960120	859 2662 04250 1	20	56	64
6,0x130/64+R	19060130	859 2662 00357 1	100	18960130	859 2662 04529 8	15	66	64
6,0x140/64+R	19060140	859 2662 00358 8	100	18960140	859 2662 04630 1	18	76	64
6,0x150/64+R	19060150	859 2662 00359 5	100				86	64
6,0x160/64+R	19060160	859 2662 00360 1	100	18960160	859 2662 04658 5	14	96	64
6,0x180/64+R	19060180	859 2662 00361 8	100	18960180	859 2662 04631 8	12	116	64
6,0x200/64+R	19060200	859 2662 00362 5	100	18960200	859 2662 04632 5	10	136	64
6,0x220/64+R	19060220	859 2662 00363 2	100				156	64
6,0x240/64+R	19060240	859 2662 00364 9	100				176	64
6,0x260/64+R	19060260	859 2662 00365 6	100				196	64
6,0x280/64+R	19060280	859 2662 00366 3	100				216	64
6,0x300/64+R	19060300	859 2662 00367 0	100				236	64

* full-thread screws

dimensions: 3,5x16; 4,5x20 and 5,0x20 are not included in CE certification

R – milling thread

Profiled washers for countersink head screws

dimension	big packages			inner diameter in mm	outer diameter in mm	thickness (height) in mm
	catalogue number	EAN / GTIN	quantity in the package			
for diameter 6,0 mm	10940600	859 2662 00638 1	50	7,5	20,0	4,5

RAPI-TEC® 2020

Hi-tech product

A new generation of screws with even higher user comfort and even better performance properties. For very fast screwing and extra clean head recessing into the wood.

High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².

Special thread

Special double-start thread with asymmetrical geometry for very fast screwdriving.

Unique head design

Head geometry for very clean embedding into wood.

Environment friendly

The surface treatment does not contain harmful hexavalent chromium.

Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.

Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

characteristic dimensions	4,0	5,0	6,0
groove	T20	T25	T30
head diameter [mm]	8,0	10,0	12,0
shank diameter [mm]	2,8	3,5	4,2
inner thread diameter [mm]	2,5	3,1	3,8
pre-drilling diameter [mm]	2,5	3,2	4,0
max. tightening torque [Nm]	3,0	6,0	10,5
operating class as per EN 1995-1-1	1	1 + 2	1 + 2

stated properties		4,0	5,0	6,0
characteristic yield moment	My,k [Nmm]	3 953	7 301	11 992
characteristic pull-out parameter				
load perpendicularly to the fibers	fax,k [Nmm ²]	16,11	15,17	15,39
load in the direction of the fibers	fax,k [Nmm ²]	10,15	10,67	10,02
characteristic wood density	ρk [kg/m ³]	350	350	350
characteristic parameter of head extension	fhead,k [N/mm ²]	26,95	26,31	22,63
characteristic wood density	ρk [kg/m ³]	350	350	350
characteristic tensile strength	ftens,k [kN]	6,04	9,20	12,77



dimension	big packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
4,0x30/17	18740030	859 2662 08827 1	500	13	17
4,0x40/25+R	18740040	859 2662 08828 8	500	15	25
4,0x50/30+R	18740050	859 2662 04292 1	500	20	30
4,0x60/35+R	18740060	859 2662 04293 8	500	25	35
4,0x70/35+R	18740070	859 2662 04489 5	200	35	35
5,0x40/22+R	18750040	859 2662 04363 8	500	18	22
5,0x50/27+R	18750050	859 2662 04294 5	250	23	27
5,0x60/32+R	18750060	859 2662 03545 9	250	28	32
5,0x70/37+R	18750070	859 2662 04295 2	200	33	37
5,0x80/47+R	18750080	859 2662 04296 9	200	33	47
5,0x100/55+R	18750100	859 2662 04297 6	100	45	55
5,0x120/65+R	18750120	859 2662 04364 5	100	55	65
6,0x60/34+R	18760060	859 2662 04365 2	200	26	34
6,0x 80/48+R	18760080	859 2662 04366 9	100	32	48
6,0x100/54+R	18760100	859 2662 04298 3	100	46	54
6,0x120/64+R	18760120	859 2662 04367 6	100	56	64
6,0x140/64+R	18760140	859 2662 04368 3	100	76	64
6,0x160/64+R	18760160	859 2662 04369 0	100	96	64
6,0x180/64+R	18760180	859 2662 04370 6	100	116	64
6,0x200/64+R	18760200	859 2662 04371 3	100	136	64



RAPI-TEC® SK PLUS



Hi-tech product

A new generation of screws with even higher user comfort and even better performance. For very fast screwdriving and the highest clamping force in the joint.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Special thread

Special double-start thread with asymmetrical geometry for very fast screwdriving.



Washer head

For visible joints and greater clamping force in the joint.



Extra long

Special offer – extra long lengths for individual diameters.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling. Small packages for do-it-yourselfers are also available.

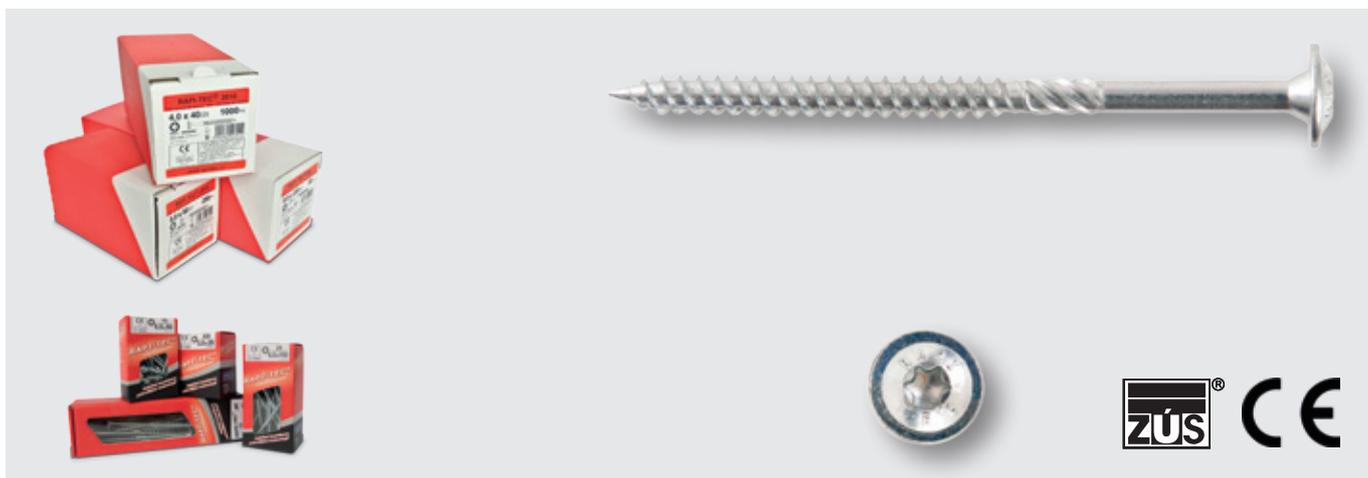


Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

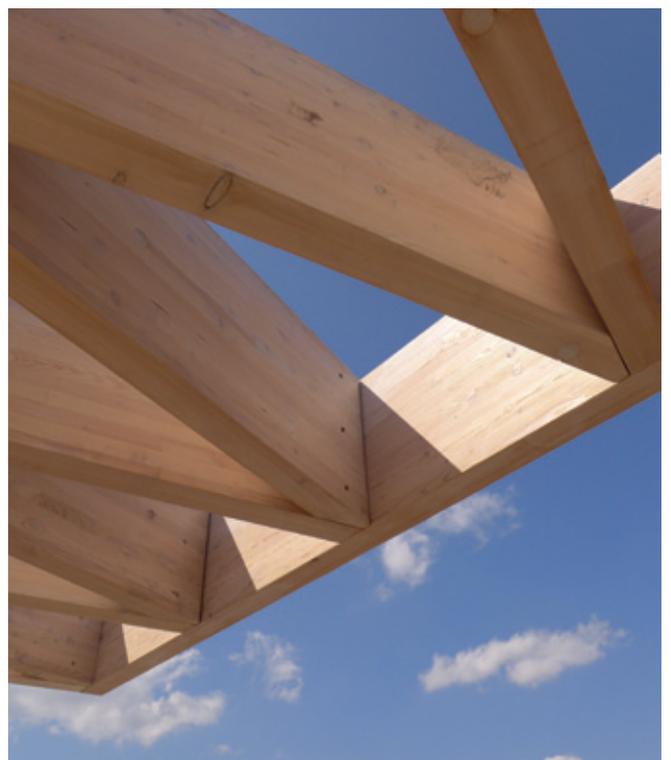
characteristic dimensions	4,0	5,0	6,0
groove	T20	T25	T30
head diameter [mm]	10,0	12,0	14,0
shank diameter [mm]	2,8	3,5	4,2
inner thread diameter [mm]	2,5	3,1	3,8
pre-drilling diameter [mm]	2,5	3,2	4,0
max. tightening torque [Nm]	3,0	6,0	10,5
operating class as per EN 1995-1-1	1	1 + 2	1 + 2

stated properties		4,0	5,0	6,0
characteristic yield moment	My,k [Nmm]	3 953	7 301	11 992
characteristic pull-out parameter				
load perpendicularly to the fibers	fax,k [Nmm ²]	16,11	15,17	15,39
load in the direction of the fibers	fax,k [Nmm ²]	10,15	10,67	10,02
characteristic wood density	ρk [kg/m ³]	350	350	350
characteristic parameter of head extension	fhead,k [N/mm ²]	26,95	26,31	22,63
characteristic wood density	ρk [kg/m ³]	350	350	350
characteristic tensile strength	ftens,k [kN]	6,04	9,20	12,77



dimension	big packages			small packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package		
4,0x25/20**	19240025	859 2662 08752 6	250				5	20
4,0x30/25**	19240030	859 2662 08753 3	250				5	25
4,0x35/20+R	19240035	859 2662 08754 0	250				15	20
4,0x40/25+R	19240040	859 2662 08829 5	250				15	25
4,0x50/30+R	19240050	859 2662 08830 1	250				20	30
4,0x60/35+R	19240060	859 2662 04088 0	250				25	35
4,0x80/45+R	19240080	859 2662 04356 0	200				35	45
4,0x100/53+R	19240100	859 2662 04357 7	200				47	53
5,0x30/25**	19250030	859 2662 08755 7	250				5	25
5,0x35/19+R	19250035	859 2662 08756 4	250				16	19
5,0x40/22+R	19250040	859 2662 08757 1	250				18	22
5,0x45/27+R	19250045	859 2662 08758 8	250				18	27
5,0x50/27+R	19250050	859 2662 04084 2	250	17550050	859 2662 04565 6	50	23	27
5,0x60/32+R	19250060	859 2662 03540 4	250	17550060	859 2662 04566 3	45	28	32
5,0x70/37+R	19250070	859 2662 04085 9	200				33	37
5,0x80/47+R	19250080	859 2662 03541 1	200				33	47
5,0x100/55+R	19250100	859 2662 03542 8	100				45	55
5,0x120/65+R	19250120	859 2662 03543 5	100				55	65
5,0x140/65+R	19250140	859 2662 04358 4	100				75	65
5,0x160/65+R	19250160	859 2662 04359 1	100				95	65
6,0x30/25**	19260030	859 2662 00179 9	200				5	25
6,0x40/32**	19260040	859 2662 00180 5	200				8	32
6,0x50/34	19260050	859 2662 00181 2	200	17560050	859 2662 04571 7	35	16	34
6,0x60/39	19260060	859 2662 00182 9	200	17560060	859 2662 04572 4	30	21	39
6,0x70/48	19260070	859 2662 00183 6	200				22	48
6,0x 80/48+R	19260080	859 2662 08277 4	100	17560080	859 2662 04574 8	20	32	48
6,0x100/54+R	19260100	859 2662 00185 0	100	17560100	859 2662 04575 5	16	46	54
6,0x120/64+R	19260120	859 2662 00186 7	100	17560120	859 2662 04576 2	14	56	64
6,0x140/64+R	19260140	859 2662 00187 4	100				76	64
6,0x160/64+R	19260160	859 2662 00188 1	100				96	64
6,0x180/64+R	19260180	859 2662 00189 8	100				116	64
6,0x200/64+R	19260200	859 2662 00190 4	100				136	64
6,0x220/64+R	19260220	859 2662 00191 1	100				156	64
6,0x240/64+R	19260240	859 2662 00192 8	100				176	64
6,0x260/64+R	19260260	859 2662 00614 5	100				196	64
6,0x280/64+R	19260280	859 2662 00615 2	100				216	64
6,0x300/64+R	19260300	859 2662 00616 9	100				236	64

** with single-start thread





Hi-tech product

User-friendly version of construction screws with high performance properties. The highest clamping force in the joint.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Single-start fast thread

Special single-start thread for fast screwing.



Washer head

For visible joints and greater clamping force in the joint.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling. Small packages for do-it-yourselfers are also available.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

characteristic dimensions	8,0	10,0
groove	T40	T50
head diameter [mm]	20,0	25,0
shank diameter [mm]	5,8	7,0
inner thread diameter [mm]	5,3	6,3
pre-drilling diameter [mm]	5,0	6,0
max. tightening torque [Nm]	24,0	44,0
operating class as per EN 1995-1-1	1 + 2	1 + 2

stated properties		8,0	10,0
characteristic yield moment	My,k [Nmm]	31 148	48 285
characteristic pull-out parameter			
load perpendicularly to the fibers	fax,k [Nmm ²]	15,18	15,05
load in the direction of the fibers	fax,k [Nmm ²]	8,58	9,29
characteristic wood density	ρk [kg/m ³]	450	450
characteristic parameter of head extension	fhead,k [N/mm ²]	24,55	26,17
characteristic wood density	ρk [kg/m ³]	450	450
characteristic tensile strength	ftens,k [kN]	25,81	35,14



dimension	big packages			small and unit packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package		
8,0x 50/32	19280050	859 2662 00740 1	50				18	32
8,0x 60/32+R	19280060	859 2662 00741 8	50				28	32
8,0x 80/50+R	19280080	859 2662 00193 5	50				30	54
8,0x100/50+R	19280100	859 2662 00194 2	50	17580100	859 2662 04644 8	12	50	54
8,0x120/50+R	19280120	859 2662 00195 9	50	17580120	859 2662 04645 5	10	70	54
8,0x140/80+R	19280140	859 2662 00196 6	50	17580140	859 2662 04646 2	12	60	80
8,0x160/80+R	19280160	859 2662 00197 3	50	17580160	859 2662 04647 9	10	80	80
8,0x180/80+R	19280180	859 2662 00198 0	50	17580180	859 2662 04648 6	8	100	80
8,0x200/80+R	19280200	859 2662 00199 7	50	17580200	859 2662 04649 3	8	120	80
8,0x220/80+R	19280220	859 2662 00200 0	50	17590220	859 2662 04650 9	50*	140	80
8,0x240/80+R	19280240	859 2662 00201 7	50	17590240	859 2662 04651 6	50*	160	80
8,0x260/80+R	19280260	859 2662 00202 4	50	17590260	859 2662 04652 3	50*	180	80
8,0x280/80+R	19280280	859 2662 00203 1	50	17590280	859 2662 04653 0	50*	200	80
8,0x300/80+R	19280300	859 2662 00204 8	50	17590300	859 2662 04654 7	50*	220	80
8,0x320/80+R	19280320	859 2662 00205 5	50	17590320	859 2662 08402 0	50*	240	80
8,0x340/80+R	19280340	859 2662 00206 2	50	17590340	859 2662 08404 4	50*	260	80
8,0x360/80+R	19280360	859 2662 00207 9	50	17590360	859 2662 08406 8	50*	280	80
8,0x380/80+R	19280380	859 2662 00208 6	50	17590380	859 2662 08408 2	50*	300	80
8,0x400/80+R	19280400	859 2662 00209 3	50	17590400	859 2662 08410 5	50*	320	80
8,0x420/95+R	19280420	859 2662 08629 1	25				325	95
8,0x440/95+R	19280440	859 2662 08871 4	25				345	95
8,0x500/95+R	19280500	859 2662 00211 6	25				405	95
10,0x100/52+R	19510100	859 2662 00254 3	25	17591100	859 2662 08412 9	25*	48	52
10,0x120/52+R	19510120	859 2662 00255 0	25	17591120	859 2662 08414 3	25*	68	52
10,0x140/80+R	19510140	859 2662 00256 7	25	17591140	859 2662 08416 7	25*	60	80
10,0x160/80+R	19510160	859 2662 00257 4	25	17591160	859 2662 08418 1	25*	80	80
10,0x180/80+R	19510180	859 2662 00258 1	25	17591180	859 2662 08420 4	25*	100	80
10,0x200/80+R	19510200	859 2662 00259 8	25	17591200	859 2662 08422 8	25*	120	80
10,0x220/80+R	19510220	859 2662 00260 4	25	17591220	859 2662 08424 2	25*	140	80
10,0x240/80+R	19510240	859 2662 00261 1	25	17591240	859 2662 08426 6	25*	160	80
10,0x260/80+R	19510260	859 2662 00262 8	25	17591260	859 2662 08428 0	25*	180	80
10,0x280/80+R	19510280	859 2662 00263 5	25	17591280	859 2662 08430 3	25*	200	80
10,0x300/80+R	19510300	859 2662 00264 2	25	17591300	859 2662 08432 7	25*	220	80
10,0x320/80+R	19510320	859 2662 00265 9	25	17591320	859 2662 08434 1	25*	240	80
10,0x340/80+R	19510340	859 2662 00266 6	25	17591340	859 2662 08436 5	25*	260	80
10,0x360/80+R	19510360	859 2662 00617 6	25	17591360	859 2662 08438 9	25*	280	80
10,0x380/80+R	19510380	859 2662 00267 3	25	17591380	859 2662 08440 2	25*	300	80
10,0x400/80+R	19510400	859 2662 00268 0	25	17591400	859 2662 08442 6	25*	320	80

* minimum order quantity, each screw equipped with a barcode label



RAPI-TEC® SK TopTherm



Hi-tech product

Specialized version of construction screws suitable for above-rafter insulation. Highly durable surface treatment.

- 

High-strength steel
Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².
- 

Special surface treatment
Highly durable surface treatment for demanding environments, tested for 20 cycles according to ČSN (Czech Technical Standard) ISO 6988.

- 

Washer head
For visible joints and greater clamping force in the joint.
- 

Environment friendly
The surface treatment does not contain harmful hexavalent chromium.
- 

Area of application
For wood/wood and metal/wood joints in the operating class specified in the table.

- 

Packaging
Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.

dimension	big packages			Informative insulation thickness* in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
8,0x220/80+R	19680220	859 2662 03090 4	50	60	80
8,0x240/80+R	19680240	859 2662 03092 8	50	80	80
8,0x260/80+R	19680260	859 2662 03093 5	50	95	80
8,0x280/80+R	19680280	859 2662 03094 2	50	113	80
8,0x300/80+R	19680300	859 2662 03095 9	50	130	80
8,0x320/80+R	19680320	859 2662 03096 6	50	147	80
8,0x340/80+R	19680340	859 2662 03097 3	50	165	80
8,0x360/80+R	19680360	859 2662 03098 0	50	182	80
8,0x380/80+R	19680380	859 2662 03099 7	50	200	80
8,0x400/80+R	19680400	859 2662 03100 0	50	217	80
8,0x420/95+R	19680420	859 2662 08872 1	25	220	95
8,0x440/95+R	19680440	859 2662 08873 8	25	235	95
8,0x500/95+R	19680500	859 2662 08874 5	25	290	95

* with a counter batten thickness of 40 mm, falcwork thickness of 20 mm, angle of screw axis to fibre direction of 60°

characteristic dimensions	8,0
groove	T40
head diameter [mm]	20,0
shank diameter [mm]	5,8
inner thread diameter [mm]	5,3
pre-drilling diameter [mm]	5,0
max. tightening torque [Nm]	24,0
operating class as per EN 1995-1-1	1 + 2 + 3

stated properties		8,0
characteristic yield moment	My,k [Nmm]	34 335
characteristic pull-out parameter		
load perpendicularly to the fibers	fax,k [Nmm ²]	13,03
load in the direction of the fibers	fax,k [Nmm ²]	10,61
characteristic wood density	ρk [kg/m ³]	380
characteristic parameter of head extension	fhead,k [N/mm ²]	23,95
characteristic wood density	ρk [kg/m ³]	475
characteristic tensile strength	ftens,k [kN]	27,40



TopRoof construction screw



Hi-tech product

Specialized version of construction screws suitable for above-rafter insulation. Special design with two threads.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Two threads

To fix the distance of the connected part from the base.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.



Cylinder head

For full embedment in wood.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.

dimension	big packages			Informative insulation thickness* in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
galvanic zinc					
8,0x240/60+100+R*	20308240	859 2662 04195 5	50	60	100
8,0x260/80+100+R	20308260	859 2662 04148 1	50	80	100
8,0x280/80+100+R	20308280	859 2662 04149 8	50	95	100
8,0x300/80+100+R	20308300	859 2662 04150 4	50	115	100
8,0x320/80+100+R	20308320	859 2662 04196 2	50	130	100
8,0x340/80+100+R	20308340	859 2662 04197 9	50	150	100
8,0x360/80+100+R	20308360	859 2662 04198 6	50	165	100
8,0x400/80+100+R	20308400	859 2662 04155 9	50	200	100
8,0x450/80+100+R	20308450	859 2662 04151 1	50	243	100
special surface treatment					
8,0x240/60+100+R	20408240	859 2662 08293 4	50	60	100

* alternatively 8,0x240/80+84+R

** with a counter batten thickness of 40 mm, falsework thickness of 20 mm, angle of screw axis to fibre direction of 60°

characteristic dimensions	8,0
groove	T40
head diameter [mm]	10,0
shank diameter [mm]	5,8
inner thread diameter [mm]	5,2
pre-drilling diameter [mm]	5,0
max. tightening torque [Nm]	24,0
operating class as per EN 1995-1-1	
galvanic zinc	1 + 2
special surface treatment	1 + 2 + 3

stated properties		8,0
characteristic yield moment	My,k [Nmm]	34 335
thread part – at an angle of 20°/10°		30 019/25 530
smooth part – at an angle of 20°/10°		44 623/36 536
characteristic pull-out parameter		
load perpendicularly to the fibers	fax,k [Nmm ²]	14,55
load in the direction of the fibers	fax,k [Nmm ²]	10,08
characteristic wood density	ρk [kg/m ³]	350
characteristic parameter of head extension	fhead,k [N/mm ²]	23,95
characteristic wood density	ρk [kg/m ³]	350
characteristic tensile strength	ftens,k [kN]	23,09



RAPI-TEC® HBS



Hi-tech product

A user-friendly version of construction screws with high performance properties. For all types of joints.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling. Small packages for do-it-yourselfers are also available.



Single-start fast thread

Special single-start thread for fast screwing.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.

RAPI-TEC® HBS

dimension	big packages			small and unit packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package		
8,0x60/32+R	19080060	859 2662 00738 8	50				28	32
8,0x80/50+R	19080080	859 2662 00129 4	50				30	50
8,0x90/50+R	19080090	859 2662 00130 0	50				40	50
8,0x100/50+R	19080100	859 2662 00131 7	50	18980100	859 2662 04633 2	14	50	50
8,0x120/50+R	19080120	859 2662 00132 4	50	18980120	859 2662 04634 9	12	70	50
8,0x140/80+R	19080140	859 2662 00133 1	50	18980140	859 2662 04635 6	14	60	80
8,0x160/80+R	19080160	859 2662 00134 8	50	18980160	859 2662 04636 3	12	80	80
8,0x180/80+R	19080180	859 2662 00135 5	50	18980180	859 2662 04637 0	10	100	80
8,0x200/80+R	19080200	859 2662 00136 2	50	18980200	859 2662 04638 7	10	120	80
8,0x220/80+R	19080220	859 2662 00137 9	50	18990220	859 2662 04639 4	50*	140	80
8,0x240/80+R	19080240	859 2662 00138 6	50	18990240	859 2662 04640 0	50*	160	80
8,0x260/80+R	19080260	859 2662 00139 3	50	18990260	859 2662 04641 7	50*	180	80
8,0x280/80+R	19080280	859 2662 00140 9	50	18990280	859 2662 04642 4	50*	200	80
8,0x300/80+R	19080300	859 2662 00141 6	50	18990300	859 2662 04643 1	50*	220	80
8,0x320/80+R	19080320	859 2662 00142 3	50	18990320	859 2662 08356 6	50*	240	80
8,0x340/80+R	19080340	859 2662 00143 0	50	18990340	859 2662 08358 0	50*	260	80
8,0x360/80+R	19080360	859 2662 00144 7	50	18990360	859 2662 08360 3	50*	280	80
8,0x380/80+R	19080380	859 2662 00145 4	50	18990380	859 2662 08362 7	50*	300	80
8,0x400/80+R	19080400	859 2662 00146 1	50	18990400	859 2662 08364 1	50*	320	80
10,0x 60/50	19100060	859 2662 00739 5	50	18991060	859 2662 08366 5	50*	10	50
10,0x 80/50+R	19100080	859 2662 00147 8	50	18991080	859 2662 08368 9	50*	30	50
10,0x100/50+R	19100100	859 2662 00149 2	50	18991100	859 2662 08370 2	50*	50	50
10,0x120/50+R	19100120	859 2662 00150 8	50	18991120	859 2662 08372 6	50*	70	50
10,0x140/80+R	19100140	859 2662 00151 5	50	18991140	859 2662 08374 0	50*	60	80
10,0x160/80+R	19100160	859 2662 00152 2	50	18991160	859 2662 08376 4	50*	80	80
10,0x180/80+R	19100180	859 2662 00153 9	50	18991180	859 2662 08378 8	50*	100	80
10,0x200/80+R	19100200	859 2662 00154 6	50	18991200	859 2662 08380 1	50*	120	80
10,0x220/80+R	19100220	859 2662 00155 3	50	18991220	859 2662 08382 5	50*	140	80
10,0x240/80+R	19100240	859 2662 00156 0	50	18991240	859 2662 08384 9	50*	160	80
10,0x260/80+R	19100260	859 2662 00157 7	50	18991260	859 2662 08386 3	50*	180	80
10,0x280/80+R	19100280	859 2662 00158 4	50	18991280	859 2662 08388 7	50*	200	80
10,0x300/80+R	19100300	859 2662 00159 1	50	18991300	859 2662 08390 0	50*	220	80
10,0x320/80+R	19100320	859 2662 00160 7	50	18991320	859 2662 08392 4	50*	240	80
10,0x340/80+R	19100340	859 2662 00161 4	50	18991340	859 2662 08394 8	50*	260	80
10,0x360/80+R	19100360	859 2662 00162 1	50	18991360	859 2662 08396 2	50*	280	80
10,0x380/80+R	19100380	859 2662 00163 8	50	18991380	859 2662 08398 6	50*	300	80
10,0x400/80+R	19100400	859 2662 00164 5	50	18991400	859 2662 08400 6	50*	320	80

* minimum order quantity, each screw equipped with a barcode label

characteristic dimensions	8,0	10,0
groove	T40	T40
head diameter [mm]	15,0	18,5
shank diameter [mm]	5,8	7,0
inner thread diameter [mm]	5,3	6,3
pre-drilling diameter [mm]	5,0	6,0
max. tightening torque [Nm]	24,0	44,0
operating class as per EN 1995-1-1	1 + 2	1 + 2

stated properties		8,0	10,0
characteristic yield moment	My,k [Nmm]	31 148	48 285
characteristic pull-out parameter			
load perpendicularly to the fibers	fax,k [Nmm ²]	15,18	15,05
load in the direction of the fibers	fax,k [Nmm ²]	8,58	9,29
characteristic wood density	ρk [kg/m ³]	450	450
characteristic parameter of head extension	fhead,k [N/mm ²]	29,33	25,39
characteristic wood density	ρk [kg/m ³]	450	450
characteristic tensile strength	ftens,k [kN]	25,81	35,14



Profiled washers for countersink head screws

dimension	big packages			inner diameter in mm	outer diameter in mm	thickness (height) in mm
	catalogue number	EAN / GTIN	quantity in the package			
for diameter 8,0 mm	10940800	859 2662 00695 4	50	8,5	25,0	5,5
for diameter 10,0 mm	10941000	859 2662 00696 1	50	11,5	32,0	6,5
for diameter 12,0 mm	10941200	859 2662 00697 8	25	14,0	35,0	7,5

HBS construction screw

dimension	big packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
8,0x420/80+R	19380420	859 2662 00230 7	50	340	80
8,0x440/100+R	19380440	859 2662 00231 4	50	340	100
8,0x460/100+R	19380460	859 2662 00232 1	50	360	100
8,0x480/80+R	19380480	859 2662 00233 8	50	400	80
8,0x500/80+R	19380500	859 2662 00234 5	50	420	80
8,0x550/95+R	19380550	859 2662 08983 4	50	455	95
12,0x100/70	19120100	859 2662 00165 2	25	30	70
12,0x120/84+R	19120120	859 2662 00166 9	25	36	84
12,0x140/100+R	19120140	859 2662 00167 6	25	40	100
12,0x160/100+R	19120160	859 2662 00168 3	25	60	100
12,0x180/125+R	19120180	859 2662 00169 0	25	55	125
12,0x200/125+R	19120200	859 2662 00170 6	25	75	125
12,0x220/125+R	19120220	859 2662 00171 3	25	76	144
12,0x240/144+R	19120240	859 2662 00172 0	25	96	144
12,0x260/144+R	19120260	859 2662 00173 7	25	116	144
12,0x280/144+R	19120280	859 2662 00174 4	25	136	144
12,0x300/144+R	19120300	859 2662 00175 1	25	156	144
12,0x320/144+R	19120320	859 2662 00612 1	25	176	144
12,0x340/144+R	19120340	859 2662 00176 8	25	196	144
12,0x360/144+R	19120360	859 2662 00177 5	25	216	144
12,0x380/144+R	19120380	859 2662 00613 8	25	236	144
12,0x400/144+R	19120400	859 2662 00178 2	25	256	144

characteristic dimensions	8,0	12,0
groove	T40	T40
head diameter [mm]	15,0	20,0
shank diameter [mm]	5,9	8,2
inner thread diameter [mm]	5,3	6,8
pre-drilling diameter [mm]	5,5	6,5
max. tightening torque [Nm]	24,0	58,0
operating class as per EN 1995-1-1	1 + 2	1 + 2

DUAL construction screw

Hi-tech product

Basic version of construction screws with a choice of screwing method. Special hexagonal head design with internal Tx groove.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Modified hexagonal head design with shoulder

Allows screwing in at an angle to the axis of tightening tool. The head is also equipped with a Tx groove.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.



CE

dimension	big packages			max. thickness of the connected part in mm	screwing depth (= thread length) in mm
	catalogue number	EAN / GTIN	quantity in the package		
8,0x40/28	16080040	859 2662 00067 9	50	12	28
8,0x60/40	16080050	859 2662 00068 6	50	15	35
8,0x70/40	16080060	859 2662 00069 3	50	15	45
8,0x80/50+R	16080070	859 2662 00070 9	50	21	49
8,0x100/60+R	16080080	859 2662 00071 6	50	26	54
8,0x120/80+R	16080100	859 2662 00072 3	50	35	65
8,0x140/80+R	16080120	859 2662 00073 0	50	36	84
8,0x160/80+R	16080140	859 2662 00074 7	50	56	84
8,0x180/100+R	16080160	859 2662 00075 4	50	60	100
8,0x200/100+R	16080180	859 2662 00076 1	50	80	100
8,0x220/100+R	16080200	859 2662 00077 8	50	100	100
8,0x240/100+R	16080220	859 2662 00078 5	50	120	100
8,0x260/100+R	16080240	859 2662 00079 2	50	140	100
8,0x280/100+R	16080260	859 2662 00080 8	50	160	100
8,0x300/100+R	16080280	859 2662 00081 5	50	180	100
8,0x320/100+R	16080300	859 2662 00082 2	50	200	100
8,0x340/100+R	16080320	859 2662 00083 9	50	220	100
8,0x360/100+R	16080340	859 2662 00084 6	50	240	100
8,0x380/100+R	16080360	859 2662 00085 3	50	260	100
8,0x400/100+R	16080380	859 2662 00086 0	50	280	100
8,0x400/100+R	16080400	859 2662 00087 7	50	300	100
10,0x60/40	16100060	859 2662 00088 4	50	15	45
10,0x70/40	16100070	859 2662 00089 1	50	21	49
10,0x80/50+R	16100080	859 2662 00090 7	50	26	54
10,0x100/60+R	16100100	859 2662 00091 4	50	35	65
10,0x120/80+R	16100120	859 2662 00092 1	50	36	84
10,0x140/80+R	16100140	859 2662 00093 8	50	32	108
10,0x160/80+R	16100160	859 2662 00094 5	50	52	108
10,0x180/100+R	16100180	859 2662 00095 2	50	72	108
10,0x200/100+R	16100200	859 2662 00096 9	50	75	125
10,0x220/100+R	16100220	859 2662 00097 6	50	95	125
10,0x240/100+R	16100240	859 2662 00098 3	50	115	125
10,0x260/100+R	16100260	859 2662 00099 0	50	135	125
10,0x280/100+R	16100280	859 2662 00100 3	50	155	125
10,0x300/100+R	16100300	859 2662 00101 0	50	175	125
10,0x350/100+R	16100350	859 2662 04833 6	50	225	125
10,0x400/100+R	16100400	859 2662 00106 5	50	275	125
12,0x80/50	16120080	859 2662 00109 6	25	22	58
12,0x100/60	16120100	859 2662 00110 2	25	30	70
12,0x120/80+R	16120120	859 2662 00111 9	25	36	84
12,0x140/80+R	16120140	859 2662 00112 6	25	40	100
12,0x160/80+R	16120160	859 2662 00113 3	25	60	100
12,0x180/100+R	16120180	859 2662 00114 0	25	55	125
12,0x200/100+R	16120200	859 2662 00115 7	25	75	125
12,0x220/100+R	16120220	859 2662 00116 4	25	95	125
12,0x240/100+R	16120240	859 2662 00117 1	25	96	144
12,0x260/100+R	16120260	859 2662 00118 8	25	116	144
12,0x280/100+R	16120280	859 2662 00119 5	25	136	144
12,0x300/120+R	16120300	859 2662 00120 1	25	156	144
12,0x350/120+R	16120350	859 2662 04682 0	25	206	144
12,0x400/120+R	16120400	859 2662 00125 6	25	256	144

DIN 134 washers

dimension	big packages			thickness (height) in mm
	catalogue number	EAN / GTIN	quantity in the package	
for diameter 8,0 mm	3941800	859 2662 00640 1	100	2,0
for diameter 10,0 mm	3941100	859 2662 00641 8	100	2,5
for diameter 12,0 mm	3941120	859 2662 00642 5	100	3,0

characteristic dimensions	8,0	10,0	12,0
groove	SW12/T30	SW15/T40	SW17/T40
head diameter [mm]	12,0	15,0	17,0
shank diameter [mm]	5,8	7,0	8,0
inner thread diameter [mm]	5,3	6,3	6,9
pre-drilling diameter [mm]	5,0	6,0	7,0
max. tightening torque [Nm]	24,0	44,0	64,0
operating class as per EN 1995-1-1	1 + 2	1 + 2	1 + 2

RAPI-TEC[®] for carpentry hardware



Hi-tech product

Specialized version of screws designed for fastening carpentry fittings. With a shoulder under the head, also available with a highly resistant surface treatment.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Washer head with shoulder

For visible connection of construction/carpentry fittings. The shoulder under the head fits into the holes in the fittings.



Special surface treatment

Highly durable surface treatment for demanding environments, tested for 20 cycles according to ČSN (Czech Technical Standard) ISO 6988.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

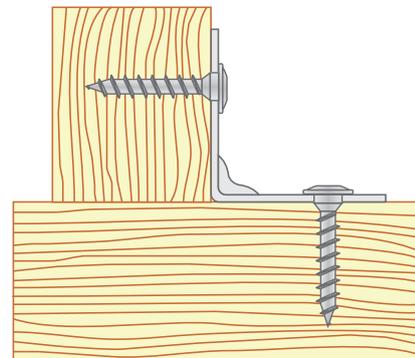


RAPI-TEC® for carpentry hardware – galvanic zinc

dimension	big packages			small packages			max. thickness of the connected part in mm	screwing depth (= thread length) in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package		
5,0x40/35	20050040	859 2662 04114 6	250				5	35
5,0x50/45	20050050	859 2662 04338 6	250				5	45
8,0x40/34	20080040	859 2662 04115 3	50				6	34
8,0x50/44	20080050	859 2662 04116 0	50	20085050	859 2662 07645 2	10	6	44
8,0x60/54	20080060	859 2662 04339 3	50				6	54
8,0x80/74	20080080	859 2662 04355 3	50				6	74
8,0x100/94	20080100	859 2662 07816 6	50				6	94
10,0x60/53	20010060	859 2662 04626 4	50				7	52

characteristic dimensions	5,0	8,0	10,0
groove	T20	T40	T40
head diameter [mm]	8,3	18,0	21,0
diameter of the shoulder under the head [mm]	4,9	10,0	12,0
inner thread diameter [mm]	3,0	5,3	6,3
pre-drilling diameter [mm]	3,0	5,0	6,0
max. tightening torque [Nm]	6,0	24,0	44,0
operating class as per EN 1995-1-1	1 + 2	1 + 2	1 + 2

stated properties		5,0	8,0	10,0
characteristic yield moment	My,k [Nmm]	8 148	26 361	56 898
characteristic pull-out parameter				
load perpendicularly to the fibers	fax,k [Nmm ²]	17,61	13,82	12,67
load in the direction of the fibers	fax,k [Nmm ²]	11,25	11,51	9,14
characteristic wood density	ρk [kg/m ³]	350	350	350
characteristic parameter of head extension	fhead,k [N/mm ²]	26,42	27,07	22,52
characteristic wood density	ρk [kg/m ³]	400	400	350
characteristic tensile strength	ftens,k [kN]	9,91	26,78	34,71



RAPI-TEC® for carpentry hardware – special surface treatment

dimension	big packages			max. thickness of the connected part in mm	screwing depth (= thread length) in mm
	catalogue number	EAN / GTIN	quantity in the package		
5,0x40/35	20087040	859 2662 08197 5	250	5	35
8,0x40/34	20090040	859 2662 04117 7	50	6	34
8,0x50/44	20090050	859 2662 04118 4	50	6	44

characteristic dimensions	5,0	8,0
groove	T20	T40
head diameter [mm]	8,3	18,0
diameter of the shoulder under the head [mm]	4,9	10,0
inner thread diameter [mm]	3,0	5,3
pre-drilling diameter [mm]	3,0	5,0
max. tightening torque [Nm]	6,0	24,0
operating class as per EN 1995-1-1	1 + 2 + 3	1 + 2 + 3

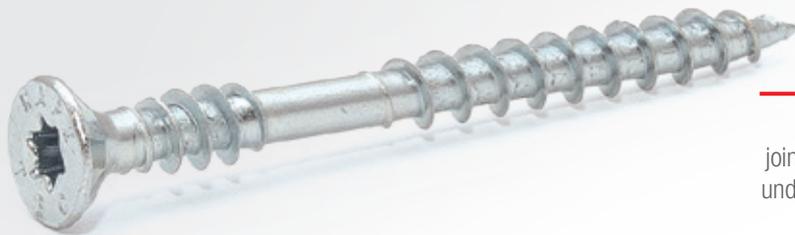
stated properties		5,0	8,0
characteristic yield moment	My,k [Nmm]	8 148	26 361
characteristic pull-out parameter			
load perpendicularly to the fibers	fax,k [Nmm ²]	17,61	13,82
load in the direction of the fibers	fax,k [Nmm ²]	11,25	11,51
characteristic wood density	ρk [kg/m ³]	350	350
characteristic parameter of head extension	fhead,k [N/mm ²]	26,42	27,07
characteristic wood density	ρk [kg/m ³]	400	400
characteristic tensile strength	ftens,k [kN]	9,91	26,78



RAPI-TEC® UniPlus

ideal for
OSB

ideal for
**CETRIS
boards**
in a stable
environment



Hi-tech product

Specialized screw variant designed for joining board materials. The second thread under the head is designated for tightening the part being connected. Ideal for:

- joining OSB, Laminate and wooden boards
- joining OSB boards to the substructure



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Needle tip

For easy screwing into laminate.



Two threads

For a firm connection of two boards.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.



Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

dimension	big packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
3,5x16/12	16235016	859 2662 08915 5	500	4	12
3,5x30/15	16235030	859 2662 08916 2	500	15	15
3,5x35/15	16235035	859 2662 08917 9	500	20	15
3,5x40/23	16235040	859 2662 08918 6	500	17	23
3,5x50/23	16235050	859 2662 04476 5	500	27	23
4,0x20/15	16240020	859 2662 04400 0	500	5	15
4,0x30/15	16240030	859 2662 04579 3	500	15	15
4,0x35/15	16240035	859 2662 04403 1	500	20	15
4,0x40/23	16240040	859 2662 04404 8	500	17	23
4,0x45/23	16240045	859 2662 04405 5	500	22	23
4,0x50/23	16240050	859 2662 04406 2	500	27	23
4,0x60/30	16240060	859 2662 04407 9	400	30	30
4,5x40/23	16245040	859 2662 04410 9	500	17	23
4,5x50/23	16245050	859 2662 04412 3	500	27	23
4,5x60/30	16245060	859 2662 08012 1	250	30	30
4,5x70/30	16245070	859 2662 08013 8	200	40	30
5,0x50/23	16250050	859 2662 04416 1	250	27	23
5,0x60/35	16250060	859 2662 08014 5	250	25	35
5,0x80/40	16250080	859 2662 08015 2	200	40	40

characteristic dimensions	3,5	4,0	4,5	5,0
groove	T15	T20	T20	T25
head diameter [mm]	7,0	8,0	9,0	10,0
shank diameter [mm]	2,6	2,9	3,2	3,6
inner thread diameter [mm]	2,3	2,5	2,9	3,2
pre-drilling diameter [mm]	2,3	2,5	2,9	3,2
max. tightening torque [Nm]	2,6	3,5	5,0	7,0
operating class as per EN 1995-1-1	1	1	1 + 2	1 + 2

stated properties		3,5	4,0	4,5	5,0
characteristic yield moment at an angle of 25°/15°	My,k [Nmm]	2 727	3 489	–	–
characteristic pull-out parameter				5 275 / 5 145	9 420 / 8 841
load perpendicularly to the fibers	fax,k [Nmm ²]	15,50	16,03	16,82	16,09
load in the direction of the fibers	fax,k [Nmm ²]	11,47	13,09	13,80	12,97
characteristic wood density	ρk [kg/m ³]	350	350	350	350
characteristic parameter of head extension	fhead,k [N/mm ²]	26,77	25,23	24,00	23,01
characteristic wood density	ρk [kg/m ³]	350	350	350	350
characteristic tensile strength	ftens,k [kN]	4,54	5,94	7,65	9,63



to level
the base



Standard product

Specialized screw variant for distance mounting. Allows precise adjustment of the required gap.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Countersink head

For easy embedding into wood.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.

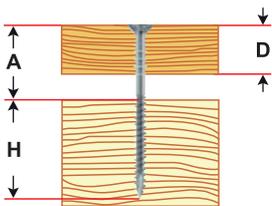


Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

dimension	big packages			min. screwing depth in mm	max. distance A in mm
	catalogue number	EAN / GTIN	quantity in the package		
6,0x60/30	9760060	859 2662 00710 4	200	30	30
6,0x70/30	9760070	859 2662 00711 1	200	30	40
6,0x80/50	9760080	859 2662 00712 8	200	50	30
6,0x90/50	9760090	859 2662 03544 2	100	50	40
6,0x100/60	9760100	859 2662 00714 2	100	50	50
6,0x120/60	9760120	859 2662 00715 9	100	50	70
6,0x130/60	9760130	859 2662 03512 1	100	50	80
6,0x145/60	9760145	859 2662 00716 6	100	50	95
6,0x160/60	9760160	859 2662 00717 3	100	50	110

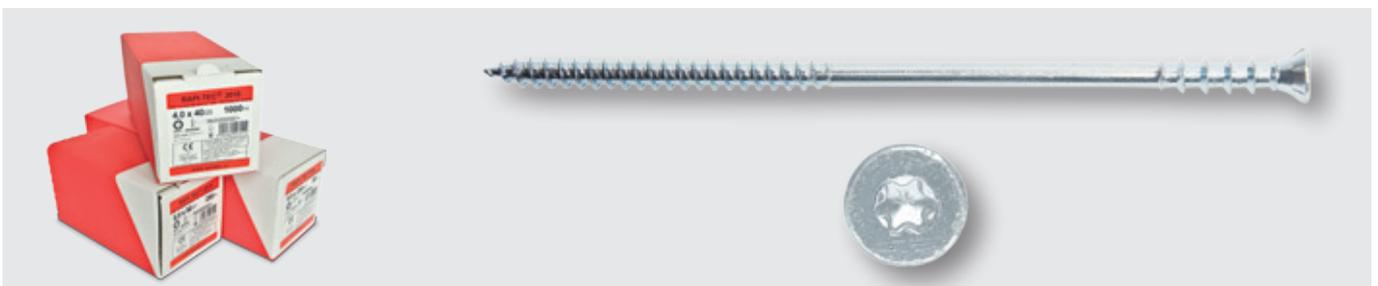
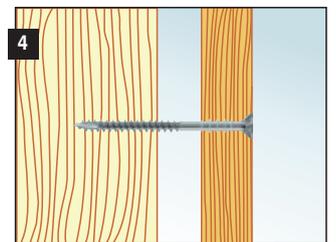
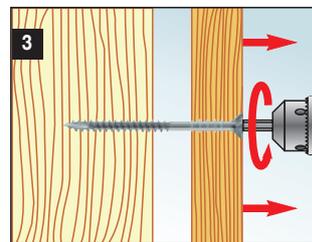
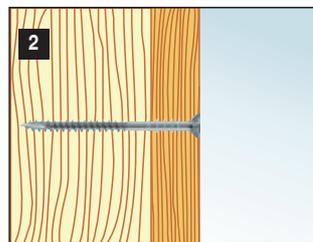
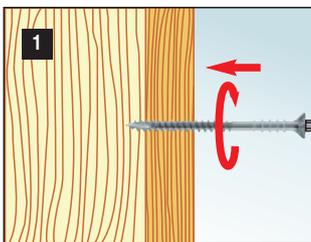
characteristic dimensions	6,0
groove	T25
length of the ringed part including the head [mm]	25
head diameter [mm]	10,0
shank diameter [mm]	4,2
inner thread diameter [mm]	3,8
pre-drilling diameter [mm]	4,0
max. tightening torque [Nm]	9,0
operating class as per EN 1995-1-1	1 + 2



A maximum distance
D max. thickness of the connected part
H minimum anchoring depth

Installation:

1. Place the part to be connected on the base and screw in the Justi-tec screw.
2. The part to be connected is seated on rings under the screw head.
3. By reverse run screw out justi-tec until the part to be connected is at the required distance from the base.
4. Additional parts can be attached to the connected part.



RAPI-TEC® BSP drilling screw



Hi-tech product

Screw with a drill tip for working with hard woods. Pre-drilling and screwing in one operation.



High-strength steel

Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².



Drill tip

Saves working time, eliminates pre-drilling. Minimizes the risk of material cracking or screw twisting.



Environment friendly

The surface treatment does not contain harmful hexavalent chromium.



Packaging

Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.

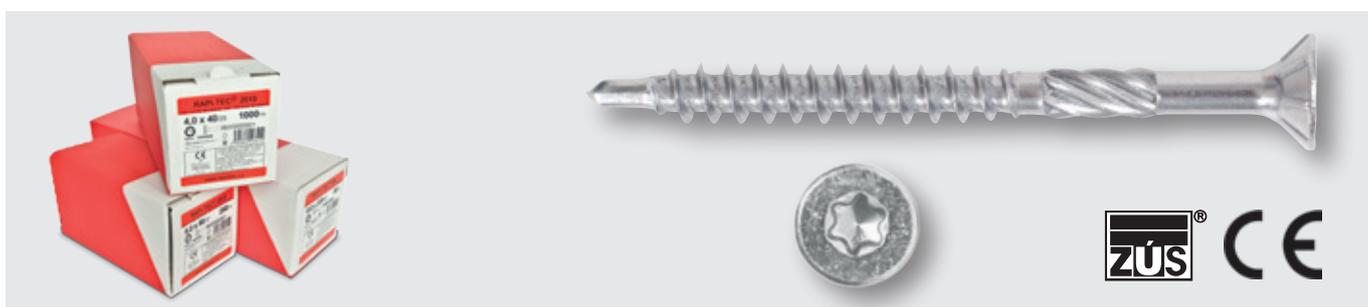
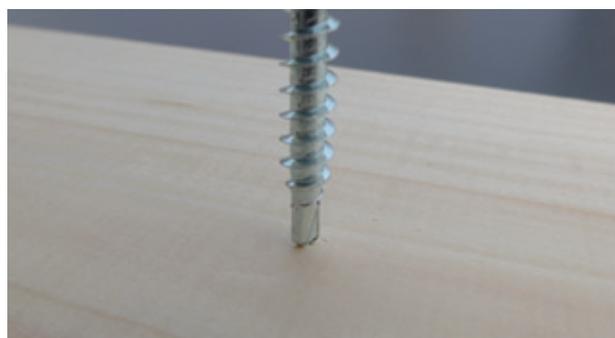


Area of application

For wood/wood and metal/wood joints in the operating class specified in the table.

dimension	big packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
4,0x30	11940030	859 2662 08831 8	500	4	26
4,0x35	11940035	859 2662 08832 5	500	9	26
4,0x40	11940040	859 2662 00492 9	500	14	26
4,0x45	11940045	859 2662 00493 6	500	17	28
4,0x50	11940050	859 2662 00494 3	500	20	30
4,0x60	11940060	859 2662 00495 0	500	24	36
4,5x40	11945040	859 2662 00497 4	500	14	26
4,5x45	11945045	859 2662 00498 1	500	17	28
4,5x50	11945050	859 2662 00499 8	500	20	30
4,5x60	11945060	859 2662 00500 1	250	24	36
5,0x50	11950050	859 2662 00501 8	250	20	30
5,0x60	11950060	859 2662 00502 5	250	24	36
5,0x70	11950070	859 2662 00503 2	200	28	42
5,0x80	11950080	859 2662 00504 9	100	32	48
5,0x90	11950090	859 2662 00505 6	100	35	55
6,0x80	11960080	859 2662 00506 3	100	32	48
6,0x90	11960090	859 2662 00507 0	100	36	54
6,0x100	11960100	859 2662 00508 7	100	40	60
6,0x120	11960120	859 2662 00509 4	100	60	60
6,0x140	11960140	859 2662 00510 0	100	70	70
6,0x160	11960160	859 2662 02152 0	100	90	70

characteristic dimensions	4,0	4,5	5,0	6,0
groove	Tx20	Tx20	Tx25	Tx25
head diameter [mm]	8,0	9,0	10,0	12,0
shank diameter [mm]	2,9	3,2	3,6	4,2
inner thread diameter [mm]	2,5	2,8	3,1	3,6
max. tightening torque [Nm]	3,0	4,0	6,0	9,0
operating class as per EN 1995-1-1	1	1 + 2	1 + 2	1 + 2



RAPI-TEC® BSP *drilling screw for boards and battens*



Hi-tech product

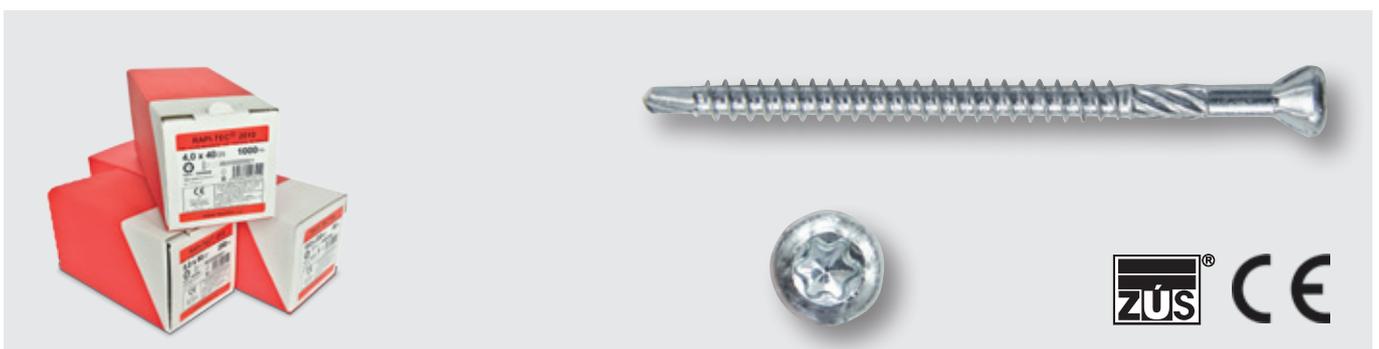
Screw with a drill tip for working with thin materials. Minimizes the risk of cracking the part being connected.

- 
High-strength steel
 Made from quality steel with a special heat treatment requirement. High elasticity with a strength of over 1 000 N/mm².
- 
Drill tip
 Saves working time, eliminates pre-drilling. Minimizes the risk of material cracking or screw twisting.
- 
60° countersink head
 A head with a small diameter. The advantage is low visibility and its easy embedding in thin or hard materials.

- 
Environment friendly
 The surface treatment does not contain harmful hexavalent chromium.
- 
Packaging
 Each delivery is in the same packaging with the same quantity. The packaging is sufficiently sized for normal handling.
- 
Area of application
 For wood/wood and metal/wood joints in the operating class specified in the table.

dimension	big packages			max. thickness of the connected part in mm	screwing depth in mm
	catalogue number	EAN / GTIN	quantity in the package		
3,2x25/22	9530025	859 2662 04821 3	250	3	22
3,2x30/22	9530030	859 2662 04822 0	250	11	19
3,2x35/24	9530035	859 2662 04823 7	250	16	19
3,2x40/24	9530040	859 2662 03469 8	250	16	24
3,2x50/34	9530050	859 2662 04467 3	250	16	34
3,2x60/44	9530060	859 2662 04824 4	250	16	44

characteristic dimensions	3,2
groove	T10
head diameter [mm]	5,1
shank diameter [mm]	2,4
inner thread diameter [mm]	2,1
max. tightening torque [Nm]	1,2
operating class as per EN 1995-1-1	1



Standard product

For general use.

UNI-TEC® PZ – full thread

dimension	big packages			packaging in plastic bags		
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in one bag
full thread						
2,5x10	10025010	859 2662 01084 5	2000			
2,5x12	10025012	859 2662 01085 2	2000			
2,5x16	10025016	859 2662 01086 9	2000			
2,5x20	10025020	859 2662 01087 6	2000			
2,5x25	10025025	859 2662 01088 3	2000			
3,0x10	10030010	859 2662 01089 0	2000			
3,0x12	10030012	859 2662 01090 6	2000			
3,0x16	10030016	859 2662 01091 3	2000			
3,0x20	10030020	859 2662 01092 0	2000			
3,0x25	10030025	859 2662 01093 7	2000			
3,0x30	10030030	859 2662 01094 4	1000			
3,0x35	10030035	859 2662 01095 1	1000			
3,0x40	10030040	859 2662 01096 8	1000			
3,0x50	10030050	859 2662 01097 5	1000			
3,5x12	10035012	859 2662 01099 9	2000			
3,5x16	10035016	859 2662 01100 2	2000	11035016	859 2662 06717 7	100
3,5x20	10035020	859 2662 01102 6	2000			
3,5x25	10035025	859 2662 01103 3	1000			
3,5x30	10035030	859 2662 01104 0	1000	11035030	859 2662 06718 4	100
3,5x35	10035035	859 2662 01105 7	1000	11035035	859 2662 06719 1	100
3,5x40	10035040	859 2662 01106 4	1000	11035040	859 2662 06720 7	100
3,5x45	10035045	859 2662 01107 1	500			
3,5x50	10035050	859 2662 01108 8	500	11035050	859 2662 06721 4	100
3,5x60	10035060	859 2662 01109 5	500			
4,0x12	10040012	859 2662 01111 8	1000			
4,0x16	10040016	859 2662 01112 5	1000			
4,0x20	10040020	859 2662 01113 2	1000	11040020	859 2662 06722 1	100
4,0x25	10040025	859 2662 01114 9	1000	11040025	859 2662 06723 8	100
4,0x30	10040030	859 2662 01115 6	1000	11040030	859 2662 06724 5	100
4,0x35	10040035	859 2662 01116 3	1000	11040035	859 2662 06725 2	100
4,0x40	10040040	859 2662 01117 0	1000	11040040	859 2662 06726 9	50
4,0x45	10040045	859 2662 01118 7	500	11040045	859 2662 06729 0	50
4,0x50	10040050	859 2662 01119 4	500	11040050	859 2662 06727 6	50
4,0x60	10040060	859 2662 01120 0	500	11040060	859 2662 06730 6	50
4,0x70	10040070	859 2662 01121 7	200			
4,0x80	10040080	859 2662 01122 4	200			
4,5x20	10045020	859 2662 01124 8	500			
4,5x25	10045025	859 2662 01125 5	500			
4,5x30	10045030	859 2662 01126 2	500			
4,5x35	10045035	859 2662 01127 9	500			
4,5x40	10045040	859 2662 01128 6	500			
4,5x45	10045045	859 2662 01129 3	500			
4,5x50	10045050	859 2662 01130 9	500			
4,5x60	10045060	859 2662 01131 6	250			
5,0x20	10050020	859 2662 01132 3	500			
5,0x25	10050025	859 2662 01133 0	500			
5,0x30	10050030	859 2662 01134 7	500			
5,0x35	10050035	859 2662 01135 4	500	11050035	859 2662 06731 3	50
5,0x40	10050040	859 2662 01136 1	500	11050040	859 2662 06732 0	50
5,0x45	10050045	859 2662 01137 8	250			
5,0x50	10050050	859 2662 01138 5	250	11050050	859 2662 06733 7	25
5,0x60	10050060	859 2662 01139 2	250	11050060	859 2662 06734 4	25
5,0x70	10050070	859 2662 01140 8	200	11050070	859 2662 06735 1	25
5,0x80	10050080	859 2662 01141 5	200	11050080	859 2662 06736 8	25



dimension	big packages			packaging in plastic bags		
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in one bag
6,0x30	10060030	859 2662 01142 2	500			
6,0x35	10060035	859 2662 01143 9	500			
6,0x40	10060040	859 2662 01144 6	250			
6,0x45	10060045	859 2662 01145 3	250			
6,0x50	10060050	859 2662 01146 0	250	11060050	859 2662 06737 5	25
6,0x60	10060060	859 2662 01148 4	200	11060060	859 2662 06738 2	25
6,0x70	10060070	859 2662 01149 1	200	11060070	859 2662 06739 9	25
part thread						
3,0x35	10230035	859 2662 01262 7	1000			
3,5x30	10235030	859 2662 01264 1	1000			
3,5x35	10235035	859 2662 01265 8	1000			
3,5x40	10235040	859 2662 01266 5	1000			
3,5x45	10235045	859 2662 01267 2	500			
3,5x50	10235050	859 2662 01268 9	500			
4,0x30	10240030	859 2662 01269 6	1000			
4,0x35	10240035	859 2662 01270 2	1000			
4,0x40	10240040	859 2662 01271 9	1000	11140040	859 2662 06740 5	50
4,0x45	10240045	859 2662 01272 6	500			
4,0x50	10240050	859 2662 01273 3	500	11140050	859 2662 06741 2	50
4,0x55	10240055	859 2662 01274 0	500			
4,0x60	10240060	859 2662 01275 7	500	11140060	859 2662 06742 9	50
4,0x70	10240070	859 2662 01276 4	200	11140070	859 2662 06743 6	50
4,5x35	10245035	859 2662 01277 1	500			
4,5x40	10245040	859 2662 01278 8	500			
4,5x45	10245045	859 2662 01279 5	500			
4,5x50	10245050	859 2662 01280 1	500	11145050	859 2662 06744 3	50
4,5x60	10245060	859 2662 01281 8	250	11145060	859 2662 06745 0	25
4,5x70	10245070	859 2662 01282 5	200	11145070	859 2662 06746 7	25
4,5x80	10245080	859 2662 01283 2	200	11145080	859 2662 06747 4	25
5,0x40	10250040	859 2662 01285 6	500			
5,0x45	10250045	859 2662 01286 3	250			
5,0x50	10250050	859 2662 01287 0	250	11150050	859 2662 06748 1	25
5,0x55	10250055	859 2662 01288 7	250			
5,0x60	10250060	859 2662 01289 4	250	11150060	859 2662 06749 8	25
5,0x70	10250070	859 2662 01290 0	200	11150070	859 2662 06750 4	25
5,0x80	10250080	859 2662 01291 7	200	11150080	859 2662 06751 1	25
5,0x90	10250090	859 2662 01292 4	100	11150090	859 2662 06752 8	25
5,0x100	10250100	859 2662 01293 1	100	11150100	859 2662 06753 5	25
5,0x110	10250110	859 2662 01294 8	100			
5,0x120	10250120	859 2662 01295 5	100	11150120	859 2662 06754 2	25
5,0x140	10250140	859 2662 01296 2	100			
6,0x50	10260050	859 2662 01298 6	250			
6,0x60	10260060	859 2662 01299 3	200			
6,0x70	10260070	859 2662 01300 6	200			
6,0x80	10260080	859 2662 01301 3	100			
6,0x90	10260090	859 2662 01302 0	100	11160090	859 2662 06755 9	25
6,0x100	10260100	859 2662 01303 7	100	11160100	859 2662 06756 6	25
6,0x110	10260110	859 2662 01304 4	100			
6,0x120	10260120	859 2662 01305 1	100	11160120	859 2662 06757 3	25
6,0x130	10260130	859 2662 01306 8	100			
6,0x140	10260140	859 2662 01307 5	100			
6,0x150	10260150	859 2662 01308 2	100			
6,0x160	10260160	859 2662 01309 9	100			
6,0x180	10260180	859 2662 01310 5	100			
6,0x200	10260200	859 2662 01311 2	100			

characteristic dimensions	2,5	3,0	3,5	4,0	4,5	5,0	6,0
groove	PZ 1	PZ 1	PZ 2	PZ 2	PZ 2	PZ 2	PZ 3
head diameter [mm]	5,0	6,0	7,0	8,0	9,0	10,0	12,0
shank diameter [mm]*	-	2,1	2,4	2,8	3,2	3,5	4,3
inner thread diameter [mm]	1,5	2,0	2,3	2,6	2,8	3,1	3,8
pre-drilling diameter [mm]	1,5	2,0	2,0	2,5	3,0	3,0	4,0
max. tightening torque [Nm]	0,9	1,2	2,0	3,0	4,0	6,0	9,0
operating class as per EN 1995-1-1	1	1	1	1	1 + 2	1 + 2	1 + 2

* only for part thread screws

Standard product

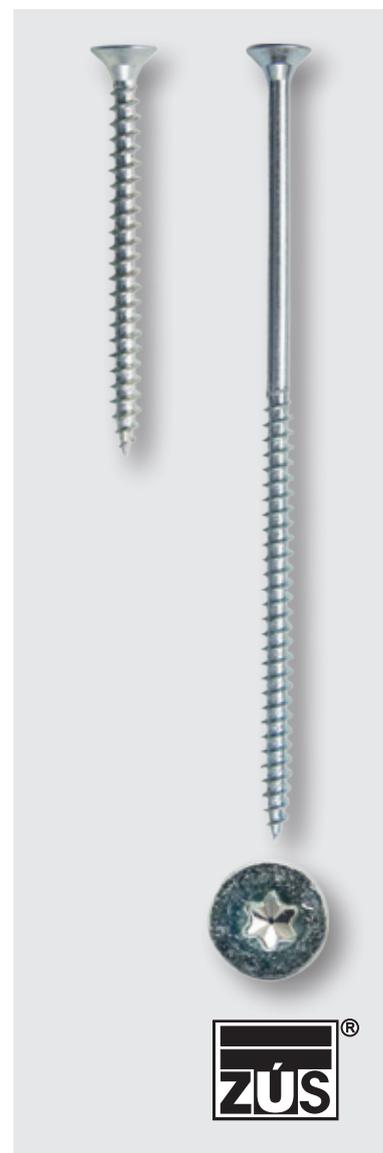
For general use.

UNI-TEC® SD – full thread

dimension	big packages		
	catalogue number	EAN / GTIN	quantity in the package
3,0x16	10430016	859 2662 01313 6	2000
3,0x20	10430020	859 2662 01314 3	2000
3,0x25	10430025	859 2662 01315 0	2000
3,0x30	10430030	859 2662 01316 7	1000
3,0x35	10430035	859 2662 01317 4	1000
3,0x40	10430040	859 2662 01318 1	1000
3,5x16	10435016	859 2662 01319 8	2000
3,5x20	10435020	859 2662 01320 4	2000
3,5x25	10435025	859 2662 01321 1	1000
3,5x30	10435030	859 2662 01322 8	1000
3,5x35	10435035	859 2662 01323 5	1000
3,5x40	10435040	859 2662 01324 2	1000
3,5x50	10435050	859 2662 01325 9	500
4,0x16	10440016	859 2662 01326 6	1000
4,0x20	10440020	859 2662 01327 3	1000
4,0x25	10440025	859 2662 01328 0	1000
4,0x30	10440030	859 2662 01329 7	1000
4,0x35	10440035	859 2662 01330 3	1000
4,0x40	10440040	859 2662 01331 0	1000
4,0x45	10440045	859 2662 01332 7	500
4,0x50	10440050	859 2662 01333 4	500
4,0x60	10440060	859 2662 01053 1	
4,5x30	10445030	859 2662 01336 5	500
4,5x40	10445040	859 2662 01337 2	500
4,5x50	10445050	859 2662 01338 9	500
4,5x60	10445060	859 2662 01339 6	250
5,0x20	10450020	859 2662 01340 2	500
5,0x25	10450025	859 2662 01341 9	500
5,0x30	10450030	859 2662 01342 6	500
5,0x35	10450035	859 2662 01343 3	500
5,0x40	10450040	859 2662 01344 0	500
5,0x45	10450045	859 2662 01345 7	250
5,0x50	10450050	859 2662 01346 4	250
5,0x60	10450060	859 2662 01347 1	250
5,0x70	10450070	859 2662 01348 8	200
6,0x40	10460040	859 2662 01349 5	250
6,0x50	10460050	859 2662 01350 1	250
6,0x60	10460060	859 2662 01351 8	200
6,0x70	10460070	859 2662 01352 5	200
6,0x80	10460080	859 2662 01353 2	100

UNI-TEC® SD – part thread

dimension	big packages		
	catalogue number	EAN / GTIN	quantity in the package
3,0x35	10330035	859 2662 00644 2	1000
3,0x45	10330045	859 2662 00646 6	500
3,5x30	10335030	859 2662 00648 0	1000
3,5x35	10335035	859 2662 00649 7	1000
3,5x40	10335040	859 2662 00650 3	1000
3,5x45	10335045	859 2662 00651 0	500
3,5x50	10335050	859 2662 00652 7	500
4,0x30	10340030	859 2662 00653 4	1000
4,0x35	10340035	859 2662 00654 1	1000
4,0x40	10340040	859 2662 00655 8	1000
4,0x45	10340045	859 2662 00656 5	500
4,0x50	10340050	859 2662 00657 2	500
4,0x60	10340060	859 2662 00659 6	500
4,0x70	10340070	859 2662 00660 2	200
4,0x80	10340080	859 2662 00661 9	
4,5x45	10345045	859 2662 00663 3	500
4,5x50	10345050	859 2662 00664 0	500
4,5x60	10345060	859 2662 00665 7	250
4,5x70	10345070	859 2662 00666 4	200
4,5x80	10345080	859 2662 00667 1	200
5,0x50	10350050	859 2662 00668 8	250
5,0x60	10350060	859 2662 00669 5	250
5,0x70	10350070	859 2662 00670 1	200
5,0x80	10350080	859 2662 00671 8	200
5,0x90	10350090	859 2662 00672 5	100
5,0x100	10350100	859 2662 00673 2	100
5,0x120	10350120	859 2662 00675 6	100
6,0x50	10360050	859 2662 00676 3	250
6,0x60	10360060	859 2662 00677 0	200
6,0x70	10360070	859 2662 00678 7	200
6,0x80	10360080	859 2662 00679 4	100
6,0x90	10360090	859 2662 00680 0	100
6,0x100	10360100	859 2662 00681 7	100
6,0x110	10360110	859 2662 00682 4	100
6,0x120	10360120	859 2662 00683 1	100
6,0x140	10360140	859 2662 00685 5	100
6,0x160	10360160	859 2662 00687 9	100
6,0x180	10360180	859 2662 00688 6	100
6,0x200	10360200	859 2662 00689 3	100



characteristic dimensions	3,0	3,5	4,0	4,5	5,0	6,0
groove	T10	T15	T20	T20	T25	T30/T25
head diameter [mm]	6,0	7,0	8,0	9,0	10,0	12,0
shank diameter [mm]*	2,1	2,4	2,8	3,2	3,5	4,3
inner thread diameter [mm]	2,0	2,3	2,6	2,8	3,1	3,8
pre-drilling diameter [mm]	2,0	2,0	2,5	3,0	3,0	4,0
max. tightening torque [Nm]	1,2	2,0	3,0	4,0	6,0	9,0
operating class as per EN 1995-1-1	1	1	1	1 + 2	1 + 2	1 + 2

* only for part thread screws

PANHEAD screw

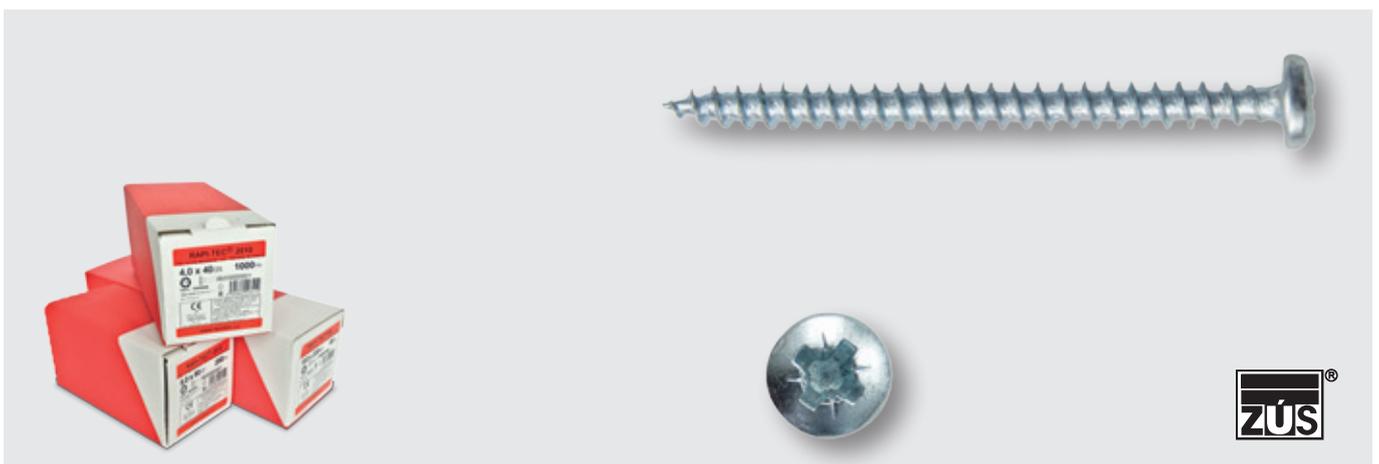


Standard product

For general use. With flat contact surface.

dimension	big packages		
	catalogue number	EAN / GTIN	quantity in the package
3,0x16	13130016	859 2662 01486 7	1000
3,0x20	13130020	859 2662 01515 4	2000
3,5x20	13135020	859 2662 01491 1	1000
4,0x16	13140016	859 2662 01497 3	1000
4,0x20	13140020	859 2662 01498 0	1000
4,0x25	13140025	859 2662 01499 7	1000
4,0x30	13140030	859 2662 01516 1	1000
4,0x40	13140040	859 2662 01501 7	1000
4,0x50	13140050	859 2662 01502 4	500
4,5x16	13145016	859 2662 01504 8	1000
5,0x16	13150016	859 2662 01511 6	500
5,0x20	13150020	859 2662 01512 3	1000
5,0x25	13150025	859 2662 01513 0	1000
5,0x30	13150030	859 2662 01514 7	500
5,0x40	13150040	859 2662 01518 5	500
5,0x50	13150050	859 2662 01520 8	250
5,0x60	13150060	859 2662 01521 5	200
5,0x70	13150070	859 2662 01522 2	250
5,0x80	13150080	859 2662 01523 9	250
5,0x90	13150090	859 2662 01524 6	250
5,0x100	13150100	859 2662 01525 3	200

characteristic dimensions	3,0	3,5	4,0	4,5	5,0
groove	PZ1	PZ2	PZ2	PZ2	PZ2
head diameter [mm]	6,0	7,0	8,0	9,0	10,0
inner thread diameter [mm]	2,0	2,2	2,5	2,7	3,1
pre-drilling diameter [mm]	2,0	2,0	2,5	3,0	3,0
max. tightening torque [Nm]	1,2	2,0	3,0	4,0	6,0
operating class as per EN 1995-1-1	1	1	1	1 + 2	1 + 2



RAPI-TEC® self-drilling farm screw



Standard product

For joining thin sheets to wood, the joint is sealed against water ingress.

dimension	surface or screw material	big packages			packaging in plastic bags		
		catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in one bag
4,8x20	galvanized	7748020.0000	859 2662 03152 9	250	7648020.0000	859 2662 07883 8	25
4,8x20	RAL 3009	7748020.3009	859 2662 03826 9	250	7648020.3009	859 2662 07884 5	25
4,8x20	RAL 3011	7748020.3011	859 2662 04036 1	250	7648020.3011	859 2662 07885 2	25
4,8x20	RAL 3016	7748020.3016	859 2662 03923 5	250			
4,8x20	RAL 5010	7748020.5010	859 2662 03948 8	250			
4,8x20	RAL 7011	7748020.7011	859 2662 04046 0	250			
4,8x20	RAL 7016	7748020.7016	859 2662 03924 2	250	7648020.7016	859 2662 07886 9	25
4,8x20	RAL 7024	7748020.7024	859 2662 03858 0	250			
4,8x20	RAL 8004	7748020.8004	859 2662 04044 6	250	7648020.8004	859 2662 07887 6	25
4,8x20	RAL 8017	7748020.8017	859 2662 03859 7	250	7648020.8017	859 2662 07888 3	25
4,8x20	RAL 8019	7748020.8019	859 2662 04452 9	250			
4,8x20	RAL 9002	7748020.9002	859 2662 03947 1	250			
4,8x20	RAL 9005	7748020.9005	859 2662 04045 3	250	7648020.9005	859 2662 07889 0	25
4,8x20	RAL 9006	7748020.9006	859 2662 04001 9	250			
4,8x20	RAL 9010	7748020.9010	859 2662 03860 3	250			
4,8x35	galvanized	7748035.0000	859 2662 03155 0	250	7648035.0000	859 2662 07890 6	25
4,8x35	RAL 3009	7748035.3009	859 2662 03153 6	250	7648035.3009	859 2662 07891 3	25
4,8x35	RAL 3011	7748035.3011	859 2662 04037 8	250	7648035.3011	859 2662 07892 0	25
4,8x35	RAL 3016	7748035.3016	859 2662 03925 9	250			
4,8x35	RAL 7011	7748035.7011	859 2662 04047 7	250			
4,8x35	RAL 7016	7748035.7016	859 2662 03926 6	250	7648035.7016	859 2662 07893 7	25
4,8x35	RAL 7024	7748035.7024	859 2662 03156 7	250			
4,8x35	RAL 8004	7748035.8004	859 2662 03990 7	250	7648035.8004	859 2662 07894 4	25
4,8x35	RAL 8017	7748035.8017	859 2662 03861 0	250	7648035.8017	859 2662 07895 1	25
4,8x35	RAL 8019	7748035.8019	859 2662 04453 6	250			
4,8x35	RAL 9005	7748035.9005	859 2662 03862 7	250	7648035.9005	859 2662 07896 8	25
4,8x35	RAL 9006	7748035.9006	859 2662 04002 6	250			
4,8x35	RAL 9010	7748035.9010	859 2662 03865 8	250			
4,8x60	galvanized	7748060.0000	859 2662 03866 5	100			
4,8x60	RAL 3009	7748060.3009	859 2662 03867 2	100			
4,8x60	RAL 3011	7748060.3011	859 2662 03868 9	100			
4,8x60	RAL 3016	7748060.3016	859 2662 03927 3	100			
4,8x60	RAL 7016	7748060.7016	859 2662 03928 0	100			
4,8x60	RAL 8004	7748060.8004	859 2662 03869 6	100			
4,8x60	RAL 8017	7748060.8017	859 2662 03870 2	100			
4,8x60	RAL 8019	7748060.8019	859 2662 04454 3	100			
4,8x60	RAL 9006	7748060.9006	859 2662 04091 0	100			
4,8x75	galvanized	7748075.0000	859 2662 08550 8	100			
4,8x75	RAL 3009	7748075.3009	859 2662 08553 9	100			
4,8x75	RAL 3011	7748075.3011	859 2662 08556 0	100			
4,8x75	RAL 7016	7748075.7016	859 2662 08557 7	100			
4,8x75	RAL 8004	7748075.8004	859 2662 08555 3	100			
4,8x75	RAL 8017	7748075.8017	859 2662 08552 2	100			
4,8x75	RAL 9005	7748075.9005	859 2662 08554 6	100			
4,8x100	galvanized	7748100.0000	859 2662 08551 5	100			
4,8x100	RAL 3009	7748100.3009	859 2662 08559 1	100			
4,8x100	RAL 3011	7748100.3011	859 2662 08562 1	100			
4,8x100	RAL 7016	7748100.7016	859 2662 08563 8	100			
4,8x100	RAL 8004	7748100.8004	859 2662 08561 4	100			
4,8x100	RAL 8017	7748100.8017	859 2662 08558 4	100			
4,8x100	RAL 9005	7748100.9005	859 2662 08560 7	100			
Farm screws with half-round head							
4,8x20	RAL 3009	7750020.3009	859 2662 08976 6	250			
4,8x20	RAL 7016	7750020.7016	859 2662 08974 2	250			
4,8x20	RAL 8004	7750020.8004	859 2662 09081 6	250			
4,8x20	RAL 8017	7750020.8017	859 2662 08996 4	250			
4,8x20	RAL 8019	7750020.8019	859 2662 08975 9	250			
4,8x20	RAL 9005	7750020.9005	859 2662 08977 3	250			
4,8x20	RAL 9010	7750020.9010	859 2662 09082 3	250			
4,8x35	RAL 3009	7750035.3009	859 2662 08980 3	250			
4,8x35	RAL 7016	7750035.7016	859 2662 08978 0	250			
4,8x35	RAL 8004	7750035.8004	859 2662 09083 0	250			
4,8x35	RAL 8017	7750035.8017	859 2662 08997 1	250			
4,8x35	RAL 8019	7750035.8019	859 2662 08979 7	250			
4,8x35	RAL 9005	7750035.9005	859 2662 08981 0	250			
4,8x35	RAL 9010	7750035.9010	859 2662 09084 7	250			

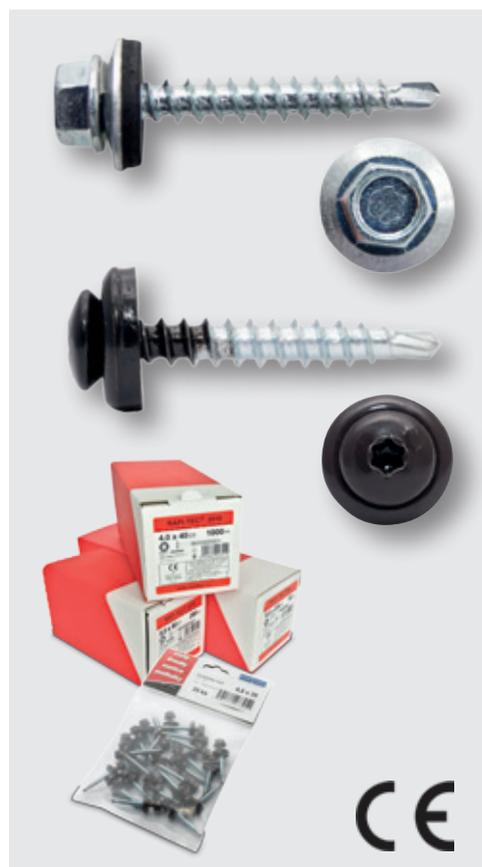
RAL indicative sampler

	RAL 3009		RAL 8004
	RAL 3011		RAL 8017
	RAL 3016		RAL 8019
	RAL 5010		RAL 9002
	RAL 7011		RAL 9005
	RAL 7016		RAL 9006
	RAL 7024		RAL 9010

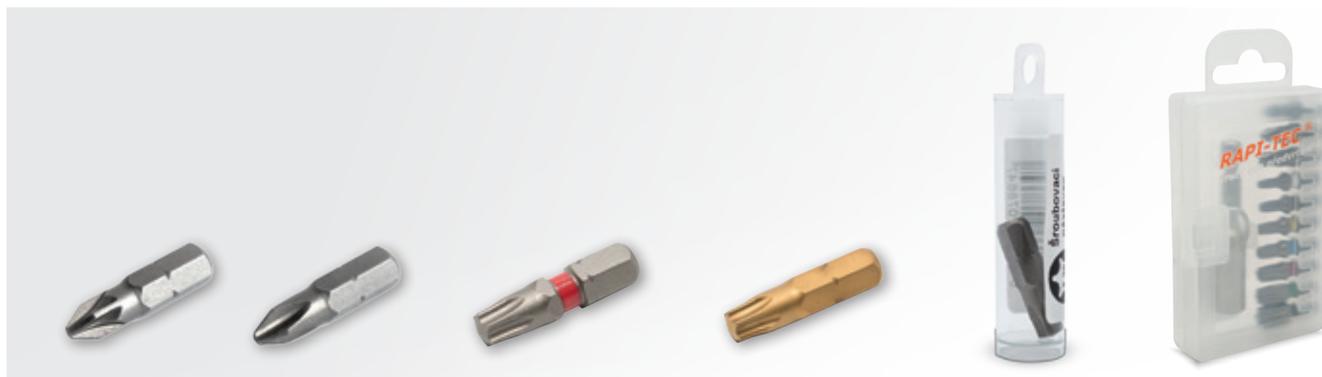
characteristic dimensions	4,8
spanner	SW8
head diameter [mm]	10,00
inner thread diameter [mm]	3,3
max. tightening torque [Nm]	6,64
operating class as per EN 1995-1-1	1 + 2 + 3*

* varnished

stated properties		4,8
characteristic yield moment	My,k [Nmm]	8 536
characteristic pull-out parameter		
load perpendicularly to the fibers	fax,k [Nmm ²]	16,69
load in the direction of the fibers	fax,k [Nmm ²]	11,27
characteristic wood density	ρk [kg/m ³]	350
characteristic parameter of head extension	fhead,k [N/mm ²]	24,87
characteristic wood density	ρk [kg/m ³]	400
characteristic tensile strength	ftens,k [kN]	9,94
max. force of pulling the screw head with washer through the sheet metal until the joint is destroyed	[kN]	2,28
thickness of galvanized sheet metal	[mm]	0,8



DRILL BITS



Screw-in bits

for the groove	bit length	standard			standard in a plastic tube			TiZn		
		catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package
PZ1	25	701025	859 2662 03461 2	5						
PZ2	25	702025	859 2662 03462 9	5						
PZ3	25	703025	859 2662 03463 6	5						
PH1	25	711025	859 2662 03464 3	5						
PH2	25	712025	859 2662 03465 0	5						
PH3	25	713025	859 2662 03466 7	5						
T10	25	710025	859 2662 03455 1	5	810025	859 2662 07860 9	1	751025	859 2662 08278 1	5
T15	25	715025	859 2662 03456 8	5	815025	859 2662 07861 6	1	751525	859 2662 08279 8	5
T20	25	720025	859 2662 03457 5	5	820025	859 2662 07862 3	1	752025	859 2662 08280 4	5
T25	25	725025	859 2662 03460 5	5	825025	859 2662 07863 0	1	752525	859 2662 08283 5	5
T25	300	725300	859 2662 03946 4	5						
T30	25	730050	401 3288 03067 2	5	830025	859 2662 07864 7	1	753025	859 2662 08281 1	5
T40	25	740025	859 2662 03459 9	5	840025	859 2662 07865 4	1	754025	859 2662 08282 8	5
T50	35	744035	401 3288 03118 1	5	850035	859 2662 07866 1	1			

Set of bits in a plastic box

content	catalogue number	EAN / GTIN	quantity in the package
PZ1, PZ2, PZ3, T10 to T50 + magnetic adapter	701000	859 2662 08030 5	1

Screw-in bits with magnetic ring in a plastic tube

for the groove	bit length	catalogue number	EAN / GTIN	quantity in the package
T10	50	799010	859 2662 08024 4	1
T15	50	799015	859 2662 08025 1	1
T20	50	799020	859 2662 08026 8	1
T25	50	799025	859 2662 08027 5	1
T30	50	799030	859 2662 08028 2	1
T40	50	799040	859 2662 08029 9	1



Adapters and extensions

for the groove	catalogue number	EAN / GTIN	quantity in the package
magnetic adapter without snap ring 60 mm	800060	859 2662 03511 4	1
magnetic adapter with snap ring 60 mm	800075	859 2662 03510 7	1
magnetic bit holder with mechanical lock 12x66	800066	859 2662 08272 9	1
magnetic socket wrench SW 8	800045	859 2662 04333 1	1



Magnetic screw-in bits for hexagon heads

spanner size	bit length	catalogue number	EAN / GTIN	quantity in the package
SW 5,5	65	800043	859 2662 08592 8	1
SW 8	45	800045	859 2662 04333 1	1

TURBO-TEC® window assembly bolt



Hi-tech product

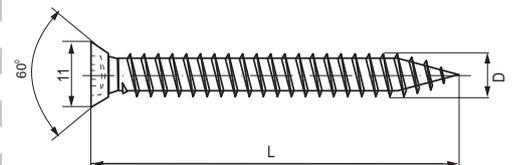
Designed for high-quality anchoring of window and door frames.

TURBO-TEC® with countersink head, Tx30 groove, white galvanic zinc

dimension	big packages			small packages			max. thickness for fastening* in mm
	catalogue number	EAN / GTIN	quantity in the package	catalogue number	EAN / GTIN	quantity in the package	
7,5x42	10121042	859 2662 01166 8	100				12/-
7,5x52	10121052	859 2662 01167 5	100				22/-
7,5x62	10121062	859 2662 01168 2	100				32/-
7,5x72	10121072	859 2662 01169 9	100				42/12
7,5x82	10121082	859 2662 01170 5	100				52/22
7,5x92	10121092	859 2662 01171 2	100				62/32
7,5x102	10121102	859 2662 01172 9	100				72/42
7,5x112	10121112	859 2662 01173 6	100				82/52
7,5x122	10121122	859 2662 01174 3	100				92/62
7,5x132	10121132	859 2662 01175 0	100	17811132	859 2662 04655 4	20	102/72
7,5x152	10121152	859 2662 01176 7	100	17811152	859 2662 04656 1	16	122/92
7,5x182	10121182	859 2662 01177 4	100	17811182	859 2662 04657 8	12	152/122
7,5x212	10121212	859 2662 01178 1	100	17811212	859 2662 07575 2	20	182/152
7,5x242	10121242	859 2662 01179 8	100	17811242	859 2662 07576 9	20	212/182
7,5x272	10121272	859 2662 01180 4	100	17811272	859 2662 07577 6	20	242/212
7,5x302	10121302	859 2662 01181 1	100	17811302	859 2662 07578 3	20	272/242
7,5x342	10121342	859 2662 02847 5	100	17811342	859 2662 07579 0	20	312/242
7,5x382	10121382	859 2662 04112 2	100	17811382	859 2662 07580 6	20	352/322

* in concrete / hollow brick
Lengths 212 mm and more have an interrupted thread.

characteristic dimensions	7,5
groove	T30
head diameter [mm]	11,0
inner thread diameter [mm]	5,4
pre-drilling diameter in concrete/brick [mm]	6,5/6,0
min. hole depth in concrete/hollow brick [mm]	40/70
min. anchoring depth in concrete/hollow brick [mm]	30/60
max. tightening torque [Nm]	19,0
operating class as per EN 1995-1-1	1 + 2



HPM TEC caps for window assembly bolt TURBO-TEC® with countersink head

diameter	big packages			
	catalogue number	EAN / GTIN	color	quantity in the package
14,5	1	859 2662 01039 5	white	100
14,5	2	859 2662 01040 1	RAL 1001 beige	100
14,5	3	859 2662 01041 8	RAL 1011 brown-beige	100
14,5	4	859 2662 01043 2	RAL 8003 clay brown	100
14,5	5	859 2662 01044 9	RAL 8016 mahogany	100



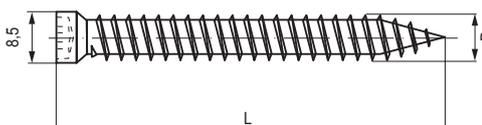
TURBO-TEC® with cylinder head, Tx30 groove, white galvanic zinc

dimension	big packages			max. thickness for fastening* in mm
	catalogue number	EAN / GTIN	quantity in the package	
7,5x42	10195042	859 2662 01249 8	100	12/-
7,5x62	10195062	859 2662 01251 1	100	32/-
7,5x72	10195072	859 2662 01252 8	100	42/12
7,5x92	10195092	859 2662 01254 2	100	62/32
7,5x102	10195102	859 2662 01255 9	100	72/42
7,5x112	10195112	859 2662 01256 6	100	82/52
7,5x132	10195132	859 2662 01258 0	100	102/72
7,5x152	10195152	859 2662 01259 7	100	122/92
7,5x182	10195182	859 2662 01260 3	100	152/122
7,5x212	10195212	859 2662 01261 0	100	182/152

Length 212 mm has an interrupted thread.

* in concrete / hollow brick

characteristic dimensions	7,5
groove	T30
head diameter [mm]	8,5
inner thread diameter [mm]	5,4
pre-drilling diameter in concrete/brick [mm]	6,5/6,0
min. hole depth in concrete/hollow brick [mm]	40/70
min. anchoring depth in concrete/hollow brick [mm]	30/60
max. tightening torque [Nm]	19,0
operating class as per EN 1995-1-1	1 + 2



Caps for TURBO-TEC® window assembly bolt for Tx30 groove

diameter	big packages			
	catalogue number	EAN / GTIN	color	quantity in the package
16,5	530001	859 2662 01070 8	white	100
16,5	530007	859 2662 01071 5	RAL 1011 brown-beige	100
16,5	530010	859 2662 01072 2	RAL 8016 mahogany	100



As a standard, quality control for the TURBO-TEC® window assembly bolt checks:

1. Breakaway torque and bending angle. Meeting these criteria ensures that the screws do not twist under normal screwing conditions, do not break off the head and have the required elasticity. The minimum requirement for breakaway torque is set at 20 Nm.
2. Core and surface hardness. They significantly affect the mechanical properties of these bolts.
3. Groove fabrication – depth and tightness. A properly deep and tight groove allows comfortable screwing in of turbo bolts. The screw-in bits jumping out of the groove or the groove being torn off is caused by insufficient groove depth, a loose groove, a bent punch or dirt in the groove.
4. Flatness (curvature) of turbo bolts. If the specified maximum „curvature“ of the bolt is maintained, minimal runout of the turbo bolt is ensured during screwing. This reduces vibrations and thus the risk of the screw-in bit jumping out of the groove.
5. Head geometry. Correct geometry ensures that the plastic cap can be slipped over the screw head and holds firmly.
6. Surface treatment. Surface treatment ensures the bolt's resistance to corrosion. An insufficient or small layer of galvanic zinc on the bolt reduces corrosion resistance.

Based on our internal tests and measurements, we can state that many turbo bolts that can be purchased on the Czech market show deviations from the required figures. These are mainly deficiencies in the quality of the thread and non-compliance with its outer diameter (these deficiencies affect the pull-out force), in the quality of heat treatment and deviations in hardness. Other deviations were in the depth and tightness of the groove, in flatness and in the quality of the surface treatment.



Dimensioning

The load-carrying capacities listed in the tables on pages 36 and 37 were calculated based on the ČSN EN 1995-1-1 standard, assuming:

- fully screwed threaded parts of the screw in the underlying wood
- extension of the head through the connected part without a washer or metal part
- thin steel plates, which are considered to be steel plates with a thickness of less than $0.5d$
- wood densities according to the tables with declared properties
- operating class 3

Screws and construction screws – basic use information

The screws are intended for use in construction timber joints where the requirements for mechanical resistance and stability and safety in use in accordance with essential requirements 1 and 4 of Council Directive 89/106/EEC must be met.

Joint designs must be based on the characteristic load capacity of the screws. The design load must be derived based on ČSN EN 1995-1-1 (Eurocode 5).

Screws made of hardened carbon steel and galvanized screws are intended for use in operating classes 1 and 2 according to the standard ČSN EN 1995-1-1 (Eurocode 5) (Interior and roofed exterior).

Screws made of stainless steel are intended for use in operating class 3 according to ČSN EN 1995-1-1 (Eurocode 5) (exterior).

In addition to the operating class, it is also necessary to take into account the properties of the wood species and based on this choose a screw made of a suitable material. The choice of material is also affected by additional influences such as the effect of chlorides in the vicinity of swimming pools, etc. See table: Material selection for atmospheric exposure on page 37.

Screws can be screwed into wood with or without pre-drilling. The pre-drilling must be smaller than the diameter of the core in the thread for the length of the threaded part and no more than the diameter of the smooth shank for the length of the smooth shank.

The screws are intended for creating joints both in load-carrying structures and in all other joints. They can be used for wood*/wood* and metal/wood* joints. (* solid wood, glued laminated timber, laminated wood, cross-glued timber, plywood and similar glued elements and wood-based boards).

Steel parts and wood-based boards, except for solid wood boards and cross-laminated timber, must be on the screw head side only.

Wood-based panels:

- Plywood according to EN 636 or European Technical Approval (ETA)
- Particleboard according to EN 312 or ETA
- Oriented strand board (OSB) of type OSB/3 and OSB/4 according to EN 300 or ETA
- Fibreboard according to EN 622-2 (hard) and 622-3 (semi-hard) or ETA (minimum density 650 kg/m³)
- Cement-bonded particleboard according to ETA
- Solid wood panels according to EN 13353 and EN 13986 and cross-laminated timber panels according to ETA
- Laminated timber (LVL) according to EN 14374 or ETA
- Timber products according to ETA

The minimum thickness of the connected wood-based boards is $1.2*d$ (d = outer thread diameter), but at the same time it must be:

- for plywood and fibreboards, a minimum thickness of 6 mm
- for particleboards, OSB boards and cement-sand boards, a minimum thickness of 8 mm
- for solid wood panels, a minimum thickness of 12 mm

The minimum thicknesses for wooden building components are:

- 24 mm for screws with a thread diameter < 8.0 mm
- 30 mm for screws with a thread diameter of 8.0 mm
- 40 mm for screws with a thread diameter of 10.0 mm

The minimum screwing depth must be at least $4*d$ (d = outer diameter of the thread). In the case of rafter connections, the minimum screwing depth (l_{ef}) must be at least 40 mm. In the case of axially loaded screws, the minimum screwing depth is at least $6*d$.

Screwing angle 30° to 90° to the fibre direction.

There should be at least 2 screws in the joint.

Countersink head screws must be screwed in flush with the surface of the part to be connected. Deeper recessing is not permitted. Countersink head screws can also be used with a profiled washer. DUAL type screws can be used together with common standard flat washers (DIN 134, DIN 440 and others) with the appropriate surface treatment. The appropriate washer must be flush with the wood over its entire surface after screwing in.

The minimum spacing and distances for screws in pre-drilled holes are given in ČSN EN 1995-1-1, paragraph 8.3.1.2 and in Table 8.2 as for nails in pre-drilled holes. Here the external thread diameter (d) must be taken into account.

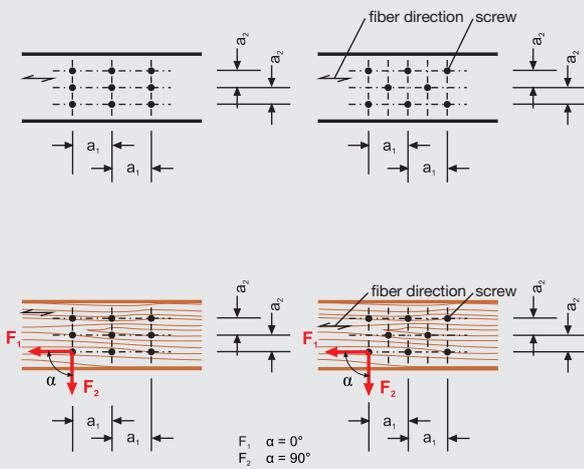
For screws in not pre-drilled holes, the minimum spacings and distances are given in ČSN EN 1995-1-1, paragraph 8.3.1.2 and in Table 8.2 as for nails in not pre-drilled holes.

For wood species particularly sensitive to splitting (e.g. Douglas fir), we recommend to increase the spacing and distances by at least 50%. We also recommend to pre-drill these wood species.

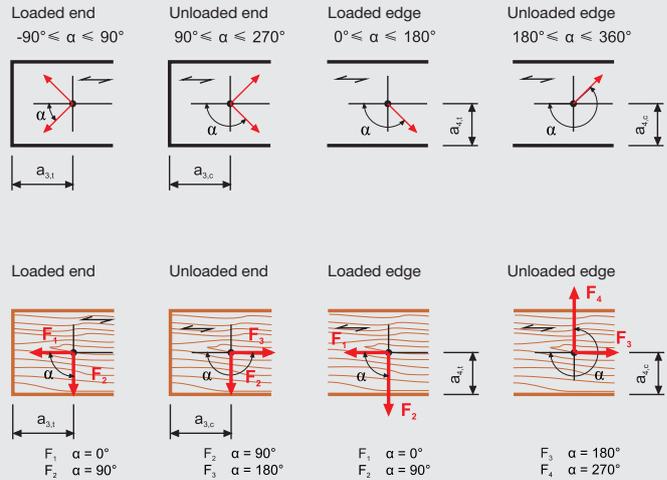
The minimum distances from the loaded or unloaded ends must be $15*d$ for all screws in not pre-drilled holes with an outer thread diameter ≥ 8 mm and a wood thickness $t < 5*d$.

The minimum distances from the unloaded edge perpendicular to the fibres may be reduced to $3*d$ also for wood thickness $t < 5*d$, if the spacing parallel to the fibres and the distance from the end is at least $25*d$.

Minimum spacing between screws



Minimum screw distances from the end and from the edge



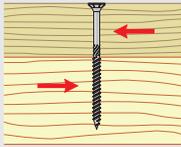
Minimum screw spacing and distances when used without pre-drilling (in mm) for wood density $\rho \leq 420 \text{ kg/m}^3$

spacing or distance	angle α	screw diameter over thread										
		3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0	8,0	10,0	12,0
a_1	F_1 0°	30	35	40	45	60	66	72	84	96	120	144
	F_2 90°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
a_2	F_1 0°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
	F_2 90°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
$a_{3,t}$	F_1 0°	45	52,5	60	67,5	75	82,5	90	105	120	150	180
	F_2 90°	30	35	40	45	50	55	60	70	80	100	120
$a_{3,c}$	F_2 90°	30	35	40	45	50	55	60	70	80	100	120
	F_3 180°	30	35	40	45	50	55	60	70	80	100	120
$a_{4,t}$	F_1 0°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
	F_2 90°	21	24,5	28	31,5	35	38,5	42	49	56	70	84
$a_{4,c}$	F_3 180°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
	F_4 270°	15	17,5	20	22,5	25	27,5	30	35	40	50	60

Minimum screw spacing and distances when used with pre-drilling (in mm) for wood density $\rho \leq 420 \text{ kg/m}^3$

spacing or distance	angle α	screw diameter over thread										
		3,0	3,5	4,0	4,5	5,0	5,5	6,0	7,0	8,0	10,0	12,0
a_1	F_1 0°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
	F_2 90°	12	14	16	18	20	22	24	28	32	40	48
a_2	F_1 0°	9	10,5	12	13,5	15	16,5	18	21	24	30	36
	F_2 90°	12	14	16	18	20	22	24	28	32	40	48
$a_{3,t}$	F_1 0°	36	42	48	54	60	66	72	84	96	120	144
	F_2 90°	21	24,5	28	31,5	35	38,5	42	49	56	70	84
$a_{3,c}$	F_2 90°	21	24,5	28	31,5	35	38,5	42	49	56	70	84
	F_3 180°	21	24,5	28	31,5	35	38,5	42	49	56	70	84
$a_{4,t}$	F_1 0°	9	10,5	12	13,5	15	16,5	18	21	24	30	36
	F_2 90°	15	17,5	20	22,5	25	27,5	30	35	40	50	60
$a_{4,c}$	F_3 180°	9	10,5	12	13,5	15	16,5	18	21	24	30	36
	F_4 270°	9	10,5	12	13,5	15	16,5	18	21	24	30	36

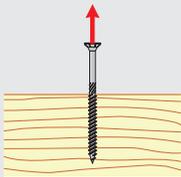
Shear stress, wood/wood joint, figures in kg



screw diameter	for screws: RAPI-TEC HBS and SK							
	screw length							
	50	60	80	90	100	120	140	160 to 400
8,0	65,4	73,1	104,8	112,3	121,7	130,6	174,8	180,0
10,0	-	81,7	163,3	177,3	190,9	202,8	273,7	277,4

screw diameter	for screws: RAPI-TEC 2010, 2020, SK PLUS														
	screw length														
	16	20	25	30	35	40	45	50	60	70	80	90	100	110 a 120	130 to 300
3,0	8,9	17,8	19,3	22,2	24,3	26,3	28,2	-	-	-	-	-	-	-	-
3,5	9,8	14,8	23,9	16,8	28,3	30,4	32,9	34,6	-	-	-	-	-	-	-
4,0	-	10,8	24,2	24,9	29,3	34,8	37,1	40,2	44,8	47,2	-	-	-	-	-
4,5	-	5,8	20,4	29,8	32,3	38,6	41,3	46,5	51,6	56,7	61,8	-	-	-	-
5,0	-	6,3	15,6	29,4	32,1	37,0	-	45,9	54,8	62,5	67,6	71,3	74,0	74,0	-
6,0	-	-	-	-	-	43,6	-	53,8	63,9	74,0	85,8	92,5	99,5	103,7	103,7

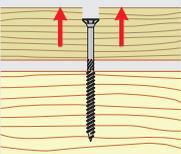
Stress for pulling the screw threaded part out of wood (pulling out), figures in kg



screw diameter	for screws: RAPI-TEC HBS and SK									RAPI-TEC for carpentry hardware			
	screw length									screw length			
	50	60	80	90	100	120	140	160 to 400	40	50	60	80	
5,0	-	-	-	-	-	-	-	-	-	111,9	140,8	-	-
8,0	109,6	109,6	176,8	176,8	176,8	176,8	276,6	276,6	276,6	114,0	147,9	180,0	240,3
10,0	-	201,1	201,1	201,1	201,1	201,1	320,3	320,3	320,3	-	-	-	-

screw diameter	for screws: RAPI-TEC 2010, 2020, SK PLUS														
	screw length														
	16	20	25	30	35	40	45	50	60	70	80	90	100	110 a 120	130 to 300
3,0	39,9	49,4	60,7	42,3	49,4	60,7	60,7	-	-	-	-	-	-	-	-
3,5	44,4	55,4	68,4	62,0	60,7	68,4	80,9	80,9	-	-	-	-	-	-	-
4,0	-	41,1	54,3	43,8	51,8	64,4	64,4	76,3	87,9	87,9	98,2	-	141,6	-	-
4,5	-	61,2	76,6	58,0	58,0	73,6	73,6	88,3	102,4	116,1	129,4	-	-	-	-
5,0	-	40,0	55,3	52,4	52,4	61,2	-	75,2	88,6	101,5	126,1	126,1	145,0	167,8	-
6,0	-	-	-	75,2	-	75,2	-	91,5	107,0	122,1	144,9	144,9	161,2	187,6	187,6

Stress for pulling the screw head through wood, figures in kg



screw diameter	screw type				
	RAPI-TEC 2010	RAPI-TEC 2020	RAPI-TEC SK PLUS	RAPI-TEC HBS	RAPI-TEC SK
3,0	42,7	-	-	-	-
3,5	53,0	-	-	-	-
4,0	67,3	79,6	148,5	-	-
4,5	85,0	-	-	-	-
5,0	96,9	121,4	175,6	-	-
6,0	161,1	150,4	190,2	-	-
8,0	-	-	-	276,8	548,4
10,0	-	-	-	354,8	754,9

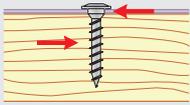
Note: The stress on the screw head being pulled through wood for RAPI-TEC screws for carpentry hardware is not stated due to the intended use.

Screw tearing load, figures in kg



screw diameter	for screws: RAPI-TEC 2010, 2020, SK PLUS	for screws: RAPI-TEC HBS a SK	RAPI-TEC for carpentry hardware
	3,0	131,8	-
3,5	206,4	-	-
4,0	213,0	-	-
4,5	298,3	-	-
5,0	339,7	-	365,9
6,0	466,0	-	-
8,0	-	953,0	988,8
10,0	-	1 297,5	-

Shear stress, steel/wood joint, figures in kg



screw diameter	for screws: RAPI-TEC for carpentry hardware			
	screw length			
	40	50	60	80
5,0	42,8	55,0	-	-
8,0	58,2	76,4	94,7	131,1

Material selection for atmospheric exposure

The effect of	Exposure	Criteria and examples	Type of stainless steel			
			C	A2	A4	HCR
Humidity (average annual humidity U figure)	dry	$U < 60\%$	C			
	rarely humid	$60\% < U < 80\%$	C			
	often humid	$80\% < U < 95\%$	C			
	permanently humid	$95\% < U$		A2		
Chloride content in the surroundings, distance M from the sea, distance S from busy roads with winter maintenance with road salt	low	countryside, city, $M > 10\text{km}$, $S > 0,1\text{ km}$	C			
	medium	industrial area, $10\text{ km} > M > 1\text{ km}$, $0,1\text{ km} > S > 0,01\text{ km}$		A2		
	high	$M < 1\text{ km}$ $S < 0,01\text{ km}$			A4 ¹⁾	
	very high	indoor swimming pool, road tunnel				HCR ²⁾
Exposure to substances with oxidation-reduction effects (e.g. SO ₂ , HOCl, Cl ₂ , H ₂ O ₂)	low	countryside, city	C			
	medium	industry			A4 ¹⁾	
	high	indoor swimming pool, road tunnel				HCR ²⁾
pH values on the surface	alkaline (e.g. contact with concrete)	$9 < \text{pH}$	C			
	neutral	$5 < \text{pH} < 9$	C			
	slightly acidic	$3 < \text{pH} < 5$		A2		
	acidic (effect of acids and contact with e.g. tropical woods)	$\text{pH} < 3$			A4	
Location of the building component	indoor	heated and unheated indoor spaces	C			
	outdoor, under roof	roofed structures	C			
	outdoor, exposed to rain	free-standing structure	C			
	outdoor, inaccessible ³⁾ , ambient air has access	ventilated facades			A4	
The influence that requires the highest corrosion resistance class is decisive. When several influences interact, no higher requirements arise.						

¹⁾ With regular cleaning of accessible structures or washing by rain, the corrosion load is significantly reduced, so that material A2 can be used. If there is a possibility of concentration of these substances on the surface, it is necessary to use material HCR.

²⁾ With regular cleaning of accessible structures, the corrosion load is significantly reduced, so that A4 material can be used.

³⁾ Inaccessible structures are those that cannot be inspected or can only be inspected under difficult conditions, and which, if necessary, can only be rehabilitated at great expense.

Selling stands



Basic stand

Outer dimensions:
high: 2220 mm
width: 1040 mm
depth: 500 mm
number of shelves:
8 with the possibility of
adding one more shelf for
stock. This shelf is covered
by a removable front panel.
shelf load capacity: 100 kg

The number of shelves
can be adjusted at the
customer's request.

In the basic configuration,
up to 80 different items of
goods can be placed on
the stand. The stands can
be free-standing or can be
expanded by multiples of the
basic width.



Small stand

Outer dimensions:
high: 2220 mm
width: 540 mm
depth: 500 mm
number of shelves:
9 with the possibility of
adding one more shelf for
stock. This shelf is covered
by a removable front panel
shelf load capacity: 50 kg

The number of shelves
can be adjusted at the
customer's request.

In the basic configuration,
up to 45 different items of
goods can be placed on
the stand.

Accessories

➤ Selling stands can be equipped with optional accessories:

- individual cardboard hoppers with an external width of 90 mm and lengths of 225 and 380 mm.
- holders for folded flyers – hanging on a shelf or as a stand
- folded flyers with basic information about the products and the dimensions supplied
- packaged screw samples
- promotion banners in front of the store and in the store
- strips for inserted price tags, height 50 mm, length 500 and 1000 mm





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