



Administration Headquarters



50,000m² Manufacturing Plant and Logistics Center



AIGI ENVIRONMENTAL INCORPORATED

— A Subsidiary of AIGI Industrial Group —

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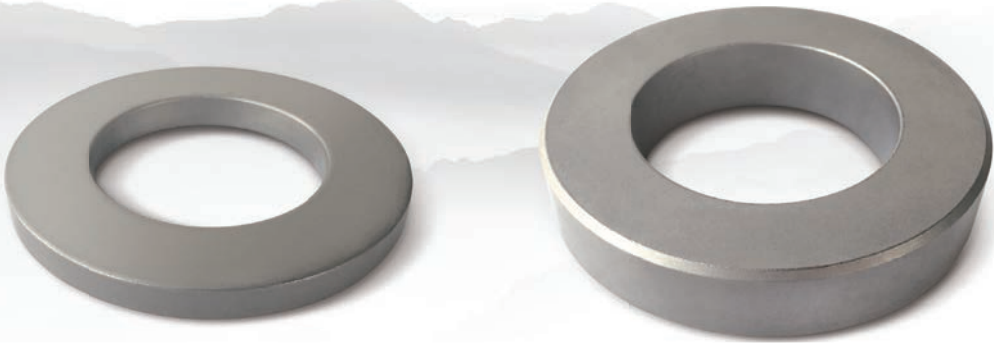
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G022-2022P3V1.0E



DISC SPRINGS

FOR CHEMICAL ENVIRONMENTS



FOR STANDARD ENVIRONMENTS

CONTENTS

LLCS: Live-Loading Calculation Software

Quality Assurance

Disc Springs for Chemical Environments

Preload Disc Springs for Standard Environments

AIGI 693VG Valve Pre-loading Disc Spring Kit

Related AIGI Innovative Fluid Sealing Products

01

03

04

07

08

09

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?

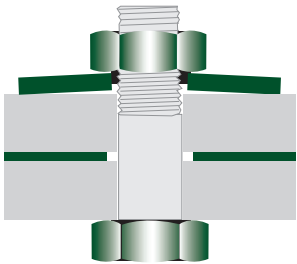
Step 1 :
Get authorization and enter the online system
<http://www.aigienviromental.com/llcs>



Step 2 :
Enter technial data



Step 3 :
Get result: Live-Loading stress



Flat Load = 467440.5(N) (Demo)

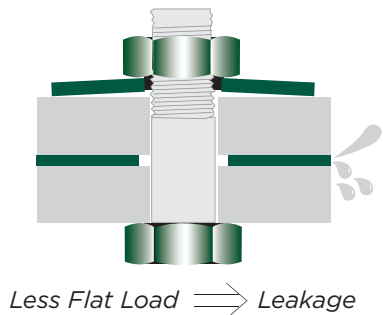
Step 4 :

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

- Why choosing suitable live-loading is so important?

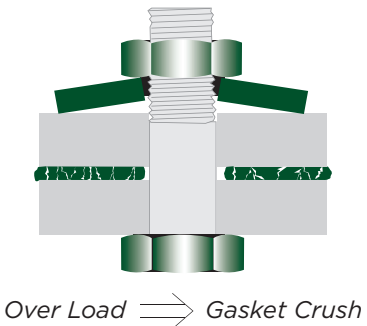
A. Less stress

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.



B. Excessive Stress

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



Step 5 :

Apply suitable torque during installation



Recommend Torque = 1193.1(Nm) (Demo)

Quality Assurance

- A Load Deflection Curve: Certified.

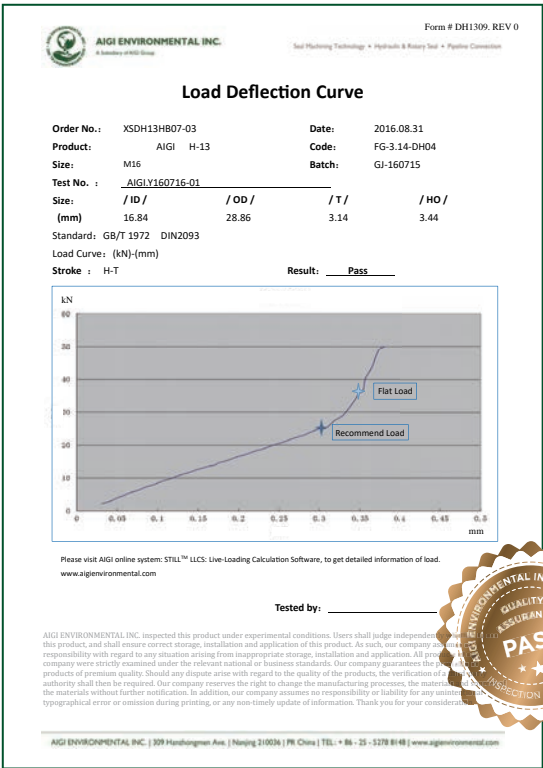
We takes great pride in our highest quality standards of products.

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



Sample

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

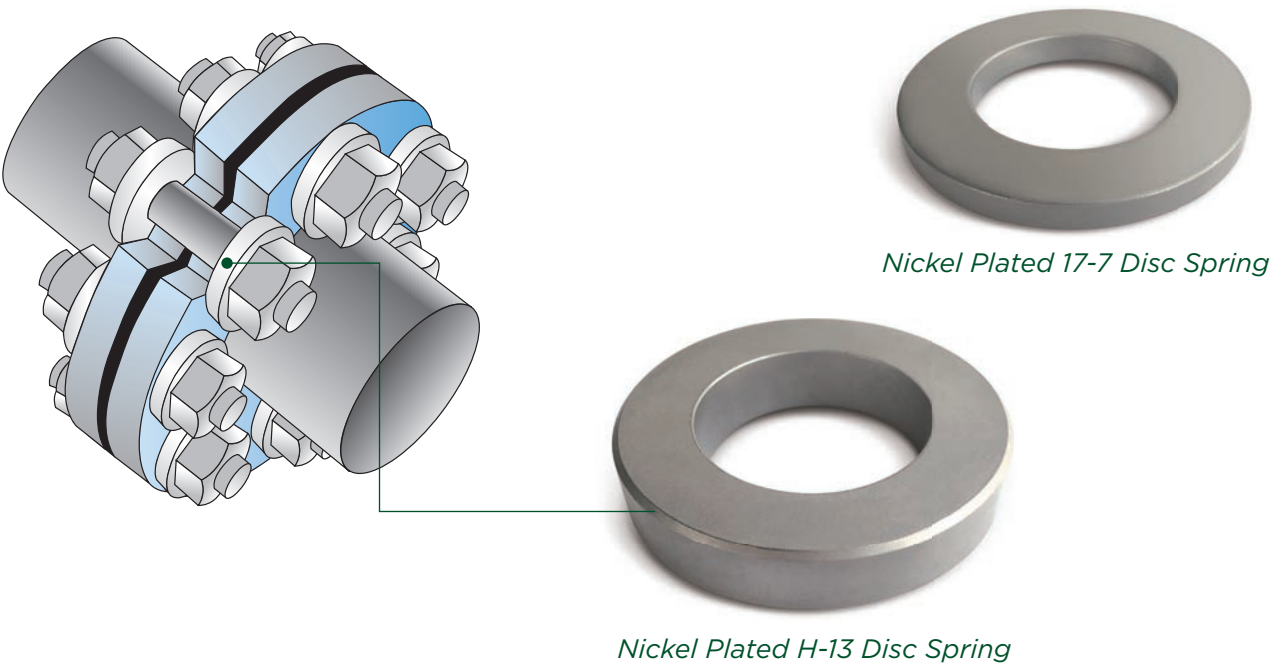
Disc Springs for Chemical Environments

• 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	Flat Load N (±10%)	Flat Torque Light lubrication N·m (±10%)	Size	Flat Load N (±10%)	Flat Torque Light lubrication N·m (±10%)
M10	21587	43	M41 (1 5/8")	475626	3927
M12	31467	76	M42	476220	4000
M12.7 (1/2")	37870	96	M45 (1 3/4")	540548	4865
M14	43180	121	M48 (1 7/8")	541142	5195
M16 (5/8")	60588	192	M50.8 (2")	586795	5963
M18	83164	299	M52	753153	7833
M19 (3/4")	88294	336	M56 (2 1/4")	757179	8480
M20	93577	374	M58	842227	9770
M22	123324	543	M64 (2 1/2")	940761	11949
M22.2 (7/8")	123376	549	M70 (2 3/4")	1145108	15999
M24	133718	642	M72	1421813	20474
M25.4 (1")	162252	824	M76 (3")	1431187	21754
M27	175735	949	M80	1768216	28291
M28.5 (1 1/8")	208791	1193	M82 (3 1/4")	1852016	30577
M30	214717	1288	M85	2092327	35570
M32 (1 1/4")	266154	1703	M88.9 (3 1/2")	2139667	38048
M33	266836	1761	M90	2214563	39862
M35 (1 3/8")	314204	2195	M95 (3 3/4")	2456390	46801
M36	314281	2263	M100 (4")	2844483	57808
M38 (1 1/2")	397522	3030	M105	2933132	61596
M39	397815	3103	M110	3552513	78155
M40	469318	3755			

(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	Flat Load N (±10%)	Flat Torque Light lubrication N·m (±10%)
M6	3236	4
M8	4207	7
M9.5 (3/8")	12308	23
M10	12407	25
M11 (7/16")	12439	28
M12	15447	37
M12.7 (1/2")	15536	39
M14	16096	45
M16 (5/8")	23977	77
M18	33282	120
M19 (3/4")	35781	136
M20	41398	166
M22 (7/8")	42472	187
M24	42873	206
M25.4 (1")	43503	221
M27	43657	236
M28.5 (1 1/8")	65168	372
M30	65252	392
M32 (1 1/4")	65429	419
M33	67269	444
M35 (1 3/8")	110142	769
M36	113939	820

Size	Flat Load N (±10%)	Flat Torque Light lubrication N·m (±10%)
M38 (1 1/2")	115840	883
M39	118136	921
M41 (1 5/8")	120142	992
M42	122435	1028
M44.4 (1 3/4")	137172	1219
M45	137223	1235
M47.6 (1 7/8")	146332	1394
M48	172148	1653
M50.8 (2")	178093	1809
M52	179663	1868
M56 (2 1/4")	227491	2548
M63.5 (2 1/2")	273982	3480
M64	274499	3514
M70 (2 3/4")	332006	4638
M72	382624	5510
M76	391897	5957

(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 ≦ 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.

AIGI 693VG Valve Pre-loading Disc Spring Kit

Product Description

If you incorrectly select a valve preload disc spring with too little pressure, after 30% recovery in the bolt preload, the spring will not provide enough preload for sealing and the effect will be the same as no disc springs had been used.

If a valve is incorrectly selected with too high pressure, it will exceed the sealing material's elastic limit or the valve stem will be clogged, which is even worse than not using a disc spring.

AIGI 693VG Valve Pre-loading disc spring kit provides correct disc spring material, heat treatment process and curve design.

ISO 9001 | ISO 14001 Certified



Size	Qty. per kit	HO(incl. sleeve)(mm)	Sleeve Height(mm)	Sleeve OD(mm)	Deflection (mm)	Preload (N)	Torque
M6	4	9.8	7.8	19	2	3627	5.5
M8 (5/16")	8	19.64	14.3	22	5.34	5595	11
M10 (3/8")	6	16.56	14.3	29	2.26	4717	25
M12 (7/16")	8	20.92	18.1	29	2.82	4837	36
M12.7 (1/2")	6	18.42	16	32	2.42	6275	38
M14	4	15.28	13	38	2.28	8363	44
M16 (5/8")	4	17.72	15.3	43	2.42	12897	75
M18	6	24.6	21.4	43	3.2	12144	118
M19 (3/4")	4	17.32	15.2	43	2.12	12350	133
M20	8	28.6	22.7	45	5.9	7573	152
M20-B	6	28.32	24.3	49	4.02	16951	163
M22 (7/8")	4	19.68	17.2	49	2.48	16478	185
M24	4	22.2	19.2	56	3	21900	202
M33	4	26.6	23.3	68	3.3	31235	439

Remarks:

Valve disc springs can be customised according to the working conditions.
After the working conditions are provided, we could calculate and design valve spring kit to meet the customer's preload and deflection requirements

Related AIGI Innovative Fluid Sealing Products

• International Patented Fishbone® Gaskets



• Patented Castle® Packing System



• Mechanical Seals

