外部委託業者の募集

References: IO/25/OT/10032158/ERA

“Qualification of the Low Friction Coating (LFC) Provider"

（低摩擦コーティング提供者の適格性評価）

IO 締め切り 2025 年 9 月 1 日(月)

〇はじめに

本事前情報通知（PIN）は、作業契約の入札授与および実行につながる公開入札調達プロセスの最初のステップです。

〇背景

ITER は平和利用の核融合発電の科学的および技術的な実現可能性の実証を目的とした、国際共同研究開発プロジェクトです。ITER 機構の 7 つのメンバーは、;欧州連合（EURATOM が代表）、日本、中華人民共和国、インド、大韓民国、ロシア連邦、および米国です。

ITER の敷地はフランス南東部のブーシュデュローヌ地区にあり、ITER 本社（HQ）もあるフランス CEA サン・ポール・レ・デュランス に近いところに位置しています。詳細については、ITER のウェブサイト http://www.iter.org を参照して下さい。

〇作業範囲

ブランケットシステムの組み立てとメンテナンス性を確保するボルト結合部は、焼き付き防止と低摩擦機能を提供するため、物理蒸着法（PVD）を用いた二硫化モリブデン（MoS2）ベースの低摩擦コーティング（LFC）に依存しています。

ボルトシステム（ボルト、インサート、ワッシャー）へのLFC成膜とIO要件の満足は困難なタスクであり、その結果はプロバイダーに依存します。したがって、量産契約締結に先立ち、LFCプロバイダーの適格性評価を実施することは、コストとスケジュールの関連リスクを低減し、満足のいく結果を得る上で極めて重要です。

本入札プロセスは、LFCプロバイダーの適格性評価と、オプションとしての量産品へのさらなるコーティング成膜を目的とした供給契約を締結することを意図しています。

適格性評価は2つのフェーズからなります。

- フェーズ1：プレ適格性評価: 契約者により1セットのM24ボルトシステム（附属書1の通り）にLFCが成膜され、IOにより試験されます。
- フェーズ2（オプション）：適格性評価: 契約者によりM24ボルトシステム3セットとM64ボルトシステム3セットにLFCが成膜され、IOにより試験されます。このフェーズは、フェーズ1の実施においてIOにより正式に受諾された満足のいく結果を提供した契約者のみが実行します。

- フェーズ3（オプション）：量産LFC成膜: フェーズ2を成功裏に通過した契約者は、関連するオプションが発動された場合に、量産品へのLFC成膜を行うフェーズ3の活動を実行する資格を得ます。

量産品へのLFC成膜は2つのロットで実施されます。

1. ロット1: M24システムのみにLFC成膜を実施します。
2. ロット2: M64ボルトシステムのみにLFC成膜を実施します。

〇調達プロセスと目的

目的は、競争入札プロセスを通じて供給契約を落札することです。
この入札のために選択された調達手続きは公開入札手続きと呼ばれます。
オープン入札手順は、次の 4 つの主要なステップで構成されています。

- ステップ 1-事前情報通知（PIN）
  事前情報通知は公開入札プロセスの第一段階です。IO は、関心のある候補企業に対し、以下の概略日程に示された作業日までに担当調達担当官に添付の関心表明フォームで以下の情報を提出し、競争プロセスへの関心を示すよう正式に要請します。

  特に注意:
  関心のある候補企業は、IO Ariba の電子調達ツール 「IPROC」 に登録してください（まだ登録していない場合）。手順については、
  https://www.iter.org/fr/proc/overview
  を参照してください。

  Ariba (IPROC) に登録する際には、お取引先様に最低 1 名の担当者の登録をお願いします。この連絡担当者は、提案依頼書の発行通知を受け取り、必要と思われる場合は入札書類を同僚に転送することができます。

- ステップ 2-入札への招待
  PIN の発行から 10 作業日経過後、提案依頼書（RFP）を 「IPROC」 に掲載します。この段階では、担当の調達担当者に関心を示し、かつ IPROC に登録している関心のある候補企業は、RFP が公表された旨の通知を受けることができます。その後、RFP に詳述されている入札説明書に従って提案書を作成し、提出します。

  このツールに登録されている企業のみが入札に招待されます。

- ステップ 3-入札評価プロセス
  入札者の提案は、IO の公平な評価委員会によって評価されます。入札者は、技術的範囲に沿って、かつ、RFP に記載された特定の基準に従って作業を実施するために、技術的遵守を証

明する詳細を提供しなければなりません。

- ステップ 4-落札
  認定は、公開されている RFP に記載されている、コストに見合った最適な価格または技術的に準拠した最低価格に基づいて行われます。

〇概略日程

概略日程は以下の通りです：

マイルストーン	暫定日程
事前指示書（PIN）の発行	2025 年 8 月 14 日
関心表明フォームの提出	2025 年 9 月 1 日
iPROC での提案依頼書の発行	2025 年 9 月 22 日
入札提出	2025 年 10 月 20 日
契約授与	2025 年 11 月 3 日
契約調印	2026 年 1 月
サービス開始	2026 年 2 月

〇契約期間と実行

ITER機構は2026年1月ごろ供給契約を授与する予定です。予想される契約期間は、60か月とします。

〇経験

入札者は、付属書 I 詳述される作業範囲に従って、技術的、産業的な経験を実証する必要があります。

ITER での使用言語は英語で、流ちょうなプロレベルが求められます（口頭および文書）。

〇候補

参加は、個人またはグループ/コンソーシアムに参加するすべての法人に開放されます。法人とは、法的権利及び義務を有し、ITER 加盟国内に設立された個人、企業又は機構をいいます。ITER 加盟国は欧州連合(EURATOM メンバー)、日本、中華人民共和国、インド共和国、大韓民国、ロシア連邦、アメリカ合衆国です。

法人は、単独で、またはコンソーシアムパートナーとして、同じ契約の複数の申請または入札に参加することはできません。共同事業体は、恒久的な、法的に確立されたグループ又は特定の入札手続のために非公式に構成されたグループとすることができます。

コンソーシアムのすべての構成員(すなわち、リーダーと他のすべてのメンバー)は、ITER 機構に対して連帯して責任を負います。

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指名されたコンソーシアムのリーダーは、入札段階で、コンソーシアムのメンバーの構成を説明する予定です。その後、候補者の構成は、いかなる変更も ITER 機構に通知することなく変更してはなりません。かかる認可の証拠は、すべてのコンソーシアムメンバーの法的に授権された署名者が署名した委任状の形式で、しかるべき時期に IO に提出しなければなりません。

どのコンソーシアムメンバーも IPROC に登録する必要があります。

【※　詳しくは添付の英語版技術仕様書「**Qualification of the Low Friction Coating (LFC) Provider**」をご参照ください。】
ITER 公式ウェブ　http://www.iter.org/org/team/adm/proc/overview からもアクセスが可能です。

「核融合エネルギー研究開発部門」の HP：　http://www.fusion.qst.go.jp/ITER/index.html では ITER 機構からの各募集（IO 職員募集、IO 外部委託、IO エキスパート募集）を逐次更新しています。ぜひご確認ください。

イーター国際核融合エネルギー機構からの外部委託
に関心ある企業及び研究機関の募集について

＜ITER 機構から参加極へのレター＞

以下に、外部委託の概要と要求事項が示されています。参加極には、提案された業務に要求される能力を有し、入札すべきと考える企業及び研究機関の連絡先の情報を ITER 機構へ伝えることが求められています。このため、本研究・業務に関心を持たれる企業及び研究機関におかれましては、応募書類の提出要領にしたがって連絡先情報をご提出下さい。

china eu india japan korea russia usa
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PRIOR INDICATIVE NOTICE (PIN)

OPEN TENDER SUMMARY

IO/25/OT/10032158/ERA

For

Qualification of the Low Friction Coating (LFC) Provider

Abstract

The purpose of this summary is to provide prior notification of the IO's intention to launch a competitive Open Tender process in the coming weeks. This summary provides some basic information about the ITER Organisation, the technical scope for this tender, and details of the tender process for the Qualification of the Low Friction Coating (LFC) Provider.
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1 Introduction

This Prior Indicative Notice (PIN) is the first step of an Open Tender (OT) Procurement Process leading to the award and execution of a Supply Contract.

The purpose of this document is to provide a basic summary of the technical content in terms of the scope of work, and the tendering process.

2 Background

The ITER project is an international research and development project jointly funded by its seven Members being, the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA. ITER is being constructed in Europe at St. Paul–Lez-Durance in southern France, which is also the location of the headquarters (HQ) of the ITER Organization (IO).

For a complete description of the ITER Project, covering both organizational and technical aspects of the Project, visit www.iter.org.

3 Scope of Work

The bolted connections of the blanket system assembly and maintainability rely on Low Friction Coating (LFC) based on the Physical Vapour Deposition (PVD) process of molybdenum disulfide (MoS2) to provide both anti-seize and low friction functions.

The deposition of the LFC on the bolting system (bolt, insert and washer) and satisfaction of the IO requirements is a challenging task and results depend on Provider, therefore, qualification of the LFC provider(s) prior placing a contract for series production is crucial for satisfactory results with reduced associated cost and schedule risks.

The present tender process is aiming to set up a Supply Contract for the qualification of the LFC provider and further coating deposition on the series items as an Option.

The qualification has two phases:

- **Phase 1:** *Pre-qualification*: one M24 bolt system (as per Annex 1) is coated with LFC by the Contractor and tested by IO.
- **Phase 2 (Optional):** *Qualification*: three M24 and three M64 bolt systems are coated with LFC by the Contractor and tested by IO. This phase will be performed only by the Contractor(s) who have provided satisfactory results during execution of Phase 1 confirmed as formally accepted by the IO.
- **Phase 3 (Optional):** *LFC Deposition for the serial production*

  The Contractor(s) successfully passing Phase 2 will be eligible to perform Phase 3 activities, the LFC deposition on series item, in case the relative option is released.

  The LFC deposition on series items will be performed in 2 lots::

  1. Lot 1: Perform the LFC deposition only on the M24 system.
  2. Lot 2: Perform the LFC deposition only on the M64 bolt system.

4 Procurement Process & Objective

The objective is to award a Supply Contract through a competitive bidding process.

The Procurement Procedure selected for this tender is called the **Open Tender** procedure.

The Open Tender procedure is comprised of the following four main steps:

- Step 1- Prior Information Notice (PIN)

  The Prior Information Notice is the first stage of the Open Tender process. The IO formally invites interested legal entities to indicate their interest in the competitive process by returning to the Procurement officer in charge the attached "Expression of Interest and PIN Acknowledgement" by the date indicated under the procurement timetable.

  Special attention:

  Interested tenderers are kindly requested to register in the IO Ariba e-procurement tool called "IPROC". You can find all links to proceed along with instruction going to: https://www.iter.org/fr/proc/overview.

  When registering in Ariba (IPROC), Tenderers are kindly requested to nominate at least one contact person. This contact person will be receiving the notification of publication of the Request for Proposal and will then be able to forward the tender documents to colleagues if deemed necessary.

- Step 2 - Invitation to Tender

  After at least 10 working days of the publication of the PIN, normally the Request for Proposals (RFP) will be published on our digital tool "I-proc". This stage allows interested bidders who have indicated their interest to the Procurement Officer in charge AND who have registered in IPROC to receive the notification that the RFP is published. They will then prepare and submit their proposals in accordance with the tender instructions detailed in the RFP.

  Only companies registered in this tool will be invited to the tender.

- Step 3 – Tender Evaluation Process

  Tenderers proposals will be evaluated by an impartial evaluation committee of the IO. Tenderers must provide details demonstrating their technical compliance to perform the work in line with the technical scope and in accordance with the particular criteria listed in the RFP.

- Step 4 – Contract Award

  A Service contract will be awarded on the basis of the Best Value for Money methodology according to the evaluation criteria and methodology described in the RFP.

Procurement Timetable

The tentative timetable is as follows:

Milestone	Date
Publication of the Prior Indicative Notice (PIN)	14th August 2025
Submission of expression of interest form	1st September 2025
Invitation to Tender (ITT) advertisement	22nd September 2025
Clarification Questions (if any) and Answers	20th October 2025
Tender Submission	3rd November 2025
Tender Evaluation & Contract Award	January 2026
Contract Signature	February 2026

5 Quality Assurance Requirements

Prior to commencement of any work under this Contract, a "Quality Plan" shall be produced by the Contractor and submitted to the IO for approval, describing how they will implement the ITER Procurement Quality Requirements.

6 Contract Duration and Execution

The ITER Organization shall award the Supply Contract around January 2026. The estimated contract duration shall be 60 months.

7 Experience

The tenderer shall demonstrate their technical and industrial experience related to the scope of work as detailed in Annex I.

The working language of ITER is English, and a fluent professional level is required (spoken and written).

8 Candidature

Participation is open to all legal entities participating either individually or in a grouping/consortium. A legal entity is an individual, company, or organization that has legal rights and obligations and is established within an ITER Member State, being, the European Union (represented by EURATOM), Japan, the People's Republic of China, India, the Republic of Korea, the Russian Federation and the USA.

Legal entities cannot participate individually or as a consortium partner in more than one application or tender of the same contract. A consortium may be a permanent, legally established grouping, or a grouping which has been constituted informally for a specific tender procedure. All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization.

In order for a consortium to be acceptable, the individual legal entities included therein shall have nominated a consortium leader with authority to bind each member of the consortium, and this leader shall be authorised to incur liabilities and receive instructions for and on behalf of each member of the consortium.

It is expected that the designated consortium leader will explain the composition of the consortium members in its offer. Following this, the Candidate's composition must not be modified without notifying the ITER Organization of any change. Evidence of any such authorisation to represent and bind each consortium member shall be submitted to the IO in due course in the form of a power of attorney signed by legally authorised signatories of all the consortium members.

Any consortium member shall be registered in IPROC.

9 Sub-contracting Rules

All sub-contractors who will be taken on by the Contractor shall be declared together with the tender submission. Each sub-contractor will be required to complete and sign forms including technical and administrative information which shall be submitted to the IO by the tenderer as part of its tender.
The IO reserves the right to approve any sub-contractor which was not notified in the tender and request a copy of the sub-contracting agreement between the tenderer and its sub-contractor(s).
Sub-contracting is allowed but it is limited to one level and its cumulated volume is limited to 30% of the total Contract value.

IDM UID
DRXEY6

VERSION CREATED ON / VERSION / STATUS
19 May 2025 / 1.3 / Approved

EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

Technical Specification. Qualification of the LFC Suppliers

This specification aims to provide information required to perform qualification of the Low Friction Coating (LFC) Supplier and further coating deposition on the series items as an Option.

SERVICE

Table of Contents

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1 Preamble

[I] This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) [AD1] that constitutes a full part of the technical requirements.

[I] In case of conflict, the content of the Technical Specification supersedes the content of [AD1].

2 Purpose

[I] The bolted connections of the blanket system assembly and maintainability rely on Low Friction Coating (LFC) based on the physical vapour deposition (PVD) process of molybdenum disulfide (MoS2) to provide both anti-seize and low friction functions.

[I] These threaded connections (M64x4 and M24x3) are made of X6NiCrTiMoVB25-15-2 (No. 1.4980 / ASTM 660 / UNS Number S66286) on both components (bolt and inserts) and use a self-locking system based on hardening of the male thread tip.

[I] IO experience has shown that deposition of the LFC on the bolting system (bolt, insert and washer) and satisfaction of the IO requirements is a challenging task and results depend on Supplier.

[I] Therefore, qualification of the LFC Supplier(s) prior placing a contract for series production is crucial for satisfactory results with reduced associated cost and schedule risks.

[I] This specification provides information required to perform qualification of the LFC Supplier and further coating deposition on the series items as an Option.

[I] Drawings for series items to be coated are presented in Annex 1 and Annex 2.

[I] The qualification has two phases:

1. Phase 1. Pre-qualification: one M24 bolt system (as per Annex 1) is coated with LFC by the Contractor and tested by IO.
2. Phase 2. Qualification: three M24 (as per Annex 1) and three M64 (as per Annex 2) bolt systems are coated with LFC by the Contractor and tested by IO. This phase will be performed only by the Contractor(s) who have provided satisfactory results during execution of Phase 1 confirmed as formally accepted by the IO.

[I] The Contractor(s) successfully passing Phase 2 will be eligible to perform Phase 3 activities, the LFC deposition on series item as per Table 6.1.

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3 Acronyms & Definitions

3.1 Acronyms

[I] The following acronyms are relevant to this document.

Abbreviation	Description
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
CRO	Contract Responsible Officer
LFC	Low Friction Coating
ES	Electrical Strap
FW	First Wall

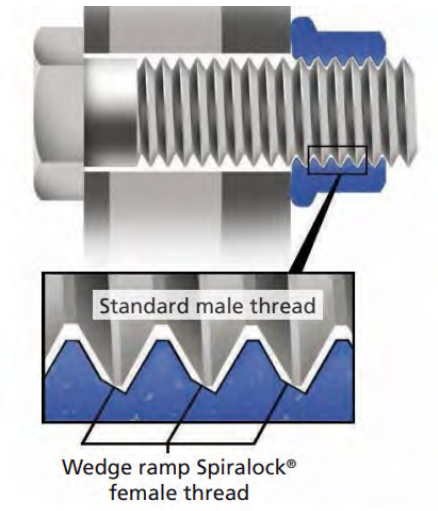
3.2 Definitions

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

Thread Flank. The flank is the side of the thread. It connects the root and crest and becomes the mating surface on an assembled thread.

Thread crest. Is the top of the thread.

Wedge ramp (ramp) for the Selflock thread: Is located at the root of the internal thread of that only engages when the joint starts to build clamp load during tightening. At that point, the crest of the standard external threads draws tightly against the wedge ramp, eliminating all radial clearance and creating a continuous spiral line of contact between the internal and external threads. See figure below:



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4 Applicable Documents & Codes and standards

4.1 Applicable Documents

[I] It 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.

[I] 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.

[R] 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
AD1	General Management Specification for Service and Supply (GM3S)	82MXQK	1.4

5 The ITER Blanket System

[I] The nuclear energy generated in the hot plasma during the fusion process is deposited mostly in the modular structure of the in-vessel Blanket system that surrounds the plasma. This Blanket structure covers a plasma-facing surface of ~610m² and consists of 440 Blanket Modules mechanically attached to the Vacuum Vessel (VV). There are two main parts of the Blanket system – the inboard and the outboard located on the inner and outer side of the donut shaped reactor chamber, respectively. The Blanket is the innermost system located inside the Vacuum Vessel and directly interacts with the hot plasma.

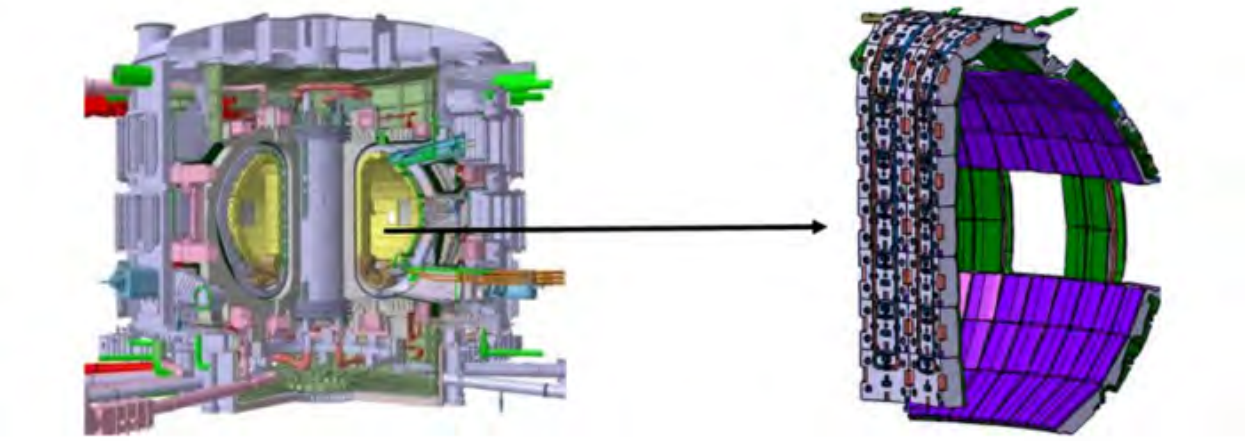

Figure 5-1. Identification of the Blanket components inside ITER machine

[I] The operational conditions of the Blanket system are such that components will need to function in a hostile environment (including neutron irradiation, elevated temperatures, and ultra-high vacuum) under cyclic mechanical loads and must be secured to the VV wall with a high level of confidence that the operational conditions will not loosen the component. The exploitation phase of the ITER machine is anticipated to be 20+ years.

[I] Each blanket module is composed of a detachable First Wall (FW) bolted to a Shield Block (SB).

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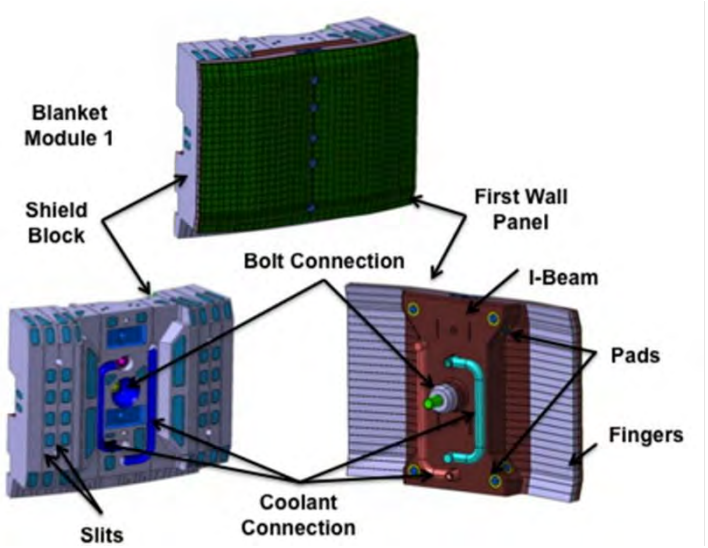

Figure 5-2

Figure 5-2. Schematic of Blanket Module showing the First Wall panel and the Shield Block

[I] In order for the Blanket system to be installed, assembled and maintained, a specialized coating is required to ensure low friction contact and anti-seizing properties in the Blanket fasteners.

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6 Scope of Work

[I] This section defines the specific scope of work for the service, in addition to the contract execution requirement as defined in [AD1].

6.1 Phase 1: LFC Deposition for Pre-Qualification

[R] The Contractor shall:

1. Design and manufacture (procure) all jigs and supports required to perform the coating deposition.
2. Procure all required equipment and materials (coating material, gas etc.) to execute the contract.
3. Apply LFC, based on MoS2 using PVD method on one M24 bolt system (bolt, spring washer and insert) in accordance with the Contractor procedure. Drawings of the item to be coated are presented in Annex 1.
4. Control the coating thickness on the item in accordance with the Contractor procedure.
5. Ship the coated items to the testing facility in France as instructed by the IO.

[I] All items to be coated will be provided by IO on the cost-free basis.

[I] Recommended minimum thickness of the LFC on the functional surfaces is 4 microns. Functional surfaces are listed below and shown in Figure 6-1:

1) Insert: Selflock ramps and flanks for outer thread M60.

2) Bolt: thread flank and crests, bottom surface of the pocket on the bolt head

3) Spring washer: top flat surface

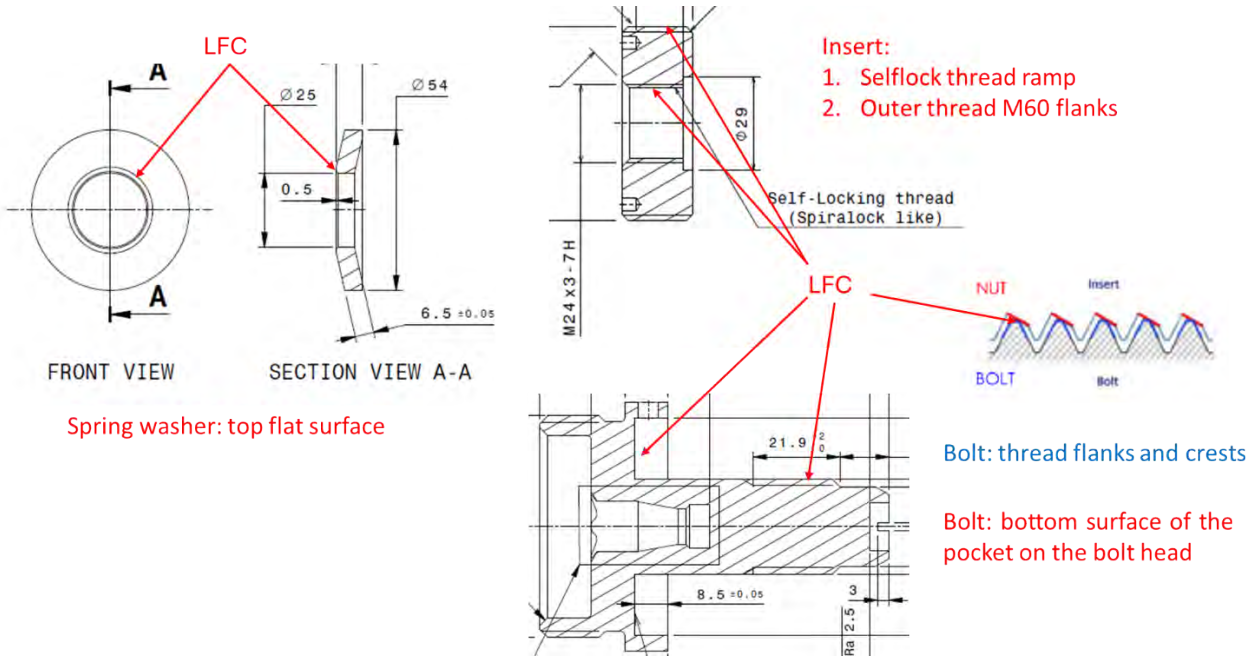

Figure 6-1. Functional surfaces to coated with LFC for the M24 Bolt system

[I] The coated items will be tested under the IO responsibility. The test represents a torque to pretension test during in which the bolt will be tightened up to 150kN and then completely untightened several times with full dismounting of the bolt system and cleaning by air blowing between the tightening runs. The test is considered as satisfactory if the bolt system able to be tightened/untightened minimum 5 times with maximum required torque less than 600Nm.

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[I] The Contractor may witness the test by agreement with the company performing the test.

Deliverable #1:

- One M24 bolt system (bolt, spring washer an insert) coated with LFC shipped to the IO Contractor site.
- Coating deposition report, including the coating thickness measurement results for all coated items.

6.2 Phase 2 (Optional): LFC Deposition for Qualification

[I] This scope of work will be performed only if the Contractor successfully passed Phase 1.

[R] The Contractor shall:

1. Design and manufacture (procure) all jigs and supports required to perform coating deposition.
2. Procure all required equipment and materials (coating material, gas etc.) to execute the contract.
3. Apply the LFC based on MoS2 using PVD method on additional three M24 bolt systems identical to system used during the Phase 1 in accordance with in-house procedure.
4. Apply LFC based on MoS2 using PVD method on three M64 bolt systems (bolt, conical and spherical washers and insert) in accordance with in-house procedure. Drawings of the item to be coated are presented in the Annex 2.
5. Control the coating thickness on the item in accordance with in-house procedure.
6. Ship the coated items to the testing facility in France as instructed by the IO.
7. NOTE: All items to be coated will be provided by IO on the cost-free basis.

[I] Recommended minimum LFC thickness on the functional surfaces is 4 microns. Functional surfaces are listed below and shown in Figure 6-2:

1) Insert: Selflock ramps and flanks for outer thread M110.

2) Bolt: thread flank and tip, surface under the bolt head

3) Conical washer: conical surface

4) Spherical washer: spherical surface and top flat surface

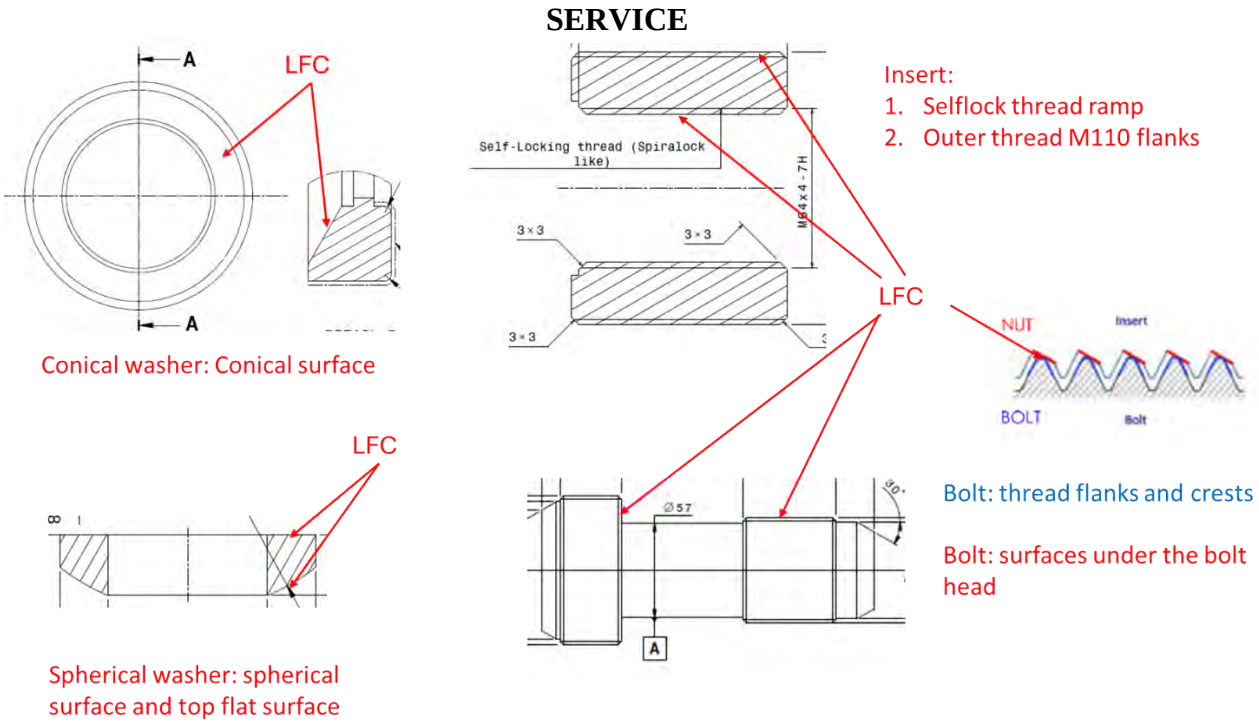


Figure 6-2. Functional surfaces to coated with LFC for the M64 Bolt system

[I] The coated items will be tested under IO responsibility.

[I] The M24 bolt systems will be tested as described in Phase 1 with the same acceptance criteria.

[I] Torque to pretension test will be performed also for the M64 bolt system: the bolt will be tightened up to 1000kN and completely untightened several times with full dismounting of the bolt system and cleaning by air blowing between the tightening runs. The test is considered as satisfactory if the bolt system able to be tightened/untightened minimum 5 times with maximum required torque less than 9000Nm,

Deliverable 2:

- Three M24 bolt systems (bolt, spring washer an insert) and three M64 bolt systems (bolt, conical and spherical washers and insert) coated with LFC shipped to the IO Contractor site.
- Coating deposition report, including the coating thickness measurement results for all coated items.

6.3 Phase 3 (Optional): LFC Deposition for the serial production

[R] The Contractor successfully passing Phase 2 and having interest to perform the LFC deposition on the series items is eligible to perform Phase 3 in case the relative option is released. Two lots below shall be quoted separately and together:

1. Lot 1: Perform the LFC deposition only on the M24 system presented in table 6.1.
2. Lot 2: Perform the LFC deposition only on the M64 bolt system presented in table 6.1.

[I] The IO have the right to award Lot 1 or Lot 2, or both, to a single Contractor.

SERVICE

Item	Drawing	Quantity
M24 Bolt System		
BLKT_ES_BOLT_M24_65_SPEC_HEAD	055880 --E	1014
ES INSERT	043664 --A sheet 03	1014
SPRING_WASHER	055882 ---	1014
M64 Bolt System		
BKT_FW_CENTRAL_BOLT	055948 --E	508
BKT_CONICAL_WASHER	055960 --A	508
BKT_FW_SPHERICAL_WASHE	055959 --A	508
CENTRAL BOLT INSERT	043664 --A sheet 02	508

Table 6.1. Drawings and quantity of items to be coated with LFC for series production

[R] The LFC deposition shall be performed in accordance with the same procedures used for the qualification and using the same equipment. Modification of the coating deposition procedure or/and using different equipment are subject to additional qualification similar to one performed during the Phase 1 or Phase 2.

[I] Drawings for series items to be coated are presented in the Annex 1 and Annex 2.

[R] The Contractor shall:

1. Design and manufacture (procure) all jigs and supports required to perform coating deposition.
2. Procure all required equipment and materials (coating material, gas etc.) to execute the contract.
3. Apply LFC based on MoS2 using PVD method on all items (bolt, spring washer and insert) using the qualified deposition procedures and equipment.
4. Control the coating thickness on the items in accordance with the Contractor procedure.
5. Ship the coated items to the IO site.

[I] All items to be coated will be provided by IO on the cost-free basis.

[R] All process materials, fluids and gases used during the LFC deposition shall be agreed with the IO prior start of the activities.

[R] The Contractor shall be responsible for the preservation of the items before and after coating. The items shall be stored in a suitable, clean area. The items shall be handled with care. Single-use sterile rubber surgical gloves or similar should be used when handling of the items.

[R] Packaging procedure including the packaging materials shall be agreed with the IO prior shipment.

[R] Packaging shall be performed in a clean room with a temperature and humidity control.

[R] Packaging of components shall be suitable for a minimum of 6 months on the shelf storage.

Deliverable 3:

- Items coated with LFC shipped to the IO site.
- Coating deposition report, including the coating thickness measurement results.

SERVICE

6.4 Service Duration for Full Scope of Work

[R] The Contractor will propose a detailed schedule of work, taking into account the scope and deliverables of work. If any mandatory information is required, the bidder, as an expert of the field, must identify and include this in the planning.

[R] The anticipated duration of this contract for Phase 1 and Phase 2 is 22 months from the formal kick-off meeting.
[R] The anticipated duration of the Phase 3 is 24 months from formal conclusion of the Phase 2.

7 Location for Scope of Work Execution

[R] All activities shall be executed at the Contractor sites or/and at the sub-contractors sites (if applicable).

8 IO Documents

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

Ref	Title	Doc ID	Expected date
1	Drawings for items to be coated see Table 6.1		kick-off meeting
2	Procedure for the management of Deviation Request	2LZJHB v8.1	
3	Procedure for Management of Nonconformities	22F53X v9.1	

9 List of deliverables and due dates

[R] The Contractor shall provide IO with the documents and data required in the application of this technical specification, the GM3S [AD1] and any other requirement derived from the application of the contract.

[I] A minimum, but not limited to, list of documents and items is available hereafter with associated due dates:

Del	Technical Design Family (TDF)	Generic Document Title (GTD)	Further Description	Expected date
1	Contract Management	Quality Assurance Plan	Contractor QP including sub-contractor QP plans	T0 + 1
2	Manufacturing Report	Manufacturing Dossier-MD	Coating Deposition report for Phase 1	T1 + 6
3a	Shipping or Logistics Record	Delivery Report	Shipment of the coated items to the testing facility in France or to the IO site	T1 + 7
3b		---	Coated items of Phase 1	T1 + 7
4	Manufacturing Report	Manufacturing Dossier-MD	Coating Deposition report for Phase 2	T2 + 5

SERVICE

5a	Shipping or Logistics Record	Delivery Report	Shipment of the coated items to the testing facility in France or to the IO site	T2 + 6
5b		---	Coated items of Phase 2	T2 + 6
6	Manufacturing Report	Manufacturing Dossier-MD	Coating Deposition report	T3 + 24
7a	Shipping or Logistics Record	Delivery Report	Shipment of the coated items to the IO site	T3 + 24
7b		---	Coated items of Phase 3	T3 + 24

T0 = Formal kick-off meeting for Phase 1

T1 = delivery of the pre-qualification samples to the Contractor site

T2 = Formal kick-off meeting for Phase 2 and delivery of the Qualification samples to the Contractor site

T3 = Formal conclusion of the Phase 2 (kick-off meeting for Phase 3) and delivery of the series samples to the Contractor site

[R] The Contractor is requested to prepare their document schedule based on the above and using the template available in the GM3S [AD1] appendix II (click here to download).

10 Quality Assurance requirements

[I] It is recommended that the organization conducting these pre- and qualification activities have an ISO 9001 accredited quality system or equivalent accreditation or provide IO with documentation of implemented system of quality.

Deliverable 1:

[R] Prior to commencement of the task, a Quality Plan must be submitted for IO approval prior to the start of any activities, giving evidence of the above and describing the organization for this task; the skill of workers involved in the study; any anticipated sub-contractors; and giving details of who will be the independent checker of the activities. The quality plan shall in accordance with Quality Requirements for IO Performers (22MFG4) and be updated in the case of a change to the scope and will then be submitted to IO for approval prior to the start of the activities covered by the revised scope.

[R] Manufacturing and Inspection Plan (or Inspection Plan) shall be implemented to monitor quality control and acceptance test. The contractor are subject to Quality Requirements for IO Performers (22MFG4).

[I] Deviations and Non-conformities will follow the procedures detailed in IO document.

[I] Requirements for Deviations (2LZJHB) and Nonconformities (22F53X). The documents will be provided to the Contractor at the start of the contract.

SERVICE

[R] Documentation developed as the result of this task shall be retained by the performer of the task or the DA organization for a minimum of 5 years and then may be discarded at the direction of the IO.

[R] The Contractor selected to perform the coating deposition on the series items (Phase 3) shall have an ISO 9001 accredited quality system or equivalent accreditation.

11 Safety requirements

[I] No specific safety requirement.

12 Specific General Management requirements

12.1 Work Monitoring

[R] The Contractor shall submit periodic reports to the IO and agree on periodic review meetings to monitor contract execution. The Contractor shall also ensure that its sub-contractors maintain data and documents. Such reports, data and documents shall be transmitted to the IO, if required, for the approval/acceptance of milestones by the IO

[R] The Contractor shall hold at the disposal of the IO and make available to it such information and documentation as the IO deems necessary to determine the progress, quality and status of the work.

[R] All documentation to be delivered to the IO must be in English. All documentation and correspondence shall be using Microsoft office software standards or Adobe PDF software.

[R] The Contractor shall ensure that all documents and records are uniquely identified and traceable.

[R] The Contractor will report as soon as possible to the IO of any occurrence that could delay or jeopardize the proper execution of activities related to this contract.

[R] The following control points are proposed for the program: IO approval will be required before the follow-on task in the sequence can be initiated.

List of Control Points		
	Description	Control Point
1	Kick off Meeting for Phase 1	
2	Manufacturing report	Hold point
3	Kick off Meeting for Phase 2	Hold point
4	Manufacturing report	Hold point
5	Kick off Meeting for Phase 3	Hold point
6	Manufacturing report	Hold point

Hold Point - A Hold Point (HP) is a milestone where the Contractor is required to notify the IO, that it has completed a specific task or a specific deliverable and must stop the associated processes until IO written approval is granted.

12.2 Meeting Schedule

[I] The following meetings can be anticipated.

Meeting	Topic	Anticipated Date	Location
1	Kick-off meeting Phase 1	T0	Contractor or IO / VC
2	Kick-off meeting Phase 2	T2	Contractor or IO / VC
3	Kick-off meeting Phase 3	T3	Contractor or IO / VC

T0 = Formal kick-off meeting for Phase 1

T2 = Formal kick-off meeting for Phase 2 and delivery of the Qualification samples to the Contractor site

T3 = Formal conclusion of the Phase 2 and delivery of the series samples to the Contractor site

13 Annex 1. Item to be coated with LFC for the M24 Bolt system

Figure A1-1. FW ES Insert

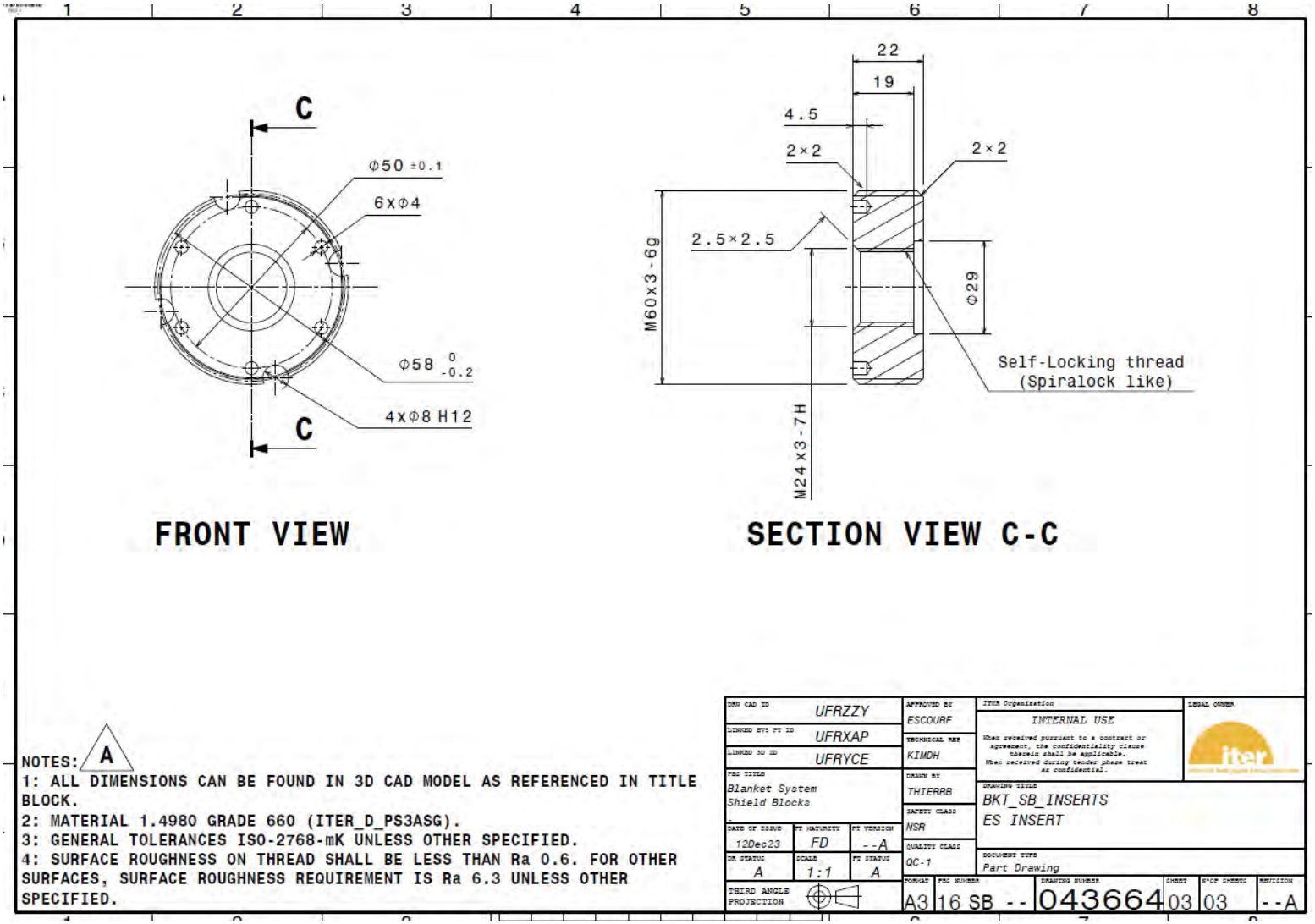


Figure A1-2. FW ES Spring Washer

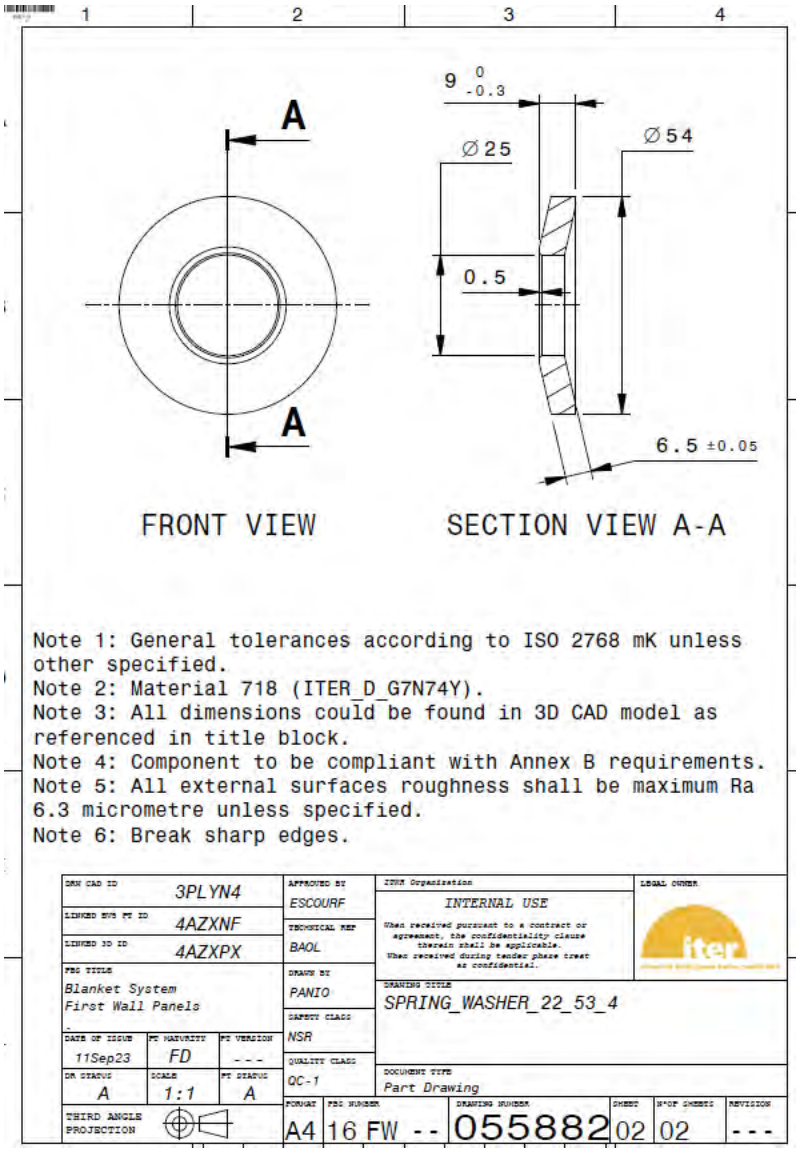
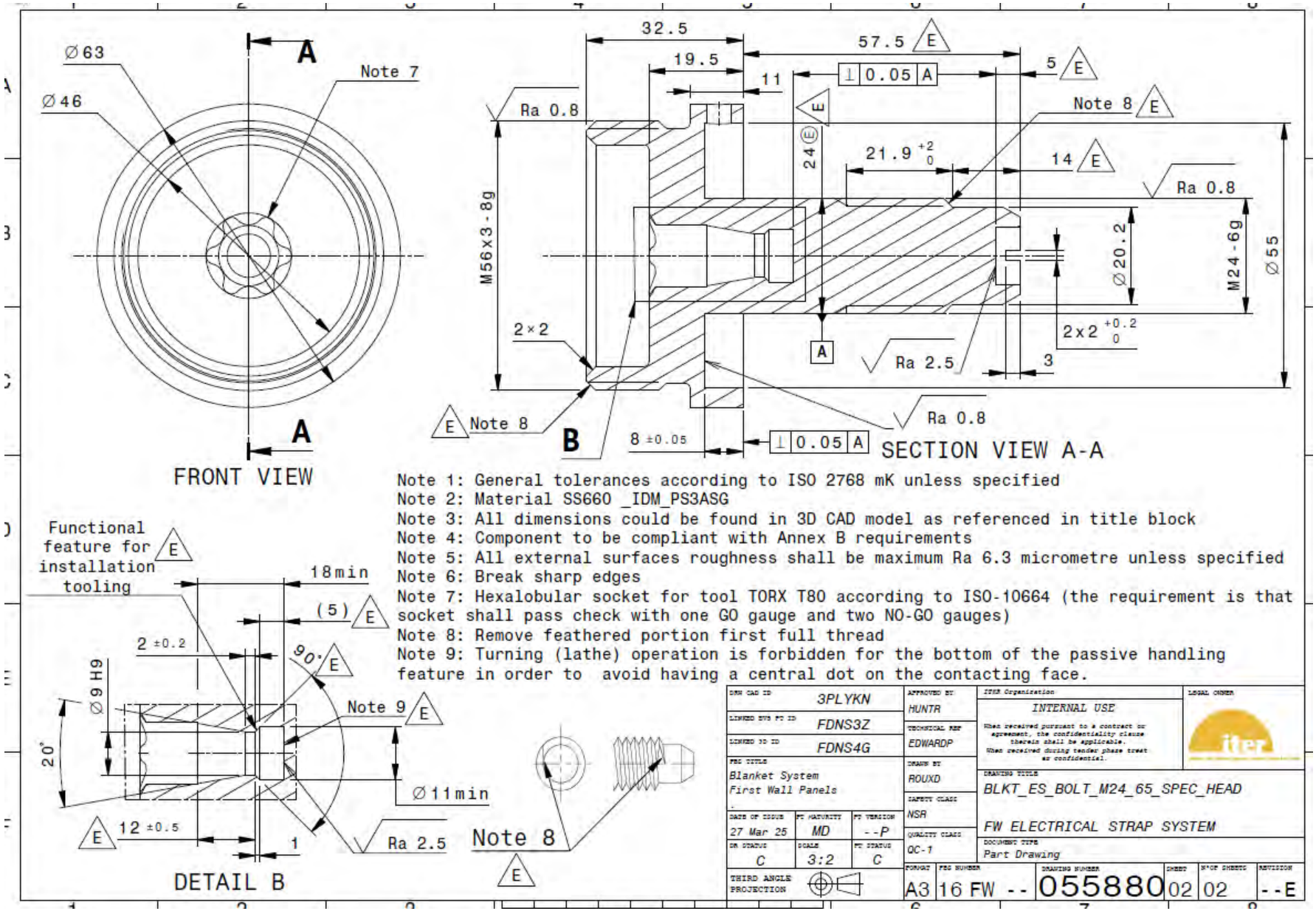


Figure A1-3. FW ES Special Bolt


FRONT VIEW
SECTION VIEW A-A
DETAIL B
Note 1: General tolerances according to ISO 2768 mK unless specified
Note 2: Material SS660 _IDM_PS3ASG
Note 3: All dimensions could be found in 3D CAD model as referenced in title block
Note 4: Component to be compliant with Annex B requirements
Note 5: All external surfaces roughness shall be maximum Ra 6.3 micrometre unless specified
Note 6: Break sharp edges
Note 7: Hexalobular socket for tool TORX T80 according to ISO-10664 (the requirement is that socket shall pass check with one GO gauge and two NO-GO gauges)
Note 8: Remove feathered portion first full thread
Note 9: Turning (lathe) operation is forbidden for the bottom of the passive handling feature in order to avoid having a central dot on the contacting face.
3PLYKN
FDNS3Z
FDNS4G
Blanket System
First Wall Panels
27 Mar 25
MD
--P
C
3:2
C
HUNTR
EDWARDP
ROUXD
NSR
QC-1
INTERNAL USE
BLKT_ES_BOLT_M24_65_SPEC_HEAD
FW ELECTRICAL STRAP SYSTEM
Part Drawing
A3
16 FW --
055880
02
02
--E

14 Annex 2. Item to be coated with LFC for the M64 Bolt system

Figure A2-1. FW Central Bolt Insert

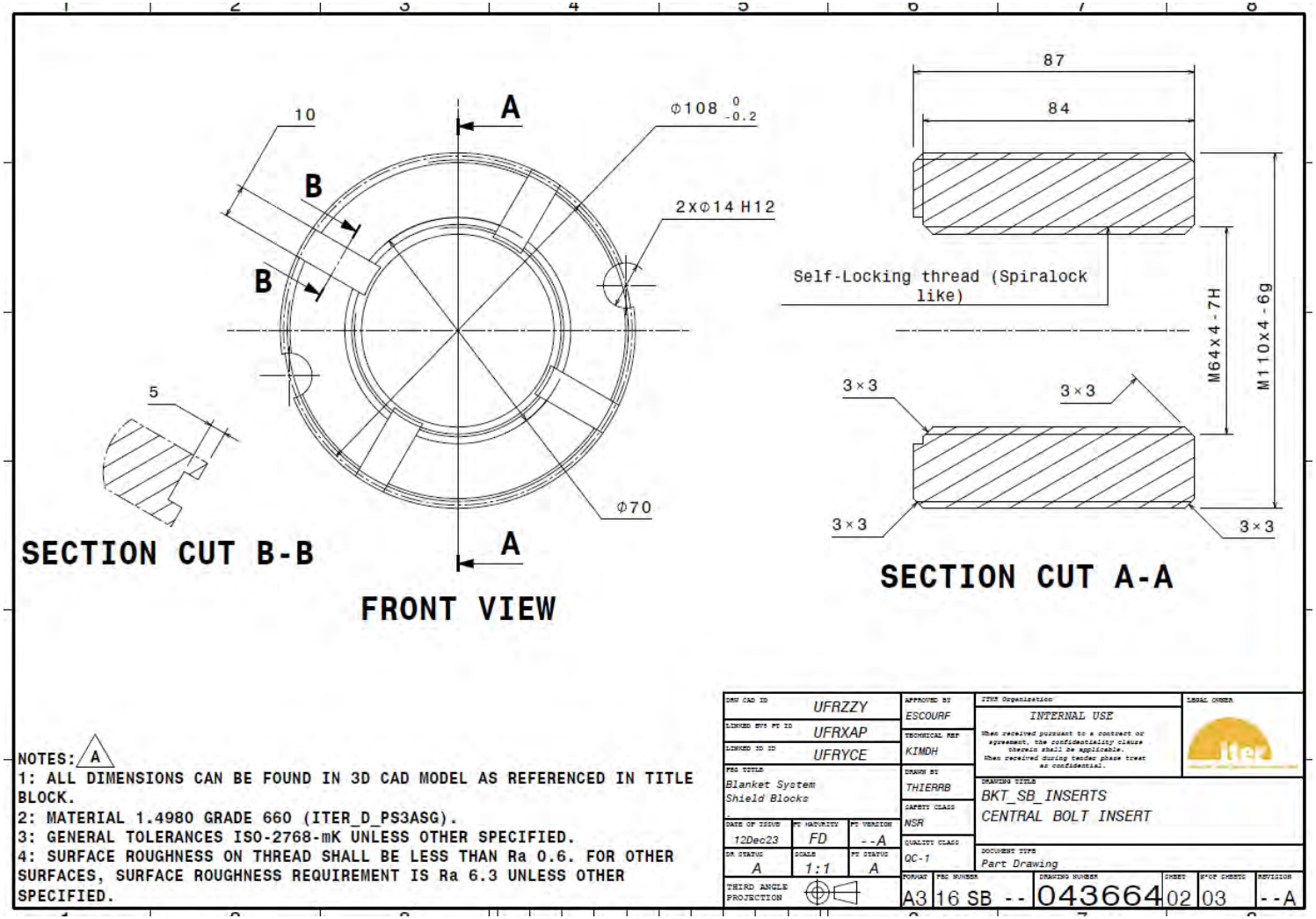


Figure A2-2. FW Conical Washer

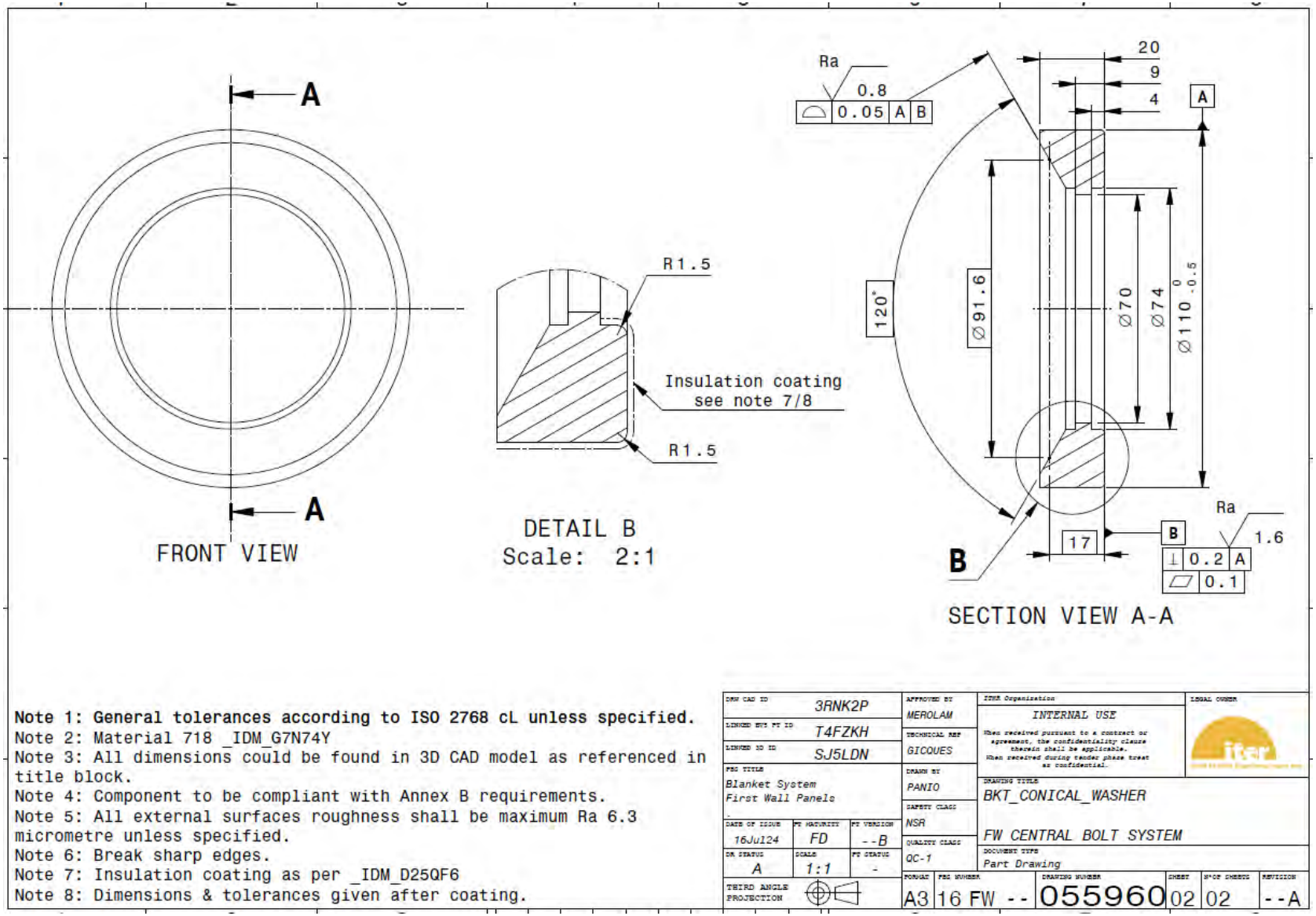


Figure A2-3. FW Spherical Washer

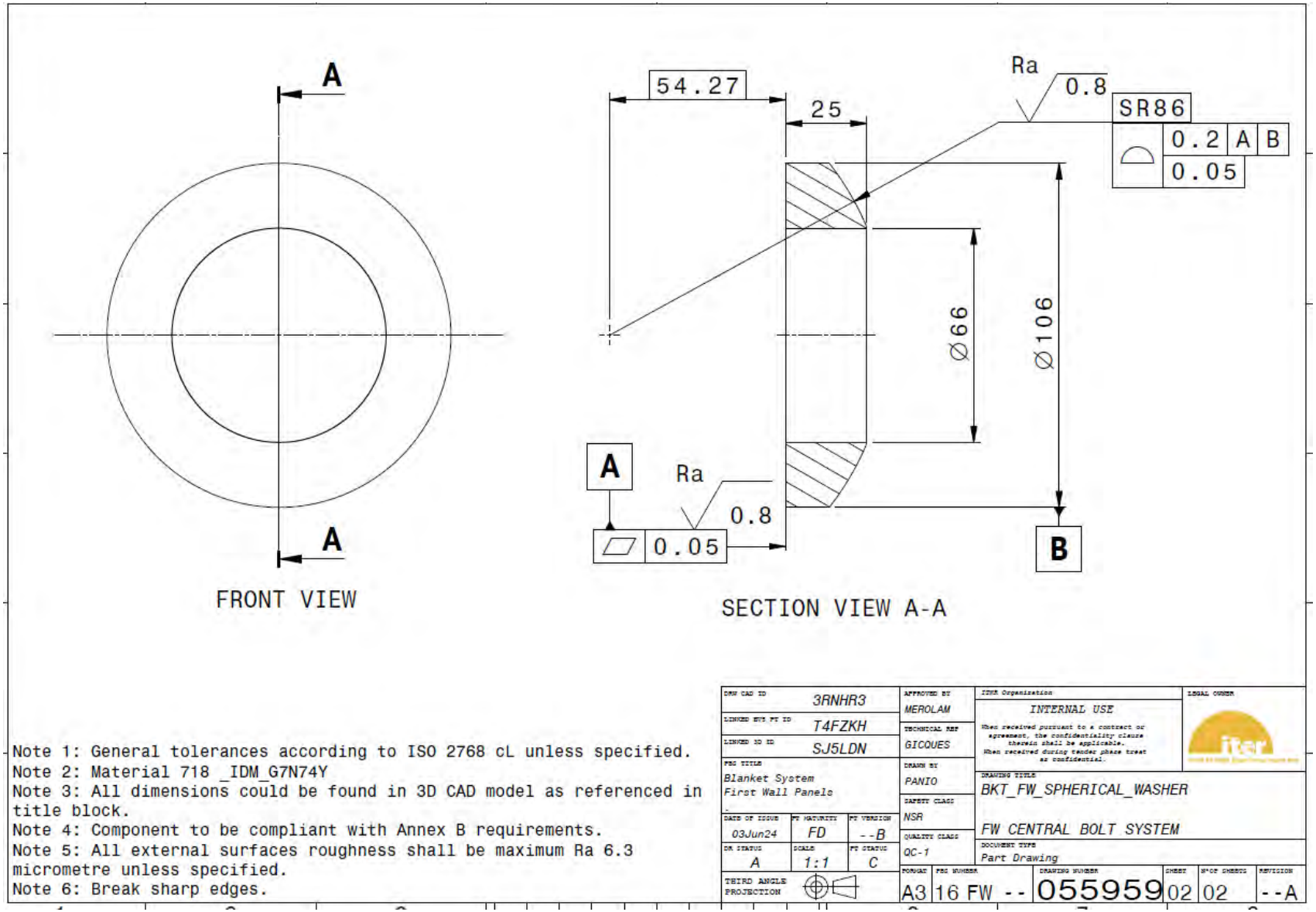
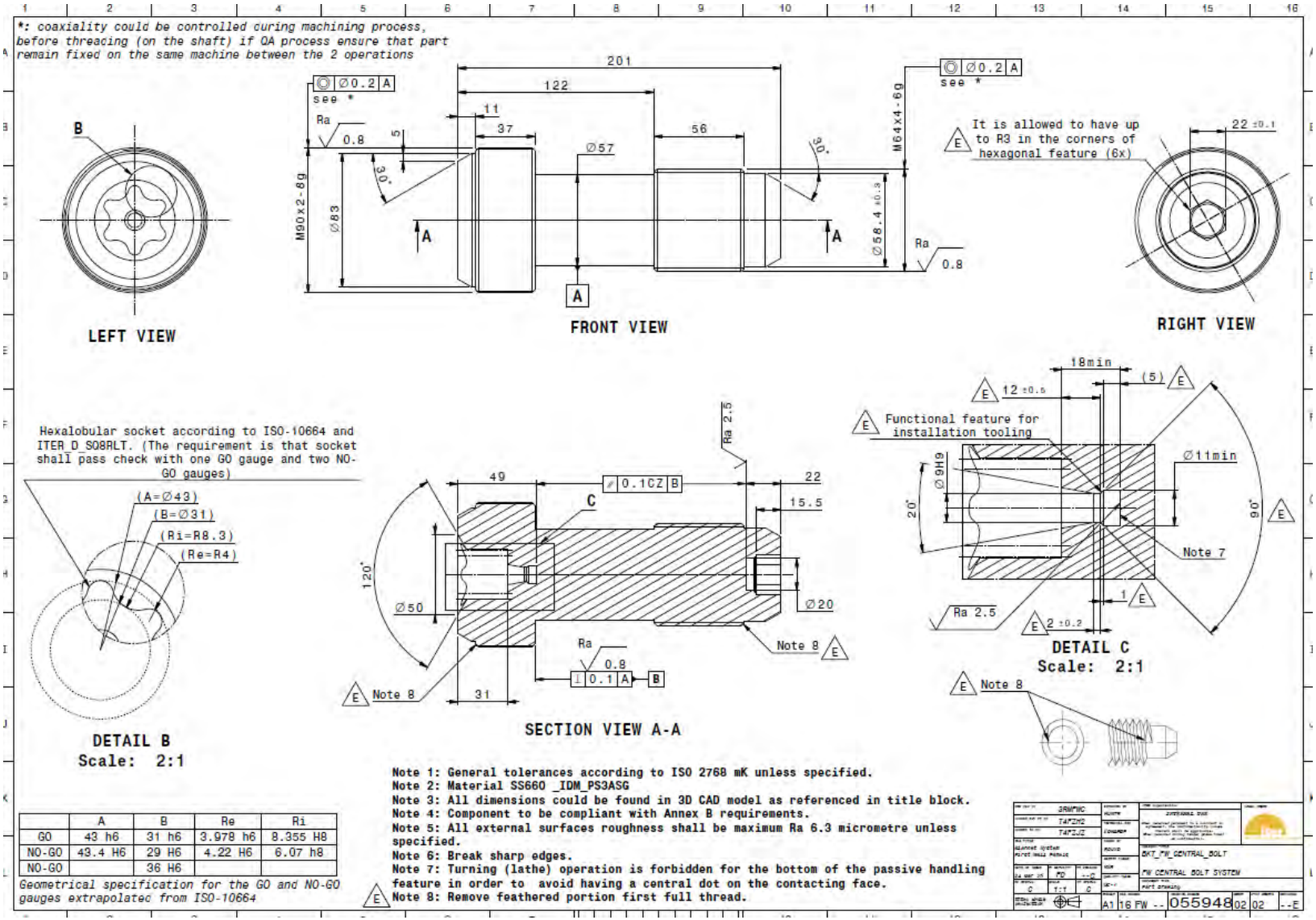


Figure A2-4. FW Central Bolt



	A	B	Re	Ri
GO	43 h6	31 h6	3.978 h6	8.355 H8
NO-GO	43.4 H6	29 H6	4.22 H6	6.07 h8
NO-GO		36 H6		

EXPRESSION OF INTEREST & PIN ACKNOWLEDGEMENT

To be returned by e-mail to: Emilio.Rondinella@iter.org copy Jongeun.lee@iter.org

TENDER No.	**IO/25/OT/10032158/ERA**
DESIGNATION of SERVICES:	**Qualification of the Low Friction Coating (LFC) provider**
OFFICER IN CHARGE:	**Emilio Rondinella – Procurement Division ITER Organization**

☐ WE INTEND TO SUBMIT A TENDER

Signature: COMPANY STAMP

Name: .....

Position: .....

Company: .....

Tel: .....

E-mail.....

Date: .....