



Administration Headquarters



50,000m² Manufacturing Plant and Logistics Center



**AIGI ENVIRONMENTAL INCORPORATED**

A Subsidiary of AIGI Group

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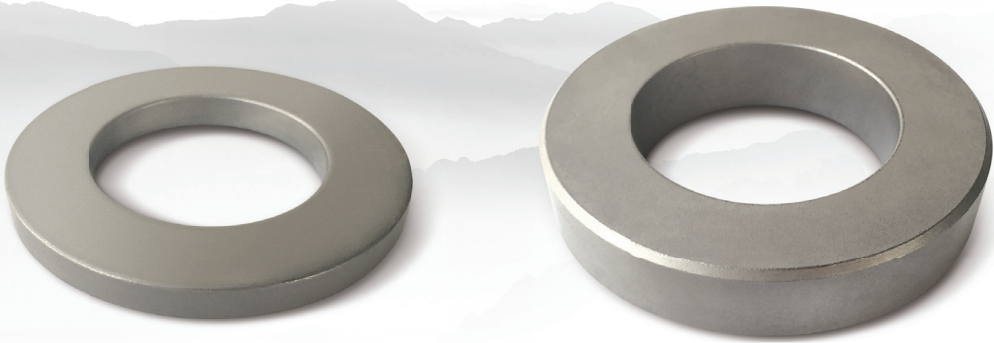
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# DISC SPRINGS

FOR CHEMICAL ENVIRONMENTS



FOR STANDARD ENVIRONMENTS

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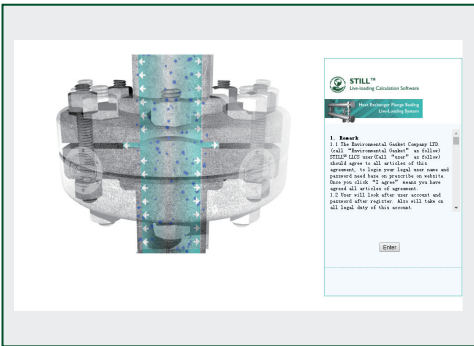
LLCS: Live-Loading Calculation Software

LLCS is an advanced technical software which could automatically calculate the Live-Loading stress and choose suitable disc springs.

※ Only AIGI Environmental distributors have the authority to use this software.

• How to use LLCS?

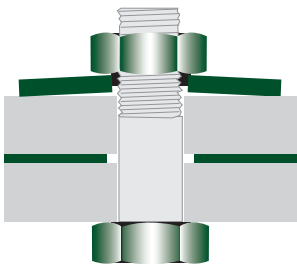
Step 1 :  
Get authorization and enter the online system  
<http://www.aigienviromental.com/llcs>



Step 2 :  
Enter techinial data



Step 3 :  
Get result: Live-Loading stress



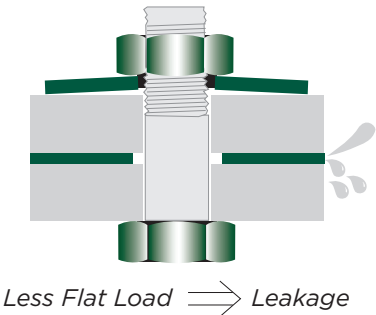
Flat Load = 467440.5(N) (Demo)

Step 4 :  
Choose suitable disc springs according to the live-loading stress result

• Why choosing suitable live-loading is so important?

A. Less stress

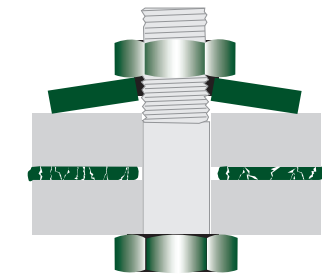
Disc springs are paticularly useful where vibration, differential thermal expansion, relaxation, and bolt creep are problems. An insufficient stress could cause leakage, even gasket failing.



Less Flat Load  $\Rightarrow$  Leakage

B. Excessive Stress

A disc spring which provides an excessive stress, may crush the gasket and cause leakage.



Over Load  $\Rightarrow$  Gasket Crush

Step 5 :  
Apply suitable torque during installation



Recommend Torque = 1193.1(Nm) (Demo)



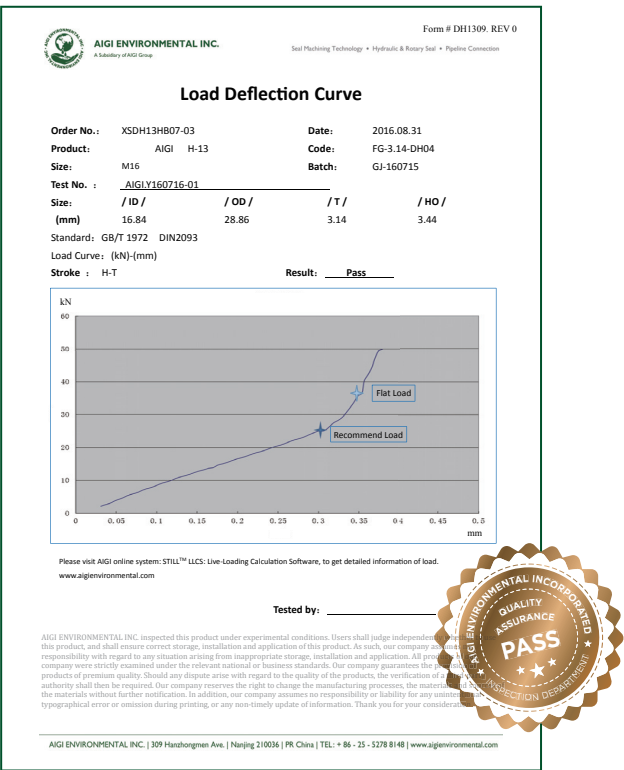
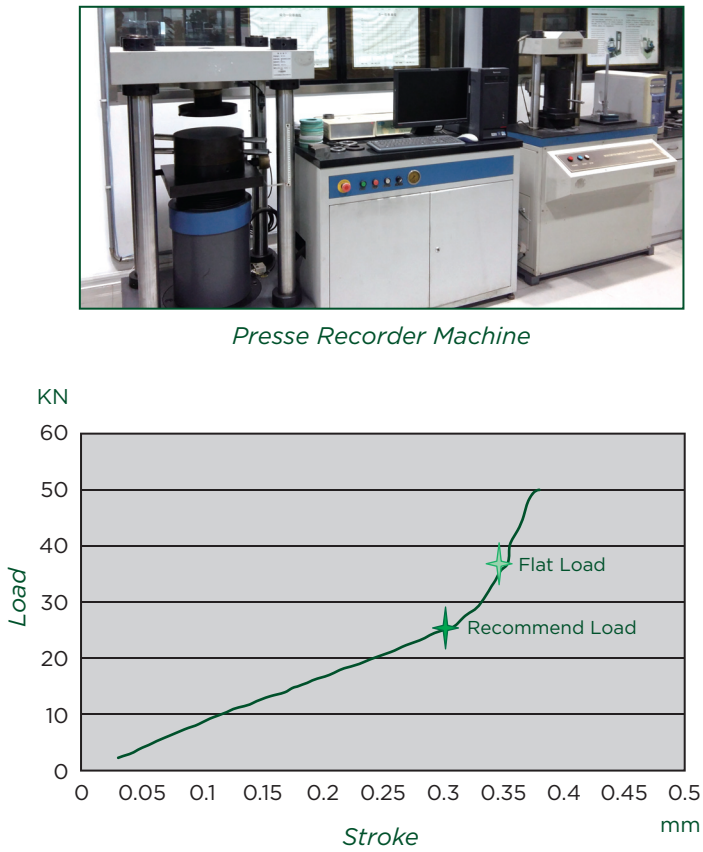
Quality Assurance

• A Load Deflection Curve: Certified.

We takes great pride in our highest quality standards of products.

To assure all the disc springs 100% acceptable, our quality assurance and testing facilities can provide a Load Deflection Curve for each batch of orders.

A **Load Deflection Curve** from AIGI, is a unique service that you could not find everywhere.



Sample

We have sold over **5,000,000** disc springs in the last 10 years and sealed over **1,600,000** controls.

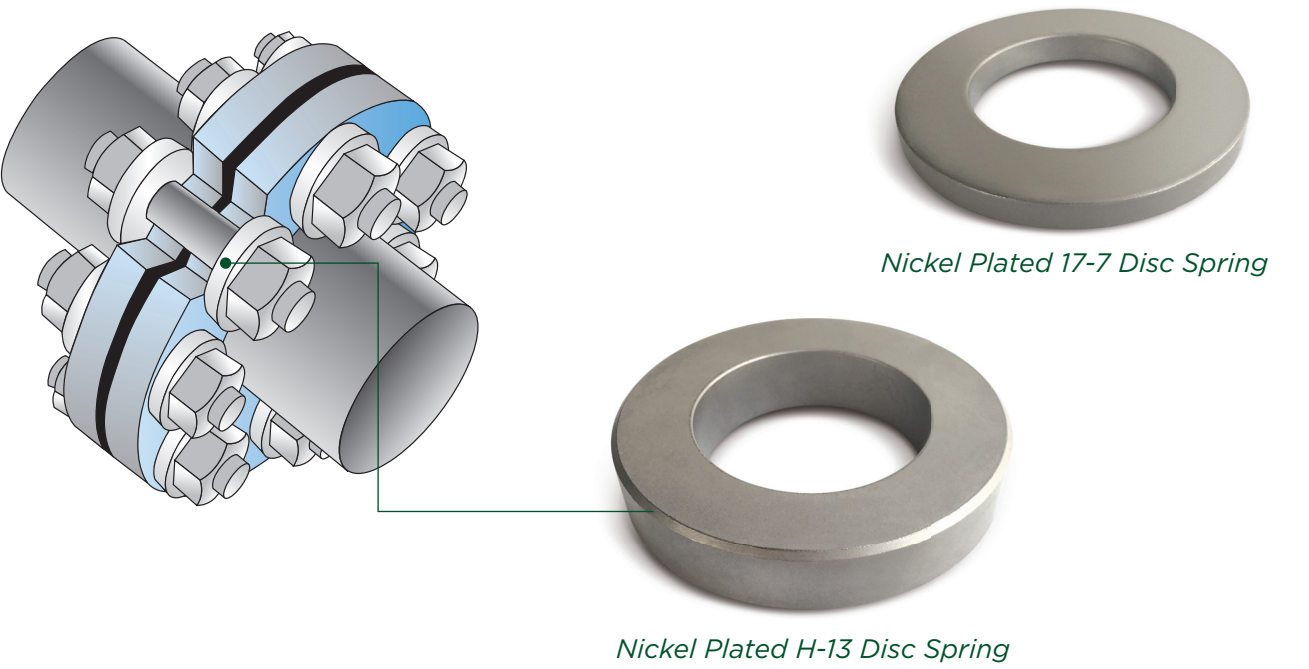
Disc Springs for Chemical Environments

• Nickel Plated H-13 Disc Springs & Nickel Plated 17-7 Disc Springs

The advanced Nickel Plated Technology gives **AIGI NIF Disc Springs** a high wear and corrosion resistant surface.

The special coating protects the spring metal surfaces from scratching and provides protection from acidic and alkaline corrosion during working application. The highly protected surface can even withstand prolonged exposure to halogens.

This tremendous corrosion resistance dramatically extends the disc spring life and greatly enhances its preload ability.



Physical Properties

Disc Spring Material	Yield Strength(psi)	Elastic Modulus(psi)	Temperature(°C)	Surface Treatment
H-13 NIF Disc Spring	220,000	30,000,000	-156 ~ 600	Nikel Plated
17-7 NIF Disc Spring	180,000	29,000,000	-200 ~ 330	

Nickel Plated H-13 Disc Springs Selection

Size(mm)	Load(N) (±10%)	Max.Torque(Nm) (±10%)
H-13 NIF-M10	21587	39
H-13 NIF-M12	31467	68
H-13 NIF-M14	43180	109
H-13 NIF-M16	59783	172
H-13 NIF-M18	83164	269
H-13 NIF-M20	93577	337
H-13 NIF-M22	122324	484
H-13 NIF-M24	133718	578
H-13 NIF-M27	175735	854
H-13 NIF-M30	214717	1159
H-13 NIF-M33	266836	1585
H-13 NIF-M36	312281	2024
H-13 NIF-M39	397815	2793
H-13 NIF-M42	476220	3600
H-13 NIF-M45	556548	4509
H-13 NIF-M48	511142	4416
H-13 NIF-M52	793153	7424
H-13 NIF-M56	747179	7532
H-13 NIF-M64	940761	10839
H-13 NIF-M72	1521813	19723
H-13 NIF-M76	1381187	18897
H-13 NIF-M80	1768216	25462
H-13 NIF-M90	2214563	35876
H-13 NIF-M100	2844483	51208

•Remarks: NIF H-13 disc spring is compatible with bolts at 8.8grade / 80D / SAE8.

※ Conventional H-13 disc springs are available too.

Please consult with AIGI Environmental Inc. for all your standard and non-standard requiremnts.

Nickel Plated 17-7 Disc Springs Selection

Size(mm)	Load(N) (±10%)	Max.Torque(Nm) (±10%)
17-7 NIF-M6	3236	3
17-7 NIF-M8	4207	6
17-7 NIF-M10	12407	22
17-7 NIF-M12	16447	36
17-7 NIF-M14	16096	41
17-7 NIF-M16	28977	83
17-7 NIF-M18	33282	108
17-7 NIF-M20	43398	156
17-7 NIF-M22	43472	172
17-7 NIF-M24	42873	185
17-7 NIF-M27	42357	206
17-7 NIF-M30	66252	358
17-7 NIF-M32	65429	377
17-7 NIF-M33	89269	530
17-7 NIF-M36	64850	420
17-7 NIF-M38	115840	792
17-7 NIF-M39	118136	829
17-7 NIF-M42	122435	926
17-7 NIF-M45	137223	1112
17-7 NIF-M48	182148	1574
17-7 NIF-M52	179663	1682
17-7 NIF-M64	274499	3162
17-7 NIF-M72	452624	5866

※ Conventional 17-7 disc springs are available too.

Please consult with AIGI Environmental Inc. for all your standard and non-standard requiremnts.

Size(inch)	Load(lbs) (±10%)	Max.Torque(ft·lbs) (±10%)
17-7 NIF-3/8	2812	16
17-7 NIF- 7/16	2774	18
17-7 NIF-1/2	3673	28
17-7 NIF-5/8	6496	61
17-7 NIF-3/4	8494	96
17-7 NIF-7/8	12476	164
17-7 NIF-1	17873	268
17-7 NIF-1 1/8	19821	334
17-7 NIF-1 1/4	19803	371
17-7 NIF-1 3/8	24761	511
17-7 NIF-1 1/2	26104	587
17-7 NIF-1 5/8	27009	658
17-7 NIF-1 3/4	30905	811
17-7 NIF-1 7/8	32672	919
17-7 NIF-2	40037	1201
17-7 NIF-2 1/4	51142	1726
17-7 NIF-2 1/2	62268	2335
17-7 NIF-2 3/4	74638	3079
17-7 NIF-3	88102	3965

1inch=25.4mm    1lbs=4.45N    1N=0.2248lbs  
 1ft·lbs=1.356Nm                      1Nm=0.7375 ft·lbs

## Preload Disc Springs for Standard Environments

### • H-13 Flange Disc Springs



Used for: high temperature service (indoor/outdoor)  
Operating temperature: - 157°C ~ 593°C, fully magnetic  
Finish treatment: machined with little oil  
Applicable for Valve, Pipe flange, Heat exchanger, etc.

### • 17-7 Flange Disc Springs

Used for: Corrosive environment (indoor/outdoor)  
Operating temperature: - 240°C ~ 288°C, highly magnetic.  
Nickel plating (AMS 2424D) is supplied.  
Recommended bolt internal stress  $\leq$  200 MPa.  
Applicable for Valve, Pipe flange, Heat exchanger, etc.



### • 6150G Washers



6150G is a non-flat washer with a conical shape which gives them their specific spring characteristic. They are designed to be loaded in the axial direction only and are typically used to apply a preload to a bolted joint and to provide resiliency and flexibility under vibration conditions.  
6150G is applicable for Brakes, Bearing pre-load, Overload device, Mechanical actuator, Industrial furnace, Mould, Clutch in Metallurgy, Mechanical vehicle, Electricity, Construction industry.

### • 1075G Washers

1075G washers are Disc Springs with a Trapezoidal Cross Section on both sides for gripping.

1075G washers are ready to fit washers for sustaining a preload and avoiding loosening. As the bolts are tightened the serrations bite into the mating faces and preventing the bolt from loosening due to vibration. Also the disc shape holds the necessary pre-load.

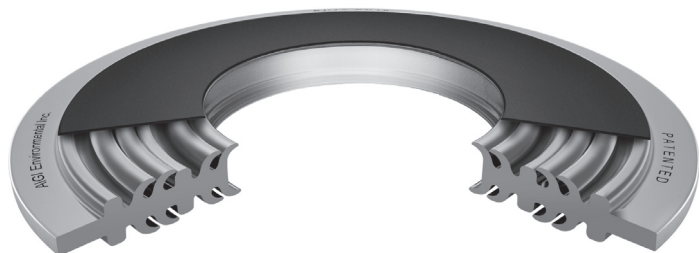
The diameters for 1075G Washers are matched to bolt dimensions. The outer diameter of the washer is matched to the head diameter of the screw. This allows the use of screws and bolts including recessed heads, except countersunk screws.



※ All products listed manufactured to **AIGI ENVIRONMENTAL INC.** standard materials and finishes, please consult with **AIGI ENVIRONMENTAL INC.** on any special materials and or finishes.

## Related AIGI Innovative Fluid Sealing Products

### • International Patented Fishbone™ Gaskets



### • Patented Safe-Cut Packings



### • Mechanical Seals

