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www.arnold-fastening.com

ARNOLD®
BlueFastening Systems



Sheetite®

Direct screw fastening for sheet metals

- Reliable
- Low cost
- Flexible
- Easy to assemble
- Optimised load capacity
- Reduces number of variants

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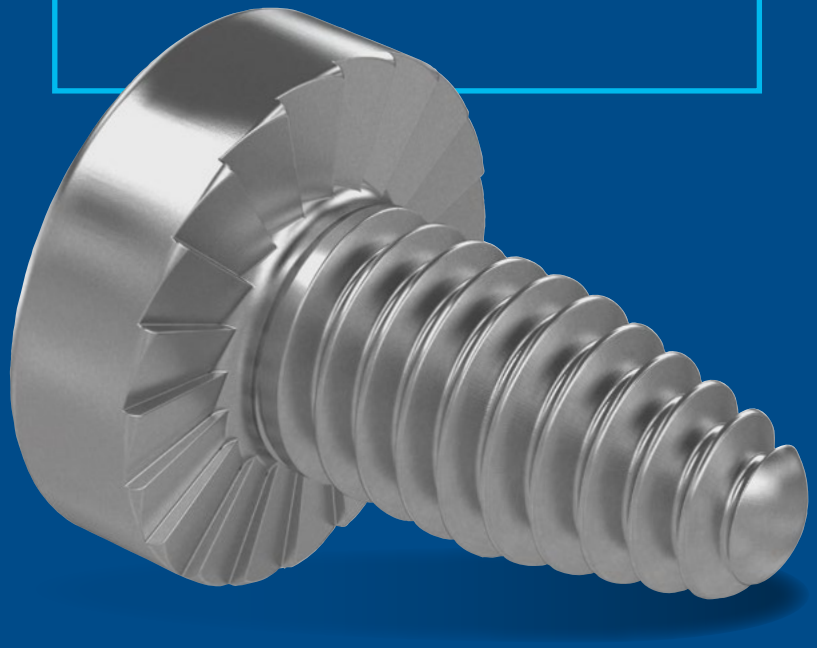
A significant increase in process reliability

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.



The Sheetite®-Effect

Efficient and cost-saving Direct screw fastening

↘ Sheetite® enables the direct screwing of sheet metal without the need for additional processing steps. Existing system technology can be used to reduce investment costs.

Chipless thread-forming and high load-bearing capacity

↘ The polygonal cross-section in the thread-forming area forms a robust, chipless nut thread that can accommodate a conventional screw in the event of a repair. The round screw shaft in the load-bearing area ensures improved load-bearing capacity and stability.

Assemby times reduced and components protected

↘ The rounded tip makes it easier to insert the screw, improves hole location and reduces the risk of injury during assembly. It also protects surrounding components, resulting in safer and faster installation.

High process reliability and overload protection

↘ The combination of low thread-forming torque, high load-bearing capacity and optimum thread locking ensures stable and reliable assembly, even under demanding conditions.

Sheetite®
When expertise turns into profit



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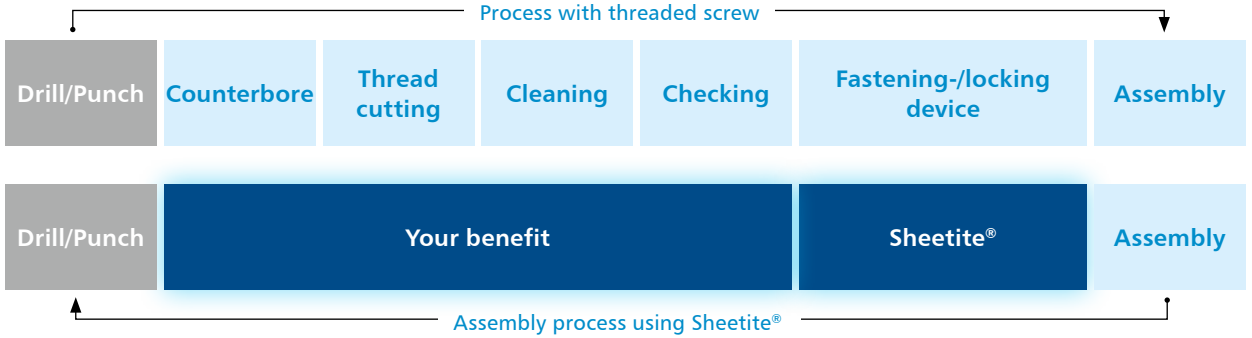
Huge efficiency boost by eliminating some work stages.

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®
Product features and advantages

Sheetite®
Advantages

- Reliable assembly
- Metric female thread
- Low tapping torque
- Protects other components
- Optimized load capacity
- Flexible pre-punching
- Improved hole-finding
- Reduction of the risk of injury

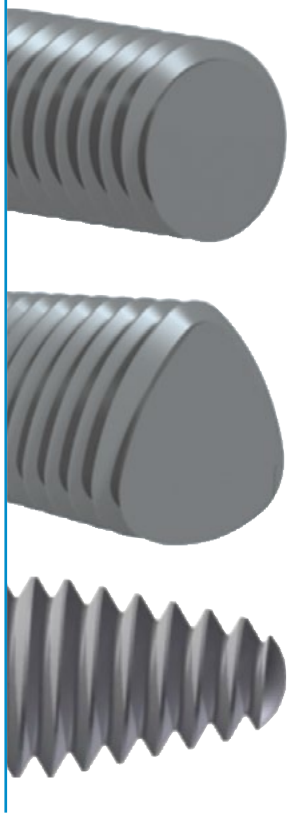
Potential head design
- flat head, truss head
- customer-specified solutions

Potential underhead geometry
- locking toothing, milled toothing
- 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



Sheetite® – the screw with polygonal cross-section geometry

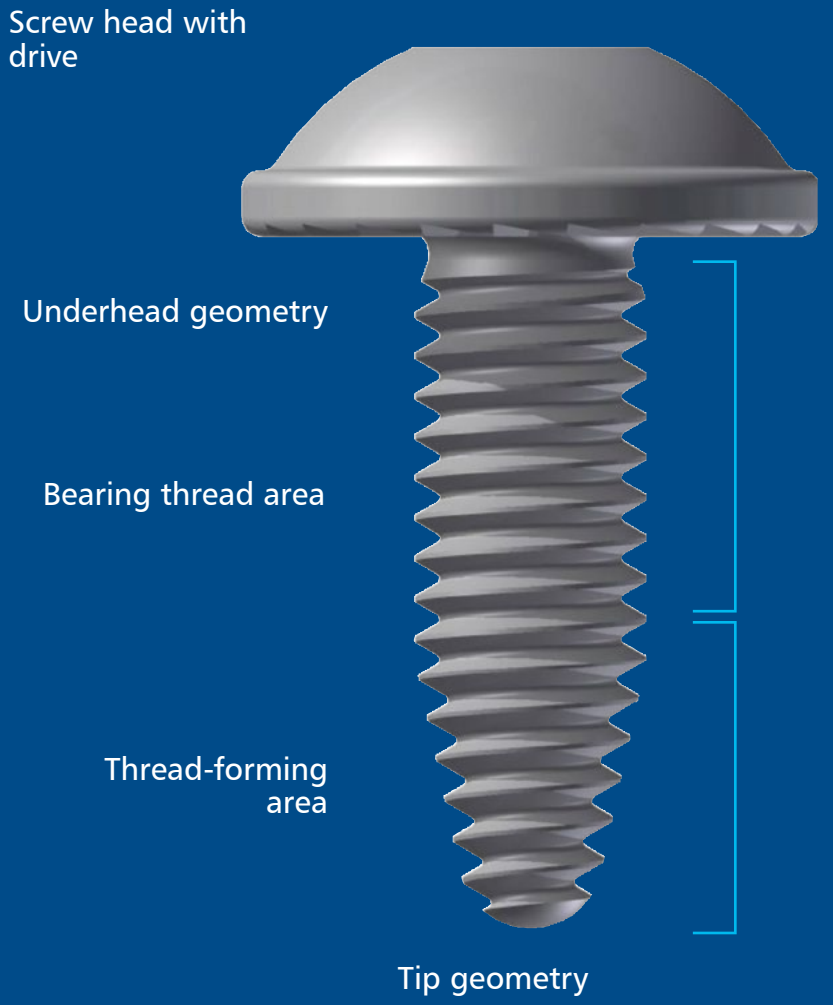
With Sheetite® you make use of the technological and economic advantages of fastening directly into sheet metals. The fastener is screwed directly into a pre-drilled sheet metal component, using existing plant and equipment.

Polygonal cross-section geometry

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.

Rounded tip

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.

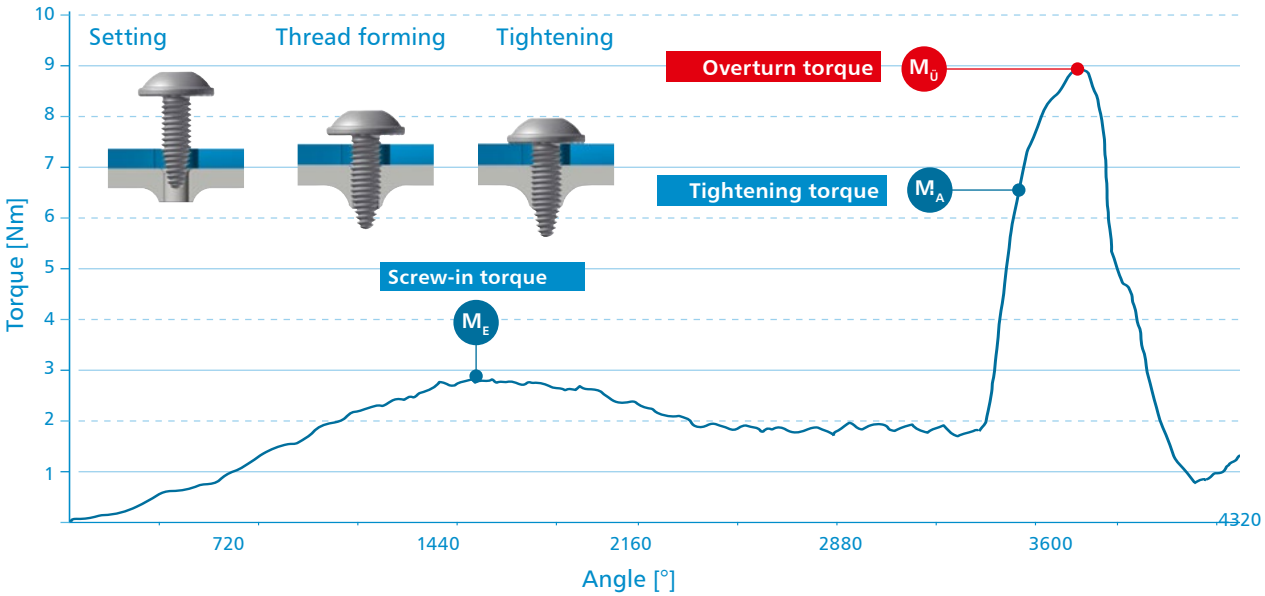


Sheetite® – for applications in sheet metals

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.

Die Sheetite® is a composite of two or more plate-shaped components placed one on top of the other.



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.

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

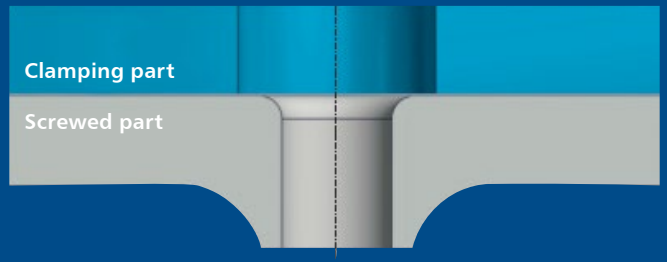
Other metallic materials possible on request.

Processing into through-holes



- simple pre-drilling
- flexible pre-drilled hole diameter

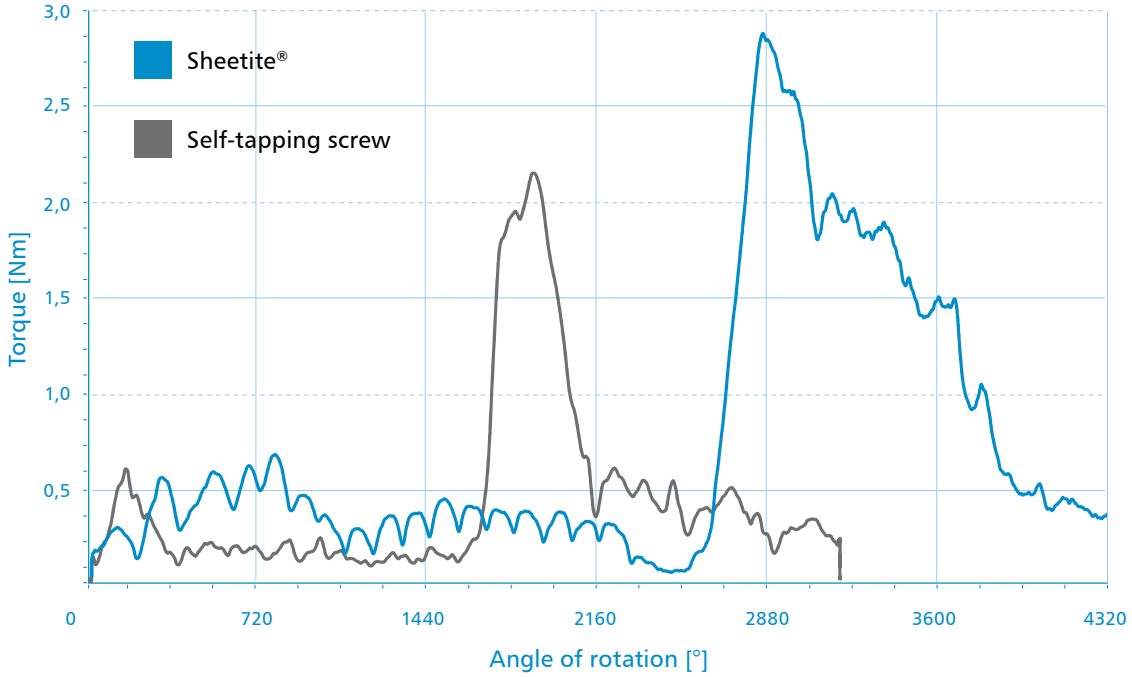
Processing into rim holes



- greater number of load-bearing thread turns
- hhigher structural durability

Why Sheetite®? – Advantages based on a practical example

Illustration of the screw-in curve



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.

Sheetite® – Advantages in numbers

The commercial advantages of Sheetite®

- Saves on upstream processes
- Reduces the number of variants
- Efficient solution without additional elements
- Uses existing machinery / assembly technology
- Reduces overall fastening costs

Market requirements

- Cuts preparation /assembly times
- Reliable assembly process
- Reduces fastening costs
- Uses existing machinery / assembly technology
- Reduces the number of variants
- Saves materials
- Can be dismantled and recycled
- Single-side accessibility

Comparison in absolute numbers

	Self-tapping screw in accordance with DIN EN ISO 1478	Sheetite®	Change
Max. screw-in torque M_E	0.53 Nm	0.74 Nm	+ 39.6 % ↑
Min. overturn torque $M_Ü$	1.26 Nm	2.52 Nm	+ 100.0 % ↑
Difference $M_Ü$ – M_E	0.73 Nm	1.78 Nm	+143.8 % ↑
Ratio $M_Ü$ / M_E	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



ARNOLD®
BlueFastening Systems

The ARNOLD GROUP

www.arnold-fastening.com

Wherever customers need us.

ARNOLD – this name is internationally renowned for efficient and sustainable fastening systems at the highest level.

With a foundation of many years of expertise in the production of intelligent fastening systems and very complex extruded parts, the ARNOLD GROUP has developed over a number of years into a comprehensive supplier and development partner for complex fastening systems. With our positioning of "BlueFastening Systems", this development process will continue under a united and harmonised structure. Engineering, services, fasteners and functional parts, together with feeding and processing systems, all from a single source – efficient, sustainable and international.

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