

Leading joining technology



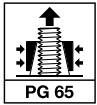
# ShrinkNut

**Powerful – Cost reducing – Unique**  
**The maintenance free bolt connection with TTG**



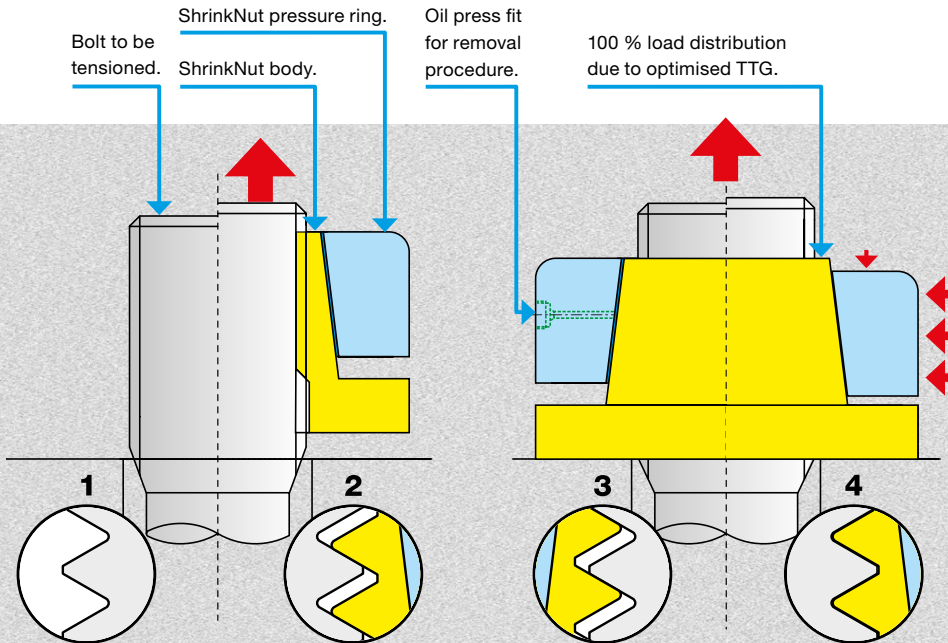
**ShrinkNut** – more than  
a threaded connection.





# ShrinkNut

Maintenance free thread connection – torsion free generated with an optimal load distribution even up to or above yield point



ShrinkNut international patent pending.

## Alternative shrinking of the nut during pretensioning with integrated tool

The bolt should be preferably pretensioned to the maximum force at least 5 times which equals the yield stress point of the used bolt material and compensates the material relaxation over time. Then the ShrinkNut is turned against the counterpart. The tensioning force is increased to compensate the axial flank clearance maximum value and the surface slacking. In this condition the inner part is shrunk onto the thread by pushing the outer sleeve onto the inner tapered sleeve.

Afterwards the pretension force can be released leaving the bolt connection perfectly pretensioned in a maintenance free condition.

## Advantages

As a result of the shrinkage of the **ShrinkNut** Nutbody the following advantages occur compared to regular threaded connections:

- No loosening of the connection – even with steady vibration influences
- Higher and torsion free pretensioning of bolts
- Decreased rupture risk due to perfect load distribution over the whole nut height
- 100% thread contact due to optimised TTG
- Maintenance free connection
- Dimensions similar to standard hexagonal nuts
- Standard bolts, thread sizes and thread pitches of any kind can be used

## Pretensioned condition with separate tool

The bolt should be preferably pretensioned to the maximum force at least 5 times which equals the yield stress point of the used material and compensates the material relaxation over time (1). After another pretensioning to the desired pretensioning force, **ShrinkNut** is turned against the flange, either hand-tightened or mechanically (2).

Once in contact with the flange, the whole thread meets the bolt thread with nearly 100% (Tensioned Thread Geometry) patented by SCHAAF.

## Axial force generation

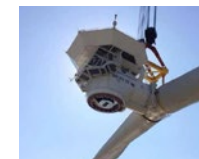
The axial force of the tool can now be released with nearly no force loss (3). Then the shrinkage tool is mounted and the inner thread part is shrunk onto the bolt thread by pushing the outer sleeve onto the inner tapered sleeve (4). While shrinking the nut, an additional axial force is generated.

Due to the optimized thread geometry the typical loss of force can be compensated to allow highest pretensioning within the bolt connection.

ShrinkNut and accessories are a milestone in the research and development of **SCHAAF** hydraulic high-pressure equipment and shows the world leadership in that field.

## Areas of Application

SCHAAF **ShrinkNuts** are the optimum solution wherever a permanent maintenance free threaded connection, even with steady vibrations, must be ensured, for example wind turbines, gear box and heavy equipment, electric generators and motors.

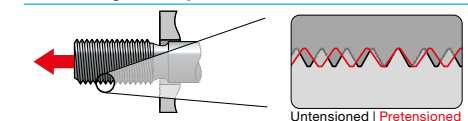


ShrinkNut for generators



Tower flange connections

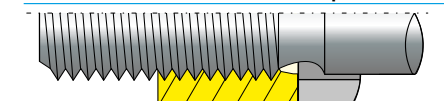
## TTG – Targeted equal force in the thread area



## Determination of thread geometry



## 100 % flank contact over the complete area



With ShrinkNut technology the gap between bolt and ShrinkNut TTG is closed.

Inquiry form and animated operating instructions under [www.schaaf-gmbh.com](http://www.schaaf-gmbh.com)

### Quality Assurance

All **ShrinkNuts** are checked for material quality, dimensional accuracy, proper operation and reliability. They are subject to quality assurance measures during order execution and delivered with detailed documentation.

### Services

**ShrinkNuts** are, of course, delivered packaged ready for installation.

SCHAAF **ShrinkNuts** are user-friendly, reliable and are manufactured in accordance with the highest level of technical know-how. Our highly-motivated staff will be pleased to train your personnel, in situ or at our works, in the general handling of **ShrinkNuts**.

### Versions

The standard version of the SCHAAF **ShrinkNuts** comprises the following components:

- High-strength quenched and tempered steel for maximum strength and axial load capacity
- Friction value maximised pressure ring
- QR-code marking for various documentation techniques
- All thread types, thread pitches and norms
- Surfaces according to different requirements
- Modern CAD and FEA-analyzations
- Customer specific solutions

### Complete solution from SCHAAF

The accessories for the **ShrinkNuts**, such as protection caps, Bolt Tensioners, high-pressure pumps, hydraulic hoses and connection couplings, are aligned to the functions = 100 % system solution.

### Accessories and additional product groups

- Bolt Tensioners (SSV)
- High-pressure generators: manually operated, electric, or air-operated
- High-pressure hydraulic hoses
- Couplings, nipples, adapters and distributor blocks for pressures up to 4,000 bar
- TTG Nuts and Bolts
- Protection Caps
- ExpaTen, ExpaHub, ExpaTenQL
- Mounting aids such as centering pin and lifting devices, or as requested by the customer

### Certificates and Acceptance Tests

- Material test reports
- Specific test reports
- Certificates as per special customer requirements



Several customer awards confirm again and again, that SCHAAF comes to mind due to innovative developments and dozens of patents worldwide regarding optimised processes and quality.



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