

Q : Is Stainless Steel Impeller Really Required For Sewage Pumpset...?

Answer:

- 1) Sewage is **basically** Primarily Water {say 99.9%} with Suspended + dissolved Organic solids, & **pH** range between 7.5 to 9.5 (*Alkaline*).
- 2) Some of the Casting Parameters Comparison between **Duplex** Stainless steel & Stainless steel is;

Particulars	Parameters	Duplex Stainless (Austenitic + Ferritic) Steel	Stainless (Austenitic) Steel
Casting Parameters	Microstructure Control	Challenging ⚠️	Simpler
	Heat Treatment	Complex ⚠️	Simple
	Cracking & Defects	Prone to Cracking & Higher Chance of Defects ⚠️	More Resilient
	Alloying Elements	Very Sensitive Composition ⚠️	Less Sensitive
	Impurity Control	Requires Expensive Refining Operations ⚠️	Requires Simple Operations
	Overall Casting Process Complexity?	Very High ⚠️	Moderate
	More Established Production / Commonly Used worldwide?	No ❌	Yes ✅
Cost	Very High (₹₹₹)	Reasonable (₹)	

- 3) **Stainless Steel impeller** (CF8 or CF8M) is commonly used due to Superior Corrosion Resistance, Strength and Durability which is required to **handle Sewage**.
 - a. **MoC used** by worldwide Pump manufacturer, Consultants & hence Established Casting Technology / Production is Also available. 😊
- 4) Duplex Stainless steel is generally required in **Ultra High Corrosion Environments** like the Oil & Gas Industry; Sea Water Application ($ph \leq 4$) which requires Superior Resistance to Pitting, Crevice & Stress Corrosion...these parameters are **not** encountered in Sewage.
- 5) As Casting Process is Challenging due to the need of **Precise Control over Microstructure**, which is complicated by the material's complex and sensitive metallurgy & hence it is **not** preferred or used by Consultants & Pump manufacturer unless & until is a technical compulsion requirement of Applications.
- 6) **"A Chain is as strong as its weakest Link".....;**
 - a. **Unless** we also keep on increasing the Material of Construction of other parts of Pump (*like suction cover, pump casing; Autocoupling etc.*) there is **no** meaning of unnecessarily increasing cost (*by selecting just the Impeller*) of an **EXOTIC material** like Duplex stainless steel.

Hence,

CF8/CF8M (Austenitic) Steel Casting is optimal Choice for **Sewage pump's impeller**.