



# A full range of impeller materials

BECAUSE WASTEWATER DOESN'T COME IN STANDARD

**FLYGT**  
a xylem brand

# What is the best material?

Customers often ask us: "What's the best impeller material?" Unfortunately, there is no standard answer because there is no such thing as standard wastewater.

## **Duplex Stainless Steel**

Since there are different types of wastewater, material choice for specific sewage applications is critical for ensuring long pump life. Occasionally - although this is rare in municipal wastewater applications - a low pH level causes corrosion and justifies the extra cost of stainless steel, which is why we have now added duplex stainless steel impellers to our range. However, wastewater is by definition anaerobic: containing very little oxygen, therefore corrosion is seldom a problem.

## **Managing the nitty gritty**

More often than not, the problem is not corrosion but erosion. If the wastewater you pump contains high concentrations of abrasive particles, hard iron is a better choice in the long run over cast iron or duplex stainless steel.

As you can see in Fig. 1, the wear resistance of duplex stainless steel impellers is about the same as cast iron. Significantly harder and better than either - and less expensive than duplex stainless steel - is our proprietary alloy Hard-Iron™.

## **Five times more wear resistant than stainless steel**

Hard-Iron™ is not the same as hardened iron, which is only slightly harder than duplex stainless steel. Flygt Hard-Iron™ is a high chrome alloy that is as much as five times more wear resistant than duplex stainless steel.\*

## **Less erosion, less maintenance**

In accelerated wear tests, Hard-Iron™ kept working efficiently and showed minimal wear after pumping water with a very high concentration of highly abrasive particles.

Field testing has demonstrated that, despite salt and sand infiltration, Flygt N-pumps with Hard-Iron™ impellers continue to deliver sustained efficiency without erosion or corrosion. In other words, by choosing Hard-Iron™ you can reduce the time and money spent on maintenance.

\* Hard-Iron™ is a high-strength alloy containing 25% chromium and 3% carbon. During the solidification process, the chromium and carbon transform into very hard carbides. This makes Hard-Iron™ highly resistant to abrasive wear and erosion-corrosion.

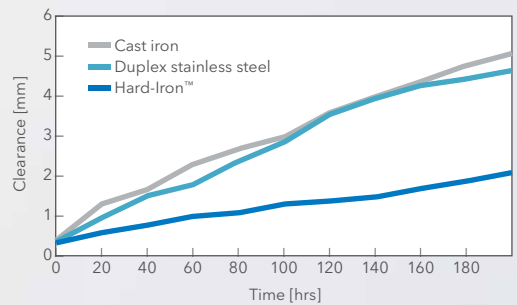


## NEW - Flygt duplex stainless steel N-impellers

For corrosive media containing low to medium levels of abrasive material, we recommend our new duplex stainless steel N-impellers. With their mixture of chromium-nickel and ferrite structures, they offer high resistance to corrosion. When pumping corrosive media with higher levels of abrasion, our Flygt Hard-Iron™ impellers are the most cost-effective choice.

### HOW HARD IS STAINLESS STEEL?

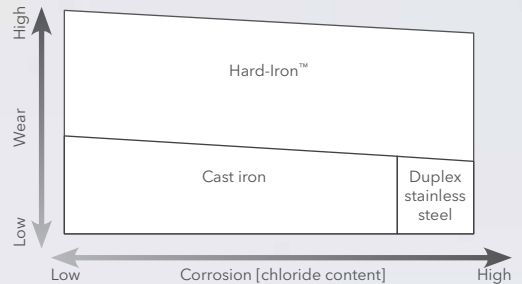
Figure 1: Accelerated wear test



After 200 hours our Hard-Iron™ impeller proved to be five times as wear resistant as the cast iron impeller. The duplex stainless steel impeller showed wear comparable to the standard cast iron impeller.

### NOW YOU HAVE A REAL CHOICE

Figure 2: Material choice



Wastewater contains, by definition, very little oxygen, so corrosion is seldom a problem. However, with ever-rising concentrations of abrasive solids, erosion is increasing total lifecycle costs.

Cast iron

Duplex stainless steel

Hard-Iron™

### ENGINEERING EXPERTISE

When our technical experts are asked "What's the best impeller?" they prefer to answer with another question: "What do you want to pump?" By combining engineering expertise with a wide range of impeller materials, we always deliver a solution that matches your specific requirements.

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're 12,000 people unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to [www.xyleminc.com](http://www.xyleminc.com)



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