

Request for Proposal

Indigenization of High Purity Fused Silica Glass Substrate

Government of India
Indian Space Research Organisation (ISRO)
U R Rao Satellite Centre (URSC)
Bengaluru-560017
INDIA

URSC-ISRO is looking for competent vendor to submit proposal and quotation for **Indigenization of High Purity Fused Silica Glass Substrate (HPFS)** detailed in this document.

The document is divided in three sections as below:

Section-A: Technical specification of HPFS Substrates in detail.

Section-B: Guidelines to suppliers for delivery & payment terms & conditions against this RFP.

Section-C: General terms & conditions to suppliers for preparing responses against this RFP

Section A: Technical Specification

Sl. No	Description	Values
1.	Dimension (thickness)	(i) 0.075 mm \pm 0.010 mm (ii) 0.100 mm \pm 0.015 mm (iii) 0.150 mm \pm 0.020 mm (iv) 0.200 mm \pm 0.030 mm
2.	Dimension (length x width)	40 mm (\pm 0.05 mm) x 40 mm (\pm 0.05 mm)
3.	Coefficient of thermal expansion	4.0 x 10 ⁻⁷ /K (-140 °C to 30 °C) 6.0 x 10 ⁻⁷ /K (30 °C to 600 °C)
4.	Density	2.20 -2.24 g cm ⁻³
5.	Poisson's ratio	0.13-0.15
6.	Elastic modulus	68-70 GPa
7.	Shear modulus	> 29-31 GPa
8.	Solar Transmittance	\geq 0.9 (0.2 to 2.5 μ m)
9.	Solar Reflectance	\leq 0.1 (0.2 to 2.5 μ m)

10.	IR Emittance	≥ 0.75 (3 to 30 μm)
11.	Refractive index	1.45-1.46 @ 0.633 μm
12.	Chemical Impurities	<ul style="list-style-type: none"> • OH content (by weight): < 10ppm • Impurities other than OH: ≤ 1000 ppb
13.	Average Surface Roughness (top side & bottom side)	≤ 2.5 nm
14.	Edge Parallelism	0.05 mm per 20 mm
15.	Perpendicularity of sides	$90^\circ \pm 0^\circ 30'$
16.	Surface quality	Substrates should be both sides polished and no defects > 80/50 as per MIL-PRF-13830A
17.	Corner chips	Corner chips shall not exceed limit defined by hypotenuse of $d=0.75$ mm (ref. fig-1). Max. 04 chips per sample.
18.	Edge Chips	Shall not exceed the limits, $b=0.25$ mm and length $a=0.6$ mm. (ref. fig-2)
19.	Bubbles & Inclusions	0.075 mm maximum not more than 02 per 4cm^2
20.	Cracks	Sample when viewed by unaided eye according to MIL-PRF-13830B shall exhibit no visible evidence of surface, edge or corner cracks.

21.	Quantity	625 nos. of each thickness of Glass Substrate
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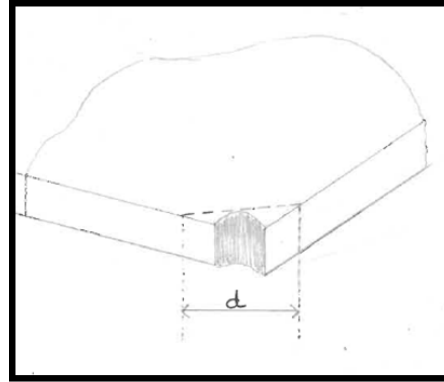


Fig-1

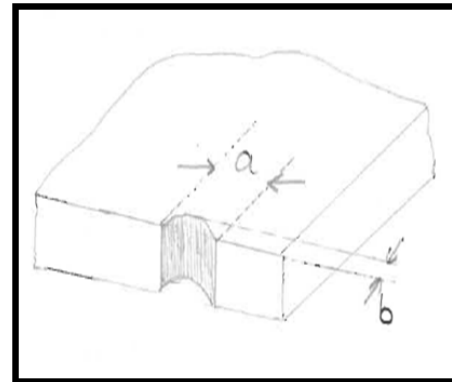











Fig-2

Section B: Delivery and Payment Terms and Conditions

1. On acceptance of Purchase Order, vendor shall process HPFS samples and supply the items as staggered way indicated in Table 1. Payment will be made as indicated in Table-1.
2. A demand note will be generated by URSC to inform the vendor about the supply of next procurement stages. After receiving URSC's demand note/mail, vendor shall prepare HPFS samples for respective procurement stages. Delivery period for respective procurement stages will be based on the date of issue of demand note as indicated in Table-1.
3. Delivery and payment terms and conditions are consolidated in Table-1.
4. Each supply shall accompany the process log sheets and batch number identification, for traceability and other relevant details.

Table-1

S.No.	Procurement Stages	Item Details	Quantity (Nos.)	Maximum* Allowable Duration of Delivery Period	Payment Terms	Acceptance/Rejection/Ordering Terms
1.	PS-1	HPFS: 0.200 mm ± 0.030 mm	300	T0 + 5M	 Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee	 In case of acceptance of PS-1, demand note will be generated for PS-2.  In case of non-acceptance of PS-1, PO will be short closed.
2.	PS-2	HPFS: 0.200 mm ± 0.030 mm	325	T1 + 2M	 Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee	 In case of acceptance of PS-2, demand note will be generated for PS-3.  In case of non-acceptance of PS-2, PO will be short closed.
3.	PS-3	HPFS: 0.150 mm ± 0.020 mm	300	T2 + 3M	 Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee	 In case of acceptance of PS-3, demand note will be generated for PS-4.  In case of non-acceptance of PS-3, PO will be short closed.

4.	PS-4	HPFS: 0.150 mm ± 0.020 mm	325	T3 + 2M	<ul style="list-style-type: none"> ✚ Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee. 	<ul style="list-style-type: none"> ✚ In case of acceptance of PS-4, delivery note will be generated for PS-5. ✚ In case of non-acceptance of PS-4, PO will be short closed.
5.	PS-5	HPFS: 0.100 mm ± 0.015 mm	300	T4 + 3M	<ul style="list-style-type: none"> ✚ Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee 	<ul style="list-style-type: none"> ✚ In case of acceptance of PS-5, demand note will be generated for PS-6. ✚ In case of non-acceptance of PS-5, PO will be short closed.
6.	PS-6	HPFS: 0.100 mm ± 0.015 mm	325	T5 + 2M	<ul style="list-style-type: none"> ✚ Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee. 	<ul style="list-style-type: none"> ✚ In case of acceptance of PS-6, demand note will be generated for PS-7. ✚ In case of non-acceptance of PS-6, PO will be short closed.
7.	PS-7	HPFS: 0.075 mm ± 0.010 mm	300	T6 + 3M	<ul style="list-style-type: none"> ✚ Payment against material acceptance. <u>Acceptance criteria:</u> as deemed by URSC committee 	<ul style="list-style-type: none"> ✚ In case of acceptance of PS-7, demand note will be generated for PS-8. ✚ In case of non-acceptance of PS-7, PO will be short closed.
8.	PS-8	HPFS: 0.075 mm ± 0.010 mm	325	T7 + 2M	<ul style="list-style-type: none"> ✚ Payment against material acceptance. 	-

					Acceptance criteria: as deemed by URSC committee.	
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HPFS: High Purity Fused Silica Glass Substrate

T0= PO release date

M = Months

PS = Procurement Stages

T1, T2, T3, T4, T5, T6 & T7 = Demand note generation date for PS-2, PS-3, PS-4, PS-5, PS-6, PS-7 & PS-8, respectively.

***Vendor is encouraged to deliver the items at the earliest**

Section C: General Terms & Conditions




1. The participation is restricted to companies / vendors registered in India and having necessary infrastructures and skill-set in India. Submit the following documents, as proof:
 - (a) Company registration certificate in India
 - (b) List of relevant infrastructure /facilities/ equipment available along with photographs for developing in-house HPFS Glass Substrates.
2. HPFS Glass should be developed and manufactured in India and the final finished substrate (specifications as mentioned in Section A) should be an end to end “**Make in India**” product (outsourcing of any form of Glass from foreign source is strictly not allowed)

Note: Documentary proof of the above preliminary requirements mandatorily to be submitted along with the technical bid, to participate in the tendering process, else the bid will be rejected.

3. URSC team reserves the right to visit vendor’s facility during development, manufacturing and processing of glass to witness/assess the product quality.
4. One-to One Compliance: The supplier shall provide one-to-one compliance table as per the technical specifications. The offer should be complete with compliance statement for each of the specifications. Indicating merely ‘YES’, ‘NO’, ‘OK’, or ‘leaving blank’ in the compliance statement will be liable to rejection.
5. Technical Bid and Commercial Bid must be quoted separately.
6. Vendor should quote for per piece in Indian rupees for each specified dimension separately

7. Vendors complying for delivery of all procurement stages will only be considered for technical evaluation.
8. Vendors complying for delivery of full supply corresponding to each stage only will be considered for technical evaluation.
9. In case, if vendor does not agree/fail to supply against any procurement stages after acceptance of purchase order, PO will be short closed.
10. Manufacturer/vendor shall take necessary care and precautions for safe and proper packaging of glass substrates during delivery to avoid any damage.

Following mandatory marking instruction should be printed on the box

-  “Fragile part”
-  “Handle with care”
-  “To be opened in clean environment only”