



# **IIS Valve Plates, Flapper Valve Reeds & Springs for Compressors.**



**ISO 9001 : 2000**



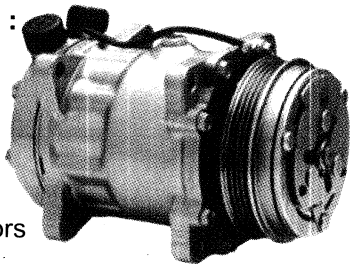
**International Industrial Springs**



Reed Valve is a Flapper valve steel component used in different types of compressors for effective control of gas, fuel and air. Flapper Reed valves must be capable of working continuously for long periods without failure. A careful & controlled manufacturing process is essential for the proper function & longer service life of a Flapper Reed Valve.

#### Flapper valves are used in :

1. Refrigerators
2. Air Conditioners.
3. Freezers †
4. Heat Pumps
5. Brake Systems
6. Vacuum Pumps
7. Industrial Air Compressors



#### Material :

Material used for Reed valves are 20C, 7C27Mo2 & Hiflex. This material is purchased from Sandvik Materials Technology.

#### Chemical composition Sandvik Sweden of 7C27Mo2

Elements	C	Si	Mn	Cr	Mo
7C27Mo2	0.38%	0.40%	0.55%	13.5%	1.0%\
20C	1.00%	0.25%	0.40%	-	-

High quality Martensitic chromium, stainless steel, alloyed with molybdenum give better corrosion resistant and higher fatigue strength resulting in a more efficient compressor because of lower flow losses across the valve.

#### Surfaces Finish - Bright, fine & polished

##### Strip thickness max. 0.508 mm (<0.020 inch):

$R_a$  = maximum 0.13  $\mu$ m (5.2 u inch)\*

$R_{max}$  = maximum 1.5  $\mu$ m (60 u inch)

##### Strip thickness over 0.508 mm (.020 inch):

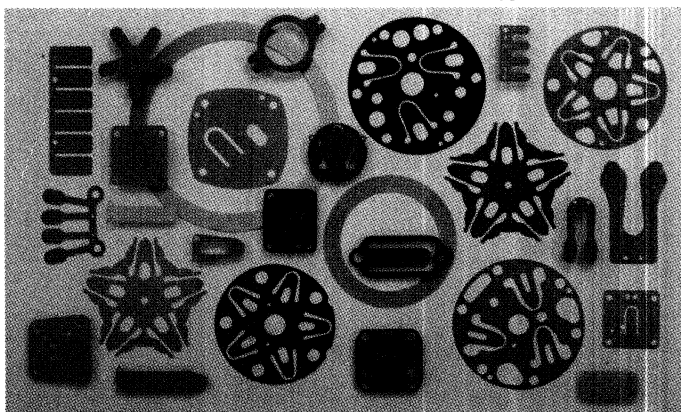
$R_a$  = maximum 0.25  $\mu$ m (10 u inch)\*

$R_{max}$  maximum 2.5  $\mu$ m (100 u inch)

\*Cut off 0.25 mm (0.01 inch)

#### FLATNESS - Extra accurate

This means a maximum out-of-flatness across and along the strip of max. 0.20% of the nominal strip width.



Samples of Flapper Valve Reed

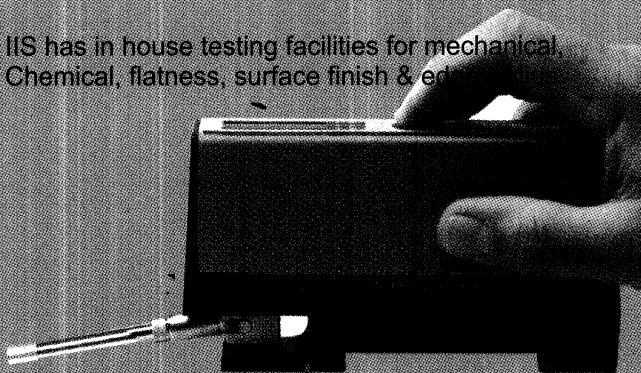
#### Features of IIS Flapper Reed Valve

Made from Sandvik Strip Steel which ensures

- ➔ High Fatigue Strength
- ➔ High Purity
- ➔ Good flatness & surface finish
- ➔ Fine thickness tolerances
- ➔ Radius Edges
- ➔ High Service temperature
- ➔ Longer service life
- ➔ Cost saving & Low maintenance

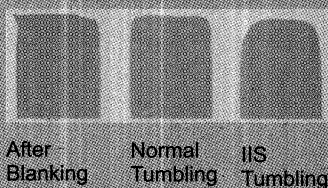
#### Testing Facilities

IIS has in house testing facilities for mechanical, Chemical, flatness, surface finish & edge radius.



Roughness Tester for surface finish checking

#### Edge Radius

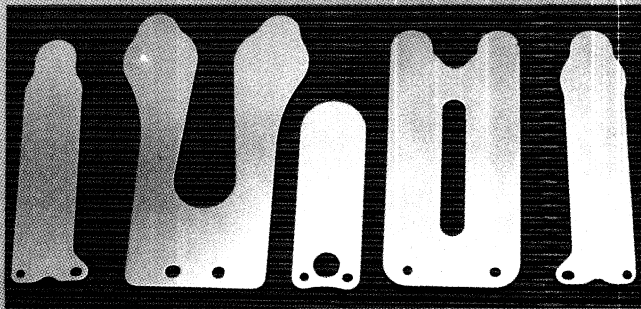


After Blanking      Normal Tumbling      IIS Tumbling



Microscope for edge radius checking





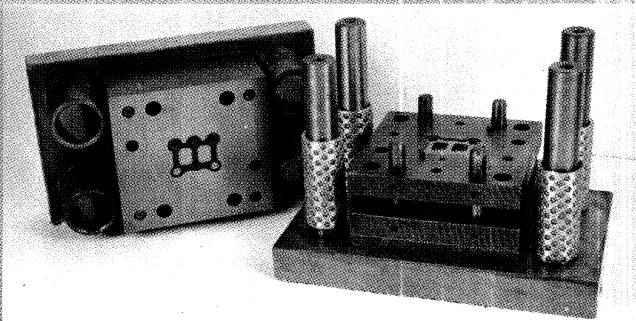
### Quality Assurance:-

International Industrial Springs has a Quality Management System approved by internationally recognized organization. We hold Quality System certificate approval for ISO 9001:2000 including the clause of Design from AQSR ( American Quality System Registrar )

### Manufacturing Facilities & Process:

#### 1. Tool Design

We have specialized engineers having good experience in designing & manufacturing reed valves & valve plates. Material used for Tool manufacturing is wear resistant high speed alloy steel, heat treated in special vacuum heat treatment furnace.



#### 2. Blanking:

Precision Power Presses are used for blanking Flapper Valve Reeds. Fully automatic strip feeding arrangement and precision blanking presses enable us to produce quality reeds with competitive prices.

#### 3. Finishing Process :

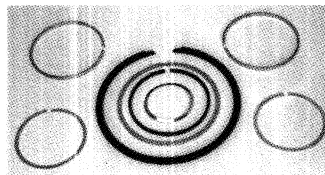
After blanking cold worked edges of reed valves are rough and need to be well rounded. This can be achieved by our proprietary process using Centrifugal Finishing Machine. This process increases intensity of compressive residual stresses on the surface of reed valve. This process converts tensile stress into compressive stress and greatly enhances the fatigue strength of Reed Valves.

#### 4. Stress Relieving :

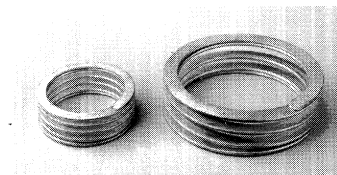
Reed valve are stress relieved in order to reduce the residual stress from blanking operation wherever required Stress relieving is done on specially designed furnace with specified temperature.

## Products Range

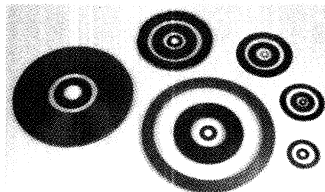
### Rings



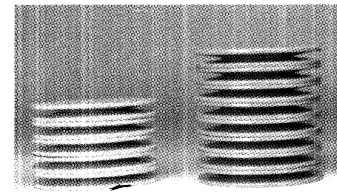
### Compressors Valve Springs



### Disc Springs

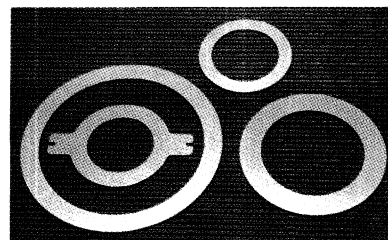


### Disc Springs



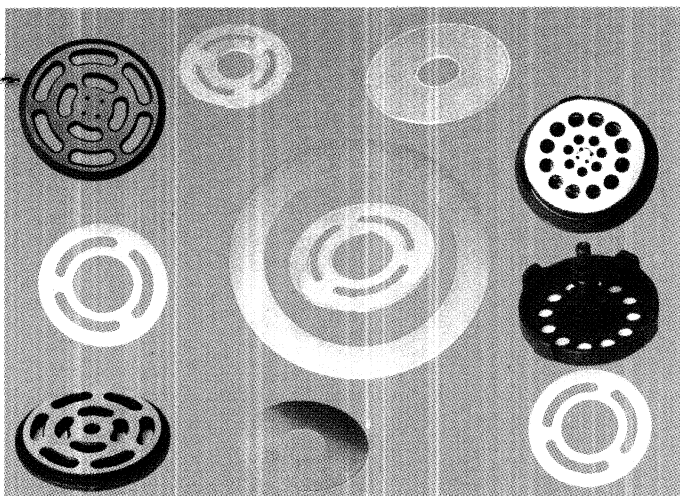
## Quality Policy

We are Committed to Deliver, Quality Products and Services that continuously meet the requirements of OUR CUSTOMERS through continual TEAM WORK and improvement of QUALITY MANAGEMENT SYSTEM.



## Valve Plate & Assembly

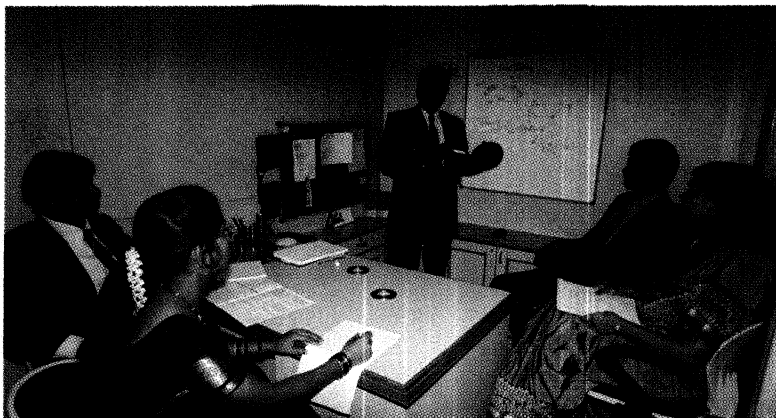
Valve Assemblies are used in Air Compressors for different types of applications. Valve Plates are made from High Chromium Stainless Steel material. Valve Plates are manufactured and heat treated in precision SPM's. Flatness, Parallelism and Surface finish of Valve Plate is most important factor to increase efficiency of compressor valves. We have all testing facilities to Check Flatness, Parallelism and surface finish of valve plates. We have developed a unique manufacturing process from our decades of experience and research.



## Company Profile

International Industrial Springs, Thane established in the year 1967 has specialized in manufacturing of Coil Springs, Spiral & Strip Springs, Belleville Washers, Disc Springs, Rings, Valve Plates, Flapper Reed Valves, Sheet Metal Components, Precision press Parts, & assemblies, catering to the requirements of domestic & International Customers. IIS continued its steady growth by implementing modern manufacturing methods. Our Engineers have utilized their engineering backgrounds, experience and skills in designing and improving the manufacturing process to enhance quality product. Extensive product development and testing laboratories are available and used for our in house production and also for customer's proprietary development.

Our main goals are individual attention, custom engineering, continuous improvement and managements commitment to Quality product and customer satisfaction.



Our Committed Team



## International Industrial Springs

Plot No A26, Road No. 10, Wagle Industrial Estate, Thane - 400604, Maharashtra, INDIA  
TEL. :2582 1941 / 2508 / 6593 / 55986988 / 89 / FAX : 91-22-2582 4478  
Email : [sales@internationalsprings.com](mailto:sales@internationalsprings.com) / [discsprings@yahoo.com](mailto:discsprings@yahoo.com)  
Website : [www.internationalsprings.com](http://www.internationalsprings.com)