外部委託業者の募集

References: IO/25/OT/10029450/ERA

"Thermal Contact Conductance (TCC) in vacuum"

（真空中における熱接触伝導率）

IO 締め切り 2025 年 7 月 16 日(水)

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熱負荷は、主にプラズマ表面加熱（放射および対流）と体積中性子加熱によって生じます。加圧水回路が主要コンポーネント（第一壁および遮蔽ブロック）内を流れることで、システムを冷却しています。しかし、システムに埋め込まれた一部の要素（パッド、ボルトなど）は、主要な水冷コンポーネントへの熱接触（および放射）によってのみ冷却されるため、この伝導をブランケットの運転条件下で正確に定量化する必要があります。

今回の入札プロセスは、真空条件下のブランケットで使用される、異なる材料のEIC（電気絶縁コーティング）あり・なしの表面およびネジ部分のTCC（熱接触コンダクタンス）を正確に測定するためのサービス契約を設定することを目的としています。

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 7 月 2 日
関心表明フォームの提出	2025 年 7 月 16 日
iPROC での提案依頼書の発行	2025 年 7 月 21 日
入札提出	2025 年 9 月 8 日
契約授与	2025 年 9 月 5 日
契約調印	2025 年 10 月
サービス開始	2026 年 10 月

*新しい契約者が現地の活動や手順に慣れるため、また旧契約者がスムーズに解約作業を行うために、3ヶ月

の重複期間が予定されています。

〇契約期間と実行

ITER機構は2026年10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、18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「**Thermal Contact Conductance (TCC) in vacuum**」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。

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VERSION CREATED ON / VERSION / STATUS
04 Jun 2024 / 1.0 / Approved

EXTERNAL REFERENCE / VERSION

Technical Specifications (In-Cash Procurement)

Technical specification for measurement of TCC in vacuum

This testing specification aims at accurately measuring of the TCC for different material coated and not coated with the EIC and threads used in the Blanket in vacuum conditions

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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] ITER in-vessel water cooled components are equipped with interfaces (bolts, pads…) that play a role in the global thermal behaviour.

[I] This testing specification aims at accurately measuring of the TCC for different material coated and not coated with the EIC and threads used in the Blanket in vacuum conditions.

3 Acronyms & Definitions

3.1 Acronyms

[I] The following acronyms are the main one 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
TCC	Thermal Contact Conductance
EIC	Electrical Insulating Coating

3.2 Definitions

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

Effective TCC: Thermal Contact Conductance (TCC) used in the Finite Element models with simplified thread simulation as a cylindrical (line) bonded contact.

4 Applicable Documents & Codes and standards

4.1 Applicable Documents

[I] 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.

[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.

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[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	0.0
AD2	Insulating coatings for the blanket system components	D25QF6	3.0

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.

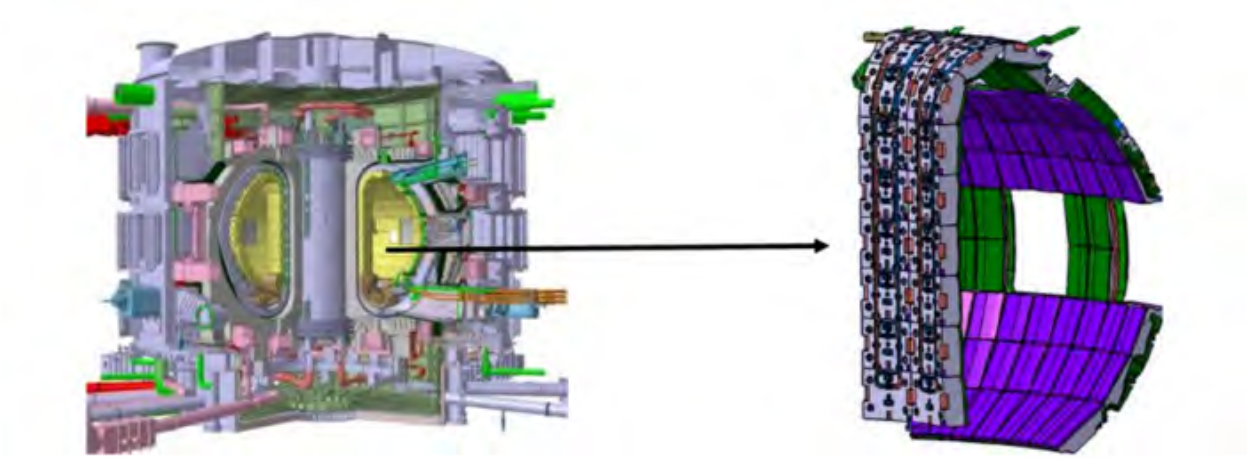

Figure 5-1. Identification of the Blanket components inside ITER machine

[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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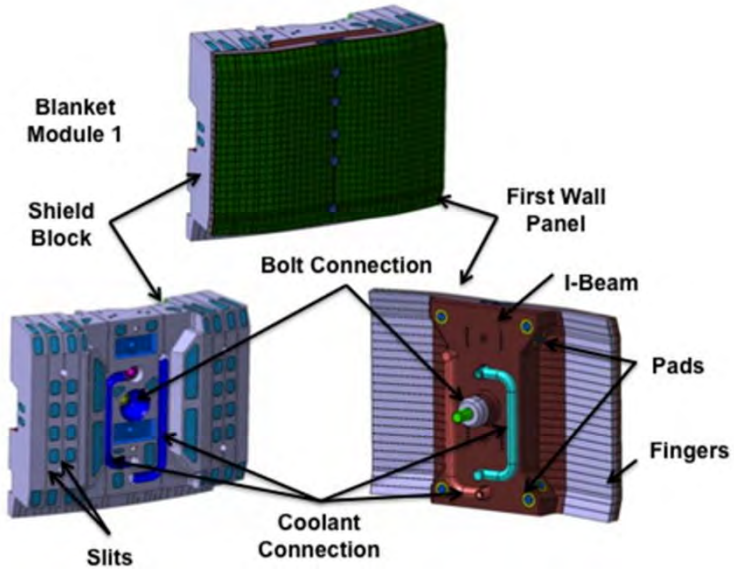

Figure 5-2

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

[I] The thermal loading of the Blanket system is mainly due to plasma surface heating (radiation & convection) and volumetric neutron heating. A pressurized water circuit flowing through the main components (FW and SB) allows cooling down the system. But some elements (pads, bolts, etc.) imbedded in the system are only cooled by thermal contact (and radiation) to the main water-cooled components, this conduction needs to be quantified accurately according to blanket operational conditions.

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5.1 Test sets and conditions

[R] Four types of contact shall be considered:

1) Test set #1 - Flat contact between two bare metals
2) Test set #2 - Flat contact between metal coated with EIC and bare metal
3) Test set #3 - Flat contact between two metals (one coated with EIC) and peelable shim between them
4) Test set #4 - Threaded joint

[R] All test sets to be tested and the test conditions are presented in the Table 5-1 for the flat contact, in the Table 5-2 for the contact with peelable shim and in the Table 5-3 for the threads.

Table 5-1. Test samples with flat contact.

Test set	**Contact surface 1**		**Contact surface 2**		Pressure, MPa	Temperature at the contact, C
	Material	Roughness, Ra	Material	Roughness, Ra		
1.1	316L	1.6	AlBr	0.8	1, 5, 20, 50, 100, 150 for RT, 5, 20, 50 for 250C (final number of pressure points and its value will be specified based on results for RT)	RT (20), 250
1.2	316L	1.6	316L	1.6		
1.3	718	0.8	718	0.8		
1.4	660	0.8	718	0.8		
1.5	W	2.5	316L	1.6		
1.6	W	2.5	718	1.6		
2.1	AlBr	1.6	AlBr coated with Al_2O_3	1.6		
2.2	316L	1.6	AlBr coated with Al_2O_3	1.6		
2.3	AlBr	1.6	718 coated with Al_2O_3	1.6		
2.4	AlBr	1.6	660 coated with Al_2O_3	1.6		
2.5	W	2.5	316L coated with Al_2O_3	1.6		

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Table 5-2 Test samples with peelable shim

Set	Contact surface 1		Contact surface 2			Contact surface 3		Pressure, MPa	Temperature at the contact N1 (between surface #1 and #2), C
	Material	Ra	Material	Ra	Thickness, mm	Material	Ra		
3.1	AlBr coated with Al_2O_3	1.6	Peelable shim (316L),	1.6 top 0.6 bot	1 mm	316L	1.6	1,5, 20, 50, 100, 150 for RT, 5, 20, 50 for 250C (final number of pressure points and its value will be specified based on results for RT	RT (20), 250
3.2	AlBr coated with Al_2O_3	1.6	Peelable shim (316L),	1.6 top 0.6 bot	2 mm	316L	1.6		
3.3	AlBr coated with Al_2O_3	1.6	Peelable shim (316L),	1.6 top 0.6 bot	3 mm	316L	1.6		

Table 5-3 Test samples with threads

Set	Contact surface 1		Contact surface 2		Tensile Force, kN	Temperature on the thread, C
	Material	Thread	Material	Thread		
4.1	AlBr	Male M64x2 15mm	316L	Female M64x2 15mm	10, 50, 100	RT (20), 250
4.2	660	Male M64x2 15mm	660	Female M64x2 15mm	50, 100, 250*	
4.3	316L	Male M8 10 mm	316L	Female M8 10 mm	0.5, 2, 5	

*) Higher force could be considered if the thread length could be increase without significant impact on the test setup and the cost.

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[R] The test samples shall be manufactured from materials presented in the Table 5-4.

Table 5-4 Materials

	Material
Al Br	Ni Al Bronze (UNS C63200, CuAl10Ni5Fe4)
660	SS660 (X6NiCrTiMoVB25-15-2, DIN 1.4980)
718	Nickel alloy 718 (UNS N07718, Grade 718, Inconel 718)
316L	X2CrNiMo17-12-2, DIN 1.4404 (ASTM steel 316L, UNS S31603)
W	Pure Tungsten Grade W1, W2 (GB/T 4187-2017)
EIC	As per IO Specification [AD2]

[I] The test sets are shown in Figure 5-1

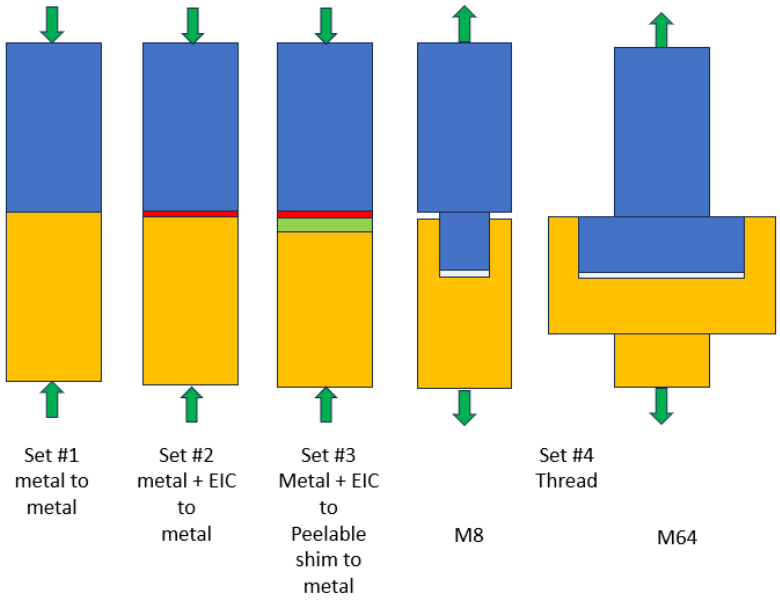

Figure 5-3. Test sets.

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 the [AD1]

6.1 Scope of work #1: Development of the test procedure and test set-up

[R] The Contractor shall develop the procedures for the TCC measurements for the flat contact and effective TCC evaluation for thread, test set-up and design of the test samples considering the following requirements:

a. The experimental device shall provide a vacuum better than 10^{-2} Pa
b. A global thermal balance shall be monitored and recorded. Input/output power and radiation loss shall be assessed.
c. Radiation heat transfer from the samples (radiation loss) shall be minimised with target value < 5%.
d. Input power shall be sufficient to provide a temperature jump at the contact interface minimum 10x larger than temperature measurement accuracy for all tested sets.

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e. The experimental device shall provide tensile and compression force in rage of 0 - 400 kN

[R] The accuracy of the TCC measurement shall be characterized (as well as Thermocouples accuracy) as part of the test facility validation program.

[R] The Contractor shall perform thermal and structural analysis to optimize the test samples with thread.

[R] The Contractor shall validate the test facility and the test setup prior to conducting the experiments with the real test samples.

[I] The pair of samples fabricated from the same rod with short length and the test sample that is twice length could be used for the validation.

[R] The validation procedure and corresponding test samples shall be agreed with IO.

[I] The Contractor may choose to perform the validation process in either a vacuum or in air. Proposed conceptual test set up is shown in Figure 5.1

[R] The Contractor shall provide the test procedure, description of the test setup, test facility validation report and thermal-mechanical analysis report for threaded samples to IO for approval.

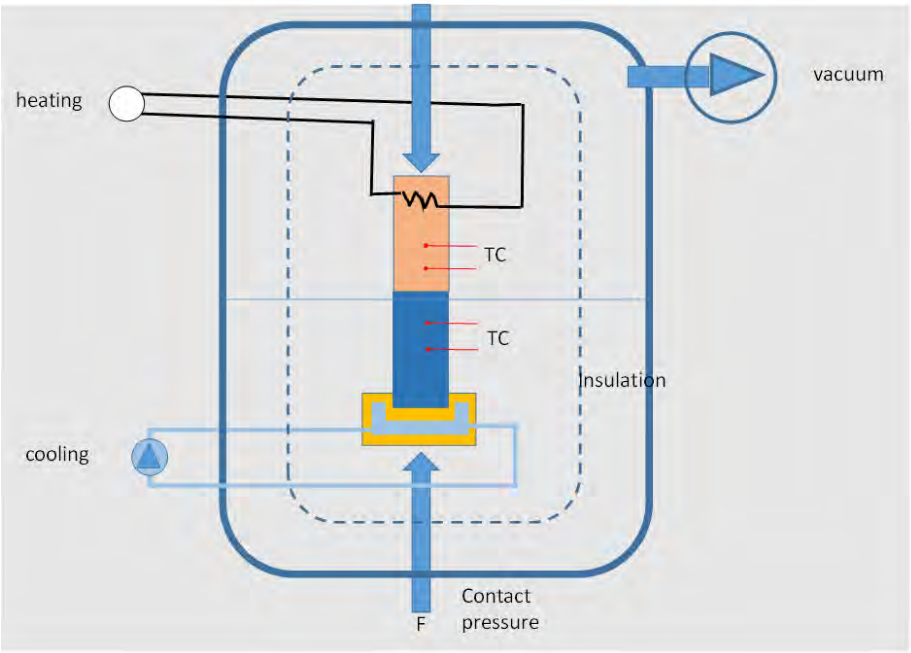

Figure 5-2. Proposed conceptual test setup.

[I] Proposed design of the test samples with flat contact is shown in Figure 5-2

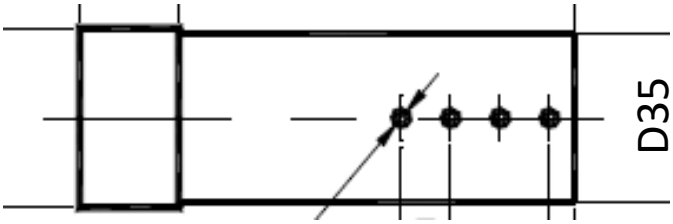

Figure 5-3. Proposed conceptual design for the test samples with flat contact.

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Deliverable #1:

- The Contractor QP and sub-contractor(s) QP if any

Deliverable #2:

- Test protocol including:
  - The procedure for measuring of the TCC for flat contacts and procedure for evaluation of the effective TCC for thread.
  - Design of the test set up and of the test samples (drawings and 3D models)
  - Test facility and test setup validation report
  - Results of thermal-structural analysis for the threaded test samples

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6.2 Scope of work #2: Test samples manufacturing

[R] Based on the acceptance of deliverables #1, the Contractor shall manufacture the test sample and test jig in accordance with Table 6-1 and Table 6-2.

[I] Contractor may manufacture spare (additional) samples at his discretion.

Table 6-1 Test samples for flat contact

Test sample	Material	EIC	Roughness, Ra	Number of samples	Test set
1	316L	No	1.4 – 1.8	2	1.1, 1.2, 1.5 2.2, 3.2, 3.2
2	AlBr	No	0.6 – 1.0	1	1.1
3	718	No	0.6 – 1.0	2	1.3, 1.4
4	660	No	0.6 – 1.0	1	1.4
5	AlBr	No	1.4 – 1.8	1	2.1, 2.3, 2.4
6	W	No	2.2 - 2.8	1	1.5, 1.6
7	AlBr	Yes	1.4 – 1.8	1	2.1, 2.2, 3.1, 3.2, 3.3
8	718	Yes	1.4 – 1.8	1	2.3
9	660	Yes	1.4 – 1.8	1	2.4
10	316L	Yes	1.4 – 1.8	1	1.6
Shim 1	316L Thickness 1mm	No	1.4 – 1.8 top 0.4 – 0.8 bot	1	3.1
Shim 2	316L Thickness 2mm	No	1.4 – 1.8 top 0.4 – 0.8 bot	1	3.2
Shim 3	316L Thickness 3mm	No	1.4 – 1.8 top 0.4 – 0.8 bot	1	3.3

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Table 6-2 Test samples for threaded contact

Test sample	Material	Thread		Number of samples	Test set
9	AlBr	M64x4 g6	Male	1	4.1
10	316L	M64x4 H7	Female	1	
11	660	M64x4 g6	Male	1	4.2
12	660	M64x4 H7	Female	1	
13	316L	M8 g6	Male	1	4.3
14	316L	M8 H7	Female	1	

[R] The roughness, the flatness, and the coating thickness (when present) of the contact surfaces are important parameters and shall be measured and recorded.

[R] The Contractor shall:

1. Purchase all needed materials and equipment including the vacuum shamber.
2. Manufacture the test samples with the specified material including deposition of the EIC based on the specifications [AD2] on the samples to be coated.
3. Purchase the peelable shims and adopt them to the test setup if needed.
4. Provide a manufacturing report demonstrating that all manufacturing requirements are met.

Deliverable #3:

- manufacturing report including:
  - material certificates
  - metrology report (with roughness and coating thickness measurements).

6.3 Scope of work #3: Experiments

6.3.1 Task 3.a: TCC measurement for flat contact

[R] The TCC shall be measured in accordance with developed and approved procedure for all test sets presented in the Table 5-1 and Table 5-2 in vacuum (10^2 Pa) at RT (20C) under 6 different pressures (1, 5, 20, 50, 100 and 150 MPa)

[R] The TCC shall be measured in accordance with developed and approved procedure for all test sets presented in the Table 5-1 and Table 5-2 in vacuum (10^2 Pa) at elevated temperature (250C) under minimum 3 different pressure (5, 20 and 50 MPa). Additional pressure points and pressure value could be specified based on the experimental results for RT.

[R] The TCC shall be measured when the heat transfer flow is stabilized.

[I] Heat transfer flow is characterized by a global heat balance and a conductive heat flow measurement in the samples.

[R] The Contractor shall assess how much heat is transferred by the interface, what is the input/output power (heater and cooler) and how much is lost by radiation.

[R] The results of measurements shall be presented in the form of tables and graphs.

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6.3.2 Task 3.b: Effective TCC evaluation and assembly heat transfer characterization for threaded samples

[R] The effective TCC shall be evaluated in accordance with developed and approved procedure for all test sets presented in the Table 5-3 in vacuum (10^2 Pa) at RT (20C) and elevated temperature (250C) under 3 different tensile forces specified in the Table 5-3.

[R] The heat flow shall be be measured when the heat transfer flow is stabilized through the assembly.

[R] The results of measurements shall be presented in the form of tables and graphs.

[R] A finite element simulation shall be performed to evaluate the effective TCC in threaded.

[I] Heat transfer flow is characterized by a global heat balance and a conductive heat flow measurement in the samples.

[R] The Contractor shall assess how much heat is transferred by the interface, what is the input/output power (heater and cooler) and how much is lost by radiation.

Deliverable 4a:

- The test report for the TCC measurements for the sets with flat contact:
  - The TCC variation with contact pressure and temperature with an error bar (Tables and Charts)
  - Heat transfer flow characterization: assessment of the input/output power and heat lost by radiation.

Deliverable 4b:

- The test report for the effective TCC evaluation for the sets with thread:
  - The effective TCC variation with tension forces and temperature with an error bar (Tables and Charts).
  - The results of FE analyses performed during evaluation of the effective TCC.
  - Heat transfer flow characterization: assessment of the input/output power and heat lost by radiation.

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 is 18 months from the formal kick-off meeting.

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).

SERVICE

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	Insulating coatings for the blanket system components (D25QF6 v3.0)	D25QF6 v3.0	kick-off meeting
2	Procedure for the management of Deviation Request	2LZJHB v8.1	kick-off meeting
3	Procedure for Management of Nonconformities	22F53X v9.1	kick-off meeting

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 is available hereafter with associated due dates:

Del	Technical Design Family (TDF)	Generic Document Title (GTD)	Further Description	Expected date (T0+x) *
1	Contract Management	Quality Assurance Plan	Contractor QP including sub-contractor QP plans	1
2	Operation Instruction or Procedure	Operating Procedure	Test protocol	4
3	Other Manufacturing Output	Manufacturing Dossier-MD	Manufacturing report	12
4a	Review or Decision or Recommendations Report	Progress Report	Preliminary report. Test report for the TCC measurements for the sets with flat contact.	16
4b	Shipping or Logistics Record	Delivery Report	Final Report. Test report for the effective TCC evaluation for the sets with thread	18

(*) T0 = Formal kick-off meeting; X in months.

[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

[R] The organization conducting these activities shall have an ISO 9001 accredited quality system or equivalent accreditation.

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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 Requirements for Producing a Quality Plan (22MFMW) 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 Requirements for Producing an Inspection Plan (22MDZD)

[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.

[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.

11 Safety requirements

[I] No specific safety requirement related to PIC and/or PIA and/or PE/NPE components apply.

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.

SERVICE

[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	
2	Test protocol	Hold point
3	Manufacturing report	Hold point
	Final Report	

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	T0	Contractor or IO / VC
2	Presentation of Task 2	T0 + 4 Months	Contractor or IO / VC
3	Presentation of Task 3a	T0 + 16 Months	Contractor or IO / VC
4	Final presentation	T0 + 18 Months	Contractor or IO / VC

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Route de Vinon-sur-Verdon - CS 90 046 - 13067 St Paul Lez Durance Cedex - France

PRIOR INDICATIVE NOTICE (PIN)

OPEN TENDER SUMMARY

IO/25/OT/10029450/ERA

For

Thermal Contact Conductance (TCC) in vacuum

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 procurement of the engineering services to perform measuring of the TCC for different material coated and not coated.
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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 Service 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 thermal loading of the Blanket system is mainly due to plasma surface heating (radiation & convection) and volumetric neutron heating. A pressurized water circuit flowing through the main components (First Wall and Shield Blocks) allows cooling down the system. But some elements (pads, bolts, etc.) imbedded in the system are only cooled by thermal contact (and radiation) to the main water-cooled components, this conduction needs to be quantified accurately according to blanket operational conditions.

The present tender process is aiming to set up a Service Contract for the accurately measuring of the TCC for different material coated and not coated with the EIC (Electrical Insulating Coating) and threads used in the Blanket in vacuum conditions.

4 Procurement Process & Objective

The objective is to award a Service 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 Suppliers 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), suppliers 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)	2nd July 2025
Submission of expression of interest form	16th July 2025
Invitation to Tender (ITT) advertisement	21st July 2025
Clarification Questions (if any) and Answers	25th August 2025
Tender Submission	8th September 2025
Tender Evaluation & Contract Award	October 2025
Contract Signature	October 2025

5 Quality Assurance Requirements

Prior to commencement of any work under this Contract, a "Quality Plan" shall be produced by the Supplier 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 Service Contract around October 2025. The estimated contract duration shall be 18 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.

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/10029450/ERA**
DESIGNATION of SERVICES:	**Thermal Contact Conductance (TCC) in vacuum**
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: .....