

# Sheetite<sup>®</sup>

Direct screw fastening for sheet metals

- + reliable
  - + low cost
  - + flexible
  - + easy to assemble
  - + optimised load capacity
  - + reduces number of variants
- ➔ [www.arnold-fastening.com](http://www.arnold-fastening.com)



# Sheetite® – direct screw fastening for sheet metals

Due to the efficient design of components, the sheet thicknesses in the area of sheet metal joining technology are continuing to decrease. Despite the fact that less material is involved, it is still necessary to meet the growing demands for reliable assembly. Within the value-added process, the aim is also to shorten assembly times or save on upstream process steps.

With Sheetite® you make use of the technological and economic advantages of fastening directly into sheet metals. The fastener is screwed directly into a pre-drilled sheet metal component, using existing plant and equipment. The polygonal cross-section geometry in the thread-forming section of the screw ensures that the female thread is chiplessly formed, so that if a repair is needed it can also accept a conventional threaded screw. In the load-bearing thread area, the screw's shaft takes on a round cross-section, which achieves a better

load capacity. Besides its improved hole-finding capacity in axis and angle offset situations, the rounded tip also protects product components located inside the installation area, and the risk of injury is reduced both during assembly and in the fitted condition. Overall, it provides **significant** quality advantages: easy screw placement, low tapping torque, high overload security.

## Product features and advantages at a glance

**Screw head with drive**

**Underhead geometry**

**Bearing thread area**

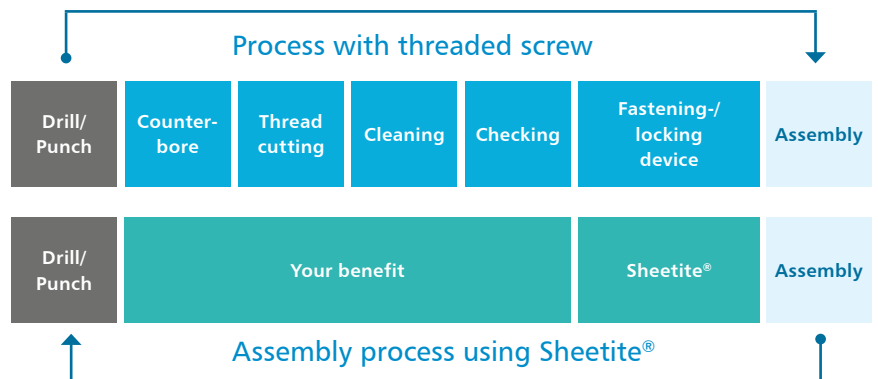
**Thread-forming area**

**Tip geometry**

- Potential head design**
  - ⊕ flat head, truss head
  - ⊕ customer-specified solutions
- Potential underhead geometry**
  - ⊕ locking tothing, milled tothing
  - ⊕ customer-specified solutions
- Round shaft cross-section**
  - ⊕ optimised load capacity
  - ⊕ metric female thread
- Polygonal shaft cross-section**
  - ⊕ low tapping torques
  - ⊕ no chip formation during thread-forming
- Rounded tip**
  - ⊕ improved hole location
  - ⊕ reduces risk of injury
  - ⊕ protects other components

## When expertise turns into profit

Sheetite® enables efficient design of the value-added process, since several work steps can then be left out. The cost of cutting, machining and checking threaded holes, and similarly the cost of extra security elements, tools and machines, are all eliminated.

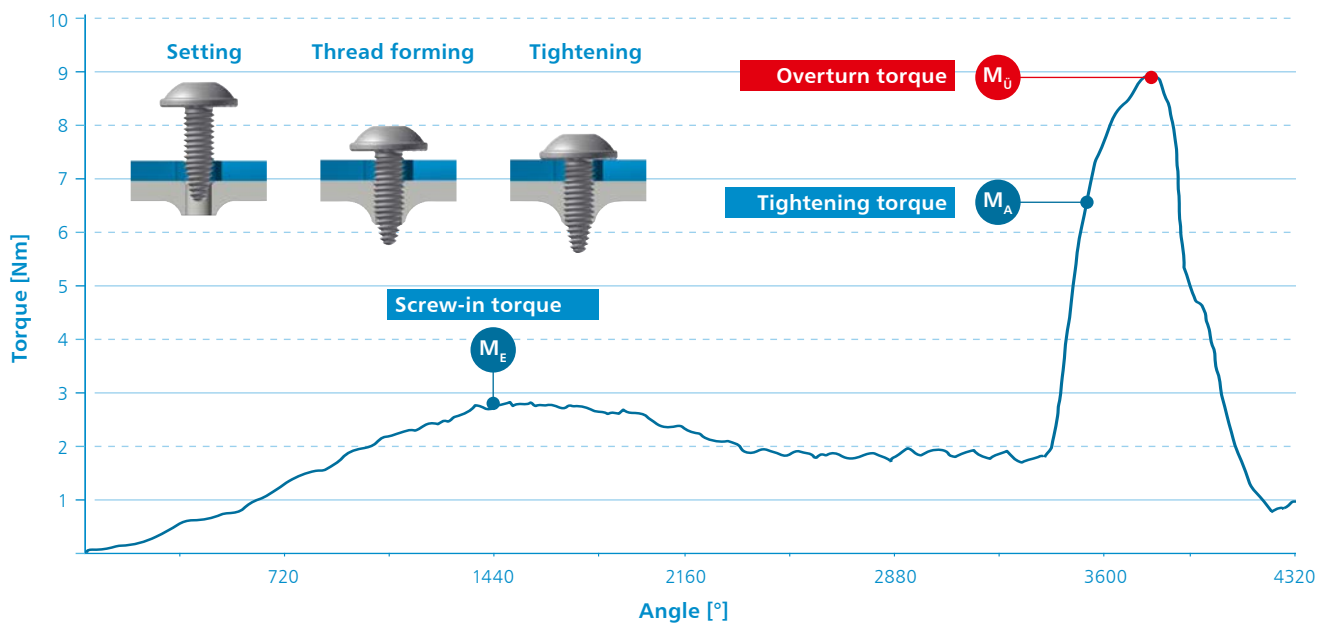


## Sheetite® for applications in sheet metals

### The screw-fastening operation for thin metal sheets

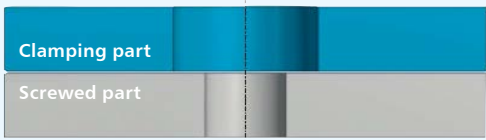
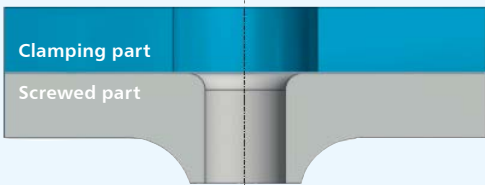
Compared to conventional direct fasteners, a much smaller proportion of material is available for producing a female thread when fastening directly into thin sheet metals. Despite the fact that less material is involved, it is still necessary to

meet the growing demands for reliable assembly. Sheetite® is the answer to these challenges. Its special product features ensure a high delta between the screw-in and overturn torques which guarantees reliable assembly.



### Application notes

Sheetite® is designed to connect two or more plate-shaped components placed one on top of the other. This composite consists of a minimum of an upper clamping part with a through-hole and a lower pre-bored screwed part with or without a through-hole.

<p><b>Processing into through-holes</b></p>  <ul style="list-style-type: none"> <li>⊕ simple pre-drilling</li> <li>⊕ flexible pre-drilled hole diameter</li> </ul>	<p><b>Processing into through-holes</b></p>  <ul style="list-style-type: none"> <li>⊕ greater number of load-bearing thread turns</li> <li>⊕ higher structural durability</li> </ul>
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The anticipated process and assembly parameters can be optimally adapted to the application in question due to the flexible dimensioning of the pre-hole diameter in the screwed part.

The following materials can be joined:

- steel
- aluminum

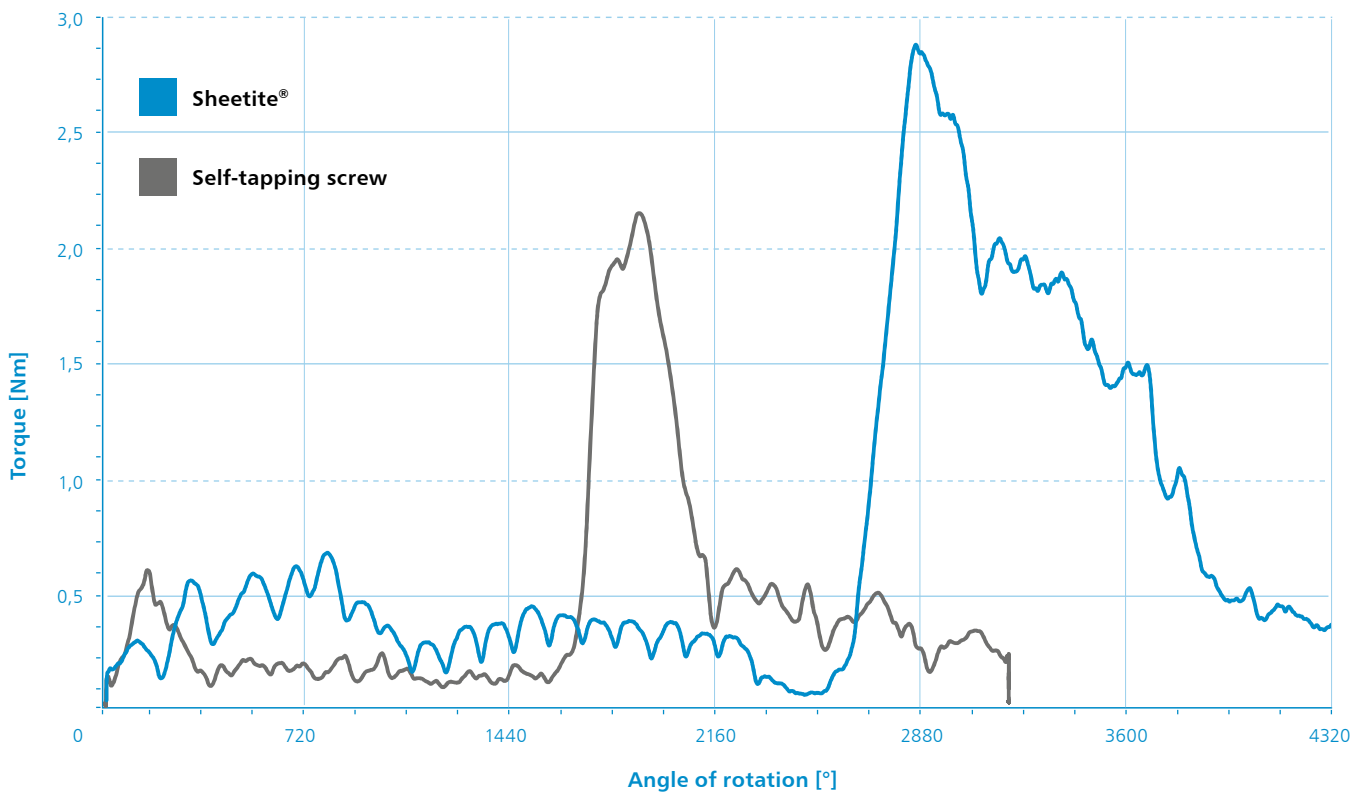
Other metallic materials possible on request.

## Why Sheetite®? - Advantages based on a practical example

In contrast to conventional self-tapping screws, Sheetite® chiplessly forms a female thread at the beginning of the screw-in process which requires higher screw-in torques. The optimised load capacity of Sheetite® combined with the metric female thread it produces achieves significantly higher overturn torques than conventional self-tapping screws with a comparable nominal diameter.

The lower thread pitch of Sheetite® also provides increased safety against self-loosening in the fitted condition. In a direct comparison, the use of Sheetite® means a significant increase in process reliability as well as extension of its application range.

### Illustration of the screw-in curve



### Comparison in absolute numbers

	Self-tapping screw in accordance with DIN EN ISO 1478	Sheetite®	Change
Max. screw-in torque $T_s$	0,53 Nm	0,74 Nm	+ 39,6 %
Min. overturn torque $T_o$	1,26 Nm	2,52 Nm	✓ + 100,0 %
Difference between $T_o$ and $T_s$	0,73 Nm	1,78 Nm	✓ + 143,8 %
Ratio $T_o/T_s$	2,38	3,40	✓ + 43,5 %

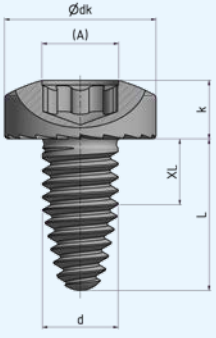
Core hole Ø 3.20 mm · Screw-in part 0.80 mm · Material DC-01 · Nominal Ø: ST3.9/Sheetite® 4.0

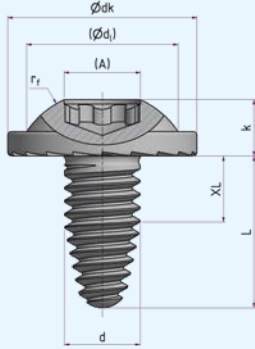
# FAST CREATOR

The component is defined on the basis of your requirements and our expertise. Depending on the degree of these requirements, we can configure the component from one of our

standard Eurofasteners or from our own ProRange. And of course we offer further help with developing parts from your drawings (customised fastener).

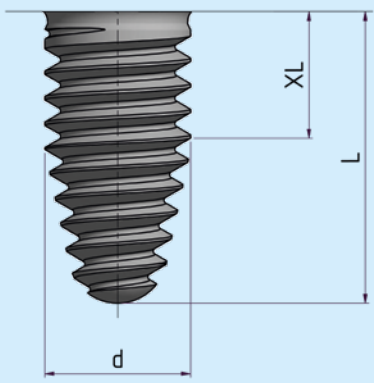
## Our product range for you

Flat head	Nominal-Ø	d	M3	M4	M5	M6	
	Head-Ø	Ødk	5,60	8,00	9,50	12,00	
	Height of head	k	2,40	3,10	3,70	4,60	
	TORX®	Size		T10	T20	T25	T30
		(A)		2,80	3,95	4,50	5,60
	TORX PLUS® AUTOSERT	Size		10IP	20IP	25IP	30IP
		(A)		2,82	3,94	4,52	5,61

Truss head	Nominal-Ø	d	M3	M4	M5	M6	
	Head-Ø	Ødk	7,50	10,00	11,50	14,50	
	Height of head	k	2,52	3,25	3,95	4,75	
	TORX®	Size		T10	T20	T25	T30
		(A)		2,80	3,95	4,50	5,60
	TORX PLUS® AUTOSERT	Size		10IP	20IP	25IP	30IP
		(A)		2,82	3,94	4,52	5,61

Other dimensions and product features on request.

# FAST CREATOR

Our product range for you		M3	M4	M5	M6
	Length L (mm)	Length XL (mm)			
	6,00	3,00			
8,00		4,00			
9,00	6,00				
10,00			5,00		
12,00		8,00			6,00
15,00			10,00		
18,00					12,00

## ■ Eurofastener Your benefits at a glance

- ⊕ Industry standard formultifunctional applications
- ⊕ Many PDF data sheets available
- ⊕ 2D / 3D models available free of charge within 24 hours
- ⊕ Individual drawings for download
- ⊕ Installation recommendations
- ⊕ Comprehensive store of samples
- ⊕ Short delivery time for bulk quantities

## ■ ProRange Fastener Your benefits at a glance

- ⊕ For customised applications
- ⊕ Free configuration from standard program
- ⊕ Different head/drive combinations
- ⊕ Selectable materials, surfaces, colours
- ⊕ Short delivery time for samples and manufactured items

## ■ Customized Fastener Your benefits at a glance

- ⊕ Maximum customisation
- ⊕ Total design freedom
- ⊕ Unlimited drawings upload
- ⊕ Bulk manufacturing check at early design stage
- ⊕ Producing samples with ARNOLD Fastener Express

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