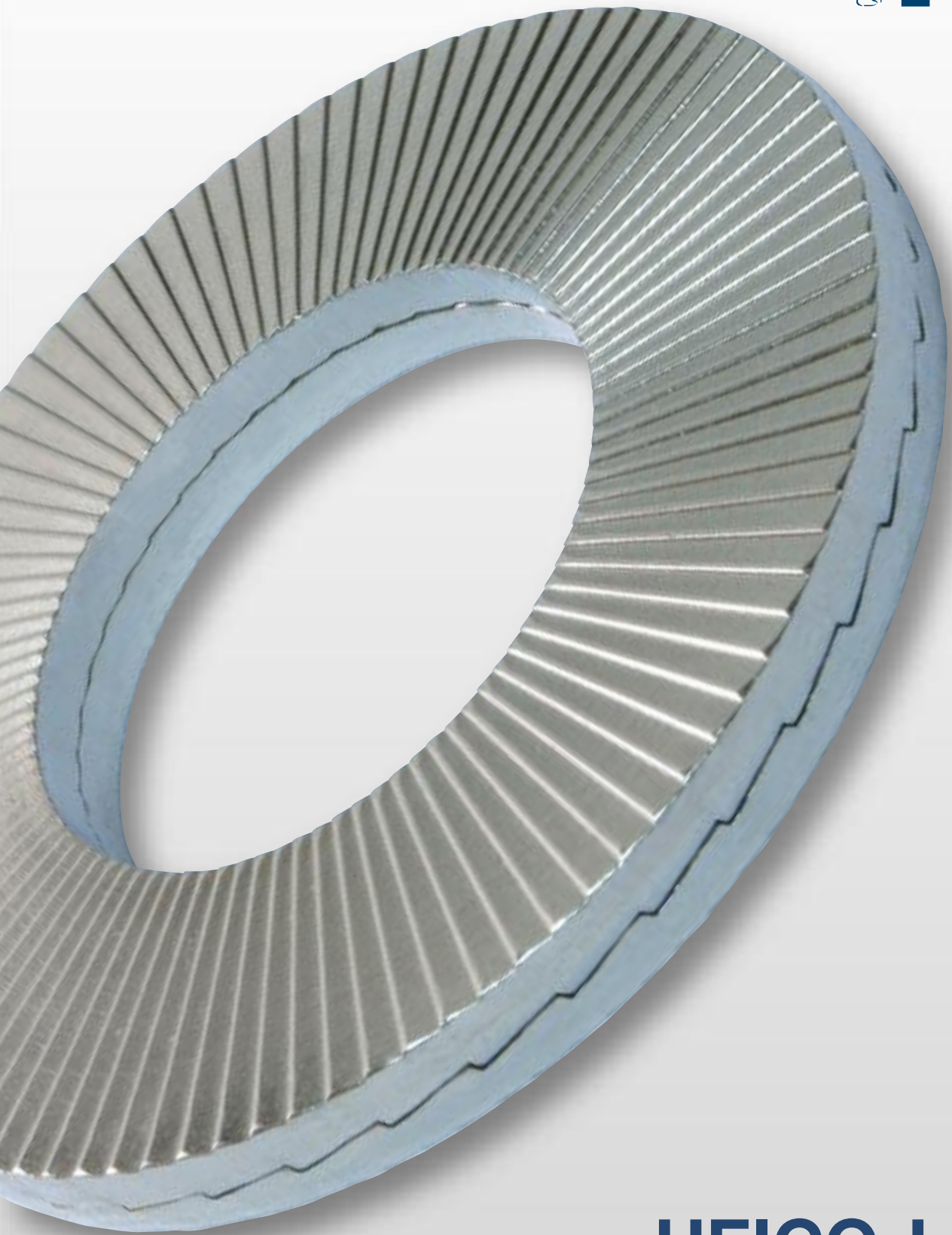


HEICO-LOCK

WEDGE LOCK WASHERS

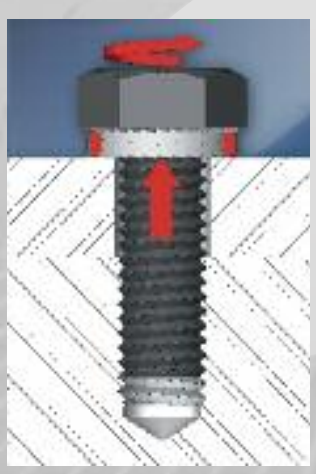
WEDGE LOCK WASHERS

The Heico-Lock wedge locking system delivers high quality anti-vibration security for the most demanding of bolted joint applications.

Even under extremes of vibration or dynamic loads, HEICO-LOCK wedge lock washers provide maximum reliability. When the bolt is tightened, the external radial teeth of the HEICO-LOCK wedge lock washers embed themselves in an interlocking fashion with the respective mating surface. If the securing system is subject to dynamic stress, movement is only possible between the internal washer surfaces. This results in an increase in the preload force.

- Certified system for securing bolts, working at low and high preload levels
- Particularly suitable for dynamic loads – including when using lubricants
- Can be re-used without any reduction in function or quality
- Very easy to install and remove (wedge lock washers are supplied as a pre-assembled pair)
- Also suitable for high-tensile bolts of 8.8, 10.9 and 12.9 and their respective nuts
- Available in steel or stainless steel with narrow or wide bearing surfaces – other materials such as Inconel and SMO are available upon request
- Available from M3–M42 and ¼”–1” – custom sizes upon request

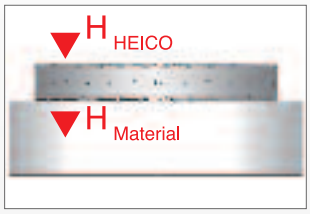
FUNCTIONAL PRINCIPLE



An important feature of HEICO-LOCK wedge lock washers, setting them apart from other systems that are available, is the securing of the bolt fastening using preload force rather than friction

- Wedge-shaped surface on the inside of the lock washers, radial teeth on the outside
- Interlocking embedding of the radial teeth with the respective mating surface (when the bolt is tightened)
- System movement only possible between the inside washer surfaces, allowing the securing system to readjust itself automatically
- Increase in clamping force

TECHNICAL DATA

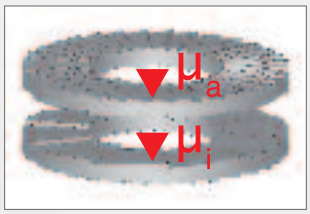


1. Difference in hardness: $H_{HEICO} > H_{Material}$

- The surface hardness of HEICO-LOCK wedge lock washers is greater than that of structural grade and high tensile bolts (8.8, 10.9,12.9)
  Steel (through-hardened) 485 ±25 HV0.3
  Stainless steel (surface-hardened) > 520 HV0.05

2. Difference in angles: α > β

- The wedge angle (α) between the HEICO-LOCK wedge lock washers is greater than the pitch (β) of the bolt thread
- This angle means the expansion in thickness of the HEICO-LOCK wedge lock washers is greater than the possible longitudinal movement of the bolt along the thread



3. Difference in friction: $\mu_a > \mu_i$

- The wedge-shaped surfaces have a considerably lower friction coefficient μ_i than the toothed outside of the washers (friction coefficient μ_a)
- Loosening caused by dynamic stresses causes movement between the two washers in the region of the wedged surfaces

4. Difference in preload: $F_{dyn} > F_{stat}$

- An expansion in thickness of the HEICO-LOCK wedge lock washers as a result of loosening leads to an increase in the clamping force
- This causes an increase in the preload compared to when in a static state and thus causes the bolt to self-lock

FIELDS OF APPLICATION


Mechanical engineering


Wind energy technology


Automotive


Agriculture and forestry


Railway


and many more

INSTALLATION EXAMPLES


Hexagon bolt in a through-hole, secured on both sides


Hexagon bolt secured in a blind hole


Countersunk secured cylinder bolt


Secured stud bolt

Product Datasheet

Heico Anti-vibration (Wedge Lock) washers

Heico high quality anti-vibration wedge lock washers provide security for various bolted joint applications.

This range of anti-vibration wedge lock washers use a preload force rather than friction in the securing of the bolt fastening, available in both steel and stainless steel.

- Wedge-shaped surface on the inside of the lock washers, radial teeth on the outside
- Interlocking embedding of the radial teeth with the respective mating surface (when the bolt is tightened)
- System movement only possible between the inside washer surfaces, allowing the securing system to readjust itself automatically
- Increase in clamping force

Suitable for a wide field of applications:

- Mechanical Engineering
- Wind Energy Technology
- Automotive
- Agriculture and Forestry
- Railway

MPN	INTERNAL-Ø (MM)	EXTERNAL-Ø	MATERIAL
HLS-3	3.4	7.0	Steel
HLS-4	4.4	7.6	Steel
HLS-5	5.4	9	Steel
HLS-6	6.5	10.8	Steel
HLS-8	8.6	13.5	Steel
HLS-10	10.7	16.6	Steel
HLS-12	13	19.5	Steel
HLS-16	17	25.4	Steel
HLS-20	21.4	30.7	Steel
HLS-5S	5.4	9	Stainless Steel
HLS-6S	6.5	10.8	Stainless Steel
HLS-8S	8.6	13.5	Stainless Steel
HLS-10S	10.7	16.6	Stainless Steel
HLS-12S	13	19.5	Stainless Steel
HLS-16S	17	25.4	Stainless Steel
HLS-20S	21.4	30.7	Stainless Steel
HLSKIT	HLS-3 (10x), HLS-4 (20x), HLS-5 (20x), HLS-6 (20x), HLS-8 (20x), HLS-10 (20x), HLS-12 (20x), HLS-16 (10x), HLS-20 (10x)	HLS-3 (10x), HLS-4 (20x), HLS-5 (20x), HLS-6 (20x), HLS-8 (20x), HLS-10 (20x), HLS-12 (20x), HLS-16S (10x), HLS-20 (10x)	Steel

Stainless Steel grade: 316

Steel grade: C45E (1.1191)