



WASI[®]



NORM

Product catalogue NORM

50 YEARS

EXCELLENCE IN STAINLESS STEEL
EXCELLENCE IN STAINLESS STEEL

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Dear WASI customer,

this is the new WASI NORM product catalogue. It contains stainless steel fasteners according to DIN, EN, and ISO as well as non-standard fasteners that we have defined for you with WASI in-house standards. This represents our product range which is available for you at both of our logistics locations.

If you cannot find something in this WASI NORM product catalogue, please contact us. Our other product lines SPEZIAL, SOLAR and MARITIM provide the appropriate

We are laying a foundation for your success with the assortment presented in this catalogue. In addition to the other three product lines, you can also expect a comprehensive service package which eases your purchasing management from WASI, your system partner.

Everything of interest about WASI, such as our logistics and IT service solutions, is also outlined in this catalogue. At the end of the catalogue you will find our new technical manual with comprehensive information about



Dirk Kiele-Dunsche,
Managing Director

WASI fastening solution for any application. In addition to the standard programme, we also deliver custom products to meet your requirements.

We have revised the catalogue focusing on simpler navigation so that you can easily find the right fastener from our comprehensive range. The items are organised according to the DIN standard for the most part. You can also find our product database on the internet at www.wasi.de, which quickly helps you find the right stainless steel fastener.

stainless steel fasteners. This is an extremely interesting resource and contains all the information that you need to purchase stainless steel fasteners.

Do you have any questions about our products or services? We will gladly discuss any questions with you. Just give us a call! Our contact details can be found on the enclosed sheet with our contact persons and our service hours.

Kind regards from Wuppertal,


Dirk Kiele-Dunsche

WASI – the strong performance system partner

Our business specialises in stainless steel fasteners and is a worldwide market leader in the sale of corrosion resistant fasteners from A1 to A5 in all property classes. WASI was founded in 1961 by Emil Wagener and Werner Simon. Over the years, the business was changed and expanded significantly. A two-man wholesaler has become a business with over 200 employees. National and international traders and industrial companies have relied upon excellent service and superb and fast delivery capabilities for decades. To

Our six system foundations

- The WASI product lines
- The WASI quality promise
- The WASI logistics concept
- The WASI service
- The WASI-IT link – the best connection
- The WASI competence team



Old location
Emil-Wagner-Straße

equip ourselves for globalisation and further growth, we are presenting ourselves on the market with an innovative two-location logistics concept. In this way, we can react quickly and flexibly to your requests, sell high volumes and offer you individual delivery service. As a system partner, we fulfil requests for products and particularly for purchase management services for each of our customers.

The WASI product lines

Our product range comprises several thousand continuously stocked items. It also contains intermediate sizes and custom dimensions. Should the perfect fastener not be available, we will assist you as a competent solution provider. This includes support from joint product development up to mere purchasing. The worldwide supplier network always offers appropriate options for delivery times, quality and prices.

The WASI product lines



WASI NORM carries corrosion resistant stainless steel fasteners from A1 to A5 in all property classes and from a variety of special materials. The assortment comprises standardised items of all kinds including DIN, EN or ISO and all typical international and WASI in-house standards. This includes, among others, screws, nuts, rings, washers, safety sheets, pins, rivets, threaded rods and hose clamps.



WASI MARITIM offers selected premium stainless steel products that are used principally in water sports. This includes anchors, chains, bollards, deck fittings such as clamps, railings, locks, closures, hooks, hinges, wire cables of all kinds, clamping elements such as clamping locks, terminals, clamps, thimbles, blocks, turnbuckles and forged shackles. In addition, the elements of this product line are implemented into farm-

New location
WASI Straße



WASI SPEZIAL supplies all fasteners not in the standard programme. This includes custom fasteners and DIN-like parts and all customer specific drawing parts from many materials and with special surface treatments. In addition to conventional and CNC turned, milled and lengthwise machined parts, the service also includes stamped, bent and laser parts and cold and warm forging with multi-level presses. Patented height adjustable elements additionally enable ideal adjustment, alignment and levelling of machines. Request our set up technology catalogue.

ing and gardening construction, architecture, the food industry and sewage technology. Request our Maritim catalogue.



WASI SOLAR produces and supplies assembly systems and solutions for solar / photovoltaic systems for all typical roof constructions and for open air systems with the corresponding accessories, also individual according to customer drawings. Request our solar programme.

Each product catalogue can be easily and quickly downloaded at www.wasi.de / Downloads!

The WASI quality promise



The certification according to the international standard DIN EN ISO 9001

guarantees that we act according to a worldwide approved quality management system with standardised processes. We maintain detailed quality checks in our in-house labs to determine material specific properties of all low to high alloyed iron, steel, non-ferrous and other metal fasteners. Included in the test media are:

For example, the chemical composition of materials is tested with the spectrum analyser, the tensile testing machine checks the material properties or the contourgraph checks the dimensional tolerances, in particular for custom items and individual customer drawing parts. The analysis results are given to our customers with the specifically created test certificate following DIN EN 10204.



X-ray fluorescence analyser, tension compression testing machine, contourgraph, profile projector, thread gauges and spectrum analyser.

In our assortment you also get construction control board approved or TÜV certified fasteners. Alternatively, we offer items from screws and nut manufacturers with AD 2000 - W2 and TRD 106 certification.



Test certifications available to you:

Type		Contents of certification
2.1	Declaration of compliance with the order	Certification, in which we confirm that the delivered products meet the order requirements, without details of test results.
2.2	Test report	<p>Certification, in which we confirm that the delivered products meet the order requirements, without details of non-specific test results.</p> <p>Please take into consideration that non-specific tests could mean that samples were taken from your delivery.</p>
3.1	Inspection certificate	<p>Certification, in which we confirm that the delivered products meet the determined order requirements, with details of test results from specific tests.</p> <p>Test results from available test certificates could also be used.</p> <p>We ensure traceability of the corresponding certificates.</p> <p>Please take into consideration that specific tests could mean that samples were taken from your delivery.</p>
3.2	Inspection certificate	<p>Certification, in which we and also the acceptance personnel of the purchaser confirm that the delivered products meet the determined order requirements, with details of test results from specific tests. Test results from available test certificates could also be used.</p> <p>We ensure traceability of the corresponding certificates.</p> <p>Please take into consideration that specific tests could mean that samples were taken from your delivery.</p>

The WASI logistics concept

In the last few years, we have made the change from a traditional wholesaler to a sustainable innovation business. Double-digit sales growth, advancing internationalisation and a continuously growing assortment are the basis of our logistical expansion. Growing and always extremely varying customer demands on the purchasing process require a new infrastructure to ensure that we grow with our customers in the future. The arguably clearest and most visible sign of this change is the new logistics concept with two locations,

Logistics with a concept - efficiency is the measure of logistics optimisation

The new distribution centre in Wuppertal Ronsdorf (WASI Straße) offers 10,000 m² of additional covered storage area. Fully-automated high-bay warehouse with pallet and container storage spaces, two picking halls and generous manoeuvring areas is found at outgoing goods. Incoming goods are organised at the old location in Wuppertal Heckinghausen (Emil-Wagener-Straße). Quality testing is done here. Supplies



Emil-Wagener-Straße and WASI Straße and the resulting logistics service options.

Current capacities:

18,000 m ²	Covered storage area
15.000	Pallet storage spaces
150.000	Container storage spaces
200 tons	Outgoing goods per day
15,000 tons	Goods in stock
10,000 pcs.	per day

are stored here in a buffer warehouse until they are required. Large volumes (as full pallets) are sent directly from this location to save time. Goods for the distribution centre are simultaneously prepared here. This ensures effective picking from small packages to sorted and consolidated pallets all the way to single-item pallets or complete containers. This future-oriented logistics concept with two locations forms the basis for flexible and reliable, individual deliveries.



Development perspective and medium-term goals

The latest expansion of our logistics, a fully-automated state-of-the-art and extremely efficient shuttle system is currently being installed. It has a capacity of 35,000 spaces. This expands the distribution centre to a highly dynamic picking and shipping system. A high degree of automation reduces throughput time for differently sized deliveries. The OSR enables high flexibility in controls and ideal utilisation of the entire logistics infrastructure.

Customised logistics services

We thereby supply our customers worldwide from Wuppertal and as a service, the customers of our customers in their name directly with stainless steel fasteners. This concept generates synergy effects for the partnership-like collaboration with our customers. Customers can eliminate their warehouse inventory and focus on their core competencies. Optimising customer purchasing management and thereby reducing customer costs is our declared goal.

The WASI service offer

The performance spectrum is varied and ranges from customer specific packaging, packaging units, deliveries in the name of the customer using barcodes on de-

livery certificates, diversely distinct supply systems up to automatic data transmission.

Logistics performance spectrum overview

Packaging units



WASI box and label



Neutral box and label



Customer box and customer label

Shipment packaging



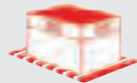
WASI box



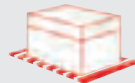
Neutral box



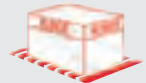
Customer box



Pallet with WASI design



Neutral pallet



Customer pallet

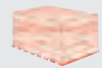
Picking



Package



Pre-picked pallets



Complete pallet



Sorted large shipment



Container

Shipping papers



WASI Design



neutral



Customer design

Shipping times



WASI Shipping days



Normal cycle time per country



Provision of deadlines



Express delivery

Delivery addresses



Customer address



To a desired delivery address

As a strong performing systems partner with an optimally matched logistics concept, WASI fulfills these industrial and trading customer specific requirements.

IT performance spectrum overview

Product database

Online product search with many technical details (as well as query function)



Online Shop

Online order processing for the entire warehouse assortment



Electronic product catalogue management

BMEcat, CSV, eCl@ss etc.



Interfaces and data exchange

Exchange of business documentation via standardised interfaces

The fastest route for your request:

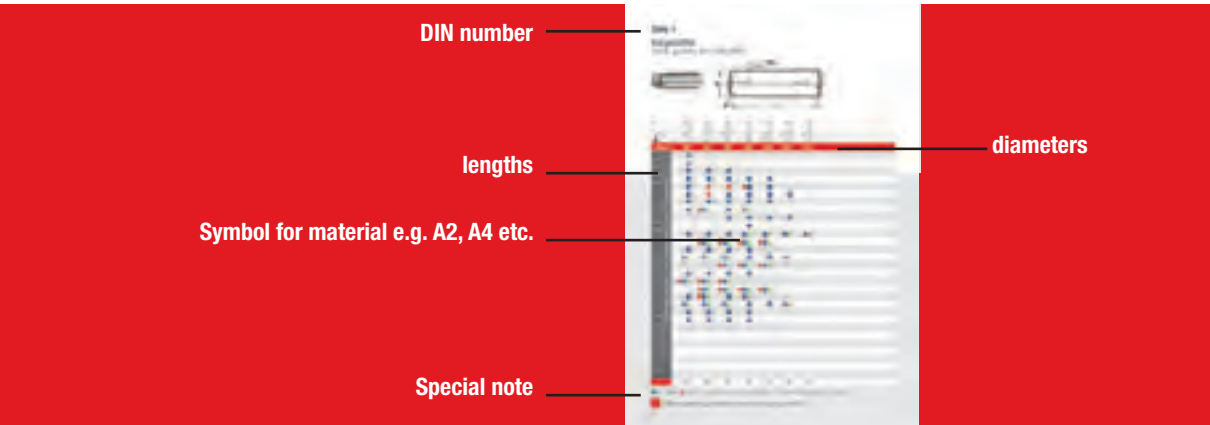
For an appropriate quotation we require

- Quantity: How many pieces do you need?
- Standard: DIN, EN, ISO or WASI
- Material: e. g. A2 or A4
- Dimensions: Diameter and length in mm
- Item designation: e.g. hexagon head screws

Item numbers are combined as follows:

Norm – material– dimensions (for example **912 – 2 – 4x30.**)

This allows us to quickly identify your desired items and enable you to compare them to your requirements.



- Quantities are increased automatically to fit the sales unit.
- Only on explicit request will you receive smaller quantities, however without a price reduction ...
- Minimum order value
- For customised products
Volume tolerance of +/- 10% might apply

Symbols and their meaning

- A1
- ▲ A2
- A4

Imprint

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We would like to point out that the product images in this catalogue are computer-generated images (renderings) taken from 3D models. For this reason, the surface properties of the product may vary depending on the goods and manufacturing method.



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NORM






















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50 YEARS

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Index

Screws – metric screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
hexagon head					
Hexagon head screws with shank	931	DIN EN ISO 4014		136-137	
Hexagon head screws with shank, according to AD2000-W2	931T	DIN EN ISO 4014		138	
Hexagon head screws with shank and strenght 80	931	DIN EN ISO 4014		139	
Hexagon head screws with shank	931	DIN EN ISO 4014		140	
Hexagon head screws, full thread	933	DIN EN ISO 4017		141-143	
Hexagon head screws, full thread, according to AD2000-W2	933T	DIN EN ISO 4017		144	
Hexagon head screws, full thread, and strenght 80	933	DIN EN ISO 4017		145	
Hexagon head screws, full thread, with slot	933	DIN EN ISO 4017		146	
Hexagon head screws, full thread	933	DIN EN ISO 4017		147	
Hexagon flange bolts	6921	DIN EN 1665		213	
Socket head					
Slotted cheese head screws	84	DIN EN ISO 1207		51	
Slotted capstan screws	404			73	
Hexagon socket head cap screws	912	DIN EN ISO 4762		120-122	
Hexagon socket head cap screws with full thread	912 FT	DIN EN ISO 4762		123	
Hexagon socket head cap screws, according to AD2000-W2	912T	DIN EN ISO 4762		124	
Hexagon socket head cap screws with strenght 80	912	DIN EN ISO 4762		125	
Hexagon socket head cap screws with low head and pilot recess	6912			212	
Hexagon socket head cap screws with low head	7984			237	
Socket head screws with TX	912	ISO 14579		126	
Socket head screws with low head and TX	7984	ISO 14580		238	
Hexagon socket head cap screws with serration under head	912		9455	348	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.






















Screws – metric screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Countersunk flat head					
Slotted countersunk flat head screws	963	DIN EN ISO 2009		160	
Countersunk flat head screws with cross recess H (Phillips)	965 H	DIN EN ISO 7046		162	
Countersunk flat head screws with cross recess Z (Pozidrive)	965 Z	DIN EN ISO 7046		163	
Countersunk flat head screws with hexagon socket	7991	DIN EN ISO 10642		242	
Countersunk flat head screws with hexagon socket and full thread	7991 FT			243	
Countersunk flat head screws with TX	7991		9470	350	
Countersunk flat head screws with TX	965		9475	351	
Security screws countersunk flat head with TX and PIN	7991		9482	356	
Raised countersunk head					
Slotted raised countersunk head screws	964	DIN EN ISO 2010		161	
Raised countersunk head screws with cross recess H (Phillips)	966 H	DIN EN ISO 7047		164	
Raised countersunk head screws with cross recess Z (Pozidrive)	966 Z	DIN EN ISO 7047		165	
Panhead					
Hexagon socket button head screws		ISO 7380		217	
Pan head screws with cross recess H (Phillips)	7985 H	DIN EN ISO 7045		239	
Pan head screws with cross recess Z (Pozidrive)	7985 Z	DIN EN ISO 7045		240	
Slotted mushroom head screws			9330	328	
Screws for fences with hexagon socket button head			9332	329	
Hexagon socket button head screws with flange			9335	330	
Pan head screws with TX	7985	DIN EN ISO 14583	9460	349	
Security screws socket button head with TX and PIN			9480	355	
One-way screws			9487	359	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.




















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Screws – metric screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
mushroomhead					
Mushroom head square neck bolts	603	DIN ISO 8677		106	
Mushroom head square neck bolts with full thread	603 FT	DIN ISO 8677		107	
flathead					
Slotted pan head screws	85	DIN EN ISO 1580		52	
Knurled thumb screws, high type	464			89	
Knurled thumb screws, high type with slot	465			90	
Knurled thumb screws, thin type	653			108	
Slotted pan head screws with large head	921			132	
Slotted pan head screws with shoulder	923			133	
T-head and hammerhead					
T-head bolts with square neck	186			68	
Hammer head screws type 40/22			9405	342	
Hammer head screws type 38/17			9410	343	
Hammer head screws type 28/15			9415	344	
Hammer head screws with square type 28/15			9416	345	
other head shapes					
Wing screws, american type	316 AF			71	
Wing screws, german type	316 DF			72	
Eye bolts, type B	444 B			86	
Lifting eye bolts	580		9580	104	
Lifting eye bolts, casted	580		9580	365	
Screw hooks			9448	347	
U-bolts with thin shank	3570			198	
U-bolts with thin shank			9440	346	

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Screws – metric screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
headless screws, studs hexagon socket and setscrew					
Slotted headless screws with chamfered end	427	DIN EN ISO 2342		74	
Studs, metal end ≈ 1xd	938			158	
Studs, metal end ≈ 1,25xd	939			159	
Slotted set screws with flat point	551	ISO 4766		99	
Slotted set screws with cone point	553	ISO 7434		100	
Hexagon socket set screws with flat point	913	DIN EN ISO 4026		127	
Hexagon socket set screws with cone point	914	DIN EN ISO 4027		128	
Hexagon socket set screws with dog point	915	DIN EN ISO 4028		129	
Hexagon socket set screws with cup point	916	DIN EN ISO 4029		130	
Weld pins with external thread	32501	ISO 13918		251	
threadeds and pins					
Threaded rods 1m, 2m, 3m	976			166 167	
Threaded rods 3m, special materials 1.4462, 1.4529, 1.4539 and 1.4571	976			168	
Threaded rods 1m with left hand thread 1m	976			169	
Threaded rods with UNC thread 1m	976			170	
Threaded pins, type B	976 B			171 172	
hexagon socket pipe plugs					
Hexagon socket pipe plugs with conical metric thread	906 M			112	
Hexagon socket pipe plugs with conical pipe thread	906 R			113	
Hexagon socket screw plugs with collar and cylindrical metric thread	908 M			114	
Hexagon socket screw plugs with collar and cylindrical pipe thread	908 R			115	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.





















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Screws – metric screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
hexagon socket pipe plugs					
Hexagon socket screw plugs with collar and cylindrical pipe thread according to AD 2000-W2	908 T			116	
Hexagon head screw plugs with collar and cylindrical metric thread, heavy type	910 M			117	
Hexagon head screw plugs with collar and cylindrical pipe thread, heavy type	910 R			118	
Hexagon head screw plugs with collar and cylindrical pipe thread, heavy type according to AD 2000-W2	910 T			119	
dowel screws					
Dowel screws with metric and wood thread and pilot recess			9210	285 286	
Dowel screws with hexagon and metric- and wood thread			9211	287	
Dowel screws with hexagon, with 1xEPDM, 3x934, 3x125			9215	288	
Dowel screws with hexagon, with 1xEPDM, 3x9345			9216	289	
Dowel screws with hexagon, with 1xEPDM, 3x9345, 1x9021			9217	290	
Dowel screws with hexagon, with 1xEPDM, 3x934, 2x125, 1x9021			9219	292	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.

















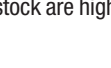

wood- and chipboardscrews

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
wood- and chipboardscrews					
Wood screws, raised countersunk head with slot	95			55	
Wood screws, round head with slot	96			56	
Wood screws, countersunk head with slot	97			57	
Wood screws with hexagon head	571			103	
Wood screws, raised countersunk head with cross recess Z (Pozidrive)	7995 Z			245	
Wood screws, round head with cross recess Z (Pozidrive)	7996 Z			246	
Wood screws, countersunk head with cross recess Z (Pozidrive)	7997 Z			247	
Chipboard screws countersunk head with cross recess Z (Pozidrive), full thread			9100	252	
Chipboard screws countersunk head with cross recess Z (Pozidrive) and part thread			9105	253	
Chipboard screws pan head with cross recess Z (Pozidrive), part thread			9110	254	
Chipboard screws pan head with TX and full thread			9112	255	
Chipboard screws pan head with TX and full thread			9117	256	
Chipboard screws raised countersunk head with cross recess Z (Pozidrive) and full thread			9120	257	
Chipboard screws countersunk head with TX and full thread			9130	258	
Chipboard screws countersunk head with TX and full thread			9135	259	
Chipboard screws countersunk head with TX and part thread, 6 cutting ribs and drilling point			9145	260	
Chipboard screws countersunk head with TX and part thread, 6 cutting ribs and cutting groove			9146	261	
Wood screws with mounted EPDM-washers Ø15mm with cross recess Z (Pozidrive)			9170	268	
Wood screws with mounted EPDM-washers Ø15mm with TX20			9171	269	
Wood screws, copper-plated, with mounted EPDM-washers Ø15mm with TX20			9172	270	

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wood- and chipboardscrews

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
wood- and chipboardscrews					
Wood screws with mounted EPDM-washers Ø20mm with cross recess Z (PoziDrive)			9173	271	
Wood screws with mounted EPDM-washers Ø20mm with TX20			9174	272	
Wood screws, copper-plated, with mounted EPDM-washers Ø20mm with TX20			9175	273	
Wood screws with mounted EPDM-washers Ø25mm with cross recess Z (PoziDrive)			9176	274	
Wood screws with mounted EPDM-washers Ø25mm with TX20			9177	275	
Wood screws, copper-plated, with mounted EPDM-washers Ø25mm with TX20			9178	276	
Decking screws with small countersunk head, cutting ribs and cutting groove			9800	367	
WASI decking screws with cutting ribs, thread under head and cutting groove			9820	368	
Premium washer head screws with TX, stainless steel C1, approved for constructions			9810	369	
Washer head screws with high-low thread and TX			9811	370	
tapping screws					
item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Self drilling screws type K, hexagon head with flange	7504 K	DIN EN ISO 15480		218	
Self drilling screws type N, pan head with cross recess H (Phillips)	7504 NH	DIN EN ISO 15481		219	
Self drilling screws type N, pan head with cross recess Z (PoziDrive)	7504 NZ	DIN EN ISO 15481		220	
Self drilling screws type P, countersunk head with cross recess H (Phillips)	7504 PH	DIN EN ISO 15482		221	
Self drilling screws type P, countersunk head with cross recess Z (PoziDrive)	7504 PZ	DIN EN ISO 15482		222	
Tapping screws pan head with slot, type C	7971	DIN ISO 1481		224	
Tapping screws countersunk head with slot, type C	7972	DIN ISO 1482		225	
Tapping screws raised countersunk head with slot, type C	7973	DIN ISO 1483		226	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.
















tapping screws

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
tapping screws					
Tapping screws, hexagon head type C	7976	DIN ISO 1479		227	
Tapping screws, pan head with cross recess H (Phillips) type C	7981 H	DIN ISO 7049		229	
Tapping screws, pan head with cross recess H (Phillips) type F	7981 F	DIN ISO 7049		230	
Tapping screws, pan head with cross recess Z (Pozidrive) type C	7981 Z	DIN ISO 7049		231	
Tapping screws, countersunk head with cross recess H (Phillips) type C	7982 H	DIN ISO 7050		232	
Tapping screws, countersunk head with cross recess H (Phillips) type F	7982 F	DIN ISO 7050		233	
Tapping screws, countersunk head with cross recess Z (Pozidrive) type C	7982 Z	DIN ISO 7050		234	
Tapping screws, raised countersunk head with cross recess H (Phillips) type C	7983 H	DIN ISO 7051		235	
Tapping screws, raised countersunk head with cross recess Z (Pozidrive) type C	7983 Z	DIN ISO 7051		236	
Teak deck screws flat head with TX			9155	262	
Self drilling screws type K, hexagon head with flange and EPDM-washers Ø16mm	7504 K		9165	265	
Self drilling screws type N, pan head with TX	7504 N		9166	266	
Self drilling screws type P, countersunk head with TX	7504 P		9167	267	
Tapping screws with hexagon socket head cap			9200	283	
Tapping screws socket head with TX			9201	284	
Tapping screws pan head with cross recess H (Phillips) with polyamide-washer			9220	293	
Tapping screws hexagon head with slot and polyamide-washer			9230	294	
Tapping screws cap head with cross recess H (Phillips)	7981		9235	295	
Tapping screws pan head with TX	7981	DIN EN ISO 14585	9477	352	
Tapping screws countersunk head with TX	7982	DIN EN ISO 14586	9478	353	
Tapping screws raised countersunk head with TX	7983	DIN EN ISO 14587	9479	354	
Security screws pan head with TX and PIN	7981		9485	357	
Security screws countersunk with TX and PIN	7982		9486	358	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.

























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facade building screws and screws for thermoplastics

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
facade building screws					
Facade building hexagon head, with mounted EPDM-washers Ø16mm, type A			9180	277	
Facade building screws hexagon head, with mounted EPDM-washers Ø19mm, type A			9182	278	
Facade building screws hexagon head with mounted EPDM-washers Ø22mm, type A			9184	279	
Facade building screws hexagon head with mounted EPDM-washers Ø16mm, type BZ			9190	280	
Facade building screws hexagon head, with mounted EPDM-washers Ø19mm, type BZ			9192	281	
Facade building screws hexagon head, with mounted EPDM-washers Ø22mm, type BZ			9194	282	
screws for thermoplastics					
Pan head screws for thermoplastics with cross recess H (Phillips)			9160	263	
Countersunk head screws for thermoplastics with cross recess H (Phillips)			9162	264	
screws accessories and others					
item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Caps for cap head screws			9236	296	
Bits for security screws with TX and PIN			9488	360	
L-keys for security screws with TX and PIN			9489	361	
Hose clamps, with worm gear drive, type A, stainless W2	3017 Ø9			194	
Hose clamps, with worm gear drive, type A A4/A2 W4+ W5	3017 Ø9			195	
Hose clamps, with worm gear drive, type A, stainless W2	3017 Ø12			196	
Hose clamps, with worm gear drive, type A A4/A2 W4+ W5	3017 Ø12			197	

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



nuts and inserts

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Wing nuts, american type	similar to 315 AF			69	
Wing nuts, german type	315 DF			70	
Pipe nuts with pipe thread, type B	431			75	
Hexagon nuts, thin type, type B, with chamfer	439	DIN EN ISO 4035		81	
Hexagon nuts with fine thread, thin type, type B, with chamfer	439	DIN EN ISO 8675		82	
Hexagon nuts with left hand thread, thin type, type B, with chamfer	439			83	
Knurled thumb nuts, high type	466			91	
Knurled thumb nuts, thin type	467			92	
Slotted round nuts	546			97	
Round nuts with drilled holes in one face	547			98	
Square nuts	557			101	
Square thin nuts	562			102	
Lifting eye nuts	582		9582	105	
Hexagon cup nuts, thin type	917			131	
Square weld nuts	928			134	
Hexagon weld nuts	929			135	
Hexagon nuts	934	DIN EN ISO 4032		148	
Hexagon nuts according to AD2000-W2	934	DIN EN ISO 4032		149	
Hexagon nuts with fine thread	934	DIN EN ISO 8673		150	
Hexagon nuts with left hand thread	934			151	
Hexagon nuts UNC thread	934			152	
Hexagon nuts, A2 with strenght 80	934	DIN EN ISO 4032		153	
Hexagon nuts, special materials 1.4462, 1.4529, 1.4539 and 1.4571	934	DIN EN ISO 4032		154	
Hexagon nuts	934	DIN EN ISO 4032		155	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.









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nuts and inserts














item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Hexagon castle nuts	935			156	
Hexagon castle nuts, thin type	937	ISO 7038		157	
Prevailing torque type hexagon nuts, all-metal insert	similar 980	DIN EN ISO 7042		173	
Prevailing torque type hexagon nuts with non-metallic insert, high type	982	DIN EN ISO 7040		174	
Prevailing torque type hexagon nuts with non-metallic insert, thin type	985	DIN EN ISO 10511		175	
Prevailing torque type hexagon nuts with fine thread and non-metallic insert, thin type	985			176	
Prevailing torque type hexagon domed cap nuts with non-metallic insert	986			177	
Hexagon domed cap nuts, high type	1587			190	
Slotted round nuts for hook spanner with fine thread	1804			191	
Hexagon nuts for bolts with reduced shank type NF	2510			193	
Hexagon nuts, type B, height = 1,5xd	6330			201	
Hexagon nuts with collar, height = 1,5xd	6331			202	
Hexagon nuts, height = 3xd	6334			203	
Self locking counter nuts	7967			223	
Round coupler nuts with full length thread			9290	315	
Hexagon coupler nuts with full length thread			9300	316	
Shear nuts			9305	317	
Insert press nuts			9310	318	
Drive in nuts for wood			9312	319	
Weld nuts, type A			9320	325	
Weld nuts, type B			9323	326	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.

nuts and inserts

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Weld nuts, type C			9326	327	
Sleeve nuts with pan head and slot			9340	331	
Hexagon nuts with flange and serration			9345	332	
Lifting eye nuts, casted	582		9582	366	
Thread inserts ENSAT type 302, self-cutting			9270	311	
Thread inserts, free running	8140		9275	312	
Thread inserts, clamped	8140		9276	313	
Screwed inserts, type B	7965		9280	314	














washers

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
washers					
Plain washers, type A without chamfer	125 A	DIN EN ISO 7089		58	
Plain washers, type B with chamfer	125 B	DIN EN ISO 7089		59	
Plain washers, type A, special materials 1.4462, 1.4529, 1.4539 and 1.4571	125 A	DIN EN ISO 7089		60	
Plain washers	125	ISO 7089		61	
Washers for hexagon socket head cap screws	433	DIN EN ISO 7092		77	
Square taper washers for U-sections	434			78	
Square taper washers for I-sections	435			79	
Square washers for wood constructions	436			80	
Washers for wood constructions, type R with round holes	440 R	DIN EN ISO 7094		84	
Washers for wood constructions, type V with square holes	440 V			85	
Shim and supporting rings	988			178-180	
Washers for wood constructions	1052			181	
Plain washers for clevis pins	1440	DIN EN 28738		182	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.

























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washers

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
washers					
Spherical washers, type C	6319 C			199	
Conical seats, type D	6319 D			200	
Washers for bolts with heavy type spring pins	7349			216	
Washers for steel constructions	7989			241	
Plain washers with diameter ~ 3x nominal thread diameter	9021	ISO 7092		248	
Plain washers with ~ 3x nominal thread diameter in grade 1.4462, 1.4529, 1.4539 and 1.4571	9021	ISO 7092		249	
Plain washers			9240	297	
Washers according to NFE 25-514 Z			9245	298	
Washers according to NFE 25-514 M			9246	299	
Washers according to NFE 25-514 L			9247	300	
Washers according to NFE 25-514 LL			9248	301	
Finishing washers, solid metal			9255	303	
Sealing washers with EPDM			9260	304	
Polyamide washers type A without chamfer	125		9500	363	
Polyamide washers outside diameter ~ 3x nominal thread diameter	9021		9510	364	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.












locking elements

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
locking elements					
Tab washers with long tab	93			53	
Split pins	94	DIN EN ISO 1234		54	
Spring lock washers, type A, positiv pattern	127 A			62	
Spring lock washers, type B, plain pattern	127 B			63	
Spring washers, type A, curved	128 A			64	
Spring washers, type B, waved	128 B			65	
Curved spring washers, type A, curved	137 A			66	
Waved spring washers, type B, waved	137 B			67	
Locking washers with external tap	432			76	
Internal tab washers for grooved nuts DIN 1804	462			87	
Tap washers with two taps	463			88	
Retaining rings for shafts	471			93-94	
Retaining rings for bores	472			95-96	
Adjusting rings with set screws	705 G			111	
Disc springs	2093			192	
Conical spring washers	6796			204	
Toothed lock washers, type A	6797 AZ			205	
Toothed lock washers, type I	6797 IZ			206	
Serrated lock washers, type A	6798 AZ			207	
Serrated lock washers, type I	6798 IZ			208	
Serrated lock washers, type V for countersunk head screws	6798 AZV			209	
Retaining washers for shafts	6799			210	
Parallel keys, type A	6885			211	
Spring lock washers for cheese head screws	7980			228	










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locking elements

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Snap rings for shafts, type A	7993 A			244	
Locking washers	25201			250	
EPDM-sealings for dowel screws			9218	291	
Locking washers "S"			9250	302	
AFNOR-contact washers according to NFE 25-511			9264	305	
Serrated locking washers, type M (medium)			9265	306	
Serrated locking washers, type S (small)			9266	307	
Serrated locking washers, type B (flat)			9267	308	
Serrated locking washers, type Z (for cheese head screws)			9268	309	
Serrated locking washers for electrical connections			9269	310	
Security stars for TX-screws			9495	362	

pins









item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Taper pins	1	DIN EN 22339		48	
Parallel pins, m6	7	ISO 2338		49	
Parallel pins, m6	7	ISO 2338		50	
Grooved pins, full length taper grooved	1471	DIN EN ISO 8744		183	
Grooved pins, half length taper grooved	1472	DIN EN ISO 8745		184	
Grooved pins, full length parallel grooved with chamfer	1473	DIN EN ISO 8740		185	
Grooved pins, half length reverse taper grooved	1474	DIN EN ISO 8741		186	
Grooved pins, third length center grooved	1475	DIN EN ISO 8742		187	
Grooved pins with round head	1476	DIN EN ISO 8746		188	

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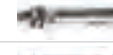




Slotted spring pins

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Spring-type straight pins slotted, heavy type	1481	DIN EN ISO 8752		189	
Spring-type straight pins, medium duty	7343	DIN EN ISO 28750		215	

rivets

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Round head rivets	660			109	
Countersunk head rivets	661			110	
Blind rivets	7337	DIN EN ISO 15983		214	
Blind rivet nuts with small countersunk head			9314	320	
Blind rivet nuts with flat head			9315	321	
Blind rivet nuts with countersunk head			9316	322	
Blind rivet nuts with flat head and hexagon shank			9317	323	
Blind rivet nuts with small countersunk head and hexagon shank			9318	324	

anchors and accessories

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Anchor studs VA-A			9350	333	
Anchor capsules VA-P			9360	334	
Injektion mortar VM			9365	335	
Wedge anchor, type B			9370	336	
Wedge anchor, type Z			9372	337	
Heavy duty anchor, type SL			9375	338	
Drop in anchor, type E			9380	339	
Setting tools for drop in anchors			9385	340	
Universal plugs, type UD, made of polypropylene			9390	341	



















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anchors and accessories

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Dowel concrete screws with technical approval			9850	371	
Hexagon concrete screws with collar and technical approval			9851	372	
Concrete countersunk head screws with technical approval			9852	373	

Fittings

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Welding nipples	2982 A			374	
Barrel nipples	2982 R			375	
Full couplings	2986 G			376	
Half couplings	2986 H			377	
Elbows 90° int. / int. thread			9601	378	
Elbows 45° int. / int. thread			9603	379	
Elbows 90° int. / ext. thread			9604	380	
Tees - int. thread			9607	381	
Unions, flat sealing, int. / int. thread			9611	382	
Unions, flat sealing, int. / ext. thread			9611 A	383	
Unions, flat sealing with welding ends			9611 S	384	
Unions, conical sealing int. / int. thread			9612	385	
Unions, conical sealing, int. / ext. thread			9612 A	386	
Unions, conical sealing with welding ends			9612 S	387	
Hexagon reducing bushings, int. / ext. thread			9625	388	
Hexagon screw caps			9626	389	
Hexagonal head pins, with conical thread			9630	390	
Reducing sockets			9635	391	

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Fittings

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Hexagon hose nipples			9637	392	
Hexagon double nipples			9640	393	
Hexagon reduced double nipples			9641	394	


















wire ropes, chains and accessories

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
Turnbuckles, open body, 2 forkes			8021	395	
Wire ropes, 1x19, rigid			8035	396	
Wire ropes, 7x19, flexible			8036	397	
Wire ropes, 7x7 soft			8038	398	
Stainless steel chains, short link	766		8070	399	
S- hooks, polished			8160	400	
S- hooks, asymmetrical, polished			8160 A	401	
Rings, welded, polished			8229	402	
Turnbuckles closed body, 2 forkes, welded			8245	403	
Turnbuckles closed body, 2 forkes, MT-version, turned			8245	404	
Turnbuckles type A eye/eye	1480		8246	405	
Turnbuckles type B, hook/hook	1480		8246	406	
Turnbuckles type C, eye/hook	1480		8246	407	
Thimbles	6899		8247	408	
Wire ropes clamps	741		8248	409	
Spring hooks			8249	410	
Spring hooks with thimble			8250	411	
Chain quick-links			8253	412	

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wire ropes, chains and accessories

item description	DIN	ISO / DIN EN / DIN EN ISO	WS	page	picture
D-shackles, straight			8258	413	
Eye bolts with metric thread			8267	414	
Eye bolts with wood thread			8268	415	
Turnbuckles fork/wire rope, welded			8275	416	
Turnbuckles fork/wire rope, turned			8275	417	
Stainless steel chains, long link	763		8301	418	
Wire rope swage terminals, fork welded			8316	419	
Wire rope swage terminals, fork turned			8316	420	
Wire rope swage terminals, eye			8317	421	
Turnbuckle bodies	1478		8319	422	
Wire rope swage studs with nut, right thread	11024		8320	423	
Beta pins			8377	424	
Spring cotter pins			8378	425	
Cotter rings			8383	426	
Eye screws			8705	427	
Screw hooks			8706	428	
Square hooks for wood			8707	429	
Gate and shutter hooks and eyes			8708	430	

Please note that technical differences and deviations in the measurements exist between DIN / DIN EN / DIN EN ISO and ISO. You can find a detailed overview in our technical handbook. The relevant Norms available from stock are highlighted.



WASI[®]



NORM

WASI-Screw Finder

50 YEARS

EXCELLENCE IN STAINLESS STEEL
EXCELLENCE IN STAINLESS STEEL

Shapes



Type of head	Drives	Metric	Tapping	Wood		
Hexagon head			DIN 931 DIN 931 T DIN 933 DIN 933 T ISO 4014 ISO 4017	DIN 7976	DIN 571	-
			DIN 933 SZ	-	-	-
			-	WS 9230	-	-
			DIN 6921	DIN 7504K	-	-
			-	WS 9165 WS 9190 WS 9192 WS 9194	WS 9180 WS 9182 WS 9184	-
Socket head			DIN 84	DIN 7971	-	-
			DIN 912 DIN 912 T DIN 912 VO DIN 7984 WS 9455 ISO 14579 ISO 14580	WS 9200 WS 9201	-	-
			DIN 6912	-	-	-
			DIN 404	-	-	-
			DIN 963	DIN 7972	DIN 97	-
Countersunk flat head			DIN 963	DIN 7972	DIN 97	-
			DIN 965 H	DIN 7504 PH DIN 7982 DIN 7982 F	-	-



Type of head	Drives	Metric	Tapping	Wood	Chipboard	
Countersunk flat head			DIN 965 Z	DIN 7504 PZ DIN 7982 Z	DIN 7997	WS 9100 WS 9105
			WS 9470 WS 9475	WS 9478 WS 9167	-	WS 9130 WS 9135
			WS 9482	WS 9486	-	-
			DIN 7991 DIN 7991 VO	-	-	-
			-	-	WS 9800 WS 9820	WS 9145 WS 9146
Raised counter-sunk head			DIN 964	DIN 7973	DIN 95	-
			DIN 966 H	DIN 7983 H	-	-
			DIN 966 Z	DIN 7983 Z	DIN 7995	WS 9120
			-	WS 9479	-	-
			-	-	WS 9170 WS 9173 WS 9176	-
			-	-	WS 9171 WS 9172 WS 9174 WS 9175 WS 9177 WS 9178	-

Shapes



Type of head	Drives	Metric	Tapping	Wood	Chipboard	
Pan head Half-round head			WS 9330	-	DIN 96	-
			DIN 7985 H	DIN 7981 H DIN 7981 F DIN 7504 NP	-	-
			DIN 7985 Z	DIN 7981 Z DIN 7504 NZ	DIN 7996	WS 9110
			ISO 7380 WS 9332	-	-	-
			WS 9480	WS 9485	-	-
			WS 9460	WS 9477 WS 9166	-	WS 9112 WS 9117
	Special pan head shapes					
Cap head			-	WS 9235	-	-
Socket button head screws with flange			WS 9335	-	-	-
Washer head			-	-	WS 9810 WS 9811	-
Pan head with polyamide-washer			-	WS 9220	-	-
One-way head			WS 9487	-	-	-












Type of head	Drives	Metric	Tapping	Wood	Chipboard
Mushroom head with square neck bolts		DIN 603 DIN 603 V0	-	-	-
Flat head		DIN 85	-	-	-
		DIN 464 DIN 653	-	-	-
		DIN 465	-	-	-
		DIN 921 DIN 923	-	-	-
		-	WS 9155	-	-
		-	-	-	-
T-head and hammer head		WS 9405	-	-	-
		DIN 186	-	-	-
		WS 9410 WS 9415 WS 9416	-	-	-
Other head shapes		-	DIN 316 AF	-	-
		-	DIN 316 DF	-	-
		-	DIN 444	-	-

Shapes



Type of head	Drives	Metric	Tapping	Wood	Chipboard	
Other head shapes		-	DIN 580 WS 9580 M 8267	-	M 8268	-
		-	-	-	M 8705	-
		-	WS 9448	-	M 8706	-
		-	DIN 3570 WS 9440	-	-	-
Studs Headless Screws Hexagon socket set screws		-	DIN 938 DIN 939	-	-	-
			DIN 427	-	-	-
			DIN 551 DIN 553	-	-	-
			DIN 913 DIN 914 DIN 915 DIN 916	-	-	-



Type of head	Drives	Metric	Tapping	Wood	Chipboard	
Dowel screws			WS 9210	-		-
			WS 9211 WS 9215 WS 9216 WS 9217 WS 9219	-	WS 9211 WS 9215 WS 9216 WS 9217 WS 9219	-
Hexagon socket pipe plugs			DIN 906 M DIN 906 R	-	-	-
			DIN 908 M DIN 908 R DIN 908 T	-	-	-
			DIN 910 M DIN 910 R DIN 910 T	-	-	-



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NORM

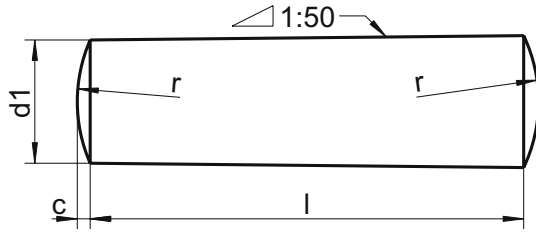
Product range

50 YEARS

EXCELLENCE IN STAINLESS STEEL
EXCELLENCE IN STAINLESS STEEL

DIN 1 - sim. ISO 2339

Taper pins



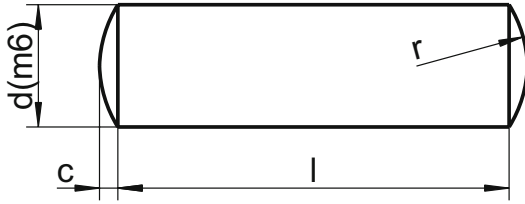
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r	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0
Length / Ø	2	2,5	3	4	5	6	8	10
10	■ ●							
12	■ ●							
14	■ ●	■ ●	■ ●					
16	■ ●	■ ●	■ ●	■ ●	■ ●			
18	■ ●	■ ●	■ ●	■ ●	■ ●			
20	■ ●	■ ●	■ ●	■ ●	■ ●			
22		■ ●	■ ●	■ ●	■ ●			
24		■ ●	■ ●	■ ●	■ ●	■ ●		
26			■ ●	■ ●	■ ●	■ ●		
28			■ ●	■ ●	■ ●	■ ●		
30			■ ●	■ ●	■ ●	■ ●		
32			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
36			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
40			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
45			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
50			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
55				■ ●	■ ●	■ ●	■ ●	■ ●
60				■ ●	■ ●	■ ●	■ ●	■ ●
70					■ ●	■ ●	■ ●	■ ●
80						■ ●	■ ●	■ ●
90							■ ●	■ ●
100							■ ●	■ ●
SU	200	200	200	100	100	100	50	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1-2-8X40 DIN 1 - A1 - Ø 8mm - l = 40mm

sim. ISO 2338 - DIN 7 Parallel pins

m6



c	0,15	0,23	0,30	0,40	0,45	0,60	0,75	0,90	1,20	1,50	1,80	2,50	3,00	
r	1,0	1,6	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	16,0	20,0	
Length / Ø	1	1,5	2	2,5	3	4	5	6	8	10	12	16	20	
2	■ ●	■ ●												
3	■ ●	■ ●												
4	■ ●	■ ●	■ ●	■ ●	■ ●									
5	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●							
6	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●						
8	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●					
10	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●				
12	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●			
14	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●		
16	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●		
18	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●		
20	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
24		■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
28		■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
30			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
32			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
36					■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
40					■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
45						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
50							■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
55								■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
60									■ ●	■ ●	■ ●	■ ●	■ ●	
70										■ ●	■ ●	■ ●	■ ●	
80											■ ●	■ ●	■ ●	
90												■ ●	■ ●	
100													■ ●	
SU	1000	1000	1000	500	500	500	500	500	100	100	100	50	25	25

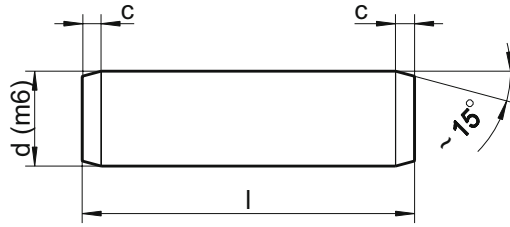
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7-4-8X40 DIN 7 - A4 - Ø 8mm - l = 40mm

ISO 2338 - sim. DIN 7

Parallel pins

m6

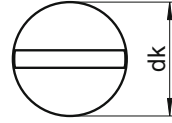
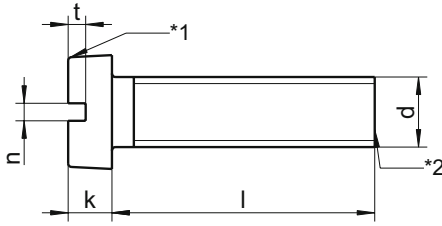


c	0,20	0,30	0,35	0,40	0,50	0,63	0,80	1,20	1,60	2,00	2,50	3,00
Length / Ø	1	1,5	2	2,5	3	4	5	6	8	10	12	16
3	■ ●	■ ●										
4	■ ●	■ ●	■ ●	■ ●	■ ●							
5	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●						
6	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●					
8	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●				
10	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●		
12	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
14	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
16	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
18	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
20	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
24		■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
28		■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
32			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
36					■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
40					■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
45						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
50						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
55						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
60						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
70						■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
80							■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
90								■ ●	■ ●	■ ●	■ ●	■ ●
100									■ ●	■ ●	■ ●	■ ●
120										■ ●	■ ●	■ ●
SU	1000	1000	1000	500	500	500	200	100	100	100	50	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 2338-4-8X60 ISO 2338 - A4 - Ø 8mm - l = 60mm

sim. ISO 1207 - **DIN 84** Slotted cheese head screws



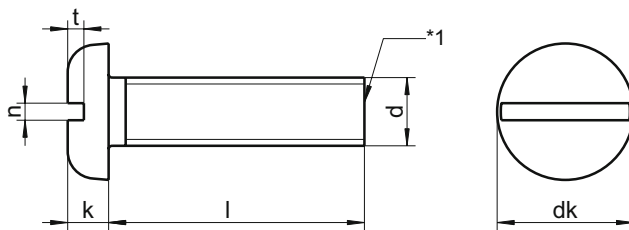
dk	3,0	3,8	4,5	5,5	6,0	7,0	8,5	10,0	13,0	16,0
k	1,0	1,3	1,6	2,0	2,4	2,6	3,3	3,9	5,0	6,0
n	0,40	0,50	0,60	0,80	1,00	1,20	1,20	1,60	2,00	2,50
t	0,45	0,60	0,70	0,85	1,00	1,10	1,30	1,60	2,00	2,40
⌀	0,4X2,0	0,5X3,0	0,6X3,5	0,8X4,0	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0	2,0X12,0	2,5X14,0
Length / Ø	M1,6	M2	M2,5	M3	M3,5	M4	M5	M6	M8	M10
3	▲●	▲●	▲●	▲●						
4	▲●	▲●	▲●	▲●	▲●	▲●				
5	▲●	▲●	▲●	▲●	▲●	▲●				
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
28		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●	▲●	▲●
65						▲●	▲●	▲●	▲●	▲●
70						▲●	▲●	▲●	▲●	▲●
75						▲●	▲●	▲●	▲●	▲●
80						▲●	▲●	▲●	▲●	▲●
85						▲●	▲●	▲●	▲●	▲●
90						▲●	▲●	▲●	▲●	▲●
100						▲●	▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000 ≥ 25 200	1000 ≥ 25 500	1000 ≥ 25 500	500 ≥ 25 200	500 ≥ 25 200	100	100 ≥ 60 50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 84-2-8X40 DIN 84 - A2 - M8 - l = 40mm - *1 head with rounded or flattened edge - *2 without tip

DIN 85 - sim. ISO 1580

Slotted pan head screws



dk	3,2	4,0	5,0	6,0	7,0	8,0	10,0	12,0	16,0	20,0
k	1,0	1,3	1,5	1,8	2,1	2,4	3,0	3,6	4,8	6,0
n	0,4	0,5	0,6	0,8	1,0	1,2	1,2	1,6	2,0	2,5
t	0,3	0,4	0,5	0,7	0,8	1,0	1,2	1,4	1,9	2,4
⌀	0,4X2,0	0,5X3,0	0,6X3,5	0,8X4,0	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0	2,0X12,0	2,5X14,0
Length / Ø	M1,6	M2	M2,5	M3	M3,5	M4	M5	M6	M8	M10
3		▲●	▲●	▲●						
4		▲●	▲●	▲●						
5	▲●	▲●	▲●	▲●	▲●	▲●				
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
12		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
14		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
16		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
18		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30				▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●	▲●	▲●
55						▲●	▲●	▲●	▲●	▲●
60						▲●	▲●	▲●	▲●	▲●
65							▲●	▲●	▲●	▲●
70							▲●	▲●	▲●	▲●
75							▲●	▲●	▲●	▲●
80							▲●	▲●	▲●	▲●
90							▲●	▲●	▲●	▲●
100							▲●	▲●	▲●	▲●
SU	1000	1000	1000	500	500	500	500 ≥ 25 200	200 ≥ 35 100	100	100 ≥ 55 50

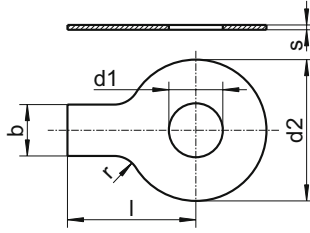
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 85-2-8X40 DIN 85 - A2 - M8 - l = 40mm - *1 without peak

DIN 93

Tab washers

with long tab



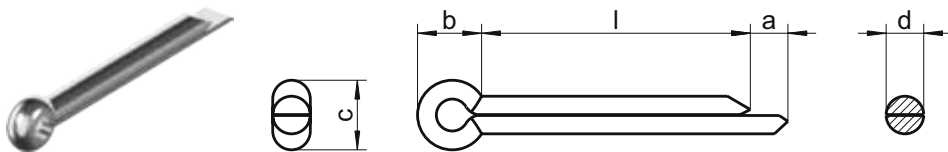
d1	for	d2	s	l	r	b
4,3	M4	14	0,38	14	2,5	5
5,3	M5	17	0,50	16	2,5	6
6,4	M6	19	0,50	18	4,0	7
8,4	M8	22	0,75	20	4,0	8
10,5	M10	26	0,75	22	6,0	10
13,0	M12	30	1,00	28	10,0	12
15,0	M14	33	1,00	28	10,0	12
17,0	M16	36	1,00	32	10,0	15
19,0	M18	40	1,00	36	10,0	18
21,0	M20	42	1,00	36	10,0	18
23,0	M22	50	1,00	42	10,0	20
25,0	M24	50	1,00	42	10,0	20
28,0	M27	58	1,60	48	16,0	23
31,0	M30	63	1,60	52	16,0	26
34,0	M33	68	1,60	56	16,0	28
37,0	M36	75	1,60	60	16,0	30

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	20
▲●	20

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 93-2-8,4 DIN 93 - A2 - Ø 8,4mm

DIN 94 - sim. ISO 1234

Split pins



d max.	0,9	1,0	1,4	1,8	2,3	2,9	3,7	4,6	5,9	7,5	9,5	12,4
d min.	0,8	0,9	1,3	1,7	2,1	2,7	3,5	4,4	5,7	7,3	9,3	12,1
a max.	1,6	2,5	2,5	2,5	2,5	3,2	4,0	4,0	4,0	4,0	6,3	6,3
a min.	0,80	1,25	1,25	1,25	1,25	1,60	2,00	2,00	2,00	2,00	3,20	3,20
b ≈	3,0	3,0	3,2	4,0	5,0	6,4	8,0	10,0	12,6	16,0	20,0	26,0
c max.	1,8	2,0	2,8	3,6	4,6	5,8	7,4	9,2	11,8	15,0	19,0	24,8
c min.	1,6	1,7	2,4	3,2	4,0	5,1	6,5	8,0	10,3	13,1	16,6	21,7
Length / Ø	1	1,2	1,6	2	2,5	3,2	4	5	6,3	8	10	13
6	▲●	▲●	▲●	▲●								
8	▲●	▲●	▲●	▲●								
10	▲●	▲●	▲●	▲●	▲●	▲●						
12	▲●	▲●	▲●	▲●	▲●	▲●						
14	▲●	▲●	▲●	▲●	▲●	▲●						
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
22	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
25	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
28	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
32	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
36	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
56						▲●	▲●	▲●	▲●	▲●	▲●	▲●
63						▲●	▲●	▲●	▲●	▲●	▲●	▲●
71						▲●	▲●	▲●	▲●	▲●	▲●	▲●
80						▲●	▲●	▲●	▲●	▲●	▲●	▲●
90							▲●	▲●	▲●	▲●	▲●	▲●
100							▲●	▲●	▲●	▲●	▲●	▲●
112								▲●	▲●	▲●	▲●	▲●
125									▲●	▲●	▲●	▲●
140										▲●	▲●	▲●
SU	500	500	500	500	500	500	200	200	100	100	50	25

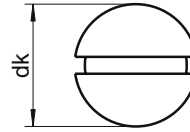
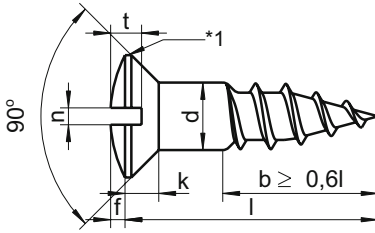
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 94-2-8X40 DIN 94 - A2 - Ø 8mm - l = 40mm

DIN 95

Wood screws

raised countersunk head with slot



dk	5,6	6,5	7,5	8,3	9,2	11,0
k	1,65	1,93	2,20	2,35	2,50	3,00
n	0,8	0,8	1,0	1,0	1,2	1,6
t	1,45	1,70	1,90	2,10	2,30	2,80
f	0,75	0,90	1,00	1,10	1,25	1,50
⊖	0,8X4,0	0,8X4,0	1,0X5,5	1,0X5,5	1,2X7,0	1,6X9,0
Length / Ø	3	3,5	4	4,5	5	6
10	▲ ●					
12	▲ ●					
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●
70					▲ ●	▲ ●
80					▲ ●	▲ ●
90					▲ ●	▲ ●
100					▲ ●	▲ ●
SU	200	200	200	200	200	100

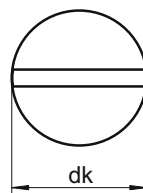
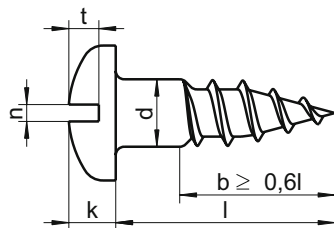
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 95-2-6X40 DIN 95 - A2 - Ø 6mm - l = 40mm - *1 head with rounded or flat ended edge

DIN 96

Wood screws

round head with slot



dk	6	7	8	9	10	11	12
k	2,1	2,4	2,8	3,1	3,5	3,8	4,2
n	0,8	0,8	1,0	1,0	1,2	1,2	1,6
t max.	1,35	1,60	1,80	2,00	2,30	2,50	2,70
⊖	0,8X4,0	0,8X4,0	1,0X5,5	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0
Length / Ø	3	3,5	4	4,5	5	5,5	6
12	▲ ●	▲ ●					
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
65				▲ ●	▲ ●	▲ ●	▲ ●
70				▲ ●	▲ ●	▲ ●	▲ ●
80					▲ ●	▲ ●	▲ ●
90					▲ ●	▲ ●	▲ ●
100					▲ ●	▲ ●	▲ ●
SU	200	200	200	200	200	100	100

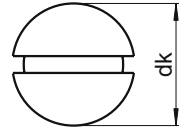
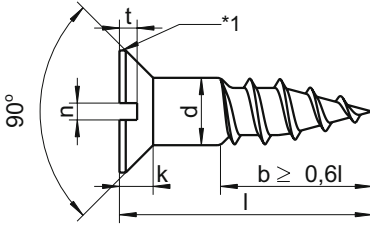
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 96-2-6X40 DIN 96 - A2 - Ø 6mm - l = 40mm

DIN 97

Wood screws

countersunk head with slot



dk	4,7	5,6	6,5	7,5	8,3	9,2	10,2	11,0	14,5
k	1,50	1,65	1,93	2,20	2,35	2,50	2,75	3,00	4,00
n	0,6	0,8	0,8	1,0	1,0	1,2	1,2	1,6	2,0
t max.	0,70	0,85	1,00	1,10	1,20	1,30	1,40	1,60	2,10
⊖	0,6X3,5	0,8X4,0	0,8X4,0	1,0X5,5	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	2,5	3	3,5	4	4,5	5	5,5	6	8
10	▲ ●								
12	▲ ●	▲ ●							
16	▲ ●	▲ ●	▲ ●	▲ ●					
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
30		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
35		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
40		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
45				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
50				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
60				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
80						▲ ●	▲ ●	▲ ●	▲ ●
90								▲ ●	▲ ●
100								▲ ●	▲ ●
SU	500	200	200	200	200	200	100	100	100

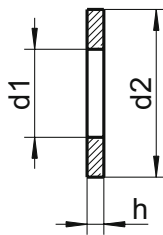
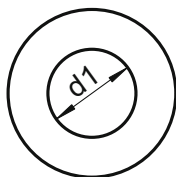
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 97-2-4X50 DIN 97 - A2 - Ø 4mm - l = 50mm - *1 head with rounded or flat ended edge

DIN 125 A - sim. ISO 7089

Plain washers

type A without chamfer



d1	for	d2	h
1,7	M1,6	4,0	0,3
1,8	M1,7	4,5	0,3
2,2	M2	5,0	0,3
2,5	M2,3	6,0	0,5
2,7	M2,5	6,0	0,5
2,8	M2,6	7,0	0,5
3,2	M3	7,0	0,5
3,7	M3,5	8,0	0,5
4,3	M4	9,0	0,8
5,3	M5	10,0	1,0
6,4	M6	12,0	1,6
7,4	M7	14,0	1,6
8,4	M8	16,0	1,6
10,5	M10	20,0	2,0
13,0	M12	24,0	2,5
15,0	M14	28,0	2,5
17,0	M16	30,0	3,0
19,0	M18	34,0	3,0
21,0	M20	37,0	3,0
23,0	M22	39,0	3,0
25,0	M24	44,0	4,0
28,0	M27	50,0	4,0
31,0	M30	56,0	4,0
34,0	M33	60,0	5,0
37,0	M36	66,0	5,0
40,0	M39	72,0	6,0
43,0	M42	78,0	7,0
46,0	M45	85,0	7,0
50,0	M48	92,0	8,0
52,0	M50	92,0	8,0
54,0	M52	98,0	8,0

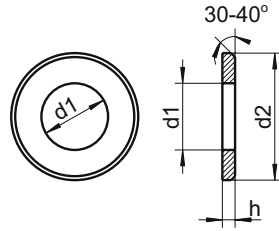
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
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▲●	500
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10
▲●	10
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 125-2-8,4 DIN 125 - A2 - Ø 8,4mm - form A

Plain washers with 200 HV ISO 7089 can be found on the following pages. Washers for hexagon socket head cap screws can be found as DIN 433 in this catalogue. Polyamid washers can be found as WS 9500, plain washers with an expanded contact surface can be found as DIN 9021 in this catalogue.

sim. ISO 7090 - **DIN 125 B**
Plain washers
 type B with chamfer



d1	for	d2	h
3,2	M3	7,0	0,5
4,3	M4	9,0	0,8
5,3	M5	10,0	1,0
6,4	M6	12,0	1,6
8,4	M8	16,0	1,6
10,5	M10	20,0	2,0
13,0	M12	24,0	2,5
15,0	M14	28,0	2,5
17,0	M16	30,0	3,0
19,0	M18	34,0	3,0
21,0	M20	37,0	3,0
23,0	M22	39,0	3,0
25,0	M24	44,0	4,0
28,0	M27	50,0	4,0
31,0	M30	56,0	4,0
34,0	M33	60,0	5,0

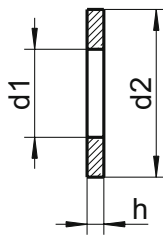
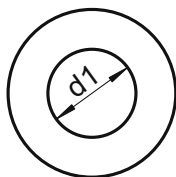
Grade	SU
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▲●	1000
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	25
▲●	25
▲●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 125-2-8,4B DIN 125 - A2 - Ø 8,4mm - form B

DIN 125 A - special materials - sim. ISO 7089

Plain washers

type A, special materials 1.4462, 1.4529, 1.4539 and 1.4571



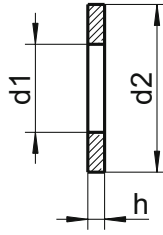
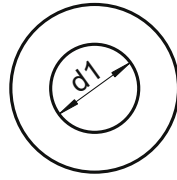
d1	for	d2	h
5,3	M5	10,0	1,0
6,4	M6	12,0	1,6
8,4	M8	16,0	1,6
10,5	M10	20,0	2,0
13,0	M12	24,0	2,5
17,0	M16	30,0	3,0
21,0	M20	37,0	3,0
25,0	M24	44,0	4,0
28,0	M27	50,0	4,0
31,0	M30	56,0	4,0

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 125-BB-8,4 DIN 125 - 1.4539 - Ø 8,4mm - form A

Grade	SU
A5 Al BA BB	200
A5 Al BA BB	100
A5 Al BA BB	100
A5 Al BA BB	50
A5 Al BA BB	50
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25

sim. DIN 125 A - **ISO 7089**
Plain washers



d1	for	d2	h
3,2	M3	7	0,5
4,3	M4	9	0,8
5,3	M5	10	1,0
6,4	M6	12	1,6
8,4	M8	16	1,6
10,5	M10	20	2,0
13,0	M12	24	2,5
17,0	M16	30	3,0
21,0	M20	37	3,0
25,0	M24	44	4,0
28,0	M27	50	4,0
31,0	M30	56	4,0

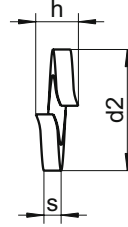
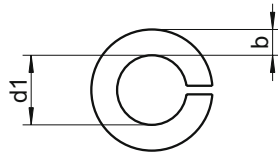
Grade	SU
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	200
▲	200
▲	100
▲	50
▲	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 7089-2-10,5 ISO 7089 - A2 - Ø 10,5mm

DIN 127 A

Spring lock washers

type A, positive pattern



nominal size	for	d1	d2	h min.	s	b
3	M3	3,1	6,2	1,9	0,8	1,3
3,5	M3,5	3,6	6,7	1,9	0,8	1,3
4	M4	4,1	7,6	2,1	0,9	1,5
5	M5	5,1	9,2	2,7	1,2	1,8
6	M6	6,1	11,8	3,6	1,6	2,5
7	M7	7,1	12,8	3,6	1,6	2,5
8	M8	8,1	14,8	4,6	2,0	3,0
10	M10	10,2	18,1	5,0	2,2	3,5
12	M12	12,2	21,1	5,8	2,5	4,0
14	M14	14,2	24,1	6,8	3,0	4,5
16	M16	16,2	27,4	7,8	3,5	5,0
20	M20	20,2	33,6	8,8	4,0	6,0
24	M24	24,5	40,0	11,0	5,0	7,0
27	M27	27,5	43,0	11,0	5,0	7,0
30	M30	30,5	48,2	13,6	6,0	8,0

Grade	SU
▲ FS	1000
▲ FS	1000
▲ FS	1000
▲ FS	1000
▲ FS	1000
▲ FS	1000
▲ FS	1000
▲ FS	500
▲ FS	500
▲ FS	500
▲ FS	500
▲ FS	500
▲ FS	100
▲ FS	100
▲ FS	50
▲ FS	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

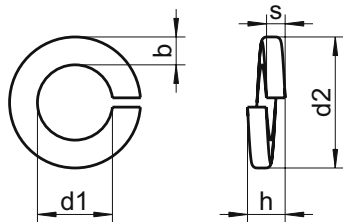
Example item no. 127-2-8A DIN 127 - A2 - nominal size 8mm - form A - FS = spring steel

The DIN 127 has been withdrawn and was not replaced. The product is still available from stock. Material A2 and A4 have a reduced spring resistance in comparison to the material 1.4310 (spring steel). Spring lock washers for cheese head screws can be found as DIN 7980 in this catalogue.

DIN 127 B

Spring lock washers

type B, plain pattern



nominal size	for	d1	d2	h min.	s	b
2	M2	2,1	4,4	1,0	0,5	0,9
2,3	M2,3	2,3	4,8	1,2	0,6	1,0
2,5	M2,5	2,6	5,1	1,2	0,6	1,0
2,6	M2,6	2,7	5,2	1,2	0,6	1,0
3	M3	3,1	6,2	1,6	0,8	1,3
3,5	M3,5	3,6	6,7	1,6	0,8	1,3
4	M4	4,1	7,6	1,8	0,9	1,5
5	M5	5,1	9,2	2,4	1,2	1,8
6	M6	6,1	11,8	3,2	1,6	2,5
8	M8	8,1	14,8	4,0	2,0	3,0
10	M10	10,2	18,1	4,4	2,2	3,5
12	M12	12,2	21,1	5,0	2,5	4,0
14	M14	14,2	24,1	6,0	3,0	4,5
16	M16	16,2	27,4	7,0	3,5	5,0
18	M18	18,2	29,4	7,0	3,5	5,0
20	M20	20,2	33,6	8,0	4,0	6,0
22	M22	22,5	35,9	8,0	4,0	6,0
24	M24	24,5	40,0	10,0	5,0	7,0
27	M27	27,5	43,0	10,0	5,0	7,0
30	M30	30,5	48,2	12,0	6,0	8,0
33	M33	33,5	55,2	12,0	6,0	10,0
36	M36	36,5	58,2	12,0	6,0	10,0
39	M39	39,5	61,2	12,0	6,0	10,0
40	M40	40,5	63,5	14,0	7,0	12,0
42	M42	42,5	68,2	14,0	7,0	12,0
48	M48	49,0	75,0	14,0	7,0	12,0

Grade	SU
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
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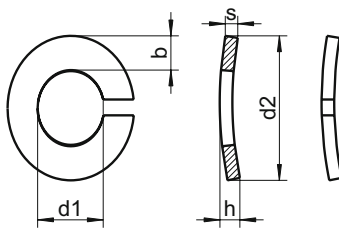
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 127-2-8 DIN 127 - A2 - nominal size 8mm - form B - FS = spring steel

The DIN 127 has been withdrawn and was not replaced. The product is still available from stock. Material A2 and A4 have a reduced spring resistance in comparison to the material 1.4310 (spring steel). Spring lock washers for cheese head screws can be found as DIN 7980 in this catalogue.

DIN 128 A

Spring lock washers

type A, curved



nominal size	for	d1 min.	d2 max.	h min.	h max.	s	b
2	M2	2,1	4,4	0,70	0,90	0,5	0,9
2,3	M2,3	2,4	4,9	0,90	1,10	0,6	0,9
2,5	M2,5	2,6	5,1	0,90	1,10	0,6	1,0
2,6	M2,6	2,7	5,2	0,90	1,10	0,6	1,0
3	M3	3,1	6,2	1,10	1,30	0,7	1,3
3,5	M3,5	3,6	6,7	1,10	1,30	0,7	1,3
4	M4	4,1	7,6	1,20	1,40	0,8	1,5
5	M5	5,1	9,2	1,50	1,70	1,0	1,8
6	M6	6,1	11,8	2,00	2,20	1,3	2,5
8	M8	8,1	14,8	2,45	2,75	1,6	3,0
10	M10	10,2	18,1	2,85	3,15	1,8	3,5
12	M12	12,2	21,1	3,35	3,65	2,1	4,0
14	M14	14,2	24,1	3,90	4,30	2,4	4,5
16	M16	16,2	27,4	4,50	5,10	2,8	5,0
18	M18	18,2	29,4	4,50	5,10	2,8	5,0
20	M20	20,2	33,6	5,10	5,90	3,2	6,0
22	M22	22,5	35,9	5,10	5,90	3,2	6,0
24	M24	24,5	40,0	6,50	7,50	4,0	7,0
27	M27	27,5	43,0	6,50	7,50	4,0	7,0
30	M30	30,5	48,2	9,50	10,50	6,0	8,0
36	M36	36,5	58,2	10,30	11,30	6,0	10,0

Grade	SU
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	500
▲● FS	500
▲● FS	250
▲● FS	250
▲● FS	100
▲● FS	100
▲● FS	100
▲● FS	100
▲● FS	50
▲● FS	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

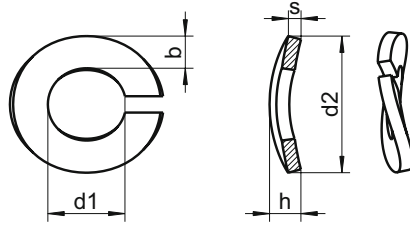
Example item no. 128-2-8 DIN 128 - A2 - nominal size 8mm - form A - FS = spring steel

The DIN 128 has been withdrawn and was not replaced. The product is still available from stock. Material A2 and A4 have a reduced spring resistance in comparison to the material 1.4310 (spring steel). Spring lock washers for cheese head screws can be found as DIN 7980 in this catalogue.

DIN 128 B

Spring lock washers

type B, waved



nominal size	for	d1 min.	d2 max.	h min.	h max.	s	b
5	M5	5,1	9,2	1,50	1,70	1,0	1,8
6	M6	6,1	11,8	2,00	2,20	1,3	2,5
8	M8	8,1	14,8	2,45	2,75	1,6	3,0
10	M10	10,2	18,1	2,85	3,15	1,8	3,5
12	M12	12,2	21,1	3,35	3,65	2,1	4,0
16	M16	16,2	27,4	4,50	5,10	2,8	5,0

Grade	SU
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	1000
▲● FS	500
▲● FS	250

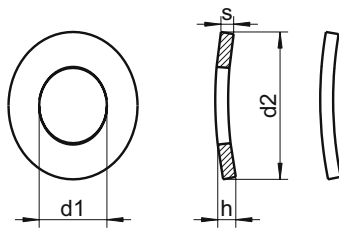
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 128-2-8B DIN 128 - A2 - nominal size 8mm - form B - FS = spring steel

The DIN 128 has been withdrawn and was not replaced. The product is still available from stock. Material A2 and A4 have a reduced spring resistance in comparison to the material 1.4310 (spring steel). Spring lock washers for cheese head screws can be found as DIN 7980 in this catalogue.

DIN 137 A

Spring lock washers

type A, curved



nominal size	for	d1	d2	h min.	h max.	s
1,4	M1,4	1,5	3,0	0,40	0,80	0,25
1,6	M1,6	1,8	4,0	0,45	0,90	0,25
1,7	M1,7	1,8	4,0	0,45	0,90	0,25
2	M2	2,2	4,5	0,50	1,00	0,30
2,3	M2,3	2,5	5,0	0,50	1,00	0,30
2,5	M2,5	2,6	5,5	0,55	1,10	0,30
2,6	M2,6	2,8	5,5	0,55	1,10	0,30
3	M3	3,2	6,0	0,65	1,30	0,40
3,5	M3,5	3,7	7,0	0,70	1,40	0,40
4	M4	4,3	8,0	0,80	1,60	0,50
5	M5	5,3	10,0	0,90	1,80	0,50
6	M6	6,4	11,0	1,10	2,20	0,50
7	M7	7,4	12,0	1,20	2,40	0,50
8	M8	8,4	15,0	1,70	3,40	0,50
10	M10	10,5	18,0	2,00	4,00	0,80

Grade	SU
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	500

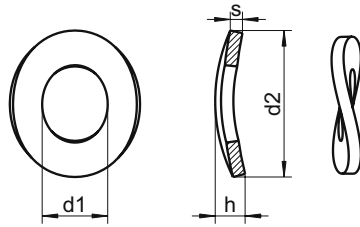
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 137-2-8A DIN 137 - A2 - nominal size 8mm - form A

DIN 137 B

Spring lock washers

type B, waved



nominal size	for	d1	d2	h min.	h max.	s
3	M3	3,2	8	0,8	1,6	0,5
3,5	M3,5	3,7	8	0,9	1,8	0,5
4	M4	4,3	9	1,0	2,0	0,5
5	M5	5,3	11	1,1	2,2	0,5
6	M6	6,4	12	1,3	2,6	0,5
7	M7	7,4	14	1,5	3,0	0,8
8	M8	8,4	15	1,5	3,0	0,8
10	M10	10,5	21	2,1	4,2	1,0
12	M12	13,0	24	2,5	5,0	1,2
14	M14	15,0	28	3,0	6,0	1,6
16	M16	17,0	30	3,2	6,4	1,6
18	M18	19,0	34	3,3	6,6	1,6
20	M20	21,0	36	3,7	7,4	1,6
22	M22	23,0	40	3,9	7,8	1,5
24	M24	25,0	44	4,1	8,2	1,8
27	M27	28,0	50	4,7	9,4	2,0

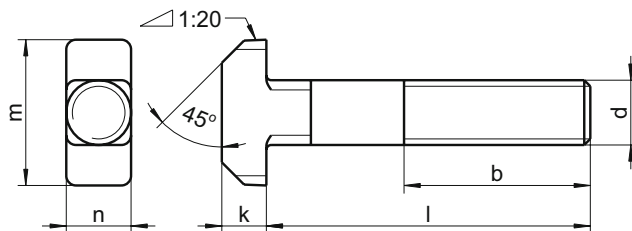
Grade	SU
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	500
▲	500
▲	200
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 137-2-8B DIN 137 - A2 - nominal size 8mm - form B

DIN 186 B

T-head bolts

with square neck



b	22	26	30	38	46
k	5,5	7,0	8,0	10,5	13,0
n	8	10	12	16	20
m	18	21	26	30	36
Length /Ø	M8	M10	M12	M16	M20
30	▲●				
35	▲●	▲●			
40	▲●	▲●	▲●		
45	▲●	▲●	▲●		
50	▲●	▲●	▲●	▲●	
55	▲●	▲●	▲●	▲●	
60	▲●	▲●	▲●	▲●	▲●
65		▲●	▲●	▲●	▲●
70		▲●	▲●	▲●	▲●
80		▲●	▲●	▲●	▲●
90			▲●	▲●	▲●
100			▲●	▲●	▲●
120			▲●	▲●	▲●
SU	50	25	25	25	10

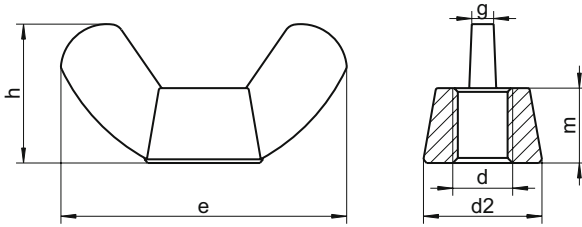
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 186-2-8X40 DIN 186 - A2 - M8 - l = 40mm

similar DIN 315 AF

Wing nuts

american type



d	m	h	e	d2	g
M3	2,4	8,8	15,3	6,8	1,2
M4	2,9	8,8	17,6	8,0	1,6
M5	4,1	10,5	22,5	10,3	2,1
M6	5,1	12,9	27,8	12,7	2,5
M8	5,6	14,8	30,3	13,8	2,8
M10	6,8	17,3	36,2	16,5	3,3
M12	9,0	22,3	49,4	22,5	4,5
M14	10,0	30,8	52,7	26,0	6,0
M16	10,7	30,8	58,3	26,6	6,3
M18	12,2	31,2	66,5	29,3	7,2
M20	12,2	31,2	66,5	29,3	7,2

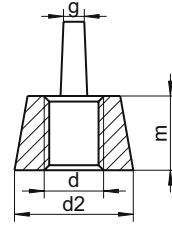
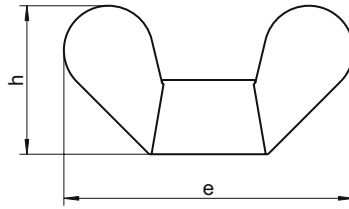
Grade	SU
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	20
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 315-2-8AF DIN 315 - A2 - M8 - american form

DIN 315 GF

Wing nuts

german type



d	m min.	m max.	h min.	e min.	d2	g min.
M4	3,2	4,6	8,5	18	6	1,7
M5	4,0	6,5	11,0	24	8	2,3
M6	5,0	8,0	15,0	30	10	2,7
M8	6,5	10,0	18,0	36	13	3,6
M10	8,0	12,0	23,0	48	17	4,6
M12	10,0	14,0	31,0	62	20	5,6
M16	13,0	17,0	35,0	70	26	6,5
M20	16,0	21,0	44,0	86	32	7,0

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	20
▲ ●	10
▲ ●	10

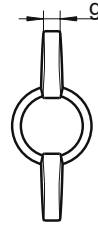
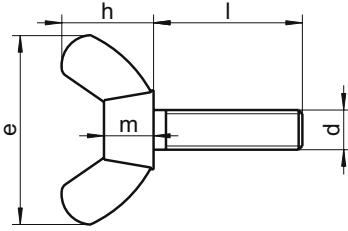
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 315-4-8 DIN 315 - A4 - M8 - german form

similar DIN 316 AF

Wing screws

american type



e	17,6	18,0	24,0	30,0	36,0	48,0	62,0
h	8,6	8,5	11,0	15,0	18,0	23,0	31,0
m	2,4	3,2	4,0	5,0	6,5	8,0	10,0
g	1,2	1,6	2,1	2,5	2,8	3,3	4,5
Length / Ø	M3	M4	M5	M6	M8	M10	M12
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
40		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
45			▲ ●	▲ ●	▲ ●	▲ ●	
50			▲ ●	▲ ●	▲ ●	▲ ●	
55					▲ ●	▲ ●	
60					▲ ●	▲ ●	
SU	100	100	50	50	50	25	25

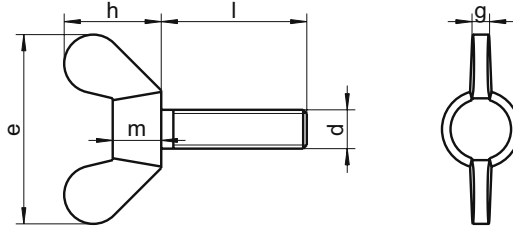
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 316-2-8X40 DIN 316 - A2 - M8 - l = 40mm - american form

DIN 316 GF

Wing screws

german type

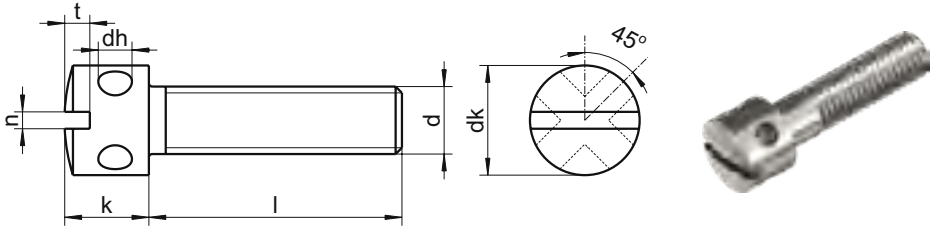


e min.	24	30	36	48
h min.	11,0	15,0	18,0	23,0
m min.	4,0	5,0	6,5	8,0
g ± 0,4	1,9	1,9	2,4	4,0
Length /Ø	M5	M6	M8	M10
16	▲ ●	▲ ●	▲ ●	▲ ●
20	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●
40	▲ ●	▲ ●	▲ ●	▲ ●
SU	50	50	25	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 316-2-8X40DN DIN 316 - A2 - M8 - l = 40mm - german form

DIN 404

Slotted capstan screws



dk	5,5	7,0	8,5	10,0
dh	1,5	2,0	2,5	3,0
k	4,0	5,0	6,5	8,0
n	0,8	1,0	1,2	1,6
t min.	1,0	1,4	1,7	2,2
⊖	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0
Length / Ø	M3	M4	M5	M6
4	■			
5	■	■		
6	■	■		
8	■	■	■	
10	■	■	■	■
12	■	■	■	■
16	■	■	■	■
20	■	■	■	■
SU	200	200	200	200

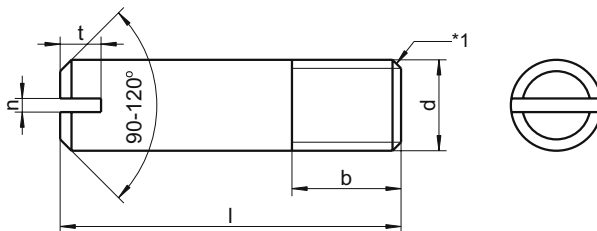
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 404-2-6X20 DIN 404 - A1 - M6 - l = 20mm

DIN 427 - sim. ISO 2342

Slotted headless screws

with chamfered end



b	3,6	4,8	6,0	7,2	9,6	12,0
n	0,4	0,6	0,8	1,0	1,2	1,6
t min.	1,25	1,75	2,0	2,5	3,1	3,75
t max.	1,50	2,05	2,35	2,90	3,60	4,25
⌀	0,4X2,0	0,6X3,5	0,38X4,0	1,0X5,5	1,2X7,0	1,6X9,0
Length / ⌀	M3	M4	M5	M6	M8	M10
6	■ ●					
8	■ ●	■ ●	■ ●			
10	■ ●	■ ●	■ ●			
12	■ ●	■ ●	■ ●	■ ●		
16	■ ●	■ ●	■ ●	■ ●	■ ●	
20	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
25	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
30	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
35		■ ●	■ ●	■ ●	■ ●	■ ●
40		■ ●	■ ●	■ ●	■ ●	■ ●
45					■ ●	■ ●
SU	200	200	200	100	100	25

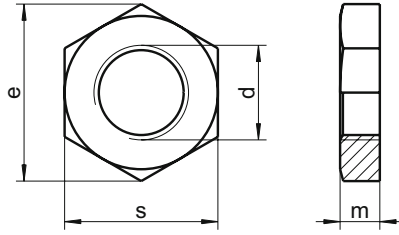
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 427-2-8X40 DIN 427 - A1 - M8 - l = 40mm - *1 thread end acc. to DIN 78-k

DIN 431

Pipe nuts

with pipe thread, type B



d	m	s	e
G1/8"	6	18	19,85
G1/8"	6	19	19,85
G1/4"	6	21	22,78
G1/4"	6	22	22,78
G3/8"	7	27	29,56
G1/2"	8	32	37,29
G1/2"	8	34	37,29
G5/8"	8	32	37,29
G5/8"	8	34	37,29
G3/4"	9	36	39,55
G7/8"	9	41	45,20
G1"	10	46	50,85
G1 1/8"	10	50	55,37
G1 1/4"	11	55	60,79
G1 1/2"	12	60	66,44
G2"	13	75	82,60

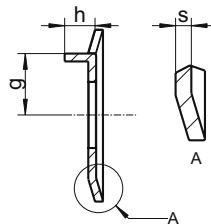
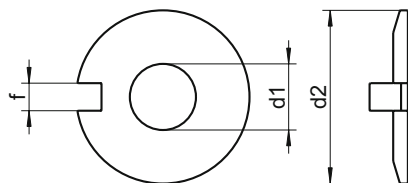
Grade	SU
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
▲●	5
▲●	5
▲●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 431-2-1/8 DIN 431 - A2 - Ø 1 1/8" - form B

DIN 432

Locking washers

with external tap



d1	for	d2	h	s	f	g
4,3	M4	14	2,0	0,40	2,5	5,5
5,3	M5	17	2,5	0,75	3,5	7,0
6,4	M6	19	3,0	0,75	3,5	7,5
8,4	M8	22	4,0	1,00	3,5	8,5
10,5	M10	26	4,0	1,00	4,5	10,0
13,0	M12	30	4,5	1,20	4,5	12,0
15,0	M14	33	4,5	1,20	4,5	13,0
17,0	M16	36	4,5	1,20	5,5	15,0
19,0	M18	40	4,5	1,20	6,5	18,0
21,0	M20	42	4,5	1,60	6,5	18,0
23,0	M22	50	6,5	1,60	7,5	20,0
25,0	M24	50	6,5	1,60	7,5	21,0
28,0	M27	58	9,5	1,60	8,5	23,0
31,0	M30	63	9,5	1,60	8,5	25,0
34,0	M33	68	9,5	1,60	9,5	28,0
37,0	M36	75	9,5	2,00	11,0	31,0
40,0	M39	82	11,0	2,00	11,0	33,0

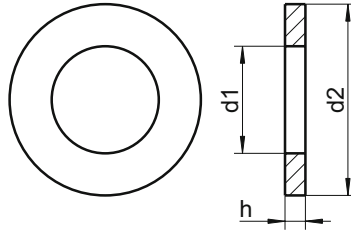
Grade	SU
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	20
▲●	20
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 432-2-8,4 DIN 432 - A2 - Ø 8,4mm

sim. ISO 7092 - **DIN 433** Washers

for hexagon socket head cap screws



d1	for	d2	h
1,5	M1,4	3,0	0,3
1,7	M1,6	3,5	0,3
2,2	M2	4,5	0,3
2,7	M2,5	5,0	0,5
3,2	M3	6,0	0,5
3,7	M3,5	7,0	0,5
4,3	M4	8,0	0,5
5,3	M5	9,0	1,0
6,4	M6	11,0	1,6
8,4	M8	15,0	1,6
10,5	M10	18,0	1,6
13,0	M12	20,0	2,0
15,0	M14	24,0	2,5
17,0	M16	28,0	2,5
19,0	M18	30,0	2,5
21,0	M20	34,0	3,0

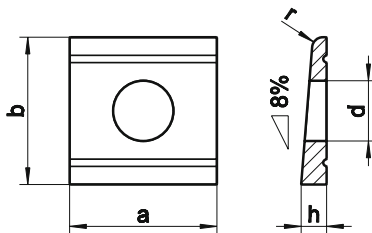
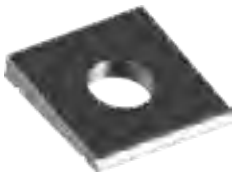
Grade	SU
▲●	2000
▲●	2000
▲●	2000
▲●	2000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 433-2-8,4 DIN 433 - A2 - Ø 8,4mm

DIN 434

Square taper washers

for U-sections



d	for	a	b	h	r
9	M8	22	22	3,8	1,6
11	M10	22	22	3,8	1,6
13,5	M12	26	30	4,9	2,0
17,5	M16	32	36	5,9	2,4
22	M20	40	44	7,0	2,8
24	M22	44	50	8,0	3,2
26	M24	56	56	8,5	3,2

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10

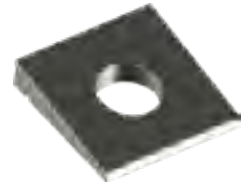
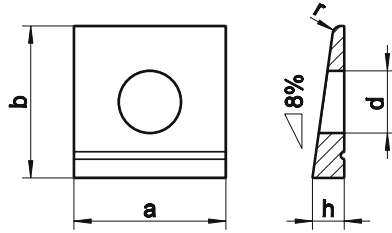
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 434-2-9 DIN 434 - A2 - Ø 9mm

DIN 435

Square taper washers

for I-sections



d	for	a	b	h	r
9	M8	22	22	4,6	1,2
11	M10	22	22	4,6	1,2
13,5	M12	26	30	6,2	1,6
17,5	M16	32	36	7,5	2,0
22	M20	40	44	9,2	2,4
24	M22	44	50	10,0	2,4
26	M24	56	56	10,8	2,4

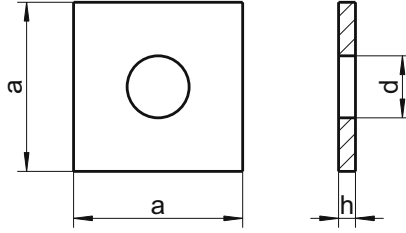
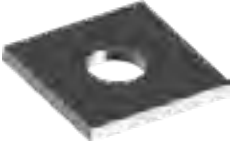
Grade	SU
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 435-2-9 DIN 435 - A2 - Ø 9mm

DIN 436

Square washers

for wood constructions



d	for	a	h
11	M10	30	3
13,5	M12	40	4
17,5	M16	50	5
22	M20	60	5
24	M22	70	6
26	M24	80	6

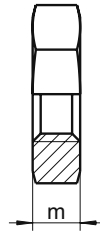
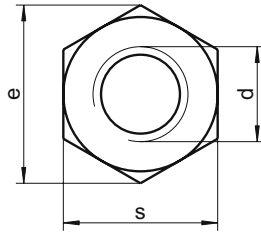
Grade	SU
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10


■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 436-2-11 DIN 436 - A2 - Ø 11mm

sim. ISO 4035 - **DIN 439**

Hexagon nuts

thin type, type B, with chamfer



d	m min.	s	e	
M1,6	0,75	3,2	3,48	3,2
M2	0,95	4	4,32	4
M2,3	0,95	4,5	5,20	4,5
M2,5	1,35	5	5,45	5
M2,6	1,35	5	5,80	5
M3	1,55	5,5	6,01	5,5
M4	1,95	7	7,66	7
M5	2,45	8	8,79	8
M6	2,90	10	11,05	10
M8	3,70	13	14,38	13
M10	4,70	17	18,90	17
M12	5,70	19	21,10	19
M14	6,42	22	24,49	22
M16	7,42	24	26,75	24
M18	8,42	27	29,56	27
M20	9,10	30	32,95	30
M22	9,90	32	35,03	32
M24	10,90	36	39,55	36
M27	12,40	41	45,20	41
M30	13,90	46	50,85	46
M33	15,40	50	55,37	50
M36	16,90	55	60,79	55
M39	18,20	60	66,44	60
M42	19,70	65	71,30	65
M45	21,20	70	76,95	70
M48	22,70	75	82,60	75

Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
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▲●	10
▲●	10
▲●	10
▲●	10
▲●	10

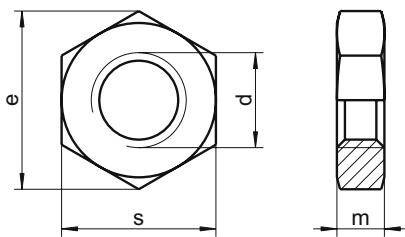
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 439-2-8 DIN 439 - A2 - M8

DIN 439 fine thread - sim. ISO 8675

Hexagon nuts

thin type with fine thread, type B, with chamfer



d	m min.	s	e	⌀
M8X0,75	3,70	13	14,38	13
M8X1	3,70	13	14,38	13
M10X1	4,70	17	18,90	17
M10X1,25	4,70	17	18,90	17
M12X1	5,70	19	21,10	19
M12X1,25	5,70	19	21,10	19
M12X1,5	5,70	19	21,10	19
M14X1,5	6,42	22	24,49	22
M16X1	7,42	24	26,75	24
M16X1,5	7,42	24	26,75	24
M18X1,5	8,42	27	29,56	27
M20X1,5	9,10	30	32,95	30
M20X2	9,10	30	32,95	30
M22X1,5	9,90	32	35,03	32
M24X1,5	10,90	36	39,55	36
M24X2	10,90	36	39,55	36
M27X1,5	12,40	41	45,20	41
M27X2	12,40	41	45,20	41
M30X1,5	13,90	46	50,85	46
M30X2	13,90	46	50,85	46
M33X1,5	15,40	50	55,37	50
M33X2	15,40	50	55,37	50
M36X1,5	16,90	55	60,79	55

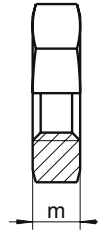
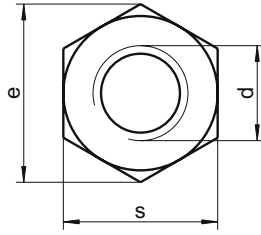
Grade	SU
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
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▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 439-2-8X1 DIN 439 - A2 - M8 - pitch = 1mm

DIN 439 left hand thread Hexagon nuts

thin type with left hand thread, type B, with chamfer



d	m min.	s	e	⌀
M6	2,70	10	11,05	10
M8	3,70	13	14,38	13
M10	4,70	17	18,90	17
M12	5,70	19	21,10	19
M16	7,42	24	26,75	24
M20	9,10	30	32,95	30
M24	10,90	36	39,55	36
M30	13,90	46	50,85	46
M36	16,90	55	60,79	55

Grade	SU
▲●	1000
▲●	200
▲●	200
▲●	200
▲●	100
▲●	50
▲●	25
▲●	10
▲●	10

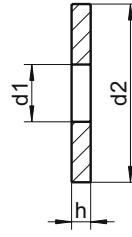
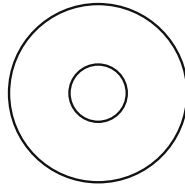
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 439-2-8LI DIN 439 - A2 - M8 - left hand thread

DIN 440 R - sim. ISO 7094

Washers for wood constructions

type R with round holes



d1	for	d2	h
5,5	M5	18	2
6,6	M6	22	2
9	M8	28	3
11	M10	34	3
13,5	M12	44	4
15,5	M14	50	4
17,5	M16	56	5
22	M20	72	6
24	M22	80	6
26	M24	85	6
30	M27	98	6

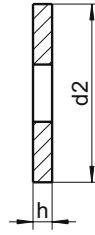
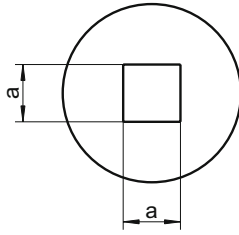
Grade	SU
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 440-2-9 DIN 440 - A2 - Ø 9mm - form R

DIN 440 V

Washers for wood constructions

type V with square holes



a	for	d2	h
5,5	M5	18	2
6,6	M6	22	2
9	M8	28	3
11	M10	34	3
14	M12	44	4
18	M16	56	5
22	M20	72	6

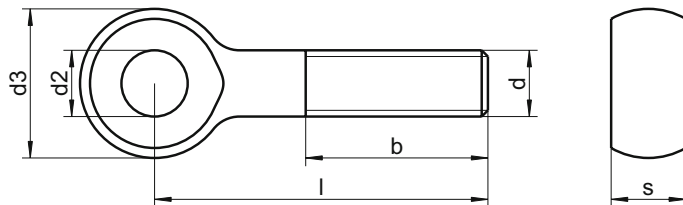
Grade	SU
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 440-2-9V DIN 440 - A2 - Ø 9mm - form V

DIN 444 B

Eye bolts

type B



d2	6	8	10	12	16	18	22
d3	14	18	20	25	32	40	45
s min.	6,85	8,85	11,82	13,82	16,82	21,79	24,79
b ≤ 125	18	22	26	30	38	46	54
b > 125	-	28	32	36	44	52	60
Length / Ø	M6	M8	M10	M12	M16	M20	M24
30	▲ ●	▲ ●					
35	▲ ●	▲ ●					
40	▲ ●	▲ ●	▲ ●	▲ ●			
45	▲ ●	▲ ●	▲ ●	▲ ●			
50	▲ ●	▲ ●	▲ ●	▲ ●			
55	▲ ●	▲ ●	▲ ●	▲ ●			
60	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
65	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
70	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
75	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
80		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
90		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
100		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
110		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
120		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
130				▲ ●	▲ ●	▲ ●	▲ ●
140				▲ ●	▲ ●	▲ ●	▲ ●
150				▲ ●	▲ ●	▲ ●	▲ ●
160						▲ ●	▲ ●
SU	50	50	25	25	25 ≥ 140 10	10	10

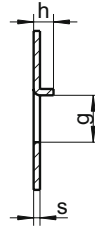
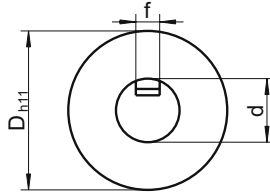
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 444-2-8X40 DIN 444 - A2 - M8 - l = 40mm - form B

DIN 462

Internal tap washers

for grooved nuts DIN 1804



d	D	h	s	f	g
6	16	2,5	0,8	3	3,9
8	20	2,5	0,8	3	5,9
10	25	3,0	0,8	4	7,4
12	28	3,0	0,8	5	9,3
14	30	3,0	0,8	5	11,4
16	32	3,0	1,0	5	13,5
20	36	4,0	1,0	6	17,5
24	42	4,0	1,0	6	21,6
26	45	5,0	1,0	7	23,5
28	50	5,0	1,0	7	25,5
30	50	5,0	1,2	7	27,5
32	52	5,0	1,2	7	29,6
35	55	5,0	1,2	7	32,6
38	58	5,0	1,2	8	35,3
40	62	5,0	1,2	8	37,3

Grade	SU
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
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▲●	10

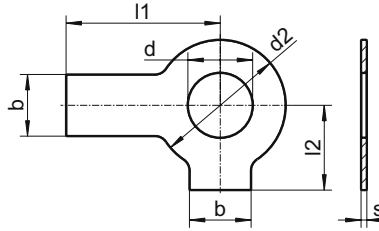
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 462-2-8 DIN 462 - A2 - Ø 8mm

DIN 463

Tap washers

with two taps



d	for	d2	s	l1	l2	b
4,3	M4	9,0	0,38	14	6,5	5
5,3	M5	10,0	0,50	16	8,0	6
6,4	M6	12,5	0,50	18	9,0	7
8,4	M8	17,0	0,75	20	11,0	8
10,5	M10	21,0	0,75	22	13,0	10
13	M12	24,0	1,00	28	15,0	12
15	M14	28,0	1,00	28	16,0	12
17	M16	30,0	1,00	32	18,0	15
19	M18	34,0	1,00	36	20,0	18
21	M20	37,0	1,00	36	21,0	18
23	M22	39,0	1,00	42	23,0	20
25	M24	44,0	1,00	42	25,0	20
28	M27	50,0	1,60	48	29,0	23
31	M30	56,0	1,60	52	32,0	26
34	M33	60,0	1,60	56	34,0	28
37	M36	66,0	1,60	60	38,0	30
40	M39	72,0	1,60	64	41,0	32

Grade	SU
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	20
▲●	20
▲●	20
▲●	10

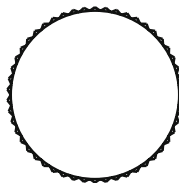
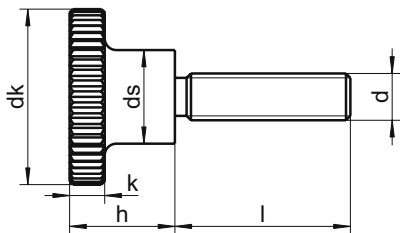
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 463-2-8,4 DIN 463 - A2 - Ø 8,4mm

DIN 464

Knurled thumb screws

high type



dk	12	16	20	24	30	36
ds	6	8	10	12	16	20
h	7,5	9,5	11,5	15,0	18,0	23,0
k	2,5	3,5	4,0	5,0	6,0	8,0
Length / Ø	M3	M4	M5	M6	M8	M10
5	■	■				
6	■	■	■			
8	■	■	■	■		
10	■	■	■	■		
12	■	■	■	■	■	
16	■	■	■	■	■	
20	■	■	■	■	■	■
25		■	■	■	■	■
30				■	■	■
SU	50	50	25	25	25	25

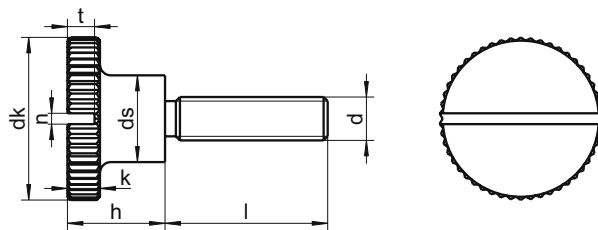
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 464-2-8X30 DIN 464 - A1 - M8 - l = 30mm

DIN 465

Knurled thumb screws

high type with slot



dk	12	16	20	24
ds	6	8	10	12
h	7,5	9,5	11,5	15,0
k	2,5	3,5	4,0	5,0
n	0,8	1,0	1,2	1,6
t min.	1,8	2,2	2,8	3,5
⊖	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0
Length / Ø	M3	M4	M5	M6
6	■	■	■	
8	■	■	■	
10	■	■	■	■
12	■	■	■	■
16	■	■	■	■
20	■	■	■	■
SU	50	50	25	25

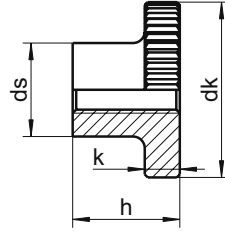
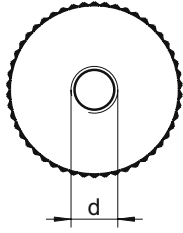
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 465-2-6X20 DIN 465 - A2 - M6 - l = 20mm

DIN 466

Knurled thumb nuts

high type



d	dk	ds	h	k
M2,5	11	5	6,5	2,5
M3	12	6	7,5	2,5
M4	16	8	9,5	3,5
M5	20	10	11,5	4,0
M6	24	12	15,0	5,0
M8	30	16	18,0	6,0
M10	36	20	23,0	8,0

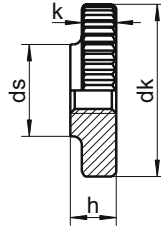
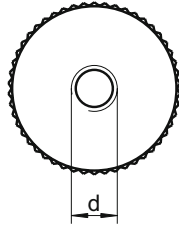
Grade	SU
■	100
■	100
■	100
■	50
■	50
■	25
■	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 466-2-8 DIN 466 - A2 - M8

DIN 467

Knurled thumb nuts

thin type



d	dk	ds	h	k
M2,5	11	5	3	2,5
M3	12	6	3	2,5
M4	16	8	4	3,5
M5	20	10	5	4,0
M6	24	12	6	5,0
M8	30	16	8	6,0
M10	36	20	10	8,0

Grade	SU
■	100
■	100
■	100
■	50
■	50
■	25
■	25

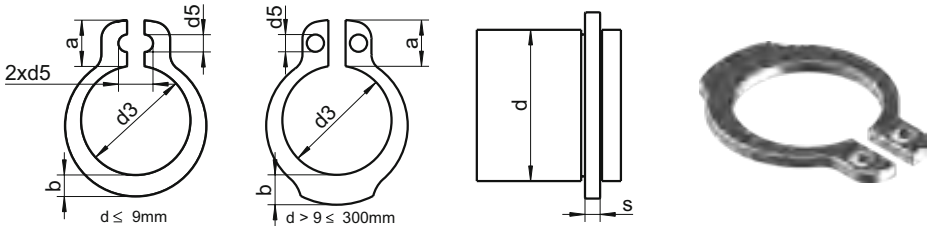
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 467-2-8 DIN 467 - A2 - M8

DIN 471 - Page 1

Retaining rings

for shafts



d	d3	d5 min.	a max.	b~	s
3	2,7	1,0	1,9	0,8	0,40
4	3,7	1,0	2,2	0,9	0,40
5	3,7	1,0	2,5	1,1	0,60
6	5,6	1,2	2,7	1,3	0,70
7	6,5	1,2	3,1	1,4	0,80
8	7,4	1,2	3,2	1,5	0,80
9	8,4	1,2	3,3	1,7	1,00
10	9,3	1,5	3,3	1,8	1,00
11	10,2	1,5	3,3	1,8	1,00
12	11,0	1,7	3,3	1,8	1,00
13	11,9	1,7	3,4	2,0	1,00
14	12,9	1,7	3,5	2,1	1,00
15	13,8	1,7	3,6	2,2	1,00
16	14,7	1,7	3,7	2,2	1,00
17	15,7	1,7	3,8	2,3	1,00
18	16,5	2,0	3,9	2,4	1,20
19	17,5	2,0	3,9	2,5	1,20
20	18,5	2,0	4,0	2,6	1,20
22	20,5	2,0	4,2	2,8	1,20
23	21,4	2,0	4,3	2,9	1,20
24	22,2	2,0	4,4	3,0	1,20
25	23,2	2,0	4,4	3,0	1,20
26	24,2	2,0	4,5	3,1	1,20
27	25,1	2,0	4,6	3,1	1,20
28	25,9	2,0	4,7	3,2	1,50
29	26,9	2,0	4,8	3,4	1,50
30	27,9	2,0	5,0	3,5	1,50
32	29,6	2,5	5,2	3,6	1,50
34	31,5	2,5	5,4	3,8	1,50

Grade	SU
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	100
1.4122	100
1.4122	100
1.4122	100
1.4122	100
1.4122	100
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	25
1.4122	25
1.4122	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

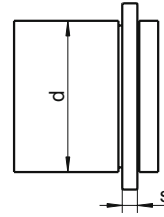
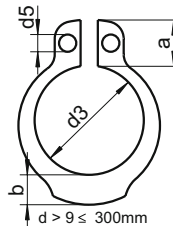
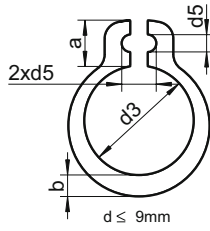
Example item no. 471-2-8 DIN 471 - 1.4122 - Ø 8mm

Please note that these products will be delivered in material 1.4122 as a result of the necessary resilience. The material 1.4310 is available on request, starting from Ø 100 mm.

DIN 471 - Page 2

Retaining rings

for shafts



d	d3	d5 min.	a max.	b~	s
35	32,2	2,5	5,6	3,9	1,50
36	33,2	2,5	5,6	4,0	1,75
38	35,2	2,5	5,8	4,2	1,75
39	36,0	2,5	5,9	4,3	1,75
40	36,5	2,5	6,0	4,4	1,75
42	38,5	2,5	6,5	4,5	1,75
45	41,5	2,5	6,7	4,7	1,75
48	44,5	2,5	6,9	5,0	1,75
50	45,8	2,5	6,9	5,1	2,00
52	47,8	2,5	7,0	5,2	2,00
55	50,8	2,5	7,2	5,4	2,00
60	55,8	2,5	7,4	5,8	2,00
65	60,8	3,0	7,8	6,3	2,50
70	65,5	3,0	8,1	6,6	2,50
75	70,5	3,0	8,4	7,0	2,50
80	74,5	3,0	8,6	7,4	2,50
85	79,5	3,5	8,7	7,8	3,00
90	84,5	3,5	8,8	8,2	3,00
95	89,5	3,5	9,4	8,6	3,00
100	94,5	3,5	9,6	9,0	3,00
105	98,0	3,5	9,9	9,3	4,00
110	103,0	3,5	10,1	9,6	4,00
120	113,0	3,5	11,0	10,2	4,00
130	123,0	4,0	11,6	10,7	4,00
140	133,0	4,0	12,0	11,2	4,00

Grade	SU
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	10
1.4122	10
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1.4122	10
1.4122	10
1.4122	10

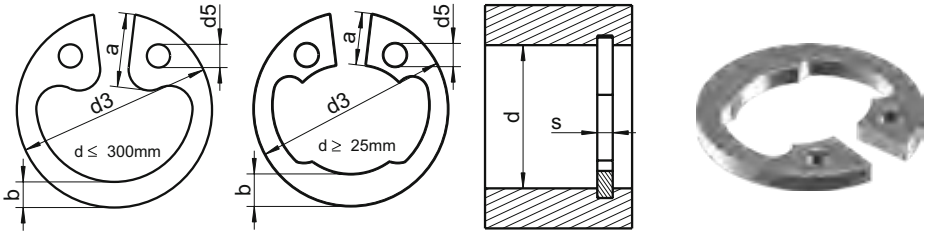
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 471-2-8 DIN 471 - 1.4122 - Ø 8mm

DIN 472 - Page 1

Retaining rings

for bores



d	d3	d5 min.	a max.	b~	s
8	8,7	1,0	2,4	1,1	0,8
9	9,8	1,0	2,5	1,3	0,8
10	10,8	1,2	3,2	1,4	1,0
11	11,8	1,2	3,3	1,5	1,0
12	13,0	1,5	3,4	1,7	1,0
13	14,1	1,5	3,6	1,8	1,0
14	15,1	1,7	3,7	1,9	1,0
15	16,2	1,7	3,7	2,0	1,0
16	17,3	1,7	3,8	2,0	1,0
17	18,3	1,7	3,9	2,1	1,0
18	19,5	2,0	4,1	2,2	1,0
19	20,5	2,0	4,1	2,2	1,0
20	21,5	2,0	4,2	2,3	1,0
21	22,5	2,0	4,2	2,4	1,0
22	23,5	2,0	4,2	2,5	1,0
23	24,6	2,0	4,3	2,5	1,2
24	25,9	2,0	4,4	2,6	1,2
25	26,9	2,0	4,5	2,7	1,2
26	27,9	2,0	4,7	2,8	1,2
27	28,9	2,0	4,7	2,9	1,2
28	30,1	2,0	4,8	2,9	1,2
29	31,1	2,0	4,8	3,0	1,2
30	32,1	2,0	4,8	3,0	1,2
31	33,4	2,5	5,2	3,2	1,2
32	34,4	2,5	5,4	3,2	1,2
34	36,5	2,5	5,4	3,3	1,5
35	37,8	2,5	5,4	3,4	1,5
36	38,8	2,5	5,4	3,5	1,5
37	39,8	2,5	5,5	3,6	1,5
38	40,8	2,5	5,5	3,7	1,5

Grade	SU
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	200
1.4122	100
1.4122	100
1.4122	100
1.4122	100
1.4122	100
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	50
1.4122	25
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1.4122	25

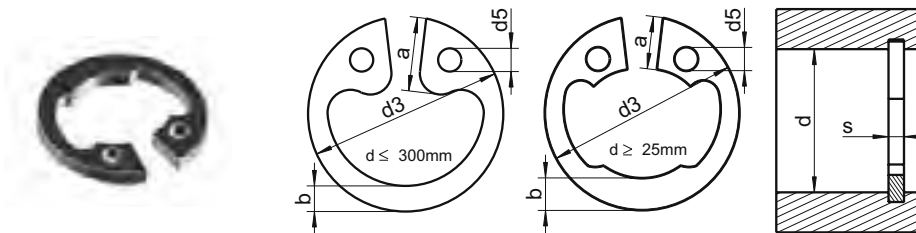
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 472-2-8 DIN 472 - 1.4122 - Ø 8mm

Please note that these products will be delivered in material 1.4122 as a result of the necessary resilience. From Ø 100 mm on material 1.4310 is available on request.

DIN 472 - Page 2

Retaining rings

for bores



d	d3	d5 min.	a max.	b~	s
39	42,0	2,5	5,6	3,8	1,75
40	43,5	2,5	5,8	3,9	1,75
41	44,5	2,5	5,9	4,0	1,75
42	45,5	2,5	5,9	4,1	1,75
45	48,5	2,5	6,2	4,3	1,75
47	50,5	2,5	6,4	4,4	1,75
48	51,5	2,5	6,4	4,5	1,75
50	54,2	2,5	6,5	4,6	2,0
52	56,2	2,5	6,7	4,7	2,0
55	59,2	2,5	6,8	5,0	2,0
58	62,2	2,5	6,9	5,2	2,0
60	64,2	2,5	7,3	5,4	2,0
62	66,2	2,5	7,3	5,5	2,0
65	69,2	3,0	7,6	5,8	2,5
68	72,5	3,0	7,8	6,1	2,5
70	74,5	3,0	7,8	6,2	2,5
72	76,5	3,0	7,8	6,4	2,5
75	79,5	3,0	7,8	6,6	2,5
80	85,5	3,0	8,5	7,0	2,5
85	90,5	3,5	8,6	7,2	3,0
90	95,5	3,5	8,6	7,6	3,0
95	100,5	3,5	8,6	8,1	3,0
100	105,5	3,5	9,2	8,4	3,0
105	112,0	3,5	9,5	8,7	4,0
110	117,0	3,5	10,4	9,0	4,0
120	127,0	3,5	11,0	9,7	4,0
130	137,0	4,0	11,0	10,2	4,0
140	147,0	4,0	11,2	10,7	4,0

Grade	SU
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	25
1.4122	10
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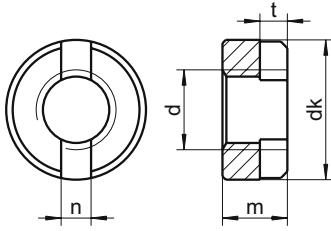
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 472-2-8 DIN 472 - 1.4122 - \emptyset 8mm

Please note that these products will be delivered in material 1.4122 as a result of the necessary resilience. From \emptyset 100 mm on material 1.4310 is available on request.

DIN 546

Slotted round nuts



d	dk	m	t min.	n
M1,6	3,5	1,6	0,6	0,5
M2	4,5	2,0	0,8	1,0
M2,5	5,5	2,2	0,9	1,2
M3	6,0	2,5	1,0	1,2
M4	8,0	3,5	1,2	1,4
M5	9,0	4,2	1,5	2,0
M6	11,0	5,0	2,0	2,5
M8	14,0	6,5	2,5	3,0
M10	18,0	8,0	3,2	3,5
M12	21,0	10,0	3,8	4,0
M16	26,0	12,0	3,8	4,0

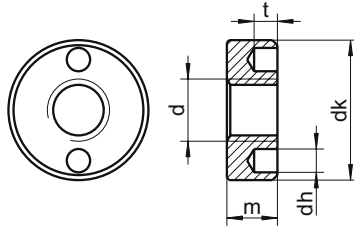
Grade	SU
■ ●	500
■ ●	500
■ ●	500
■ ●	500
■ ●	200
■ ●	200
■ ●	100
■ ●	100
■ ●	50
■ ●	50
■ ●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 546-2-8 DIN 546 - A2 - M8

DIN 547

Round nuts

with drilled holes in one face

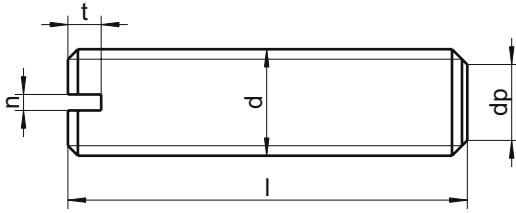


d	dk	m	t min.	dh
M5	12	4,2	2,3	2,0
M6	14	5,0	2,8	2,5
M8	18	6,5	3,3	3,0
M10	22	8,0	3,8	3,5

Grade	SU
■	200
■	200
■	200
■	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 547-2-8 DIN 547 - A1 - M8

sim. ISO 4766 - **DIN 551**
Slotted set screws
 with flat point



n	0,25	0,25	0,40	0,40	0,60	0,80	1,00	1,20	1,60	2,00
t min.	0,56	0,64	0,72	0,80	1,12	1,28	1,60	2,00	2,40	2,80
t max.	0,74	0,84	0,95	1,05	1,42	1,63	2,00	2,50	3,00	3,60
dp min.	0,55	0,75	1,25	1,75	2,25	3,20	3,70	5,20	6,64	8,14
⌀	0,16X0,8	0,25X1,2	0,4X2,0	0,4X2,0	0,6X3,5	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12
2	■●	■●								
3	■●	■●		■●						
4	■●	■●	■●	■●	■●					
5	■●	■●	■●	■●	■●	■●				
6	■●	■●	■●	■●	■●	■●	■●			
8	■●	■●	■●	■●	■●	■●	■●	■●		
10	■●	■●	■●	■●	■●	■●	■●	■●	■●	
12				■●	■●	■●	■●	■●	■●	■●
16				■●	■●	■●	■●	■●	■●	■●
20				■●	■●	■●	■●	■●	■●	■●
25					■●	■●	■●	■●	■●	■●
30					■●	■●	■●	■●	■●	■●
35					■●	■●	■●	■●	■●	■●
40					■●	■●	■●	■●	■●	■●
45					■●	■●	■●	■●	■●	■●
50					■●	■●	■●	■●	■●	■●
55						■●	■●	■●	■●	■●
60							■●	■●	■●	■●
70								■●	■●	■●
80									■●	■●
SU	500	500	500	200	200	200	200	100	50	50

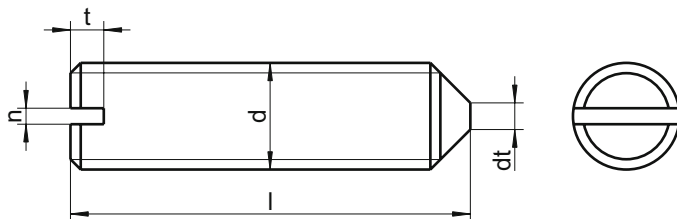
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 551-2-8X40 DIN 551 - A1 - M8 - l = 40mm

DIN 553 - sim. ISO 7434

Slotted set screws

with cone point



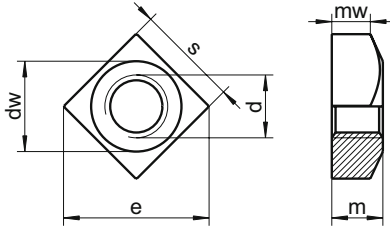
n	0,4	0,4	0,6	0,8	1,0	1,2	1,6	2,0
dt max.	0,25	0,30	0,40	0,50	1,50	2,00	2,50	3,00
t min.	0,72	0,80	1,12	1,28	1,60	2,00	2,40	2,80
t max.	0,95	1,05	1,42	1,63	2,00	2,50	3,00	3,60
⊖	0,4X2,0	0,4X2,0	0,6X3,5	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M2,5	M3	M4	M5	M6	M8	M10	M12
4		■ ●	■ ●					
5	■ ●	■ ●	■ ●	■ ●				
6	■ ●	■ ●	■ ●	■ ●	■ ●			
8	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●		
10	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	
12	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
16	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
20		■ ●	■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
25			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
30			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
40			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
50			■ ●	■ ●	■ ●	■ ●	■ ●	■ ●
SU	500	200	200	200	200	100	50	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 553-2-8X40 DIN 553 - A1 - M8 - l = 40mm

DIN 557

Square nuts



d	m	mw	s	e max.	dw min.	■
M5	4,0	2,5	8	11,3	6,7	8
M6	5,0	3,2	10	14,1	8,7	10
M8	6,5	4,1	13	18,4	11,5	13
M10	8,0	5,2	17	22,6	14,5	17
M12	10,0	6,6	19	25,4	16,5	19
M16	13,0	8,6	24	33,9	22,0	24

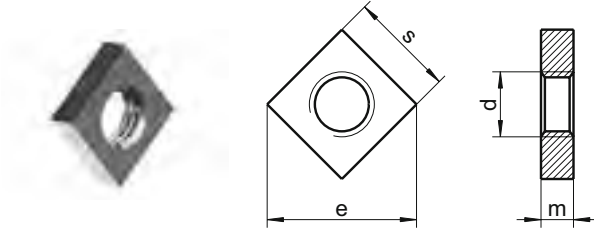
Grade	SU
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	100
▲ ●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 557-2-8 DIN 557 - A2 - M8

DIN 562

Square thin nuts



d	m	s	e	■
M1,6	1,0	3,2	4,0	3,2
M2	1,2	4	5,0	4
M2,5	1,6	5	6,3	5
M3	1,8	5,5	7,0	5,5
M4	2,2	7	8,9	7
M5	2,7	8	10,2	8
M6	3,2	10	12,7	10
M8	4,0	13	16,5	13
M10	5,0	16	20,2	16

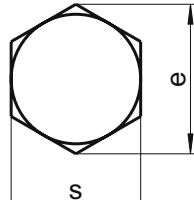
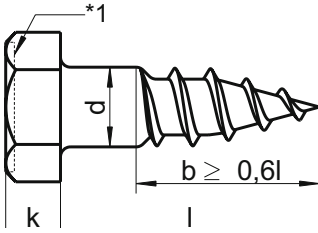
Grade	SU
▲ ●	500
▲ ●	500
▲ ●	500
▲ ●	500
▲ ●	500
▲ ●	500
▲ ●	200
▲ ●	200
▲ ●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 562-2-8 DIN 562 - A2 - M8

DIN 571

Wood screws

with hexagon head



k	3,5	4,0	5,0	5,5	7,0	8,0	10,0
s	8	10	12	13	17	19	24
e min.	8,63	10,89	13,07	14,20	18,72	20,88	26,17
●	8	10	12	13	17	19	24
Length / Ø	5	6	7	8	10	12	16
20	▲●	▲●					
25	▲●	▲●	▲●	▲●			
30	▲●	▲●	▲●	▲●			
35	▲●	▲●	▲●	▲●			
40	▲●	▲●	▲●	▲●	▲●		
45	▲●	▲●	▲●	▲●	▲●		
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●	▲●
150			▲●	▲●	▲●	▲●	▲●
160			▲●	▲●	▲●	▲●	▲●
170			▲●	▲●	▲●	▲●	▲●
180				▲●	▲●	▲●	▲●
200				▲●	▲●	▲●	▲●
220						▲●	
240						▲●	
250						▲●	
260						▲●	
280						▲●	
300						▲●	
SU	200	100	100	100 ≥ 120 50	100 ≥ 120 50	50 ≥ 110 25	25

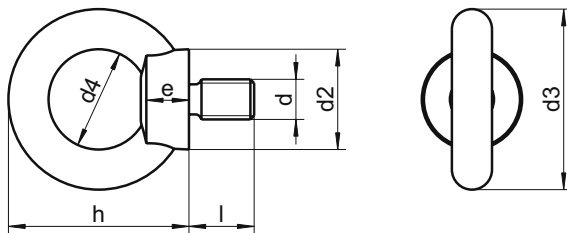
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 571-2-8X40 DIN 571 - A2 - Ø 8mm - l = 40mm - *1 head shape depends on production

Wood screws with hexagon head according to DIN 571 with slot or with flange are available on request. If you need an expanded contact surface, you can also use washer head screws according to WS 9810 and WS 9811.

DIN 580

Lifting eye bolts



d	d2	d3	d4	h	e	l
M6	16	27	16	31	6	11,0
M8	20	36	20	36	6	13,0
M10	25	45	25	45	8	17,0
M12	30	54	30	53	10	20,5
M16	35	63	35	62	12	27,0
M20	40	72	40	71	14	30,0
M24	50	90	50	90	18	36,0
M30	65	108	60	109	22	45,0
M36	75	126	70	128	26	54,0

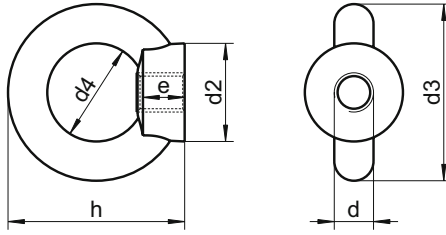
Grade	SU
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 580-2-8 DIN 580 - A2 - M8

DIN 582

Lifting eye nuts



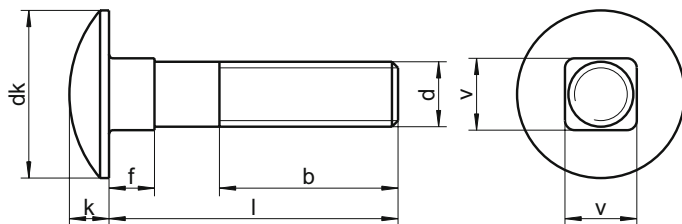
d	d2	d3	d4	h	e
M6	16	27	16	31	8,0
M8	20	36	20	36	8,5
M10	25	45	25	45	10,0
M12	30	54	30	53	11,0
M16	35	63	35	62	13,0
M20	40	72	40	71	16,0
M27	65	108	60	109	22,0
M30	65	108	60	109	25,0
M36	75	126	70	128	30,0

Grade	SU
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	1
▲ ●	1
▲ ●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 582-2-8 DIN 582 - A2 - M8

DIN 603 - sim. ISO 8677

Mushroom head square neck bolts

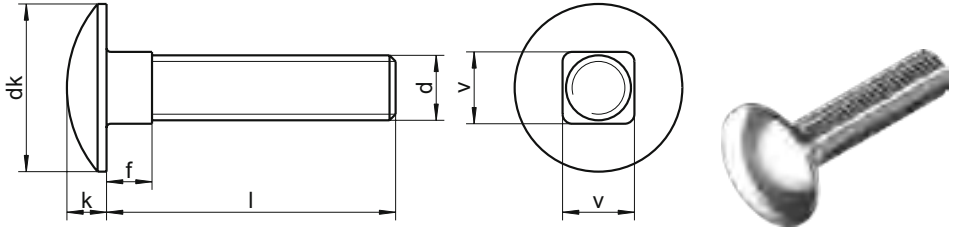


dk min.	12,45	15,45	19,35	23,35	29,35	37,20
f min.	2,90	3,40	4,40	5,40	7,25	11,10
k min.	2,70	3,12	4,12	4,62	6,05	8,05
v min.	4,52	5,52	7,42	9,42	11,30	15,30
b ≤ 125	16	18	22	26	30	38
b > 125	22	24	28	32	36	44
Length / Ø	M5	M6	M8	M10	M12	M16
12		▲●				
16	▲●	▲●	▲●	▲●		
20	▲●	▲●	▲●	▲●		
25	▲●	▲●	▲●	▲●	▲●	
30	▲●	▲●	▲●	▲●	▲●	
35	▲●	▲●	▲●	▲●	▲●	
40	▲●	▲●	▲●	▲●	▲●	▲●
45	▲●	▲●	▲●	▲●	▲●	▲●
50	▲●	▲●	▲●	▲●	▲●	▲●
55	▲●	▲●	▲●	▲●	▲●	▲●
60	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●
75	▲●	▲●	▲●	▲●	▲●	▲●
80	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●
150			▲●	▲●	▲●	▲●
160			▲●	▲●	▲●	▲●
170			▲●	▲●	▲●	▲●
180			▲●	▲●	▲●	▲●
200			▲●	▲●	▲●	▲●
SU	200	200 ≥ 60 100	100 ≥ 70 50	100 ≥ 50 50	50	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 603-2-8X40 DIN 603 - A2 - M8 - l = 40mm

sim. ISO 8677 - **DIN 603 FT**
Mushroom head square neck bolts
 with full thread



dk min.	12,45	15,45	19,35	23,35	29,35	37,20
f min.	2,90	3,40	4,40	5,40	7,25	11,10
k min.	2,70	3,12	4,12	4,62	6,05	8,05
v min.	4,52	5,52	7,42	9,42	11,30	15,30
Length / Ø	M5	M6	M8	M10	M12	M16
35	▲●	▲●				
40	▲●	▲●	▲●			
45	▲●	▲●	▲●	▲●		
50	▲●	▲●	▲●	▲●		
55	▲●	▲●	▲●	▲●	▲●	
60	▲●	▲●	▲●	▲●	▲●	
65	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●
75	▲●	▲●	▲●	▲●	▲●	▲●
80	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●
150			▲●	▲●	▲●	▲●
160			▲●	▲●	▲●	▲●
170			▲●	▲●	▲●	▲●
180			▲●	▲●	▲●	▲●
200			▲●	▲●	▲●	▲●
SU	200	200 ≥ 60 100	100 ≥ 70 50	100 ≥ 50 50	50	25

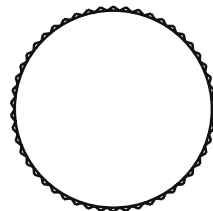
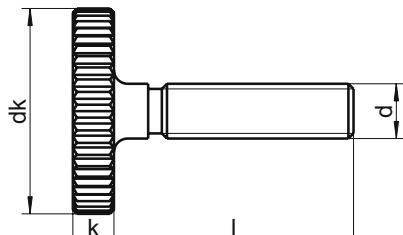
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 603-2-8X40V0 DIN 603 - A2 - M8 - l = 40mm - full thread

DIN 653

Knurled thumb screws

thin type



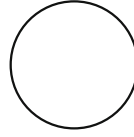
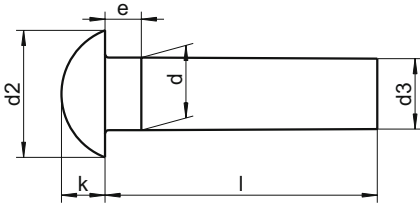
dk	12	16	20	24	30
k	2,5	3,5	4,0	5,0	6,0
Length / Ø	M3	M4	M5	M6	M8
8	■ ●	■ ●	■ ●		
10	■ ●	■ ●	■ ●	■ ●	
12	■ ●	■ ●	■ ●	■ ●	■ ●
16	■ ●	■ ●	■ ●	■ ●	■ ●
20	■ ●	■ ●	■ ●	■ ●	■ ●
25		■ ●	■ ●	■ ●	■ ●
30		■ ●	■ ●	■ ●	■ ●
SU	50	50	50 ≥ 16 25	25	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 653-4-5X16 DIN 653 - A4 - M5 - l = 16mm

DIN 660

Round head rivets



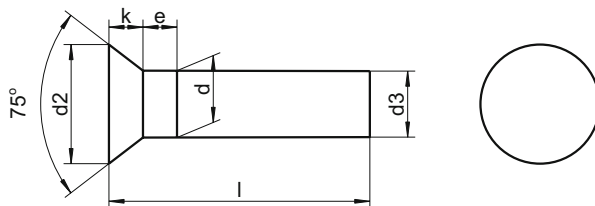
d2	3,5	5,2	7,0	8,8	10,5	14,0
d3 min.	1,87	2,87	3,87	4,82	5,82	7,76
e max.	1,0	1,5	2,0	2,5	3,0	4,0
k	1,2	1,8	2,4	3,0	3,6	4,8
Length / Ø	2	3	4	5	6	8
4	▲●					
6	▲●					
8	▲●	▲●				
10	▲●	▲●	▲●	▲●	▲●	▲●
12	▲●	▲●	▲●	▲●	▲●	▲●
14	▲●	▲●	▲●	▲●	▲●	▲●
16	▲●	▲●	▲●	▲●	▲●	▲●
20	▲●	▲●	▲●	▲●	▲●	▲●
25		▲●	▲●	▲●	▲●	▲●
28			▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●
35			▲●	▲●	▲●	▲●
40				▲●	▲●	▲●
45				▲●	▲●	▲●
50					▲●	▲●
SU	500	500	200	200	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 660-2-8X40 DIN 660 - A2 - Ø 8mm - l = 40mm

DIN 661

Countersunk head rivets



d2	5,2	7,0	8,8	10,5	14,0
d3 min.	2,87	3,87	4,82	5,82	7,76
e max.	1,5	2,0	2,5	3,0	4,0
k	1,4	2,0	2,5	3,0	4,0
Length /Ø	3	4	5	6	8
6	▲●	▲●	▲●	▲●	
8	▲●	▲●	▲●	▲●	
10	▲●	▲●	▲●	▲●	
12	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	
18	▲●	▲●	▲●	▲●	
20	▲●	▲●	▲●	▲●	▲●
25	▲●	▲●	▲●	▲●	▲●
28		▲●	▲●	▲●	▲●
30		▲●	▲●	▲●	▲●
35				▲●	▲●
40				▲●	▲●
50				▲●	▲●
SU	500	200	200	100	100

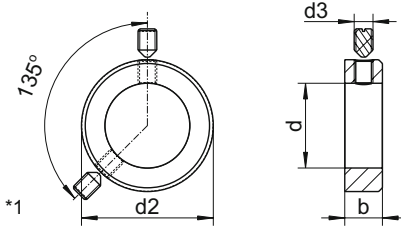
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 661-2-8X40 DIN 661 - A2 - Ø 8mm - l = 40mm

DIN 705 G

Adjusting rings

with set screws



d	d2	d3	b	set screws
4	8	M2,5	5	M2,5X3
5	10	M3	6	M3X4
6	12	M4	8	M4X5
8	16	M4	8	M4X6
10	20	M5	10	M5X8
12	22	M6	12	M6X8
14	25	M6	12	M6X8
15	25	M6	12	M6X8
16	28	M6	12	M6X8
18	32	M6	14	M6X8
20	32	M6	14	M6X8
22	36	M6	14	M6X10
24	40	M8	16	M8X12
25	40	M8	16	M8X10
28	45	M8	16	M8X12
30	45	M8	16	M8X10
32	50	M8	16	M8X12
35	56	M8	16	M8X12
40	63	M10	18	M10X16
45	70	M10	18	M10X16
50	80	M10	18	M10X16
60	90	M10	20	M10X16

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	50
▲	50
▲	50
▲	50
▲	50
▲	25
▲	25
▲	25
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▲	10
▲	10
▲	10
▲	5
▲	5
▲	5

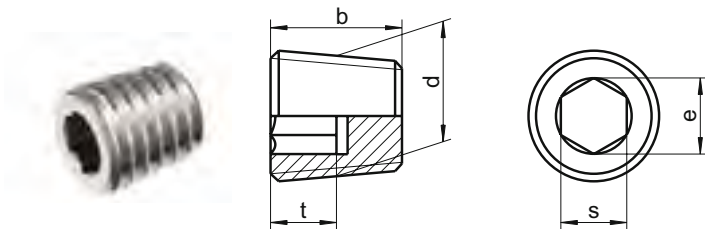
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 705-2-8G DIN 705 - A2 - Ø 8mm - with set screw - *1 up to Ø70 with one set screw, >Ø70 with two set screws

DIN 906 M

Hexagon socket pipe plugs

with conical metric thread



d	s	e	b	t	⊙
M8X1	4	4,6	8	4,0	4
M10X1	5	5,7	8	4,0	5
M12X1,5	6	6,9	10	5,0	6
M14X1,5	7	8,0	10	5,0	7
M16X1,5	8	9,2	10	5,0	8
M18X1,5	8	9,2	10	5,0	8
M20X1,5	10	11,4	10	5,0	10
M22X1,5	10	11,4	10	5,0	10
M24X1,5	12	13,7	12	6,0	12
M26X1,5	12	13,7	12	6,0	12
M27X2	12	13,7	12	6,0	12
M30X1,5	17	19,4	12	6,0	17
M36X1,5	19	21,7	15	7,5	19

Grade	SU
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10

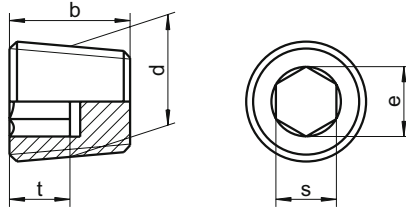
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 906-2-8X1 DIN 906 - A2 - M8 - pitch = 1mm

DIN 906 G

Hexagon socket pipe plugs

with conical pipe thread



d	s	e	b	t	⌀
R1/8"	5	5,7	8	4,0	5
R1/4"	7	8,0	10	5,0	7
R3/8"	8	9,2	10	5,0	8
R1/2"	10	11,4	10	5,0	10
R3/4"	12	13,7	12	6,0	12
R1"	17	19,4	12	6,0	17
R1 1/4"	22	25,2	18	11,5	22
R1 1/2"	24	27,4	20	11,5	24

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	5
▲ ●	5

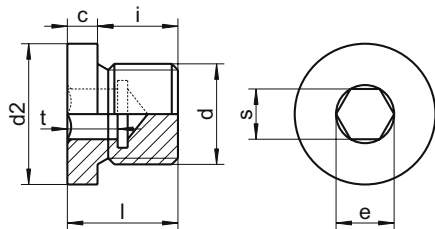
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 906-4-3/8 DIN 906 - A4 - Ø 3/8"

DIN 908 M

Hexagon socket screw plugs

with collar and cylindrical metric thread



d	d2	s	e	l	t	c	i	⊙
M10X1	14	5	5,7	11	5,0	3	8	5
M12X1,5	17	6	6,9	15	7,0	3	12	6
M14X1,5	19	6	6,9	15	7,0	3	12	6
M16X1,5	21	8	9,2	15	7,5	3	12	8
M18X1,5	23	8	9,2	16	7,5	4	12	8
M20X1,5	25	10	11,4	18	7,5	4	14	10
M22X1,5	27	10	11,4	18	7,5	4	14	10
M24X1,5	29	12	13,7	18	7,5	4	14	12
M26X1,5	31	12	13,7	20	9,0	4	16	12
M27X2	32	12	13,7	20	9,0	4	16	12
M30X2	36	17	19,4	20	9,0	4	16	17

Grade	SU
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10

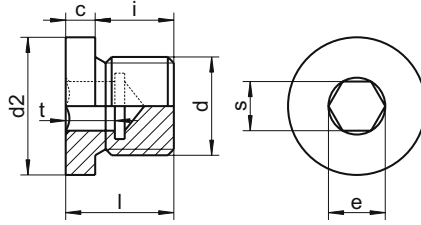
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 908-2-10X1 DIN 908 - A2 - M10 - pitch = 1mm

DIN 908 G

Hexagon socket screw plugs

with collar and cylindrical pipe thread



d	d2	s	e	l	t	c	i	⊙
G1/8"	14	5	5,7	11	5,0	3	8	5
G1/4"	18	6	6,9	15	7,0	3	12	6
G3/8"	22	8	9,2	15	7,5	3	12	8
G1/2"	26	10	11,4	18	7,5	4	14	10
G3/4"	32	12	13,7	20	9,0	4	16	12
G1"	39	17	19,4	21	9,0	5	16	17
G1 1/4"	49	22	25,2	21	10,5	5	16	22
G1 1/2"	55	24	27,4	21	10,5	5	16	24
G1 3/4"	62	32	36,6	25	14,0	5	20	32
G2"	68	32	36,6	25	14,0	5	20	32

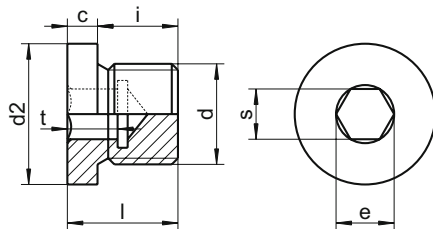
Grade	SU
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	50
▲ ●	25
▲ ●	10
▲ ●	5
▲ ●	5
▲ ●	5
▲ ●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 908-2-3/4 DIN 908 - A2 - Ø 3/4"

DIN 908 AD2000-W2

Hexagon socket screw plugs acc.to AD2000-W2

with collar and cylindrical pipe thread



d	d2	s	e	l	t	c	i	⊙
G3/8"	22	8	9,2	15	7,5	3	12	8
G1/2"	26	10	11,4	18	7,5	4	14	10
G3/4"	32	12	13,7	20	9,0	4	16	12

Grade	SU
●	25
●	25
●	20

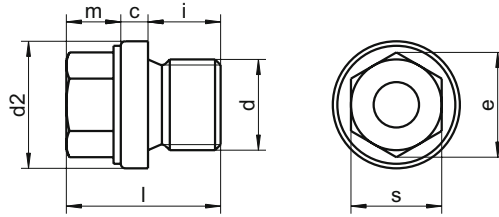
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 908-4-1/2T DIN 908 - A4 - Ø 1/2" - according to AD2000-W2

DIN 910 M

Hexagon head screw plugs

with collar and cylindrical thread, heavy type



d	d2	l	s	e	m	c	i	●
M10X1	14	17	10	10,89	6	3	8	10
M12X1,5	17	21	13	14,20	6	3	12	13
M14X1,5	19	21	13	14,20	6	3	12	13
M16X1,5	21	21	17	18,72	6	3	12	17
M18X1,5	23	24	17	18,72	8	4	12	17
M20X1,5	25	26	19	20,88	8	4	14	19
M22X1,5	27	26	19	20,88	8	4	14	19
M24X1,5	29	27	22	23,91	9	4	14	22
M26X1,5	31	30	24	26,17	10	4	16	24
M27X2	32	30	24	26,17	10	4	16	24
M30X1,5	36	30	27	26,17	10	4	16	24
M30X2	36	30	27	26,17	10	4	16	27
M33X2	39	32	27	29,56	11	5	16	27

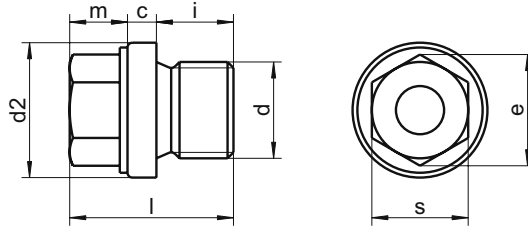
Grade	SU
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 910-2-20X1,5 DIN 910 - A2 - M20 - pitch = 1,5mm

DIN 910 G

Hexagon head screw plugs

with collar and cylindrical pipe thread, heavy type



d	d2	l	s	e	m	c	i	●
G1/8"	14	17	10	10,89	6	3	8	10
G1/4"	18	21	13	14,20	6	3	12	13
G3/8"	22	21	17	18,72	6	3	12	17
G1/2"	26	26	17	20,88	8	4	14	17
G3/4"	32	30	24	26,17	10	4	16	24
G1"	39	32	27	29,59	11	5	16	27
G1 1/8"	44	32	27	29,56	11	5	16	27
G1 1/4"	49	33	30	32,95	12	5	16	30
G1 1/2"	55	33	30	32,95	12	5	16	30
G1 3/4"	62	40	36	39,55	15	5	20	36
G2"	68	40	36	39,55	15	5	20	36

Grade	SU
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	10
▲●	5
▲●	5
▲●	5
▲●	5

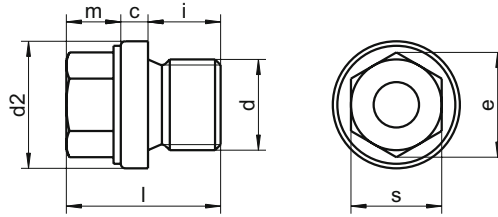
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 910-2-1/2 DIN 910 - A2 - Ø1/2"

DIN 910 AD2000-W2

Hexagon head screw plugs

with collar and cylindrical pipe thread, heavy type acc.to AD2000-W2



d	d2	l	s	e	m	c	i	●
G1/8"	14	17	10	10,89	6	3	8	10
G1/4"	18	21	13	14,20	6	3	12	13
G3/8"	22	21	17	18,72	6	3	12	17
G1/2"	26	26	19	20,88	8	4	14	19
G3/4"	32	30	24	26,17	10	4	16	24
G1"	39	32	27	29,56	11	5	16	27
G1 1/4"	49	33	30	32,95	12	5	16	30
G1 1/2"	55	33	30	32,95	12	5	16	30

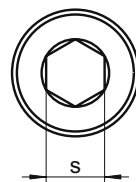
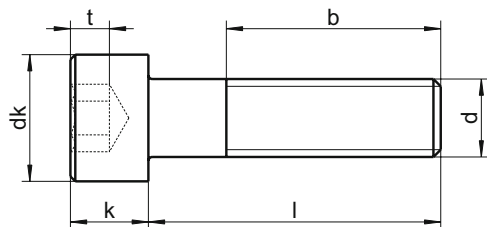
Grade	SU
●	50
●	50
●	50
●	25
●	25
●	10
●	5
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 910-4-1/8T DIN 910 - A4 - Ø 1/8" - according to AD2000-W2

DIN 912 - Page 1 - sim. ISO 4762

Hexagon socket head cap screws



dk max.	3,0	3,8	4,5	5,5	7,0	8,5	10,0	13,0	16,0	18,0	21,0	24,0	27,0
k max.	1,6	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0
s	1,5	1,5	2	2,5	3	4	5	6	8	10	12	14	14
b	15	16	17	18	20	22	24	28	32	36	40	44	48
t	0,7	1,0	1,1	1,3	2,0	2,5	3,0	4,0	5,0	6,0	7,0	8,0	9,0
●	1,5	1,5	2	2,5	3	4	5	6	8	10	12	14	14
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18
3	▲●	▲●											
4	▲●	▲●	▲●	▲●									
5	▲●	▲●	▲●	▲●	▲●								
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●						
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●						
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
18		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000 ≥ 45 500	1000 ≥ 35 500	500 ≥ 45 200	500 ≥ 45 200	200 ≥ 45 100	100	100 ≥ 55 50	25	25	25

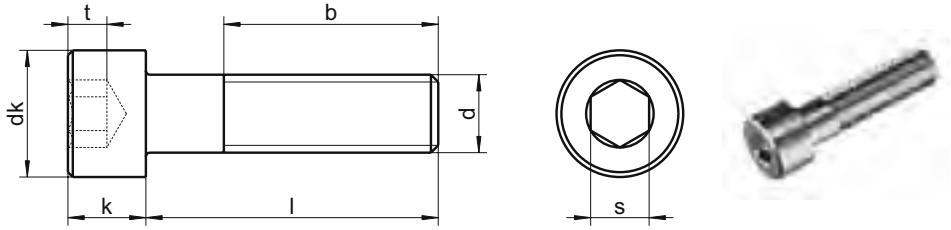
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-2-8X40 DIN 912 - A2 - M8 - l = 40mm

Hexagon socket head cap screws DIN 912 with full thread or according to AD2000-W2 can be found on the following pages. Hexagon socket head cap screws with TX can be found as ISO 14579 in this catalogue. Hexagon socket head cap screws with UNC / UNF thread according to ANSI B18.3 are available on request.

sim. ISO 4762 - **DIN 912** - Page 2

Hexagon socket head cap screws



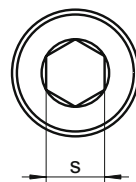
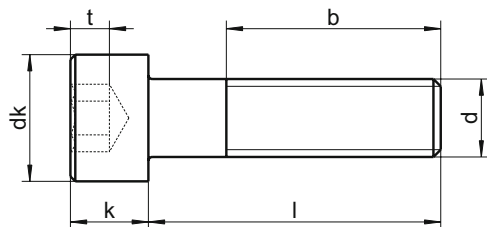
dk max.	8,5	10,0	13,0	16,0	18,0	21,0	24,0	27,0
k max.	5,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0
s	4	5	6	8	10	12	14	14
b	22	24	28	32	36	40	44	48
t	2,5	3,0	4,0	5,0	6,0	7,0	8,0	9,0
●	4	5	6	8	10	12	14	14
Length / Ø	M5	M6	M8	M10	M12	M14	M16	M18
80	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
85	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
95	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●	▲●	▲●
150		▲●	▲●	▲●	▲●	▲●	▲●	▲●
160		▲●	▲●	▲●	▲●	▲●	▲●	▲●
170		▲●	▲●	▲●	▲●	▲●	▲●	▲●
180		▲●	▲●	▲●	▲●	▲●	▲●	▲●
190		▲●	▲●	▲●	▲●	▲●	▲●	▲●
200		▲●	▲●	▲●	▲●	▲●	▲●	▲●
210			▲●	▲●	▲●			
220			▲●	▲●	▲●			
230			▲●	▲●	▲●			
240			▲●	▲●	▲●			
250			▲●	▲●	▲●			
260			▲●	▲●	▲●			
270			▲●	▲●	▲●			
280			▲●	▲●	▲●			
300			▲●	▲●	▲●			
SU	200	100	100 ≥ 95 50	50	50 ≥ 100 25	25	25	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-2-8X40 DIN 912 - A2 - M8 - l = 40mm

DIN 912 - Page 3 - sim. ISO 4762

Hexagon socket head cap screws

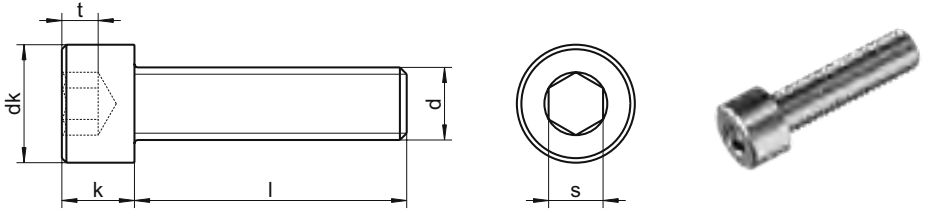


dk max.	30,0	36,0	40,0	45,0
k max.	20,0	24,0	27,0	30,0
s	17	19	19	22
b	52	60	66	72
t	10,0	12,0	13,5	15,5
●	17	19	19	22
Length / Ø	M20	M24	M27	M30
30	▲ ●			
35	▲ ●			
40	▲ ●	▲ ●		
45	▲ ●	▲ ●		
50	▲ ●	▲ ●	▲ ●	▲ ●
55	▲ ●	▲ ●	▲ ●	▲ ●
60	▲ ●	▲ ●	▲ ●	▲ ●
65	▲ ●	▲ ●	▲ ●	▲ ●
70	▲ ●	▲ ●	▲ ●	▲ ●
75	▲ ●	▲ ●	▲ ●	▲ ●
80	▲ ●	▲ ●	▲ ●	▲ ●
85	▲ ●	▲ ●	▲ ●	▲ ●
90	▲ ●	▲ ●	▲ ●	▲ ●
95	▲ ●	▲ ●	▲ ●	▲ ●
100	▲ ●	▲ ●	▲ ●	▲ ●
110	▲ ●	▲ ●	▲ ●	▲ ●
120	▲ ●	▲ ●	▲ ●	▲ ●
130	▲ ●	▲ ●	▲ ●	▲ ●
140	▲ ●	▲ ●	▲ ●	▲ ●
150	▲ ●	▲ ●	▲ ●	▲ ●
160	▲ ●	▲ ●	▲ ●	▲ ●
170	▲ ●	▲ ●	▲ ●	▲ ●
180	▲ ●	▲ ●	▲ ●	▲ ●
190	▲ ●	▲ ●	▲ ●	▲ ●
200	▲ ●	▲ ●	▲ ●	▲ ●
SU	25 ≥ 100 10	10 ≥ 140 5	5	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-2-8X40 DIN 912 - A2 - M8 - l = 40mm

sim. ISO 4762 - **DIN 912 FT**
Hexagon socket head cap screws
 with full thread



dk max.	8,5	10,0	13,0	16,0	18,0
k max.	5,0	6,0	8,0	10,0	12,0
s	4	5	6	8	10
t	2,5	3,0	4,0	5,0	6,0
●	4	5	6	8	10
Length / Ø	M5	M6	M8	M10	M12
30	▲ ●				
35	▲ ●	▲ ●			
40	▲ ●	▲ ●	▲ ●		
45	▲ ●	▲ ●	▲ ●		
50	▲ ●	▲ ●	▲ ●	▲ ●	
60		▲ ●	▲ ●	▲ ●	▲ ●
70		▲ ●	▲ ●	▲ ●	▲ ●
80		▲ ●	▲ ●	▲ ●	▲ ●
90		▲ ●	▲ ●	▲ ●	▲ ●
100		▲ ●	▲ ●	▲ ●	▲ ●
SU	500	500 ≥ 45 200 ≥ 70 100	100	50	50 ≥ 70 25

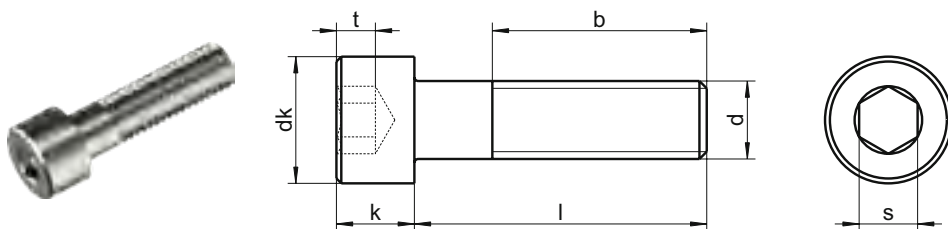
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-2-8X40V0 DIN 912 - A2 - M8 - l = 40mm - full thread

DIN 912 AD2000-W2 - sim. ISO 4762

Hexagon socket head cap screws

according to AD2000-W2



dk max.	8,5	10,0	13,0	16,0	18,0	24,0	30,0
k max.	5,0	6,0	8,0	10,0	12,0	16,0	20,0
s	4	5	6	8	10	14	17
b	22	24	28	32	36	44	52
t	2,5	3,0	4,0	5,0	6,0	8,0	10,0
●	4	5	6	8	10	14	17
Length / Ø	M5	M6	M8	M10	M12	M16	M20
8	▲ ●						
10	▲ ●	▲ ●	▲ ●				
12	▲ ●	▲ ●	▲ ●				
16		▲ ●	▲ ●	▲ ●			
20		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
25		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
30		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70				▲ ●	▲ ●	▲ ●	▲ ●
80				▲ ●	▲ ●	▲ ●	▲ ●
90				▲ ●	▲ ●	▲ ●	▲ ●
100				▲ ●	▲ ●	▲ ●	▲ ●
SU	500	200	200 ≥ 25 100	100 ≥ 50 50	100 ≥ 50 50 ≥ 80 25	25	25

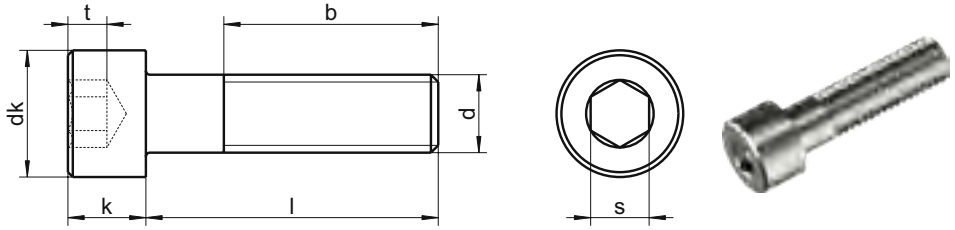
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-2-8X40 DIN 912 - A2 - M8 - l = 40mm

Hexagon socket head cap screws DIN 912 without approval according to AD2000-W2 or with full thread can be found on the previous pages.

Nuts with approval according to AD2000-W2 can be found as DIN 934 in this catalogue. Hexagon socket head cap screws with TX can be found as ISO 14579 in this catalogue.

sim. ISO 4762 - **DIN 912 F-80**
Hexagon socket head cap screws
 with strenght 80



dk max.	7,0	8,5	10,0	13,0	16,0	18,0	24,0	30,0
k max.	4,0	5,0	6,0	8,0	10,0	12,0	16,0	20,0
s	3	4	5	6	8	10	14	17
b	20	22	24	28	32	36	44	52
t	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0
●	3	4	5	6	8	10	14	17
Length / Ø	M4	M5	M6	M8	M10	M12	M16	M20
8		●	●					
10		●	●	●				
12		●	●	●				
14	●	●	●	●				
16	●	●	●	●	●	●		
18	●	●	●	●	●	●		
20	●	●	●	●	●	●	●	
22	●	●	●	●	●	●	●	
25	●	●	●	●	●	●	●	
30	●	●	●	●	●	●	●	●
35	●	●	●	●	●	●	●	●
40	●	●	●	●	●	●	●	●
45		●	●	●	●	●	●	●
50		●	●	●	●	●	●	●
55		●	●	●	●	●	●	●
60		●	●	●	●	●	●	●
65			●	●	●	●	●	●
70			●	●	●	●	●	●
75			●	●	●	●	●	●
80			●	●	●	●	●	●
90			●	●	●	●	●	●
100			●	●	●	●	●	●
110			●	●	●	●	●	●
120			●	●	●	●	●	●
130				●	●	●	●	●
140					●	●	●	●
150					●	●	●	●
160					●	●	●	●
SU	1000 ≥ 20 500	500 ≥ 30 200	500 ≥ 12 200 ≥ 45 100	200 ≥ 35 100	100 ≥ 65 50	50 ≥ 75 25	25	25 ≥ 100 10

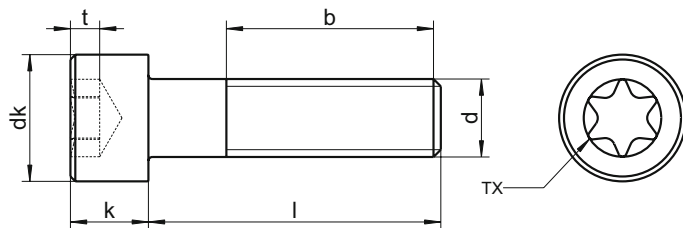
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 912-4-8X40 DIN 912 - A4 - M8 - l = 40mm

ISO 14579 - sim. DIN 912

Socket head screws

with TX

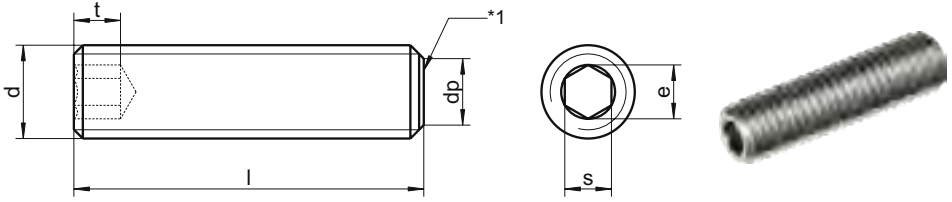


dk min.	9,78	12,73	15,73
k min.	5,70	7,64	9,64
t min.	2,02	2,92	3,62
t max.	2,42	3,31	4,02
b	24	28	32
⊕	30	45	50
Length / Ø	M6	M8	M10
30	▲ ●		
35	▲ ●	▲ ●	
40	▲ ●	▲ ●	▲ ●
45	▲ ●	▲ ●	▲ ●
50	▲ ●	▲ ●	▲ ●
55	▲ ●	▲ ●	▲ ●
60	▲ ●	▲ ●	▲ ●
65	▲ ●	▲ ●	▲ ●
70	▲ ●	▲ ●	▲ ●
80	▲ ●	▲ ●	▲ ●
90			▲ ●
100			▲ ●
SU	500 ≥ 45 200 ≥ 65 100	200 ≥ 45 100	100 ≥ 50 50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 14579-2-4X16 ISO 14579 - A2 - M4 - l = 16mm

sim. ISO 4026 - **DIN 913**
Hexagon socket set screws
with flat point



	0,75	1,25	1,75	2,25	3,20	3,70	5,20	6,64	8,14	11,57	14,57
dp	0,8	1,2	1,2	1,5	2,0	2,0	3,0	4,0	4,8	6,4	8,0
t min.	1,7	2,0	2,0	2,5	3,0	3,5	5,0	6,0	8,0	10,0	12,0
t max.	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
s	1,003	1,427	1,730	2,300	2,870	3,440	4,580	5,720	6,860	9,150	11,430
e	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
2	▲ ●										
3	▲ ●	▲ ●		▲ ●							
4	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●					
5	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●					
6	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●				
8	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●			
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●			
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
14	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
20			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45					▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50					▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
80							▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
90								▲ ●	▲ ●	▲ ●	▲ ●
100								▲ ●	▲ ●	▲ ●	▲ ●
SU	500	500	500 ≥ 30 200	500 ≥ 12 200	500 ≥ 12 200	200	200 ≥ 35 100	100	50	25	25

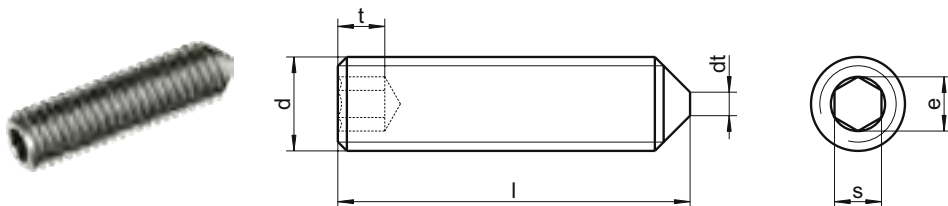
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 913-2-8X40 DIN 913 - A2 - M8 - l = 40mm - *1 flat point

DIN 914 - sim. ISO 4027

Hexagon socket set screws

with cone point

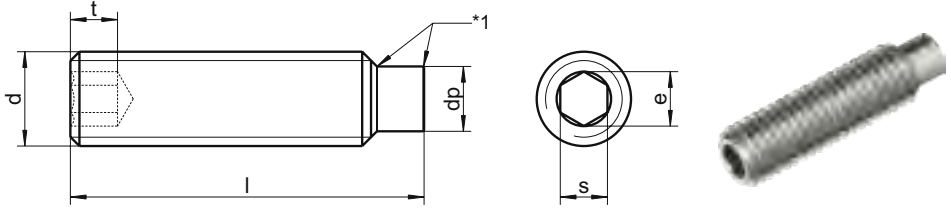


dt	-	-	-	-	-	0,90	1,40	1,90	2,40	3,25	4,25
t	0,8/1,7	1,2/2,0	1,2/2,0	1,5/2,5	2,0/3,0	2,0/3,5	3,0/5,0	4,0/6,0	4,8/8,0	6,4/10,0	8,0/12,0
s	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
e	1,003	1,427	1,730	2,300	2,870	3,440	4,580	5,720	6,860	9,150	11,430
●	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
2	▲●										
3	▲●	▲●	▲●	▲●							
4	▲●	▲●	▲●	▲●							
5	▲●	▲●	▲●	▲●	▲●	▲●					
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
20			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45					▲●	▲●	▲●	▲●	▲●	▲●	▲●
50					▲●	▲●	▲●	▲●	▲●	▲●	▲●
55						▲●	▲●	▲●	▲●	▲●	▲●
60						▲●	▲●	▲●	▲●	▲●	▲●
70								▲●	▲●	▲●	▲●
80								▲●	▲●	▲●	▲●
90									▲●	▲●	▲●
100										▲●	▲●
SU	500	500	500	500 ≥ 12 200	500 ≥ 12 200	200	100	100	50	25	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 914-2-8X40 DIN 914 - A2 - M8 - l = 40mm

sim. ISO 4028 - DIN 915 Hexagon socket set screws with dog point



	0,75	1,25	1,75	2,25	3,20	3,70	5,20	6,64	8,14	11,57	14,57
dp	0,75	1,25	1,75	2,25	3,20	3,70	5,20	6,64	8,14	11,57	14,57
t min.	0,8	1,2	1,2	1,5	2,0	2,0	3,0	4,0	4,8	6,4	8,0
t max.	1,7	2,0	2,0	2,5	3,0	3,5	5,0	6,0	8,0	10,0	12,0
s	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
e	1,0	1,4	1,7	2,3	2,9	3,4	4,6	5,7	6,9	9,2	11,4
●	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
3	▲ ●	▲ ●	▲ ●								
4	▲ ●	▲ ●	▲ ●	▲ ●							
5	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●						
6	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●					
8	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●				
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●			
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
14	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
20			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60						▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70									▲ ●	▲ ●	▲ ●
90										▲ ●	▲ ●
100										▲ ●	▲ ●
SU	500	500	500 ≥ 30 200	200	200	200	100	100	50	25	25

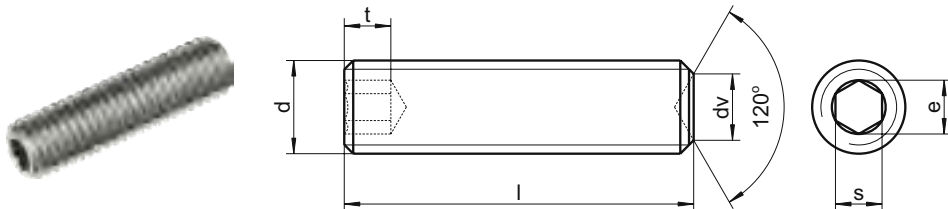
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 915-2-8X40 DIN 915 - A2 - M8 - l = 40mm - *1 rounded

DIN 916 - sim. ISO 4029

Hexagon socket set screws

with cup point



	0,75	0,95	1,15	1,75	2,25	2,75	4,70	5,70	7,64	9,64	13,57
dv	0,8	1,2	1,2	1,5	2,0	2,0	3,0	4,0	4,8	6,4	8,0
t min.	1,7	2,0	2,0	2,5	3,0	3,5	5,0	6,0	8,0	10,0	12,0
t max.	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
s	1,0	1,4	1,7	2,3	2,9	3,4	4,6	5,7	6,9	9,2	11,4
e	0,9	1,3	1,5	2	2,5	3	4	5	6	8	10
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M16	M20
3	▲●	▲●	▲●	▲●							
4	▲●	▲●	▲●	▲●	▲●						
5	▲●	▲●	▲●	▲●	▲●	▲●					
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
20			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45						▲●	▲●	▲●	▲●	▲●	▲●
50						▲●	▲●	▲●	▲●	▲●	▲●
55						▲●	▲●	▲●	▲●	▲●	▲●
60						▲●	▲●	▲●	▲●	▲●	▲●
70							▲●	▲●	▲●	▲●	▲●
80							▲●	▲●	▲●	▲●	▲●
90								▲●	▲●	▲●	▲●
100										▲●	▲●
SU	500	500	500	500 ≥ 12 200	200	200	200 ≥ 20 100	100	50	25	25

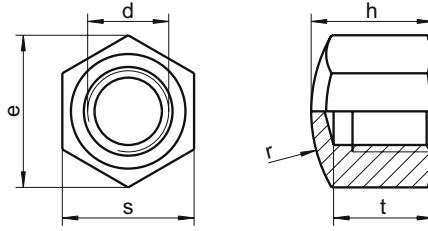
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 916-2-8X40 DIN 916 - A2 - M8 - l = 40mm

DIN 917

Hexagon cup nuts

thin type



d	h	s	e	r	t min.	t max.	⌀
M3	-	5,5	6,01	-	-	-	5,5
M4	5,5	7	7,66	8	4,16	4,64	7
M5	7,0	8	8,79	10	4,96	5,44	8
M6	9,0	10	11,05	12	6,71	7,29	10
M8	12,0	13	14,38	15	9,21	9,79	13
M10	14,0	17	17,77	20	10,65	11,35	17
M12	16,0	19	20,03	25	13,15	13,85	19
M14	18,0	22	23,35	28	14,65	15,35	22
M16	20,0	24	26,75	30	16,65	17,35	24
M18	22,0	27	29,56	32	18,58	19,42	27
M20	25,0	30	32,95	35	20,58	21,42	30
M22	28,0	32	37,29	35	21,58	22,42	32
M24	30,0	36	39,55	40	23,58	24,42	36
M27	32,0	41	45,20	50	25,58	26,42	41
M30	34,0	46	50,85	60	27,58	28,42	46

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

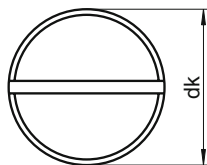
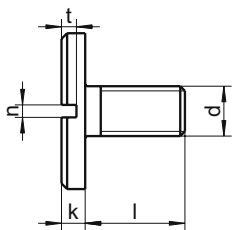
Example item no. 917-2-8 DIN 917 - A2 - M8

Please note that all dimensions will be delivered without a thread groove. Products with a thread groove starting from M10 on are available on request. Hexagon domed cap nuts, high type can be found as DIN 1587 and prevailing torque type hexagon domed cap nuts with non-metallic insert can be found as DIN 986 in this catalogue. Hexagon screw caps with pipe thread can be found as WS 9626 in this catalogue.

DIN 921

Slotted pan head screws

with large head



dk	8	12	16	20	25
k	1,8	2,4	2,7	3,1	3,8
n	0,8	1,0	1,2	1,6	2,0
t min.	0,9	1,2	1,3	1,5	1,9
⊖	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M3	M4	M5	M6	M8
4	■				
5	■	■			
6	■	■			
8	■	■	■		
10	■	■	■	■	
12	■	■	■	■	
16	■	■	■	■	
20		■	■	■	■
25			■	■	■
30				■	■
SU	100	100	50	50	25

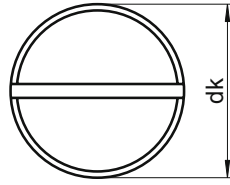
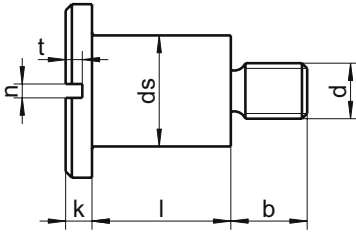
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 921-2-8X20 DIN 921 - A1 - M8 - l = 20mm

DIN 923

Slotted pan head screws

with shoulder



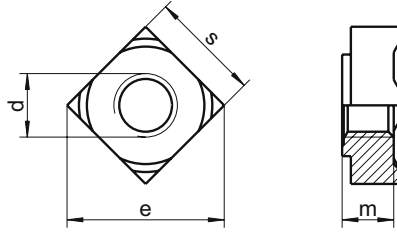
dk	7,0	8,5	11,0	13,0	16,0
k	1,8	2,4	2,7	3,1	3,8
n	0,8	1,0	1,2	1,6	2,0
t min.	0,9	1,2	1,3	1,5	1,9
b	4,5	6,0	7,0	9,0	11,0
ds	4,0	5,5	7,0	8,0	10,0
⌀	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M3	M4	M5	M6	M8
3	■	■	■	■	
4	■	■	■	■	
5	■	■	■	■	
6	■	■	■	■	
8	■	■	■	■	■
10	■	■	■	■	■
12	■	■	■	■	■
16	■	■	■	■	■
20				■	■
SU	100	100	100	50	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 923-2-8X20 DIN 923 - A1 - M8 - l = 20mm

DIN 928

Square weld nuts



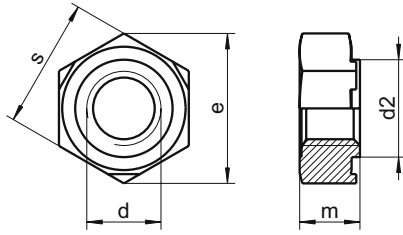
d	m	s	e	□
M5	4,2	9	12	9
M6	5,0	10	13	10
M8	6,5	14	18	14
M10	8,0	17	22	17
M12	9,5	19	25	19

Grade	SU
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 928-2-8 DIN 928 - A2 - M8

DIN 929

Hexagon weld nuts



d	m	s	e	d2	⦿
M3	3,0	7,5	8,15	4,5	7,5
M4	3,5	9	9,83	6,0	9
M5	4,0	10	10,95	7,0	10
M6	5,0	11	12,02	8,0	11
M8	6,5	14	15,38	10,5	14
M10	8,0	17	18,74	12,5	17
M12	10,0	19	20,91	14,8	19
M16	13,0	24	26,51	18,8	24

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	50
▲●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

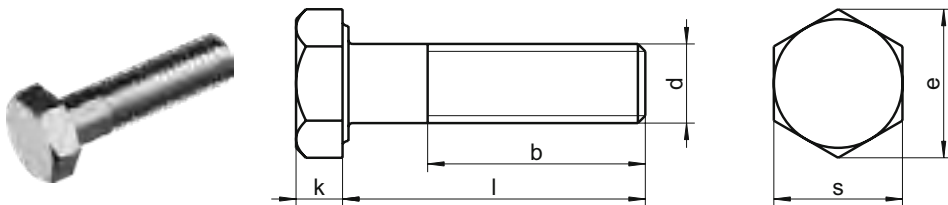
Example item no. 929-2-8 DIN 929 - A2 - M8

Please note that hexagon weld nuts DIN 929 up to M8 will be delivered with three weld cams and starting from M10 with weldcings rings. Square weld nuts can be found as DIN 928 on the previous page. Weld nuts with welding nipples, type A can be found as WS 9320, with welding nipples type B can be found as WS 9323 and with plain type C can be found as WS 9326 in this catalogue.

DIN 931 - Page 1 - sim. ISO 4014

Hexagon head screws

with shank



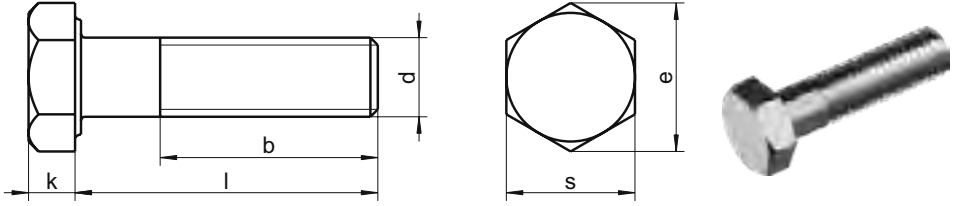
b ≤ 125	16	18	22	26	30	34	38	42	46	50	54	60	66	72	78			
b > 125	22	24	28	32	36	40	44	48	52	56	60	66	72	78	84			
s	8	10	13	17	19	22	24	27	30	32	36	41	46	50	55			
k min.	3,35	3,85	5,15	6,22	7,32	8,62	9,82	11,28	12,28	13,78	14,78	16,65	18,28	20,58	22,08			
e	8,79	11,05	14,38	18,90	21,10	24,49	26,75	30,14	33,53	35,72	39,98	45,2	50,85	55,37	60,79			
●	8	10	13	17	19	22	24	27	30	32	36	41	46	50	55			
Length / Ø	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36			
25	▲●	▲●																
30	▲●	▲●	▲●															
35	▲●	▲●	▲●	▲●														
40	▲●	▲●	▲●	▲●	▲●													
45	▲●	▲●	▲●	▲●	▲●													
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●											
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●											
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●									
65	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●									
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●							
75	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●							
80	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
85	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
90	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
95	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
100	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
110		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
120		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
130		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
140		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
150		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
160		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
170		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
SU	500	200	100	50	25	10	5	5	25	25	25	25	20	10	10	10	5	
	≥ 45	≥ 45	≥ 80	≥ 100	≥ 100	≥ 150	≥ 130	≥ 130	≥ 130	≥ 80	≥ 160	≥ 160	≥ 160	≥ 130				
	200	100	50	25	10	5	5	25	25	25	25	20	10	10	10	5	5	
			180	210	10													
			25	10														

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 931-2-8X40 DIN 931 - A2 - M8 - l = 40mm

Hexagon head screws

with shank



	b ≤ 125	18	22	26	30	34	38	42	46	50	54	60	66	72	78	
b > 125	24	28	32	36	40	44	48	52	56	60	66	72	78	84	84	
s	10	13	17	19	22	24	27	30	32	36	41	46	50	55	55	
k min.	3,85	5,15	6,22	7,32	8,62	9,82	11,28	12,28	13,78	14,78	16,65	18,28	20,58	22,08	22,08	
e	11,05	14,38	18,90	21,10	24,49	26,75	30,14	33,53	35,72	39,98	45,2	50,85	55,37	60,79	60,79	
●	10	13	17	19	22	24	27	30	32	36	41	46	50	55	55	
Length / Ø	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36		
180	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
190	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
200	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
210		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
220		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
230		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
240		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
250			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
260			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
270			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
280			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
290			▲●	▲●		▲●		▲●		▲●	▲●	▲●				
300			▲●	▲●		▲●		▲●		▲●	▲●	▲●				
320			▲●	▲●		▲●		▲●		▲●	▲●	▲●				
340			▲●	▲●		▲●		▲●		▲●	▲●					
360			▲●	▲●		▲●		▲●		▲●						
380			▲●	▲●		▲●		▲●		▲●						
400			▲●	▲●		▲●		▲●		▲●						
420			▲●	▲●		▲●		▲●		▲●						
440			▲●	▲●		▲●		▲●		▲●						
460			▲●	▲●		▲●		▲●		▲●						
480			▲●	▲●		▲●		▲●		▲●						
500			▲●	▲●		▲●		▲●		▲●						
SU	100	25	25 ≥ 210 10	10	10	10	10	10	10	10	10	10	5	5	5	5

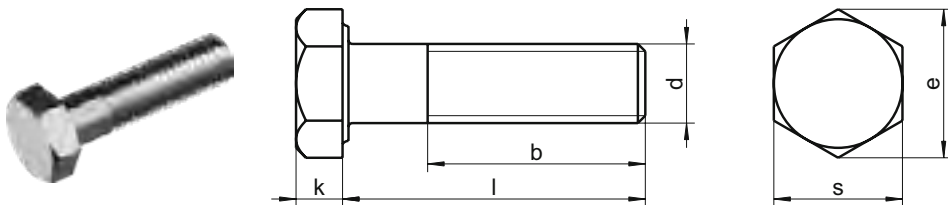
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 931-2-8X40 DIN 931 - A2 - M8 - l = 40mm

DIN 931 AD2000-W2 - sim. ISO 4014

Hexagon head screws

with shank, according to AD2000-W2



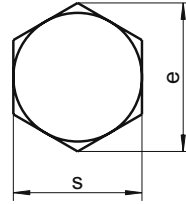
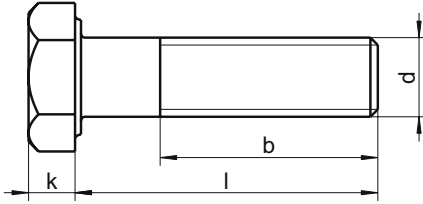
	b ≤ 125	18	22	26	30	38	46	54	60	66	72
b > 125	24	28	32	36	44	52	60	66	72	78	84
s	10	13	17	19	24	27	36	41	46	50	55
k min.	3,85	5,15	6,22	7,32	9,82	12,28	14,78	16,65	18,28	20,58	22,92
e	11,05	14,38	18,90	21,10	26,75	33,53	39,98	45,2	50,85	55,37	60,92
●	10	13	17	19	24	27	36	41	46	50	55
Length / Ø	M6	M8	M10	M12	M16	M20	M24	M27	M30	M33	
35	▲●	▲●									
40	▲●	▲●	▲●	▲●							
45	▲●	▲●	▲●	▲●							
50	▲●	▲●	▲●	▲●	▲●						
55	▲●	▲●	▲●	▲●	▲●						
60	▲●	▲●	▲●	▲●	▲●	▲●					
65	▲●	▲●	▲●	▲●	▲●	▲●					
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
75	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
80	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
85	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
90	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
100		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
110		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
120		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
130			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
140			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
150			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
160				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
170				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
180				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
190				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
200				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
220						▲●					
SU	100	200 ≥ 45 100 ≥ 70 50	100 ≥ 50 50	50 ≥ 100 25 ≥ 160 10	25 ≥ 150 10	25 ≥ 130 10	10 ≥ 200 5	10 ≥ 160 5	10 ≥ 160 5	10 ≥ 140 5	

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 931-2-8X40T DIN 931 - A2 - M8 - l = 40mm - according to AD2000-W2

Hexagon head screws

with shank and strenght 80



b ≤ 125	16	18	22	26	30	38	46	54
b > 125	22	24	28	32	36	44	52	60
s	8	10	13	17	19	24	30	36
k min.	3,35	3,85	5,15	6,22	7,32	9,82	12,28	14,78
e	8,79	11,05	14,38	18,90	21,10	26,75	33,53	39,98
●	8	10	13	17	19	24	30	36
Length / Ø	M5	M6	M8	M10	M12	M16	M20	M24
30	●	●	●					
35	●	●	●					
40	●	●	●	●	●			
45	●	●	●	●	●			
50	●	●	●	●	●	●		
55	●	●	●	●	●	●		
60	●	●	●	●	●	●	●	
65	●	●	●	●	●	●	●	
70	●	●	●	●	●	●	●	
75		●	●	●	●	●	●	
80		●	●	●	●	●	●	●
90		●	●	●	●	●	●	●
100		●	●	●	●	●	●	●
110			●	●	●	●	●	●
120			●	●	●	●	●	●
130			●	●	●	●	●	●
140			●	●	●	●	●	●
150			●	●	●	●	●	●
160			●	●	●	●	●	●
170			●		●			
180			●		●			
190			●		●			
200			●		●			
210			●					
220			●					
SU	500 ≥ 45 200	100	200 ≥ 45 100 ≥ 70 50 ≥ 180 25	100 ≥ 50 50	50 ≥ 100 25 ≥ 160 10	25 ≥ 150 10	25 ≥ 130 10	10

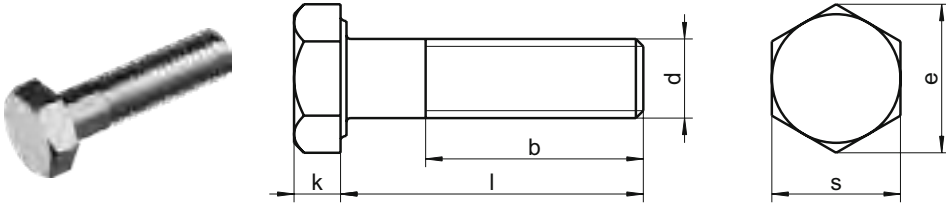
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 931-4-8X4080 DIN 931 - A4 - M8 - l = 40mm - strenght class 80

ISO 4014 - sim. DIN 931

Hexagon head screws

with shank



b	26	30
k	6,4	7,5
s	16	18
e min.	18,9	21,1
●	16	18
Length / Ø	M10	M12
40	▲ ●	▲ ●
45	▲ ●	▲ ●
50	▲ ●	▲ ●
55	▲ ●	▲ ●
60	▲ ●	▲ ●
65	▲ ●	▲ ●
70	▲ ●	▲ ●
75	▲ ●	▲ ●
80	▲ ●	▲ ●
90	▲ ●	▲ ●
100	▲ ●	▲ ●
SU	100 ≥ 55 50	50

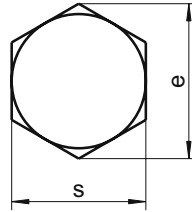
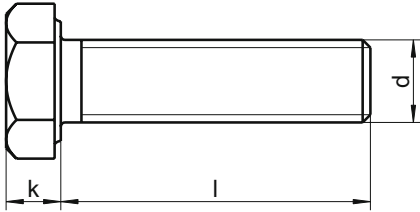
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 4014-2-10X100 ISO 4014 - A2 - M10 - l = 100mm

sim. ISO 4017 - DIN 933 - Page 1

Hexagon head screws

full thread



k max.	1,4	1,7	2,0	2,8	3,5	4,0	5,3	6,4	7,5	8,8	10,0	11,5	12,5
s	4	5	5,5	7	8	10	13	17	19	22	24	27	30
e	4,32	5,45	6,01	7,66	8,79	11,05	14,38	18,90	21,10	24,49	26,75	30,14	33,53
●	4	5	5,5	7	8	10	13	17	19	22	24	27	30
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
3	▲●	▲●											
4	▲●	▲●											
5	▲●	▲●	▲●	▲●									
6	▲●	▲●	▲●	▲●	▲●	▲●							
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●						
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
22			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
30			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
85						▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90						▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
SU	1000	1000	1000 ≥ 25 500	1000 ≥ 25 500	500 ≥ 45 200 ≥ 70 100	500 ≥ 14 200 ≥ 45 100	200 ≥ 25 100 ≥ 85 50	100 ≥ 50 50	100 ≥ 50 50	25	25	25	25

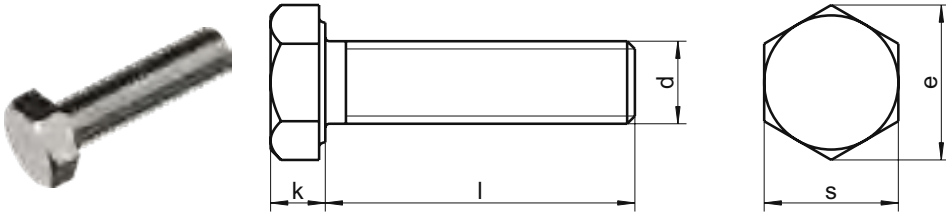
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X40 DIN 933 - A2 - M8 - l = 40mm

DIN 933 - Page 2 - sim. ISO 4017

Hexagon head screws

full thread



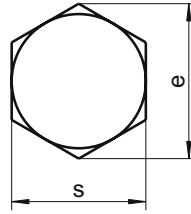
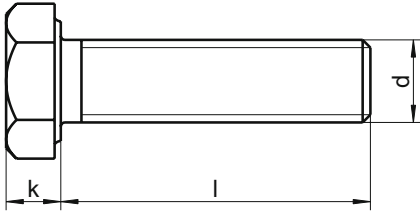
k max.	4,0	5,3	6,4	7,5	8,8	10,0	11,5	12,5
s	10	13	17	19	22	24	27	30
e	11,05	14,38	18,90	21,10	24,49	26,75	30,14	33,53
●	10	13	17	19	22	24	27	30
Length / Ø	M6	M8	M10	M12	M14	M16	M18	M20
95	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
120	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●	▲●	▲●
150		▲●	▲●	▲●	▲●	▲●	▲●	▲●
160		▲●	▲●	▲●		▲●		▲●
170		▲●	▲●	▲●		▲●		▲●
180		▲●	▲●	▲●		▲●		▲●
190		▲●	▲●	▲●		▲●		▲●
200		▲●	▲●	▲●		▲●		▲●
250				▲●		▲●		▲●
SU	100	100 ≥ 85 50 ≥ 160 25	50 ≥ 160 25	50 ≥ 100 25	25 ≥ 150 10	25 ≥ 150 10	25 ≥ 130 10	25 ≥ 130 10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X40 DIN 933 - A2 - M8 - l = 40mm

Hexagon head screws

full thread



k max.	14,0	15,0	17,0	18,7	21,0	22,5
s	32	36	41	46	50	55
e	35,72	39,98	45,20	50,85	55,37	60,79
●	32	36	41	46	50	55
Length / Ø	M22	M24	M27	M30	M33	M36
30	▲●	▲●				
35	▲●	▲●				
40	▲●	▲●				
45	▲●	▲●				
50	▲●	▲●	▲●	▲●	▲●	▲●
55	▲●	▲●	▲●	▲●	▲●	▲●
60	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●
75	▲●	▲●	▲●	▲●	▲●	▲●
80	▲●	▲●	▲●	▲●	▲●	▲●
85	▲●	▲●	▲●	▲●	▲●	▲●
90	▲●	▲●	▲●	▲●	▲●	▲●
95	▲●	▲●	▲●	▲●	▲●	▲●
100	▲●	▲●	▲●	▲●	▲●	▲●
110	▲●	▲●	▲●	▲●	▲●	▲●
120	▲●	▲●	▲●	▲●	▲●	▲●
130	▲●	▲●	▲●	▲●	▲●	▲●
140	▲●	▲●	▲●	▲●	▲●	▲●
150	▲●	▲●	▲●	▲●	▲●	▲●
160		▲●				▲●
170		▲●				▲●
180		▲●				▲●
190		▲●				
200		▲●				
250		▲●				
SU	25 ≥ 100 10	10 ≥ 200 5	10	10	5	5

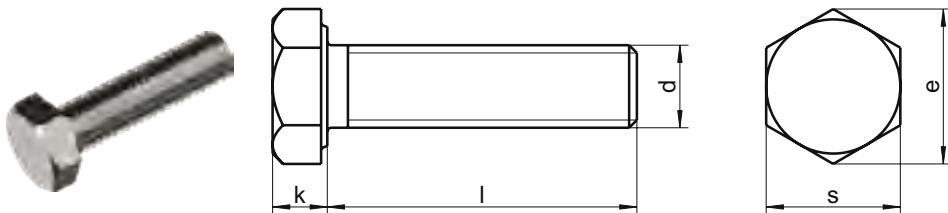
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X40 DIN 933 - A2 - M8 - l = 40mm

DIN 933 AD2000-W2 - sim. ISO 4017

Hexagon head screws

full thread, according to AD2000-W2



k max.	4,0	5,3	6,4	7,5	8,8	10,0	11,5	12,5	15,0	17,0	18,7	21,0
s	10	13	17	19	22	24	27	30	36	41	46	50
e	11,05	14,38	18,90	21,10	24,49	26,75	30,14	33,53	39,98	45,20	50,85	55,37
●	10	13	17	19	22	24	27	30	36	41	46	50
Length / Ø	M6	M8	M10	M12	M14	M16	M18	M20	M24	M27	M30	M33
6	▲●											
12	▲●	▲●										
16	▲●	▲●	▲●	▲●								
18	▲●	▲●	▲●	▲●								
20	▲●	▲●	▲●	▲●	▲●	▲●						
25	▲●	▲●	▲●	▲●	▲●	▲●						
30		▲●	▲●	▲●	▲●	▲●	▲●	▲●				
35		▲●	▲●	▲●	▲●	▲●	▲●	▲●				
40		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
45		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
50		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
55		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
60		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
65		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
70		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
75		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
80		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
130			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
140			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
150			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
160				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
170						▲●	▲●	▲●	▲●	▲●	▲●	
180						▲●	▲●	▲●	▲●	▲●	▲●	
190						▲●	▲●	▲●	▲●	▲●	▲●	
200						▲●	▲●	▲●	▲●	▲●	▲●	
SU	500 ≥ 16 200	200 ≥ 25 100 ≥ 80 50	100 ≥ 50 50	100 ≥ 50 50 ≥ 100 25	25	25 ≥ 150 10	25 ≥ 130 10	25 ≥ 130 10	10 ≥ 170 5	10 ≥ 170 5	10 ≥ 170 5	5

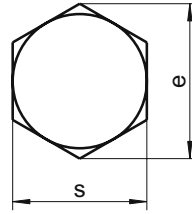
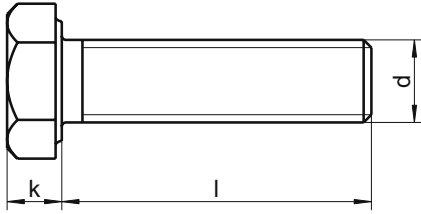
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X40T DIN 933 - A2 - M8 - l = 40mm - according to AD2000-W2

sim. ISO 4017 - **DIN 933 F-80**

Hexagon head screws

full thread and strenght 80



k max.	3,5	4,0	5,3	6,4	7,5	8,8	10,0	12,5	15,0
s	8	10	13	17	19	22	24	30	36
e	8,79	11,05	14,38	18,90	21,10	24,49	26,75	33,53	39,98
●	8	10	13	17	19	22	24	30	36
Length / Ø	M5	M6	M8	M10	M12	M14	M16	M20	M24
8	▲●	▲●							
10	▲●	▲●	▲●						
12	▲●	▲●	▲●	▲●	▲●				
14	▲●	▲●	▲●	▲●	▲●				
16	▲●	▲●	▲●	▲●	▲●				
18	▲●	▲●	▲●	▲●	▲●				
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
22	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
25	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
30	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
35	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
40	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110				▲●	▲●	▲●	▲●	▲●	
120				▲●	▲●	▲●	▲●	▲●	
130				▲●	▲●	▲●	▲●	▲●	
140				▲●	▲●	▲●	▲●	▲●	
150				▲●	▲●	▲●	▲●	▲●	
SU	500 ≥ 45 200	500 ≥ 14 200 ≥ 45 100	200 ≥ 25 100 ≥ 70 50	100 ≥ 50 50	100 ≥ 50 50 ≥ 100 25	25	25	25 ≥ 130 10	10

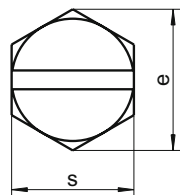
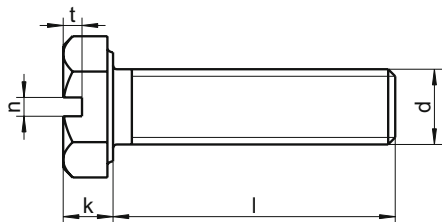
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X4080 DIN 933 - A2 - M8 - l = 40mm - strenght class 80

DIN 933 slot - sim. ISO 4017

Hexagon head screws

full thread, with slot

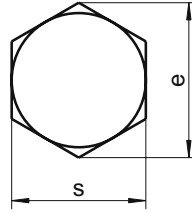
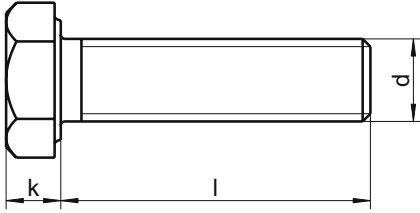


k max.	2,8	3,5	4,0	5,3
s	7	8	10	13
e	7,66	8,79	11,05	14,38
n	1,0	1,2	1,6	2,0
t	1,1	1,4	1,6	2,1
⊖	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M4	M5	M6	M8
6	▲ ●	▲ ●		
8	▲ ●	▲ ●	▲ ●	
10	▲ ●	▲ ●	▲ ●	▲ ●
12	▲ ●	▲ ●	▲ ●	▲ ●
16	▲ ●	▲ ●	▲ ●	▲ ●
18		▲ ●	▲ ●	▲ ●
20		▲ ●	▲ ●	▲ ●
25		▲ ●	▲ ●	▲ ●
30		▲ ●	▲ ●	▲ ●
35		▲ ●	▲ ●	▲ ●
40		▲ ●	▲ ●	▲ ●
SU	1000	500	500 ≥ 16 200	200 ≥ 30 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 933-2-8X40SZ DIN 933 - A2 - M8 - l = 40mm - slotted drive

sim. DIN 933 - **ISO 4017**
Hexagon head screws
full thread



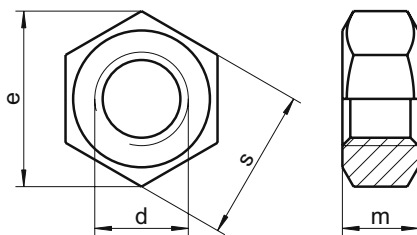
k	6,4	7,5
s	16	18
e	17,77	20,03
●	16	18
Length / Ø	M10	M12
16	▲ ●	▲ ●
20	▲ ●	▲ ●
25	▲ ●	▲ ●
30	▲ ●	▲ ●
35	▲ ●	▲ ●
40	▲ ●	▲ ●
45	▲ ●	▲ ●
50	▲ ●	▲ ●
55	▲ ●	▲ ●
60	▲ ●	▲ ●
65	▲ ●	▲ ●
70	▲ ●	▲ ●
75	▲ ●	▲ ●
80	▲ ●	▲ ●
90	▲ ●	▲ ●
100	▲ ●	▲ ●
SU	100 ≥ 55 50	100 ≥ 50 50 ≥ 70 25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 4017-2-10X60 ISO 4017 - A2 - M10 - l = 60mm

DIN 934 - sim. ISO 4032

Hexagon nuts



d	m min.	s	e	⌀
M1,4	0,95	3	3,28	3
M1,6	1,05	3,2	3,41	3,2
M1,7	1,15	3,5	3,82	3,5
M2	1,35	4	4,32	4
M2,3	1,55	4,5	4,88	4,5
M2,5	1,75	5	5,45	5
M2,6	1,75	5	5,45	5
M3	2,15	5,5	6,01	5,5
M3,5	2,55	6	6,58	6
M4	2,90	7	7,66	7
M5	3,70	8	8,79	8
M6	4,70	10	11,05	10
M7	5,20	11	12,12	11
M8	6,14	13	14,38	13
M10	7,64	17	18,90	17
M12	9,64	19	21,10	19
M14	10,30	22	24,49	22
M16	12,30	24	26,75	24
M18	14,30	27	29,56	27
M20	14,90	30	32,95	30
M22	16,90	32	35,03	32
M24	17,70	36	39,55	36
M27	20,70	41	45,20	41
M30	22,70	46	50,85	46
M33	24,70	50	55,37	50
M36	27,40	55	60,79	55
M39	29,40	60	66,44	60
M42	32,40	65	71,30	65
M45	34,40	70	76,95	70
M48	36,40	75	82,60	75
M52	40,40	80	88,25	80
M60	46,40	90	99,21	90
M64	49,10	95	104,86	95

Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	500
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
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▲●	5
▲●	5
▲●	1
▲●	1
▲●	1

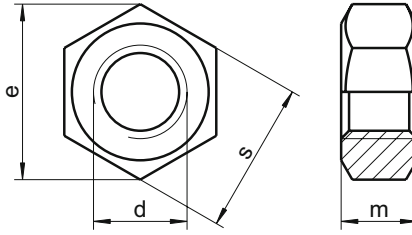
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-2-10 DIN 934 - A2 - M10

Hexagon nuts DIN 934 with fine pitch thread, left hand thread as well as UNC/UNF, with AD2000-W2 and made of special materials can be found on the following pages. Please note that nuts according to DIN 934 up to M24 will be delivered as standard in A2-70 and A4-80. The material A2-80 can be found on one of the following pages in this catalogue. Hexagon nuts with changed wrench sizes according to ISO 4032 can be found on the following pages.

Hexagon nuts

according to AD2000-W2



d	m min.	s	e	⌀
M6	4,70	10	11,05	10
M8	6,14	13	14,38	13
M10	7,64	17	18,90	17
M12	9,64	19	21,10	19
M14	10,30	22	24,49	22
M16	12,30	24	26,75	24
M18	14,30	27	29,56	27
M20	14,90	30	32,95	30
M22	16,90	32	35,03	32
M24	17,70	36	39,55	36
M27	20,70	41	45,20	41
M30	22,70	46	50,85	46
M33	24,70	50	55,37	50
M36	27,40	55	60,79	55

Grade	SU
▲●	500
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10

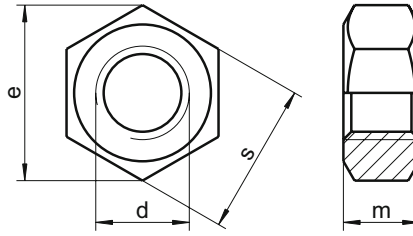
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-2-8T DIN 934 - A2 - M8 - according to AD2000-W2

DIN 934 fine thread - sim. ISO 8673

Hexagon nuts

with fine thread



d	m min.	s	e	⌀
M8X1	6,14	13	14,38	13
M10X1	7,64	17	18,90	17
M10X1,25	7,64	17	18,90	17
M12X1,5	9,64	19	21,10	19
M12X1,25	9,64	19	21,10	19
M14X1,5	10,30	22	24,49	22
M16X1,5	12,30	24	26,75	24
M18X1,5	14,30	27	29,56	27
M20X1,5	14,90	30	32,95	30
M20X2	14,90	30	32,95	30
M22X1,5	16,90	32	35,03	32
M24X1,5	17,70	36	39,55	36
M24X2	17,70	36	39,55	36
M27X1,5	20,70	41	45,20	41
M27X2	20,70	41	45,20	41
M30X1,5	22,70	46	50,85	46
M30X2	22,70	46	50,85	46
M36X1,5	27,40	55	60,79	55
M36X3	27,40	55	60,79	55
M42X4,5	32,40	65	71,30	65

Grade	SU
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
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▲●	25
▲●	25
▲●	10
▲●	10
▲●	10

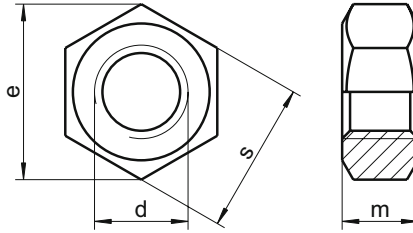
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-2-8X1 DIN 934 - A2 - M8 - pitch = 1mm

DIN 934 left hand thread

Hexagon nuts

with left hand thread



d	m min.	s	e	⌀
M3	2,15	5,5	6,01	5,5
M4	2,90	7	7,66	7
M5	3,70	8	8,79	8
M6	4,70	10	11,05	10
M8	6,14	13	14,38	13
M10	7,64	17	18,90	17
M12	9,64	19	21,10	19
M14	10,30	22	24,49	22
M16	12,30	24	26,75	24
M18	14,30	27	29,56	27
M20	14,90	30	32,95	30
M22	16,90	32	35,03	32
M24	17,70	36	39,55	36
M27	20,70	41	45,20	41
M30	22,70	46	50,85	46

Grade	SU
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10

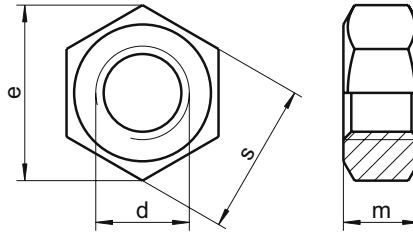
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-2-8Ll DIN 934 - A2 - M8 - left hand thread

DIN 934 UNC

Hexagon nuts

with UNC thread



d	m min.	s	e	gears	⦿
1/4"	5,5	11	12,7	20	11
5/16"	6,5	14	16,2	18	14
3/8"	8,0	17	19,6	16	17
1/2"	11,0	22	25,4	13	22
5/8"	13,0	27	31,2	11	27
3/4"	16,0	32	36,9	10	32
7/8"	18,0	36	41,6	9	36
1"	20,0	41	47,3	8	41

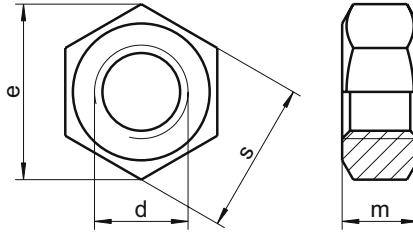
Grade	SU
▲●	500
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	25
▲●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. Z934-2-5/16-18 DIN 934 (inch) - A2 - Ø 5/16" - number of gears: 18

Hexagon nuts

A2 with strenght 80



d	m min.	s	e	⌀
M4	2,90	7	7,66	7
M6	4,70	10	11,05	10
M8	6,14	13	14,38	13
M10	7,64	17	18,90	17
M12	9,64	19	21,10	19
M14	10,30	22	24,49	22
M16	12,30	24	26,75	24
M20	14,90	30	32,95	30
M22	16,90	32	35,03	32
M24	17,70	36	39,55	36

Grade	SU
▲	500
▲	500
▲	200
▲	100
▲	100
▲	100
▲	50
▲	50
▲	50
▲●	50

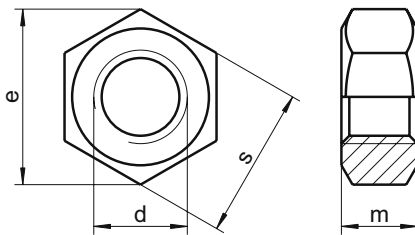
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-2-880 DIN 934 - A2 - M8 - strenght class 80

DIN 934 special materials - sim. ISO 4032

Hexagon nuts

special materials 1.4462, 1.4529, 1.4539 and 1.4571



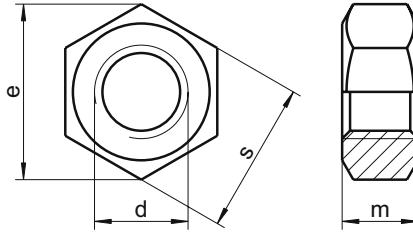
d	m min.	s	e	⌀
M6	4,70	10	11,05	10
M8	6,14	13	14,38	13
M10	7,64	17	18,90	17
M12	9,64	19	21,10	19
M16	12,30	24	26,75	24
M20	14,90	30	32,95	30
M24	17,70	36	39,55	36
M27	20,70	41	45,20	41
M30	22,70	46	50,85	46

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 934-BB-10 DIN 934 - 1.4539 - M10

Grade	SU
A5 Al BA BB	100
A5 Al BA BB	100
A5 Al BA BB	50
A5 Al BA BB	50
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25
A5 Al BA BB	25

sim. DIN 934 - **ISO 4032**
Hexagon nuts



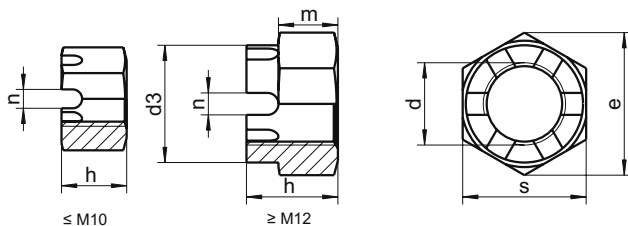
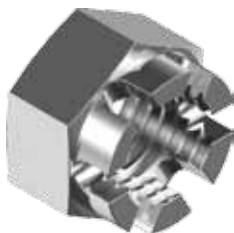
d	m min.	s	e	⬤
M10	8,04	16	17,77	16
M12	10,37	18	20,03	18
M16	14,10	24	26,75	24

Grade	SU
▲ ●	100
▲ ●	100
▲ ●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 4032-2-12 ISO 4032 - A2 - M12

DIN 935

Hexagon castle nuts



d	m	h	s	e	d3	n	●
M5	4,0	6,0	8	8,87	-	1,4	8
M6	5,0	7,5	10	11,05	-	2,0	10
M8	6,5	9,5	13	14,38	-	2,5	13
M10	8,0	12,0	17	18,90	-	2,8	17
M12	10,0	15,0	19	21,10	17	3,5	19
M14	11,0	16,0	22	24,49	19	3,5	22
M16	13,0	19,0	24	26,75	22	4,5	24
M18	15,0	21,0	27	30,14	25	4,5	27
M20	16,0	22,0	30	33,53	28	4,5	30
M24	19,0	27,0	36	39,98	34	5,5	36
M27	22,0	30,0	41	45,63	38	5,5	41
M30	24,0	33,0	46	51,28	42	7,0	46
M36	29,0	38,0	55	55,80	50	7,0	55

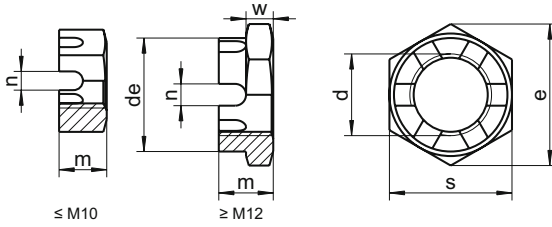
Grade	SU
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 935-2-8 DIN 935 - A2 - M8

sim. ISO 7038 - **DIN 937** Hexagon castle nuts

thin type



d	m min.	w	s	e	de min.	n min.	●
M6	5,70	3,5	10	11,05	-	2,0	10
M8	7,64	4,5	13	14,38	-	2,5	13
M10	8,64	5,0	17	18,90	-	2,8	17
M12	9,64	6,0	19	20,10	16,57	3,5	19
M14	10,57	7,0	22	24,49	18,48	3,5	22
M16	11,57	7,0	24	26,75	21,48	4,5	24
M18	12,30	8,0	27	29,56	24,30	4,5	27
M20	12,30	8,0	30	32,95	27,30	4,5	30
M24	14,30	9,0	36	39,55	33,00	5,5	36
M27	16,30	11,0	41	45,20	37,00	5,5	41
M30	17,30	11,0	46	50,85	41,00	7,0	46

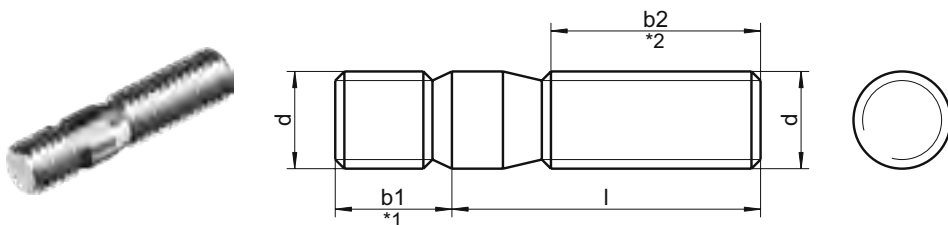
Grade	SU
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 937-2-8 DIN 937 - A2 - M8

DIN 938

Studs

metal end ~ 1xd



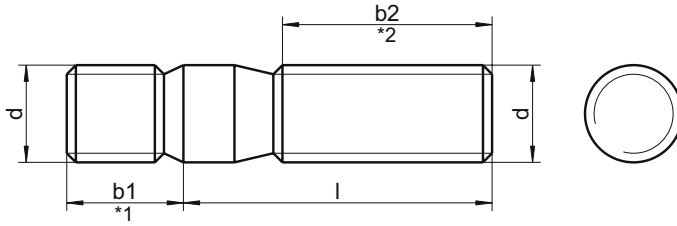
b2 ≤125	18	22	26	30	38	46	54	66
b2 >125	24	28	32	36	44	52	60	72
b1	6	8	10	12	16	20	24	30
Length /Ø	M6	M8	M10	M12	M16	M20	M24	M30
16	▲●	▲●						
20	▲●	▲●	▲●	▲●				
25	▲●	▲●	▲●	▲●				
30	▲●	▲●	▲●	▲●	▲●			
35	▲●	▲●	▲●	▲●	▲●	▲●		
40	▲●	▲●	▲●	▲●	▲●	▲●		
45	▲●	▲●	▲●	▲●	▲●	▲●		
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65		▲●	▲●	▲●	▲●	▲●	▲●	▲●
70		▲●	▲●	▲●	▲●	▲●	▲●	▲●
75		▲●	▲●	▲●	▲●	▲●	▲●	▲●
80		▲●	▲●	▲●	▲●	▲●	▲●	▲●
85		▲●	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●	▲●	▲●
95		▲●	▲●	▲●	▲●	▲●	▲●	▲●
100		▲●	▲●	▲●	▲●	▲●	▲●	▲●
110		▲●	▲●	▲●	▲●	▲●	▲●	▲●
120		▲●	▲●	▲●	▲●	▲●	▲●	▲●
130				▲●	▲●	▲●	▲●	▲●
SU	100	100	100	100 ≥ 110 25	50 ≥ 120 25	50 ≥ 70 25	25 ≥ 100 10	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 938-2-8X40T DIN 938 - A2 - M8 - l = 40mm - according to AD2000-W2 - *1 screw-in end - *2 nut end

DIN 939 Studs

metal end ~ 1,25xd



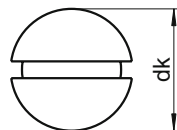
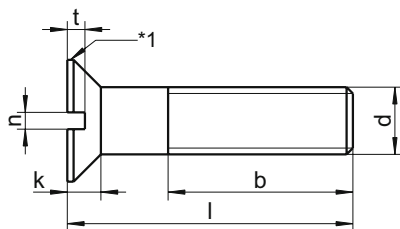
b2 ≤ 125	18	22	26	30	38	46	54	66
b2 > 125	24	28	32	36	44	52	60	72
b1	7,5	10,0	12,0	15,0	20,0	25,0	30,0	38,0
Length / Ø	M6	M8	M10	M12	M16	M20	M24	M30
16	▲●							
20	▲●	▲●		▲●				
25	▲●	▲●	▲●	▲●				
30	▲●	▲●	▲●	▲●	▲●			
35	▲●	▲●	▲●	▲●	▲●			
40	▲●	▲●	▲●	▲●	▲●	▲●		
45	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75		▲●	▲●	▲●	▲●	▲●	▲●	▲●
80		▲●	▲●	▲●	▲●	▲●	▲●	▲●
85		▲●	▲●	▲●	▲●	▲●	▲●	▲●
90		▲●	▲●	▲●	▲●	▲●	▲●	▲●
100			▲●	▲●	▲●	▲●	▲●	▲●
110			▲●	▲●	▲●	▲●	▲●	▲●
120			▲●	▲●	▲●	▲●	▲●	▲●
125				▲●	▲●	▲●	▲●	▲●
130				▲●	▲●	▲●	▲●	▲●
140					▲●	▲●	▲●	▲●
150					▲●	▲●	▲●	▲●
SU	100	100	100	100 ≥ 110 50 ≥ 130 25	50 ≥ 120 25	50 ≥ 70 25	25 ≥ 100 10	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 939-2-8X40T DIN 939 - A2 - M8 - l = 40mm - according to AD2000-W2 - *1 screw-in end - *2 nut end

DIN 963 - sim. ISO 2009

Slotted countersunk flat head screws



dk	3,0	3,8	4,7	5,6	6,5	7,5	9,2	11,0	14,5	18,0	22,0
k max.	0,96	1,20	1,50	1,65	1,93	2,20	2,50	3,00	4,00	5,00	6,00
n	0,4	0,5	0,6	0,8	0,8	1,0	1,2	1,6	2,0	2,5	3,0
t min.	0,32	0,40	0,50	0,60	0,70	0,80	1,00	1,20	1,60	2,00	2,40
b min.	15	16	18	19	20	22	25	28	34	40	46
Ø	0,4X2,0	0,5X3,0	0,6X3,5	0,8X4,0	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0	2,5X14,0	3,0X16

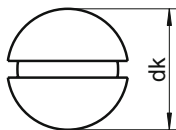
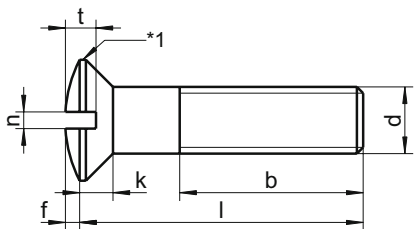
Length / Ø	M1,6	M2	M2,5	M3	M3,5	M4	M5	M6	M8	M10	M12
3	▲●										
4	▲●	▲●		▲●							
5	▲●	▲●	▲●	▲●	▲●	▲●					
6	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
18		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40				▲●		▲●	▲●	▲●	▲●	▲●	▲●
45				▲●		▲●	▲●	▲●	▲●	▲●	▲●
50				▲●		▲●	▲●	▲●	▲●	▲●	▲●
55				▲●		▲●	▲●	▲●	▲●	▲●	▲●
60				▲●		▲●	▲●	▲●	▲●	▲●	▲●
65						▲●	▲●	▲●	▲●	▲●	▲●
70						▲●	▲●	▲●	▲●	▲●	▲●
75						▲●	▲●	▲●	▲●	▲●	▲●
80						▲●	▲●	▲●	▲●	▲●	▲●
90							▲●	▲●	▲●	▲●	▲●
100							▲●	▲●	▲●	▲●	▲●
110								▲●	▲●	▲●	▲●
120								▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000 ≥ 18 500	1000 ≥ 14 500	1000 ≥ 14 500 ≥ 70 200	500 ≥ 22 200	200 ≥ 35 100	100	100 ≥ 70 50	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 963-2-8X40 DIN 963 - A2 - M8 - l = 40mm - *1 head with rounded or flat-topped edge

Slotted countersunk flat head screws DIN 963 are also available as micro-screws on request. Countersunk flat head screws with cross recess Phillips and Pozidrive can be found as DIN 965, with hexagon socket head as DIN 7991, with TX as WS 9470 and as security screws with TX and PIN as WS 9482 in this catalogue.

sim. ISO 2010 - **DIN 964**
Slotted raised countersunk head screws



	3,8	4,7	5,6	7,5	9,2	11,0	14,5	18,0
dk	0,50	0,60	0,75	1,00	1,25	1,50	2,00	2,50
f	1,20	1,50	1,65	2,20	2,50	3,00	4,00	5,00
k	0,5	0,6	0,8	1,0	1,2	1,6	2,0	2,5
n	0,8	1,0	1,2	1,6	2,0	2,4	3,2	4,0
t min	16	18	19	22	25	28	34	40
b min.	0,5X3,0	0,6X3,5	0,8X4,0	1,0X5,5	1,2X7,0	1,6X9,0	2,0X12,0	2,5X14,0
Length / Ø	M2	M2,5	M3	M4	M5	M6	M8	M10
4	▲●							
5	▲●							
6	▲●	▲●						
8	▲●	▲●	▲●	▲●	▲●			
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●	▲●	▲●
35			▲●	▲●	▲●	▲●	▲●	▲●
40			▲●	▲●	▲●	▲●	▲●	▲●
45			▲●	▲●	▲●	▲●	▲●	▲●
50			▲●	▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●
65				▲●	▲●	▲●	▲●	▲●
70				▲●	▲●	▲●	▲●	▲●
75				▲●	▲●	▲●	▲●	▲●
80				▲●	▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●
95					▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●
SU	1000	1000	500	500 ≥ 70 200	500 ≥ 25 200	P100	100	100

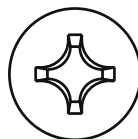
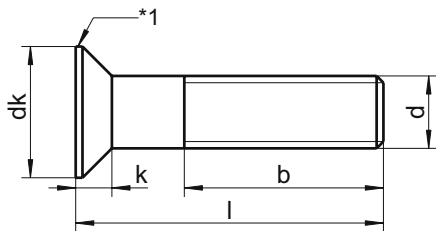
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 964-2-8X40 DIN 964 - A2 - M8 - l = 40mm - *1 head with rounded or flatended edge

DIN 965 H - sim. ISO 7046

Countersunk flat head screws

with cross recess H (Phillips)



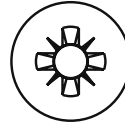
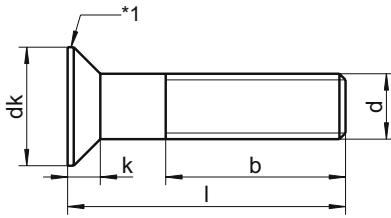
dk	3,0	3,8	4,7	5,6	7,5	9,2	11,0	14,5	18,0
k max.	0,96	1,20	1,50	1,65	2,20	2,50	3,00	4,00	5,00
b min.	15	16	18	19	22	25	28	34	40
⊕	P 0	P 1	P 1	P 1	P 2	P 2	P 3	P 4	P 4
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10
3	▲●	▲●							
4	▲●	▲●	▲●	▲●					
5	▲●	▲●	▲●	▲●	▲●				
6	▲●	▲●	▲●	▲●	▲●	▲●			
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
18		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22				▲●	▲●	▲●	▲●	▲●	▲●
25				▲●	▲●	▲●	▲●	▲●	▲●
30				▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●	▲●
65					▲●	▲●	▲●	▲●	▲●
70					▲●	▲●	▲●	▲●	▲●
75					▲●	▲●	▲●	▲●	▲●
80					▲●	▲●	▲●	▲●	▲●
85					▲●	▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●	▲●
95					▲●	▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000	1000 ≥ 25 500 ≥ 70 200	500 ≥ 25 200	200 ≥ 35 100	100	100 ≥ 70 50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 965-2-8X40 DIN 965 - A2 - M8 - l = 40mm - phillips drive - *1 head with rounded or flatended edge

Countersunk flat head screws with cross recess DIN 965 are also available on request as micro-screws. Slotted countersunk flat head screws can be found as DIN 963, with hexagon socket head as DIN 7991, with TX as WS 9470 and WS 9475 and as security screws with TX+PIN as WS 9482 in this catalogue.

sim. ISO 7046 - **DIN 965 Z**
Countersunk flat head screws
 with cross recess Z (Pozidrive)



dk	3,0	3,8	4,7	5,6	7,5	9,2	11,0	14,5	18,0
k	0,96	1,20	1,50	1,65	2,20	2,50	3,00	4,00	5,00
b min.	15	16	18	19	22	25	28	34	40
⊕	Z0	Z1	Z1	Z1	Z2	Z2	Z3	Z4	Z4
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8	M10
3	▲●	▲●							
4	▲●	▲●	▲●	▲●					
5	▲●	▲●	▲●	▲●	▲●				
6	▲●	▲●	▲●	▲●	▲●	▲●			
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
18		▲●	▲●	▲●	▲●	▲●	▲●	▲●	
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●	▲●
30				▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●	▲●
65					▲●	▲●	▲●	▲●	▲●
70					▲●	▲●	▲●	▲●	▲●
75					▲●	▲●	▲●	▲●	▲●
80					▲●	▲●	▲●	▲●	▲●
85					▲●	▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●	▲●
95					▲●	▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000	1000 ≥ 25 500 ≥ 70 200	500 ≥ 25 200	200 ≥ 35 100	100	100 ≥ 70 50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

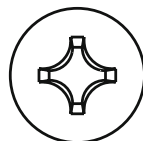
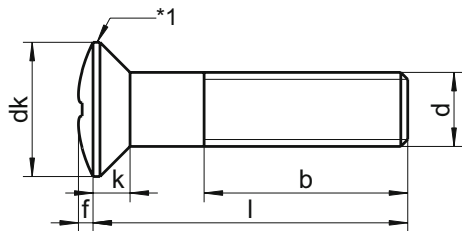
Example item no. 965-2-8X40Z DIN 965 - A2 - M8 - l = 40mm - pozidrive - *1 head with rounded or flatended edge

Countersunk flat head screws with cross recess DIN 965 are also available on request as micro-screws. Slotted countersunk flat head screws can be found as DIN 963, with hexagon socket head as DIN 7991, with TX as WS 9470 and WS 9475 and as security screws with TX+PIN as WS 9482 in this catalogue.

DIN 966 H - sim. ISO 7047

Raised countersunk head screws

with cross recess H (Phillips)



dk	4,7	5,6	7,5	9,2	11,0	14,5	18,0
f	0,60	0,75	1,00	1,25	1,50	2,00	2,50
k	1,50	1,65	2,20	2,50	3,00	4,00	5,00
b min.	18	19	22	25	28	34	40
⊕	P 1	P 1	P 2	P 2	P 3	P 4	P 4
Length / Ø	M2,5	M3	M4	M5	M6	M8	M10
4	▲ ●	▲ ●					
5	▲ ●	▲ ●	▲ ●				
6	▲ ●	▲ ●	▲ ●	▲ ●			
8	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
14	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
18	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
22		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
28		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
65			▲ ●	▲ ●	▲ ●	▲ ●	
70			▲ ●	▲ ●	▲ ●	▲ ●	
75				▲ ●	▲ ●	▲ ●	
80				▲ ●	▲ ●	▲ ●	
85				▲ ●	▲ ●	▲ ●	
90				▲ ●	▲ ●	▲ ●	
95				▲ ●	▲ ●	▲ ●	
100				▲ ●	▲ ●	▲ ●	
SU	1000	1000 ≥ 25 500	1000 ≥ 25 500	500 ≥ 25 200	200 ≥ 35 100	100	100

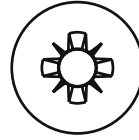
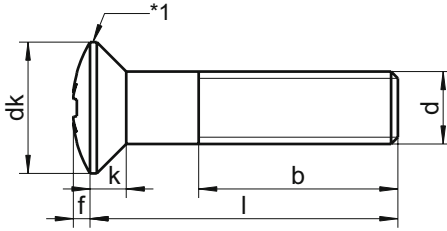
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 966-2-8X40 DIN 966 - A2 - M8 - l = 40mm - phillips drive - *1 head with rounded or flatended edge

sim. ISO 7047 - **DIN 966 Z**

Raised countersunk head screws

with cross recess Z (Pozidrive)



dk	3,8	4,7	5,6	7,5	9,2	11,0
f	0,50	0,60	0,75	1,00	1,25	1,50
k	1,20	1,50	1,65	2,20	2,50	3,00
b min.	16	18	19	22	25	28
⊕	Z 1	Z 1	Z 1	Z 2	Z 2	Z 3
Length / Ø	M2	M2,5	M3	M4	M5	M6
4	▲●	▲●	▲●			
5	▲●	▲●	▲●	▲●		
6	▲●	▲●	▲●	▲●	▲●	
8	▲●	▲●	▲●	▲●	▲●	▲●
10	▲●	▲●	▲●	▲●	▲●	▲●
12	▲●	▲●	▲●	▲●	▲●	▲●
14		▲●	▲●	▲●	▲●	▲●
16		▲●	▲●	▲●	▲●	▲●
18		▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●
28			▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●
35			▲●	▲●	▲●	▲●
40			▲●	▲●	▲●	▲●
45			▲●	▲●	▲●	▲●
50			▲●	▲●	▲●	▲●
55				▲●	▲●	▲●
60				▲●	▲●	▲●
65				▲●	▲●	▲●
70				▲●	▲●	▲●
75					▲●	▲●
80					▲●	▲●
90					▲●	▲●
95					▲●	▲●
100					▲●	▲●
SU	1000	1000	1000 ≥ 25 500	1000 ≥ 25 500	500 ≥ 25 200	200 ≥ 35 100

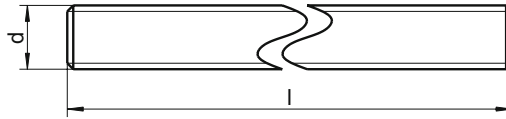
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 966-2-6X40Z DIN 966 - A2 - M6 - l = 40mm - pozidrive - *1 head with rounded or flat-topped edge

DIN 976 - Page 1

Threaded rods

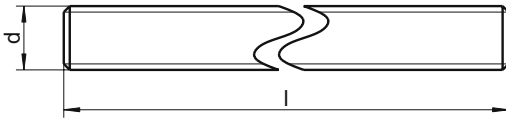
1m, 2m, 3m



Length / Ø	M2	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
1.000	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
2.000				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
3.000				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
SU	1	1	1	1	1	1	1	1	1	1	1	1	1	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-2-10 DIN 976 - A2 - M10 - l = 1.000mm



Length / Ø	M27	M30	M33	M36	M42	M48
1.000	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
2.000	▲ ●	▲ ●	▲ ●	▲ ●		
3.000	▲ ●	▲ ●	▲ ●	▲ ●		
SU	1	1	1	1	1	1

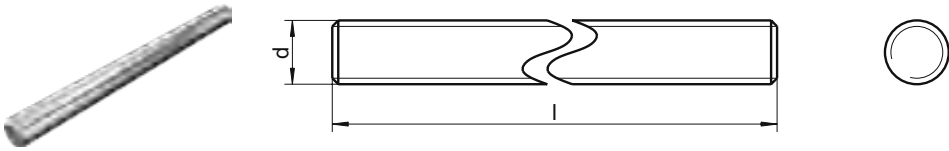
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-2-27X2000 DIN 976 - A2 - M10 - l = 2.000mm

DIN 976 special materials

Threaded rods

3m, special materials 1.4462, 1.4529, 1.4539 and 1.4571



Length / Ø	M6	M8	M10	M12	M16	M20	M24	M27	M30
3.000	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB	A5 AI BA BB
SU	1	1	1	1	1	1	1	1	1

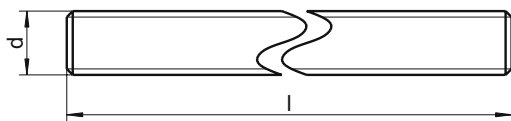
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-BB-10X3000 DIN 976 - 1.4539 - M10 - l = 3.000mm

DIN 976 left hand thread

Threaded rods

1m, with left hand thread



Length / Ø	M6	M8	M10	M12	M16	M20	M24
1.000	▲	▲	▲	▲	▲	▲	▲
SU	1	1	1	1	1	1	1

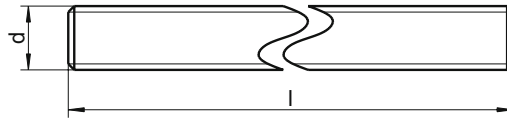
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-2-10LI DIN 976 - A2 - M10 - left hand thread

DIN 976 UNC

Threaded rods

with UNC thread 1m



d	gears
1/4"	20
5/16"	18
3/8"	16
7/16"	14
1/2"	13
5/8"	11
3/4"	10
7/8"	9
1"	8

Grade	SU
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25

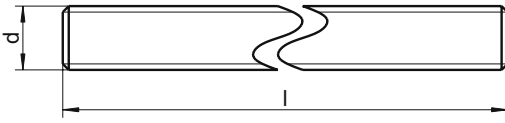
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. Z976-2-7/8-9 DIN 976 (inch) - A2 - UNC 7/8" - number of gears: 9

DIN 976 B - Page 1

Threaded pins

type B



Length / Ø	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
12	▲●											
14	▲●											
16	▲●	▲●										
18	▲●	▲●										
20	▲●	▲●	▲●									
22	▲●	▲●	▲●									
25	▲●	▲●	▲●	▲●								
28	▲●	▲●	▲●	▲●								
30	▲●	▲●	▲●	▲●	▲●	▲●						
35	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
40	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●				
45	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
50	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
55	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
60	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
85	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
95	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
120	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
130		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
140		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
SU	100	50	50	25	25	25	25	25	25	25	10 ≥ 100 1	1

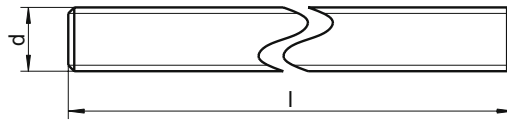
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-2-10X100B DIN 976 - A2 - M10 - l = 100mm - form B - threaded bolt

DIN 976 B - Page 2

Threaded pins

type B



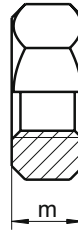
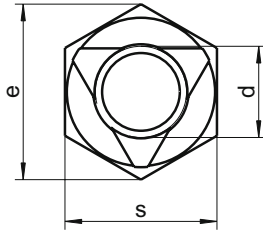
Length / Ø	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
150	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
160	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
170		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
180		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
190		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
200		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
220			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
240			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
260				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
280				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
300					▲●	▲●	▲●	▲●	▲●	▲●	▲●
320					▲●	▲●	▲●	▲●	▲●	▲●	▲●
340						▲●	▲●	▲●	▲●	▲●	▲●
360						▲●	▲●	▲●	▲●	▲●	▲●
380							▲●	▲●	▲●	▲●	▲●
400							▲●	▲●	▲●	▲●	▲●
420								▲●	▲●	▲●	▲●
440								▲●	▲●	▲●	▲●
460									▲●	▲●	▲●
480									▲●	▲●	▲●
500										▲●	▲●
SU	50	50	25	25	25	25	25	25	25	1	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 976-2-10X200B DIN 976 - A2 - M10 - l = 200mm - form B - threaded bolt

sim. ISO 7042 - **similar DIN 980** Prevailing torque type hexagon nuts

all-metal insert



d	m min.	s	e	⌀
M3	1,65	5,5	6,01	5,5
M4	2,20	7	7,66	7
M5	2,75	8	8,79	8
M6	3,30	10	11,05	10
M7	3,85	11	12,12	11
M8	4,40	13	14,38	13
M10	5,50	17	18,90	17
M12	6,60	19	21,10	19
M16	8,80	24	26,75	24
M20	11,00	30	32,95	30
M22	12,20	32	35,03	32
M24	13,20	36	39,55	36

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

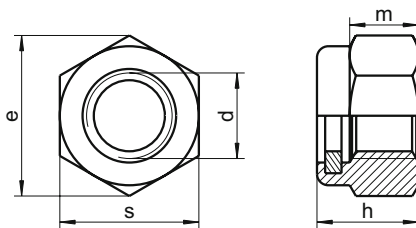
Example item no. 980-2-8 DIN 980 - A2 - M8

Please note that prevailing torque type hexagon nuts, all-metal similar to DIN 980 will be delivered in type Inloc with three-point pinch on the face, copper- and tin-plated. Prevailing torque type hexagon nuts, all-metal similar to DIN 980 type Biloc with three-point pinch on the flat and Trelloc with each with three-point pinch on the edge, each copper- and tin-plated are available on request. Prevailing torque type hexagon nuts with non-metallic insert, high type can be found as DIN 982, thin type as DIN 985 in this catalogue.

DIN 982 - sim. ISO 7040

Prevailing torque type hexagon nuts

with non-metallic insert, high type



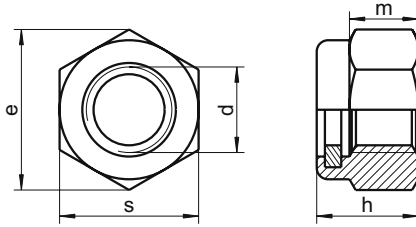
d	m	h	s	e	⬤
M4	3,60	6,0	7	7,66	7
M5	4,40	6,3	8	8,79	8
M6	4,90	8,0	10	11,05	10
M8	6,44	9,5	13	14,38	13
M10	8,04	11,5	17	18,90	17
M12	10,37	14,0	19	21,10	19
M14	12,10	16,0	22	24,49	22
M16	14,10	18,0	24	26,75	24
M20	16,90	22,0	30	32,95	30
M24	20,20	28,0	36	39,55	36

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	50
▲●	50
▲●	50
▲●	25
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 982-2-8 DIN 982 - A2 - M8

sim. ISO 10511 - **DIN 985**
Prevailing torque type hexagon nuts
 with non-metallic insert, thin type



d	m	h	s	e	⌀
M2,5	3,5	2,3	5	5,50	5
M3	2,4	2,4	5,5	6,01	5,5
M4	2,9	2,9	7	7,66	7
M5	3,2	3,2	8	8,79	8
M6	4,0	6,0	10	11,05	10
M8	5,5	8,0	13	14,38	13
M10	6,5	10,0	17	18,90	17
M12	8,0	12,0	19	21,10	19
M14	9,5	14,0	22	24,49	22
M16	10,5	16,0	24	26,75	24
M18	13,0	18,5	27	29,56	27
M20	14,0	20,0	30	32,95	30
M22	15,0	22,0	32	35,03	32
M24	15,0	24,0	36	39,55	36
M27	17,0	27,0	41	45,20	41
M30	19,0	30,0	46	50,85	46
M33	22,0	33,0	50	55,37	50
M36	25,0	36,0	55	60,79	55

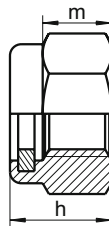
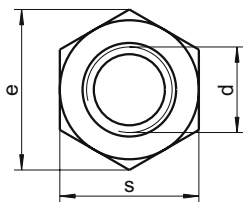
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 985-2-8 DIN 985 - A2 - M8

DIN 985 fine thread

Prevailing torque type hexagon nuts

with fine thread and non-metallic insert, thin type



d	m min.	h	s	e min.	⌀
M8X1	5,5	8	13	14,38	13
M10X1	6,5	10	17	18,90	17
M12X1,5	8,0	12	19	21,10	19
M16X1,5	10,5	16	24	26,75	24
M20X1,5	14,0	20	30	32,95	30
M24X1,5	15,0	24	36	39,55	36

Grade	SU
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	25

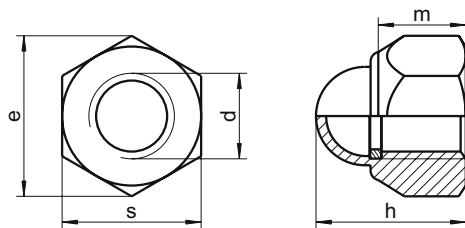
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 985-2-8X1 DIN 985 - A2 - M8 - pitch = 1mm

DIN 986

Prevailing torque type hexagon domed cap nuts

with non-metallic insert



d	m	h	s	e	⬤
M4	2,90	9,6	7	7,66	7
M5	4,40	10,5	8	8,79	8
M6	4,90	12,0	10	11,05	10
M8	6,44	14,0	13	14,38	13
M10	8,04	18,1	16	18,90	16
M12	10,37	22,5	18	21,10	18
M14	12,10	26,4	21	23,35	21
M16	14,10	27,5	24	26,75	24

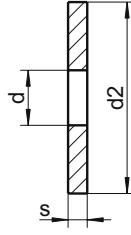
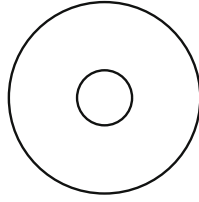
Grade	SU
▲	200
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100
▲	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 986-2-8 DIN 986 - A2 - M8

DIN 1052 Washers

for wood constructions



d	for	d2	s
14	M12	58	6
18	M16	68	6
23	M20	80	8
25	M22	92	8
27	M24	105	8

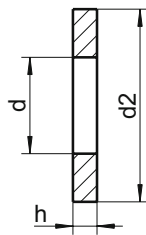
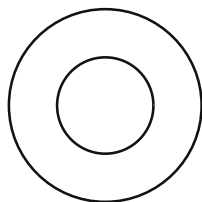
Grade	SU
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 1052-2-14 DIN 1052 - A2 - Ø 14mm

DIN 1440 - sim. ISO 8738

Plain washers

for clevis pins

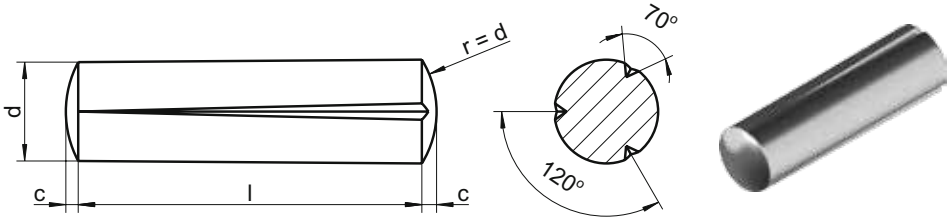


d	for bolt-Ø	d2	h
3	3	6	0,8
4	4	8	0,8
5	5	10	0,8
6	6	12	1,6
7	7	14	1,6
8	8	16	2,0
10	10	20	2,5
12	12	25	3,0
13	13	25	3,0
14	14	28	3,0
16	16	28	3,0
18	18	30	4,0
20	20	32	4,0
22	22	34	4,0
23	23	36	4,0
24	24	38	4,0
25	25	40	4,0
26	26	40	5,0
27	27	40	5,0
28	28	42	5,0
30	30	45	5,0
32	32	50	5,0
33	33	50	5,0
35	35	52	6,0
36	36	52	6,0
40	40	58	6,0
50	50	68	8,0
60	60	80	9,0

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1440-2-8 DIN 1440 - A2 - Ø 8mm



c	0,25	0,30	0,40	0,50	0,63	0,80	1,00
Length / Ø	2	2,5	3	4	5	6	8
6	■	■					
8	■	■		■	■		
10	■	■	■	■	■	■	
12	■	■	■	■	■	■	
16	■	■	■	■	■	■	■
18	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■
25			■	■	■	■	■
30				■	■	■	■
35				■	■	■	■
40				■	■	■	■
45						■	■
50						■	■
60						■	■
SU	1000	500	500	500	200	200	100

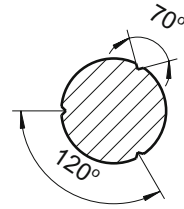
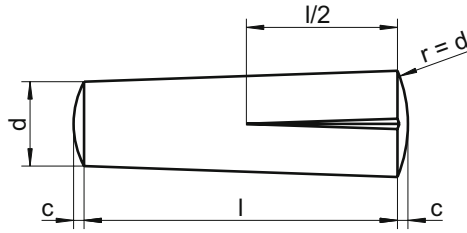
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1471-2-8X40 DIN 1471 - A1 - Ø 8mm - l = 40mm

DIN 1472 - sim. ISO 8745

Grooved pins

half length taper grooved



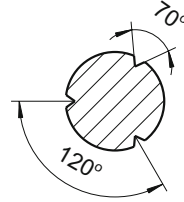
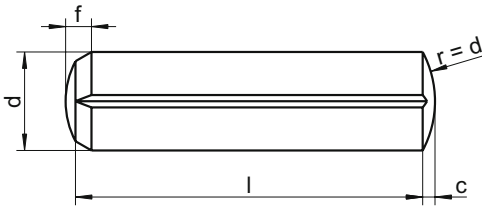
c	0,25	0,30	0,40	0,50	0,60	0,80	1,00	1,20	1,60
Length / Ø	2	2,5	3	4	5	6	8	10	12
5	■	■	■						
6	■	■	■						
8	■	■	■	■	■				
10	■	■	■	■	■	■	■	■	■
12	■	■	■	■	■	■	■	■	■
16	■	■	■	■	■	■	■	■	■
18	■	■	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■	■	■
25			■	■	■	■	■	■	■
30			■	■	■	■	■	■	■
35				■	■	■	■	■	■
40				■	■	■	■	■	■
45					■	■	■	■	■
50					■	■	■	■	■
60						■	■	■	■
SU	1000	500	500	500	200	200	100	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1472-2-8X40 DIN 1472 - A1 - Ø 8mm - l = 40mm

Grooved pins

full length parallel grooved with chamfer



c	0,25	0,30	0,40	0,50	0,60	0,80	1,00	1,20
f	0,9	1,2	1,3	1,8	2,0	2,5	2,8	3,5
Length / Ø	2	2,5	3	4	5	6	8	10
5	■							
6	■							
8	■	■	■					
10	■	■	■	■	■		■	
12	■	■	■	■	■	■	■	
14	■	■	■	■	■	■	■	
16	■	■	■	■	■	■	■	■
18	■	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■	■
22	■	■	■	■	■	■	■	■
25	■	■	■	■	■	■	■	■
30	■	■	■	■	■	■	■	■
32			■	■	■	■	■	■
35			■	■	■	■	■	■
36			■	■	■	■	■	■
40			■	■	■	■	■	■
45				■	■	■	■	■
50				■	■	■	■	■
60				■	■	■	■	■
70					■	■	■	■
80						■	■	■
SU	1000	500	500	500	200	200	100	100

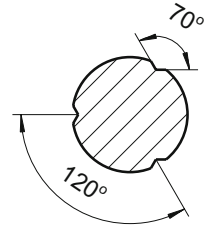
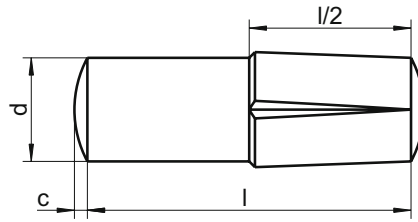
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1473-2-8X40 DIN 1473 - A1 - Ø 8mm - l = 40mm

DIN 1474 - sim. ISO 8741

Grooved pins

half length reverse taper grooved



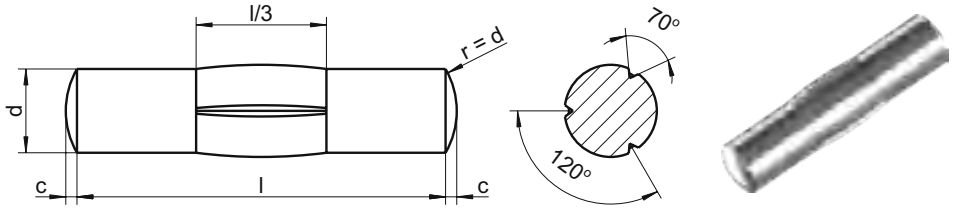
c	0,25	0,40	0,50	0,63	0,80	1,00	1,20
Length / Ø	2	3	4	5	6	8	10
6	■	■					
8	■	■		■			
10	■	■	■	■	■	■	
12	■	■	■	■	■	■	
16	■	■	■	■	■	■	
20	■	■	■	■	■	■	■
25		■	■	■	■	■	■
30		■	■	■	■	■	■
35			■	■	■	■	■
40			■	■	■	■	■
45						■	■
55						■	■
60						■	■
SU	200	200	200	200	100	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1474-2-8X40 DIN 1474 - A1 - Ø 8mm - l = 40mm

Grooved pins

third length center grooved



c	0,25	0,30	0,40	0,50	0,60	0,80	1,00
Length / Ø	2	2,5	3	4	5	6	8
6	■	■	■				
8	■	■	■	■	■		
10	■	■	■	■	■	■	■
12	■	■	■	■	■	■	■
16	■	■	■	■	■	■	■
18	■	■	■	■	■	■	■
20	■	■	■	■	■	■	■
25			■	■	■	■	■
30			■	■	■	■	■
32				■	■	■	■
35				■	■	■	■
36				■	■	■	■
40				■	■	■	■
45					■	■	■
50					■	■	■
60							■
SU	1000	1000	200	200	200	200	100

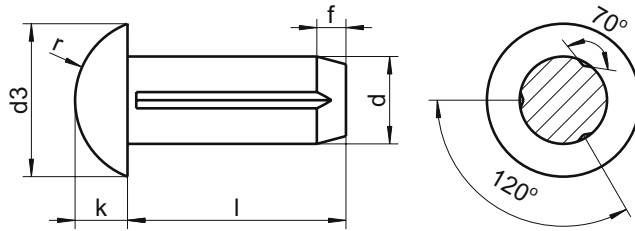
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1475-2-6X36 DIN 1475 - A1 - Ø 6mm - l = 36mm

DIN 1476 - sim. ISO 8746

Grooved pins

with round head



d3	2,4	3,5	4,4	5,2	7,0	8,8
k	0,8	1,2	1,5	1,8	2,4	3,0
f	0,5	0,5	0,7	1,0	1,5	1,5
r	1,4	1,9	2,4	2,8	3,8	4,6
Length / Ø	1,4	2	2,5	3	4	5
3	■	■				
4	■	■	■	■		
5		■	■	■		
6		■	■	■	■	■
8		■	■	■	■	■
10		■	■	■	■	■
12				■	■	■
16				■	■	■
18					■	■
SU	1000	1000	1000	500	500	500

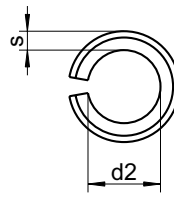
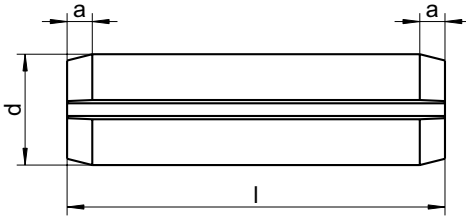
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1476-2-5X16 DIN 1476 - A1 - Ø 5mm - l = 16mm

sim. ISO 8752 - DIN 1481

Spring-type straight pins

slotted



a min.	0,15	0,25	0,35	0,40	0,50	0,60	0,65	0,80	0,90	1,20	2,00	2,00	2,00
d min.	1,2	1,7	2,3	2,8	3,3	3,8	4,4	4,9	5,4	6,4	8,5	10,5	12,5
d2	0,8	1,1	1,5	1,8	2,1	2,3	2,8	2,9	3,4	3,9	5,5	6,5	7,5
s	0,20	0,30	0,40	0,50	0,60	0,75	0,80	1,00	1,00	1,25	1,50	2,00	2,50
Length / Ø	1	1,5	2	2,5	3	3,5	4	4,5	5	6	8	10	12
4	FS	FS	FS	FS	FS	FS	FS						
5	FS	FS	FS	FS	FS	FS	FS						
6	FS	FS	FS	FS	FS	FS	FS	FS	FS				
8	FS	FS	FS	FS	FS	FS	FS	FS	FS				
10	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
12	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
14	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
16	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
18	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
20	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
22			FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
24			FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
26			FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
28			FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
30			FS	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
32					FS	FS	FS	FS	FS	FS	FS	FS	FS
36					FS	FS	FS	FS	FS	FS	FS	FS	FS
40					FS	FS	FS	FS	FS	FS	FS	FS	FS
45							FS	FS	FS	FS	FS	FS	FS
50							FS	FS	FS	FS	FS	FS	FS
55									FS	FS	FS	FS	FS
60									FS	FS	FS	FS	FS
65									FS	FS	FS	FS	FS
70									FS	FS	FS	FS	FS
75										FS	FS	FS	FS
80										FS	FS	FS	FS
90											FS	FS	FS
100											FS	FS	FS
SU	1000	1000	1000	1000	1000	1000	500	500	500 ≥ 50 250	500 ≥ 40 250	500 ≥ 26 250 ≥ 90 100	500 ≥ 26 250 ≥ 90 100	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

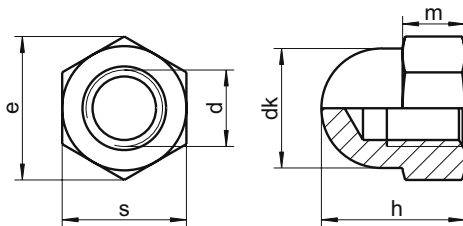
Example item no. 1481-2-8X40 DIN 1481 - 1.4310 - Ø 8mm - l = 40mm

Spiral split pins can be found as DIN 7343 in this catalogue. Spiral split pins, light type DIN 7346 are available on request. Please note that spiral split pins DIN 1481 are not available in A4, because the material does not raise the desired elasticity.

DIN 1587

Hexagon domed cap nuts

high type



d	m	h	s	e	dk	⬠
M3	2,4	7	5,5	6,01	5,5	5,5
M4	3,2	8	7,0	7,66	6,5	7,0
M5	4,0	10	8,0	8,79	7,5	8,0
M6	5,0	12	10,0	11,05	9,5	10,0
M8	6,5	15	13,0	14,38	12,5	13,0
M10	8,0	18	17,0	18,90	16,0	17,0
M12	10,0	22	19,0	21,10	18,0	19,0
M14	11,0	25	22,0	24,49	21,0	22,0
M16	13,0	28	24,0	26,75	23,0	24,0
M18	15,0	32	27,0	30,14	26,0	27,0
M20	16,0	34	30,0	33,53	28,0	30,0
M22	18,0	39	34,0	37,72	33,0	34,0
M24	19,0	42	36,0	39,98	34,0	36,0
M27	20,0	47	41,0	47,30	40,0	41,0
M30	24,0	52	46,0	52,00	42,0	46,0

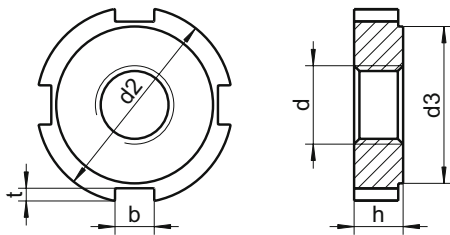
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1587-2-8 DIN 1587 - A2 - M8

Slotted round nuts for hook spanner

with fine thread



d	d2	d3	b	h	t
M12X1,5	28	23	5	6	2,0
M14X1,5	30	25	5	7	2,0
M16X1,5	32	27	5	7	2,0
M18X1,5	34	28	6	8	2,5
M20X1,5	36	30	6	8	2,5
M22X1,5	40	34	6	9	2,5
M24X1,5	42	36	6	9	2,5
M26X1,5	45	38	7	10	3,0
M28X1,5	50	43	7	10	3,0
M30X1,5	50	43	7	10	3,0
M32X1,5	52	45	7	11	3,0
M35X1,5	55	48	7	11	3,0
M38X1,5	58	50	8	11	3,5
M40X1,5	62	54	8	12	3,5
M42X1,5	62	54	8	12	3,5
M45X1,5	68	60	8	12	3,5
M48X1,5	75	67	8	13	3,5
M50X1,5	75	67	8	13	3,5
M52X1,5	80	70	10	13	4,0
M55X1,5	80	70	10	13	4,0
M58X1,5	90	80	10	13	4,0
M60X1,5	90	90	10	13	4,0
M62X1,5	95	85	10	14	4,0
M65X1,5	95	85	10	14	4,0
M68X1,5	100	90	10	14	4,0
M70X1,5	100	90	10	14	4,0

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	5

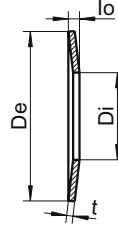
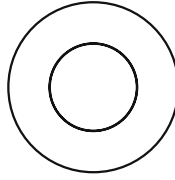
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 1804-2-16X1,5 DIN 1804 - A2 - M16 - pitch = 1,5mm

Please note that the sizes M6 - M42 have 4 grooves, M45 - M120 have 6 grooves and M125 - M200 have 8 grooves. Hook wrenches DIN 1810 are available on request.

DIN 2093

Disc springs



Di	De	lo	t
3,2	6,0	0,45	0,30
3,2	8,0	0,70	0,50
4,2	8,0	0,55	0,30
4,2	8,0	0,60	0,40
4,2	12,0	0,85	0,50
5,2	10,0	0,55	0,25
5,2	10,0	0,70	0,40
5,2	10,0	0,75	0,50
6,2	12,5	0,95	0,70
7,2	14,0	1,10	0,80
8,2	16,0	0,90	0,40
8,2	16,0	1,05	0,60
8,2	15,0	1,25	0,80
8,2	20,0	1,35	0,70
10,2	20,0	1,35	0,80
10,2	20,0	1,55	1,00
10,2	20,0	1,55	1,10
10,2	20,0	1,35	1,25
12,2	25,0	2,05	0,70
12,2	25,0	1,60	0,90
12,2	25,0	2,05	1,00
12,2	25,0	2,05	1,50
14,2	28,0	2,15	1,50
18,3	35,5	2,25	1,25
18,3	35,5	2,25	2,00

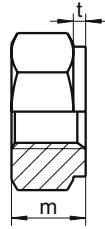
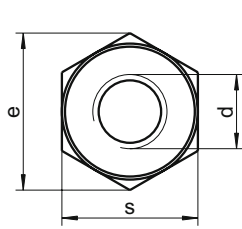
Grade	SU
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
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FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	100
FS	50
FS	50
FS	50
FS	50
FS	50
FS	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 2093-2-8,2X0,8 DIN 2093 - 1.4310 - Ø 8,2mm - t = 0,8mm - FS = spring steel

DIN 2510

Hexagon nuts

for bolts with reduced shank, type NF



d	m	s	e min.	t	●
M12	12	22	23,91	2	22
M16	16	27	29,56	2	27
M20	20	32	35,03	2	32
M24	24	36	39,55	3	36
M27	27	41	45,20	3	41
M30	30	46	50,85	3	46
M33	33	50	55,37	3	50
M36	36	55	60,79	3	55

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25

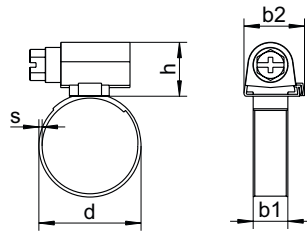
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 2510-2-12 DIN 2510 - A2 - M12

DIN 3017 type A

Hose clamps - W2

range 9 mm, with worm gear drive, type A, stainless W2



cl. range (d)	b1	b2 max.
8 - 12	9	14
8 - 16	9	14
10 - 16	9	14
12 - 20	9	14
12 - 20	9	14
16 - 25	9	14
16 - 27	9	14
20 - 32	9	14
23 - 35	9	14
25 - 40	9	14
30 - 45	9	14
32 - 50	9	14
40 - 60	9	14
50 - 70	9	14
60 - 80	9	14
70 - 90	9	14
80 - 100	9	14
90 - 110	9	14
100 - 120	9	14
110 - 130	9	14
120 - 140	9	14
130 - 150	9	14
140 - 160	9	14

Grade	SU
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
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A0	50
A0	50
A0	25
A0	25
A0	25
A0	25

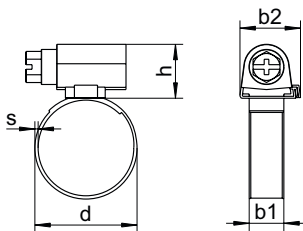
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 3017-0-8X16/9 DIN 3017 - band 1.4016 - zinc coated screw - clamping range: 8-16mm - b1 = 9mm

DIN 3017 type A

Hose clamps - W2

range 12 mm, with worm gear drive, type A, stainless W2



cl. range (d)	b1	b2 max.
16 - 25	12	20
16 - 27	12	20
20 - 32	12	20
23 - 35	12	20
25 - 40	12	20
30 - 45	12	20
32 - 50	12	20
40 - 60	12	20
50 - 70	12	20
60 - 80	12	20
70 - 90	12	20
80 - 100	12	20
90 - 110	12	20
100 - 120	12	20
110 - 130	12	20
120 - 140	12	20
130 - 150	12	20
140 - 160	12	20

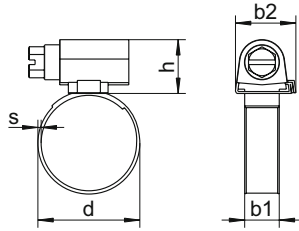
Grade	SU
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	100
A0	75
A0	60
A0	60
A0	50
A0	30
A0	30
A0	25
A0	20
A0	20
A0	20

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 3017-0-8X16/12 DIN 3017 - band 1.4016 - zinc coated screw - clamping range: 8-16mm - b1 = 12mm

DIN 3017 type A Hose clamps - W4 and W5

range 12 mm, with worm gear drive, type A A4/A2 W4 + W5



cl. range (d)	b1	b2 max.
16 - 25	12	20
16 - 27	12	20
20 - 32	12	20
23 - 35	12	20
25 - 40	12	20
30 - 45	12	20
32 - 50	12	20
40 - 60	12	20
50 - 70	12	20
60 - 80	12	20
70 - 90	12	20
80 - 100	12	20
90 - 110	12	20
100 - 120	12	20
110 - 130	12	20
120 - 140	12	20
130 - 150	12	20
140 - 160	12	20

Grade	SU
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10
▲●	10
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

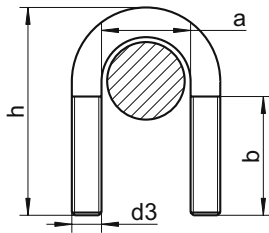
Example item no. 3017-4-8X16/12 DIN 3017 - A4 - clamping range = 8 - 16mm - b1 = 12mm

Please note: The products with the description A2 are according to the quality W4. Material for the clamp 1.4301, screw galvanised steel. Screw with cross recess Phillips. Please note: The products with the description A4 are according to the quality W5. Material for the clamp 1.4401, screw galvanised steel. Screw with cross recess Phillips. With edge raised band and plain inner surface to avoid damages at the hose.

DIN 3570

U-bolts

with thin shank



a	d3	inch	h	b
23	M10	1/2"	65	33
30	M10	3/4"	70	40
38	M10	1"	76	40
46	M10	1 1/4"	86	50
52	M10	1 1/2"	92	50
64	M12	2"	109	50
82	M12	2 1/2"	125	50
94	M12	3"	138	50

Grade	SU
▲	50
▲	50
▲	50
▲	50
▲	50
▲	25
▲	25
▲	25

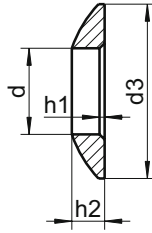
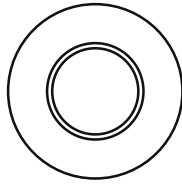
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 3570-2-30A DIN 3570 - A2 - M10 - form A - for pipes Ø30 mm

DIN 6319 C

Spherical washers

type C



d	d3	h1	h2
6,4	12	0,3	2,3
8,4	17	0,5	3,2
10,5	21	0,5	4,0
13,0	24	0,5	4,6
17,0	30	0,5	5,3
21,0	36	0,5	6,3

Grade	SU
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25

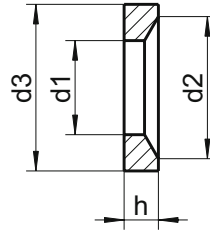
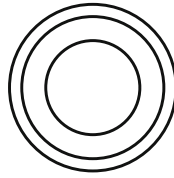
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6319-2-8,4C DIN 6319 - A2 - Ø 8,4mm - form C

DIN 6319 D

Conical seats

type D



d1	d2	d3	h
7,1	11,0	12	2,8
9,6	14,5	17	3,5
12,0	18,5	21	4,2
14,2	20,0	24	5,0
19,0	26,0	30	6,2
23,2	31,0	36	7,5

Grade	SU
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25

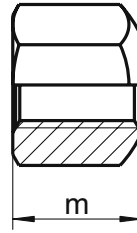
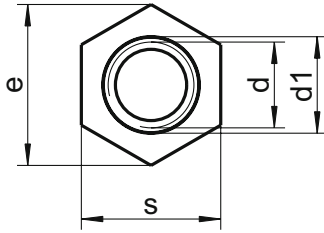
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6319-2-9,6D DIN 6319 - A2 - Ø 9,6mm - form D

DIN 6330

Hexagon nuts

type B, height = 1,5xd



d	m	s	e	d1	●
M6	9	10	11,05	7,0	10
M8	12	13	14,38	9,0	13
M10	15	16	17,77	11,5	16
M12	18	18	20,03	14,0	18
M16	24	24	26,75	18,0	24
M20	30	30	33,53	22,0	30
M24	36	36	39,98	26,0	36
M30	45	46	51,28	32,0	46
M36	54	55	61,31	38,0	55
M42	63	65	72,61	44,0	65

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	5

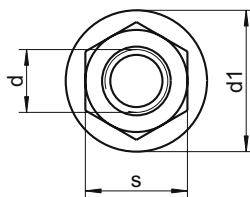
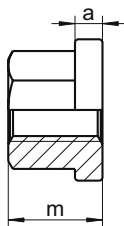
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6330-2-8 DIN 6330 - A2 - M8

DIN 6331

Hexagon nuts

with collar, height = 1,5xd



d	m	s	e	d1	a	⬠
M6	9	10	11,05	14	3,0	10
M8	12	13	14,38	18	3,5	13
M10	15	16	17,77	22	4,0	16
M12	18	19	20,03	25	4,0	19
M16	24	24	26,75	31	5,0	24
M20	30	30	33,53	37	6,0	30
M24	36	36	39,98	45	6,0	36
M30	45	45	51,28	58	8,0	45
M36	54	54	61,31	68	10,0	54

Grade	SU
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10

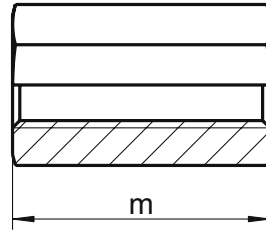
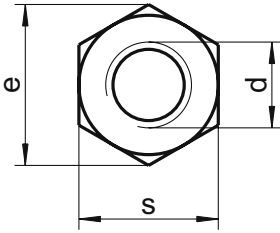
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6331-2-8 DIN 6331 - A2 - M8

DIN 6334

Hexagon nuts

height = 3xd



d	m	s	e	⌀
M5	15	8	9,0	8
M6	18	10	11,1	10
M8	24	13	15,0	13
M10	30	17	19,6	17
M12	36	19	21,9	19
M16	48	24	27,7	24
M20	60	30	34,6	30
M24	72	36	41,6	36
M30	90	46	53,1	46

Grade	SU
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	10
▲ ●	10
▲ ●	10

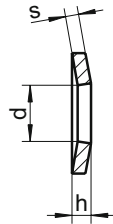
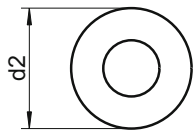
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6334-2-8 DIN 6334 - A2 - M8

DIN 6796

Conical spring washers

for screwed connections



d	for	d2	h min.	h max.	s
3	M3	7	0,72	0,85	0,6
4	M4	9	1,12	1,30	1,0
5	M5	11	1,35	1,55	1,2
6	M6	14	1,70	2,00	1,5
8	M8	18	2,24	2,60	2,0
10	M10	23	2,80	3,20	2,5
12	M12	29	3,43	3,95	3,0
14	M14	35	4,04	4,65	3,5
16	M16	39	4,58	5,25	4,0
18	M18	42	5,08	5,80	4,5
20	M20	45	5,60	6,40	5,0
22	M22	49	6,15	7,05	5,5
24	M24	56	6,77	7,75	6,0

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50

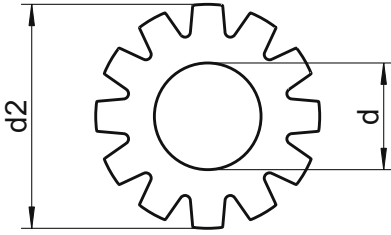
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6796-2-8 DIN 6796 - A2 - Ø 8mm

DIN 6797 AZ

Toothed lock washers

type A



d	for	d2	s1
2,2	M2	4,5	0,3
2,7	M2,5	5,5	0,4
3,2	M3	5,5	0,4
3,7	M3,5	6,0	0,4
4,3	M4	7,0	0,5
5,3	M5	8,0	0,5
6,4	M6	11,0	0,7
7,4	M7	12,5	0,8
8,4	M8	15,0	0,8
10,5	M10	18,0	0,9
13,0	M12	20,5	1,0
15,0	M14	24,0	1,0
17,0	M16	26,0	1,2
19,0	M18	30,0	1,4
21,0	M20	33,0	1,4
23,0	M22	36,0	1,5
25,0	M24	38,0	1,5
28,0	M27	44,0	1,6
31,0	M30	48,0	1,6

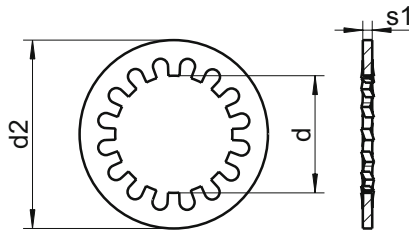
Grade	SU
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▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
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▲	200
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 6797-2-8,4AZ DIN 6797 - A2 - Ø 8,4mm - type A

DIN 6797 IZ

Toothed lock washers

type I



d	for	d2	s1
2,2	M2	4,5	0,3
2,7	M2,5	5,5	0,4
3,2	M3	6,0	0,4
3,7	M3,5	7,0	0,5
4,3	M4	8,0	0,5
5,3	M5	10,0	0,6
6,4	M6	11,0	0,7
7,4	M7	12,5	0,8
8,4	M8	15,0	0,8
10,5	M10	18,0	0,9
13,0	M12	20,5	1,0
15,0	M14	24,0	1,0
17,0	M16	26,0	1,2
19,0	M18	30,0	1,4
21,0	M20	33,0	1,4
23,0	M22	36,0	1,5
25,0	M24	38,0	1,5
28,0	M27	44,0	1,6
31,0	M30	48,0	1,6

Grade	SU
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	500
▲	200
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100

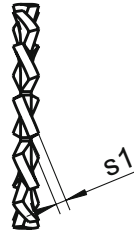
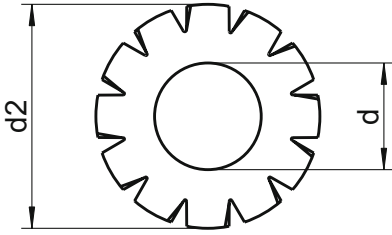
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6797-2-8,4IZ DIN 6797 - A2 - Ø 8,4mm - type I

DIN 6798 AZ

Serrated lock washers

type A



d	for	d2	s1
2,2	M2	4,5	0,3
2,7	M2,5	5,5	0,4
3,2	M3	6,0	0,4
3,7	M3,5	7,0	0,5
4,3	M4	8,0	0,5
5,1	M5	9,0	0,5
5,3	M5	10,0	0,6
6,4	M6	11,0	0,7
7,4	M7	12,5	0,8
8,2	M8	14,0	0,8
8,4	M8	15,0	0,8
10,5	M10	18,0	0,9
13,0	M12	20,5	1,0
15,0	M14	24,0	1,0
17,0	M16	26,0	1,2
19,0	M18	30,0	1,4
21,0	M20	33,0	1,4
23,0	M22	36,0	1,5
25,0	M24	38,0	1,5
28,0	M27	44,0	1,6
31,0	M30	48,0	1,6

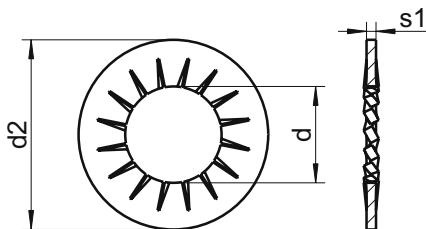
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 6798-2-8,2AZ DIN 6798 - A2 - Ø 8,2mm - type A

DIN 6798 IZ

Serrated lock washers

type I



d	for	d2	s1
2,2	M2	4,5	0,3
2,7	M2,5	5,5	0,4
3,2	M3	6,0	0,4
3,7	M3,5	7,0	0,5
4,3	M4	8,0	0,5
5,3	M5	10,0	0,6
6,4	M6	11,0	0,7
7,4	M7	12,5	0,8
8,4	M8	15,0	0,8
10,5	M10	18,0	0,9
13,0	M12	20,5	1,0
15,0	M14	24,0	1,0
17,0	M16	26,0	1,2
19,0	M18	30,0	1,4
21,0	M20	33,0	1,4
23,0	M22	36,0	1,5
25,0	M24	38,0	1,5
28,0	M27	44,0	1,6
31,0	M30	48,0	1,6

Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50

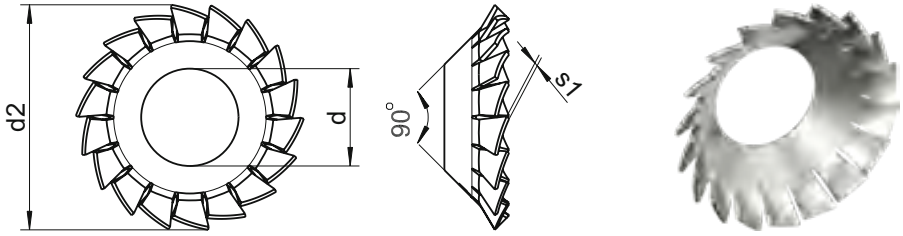
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6798-2-8,4IZ DIN 6798 - A2 - Ø 8,4mm - type I

DIN 6798 AZV

Serrated lock washers

type V, for countersunk head screws



d	for	d2	s1
3,2	M3	6,0	0,4
4,3	M4	8,0	0,5
5,3	M5	10,0	0,6
6,4	M6	11,0	0,7
8,4	M8	15,0	0,8
10,5	M10	18,0	0,9
13,0	M12	20,5	1,0

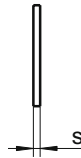
Grade	SU
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 6798-2-8,4AZV DIN 6798 - A2 - Ø 8,4mm - type V

DIN 6799

Retaining washers

for shafts



d2	for Ø	d3	s	a
1,2	1,4 - 2,0	3,25	0,30	1,01
1,5	2,0 - 2,5	4,25	0,40	1,28
1,9	2,5 - 3,0	4,80	0,50	1,61
2,3	3,0 - 4,0	6,30	0,60	1,94
3,2	4,0 - 5,0	7,30	0,60	2,70
4,0	5,0 - 7,0	9,30	0,70	3,34
5,0	6,0 - 8,0	11,30	0,70	4,11
6,0	7,0 - 9,0	12,30	0,70	5,26
7,0	8,0 - 11,0	14,30	0,90	5,84
8,0	9,0 - 12,0	16,30	1,00	6,52
9,0	10,0 - 14,0	18,80	1,10	7,63
10,0	11,0 - 15,0	20,40	1,20	8,32
12,0	13,0 - 18,0	23,40	1,30	10,45
15,0	16,0 - 24,0	29,40	1,50	12,61
19,0	20,0 - 31,0	37,60	1,75	15,92
24,0	25,0 - 38,0	44,60	2,00	21,88

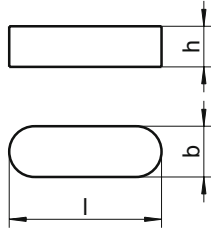
Grade	SU
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	500
1.4122	100
1.4122	100
1.4122	50
1.4122	50
1.4122	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 6799-2-8 DIN 6799 - 1.4122 - Ø 8mm - *1 unclamped - *2 clamped

DIN 6885

Parallel keys

type A



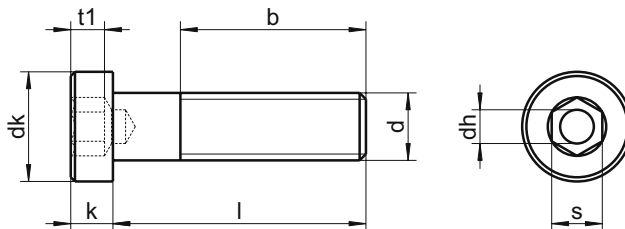
h	4	5	6	7	8	8	9
Length / b	4	5	6	8	10	12	14
8	●						
10	●		●				
12	●	●	●				
14	●	●	●				
16	●	●	●				
18	●	●	●				
20	●	●	●	●			
22		●	●	●			
25		●	●	●			
28		●	●	●			
30		●	●	●	●	●	●
32		●	●	●	●	●	●
35		●	●	●	●	●	●
36		●	●	●	●	●	●
40		●	●	●	●	●	●
45			●	●	●	●	●
50			●	●	●	●	●
56			●	●	●	●	●
60			●	●	●	●	●
70				●	●	●	●
75				●	●	●	●
80				●	●	●	●
90				●	●	●	●
100				●	●	●	●
110							●
SU	100	100	100	100	100	50	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 6885-4-8X7X40 DIN 6885 - 1.4571 - Ø 8mm - b = 7mm - l = 40mm

DIN 6912

Hexagon socket head cap screws

with low head and pilot recess

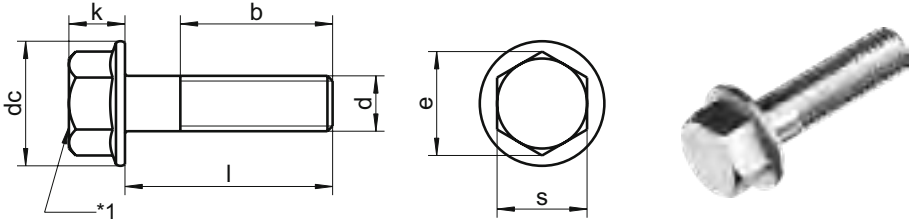


	5,5	7,0	8,5	10,0	13,0	16,0	18,0	21,0	24,0	27	30,0	36,0
dk	2,0	2,8	3,5	4,0	5,0	6,5	7,5	8,5	10,0	11,0	12,0	14,0
k	2	3	4	5	6	8	10	12	14	14	17	19
s	1,2	1,6	2,0	2,5	3,0	3,5	4,0	4,5	5,5	6,0	6,5	7,0
t1	1,5	2,0	2,5	3,0	4,0	5,0	6,0	7,0	8,0	8,0	10,0	12,0
dh	12	14	16	18	22	26	30	34	38	42	46	54
b	2	3	4	5	6	8	10	12	14	14	17	19
●												
Length / Ø	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M24
6	▲●	▲●	▲●									
8	▲●	▲●	▲●	▲●								
10	▲●	▲●	▲●	▲●	▲●							
12	▲●	▲●	▲●	▲●	▲●	▲●						
14	▲●	▲●	▲●	▲●	▲●							
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●					
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
22	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
25	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
30	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
35		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80				▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110						▲●	▲●	▲●	▲●	▲●	▲●	▲●
120							▲●	▲●	▲●	▲●	▲●	▲●
130								▲●	▲●	▲●	▲●	▲●
140								▲●	▲●	▲●	▲●	▲●
150								▲●	▲●	▲●	▲●	▲●
SU	500	500 ≥ 35 200	500 ≥ 25 200	500 ≥ 14 200 ≥ 45 100	200 ≥ 60 100 ≥ 100 50	100 ≥ 60 50	50 ≥ 80 25	25	25	25	25	20

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6912-2-8X40 DIN 6912 - A2 - M8 - l = 40mm

sim. ISO 1665 - DIN 6921 Hexagon flange bolts



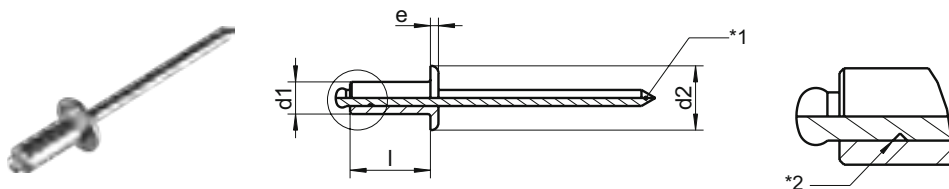
b	16	18	22	26	30	38
k max.	5,4	6,6	8,1	9,2	11,5	14,4
s	8	10	13	15	16	21
dc	11,8	14,2	18,0	22,3	26,6	35,0
e	8,71	10,95	14,26	16,50	17,62	23,15
●	8	10	13	15	16	21
Length / Ø	M5	M6	M8	M10	M12	M16
10	▲	▲				
12	▲	▲				
16	▲	▲				
20	▲	▲	▲	▲		
25	▲	▲	▲	▲	▲	
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40	▲	▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
60		▲	▲	▲	▲	▲
70						▲
SU	200	200	200 ≥ 45 100	100	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 6921-2-8X40 DIN 6921 - A2 - M8 - l = 40mm - *1 head shape depends on production

DIN 7337 type A - sim. ISO 15983

Blind rivets



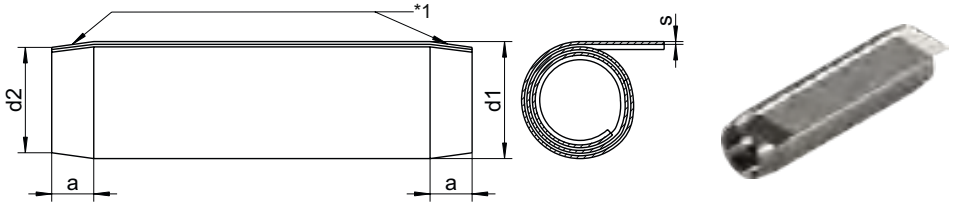
d1	d2	clamp. range	l	e	Grade	SU
3,0	6,5	1,0 - 3,0	6	0,8	▲	500
3,0	6,5	3,0 - 5,0	8	0,8	▲	500
3,0	6,5	5,0 - 7,0	10	0,8	▲	500
3,0	6,5	7,0 - 9,0	12	0,8	▲	500
3,0	6,5	8,0 - 12,0	16	0,8	▲	500
3,2	6,5	1,0 - 3,0	6	0,8	▲	500
3,2	6,5	3,0 - 5,0	8	0,8	▲	500
3,2	6,5	5,0 - 7,0	10	0,8	▲	500
3,2	6,5	7,0 - 9,0	12	0,8	▲	500
3,2	6,5	9,0 - 12,0	14	6,5	▲	500
3,2	6,5	9,0 - 12,0	16	0,8	▲	500
4,0	8,0	1,0 - 2,5	6	1,0	▲	500
4,0	8,0	2,5 - 4,5	8	1,0	▲	500
4,0	8,0	4,5 - 6,5	10	1,0	▲	500
4,0	8,0	6,5 - 8,5	12	1,0	▲	500
4,0	8,0	12,0 - 16,0	14	1,0	▲	500
4,0	8,0	8,5 - 12,0	16	1,0	▲	500
4,0	8,0	11,5 - 14,0	18	1,0	▲	500
4,0	8,0	12,0 - 16,0	20	1,0	▲	500
4,0	8,0	12,0 - 16,0	25	1,0	▲	500
4,8	9,5	2,0 - 4,0	8	1,1	▲	500
4,8	9,5	4,0 - 6,0	10	1,1	▲	500
4,8	9,5	6,0 - 8,0	12	1,1	▲	500
4,8	9,5	8,0 - 11,0	16	1,1	▲	500
4,8	9,5	10,0 - 13,0	18	1,1	▲	500
4,8	9,5	11,0 - 15,0	20	1,1	▲	500
5,0	9,5	2,0 - 4,0	8	1,1	▲	500
5,0	9,5	4,0 - 6,0	10	1,1	▲	500
5,0	9,5	6,0 - 8,0	12	1,1	▲	500
5,0	9,5	8,0 - 11,0	16	1,1	▲	500
5,0	9,5	10,0 - 13,0	18	1,1	▲	500
5,0	9,5	11,0 - 15,0	20	1,1	▲	500
5,0	9,5	15,0 - 20,0	25	1,1	▲	500

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7337-2-4X8 DIN 7337 - A2 - Ø 4mm - l = 8mm - *1 Tip depends on production - *2 breaking point

Blind rivets with countersunk head DIN 7337 B with different types and A4 are available on request. Blind rivet nuts in different forms can be found as WS 9314 - WS 9318 in this catalogue. Solid rivets with half-round heads can be found as DIN 660, with countersunk head as DIN 661 in this catalogue.

sim. ISO 8750 - **DIN 7343**
Spring-type straight pins
 medium duty



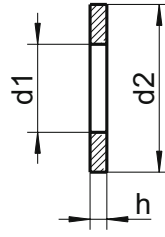
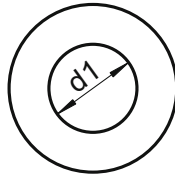
a	0,3	0,5	0,7	0,8	1,0	1,3	1,7	2,0	3,0
d2	0,95	1,40	1,90	2,35	2,85	3,80	4,80	5,80	7,75
s	0,08	0,13	0,17	0,21	0,25	0,33	0,42	0,50	0,67
d1 min.	1,10	1,62	2,15	2,65	3,15	4,20	5,25	6,25	8,35
Length / Ø	1	1,5	2	2,5	3	4	5	6	8
4	▲	▲	▲						
5	▲	▲	▲	▲					
6	▲	▲	▲	▲					
8	▲	▲	▲	▲	▲	▲			
10		▲	▲	▲	▲	▲	▲		
12		▲	▲	▲	▲	▲	▲	▲	
14		▲	▲	▲	▲	▲	▲	▲	
16		▲	▲	▲	▲	▲	▲	▲	
18			▲	▲	▲	▲	▲	▲	▲
20			▲	▲	▲	▲	▲	▲	▲
22				▲	▲	▲	▲	▲	▲
24				▲	▲	▲	▲	▲	▲
26					▲	▲	▲	▲	▲
28					▲	▲	▲	▲	▲
30					▲	▲	▲	▲	▲
32					▲	▲	▲	▲	▲
35						▲	▲	▲	▲
36						▲	▲	▲	▲
40						▲	▲	▲	▲
45						▲	▲	▲	▲
50						▲	▲	▲	▲
SU	1000	1000	1000	1000	1000	500	500 ≥ 50 250	500 ≥ 40 250	500 ≥ 26 250

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 7343-2-8X40 DIN 7343 - A2 - Ø 8mm - l = 40mm - *1 beveled edges

DIN 7349

Washers for bolts

with heavy type spring pins



d1	for Ø	d2	h
3,2	6	9	1,0
4,3	8	12	1,6
5,3	10	15	2,0
6,4	12	17	3,0
8,4	16	21	4,0
10,5	18	25	4,0
13,0	21	30	6,0
15,0	25	36	6,0
17,0	28	40	6,0
19,0	32	44	8,0
21,0	35	44	8,0
23,0	38	50	8,0
25,0	40	50	10,0
28,0	45	60	10,0
31,0	50	68	10,0

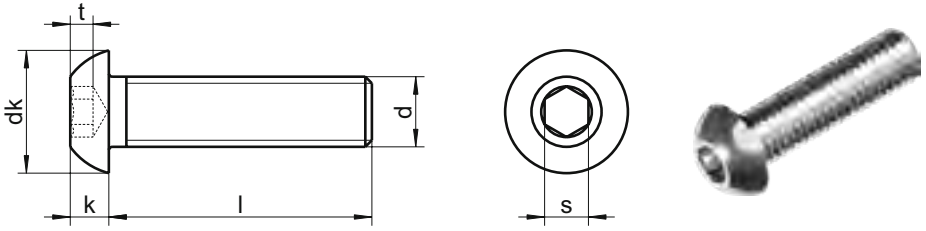
Grade	SU
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7349-2-8,4 DIN 7349 - A2 - Ø 8,4mm

ISO 7380

Hexagon socket button head screws



dk	5,7	7,6	9,5	10,5	14,0	17,5	21,0
k max.	1,65	2,20	2,75	3,30	4,40	5,50	6,60
s	2	2,5	3	4	5	6	8
t	1,04	1,30	1,56	2,08	2,60	3,12	4,16
●	2	2,5	3	4	5	6	8
Length / Ø	M3	M4	M5	M6	M8	M10	M12
4	▲●	▲●					
5	▲●	▲●					
6	▲●	▲●					
8	▲●	▲●	▲●				
10	▲●	▲●	▲●	▲●			
12	▲●	▲●	▲●	▲●	▲●		
14	▲●	▲●	▲●	▲●	▲●	▲●	
16	▲●	▲●	▲●	▲●	▲●	▲●	
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25	▲●	▲●	▲●	▲●	▲●	▲●	▲●
30	▲●	▲●	▲●	▲●	▲●	▲●	▲●
35	▲●	▲●	▲●	▲●	▲●	▲●	▲●
40	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45		▲●	▲●	▲●	▲●	▲●	▲●
50		▲●	▲●	▲●	▲●	▲●	▲●
55			▲●	▲●	▲●	▲●	▲●
60			▲●	▲●	▲●	▲●	▲●
70				▲●	▲●	▲●	▲●
80				▲●	▲●	▲●	▲●
SU	500	500 ≥ 45 200	500 ≥ 45 200	500 ≥ 25 200 ≥ 55 100	200 ≥ 55 100	100	100 ≥ 45 50

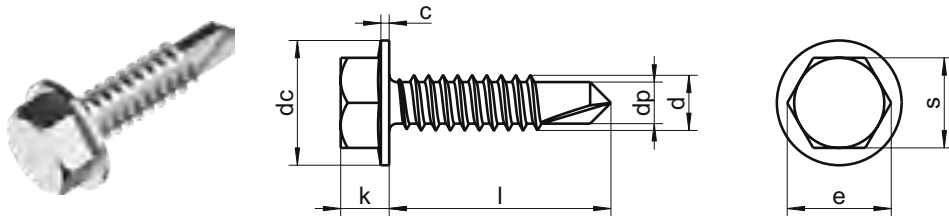
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7380-2-8X40 ISO 7380 - A2 - M8 - l = 40mm

DIN 7504 K - sim. ISO 15480

Self drilling screws type K

hexagon head with flange



dp	2,8	3,1	3,6	4,1	4,8	5,8
s	5,5	5,5	7	8	8	10
c	0,6	0,6	0,9	0,9	1,0	1,0
k max.	3,45	3,45	4,25	4,45	5,45	6,45
dc max.	8,3	8,3	8,8	10,5	11,0	13,2
e min.	5,96	5,96	7,59	8,71	8,71	10,95
●	5,5	5,5	7	8	8	10
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
9,5 (3/8")	▲	▲	▲	▲	▲	
13 (1/2")	▲	▲	▲	▲	▲	
16 (5/8")	▲	▲	▲	▲	▲	
19 (3/4")	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲
32 (1 1/4")		▲	▲	▲	▲	▲
35 (1 3/8")		▲	▲	▲	▲	▲
38 (1 1/2")		▲	▲	▲	▲	▲
45 (1 3/4")				▲	▲	▲
50 (2")				▲	▲	▲
60 (2 3/8")					▲	
70 (2 3/4")					▲	
80 (3 1/8")					▲	
90 (3 1/2")					▲	
100 (4")					▲	
110 (4 1/4")					▲	
120 (4 3/4")					▲	
130 (5 1/8")					▲	
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200	200

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other measurements on request.

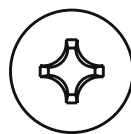
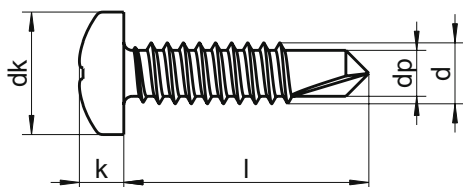
Example item no. 7504-2-4,2X38K DIN 7504 - A2 - Ø 4,2mm - l = 38mm - form K

Please note that self drilling screws, made of stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws, hexagon head with flange DIN 7504 K are available in other dimensions and A4 on request. Self drilling hexagon head screws with flange and EPDM-washers can be found as WS 9165 in this catalogue.

sim. ISO 15481 - DIN 7504 N H

Self drilling screws type N

pan head with cross recess H (Phillips)



dp	2,3	2,8	3,1	3,6	4,1
dk max.	5,6	6,9	7,5	8,2	9,5
k max.	2,2	2,6	2,8	3,05	3,55
⊕	P 1	P 2	P 2	P 2	P 2
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8
9,5 (3/8")	▲	▲			
13 (1/2")	▲	▲	▲	▲	▲
16 (5/8")		▲	▲	▲	▲
19 (3/4")		▲	▲	▲	▲
22 (7/8")		▲	▲	▲	▲
25 (1")		▲	▲	▲	▲
32 (1 1/4")			▲	▲	▲
38 (1 1/2")			▲	▲	▲
45 (1 3/4")					▲
50 (2")					▲
60 (2 3/8")					▲
70 (2 3/4")					▲
SU	1000	1000	1000	500	200

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other measurements on request.

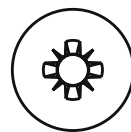
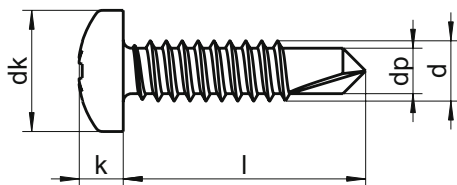
Example item no. 7504-2-4,2X38N DIN 7504 - A2 - Ø 4,2mm - l = 38mm - form N - phillips drive

Please note that self drilling screws, made of stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with pan head in other dimensions and A4 are available on request. Self drilling screws with pan head and TX can be found as WS 9166 in this catalogue.

DIN 7504 N Z - sim. ISO 15481

Self drilling screws type N

pan head with cross recess Z (Pozidrive)



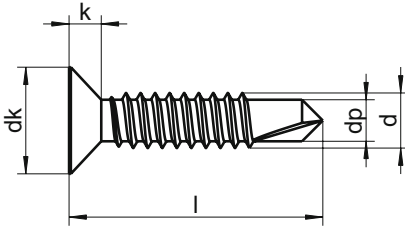
dp	2,8	3,1	3,6	4,1
dk max.	6,9	7,5	8,2	9,5
k max.	2,6	2,8	3,05	3,55
⊕	Z 2	Z 2	Z 2	Z 2
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8
9,5 (3/8")	▲	▲	▲	▲
13 (1/2")	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲
32 (1 1/4")	▲	▲	▲	▲
38 (1 1/2")	▲	▲	▲	▲
45 (1 3/4")	▲	▲	▲	▲
50 (2")	▲	▲	▲	▲
60 (2 3/8")	▲	▲	▲	▲
70 (2 3/4")	▲	▲	▲	▲
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other measurements on request.

Example item no. 7504-2-4,2X16NZ DIN 7504 - A2 - Ø 4,2mm - l = 16mm - form N - pozidrive

Please note that self drilling screws, made of stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with pan head in other dimensions and A4 are available on request. Self drilling screws with pan head and TX can be found as WS 9166 in this catalogue.

sim. ISO 15482 - **DIN 7504 P H**
Self drilling screws type P
 countersunk head with cross recess H (Phillips)



dp	3,1	3,6	4,1
dk max.	7,5	8,1	9,5
k max.	2,3	2,5	3,0
⊕	P 2	P 2	P 2
Length / Ø	ST3,9	ST4,2	ST4,8
13 (1/2")	▲	▲	▲
16 (5/8")	▲	▲	▲
19 (3/4")	▲	▲	▲
22 (7/8")	▲	▲	▲
25 (1")	▲	▲	▲
32 (1 1/4")	▲	▲	▲
38 (1 1/2")	▲	▲	▲
45 (1 3/4")	▲	▲	▲
50 (2")	▲	▲	▲
SU	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200

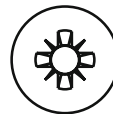
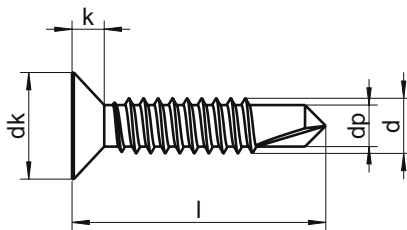
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other measurements on request.
 Example item no. 7504-2-4,2X38P DIN 7504 - A2 - Ø 4,2mm - l = 38mm - form P - phillips drive

Please note that self drilling screws, made of stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with countersunk head in other dimensions and A4 are available on request. Self drilling screws with countersunk head and TX can be found as WS 9167 in this catalogue.

DIN 7504 P Z - sim. ISO 15482

Self drilling screws type P

countersunk head with cross recess Z (Pozidrive)



dp	3,1	3,6	4,1
dk max.	7,5	8,1	9,5
k max.	2,3	2,5	3,0
⊕	Z 2	Z 2	Z 2
Length / Ø	ST3,9	ST4,2	ST4,8
13 (1/2")	▲	▲	▲
16 (5/8")	▲	▲	▲
19 (3/4")	▲	▲	▲
22 (7/8")	▲	▲	▲
25 (1")	▲	▲	▲
32 (1 1/4")	▲	▲	▲
38 (1 1/2")	▲	▲	▲
45 (1 3/4")	▲	▲	▲
50 (2")	▲	▲	▲
SU	1000 ≥ 32 500	1000 ≥ 32 500	500

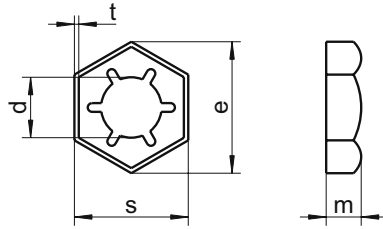
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other measurements on request.

Example item no. 7504-2-3,9X38PZ DIN 7504 - A2 - Ø 3,9mm - l = 38mm - form P - pozidrive

Please note that self drilling screws, made of stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with countersunk head in other dimensions and A4 are available on request. Self drilling screws with countersunk head and TX can be found as WS 9167 in this catalogue.

DIN 7967

Self locking counter nuts



for	d	m	s	e	t	⬠
4	3,5	2,5	7	8,1	0,3	7
5	4,5	2,5	8	9,2	0,4	8
6	5,3	3,0	10	11,5	0,4	10
8	6,9	3,5	13	15,0	0,5	13
10	8,6	4,0	17	19,6	0,5	17
12	10,4	4,5	19	21,9	0,6	19
16	14,1	5,0	24	27,7	0,7	24
20	17,6	6,0	30	34,6	0,8	30
24	21,0	7,0	36	41,6	0,9	36

Grade	SU
▲●	500
▲●	500
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50

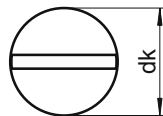
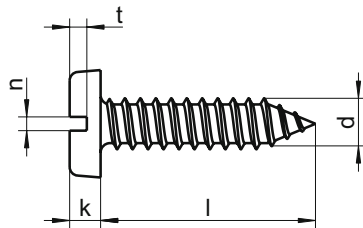
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7967-2-8 DIN 7967 - A2 - M8

DIN 7971 - sim. ISO 1481

Tapping screws

pan head, with slot, type C (with cone point)



	4,2	5,6	6,9	7,5	8,2	9,5	10,8	12,5
dk min.	1,15	1,50	1,85	2,00	2,15	2,50	2,85	3,30
k max.	1,35	1,75	2,10	2,25	2,45	2,80	3,20	3,65
n	0,6	0,8	1,0	1,0	1,2	1,2	1,6	1,6
t max.	0,80	1,00	1,25	1,40	1,50	1,70	1,95	2,20
⊖	3,5X0,6	4,0X0,8	5,5X1,0	5,5X1,0	7,0X1,2	7,0X1,2	9,0X1,6	9,0X1,6
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
4,5 (1/6")	▲							
6,5 (1/4")	▲	▲		▲	▲			
9,5 (3/8")	▲	▲	▲	▲	▲	▲		
13 (1/2")	▲	▲	▲	▲	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲	▲	▲
32 (1 1/4")		▲	▲	▲	▲	▲	▲	▲
38 (1 1/2")			▲	▲	▲	▲	▲	▲
45 (1 3/4")				▲	▲	▲	▲	▲
50 (2")				▲	▲	▲	▲	▲
60 (2 3/8")						▲	▲	▲
70 (2 3/4")						▲	▲	▲
80 (3 3/8")						▲	▲	▲
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

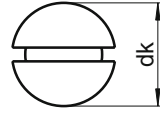
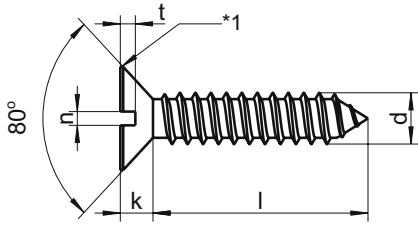
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7971-2-4,2X38 DIN 7971 - A2 - Ø 4,2mm - l = 38mm

Slotted tapping screws with pan head DIN 7971, with dog point type F, cutting groove type SB and in A4 are available on request. Slotted tapping screws with pan head DIN 7971, with different coatings or head varnishing are available on request. Tapping screws with pan head and cross recess H and Z can be found as DIN 7981, with TX as WS 9477 and with TX+PIN as WS 9485 in this catalogue.

Tapping screws

countersunk head with slot, type C (with cone point)



dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
n	0,6	0,8	1,0	1,0	1,2	1,2	1,6	1,6
t max.	0,60	0,75	0,95	1,05	1,15	1,35	1,50	1,75
⌀	0,6X3,5	0,8X4,0	1,0X5,5	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0	1,6X9,0
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲	▲						
9,5 (3/8")	▲	▲	▲	▲	▲			
13 (1/2")	▲	▲	▲	▲	▲			
16 (5/8")	▲	▲	▲	▲	▲	▲	▲	
19 (3/4")	▲	▲	▲	▲	▲	▲	▲	
22 (7/8")	▲	▲	▲	▲	▲	▲	▲	
25 (1")	▲	▲	▲	▲	▲	▲	▲	▲
32 (1 1/4")			▲	▲	▲	▲	▲	▲
38 (1 1/2")			▲	▲	▲	▲	▲	▲
45 (1 3/4")				▲	▲	▲	▲	▲
50 (2")						▲	▲	▲
60 (2 3/8")						▲	▲	▲
70 (2 3/4")						▲	▲	▲
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

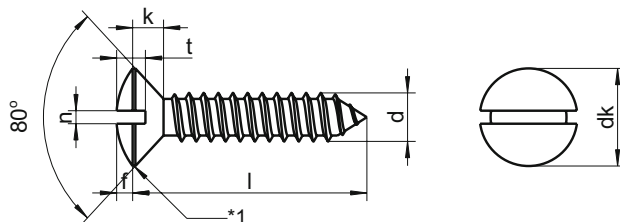
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7972-2-4,2X38 DIN 7972 - A2 - Ø 4,2mm - l = 38mm - *1 head with rounded or flatended edge

DIN 7973 - sim. ISO 1483

Tapping screws

raised countersunk head with slot, type C (with cone point)



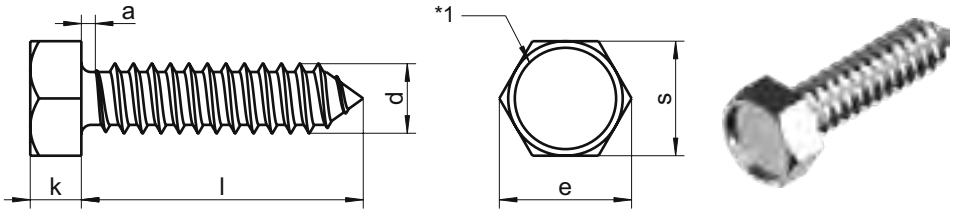
dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
f	0,7	0,9	1,2	1,3	1,4	1,5	1,7	2,0
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
n	0,6	0,8	1,0	1,0	1,2	1,2	1,6	1,6
t max.	1,15	1,50	1,90	2,05	2,25	2,60	2,95	3,45
Ø	0,6X3,5	0,8X4,0	1,0X5,5	1,0X5,5	1,2X7,0	1,2X7,0	1,6X9,0	1,6X9,0
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲	▲						
9,5 (3/8")	▲	▲	▲	▲	▲	▲	▲	▲
13 (1/2")	▲	▲	▲	▲	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲	▲	▲
32 (1 1/4")		▲	▲	▲	▲	▲	▲	▲
38 (1 1/2")			▲	▲	▲	▲	▲	▲
45 (1 3/4")			▲	▲	▲	▲	▲	▲
50 (2")						▲	▲	▲
60 (2 3/8")						▲	▲	▲
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7973-2-4,2X38 DIN 7973 - A2 - Ø 4,2mm - l = 38mm - *1 head with rounded or flatended edge

Slotted tapping screws with cheese head DIN 7973, with dog point type F, self-clearing groove type SB and in A4 are available on request. Slotted tapping screws with cheese head DIN 7973, with different coatings or head varnishing are available on request. Tapping screws with raised countersunk head and cross recess H and Z can be found as DIN 7983, with TX as WS 9479 in this catalogue.

sim. ISO 1479 - **DIN 7976**
Tapping screws
 hexagon head, type C (with cone point)



	1,5	2,3	2,3	2,8	3,0	4,0	4,8	5,8
k	1,5	2,3	2,3	2,8	3,0	4,0	4,8	5,8
s	5	5,5	7	7	8	8	10	13
e	5,45	6,00	7,66	7,66	8,79	8,79	11,05	14,38
a	1,1	1,3	1,3	1,4	1,6	1,8	1,8	2,1
●	5	5,5	7	7	8	8	10	13
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3	ST8
9,5 (3/8")	▲	▲	▲	▲	▲	▲		
13 (1/2")	▲	▲	▲	▲	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲	▲	▲
32 (1 1/4")	▲	▲	▲	▲	▲	▲	▲	▲
38 (1 1/2")	▲	▲	▲	▲	▲	▲	▲	▲
45 (1 3/4")		▲	▲	▲	▲	▲	▲	▲
50 (2")		▲	▲	▲	▲	▲	▲	▲
55 (2 1/8")			▲	▲	▲	▲	▲	▲
60 (2 3/8")			▲	▲	▲	▲	▲	▲
70 (2 3/4")					▲	▲	▲	▲
80 (3 3/8")					▲	▲	▲	
90 (3 1/2")					▲	▲	▲	
100 (4")					▲	▲	▲	
110 (4 3/8")					▲	▲	▲	
120 (4 3/4")					▲	▲	▲	
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

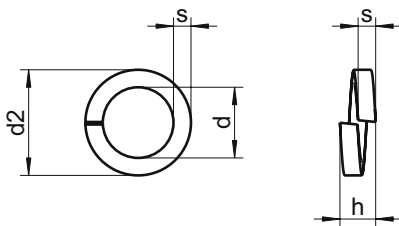
Example item no. 7976-2-4,2X38 DIN 7976 - A2 - Ø 4,2mm - l = 38mm - *1 head shape depends on production

Tapping screws with hexagon head DIN 7976, with dog point type F, cutting groove type SB and in A4 are available on request. Tapping screws with hexagon head DIN 7976, with different coatings or head varnishing are available on request. Hexagon tapping screws with assembled polyamide-washer can be found as WS 9230 in this catalogue.

DIN 7980

Spring lock washers

for cheese head screws



d	for	d2 max.	h min.	s
3,0	M3	5,6	2,0	1,0
3,5	M3,5	6,1	2,0	1,0
4,0	M4	7,0	2,4	1,2
5,0	M5	8,8	3,2	1,6
6,0	M6	9,9	3,2	1,6
8,0	M8	12,7	4,0	2,0
10,0	M10	16,0	5,0	2,5
12,0	M12	18,0	5,0	2,5
14,0	M14	21,1	6,0	3,0
16,0	M16	24,4	7,0	3,5
18,0	M18	26,4	7,0	3,5
20,0	M20	30,6	9,0	4,5
22,0	M22	32,9	9,0	4,5
24,0	M24	35,9	10,0	5,0
27,0	M27	38,9	10,0	5,0
30,0	M30	44,1	12,0	6,0

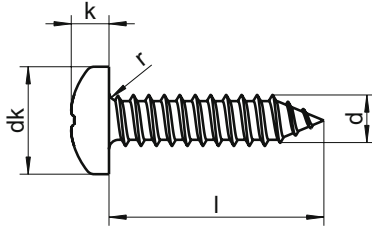
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7980-2-8 DIN 7980 - A2 - Ø 8mm

sim. ISO 7049 - DIN 7981 H Tapping screws

pan head with cross recess H (Phillips), type C (with cone point)



	4,2	5,6	6,9	7,5	8,2	9,5	10,8	12,5
dk min.	1,55	1,95	2,35	2,55	2,75	3,25	3,65	4,25
k max.	1,80	2,20	2,60	2,80	3,05	3,55	3,95	4,55
r max.	0,3	0,4	0,5	0,5	0,6	0,7	0,8	0,9
⊕	P 1	P 1	P 2	P 2	P 2	P 2	P 3	P 3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
4,5 (1/6")	▲ ●							
6,5 (1/4")	▲ ●							
9,5 (3/8")	▲ ●	▲ ●			▲ ●			
13 (1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
16 (5/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
19 (3/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
22 (7/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25 (1")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
32 (1 1/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
38 (1 1/2")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45 (1 3/4")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50 (2")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55 (2 1/8")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60 (2 3/8")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70 (2 3/4")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
80 (3 1/8")				▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
90 (3 1/2")					▲ ●	▲ ●	▲ ●	▲ ●
100 (4")					▲ ●	▲ ●	▲ ●	▲ ●
120 (4 3/4")						▲ ●	▲ ●	▲ ●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	1000 ≥ 22 500 ≥ 32 200	500 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

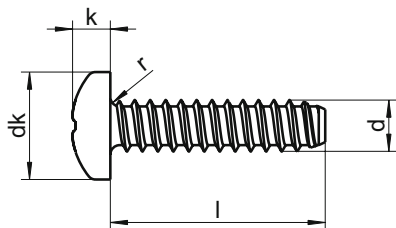
Example item no. 7981-2-4,2X38 DIN 7981 - A2 - Ø 4,2mm - l = 38mm - phillips drive

Tapping screws with pan head DIN 7981 with cutting groove type SB are available on request. Tapping screws with pan head DIN 7981 with different coatings or head varnishing are available on request. Tapping screws with pan head and TX can be found as WS 9477, security screws with TX+PIN as WS 9485 in this catalogue.

DIN 7981 F - sim. ISO 7049

Tapping screws

pan head with cross recess H (Phillips), type F (with dog point)



dk	5,6	6,9	7,5	8,2	9,5	10,8
k min.	1,95	2,35	2,55	2,75	3,25	3,65
k max.	2,20	2,60	2,80	3,05	3,55	3,95
r max.	0,4	0,5	0,5	0,6	0,7	0,8
⊕	P 1	P 2	P 2	P 2	P 2	P 3
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5
6,5 (1/4")	▲	▲	▲	▲	▲	▲
9,5 (3/8")	▲	▲	▲	▲	▲	▲
13 (1/2")	▲	▲	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲
32 (1 1/4")	▲	▲	▲	▲	▲	▲
45 (1 3/4")	▲	▲	▲	▲	▲	▲
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200

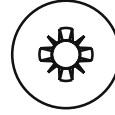
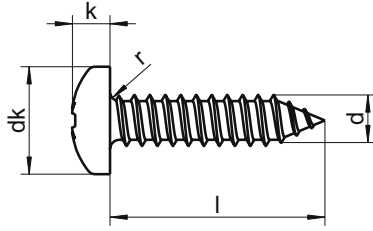
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7981-2-4,2X32F DIN 7981 - A2 - Ø 4,2mm - l = 32mm - with dog point

Tapping screws with pan head DIN 7981 with cutting groove type SB are available on request. Tapping screws with pan head DIN 7981 with different coatings or head varnishing are available on request. Tapping screws with cap head can be found as WS 9235, with pan head and assembled polyamide-washer as WS 9220, with TX as WS 9477 and as security screw with TX+PIN as WS 9485 in this catalogue.

sim. ISO 7049 - DIN 7981 Z Tapping screws

pan head with cross recess Z (Pozidrive), type C (with cone point)



dk	4,2	5,6	6,9	7,5	8,2	9,5	10,8	12,5
k min.	1,55	1,95	2,35	2,55	2,75	3,25	3,65	4,25
k max.	1,80	2,20	2,60	2,80	3,05	3,55	3,95	4,55
r max.	0,3	0,4	0,5	0,5	0,6	0,7	0,8	0,9
⊕	Z 1	Z 1	Z 2	Z 2	Z 2	Z 2	Z 3	Z 3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
9,5 (3/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
13 (1/2")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16 (5/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
19 (3/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22 (7/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25 (1")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
32 (1 1/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
38 (1 1/2")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
45 (1 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
50 (2")			▲●	▲●	▲●	▲●	▲●	▲●
60 (2 3/8")			▲●	▲●	▲●	▲●	▲●	▲●
70 (2 3/4")				▲●	▲●	▲●	▲●	▲●
80 (3 1/8")				▲●	▲●	▲●	▲●	▲●
90 (3 1/2")					▲●	▲●	▲●	▲●
100 (4")						▲●	▲●	▲●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	1000 ≥ 22 500 ≥ 32 200	500 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

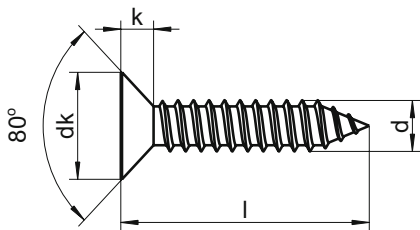
Example item no. 7981-2-4,2X38Z DIN 7981 - A2 - Ø 4,2mm - l = 38mm - pozidrive

Tapping screws with pan head DIN 7981 with cutting groove type SB are available on request. Tapping screws with pan head DIN 7981 with different coatings or head varnishing are available on request. Tapping screws with pan and cap head can be found as WS 9235, with polyamide-washer as WS 9220, with TX as WS 9477 and as security screw with TX+PIN at WS 9485 in this catalogue.

DIN 7982 H - sim. ISO 7050

Tapping screws

countersunk head with cross recess H (Phillips), type C (with cone point)



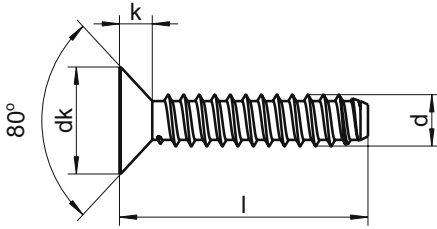
dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
⊕	P 1	P 1	P 2	P 2	P 2	P 2	P 3	P 3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲●	▲●	▲●	▲●				
9,5 (3/8")	▲●	▲●	▲●	▲●	▲●	▲●		
13 (1/2")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16 (5/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
19 (3/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22 (7/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25 (1")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
32 (1 1/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
38 (1 1/2")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
45 (1 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
50 (2")			▲●	▲●	▲●	▲●	▲●	▲●
55 (2 1/8")			▲●	▲●	▲●	▲●	▲●	▲●
60 (2 3/8")			▲●	▲●	▲●	▲●	▲●	▲●
70 (2 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
80 (3 3/8")					▲●	▲●	▲●	▲●
90 (3 1/2")					▲●	▲●	▲●	▲●
100 (4")					▲●	▲●	▲●	▲●
120 (4 3/4")						▲●	▲●	▲●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	1000 ≥ 22 500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7982-2-4,2X38 DIN 7982 - A2 - Ø 4,2mm - l = 38mm

sim. ISO 7050 - DIN 7982 F Tapping screws

countersunk head with cross recess H (Phillips), type F (with dog point)



dk	5,5	6,8	7,5	8,1	9,5	10,8
k	1,7	2,1	2,3	2,5	3,0	3,4
⊕	P 1	P 2	P 2	P 2	P 2	P 3
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5
6,5 (1/4")	▲					
9,5 (3/8")	▲	▲	▲	▲	▲	▲
13 (1/2")		▲	▲	▲	▲	▲
16 (5/8")		▲	▲	▲	▲	▲
19 (3/4")		▲	▲	▲	▲	▲
22 (7/8")		▲	▲	▲	▲	▲
25 (1")		▲	▲	▲	▲	▲
32 (1 1/4")			▲	▲	▲	▲
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100

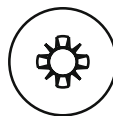
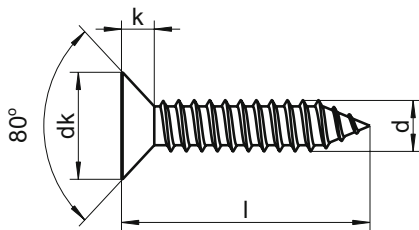
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7982-2-4,2X19F DIN 7982 - A2 - Ø 4,2mm - l = 19mm - with dog point

DIN 7982 Z - sim. ISO 7050

Tapping screws

countersunk head, cross recessed Z (Pozidrive) with cone point



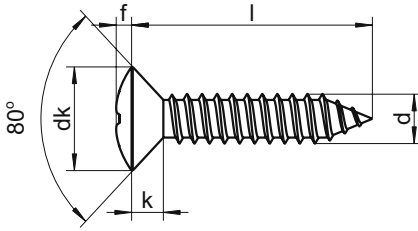
dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
⊕	Z1	Z1	Z2	Z2	Z2	Z2	Z3	Z3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲●	▲●	▲●	▲●				
9,5 (3/8")	▲●	▲●	▲●	▲●	▲●	▲●		
13 (1/2")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16 (5/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
19 (3/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22 (7/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25 (1")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
32 (1 1/4")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
38 (1 1/2")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
45 (1 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
50 (2")			▲●	▲●	▲●	▲●	▲●	▲●
60 (2 3/8")			▲●	▲●	▲●	▲●	▲●	▲●
70 (2 3/4")				▲●	▲●	▲●	▲●	▲●
80 (3 3/8")				▲●	▲●	▲●	▲●	▲●
90 (3 1/2")						▲●	▲●	▲●
100 (4")						▲●	▲●	▲●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	1000 ≥ 22 500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7982-2-4,2X38Z DIN 7982 - A2 - Ø 4,2mm - l = 38mm - pozidrive

sim. ISO 7051 - DIN 7983 H Tapping screws

raised countersunk head with cross recess H (Phillips), type C (with cone point)



dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
f	0,7	0,9	1,2	1,3	1,4	1,5	1,7	2,0
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
⊕	P 1	P 1	P 2	P 2	P 2	P 2	P 3	P 3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲●	▲●	▲●	▲●				
9,5 (3/8")	▲●	▲●	▲●	▲●	▲●			
13 (1/2")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16 (5/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
19 (3/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22 (7/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25 (1")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
32 (1 1/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
38 (1 1/2")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
45 (1 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
50 (2")			▲●	▲●	▲●	▲●	▲●	▲●
60 (2 3/8")				▲●	▲●	▲●	▲●	▲●
70 (2 3/4")				▲●	▲●	▲●	▲●	▲●
80 (3 3/8")					▲●	▲●	▲●	▲●
90 (3 1/2")						▲●	▲●	▲●
100 (4")						▲●	▲●	▲●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

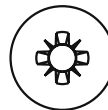
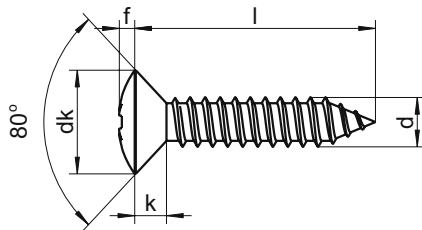
Example item no. 7983-2-4,2X38 DIN 7983 - A2 - Ø 4,2mm - l = 38mm - phillips drive

Tapping screws with raised countersunk head DIN 7983, with dog point type F, with cutting groove type SB are available on request. Tapping screws with raised countersunk head DIN 7983, with different coatings or head varnishing are available on request. Slotted tapping screws with raised countersunk head can be found as DIN 7973, with TX as WS 9479 in this catalogue.

DIN 7983 Z - sim. ISO 7051

Tapping screws

raised countersunk head with cross recess Z (Pozidrive), type C (with cone point)



dk	4,3	5,5	6,8	7,5	8,1	9,5	10,8	12,4
f	0,7	0,9	1,2	1,3	1,4	1,5	1,7	2,0
k	1,3	1,7	2,1	2,3	2,5	3,0	3,4	3,8
⊕	Z1	Z1	Z2	Z2	Z2	Z2	Z3	Z3
Length / Ø	ST2,2	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲●	▲●	▲●	▲●				
9,5 (3/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
13 (1/2")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16 (5/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
19 (3/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
22 (7/8")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
25 (1")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
32 (1 1/4")	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
38 (1 1/2")		▲●	▲●	▲●	▲●	▲●	▲●	▲●
45 (1 3/4")			▲●	▲●	▲●	▲●	▲●	▲●
50 (2")			▲●	▲●	▲●	▲●	▲●	▲●
60 (2 3/8")				▲●	▲●	▲●	▲●	▲●
70 (2 3/4")				▲●	▲●	▲●	▲●	▲●
80 (3 3/8")					▲●	▲●	▲●	▲●
90 (3 1/2")						▲●	▲●	▲●
100 (4")						▲●	▲●	▲●
SU	1000	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500 ≥ 50 200	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

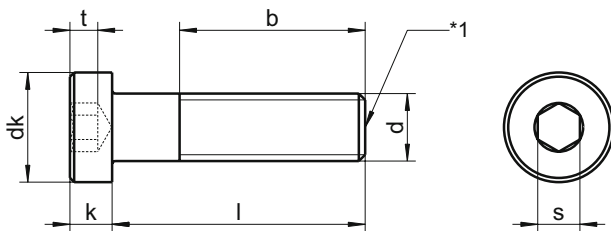
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 7983-2-4,2X38Z DIN 7983 - A2 - Ø 4,2mm - l = 38mm - pozidrive

DIN 7984

Hexagon socket head cap screws

with low head



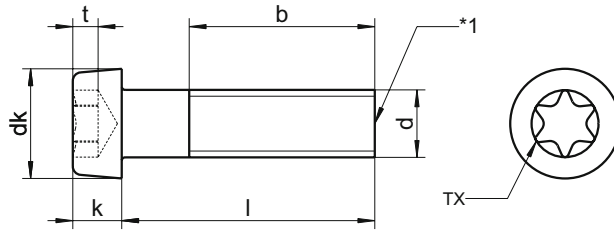
	5,5	7,0	8,5	10,0	13,0	16,0	18,0	24,0	30,0
dk	5,5	7,0	8,5	10,0	13,0	16,0	18,0	24,0	30,0
k	2,0	2,8	3,5	4,0	5,0	6,0	7,0	9,0	11,0
s	2	2,5	3	4	5	7	8	12	14
t	1,5	2,3	2,7	3,0	3,8	4,5	5,0	5,5	7,5
b	12	14	16	18	22	26	30	38	46
●	2	2,5	3	4	5	7	8	12	14
Length / Ø	M3	M4	M5	M6	M8	M10	M12	M16	M20
5	▲ ●								
6	▲ ●	▲ ●	▲ ●						
8	▲ ●	▲ ●	▲ ●	▲ ●					
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●				
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●				
14	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●				
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●			
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
80					▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
90					▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
100					▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
110								▲ ●	▲ ●
120								▲ ●	▲ ●
130								▲ ●	▲ ●
140								▲ ●	▲ ●
150								▲ ●	▲ ●
SU	1000 ≥ 30 500	500	500 ≥ 45 200	500 ≥ 20 200 ≥ 50 100	200 ≥ 40 100 ≥ 50 50	100 ≥ 60 50	50	25	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 7984-2-8X40 DIN 7984 - A2 - M8 - l = 40mm - *1 with flat point acc. to DIN 78

ISO 14580 - sim. DIN 7984

Socket head screws

with low head and TX

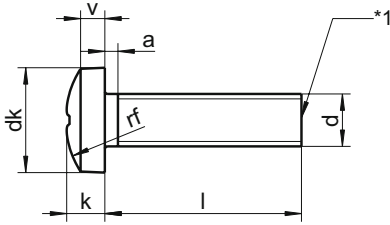


dk	8,5	10,0	13,0
k	3,65	4,40	5,80
t min.	1,52	1,90	2,66
t max.	1,91	2,29	3,05
b	38	38	38
☼	TX 25	TX 30	TX 45
Length / Ø	M5	M6	M8
8	▲●	▲●	
10	▲●	▲●	▲●
12	▲●	▲●	▲●
14	▲●	▲●	▲●
16	▲●	▲●	▲●
20	▲●	▲●	▲●
25	▲●	▲●	▲●
30	▲●	▲●	▲●
35	▲●	▲●	▲●
40	▲●	▲●	▲●
45	▲●	▲●	▲●
50	▲●	▲●	▲●
55	▲●	▲●	▲●
60	▲●	▲●	▲●
65	▲●	▲●	▲●
70	▲●	▲●	▲●
75			▲●
80			▲●
SU	500 ≥ 45 200	500 ≥ 20 200 ≥ 50 100	200 ≥ 25 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 14580-2-4X16 ISO 14580 - A2 - M4 - l = 16mm - *1 without peak

sim. ISO 7045 - **DIN 7985 H**
Pan head screws
 with cross recess H (Phillips)



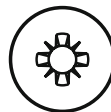
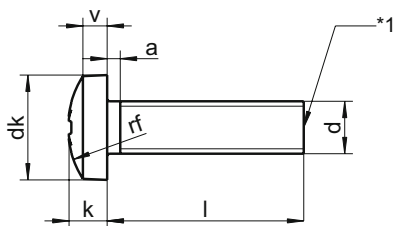
	3,2	4,0	5,0	6,0	8,0	10,0	12,0	16,0
dk	3,2	4,0	5,0	6,0	8,0	10,0	12,0	16,0
k	1,3	1,6	2,0	2,4	3,1	3,8	4,6	6,0
v	0,8	1,1	1,3	1,6	2,0	2,5	3,0	3,7
a	0,7	0,8	0,9	1,0	1,4	1,6	2,0	2,5
rf	3	4	5	6	8	10	12	16
b min.	15	16	18	19	22	25	28	34
⊕	P 0	P 1	P 1	P 1	P 2	P 2	P 3	P 4
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8
3	▲●	▲●	▲●					
4	▲●	▲●	▲●	▲●	▲●			
5	▲●	▲●	▲●	▲●	▲●			
6	▲●	▲●	▲●	▲●	▲●	▲●		
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●
28			▲●	▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●
65					▲●	▲●	▲●	▲●
70					▲●	▲●	▲●	▲●
80					▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000 ≥ 45 500	1000 ≥ 25 500	500 ≥ 45 200	500 ≥ 22 200 ≥ 35 100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 7985-2-8X40 DIN 7985 - A2 - M8 - l = 40mm - phillips drive - *1 without peak

DIN 7985 Z - sim. ISO 7045

Pan head screws

with cross recess Z (Pozidrive)



	3,2	4,0	5,0	6,0	8,0	10,0	12,0	16,0
dk	3,2	4,0	5,0	6,0	8,0	10,0	12,0	16,0
k	1,3	1,6	2,0	2,4	3,1	3,8	4,6	6,0
v	0,8	1,1	1,3	1,6	2,0	2,5	3,0	3,7
a	0,7	0,8	0,9	1,0	1,4	1,6	2,0	2,5
rf	3	4	5	6	8	10	12	16
b min.	15	16	18	19	22	25	28	34
⊕	Z0	Z1	Z1	Z1	Z2	Z2	Z3	Z4
Length / Ø	M1,6	M2	M2,5	M3	M4	M5	M6	M8
3	▲●	▲●	▲●					
4	▲●	▲●	▲●	▲●	▲●			
5	▲●	▲●	▲●	▲●	▲●			
6	▲●	▲●	▲●	▲●	▲●	▲●		
8	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
10	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
12	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
14	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
20		▲●	▲●	▲●	▲●	▲●	▲●	▲●
22			▲●	▲●	▲●	▲●	▲●	▲●
25			▲●	▲●	▲●	▲●	▲●	▲●
28			▲●	▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●	▲●	▲●
35				▲●	▲●	▲●	▲●	▲●
40				▲●	▲●	▲●	▲●	▲●
45				▲●	▲●	▲●	▲●	▲●
50				▲●	▲●	▲●	▲●	▲●
55				▲●	▲●	▲●	▲●	▲●
60				▲●	▲●	▲●	▲●	▲●
65					▲●	▲●	▲●	▲●
70					▲●	▲●	▲●	▲●
75					▲●	▲●	▲●	▲●
80					▲●	▲●	▲●	▲●
90					▲●	▲●	▲●	▲●
100					▲●	▲●	▲●	▲●
SU	1000	1000	1000	1000 ≥ 45 500	1000 ≥ 25 500	500 ≥ 45 200	500 ≥ 22 200 ≥ 35 100	100

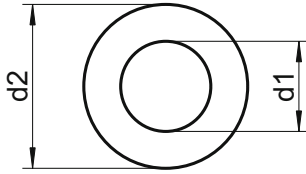
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7985-2-8X40Z DIN 7985 - A2 - M8 - l = 40mm - pozidrive - *1 without peak

DIN 7989

Washers

for steel constructions



d1	for	d2	s
11	M10	21	8
14	M12	24	8
18	M16	30	8
22	M20	37	8
24	M22	39	8
26	M24	44	8
30	M27	50	8
33	M30	56	8
36	M33	60	8
39	M36	66	8

Grade	SU
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	10

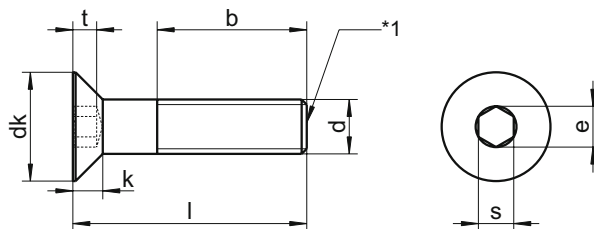
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7989-2-18 DIN 7989 - A2 - Ø 18mm

DIN 7991 - sim. ISO 10642

Countersunk flat head screws

with hexagon socket



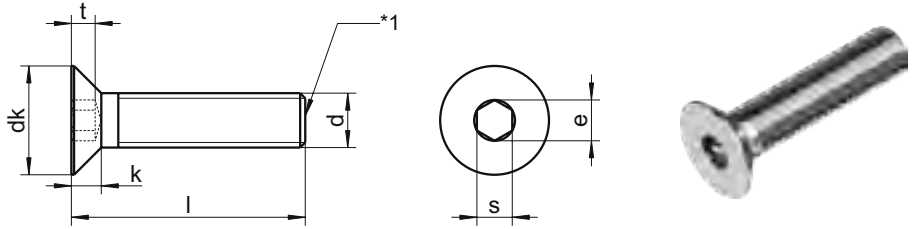
dk	6	8	10	12	16	20	24	30	36	39
k	1,7	2,3	2,8	3,3	4,4	5,5	6,5	7,5	8,5	14,0
s	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0
b	12	14	16	18	22	26	30	38	46	54
t	1,2	1,8	2,3	2,5	3,5	4,4	4,6	5,3	5,9	10,3
e	2,30	2,87	3,44	4,58	5,72	6,86	9,15	11,43	13,72	16,00
●	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0
Length / Ø	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
6	▲●	▲●	▲●							
8	▲●	▲●	▲●	▲●						
10	▲●	▲●	▲●	▲●	▲●					
12	▲●	▲●	▲●	▲●	▲●	▲●				
14	▲●	▲●	▲●	▲●	▲●	▲●				
16	▲●	▲●	▲●	▲●	▲●	▲●	▲●			
18	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
20	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
22	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
25	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
30	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●		
35	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
40	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
45		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
50		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
55		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
60		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
65		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
70		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
75			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
80			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110				▲●	▲●	▲●	▲●	▲●	▲●	▲●
120				▲●	▲●	▲●	▲●	▲●	▲●	▲●
130					▲●	▲●	▲●	▲●	▲●	▲●
140					▲●	▲●	▲●	▲●	▲●	▲●
150					▲●	▲●	▲●	▲●	▲●	▲●
160					▲●	▲●	▲●	▲●	▲●	▲●
SU	1000	1000	500	500	200	200				
	≥ 25	≥ 20	≥ 30	≥ 22	≥ 45	≥ 20				
	500	500	200	200	100	100	≥ 80	25	≥ 100	10
		≥ 30	≥ 90	≥ 45	≥ 70	≥ 65	25		10	≥ 100
		200	100	100	50	50				5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7991-2-8X40 DIN 7991 - A2 - M8 - l = 40mm - *1 with flat point acc. to DIN 78

Please note, that we stock a separate product proposal for countersunk head screws DIN 7991, which have full thread in opposition to the standard at DIN 7991 V0. They can be found on the following page. Slotted countersunk head screws can be found as DIN 963, with cross recess H and Z as DIN 965, with TX as WS 9470 and WS 9475 and as safety screw with TX+PIN as WS 9482 in this catalogue.

sim. ISO 10642 - **DIN 7991 FT** Countersunk flat head screws with hexagon socket and full thread



	6	8	10	12	16	20	24	30	36	39
dk	1,7	2,3	2,8	3,3	4,4	5,5	6,5	7,5	7,5	14,0
k	1,7	2,3	2,8	3,3	4,4	5,5	6,5	7,5	7,5	14,0
s	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0
t	1,2	1,8	2,3	2,5	3,5	4,4	4,6	5,3	5,3	10,3
e	2,30	2,87	3,44	4,58	5,72	6,86	9,15	11,43	11,43	16,00
●	2,0	2,5	3,0	4,0	5,0	6,0	8,0	10,0	12,0	14,0
Length / Ø	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
25	▲●									
30	▲●	▲●								
35	▲●	▲●	▲●							
40	▲●	▲●	▲●	▲●						
45		▲●	▲●	▲●	▲●	▲●	▲●			
50		▲●	▲●	▲●	▲●	▲●	▲●			
55		▲●	▲●	▲●	▲●	▲●	▲●	▲●		
60		▲●	▲●	▲●	▲●	▲●	▲●	▲●		
65		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
70		▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●	
75			▲●	▲●	▲●	▲●	▲●	▲●	▲●	
80			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
90			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
100			▲●	▲●	▲●	▲●	▲●	▲●	▲●	▲●
110					▲●	▲●	▲●	▲●	▲●	▲●
120					▲●	▲●	▲●	▲●	▲●	▲●
130					▲●	▲●	▲●	▲●	▲●	▲●
140					▲●	▲●	▲●	▲●	▲●	▲●
150					▲●	▲●	▲●	▲●	▲●	▲●
160					▲●	▲●	▲●	▲●	▲●	▲●
SU	500	200	200 ≥ 90 100	200 ≥ 45 100	100 ≥ 70 50	100 ≥ 50 50	50 ≥ 80 25	25	25	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

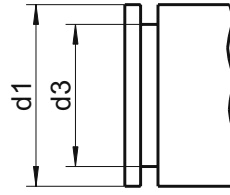
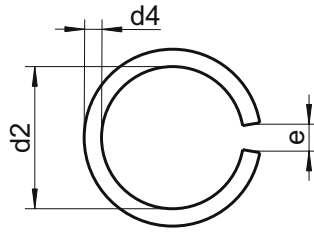
Example item no. 7991-2-8X45V0 DIN 7991 - A2 - M8 - l = 45mm - full thread - *1 with flat point acc. to DIN 78

Please note that our product proposal DIN 7991 V0 includes exclusively products, which have a full thread in opposition to the standard. Slotted countersunk head screws can be found as DIN 963, with cross recess H and Z as DIN 965, with TX as WS 9470 and WS 9475 and as safety screw with TX+PIN as WS 9482 in this catalogue.

DIN 7993 type A

Snap rings

for shafts, type A



d1	d2	d3	d4	e
4	3,1	3,2	0,8	1
5	4,1	4,2	0,8	1
6	5,1	5,2	0,8	1
7	6,1	6,2	0,8	2
8	7,1	7,2	0,8	2
10	9,1	9,2	0,8	2
12	10,8	11,0	1,0	3
14	12,8	13,0	1,0	3
16	14,2	14,4	1,6	3
18	16,2	16,4	1,6	3
20	17,7	18,0	2,0	3
22	19,7	20,0	2,0	3
24	21,7	22,0	2,0	3
25	22,7	23,0	2,0	3
26	23,7	24,0	2,0	3
28	25,7	26,0	2,0	3
30	27,7	28,0	2,0	3
38	35,1	35,5	2,5	4
48	45,0	45,5	2,5	4
55	51,1	51,8	3,2	4
65	61,1	61,8	3,2	4
80	76,0	76,8	3,2	5

Grade	SU
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	200
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
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▲	50
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▲	50
▲	50

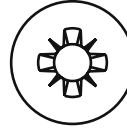
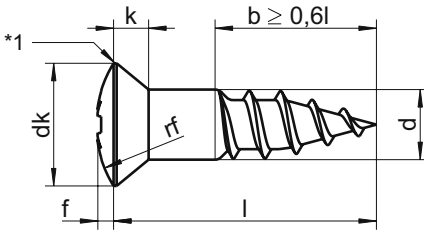
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7993-2-8A DIN 7993 - A2 - Ø 7,1 mm / basic size 8mm - form A

DIN 7995 Z

Wood screws

raised countersunk head with cross recess Z (Pozidrive)



dk	5,6	6,5	7,5	8,3	9,2	11,0
f	0,75	0,90	1,00	1,10	1,25	1,50
k	1,65	1,93	2,20	2,35	2,50	3,00
rf	6	7	8	9	10	12
⊕	Z 1	Z 2	Z 2	Z 2	Z 2	Z 3
Length / Ø	3	3,5	4	4,5	5	6
12	▲	▲				
16	▲	▲	▲			
20	▲	▲	▲			
25	▲	▲	▲	▲	▲	
30	▲	▲	▲	▲	▲	▲
35		▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45			▲	▲	▲	▲
50			▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
80				▲	▲	▲
90				▲	▲	▲
100				▲	▲	▲
110				▲	▲	▲
120				▲	▲	▲
SU	200	200	200	200	200	100

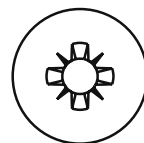
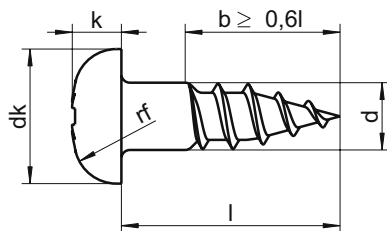
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7995-2-6X40Z DIN 7995 - A2 - Ø 6mm - l = 40mm - pozidrive - *1 head with rounded or flatended edge

DIN 7996 Z

Wood screws

round head with cross recess Z (Pozidrive)



dk	6	7	8	9	10	12
k	2,10	2,35	2,80	3,10	3,50	4,20
rf	4,8	5,6	6,4	7,2	8,0	9,6
⊕	Z1	Z2	Z2	Z2	Z2	Z3
Length / Ø	3	3,5	4	4,5	5	6
12	▲	▲	▲			
16	▲	▲	▲			
20	▲	▲	▲			
25	▲	▲	▲	▲	▲	▲
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
80					▲	▲
90					▲	▲
100					▲	▲
120						▲
SU	200	200	200	200	200	100

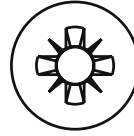
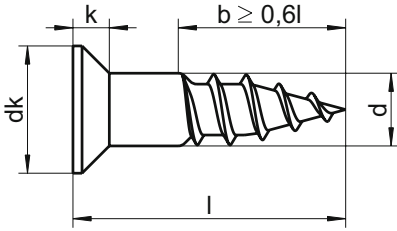
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7996-2-6X40Z DIN 7996 - A2 - Ø 6mm - l = 40mm - pozidrive

DIN 7997 Z

Wood screws

countersunk head with cross recess Z (Pozidrive)



dk	5,6	6,5	7,5	8,3	9,2	11,0
k	1,65	1,93	2,20	2,35	2,50	3,00
⊕	Z 1	Z 2	Z 2	Z 2	Z 2	Z 3
Length / Ø	3	3,5	4	4,5	5	6
12	▲	▲				
16	▲	▲	▲			
20	▲	▲	▲	▲	▲	
25	▲	▲	▲	▲	▲	▲
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
80					▲	▲
90					▲	▲
100					▲	▲
110						▲
120						▲
SU	200	200	200	200	200	100

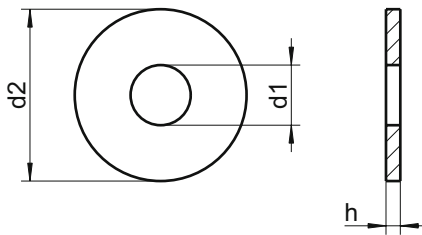
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 7997-2-6X40Z DIN 7997 - A2 - Ø 6mm - l = 40mm - pozidrive

DIN 9021 - sim. ISO 7093

Plain washers

with outside diameter ~ 3x nominal thread diameter



d1	for	d2	h
2,2	M2	7	0,8
2,7	M2,5	8	0,8
3,2	M3	9	0,8
3,7	M3,5	11	0,8
4,3	M4	12	1,0
5,3	M5	15	1,2
6,4	M6	18	1,6
7,4	M7	22	2,0
8,4	M8	24	2,0
10,5	M10	30	2,5
13,0	M12	37	3,0
15,0	M14	44	3,0
17,0	M16	50	3,0
20,0	M18	56	4,0
22,0	M20	60	4,0
26,0	M24	72	5,0
33,0	M30	92	6,0
39,0	M36	110	8,0

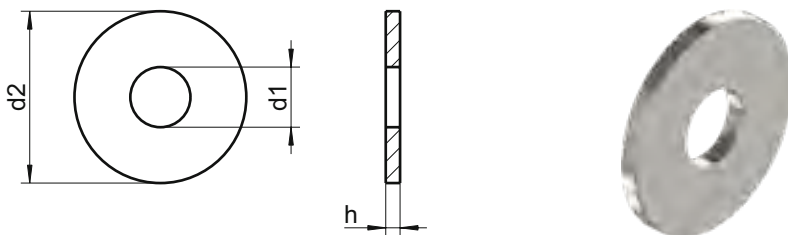
Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	500
▲●	500
▲●	200
▲●	100
▲●	100
▲●	100
▲●	100
▲●	50
▲●	25
▲●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9021-2-8,4 DIN 9021 - A2 - Ø 8,4mm

sim. ISO 7093 - **DIN 9021 special materials** Plain washers

with outside diameter ~ 3x nominal thread diameter in grade 1.4462, 1.4529, 1.4539 and 1.4571



d1	d2	h	for
6,4	18	1,6	M6
8,4	24	2,0	M8
10,5	30	2,5	M10
13,0	37	3,0	M12
17,0	50	3,0	M16

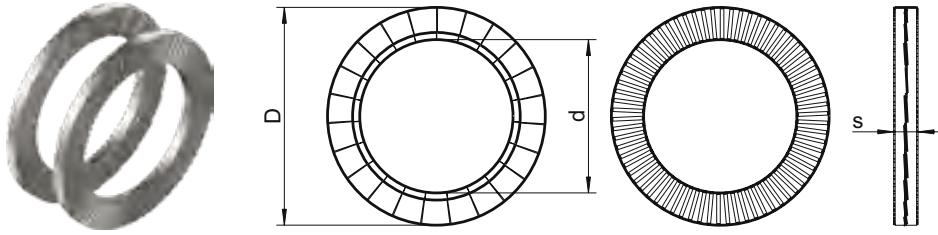
Grade	SU
A5 AI BA BB	100
A5 AI BA BB	100
A5 AI BA BB	50
A5 AI BA BB	50
A5 AI BA BB	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9021-BB-8,4 DIN 9021 - 1.4539 - Ø 8,4mm

DIN 25201

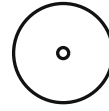
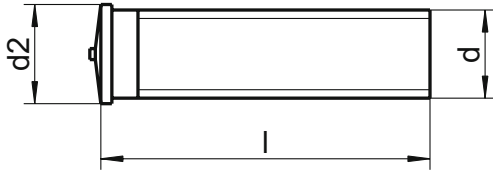
Locking washers



d	D	s (thickness of the set)	for
5	9,0	2,2	M 5
6	10,8	2,2	M 6
8	13,5	2,0	M 8
10	16,6	2,0	M 10
12	19,5	2,0	M 12
16	25,4	3,0	M 16
20	30,7	3,0	M 20
24	39,0	3,2	M 24
30	47,0	6,8	M 30

Grade	SU
●	100
●	100
●	100
●	100
●	100
●	100
●	100
●	100
●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 25201-4-8 DIN 25201 - A4 - Ø 8mm



d2	4,5	5,5	6,5	7,5	9,0	11,5
Length / Ø	M3	M4	M5	M6	M8	M10
8	▲	▲	▲	▲		
10	▲	▲	▲	▲	▲	
12	▲	▲	▲	▲	▲	
16	▲	▲	▲	▲	▲	▲
20	▲	▲	▲	▲	▲	▲
25	▲	▲	▲	▲	▲	▲
30		▲	▲	▲	▲	▲
35		▲	▲	▲	▲	▲
40			▲	▲	▲	▲
45					▲	▲
50					▲	▲
60					▲	▲
SU	500	500	500 ≥ 25 250	500 ≥ 16 250	250 ≥ 20 100	100

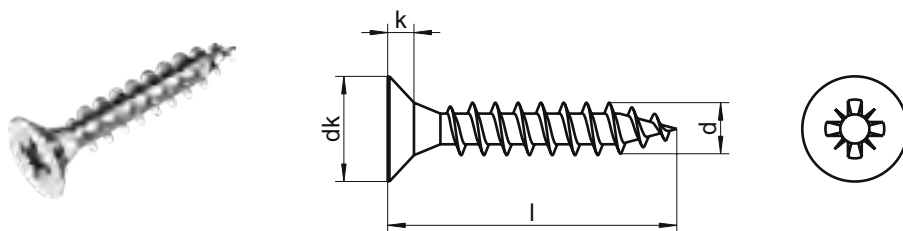
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 13918-2-8X40 ISO 13918 - A2 - M8 - l = 40mm

WS 9100

Chipboard screws

countersunk head with cross recess Z (Pozidrive) and full thread



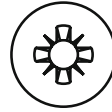
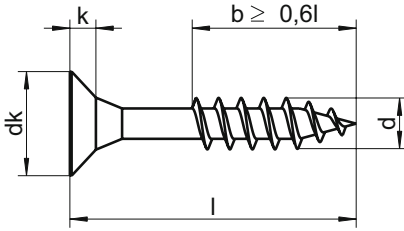
dk max. k min.	6	7	8	9	10	12
⊕	Z 1	Z 2	Z 2	Z 2	Z 2	Z 3
Length / Ø	3	3,5	4	4,5	5	6
12	▲ ●	▲ ●	▲ ●			
13	▲ ●	▲ ●	▲ ●			
14	▲ ●	▲ ●	▲ ●			
16	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●
65			▲ ●	▲ ●	▲ ●	▲ ●
70			▲ ●	▲ ●	▲ ●	▲ ●
75			▲ ●	▲ ●	▲ ●	▲ ●
80			▲ ●	▲ ●	▲ ●	▲ ●
90					▲ ●	▲ ●
100					▲ ●	▲ ●
110					▲ ●	▲ ●
120					▲ ●	▲ ●
130					▲ ●	▲ ●
140					▲ ●	▲ ●
SU	1000	1000	500	500 ≥ 40 200	500 ≥ 65 100	200 ≥ 70 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9100-2-6X40 WS 9100 - A2 - Ø 6mm - l = 40mm

WS 9105 Chipboard screws

countersunk head with cross recess Z (Pozidrive) and part thread



dk max. k min. ⊕	6 1,5 Z1	7 1,75 Z2	8 2 Z2	9 2,25 Z2	10 2,5 Z2	12 3 Z3
Length / Ø	3	3,5	4	4,5	5	6
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●
65			▲ ●	▲ ●	▲ ●	▲ ●
70			▲ ●	▲ ●	▲ ●	▲ ●
80			▲ ●	▲ ●	▲ ●	▲ ●
90				▲ ●	▲ ●	▲ ●
100				▲ ●	▲ ●	▲ ●
110					▲ ●	▲ ●
120					▲ ●	▲ ●
140						▲ ●
150						▲ ●
160						▲ ●
180						▲ ●
200						▲ ●
SU	500	500	500	500 ≥ 40 200	200 ≥ 70 100	200 ≥ 70 100

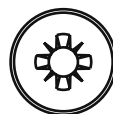
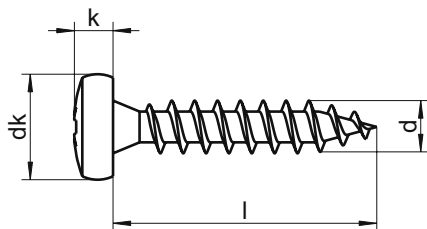
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9105-2-6X40 WS 9105 - A2 - Ø 6mm - l = 40mm

WS 9110

Chipboard screws

pan head with cross recess Z (Pozidrive) and full thread



dk max.	6	7	8	9	10	12
k	2,28	2,58	2,95	3,18	3,65	4,5
⊕	Z1	Z2	Z2	Z2	Z2	Z3
Length / Ø	3	3,5	4	4,5	5	6
10	▲ ●					
12	▲ ●	▲ ●		▲ ●		
16	▲ ●	▲ ●	▲ ●	▲ ●		
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●
65			▲ ●	▲ ●	▲ ●	▲ ●
70			▲ ●	▲ ●	▲ ●	▲ ●
75			▲ ●	▲ ●	▲ ●	▲ ●
80					▲ ●	▲ ●
90					▲ ●	▲ ●
100					▲ ●	▲ ●
110						▲ ●
120						▲ ●
SU	1000	1000	500	500 ≥ 40 200	200 ≥ 70 100	200 ≥ 70 100

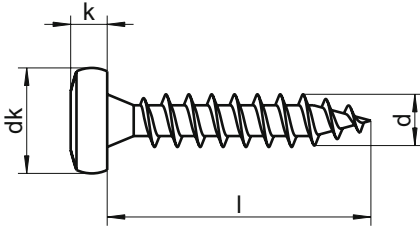
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9110-2-6X40 WS 9110 - A2 - Ø 6mm - l = 40mm

WS 9112

Chipboard screws

pan head with TX and full thread



dk max. k ⊕	6 1,6 TX 10	7 1,8 TX 10	8 2,1 TX 20	9 2,9 TX 20	10 3,3 TX 25	12 3,8 TX 25
Length / Ø	3	3,5	4	4,5	5	6
10	▲					
12	▲					
16	▲	▲				
20	▲	▲	▲	▲		
25	▲	▲	▲	▲	▲	▲
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
55			▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
80					▲	▲
90					▲	▲
100					▲	▲
110						▲
120						▲
SU	1000	1000	500	500 ≥ 40 200	200 ≥ 70 100	200 ≥ 70 100

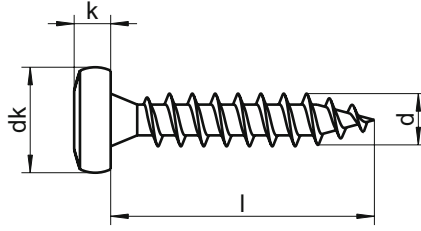
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9112-2-6X40 WS 9112 - A2 - Ø 6mm - l = 40mm

WS 9117

Chipboard screws

pan head and TX, part thread



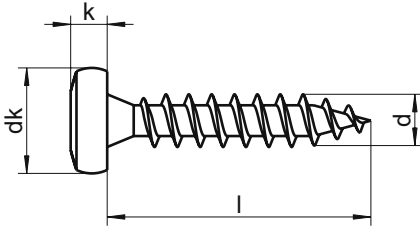
dk	6	7	8	9	10	12
k	2,28	2,58	2,95	3,18	3,65	4,50
⊙	TX 10	TX 20	TX 20	TX 25	TX 25	TX 25
Length / Ø	3	3,5	4	4,5	5	6
25	▲	▲				
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
80					▲	▲
90					▲	▲
100					▲	▲
110						▲
120						▲
SU	500	500	200	200	200 ≥ 70 100	200 ≥ 70 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9117-2-6X40 WS 9117 - A2 - Ø 6mm - l = 40mm

WS 9120 Chipboard screws

raised countersunk head with cross recess Z (Pozidrive) and full thread



dk	5,8	6,7	7,7	8,5	9,5	11,5
k	1,65	1,93	2,20	2,35	2,50	3,00
⊕	Z 1	Z 2	Z 2	Z 2	Z 2	Z 3
Length / Ø	3	3,5	4	4,5	5	6
16	▲	▲	▲	▲		
20	▲	▲	▲	▲	▲	▲
25	▲	▲	▲	▲	▲	▲
30	▲	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲	▲
40		▲	▲	▲	▲	▲
45		▲	▲	▲	▲	▲
50		▲	▲	▲	▲	▲
60			▲	▲	▲	▲
70			▲	▲	▲	▲
75					▲	▲
80					▲	▲
90					▲	▲
100					▲	▲
110						▲
120						▲
130						▲
140						▲
150						▲
160						▲
180						▲
200						▲
SU	1000	1000	500	500 ≥ 40 200	200 ≥ 70 100	200 ≥ 70 100

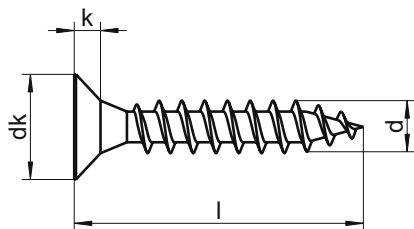
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9120-2-6X40 WS 9120 - A2 - Ø 6mm - l = 40mm

WS 9130

Chipboard screws

countersunk head with TX and full thread



dk	6	7	8	9	10	12
k	1,50	1,75	2,00	2,25	2,50	3,00
⊙	TX 10	TX 10	TX 20	TX 20	TX 25	TX 25
Length / Ø	3	3,5	4	4,5	5	6
10	▲ ●					
13	▲ ●					
16	▲ ●	▲ ●	▲ ●			
20	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
40		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45			▲ ●	▲ ●	▲ ●	▲ ●
50			▲ ●	▲ ●	▲ ●	▲ ●
55			▲ ●	▲ ●	▲ ●	▲ ●
60			▲ ●	▲ ●	▲ ●	▲ ●
70			▲ ●	▲ ●	▲ ●	▲ ●
80			▲ ●	▲ ●	▲ ●	▲ ●
90					▲ ●	▲ ●
100					▲ ●	▲ ●
SU	1000	1000	500	500 ≥ 40 200	200 ≥ 70 100	200 ≥ 70 100

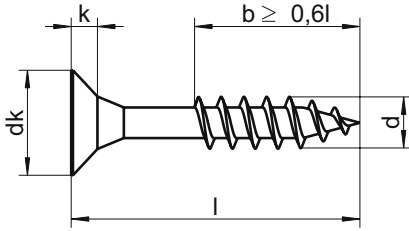
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9130-2-6X40 WS 9130 - A2 - Ø 6mm - l = 40mm

WS 9135

Chipboard screws

countersunk head with TX and part thread



dk	6	7	8	9	10	12	14
k	1,50	1,75	2,00	2,25	2,50	3,00	4,00
⊙	TX 10	TX 10	TX 20	TX 20	TX 25	TX 25	TX 40
Length / Ø	3	3,5	4	4,5	5	6	8
25	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
30	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
35	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●		
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
70		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
80				▲ ●	▲ ●	▲ ●	▲ ●
90				▲ ●	▲ ●	▲ ●	▲ ●
100				▲ ●	▲ ●	▲ ●	▲ ●
110						▲ ●	▲ ●
120						▲ ●	▲ ●
130						▲ ●	▲ ●
140						▲ ●	▲ ●
150						▲ ●	▲ ●
160						▲ ●	▲ ●
180						▲ ●	▲ ●
200						▲ ●	▲ ●
220						▲ ●	▲ ●
240						▲ ●	▲ ●
SU	500	500	500	500 ≥ 40 200	500 ≥ 70 100	200 ≥ 70 100	100

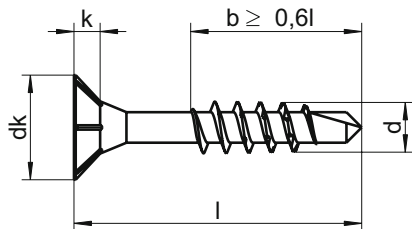
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9135-2-8X60 WS 9135 - A2 - Ø 8mm - l = 60mm

WS 9145

Chipboard screws

countersunk head with TX and part thread, 6 cutting ribs and drilling point



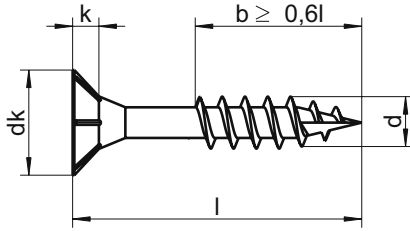
dk max.	8,0	9,0	10,0	12,0
k max.	2,50	2,75	3,00	3,80
	TX 20	TX 20	TX 25	TX 25
Length / Ø	4	4,5	5	6
30	▲	▲		
35	▲	▲		
40	▲	▲		
45	▲	▲	▲	▲
50	▲	▲	▲	▲
55	▲	▲	▲	▲
60	▲	▲	▲	▲
65	▲	▲	▲	▲
70	▲	▲	▲	▲
80	▲	▲	▲	▲
90			▲	▲
100			▲	▲
120				▲
140				▲
160				▲
SU	200	200	200	200


■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9145-2-5X40 WS 9145 - A2 - Ø 5mm - l = 40mm

WS 9146 Chipboard screws

countersunk head with TX and part thread, 6 cutting ribs and cutting groove



dk max.	8,0	9,0	10,0
k max	2,50	2,75	3,00
	TX 20	TX 20	TX 25
Length / Ø	4	4,5	5
40	●	●	●
50	●	●	●
60	●	●	●
70	●	●	●
SU	200	200	200

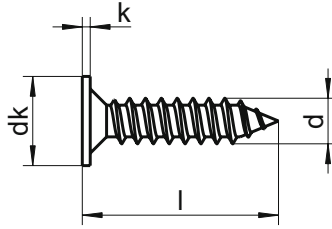
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.


Example item no. 9146-4-5X40 WS 9146 - A2 - Ø 5mm - l = 40mm

WS 9155

Teak deck screws

flat head with TX



k	0,8
dk	9
	TX 20
Length / Ø	ST4,8
19 (3/4")	●
SU	200

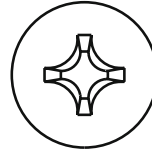
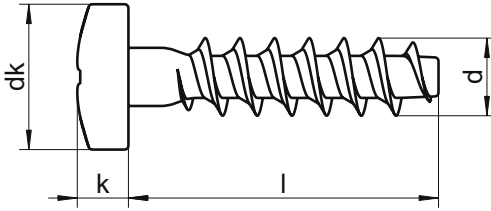
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9155-4-4,8X19 WS 9155 - A4 - Ø 4,8mm - l = 19mm

WS 9160

Pan head screws

for thermoplastics with cross recess H (Phillips)



dk	5,3 - 5,6	6,0 - 6,5	7,14 - 7,50
k	1,95 - 2,20	2,20 - 2,55	2,4 - 2,7
⊕	P 1	P 2	P 2
Length / Ø	3	3,5	4
8	▲	▲	▲
10	▲	▲	▲
12	▲	▲	▲
14	▲	▲	▲
16	▲	▲	▲
20	▲	▲	▲
25	▲	▲	▲
SU	1000	1000	1000

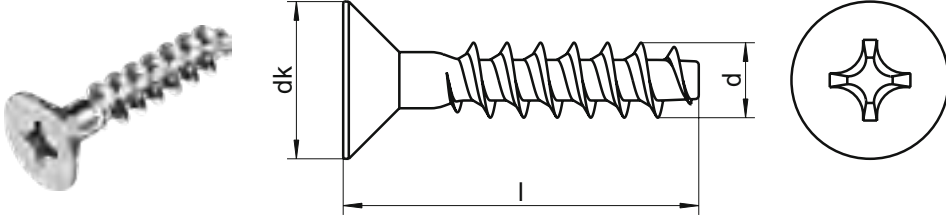
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9160-2-3X8 WS 9160 - A2 - Ø 3mm - l = 8mm

WS 9162

Countersunk head screws

for thermoplastics with cross recess H (Phillips)



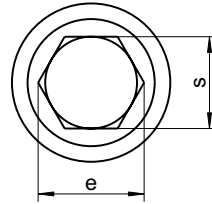
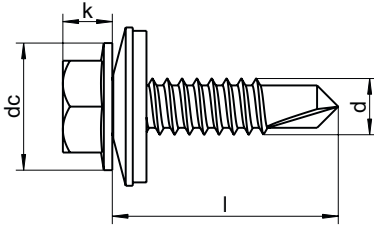
dk ⊕	5,2 - 5,5 P 1	6,7 - 7,3 P 2	7,7 - 8,4 P 2
Length / Ø	3	3,5	4
8	▲	▲	▲
10	▲	▲	▲
12	▲	▲	▲
14	▲	▲	▲
16	▲	▲	▲
SU	1000	1000	1000

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9162-2-3X8 WS 9162 - A2 - Ø 3mm - l = 8mm

sim. DIN 7504 - **WS 9165** Self drilling screws type K

hexagon head with collar and EPDM-washers Ø16mm



dc max.	8,3	8,3	8,8	10,5	11,0	13,2
k max.	3,4	3,4	4,1	4,3	5,45	5,9
e min.	5,96	5,96	7,59	8,71	8,71	10,95
s	6	7	7	8	8	10
●	6	7	7	8	8	10
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
9,5 (3/8")	▲					
13 (1/2")	▲	▲	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲	▲	▲
28 (1 1/8")			▲	▲	▲	▲
30 (1 3/16")			▲	▲	▲	▲
32 (1 1/4")			▲	▲	▲	▲
35 (1 3/8")				▲	▲	▲
38 (1 1/2")				▲	▲	▲
45 (1 3/4")				▲	▲	▲
50 (2")				▲	▲	▲
60 (2 3/8")					▲	
70 (2 3/4")					▲	
80 (3 3/8")					▲	
90 (3 1/2")					▲	
100 (4")					▲	
SU	200	200	200	200	200	200

■ A1 / ▲ A2 / ● A4 | VE: Sales units | All Measures in mm / inch | Other measures on request

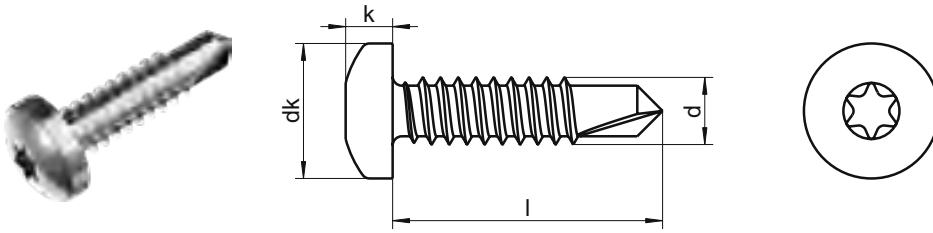
Example item no. 9165-2-5,5X32 WS 9165 - A2 - Ø 5,5mm - l = 32mm

Please note that self drilling screws in stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with hexagon head and EPDM-washer WS 9165 with other dimensions and A4 are available on request. Self drilling screws with hexagon head, and collar without sealing washer can be found as DIN 7504 K in this catalogue.

WS 9166 - sim. DIN 7504

Self drilling screws type N

pan head with TX

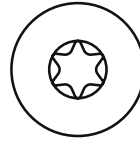
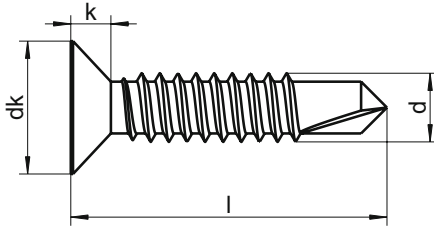


dk max.	6,9	7,5	8,2	9,5
k max.	2,60	2,80	3,05	3,55
TX	TX 10	TX 20	TX 20	TX 25
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8
9,5 (3/8")	▲			
13 (1/2")	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲
32 (1 1/4")		▲	▲	▲
38 (1 1/2")		▲	▲	▲
45 (1 3/4")				▲
50 (2")				▲
60 (2 3/8")				▲
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200

■ A1 / ▲ A2 / ● A4 | VE: Sales units | All Measures in mm / inch | Other measures on request

Example item no. 9166-2-4,2X38 WS 9166 - A2 - Ø 4,2 - l = 38mm

sim. DIN 7504 - **WS 9167**
Self drilling screws type P
 countersunk head with TX



dk max.	6,8	7,5	8,1	9,5
k max.	2,1	2,3	2,5	3,0
☼	TX 10	TX 20	TX 20	TX 25
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8
13 (1/2")	▲	▲	▲	▲
16 (5/8")	▲	▲	▲	▲
19 (3/4")	▲	▲	▲	▲
22 (7/8")	▲	▲	▲	▲
25 (1")	▲	▲	▲	▲
32 (1 1/4")		▲	▲	▲
38 (1 1/2")		▲	▲	▲
45 (1 3/4")				▲
50 (2")				▲
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200

■ A1 / ▲ A2 / ● A4 | VE: Sales units | All Measures in mm / inch | Other measures on request

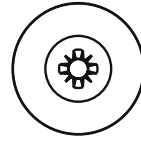
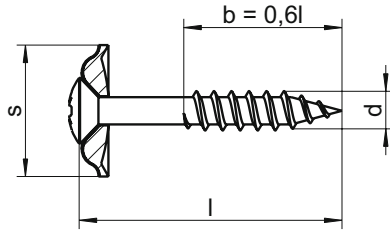
Example item no. 9167-2-4,2X38 WS 9167 - A2 - Ø 4,2mm - l = 38mm

Please note that self drilling screws in stainless steel are mainly suitable for the processing in aluminium and thin stainless steel sheets. Self drilling screws with countersunk head and TX WS 9167 in other dimensions and A4 are available on request. Self drilling screws with countersunk head and cross recess can be found as DIN 7504 P in this catalogue.

WS 9170 - sim. DIN 7995

Wood screws

with mounted EPDM-washers Ø15mm and cross recess Z (Pozidrive)



s	15
⊕	Z 2
Length / Ø	4,5
20	▲
25	▲
30	▲
35	▲
40	▲
45	▲
50	▲
60	▲
65	▲
70	▲
80	▲
90	▲
100	▲
120	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

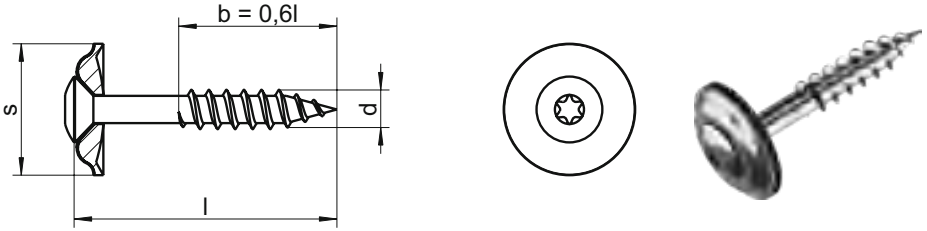
Example item no. 9170-2-4,5X40 WS 9170 - A2 - Ø 4,5mm - l = 40mm


Wood screws of this WS-standard consist of wood screws with raised countersunk head and cross recess DIN 7995 and EPDM-washer WS 9260. Both standards can be found separately in this catalogue. Wood screws with other washer sizes, copper-plated with TX can be found on the following pages.

WS 9171

Wood screws

with mounted EPDM-washers $\varnothing 15\text{mm}$ and TX20



s	15
	TX 20
Length / \varnothing	4,5
20	▲
25	▲
30	▲
35	▲
40	▲
45	▲
60	▲
80	▲
100	▲
120	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

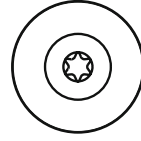
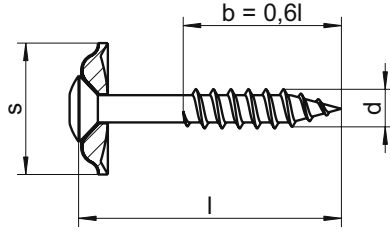
Example item no. 9171-2-4,5X40 WS 9171 - A2 - $\varnothing 4,5\text{mm}$ - l = 40mm


Wood screws of this WS-standard consist of wood screws with raised countersunk head and TX similar to DIN 7995 and EPDM-washer WS 9260. Wood screws with TX are available on request. Sealing washers WS 9260 can be also found in this catalogue. Wood screws with other washer sizes, with cross recess Z and copper-plated with TX can be found on the surrounding pages.

WS 9172

Wood screws

copper-plated, with mounted EPDM-washer Ø15mm and TX



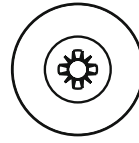
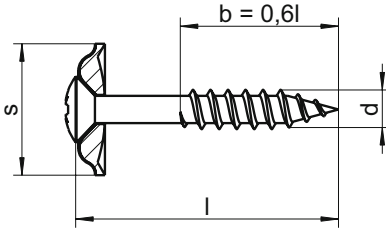
s	15
	TX 20
Length / Ø	4,5
20	▲
25	▲
30	▲
35	▲
40	▲
45	▲
60	▲
80	▲
100	▲
120	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9172-2-4,5X40 WS 9172 - A2 - Ø 4,5mm - l = 40mm

WS 9173

Wood screws

with mounted EPDM-washers Ø20mm and cross recess Z (Pozidrive)



s	20
⊕	Z 2
Length / Ø	4,5
20	▲
25	▲
30	▲
35	▲
40	▲
45	▲
50	▲
60	▲
70	▲
80	▲
100	▲
120	▲
150	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

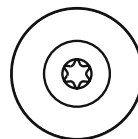
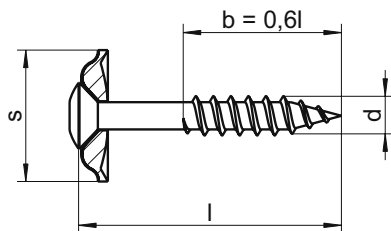
Example item no. 9173-2-4,5X40 WS 9173 - A2 - Ø 4,5mm - l = 40mm


Wood screws of this WS-standard consist of wood screws with raised countersunk head and cross recess DIN 7995 and EPDM-washer WS 9260. Both standards can be found separately in this catalogue. Wood screws with other washer sizes, copper-plated with TX can be found on the surrounding pages.

WS 9174

Wood screws

with mounted EPDM-washers Ø20mm and TX20



s	20
	TX 20
Length / Ø	4,5
25	▲
35	▲
45	▲
60	▲
65	▲
75	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

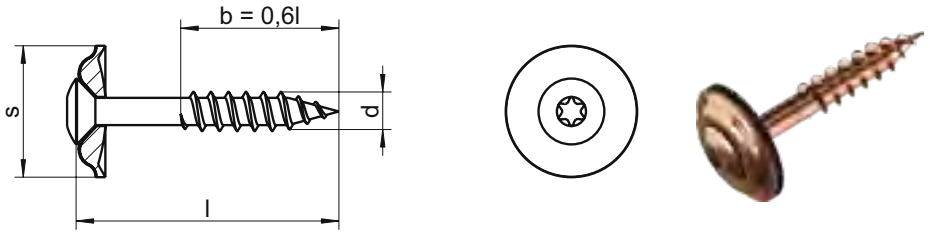
Example item no. 9174-2-4,5X45 WS 9174 - A2 - Ø 4,5mm - l = 45mm

Wood screws of this WS-standard consist of wood screws with raised countersunk head and TX similar to DIN 7995 and EPDM-washer WS 9260. Wood screws with TX are available on request. Sealing washers WS 9260 can be also found separately in this catalogue. Wood screws with other washer sizes, with cross recess Z and copper-plated with TX can be found on the surrounding pages.

WS 9175

Wood screws

copper-plated, with mounted EPDM-washers Ø20mm and TX20



s	20
	TX 20
Length / Ø	4,5
25	▲
35	▲
45	▲
60	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

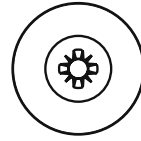
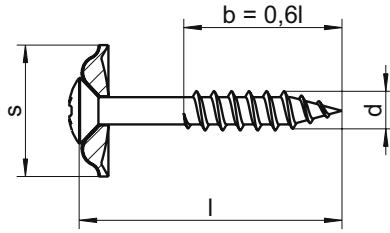
Example item no. 9175-2-4,5X45 WS 9175 - A2 - Ø 4,5mm - l = 45mm

Wood screws of this WS-standard consist of copper-plated wood screws with raised countersunk head and TX similar to DIN 7995 and copper-plated EPDM-washer WS 9260. Both products are separately available on request. Wood screws with other washer sizes, with cross recess Z and with TX can be found on the surrounding pages.

WS 9176

Wood screws

with mounted EPDM-washers Ø25mm and cross recess Z (Poqidrive)



s	25
⊕	Z 2
Length / Ø	4,5
20	▲
25	▲
30	▲
35	▲
40	▲
45	▲
50	▲
60	▲
70	▲
80	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

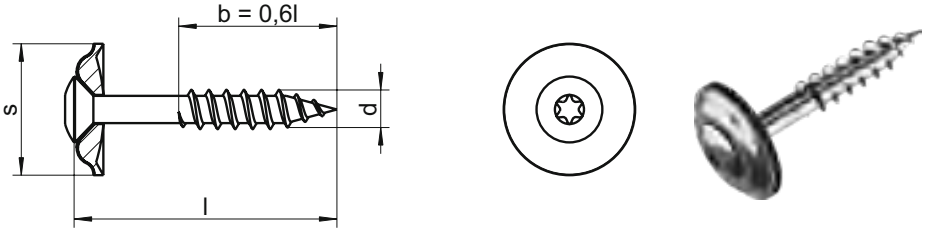
Example item no. 9176-2-4,5X40 WS 9176 - A2 - Ø 4,5mm - l = 40mm


Wood screws of this WS-standard consist of wood screws with raised countersunk head and cross recess DIN 7995 and EPDM-washer WS 9260. Both standards can be found separately in this catalogue. Wood screws with other washer sizes, copper-plated with TX can be found on the surrounding pages.

WS 9177

Wood screws

with mounted EPDM-washers Ø25mm and TX20



s	25
	TX 20
Length / Ø	4,5
25	▲
35	▲
45	▲
60	▲
SU	200 ≥ 60 100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

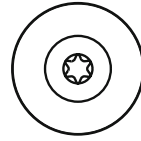
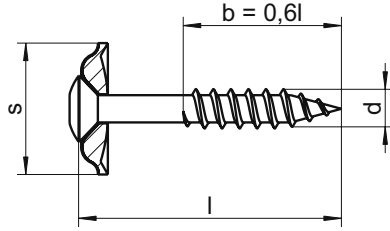
Example item no. 9177-2-4,5X45 WS 9177 - A2 - Ø 4,5mm - l = 45mm

Wood screws of this WS-standard consist of wood screws with raised countersunk head and TX similar to DIN 7995 and EPDM-washer WS 9260. Wood screws with TX are available on request. Sealing washers WS 9260 can be also found separately in this catalogue. Wood screws with other washer sizes, with cross recess Z, copper-plated with TX can be found on the surrounding pages.

WS 9178

Wood screws

copper-plated, with mounted EPDM-washers Ø25mm and TX20



s	25
⊗	TX 20
Length / Ø	4,5
25	▲
35	▲
45	▲
60	▲
SU	200 ≥ 60 100

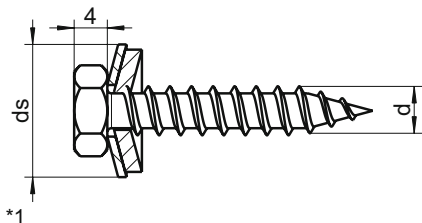
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9178-2-4,5X45 WS 9178 - A2 - Ø 4,5mm - l = 45mm

WS 9180

Facade building screws

hexagon head with mounted EPDM-washers Ø16mm, type A



ds	16
●	9,5
Length / Ø	ST6,5
16	▲
19	▲
25	▲
32	▲
38	▲
45	▲
50	▲
64	▲
75	▲
90	▲
100	▲
115	▲
130	▲
150	▲
175	▲
200	▲
220	▲
240	▲
260	▲
SU	500

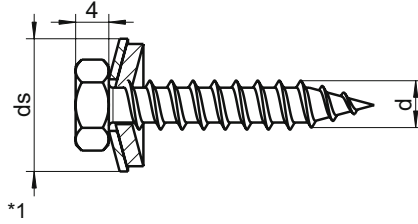
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9180-2-6,5X45 WS 9180 - A2 - Ø 6,5mm - l = 45mm - *1 Type A coarse thread f. aluminium, wood and sheet subconstr. ≤ 3 mm

WS 9182

Facade building screws

hexagon head with mounted EPDM-washers Ø19mm, type A



ds	19
●	9,5
Length / Ø	ST6,5
16	▲
19	▲
25	▲
32	▲
38	▲
45	▲
50	▲
64	▲
75	▲
90	▲
100	▲
115	▲
130	▲
150	▲
175	▲
200	▲
220	▲
240	▲
260	▲
SU	500

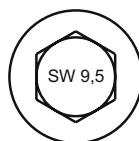
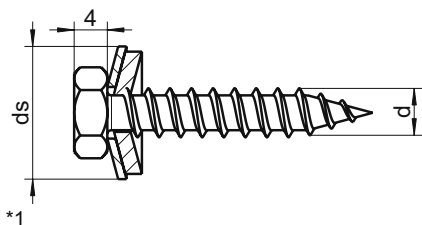
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9182-2-6,5X50 WS 9182 - A2 - Ø 6,5mm - l = 50mm - *1 Type A coarse thread f. aluminium, wood and sheet subconstr. ≤ 3 mm

WS 9184

Facade building screws

hexagon head with mounted EPDM-washers Ø22mm, type A



ds	22
●	9,5
Length / Ø	ST6,5
16	▲
19	▲
25	▲
50	▲
64	▲
75	▲
90	▲
115	▲
130	▲
150	▲
SU	500

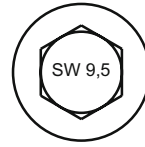
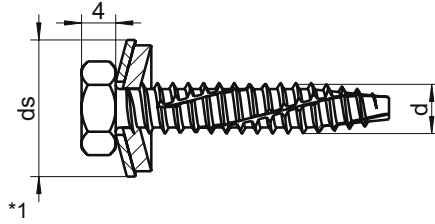
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9184-2-6,5X25 WS 9184 - A2 - Ø 6,5mm - l = 25mm - *1 Type A coarse thread f. aluminium, wood and sheet subconstr. ≤ 3 mm

WS 9190

Facade building screws

hexagon head with mounted EPDM-washers Ø16mm, type BZ



ds	16
●	9,5
Length / Ø	ST6,3
16	▲
19	▲
25	▲
32	▲
38	▲
45	▲
50	▲
64	▲
75	▲
90	▲
100	▲
115	▲
130	▲
150	▲
200	▲
220	▲
240	▲
260	▲
SU	500

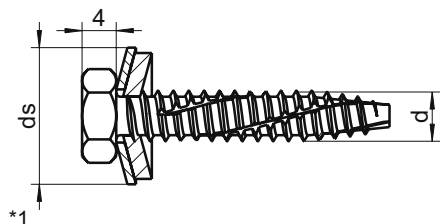
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9190-2-6,3X115 WS 9190 - A2 - Ø 6,3mm - l = 115mm - *1 Type BZ fine thread, dog point f. steel subconstructons > 3 mm

WS 9192

Facade building screws

for steel constructions with mounted EPDM-washers Ø19mm, type BZ (with dog point)



ds	19
●	9,5
Length / Ø	ST6,3
16	▲
19	▲
25	▲
32	▲
38	▲
45	▲
50	▲
64	▲
75	▲
90	▲
115	▲
130	▲
150	▲
175	▲
200	▲
SU	500

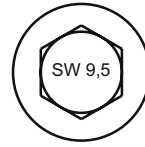
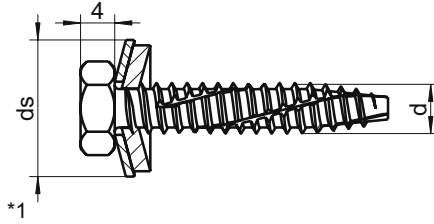
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9192-2-6,3X32 WS 9192 - A2 - Ø 6,3mm - l = 32mm - *1 Type BZ fine thread, dog point f. steel subconstruktons > 3 mm

WS 9194

Facade building screws

for steel constructions with mounted EPDM-washers Ø22mm, type BZ (with dog point)



ds	22
●	9,5
Length / Ø	ST6,3
16	▲
19	▲
25	▲
32	▲
38	▲
45	▲
50	▲
64	▲
75	▲
90	▲
100	▲
115	▲
130	▲
150	▲
SU	500

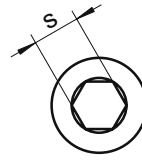
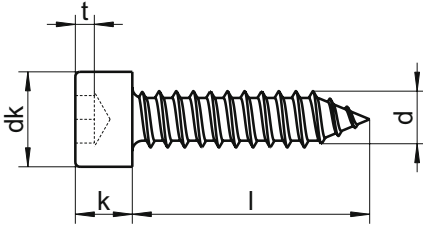
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9194-2-6,3X115 WS 9194 - A2 - Ø 6,3mm - l = 115mm - *1 Type BZ fine thread, dog point f. steel subconstructons > 3 mm

WS 9200

Tapping screws

with hexagon socket head similar DIN 912



	4	5	5
s	4	5	5
dk	8,5	10,0	10,0
k max	5	6	6
t min.	2,5	3,0	3,0
●	4	5	5
Length / Ø	ST4,8	ST5,5	ST6,3
9,5 (3/8")	▲ ●	▲ ●	▲ ●
13 (1/2")	▲ ●	▲ ●	▲ ●
16 (5/8")	▲ ●	▲ ●	▲ ●
19 (3/4")	▲ ●	▲ ●	▲ ●
22 (7/8")	▲ ●	▲ ●	▲ ●
25 (1")	▲ ●	▲ ●	▲ ●
32 (1 1/4")	▲ ●	▲ ●	▲ ●
38 (1 1/2")	▲ ●	▲ ●	▲ ●
42 (1 5/8")	▲ ●	▲ ●	▲ ●
45 (1 3/4")	▲ ●	▲ ●	▲ ●
50 (2")	▲ ●	▲ ●	▲ ●
55 (2 1/8")	▲ ●	▲ ●	▲ ●
60 (2 3/8")	▲ ●	▲ ●	▲ ●
70 (2 3/4")	▲ ●	▲ ●	▲ ●
SU	500 ≥ 32 200	200 ≥ 38 100	200 ≥ 32 100

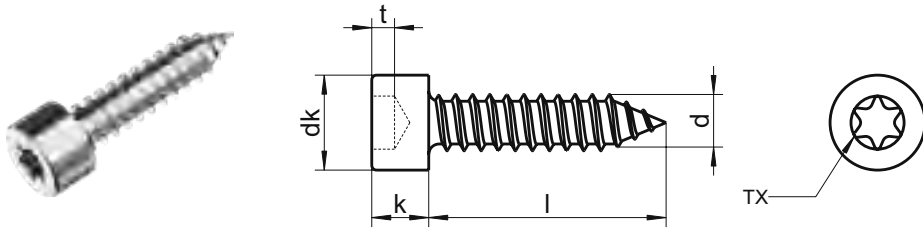
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9200-2-6,3X38 WS 9200 - A2 - Ø 6,3mm - l = 38mm

WS 9201

Tapping screws

socket head with TX similar DIN 912



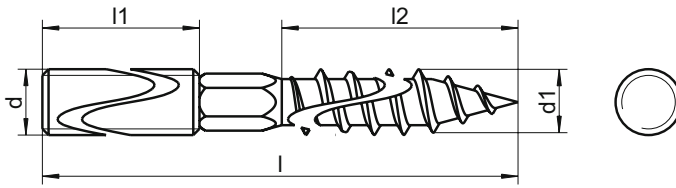
dk	8,5	10,0	10,0
k max.	5	6	6
t min.	2,5	3,0	3,0
☼	TX 25	TX 30	TX 30
Length / Ø	ST4,8	ST5,5	ST6,3
9,5 (3/8")	▲ ●	▲ ●	▲ ●
13 (1/2")	▲ ●	▲ ●	▲ ●
16 (5/8")	▲ ●	▲ ●	▲ ●
19 (3/4")	▲ ●	▲ ●	▲ ●
22 (7/8")	▲ ●	▲ ●	▲ ●
25 (1")	▲ ●	▲ ●	▲ ●
32 (1 1/4")	▲ ●	▲ ●	▲ ●
38 (1 1/2")	▲ ●	▲ ●	▲ ●
45 (1 3/4")	▲ ●	▲ ●	▲ ●
50 (2")	▲ ●	▲ ●	▲ ●
55 (2 1/8")	▲ ●	▲ ●	▲ ●
60 (2 3/8")	▲ ●	▲ ●	▲ ●
70 (2 3/4")	▲ ●	▲ ●	▲ ●
80 (3 1/8")	▲ ●	▲ ●	▲ ●
SU	500 ≥ 32 200	200 ≥ 38 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9201-2-6,3X38 WS 9201 - A2 - Ø 6,3mm - l = 38mm

Dowel screws

with metric- and wood thread and pilot recess



d	l	l1	l2	d1	●
M6	50	11	37	6	5
M6	60	20	37	6	5
M6	70	25	37	6	5
M6	80	30	47	6	5
M6	90	40	47	6	5
M6	100	40	47	6	5
M6	110	50	47	6	5
M6	120	50	47	6	5
M6	130	50	47	6	5
M6	140	50	47	6	5
M6	150	50	47	6	5
M6	160	50	47	6	5
M6	180	50	47	6	5
M8	50	11	37	8	6
M8	60	20	37	8	6
M8	70	25	37	8	6
M8	80	30	37	8	6
M8	90	40	37	8	6
M8	100	40	47	8	6
M8	110	40	47	8	6
M8	120	50	47	8	6
M8	130	50	47	8	6
M8	140	50	47	8	6
M8	150	50	47	8	6
M8	160	50	47	8	6
M8	180	50	47	8	6
M8	200	50	47	8	6

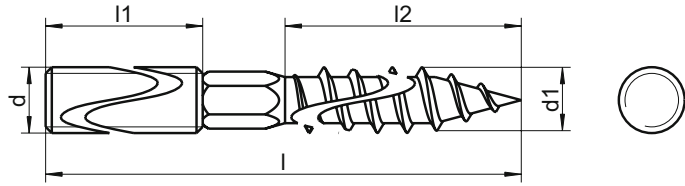
Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	50
▲	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9210-2-8X60 WS 9210 - A2 - M8 - l = 60mm

WS 9210 - Page 2

Dowel screws

with metric- and wood thread and pilot recess



d	l	l1	l2	d1	●
M10	60	20	37	10	8
M10	80	20	47	10	8
M10	90	20	57	10	8
M10	100	30	57	10	8
M10	110	40	57	10	8
M10	120	40	57	10	8
M10	130	40	57	10	8
M10	140	40	57	10	8
M10	150	40	57	10	8
M10	160	40	57	10	8
M10	180	40	57	10	8
M10	200	40	57	10	8
M12	80	20	57	12	10
M12	100	25	57	12	10
M12	110	40	57	12	10
M12	120	40	57	12	10
M12	130	40	57	12	10
M12	140	40	57	12	10
M12	150	40	57	12	10
M12	160	40	57	12	10
M12	180	40	57	12	10
M12	200	40	57	12	10
M12	300	150	100	12	10

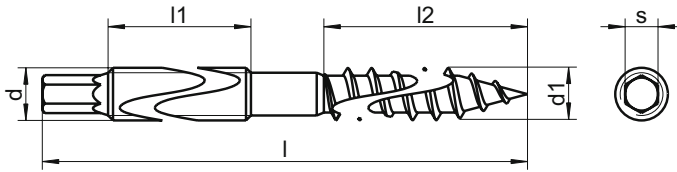
Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	50
▲	50
▲	50
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25
▲	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9210-2-8X60 WS 9210 - A2 - M8 - l = 60mm

WS 9211 Dowel screws

with hexagon and metric- and wood thread



d	l	l1	l2	d1	s	⬠
M10	180	100	60	10	7	7
M10	200	110	70	10	7	7
M10	250	130	80	10	7	7
M10	300	140	100	10	7	7
M10	350	150	120	10	7	7
M12	180	100	60	12	8	8
M12	180	100	60	12	9	9
M12	200	110	70	12	8	8
M12	200	110	70	12	9	9
M12	250	130	100	12	8	8
M12	250	130	100	12	9	9
M12	300	140	100	12	8	8
M12	300	140	100	12	9	9
M12	350	180	180	12	8	8
M12	350	180	180	12	9	9

Grade	SU
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50

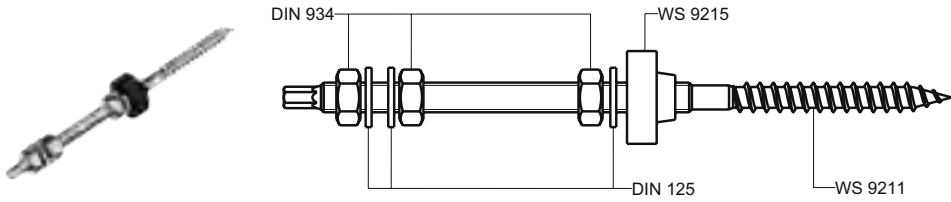
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9211-2-10X200 WS 9211 - A2 - M10 - l = 200mm

WS 9215

Dowel screws

with hexagon with 1xEPDM,3x934,3x125



Length / Ø	7 M10	8 alt.9 M12
180	▲	▲
200	▲	▲
250	▲	▲
300	▲	▲
350	▲	▲
SU	25	25

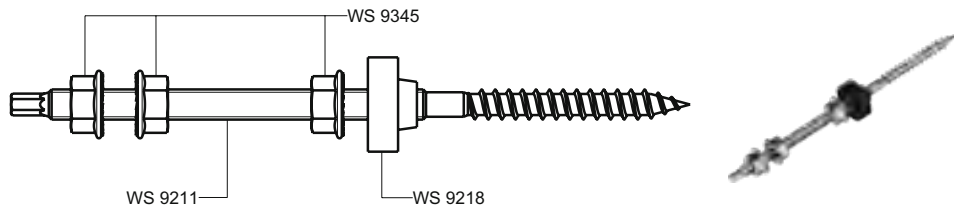
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9215-2-10X250 WS 9215 - A2 - M10 - l = 250mm

WS 9216

Dowel screws

with hexagon with 1xEPDM, 3x9345



Length / Ø	7		8 alt. 9	
	M10		M12	
180	▲		▲	
200	▲		▲	
250	▲		▲	
300	▲		▲	
350	▲		▲	
SU	25		25	

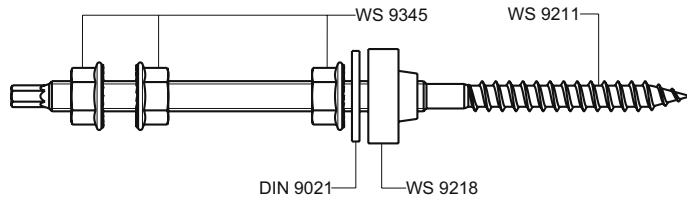
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9216-2-10X250 WS 9216 - A2 - M10 - l = 250mm

WS 9217

Dowel screws

with hexagon with 1xEPDM, 3x9345, 1x9021



Length / Ø	7 M10	8 alt. 9 M12
180	▲	▲
200	▲	▲
250	▲	▲
300	▲	▲
350	▲	▲
SU	25	25

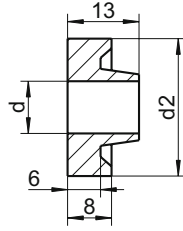
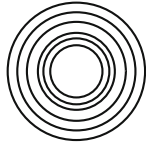
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9217-2-10X250 WS 9217 - A2 - M10 - l = 250mm

WS 9218

EPDM-sealings

for dowel screws



d	d2
10	25
12	25

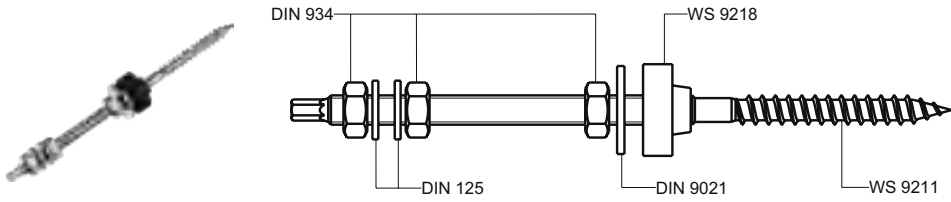
Grade	SU
EPDM	1000
EPDM	1000

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 9218 10 WS 9218 - for M 10

WS 9219

Dowel screws

with hexagon with 1xEPDM,3x934,2x125,1X9021



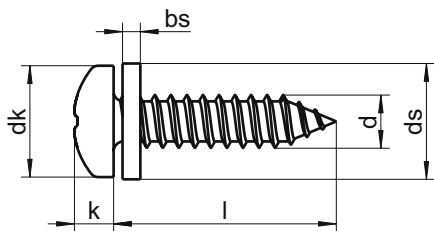
Length / Ø	7		8 alt. 9	
	M10		M12	
180	▲		▲	
200	▲		▲	
250	▲		▲	
300	▲		▲	
350	▲		▲	
SU	25		25	

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9219-2-10X250 WS 9219 - A2 - M10 - l = 250mm

WS 9220 Tapping screws

pan head with cross recess H (Phillips) and polyamide-washer



dk max.	7,5	8,2	9,5
bs	2	2	2
k max.	2,80	3,05	3,55
ds	10	10	10
⊕	P 2	P 2	P 2
Length / Ø	ST3,9	ST4,2	ST4,8
13 (1/2")	▲	▲	▲
16 (5/8")	▲	▲	▲
19 (3/4")	▲	▲	▲
22 (7/8")	▲	▲	▲
25 (1")	▲	▲	▲
32 (1 1/4")	▲	▲	▲
SU	500	500	500

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

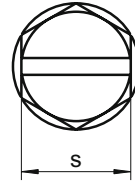
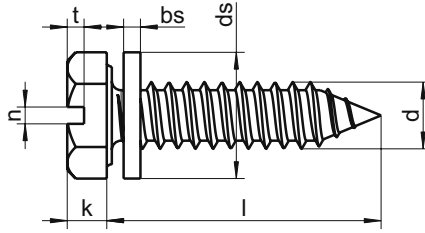
Example item no. 9220-2-4,2X16 WS 9220 - A2 - Ø 4,2mm - l = 16mm

Pan head tapping screws with polyamide-washers WS 9220 in other dimensions, with other drives and materials are available on request. Pan head tapping screws without polyamide-washers can be found as DIN 7981 in this catalogue. Hexagon head screws with polyamide-washers can be found as WS 9230 on the following page in this catalogue.

WS 9230

Tapping screws

hexagon head with slot and polyamide-washer



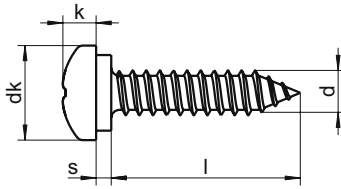
k	2,8	3,0
bs	2	2
ds	10	10
s	7	8
n	1,2	1,2
t max.	1,60	1,92
⊖	1,0X5,5	1,0X5,5
Length / Ø	ST4,2	ST4,8
13 (1/2")	▲	▲
16 (5/8")	▲	▲
19 (3/4")	▲	▲
25 (1")	▲	▲
SU	500 ≥ 16 200	200

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9230-2-4,2X13 WS 9230 - A2 - Ø 4,2mm - l = 13mm

Slotted hexagon head tapping screws with polyamide-washer WS 9230 in other dimensions, other drives and materials are available on request. Hexagon head screws without polyamide-washers can be found as DIN 7976 in this catalogue. Cap head tapping screws with polyamide-washers can be found as WS 9220 in this catalogue.

sim. DIN 7981 - **WS 9235**
Tapping screws
 cap head with cross recess H (Phillips)



dk max.	8,16
k max.	3,2
s max.	1,1
⊕	P 2
Length / Ø	ST3,9
9,5 (3/8")	▲
13 (1/2")	▲
16 (5/8")	▲
19 (3/4")	▲
22 (7/8")	▲
25 (1")	▲
32 (1 1/4")	▲
38 (1 1/2")	▲
45 (1 3/4")	▲
SU	1000

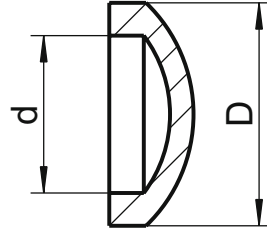
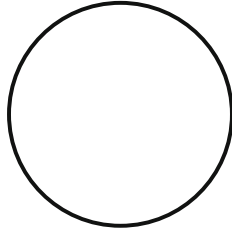
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9235-2-3,9X38 WS 9235 - A2 - Ø 3,9mm - l = 38mm

WS 9236

Caps

for cap head screws



d	D	RAL
7,0	12,0	9006 (grau / grey)
7,0	12,0	9016 (weiß / white)
7,0	12,0	9017 (schwarz / black)

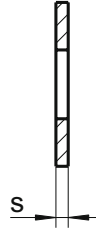
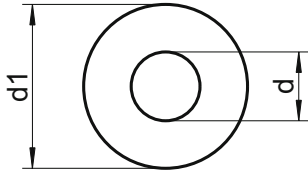
Grade	SU
PE	1000
PE	1000
PE	1000

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9236-9016 WS 9236 - RAL 9016 (white)

WS 9240

Plain washers



d	for	d1	s
4,3	M4	12	1,00
4,3	M4	15	1,00
4,3	M4	20	1,25
4,3	M4	25	1,50
5,3	M5	15	1,50
5,3	M5	20	1,50
5,3	M5	25	1,50
5,3	M5	30	1,50
6,4	M6	20	1,50
6,4	M6	25	1,50
6,4	M6	30	1,50
6,4	M6	35	1,50
6,4	M6	40	1,50
8,4	M8	20	1,50
8,4	M8	25	1,50
8,4	M8	30	1,50
8,4	M8	35	1,50
8,4	M8	40	1,50
10,5	M10	25	1,50
10,5	M10	30	1,50
10,5	M10	35	1,50
10,5	M10	40	1,50
12,5	M12	30	1,50
12,5	M12	35	1,50
12,5	M12	40	1,50

Grade	SU
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100

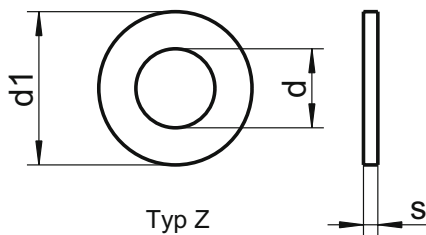
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9240-2-8,4X40 WS 9240 - A2 - Ø 8,4mm - l = 40mm

WS 9245

Washers

according to NFE 25-514 Z



Typ Z

d	for	d1	s
2	M2	4	0,5
2,5	M2,5	5	0,5
3	M3	6	0,8
4	M4	8	0,8
5	M5	10	1,0
6	M6	12	1,2
8	M8	16	1,5
10	M10	20	2,0
12	M12	24	2,5
14	M14	27	2,5
16	M16	30	3,0
18	M18	32	3,0
20	M20	36	3,0
24	M24	45	4,0
27	M27	48	4,0
30	M30	52	4,0

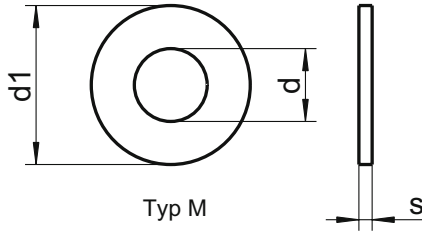
Grade	SU
▲●	500
▲●	500
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9245-2-8 WS 9245 - A2 - Ø 8mm

WS 9246 Washers

according to NFE 25-514 M



d	for	d1	s
2	M2	5,5	0,3
2,5	M2,5	7,0	0,5
3	M3	8,0	0,8
4	M4	10,0	0,8
5	M5	12,0	1,0
6	M6	14,0	1,2
8	M8	18,0	1,5
10	M10	22,0	2,0
12	M12	27,0	2,5
14	M14	30,0	2,5
16	M16	32,0	3,0
18	M18	36,0	3,0
20	M20	40,0	3,0
22	M22	45,0	3,0
24	M24	50,0	4,0
27	M27	55,0	4,0
30	M30	60,0	4,0
33	M33	65,0	5,0
36	M36	70,0	5,0

Grade	SU
▲●	500
▲●	500
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50
▲●	50

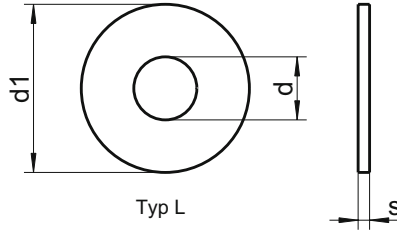
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9246-4-8 WS 9246 - A4 - Ø 8mm

WS 9247

Washers

according to NFE 25-514 L



d	for	d1	s
3	M3	12	0,8
4	M4	14	0,8
5	M5	16	1,0
6	M6	18	1,2
8	M8	22	1,5
10	M10	27	2,0
12	M12	32	2,5
14	M14	36	2,5
16	M16	40	3,0
18	M18	45	3,0
20	M20	50	3,0
24	M24	60	4,0
27	M27	65	4,0

Grade	SU
▲ ●	500
▲ ●	500
▲ ●	500
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	100
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50
▲ ●	50

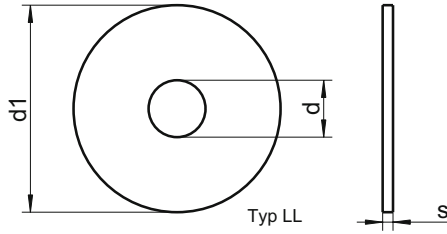
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9247-2-8 WS 9247 - A2 - Ø 8mm

WS 9248

Washers

according to NFE 25-514 LL



d	for	d1	s
3	M3	14	0,8
4	M4	16	0,8
5	M5	20	1,0
6	M6	24	1,2
8	M8	30	1,5
10	M10	36	2,0
12	M12	40	2,5
14	M14	45	2,5
16	M16	50	3,0
18	M18	55	3,0
20	M20	60	3,0

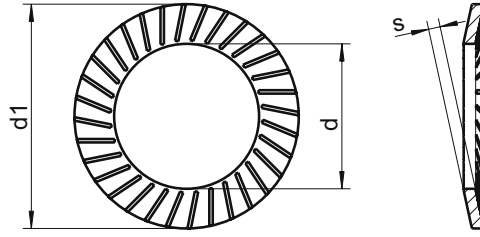
Grade	SU
▲●	500
▲●	500
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	50
▲●	50
▲●	50
▲●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9248-2-8 Ws 9248 - A2 - Ø 8mm

WS 9250

Locking washers "S"



d	d1	s
2,2	4,0	0,35
2,7	4,8	0,45
3,2	5,5	0,45
3,7	6,0	0,45
4,3	7,0	0,50
5,3	9,0	0,60
6,4	10,0	0,70
8,4	13,0	0,80
10,5	16,0	1,00
13,0	18,0	1,10
14,0	19,0	1,20
15,0	22,0	1,20
17,0	24,0	1,30
19,0	27,0	1,50
21,0	30,0	1,50
25,0	36,0	1,80
28,6	39,0	2,00
31,6	45,0	2,00

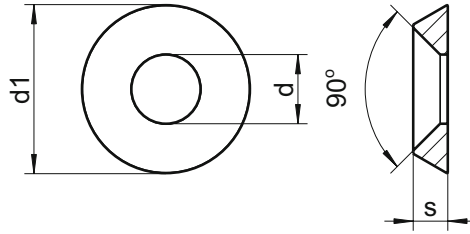
Grade	SU
▲	2000
▲	2000
▲	2000
▲	2000
▲	1000
▲	1000
▲	1000
▲	1000
▲	500
▲	500
▲	500
▲	500
▲	500
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9250-2-8,4 WS 9250 - A2 - Ø 8,4mm

WS 9255

Finishing washers

solid metal



d	for	d1	s
3	M3	9	2,0
4	M4	11	2,5
5	M5	14	3,0
6	M6	16	3,5
8	M8	22	4,5
10	M10	28	5,5

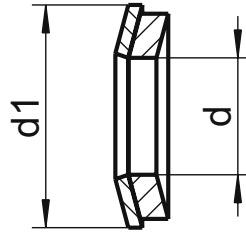
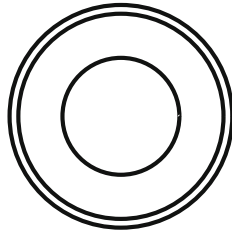
Grade	SU
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9255-4-8 WS 9255 - A4 - Ø 8mm

WS 9260

Sealing washers

with EPDM

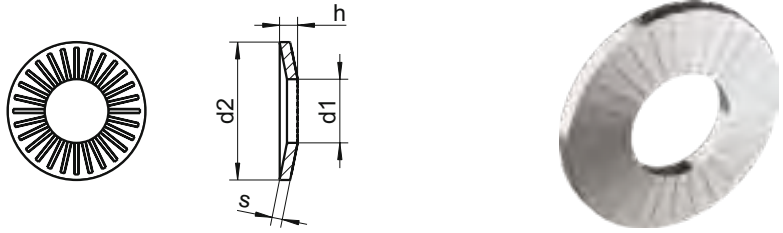


d	d1
5,2	14
6,8	16
6,8	19
6,8	22
6,8	25
8,4	16
8,4	22
8,4	29

Grade	SU
▲	500
▲	500
▲	500
▲	500
▲	500
▲	500
▲	500
▲	500

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9260-2-8,4X16 WS 9260 - A2 - Ø 8,4mm - l = 16mm

sim. NFE 25-511 - **WS 9264**
AFNOR-contact washers
 according to NFE 25-511



d1	for	d2	h min.	h max.	s
3,1	M3	8	0,80	1,00	0,6
4,1	M4	10	1,15	1,40	0,9
5,1	M5	12	1,45	1,80	1,1
6,1	M6	14	1,75	2,10	1,3
8,2	M8	18	1,90	2,35	1,4
10,2	M10	22	2,25	2,75	1,6
12,4	M12	27	2,60	3,10	1,8
14,4	M14	30	3,20	3,70	2,4
16,4	M16	32	3,60	4,10	2,8
20,5	M20	40	4,90	4,90	3,2

Grade	SU
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	1000
▲●	500
▲●	250
▲●	250
▲●	100

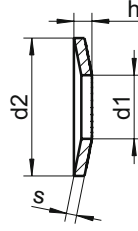
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9264-2-10 WS 9264 - A2 - Ø 10mm

WS 9265

Serrated locking washers

type M (medium)



d	for	d1	d2	h	s
4	M4	4,1	10,20	1,50	1,0
5	M5	5,1	12,20	1,80	1,2
6	M6	6,1	14,20	2,20	1,4
8	M8	8,2	18,20	2,40	1,4
10	M10	10,2	22,25	2,75	1,6
12	M12	12,4	27,25	3,05	1,8
14	M14	14,4	30,25	3,50	2,4
16	M16	16,4	32,50	3,95	2,5
20	M20	21,0	40,00	4,70	3,0

Grade	SU
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	200
▲●	100
▲●	100
▲●	100

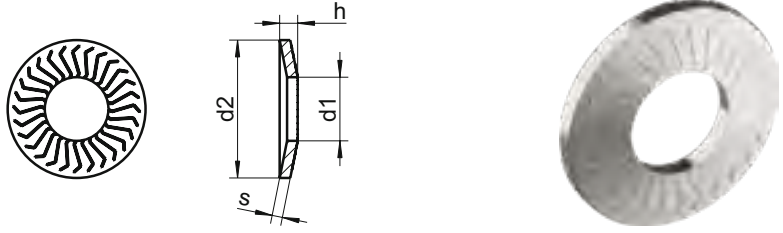
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9265-4-8 WS 9265 - A4 - Ø 8mm

WS 9266

Serrated locking washers

type S (small)



d	for	d1	d2	h	s
4	M4	4,1	8,20	1,35	1,0
5	M5	5,1	10,20	1,50	1,0
6	M6	6,1	12,20	1,80	1,2
8	M8	8,2	16,20	2,40	1,4
10	M10	10,2	20,25	2,40	1,6
12	M12	12,4	24,25	2,60	1,6

Grade	SU
●	1000
●	1000
●	1000
●	1000
●	1000
●	1000

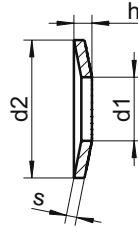
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9266-4-8 WS 9266 - A4 - Ø 8mm

WS 9267

Serrated locking washers

type B (flat)



d	for	d1	d2	h	s
6	M6	6,1	18,20	2,55	1,4
8	M8	8,2	22,25	2,90	1,9
10	M10	10,2	27,25	3,65	2,4
12	M12	12,4	32,30	4,50	2,8

Grade	SU
●	200
●	200
●	200
●	200

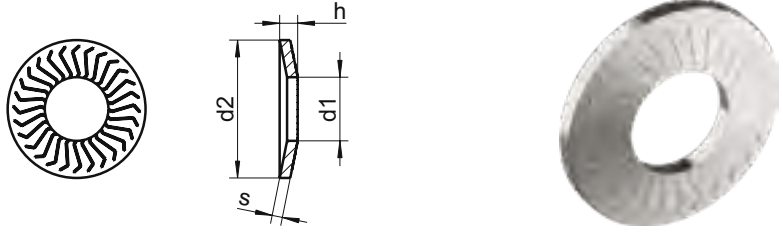
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9267-4-8 WS 9267 - A4 - Ø 8mm

WS 9268

Serrated locking washers

type Z (for cheese head screws)



d	for	d1	d2	h	s
6	M6	6,1	9,9	1,6	1,4
8	M8	8,2	12,7	1,7	1,4
10	M10	10,2	16,1	2,0	1,6
12	M12	12,4	18,3	2,2	1,8

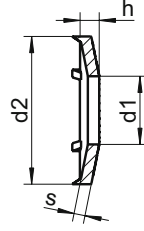
Grade	SU
●	200
●	200
●	200
●	200

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9268-4-8 WS 9268 - A4 - Ø 8mm

WS 9269

Serrated locking washers

for electrical connections



d	d1	d2	h	s
6	6,1	12,20	1,8	1,2
8	8,2	16,20	2,4	1,4
10	10,2	20,25	2,6	1,6
12	12,4	24,25	2,6	1,6

Grade	SU
●	200
●	200
●	200
●	200

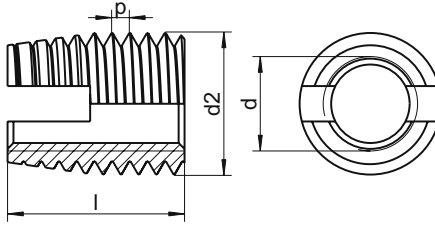
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9269-4-10 WS 9269 - A4 - Ø 10mm

WS 9270

Thread inserts

ENSAT type 302, self-cutting



d	d2	p	l
M3	M5	0,5	6
M4	M6,5	0,75	8
M5	M8	1,0	10
M6	M10	1,5	14
M8	M12	1,5	15
M10	M14	1,5	18
M12	M16	1,5	22
M14	M18	1,5	24
M16	M20	1,5	22
M20	M26	1,5	27

Grade	SU
■	250
■	250
■	250
■	250
■	100
■	100
■	50
■	50
■	50

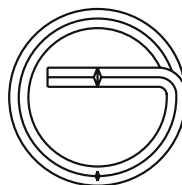
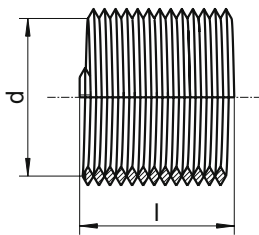
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9270-2-8 WS 9270 - A1 - M8

WS 9275

Thread inserts

free running



d	l
M4X0,7	4
M4X0,7	6
M4X0,7	8
M5X0,8	5
M5X0,8	7,5
M5X0,8	10
M5X0,8	15
M6X1	6
M6X1	9
M6X1	12
M6X1	15
M6X1	18
M8X1,25	8
M8X1,25	12
M8X1,25	16
M8X1,25	20
M8X1,25	24
M10X1,5	7,5
M10X1,5	10
M10X1,5	15
M10X1,5	20
M10X1,5	25
M10X1,5	30
M12X1,75	12
M12X1,75	18
M12X1,75	24
M12X1,75	30
M12X1,75	36
M16X2	16
M16X2	24
M16X2	32
M20X2,5	20
M20X2,5	30
M20X2,5	40

Grade	SU
▲	100
▲	100
▲	100
▲	100
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▲	100

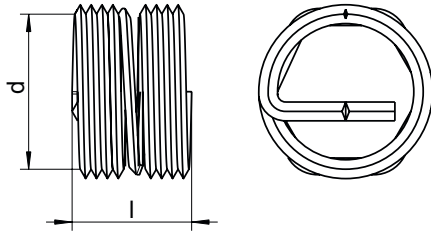
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9275-2-10X1,5X15 WS 9275 - A2 - M10 - h = 1,5mm - l = 15mm

WS 9276

Thread inserts

clamped



d	l
M4X0,7	4
M4X0,7	6
M4X0,7	8
M5X0,8	5
M5X0,8	7,5
M5X0,8	10
M5X0,8	15
M6X1	6
M6X1	9
M6X1	12
M6X1	15
M6X1	18
M8X1,25	8
M8X1,25	12
M8X1,25	16
M8X1,25	20
M8X1,25	24
M10X1,5	7,5
M10X1,5	10
M10X1,5	15
M10X1,5	20
M10X1,5	25
M10X1,5	30
M12X1,75	12
M12X1,75	18
M12X1,75	24
M12X1,75	30
M12X2	36
M16X2	16
M16X2	24
M16X2	32
M20X2	20
M20X2	20
M20X2	40

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
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▲	100
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

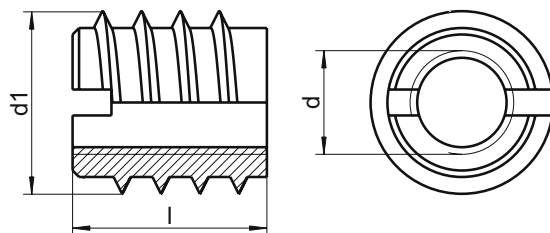
Example item no. 9276-2-10X1,5X10 WS 9276 - A2 - M10 - p = 1,5mm - l = 10mm

Please notice: Thread inserts WS 9275 are used for the repair and reinforcement of cracked and damaged threads. Thread inserts, free running, can be found as WS 9276 in this catalogue.

WS 9280 - sim. DIN 7965

Screwed inserts

type B



d	d1	l
M4	8,0	10
M5	10,0	12
M6	12,0	15
M8	16,0	18
M10	18,5	25
M12	22,0	30

Grade	SU
■	100
■	100
■	100
■	100
■	100
■	50

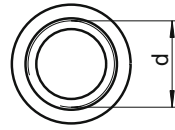
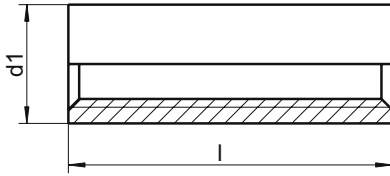
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9280-2-8 WS 9280 - A2 - M8

WS 9290

Round coupler nuts

with full length thread



d1	10	11	13	15	22	28
Length / Ø	M6	M8	M10	M12	M16	M20
20	▲ ●	▲ ●				
25	▲ ●	▲ ●	▲ ●			
30	▲ ●	▲ ●	▲ ●	▲ ●		
35		▲ ●	▲ ●	▲ ●		
40		▲ ●	▲ ●	▲ ●	▲ ●	
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
SU	100	100	100 ≥ 40 50	50	25	25

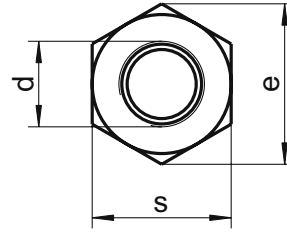
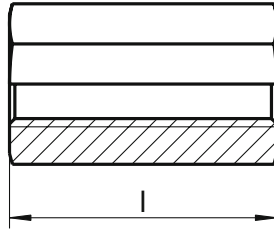
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9290-2-8X40 WS 9290 - A2 - M8 - l = 40mm

WS 9300

Hexagon coupler nuts

with full length thread



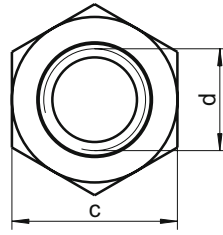
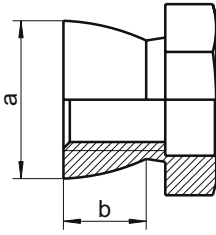
s	10	13	17	19	24	30	36	46
e	11,1	15,0	19,6	21,9	27,7	34,6	41,6	53,1
●	10	13	17	19	24	30	36	46
Length / Ø	M6	M8	M10	M12	M16	M20	M24	M30
20	▲ ●	▲ ●	▲ ●					
25	▲ ●	▲ ●	▲ ●					
30	▲ ●	▲ ●	▲ ●	▲ ●				
35	▲ ●	▲ ●	▲ ●	▲ ●				
40	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●			
50		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
60								▲ ●
SU	100	100	100 ≥ 40 50	50	25	25	10	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9300-2-8X40 WS 9300 - A2 - M8 - l = 40mm

WS 9305

Shear nuts



d	a	b	c	⌀
M6	10	5	10	10
M8	13	6	13	13
M10	17	8	17	17
M12	19	10	19	19
M16	24	13	24	24
M20	30	18	30	30

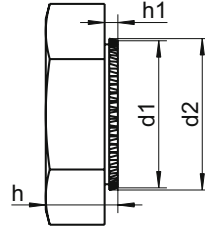
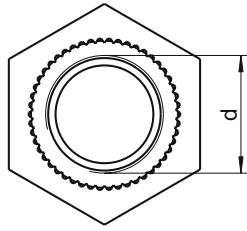
Grade	SU
▲	200
▲	200
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9305-2-8 WS 9305 - A2 - M8

WS 9310

Insert press nuts



d	d1	d2	h	h1	●
M2	4,5	4,70	3,0	0,9	4,0
M2,5	4,5	4,70	3,0	0,9	5,0
M3	4,5	4,70	3,0	0,9	5,5
M4	5,5	5,70	3,2	0,9	7,0
M5	6,5	6,75	4,0	0,9	8,0
M6	8,0	8,30	5,0	0,9	10,0
M8	10,0	10,30	6,5	1,9	13,0
M10	12,5	12,85	8,0	1,9	15,0
M12	14,5	14,85	10,0	2,9	17,0
M16	18,5	18,85	13,0	3,4	22,0
M20	23,0	23,40	16,0	3,9	27,0

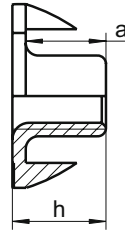
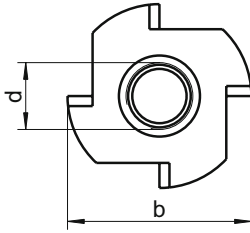
Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	50
▲	50
▲	50
▲	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9310-2-8 WS 9310 - A2 - M8

WS 9312

Drive in nuts

for wood



d	h	a	b
M4	8	1,7	15,0
M5	8	3,1	17,0
M6	9	3,5	19,0
M8	11	6,8	22,0
M10	12	9,4	25,0
M12	27	12,0	14,5

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100

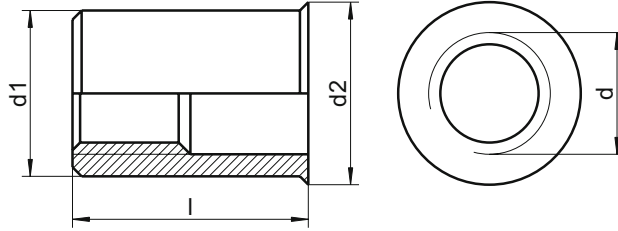
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9312-2-8 WS 9312 - A2 - M8

WS 9314

Blind rivet nuts

with small countersunk head



d	d1	d2	l	clamping range
M4	5,9	7	10,0	0,5-2,5
M5	6,9	8	11,5	0,5-3,0
M6	8,9	10	14,0	0,5-3,0
M8	10,9	12	15,5	0,5-3,0
M10	11,9	13	19,5	0,8-3,5

Grade	SU
▲	250
▲	250
▲	250
▲	250
▲	250

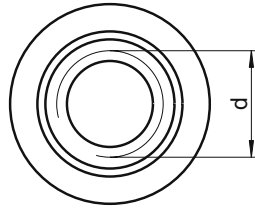
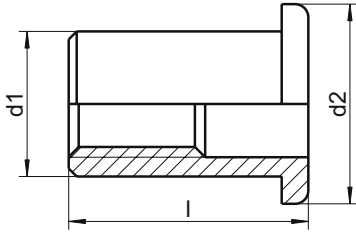
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9314-2-8 WS 9314 - A2 - M8

WS 9315

Blind rivet nuts

with flat head



d	d1	d2	l	clamping range
M4	5,9	9	10,0	0,5-3,0
M4	5,9	9	11,5	3,0-4,5
M5	6,9	10	12,0	0,5-3,0
M5	6,9	10	13,5	3,0-5,5
M6	8,9	12	14,5	0,5-3,0
M6	8,9	12	16,0	3,0-5,5
M8	10,9	15	16,0	0,5-3,0
M8	10,9	15	18,5	3,0-5,5
M10	12,9	16	17,0	0,5-3,3
M10	12,9	16	19,0	0,5-3,0
M10	12,9	16	20,0	3,0-6,0

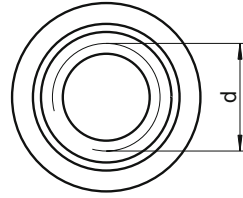
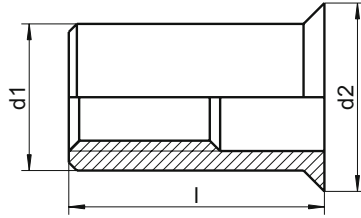
Grade	SU
▲	250
▲	250
▲	250
▲	250
▲	250
▲	250
▲	250
▲	250
▲	250
▲	250

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9315-2-8X16 WS 9315 - A2 - M8 - l = 16mm

WS 9316

Blind rivet nuts

with countersunk head



d	d1	d2	l	clamping range
M4	5,9	9	11,5	1,5-4,0
M5	6,9	10	13,5	1,5-4,0
M6	8,9	12	16,0	1,5-4,0
M8	10,9	14	19,0	1,5-4,0
M10	11,9	15	21,0	4,0-6,5

Grade	SU
▲	250
▲	250
▲	250
▲	250
▲	250

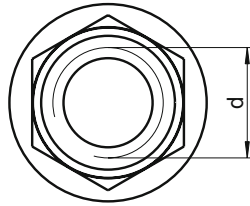
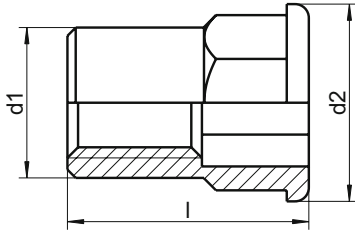
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9316-2-8 WS 9316 - A2 - M8

WS 9317

Blind rivet nuts

with flathead head and hexagon shank



d	d1	d2	l	clamping range
M4	6	9	11,5	0,5-2,5
M5	7	10	13,5	0,5-3,0
M6	9	12	15,5	0,5-3,0
M8	11	12	17,5	0,5-3,0
M10	13	16	22,0	1,0-4,0

Grade	SU
▲	250
▲	250
▲	250
▲	250

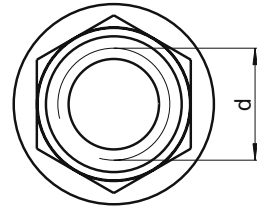
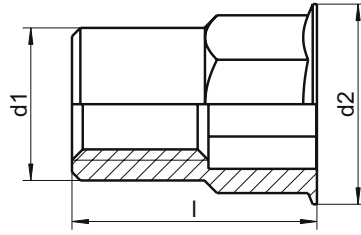
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9317-2-8 WS 9317 - A2 - M8

WS 9318

Blind rivet nuts

with small countersunk head and hexagon shank



d	d1	d2	l	clamping range
M4	6	9	12,0	0,5-3,0
M5	7	10	14,0	0,5-3,0
M6	9	12	16,0	0,5-3,0
M8	11	14	17,0	0,5-3,0
M10	13	16	20,5	0,8-4,0

Grade	SU
▲	250
▲	250
▲	250
▲	250
▲	250

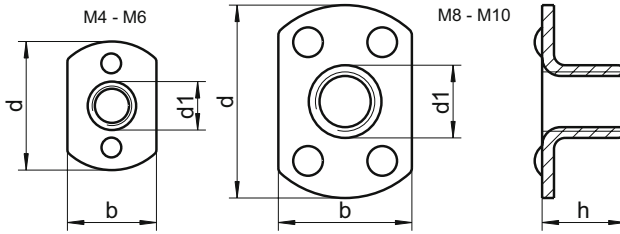
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9318-2-8 WS 9318 - A2 - M8

WS 9320

Weld nuts

type A



d1	with thread	d	h	b
4,1	M3,5	17	5,0	9
4,9	M4	17	6,0	9
6,1	M5	19	7,5	11
7,0	M6	19	7,5	11
7,5	M6	22	8,5	14
9,0	M8	22	8,5	14
9,7	M8	26	11,0	18
11,5	M10	26	10,5	18

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100

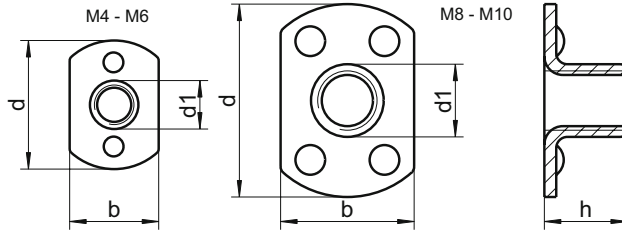
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9320-2-9,0 WS 9320 - A2 - M9,0

WS 9323

Weld nuts

type B



d1	with thread	d	h	b
4,1	M3,5	17	5,0	9
4,9	M4	17	6,0	9
6,1	M5	19	7,5	11
7,0	M6	19	7,5	11
7,5	M6	22	8,5	14
9,0	M8	22	8,5	14
9,7	M8	26	10,5	18
11,5	M10	26	11,0	18

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100

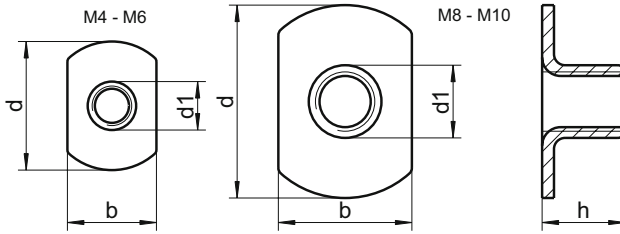
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9323-2-9,0 WS 9323 - A2 - M9,0

WS 9326

Weld nuts

type C



d1	with thread	d	h	b
4,1	M3,5	17	5,0	9
4,9	M4	17	6,0	9
6,1	M5	19	7,5	11
7,0	M6	19	7,5	11
7,5	M6	22	8,5	14
9,0	M8	22	8,5	14
9,7	M8	26	10,4	18
11,5	M10	26	11,0	18

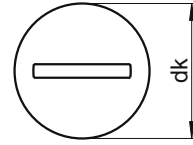
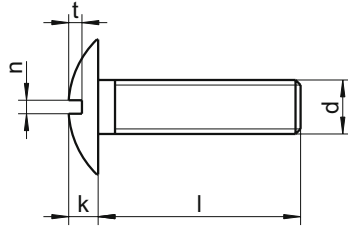
Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9326-2-9,0 WS 9326 - A2 - M9,0

WS 9330

Slotted mushroom head screws

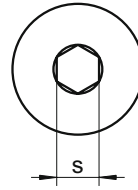
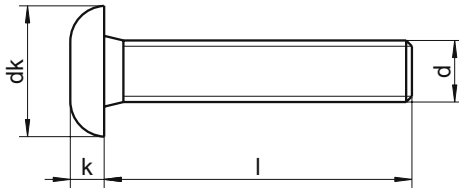


dk	6,9	10,0	12,5	15,0	20,0
k	2,0	2,2	2,7	3,3	4,4
n	0,8	1,2	1,2	1,6	2,0
t	0,95	1,00	1,20	1,50	2,00
⌀	0,8X4,0	1,2X7,0	1,2X7,0	1,6X9,0	2,0X12,0
Length / Ø	M3	M4	M5	M6	M8
5	▲				
6	▲				
8	▲	▲		▲	▲
10	▲	▲	▲	▲	▲
12	▲	▲	▲	▲	▲
16	▲	▲	▲	▲	▲
20	▲	▲	▲	▲	▲
25	▲	▲	▲	▲	▲
30	▲	▲	▲	▲	▲
35	▲	▲	▲	▲	▲
40	▲	▲	▲	▲	▲
45	▲	▲	▲	▲	▲
50	▲	▲	▲	▲	▲
60		▲	▲	▲	▲
70		▲	▲	▲	▲
80			▲	▲	▲
90			▲	▲	▲
100			▲	▲	▲
120			▲	▲	▲
SU	100	100	100	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9330-2-8X40 WS 9330 - A2 - M8 - l = 40mm

sim. ISO 7380 - **WS 9332**
Screws for fences
 hexagon socket button head



dk min.	16,57
dk max.	17,00
s	5,5
k min.	4,1
k max.	4,4
●	5,5
Length / Ø	M8
40	▲
45	▲
50	▲
60	▲
SU	200

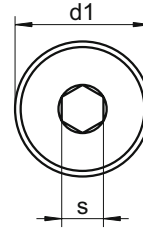
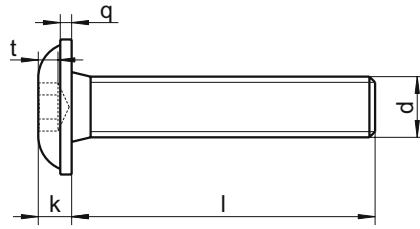
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9332-2-8X40 WS 9332 - A2 - M8 - l = 40mm

WS 9335

Hexagon socket button head screws

with flange



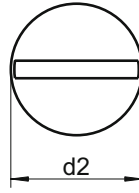
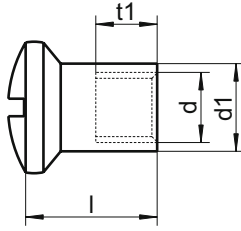
k max.	1,65	2,20	2,75	3,30	4,40
d1 max.	6,9	9,4	11,8	13,6	17,8
s	2	2,5	3	4	5
q	0,7	0,8	0,9	1,2	1,5
t	1,4	1,7	2,2	2,4	3,2
●	2	2,5	3	4	5
Length / Ø	M3	M4	M5	M6	M8
4	▲	▲			
5	▲	▲	▲		
6	▲	▲	▲		
8	▲		▲	▲	
10	▲	▲	▲	▲	▲
12	▲	▲	▲	▲	▲
16	▲	▲	▲	▲	▲
18	▲	▲	▲	▲	▲
20	▲	▲	▲	▲	▲
25	▲	▲	▲	▲	▲
30		▲	▲	▲	▲
35			▲	▲	▲
40			▲	▲	▲
50				▲	▲
55				▲	▲
60				▲	▲
70					▲
SU	500	500	500 ≥ 25 200	200	200

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9335-2-8X40 WS 9335 - A2 - M8 - l = 40mm

WS 9340 Sleeve nuts

with raised countersunk head and slot



d	d1	d2	l	t1	⊖
M4	5,0	7	15	8	1,2X7,0
M5	6,5	9	15	9	1,2X7,0
M6	7,5	10	15	9	1,6X9,0
M8	10,0	15	15	7	2,0X12,0

Grade	SU
▲	100
▲	100
▲	100
▲	100

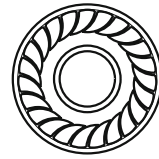
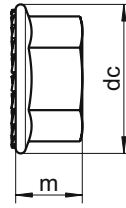
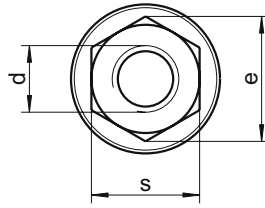
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9340-2-8 WS 9340 - A2 - M8

WS 9345 - sim. DIN 6923

Hexagon nuts

with flange and serration



d	dc	m	s	e	⬤
M4	10,0	4,65	7	7,66	7
M5	11,8	4,70	8	8,79	8
M6	14,2	5,70	10	11,05	10
M8	17,9	7,64	13	14,38	13
M10	21,8	9,64	15	17,77	15
M12	26,0	11,57	18	20,03	18
M16	34,5	15,30	24	26,75	24

Grade	SU
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	200
▲ ●	100
▲ ●	100
▲ ●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9345-2-8 WS 9345 - A2 - M8

WS 9350

Anchor studs VA-A



d	length	clamping range
M8	110	20
M10	130	30
M12	160	35
M14	170	35
M16	165	45
M16	190	45
M20	260	60
M24	260	15

Grade	SU
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9350-4-8X110 WS 9350 - A4 - Ø 8mm - l = 110mm

WS 9360

Anchor capsules VA-P



d	boreholeØ x deepness mm
8	10X80
10	12X90
12	14X110
14	16X120
16	18X125
20	25X170
24	28X210
30	35X280

Grade	SU
-	10
-	10
-	10
-	10
-	10
-	10
-	5
-	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9360 8 WS 9360 - content = 8ml

WS 9365

Injection mortar VM



capacity
150 ml
235 ml
300 ml
345 ml
380 ml

Grade	SU
-	1
-	1
-	1
-	1
-	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 9365 150 WS 9365 - content = 150ml

WS 9370

Wedge anchors

type B



d	deepness mm	anchor length mm	clamping range da mm
6	60	67	10
8	65	75	10
8	65	80	15
8	65	95	30
10	70	85	10
10	70	90	15
10	70	120	45
12	90	110	15
16	110	150	30
16	110	180	60
20	130	150	5

Grade	SU
●	100
●	100
●	100
●	100
●	50
●	50
●	50
●	25
●	20
●	10
●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9370-4-8X30 WS 9370 - A4 - Ø 8mm - l = 30mm

WS 9372

Wedge anchors

type Z



d	deepness mm	anchor length mm	clamping range da mm
8	75	75	15
10	75	95	10
10	75	95	15
10	75	95	30
10	75	95	50
12	90	110	15
12	90	110	30
12	90	110	50
16	105	140	25
20	115	160	60

Grade	SU
●	100
●	50
●	50
●	50
●	50
●	25
●	25
●	25
●	20
●	20

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9372-4-8-15 WS 9372 - A4 - Ø 8mm - clamping width = 15mm

WS 9375

Heavy duty anchor

type SL



d	deepness	anchor length mm	clamping range mm
14	73	100	10
14	73	115	25
14	73	140	50
14	73	165	75
14	73	185	100
14	73	210	125
14	73	245	160

Grade	SU
●	25
●	25
●	25
●	25
●	25
●	25
●	25

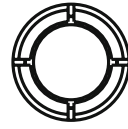
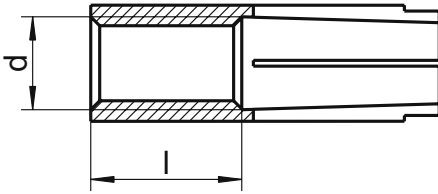
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9375-4-14-25 WS 9375 - A4 - M10 - 14-25 SL

WS 9380

Drop in anchor

type E



nominal size	thread	thread length	borehole Ø X deepn. mm
E5	M 5	10	8 X 28
E6	M 6	13	8 X 33
E8	M 8	13	10 X 33
E10	M 10	15	12 X 44
E12	M 12	18	15 X 54
E16	M 16	23	20 X 71
E20	M 20	34	25 X 86

Grade	SU
●	100
●	100
●	100
●	50
●	50
●	25
●	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9380-4-8 WS 9380 - A4 - Ø 8mm

WS 9385

Setting tools

for drop in anchors



d	ES
5	M5
6	M6
8	M8
10	M10
12	M12
16	M16
20	M20

Grade	SU
	10
	10
	10
	10
	10
	10
	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9385 8 WS 9385 - Ø 8mm

WS 9390

Universal plugs

type UD, made of polypropylene



d	deepness mm	anchor length mm	for screws Ø mm
5	40	31	3,0 - 4,0
6	45	36	4,0 - 5,0
8	60	51	5,0 - 6,0
10	70	61	7,0 - 8,0
12	80	71	8,0 - 10,0
14	85	75	10,0 - 12,0

Grade	SU
PP	100
PP	100
PP	50
PP	25
PP	25
PP	20

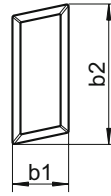
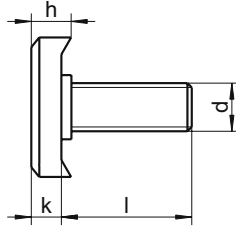
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9390 8/51 WS 9390 - borehole Ø = 8mm - dowel length = 51mm

WS 9405

Hammer head screws type 40/22

for 40/22, 41/22 and K422



b1	14	14	17
b2	35	35	34
k	7,5	7,5	8,5
h	10	10	11
Length / Ø	M10	M12	M16
30	●	●	●
40	●	●	●
50	●	●	●
80	●	●	●
SU	100 ≥ 50 50	100 ≥ 40 50	50

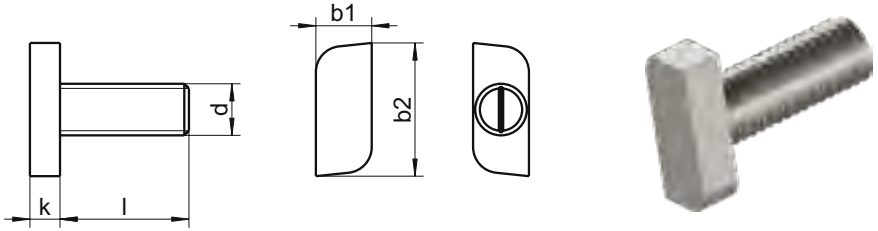
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9405-4-10X40 WS 9405 - A4 - M10 - l = 40mm

WS 9410

Hammer head screws type 38/17

for 38/17, 36/36, 38/45 and 36/20



b1	13	13	16
b2	31	31	31
k	6	7	7
Length / Ø	M10	M12	M16
30	●	●	●
40	●	●	●
60	●	●	●
SU	100	50	50

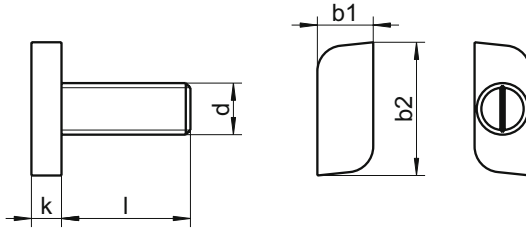
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9410-4-10X40 WS 9410 - A4 - M10 - l = 40mm

WS 9415

Hammer head screws type 28/15

for 28/12, 28/15, 28/28, 28/38, 26/26 und 26/18



b1 max.	10,1	10,1
b2	22,8	22,8
k	4	5
Length / Ø	M8	M10
20	▲ ●	▲ ●
25	▲ ●	▲ ●
30	▲ ●	▲ ●
35	▲ ●	▲ ●
40	▲ ●	▲ ●
45	▲ ●	▲ ●
50	▲ ●	▲ ●
55	▲ ●	▲ ●
60	▲ ●	▲ ●
SU	100	100

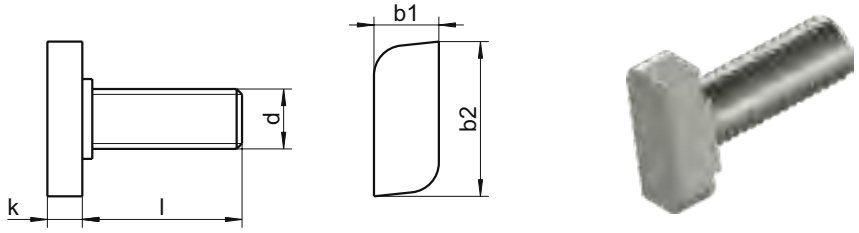
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9415-2-8X40 WS 9415 - A2 - M8 - l = 40mm

WS 9416

Hammer head screws with square type 28/15

for 28/12, 28/15, 28/28, 28/38, 26/26 und 26/18



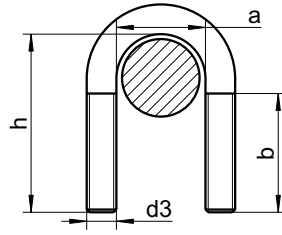
b1 max.	10,1	10,1
b2	22,8	22,8
k	6	6
Length / Ø	M8	M10
20	▲	▲
25	▲	▲
30	▲	▲
35	▲	▲
SU	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9416-2-8X35 WS 9416 - A2 - M8 - l = 35mm

WS 9440 - sim. DIN 3570

U-bolts

with thin shank



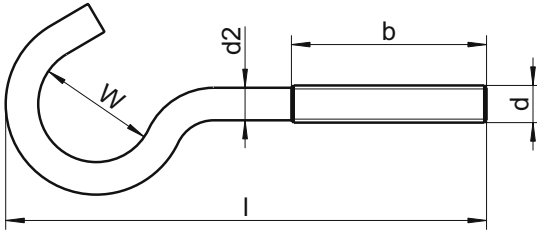
a	d3	inch	h	b
23	M8	1/2"	38	20
28	M8	3/4"	46	20
35	M8	1"	50	25
42	M8	1 1/4"	60	30

Grade	SU
▲	50
▲	50
▲	50
▲	50

■ A1 / ▲ A2 / ● A4 | VE: Sales units | All measures in mm / inch | Other measures on request
Example item no. 9440-2-8X38 WS 9440 - A2 - M8 - l = 38mm

WS 9448

Screw hooks



d	d2	l	w	b
M4	3,5	40	12	20
M4	3,5	50	16	25
M5	4,4	50	16	23
M5	4,4	60	16	30
M6	5,2	50	18	20
M6	5,2	60	18	30
M8	7,0	70	22	32
M8	7,0	80	22	42

Grade	SU
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100
▲	100

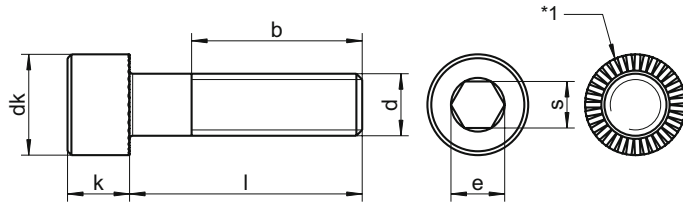
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9448-2-4X40X12 WS 9448 - A2 - M4 - l = 40mm - relieved shank LW = 12mm

WS 9455 - sim. DIN 912

Hexagon socket head cap screws

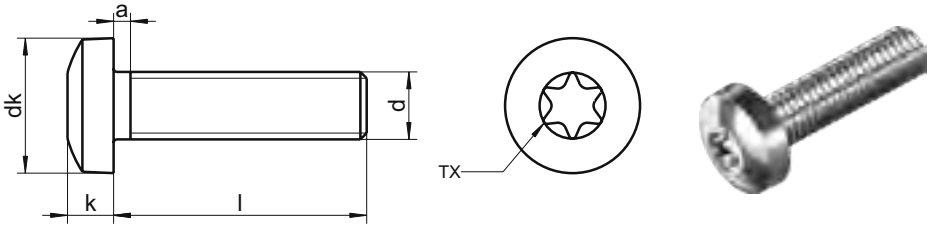
with serration under head



dk max.	13,0
k max.	8,0
s	6
b	28
e	6,86
●	6
Length / Ø	M8
12	▲
14	▲
16	
20	▲
22	▲
25	▲
28	▲
30	▲
35	▲
40	▲
45	▲
50	▲
55	▲
60	▲
SU	200

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9455-2-8X30 WS 9455 - A2 - M8 - l = 30mm - *1 serration under the head



dk	4	5	6	8	10	12
k	1,6	2,0	2,4	3,1	3,8	4,6
a	0,8	0,9	1,0	1,4	1,6	2,0
☼	TX 6	TX 8	TX 10	TX 20	TX 25	TX 30
Length / Ø	M2	M2,5	M3	M4	M5	M6
3	▲ ●					
4	▲ ●	▲ ●				
5	▲ ●	▲ ●				
6	▲ ●	▲ ●	▲ ●			
8	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
10	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
12	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
16		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
20		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25				▲ ●	▲ ●	▲ ●
30				▲ ●	▲ ●	▲ ●
35				▲ ●	▲ ●	▲ ●
40				▲ ●	▲ ●	▲ ●
50						▲ ●
SU	1000	1000	500	500	500 ≥ 25 200	200 ≥ 35 100

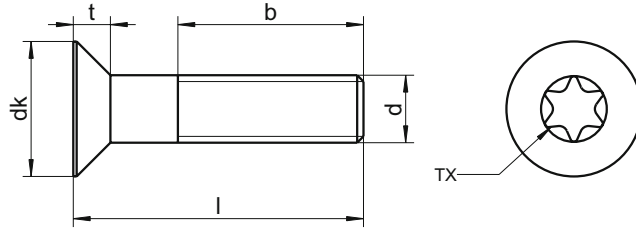
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9460-2-6X40 WS 9460 - A2 - M6 - l = 40mm

WS 9470 - sim. DIN 7991

Countersunk flat head screws

with TX

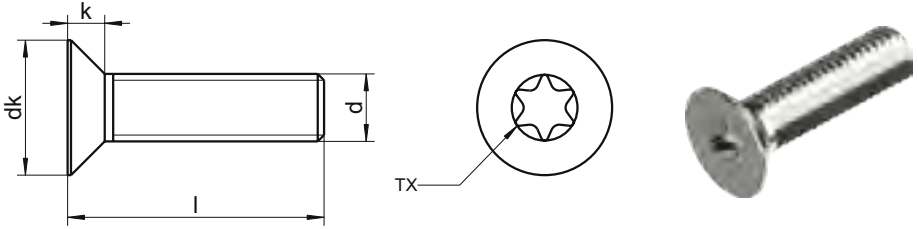


dk	8	10	12
t	1,8	2,3	2,5
b	14	16	18
☼	TX 20	TX 25	TX 30
Length / Ø	M4	M5	M6
10	▲ ●	▲ ●	
12	▲ ●	▲ ●	▲ ●
14	▲ ●	▲ ●	▲ ●
16	▲ ●	▲ ●	▲ ●
20	▲ ●	▲ ●	▲ ●
25	▲ ●	▲ ●	▲ ●
30	▲ ●	▲ ●	▲ ●
SU	500	500	200

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9470-2-6X20 WS 9470 - A2 - M6 - l = 20mm

sim. DIN 965 - **WS 9475**
Countersunk head screws
 with TX



dk	3,8	4,7	5,6	7,5	9,2	11,0
k	1,20	1,50	1,65	2,20	2,50	3,00
⊙	TX 6	TX 8	TX 10	TX 20	TX 25	TX 30
Length / Ø	M2	M2,5	M3	M4	M5	M6
4	▲●	▲●				
5	▲●	▲●	▲●	▲●		
6	▲●	▲●	▲●	▲●		
8	▲●	▲●	▲●	▲●	▲●	
10	▲●	▲●	▲●	▲●	▲●	▲●
12	▲●	▲●	▲●	▲●	▲●	▲●
16	▲●	▲●	▲●	▲●	▲●	▲●
20	▲●	▲●	▲●	▲●	▲●	▲●
25		▲●	▲●	▲●	▲●	▲●
30			▲●	▲●	▲●	▲●
35				▲●	▲●	▲●
40				▲●	▲●	▲●
50						▲●
SU	1000	1000	500	500	500	200

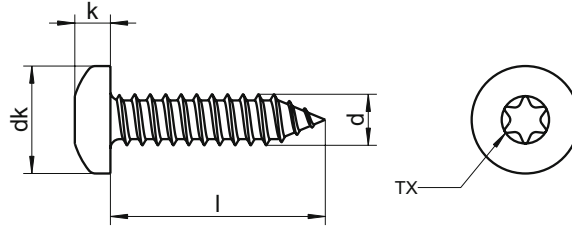
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9475-2-6X20 WS 9475 - A2 - M6 - l = 20mm

WS 9477 - sim. DIN 7981

Tapping screws

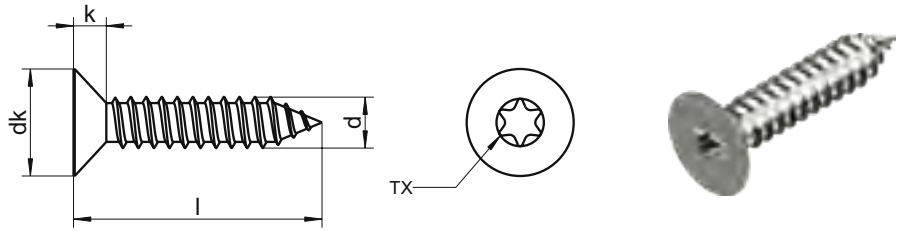
pan head with TX



dk	5,6	6,9	7,5	8,2	9,5	10,8	12,5
k max.	2,20	2,60	2,80	3,05	3,55	3,95	4,55
⊙	TX 10	TX 15	TX 15	TX 20	TX 25	TX 25	TX 30
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
6,5 (1/4")	▲ ●						
9,5 (3/8")	▲ ●	▲ ●	▲ ●	▲ ●			
13 (1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
16 (5/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
19 (3/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
22 (7/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25 (1")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
32 (1 1/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
38 (1 1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45 (1 3/4")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50 (2")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60 (2 3/8")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9477-2-4,2X38 WS 9477 - A2 - Ø 4,2mm - l = 38mm



dk	5,5	6,8	7,5	8,1	9,5	10,8	12,4
k max.	1,7	2,1	2,3	2,5	3,0	3,4	3,8
⊙	TX 10	TX 15	TX 15	TX 20	TX 25	TX 25	TX 30
Length / Ø	ST2,9	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
9,5 (3/8")	▲ ●	▲ ●	▲ ●	▲ ●			
13 (1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
16 (5/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
19 (3/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
22 (7/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
25 (1")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
32 (1 1/4")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
38 (1 1/2")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45 (1 3/4")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50 (2")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60 (2 3/8")			▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
SU	1000	1000 ≥ 32 500	1000 ≥ 32 500	1000 ≥ 32 500	500 ≥ 32 200	200 ≥ 32 100	200 ≥ 32 100

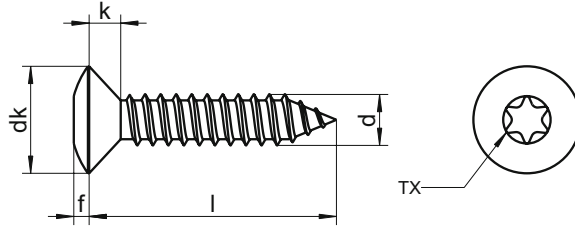
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9478-2-4,2X38 WS 9478 - A2 - Ø 4,2mm - l = 38mm

WS 9479 - sim. DIN 7983

Tapping screws

raised countersunk head with TX

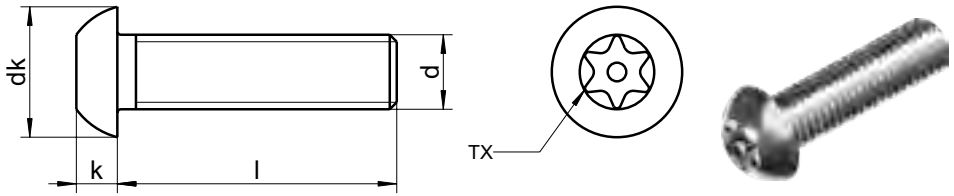


dk max.	6,8	7,5	8,1	9,5	10,8	12,4
k max.	2,1	2,3	2,5	3,0	3,4	3,8
f	1,2	1,3	1,4	1,5	1,7	2,0
⊗	TX 15	TX 15	TX 20	TX 20	TX 25	TX 30
Length / Ø	ST3,5	ST3,9	ST4,2	ST4,8	ST5,5	ST6,3
13 (1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
16 (5/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
19 (3/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
22 (7/8")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	
25 (1")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
32 (1 1/4")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
38 (1 1/2")	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
45 (1 3/4")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
50 (2")		▲ ●	▲ ●	▲ ●	▲ ●	▲ ●
60 (2 3/8")			▲ ●	▲ ●	▲ ●	▲ ●
SU	1000	1000	1000	500	200	200
	≥ 32 500	≥ 32 500	≥ 32 500	≥ 32 200	≥ 32 100	≥ 32 100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9479-2-4,2X38 WS 9479 - A2 - Ø 4,2mm - l = 38mm

sim. ISO 7380 - **WS 9480**
Security screws
 socket button head with TX and PIN



dk	7,6	9,5	10,5	14,0
k	2,20	2,75	3,30	4,40
⊕	TX 20	TX 25	TX 30	TX 40
Length / Ø	M4	M5	M6	M8
10	▲	▲	▲	▲
12	▲	▲	▲	▲
16	▲	▲	▲	▲
20	▲	▲	▲	
25		▲	▲	▲
30		▲	▲	▲
35		▲	▲	▲
40		▲	▲	▲
50		▲	▲	▲
60		▲	▲	▲
SU	100	100	100	100

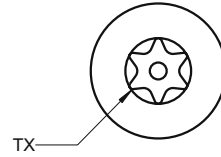
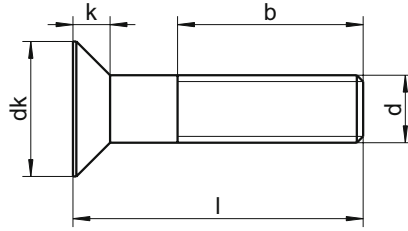
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9480-2-8X40 WS 9480 - A2 - M8 - l = 40mm

WS 9482 - sim. DIN 7991

Security screws

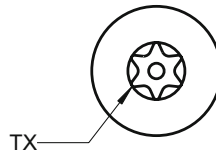
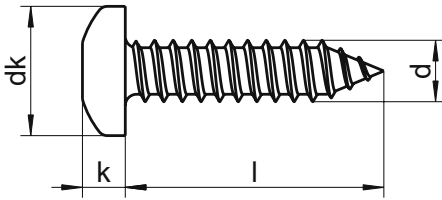
countersunk head with TX and PIN



dk	8	10	12
k	2,3	2,8	3,3
b	14	16	18
⊕	TX 20	TX 25	TX 30
Length / Ø	M4	M5	M6
10	▲		
12	▲	▲	
16	▲	▲	
20	▲	▲	▲
25		▲	▲
30		▲	▲
40		▲	▲
50		▲	▲
SU	100	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9482-2-6X40 WS 9482 - A2 - M6 - l = 40mm



dk	6,9	8,2	9,5
k	2,60	3,05	3,55
⊗	TX 15	TX 15	TX 25
Length / Ø	ST3,5	ST4,2	ST4,8
13 (1/2")	▲	▲	▲
19 (3/4")	▲	▲	▲
25 (1")		▲	▲
32 (1 1/4")		▲	▲
38 (1 1/2")		▲	▲
SU	100	100	100

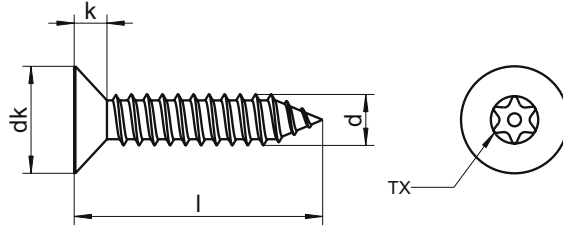
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9485-2-4,2X38 WS 9485 - A2 - Ø 4,2mm - l = 38mm

WS 9486 - sim. DIN 7982

Security screws

countersunk head with TX and PIN



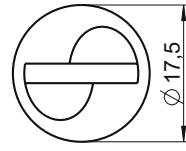
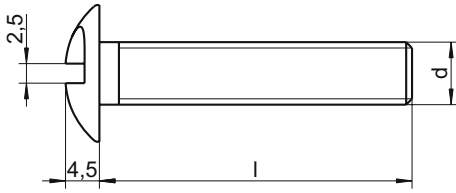
dk	8,1	9,5
k	2,5	3,0
	TX 20	TX 25
Length / Ø	ST4,2	ST4,8
19 (3/4")	▲	▲
25 (1")	▲	▲
32 (1 1/4")	▲	▲
38 (1 1/2")	▲	▲
SU	100	100

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9486-2-4,2X38 WS 9486 - A2 - Ø 4,2mm - l = 38mm

WS 9487

One-way screws



Length / Ø	M8
40	▲
45	▲
50	▲
60	▲
SU	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9487-2-8X40 WS 9487 - A2 - M8 - l = 40mm

WS 9488

Bits

for security screws with TX and PIN



d	BIT
10	TX 10
15	TX 15
20	TX 20
25	TX 25
30	TX 30
40	TX 40

Grade	SU
St	1
St	1
St	1
St	1
St	1
St	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9488-40 WS 9488 - TX 40 - St = steel

WS 9489

L-keys

for security screws with TX and PIN



d
5,5
10
15
20
25
30
40

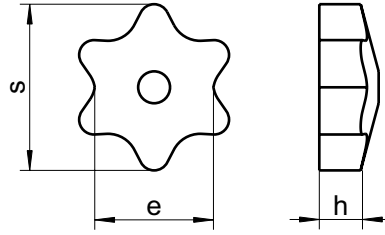
Grade	SU
Stahl	1
Stahl	1
Stahl	1
Stahl	1
Stahl	1
Stahl	1
Stahl	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. 9489-40 WS 9489 - 40mm

WS 9495

Security stars

for TX-screws



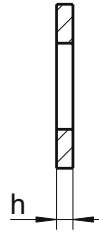
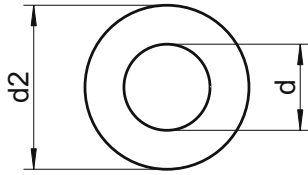
für TX	s	e	h
10	2,75 - 2,80	1,90 - 2,00	1,10 - 1,30
15	3,25 - 3,32	2,30 - 2,40	1,80 - 2,00
20	3,82 - 3,92	2,70 - 2,80	1,60 - 1,80
25	4,42 - 4,52	3,11 - 3,21	2,45 - 2,65
30	5,50 - 5,60	3,90 - 4,00	2,20 - 2,45
40	6,65 - 6,75	4,70 - 4,80	3,40 - 3,60

Grade	SU
Zn	1000
Zn	1000
Zn	200
Zn	200
Zn	200
Zn	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9495-ZN-40 WS 9495 - zinc die cast - for TX 40

sim. DIN 125 - **WS 9500**
Polyamide washers
 type A without chamfer



d	for	d2	h
2,2	M2	5	0,3
2,7	M2,5	6	0,5
3,2	M3	7	0,5
4,3	M4	9	0,8
5,3	M5	10	1,0
6,4	M6	12	1,6
8,4	M8	16	1,6
10,5	M10	20	2,0
13,0	M12	24	2,5
15,0	M14	28	2,5
17,0	M16	30	3,0
19,0	M18	34	3,0
21,0	M20	37	3,0
25,0	M24	44	4,0
28,0	M27	50	4,0
31,0	M30	56	4,0

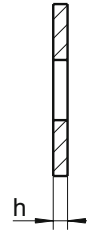
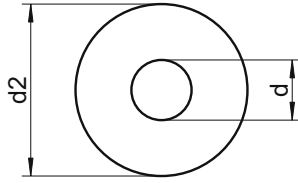
Grade	SU
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	500
Polyamid	500
Polyamid	500
Polyamid	200
Polyamid	200
Polyamid	200
Polyamid	100
Polyamid	50
Polyamid	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9500 8,4 WS 9500 - Ø 8,4mm

WS 9510 - sim. DIN 9021

Polyamide washers

outside diameter ~ 3x nominal thread diameter

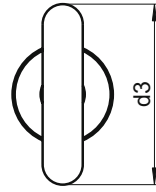
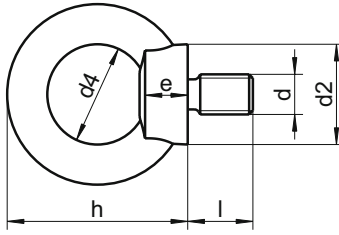


d	for	d2	h
3,2	M3	9	0,8
4,3	M4	12	1,0
5,3	M5	15	1,2
6,4	M6	18	1,6
8,4	M8	24	2,0
10,5	M10	30	2,5
13,0	M12	37	3,0
17,0	M16	50	3,0
20,0	M18	56	4,0
22,0	M20	60	4,0
26,0	M24	72	5,0
33,0	M30	92	6,0
39,0	M36	110	8,0

Grade	SU
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	1000
Polyamid	500
Polyamid	200
Polyamid	100
Polyamid	100
Polyamid	50
Polyamid	50
Polyamid	25

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9510 8,4 WS 9510 - Ø 8,4mm



d	d2	d3	d4	h	e	l
M6	20	36	16	31	6	11,0
M8	20	36	20	36	6	13,0
M10	25	45	25	45	8	17,0
M12	30	54	30	53	10	20,5
M16	35	63	35	62	12	27,0
M20	40	72	40	71	14	30,0
M24	50	90	50	90	18	36,0
M30	65	108	60	109	22	45,0

Grade	SU
▲●	25
▲●	25
▲●	25
▲●	25
▲●	10
▲●	10
▲●	10
▲●	5

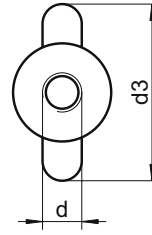
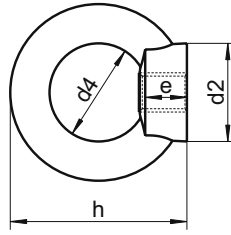
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9580-2-8 WS 9580 - A2 - M8

WS 9582 - sim. DIN 582

Lifting eye nuts

casted



d	d2	d3	d4	h	e
M6	20	36	16	31	8,5
M6	20	36	20	36	8,5
M8	20	36	20	36	8,5
M10	25	45	25	45	10,0
M12	30	54	30	53	11,0
M16	35	63	35	62	13,0
M20	40	72	40	71	16,0
M24	50	90	50	90	20,0
M30	65	108	60	109	25,0
M36	75	126	70	128	30,0

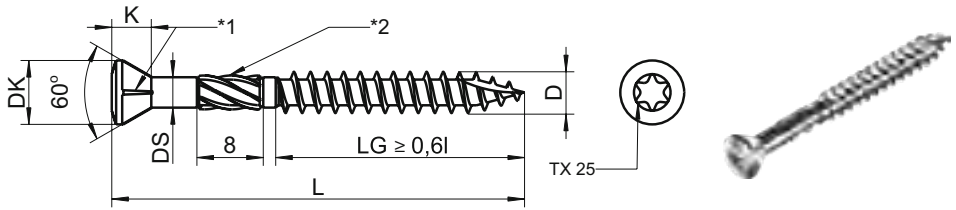
Grade	SU
▲	50
●	50
▲ ●	25
▲ ●	25
▲ ●	25
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	10
▲ ●	5
▲ ●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9582-2-8 WS 9582 - A2 - M8

WS 9800 Decking screws

with small countersunk head, cutting ribs and cutting groove



DK	7,6
DS	3,6
K	3,7
☼	TX 25
Length / Ø	5
50	C1
60	C1
70	C1
80	C1
SU	50

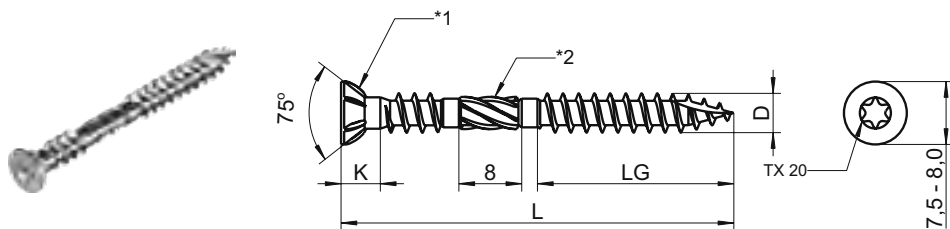
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9800-0-5X60 WS 9800 - C1 - Ø 5mm - l = 60mm - TX 25 - *1 underhead cutting ribs - *2 six gear cord thread

WS 9820

WASI decking screws

with cutting ribs, thread under head and cutting groove



d	L	LG	p	K max.	⊕
4,5	50	25	2,0	5	TX 20
4,5	60	35	2,0	5	TX 20
4,5	70	45	2,0	5	TX 20
5,5	50	25	2,2	5	TX 20
5,5	60	35	2,2	5	TX 20
5,5	70	45	2,2	5	TX 20

Grade	SU
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500
▲●	500

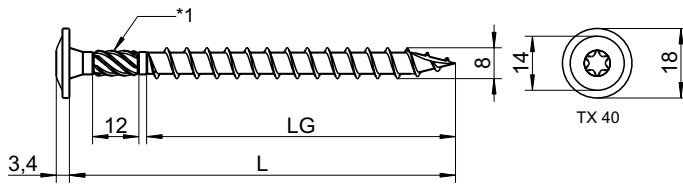
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9820-2-5,5X40 WS 9820 - A2 - Ø 5,5mm - l = 40mm - TX 20 - *1 underhead cutting ribs - *2 six gear cord thread

WS 9810

Premium washer head screws

with TX, stainless steel C1, approved for construction



d	LG	L
8	48	80
8	80	100
8	80	120

Grade	SU
C1	50
C1	50
C1	50

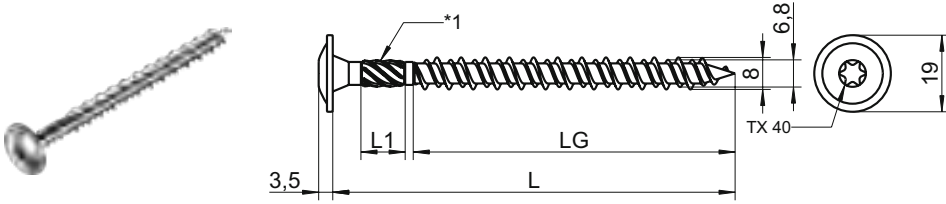
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9810-0-8X100 WS 9810 - A2 - Ø 8mm - l = 100mm - TX 40 - *1 six gear cord thread

WS 9811

Washer head screws

with high-low thread and TX



d	LG	L	L1
8	75	80	0,0
8	80	100	11,0
8	80	120	11,0

Grade	SU
▲	50
▲	50
▲	50

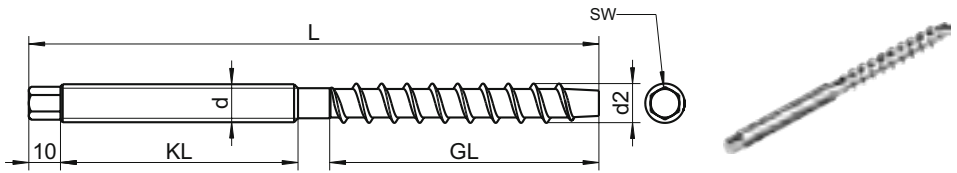
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9811-2-8X100 WS 9811 - A2 - Ø 8mm - l = 100mm - TX 40 - *1 six gear cord thread

WS 9850

Dowel concrete screws

with technical approval



d	d2	L	SW	KL	GL	⬠
12	12,5	140	9	35	85	9
12	12,5	160	9	55	85	9
12	12,5	180	9	75	85	9

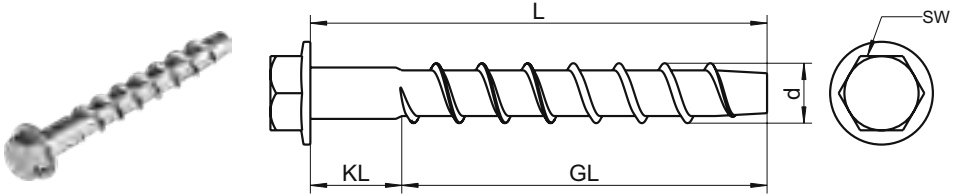
Grade	SU
●	50
●	50
●	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9850-4-12X140 WS 9850 - A4 - Ø 12mm - l = 140mm

WS 9851

Hexagon concrete screws

with collar and technical approval



d	L	SW	KL	GL	BØ X T	⬠
10	80	13	15	65	8X75	13
10	95	13	15	65	8X75	13
10	100	13	15	65	8X75	13
10	105	13	15	65	8X75	13

Grade	SU
●	50
●	50
●	50
●	50

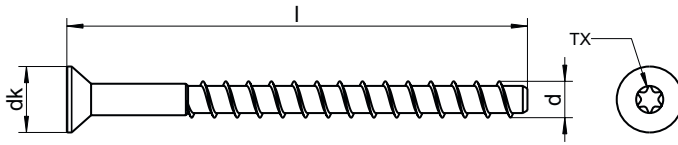
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. 9851-4-10X80 WS 9851 - A4 - Ø 10mm - l = 80mm

WS 9852

Concrete countersunk head screws

with technical approval



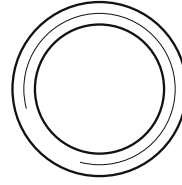
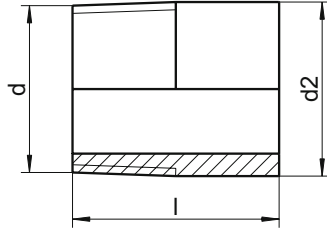
d	L	t fix.	max. df	bore-Ø	b-deepn. h	dk	⊕
7,5	95	30	75	9	6	13,6	TX 40

Grade	SU
A5	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. 9852-5-7,5X95 WS 9852 - A5 - Ø 7,5mm - l = 95mm

DIN 2982 A

Welding nipples

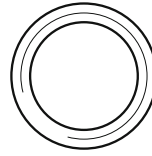
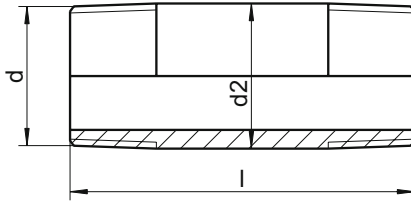


d	d2	l	NW
1/4"	13,5	30	8
3/8"	17,2	30	10
1/2"	21,3	35	15
3/4"	26,9	40	20
1"	33,7	40	25
1 1/4"	42,4	50	32
1 1/2"	48,3	50	40
2"	60,3	50	50
2 1/2"	76,1	60	65

Grade	SU
●	10
●	10
●	10
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 2982-4-1/2A DIN 2982 - A4 - Ø 1/2"

DIN 2982 R Barrel nipples



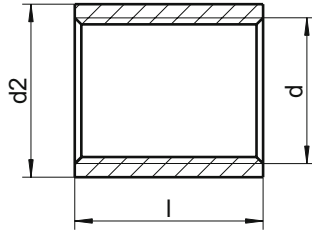
d	d2	l	NW
1/4"	13,5	30	8
3/8"	17,2	40	10
1/2"	21,3	60	15
3/4"	26,9	60	20
1"	33,7	60	25
1 1/4"	42,4	80	32
1 1/2"	48,3	80	40
2"	60,3	100	50
2 1/2"	76,1	100	65

Grade	SU
●	10
●	10
●	10
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
Example item no. 2982-4-1/2R DIN 2982 - A4 - Ø 1/2"

DIN 2986 G

Full couplings



d	d2	l	NW
1/4"	17,5	25	8
3/8"	21,3	26	10
1/2"	26,4	34	15
3/4"	31,8	36	20
1"	39,5	43	25
1 1/4"	48,3	48	32
1 1/2"	54,5	48	40
2"	66,3	56	50
3"	95,0	71	80

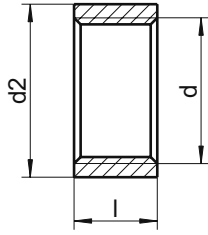
Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 2986-2-3/4G DIN 2986 - A2 - 3/4" - full coupling

DIN 2986 H

Half couplings



d	d2	l	NW
1/4"	17,5	11	8
3/8"	21,3	12	10
1/2"	26,4	14	15
3/4"	31,8	17	20
1"	39,5	19	25
1 1/4"	48,3	22	32
1 1/2"	54,5	22	40
2"	66,3	26	50
2 1/2"	82,0	30	65
4"	122,0	38	100

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1
●	1
●	1

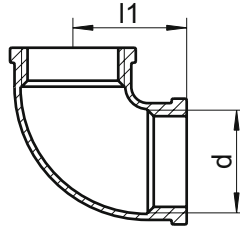
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 2986-2-3/4H DIN 2986 - A2 - 3/4" half coupling

WS 9601

Elbows 90°

int. / int. thread



d	l1	NW
1/4"	21	8
3/8"	25	10
1/2"	28	15
3/4"	33	20
1"	38	35
1 1/4"	45	32
1 1/2"	50	40
2"	58	50

Grade	SU
●	10
●	10
●	10
●	5
●	1
●	1
●	1
●	1

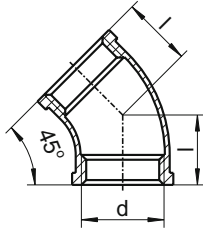
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9601-4-1/2 WS 9601 - A4 - Ø 1/2"

WS 9603

Elbows 45°

int. / int. thread



d	l	NW
1/4"	19	8
3/8"	20	10
1/2"	23	15
3/4"	25	20
1"	29	25
1 1/4"	33	32
1 1/2"	37	40
2"	43	50

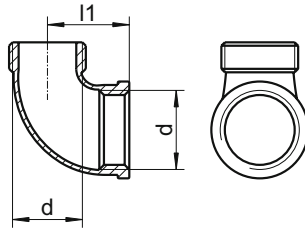
Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 9603-4-1/2 WS 9603 - A4 - Ø 1/2"

WS 9604

Elbows 90°

int. / ext. thread



d	l1
1/4"	21
3/8"	25
1/2"	28
3/4"	33
1"	38
1 1/4"	45
1 1/2"	50
2"	58

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

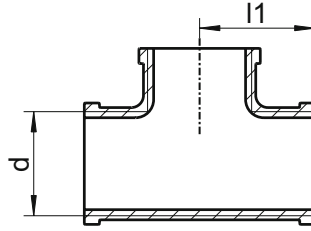
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9604-4-1/2 WS 9604 - A4 - Ø 1/2"

WS 9607

Tees

int. thread



d	l1	NW
1/4"	21	8
3/8"	25	10
1/2"	28	15
3/4"	33	20
1"	38	25
1 1/4"	45	32
1 1/2"	50	40
2"	58	50

Grade	SU
●	5
●	5
●	5
●	5
●	5
●	1
●	1
●	1

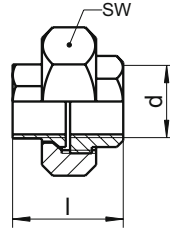
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9607-4-1/2 WS 9607 - A4 - Ø 1/2"

WS 9611

Unions

flat sealing, int. / int. thread



d	l	NW	SW
1/4"	45	8	35
3/8"	45	10	38
1/2"	43	15	42
3/4"	46	20	49
1"	51	25	60
1 1/4"	56	32	70
1 1/2"	59	40	77
2"	67	50	91

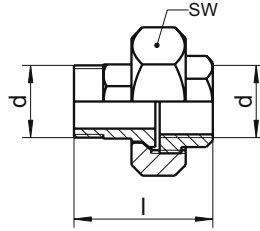
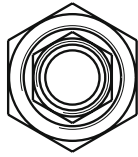
Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9611-4-1/2 WS 9611 - A4 - Ø 1/2"

WS 9611 A Unions

flat sealing, int. / ext. thread



d	l	NW	SW
1/4"	54	8	35
3/8"	56	10	40
1/2"	57	15	42
3/4"	62	20	49
1"	69	25	60
1 1/4"	78	32	70
1 1/2"	84	40	76
2"	89	50	91

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

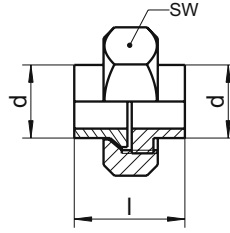
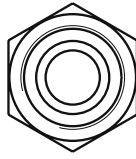
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9611-4-1/2A WS 9611 - A4 - Ø 1/2" - I/E thread

WS 9611 S

Unions

flat sealing with welding ends



d	I	NW	SW
1/2"	57	15	42
3/4"	62	20	49
1"	69	25	60
1 1/4"	78	32	70
1 1/2"	84	40	77
2"	89	50	91

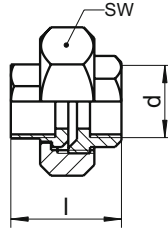
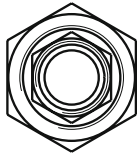
Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9611-4-1/2S WS 9611 - A4 - Ø 1/2" - welding ends

WS 9612 Unions

conical sealing int. / int. thread



d	l	NW	SW
1/4"	45	8	35
3/8"	45	10	38
1/2"	43	15	42
3/4"	46	20	49
1"	51	25	60
1 1/4"	56	32	70
1 1/2"	59	40	77
2"	67	50	91

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

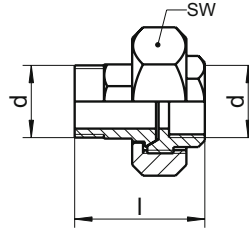
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9612-4-1/2 WS 9612 - A4 - Ø 1/2" - l/l thread

WS 9612 A

Unions

conical sealing, int. / ext. thread



d	l	NW	SW
1/4"	54	8	35
3/8"	57	10	40
1/2"	55	15	42
3/4"	62	20	49
1"	69	25	60
2"	89	50	91

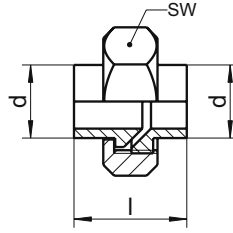
Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9612-4-1/2A WS 9612 - A4 - Ø 1/2" - 1/A thread

WS 9612 S Unions

conical sealing, with welding ends



d	l	NW	SW
3/8"	43	10	38
1/2"	43	15	42
1"	50	25	60
1 1/4"	53	32	70
1 1/2"	70	40	77
2"	75	50	91

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1

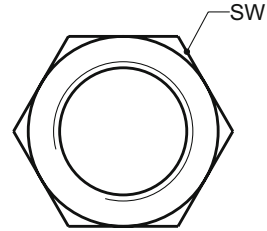
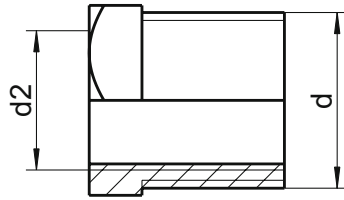
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9612-4-1/2S WS 9612 - A4 - Ø 1/2" - welding ends

WS 9625

Hexagon reducing bushings

int. / ext. thread



d	d2	SW
3/8"	1/4"	24
1/2"	1/4"	26
1/2"	3/8"	26
3/4"	1/2"	32
3/4"	3/8"	32
1"	1/2"	37
1"	3/4"	37
1 1/4"	1"	47
1 1/4"	3/4"	47
1 1/2"	1 1/4"	54
1 1/2"	1"	54
2"	1 1/2"	63
2"	1 1/4"	63

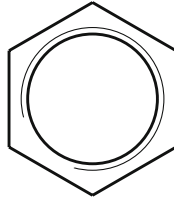
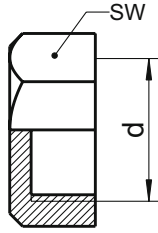
Grade	SU
●	10
●	10
●	10
●	10
●	10
●	1
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9625-4-2X1-1/2 WS 9625 - A4 - Ø 2" X l = 1-1/2"

WS 9626

Hexagon screw caps



d	NW	SW
1/4"	8	18
3/8"	10	21
1/2"	15	27
3/4"	20	32
1"	25	39
1 1/4"	32	49
1 1/2"	40	55
2"	50	68

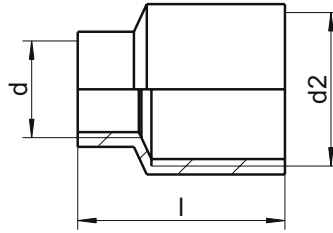
Grade	SU
●	5
●	5
●	5
●	5
●	5
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9626-4-1/2 WS 9626 - A4 - Ø 1/2"

WS 9635

Reducing sockets



d2	d	l
3/8"	1/4"	34
1/2"	1/4"	34
1/2"	3/8"	38
3/4"	1/2"	45
1"	1/2"	45
1"	3/4"	50
1 1/4"	1"	50
1 1/2"	1"	56
1 1/2"	1 1/4"	56
2"	1 1/4"	66

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

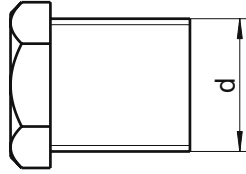
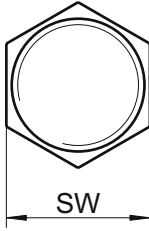
■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9635-4-2X1-1/4 WS 9635 - A4 - Ø 2" - l = 1 1/4"

WS 9630

Hexagonal head plugs

with conical thread



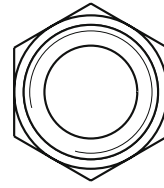
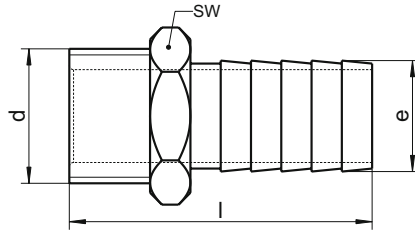
d	NW	SW
1/4"	8	17
3/8"	10	19
1/2"	15	23
3/4"	20	29
1"	25	36
1 1/4"	32	49
1 1/2"	40	51
2"	50	63

Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | VE: Sales units | All Measures in mm / inch | Other measures on request
 Example item no. 9630-4-1/2 WS 9630 - A4 - Ø 1/2"

WS 9637

Hexagon hose nipples



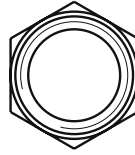
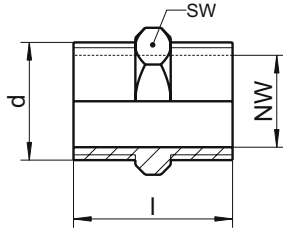
d	l	NW	SW	e
1/4"	48	8	15	9
3/8"	53	10	19	11
1/2"	65	15	23	14
3/4"	70	20	29	20
1"	75	25	38	26
1 1/4"	80	32	46	33
1 1/2"	95	40	50	39
2"	105	50	60	51

Grade	SU
●	10
●	10
●	10
●	10
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 9637-4-1/2 WS 9637 - A4 - Ø 1/2"

WS 9640

Hexagon double nipples



d	l	NW	SW
1/4"	33	8	15
3/8"	35	10	20
1/2"	42	15	26
3/4"	49	20	31
1"	50	25	36
1 1/4"	57	32	45
1 1/2"	58	40	51
2"	64	50	63

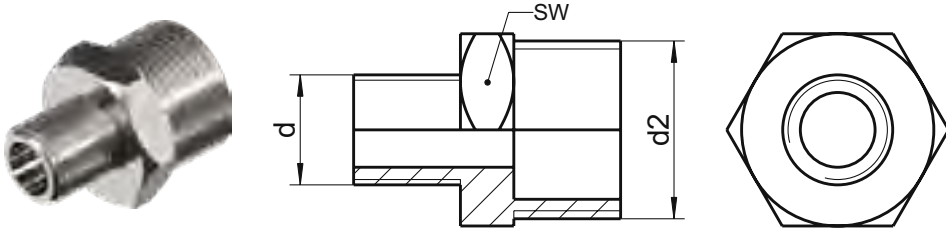
Grade	SU
●	10
●	10
●	10
●	10
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.

Example item no. 9640-4-1/2 WS 9640 - A4 - Ø 1/2"

WS 9641

Hexagon reduced double nipples



d2	d	SW
3/8"	1/4"	30
1/2"	1/4"	34
1/2"	3/8"	34
3/4"	1/2"	40
3/4"	3/8"	40
1"	1/2"	43
1"	3/4"	43
1 1/4"	1"	53
1 1/2"	1"	55
1 1/2"	1 1/4"	55
2"	1 1/2"	65
2"	1 1/4"	65

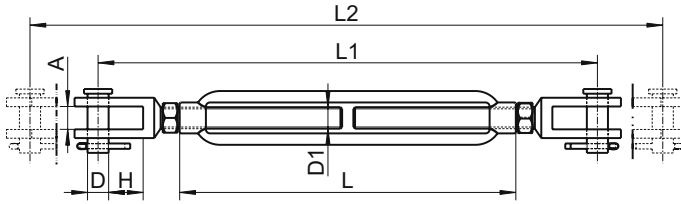
Grade	SU
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales units | All measurements in mm / inch | Other dimensions on request.
 Example item no. 9641-4-2X1-1/2 WS 9641 - A4 - Ø 2" - l = 1 1/2"

M 8021

Turnbuckles

open body, 2 forks



D1	L1	L	A	D	H	L2
M 5	120	70	6,5	5	10	170
M 6	140	90	7,5	6	10	205
M 8	180	120	11,0	8	11	270
M 10	220	150	12,0	9	14	330
M 12	300	200	14,0	12	20	455
M 14	325	220	15,0	12	22	500
M 16	375	250	17,0	16	26	570
M 20	450	300	20,0	19	30	680

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1

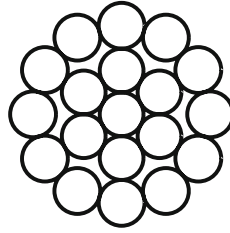
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8021-4-8 M 8021 - A4 - M8

M 8035 - sim. DIN 3053

Wire ropes, 1 X 19

rigid

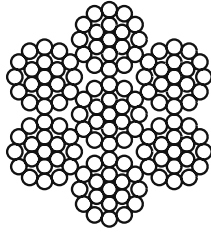


d	math. breaking load kN	min. breaking load kN
1	0,94	0,83
1,5	2,11	1,86
2	3,75	3,30
2,5	5,86	5,15
3	8,43	7,42
4	15,00	13,20
5	23,40	20,60
6	33,70	29,70
8	60,00	52,80
10	93,70	82,50
12	135,00	119,00

Grade	SU in m
●	250/500/1.000
●	250/500/1.000
●	250/500
●	250/500
●	250/500/1.000
●	250/500/1.000
●	250/500
●	100/250
●	100
●	100
●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8035-4-8X100 M 8035 - A4 - Ø 8mm - l = 100m



d	math. breaking load kN	min. breaking load kN
1,5	1,46	1,17
2	2,65	2,33
2,5	4,17	3,66
3	5,86	4,69
4	10,40	8,34
5	16,30	13,00
6	23,40	18,80
8	41,70	33,30
10	65,10	52,10
12	93,70	75,00

Grade	SU in m
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	100/250/500/1.000
●	100/250/500
●	100/250/500/1.000
●	100/250

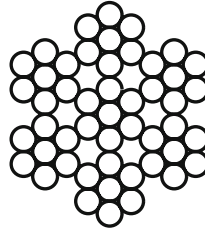
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8036-4-8X100 M 8036 - A4 - Ø 8mm - l = 100m

M 8038 - sim. DIN 3055

Wire ropes, 7 X 7

soft



d	math. breaking load kN	min. breaking load kN
1	0,71	0,63
1,5	1,62	1,42
2	2,69	2,25
2,5	4,50	3,95
3	6,05	5,07
4	10,80	9,01
5	16,80	14,10
6	24,20	20,30
8	43,00	36,10

Grade	SU in m
●	250
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	250/500/1.000
●	100/250/500/1.000
●	250/500/1.000

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8038-4-8X100 M 8038 - A4 - Ø 8mm - l = 100m

sim. DIN 766 - **M 8070**
Stainless steel chains
 short link

\emptyset	B mm	T mm	breaking load kN
2	8,0	12,0	1,25
3	12,0	16,0	2,80
4	13,6	16,0	8,00
5	17,0	18,5	12,50
6	20,4	18,5	16,00
8	27,2	24,0	32,00
10	36,0	28,0	50,00

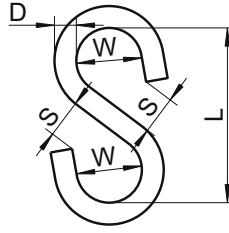
Grade	SU in m
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	100
▲ ●	50/100
▲ ●	50/100
▲ ●	50/100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions and lengths on request.
 Example item no. M8070-4-8X50 M 8070 - A4 - \emptyset 8mm - l = 50m

M 8160

"S"- hooks

polished



D	L	W	S
3	24	9	4
4	32	12	6
5	40	15	8
6	48	17	9
8	64	24	12

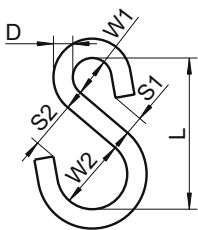
Grade	SU
●	50
●	50
●	20
●	20
●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8160-4-8 M 8160 - A4 - Ø 8mm

M 8160 A

"S"- hooks

asymmetrical, polished



D	L	W1	W2	S1	S2
3	30	9	16	5	10
4	36	12	19	6	12
5	43	14	21	6	12
6	50	15	25	7	15
8	67	20	33	9	20

Grade	SU
●	50
●	50
●	20
●	20
●	10

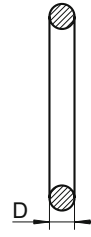
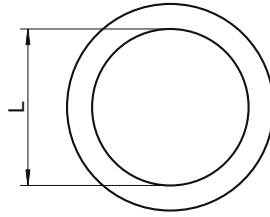
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8160-4-8 M 8160 - A4 - Ø 8mm

M 8229

Rings

welded, polished



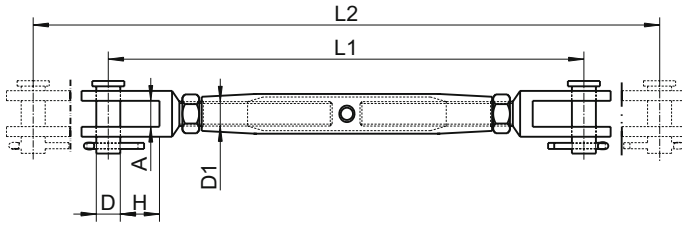
D	L
3	20
3	30
4	25
4	30
4	35
4	40
5	30
5	40
6	35
6	40
6	45
8	40
8	50
10	50
10	60
12	70

Grade	SU
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10
●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8229-4-8X40 M 8229 - A4 - Ø 8mm - l = 40mm

M 8245 welded Turnbuckles

closed body, 2 forks, welded



D1	L1	L2	D	A	H
M5	130	190	5	6,5	10
M6	150	220	6	7,5	10
M8	165	240	8	11,0	11
M10	190	280	9	12,0	14
M12	245	360	12	14,0	20
M14	270	390	12	15,0	22
M16	310	450	16	17,0	26
M20	360	510	19	20,0	30

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1

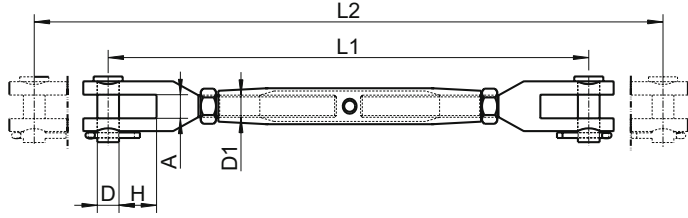
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8245-4-8 M 8245 - A4 - M8 - welded

M 8245 (MT)

Turnbuckles

closed body, 2 forks, MT-version, turned

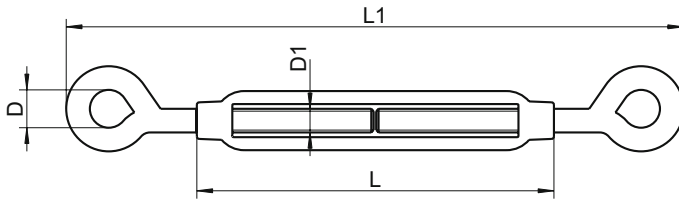


D1	L1	L2	D	A	H
M 5	135	195	5	6,5	10
M 6	160	230	6	7,5	10
M 8	180	255	8	11,0	11
M 10	210	300	9	12,0	14
M 12	270	380	12	14,0	20
M 14	295	415	12	15,0	22
M 16	340	480	16	17,0	26
M 20	360	510	19	20,0	30

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8245-4-8MT M 8245 - A4 - M8 - twisted



D1	L	L1	D
M 5	70	120	8
M 6	90	150	10
M 8	120	200	14
M 10	150	240	16
M 12	200	310	18
M 16	250	390	26
M 20	300	440	30

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1

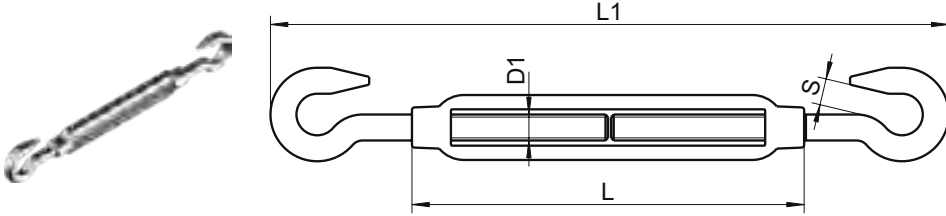
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8246-4-8A M 8246 - A4 - M8 - type A

M 8246 type B - sim. DIN 1480

Turnbuckles

hook / hook



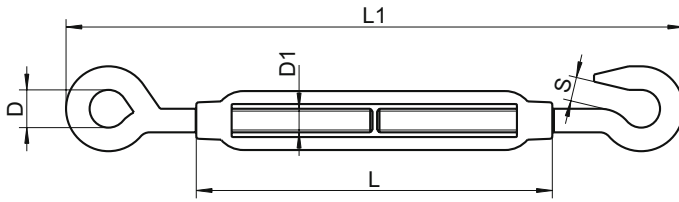
D1	L	L1	S
M 5	70	120	8
M 6	90	150	9
M 8	120	200	11
M 10	150	240	12
M 12	200	310	14
M 16	250	390	16
M 20	300	440	18

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8246-4-8B M 8246 - A4 - Ø 8mm - type B

sim. DIN 1480 - **M 8246 type C**
Turnbuckles
eye / hook



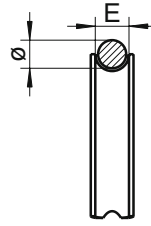
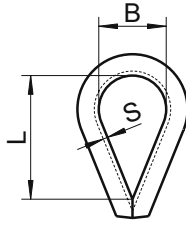
D1	L	L1	D	S
M 5	70	120	8	8
M 6	90	150	10	9
M 8	120	200	14	11
M 10	150	240	16	12
M 12	200	310	18	14
M 16	250	390	26	16
M 20	300	440	30	18

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. M8246-4-8C M 8246 - A4 - Ø 8mm - type C

M 8247 - sim. DIN 6899

Thimbles

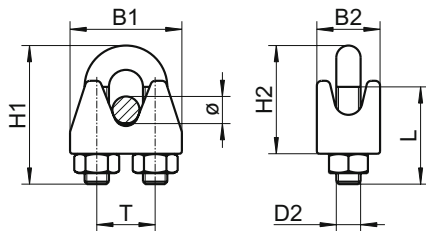


for rope Ø	E	B	L	S
2	2,5	7	10	1,0
2,5	3,0	8	14	1,0
3	3,5	10	17	1,0
4	4,5	11	18	1,0
5	5,6	13	20	1,2
6	6,5	15	25	1,2
8	9,0	18	33	1,5
10	11,0	23	41	2,0
12	14,0	27	48	2,0
14	15,0	34	53	2,5
16	17,0	36	57	3,0
18	19,0	40	67	3,0
20	22,0	45	75	4,0

Grade	SU
●	50
●	50
●	50
●	50
●	50
●	20
●	10
●	10
●	10
●	5
●	5
●	5
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8247-4-8 M 8247 - A4 - Ø 8mm

sim. DIN 741 - **M 8248**
Wire rope clamps



for rope Ø	D2	H1	L	T	B1	B2	H2
2	M 3	17	11	7	16	10	10
3	M 3	21	11	8	21	12	11
4	M 4	23	12	10	22	12	13
5	M 5	26	15	12	23	13	15
6	M 6	32	18	14	26	15	17
8	M 6	35	18	16	30	19	20
10	M 8	44	22	19	34	22	23
13	M 10	55	30	25	40	30	25

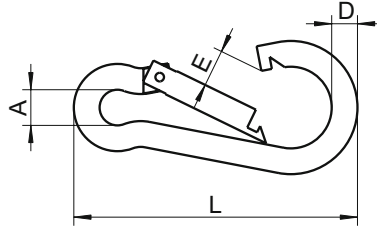
Grade	SU
●	50
●	50
●	20
●	20
●	20
●	10
●	10
●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8248-4-8 M 8248 - A4 - Ø 8mm

M 8249

Spring hooks



D	L	A	E
4	40	6	6
5	50	8	7
6	60	9	8
7	70	10	8
8	78	12	9
10	100	15	12
11	120	18	16
12	140	20	19

Grade	SU
●	20
●	20
●	20
●	20
●	20
●	10
●	10
●	5

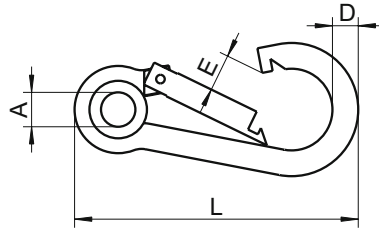
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8249-4-8X80 M 8249 - A4 - Ø 8mm - l = 80mm

M 8250

Spring hooks

with thimble



D	L	A	E
4	40	5,0	6
5	50	6,5	7
6	60	7,5	8
7	70	9,0	8
8	80	10,0	9
10	100	13,0	12
11	120	15,0	16
12	140	18,0	19

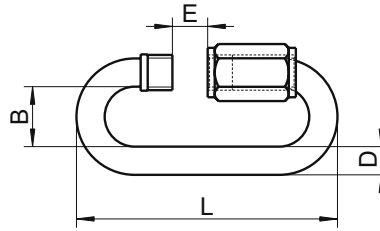
Grade	SU
●	20
●	20
●	20
●	20
●	20
●	10
●	10
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8250-4-8X80 M 8250 - A4 - Ø 8mm - l = 80mm

M 8253

Chain quick-links



D	L	B	E
4	32	12	5,5
5	39	13	6,5
6	45	14	7,5
8	58	17	10,0
10	69	21	12,0
12	81	24	14,5

Grade	SU
●	20
●	20
●	20
●	10
●	10
●	5

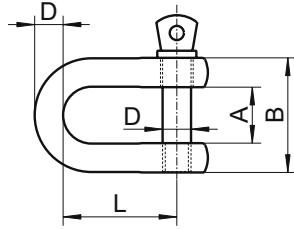
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8253-4-8 M 8253 - A4 - Ø 8mm

M 8258

D - shackles

straight



D	A	B	L
4	8	16	16
5	10	20	20
6	12	24	24
7	14	28	28
8	16	32	32
10	20	40	40
12	24	48	48
14	26	52	52
16	32	64	64
19	38	76	76
22	44	88	88
25	50	100	100

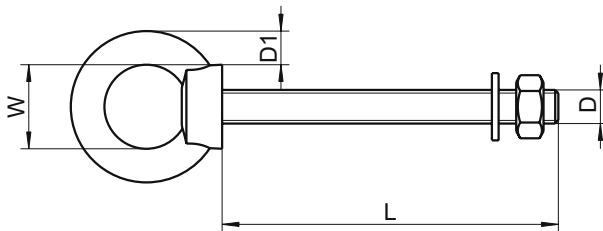
Grade	SU
●	50
●	50
●	20
●	20
●	10
●	10
●	5
●	5
●	5
●	1
●	1
●	1

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8258-4-8 M 8258 - A4 - Ø 8mm

M 8267

Eye bolts

with metric thread



D	L	D1	W
M 6	40	5	15
M 6	60	5	15
M 6	80	5	15
M 8	80	6	20
M 8	100	6	20
M 10	100	8	25
M 12	120	10	30

Grade	SU
●	10
●	10
●	10
●	10
●	10
●	10
●	10

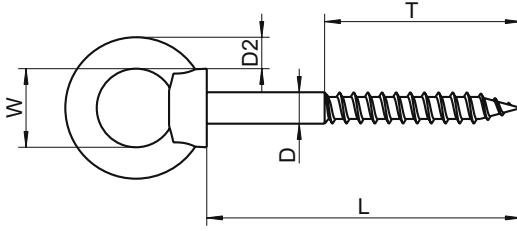
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8267-4-8X80 M 8267 - A4 - Ø 8mm - l = 80mm

M 8268

Eye bolts

with wood thread



D	L	T	D2	W
5	50	30	5	11
6	60	35	5	14
8	80	50	6	18
10	100	60	8	22

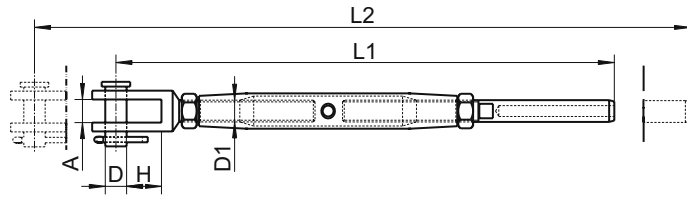
Grade	SU
●	10
●	10
●	10
●	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8268-4-8X80 M 8268 - A4 - Ø 8mm - l = 80mm

M 8275 welded

Turnbuckles

fork / wire rope, welded



for Ø	D1	L1	A	D	H	L2
2,5	M 5	155	6,5	5	10	215
3	M 6	175	7,5	6	10	245
4	M 8	200	11,0	8	11	275
5	M 10	230	12,0	9	14	320
6	M 12	285	14,0	12	20	400
8	M 16	360	17,0	16	26	500
10	M 20	410	20,0	19	30	560
12	M 20	430	23,0	19	35	580

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	1
●	1
●	1

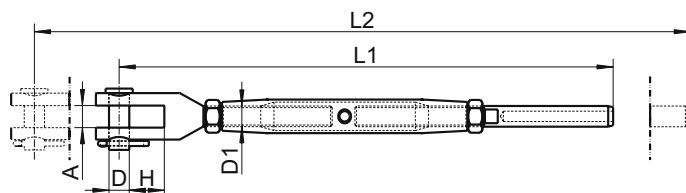
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8275-4-8 M 8275 - A4 - M8 fir Ø 4mm - welded

M 8275 (MT)

Turnbuckles

fork / wire rope, turned



for Ø	D1	L1	A	D	H	L2
3	M 6	175	7,5	6	10	245
4	M 8	200	11,0	8	11	275
5	M 10	230	12,0	9	14	320
6	M 12	285	14,0	12	20	400
8	M 16	360	17,0	16	26	500
10	M 20	410	20,0	19	30	560

Grade	SU
●	10
●	10
●	5
●	5
●	1
●	1

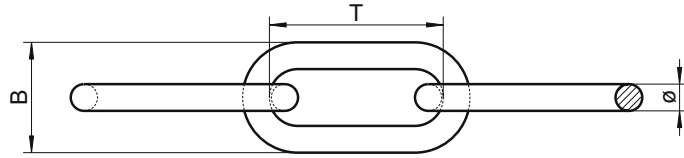
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8275-4-10MT M 8275 - A4 - M10 for Ø 5mm

M 8301 - sim. DIN 763

Stainless steel chains

long link



Ø	B	T	BL	DIN
2	8,0	22	1,25	DIN 5685 B
3	12,0	26	2,8	DIN 5685 B
4	16,8	32	6,3	DIN 763
5	21,0	35	10,0	DIN 763
6	25,2	42	12,5	DIN 763
8	33,6	52	25,0	DIN 763
10	42,0	65	40,0	DIN 763

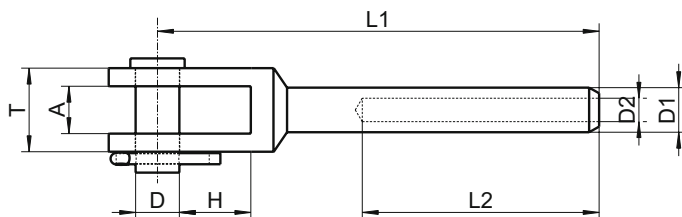
Grade	SU in m
●	100
●	100
●	100
●	100
●	50/100
●	50/100
●	50/100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8301-4-8X50 M 8301 - A4 - Ø 8mm - l = 50mm

M 8316 welded Wire rope swage terminals

fork, welded



for Ø	L1	L2	D	H	A	D1	D2	T
2	55	24	4	8	6,0	5,5	2,2	11,0
3	65	32	6	10	7,5	6,3	3,2	13,5
4	77	40	8	11	11,0	7,5	4,3	17,0
5	88	57	9	14	12,0	9,0	5,3	20,0
6	106	63	12	20	14,0	12,5	6,4	24,0
8	145	85	16	26	17,0	16,0	8,4	29,0
10	150	90	19	30	20,0	18,0	10,5	32,0
12	195	105	19	35	23,0	20,0	12,6	35,0

Grade	SU
●	10
●	10
●	10
●	5
●	5
●	5
●	5
●	5

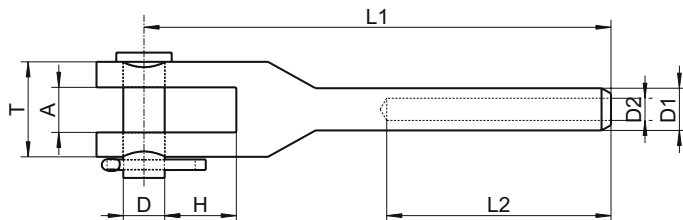
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8316-4-8 M 8316 - A4 - Ø 8mm - welded

M 8316 (MT)

Wire rope terminals

fork, turned



for Ø	L1	L2	D	H	A	D1	D2	T
3	65	32	6	10	7,5	6,3	3,2	15
4	77	40	8	11	11,0	7,5	4,3	20
5	88	57	9	14	12,0	9,0	5,3	23
6	106	63	12	20	14,0	12,5	6,4	27
8	145	85	16	26	17,0	16,0	8,4	36

Grade	SU
●	10
●	10
●	5
●	5
●	5

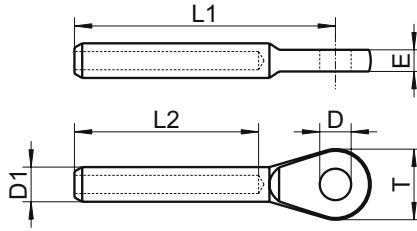
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8316-4-8MT M 8316 - A4 - Ø 8mm - turned

M 8317

Wire rope swage terminals

eye



for Ø	L1	L2	E	D	T	D1
2,5	49	30	3	5,4	13	5,5
3	55	36	4	6,5	14	6,4
4	65	39	6	8,5	18	7,5
5	80	50	7	10,0	22	9,0
6	94	62	8	12,5	28	12,5
8	124	85	10	14,5	32	16,0
10	142	90	12	16,4	36	17,8
12	160	105	16	19,3	40	19,5

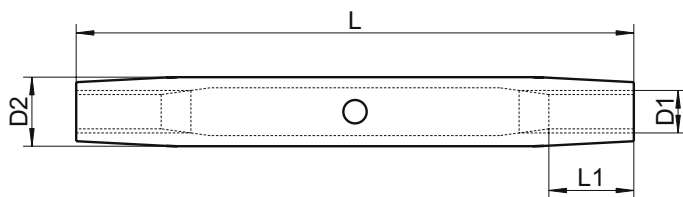
Grade	SU
●	10
●	10
●	10
●	5
●	5
●	5
●	5
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8317-4-8 M 8317 - A4 - Ø 8mm

M 8319 - sim. DIN 1478

Turnbuckle bodies



D1	L	L1	D2
M6	95	12	10
M8	105	16	13
M10	125	20	17
M12	150	24	21
M14	165	28	21
M16	190	32	26
M20	210	40	33

Grade	SU
●	10
●	10
●	5
●	5
●	1
●	1
●	1

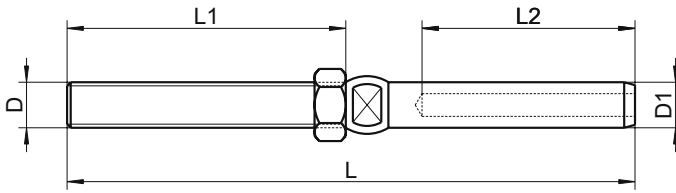
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8319-4-8 M 8319 - A4 - Ø 8mm

M 8320

Wire rope swage studs

with nut, right thread



for Ø	D	L	L1	L2	D1
2	M 4	73	38	24	4,8
2,5	M 5	86	40	32	5,5
3	M 6	100	48	39	6,5
4	M 8	117	57	45	7,5
5	M 10	130	63	52	9,0
6	M 12	162	80	64	12,5
8	M 16	200	100	80	16,0
10	M 20	230	119	90	18,0
12	M 20	245	120	105	20,0

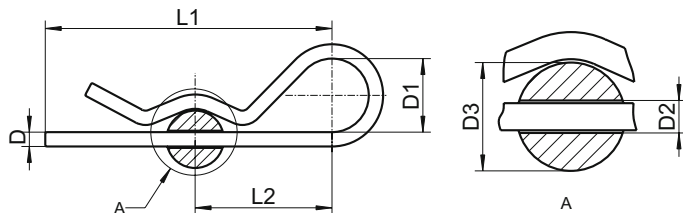
Grade	SU
●	10
●	10
●	10
●	10
●	5
●	5
●	5
●	5
●	5

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8320-4-8 M 8320 - A4 - Ø 8mm

M 8377

Beta pins



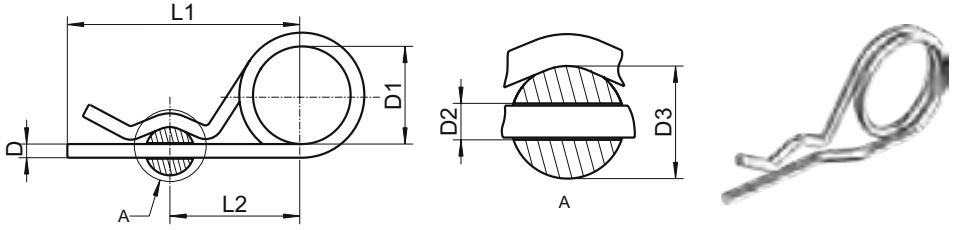
D	D2	D1	D3	L1	L2
2	2,5	10	8 - 12	40	25
2,5	3,0	11	> 10 - 16	46	24
3	3,5	16	> 16 - 18	60	34
4	4,5	19	> 18 - 20	64	36
5	6,0	26	> 20 - 28	82	45
6	7,0	30	> 28 - 40	110	60

Grade	SU
▲	50
▲	50
▲	50
▲	20
▲	20
▲	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8377-2-6 M 8377 - A2 - Ø 6mm

sim. DIN 11024 - **M 8378**
Spring cotter pins



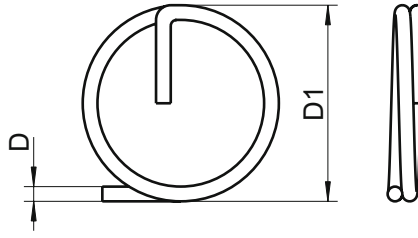
D2	D	D1	D3	L1	L2
2,5	2,25	20	9 - 11	42	24
3,2	2,80	20	> 11 - 14	48	26
4,0	3,60	20	> 14 - 20	64	32
5,0	4,50	25	> 20 - 26	80	39
6,3	5,60	25	> 26 - 34	97	45
7,0	6,30	30	> 34 - 45	125	56
8,0	7,00	30	> 45 - 56	150	63

Grade	SU
▲	20
▲	20
▲	20
▲	20
▲	10
▲	10
▲	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
Example item no. M8378-2-5 M 8378 - A2 - for hole 5, Ø 4,5mm

M 8383

Cotter rings



D	D1
1,0	11
1,2	15
1,5	20
2,0	25

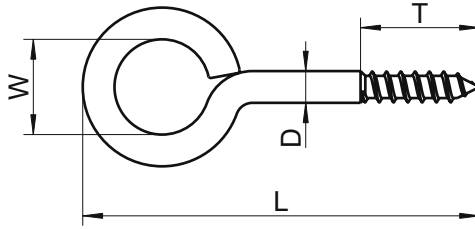
Grade	SU
●	100
●	100
●	100
●	100

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8383-4-2X25 M 8383 - A4 - D = 2mm - D1 = 25mm

M 8705

Eye screws

for wood



D	L	T	W
3,3	16	10	8
3,7	20	12	10
4,0	25	15	12
4,4	30	18	14

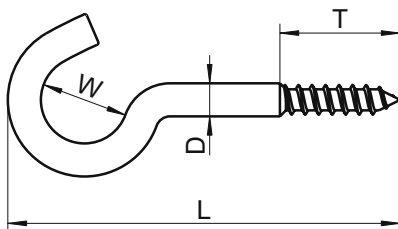
Grade	SU
▲	50
▲	50
▲	50
▲	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8705-2-4,0X25 M 8705 - A2 - Ø 4,0mm - l = 25mm

M 8706

Open screw hooks

for wood



D	L	T	W
3,3	40	10	14
3,5	50	12	17
3,5	60	15	20
4,4	50	16	16
4,4	65	16	22
5,2	80	21	27
6,0	100	28	25

Grade	SU
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50
▲	50

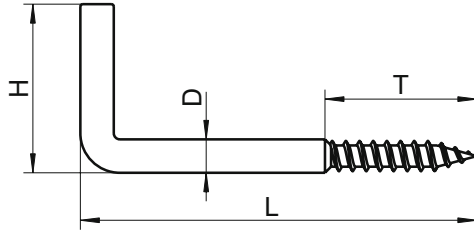
■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8706-2-6X100 M 8706 - A2 - Ø 6mm - l = 100mm

M 8707

Square hooks

for wood



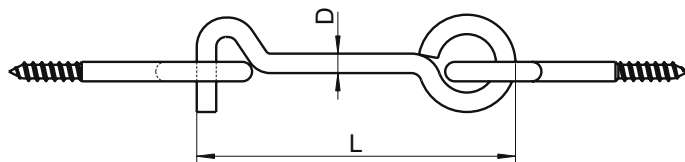
D	L	H	T
3,0	30	13	12
3,5	40	15	15
4,0	45	18	15
4,5	50	20	20
5,0	60	20	20

Grade	SU
▲	50
▲	50
▲	50
▲	50
▲	50

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.
 Example item no. M8707-2-4,0X45 M 8707 - A2 - Ø 4,0mm - l = 45mm

M 8708

Gate and shutter hook and eye



D	L
4,0	80
4,0	100
4,5	120
5,2	140

Grade	SU
▲	10
▲	10
▲	10
▲	10

■ A1 / ▲ A2 / ● A4 | SU: Sales unit | All measurements in mm | Other dimensions on request.

Example item no. M8708-2-4X80 M 8708 - A2 - Ø 4mm - l = 80mm



WASI[®]



NORM

Technical manual

50 YEARS

EXCELLENCE IN STAINLESS STEEL
EXCELLENCE IN STAINLESS STEEL

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Stainless steel encyclopaedia

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Standardisation

What are standards for?

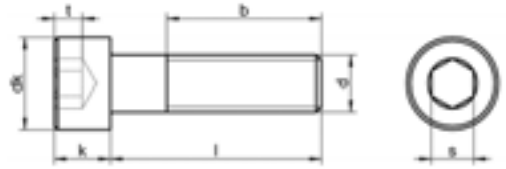
Standards are a method for standardising and unifying requirements, that are placed on material and non-material goods and services. Standardisation promotes national and international goods and services exchange and reduces trade barriers because standardised products are inter-exchangeable. This requires that the basic properties of standardised parts are determined from a central location and applied by manufacturers and traders.

What do DIN standards tell us?

As every standard, DIN standards also bring standardisation and simplicity with them. In case of a request it is sufficient to enter "DIN 912, M8x40, A4-70" to define several characteristics. A comparison of product requirements by sales partners is not necessary as both can be sure that they are talking about exactly the same product.

Screw standards define the following characteristics:

- Head shape
(e.g. hexagon, hexagon socket, countersunk head)
- Type of thread
(e.g. metric thread M, tapping-screw thread ST)
- Diameter
- Thread length
- Thread pitches
- Information about the technical delivery conditions



dk = head diameter

t = drive depth

k = head height

l = nominal length of the screw

b = thread length for screws with partial threads

d = thread diameter in mm

s = width across flats

This example shows which characteristics are given by the following designation:

DIN 912, M 8 x 40, A4-70

DIN 912 = hexagon socket head cap screw

M = metric thread

8 = thread diameter (d) of the 8mm screw

X 40 = nominal length (l) in mm

A4 = material class, stainless steel A4

-70 = Property class 70

P = the thread pitch is indicated with a number

If this number is missing, a standard thread is shown (M 8 x 40)

Only screws with a deviating coarse thread are indicated with a pitch, e.g. M8 x 1 x 40 identifies a screw with a fine thread.

Types of standards and issuers

Standards change dynamically due to innovation, globalization, increasingly faster development of markets and technical advancements. The creation of new business areas, shorter product lifecycles and the increasing convergence of technical sectors create a multitude of challenges and demands on national, European and international standardisation. To achieve a homogeneous European market, European standards have to be integrated in national regulatory bodies and the national standards repealed. This assumption is not obligatory for international standards. However, it is achieved to accept these international standards as EN standards without changes.

Standard	Information
DIN standard	<p>Publisher: German Institute for Standardisation = national, German standard</p> <p>DIN standards continue to be used in Germany for products and services that are not standardised to ISO EN or for which there is no demand for standardisation on an international level.</p>
ISO standard	<p>Publisher: ISO (International Organization for Standardisation). = international "ISO" (Greek for equal) standard. ISO standards are valid worldwide and serve to improve global trading.</p>
EN standard	<p>Publisher: European Committee for Standardisation = European standard</p> <p>Unlike ISO standards, EN standards are only valid in the EU. Identity of EN and ISO standards is to be created, in which existing ISO standards are adopted as EN standards unchanged with the ISO standard number; these will accordingly be designated as EN ISO. If this is not achieved on European standard level, individual EN standards will be created whose numbers deviate from the ISO standards.</p>
DIN - EN - standard	<p>Adopted mixed standards = national German edition of an EN standard adopted unchanged</p> <p>These are standards which state that the standard number identifies the same object in both DIN standard and EN standard.</p>
DIN - EN - ISO - standard	<p>Adopted mixed standards = national German editions of an EN standard adopted unchanged from ISO.</p> <p>These are standards which state that the standard number identifies the same object in DIN standard, EN standard as well as ISO standard.</p>
DIN - ISO	<p>Adopted standards = national German edition of an ISO standard adopted unchanged</p>

Standard conversions (DIN/EN/ISO) for fasteners

Standards are tested and changed at regular intervals. The conversion to DIN ISO and DIN EN is constantly advanced. Certain dimensions may change in some cases. Customers and suppliers must agree upon these conversions together. In the middle of 1993, there was a change on the width across flats for hexagon head screws and hexagonal nuts (four dimensional ranges). For hexagonal nuts, width across flats were changed analogously and simultaneously the nut heights (type 1 ISO 4032).

	Thread			
	M 10	M 12	M 14	M 22
Previous width across flats according to DIN in mm	17	19	22	32
New width across flats according to DIN ISO 272 in mm	16	18	21	34

The new release and unification for pins and bolts should be pointed out (e.g. DIN 7 new EN ISO 2338, bolts DIN 1434, 1435, 1436 new EN ISO 2341).

In October of 1994, new EN-ISO standards for slotted-head and Philips screws containing dimensional changes were also adopted.

It must be observed that the basic standards of DIN 267, parts 1, 4, 5, 9, 11, 12, 18, 19, 20 and 21 have been replaced by DIN EN ISO 3506. It was basically determined that EN will no longer be listed with five part numbers, but that the EN ISO regulation indicates that the ISO standard has been adopted as EN and is binding.

Details can be found in the following table "Standard parts comparison overview". Agreements and differences in standards for all of the standard products in this catalogue are detailed there.





Standard part comparison overview DIN / EN / ISO

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Taper pins, untempered	DIN 1	DIN EN 22339	2339
	Parallel pins tolerance zone M6	DIN 7	DIN EN ISO 2338	2338
	Slotted cheese head screws	DIN 84	DIN EN ISO 1207	1207
	Slotted pan head screws	DIN 85	DIN EN ISO 1580	1580
	Retaining washers with lug	DIN 93	Standard repealed	
	Cotter pins	DIN 94	DIN EN ISO 1234	1234
	Slotted raised countersunk (oval) head wood screws	DIN 95	No new standard intended	
	Slotted round head wood screws	DIN 96	No new standard intended	
	Slotted countersunk (flat) head wood screws	DIN 97	No new standard intended	
	Washers, type A, without chamfer	DIN 125	DIN EN ISO 7089	7089
	Washers, type B, with chamfer	DIN 125	DIN EN ISO 7090	7090
	Spring lock washers with tang ends	DIN 127	Standard repealed	

Changes	Remark
Length l according to ISO incl. round end (to date according to DIN excl. round end)	Almost interchangeable
Length l according to ISO incl. round end (to date according to DIN excl. round end)	Almost interchangeable
New head heights for M1.6, M2 and M2.5	
New head diameter for M3 and M5	
	No dimensional changes, interchangeable
Nominal sizes based on thread diameter (ISO) instead of hole diameter (DIN), hardness classes changed	No dimensional changes
Nominal sizes based on thread diameter (ISO) instead of hole diameter (DIN), hardness classes changed	No dimensional changes

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Spring lock washers with square ends	DIN 127	Standard repealed	
	Curved spring lock washers	DIN 128	Standard repealed	
	Waved spring lock washers	DIN 128	Standard repealed	
	Spring washers, type A, curved	DIN 137	Standard repealed	
	Spring washers, type B, waived	DIN 137	Standard repealed	
	T-bolts with square neck	DIN 186	No new standard intended	
	American shape wing nuts	DIN 315 AF	No new standard intended	
	German shape wing nuts	DIN 315 DF	No new standard intended	
	American shape wing screws	DIN 316 AF	No new standard intended	
	German shape wing screws	DIN 316 DF	No new standard intended	
	Slotted capstan screws	DIN 404	No new standard intended	
	Slotted headless screws with chamfered end	DIN 427	DIN EN ISO 2342	2342
	Pipe nuts, type B, pipe thread according to DIN 228, Part 1	DIN 431	No new standard intended	

Changes	Remark
<p>Changed slot depths</p>	<p>Almost interchangeable</p>
<p>New width across flats according to ISO 272 at G1/8", G1/4", G1/2", G5/8"</p>	

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	External tab washers	DIN 432	Standard repealed	
	Washers for cheese head screws	DIN 433	DIN EN ISO 7092	7092
	Square taper washer for U-sections, 8% gradient	DIN 434	No new standard intended	
	Square taper washer for I-sections, 14% gradient	DIN 435	No new standard intended	
	Washers, square, for wooden constructions	DIN 436	No new standard intended	
	Hexagon nuts, low form	DIN 439	DIN EN ISO 4035	4035
	Hexagon thin nuts, with fine thread	DIN 439	DIN EN ISO 8675	8675
	Washers for wooden constructions, R shape = round hole	DIN 440	DIN EN ISO 7094	7094
	Washers for wooden constructions, V-shape = square hole	DIN 440	No new standard intended	
	Eye bolts	DIN 444	No new standard intended	
	Internal tab washer	DIN 462	No new standard intended	
	Tab washer with 2 tabs	DIN 463	Standard repealed	

Changes	Remark
Nominal sizes based on thread diameter (ISO) instead of hole diameter (DIN), hardness classes changed	No dimensional changes, interchangeable
Changing hole size for M12 and M16	Almost interchangeable
Changing hole size for M12 and M16	Almost interchangeable
Changing hole size for M12 and M16	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
Nominal sizes based on thread diameter (ISO) instead of hole diameter (DIN), V-shape with square hole not applicable in ISO, minimal dimensional changes	Interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Tall knurled thumb screws	DIN 464	No new standard intended	
	Slotted knurled thumb screws, high type	DIN 465	Standard repealed	
	Tall knurled nuts	DIN 466	No new standard intended	
	Flat knurled nuts	DIN 467	No new standard intended	
	Retaining rings for shafts	DIN 471	No new standard intended	
	Retaining rings for holes	DIN 472	No new standard intended	
	Slotted nuts	DIN 546	No new standard intended	
	Two hole nuts	DIN 547	No new standard intended	
	Slotted set screws with flat point	DIN 551	DIN EN 24766	4766
	Slotted set screws with cone point	DIN 553	DIN EN 27434	7434
	Square nuts	DIN 557	No new standard intended	
	Square nuts, flat shape	DIN 562	No new standard intended	
	Hexagonal wooden screws	DIN 571	No new standard intended	

Changes	Remark
Design with slot, included as a replacement for DIN 465	
	Refer to DIN 464
	No dimensional changes, interchangeable
	No dimensional changes, interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Eye bolts	DIN 580	No new standard intended	
	Eye nuts	DIN 582	No new standard intended	
	Mushroom head square neck bolt	DIN 603	DIN ISO 8677	
	Knurled thumb screws, flat shape	DIN 653	No new standard intended	
	Half round rivets	DIN 660	No new standard intended	
	Countersunk rivets	DIN 661	No new standard intended	
	Adjusting rings	DIN 705	Standard repealed	
	Locking screws with hexagon socket, tapered thread	DIN 906		
	Locking screws with collar, exterior hexagonal, cylindrical thread	DIN 908		
	Locking screws with collar, hexagon socket, cylindrical thread	DIN 910		
	Hexagon socket head cap screws	DIN 912	DIN EN ISO 4762	4762
	Hexagon socket set screws with flat point	DIN 913	DIN EN ISO 4026	4026
	Hexagon socket set screws with cone point	DIN 914	DIN EN ISO 4027	4027

Changes	Remark
	DIN ISO 8677 was repealed again in 2002
Fine thread cancelled	No dimensional changes, interchangeable
	No dimensional changes, interchangeable
	No dimensional changes, interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Hexagon socket set screws with half dog point	DIN 915	DIN EN ISO 4028	4028
	Hexagon socket set screws with cup point	DIN 916	DIN EN ISO 4029	4029
	Hexagon cap nuts, low type	DIN 917	No new standard intended	
	Slotted pan head screws with large head	DIN 921	No new standard intended	
	Slotted pan head screws with shoulder	DIN 923	No new standard intended	
	Square weld nuts	DIN 928	No new standard intended	
	Hexagon weld nuts	DIN 929	No new standard intended	
	Hexagon head screws with shaft	DIN 931	DIN EN ISO 4014	4014
	Hexagon head screws with thread up to head	DIN 933	DIN EN ISO 4017	4017
	Hexagon nuts	DIN 934	DIN EN ISO 4032	4032
	Hexagon nuts with fine thread	DIN 934	DIN EN ISO 8673	8673
	Stud bolts, screw-in end $e \approx 1d$	DIN 938	No new standard intended	
	Stud bolts, screw-in end $e \approx 1.25d$	DIN 939		

Changes	Remark
	No dimensional changes, interchangeable
	No dimensional changes, interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
	No new width across flats
	No new width across flats
New width across flats for M10, M12, M14 and M22	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
New width across flats for M10, M12, M14 and M22 New nut heights for M5 - M39	Almost interchangeable
New width across flats for M10, M12, M14 and M22 New nut heights for M5 - M39	Almost interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Slotted countersunk head screws	DIN 963	DIN EN ISO 2009	2009
	Slotted raised countersunk head screws	DIN 964	DIN EN ISO 2010	2010
	Cross recessed countersunk flat head screws	DIN 965	DIN EN ISO 7046	7046
	Cross recessed raised countersunk head screws	DIN 966	DIN EN ISO 7047	7047
	Threaded rods	DIN 975	Standard repealed	
	Threaded bolts	DIN 976	No new standard intended	
	Hexagon nuts with clamping part (all metal)	DIN 980	DIN EN ISO 7042	7042
	Hexagon nuts with clamping part (non-metallic), tall shape	DIN 982	DIN EN ISO 7040	7040
	Hexagon nuts with clamping part (non-metallic), flat shape	DIN 985	DIN EN ISO 10511	10511
	Hexagon domed cap nuts with non-metallic insert	DIN 986	No new standard intended	
	Shim rings and support rings	DIN 988		
	Washers for timber connectors	DIN 1052		
	Washers for clevis pins	DIN 1440	DIN EN 28738	8738

Changes	Remark
New head diameter for M3 - M10 New head height for M3 - M8	Almost interchangeable
New head diameter for M3 - M10 New head height for M3 - M8	Almost interchangeable
New head diameter for M3 - M10 New head height for M3 - M8	Almost interchangeable
New head diameter for M3 - M10 New head height for M3 - M8	Almost interchangeable
	Refer to DIN 976
	Replaces DIN 975
New width across flats for M10, M12, M14 and M22 new nut heights for M6 - M36	Almost interchangeable
New width across flats for M10, M12, M14 and M22 new nut heights for M5 - M36	Almost interchangeable
New width across flats for M10, M12, M14 and M22 new nut heights for M3 - M36	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
	DIN 1052 Timber Structures is not a pure product standard, mechanical fasteners described in DIN 1052 part 2
New exterior diameter of d8 - d20 and d24 - d100 new thicknesses of d5, d45, d55, d60, d100	Almost interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Grooved pins, full length taper grooved	DIN 1471	DIN EN ISO 8744	8744
	Half length taper grooved pins	DIN 1472	DIN EN ISO 8745	8745
	Full length parallel grooved pin with chamfer	DIN 1473	DIN EN ISO 8740	8740
	Half length reverse grooved pins	DIN 1474	DIN EN ISO 8742	8742
	Grooved pins, third length centre grooved	DIN 1475	DIN EN ISO 8743	8743
	Grooved pins with round head	DIN 1476	DIN EN ISO 8746	8746
	Spring-type straight pins slotted	DIN 1481	DIN EN ISO 8752	8752
	Hexagon domed cap nuts, high type	DIN 1587	No new standard intended	
	Slotted nuts	DIN 1804	No new standard intended	
	Disc springs	DIN 2093	No new standard intended	
	Nuts for waisted bolts	DIN 2510	No new standard intended	
	Hose clamps	DIN 3017	No new standard intended	
	U-bolt	DIN 3570	No new standard intended	

Changes	Remark
Lengths according to ISO incl. round ends (according to DIN to date excl. round ends)	
Lengths according to ISO incl. round ends (according to DIN to date excl. round ends)	
Lengths according to ISO incl. round ends (according to DIN to date excl. round ends)	
Lengths according to ISO incl. round ends (according to DIN to date excl. round ends)	
Lengths according to ISO incl. round ends (according to DIN to date excl. round ends)	
New shape B (with introduction) for ISO, DIN to date only for shape A (with chamfer)	
Two chamfers for diameters equal to or smaller than 10mm (ISO), to date ≤ 6mm (DIN)	
New width across flats for M10, M12, M14 and M22	Almost interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Spherical washers, type C	DIN 6319	No new standard intended	
	Conical washers, type D	DIN 6319	No new standard intended	
	Hexagon nuts, type B, height = 1.5d	DIN 6330	No new standard intended	
	Hexagon nuts with collar, height = 1.5d	DIN 6331	No new standard intended	
	Hexagon nuts, height = 3d	DIN 6334	No official standard	
	Spring washers for screw connenctions	DIN 6796	No new standard intended	
	Toothed lock washers	DIN 6797	Standard repealed	
	Serrated lock washers	DIN 6798	Standard repealed	
	Retaining washers for shafts	DIN 6799	No new standard intended	
	Parallel keys, tall shape A	DIN 6885	No new standard intended	
	Hexagon socket head cap screws	DIN 6912	No new standard intended	
	Hexagon head screws with flange	DIN 6921	DIN EN 1665	1665
	Blind rivets, type A, pan head	DIN 7337	DIN EN ISO 15983	15983

Changes	Remark
New width across flats for M10, M12, M14 and M22	Almost interchangeable
New width across flats for M10, M12, M14 and M22	Almost interchangeable
Simply published as a draft standard and later repealed	
Minimal changes for dimensions	Shape B (countersunk head) DIN EN ISO 15984

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Spiral pins, standard design	DIN 7343	DIN EN ISO 28750	8750
	Washers for screws with heavy clamping sleeves	DIN 7349	No new standard intended	
	Hexagon socket button head screws			ISO 7380
	Self drilling screws, hexagon head with collar	DIN 7504 K	DIN EN ISO 15480	15480
	Cross recessed pan head self drilling screws	DIN 7504 N	DIN EN ISO 15481	15481
	Cross recessed countersunk head self drilling screws	DIN 7504 P	DIN EN ISO 15482	15482
	Retaining nuts	DIN 7967	Standard repealed	
	Slotted pan head tapping screws	DIN 7971	DIN ISO 1481	1481
	Slotted countersunk flat head tapping screws	DIN 7972	DIN ISO 1482	1482
	Slotted raised countersunk head tapping screws	DIN 7973	DIN ISO 1483	1483
	Hexagonal self-tapping screws	DIN 7976	DIN ISO 1479	1479
	Spring lock washers for cheese head screws	DIN 7980	Standard repealed	
	Cross recessed pan head tapping screws	DIN 7981	DIN ISO 7049	7049

Changes	Remark
Minimal changes for dimensions and tolerances	Almost interchangeable
	No dimensional changes, interchangeable
	No dimensional changes, interchangeable
	No dimensional changes, interchangeable
New head diameter and head height for ST2.2 - ST6.3	Almost interchangeable
New head diameter and head height for ST2,2 , ST3,5 and ST4,2 - ST6,3	Almost interchangeable
New head diameter and head height for ST2,2 , ST3,5 and ST4,2 - ST6,3	Almost interchangeable
New head heights for ST2,2 - ST8	Almost interchangeable
New head diameter for ST2.2 , ST3.5 and ST4.2 - ST6.3 New head heights for ST2.2 , ST2.9 and ST4.2 - ST6.3	Almost interchangeable

Figure	Designation according to standards	Standard (formerly)	DIN-EN DIN-EN-ISO	ISO
	Cross recessed countersunk head tapping screws	DIN 7982	DIN ISO 7050	7050
	Cross recessed raised countersunk head tapping screws	DIN 7983	DIN ISO 7051	7051
	Hexagon socket thin head cap screw	DIN 7984	No new standard intended	
	Cross recessed raised pan head screws	DIN 7985	DIN EN ISO 7045	7045
	Washers for steel structures	DIN 7989	No new standard intended	
	Hexagon socket countersunk head screws	DIN 7991	DIN EN ISO 10642	10642
	Snap rings for shafts	DIN 7993	No new standard intended	
	Cross recessed raised countersunk head wood screws	DIN 7995	No new standard intended	
	Cross recessed round head wood screws	DIN 7996	No new standard intended	
	Cross recessed countersunk head wood screws	DIN 7997	No new standard intended	
	Washers, exterior diameter 3xd (nominal thread diameter)	DIN 9021	ISO 7093	7093
	Weld pin	DIN 32501	DIN EN ISO 13918	13918
	Socket head cap screw, TX drive			14579
	Socket head cap screw with low head, TX drive			14580

Changes	Remark
Some head diameters and heights changed	Almost interchangeable
Some head diameters and heights changed	Almost interchangeable
New head diameter for M3 and M5 New head heights for M2,5 , M3,5 and M5	Almost interchangeable
New head diameters and head heights for M3 - M16 and M20	Almost interchangeable
Nominal sizes based on thread diameter (ISO) instead of hole diameter (DIN), hardness classes changed	No dimensional changes, interchangeable

General standards for the manufacture and delivery of fasteners made of stainless materials

Mechanical materials, technical delivery conditions for fasteners and stainless steel materials are detailed in various general standards. We summarised these in the following overview for you.

Standard	Edition	Title
DIN 267 - 2	1984 - 11	Mechanical fasteners; technical delivery conditions; design and dimension accuracy
DIN 267 - 6	1975 - 09	Mechanical fasteners; technical delivery conditions; designs and dimension accuracy for product class F
DIN EN 20225	1992 - 02	Mechanical fasteners; Screws and nuts; dimensions (ISO 225:1983); German edition EN 20225: 1991
DIN EN 20273	1992 - 02	Mechanical fasteners; Through holes for screws (ISO 273: 1979); German edition EN 20273:1991
DIN EN 27721	1992 - 02	Countersunk head screws; layout and testing of countersunk heads (ISO 7721: 1983); German version EN 27721:1991
DIN EN ISO 898 - 1	2009 - 08	Mechanical properties of fasteners made of carbon steel and alloyed steel - part 1: Screws with defined property classes - coarse thread and fine pitch thread (ISO 898 - 1:2009); German edition EN ISO 898-1:2009
DIN EN ISO 898 - 2	1994 - 02	Mechanical properties of fasteners made of carbon steel and alloyed steel - part 2: Nuts with defined test strengths - standard thread and fine thread (ISO/DIS 898 - 2:2009); German edition prEN ISO 898-2:2009
DIN EN ISO 898 - 6	1996 - 02	Mechanical properties of fasteners - part 6: Nuts with defined test strengths - fine thread (ISO/DIS 898 - 6:1994); German edition prEN ISO 898-6:1995
DIN EN ISO 3269	2000 - 11	Mechanical fasteners - Acceptance test (ISO 3269:2000); German edition EN ISO 3269:2000
DIN EN ISO 3506 - 1	2010 - 04	Mechanical properties of fasteners made of stainless steels - part 1: Screws (ISO 3506-1:2009); German edition EN ISO 3506-1:2009
DIN EN ISO 3506 - 2	2010 - 04	Mechanical properties of fasteners made of stainless steels - part 2: Nuts (ISO 3506-2:2009); German edition EN ISO 3506-2:2009
DIN EN ISO 3506 - 3	2010 - 04	Mechanical properties of fasteners made of stainless steels - part 3: Grub screws and similar fasteners not under tension (ISO 3506-3:2009); German edition EN ISO 3506-3:2009
DIN EN ISO 3506 - 4	2010 - 04	Mechanical properties of fasteners made of stainless steels - part 4: Tapping screws (ISO 3506-4:2009); German edition EN ISO 3506-4:2009
DIN EN ISO 10666	2000 - 02	Self drilling screws with tapping screw thread - mechanical and functional properties (ISO 10666:1999); German edition EN ISO 10666:1999
DIN ISO 8992	2005 - 09	Fasteners - general requirements for screws and nuts (ISO 8992:2005)
ISO 13715	2000 - 06	Technical drawings - workpiece edges of undefined shape - terms and drawing specifications

Thread

Standard	Edition	Title
DIN 13 - 1	1999 - 11	Metric ISO threads general purpose - part 1 Nominal dimensions for standard threads; nominal thread diameters from 1 to 68mm
DIN 13 - 51	2005 - 08	Metric ISO threads general purpose - part 51 Exterior threads with transitional tolerance field (previously threads for force fit); tolerances, limiting deviations, limit dimensions
DIN 76 - 1	2004 - 06	Thread runouts and thread undercuts - part 1 For metric ISO threads according to DIN 13-1
DIN 78	2001 - 03	Thread ends - screw extensions
DIN 3858	2005 - 08	Whitworth pipe threads for pipe screw fittings - cylindrical interior thread and tapered exterior thread - dimensions
DIN 7998	1975 - 02	Threads and screw ends for wood screws
DIN ISO 261	1999 - 11	Metric ISO threads general purpose - Overview (ISO 261:1998)
DIN ISO 262	1999 - 11	Metric ISO threads general purpose - Selection series for screws, nuts and bolts (ISO 262:1998)
DIN ISO 724	2010 - 01	Metric ISO threads for general use - basic dimensions (ISO 724:1993 + Corr. 1:2009)
DIN EN ISO 228 - 1	2003 - 05	Pipe threads for fasteners not sealing in the thread - part 1 Dimensions, tolerances and designation (ISO 228-1:2000); German version EN ISO 228-1:2003
DIN EN ISO 1478	1999 - 12	Tapping screw threads (ISO 1478:1999); German edition EN ISO 1478:1999

Drives

Standard	Edition	Title
DIN 475 - 1	1984 - 01	Width across flats for screws, fittings and mountings
DIN ISO 272	1979 - 10	Mechanical fasteners; Width across flats for hexagon head screws and nuts
DIN EN ISO 4757	1994 - 10	Cross recesses for screws (ISO 4757: 1983); German edition EN 4757:1994
DIN EN ISO 10664	2005 - 10	Hexalobular socket for screws (ISO 10664: 2005); German edition EN 10664:2005

Materials

Standard	Edition	Title
DIN 17440	2001 - 03	Stainless steels - technical delivery specifications for drawn wire
DIN EN 10088 - 1	2005 - 09	Stainless steels - part 1: Directory of stainless steels; German version EN 10088-1:2005
DIN EN 10088 - 2	2005 - 09	Stainless steels - part 2: Technical delivery conditions for sheet and belt from corrosion resistant steels for general use; German version EN 10088-2:2005
DIN EN 10088 - 3	2005 - 09	Stainless steels - part 3: Technical delivery conditions for semi-finished products, rods, bar rolled wire, drawn wire, profile and bright steel products made of corrosion resistant steels for general use; German version EN 10088-3:2005
DIN EN 10263 - 5	2002 - 02	Rolled wire, rods and wire made of cold dipped and cold flow pressed steels - part 5: Technical delivery conditions for stainless steels; German version EN 10263-5:2001
DIN EN 10264 - 4	2008 - 07	Steel wire and wire products - steel wire for cable - part 4: Wire from stainless steel; German version prEN 10264-4:2008

Tolerances

Standard	Edition	Title
DIN ISO 691	2007 - 04	Assembly tools for screws and nuts - Wrench and socket openings - Tolerances for general use (ISO 691:2005)
DIN ISO 965 - 1	1999 - 11	Metric ISO threads general purpose - Tolerances - Part 1: Principles and fundamentals (ISO 965-1:1998)
DIN ISO 965 - 2	1999 - 11	Metric ISO threads general purpose - Tolerances - Part 2: Limit dimensions for exterior and interior threads for general use; medium tolerance class (ISO 965-2:1998)
DIN ISO 965 - 3	1999 - 11	Metric ISO threads general purpose - Tolerances - Part 3: Limit deviations for construction thread (ISO 965-3:1998)
DIN ISO 965 - 5	2002 - 05	Metric ISO threads general purpose - Tolerances - Part 5: Limit dimensions for interior threads, adjusted to fire galvanised exterior thread with the highest dimensions of the tolerance field location h before applying the coating (ISO 965-5:1998)
DIN ISO 2768 - 1	1991 - 06	General tolerances; tolerances for length and angle dimensions without individual tolerance inputs; identical to ISO 2768-1:1989
DIN ISO 2768 - 2	1991 - 04	General tolerances; tolerances for shape and position without individual tolerance inputs; identical to ISO 2768-2:1989
DIN EN ISO 286 - 1	2010 - 11	Geometrical product specifications (GPS) - ISO - tolerance system for lengths - part 1: Essentials for tolerances, dimensions and fit (ISO 286-1:2010); German version EN ISO 286-1:2010
DIN EN ISO 286 - 2	2010 - 11	Geometrical product specifications (GPS) - ISO - tolerance system for lengths - part 2: Table of degree of basic tolerances and limit deviations for drill holes and shafts (ISO 286-2:2010); German version EN ISO 286-2:2010
DIN EN ISO 4759 - 1	2001 - 04	Tolerances for fasteners - part 1: Screws and nuts; product classes A, B and C (ISO 4759-1:2000); German version EN ISO 4759-1:2000
DIN EN ISO 4759 - 3	2000 - 09	Tolerances for fasteners - part 3: Flat washers for screws and nuts; product classes A, B and C (ISO 4759-3:2000); German version EN ISO 4759-3:2000

Surfaces

Standard	Edition	Title
DIN 267 - 27	2009 - 09	Mechanical fasteners - part 27: Steel screws with adhesive coating, technical delivery conditions
DIN 267 - 28	2009 - 09	Mechanical fasteners - part 28: Steel screws with clamping coating, technical delivery conditions
DIN EN ISO 4042	2001 - 01	Fasteners - Galvanic coatings (ISO 4042:1999); German edition EN ISO 4042:1999
DIN EN ISO 16048	2003 - 06	Passivation of fasteners made of stainless steels (ISO 16048:2003); German version EN ISO 16048:2003

Surface defects

Standard	Edition	Title
DIN EN 26157 - 1	1991 - 12	Fasteners; surface defects; screws for general applications (ISO 6157-1:1998: 1988); German version EN 26157-1:1991
DIN EN 26157 - 3	1991 - 12	Fasteners; surface defects; screws for general applications (ISO 6157-3:1998: 1988); German version EN 26157-3:1991
DIN EN ISO 6157 - 2	2004 - 10	Fasteners - surface defects - part 2 Nuts (ISO 6157-2:1995); German edition EN ISO 6157-2:2004

The WASI stainless steel encyclopedia

Stainless steel main groups

The term "stainless steel" is a collective term for more than 120 different types of stainless steels. For many decades, a variety of different alloys were developed which offers the best properties for most diverse applications. These alloys have one characteristic in common: due to the chrome in the alloy they do not require any additional surface protection. This chrome component forms a colourless and transparent oxide layer on the surface that closes on its own with the assistance of oxygen contained in the air or water after surface damage. Stainless steels are summarised in DIN 17440 and DIN EN ISO 3506. Stainless steel alloys are basically divided into four main groups according to their crystalline structure:

Martensitic stainless steels

According to their structure, materials with 10.5–13.0% chrome and a carbon content of 0.2–1.0% are assigned to this group. Other elements can be added in the alloy. The ratio to carbon must permit heat treatment, the so-called annealing. This enables strength increases.

Ferritic stainless steels (so-called chromium steels)

These materials contain chrome percentages between 12–18% and have a very low carbon content of less than 0.2%. They cannot be hardened.

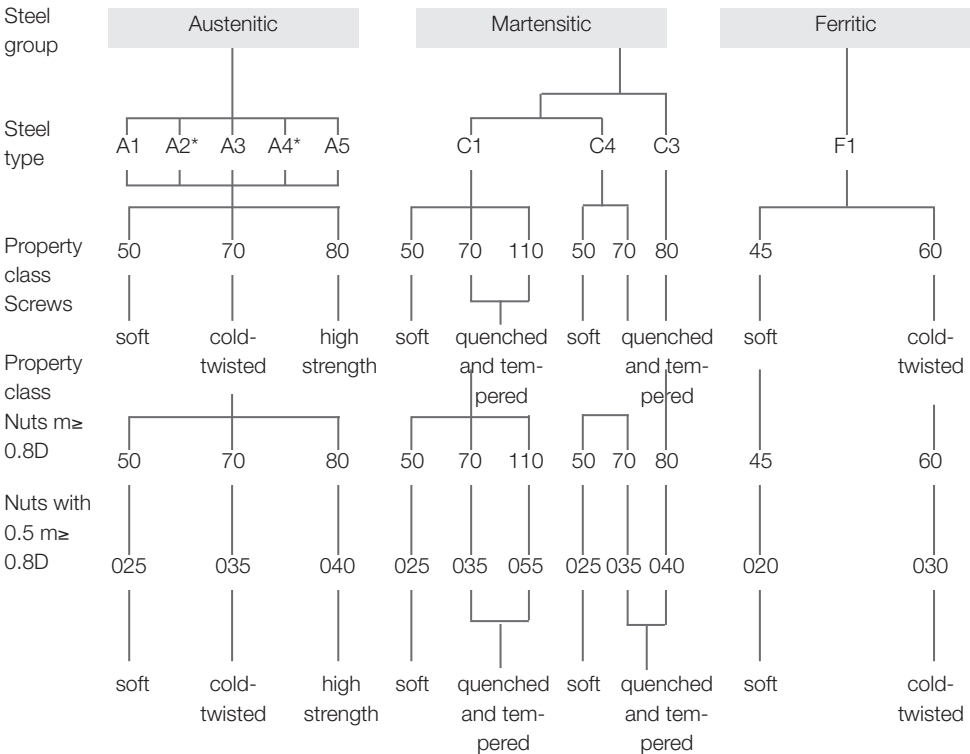
Austenitic stainless steels (so-called chromium-nickel / chromium-nickel-molybdenum steels)

The austenitic chromium-nickel steels offer a particularly cheap combination of workability, mechanical properties and corrosion resistance. They are recommended for many applications and are the most important group of stainless steels. The most important property of this steel group is the high corrosion resistance which improves with increasing alloying, particularly of chromium and molybdenum. A fine grained structure is needed for both – the ferritic and austenitic steels to achieve good technological properties. A final heat treatment with solution annealing at temperatures between 1000° C und 1150° C and subsequent water or air cooling is done to prevent the formation of precipitates. Unlike martensitic steels, austenitic steels cannot be hardened. The high strain capacity of austenitic steels guarantees good cold formability. The austenitic structure has a 15–26% chrome and 5–25% nickel content. An alloying addition of 2–6% molybdenum increases corrosion and acid resistance. This also includes so-called stabilised stainless steels that are alloyed with titanium or niobium. These elements prevent the formation of chromium carbides during welding.

Austenitic - ferritic stainless steels (known as DUPLEX - steels)

Duplex stainless steels, named after their two structure components, contain 18–25% chrome, 4–7% nickel and up to 4% molybdenum with an austenitic- martensitic structure.

Steel group / steel type / property class



*) *) Stainless steels with low carbon content (a maximum of 0.03%) can additionally be labeled with the letter "L" (for example: A4L - 80).

According to ISO 16048 passivated screws and nuts can additionally be labeled with a "P" (for example: A4-80P)

Labeling of non-corroding screws and nuts according to ISO 3506 parts 1 and 2 – status as of April 2010

Manufacturer's symbol

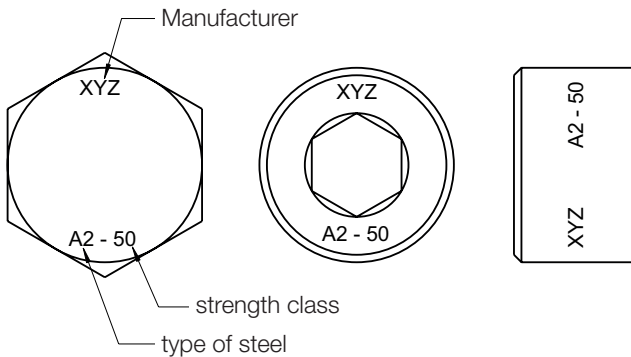
A manufacturer's symbol must be placed on all screws that are labelled with the strength class label during the manufacturing process.

Attaching a manufacturer's symbol is also recommended for screws that are not labelled with the strength class.

Labelling of hexagonal and cylinder screws according to ISO 3506-1

Hexagonal screws and cylinder screws with hexagon socket above a nominal diameter of M5 are to be clearly labelled according to the details below. Labelling is mandatory and must contain the type of steel and the strength class. As far as possible, this should be placed on the screw head.

Fig.: Excerpt from DIN EN ISO 3506-1



Labelling stud bolts

Stud bolts above a nominal diameter M6 must also be clearly labelled. The label is done on the non-threaded part and must contain the type of steel and the property class. If it is impossible to label this part of the screw, indicating steel type is permitted exclusively on the rounded end of the nut.

Labelling other screws

Other types of screws may, if possible and desired, also be labelled - however only on the head. Additionally other labels are permitted as far as they do not lead to confusion.

Countersunk head screws, button head screws and screws with flat cylinder heads do not fulfil the requirements of ISO 3506 for tensile and torsional strength due to their head geometries, where the shear area in the head is smaller in comparison to the tension cross-section in the thread. Such screws may be labelled with the type of steel, however not with the property class.

Manufacturer's symbol

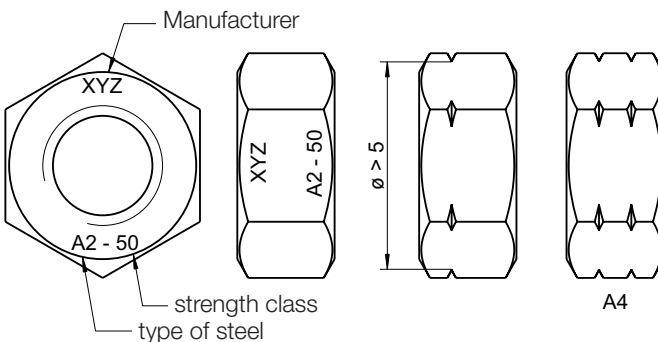
As far as technically possible, nuts must receive the manufacture's marking along with the property class. This marking is also recommended if the product class is not marked on the nut.

Labelling nuts according to DIN EN ISO 3506-2

Nuts with a nominal thread diameter above 5mm are to be labelled clearly according to the designation system. A label on only one contact surface is permitted and may only be placed as an indentation. A label can also be selectively placed on key surfaces. For nuts that are labelled with grooved and no property class is given, the lowest strength is based at a strength of 50 or 025.

Fig.: Excerpt from DIN EN ISO 3506-2

Nuts which do not fulfil the test strength due to their geometry or fine threads, may be labelled with the steel type, however not with a property class.



Material - definitions and comparisons - chemical compositions

The term "V2A" dates back to the year 1912 and described a product from the "2 austenitic series of tests". "V3A", "V4A" etc. was added to this later. Although these terms are today abbreviated to "A2", "A3", "A4" etc. and are generally used, these designations are not

Chromium steels

Designation	M. No.	AISI	ASTM - UNS	AFNOR	®trademark	C %	Si ≤ %
X 6 Cr 13	1.4000	410 S	S 41008	Z 8 C 12	-	≤ 0,08	1,0
X 6 CrAl 13	1.4002	405	S 40500	Z 8 CA 12	-	≤ 0,08	1,0
X 12 CrS13	1.4005	416	S 41600	Z 13 CF 13	-	0,08-0,15	1,0
X 12 Cr 13	1.4006	410	S 41000	Z 10 C 13	-	0,08-0,15	1,0
X 6 Cr 17	1.4016	430	S 43000	Z 8 C 17	-	≤ 0,08	1,0
X 20 Cr 13	1.4021	420	S 42000	Z 20 C 13	-	0,16-0,25	1,0
X 15 Cr 13	1.4024	420 S	J 91201	Z 15 C 13	-	0,12-0,17	1,0
X 30 Cr 13	1.4028	420	J 91153	Z 33 C 13	-	0,26-0,35	1,0
X 46 Cr 13	1.4034	-420	-	Z 44 C 14	-	0,43-0,50	1,0
X 19 CrNi 17,2	1.4057	431	S 43100	Z 15 CN 16,02	-	0,12-0,22	1,0
X14 CrMoS 17	1.4104	430 F	S 43020	Z 13 CF 17	-	0,10-0,17	1,0
X 90 CrMoV 18	1.4112	440 B	S 44003	Z 90 CDV 18	-	0,85-0,95	1,0
X 39 CrMo 17,1	1.4122	-	-	Z 38 CD 16,01	-	0,33-0,45	1,0
X 105 Cr Mo 17	1.4125	440 C	S 44004/ S 44025	Z 100 CD 17	-	0,95-1,20	1,0
X 5 CrTi 17	1.4510	430 Ti	S 43036/ S 43900	Z 4 CT 17	-	≤ 0,05	1,0
X 5 CrNiCuNb 16,4	1.4542	630	S 17400	Z 7 CNU 17.04	17.4 PH	≤ 0,07	0,7
X 7 CrNiAl 17,7	1.4568	631	S 17700	Z 9 CNA 17.07	17.7 PH	≤ 0,09	0,7

Chrome-nickel steels

Designation	M. No.	AISI	ASTM - UNS	AFNOR	®trademark	C %	Si ≤ %
X 5 CrNi 18.10	1.4301	304	S 30400	Z 6 CN 18.09		≤ 0,07	1,0
X 5 CrNi 18.12	1.4303	305	-	Z 8 CN 18.12		≤ 0,06	1,0
X 10CrNi S 18.9	1.4305	303	S 30300	Z 10 CNF 18.09		≤ 0,10	1,0
X 2CrNi 19.11	1.4306	304 L	S 30403	Z 3 CN 18. 10		≤ 0,03	1,0
X 12 CrNi 17.7	1.4310	301	S 30100	Z CN 18.08		0,05-0,15	2,0
X 2 CrNi 18.10	1.4311	304 LN	S 304543	Z 3 CN 18.10 Az		≤ 0,03	1,0
X 1 CrNi 25.21	1.4335	310 L	-	Z 1 CN 25.20	URANUS 65/ SS25L	≤ 0,02	0,25
X 1 CrNisi 18.15	1.4361	-	S 30600	Z 1 CNS 17.15	URANUS S1/ ANTINITE	≤ 0,015	3,7- 4,5
X6 CrNiTi 18.10	1.4541	321	S 32100	Z 6 CNT 18.10		≤ 0,08	1,0
X 6 CrNiNb 18.10	1.4550	347 (H)	S 34700	Z 6 CNNb 18.10		≤ 0,08	1,0

clear. There is a material numbering system valid in all over Europe today.

Please note that a 1 : 1 relationship does not exist between AISI or UNS and the material numbers according to EN 10088. So for example, the material AISI

304L is the equivalent of material number 1.4306 although it shows the similar properties to 1.4301 and 1.4541.

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	1,00	0,040	0,015	12,0-14,0	-	-	-	-
	1,00	0,040	0,015	12,0-14,0	-	-	-	Al 0,10-0,30
	1,50	0,040	0,15-0,35	12,0-14,0	≤ 0,6	-	-	-
	1,50	0,040	0,015	11,5-13,5	-	≤ 0,75	-	-
	1,00	0,040	0,015	16,0-18,0	-	-	-	-
	1,50	0,040	0,030	12,0-14,0	-	-	-	-
	1,00	0,045	0,030	12,0-14,0	-	-	-	-
	1,50	0,040	0,015	12,0-14,0	-	-	-	-
	1,00	0,040	0,015	12,5-14,5	-	-	-	-
	1,50	0,040	0,015	15,0-17,0	-	1,5-2,5	-	-
	1,50	0,040	0,15-0,35	15,5-17,5	0,2-0,6	-	-	-
	1,00	0,040	0,015	17,0-19,0	0,9-1,3	-	0,07-0,12	-
	1,50	0,040	0,015	15,5-17,5	0,8-1,3	≤ 1,0	-	-
	1,00	0,040	0,015	16,0-18,0	0,4-0,8	-	-	-
	1,00	0,040	0,015	16,0-18,0	-	-	-	Ti 4x % (C+N)+0,15-0,80
	1,50	0,040	0,015	15,0-17,0	≤ 0,6	3,0-5,0	-	Cu 3,00-5,00; Nb 5 x C ≤ 0,45
	1,00	0,040	0,015	16,0-18,0	-	6,5-7,8	-	Al 0.70-1.50

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	2,00	0,045	0,015	17,0-19,5	-	8,0-10,5	-	N ≤ 0,11
	2,00	0,045	0,015	17,0-19,0	-	11,0-13,0	-	N ≤ 0,11
	2,00	0,045	0,15-0,35	17,0-19,0	-	8,0-10,0	-	Cu ≤ 1,00; N ≤ 0,11
	2,00	0,045	0,015	18,0-20,0	-	10,0-12,0	-	N ≤ 0,11
	2,00	0,045	0,015	16,0-19,0	≤ 0,8	6,0-9,5	-	N ≤ 0,11
	2,00	0,045	0,015	17,0-19,5	-	8,5-11,5	-	N 0,12-0,22
	2,00	0,025	0,010	24,0-26,0	≤ 0,2	20,0-22,0	-	N ≤ 0,11
	2,00	0,025	0,010	16,5-18,5	≤ 0,2	14,0-16,0	-	N ≤ 0,11
	2,00	0,045	0,015	17,0-19,0	-	9,00-12,0	-	Ti (5 x % C)-0,70
	2,00	0,045	0,015	17,0-19,0	-	9,00-12,0	-	Nb 10 x % C ≤ 1,00

Chromium nickel molybdenum steels

Designation	M. No.	AISI	ASTM - UNS	AFNOR	@trademark	C %	Si ≤ %
X 5 CrNiMo 17.12.2	1.4401	316	S 31600	Z 7 CND 17.11.02		≤ 0,07	1,0
X 2 CrNiMo 17.13.2	1.4404	316 L	S 31603	Z 3 CND 18.12.2		≤ 0,03	1,0
X 2 Cr NiMoN 17.12.2	1.4406	316 LN	S 31653	Z 3 CND 17. 11Az		≤ 0,03	1,0
X 2 CrNiMoN 17.13.3	1.4429	316 LN (Mo+)	(S 31653)	Z 3 CND 17.12 Az		≤ 0,03	1,0
X 2 CrNiMo 18.14.3	1.4435	316 L (Mo+)	S 31609	Z 3 CND 18.14.03		≤ 0,03	1,0
X 5 CrNiMo 17.13.3	1.4436	316 (Mo)	-	Z 6 CND 18.12.03		≤ 0,05	1,0
X 2 CrNiMo 18.16.4	1.4438	317 L	S 31703	Z 3 CND 19.15.04		≤ 0,03	1,0
X 2 CrNiMoN 17.13.5	1.4439	317 LN	S 31726	Z 3 CND 18.14.05 Az		≤ 0,03	1,0
X 5 CrNiMo 17.13	1.4449	317		Z 6 CND 17.12.04			
X 1 CrNiMoN 25.25.2	1.4465	-	N 08310/ S31050	Z 2 CND 25.25 Az		≤ 0,02	0,7
X 1 CrNiMoN 25.22.2	1.4466	-	S 31050	Z 2 CND 25.22 Az		≤ 0,02	0,7
X 4 NiCrMoCuNb 20.18.2	1.4505	-		Z 5 NCDUNb 20.18		≤ 0,05	1,0
X 5 NiCrMoCuTi 20.18	1.4506	-		Z 5 NCDUT 20.18		≤ 0,07	1,0
X 5 NiCrMoCuN 25.20.6	1.4529	-	S31254 (+-)	-	(254SMO) 19.25 HMo	≤ 0,02	0,5
X 1 NiCrMoCu 25.20.5	1.4539	904 L	N 08904	Z 2 NCDU 25.20	URANUS B6/2 RK 65	≤ 0,02	0,7
X 1 NiCrMoCu 31.27.4	1.4563	-	N 08028	Z 1 NCDU 31.27.03	SANICRO 28	≤ 0,02	0,7
X 6 CrNiMoTi 17.12.2	1.4571	316 Ti	S 31635	Z 6 CNDT 17.12	-	≤ 0,08	1,0
X3 CrNiMoTi 25.25	1.4577			Z 5 CNDT 25.24		≤ 0,04	0,5
X6 CrNiMoNb 17.12.2	1.4580	316 Cb/Nb	C 31640	Z 6 CND Nb 17.12		≤ 0,08	1,0
X 10 CrNiMoNb 18.12	1.4582	318	-	Z 6 CNDNb 17.13	-	≤ 0,06	1,0

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	2,00	0,045	0,015	16,5-18,5	2,00-2,50	10,0-13,0	-	N ≤ 0,11
	2,00	0,045	0,015	16,5-18,5	2,00-2,50	10,0-13,0	-	N ≤ 0,11
	2,00	0,045	0,030	16,5-18,5	2,00-2,50	10,0-12,0	-	N 0,12-0,22
	2,00	0,045	0,015	16,5-18,5	2,50-3,00	11,0-14,0	-	N 0,12-0,22
	2,00	0,045	0,015	17,0-19,0	2,50-3,00	12,5-15,0	-	N ≤ 0,11
	2,00	0,045	0,015	16,5-18,5	2,50-3,00	10,5-13,0	-	N ≤ 0,11
	2,00	0,045	0,015	17,5-19,5	3,00-4,00	13,0-16,0	-	N ≤ 0,11
	2,00	0,045	0,015	16,5-18,5	4,00-5,00	12,5-14,5	-	N 0,12-0,22
	2,00	0,020	0,015	24,0-26,0	2,00-2,50	22,0-25,0	-	N 0.08-0.16
	2,00	0,025	0,010	24,0-26,0	2,00-2,50	21,0-23,0	-	N 0.10-0.16
	2,00	0,045	0,015	16,5-18,5	2,00-2,50	19,0-21,0	-	Cu 1,80-2,20; Nb 8x % C
	2,00	0,045	0,030	16,5-18,5	2,00-2,50	19,0-21,0	-	Cu 1,80-2,20; Ti 7 x % C
	1,00	0,030	0,010	19,0-21,0	6,00-7,00	24,0-26,0	-	N 0,15-0,25; Cu 0,50-1,50
	2,00	0,030	0,010	19,0-21,0	4,00-5,00	24,0-26,0	-	N ≤ 0,15; Cu 1,20-2,00
	2,00	0,030	0,010	26,0-28,0	3,00-4,00	30,0-32,0	-	Cu 0,70-1,50; N ≤ 0,11
	2,00	0,045	0,015	16,5-18,5	2,00-2,50	10,5-13,5	-	Ti 5 x % C ≤ 0,70
	2,00	0,030	0,015	24,0-26,0	2,00-2,50	24,0-26,0	-	Ti 10x % C ≤ 0,60
	2,00	0,045	0,015	16,5-18,5	2,00-2,50	10,5-13,5	-	Nb 10x% C ≤ 1,00
	2,00	0,045	0,030	24,0-26,0	1,30-2,00	6,50-7,50	-	Nb 10x % C

DUPLEX / SUPERDUPLEX steels

Designation	M. No.	AISI	ASTM - UNS	AFNOR	@trademark	C %	Si ≤ %
X 2 CrNiN 23.4	1.4362	-	S 32304/ S 39230	Z 3 CN 23.04 Az	URANUS 35N/ SAF 23.04	≤ 0,03	1,0
X 2 CrNiMoN 25.7.4	1.4410	-	S 31260/ S 39226	Z 3 CND 25.07 Az	URANUS 47N		
X 3 CrNiMoN 27.5.2	1.4460	329	S 32900	Z 5 CND 27.05 Az	SS44	≤ 0,05	1,0
X 2 CrNiMoN 22.5.3	1.4462	(329 LN)/F 51	S 31803/ S 39209	Z 3 CND 22.05 Az	URANUS 45N/ SAF 22.05	≤ 0,03	1,0
X 2 CrNiMoCuWN 25.7.4	1.4501	F 55	S 32760	-	ZERON 100	0,03	1,0
X 2 CrNiMoCuN 25.6.3	1.4507	-	S 32550/ S 32750	Z 3 CNDU 25.07 Az	URANUS 52N/ SAF 25.07	0,03	0,4
X 2 CrNiMnMoNbN 25.18.5.4	1.4565	-	S 24565	-	4565/DUPLEX + 6 Mo	≤ 0,03	1,0

Heat resistant steels 600° - 1200° C

Designation	M. No.	AISI	ASTM - UNS	AFNOR	@trademark	C %	Si ≤ %
X 10 CrAl 7	1.4713	-	-	Z 8 CA 7	SICROMAL 8	0,12	0,5-1,0
X 10 CrSiAl 13	1.4724	-	-	Z 13 C 13	SICROMAL 9	0,12	0,7-1,4
X 10 CrAl 18	1.4742	442	S 44200	Z 12 CAS 18	SICROMAL 10	0,12	0,7-1,4
X 18 CrN 28	1.4749	446	S 44600	Z 18 C 25	SICROMAL 11/4 C 54	0,15-0,20	1,00
X 10 CrAlSi 24	1.4762	-	-	Z 12 CAS 25	SICROMAL 12	0,12	0,7-1,4
X 20 CrNiSi 25.4	1.4821	327	-	Z 20 CNS 25.04	-	0,10-0,20	0,8-1,5
X 15 CrNiSi 20.12	1.4828	302 B/ 309	S 30215/ S30900	Z 17 CNS 20.12	-	0,20	1,5-2,5
X 6 CrNi 22.13	1.4833	309 (S)	S 30908	Z 15 CN 24.13	-	0,15	1,00
X 15 CrNiSi 25.20	1.4841	310/314	S 31000/ S31400	Z 15 CNS 25.20	-	0,20	1,5-2,5
X 12 CrNi 25.21	1.4845	310 (S)	S 31008	Z 8 CN 25.20	-	0,10	1,50
X 12 NiCrSi 35.16	1.4864	330	N 08330	Z 20 NCS 33.16	INCOLOY DS	0,15	1,0- 2,0
X 10 NiCrAlTi 32.20	1.4876	-	N 08800	Z 10 NC 32.21	INCOLOY 800 (H/HT)	0,04-0,10	1,0
X 12 CrNiTi 18.9	1.4878	321 H	S 32109	Z 6 CNT 18.12	-	0,10	1,0
X 8 CrNiSiN 21.11	1.4893	-	S 30815	-	253 MA	0,10	1,4-2,0
X 6 CrNiMo 17.13	1.4919	316 H	S 31609	Z 6 CND 17.12	-	0,04-0,10	0,75
X 6 CrNi 18.11	1.4948	304 H	S 30409	Z 6 CN 18.11	-	0,04-0,08	1,0
X 5 NiCrAlTi 31.20	1.4958	-	N 08810	Z 10 NC 32.21	INCOLOY 00 H	0,03-0,08	0,07
X 8 NiCrAlTi 31.21	1.4959	-	N 08811	-	INCOLOY 800 HT	0,05-0,10	0,7

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	2,00	0,035	0,015	22,0-24,0	0,10-0,60	3,50-5,50	-	Cu 0,10-0,60; N 0,05-0,20
	2,00	0,035	0,015	25,0-28,0	1,30-2,00	4,50-6,50	-	N 0.05-0.20
	2,00	0,035	0,015	21,0-23,0	2,50-3,50	4,50-6,50	-	N 0.10-0.22
	2,00			21,0-23,0	2,5-3,5	4,5-6,5		
	1,00			25,3	3,5	6,3		
	3,50-6,50	0,030	0,015	23,0-26,0	3,00-5,00	16,0-19,0	-	N 0,30-0,50; Nb ≤ 0,15

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	1,00	0,040	0,015	6,0-8,0				
	1,00	0,040	0,015	12,0-14,0				
	1,00	0,040	0,015	17,0-19,0				
	1,00	0,040	0,015	26,0-29,0		0,15-0,25		
	1,00	0,040	0,015	23,0-26,0				
	2,00	0,040	0,015	24,0-27,0		3,5-5,5		
	2,00	0,045	0,015	19,0-21,0		11,0-13,0		
	2,00			22,0-24,0		12,0-14,0		
	2,00	0,045	0,015	24,0-26,0		19,0-22,0		
	2,00	0,045	0,015	24,0-26,0		19,0-22,0		
	2,00	0,045	0,015	15,0-17,0		33,0-37,0		
	1,50	0,035	0,015	19,0-21,0		30,0-34,0		
	2,00	0,045	0,015	17,0-19,0		9,0-12,0		
	0,80	0,040	0,001	20,0-22,0		10,0-12,0		
	2,00	0,045	0,030	16,00-18,00				
	2,00	0,035	0,015	17,0-19,0		10,00-14,00		
	1,50	0,015	0,010	19,0-22,0		30,0-32,5		
	1,50	0,015	0,010	19,0-22,0		30,0-34,0		

Nickel + nickel alloys

Designation	M. No.	AISI	ASTM - UNS	AFNOR	@trademark	C %	Si ≤ %
Ni 99,2	2.4066	-	N 02200	Ni 99,2	NICKEL 200	0,10	0,25
LC - Ni 99	2.4068	-	N 02201	LC - Ni 99	NICKEL 201	0,02	0,20
NiCu 30 Fe	2.4360	-	N 04400	Nu 30	MONEL 400	0,15	0,50
NiCu 30 Al	2.4375	-	N 05500	Nu 30 AT	NICKEL K500	0,25	0,50
NiCr 21 Mo 14 W	2.4602	-	N 06022	-	HASTELLOY C22	0,01	0,08
NiCr 30 FeMo	2.4603	-	N 06030	-	HASTELLOY G30	0,03	0,80
NiCr 30 FeMo							
NiCr 23 Mo 16 Al		-					
NiCr 23 Mo 16 Al	2.4605	-	N 06059	-	ALLOY 59	0,01	0,10
NiMo 16 Cr 16 Ti	2.4610	-	N 06455	-	HASTELLOY C4	0,015	0,08
NiMo 28	2.4617	-	N 10665	-	HASTELLOY B2		
NiCr 22 Mo 6 Cu	2.4618	-	-	-	HASTELLOY G		
NiCr 22 Mo 7 Cu	2.4619	-	N 06985	-	HASTELLOY G3	0,015	1,50
NiCr 20 Ti	2.4630/ 2.4951	-	N 06075	NC 20 T	NIMONIC 75	0,08-0,15	1,00
NiCr 20 TiAl	2.4631/ 2.4952	-	N 07080	NC 20 TA	NIMONIC 80A	0,1	1,00
NiCr 20 Co 18 Ti	2.4632/ 2.4969	-	N 07090	NC 20 KTA	NIMONIC 90	0,13	1,00
NiCr 25 FeAl	2.4633	-	-	-	ALLOY 602 CA	0,15-0,25	0,50
NiCo 20 Cr 15 Mo Al Ti	2.4634	-	N13021	NCKD 20 ATV	NIMONIC 105	0,12-0,17	1,00
NiCr 29 Fe	2.4642	-	N 06690	NC 30 Fe	ALLOY 690	0,05	0,50
NiCr 20 CuMo	2.4660	-	N 08020	-	CARPENTER 20 Cb 3	0,07	1,00
NiCr 23 Co 12 Mo	2.4663	-	N 06617	NC 22 KDA	INCONEL 617	0,05-0,15	1,00
NiCr 22 Fe 18 Mo	2.4665/ 2.4603	-	N 06002	NC 22 FeD	HASTELLOY X		
NiCr 19 NbMo	2.4668	-	N 07718	NC 19 FeNb	INCONEL 718	0,08	0,35
NiCr 15 Fe 7 TiAl	2.4669	-	N 07750	NC 15 Fe 7 TA	INCONEL X - 750	0,08	0,50
CoCr 28	2.4778	-	-	-	UMCO 50	0,05-0,25	0,50- 1,50
NiCr 15 Fe	2.4816	-	N 06600	NC 15 Fe	INCONEL 600 8	0,05-0,10	0,50
NiMo 16 Cr 15 W	2.4819	-	N 10276	NiMo 16 Cr 15	HASTELLOY C 276	0,01	0,08
NiCr 23 Fe	2.4851	-	N 06601	NC 23 Fe	INCONEL 601	0,10	0,50
NiCr 22 Mo 9 Nb	2.4856	-	N 06625	NC 22 DNb	INCONEL 625	0,03-0,10	0,50
NiCr 21 Mo	2.4858	-	N 08825	NC 21 FeDU	INCOLOY 825	0,025	0,50

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	0,35		0,005			99,2		
	0,35			-	-	99,0		
	2,00		0,020			63,0		
	1,50		0,010			63,0		
	0,05	0,015	0,020	20,0-22,5	12,5-14,5	Rest	0,35	
	1,50	28,0-31,5	4,0-6,0	Rest				
	0,50	0,025	0,015	22,0-24,0	15,0-16,0	Bal		
	1,00	0,025	0,015	11,0-18,0	14,0-17,0	Rest		
	1,00	0,025	0,015	21,0-23,5	6,0-8,0	Rest		
	1,00			18,0-21,0		Rest		
	1,00		0,015	18,0-21,0		Rest		
	1,00		0,015	18,0-21,0		Rest		
	0,10	0,02	0,010	24,0-26,0	-	Bal		
	1,00	0,045	0,015	14-15,7	4,5-5,5	Rest		
	0,50		0,015	27,0-31,0		58,0		
	2,00	0,025	0,015	19,0-21,0	2,0-3,0	32,0-38,0		
	1,00		0,015	20,0-24,0	8,0-10,0	44,5		
	0,35	0,015	0,015	17,0-21,0	2,80-3,30	50,0-55,0		
	1,00		0,010	14,0-17,0		70,0		
	1,50	0,04	0,030	27,0-30,0	0,5	4,0		
	1,00	0,2	0,250	14,0-17,0		72,0		
	1,00			15,5	16	Rest		
	1,00	0,02	0,015	21,0-25,0		58,0-63,0		
	0,50	0,02	0,015	20,0-23,0	8,0-10,0	58,0		
	1,00	0,02	0,015	19,5-23,5	2,5-3,5	38,0-46,0	-	

Copper nickel materials

Designation	M. No.	AISI	ASTM - UNS	AFNOR	®trademark	C %	Si ≤ %
CuNi 10 Fe	2.0872		C 70600	CuNi 10 Fe 1 Mn	CUPRONICKEL 90/10		
CuNi 30 Fe	2.0882		C 71500	CuNi 30 Fe 1 Fe	CUPRONICKEL 70/30	0,06	-

Titanium materials

Designation	M. No.	AISI	ASTM - UNS	AFNOR	®trademark	C %	Si ≤ %
	3.7025	-	R 50250	T 35	GRADE I (1)	0,08	0,05
	3.7035	-	R 50400	T 40	GRADE II (2)	0,08	0,06
	3.7055	-	R 50550	T 50	GRADE III (3)	0,08	0,05
	3.7065	-	-	T 60	GRADE IV (4)	0,10	0,05
	3.7164/ 3.7165	-	-	TA 6 V	GRADE V (5)	0,08	0,05
Ti II Pb	3.7235	-	R 52400	-	GRADE VII (7)	0,08	0,03
Ti Pb	3.7225	-	R 52250	-	GRADE XI (11)	0,08	0,05

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	0,50	-	-	-	-	30,0		

	Mn ≤ %	P ≤ %	S ≤ %	Cr %	Mo %	Ni %	V %	Other
	0,01	0,200	0,100		0,4	Rest		
	0,01	0,250	0,200		0,4	Rest		
	0,02	0,250	0,350		0,4	Rest		
	0,01	0,350	0,350			Rest		
	0,02	0,200	0,130		0,4	Rest	3,5-4,5	
	0,01	0,250	0,120		0,4	Rest		
	0,01	0,200	0,120		0,4	Rest		

“Products, fasteners and components made of stainless steels“

Classification of types of steel according to property classes and corrosion resistance classes

Steel type 1)			Structure 2)	Property classes 3) and product forms 4)					Corrosion resistances classes 5) 6)
Run-ning no.	Designation	M. No.		S 235	S 275	S 355	S 460	S 690	
1	X2CrNi12	1.4003	F	B, Ba, H, P	D, H, S, W	D, S	D, S	-	I / low
2	X6Cr17	1.4016	AF	D, S, W	-	-	-	-	
3	X5CrNi18-10	1.4301	A	B, Ba, D, H, P, S, W	B, Ba, D, H, P, S	B, Ba, D, H, S	Ba, D, H, S	S	II / moderate
4	X2CrNi18-9	1.4307	A	B, Ba, D, H, P, S, W	B, Ba, D, H, P, S	Ba, D, H, S	Ba, D, S	S	
5	X3CrNiCu18-9-4	1.4567	A	D, S, W	D, S	D, S	D, S	-	
6	X6CrNiTi18-10	1.4541	A	B, Ba, D, H, P, S, W	B, Ba, D, H, P, S	Ba, D, H, S	Ba, D, H, S	-	
7	X2CrNiN18-7	1.4318	A	-	-	B, Ba, D, H, P, S	B, Ba, H	-	
8	X5CrNiMo17-12-2	1.4401	A	B, Ba, D, H, H, P, S	Ba, D, H, S	Ba, D, S	S	-	III / medium
9	X2CrNiMo17-12-2	1.4404	A	B, Ba, D, H, P, S, W	B, Ba, D, H, P, S	Ba, D, H, S	Ba, D, H, S	D, S	
10	X3CrNiCu-Mo17-11-3-2	1.4578	A	D, S, W	D, S	D, S	D, S	-	
11	X6CrNiMoTi17-12-2	1.4571	A	B, Ba, D, H, P, S, W	B, Ba, D, H, P, S	Ba, D, H, S	Ba, D, H, S	D, S	
12	X2CrNiHiMoN17-13-5	1.4439	A	-	B, Ba, D, H, S, W	-	-	-	
13	X2CrNiN23-4	1.4362	FA	-	-	-	B, Ba, D, S, W	D, S	
14	X2CrNiMN22-5-3	1.4462	FA	-	-	-	B, Ba, D, P, S, W	-	IV / strong
15	X1NiCrMoCu25-20-5	1.4539	A	B, Ba, D, H, P, S, W	B, Ba, D, P, S	D, P, S	D, S	D, S	
16	X2CrNiMnMoN-bN25-18-5-4	1.4565	A	-	-	-	B, Ba, D, S, W	-	
17	X1NiCrMo-CuN25-20-7	1.4529	A	-	B, D, S, W	B, D, H, P, S	D, P, S	D, S	
18	X1CrNiMo-CuN20-18-7	1.4547	A	-	B, Ba	B, Ba	-	-	

1) according to DIN EN 10088-1:2005-09

2) A = Austenite; F = Ferrite; FA = Ferrite-Austenite (Duplex)

3) The property classes following the relevant lowest property class are achieved by work hardening using cold forming.

4) B = sheet; Ba = belt and the ensuing completed sheets; D = wire, drawn; H = hollow profiles; P = profiles; S = bars; W = rolled wire

5) only the bare metallic surfaces are valid. There is hazard for non-precious metals with possible contact corrosion

6) required corrosion resistance classes see 3.7

Materials selection for atmospheric exposure

Impact	Exposure		Criteria and examples	Corrosion resistances class			
				I	II	III	IV
Humidity, annual average U of humidity	SF0	dry	$U < 60\%$	x			
	SF1	seldom humid	$60\% \leq U < 80\%$	x			
	SF2	frequently humid	$80\% \leq U < 95\%$	x			
	SF3	permanently humid	$95\% < U$		x		
Chloride content of the atmosphere, distance M from sea, distance S from busy streets with use of road salt	SC0	low	Country, city, $M > 10\text{km}$, $S > 0.1\text{km}$	x			
	SC1	medium	industrial area $10\text{km} \leq M < 1\text{km}$, $0.1\text{km} \leq S > 0.01\text{km}$		x		
	SC2	high	$M \leq 1\text{km}$ $S \leq 0.01\text{km}$			x ¹⁾	
	SC3	very high	swimming pools, road tunnels				x ²⁾
contamination due to redox-active materials (e.g. SO ₂ , HOCl, Cl ₂ , H ₂ O ₂)	SR0	low	Country, city	x			
	SR1	medium	Industry			x ¹⁾	
	SR2	high	swimming pools, road tunnels				x ²⁾
pH value at the surface	SH0	alkaline (e.g. contact with concrete)	$9 < \text{pH}$	x			
	SH1	neutral	$5 < \text{pH} \leq 9$	x			
	SH2	slightly acidic (e.g. contact with wood)	$3 < \text{pH} \leq 9$		x		
	SH3	acidic (acid contamination)	$\text{pH} \leq 3$			x	
Location of components	SL0	inside	heated and non-heated interior spaces	x			
	SL1	exterior, open to rain	open air constructions		x ³⁾		
	SL2	exterior, covered	covered constructions		x ³⁾		
	SL3	outside, no access 4), ambient air has access	ventilated facades			x	

1) With regular cleaning of accessible constructions or direct cleaning, corrosion impact is significantly reduced so that the CRC can be minimised. For possible concentrations of materials on surfaces, the CRC must be selected from a higher level.

2) With regular cleaning of accessible constructions, the corrossions impact can be significantly reduced so that a reduction of the CRC is possible.

3) By limiting the lifetime to 20 years, a reduction of the CRC is possible, if a pitting corrosion of 100 µ is tolerated (no optical requirements)

4) Constructions are designated as non-accessible if their condition cannot be inspected or can only be inspected under difficult conditions and can only be reconstructed with huge efforts after a fire.

Fastener properties

Mechanical properties of fasteners - austenitic steel types

Excerpt from DIN EN ISO 3506-1:2010

Steel group	Steel type	Property class	Screws		
			Tensile strength Rm ^a min. MPa	0.2% yield strength Rp0.2 ^a min. MPa	Fracture elongation A ^b min. mm
Austenitic	A1, A2, A3, A4 and A5	50	500	210	0,6 d
		70	700	450	0.4 d
		80	800	600	0.3 d

a The tensile strength is calculate in relation to the strain cross-section (see DIN ISO 3506-1)

b The ultimate elongation is determined according to 7.2.4 on the relevant screw length and not on turned samples d is the nominal diameter.

Yield strength loads for screws with shafts

Reduced hardening capability created a higher yield strength for chromium nickel steels exclusively by strain hardening during cold forming e.g. thread rolling. The yield strength load of the following tables was calculated for you, based on DIN EN ISO 3506.

For standard metric threads

Thread	Stress area	Yield strength load for A2 and A4 in N		
		Strength 50	Strength 70	Strength 80
M 1.6	1,27	266,7	571,5	762
M 2	2,07	434,7	931,5	1242
M 2.5	3,39	711,9	1525,5	2034
M 3	5,03	1056,3	2263,5	3018
M 4	8,78	1843,8	3951	5268
M 5	14,2	2982	6390	8520
M 6	20,1	4221	9045	12060
M 8	36,6	7686	16470	21960
M 10	58	12180	26100	34800
M 12	84,3	17703	37935	50580
M 14	115	24150	51750	69000
M 16	157	32970	70650	94200
M 18	192	40320	86400	115200
M 20	245	51450	110250	147000
M 22	303	63630	136350	181800
M 24	353	74130	158850	211800
M 27	459	96390	206550	275400
M 30	561	117810	252450	336600
M 33	694	145740	312300	416400
M 36	817	171570	367650	490200
M 39	976	204960	439200	585600

For fine metric threads

Thread	Stress area	Yield strength load for A2 and A4 in N		
		Strength 50	Strength 70	Strength 80
M 10x1	64,5	13545	29025	38700
M 10x1,25	61,2	12852	27540	36720
M 12x1,25	92,1	19341	41445	55260
M 12x1,5	88,1	18501	39645	52860
M 14x1,5	125	26250	56250	75000
M 16x1,5	167	35070	75150	100200
M 18x1,5	216	45360	97200	129600
M 20x1,5	272	57120	122400	163200
M 22x1,5	333	69930	149850	199800
M 24x2	384	80640	172800	230400
M 27x2	496	104160	223200	297600
M 30x2	621	130410	279450	372600
M 33x2	761	159810	342450	456600
M 36x3	865	181650	389250	519000
M 39x3	1030	216300	463500	618000

Minimum fracture torque, MF min, for screws made of austenitic steel with M1.6 to M16 threads (standard threads)
(Excerpt from DIN EN ISO 3506-1)

Thread	Breaking torque, F_T min. Nm Property class		
	50	70	80
M 1.6	0,15	0,2	0,24
M 2	0,3	0,4	0,48
M 2.5	0,6	0,9	0,96
M 3	1,1	1,6	1,8
M 4	2,7	3,8	4,3
M 5	5,5	7,8	8,8
M 6	9,3	13	15
M 8	23	32	37
M 10	46	65	74
M 12	80	110	130
M 16	210	290	330

The minimum fracture torque for fasteners made of martensitic and ferritic steels must be agreed upon between manufacturer and user.

Prestressing forces / tightening torques (standard metric thread) for headless screws of property classes 50 / 70 / 80 for a 90% use of the elongation limit Rp0.2.

The data do not consider safety and assume knowledge of the construction criteria.

Thread	µges.	Preload force FM (kN) Property class			Tightening torque MA (Nm) Property class		
		50	70	80	50	70	80
M 1.6	0,1	0,21	0,45	0,6	0,05	0,11	0,15
	0,2	0,18	0,39	0,5	0,08	0,17	0,22
	0,3	0,15	0,33	0,44	0,09	0,2	0,27
M 2	0,1	0,35	0,74	1	0,1	0,23	0,3
	0,2	0,3	0,64	0,85	0,16	0,35	0,46
	0,3	0,25	0,55	0,07	0,2	0,43	0,57
M 2.5	0,1	0,58	1,23	1,6	0,22	0,46	0,62
	0,2	0,5	1,06	1,4	0,34	0,72	0,97
	0,3	0,42	0,9	1,2	0,42	0,89	1,19
M 3	0,1	0,86	1,84	2,5	0,37	0,8	1,1
	0,2	0,75	1,6	2	0,59	1,25	1,7
	0,3	0,3	1,35	1,8	0,73	1,55	2,1
M 4	0,1	1,5	3,2	4,2	0,86	1,85	2,4
	0,2	1,3	2,7	3,6	1,35	2,9	3,8
	0,3	1,1	2,3	3,1	1,66	3,6	4,7
M 5	0,1	2,4	5,2	6,9	1,6	3,6	4,8
	0,2	2,1	4,5	6	2,6	5,7	7,6
	0,3	1,8	3,8	5,1	3,3	7	9,4
M 6	0,1	3,4	7,3	9,7	2,9	6,3	8,4
	0,2	3	6,4	8,4	4,6	10	13,2
	0,3	2,5	5,5	7,2	5,7	12	16,3
M 8	0,1	6,2	13,4	17,9	7,1	15	20
	0,2	5,4	11,6	15,5	11,2	24	32
	0,3	4,6	9,9	13,3	13,9	30	40
M10	0,1	9,9	21,3	28,4	14	30	39
	0,2	8,6	18,6	24,7	22,2	47,7	63
	0,3	7,4	15,8	21	27,6	59,3	79
M 12	0,1	14,4	31	41,4	24	51	68
	0,2	12,6	27	36	38	82	109
	0,3	10,7	23	30,8	47	102	136
M14	0,1	19,8	42,6	56,8	38	82	109
	0,2	17,3	37	49,5	61	131	175
	0,3	14,8	31,7	42,3	76	163	217
M16	0,1	27,2	59	77,7	58	126	168
	0,2	23,7	51	67,9	95	204	272
	0,3	20,3	43,5	58,2	119	255	340

Thread	µges.	Preload force FM (kN) Property class			Tightening torque MA (Nm) Property class		
		50	70	80	50	70	80
M18	0,1	33,2	71	94	82	176	235
	0,2	28,9	62	82	131	282	376
	0,3	24,7	53	10	164	352	469
M 20	0,1	42,5	91	121	115	247	330
	0,2	37,1	79	106	187	401	534
	0,3	31,8	68	90	234	501	669
M 22	0,1	52,9	113	151	157	337	450
	0,2	46,3	99	132	257	551	735
	0,3	39,7	85	114	323	692	923
M 24	0,1	61,2	131	175	198	426	568
	0,2	53,5	115	153	322	690	920
	0,3	45,8	98	131	403	863	1151
M 27	0,1	80,2			292		
	0,2	70,3			498		
	0,3	60,3			601		
M30	0,1	97,6			397		
	0,2	85,5			648		
	0,3	73,3			831		
M33	0,1	121			536		
	0,2	106			880		
	0,3	91			1108		
M36	0,1	143			690		
	0,2	125			1130		
	0,3	107			1420		

Guidelines for tightening torques of fasteners with hexagon sockets and hexalobular sockets for A2-70/A4-70

Thread	DIN 6912	DIN 7984	DIN 7991	DIN 7380	DIN 913-DIN 916
M 3		0,6	0,5	0,5	0,2
M 4	1	1,2	1	1	0,5
M 5	4	2,5	2,5	2	1,5
M 6	5	5	4,5	4	2,5
M 8	12	7	8	6	5
M 10	24	21	20	15	10
M 12	40	30	33	20	22
M 16	110	66	55		45
M 20	170	120	75		70
M 24		235	200		110

Physical properties

The physical properties of some selected steel types are presented in the following table for comparison. Consider the higher thermal expansion and the lower thermal conductivity of austenitic steels. Their electrical resistance is higher than non-alloyed steels due to the alloy content. An important differentiating characteristic between ferritic/martensitic chromium steels and chromium nickel steels is their magnetisability. In

comparison to magnetisable chromium steels, austenitic steels show an extensively non-magnetisable behaviour in solution annealed state. Cold forming can lead to a structural change in austenitic steels so that limited magnetisability is subsequently present. The nickel content influences the magnetisability of austenitic stainless steel significantly, so that magnetisability even in cold formed condition can largely be prevented with higher nickel contents.

Steel type		Modulus of elasticity at 20 °C	Thermal expansion between 20 °C and		Thermal conductivity at 20 °C	Specific thermal capacity at 20 °C	Electrical resistance at 20 °C"	magnetisable
			100°C	400 °C				
M. No.	Designation	kN/mm ²	10 ⁻⁶ /K	10 ⁻⁶ /K	W/m*K	J/kg*K	Ω*mm ² /m	
1.4305	X8CrNiS 18-9	220	10,4	11,6	25	430	0,60	yes
1.4301	X5CrNi 18-10	200	16,0	17,5	15	500	0,73	no 1)
1.4541	X6CrNi-Ti18-10	200	16,0	17,5	15	500	0,73	no 1)
1.4401	X5CrNi-Mo17-12-2	200	16,0	17,5	15	500	0,75	no 1)
1.4404	X2CrNi-Mo17-12-2	200	16,0	17,5	15	500	0,75	no 1)
1.4571	X6CrNiMo-Ti17-12-2	200	16,5	16,5	15	500	0,75	no 1)
1.4122	X35CrMo17	200	13,0	300 °C 14,0	15	500	0,80	yes

1) Small ferrite and/or martensite content resulting from cold forming increases the magnetisability

Chemical screw lock (gluing - clamping - sealing)

These products are offered either as liquid glue layers (with anaerobic hardening) or as pre-layers. The latter has the advantage that the layer must not be put on manually during assembly, but process-reliably onto the fasteners before delivery. This is also possible for bulk goods.

Chemical thread locks as a pre-layer are recommended for a reliable process. These can be divided into a glued and clamped thread lock:

DIN 267 part 27 - Adhesive coating

Microencapsulated adhesives: During screw-in, microcapsules are destroyed by pressure and/or shearing. Glue contained in the capsules is released. Contact with the hardener results in a chemical reaction (polymerisation), the glue hardens (adhesive bonding) and the desired locking effect occurs. Different hardening times must be observed depending on the product (effectiveness of the glue locking).

DIN 267 part 28 - Lock coating

Clamping thread lock media: A polyamide layer is placed on a thread section. A clamping effect is created during screw-in. The axial play between screw and nut thread is filled by the coating and this creates additional increase surface pressing to the opposite, uncoated thread edges. The desired locking effect takes place. Captive screw locks cannot prevent partial loosening of the screw, but can prevent a complete falling apart of the screw connection.

The first two till three thread pitches should be free of coating material to facilitate screwing in. Thread locking may be done as interior coating (nuts) as well as exterior coating (bolts). At the same time the coating, depending on the product, can be used on different materials and surfaces. Different temperature resistances of products must be observed. Chemical thread locks can provide an additional sealing function. Please note that the coating is placed "all around" and that additional requirements are defined.

FAQs

Can stainless steel corrode?

Basic pre-requisite for the creation of optimum corrosion resistance is a completely clean metallic surface. Stainless steels excel in their particular resistance against chemically aggressive, aqueous media. They generally have a mass fraction of the element chrome (Cr) of at least 12% and a mass fraction of the element carbon (C) of at most 1.2%.

The high corrosion resistance of stainless steels is due to their ability to form a so-called passive layer on the surface. This is a chrome rich metal oxide or metal oxide hydrate layer that separates the metal from the aggressive medium. The passive layer of a stainless steel is not something that cannot be changed, but instead creates an equilibrium between its composition and in its arrangement with the ambient medium over time. After mechanical damage of the metal surface, a new passive layer is generally formed independently. If a medium cannot create a sufficient passive layer, or if the existing passive layer is broken or completely destroyed chemically, corrosion damage may occur. The decisive alloying element for the capability of passive layer creation is chrome. Increasing the chrome content and adding other alloying elements such as molybdenum (Mo) increases the resistance for significantly more aggressive implementation conditions. Passivation is only effective for solute metal content of alloying elements. The corresponding corrosion resistance for this reason shows an augmentations-free matrix that is not depleted by the precipitation or the formation of intermetallic phases such as chrome or molybdenum. Stainless steels can be subject to wear surface corrosion and different forms of local corrosion. Wear surface corrosion is to be expected primarily in case of contact with acids and strong bases. In practice however, mostly different forms of local corrosion are more important.

What does extraneous rust mean?

Extraneous rust is understood to be the accumulation of iron oxide particles (rust) that can move to their rust-free surfaces in case of contact (wear) with non-stainless steels (even in bare versions). In correlation with humidity/condensate and environmental influences, so-called extraneous rust layer can occur. Extraneous rust happens with non-separated storage and processing of "black" and "white" steel, but it can be caused by tool wear. Extraneous rust is a purely visual problem and can be easily remedied with a fleece or an eraser.

What does stress corrosion cracking mean?

Media with components with specific effects, in particular chloride ions, can lead to a corrosive attack with crack-formation of stainless steels under simultaneous tensile stress influences, even if the steel without mechanical wear is sufficiently resistant to the medium. This appearance of stress corrosion cracking can be triggered by more than externally applied operation limited tensile stresses. Frequently the cause is rather related to internal stresses that are introduced during processing such as, during welding, grinding or cold forming. The danger of chloride-induced stress corrosion increases, as in the pitting and crevice corrosion with increasing temperature and chloride concentration. In terms of material, other determining factors have influence. Austenitic steels of the types 18/10 - CrNi and 18/10/2 - CrNiMo are particularly threatened by chlorine induced stress corrosion cracking at temperatures above 50 °C. However, by increasing the molybdenum and particularly the nickel content, resistance can be significantly increased. Even ferritic, ferritic-austenitic and stainless steels are comparatively less sensitive.

How does vibration corrosion happen?

The vibration strength of all stainless steels is more or less lowered by additional chemical attacks. The reduction of vibration strength depends on the attacking media and the number of axes of the occurring changing loads.

When does contact corrosion occur?

The possibility of contact corrosion exists when two metals with different free corrosion potentials are electrically connected to each other in a corrosive medium. The metal with the lower free corrosion potential can be polarised at least to higher potentials and thus be more susceptible to attacks. Even for large differences between the free corrosion potentials of the involved metals, contact corrosion does not necessarily appear. This depends on the electrochemical behaviour of both metals.

The conductivity of the medium and the surface behaviour of the participating metals are also important. If the "less precious" metal has a much larger surface than the "precious" metal and the corrosive medium has a high conductivity, the danger of corrosion damage is less. However, contact between a "non-precious" metal with a small surface and a "precious" metal with a larger surface is to be avoided. Stainless steels generally have a high free corrosion potential and are thus hardly subject to an increased contact corrosion hazard. It happens significantly more often that contact corrosion occurs for other metals with lower free corrosion potential when connected with a stainless steel.

What causes pitting and crevice corrosion?

Pitting and crevice corrosion is in practice mostly caused by contact with chloride ions. The more rarely occurring halides bromide and iodine can also be triggers. Pitting corrosion is introduced by the interaction between halogenide ions and the passive layer, whereby the passive layer is completely broken through. Needle-like crevices form. As they expand, pitted areas with different shapes occur.

The danger of pitting corrosion increased with increasing concentrations of halogenide ions, higher temperatures and increasing the electrochemical potential of the steel. Crevice corrosion occurs in crevices where fluidic exchange with the environment is limited. Such crevices are construction or operation related and occur e.g. in flanges, on pipe scrap marks, under seals, screw heads or also under incrustation. The corrosion mechanism is much the same as pitting corrosion.

Additional influencing factors are the crevice geometry and the type of crevice formation materials. Crevice corrosion occurs under considerably lower corrosion loads than pitting corrosion and should be prevented as much as possible in chlorine containing media by design measures. For homogeneous alloying element distribution the pitting and crevice corrosion resistance of a stainless steel can be approximately estimated by the sum "W": $W = \% \text{Cr} + 3.3 \times \% \text{Mo} + 30 \times \% \text{N}$ or $W = \% \text{Cr} + 3.3 \times \% \text{Mo}$ The influence of the alloying element nitrogen is however more complex than this relationship expresses. The high effectiveness expressed with factor 30 is completely meaningful only for highly-alloyed steels with an increased molybdenum content. Non-metallic impurities, above all sulphide precipitates, support pitting and crevice corrosion if they are on surfaces. The smoothest possible surface can be an advantage that further impedes the adherence of deposits that could lead to crevice corrosion. High pitting and crevice corrosion resistance is achieved only with seamless surface properties e.g. on a bare metallic surface. For this reason, discolouration and scaling after welding, foreign metal wear, extraneous rust, grinding agent residue and the like are to be thoroughly removed.

What does "intercrystalline" corrosion mean?

Intercrystalline corrosion is an attack along the so-called grain boundaries, during which the grains themselves are not or hardly removed. Attack of the grain boundaries can occur to an extent that individual grains of material are removed from the grain matrix causing the structure to lose its integrity. The cause of intercrystalline corrosion for stainless steels are precipitates from chromium rich carbides at the grain boundaries that create chrome depletion in the boundary areas.

The zones of low chromium content are not resistant enough to most aggressive media and can quickly go into solution. The chromium carbide precipitates require a specific carbon content and occur in temperature ranges between 500° C and 800° C, such as e.g. during heat treatment or welding processes. To prevent a chromium carbide precipitate, one can lower the carbon content of a stainless steel to below 0.03% or bind the available carbon using so-called stabilising elements such as titanium (Ti) or niobium (Nb) that have a greater affinity for carbon than chrome. If chromium carbides have occurred, these can be dissolved again by exposure to solution annealing above 1050° C.

For unstabilised ferritic steels, an existing susceptibility to intercrystalline corrosion can be removed by annealing between 800° C - 885° C. For this, rediffusion of chrome from inside the grain can remove the chrome depletion in the grain boundary areas.

Why did the screw and nut get "jammed"?

The source of seizing with the nut is often screwing at too high speed. This can occur by using a power screwdriver with torque and speed that are too high during screwing. A max. turning speed of 25 rpm is recommended when using a power screwdriver. To prevent jamming, lubrication layers such as Gleitmo are used to reduce or eliminate friction.

Compatibility with other materials

In practical use, there is often a need to combine stainless steels with different metallic materials in one component. Electrically conductive connections of these materials with each other and the presence of a conductive medium cause a corrosion reaction that may lead to damage due to contact corrosion. According to DIN 50 900 part 1, contact corrosion is an "accelerated corrosion" of a metallic area that can be traced to a corrosion element, consisting of the pairing of a metal/metal or metal/electron-conductive body with different free corrosion potentials. The accelerated corroding metallic area is the anode of the corrosion element hereby.

The corrosion occurring during contact corrosion is often equal or unequal surface wear. Surface wear, or loss of mass of the "less precious" partner in this combination depends on the size of the element current flowing ("potential difference current") and the degree of the internal corrosion for the mixing potential existing in the metal combination. The element current is a complex factor that depends on the geometrical arrangement, the size of the electrode surfaces in contact with the medium, the resting potentials and the polarisation resistances of the partners as well as the electrolyte resistance of the medium. For the evaluation of the corrosion danger of the non-precious partner in a material combination, the height of the potential difference (potential difference) between the connected materials is not responsible, but rather the characteristic of the half current density curves of both materials in the aggressive media.

The corrosion current density (element current) and therefore the contact corrosion attack can change in the order of several magnitudes for the same potential difference depending on the characteristics of the anodic and cathodic half current density curves. Decisive is whether the anodic or cathodic reactions are impeded or not by e.g. cover layers created. If detrimental surface conditions (large cathode / small anode) are present in a well conducting corrosive medium then contact corrosion can lead to corrosion damage. Thus, the basic theory of the electrochemical series and also practical electrochemical series is unsuitable for estimating the danger of materials for conductive contact with each other in practice. Determining the danger of a material combination exactly requires corrosion experiments according to DIN 50 919.

Overview of chemical resistance of A2 and A4

Aggressive media (substance)	Concentration	Temperature in °C	Degree of resistance	
			A2	A4
Acetone	all	all	A	A
Ethyl ether	-	all	A	A
Ethyl alcohol (ethanol)	all	20	A	A
Formic acid	10%	20 boiling	A C	A B
Ammonia	all	50	A	A
Petrol of all types	-	all	A	A
Benzoic acid	all	all	A	A
Benzene	-	all	A	A
Beer	-	all	A	A
Cyanide	-	20	A	A
Blood	-	20	A-L	A
Binder solution	-	98	A	A
Chlorine: Dry gas	-	20	A	A
Humid gas	-	all	D-L	D-L
Chloroform	all	all	A	A
Chromic acid	10% pure 50% pure	20 boiling 20 boiling	A B B C	A B B C
Developer (photogr.)	-	20	A	A
Acetic acid	10%	20 boiling	A A	A A
Fatty acid	technical	150 180 200 - 235	A B B	A A A
Fruit juices	-	all	A	A
Tannic acid	all	all	A	A
Glycerin	Conc.	all	A	A
Industrial air	-	-	A	A
Potassium permanganate	-	20 boiling	A B	A A
Whitewash	-	all	A	A
Carbon dioxide	-	-	A	A
Copper acetate	-	all	A	A
Copper nitrate	-	-	A	A
Copper sulfate	all	all	A	A
Magnesium sulphate	-	all	A	A
Seawater	-	20	A	A
Methyl alcohol	all	all	A-L	A-L
Lactic acid	2 % 10 %	all 20 boiling	A A B	A A A
Sodium carbonate	all	20	A	A

Aggressive media (substance)	Concentration	Temperature in °C	Degree of resistance	
			A2	A4
Sodium hydroxide	25 %	20	A	A
	50%	boiling boiling	B B	B B
Sodium nitrate	-	all	A	A
Sodium perchlorate	10%	all	A	A
Sodium sulphate	cold saturated	all	A	A
Fruit	-	-	A	A
Oils (mineral and plant)	-	all	A	A
Oxalic acid	10 %	20	B	A
	50 %	boiling boiling	C D	C C
Petroleum	-	all	A	A
Phenol	pure	boiling	B	A
Phosphoric acid	10%	boiling	A	A
	45%	20	A	A
	80%	boiling	C	B
		20	B	A
Conc.	boiling	D	C	
	20	B	A	
boiling	D	D		
Mercury	-	to 50	A	A
Mercury nitrate	-	all	A	A
Salicylic acid	-	20	A	A
Nitric acid	to 40%	all	A	A
	50%	20	A	A
	99%	boiling	B	B
20		B	C	
boiling	C	C		
Hydrochloric acid	0,5 %	20	B-L	B-L
		boiling	D-L	D-L
Sulfuric acid	1 %	to 70	B	A
	2,5 %	boiling	B	B
		to 70	B	A
	5 %	boiling	C	C
		20	B	A
10 %	70	B	B	
60 %	20	C	B	
	70	C	C	
all	D	D		
Sulfurous acid	Aqueous solution	20	A	A
Sulfur dioxide	-	100 - 500	B	B
		900	D	C
Tar	-	hot	A	A
Wine	-	20 and hot	A	A
Tartaric acid	10 %	20	A	A
		boiling	A	A
		20	A	A
boiling	C	B		
Lemon juice	-	20	A	A
Citric acid	10 %-50%	20	A	A
	25 %	boiling	C	A
	50 %	boiling	C	B
Sugar solution	-	all	A	A

Classification of degrees of resistance in different groups

Resistance	Evaluation	Substance loss in g/m ² h
A	resistant to surface corrosion	< 0,1
B	little attack	0,1 - 1,0
C	poor resistance	1,0 - 10
D	not resistance	> 10
L	Danger of pitting, crevice and stress corrosion cracking	

WASI General Terms and Conditions of Business

1. Exclusive validity and recognition of our Terms and Conditions of Business

1.1 All our offers are based on our general Terms and Conditions of Business. We take purchase orders exclusively on these Terms and Conditions of Business. We reject the validity of any and all general Terms and Conditions of Business of our contractual parties.

1.2 With the ordering or the acceptance of deliveries, the Orderer recognises the validity of our general Terms and Conditions of Business not only for that transaction, but also for all future transactions.

2. Offers – Side agreements – Contractual subject matter

2.1 Our offers are subject to confirmation in the sense that a contract is only concluded if we accept the purchase order.

2.2 Side agreements for our offers and order confirmations require our written confirmation to be valid.

2.3 On conclusion of consecutive delivery on sale, call-offs for delivery of goods ordered and type classification for approximately equal monthly amounts are to be given to us. If the Orderer does not call off or classify in due time, we shall, after having set a grace period to no avail, be entitled to classify ourselves and deliver the goods or, at our choice, rescind the part of the contract which is still outstanding or demand compensatory damages due to non-performance.

2.4 Subject to compliance with the relevant statutory regulations, we shall be entitled to process all data protected by law relating to the Orderer.

3. Quality of the goods

3.1 Images, drawings, weights and dimensions contained in catalogues, price lists or other printed material constitute approximate data as are custom in the industry. We reserve the right to make structural and material deviations that are technically required or urgently required by the design, insofar as such changes are reasonable for the Orderer with consideration to the intended purpose of the goods.

3.2 We reserve the right to over-deliver or under-deliver by up to 10 %.

3.3 Inspection and approval certificates will be provided only upon request and at extra cost.

4. Reservation of the right to rescind

4.1 We are entitled to withdraw from the contract if its fulfillment meets with technical difficulties that are insurmountable or would require a disproportionate effort to surmount in comparison to the value of the items to be delivered, or if we become aware of circumstances that cast doubt on the credit-worthiness of the Orderer.

4.2 Instances of Force Majeure shall also entitle us to withdraw from the contract. Force majeure shall include strikes, lock-outs, and similar events.

5. Prices

5.1 Our prices are quoted for delivery ex works and do not include VAT, packaging, customs, incidental import charges and insurance.

5.2 We reserve the right to subsequent billings in the event that alloy surcharges change after contract conclusion and before delivery.

5.3 The minimum order value amounts to 100.00 (€) net in the case of purchase of full packaging units.

6. Terms of delivery

6.1 Terms of delivery are only to be deemed as approximately agreed upon. If delivery is delayed by circumstances beyond our control, particularly by Force Majeure, interference by public authority, industrial action, difficulties in materials procurement, production disruptions, specific wishes of the Orderer and the like, the delivery term shall be extended for the duration of the hindrance. This also applies to delays that occur because we receive deliveries either incorrectly or not in time though no fault of our own. A hindrance that exceeds a duration of six weeks and whose end is impossible to predict entitles the Orderer and us to withdraw from the contract insofar as it cannot be fulfilled by us due to the hindrance.

6.2 The Orderer shall not be entitled to damages if the time of delivery has been exceeded or delayed, unless failure to meet a deadline is not based on intent or gross negligence of our management or one of our employees.

7. Defect Liability

7.1 We will in no case guarantee that ordered goods are suitable for the purpose intended by the Orderer or that they can be used or processed under the conditions given at the Orderer's premises or those at the premises of its customers. The Orderer is in fact obli-

gated to test this prior to use or processing. We are not liable for mistakes resulting from the documents submitted by the Orderer (drawings, samples and the like).

7.2 Any defect-related complaints have to be made in writing. Defects of one part of the delivered goods do not entitle the Orderer to object to the entire delivery. If such a notification of defects is duly substantiated, we will deliver replacement goods that are free from defects. The Orderer shall return the goods objected to upon demand at our cost. In this case, there is an entitlement for replacement delivery only after we have received the returned goods. In place of delivery of replacement goods, we may also choose to rework the defective goods, change the contract with regard to the defective goods or reduce the purchase price. The Orderer may set a term of ten days for us to exercise this right of choice, starting from the date of our receipt of the defective goods at the earliest. If we do not exercise this right of choice within this deadline, it shall be passed to the Orderer.

7.3 We shall only be liable for possible damages only in the event of intent or gross negligence of an employee or an agent. Damages will in these cases also be limited to damages that are predictable and typical to the subject matter of the contract. We are not liable for damages to any other objects of legal protection of the Orderer caused by the delivered item. Excluded from the above is the liability for damage arising from injury to life, limb or health, which can be attributed to negligent breach of duty by us or negligent breach of duty by one of our representatives or agents.

7.4 The limitation period for claims and rights on account of possible defects amounts to 1 year irrespective of legal grounds. This does not apply to cases under § 438 Para. 1 No. 1 Civil Code, § 438 Para. 1 No. 2 Civil Code, § 479 Para.1 Civil code or § 634a Para. 1 No.2 Civil Code. The terms in the above sentence are subject to a limitation period of 3 years. The aforesaid periods of limitation do not apply to cases of intent. They also do not apply to cases of fraudulent concealment of a defect. The periods of limitation also do not apply to cases of damage to life, limb, health or freedom, claims according to the product liability as well as grossly negligent breaches of duty or breaches of essential contractual obligations.

8. Liability for product risks and for errors during contract negotiations

8.1 If damage arises from danger inherent to the goods, whether this danger is caused by a defect of the goods or connected to its contractual condition, or if damage arises from the fact that there was no or insufficient warning against this danger, the injured party cannot assert a claim toward us from damages resulting to the party unless the damage was caused by intent or gross negligence of our management or one of our employees. Excluded from the above is the liability for damage arising from injury to life, limb or health, which can be attributed to negligent breach of duty by us or negligent breach of duty by one of our representatives or agents.

8.2 We accept liability for consequences arising from errors made during contract negotiations, in particular for consequences arising from insufficient or incorrect consultation provided to the Orderer only if these consequences are caused by intent or gross negligence of our management or one of our employees.

9. Invoices – Payment

9.1 We will issue an invoice as soon as the ordered goods are ready for shipment or pickup. Delays in shipment or pickup of the goods that we are not responsible for do not postpone the date on which payment of the invoice is due.

9.2 Our invoices are payable in euros (€) and without deduction immediately after the date of the invoice.

9.3 Subject to a reminder, the Orderer will be in default no later than 30 days after receipt of an invoice. With the beginning of the default, be it by reminder or the above 30-day deadline, we will charge interest in the amount of 8 percentage points above the base rate; the right to claim a higher damage caused by delay shall be reserved.

9.4 If we become aware of circumstances that cast doubt on the creditworthiness of the Orderer, we are entitled to demand, at our discretion, advance payment or the furnishing of security. The same applies if the Orderer does not meet its contractual obligation to pay us. Upon occurrence of any of the foregoing events, all our accounts receivables with respect to the Orderer, including those from other transactions, shall become due immediately.

9.5 To the extent we accept checks or bills of exchange, such acceptance shall always be on account of payment, but never with the effect of discharge.

9.6 The Orderer is not entitled to offset any amounts against our claims for payment or to effect a right of retention with respect to amounts due to us.

The foregoing does not apply to offsetting with respect to receivables that are undisputed or legally effective and for the right to exercise a right of retention until fulfillment of such receivables.

10. Retention of title

10.1 We reserve the title to all goods delivered by us until complete settlement of the accounts receivable arising from the contractual relationship with the Orderer, including previous claims for payment subsumed into current invoices.

10.2 The retention of ownership of the Orderer is precluded if the goods delivered by us are combined and/or mixed. The processing shall take place in such a way that we are to be regarded as manufacturer. In case of processing of goods with goods of a different origin that are likewise subject to reservation of title extended to processing, we shall acquire joint ownership of the new item in the ratio of the invoice value of our goods to the other goods at the time of processing. The property resulting for us from processing, combination or mixing is to be treated legally like the original goods.

10.3 All amounts receivable of the Orderer arising from the resale of any goods in which we have a right of ownership or co-ownership shall pass to us immediately upon the conclusion of the sales transaction up to the amount of the invoice value, regardless of whether the goods are sold to one or several buyers without or after treatment, combination and mixing.

10.4 On demand, the Orderer must inform the debtors of the assigned amounts receivable of the assignment, announce the debtors and amounts they owe and submit to us the documents that we require for the enforcement of the assigned amounts receivable.

10.5 The Orderer may sell, process or mix with goods of a different origin goods title to which we retain in the course of ordinary business activity only.

10.6 If the Orderer fails to fulfil an obligation secured by the reservation of title on the due date wholly or in part, or if we become aware of circumstances which might endanger our rights, we are entitled to demand the return of the goods we delivered without having to withdraw from the sales contract pursuant to § 440 Civil Code or to grant a grace period for the payment according to § 323 Civil Code. The subject matter of the purchase contract and the obligations of the Orderer shall remain unaffected by such a demand and the surrender of the goods.

10.7 The retention of title is limited in that ownership of the goods shall be readily transferred to the Orderer and the assigned amounts receivable shall fall to the Orderer once all our amounts receivable from the business relation have been settled in full. We undertake, upon request of the Orderer, to release the securities of our choosing (goods and claims) to which we are entitled hereunder to the extent that their liquidable value exceeds the payments to be secured by more than 20 %, this at the request of the ordering party.

11. Place of fulfillment – Place of jurisdiction – Applicable law

11.1 Place of fulfillment for the delivery shall be the respective location of shipment of the goods; for the payment it shall be Wuppertal. Exclusive place of jurisdiction for any disputes arising out of or in connection with the contract, also in case of litigation with regard to bills of exchange and checks shall be Wuppertal. However, we are entitled to bring an action against the Orderer in another court having jurisdiction over the Orderer.

12. Ineffectiveness of individual provisions

12.1 If individual provisions of these general Terms and Conditions of Business should prove to be or become invalid, such invalidity shall not affect the remaining provisions.

Effective date: January 1, 2011



Notes

50 YEARS

EXCELLENCE IN STAINLESS STEEL
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■ inquiry / ■ order

Fax: +49 (0)202 26 32-407

50 YEARS

EXCELLENCE IN STAINLESS STEEL
EXCELLENCE IN STAINLESS STEEL

Customer no. _____

Company _____

forename, family name _____

Street _____

Postcode/town _____

country _____

DIN	material	dimension	item description	quantity



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