1 Scope

1.1 This specification provides the additional manufacturing requirements for studs and nuts coated according to ASTM A153 Class C or EN ISO 10684

2 Materials

2.1 Fastener material type, grade and size and coating thickness shall be provided as stated in the Sulzer Purchase Order (PO) and/or the relevant Sulzer Material Code Number (MCN).

3 Reference Documents

3.1 The following documents are referenced in this specification. All documents shall be current issue unless specified otherwise. In case of any conflict between the current specification and the referred documents, the current document shall take precedence.

3.1.1 International Standards

ASME B1.1	Unified Inch Screw Threads
ASTM A153	Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
EN ISO 10684	Fasteners - Hot dip galvanized coatings

4 Manufacturing and Coating of UNC Fasteners

4.1 Manufacturing of UNC fasteners to be hot dip spun galvanised

4.1.1 The thickness of the coating to be applied shall be taken into account when manufacturing the parts subject to coating, as the application of coatings affects the fastener dimensions. As a rule of the thumb, the pitch diameter increases by four times the coating thickness.

4.1.2 Stud bolts with UNC threads have to be machined according to ASME B1.1 Class 2a **before** coating.

4.1.3 Nuts with UNC threads have to be tapped after hot dip spun galvanising to ASME B1.1 class 2b + 15µm (overcut) to ensure fitting to the stud bolts, so the Internal threads shall not be coated.

4.1.4 Hex head screws have to be undercut before coating to meet the tolerances of ASME B1.1 class 2a **after** coating.

5 Manufacturing and Coating of Metric Fasteners

5.1 Manufacturing of metric fasteners to be hot dip spun galvanised

5.1.1 The thickness of the coating to be applied shall be taken into account when manufacturing the parts subject to coating, as the application of coatings affects the fastener dimensions. As a rule of the thumb, the pitch diameter increases by four times the coating thickness.

5.1.2 Method 2 (6.2.3) according to ISO 10684 shall be used. This means:

5.1.2.1 Stud bolts with metric threads have to be undercut to tolerance class 6az before coating.

5.1.2.2 Nuts with metric threads have to be tapped **after** hot dip spun galvanising according to ISO 10684 tolerance class H to ensure fitting to the stud bolts, so the Internal threads shall not be coated.

5.1.2.3 Hex head screws have to be undercut before coating to 6az to meet tolerance class g according ISO 10684 **after** coating.