



Administration Headquarters



50,000m² Manufacturing Plant and Logistics Center



**AIGI ENVIRONMENTAL INCORPORATED**

— A Subsidiary of AIGI Industrial Group —

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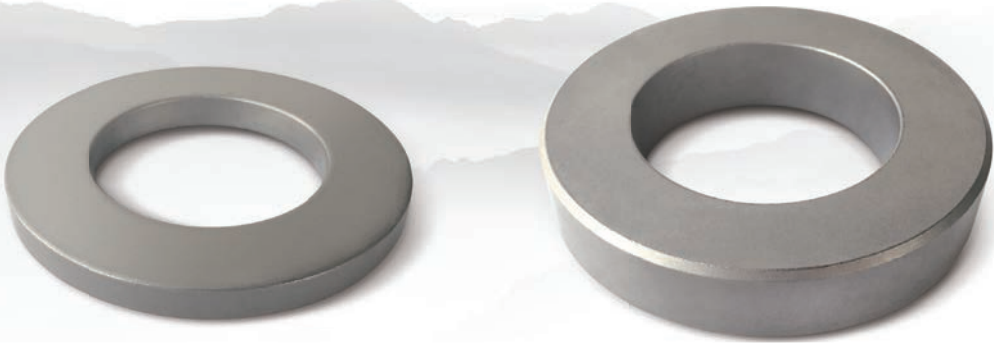
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# DISC SPRINGS

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?

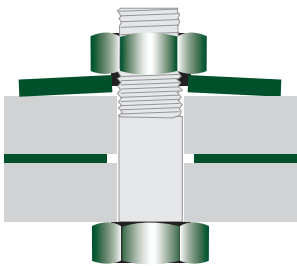
Step 1 :  
Get authorization and enter the online system  
<http://www.aigienviromental.com/llcs>



Step 2 :  
Enter techinial data



Step 3 :  
Get result: Live-Loading stress

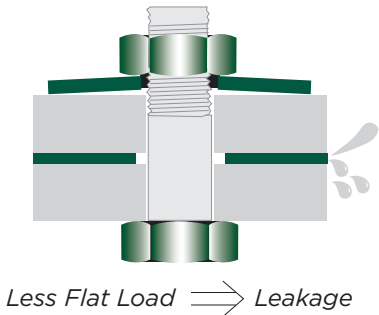


Flat Load = 467440.5(N) (Demo)

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

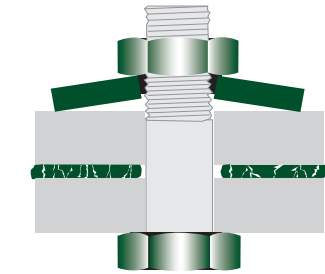
• Why choosing suitable live-loading is so important?

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.



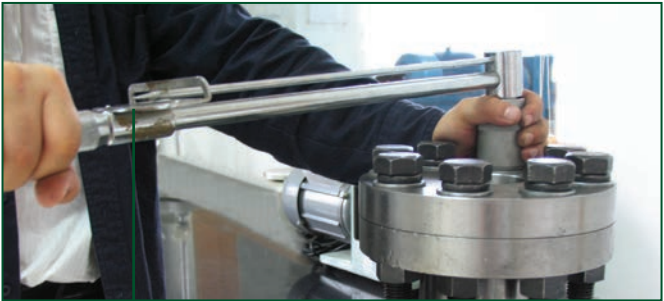
Less Flat Load ⇒ Leakage

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



Over Load ⇒ Gasket Crush

Step 5 :  
Apply suitable torque during installation



Recommend Torque = 1193.1(Nm) (Demo)



Quality Assurance

• A Load Deflection Curve: Certified.

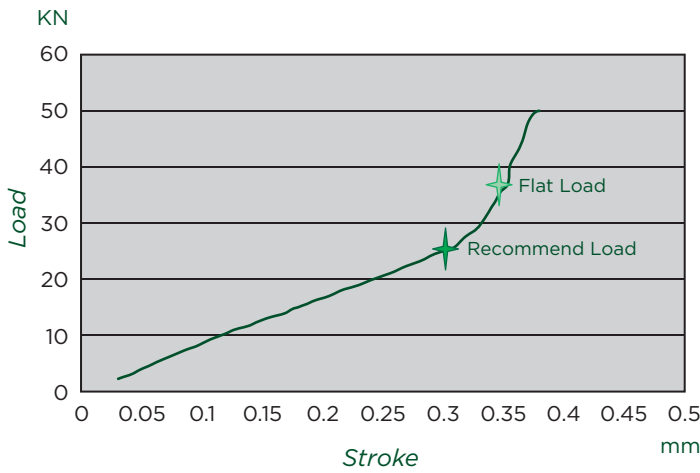
We takes great pride in our highest quality standards of products.

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.

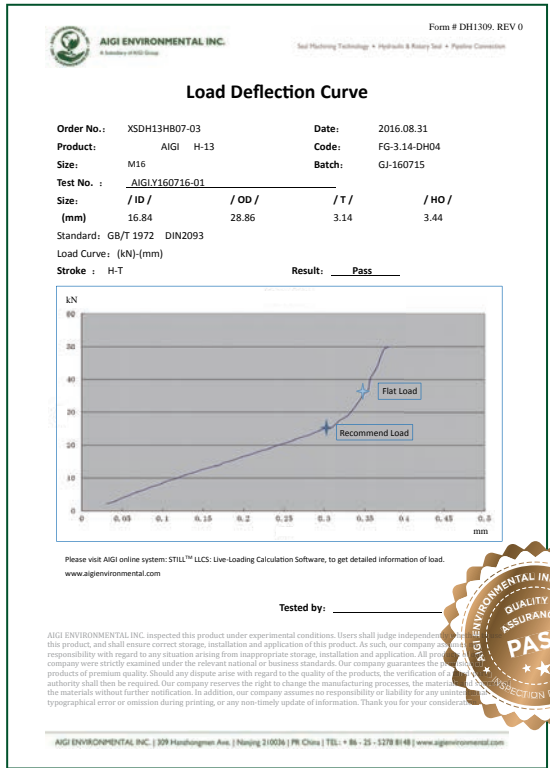
A **Load Deflection Curve** from AIGI, is a unique service that you could not find everywhere.



Presse Recorder Machine



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



Sample

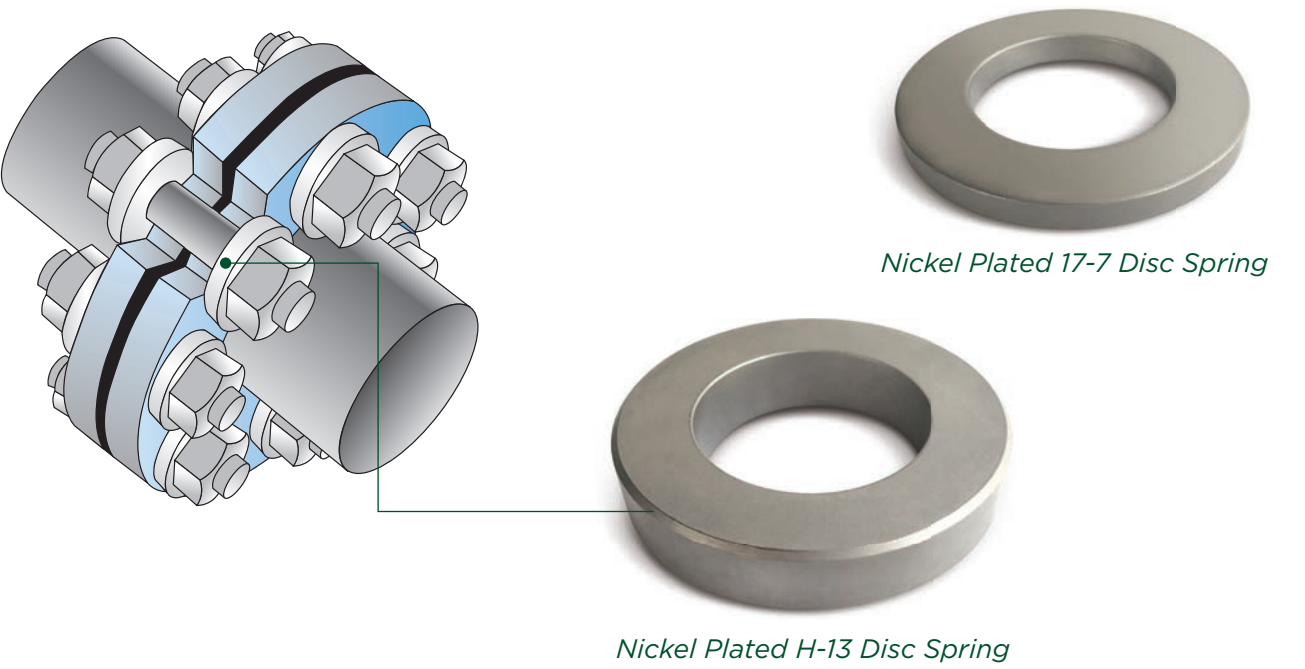
Disc Springs for Chemical Environments

• 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%)	Size(inch)	Load(lbs) (±10%)	Max.Torque(ft·lbs) (±10%)
H-13 NIF-M10	21587	43	H-13 NIF-1/2	37870	96
H-13 NIF-M12	31467	76	H-13 NIF-5/8	60588	192
H-13 NIF-M14	43180	121	H-13 NIF-3/4	88294	336
H-13 NIF-M16	60588	192	H-13 NIF-7/8	123376	549
H-13 NIF-M18	83164	299	H-13 NIF-1	162252	824
H-13 NIF-M20	93577	374	H-13 NIF-1 1/8	208791	1193
H-13 NIF-M22	123324	543	H-13 NIF-1 1/4	266154	1703
H-13 NIF-M24	133718	642	H-13 NIF-1 3/8	314204	2195
H-13 NIF-M27	175735	949	H-13 NIF-1 1/2	397522	3030
H-13 NIF-M30	214717	1288	H-13 NIF-1 5/8	475626	3927
H-13 NIF-M32	266154	1703	H-13 NIF-1 3/4	540548	4865
H-13 NIF-M33	266836	1761	H-13 NIF-1 7/8	541142	5195
H-13 NIF-M36	314281	2263	H-13 NIF-2	586795	5963
H-13 NIF-M39	397815	3103	H-13 NIF-2 1/4	757179	8480
H-13 NIF-M40	469318	3755	H-13 NIF-2 1/2	940761	11949
H-13 NIF-M42	476220	4000	H-13 NIF-2 3/4	1145108	15999
H-13 NIF-M48	541142	5195	H-13 NIF-3	1431187	21754
H-13 NIF-M52	753153	7833	H-13 NIF-3 1/2	2139667	38048
H-13 NIF-M72	1421813	20474			
H-13 NIF-M80	1768216	28291			
H-13 NIF-M85	2092327	35570			
H-13 NIF-M90	2214563	39862			
H-13 NIF-M95	2456390	46801			
H-13 NIF-M110	please consult				

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

● 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%)	Size(inch)	Load(lbs) (±10%)	Max.Torque(ft·lbs) (±10%)
17-7 NIF-M6	3236	4	17-7 NIF-1/2	15536	39
17-7 NIF-M8	4207	7	17-7 NIF-5/8	23977	77
17-7 NIF-M10	12407	25	17-7 NIF-3/4	35781	136
17-7 NIF-M12	15447	37	17-7 NIF-7/8	42472	187
17-7 NIF-M14	16096	45	17-7 NIF-1	43503	221
17-7 NIF-M16	23977	77	17-7 NIF-1 1/8	65168	372
17-7 NIF-M18	33282	120	17-7 NIF-1 1/4	65429	419
17-7 NIF-M20	41398	166	17-7 NIF-1 3/8	110142	769
17-7 NIF-M22	42472	187	17-7 NIF-1 1/2	115840	883
17-7 NIF-M24	42873	206	17-7 NIF-1 7/8	146332	1394
17-7 NIF-M27	43657	236	17-7 NIF-2	178093	1809
17-7 NIF-M30	65252	392			
17-7 NIF-M32	65429	419			
17-7 NIF-M33	67269	444			
17-7 NIF-M36	113939	820			
17-7 NIF-M38	115840	883			
17-7 NIF-M39	118136	921			
17-7 NIF-M42	122435	1028			
17-7 NIF-M45	137223	1235			
17-7 NIF-M48	172148	1653			
17-7 NIF-M52	179663	1868			
17-7 NIF-M64	274499	3514			
17-7 NIF-M72	382624	5510			

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

※ Conventional 17-7 disc springs are available too.  
Please consult with AIGI Environmental Inc. for all your standard and non-standard requiremnts.

## 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

