

## FLAPPER REED VALVES & SPRINGS FOR THE COMPRESSORS

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, 7C27M02 & Hiflex This material is purchased from Sandvik Materials Technology

### Chemical composition Sandvik Sweden of 7C27M02

Elements	C	Si	Mn	Cr	Mo
7C27M02	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):**

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

Rmax = maximum 1.5  $\mu$ m (60  $\mu$  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.

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

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

Rmax maximum 2.5  $\mu$ m (100  $\mu$  inch)

\*Cut off 0.25 mm (0.01 inch)



### Features of IIS Flapper Valve Reed

- \* High Fatigue Strength
- \* High Purity
- \* Good flatness & surface finish
- \* Fine thickness tolerances
- \* Radiused 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.

### 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

### 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.

#### 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, Parallism and Surface finish of Valve Plate is most important factor to increase efficiency of compressor valves. We have all testing facilities to Check Flatness, Parallism and surface finish of valve plates. We have developed a unique manufacturing process from our decades of experience and research.

