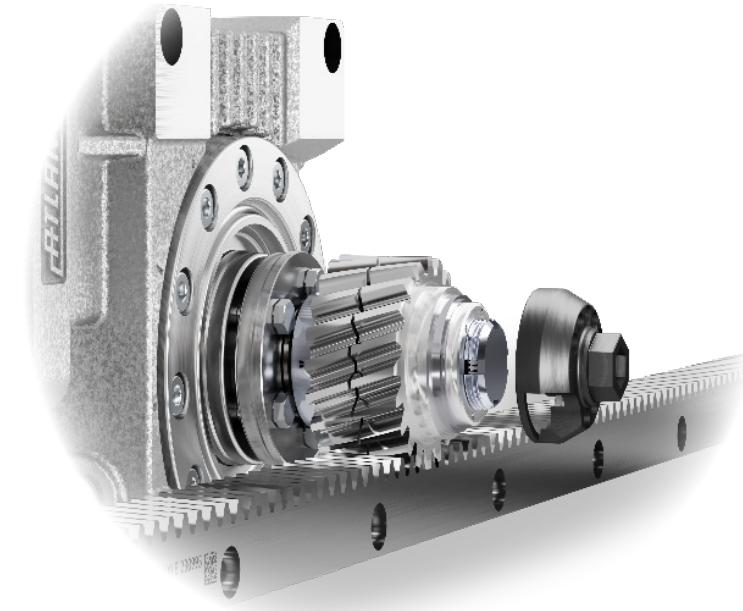


## Pre-load Pinion Shaft

Quick guide



This is a quick guide to adjusting the tension pinion shaft for experienced users. Complete installation maintenance instructions including all safety instructions can be found in our installation maintenance instructions.

## 1. Overview Pre-load pinion shaft

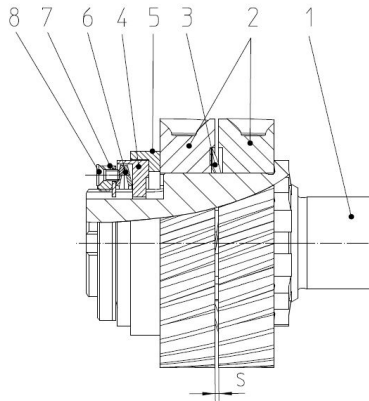


Bild 1: Pre-load pinion shaft

Nr.	Naming	Nr.	Naming
1	Output shaft	6	Spring assembly
2	Gear pair	7	Adjusting nut
3	Spring element	8	Locking screw
4	Centre elements		
5	Pressure flange		

## 2. Functional description

Pre-load pinion shafts consist of an output shaft, a helical split pinion and a pre-load unit. The split pinion is manufactured as a unit with an axial distance of  $s = 1 \text{ mm}$  ( $m = 2...4$ ) and  $s = 2 \text{ mm}$  ( $m = 5...8$ ). By reducing the distance between the pinions (axial displacement of the outer pinion) the backlash is reduced and pre-load initiated when teeth are in mesh with the rack. A defined pre-load torque between rack and split pinion can be produced by means of the pre-load unit.

## 3. Adjustment instructions

The reverse side of the thrust plate is provided with 24 marks at  $m = 2...4$  and 12 at  $m = 5...8$ , and the adjusting nut with 4 marks (graduations).

1. Determine the optimum contact pattern with a non-Pre-load pinion shaft. To do this, find the high point of the gearing and position the pinion shaft above the high point, and mount it with gap „s“ (see functional description).
2. The backlash between rack and split pinion should be  $< 0.1 \text{ mm}$ .
3. Tighten the adjusting nut (loosen the countersunk screw) until no backlash remains. The two flanks of the split pinion should be in mutual contact. This can be checked by scanning the tooth flanks with a dial indicator.
4. The specified degree of pre-load ( $T_v$ ) can be produced by turning the adjusting nut by a definite number of graduation marks (TS) (see adjusting diagram).

The pre-load torque „ $T_v$ “ is the torque which ensures backlash-free positioning of the rack and pinion drive. The transmissible torque outside the positioning points „ $T_{2\text{max}}$ .“ can be determined according to the following formula:

$$T_{2 \text{ max.}} = T_2 - T_v$$

if:  $T_v \text{ max.} = T_2 \text{ max.}$  the drive is free from play throughout the travelling distance.

Attention: The pre-load is adjusted in assembled condition; therefore the front side of the pinion shaft must be accessible. To adjust the pre-load, we recommend our adjusting wrench as shown on the front.

Instructions and assembly videos can be found at  
[www.atlantagmbh.de](http://www.atlantagmbh.de)



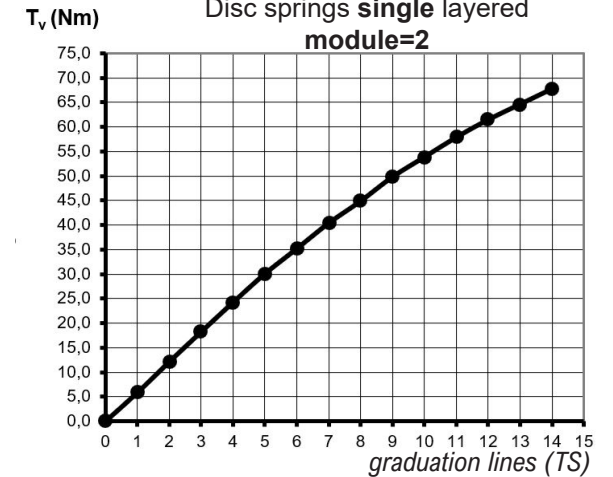
Webseite



Youtube  
 Assembly videos

## 4. Adjustment diagrams

Adjustment Pre-load torque  
 Disc springs **single** layered  
**module=2**



Adjustment Pre-load torque  
 Disc springs **double** layered  
**module=3**

