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**Technical Specifications (In-Cash Procurement)**

# Technical Specification for VV ISI Corrosion Monitoring Chambers Specimens

This document is the Technical Specification for the procurement of the specimens for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers.

**Supply of Specimens and Assemblies for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers**

# Table of Contents

# 1 Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) [1] that constitutes a full part of the technical requirements.

In case of conflict, the content of this Technical Specification supersedes the content of [1].

# 2 Purpose

This document is a Technical Specification for the procurement of the specimens for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers specified as Work Package #7 (VV ISI Phase 3, Lot 2), as specified in the main Technical Specification for this system [2].

The subject of this Contract is machining of the specimens together with the procurement of other materials needed for fabricating the assemblies for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers (VV ISI CMC) for surveillance the evolution of corrosion of Vacuum Vessel (VV) materials during the lifetime of the ITER Machine. The VV ISI CMCs will be used by the IO for performing periodic inspection and periodic requalification of the Vacuum Vessel Nuclear Pressure Equipment (VV NPE), as required by the [3].

## 2.1 Responsibilities

IO is responsible for providing to the contractor the detailed design of in-service inspection system corrosion monitoring specimens in accordance with this Technical Specification.

The contractor is responsible for the manufacturing design, the manufacturing, and the factory acceptance tests and for delivering a product which is compliant with the present Technical Specification.

The responsibilities between the Parties are summarised in Table 1 and are further detailed in the following sections.

| **Activity** | **IO** | **Contractor** |
|---|---|---|
| **Manufacturing Design, Manufacturing, Factory Acceptance Test and Delivery** | | |
| Manufacturing Design | A | R |
| Manufacturing | A | R |
| Factory Acceptance Testing | A | R |
| Packing and Delivery | A | R |

R = Responsible for organizing, performing and for the content

A = Review/Comment/Accept/Approve

*Table 1. Contract gates and responsibilities.*

# 3 Acronyms & Definitions

## 3.1 Acronyms

The following acronyms are the main one relevant to this document.

| Abbreviation | Description |
|---|---|
| CMC | Corrosion Monitoring Chambers |
| MTO | Material Take Off |
| CRO | Contract Responsible Officer |
| GM3S | General Management Specification for Service and Supply |
| IO | ITER Organization |
| ISI | In-Service Inspection |
| KOM | Kick-Off Meeting |
| NPE | Nuclear Pressure Equipment |
| PRO | Procurement Responsible Officer |
| SMDD | System for the Management of Diagrams and Drawings |
| VV | Vacuum Vessel |

## 3.2 Definitions

Definitions are given in [1].

“Contractor”, although defined in section 2.1 of [1], is duplicated here as the term is largely used within this document.

**Contractor:** shall mean an economic operator who have signed the Contract in which this document is referenced.

**VV Corrosion Monitoring Chambers**: the primary purpose of the VV ISI CMC is to monitor the evolution of corrosion in Vacuum Vessel material samples during the life of the ITER machine. The VV ISI CMC is located in 11-L4-04 of the Tokamak building, and is connected to the VV Primary Heat Transfer System (PHTS) downstream of the VV. The VV ISI CMC system consists of pressure chambers housing corrosion monitoring specimens that will be inspected at regular intervals during the ITER operating lifetime.

**Supply of Specimens and Assemblies for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers**

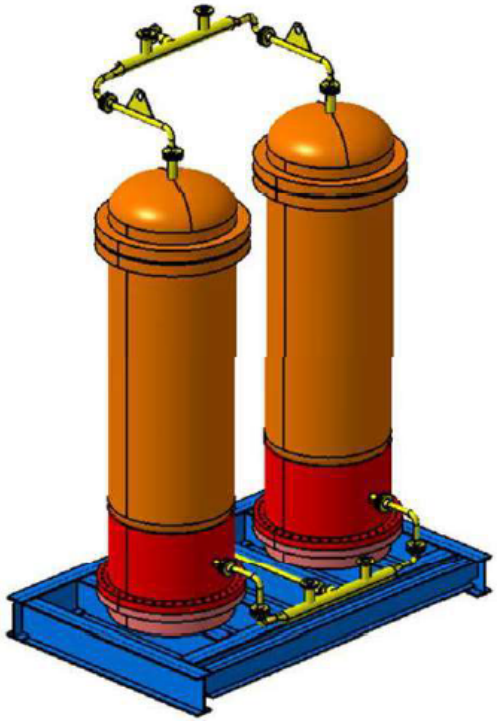

*Figure 1: The VV Corrosion Monitoring Chambers*

**VV ISI CMC Specimens and Assemblies**: there are a total of 444 specimens (alternatively called "coupons" when referring to raw material used for machining of specimens) planned to be installed within the two Corrosion Monitoring Chambers, i.e. 222 in each CMC. There are ten different types of specimens and comprise 18 different materials. Not all materials are represented in each specimen type, but all materials are represented in specimen types that will assess the corrosion mechanisms that these materials may be susceptible to.

Each CMC contains one large Main Basket. The specimens are to be loaded into six removable sub-baskets in each CMC Main Basket, identified as sub-baskets A to F from the top to bottom of the CMC. The sub-baskets are designed to support the weight of specimens above each sub-basket and to be resistant to seismic activity. This sub-basket system has been chosen to allow simple removal of a range of specimens in one sub-basket in a relatively simple operation and to facilitate returning the specimens after inspection.

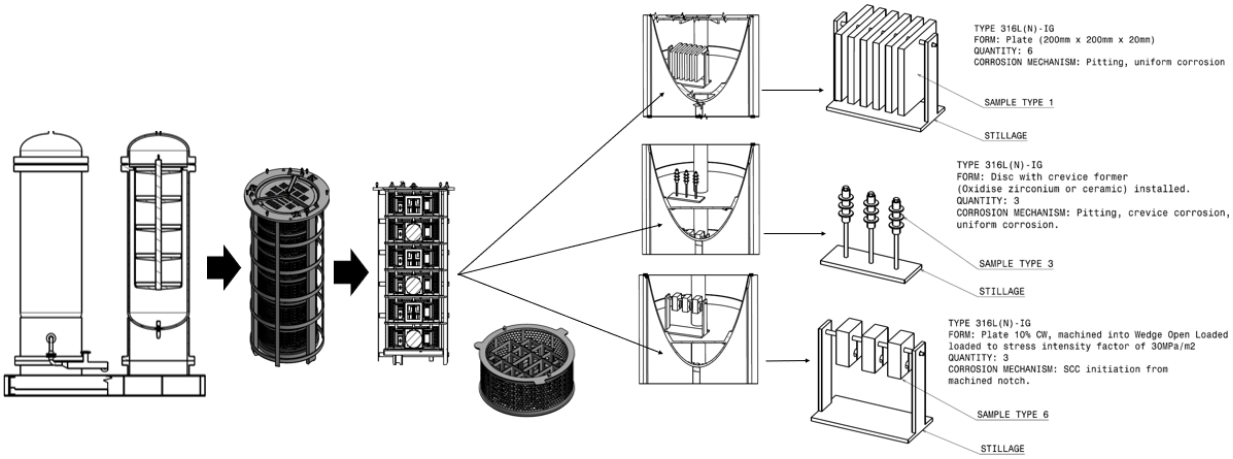


*Figure 2: Examples of jigs assemblies with the specimens*

# 4 Applicable Documents & Codes and standards

The VV ISI CMC specimens and assemblies shall be designed, fabricated, examined, and tested in accordance with approved design and construction codes per Codes and Standards for ITER Mechanical Components [CS1] with supplemental requirements per this Technical Specification. The reference Code of Construction for the CMCs is American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (B&PV) Section VIII, Division 2, 2015 Edition ASME BPVC-VIII-2-2015 [CS2].

Other codes and code cases may be selected by the Contractor but must be approved by ITER Organization prior to use.

## 4.1 Applicable Documents

This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the Contractor to seek clarification from IO.

Upon notification of any revision of the applicable document transmitted officially to the Contractor, the Contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

| Ref | Title | IDM Doc ID | Version |
|---|---|---|---|
| 1 | General Management Specification for Service and Supply (GM3S) | 82MXQK | 1.4 |

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|---|---|---|---|
| 2 | Technical Specification for Lot 2 (WP7) of the VV ISI procurement | W54EQU | 1.2 |
| 3 | Arrêté du 30 décembre 2015 modifié relatif aux équipements sous pression nucléaires | SMP384 | 2.4 |
| 4 | VV ISI CMC Specimens and jigs layout drawing | 62MR4V | 02 |
| 5 | Proposed Specimen Inspection Programme for Corrosion Monitoring | 5GA38U | 1.1 |
| 6 | VV ISI WP7 Delivery: Specimens BOM | DCH97G | 1.0 |
| 7 | Corrosion monitoring samples layout drawing | YWE43Q | 01 |
| 8 | EU-DA Material for Corrosion Monitoring Coupons | S28APS | 1.1 |
| 9 | KO-DA Material for Corrosion Monitoring Coupons | S29T8B | 1.3 |
| 10 | RF-DA Material for Corrosion Monitoring Coupons | S29THX | 1.2 |
| 11 | IN-DA Material for Corrosion Monitoring Coupons | S28DBG | 1.4 |
| 12 | On-site assembly: Material for Corrosion Monitoring Coupons | S2DCE3 | 1.2 |
| 13 | IO / In-Cash Contractor Documentation Exchange and Storage Working Instruction | G8UMB3 | 6.0 |
| 14 | Quality Requirements for IO Performers | 22MFG4 | 6.3 |
| 15 | Order dated 7 February 2012 relating to the general technical regulations applicable to INB | 7GJHSE | 1.3 |
| 16 | Procedure for the management of Deviation Request | 2LZJHB | 9.1 |
| 17 | Working Instruction for the Qualification of ITER safety codes | 258LKL | 3.1 |
| 18 | Quality Classification Determination | 24VQES | 6.0 |
| 19 | Overall Surveillance Plan of the Chain of External Actors for Protection Important Components, Structures and Systems and Protection Important Activities | 4EUQFL | 8.2 |
| 20 | ITER Numbering System for Components and Parts | 28QDBS | 5.1 |
| 21 | Internal Regulations | 27WDZW | 3.1 |
| 22 | Health Protection and Safety General Coordination Plan - ITER Construction Site - Volume 0 - General Safety Rules | 2NUEYG | 6.0 |
| 23 | Sub-System Requirement Document (s-SRD) IN-15.VV.II.WP07 (Corrosion Monitoring Chambers) | 696SDG | 1.0 |
| 24 | ITER Remote Handling Code of Practice | 2E7BC5 | 1.2 |

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|---|---|---|---|
| 25 | VV-ISI CMC Basket Structural Analysis Report | 5NH6Q4 | 1.1 |
| 26 | VV ISI CMC Basket and Sub-baskets layout drawing | 62MBV4 | 5 |
| 27 | CMC Vessel layout drawing | 5X9GL5 | 5 |
| 28 | VV_ISI_CMS_GA | YWEJXE | 4 |
| 29 | Protection Important Functions and Components Classification Criteria and Methodology | 347SF3 | 2.0 |
| 30 | Tritium Handbook | 2LAJTW | 1.4 |
| 31 | Project Requirements (PR) | 27ZRW8 | 7.1 |
| 32 | Technical Specification for TCWS Fabrication Cleaning Requirements | 33YCQ3 | 1.0 |

## 4.2 Applicable Codes and Standards

This is the responsibility of the Contractor to procure the relevant Codes and Standards applicable to that scope of work.

| Ref | Title | Doc Ref. | Version |
|---|---|---|---|
| CS1 | Codes and Standards for ITER Mechanical Components | 25EW4K | 5.0 |
| CS2 | Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers - System Load Specification | 3H8TNA | 2.1 |
| CS3 | Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers - Basket and sub-baskets layout drawing | 5R8ACS | 1.0 |
| CS4 | Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers – Base-Frame Drawing | 5NH3UR | 1.0 |
| CS5 | Eurocode: Basis of Structural Design. BS EN 1990:2002 | | |
| CS6 | Eurocode 3: Design of Steel Structures. Part 1-1: General Rules and Rules for Buildings, BS EN 1993-1-1:2005 | | |
| CS7 | Eurocode 3: Design of Steel Structures. Part 1-2: General Rules – Structural Fire Design, BS EN 1993-1-2:2005 | | |
| CS8 | Eurocode 3: Design of Steel Structures. Part 1-4: General Rules – Supplementary Rules for Stainless Steels, BS EN 1993-1-4:2006 | | |
| CS9 | Eurocode 3: Design of Steel Structures. Part 1-8: Design of Joints, BS EN 1993-1-8:2005 | | |

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|---|---|---|---|
| CS10 | Eurocode 3: Design of Steel Structures. Part 1-9: Fatigue, BS EN 1993-1-9:2005 | | |
| CS11 | Eurocode 1: Actions on Structures. Part 3: Actions Induced by Cranes and Machinery, BS EN 1991-3:2006 | | |
| CS12 | ASME Boiler and Pressure Vessel Code, Section II, Part D Materials, 2010 | | |
| | | | |

# 5 Scope of Work

This section defines the specific scope of work, in addition to the contract execution requirement as defined in Ref [1].

The Contractor shall be responsible for the following:

1. Machining and delivery of the CMC specimens. The raw material for specimens is already delivered and stored in the IO warehouse. This material will be free-issued to the Contractor in charge of the machining operations. Transportation from the IO warehouse to the Contractor's workshop is responsibility of the Contractor.

   The specimen types are:

   a. Plate 200mm x 200mm x 20mm thick; quantity 78
   b. Plate 200mm x 200mm x 20mm thick with crevice former; quantity 36
   c. 4-point bend jig; quantity 90
   d. Externally loaded 25mm pre-cracked compact tension specimen; quantity 24
   e. Bolt-loaded wedge open loaded compact tension specimen; quantity 42
   f. Rod tensile specimen; quantity 12
   g. Tubular coupon 60.3mm OD x 3.9mm wall x 100mm long; quantity 12
   h. Fasteners (with nuts/washers to form crevices); quantity 72
   i. Fasteners loaded to 95% of 0.2% proof stress in jig plate; quantity 72
   j. Welded disc, 200mm OD x 60mm thick, quantity 6.
2. Design, material procurement, fabrication and delivery of the specimens' assemblies.

It should be noted that no analysis is expected to be performed by the Contractor, as this has already been carried out in [25].

## 5.1 Scope of Supply #1 – Specimen Machining

### *5.1.1 Description*

The scope includes the machining of the VV ISI CMC specimens for surveillance of the evolution of corrosion of VV materials. During the fabrication of the specimens, the mechanical representativeness of the coupons shall not be altered.

### *5.1.2 Design requirements*

The VV ISI CMC specimens shall be machined as per [4].
As per Ref [23], the VV ISI CMC specimens and assemblies have the following classification.

| Classification type | Safety Important Components | Seismic Class | Quality Class | PED | ESPN | Vacuum class | Tritium Class | Remote Handling class (task oriented) | Maintenance class (task oriented) |
|---|---|---|---|---|---|---|---|---|---|
| Overall VV ISI CMC classification | PIC/SIC-2 | SC1(S) | QC-1 | IV | N3 (Fluid group = 2 and type = demineralized water) | N/A | TC 2A | RH Class 1 | MC-1 |

*Table 2: Corrosion Coupons and Assemblies Classification*

No analysis is expected to be performed by the Contractor as this has already been done; see [25]. The Contractor is expected to develop detailed drawings for the specimens and assemblies based on the drawing [4].

### *5.1.3 Operating requirements*

Remote Handling (RH) compatibility for the VV ISI CMC specimens and assemblies shall be provided, as appropriate and as it was already considered in the final design of specimens. ITER Remote Handling Code of Practice, Ref [24], shall be used as a guideline on the RH compatibility matter.

**Note**:
(*for information*)

During Long Term Maintenance (LTM) periods of the nuclear phase of ITER operation it is expected that certain number of VV ISI Corrosion Monitoring tasks will require the work to be done in areas where man access will be limited or prohibited. The regular periodic inspection "at least once every 40 months" established in ESPN 30th Dec. 2015, Ref [3], makes the inspection tasks scheduled activities during each LTM (every two years). Thus, the constrained man access and the frequency required by the ESPN Order lead to a preliminary assignment to those VV ISI tasks of RH Class 1 (in case of RHE) or Maintenance Class MC-1 (in case of HAE). Independently of what type of equipment will be used, Remote Handling Equipment (RHE) or Human Assisted Equipment

(HAE), the VV ISI CMC specimens and assembles are designed RH compatible in the interfaces of remote intervention.

### *5.1.4 Performance requirements*

**Note**:
(*for information*)

It is understood that there will be a minimum frequency of CMC specimen inspection outages every 40 months, so if one of each specimen/material combination is removed at each inspection outage there will be sufficient specimens for 20 years exposure in the CMCs. In practice, it is likely that specimen inspections will be possible in the 8-month Long Term Maintenance (LTM) outage planned after 16 months of ITER power operation. After removal for inspection it is planned to return most of the specimens back into the CMC for further exposure; in this manner it is intended to include specimen exposure durations up to the 40-year lifetime of ITER. This approach has been dictated by the number of materials requiring exposure, the types of specimens and the limited volume available within the two CMCs as a consequence of the limited floor space available in the ITER experimental area. However, it is also proposed that spare jigged specimens (especially for the stressed compact tension (CT) types) be available for replacing specimens that are permanently removed. The material, configuration and loading in the replacement policy will be determined as the corrosion monitoring progresses after ITER commences operation.

### *5.1.5 Interface requirements*

Interface with the CMC sub-baskets; see drawing[26], pages 19-23 of 42 and Appendix 3.

### *5.1.6 Mechanical Requirements*

The VV ISI CMC specimens and assemblies shall be fabricated, examined, and tested in accordance with applicable design and construction codes and standards listed in Chapter 4 of this technical specification. The Contractor could select and use other appropriate codes and standards during development of the manufacturing design and fabrication process.

Other codes and standards selected by the Contractor must be approved by ITER Organization prior to use.

### *5.1.7 Electrical Requirements*

Not applicable.

### *5.1.8 Software requirements*

The data generated during the execution of the present Contract shall be handled electronically and entered into the ITER IDM. The structure of this database shall be defined by the IO. The Contractor shall use this database to store information related to the Contract. All data entered in the database will be kept strictly confidential by the IO and, under no circumstances, shall be communicated or made accessible to other Contractors or the Domestic Agencies. Data consistency checks shall be implemented to facilitate IO oversight. Relevant data shall be made available by the Contractor to the IO through IDM each time a control point is requested, or a deviation request, a non-conformance report, or any other document which is part of the Contract deliverables is issued by the Contractor, in accordance with the document IO / In-Cash Contractor Documentation Exchange and Storage Working Instruction, Ref [13]. This requirement does not apply for other documents and data files which are, for example, managed through specialized CAD software (e.g. CATIA, see System Design and others) and so undergo other requirements specified in separate documents.

### *5.1.9 Material, welding and fabrication requirements*

The raw material for specimens (only) is already delivered and stored in the IO warehouse. This will be free-issued to the Contractor in order to machine the specimens. The details of this free-issued materials is given in Refs [8], [9], [10], [11] and [12][1].

All requirements below apply to both the free-issued material as well as the procurement, welding and fabrication of other materials needed for fabricating the assemblies.

1) General Requirements
   A. The VV ISI CMC specimens and assemblies shall be constructed from 304L or 316L austenitic stainless steel and shall comply with the additional composition requirements in ITER_D_REYV5V [18], see the table below.

| No. | Element | Content (wt%) |
|---|---|---|
| 1 | Carbon | <0.03 |
| 2 | Cobalt | <0.20 |
| 3 | Phosphorous | <0.035 |
| 4 | Sulfur | <0.015 |
| 5 | Phosphorous plus sulfur | <0.04 |
| 6 | Niobium | <0.1 |

[1] Raw material from the on-site welding, Ref [12], is not yet available at the time of writing this technical specification.

| | | |
|---|---|---|
| 7 | Tantalum | <0.05 |
| 8 | Boron | <0.0018 |
| 9 | Nitrogen | <0.1 |

*Table 3: VV ISI CMC Stainless Steel Composition*

2) All water used for cleaning or during fabrication (e.g. cutting) shall meet the requirements in the table below.

| No. | Element | Content (wt%) |
|---|---|---|
| 1 | PH at 25°C | 5.5–8.0 |
| 2 | Chloride | <10 ppm |
| 3 | Fluoride | <5 ppm |
| 4 | Sulfide | <1 ppm |
| 5 | Total dissolved solids | <500 ppm |

*Table 4: VV ISI CMC Water Quality for Cleaning and Testing*

3) All base material shall comply with the requirements of [25].
4) Welding materials shall meet the requirements of the codes and standards used for development of the final design, see Chapter 4 of the technical specification.
5) Temporary weld attachments shall be removed upon completion of their intended purpose. Removal shall be documented and included in the conformity assessment completed by the Manufacturer. If thermal cutting is used, the attachment shall be cut no closer than 8 mm from the surface to which it is attached, and the balance material shall be removed by mechanical means.
6) Thermal arc gouging processes are prohibited.
7) A minimum of 8 mm of base material shall be removed from any edge cut by thermal processes.
8) Grinding, lapping, and surfacing equipment and abrasives for use on corrosion resistant materials shall be new or not previously used on carbon steel or other metals or alloys so contamination of the finished surfaces is completely avoided. All grinding or lapping on base material or welded metal shall be performed with one of the following: carbide or aluminum oxide burrs, silicon carbide, zirconia, or alumina grinding and lapping wheels. All grinding material shall be free of halogens. Any type of grinding wheel bonded with a resin, rubber, or silicate must be submitted for review and approval of chemical content by the ITER Organization. Excessive pressure that may result in localized heating or smearing of the surface that can invalidate a subsequent liquid penetrant examination shall be avoided.

9) Wire brushes used for cleaning austenitic stainless steel or nickel-based alloy materials or welds shall be made from stainless steel and shall not have previously been used on carbon steel.
10) Expendable Material
    A. For the purposes of this Specification, an expendable material is defined as a nonpermanent material that comes in contact with the VV ISI CMC specimens or their assembles. Such items shall not cause degradation of the VV ISI CMC specimens' required quality.
11) Surface Finish
    A. The external weld seams shall have a surface finish of 6.3 µm Ra or better.
    B. All burrs and rough edges shall be removed.
12) Cleaning
    A. The VV ISI CMC, as an integral part of the VV PHTS, shall meet the cleanness requirements set forth in the Technical Specification for TCWS Fabrication Cleaning Requirements [32].
    B. Cleanliness acceptance criteria
        1. The surface shall be inspected for cleanliness in a properly illuminated environment, by a person with normal visual acuity, natural or corrected, without magnification, and found to meet the following criteria:
            - Free of dirt, grease, oil residue, weld splatter, scale, slag, rust, physically unstable (removable) oxide layers, metal chips and any other foreign matter.
            - Free of paint, markers, dyes, NDE coatings, cleaning media (e.g. lint, chemical cleaning residue, and petroleum solvent residue), adhesives and other fabrication markings.
        2. If visual inspection is not possible, then an acceptable alternative to visual inspection is a dry white cloth wipe, followed by a solvent dampened white cloth wipe. The acceptance criterion for this inspection is:
            - Neither cloth exhibits indications of contamination other than discoloration that is not due to harmful contaminants (e.g. metal oxides other than rust, and for exterior surfaces benign contaminants such as dust or lint).
        3. If surface contamination is suspected from the visual examination, then the surface shall be evaluated by wiping with a clean, lint free cloth; either dry or moistened (but not saturated) with alcohol, and evaluated in accordance with the following acceptance criterion:
            - Discoloration of the wiping cloth or a change in the appearance of the wiped surface shall be cause for rejection except where it can be shown that the discoloration is not due to harmful contaminants, e.g. metal oxides other than rust.

4. The surfaces shall be dry with no standing water remaining, as necessary to complete visual inspections.

C. Cleaning processes

Cleanliness is assured when appropriate cleaning processes are implemented, which are proven to remove remnant contaminants on the affected surface(s) to cleanliness specification limits set forth in the fabrication cleaning procedure issued by the Contractor. Prior starting fabrication the Contractor shall submit to the ITER Organization developed cleaning procedure for approval.

The following cleaning processes shall be used as necessary to achieve required cleanliness levels:

- Cleaning may be accomplished by wiping with a clean, lint free cloth; either dry or moistened (but not saturated) with alcohol.
- The Mechanical Cleaning, Solvent Degreasing, and Detergent Cleaning processes noted below may be used in any sequence. If a cleaning process produces contaminants, then all contaminants shall be removed from all associated surfaces.
- If any of the following criterion are met, then Final Rinsing and Drying shall be completed for the affected area:
  - Mechanical Cleaning, Solvent Degreasing, or Detergent Cleaning processes are used, or
  - Liquid penetrant inspection techniques were used.

1. Mechanical Cleaning
   - When required, mechanical cleaning shall be accomplished prior to final cleaning by polishing, deburring or brushing the surface of the material with new clean tools dedicated to be used on austenitic stainless steel material only.
   - Brushing shall be performed with clean austenitic stainless steel brushes.
   - Mechanical cleaning may also be used to remove surface indications of contamination such as rust oxides on the exterior as necessary.

     *Note: Should a mechanical cleaning process such as grinding be recommended, the ITER Organization responsible engineer must be contacted and acceptance obtained prior to proceeding.*
2. Solvent Degreasing
   - If solvent degreasing is required to remove contaminants, it shall be performed with only the following industrial solvents:
     - Isopropyl Alcohol
     - Denatured Alcohol
     - Acetone

*Caution: Halogenated compounds (those containing chlorine and/or fluorine, such as trichloroethylene, perchloroethylene, and carbon tetrachloride) shall not be used.*

3. Detergent Cleaning
   - Detergent cleaning shall use one of the following industrial solvents:
     - Alkaline solutions: trisodium phosphate.
     - Alconox: phosphate-free detergent cleaner.
   - Application may be accomplished by high pressure washing or direct scrubbing.
   - Do not allow cleaning solution to dry on surface of material.
   - Rinse with clean hot water immediately after detergent washing is accomplished.
4. Final Rinsing and Drying
   - Removable parts which may create a possibility of retaining contaminants shall be removed.
   - Rinsing shall be accomplished in the following manner:
     - Using de-ionized water with 1 ppm or less chlorides,
       - Verify chloride levels are acceptable immediately prior to use and log the result for each check. If the specification is exceeded, adjust water chemistry until the specification is acceptable.
       - Means of sampling (if a meter) shall meet calibration requirements, and the meter serial number and calibration due date shall be recorded on the log with the sample results.
     - Wetting each surface sufficiently to remove contaminants or cleaners.
   - Following cleaning, and prior to shipment, components shall be dried to remove all standing water.

D. Protection after final cleanliness inspection
   1. Once the inspected component has been approved as to final cleaning requirements and dried appropriately, all openings shall be closed and sealed with temporary covers which are in accordance with specification for the component.
   2. Any interior access or entry after final cleaning and drying shall only be done using necessary protective equipment to keep from damaging or contaminating the material surface.
   3. Any contamination shall require re-cleaning and re-inspection of the affected area.

E. Planning for inspection activities shall be accomplished and documented in accordance with the QA requirements applicable for this contract. Inspection procedures, instructions, or checklists shall include identification of characteristics to be inspected, methods of inspection and acceptance criteria. Documentation that above listed

cleanliness requirements have been implemented (e.g. completed checklist) shall be included with the fabrication records.

### *5.1.10 Quality Control Provisions*

Quality Requirements shall be in accordance with the ITER Procurement Quality Requirements, Ref [14]. The ITER Quality Assurance Program shall be applied to all the work under this Contract. The ITER QA Program is based on IAEA Safety Standard GS-R-3 and on conventional QA principles and integrates the requirements of the INB Order dated 7th February 2012, Ref [15], on the quality of design, construction and operation in Basic Nuclear Installation. For this purpose, the Contractor and Subcontractors carrying out contracts placed under this Contract shall be in compliance with the QA requirements under the relevant ITER QA classifications, the requirements of the INB Order and shall have an IO approved QA Program or an ISO 9001 accredited quality system, complemented with the above mentioned requirements.

Prior to commencement of any work under this Contract, a Quality Plan (QP), see Ref [14], shall be produced by the Contractor and Subcontractors and submitted to the IO for approval, describing how they will implement the ITER procurement quality requirements given in Ref [14].

Prior to commencement of any manufacturing, a Manufacturing and Inspection Plan (MIP), Ref [14], shall be produced by the Contractor and Subcontractors and approved by the IO, who will mark up any intended intervention point. MIPs are used to monitor Quality Control and acceptance tests during the execution of the Contract. It should be noted that interventions additional to those required in this Technical Specification may be included on the MIP by the IO. The right of the IO listed above shall apply in relation to any Subcontractor and in this case the IO will operate through the Contractor. The overseeing of the quality control operation by the IO shall not release the Contractor from his responsibility in meeting any aspect of this Technical Specification.

Subcontractors not performing Critical Quality Activities (i.e. activities that if not performed correctly may affect safety, functionality or reliability) may be exempted from the requirement to supply Quality Plans and Manufacturing & Inspection Plans, subject to agreement by the IO.

All requirements of this Technical Specification and subsequent changes proposed by the Contractor during the course of execution of this Contract are subject to the Deviation Request process described in Procedure for the management of Deviation Request, Ref [16].

Documentation developed as the result of this Contract shall be retained by the Contractor for a minimum of 5 (five) years and then may be discarded at the direction of the IO. The use of computer software to perform a safety basis task activity such as analysis and/or modelling, etc. shall be reviewed and approved by the IO prior to its use, in accordance with the Working Instruction for the Qualification of ITER safety codes, Ref. [17].

In case of Contracts concerning SIC components and/or a Safety Related Activity, or PIC and/or Protection Related Activities, the Quality Assurance Programme of the Contractor shall comply

with the requirements of the INB Order dated 7th February 2012, Ref [15], and the subsequent ASN decisions linked to this Order. For this purpose, the Contractor and Subcontractors carrying out contracts placed under the Contract shall be in compliance with the QA requirements under the relevant QA classifications as defined in Quality Classification Determination, Ref. [18] and additional requirements of the INB Order dated 7th February 2012, Ref [15] and the subsequent ASN decisions linked to this Order.

In particular for SIC, the IO, as the Nuclear Operator, will supervise the whole production cycle of the Contractor and Subcontractors in accordance with the document Overall Surveillance Plan of the Chain of External Actors for Protection Important Components, Structures and Systems and Protection Important Activities, Ref [19], which shall be identified in the MIP as specified in Ref [14].

### *5.1.11 Spare Parts*

As per Ref [5], three spare jigged specimen assemblies for each assembly type shall be available for replacing specimens that are permanently removed.

The material, configuration and loading in the replacement policy will be determined as the corrosion monitoring progresses after ITER commences operation. Additionally, two spare jigged specimen assemblies for each assembly type shall be available for first mechanical testing before testing of exposed specimens.

### *5.1.12 Packing, preservation & shipping*

#### *5.1.12.1 Scope of Application*

The following generic requirements apply both for the shipment of equipment, etc. from the manufacture/assembly site to the ITER Site or to any intermediate site.

Suitable precautions shall be taken to avoid damage to the equipment. The components shall be fitted with the required accelerometers or other sensors and shall be packed as defined below.

The equipment shall be subject to control and inspection, as defined below.

#### *5.1.12.2 Labelling and Traceability*

All components and the main subcomponents shall be clearly marked in a permanent way and in a visible place with the IO official numbering system according to the document ITER Numbering System for Components and Parts, Ref [20].

#### *5.1.12.3 Cleaning*

During cleaning, particular attention shall be given to the removal of weld spatter, debris and other foreign matter. Final cleaning shall ensure effective cleaning without damage to the surface finish, material properties or metallurgical structure of the materials.

The Contractor shall submit to the IO the proposed cleaning procedure for approval.

The demonstration of meeting the above cleaning requirements represents a Hold Point (HP).

### *5.1.12.4 Packaging and Handling*

Any special IO or regulatory transportation requirements shall be documented and provided to the Contractor prior to shipment.

The Contractor shall design and supply appropriate packaging, adequate to prevent damage during shipping lifting and handling operations. Where appropriate, accelerometers or other sensors shall be fitted to ensure that limits have not been exceeded. When accelerometers are used, they shall be fixed onto each box and shall be capable of recording the acceleration along three perpendicular directions.

Shock absorbing material shall be used.

Each shipment shall be accompanied by a Delivery Report shall be prepared by the Contractor, stating as a minimum:

- The packing date;
- The full address of the place of delivery and the name of the person responsible to receive the package, as well as of the Contractor's name and full address;
- Bill of Materials;
- Security Measures;
- Release Note, see Ref [14];
- Packing List;
- Material Safety Sheet;
- The declaration of integrity of the package;
- The declaration of integrity of the components;
- Any additional relevant information on the status of the components.

The Delivery Report shall be signed by a representative of the IO and its Contractor. The signature by the IO of the Delivery Report prior to shipment represents a Hold Point (HP).

The Manufacturing Dossier is part of the Deliverables.

A Manufacturing Dossier should include, but is not limited to, the following:

- As-Built Drawings, Documents, and Data (with signatures);
- Contractor Release Note;
- Quality Plan;
- Testing Procedures, Specifications and Reports;
- Material Control Reports, incl. Certificates, Inspections, Concessions etc.;
- Manufacturing Documentation, incl. Manufacturing procedures, Non-Destructive Testing (NDT) Procedures, Process specifications etc.;
- Records of approved Non-Conformances (NCR) and Deviation Requests (DR);
- Certificates of conformance;
- Control Reports (Visual Inspection, Non-Destructive Tests, Leak Tests, Certificates of Cleanliness, Pressure Test, Geometric measurements, etc.);
- Codes and Standards conformity certificates;

- Completed Manufacturing & Inspection Plans;
- Manuals and Instructions for the handling, assembly, maintenance, and operation.

#### *5.1.12.5 Shipment, Transportation and Delivery to the ITER Site*

The components shall be delivered to the ITER Site under the responsibility of the Contractor.

Before the shipment, a Release Note shall be prepared in accordance with the Contractor Release Note, Ref [14], and approved by the IO.

Upon receipt of the package, the IO shall open the package and make a visual inspection of its content to check:

- The integrity of the package, including identifying visible damage;
- The number and type of components contained in the shipment;
- The enclosed documentation;
- The reading of the accelerometers or other sensors;
- The integrity of the components.

In the case of anomalies the IO shall make any additional relevant remark on the inspection. The IO will inspect the accelerometers or other sensors mounted on the boxes. If these accelerometers record shocks above 5g, a thorough inspection of the components shall be performed. A decision on acceptance of the delivery of the components will be made by the IO.

If the components are in an acceptable condition, the IO will sign the Delivery Report. The signature of the Delivery Reports is an IO Hold Point.

The original of the Delivery Report shall be kept by the IO and a copy of it shall be kept by the Contractor.

#### *5.1.12.6 On-Site Activities*

Not applicable.

#### *5.1.12.7 Environment, Safety and Health*

The Contractor and Subcontractors shall observe all applicable environment, safety and health provisions for work on the ITER Site, as well as specific requirements set out in this Technical Specification.

Any activity by the Contractor and Subcontractors at the ITER Site shall be subject to the Internal Regulations, Ref [21].

Any activity by the Contractor and Subcontractors on the ITER Construction Site shall be subject to the General Safety Rules Volume 0, Ref [22], and resulting procedures.

Any additional applicable provisions regarding environment, safety and health shall be communicated by the IO to the Contractor at least 30 calendar days in advance of the activities to be performed at the ITER Site.

### *5.1.13 Service Duration*

The provisional duration is estimated to be 30 months. See tentative milestones in Chapter 8.

## 5.2 Scope of Service #2 – Procurement and Fabrication of the Assemblies

### *5.2.1 Description*

The scope includes the procurement of materials and fabrication of the VV ISI CMC specimens assemblies.

### *5.2.2 Design requirements*

The VV ISI CMC specimen assemblies shall be fabricated as per the VV ISI CMC Specimens and jigs layout drawing [4].

The classifications are given in chapter 5.1.2.

No analysis is expected to be performed by the Contractor as this has already been be done; see [25]. The Contractor is expected to develop detailed drawings (indicating surface roughness, etc.) for the specimens and assemblies based on the drawing [4].

### *5.2.3 Operating requirements*

The operating requirements are the same as those given in chapter 5.1.3.

### *5.2.4 Performance requirements*

The performance requirements are the same as those given in chapter 5.1.4.

### *5.2.5 Interface requirements*

The interface requirements are the same as those given in chapter 5.1.5.

### *5.2.6 Mechanical Requirements*

The mechanical requirements are the same as those given in chapter 5.1.6.

### *5.2.7 Electrical Requirements*

Not applicable.

### *5.2.8 Software requirements*

The software requirements are the same as those given in chapter 5.1.8.

### *5.2.9 Material, welding and fabrication requirements*

The Contractor is responsible for procurement materials needed for fabricating the assemblies. The Contractor shall supply a material certificate for all purchased material.

The material requirements are the same as given in chapter 5.1.9

#### *5.2.9.1 Welding*

Welding procedure and welder performance qualification shall be in accordance with the codes, standards and requirements indicated in [25].

The location, depth and area size of all weld repairs, regardless of the depth of the repair, shall be documented in accordance with the Manufacturer's quality program.

### *5.2.10 Quality Control Provisions*

The quality control provisions are the same as those given in chapter 5.1.10.

### *5.2.11 Spare Parts*

No single spare specimens are needed. See section 5.1.11 regarding spare jigged assemblies.

### *5.2.12 Packing, preservation & shipping*

The packing, preservation and shipping requirements are the same as those given in chapter 5.1.12.

### *5.2.13 Service Duration*

The maximum expected duration for this activity is 24 months.

# 6 Location for Scope of Work Execution

The Contractor should perform the work at their own location (ITER off-site activities).

# 7 IO Documents & IO Free issue items

## 7.1 IO Documents:

Under this scope of work, IO will deliver the following documents by the stated date:

| Ref | Title | Doc ID | Expected date |
|---|---|---|---|
| 1 | VV ISI CMC Specimens and jigs layout drawing | 62MR4V | T+0 |

| | | | |
|---|---|---|---|
| 2 | VV ISI CMC Basket and Sub-baskets layout drawing | 62MBV4 | T+0 |

## 7.2 Free issue items:

Under this scope of work, IO will deliver the following equipment/parts by the stated date:

| Ref | Equipment / Part Description | Part Nbr | Expected date |
|---|---|---|---|
| 1 | First batch of raw material delivery (all coupons currently available in the IO warehouse, except Sector Welding Assembly coupons) | See [6] | T0+1 |
| 2 | Second batch of raw material delivery (Sector Welding Assembly coupons) | See [6] | T0+3 |

The Contractor shall determine how much raw material is needed to be free issued by IO for each type of specimen considering references [8], [9], [10], [11] and [12] for the coupons.

# 8 Deliverables and Schedule Milestones

### *8.1.1 Schedule for delivery*

The maximum expected duration from the contract signature to the supply of the scope of work is 30 months.

Please find hereafter a provisional list of contract milestones:

| Schedule Milestones | Description | Is Contract Gate? (Y/N) | Expected Timing (T0+x) * |
|---|---|---|---|
| #1 | Manufacturing Readiness Review | Y | T0+8 |
| #2 | Specimen Machining (Scope of Service #1) | Y | T0+15 |
| #3 | Procurement and Fabrication of the Assemblies (Scope of Service #2) | Y | T0+20 |
| #4 | First batch of specimens' delivery** | N | T0+21 |
| #5 | SAT of the first batch of specimens delivery | Y | T0+24 |
| #6 | Second and last batch of specimens' delivery** | N | T0+27 |

| | | | |
|---|---|---|---|
| #7 | SAT of the second batch of specimens' delivery | Y | T0+30 |

* T0 = KOM date.

** the detailed list of delivery supplies is available in Chapter 5 of this document.

### *8.1.2 List of deliverable documentation*

The Contractor shall provide IO with the documents and data required in the application of this technical specification, the GM3S Ref [1] and any other requirement derived from the application of the contract.

Below is a minimum list of documentation, but not limited to, that are required for each specimen with the expected timing:

| Category | Document Type | Expected Timing |
|---|---|---|
| Chemical Composition Report | Manufacturing execution document | Before DRR |
| Manufacturing and Inspection Plan | Manufacturing inspection plan-MIP | Before DRR |
| Dimension Control Procedure | Manufacturing execution document | Before DRR |
| As-Built Drawings | Assembly and Installation Report | Before DRR |
| End Of Manufacturing Report | Manufacturing Report | Before DRR |

Appendix 2 provides a list of documentation to be provided before each corresponding activity.

Contractor shall prepare their document schedule based on the above and Appendix 2 using the template available in the GM3S Ref [1] appendix II (click here to download).

# 9 Quality Assurance requirements

The Quality class under this contract is QC1, [Ref 1] GM3S section 8 applies in line with the defined Quality Class.

# 10 Safety requirements

## 10.1 Nuclear class Safety

The **Safety Classification**, as per [29], is **PIC** (SIC-2). This applies to components which it is demonstrated that the failure of the function does not lead to significantly increase the consequences of an accident with regard to radioactive material releases or to exceed the design limits of key components (acceptance criteria).

## 10.2 Seismic class

The **Seismic Classification**, as per [29], is **SC1(S).** SC1(S) applies to components which structural stability shall be maintained in the event of an earthquake.

## 10.3 Tritium Classification

The **Tritium Classification**, as per [30], is **TC 2A**. Tritium Class 2 A/B components are First Confinement System of fixed installations containing non-flammable (if exposed to air while also considering diluent gas impacts) concentrations of hydrogen isotopes that include tritium.

## 10.4 Remote Handling (RH) Classification

The **Remote Handling (RH) Classification**, as per [31], is **RH Class 1**. During Long Term Maintenance (LTM) periods of the nuclear phase of ITER operation it is expected that certain number of VV ISI Corrosion Monitoring tasks will require the work to be done in areas where man access will be limited or prohibited. The regular periodic inspection “at least once every 40 months” established in ESPN 30th Dec 2015 [1] makes the inspection tasks scheduled activities during each LTM (every two years). Thus, the constrained man access and the frequency required by the ESPN Order lead to a preliminary assignment to those VV ISI tasks of RH Class 1 (in case of Remote Handling Equipment) or Maintenance Class MC-1 (in case of Human Assisted Equipment).

# 11 Special Management requirements

Requirement for [Ref 1] GM3S section 6 applies in full.

## 11.1 Contract Gates

The contract gates are defined in the Section 2.1 in the Table 1 of this Technical Specification.

## 11.2 CAD design requirements

Detailed manufacturing drawings shall be developed and uploaded into SMDD.

**Supply of Specimens and Assemblies for the Vacuum Vessel In-Service Inspection Corrosion Monitoring Chambers**

# Appendix 1 – Detailed Work Schedule

A Detailed Work Schedule (DWS) shall be developed by the Contractor, as a part of the tendering process, considering the milestones' target dates given in Chapter 8.

# Appendix 2 – List of Documents

The Contractor should issue the documents and send them to IO for approval before starting of each corresponding activity.

Before start of fabrication contractor should provide for IO approval:

- QA program, which is to be reviewed and approved for compliance with the IO QA Program.
- Quality Plan.
- Manufacturing and Inspection Plan (MIP) for IO approval, which contains the list of manufacturing activities and agreed intervention points.
- Final version of 3D Models and Manufacturing Drawings.
- Material certificates.
- Dimension control plan.
- Dimension check procedure.

During execution of contract contractor shall implement and provide for IO approval:

- Update MIP if necessary and provide to IO for re-acceptance.
- Notify IO representatives of any pending Inspection points as marked up on the MIP
- Issue Deviation Requests and Non-Conformance reports if necessary.
- Issue reports related to inspection and testing.
- Issue report related to dimension check.

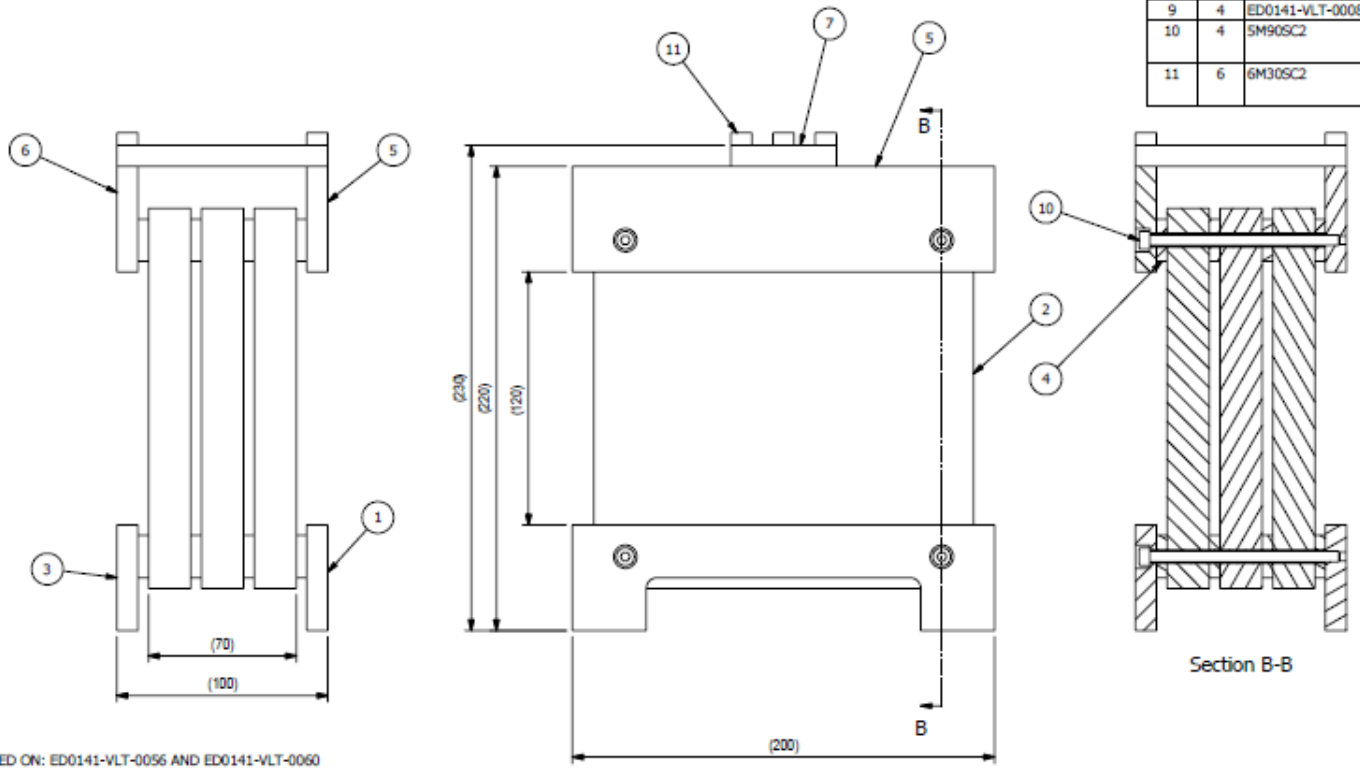
Prior to delivery contractor shall:

- Complete the release note
- Issue Delivery report
- Issue Packing list

# Appendix 3 – Specimens and Jigs Layout Drawings

Security Level: OFFICIAL

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | ED0141-VLT-0002 | Bottom Side Plate A |
| 2 | 3 | ED0141-VLT-0003 | Plate |
| 3 | 1 | ED0141-VLT-0004 | Bottom Side Plate B |
| 4 | 16 | ED0141-VLT-0005 | Spacer |
| 5 | 1 | ED0141-VLT-0006 | Top Side Plate A |
| 6 | 1 | ED0141-VLT-0007 | Top Side Plate B |
| 7 | 1 | ED0141-VLT-0009 | Top Lifting Plate |
| 9 | 4 | ED0141-VLT-0008 | INSULATION HOSE |
| 10 | 4 | 5M90SC2 | Screw M5x90 Skt Cap Head - A2 |
| 11 | 6 | 6M30SC2 | Screw M6x30 Skt Cap Head - A2 |




Section B-B

USED ON: ED0141-VLT-0056 AND ED0141-VLT-0060

WEIGHT: 18.8 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°

| | | | |
|---|---|---|---|
| Mod Description: First Issue | Mod/Drawn: Miroslaw Zgierun | Date: 02/09/2021 | Jacobs |
| | DD Check: P. J Graham | Date: 13/09/2021 | |
| | Eng Check: N. Plattes | Date: 15/09/2021 | |
| Drawing Status: Issued | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgieruM — Date: 30/07/2021 |

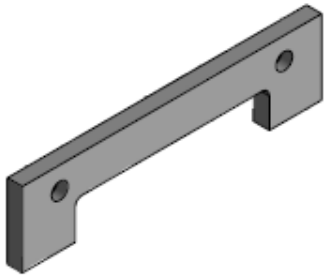
Scale: 1 : 2 | DWT No: 698A | Check Level: 2

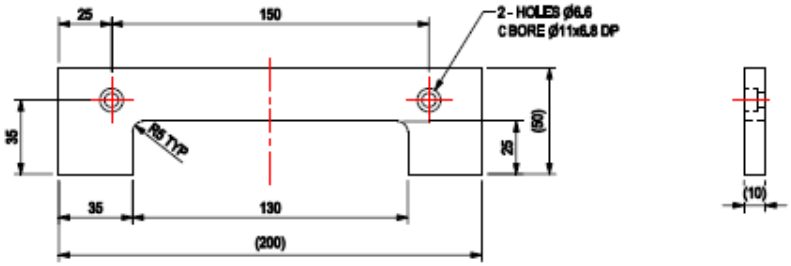
Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ
Tel: +44 (0) 1565 652180
Web: www.jacobs.com

| | |
|---|---|
| Security Level | OFFICIAL |
| Project Name | IVCDE |
| Title | Specimens Fix 007 |
| Client Drawing No | |
| Drawing No | ED0141-VLT-0001 |
| Issue | 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 200 x 50 x 10
FINISH: Natural
WEIGHT: 0.5 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Machine to min 1.6 Ra

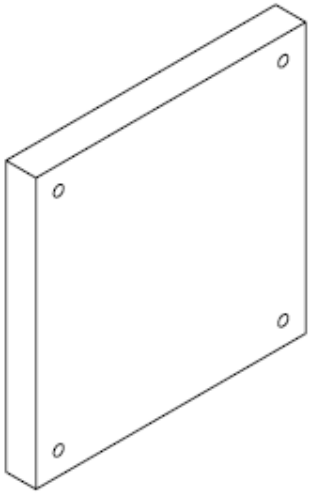
| | | | | | |
|---|---|---|---|---|---|
| Mod Description: First Issue | | | Mod/Drawn: Miroslaw Zglerun | Date: 02/09/2021 | Jacobs |
| | | | DO Check: P. J Graham | Date: 03/09/2021 | |
| | | | Eng Check: N. Platts | Date: 15/09/2021 | |
| Drawing Status: Issued | Scale: 1 : 2 | DWT No: 698A | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZglerunM — Date: 02/08/2021 |

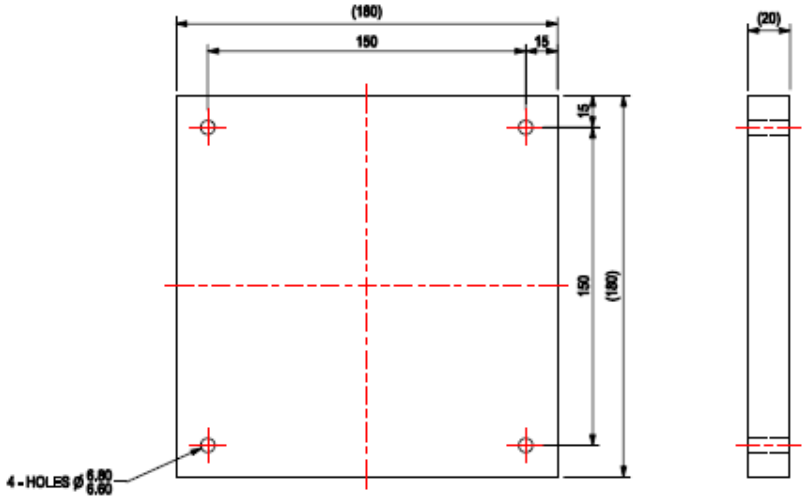
Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ
Tel: +44 (0) 1565 652180
Web: www.jacobs.com

Security Level: OFFICIAL
Project Name: IVCDE
Title: Specimens — Bottom Side Plate A
Client Drawing No:
Drawing No: ED0141-VLT-0002
Issue: 1

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL









USED ON: ED0141-VLT-0001

MATERIAL: TBS
SIZE: 180x180x20
FINISH: Natural
WEIGHT: 5.2 kg

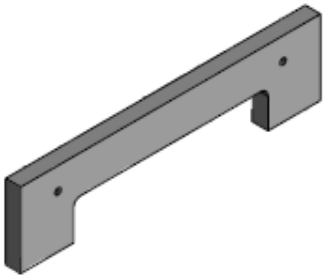
GENERAL NOTES (Unless Otherwise Stated)

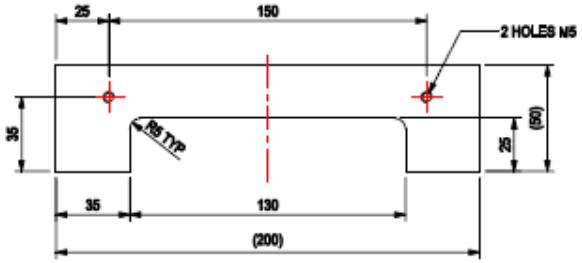
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Where indicated, machine to min 1.6 Ra

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | Mod/Drawn: Miroslaw Zglerun | Date: 09/02/2021 | Jacobs | Security Level: OFFICIAL | |
| | | | DO Check: P. J Graham | Date: 03/09/2021 | | Project Name: IVCDE | |
| | | | Eng Check: N. Platts | Date: 15/09/2021 | | Title: Specimens Plate Specimen | |
| Drawing Status: Issued | Scale: 1 : 2 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZglerunM | Date: 06/08/2021 | Client Drawing No: | |
| | | | | | | Drawing No: ED0141-VLT-0003 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 200 x 50 x 10
FINISH: Natural
WEIGHT: 0.5 kg

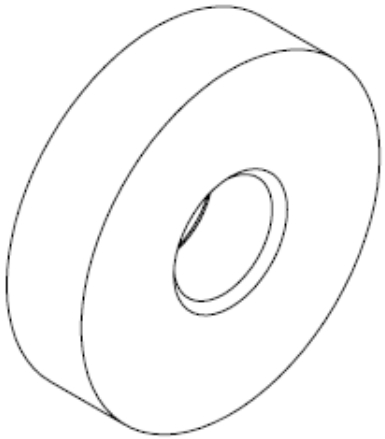
GENERAL NOTES (Unless Otherwise Stated)

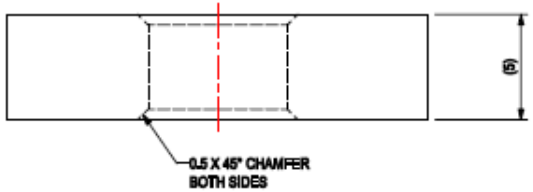
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Machine to min 1.6 Ra

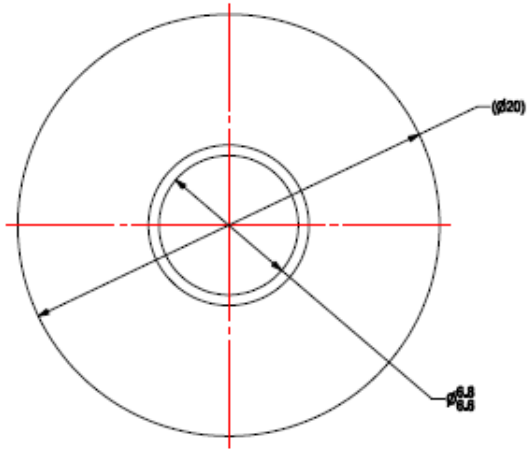
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | Mod/Drawn: Miroslaw Zgierun | Date: 02/09/2021 | Jacobs | Security Level: OFFICIAL | |
| | | | DO Check: P. J Graham | Date: 03/09/2021 | | Project Name: IVCDE | |
| | | | Eng Check: N. Platts | Date: 15/09/2021 | | Title: Specimens Bottom Side Plate B | |
| Drawing Status: Issued | Scale: 1 : 2 | DWG No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgieruM | Date: 02/08/2021 | Client Drawing No: | |
| | | | | | | Drawing No: ED0141-VLT-0004 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: PEEK Plastic
SIZE: Dia 20 x 5 Thk
FINISH: Natural
WEIGHT: 0.0 kg

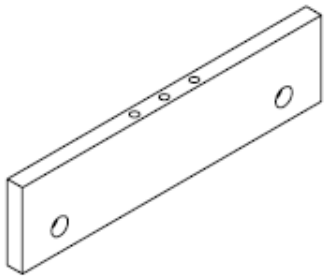
GENERAL NOTES (Unless Otherwise Stated)

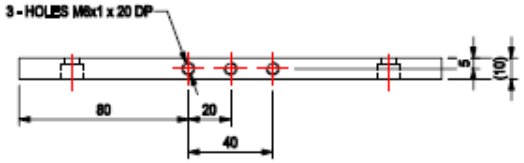
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Where indicated, machine to min 1.6 Ra

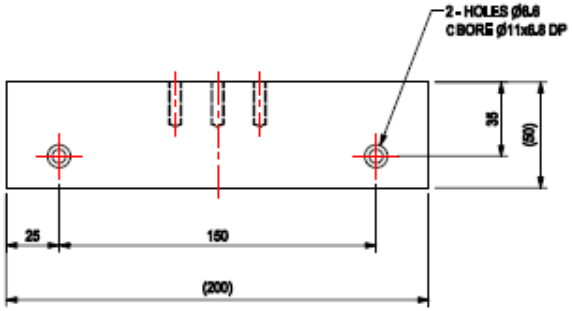
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zgierun | Date: 09/02/2021 | Jacobs | Security Level: OFFICIAL |
| | | | | DD Check: P. J Graham | Date: 03/09/2021 | | Project Name: IVCDE |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | Title: Specimens Spacer |
| Drawing Status: Issued | Scale: 5 : 1 | DWG No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgierumM | Date: 02/09/2021 | Client Drawing No: |
| | | | | | | | Drawing No: ED0141-VLT-0005 / Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 20 x 50 x 10
FINISH: Natural
WEIGHT: 0.8 kg

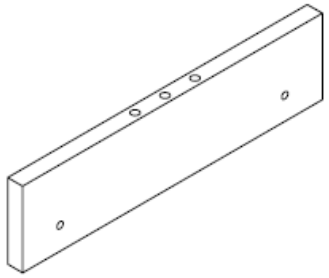
GENERAL NOTES (Unless Otherwise Stated)

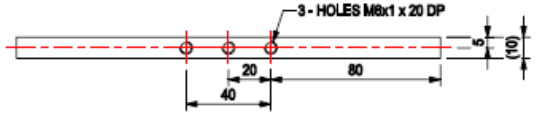
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Machine to min 1.6 Ra

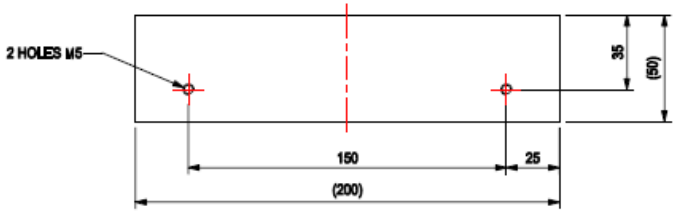
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zgierun | Date: 02/08/2021 | Jacobs | Security Level: OFFICIAL |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | | Project Name: IVCDE |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | Title: Specimens Top Side Plate A |
| Drawing Status: Issued | Scale: 1 : 2 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgieruM | Date: 02/08/2021 | Client Drawing No: | |
| | | | | | | | Drawing No: ED0141-VLT-0006 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 200x50x10
FINISH: Natural
WEIGHT: 0.8 kg

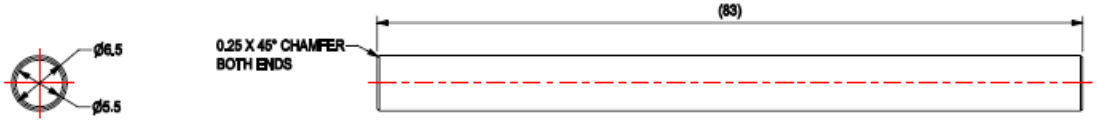
GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Where indicated, machine to min 1.6 Ra

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Mirosla Zgierun | Date: 08/06/2021 | Jacobs, Bootha Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ, Tel: +44 (0) 1565-652100, Web: www.jacobs.com | | Security Level: OFFICIAL | |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | | | Project Name: IVCDE | |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | | Title: Specimens Top Side Plate | |
| Drawing Status: Issued | Scale: 1 : 2 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgierumM | Date: 06/08/2021 | Client Drawing No | |
| | | | | | | | | Drawing No: ED0141-VLT-0007 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL




USED ON: ED0141-VLT-0001

MATERIAL: PEEK Plastic
SIZE: Dia 6.5 x 83 Long
FINISH: Natural
WEIGHT: 0.0 kg

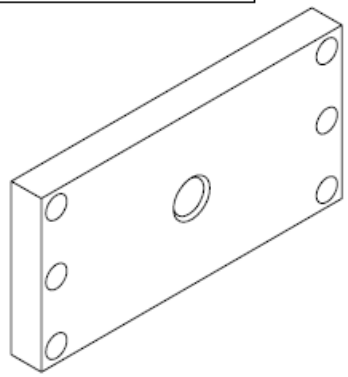
GENERAL NOTES (Unless Otherwise Stated)

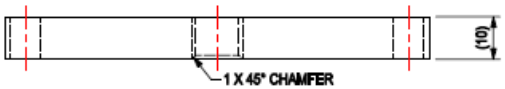
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Where indicated, machine to min 1.6 Ra

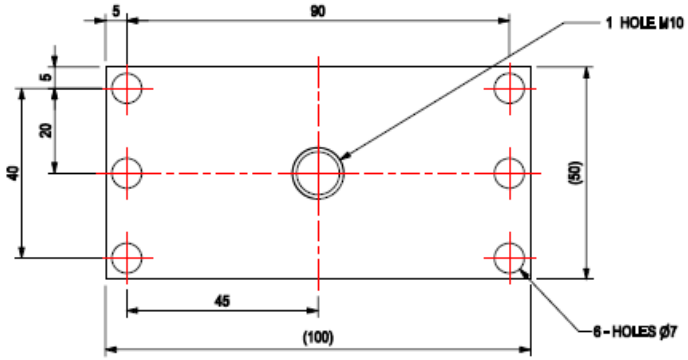
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zgierun | Date: 02/09/2021 | Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ. Tel: +44 (0) 1565 652100 Web: www.jacobs.com | Jacobs | Security Level: OFFICIAL | |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | | | Project Name: IVCDE | |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | | Title: Specimens Insulation | |
| Drawing Status: Issued | Scale: 2 : 1 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgleruM | Date: 02/09/2021 | Client Drawing No: | |
| | | | | | | | | Drawing No: ED0141-VLT-0008 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0001

MATERIAL: Stainless Steel 316/316L Dual Cetified
SIZE: 100 x 50 x 10
FINISH: Natural
WEIGHT: 0.4 kg

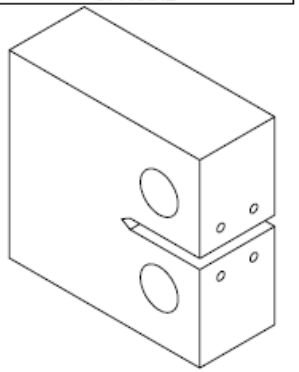
GENERAL NOTES (Unless Otherwise Stated)

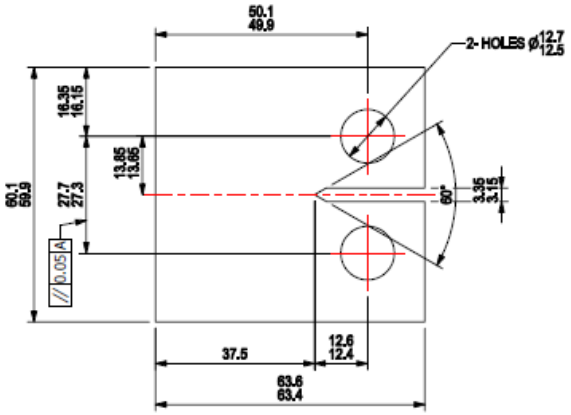
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Machine to min 1.6 Ra

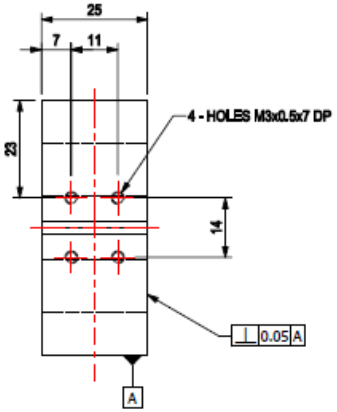
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zglerun | Date: 09/02/2021 | Jacobs | Security Level: OFFICIAL | | |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | | Project Name: IVCDE | | |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | Title: Specimens Top Lifting Plate | | |
| Drawing Status: Issued | Scale: 1 : 1 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZgleruM | Date: 02/08/2021 | Client Drawing No | |
| | | | | | | | | Drawing No: ED0141-VLT-0009 | Issue: 1 |

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






NOTE: Manufacture From Specimen Blank Provided

USED ON: ED0141-VLT-0046

MATERIAL: Specimen Blank Provided
SIZE: 64x60x25
FINISH: Natural
WEIGHT: 0.7 kg

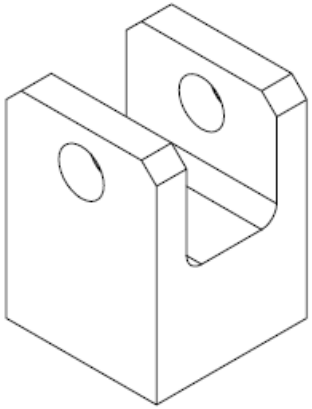
GENERAL NOTES (Unless Otherwise Stated)

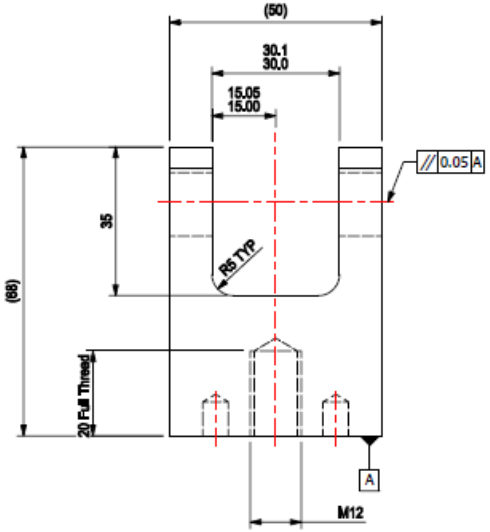
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5'
Surface Finish:
Where indicated, machine to min 1.6 Ra

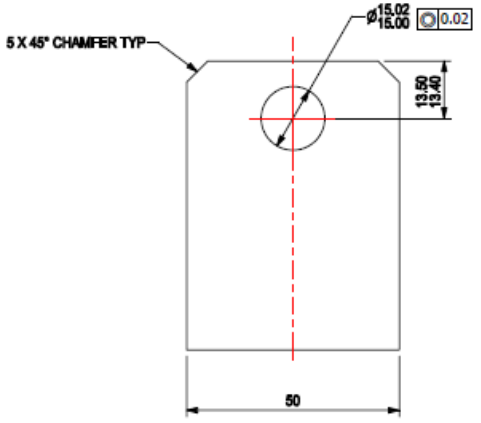
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zglerun | Date: 09/01/2021 | Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ | Jacobs | Security Level: OFFICIAL | |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | Tel: +44 (0) 1565-652100 Web: www.jacobs.com | | Project Name: IVCDE | |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | | Title: Specimens 25CT Specimen | |
| | | | | | | | | Client Drawing No: | |
| Drawing Status: Issued | Scale: 1 : 1 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZglerUM | Date: 01/09/2021 | Drawing No: ED0141-VLT-0011 | Issue: 1 |

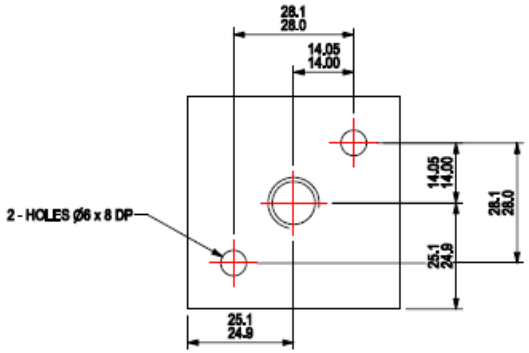
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






USED ON: ED0141-VLT-0046

MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 68x50x50
FINISH: Natural
WEIGHT: 0.9 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5'
Surface Finish:
Machine to min 1.6 Ra

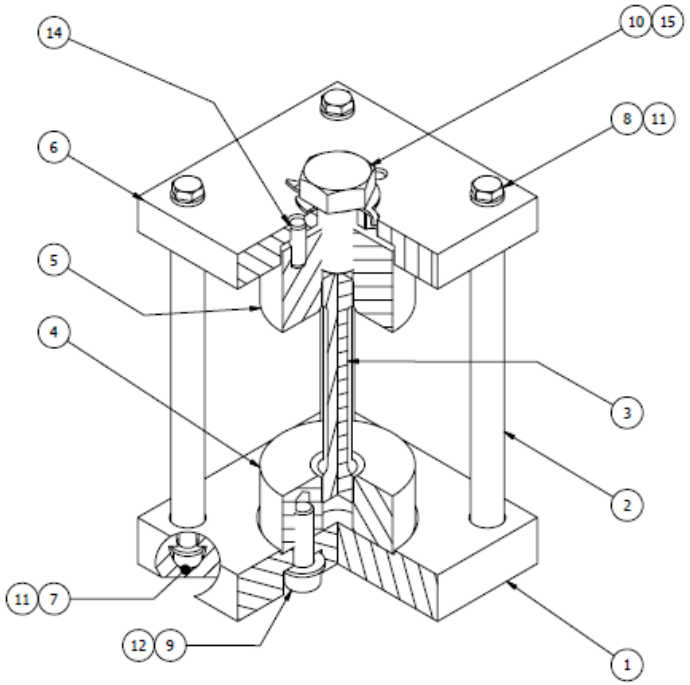
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zglerun | Date: 01/09/2021 | Jacobs | Security Level: OFFICIAL | | |
| | | | | DO Check: P. J Graham | Date: 17/09/2021 | | Project Name: IVCDE | | |
| | | | | Eng Check: F. Orlandi | Date: 15/09/2021 | | Title: Specimens Lower Grip For 25mm CT | | |
| Drawing Status: Issued | Scale: 1 : 1 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZglerUM | Date: 06/08/2021 | Client Drawing No | |
| | | | | | | | | Drawing No: ED0141-VLT-0012 | Issue: 1 |

Bootha Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ
Tel: +44 (0) 1565 652100
Web: www.jacobs.com

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | ED0141-VLT-00126 | BASE PLATE |
| 2 | 4 | ED0141-VLT-00127 | SPACER BAR |
| 3 | 1 | ED0141-VLT-00128 | TENSILE SPECIMEN |
| 4 | 1 | ED0141-VLT-00129 | BASE BLOCK |
| 5 | 1 | ED0141-VLT-00130 | TOP BLOCK |
| 6 | 1 | ED0141-VLT-00131 | TOP PLATE |
| 7 | 4 | ISO 4762 M6x1 x 20 | SOCKET HEAD CAP SCREW - A4 |
| 8 | 4 | ISO 4017 - M6 x 25 LG | HEX HEAD SET SCREW - A4 |
| 9 | 2 | ISO 4762 M8x1.25 x 25 | SOCKET HEAD CAP SCREW -A4 |
| 10 | 1 | ISO 4017 - M16 x 30 LG | HEX HEAD SET SCREW - A4 |
| 11 | 8 | ISO 7089-6 | PLAIN WASHER TYPE A - A2 |
| 12 | 2 | ISO 7089-8 | PLAIN WASHER TYPE A - A2 |
| 14 | 2 | ISO 8734 - 6x18 - A | PARALLEL PIN |
| 15 | 1 | M16 TAB WASHER | M16 TAB WASHER - A2 |




Notes:

1. Items 4 and 5 have specialist manufacturing process required.
2. Tensile rod to be loaded to 95% of proof load prior to loading into the sub basket.
3. Apply Loctite 243 to item 9 prior to fitment

WEIGHT: 4.0 kg

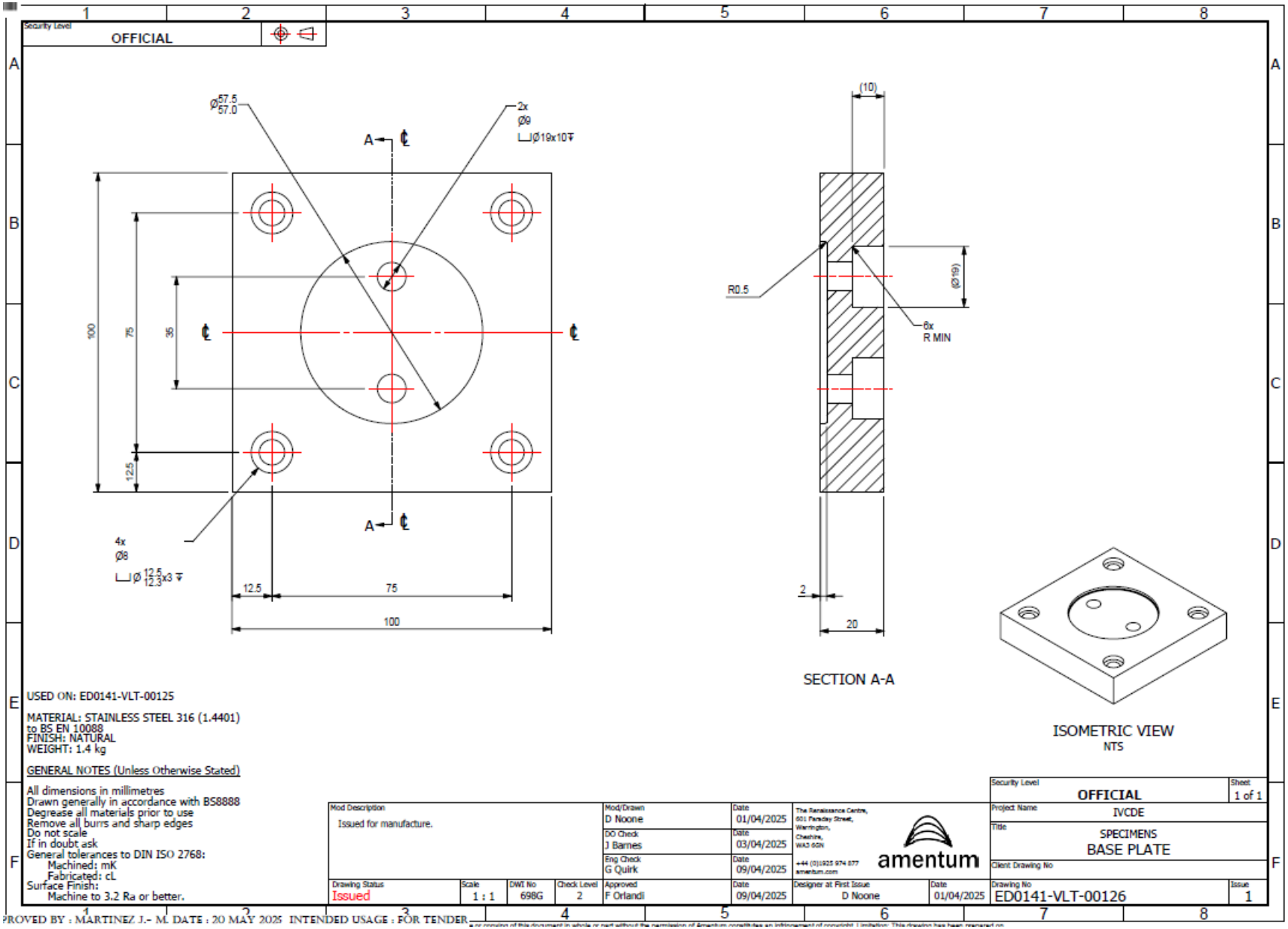
GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Machine to 3.2 Ra or better.

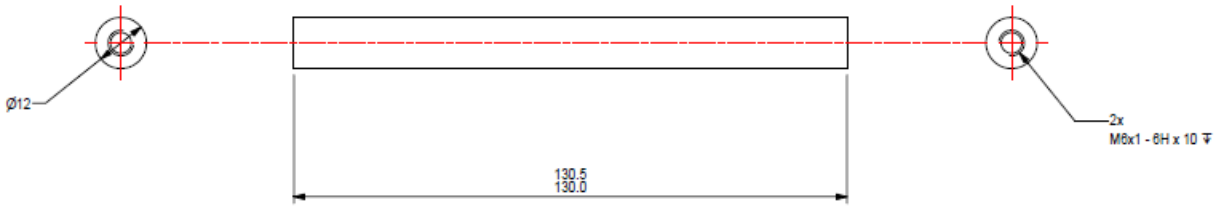
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Mod Description: Issued for manufacture. | | | | Mod/Drawn: D Noone | Date: 01/04/2025 | The Renaissance Centre, 601 Faraday Street, Warrington, Cheshire, WA3 6GN. +44 (0)1925 974 877 amentum.com | amentum |
| | | | | DO Check: J Barnes | Date: 03/04/2025 | | |
| | | | | Eng Check: G Quirk | Date: 09/04/2025 | | |
| Drawing Status: Issued | Scale: 1 : 2 | DWT No: 698G | Check Level: 2 | Approved: F Orlandi | Date: 09/04/2025 | Designer at First Issue: D Noone | Date |

Security Level: OFFICIAL — Sheet: 1 of 1
Project Name: IVCDE
Title: SPECIMENS — ROD TENSILE SPECIMEN
Client Drawing No:
Drawing No: ED0141-VLT-00125 — Issue: 1

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER


Security Level
OFFICIAL
Ø57.5
57.0
2x
Ø9
⌴Ø19x10▼
A
A
100
75
35
12.5
4x
Ø8
⌴Ø 12.5 12.3 x3 ▼
12.5
75
100
(10)
R0.5
(Ø19)
6x
R MIN
2
20
SECTION A-A
ISOMETRIC VIEW
NTS
USED ON: ED0141-VLT-00125
MATERIAL: STAINLESS STEEL 316 (1.4401)
to BS EN 10088
FINISH: NATURAL
WEIGHT: 1.4 kg
GENERAL NOTES (Unless Otherwise Stated)
All dimensions in millimetres
Drawn generally in accordance with BS8888
Degrease all materials prior to use
Remove all burrs and sharp edges
Do not scale
If in doubt ask
General tolerances to DIN ISO 2768:
Machined: mK
Fabricated: cL
Surface Finish:
Machine to 3.2 Ra or better.
Mod Description
Issued for manufacture.
Mod/Drawn
D Noone
Date
01/04/2025
DO Check
J Barnes
Date
03/04/2025
Eng Check
G Quirk
Date
09/04/2025
Approved
F Orlandi
Date
09/04/2025
Drawing Status
Issued
Scale
1 : 1
DWT No
698G
Check Level
2
The Renaissance Centre,
601 Faraday Street,
Warrington,
Cheshire,
WA3 6GN
+44 (0)1925 974 877
amentum.com
amentum
Designer at First Issue
D Noone
Date
01/04/2025
Security Level
OFFICIAL
Sheet
1 of 1
Project Name
IVCDE
Title
SPECIMENS
BASE PLATE
Client Drawing No
Drawing No
ED0141-VLT-00126
Issue
1
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL




USED ON: ED0141-VLT-000125

MATERIAL: STAINLESS STEEL 316 (1.4401)
to BS EN 10088
FINISH: NATURAL
WEIGHT: 0.1 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Degrease all materials prior to use
Remove all burrs and sharp edges
Do not scale
If in doubt ask
General tolerances to DIN ISO 2768:
Machined: mK
Fabricated: cL
Surface Finish:
Machine to 3.2 Ra or better.

| | | | |
|---|---|---|---|
| Mod Description | Issued for manufacture. | | |
| Mod/Drawn | D Noone | Date | 01/04/2025 |
| DO Check | J Barnes | Date | 03/04/2025 |
| Eng Check | G Quirk | Date | 09/04/2025 |
| Approved | F Orlandi | Date | 09/04/2025 |
| Designer at First Issue | D Noone | Date | 01/04/2025 |
| Drawing Status | Issued | | |
| Scale | 1 : 1 | | |
| DWI No | 698G | | |
| Check Level | 2 | | |

The Renaissance Centre,
601 Faraday Street,
Warrington,
Cheshire,
WA3 6GN
+44 (0)1925 974 677
amentum.com

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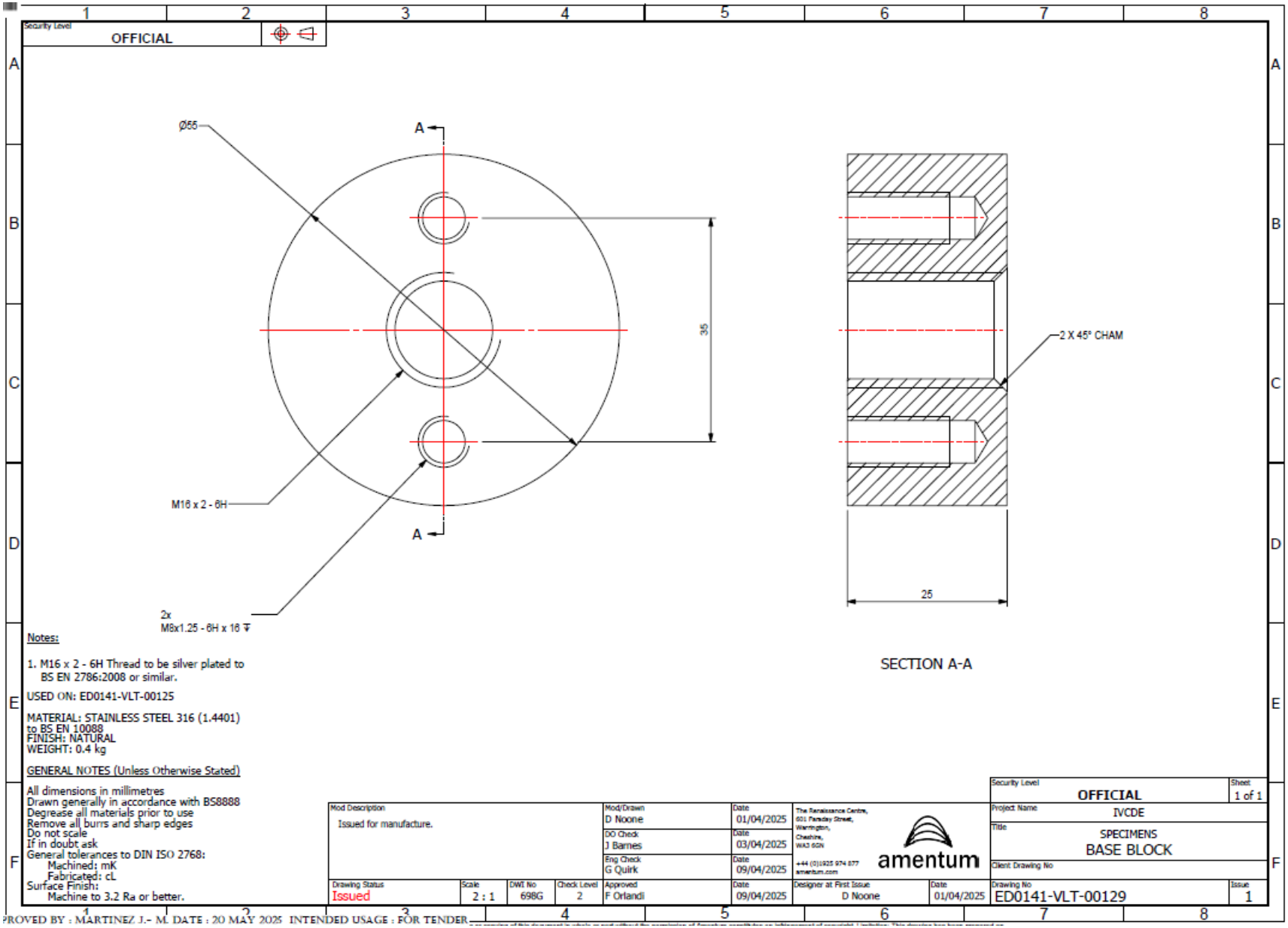
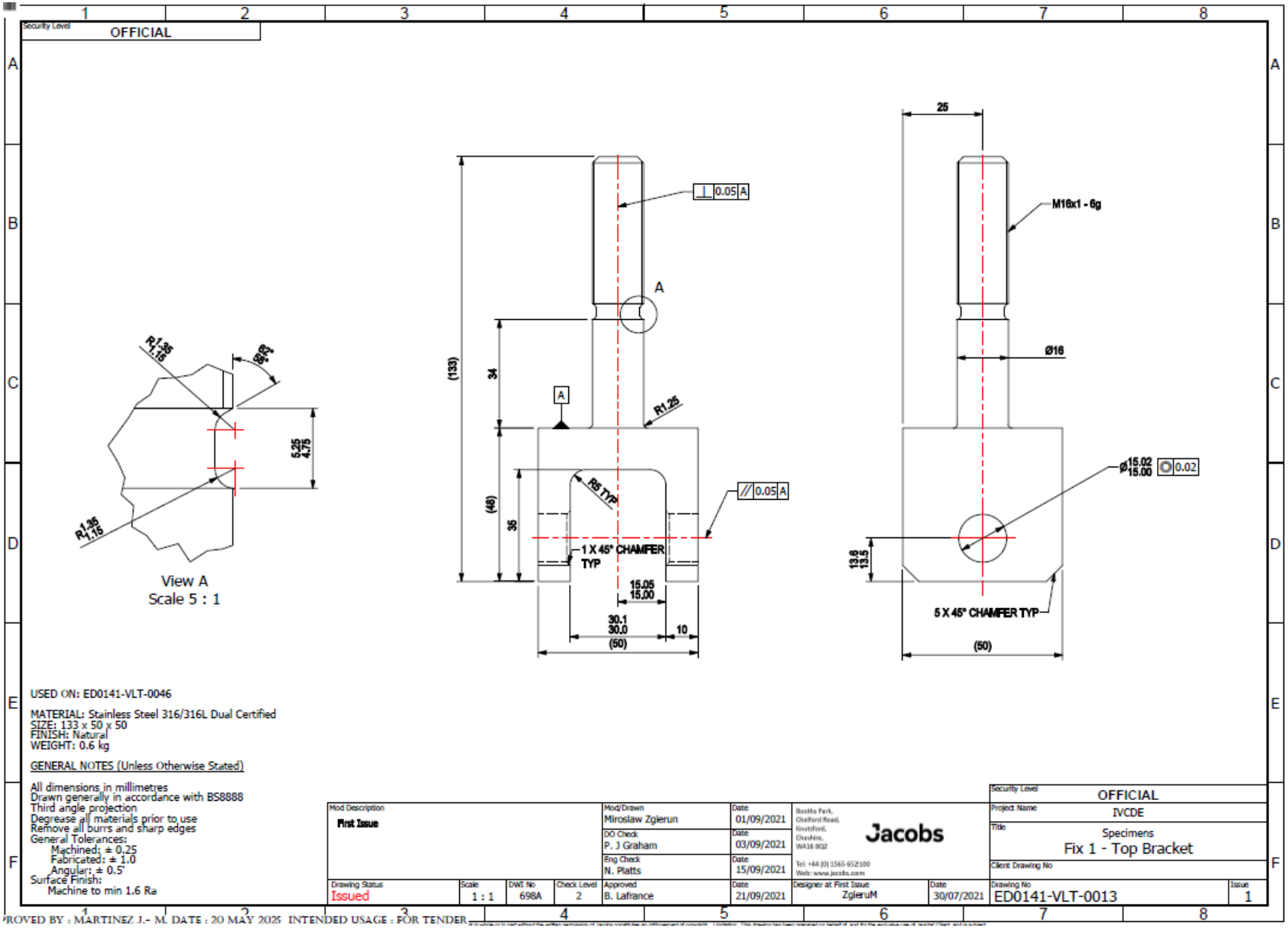
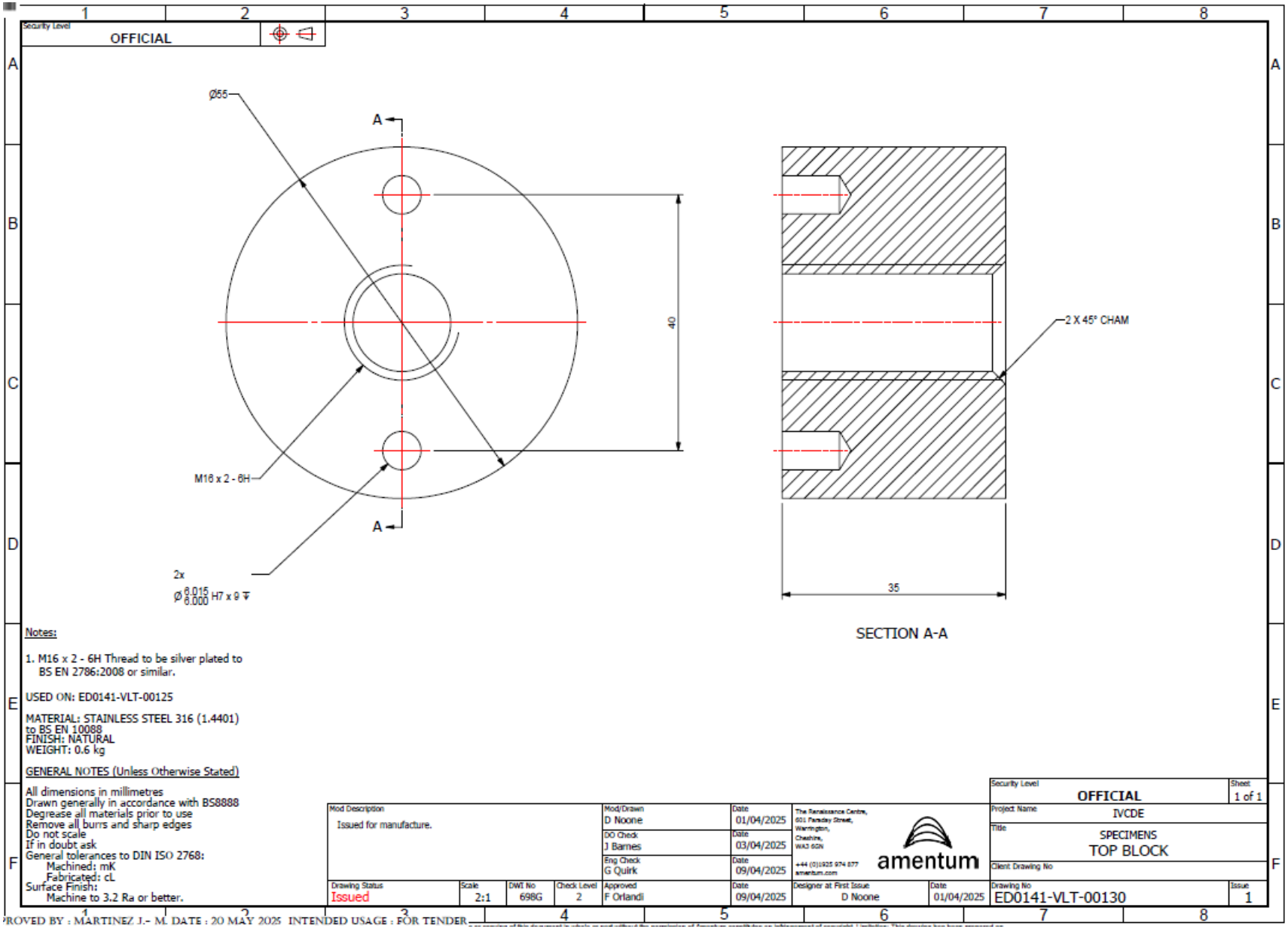
| | |
|---|---|
| Security Level | OFFICIAL |
| Sheet | 1 of 1 |
| Project Name | IVCDE |
| Title | SPECIMENS<br>SPACER BAR |
| Client Drawing No | |
| Drawing No | ED0141-VLT-00127 |
| Issue | 1 |

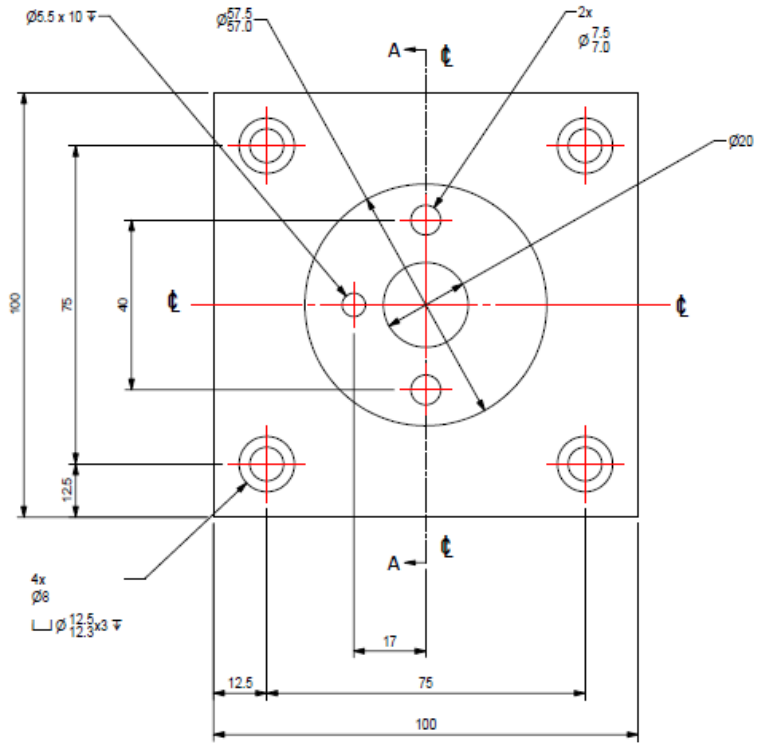
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

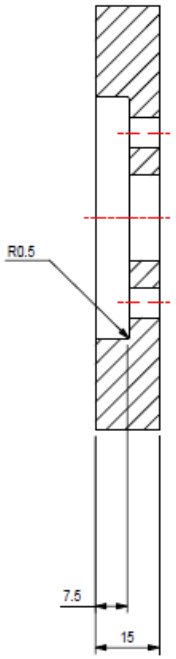

Security Level
OFFICIAL
Ø55
A
A
35
M16 x 2 - 6H
2x
M8x1.25 - 6H x 16 ↧
2 X 45° CHAM
25
SECTION A-A
Notes:
1. M16 x 2 - 6H Thread to be silver plated to BS EN 2786:2008 or similar.
USED ON: ED0141-VLT-00125
MATERIAL: STAINLESS STEEL 316 (1.4401) to BS EN 10088
FINISH: NATURAL
WEIGHT: 0.4 kg
GENERAL NOTES (Unless Otherwise Stated)
All dimensions in millimetres
Drawn generally in accordance with BS8888
Degrease all materials prior to use
Remove all burrs and sharp edges
Do not scale
If in doubt ask
General tolerances to DIN ISO 2768:
Machined: mK
Fabricated: cL
Surface Finish:
Machine to 3.2 Ra or better.
Mod Description
Issued for manufacture.
Mod/Drawn
D Noone
Date
01/04/2025
DO Check
J Barnes
Date
03/04/2025
Eng Check
G Quirk
Date
09/04/2025
Approved
F Orlandi
Date
09/04/2025
The Renaissance Centre, 601 Faraday Street, Warrington, Cheshire, WA3 6GN
+44 (0)1925 974 877
amentum.com
amentum
Designer at First Issue
D Noone
Date
01/04/2025
Drawing Status
Issued
Scale
2 : 1
DWT No
698G
Check Level
2
Security Level
OFFICIAL
Sheet
1 of 1
Project Name
IVCDE
Title
SPECIMENS
BASE BLOCK
Client Drawing No
Drawing No
ED0141-VLT-00129
Issue
1
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER


Security Level
OFFICIAL
R1.36
1.15
5.25
4.75
View A
Scale 5 : 1
0.05 A
A
(133)
34
R1.25
R5 TYP
(48)
35
1 X 45° CHAMFER
TYP
15.05
15.00
30.1
30.0
10
(50)
0.05 A
25
M16x1 - 6g
Ø16
Ø15.02
15.00
0.02
13.6
13.5
5 X 45° CHAMFER TYP
(50)
USED ON: ED0141-VLT-0046
MATERIAL: Stainless Steel 316/316L Dual Certified
SIZE: 133 x 50 x 50
FINISH: Natural
WEIGHT: 0.6 kg
GENERAL NOTES (Unless Otherwise Stated)
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined; ± 0.25
Fabricated; ± 1.0
Angular; ± 0.5'
Surface Finish:
Machine to min 1.6 Ra
Mod Description
First Issue
Mod/Drawn
Miroslaw Zglerun
Date
01/09/2021
DO Check
P. J Graham
Date
03/09/2021
Eng Check
N. Platts
Date
15/09/2021
Approved
B. Lafrance
Date
21/09/2021
Jacobs
Bootha Park,
Chelford Road,
Knutsford,
Cheshire,
WA16 8QZ
Tel: +44 (0) 1565 652100
Web: www.jacobs.com
Designer at First Issue
ZglerumM
Date
30/07/2021
Drawing Status
Issued
Scale
1 : 1
DWT No
698A
Check Level
2
Security Level
OFFICIAL
Project Name
IVCDE
Title
Specimens
Fix 1 - Top Bracket
Client Drawing No
Drawing No
ED0141-VLT-0013
Issue
1
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

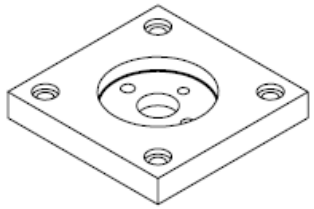

Security Level
OFFICIAL
Ø55
A
A
40
M16 x 2 - 6H
2x
Ø 6.015 6.000 H7 x 9 ↧
2 X 45° CHAM
35
SECTION A-A
Notes:
1. M16 x 2 - 6H Thread to be silver plated to BS EN 2786:2008 or similar.
USED ON: ED0141-VLT-00125
MATERIAL: STAINLESS STEEL 316 (1.4401) to BS EN 10088
FINISH: NATURAL
WEIGHT: 0.6 kg
GENERAL NOTES (Unless Otherwise Stated)
All dimensions in millimetres
Drawn generally in accordance with BS8888
Degrease all materials prior to use
Remove all burrs and sharp edges
Do not scale
If in doubt ask
General tolerances to DIN ISO 2768:
Machined: mK
Fabricated: cL
Surface Finish:
Machine to 3.2 Ra or better.
Mod Description
Issued for manufacture.
Mod/Drawn
D Noone
Date
01/04/2025
DO Check
J Barnes
Date
03/04/2025
Eng Check
G Quirk
Date
09/04/2025
Approved
F Orlandi
Date
09/04/2025
Designer at First Issue
D Noone
Date
01/04/2025
The Renaissance Centre, 601 Faraday Street, Warrington, Cheshire, WA3 6GN
+44 (0)1925 974 877
amentum.com
amentum
Drawing Status
Issued
Scale
2:1
DWT No
698G
Check Level
2
Security Level
OFFICIAL
Sheet
1 of 1
Project Name
IVCDE
Title
SPECIMENS
TOP BLOCK
Client Drawing No
Drawing No
ED0141-VLT-00130
Issue
1
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL




SECTION A-A



ISOMETRIC VIEW
NTS

USED ON: ED0141-VLT-00125

MATERIAL: STAINLESS STEEL 316 (1.4401) to BS EN 10088
FINISH: NATURAL
WEIGHT: 1.0 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Degrease all materials prior to use
Remove all burrs and sharp edges
Do not scale
If in doubt ask
General tolerances to DIN ISO 2768:
Machined: mK
Fabricated: cL
Surface Finish:
Machine to 3.2 Ra or better.

| Mod Description | Mod/Drawn | Date |
|---|---|---|
| Issued for manufacture. | D Noone | 01/04/2025 |
| | DO Check: J Barnes | 03/04/2025 |
| | Eng Check: G Quirk | 09/04/2025 |

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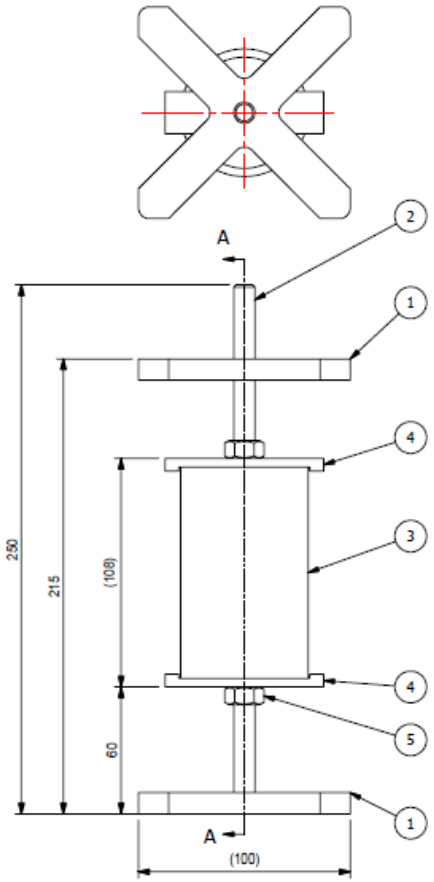
| Drawing Status | Scale | DWT No | Check Level | Approved | Date | Designer at First Issue | Date |
|---|---|---|---|---|---|---|---|
| Issued | 1 : 1 | 698G | 2 | F Orlandi | 09/04/2025 | D Noone | 01/04/2025 |

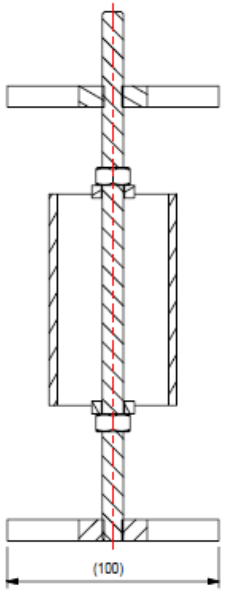
Security Level: OFFICIAL
Sheet: 1 of 1
Project Name: IVCDE
Title: SPECIMENS TOP PLATE
Client Drawing No:
Drawing No: ED0141-VLT-00131
Issue: 1

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL

| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | ED0141-VLT-0026 | Fix 4 - Bottom/ Top Flange |
| 2 | 1 | ED0141-VLT-0049 | Threaded Rod |
| 3 | 1 | ED0141-VLT-0025 | Specimen |
| 4 | 2 | ED0141-VLT-0027 | Fix 4 - Specimens Holding Bracket |
| 5 | 2 | 10MNF4 | Nut M10 Hexagon Full - A4 |




Section A-A

USED ON: ED0141-VLT-0056 And ED0141-VLT-0060

WEIGHT: 1.5 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°

| Mod Description | Mod/Drawn | Date |
|---|---|---|
| First Issue | Miroslaw Zgierun | 01/09/2021 |
| | DO Check: P. J Graham | 03/09/2021 |
| | Eng Check: N. Platts | 15/09/2021 |
| | Approved: B. Lafrance | 21/09/2021 |

Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ
Tel: +44 (0) 1565 652100
Web: www.jacobs.com

Jacobs

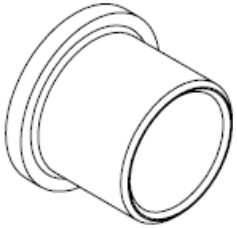
Designer at First Issue: ZgieruM — Date: 30/07/2021

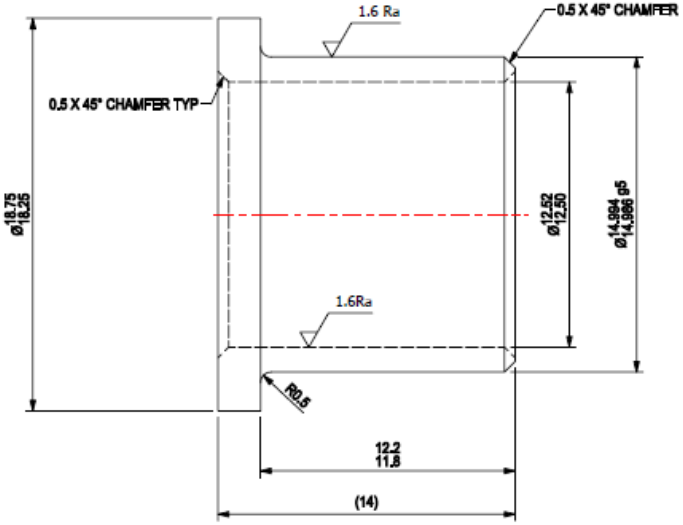
Drawing Status: Issued | Scale: 1 : 2 | DWI No: 698A | Check Level: 2

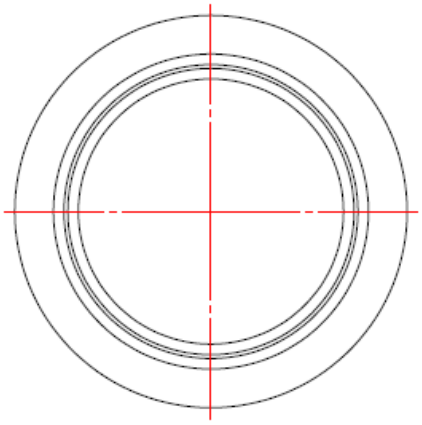
Security Level: OFFICIAL
Project Name: IVCDE
Title: Specimens Tubular Coupon Fix
Client Drawing No:
Drawing No: ED0141-VLT-0014 | Issue: 1

PROVED BY : MARTINEZ J.- M DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL





USED ON: ED0141-VLT-0046

MATERIAL: Glass Filled PEEK Plastic
SIZE: Dia 20x14
FINISH: Natural
WEIGHT: 0.0 kg

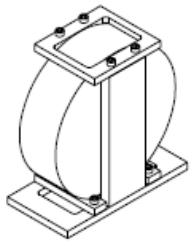
GENERAL NOTES (Unless Otherwise Stated)

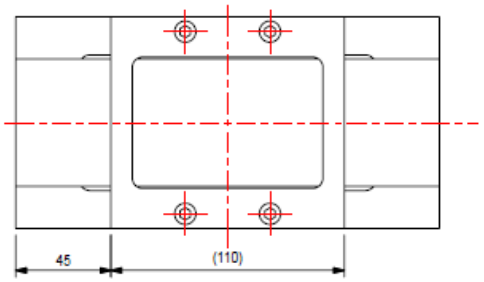
All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5°
Surface Finish:
Where indicated, machine to min 1.6 Ra

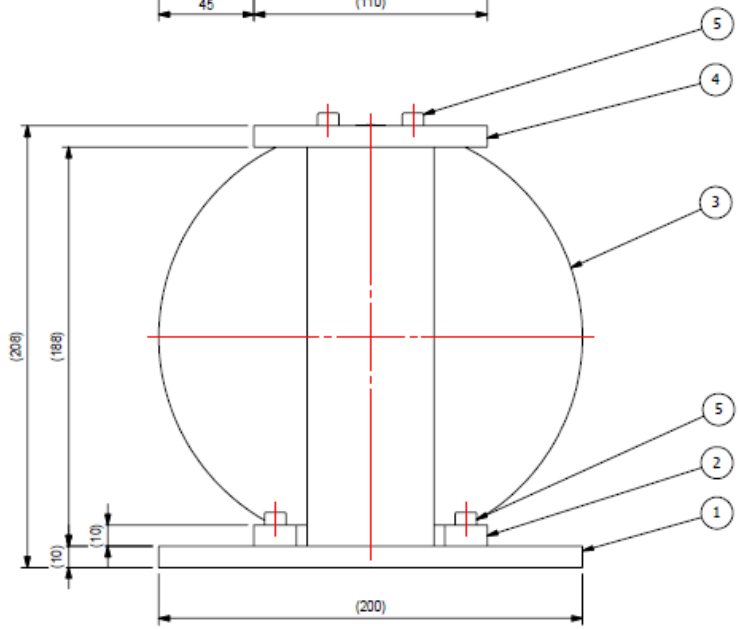
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Mod Description: First Issue | | | | Mod/Drawn: Miroslaw Zglerun | Date: 09/01/2021 | Jacobs, Bostrix Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ. Tel: +44 (0) 1565 652100 Web: www.jacobs.com | | Security Level: OFFICIAL | |
| | | | | DO Check: P. J Graham | Date: 03/09/2021 | | | Project Name: IVCDE | |
| | | | | Eng Check: N. Platts | Date: 15/09/2021 | | | Title: Specimens CT Bush For 25mm CT | |
| Drawing Status: Issued | Scale: 5 : 1 | DWT No: 698A | Check Level: 2 | Approved: B. Lafrance | Date: 21/09/2021 | Designer at First Issue: ZglerUM | Date: 06/08/2021 | Client Drawing No: | |
| | | | | | | | | Drawing No: ED0141-VLT-0015 | Issue: 1 |

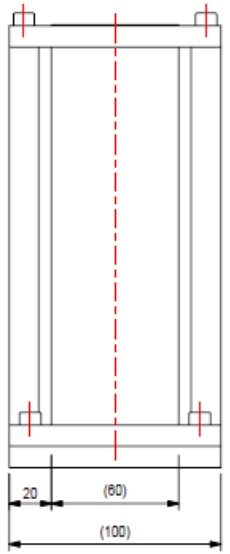
PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER

Security Level: OFFICIAL






PARTS LIST

| ITEM | QTY | PART NUMBER | DESCRIPTION |
|---|---|---|---|
| 1 | 1 | ED0141-VLT-0097 | Disk Jig Main Body |
| 2 | 1 | ED0141-VLT-0099 | Disk Jig Isolator Bottom |
| 3 | 1 | ED0141-VLT-0093 | Disk Specimen |
| 4 | 1 | ED0141-VLT-0098 | Disk Jig Isolator Top |
| 5 | 8 | 6M20SC2 | Screw M6x20 Skt Cap Head - A2 |

USED ON: ED0141-VLT-0056 And ED0141-VLT-0060

WEIGHT: 18.8 kg

GENERAL NOTES (Unless Otherwise Stated)

All dimensions in millimetres
Drawn generally in accordance with BS8888
Third angle projection
Degrease all materials prior to use
Remove all burrs and sharp edges
General Tolerances:
Machined: ± 0.25
Fabricated: ± 1.0
Angular: ± 0.5'

| Mod Description | Mod/Drawn | Date |
|---|---|---|
| First Issue | Miroslaw Zglerun | 18/03/2022 |
| | DO Check: P. J Graham | 20/04/2022 |
| | Eng Check: F. Orlandi | 18/05/2022 |
| | Approved: B. Lafrance | 18/05/2022 |

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Booths Park, Chelford Road, Knutsford, Cheshire, WA16 8QZ
Tel: +44 (0) 1565 652100
Web: www.jacobs.com

Designer at First Issue: ZgleruM — Date: 30/09/2021

| Drawing Status | Scale | DWT No | Check Level |
|---|---|---|---|
| Issued | 1 : 2 | 698B | 2 |

Security Level: OFFICIAL
Project Name: IVCDE
Title: Specimen — Disk specimen
Client Drawing No:
Drawing No: ED0141-VLT-0111
Issue: 1

PROVED BY : MARTINEZ J.- M. DATE : 20 MAY 2025 INTENDED USAGE : FOR TENDER