NSK HIGH CORROSION-RESISTANT STAINLESS STEEL ES1

Daily cleaning and chemical washdown of equipment and work surfaces can quickly corrode bearings used throughout food and beverage plants, leading to frequent bearing replacement and high maintenance costs. In efforts to deliver utmost bearing performance and optimal machine and plant efficiency, NSK has developed ES1 bearings manufactured with alloy steel infused with nitrogen - a solution that outperforms conventional alternatives in corrosion resistance and bearing life, effectively reducing maintenance and replacement costs.

PROVEN BENEFITS
› Superior corrosion resistance
› High hardness
› Longer life

DESIGN FEATURES
› Nitrogen-infused alloy steel on inner and outer rings
› Grease options include food grade and solid lube
› Durable nitrile rubber seals
› Polyamide resin or corrugated stainless steel cage
› Open, shielded and contact seal types are available

APPLICATIONS
› Food processing machinery and equipment
› Raw material, cutting, mixing and molding
› Inspection, material handling and packaging
› Beverage processing lines
› Filling, sealing and inspection

CONDITIONS
\[\text{CO} \text{ CONTAMINATION} \quad \text{CR} \text{ CORROSION} \]
\[\text{CW} \text{ CHEMICAL WASHDOWN} \quad \text{FG} \text{ FOOD GRADE} \]
\[\text{WT} \text{ WATER EXPOSURE} \]

STAY IN MOTION. STAY IN CONTROL.
**NSK HIGH CORROSION-RESISTANT STAINLESS STEEL ES1**

**COMPARISON OF STAINLESS BEARING STEELS**

<table>
<thead>
<tr>
<th>STEEL TYPE</th>
<th>HARDNESS</th>
<th>CORROSION RESISTANCE</th>
<th>FATIGUE LIFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES1</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>13CR</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>AISI 440C</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

- **●** Excellent
- **●** Fair
- **●** Poor

**CORROSION IMMERSION TEST: WEIGHT REDUCTION**

**IN 5-N SULFURIC ACID**

```
5.0
4.0
3.0
2.0
1.0
```

ES1 > AISI 440C > 13CR

**IN 5-N HYDROCHLORIC ACID**

```
0.20
0.15
0.10
0.05
```

ES1 > AISI 440C > 13CR

**TEST CONDITIONS**

- **Test Piece:** Ø18 x 10mm
- **Test Solution:** 300 ml
- **Immersion Time:** 20 Hours (at room temperature)

**CORROSION RESISTANCE OF ES1 STEEL**

Photos show test results of 3 materials after immersion in sodium chloride solution for 8 hours at room temperature.

ES1 material did not show any corrosion.

**DESIGN SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Dimensional Series</th>
<th>Molded Oil Options</th>
<th>Ball Material</th>
<th>Closures</th>
<th>Grease Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>62 05 -H-20 T1X DDU RLS</td>
<td>Blank: None L11-1: General purpose molded oil L11-B: Food grade molded oil</td>
<td>Blank: Stainless steel SN: Silicon Nitride</td>
<td>Blank: Open DDU: Double contact seal ZZ: Double shield</td>
<td>Blank: None RLS: Food grade grease</td>
</tr>
</tbody>
</table>

**www.nskamericas.com**

**ES1 STEEL / APF / 20**