MATERIAL DATA SHEET

MATERIAL NAME
Hyperchrome® 27%CrMo

COLOUR
Golden Yellow

MATERIAL TYPE
27%CrMo White Cast Iron

RELATED STANDARDS
- AS 2027 Grade Cr27+
- ISO 21988 Grade Cr27+
- ASTM A532 Grade IIIA

NOMINAL COMPOSITION
Composition is confidential

TYPICAL MICROSTRUCTURE

The microstructure of Alloy T05 consists of eutectic M7C3 and secondary carbides in a ferrous matrix predominantly of martensite. A small amount of retained austenite may be present in the final microstructure. T05 is heat treated to develop high hardness and optimum erosion resistance.

Figure 1: Typical microstructure for T05 castings
(Magnification: 100x)

GENERAL DESCRIPTION

Alloy T05 is a wear resistant white cast iron that offers excellent performance under erosive conditions. The alloy can be effectively used in a wide range of slurry types. The high wear resistance of alloy T05 is provided by the presence of hard carbides in the microstructure. Alloy T05 is particularly suited to mild acidic duties where erosion resistance is required.

PARTS AVAILABILITY

Most wet-end parts can be manufactured in alloy T05.

The most common parts are as follows:
- Impellers, volute liners, throatbushes, frame plate liner inserts, bowls and doors.

SERVICE RECOMMENDATIONS

Alloy T05 can be used for pumping a wide range of mildly acidic duties. The alloy gives excellent wear life for a variety of particle size and hardness.

SPECIAL NOTES

Manufactured in China, Australia, UK, USA, Chile, Brasil, South Africa and Malaysia.

Hyperchrome® is a registered trademark of Tobee Pump Corporation.
MATERIAL DATA SHEET

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MATERIAL NAME

Hyperchrome® 27%CrMo

WMD CODE: T05

PHYSICAL PROPERTIES

DENSITY (kg/m$^3$) 7530
HARDNESS (HB) 650 typ
TENSILE STRENGTH (MPa) Refer Fig 2
FERRITE READING (%) 35 typ

CHEMICAL RESISTANCE

Alloy T05 is generally not suitable for highly corrosive duties. The alloy can be used in mildly acidic duties, within a pH range of 5 to 14 for sulphuric and nitric acids, or sodium hydroxide applications.

Refer to Figure 4.

EROSION and CORROSION RESISTANCE

EROSION/CORROSION RESISTANCE

B3

<table>
<thead>
<tr>
<th>MATERIAL RESISTANCE</th>
<th>EROSION</th>
<th>CORROSION</th>
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<tbody>
<tr>
<td>Very high</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>High</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>Medium</td>
<td>C</td>
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<tr>
<td>Fair</td>
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<td>4</td>
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<tr>
<td>Low</td>
<td>E</td>
<td>5</td>
</tr>
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Figure 2: Typical tensile strength of T05 castings in the heat treated condition vs casting thickness.

Figure 3: Relative erosion & corrosion resistance ratings.

Figure 4: Resistance of T05 to chlorides in sulphuric acid at 70°C.

The corrosion diagrams were plotted using data obtained in laboratory tests in reagent grade acids and sodium chloride. This data should be used only as a guide. It is recommended that samples be tested under actual plant conditions.

This data is provided as a guide only and should not be used as a specification. All test data, physical and chemical properties are accurate at the date of issue, however as Materials Development is an ongoing process, WMD Material Services reserves the right to revise data and properties at any time.