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PROJECT TITLE:

Electropolishing Machine (EPM)

PROJECT # P00025

INITIATION DATE: 30th July 2024

VERSION # 1.0

EFFECTIVE DATE: 30th July 2024

1. Scope

This project's primary objective is to develop an electropolishing machine specifically for coronary angioplasty stents capable of simultaneously polishing 1 to 5 stents with high precision and cleanliness. The machine will feature adjustable power settings, a removable polishing tank, and electrodes designed for easy maintenance. It will include a user-friendly interface with controls for adjusting bath temperature, current, voltage, and processing time, along with real-time process monitoring and storage of multiple settings. Vertical mounting options will be available, facilitated by a Stent Loading for optimal positioning and orientation of stents before and after each polishing cycle.

2. User Requirements

Project requirements of the user are, as follows:

1. A specialized electropolishing machine should be developed for coronary stents.
2. It should have adjustable power settings.
3. It should be able to polish around 1 - 5 stents simultaneously.
4. The Polishing Tank should be removable for cleaning purposes.
5. All Electrodes should be removable for cleaning purposes.
6. Interface of the machine should be user friendly.
7. It should allow adjustment of bath temperature, current, voltage and time real-time process status, and ability to store multiple settings.
8. The machine should have easy controls to start and stop the polishing process.
9. Mounting and dismounting mechanism should be user friendly.
10. The stent holding section should be conductive and corrosion resistant.
11. Mounting and Dismounting can be connected with an electrode mounting rod and power supply.
12. Stent Mounting Electrodes (SMEs) should have an easy stent mounting & dismounting mechanism.
13. The mounting surface and grip strength of these SMEs should be enough to just grip the stent and not damage it.
14. There will be stent mounting electrodes for vertically mounting the stent.
15. Stent Loading System should be utilized for placement, holding stents before or after polishing cycles.

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