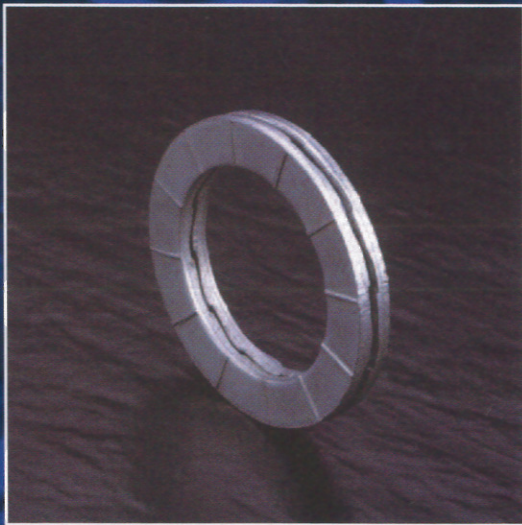


DISC-LOCK FASTENERS

SOLVING THE PROBLEM OF FASTENER FAILURE

**THE MOST EFFECTIVE LOCKING DEVICES
FOR MAINTAINING JOINT INTEGRITY
IN HIGH STRESS APPLICATIONS**



DISC-LOCK WASHER



DISC-LOCK LOCKING NUT

- **HEAVY DUTY STRUCTURAL SELF-LOCKING FASTENERS, WHICH PREVENT LOOSENING CAUSED BY SHOCK OR VIBRATION IN HIGH STRESS APPLICATIONS**
- **OUT PERFORM ALL OTHER TYPES OF LOOSE, WASHERED, THREADED OR PINNED FIXINGS IN HEAVY-DUTY VIBRATION APPLICATIONS**
- **INCREASES PRODUCTIVITY AND REDUCES MAINTENANCE COSTS BY ELIMINATING EQUIPMENT DOWNTIME CAUSED BY CONVENTIONAL FASTENER FAILURE**

DISC-LOCK™
EUROPE
LEADING INNOVATORS IN FASTENER TECHNOLOGY

www.disc-lock.co.uk

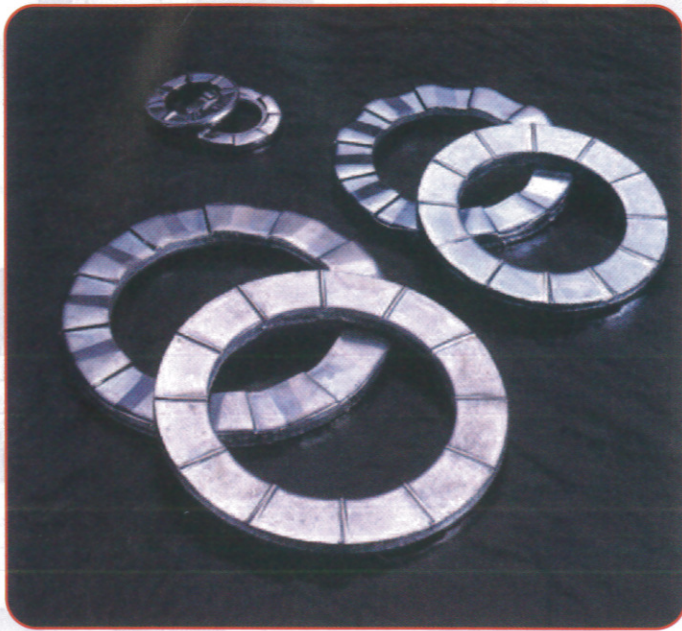
The Disc-Lock system

The **Disc-Lock** system underpins a range of vibration proof and heavy-duty structural locking devices recommended for the most stressful applications.

The **Disc-Lock** system is a simple one. Briefly, **Disc-Lock** fasteners consist of two pieces with rising, interlocking cams, whose angle is greater than the pitch angle of the thread on the bolt. As the fastener attempts to rotate loose – whether it is a washer or nut - the interlocking cams rise against each other to create a wedging effect, which locks the assembly, thereby maintaining the tension in the fastener and maintaining joint integrity. The result is a fastening system that is vibration proof according to Military Standards. (United States Military MIL-STD-1321, Vibration Test 7. Test Results data available upon request.)

Once applied and installed correctly the **Disc-Lock** fastener will remain secure and will ensure that nuts and bolts do not require retightening.

The Disc-Lock Washer



The **Disc-Lock Washer** outperforms all other types of loose, washered, threaded or pinned systems in a wide range of high stress, corrosive and vibration sensitive applications.

Unlike conventional washers, the **Disc-Lock Washer** consists of two washer-shaped pieces which are preassembled (glued pairs – new stock only) and which have inclined cams on one side and a series of ridges on the other. To install, place a pair under the nut or bolt head in blind hole applications and vibration loosening problems are solved. The washers are zinc-plated, heat treated and are available in a range of sizes from 5mm to 38mm (standard **Disc-Lock Washers**) and in stainless steel from 5mm to 16mm.

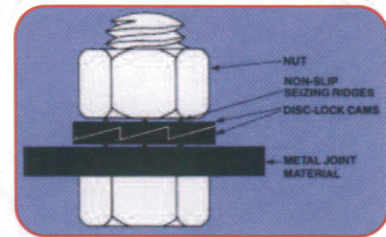
Key Features

- Manufactured in 1010 carbon steel and case hardened to 40/55 on the Rockwell C scale to a depth of 0.13mm (0.005")
- Also manufactured in stainless steel (316) up to size 16mm (5/8")
- Zinc plated to A.S.T.M. B633-85 and baked to prevent hydrogen embrittlement. (**Disc-Lock Washers** are not suitable for hot dip galvanizing.)
- All new stock from 2012 coated with Delta Protekt (colour – silver matte). Minimum 600 hours of salt spray.
- Each lot is micro-hardness tested after heat treatment
- Can be used with Grade 2,5,8 and even stronger bolts

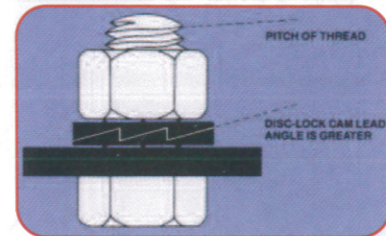
Disc-Lock Washers are sold in pairs. These pairs may be glued together for easier installation. However, due to circumstances beyond our control some washers may become separated during shipping and handling. This does not effect the operation of the washer and these washers should not be returned as defective.

Disc-Lock Washer - Installation Procedure

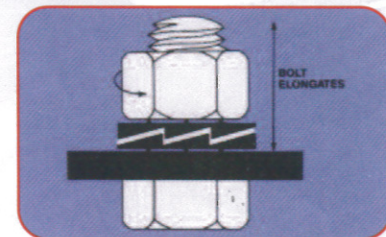
- 1 To install the **Disc-Lock Washer**, simply mate the cams of the two pieces together and place between the nut and the joint material.



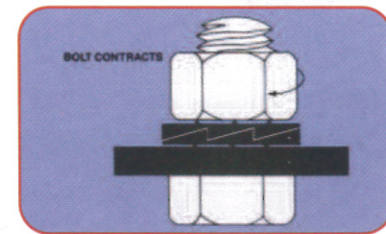
- 2 As the nut is tightened, one half of the **Disc-Lock Washer** is seated to the joint material and the other to the nut.



- 3 When the bolt elongates due to vibration and shock, the nut will attempt to rotate loose. As one half of the **Disc-Lock Washer** tries to rotate with the nut, the interlocking cams work against each other. This will increase/maintain the preload and further lock the assembly.



- 4 As the bolt contracts, the inclined planes of the cams cause the nut to rotate back to its original position.



- 5 In common with most fastening devices, **Disc-Lock Washers** should only be used against flat, relatively smooth metal surfaces.

- 6 If the joint material is not metal, the **Disc-Lock Washer** may be used by securing a metal plate to the joint material in such a manner that the metal plate will not rotate.

- 7 As with all fasteners, **Disc-Lock Washers** should be re-examined before re-using.

- 8 An air-gun can be used when installing and removing **Disc-Lock Washers**.

Disc-Lock Locking Nut

The **Disc-Lock Locking Nut** is a double hex, free spinning, vibration-proof lock nut.

Based on the **Disc-Lock** system, it consists of two pieces each with interlocking cams, which are joined together to form one assembly. The top part of the **Disc-Lock Locking Nut** is a threaded hexagon nut with cams on the underside. The bottom part, the hex flange washer, has cams on the topside. When the assembly is subjected to vibration and shock, the interlocking cams of the **Disc-Lock Locking Nut** attempt to rise against each other. As the angle of the cams is greater than the pitch angle of the thread on the stud a wedging effect takes place, thereby locking the assembly.

Disc-Lock Locking Nut - Installation procedure

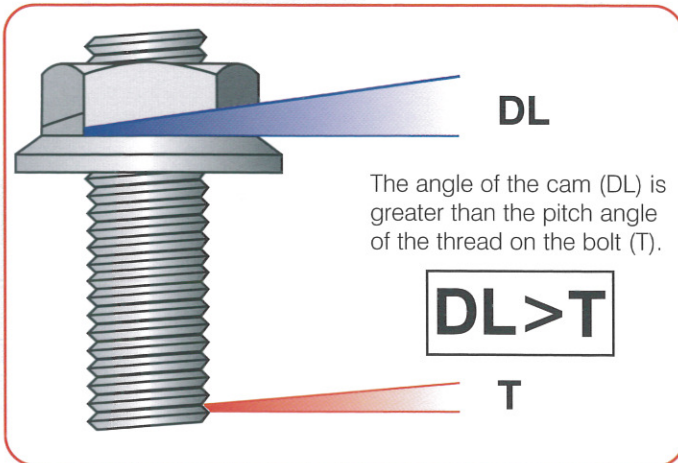


To install the **Disc-Lock Locking Nut** follow the same procedure as for conventional nuts and torque to normal specifications.

To remove the **Disc-Lock Locking Nut** place the wrench or socket over both hexes and loosen.

Key features of the Disc-Lock Locking Nut

- Free spinning (no thread interference)
- One-piece assembly
- No washer required
- Installed with standard equipment - no special tools required
- Easy to remove
- Reusable
- Manufactured from medium carbon steel
- Can be used with Grade 5 (Class 8.8), Grade 8 (Class 10.9) and even stronger bolts
- US Military - MIL-STD 1312, Vibration Test 7. Results available on request
- Junker test results available on request



The **Disc-Lock Locking Nut** comes in a range of sizes from 10mm to 16mm and is used by automotive manufacturers, the construction industry, heavy equipment manufacturers, mining, quarrying and railway industries. Users include Jobel Engineering in the UK, Combilift in Ireland, John Deere and Tucker Sno Cat in the US, Mazda and Toyota in Japan, and New South Wales Railways in Australia.

Disc-Lock Fasteners - Applications include:

- Automotive industries (cars, trucks & buses)
- Compressors
- Cranes
- Farm equipment
- Fork lifts
- Foundries
- Go-Kart racing



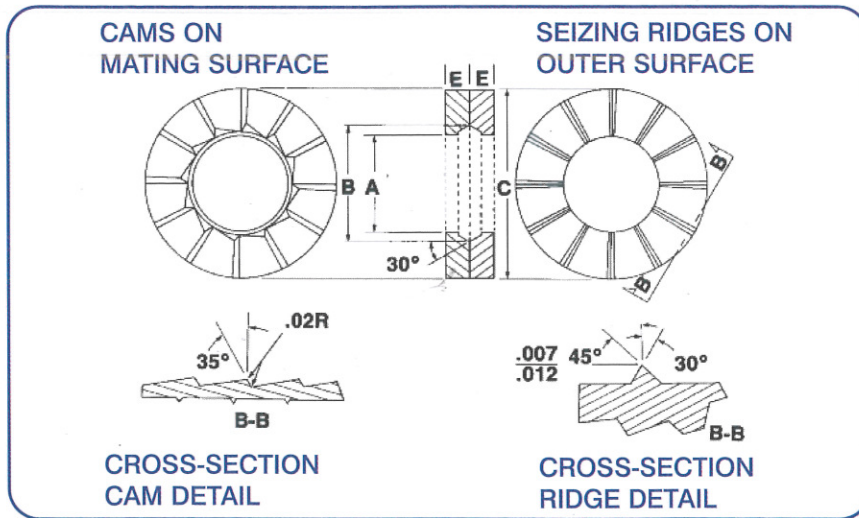
- Pipelines
- Quarrying
- Rail engineering
- Rapid transit systems
- Refineries
- Rock hammers
- Steel mills



- Heavy equipment (road & construction)
- Logging equipment
- Marine installations
- Military equipment
- Mining equipment
- Oil drilling rigs (on & off shore)
- Pile hammers



DISC-LOCK Washer Dimensional Chart And Specifications



ORDER #	# OF CAMS	SIZE		STANDARD DIMENSIONS			METRIC DIMENSIONS		
		STD INCHES	METRIC MM.	A IN.	C IN.	**EE IN.	A MM.	C MM.	**EE MM.
100-01	6	3/16*	5	.203	.401	.080	5.15	10.18	2.03
101-01	6	1/4*	6**	.262	.495	.127	6.66	12.57	3.22
102-01	8	5/16*	8	.326	.628	.142	8.28	15.95	3.60
103-01	8	3/8*	10*	.409	.705	.160	10.38	17.90	4.06
104-01	10	7/16	11*	.450	.880	.135	11.43	22.35	3.33
105-01	10	1/2*	12*	.510	.937	.166	12.95	23.82	4.22
106-01	10	9/16	14*	.572	1.128	.127	14.53	28.65	3.23
107-01	12	5/8*	16*	.651	1.247	.188	16.53	31.67	4.79
108-01	14	•	20*	.820	1.381	.242	20.82	35.08	6.15
109-01	14	7/8	22*	.883	1.470	.268	22.44	37.34	6.80
110-01	16	1	24*	1.015	1.626	.256	25.78	41.30	6.50
111-01	12	1-1/8	27*	1.140	1.715	.240	28.96	43.56	6.10
112-01	12	1-1/4	30*	1.275	1.875	.265	32.39	47.63	6.73
117-01	12	1-3/8	36*	1.430	2.196	.230	36.32	55.78	5.84
113-01	12	1-1/2	38*	1.523	2.196	.230	38.68	55.78	5.84

*These sizes are available in pairs and are plated in A.S.T.M B633-98, Class 2, Trivalent Chromate, Blue to comply with RoHS, WEEE and ELV European directives and are sold in pairs.

*These sizes are available glued and coated with Delta Protekt which complies with RoHS and ELV directives.

For orders of stainless steel parts, add SS to beginning of order number. Stainless steel washers are available in sizes 5mm-16mm only.

** Weight and thickness of pairs will vary slightly with gauge of metal.

DISC-LOCK Locking Nut Dimensional Chart

NOMINAL SIZE	WIDTH ACROSS THE FLATS	HEIGHT	FLANGE DIAMETER	COATING *
M10 x 1.5	15mm	11mm	20mm	Magni 565
M12 x 1.75	19mm	17.5mm	25mm	Magni 565
M14 x 1.5	24mm	21mm	32mm	Magni 565
M16 x 1.5	24mm	21mm	32mm	Zinc
M16 x 2	24mm	21mm	32mm	Magni 565

Imperial nut sizes on application - ask for details. Locking Nuts in sizes M16 are zinc plated and are being phased to Magni 565 coating to comply with RoHS, WEEE and ELV European Directives.

*Locking Nuts in sizes M10, M12, M14 are already compliant with these European Directives and are coated with Magni 565 coating which has no Cr6 hexavalent chrome.



For price information and availability, please contact:

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