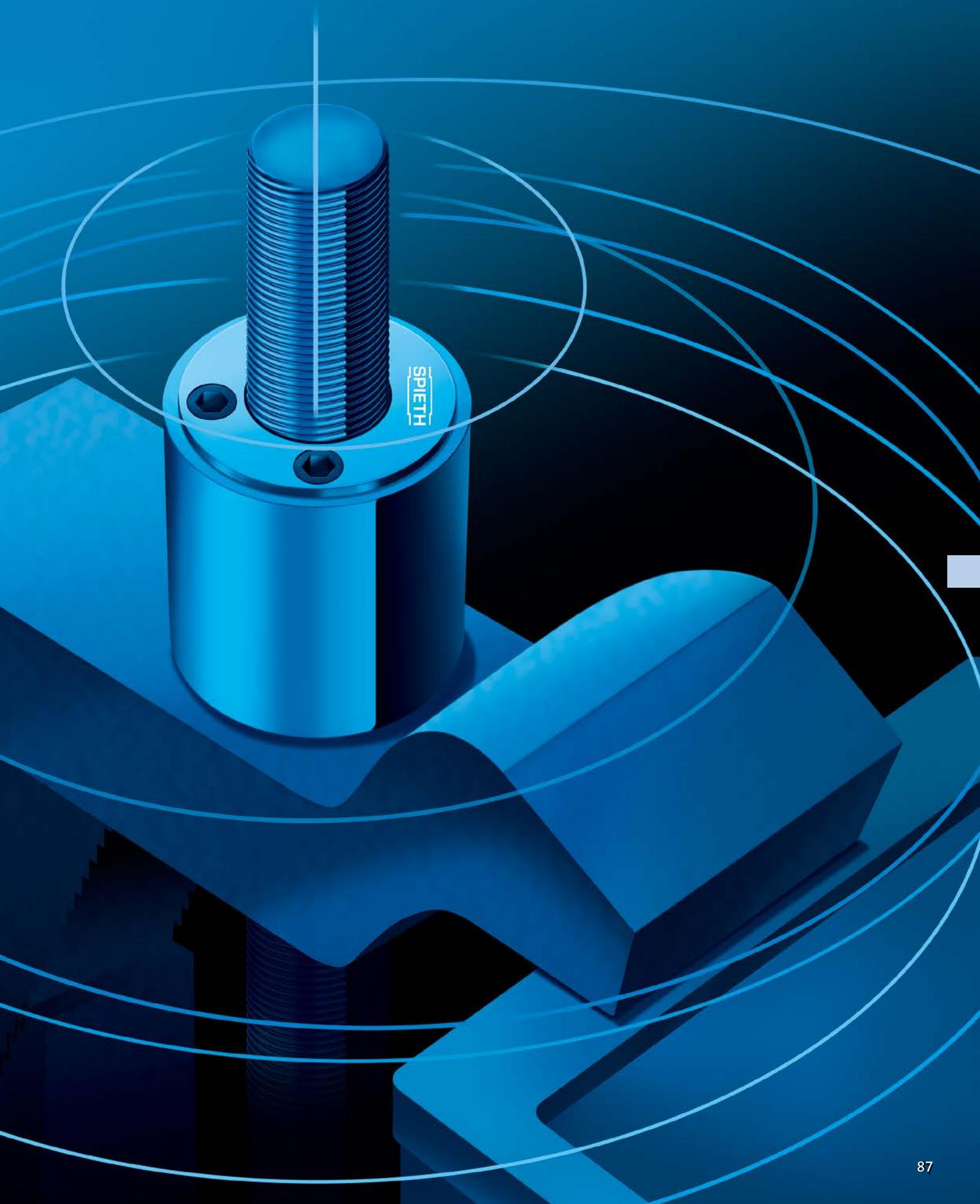


SECURE ALL-ROUND CLAMPING FORCE

Spieth clamping nuts – an efficient principle.

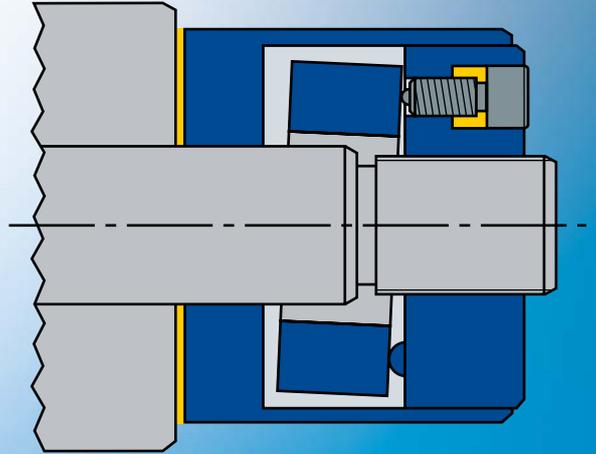
Clamping nuts are widely used in general mechanical and construction engineering applications as mechanical force-transmitting elements for executing reliable connections involving high axial forces with a low level of manual force. Clamping nuts are suitable for use on rotating spindles and can be clamped and released in rapid succession without difficulty.

Since no movement takes place at the end face and at the main thread of the clamping nut during the clamping process, this precludes the possibility of friction loss. Thanks to the Spieth design, these clamping nuts offer much greater efficiency than conventional nuts – along with an extended service life and resistance to temperature influences.

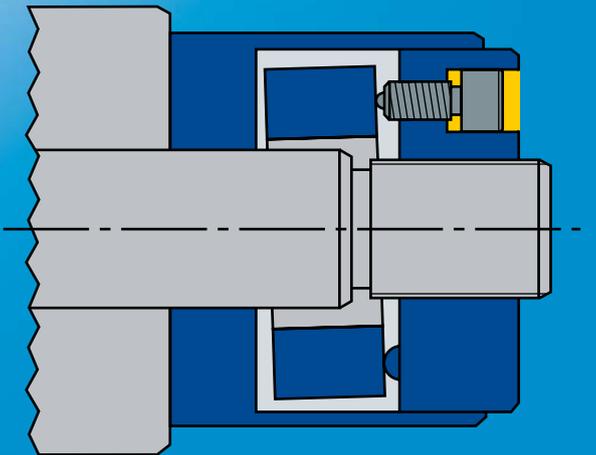


FUNCTIONAL PRINCIPLE

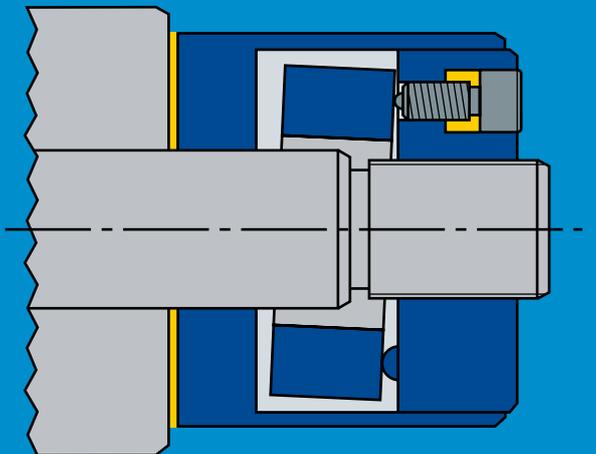
The principle is shown in a simplified diagram with enlarged clamping path.



Clamping nut screwed into place, light contact with end face is sufficient.



Clamping screw actuated: High axial forces have built up at the point of end face contact.



Clamping screw released: Original, light end-face contact is restored.

SPIETH CLAMPING NUTS AM-GS

BENEFITS

During the clamping process (tightening the clamping screw), no movement takes place at the end face and at the main thread of the clamping nut. This precludes the possibility of friction loss, thus eliminating the cause of the poor efficiency of conventional nuts. Only the clamping screw with its relatively small movement thread and the ball-bearing supports make some sliding movements. This results in high system efficiency. Combined with the double clamping force ratio, this enables reliable and user-friendly application of the clamping force.

The entirely mechanical structure of the clamping nut guarantees long durability and makes it virtually impervious to the influence of temperature.

FIELDS OF APPLICATION

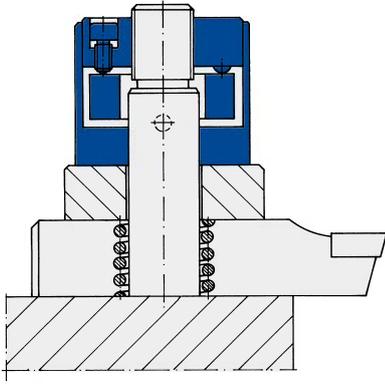
Series AM-GS clamping nuts are mechanical force-transmitting elements for use in general mechanical and construction engineering. They are of particular benefit for the execution of reliable connections involving high axial forces with a low level of manual force. They are designed to permit clamping and release in quick succession without difficulty. The clamping nut is suitable for use on rotating spindles.

Series AM-GS

- High degree of efficiency, minimal tightening torque.
- Simple actuation.
- Can be used on rotating spindles.
- Capable of withstanding dynamic loads.
- High degree of axial pretension safely achievable.
- Designed with purely mechanical components.
- No hydraulics used, which means no leaks or sudden failures are possible.
- Excellent durability.

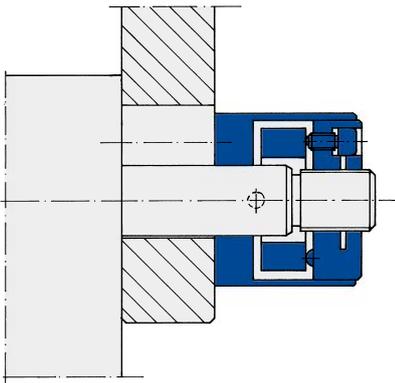


Clamping Nuts Series AM-GS



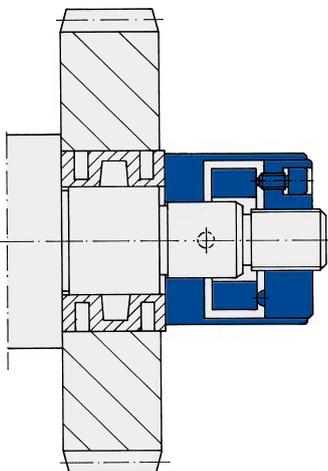
Example 1: Tool fixture

Typical arrangement of the clamping nut on a tool fixture.



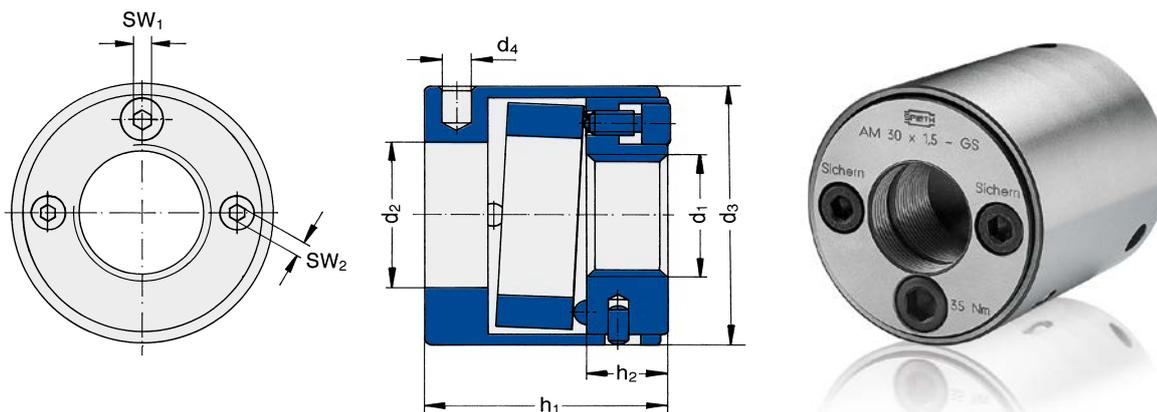
Example 2: Work piece fixture

The machine component must be reliably clamped here during the operational status, but must permit traversing for periodic set-up work. The clamping nut with thread fixation used here offers the advantage that its position remains fixed even when the nut is released.



Example 3: Gear fixture

Realised using a clamping set, tensioned by a clamping nut. The gear has to be changed or its peripheral position altered periodically. This can be conveniently and safely achieved using the clamping nut.

SPIETH CLAMPING NUTS SERIES **AM-GS**

Order No.	Dimensions in mm						Effective clamping force F	Clamping screw		Lock screws	
	d ₁	d ₂	d ₃	d ₄	h ₁	h ₂		Width across flats SW ₁	M _A	Width across flats SW ₂	M _S
	ISO - 5H	H7					kN	mm	Nm	mm	Nm
AM 20.1,5 - GS	M20x1.5	22	52	6.9	56	26	30	6	20	5	8
AM 24.1,5 - GS	M24x1.5	27	55	6.9	56	26	30	6	20	5	8
AM 30.1,5 - GS	M30x1.5	32	69	9.2	78	31	50	8	35	6	15
AM 36.2 - GS	M36x2	40	78	9.2	82	31	50	8	35	6	15
AM 42.2 - GS	M42x2	50	88	11.5	88	36	75	10	55	6	15
AM 52.2 - GS	M52x2	60	100	11.5	92	36	75	10	55	6	15
AM 60.3 - GS	M60x3	70	118	14	102	40	85	12	70	8	20
AM 68.3 - GS	M68x3	80	130	16.2	112	46	100	14	80	10	30
AM 80.4 - GS	M80x4	100	152	16.2	122	46	100	14	80	10	30

All information is supplied without liability and subject to technical changes. Please observe the operating instructions at <https://www.spieth-maschinenelemente.de/en/download-faqs/catalogueinstructions/>

APPLICATION

Ensure that the clamping screw is in the correct starting position. Under no circumstances may the clamping screw be screwed in below the surface of the housing before the clamping sequence begins. Otherwise it is not possible to utilise the full clamping path of 2 mm.

Clamping

1. Screw the clamping nut manually until it makes contact with the end face (Fig. 1), Tighten the fixing screws and lock the clamping nut to the thread.
2. Tighten the clamping screw, observing the max. tightening torque. If a torque wrench is not available, the clamping screw may also be tightened using a screwdriver ISO 2936 (DIN 911) using normal manual force. If the clamping screw is tightened without a torque wrench, there is a tendency for the clamping force of the clamping nuts larger than M42 not to be fully utilised.

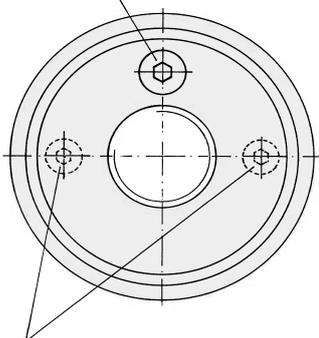
The clamping force of the nut is now fully effective. (Fig. 2)

Releasing

1. Turn the clamping screw back to the starting position. The clamped component is now released.
2. If the clamping nut is to be completely removed from the spindle, the thread lock screws must now be released. Then unscrew the clamping nut manually.

In exceptional circumstances, for example due to heavy soiling, it may be difficult to unscrew the clamping nut. In this case, utilize the radial boreholes around the outside diameter to insert a guide pin.

Clamping screw



Lock screws

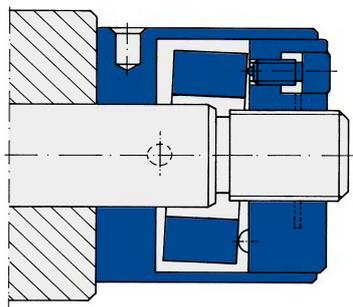


Fig. 1

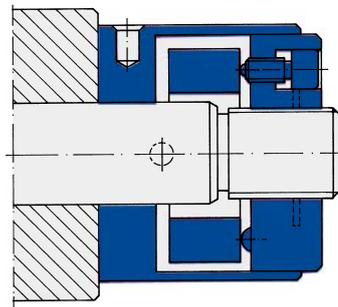


Fig. 2

DESIGN

All parts are made of steel. The thread ring, the tilting ring and the pressure ring are hardened and tempered.

The outside diameter, the borehole and the end face of the clamping nut are ground.

The modified clamping screw and the fixing screws are all cheese-head screws with a hexagon socket to ISO 4762 (DIN 912).

The metric thread d_1 is manufactured to tolerance class "fine" (tolerance zone 5H, DIN 13 parts 21 ... 25).

The locating bore d_2 of the pressure ring is manufactured to tolerance zone H7.

CONNECTING COMPONENTS

The metric bolt thread must normally be manufactured to tolerance class "medium" (tolerance zone 6g, DIN 13 parts 21 ... 25), for higher precision requirements (e.g. for arrangement on revolving spindles) to tolerance class "fine" (tolerance zone 4h, DIN 13 parts 21 ... 25).

If high accuracy of centring the clamping nut is required, the shank diameter for d_2 must be manufactured to tolerance zone h6.

EXPLANATIONS

For all clamping nuts, the maximum **clamping path of 2 mm** must be observed.

F: Max. effective clamping force with specified M_A .

M_A : Max. permissible torque for clamping screw.

If a torque wrench is not available, the clamping screw may also be tightened using a screwdriver ISO 2936 (DIN 911) using normal manual force. In this case, however, there is a tendency for the clamping nuts in sizes $\geq AM 42x2$ not to be fully utilised.

M_S : Tightening torque for fixing the thread (guideline value).