

Canopy Severance System (CSS)

Canopy Severance System (CSS) is part of the pilot's escape aid system in aircraft. It is designed to rescue the pilot in shortest possible time during in-flight and on-ground emergencies in combat aircrafts. The development is based on ejection through Canopy Severance System instead of Canopy Jettisoning method, which has a major shortcoming of consuming vital time required for safe escape ejection of pilots from endangered aircraft.

Dual In-flight Egress system is operated by the pilot in case of emergencies occurring while the aircraft is in flight. In the other systems, during emergency, when the pilot pulled the Seat Ejection handle, the series of operations, entailed more than 1400 milliseconds. By the use of Canopy Severance System, the time to sever the Canopy is reduced to merely 20 milliseconds, thus giving a clean cut on the canopy, providing a safe passage to the Pilot and the Seat to eject safely. A portion of gas pressure is tapped from the Seat Ejection initiation gas pressure which is fed into the Pressure Actuated Initiator (PAI). Thus PAI is actuated and a detonation wave is developed which travels through Explosive Transfer Lines (ETLs), Junction Boxes and finally to the Shaped Miniature Detonating Cord which cuts the Acrylic bubble of the Canopy linearly near the centre line and thus weakens it. The pieces of the weakened acrylic will be thrown away by the movement of the seat. This will provide the path through which seat and pilot can eject safely.

Technologies Involved

The following technologies are involved

- Controlled propagation of detonation wave.
- Preparation of explosive cord.
- Testing & Proof Methodology of explosive systems.
- Cutting of target material using optimized explosive charges.
- Mfg technologies for explosive lines & hardware.

1. Interested companies/industries are requested to apply against this EoI to following address:-

To,

The Director

Armament Research & Development Establishment (ARDE),

Dr. Homi Bhabha Road, Pashan, Pune-411021

Email-director.arde@gov.in

Phone No: 020-25932001

Fax No: 020-25865102

2. A copy of interest may be sent to the following address without any attachment:-

Copy to:-

To,

The Director

Directorate of Industry Interface & Technology Management (DIITM)

Room No. 447, DRDO Bhawan, Rajaji Marg, New Delhi-110 011

Email-diitm.hqr@gov.in

Phone No. 011-23007446

Fax No. 23793008

All industries interested in seeking ToT are requested to apply in the format given below along with supporting documents (as applicable). Kindly provide reference of page no. of supporting document in the relevant field also. The list of documents to be attached is provided in Annexure - I.

PART-1

General Information

1.	Name of the Technology requested for Technology Transfer (Technology name and concerned Lab, Category)	
2.	Name of the industry/ organization	
3.	Complete Address and other details	
	Registered Office	

	State Phone No Fax Email Website	
	Factory State Phone No Fax Email Website	
4.	Point of Contact Name Designation Address Mobile No Ph No Email ID	
5.	NAME OF CMD/ MD /PARTNERS/ PROPRIETOR/ etc Name Designation Address Mobile No Ph No Email ID	
6.	Date of Incorporation of company	
7.	Foreign Direct Investment in company (if any in %)	
8.	Shareholding pattern	
9.	Turn over as per Audited Balance Sheet for the preceding three years. Year ____ Year ____ Year ____	
10.	Annual budget for R&D during last three years (if any) Year ____ Year ____ Year ____	
11.	Income Tax returns for the preceding three years period Year ____ Year ____ Year ____	
12.	Nature of company	

	DPSU, Private Limited, Public Limited, Partnership, Proprietary, Ex- Serviceman Unit	
13.	Category of industry Large Scale, Medium Scale, Small Scale, Micro, Startup	
14.	MSME Registration No	
15.	Certificates of registration as a manufacturing unit, if any.	
16.	If Startup, DPIIT Registration No	
17.	UDYOG AADHAR No	
18.	PAN Number	
19.	Details of Industrial license for defence manufacturing issued by DPIIT (if any)	
20.	Details of PESO license (if any)	
21.	GST Number	
22.	Nature of business Manufacturing/ Sole Selling or Authorized Agent/ Assembler/ Traders/ Dealer/ Processor/ Repacker/ Others	
23.	Details of current products and services Products and services Supplied (please specify Govt/ Domestic market/ Export)	
24.	Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).	
25.	Details of registration with NSIC / SSI, DGS&D, other Defence Department, other Govt. Dept, membership of FICCI/ASSOCHAM/CII or other Industrial Association (Attach relevant copies of registration letters)	
26.	Have you already taken any technology from DRDO (If yes, give details attaching separate sheet) Name of the Technology, Lab, Year, License number & Status	
27.	ISO/ ISI certification or any other certification (If yes, give details)	
28.	Relevant clearances form the authorities/ ministries (if any)	
29.	Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.	
30.	Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.	

PART-2

Infrastructure and other Information

- **Total area of factory**
Covered (m²),
Uncovered (m²),
Bonded space available (m²)
- **Ownership of factory**
Self-owned, partnership, rental
- **Electric power**
Sanctioned
Installed
Standby (if any)
- **Availability of adequate infrastructure** (List of machines and their production capacities) and technical expertise
- **Name of bank & A/c No**
Name of bank
A/c type
A/c no
Address of the bank
Phone: Email:

Details of current products:

Sl.no	Type	Description	Licensed/installed capacity	Annual production for preceding 3 years
.				

Details of foreign collaboration, if any

Sl.no	Product	Name & address of collaborator	Year	Remarks
.				

Details of products developed for services

Sl.no	Nomenclature of stores	Order no and date	Remarks
.			

Please give details of important facilities & infrastructure as per following format for:

- Production
- Unconventional, special m/c
- Testing & quality control facilities

Sl.no	Description of m/c	Make & model	Qty	date of purchase	Remarks
.					

Furnish the following details with relevant certificates and documents

- a) R&D facilities available :
- b) Inspection quality control of raw material components :
- c) Assistance from central agency for testing / calibration etc. :
- d) laboratory and drawing office facility :

Principal customers:

Sl.no	Name & address	S.O No. & date	Date of last supply	Products supplied	Value

Future plan (if any) in respect of expansion programme installation of additional machines/ test facilities etc.

Name of the technology requested for transfer (give self-assessment of your capability to absorb the technology)

Details of employee as on date on firm's pay roll

PERMANENT				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (Qc) Skilled workers Unskilled workers, etc.			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others etc			

TEMPORARY				
Category	Post Held	Number	Qualification	Total Service
Technical	Prod. Manager Q.C. Manager Supervisor Testing Staff (Qc) Skilled workers Unskilled workers, etc			
Administrative	Purchase Manager Accounts Officer Office Superintendent Clerical Others, etc			

DECLARATION :

I / we confirm that the information furnished in Part 1 & 2 above is correct. In the event of any information given by me / us is found incorrect / false at any time, I / we

understand our EoI for ToT will be cancelled/ rejected without notice, beside any other appropriate action against me / us.

Industry seal

Authorized signatory

Name(s) in capital
designation and seal of authorized
signatory

dated:

Place:

Annexure - I

List of Support documents to be attached with EoI

- (a) Memorandum and Articles of Association (Should be incorporated as per Indian Companies Act, as amended time to time)
- (b) Certificates of registration as a manufacturing unit, if any.
- (c) Audited Balance Sheet for the preceding three years.
- (d) Income Tax returns for the preceding three year period
- (e) Details of shareholding/ownership pattern especially foreign partners/ shareholders, foreign employees, directors, etc. The company must adhere to the prevailing Govt of India policies and regulations on Foreign Direct Investment (FDI)/DIPP norms as applicable.
- (f) Annual budget for R&D during last three years.
- (g) Numbers and details of IPR or patents, etc., held by the company.
- (h) Number of technically or professionally qualified personnel.
- (i) Record of past performance (e.g., Supply orders executed against of Ministry of Defence orders, Public Sectors and Paramilitary Forces, if any).
- (j) Availability of adequate infrastructure (List of machines and their production capacities) and technical expertise.
- (k) List of Testing and Support equipment's
- (l) ISO/ ISI certification or any other certification
- (m) Relevant clearances form the authorities/ ministries (if any)
- (n) Capacity and capability to undertake developmental work and to accept attendant financial and commercial risks.
- (o) Capacity/capability to market the product through the marketing network, sales and service network, reliability to maintain confidentiality.

- (p) PESO and DPIIT license for explosive handling if ToT is for high energy Material, explosives, propellants, and component/ system dealing with it etc.
- (q) Under taking form company seeking ToT that none of its Directors, Independent Directors, non-executive Directors, Key management personnel are involved in any corrupt practices, unfair means and illegal activities.
- (r) Details of the industrials license for defence manufacturing be provided by the industry seeking ToTs.