

Statement of Requirement (SoR)

Reference Number	DSTLX-1000165987
Version Number	1
Date	21/07/2021

1.	Requirement
1.1	Title
	Thermal Coatings for <i>redacted</i> Combustors
1.2	Summary
	<p>Dstl are not experts in the field of TBC applications but recognise the use of a TBC in a particular application of interest is novel and could be outside normal experience of in-service usage for these materials. Dstl therefore wishes to gain greater understanding of the usage of TBCs within aerospace combustors, and, by calculation or test, demonstrate that the proposed design approach (concept) has potential within the vehicle context</p> <p><i>redacted section</i></p> <p>The required work is divided into two phases:</p> <ol style="list-style-type: none">1. Advice (on relative test or analyses);2. Testing and Reporting.
1.3	Background

redacted section

In addition to the performance of such systems Dstl also wish to gain knowledge and experience of the general engineering of, and manufacturing processes relevant to, these designs.

redacted section

Dstl are content that the concept works from a thermal point of view (although further work could be done to improve confidence).

redacted section

Dstl are not experts in the field of TBC applications but recognise the use of a TBC in our application is novel and could be outside normal experience of in-service usage for these materials. Also, there are aspects of the mechanical environment unique to the particular application Dstl are studying that should be considered in any assessment. Dstl therefore wishes to better understand the usage of TBCs within aerospace combustors, and, by calculation or test, demonstrate that the proposed design approach (concept) has potential within the vehicle context

redacted section

Dstl will assess the advice given and write a plan of action for the TBC concept demonstration and risk reduction work. Cranfield also have a vast array of test equipment geared for TBC testing not directly available to Dstl – *redacted section* -, and therefore we may wish to utilise some of this equipment in the next phase of work.

The work required is therefore divided into two phases:

1. Advice
2. Testing and Reporting

At this stage we do not know details (e.g. extent & cost) of the 2nd phase as this depends on the outcome of the first phase. We are confident that we will need to use the test capabilities, and that any testing carried out there should be under the guidance of - *redacted section*.

1.4	Requirement
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	<p><i>redacted section</i></p> <p>Part 1. Advice.</p> <p>Advice shall relate to:</p> <ul style="list-style-type: none"> a) knowledge of in-service issues with similar TBC applications; b) advice on tests / analysis that can be undertaken to demonstrate viability of the concept; c) relevant details of our thermal & mechanical environment and their potential impact on TBC performance (identifying potential failure modes); d) potential alternative TBC materials and methods of application. <p>We also require:</p> <ul style="list-style-type: none"> e) Advice on high temperature coatings to improve surface emissivity – <i>redacted section</i>. <p>To be reported in a letter or memorandum.</p>
1.5	Options or follow on work
	<p>Part 2: Testing and Reporting</p> <p>Containing any test or analysis requested after due consideration of Part 1 (Advice). Dstl will assess the advice received in Part 1 and write a plan of action for the TBC concept demonstration and risk reduction work.</p> <p>Dependencies - Part 2 Testing would be dependent on samples manufactured by – <i>redacted section</i>.</p>

1.6	Deliverables & Intellectual Property Rights (IPR)						
Ref.	Title	Due by	Format	TRL*	Expected classification (subject to change)	What information is required in the deliverable	IPR DEFCON/ Condition
<i>Part 1</i>	<i>Technical Advice</i>	<i>T0+1 Months</i>	<i>Letter Report</i>	<i>n/a</i>	<i>OS</i>	<i>See 'Requirement' above.</i>	<i>DEFCON 705 shall apply</i>
<i>Part 2</i>	<i>Test and Analysis Report</i>	<i>T0 (Part 2)+2 Months</i>	<i>Word Document + Excel/Text File for data</i>	<i>n/a</i>	<i>OS</i>	<i>All test and analysis results, discussion of results and conclusions. (All tests and analysis will be agreed prior to Part 2 being contracted.)</i>	<i>DEFCON 705 shall apply</i>

*Technology Readiness Level required

1.7	Standard Deliverable Acceptance Criteria
	as per Framework T&C's
1.8	Specific Deliverable Acceptance Criteria

2.	Quality Control and Assurance
2.1	Quality Control and Quality Assurance processes and standards that must be met by the contractor
	<input checked="" type="checkbox"/> ISO9001 (Quality Management Systems) <input type="checkbox"/> ISO14001 (Environment Management Systems) <input type="checkbox"/> ISO12207 (Systems and software engineering — software life cycle) <input type="checkbox"/> TickITPlus (Integrated approach to software and IT development) <input checked="" type="checkbox"/> Other: (Please specify below)
2.2	Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement

3.	Security	
3.1	Highest security classification	
	Of the work	OFFICIAL-SENSITIVE
	Of the Deliverables/ Output	OFFICIAL-SENSITIVE
3.2	Security Aspects Letter (SAL)	
	Yes If yes, please see SAL reference- 1000165987	
3.3	Cyber Risk Level	
	Very low	
3.4	Cyber Risk Assessment (RA) Reference	
	RAR - 949991084 If stated, this must be completed by the contractor before a contract can be awarded. In accordance with the Supplier Cyber Protection Risk Assessment (RA) Workflow please complete the Cyber Risk Assessment available at https://suppliercyberprotection.service.xgov.uk/	

4.	Government Furnished Assets (GFA)				
GFA to be Issued - Yes					
GFA No.	Unique Identifier/ Serial No	Description:	Available Date	Issued by	Return Date or Disposal Date (T0+)
GFA-1		O-S, Background information regarding	Through contract	Dstl, via discussion	Deletion T (end)

		relevant system design and context (top level)			
GFA-2		O-S, information (data) pertaining to indicative thermal and mechanical load cycles for the TBC.	T0 (Part 1) + 1 week	Dstl	Deletion T (end)
GFA-3		O-S, Results of previous thermal tests. Data and physical samples from – <i>redacted section</i>	T0 (Part 1) + 1 week	– <i>redacted section</i>	Deletion / Return T (end) + 2 weeks
GFA-4		Relevant to Part 2 only. O-S, test samples – <i>redacted section</i>	T0 (Part 2) + 4 weeks	– <i>redacted section</i>	T(end) + 2 weeks

5.	Proposal Evaluation criteria
5.1	Technical Evaluation Criteria
	Proposal must receive approval from the Technical Partner.
5.2	Commercial Evaluation Criteria
	NAPNOC – No acceptable price no contract