



iDEX Innovations for
Defence Excellence

PM Awardee

DISC 12 Re-Open

Problem Statements

S. No	Name of Agency	Number of Problem Statement
1.	AFMS	01
	Total	01

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Development of Inflight Urination Device for Female Fighter Pilots

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AFMS

PROBLEM STATEMENT

DISC 12 MIRA (Re-Open) Problem Statement 35 :Development of Inflight Urination Device for Female Fighter Pilots

Organization Name	AFMS
Challenge title	Development of Inflight Urination Device for Female Fighter Pilots
Problem Statement	Multirole fighter aircraft worldwide are capable of long duration flying. In flight urination is a critical combat requirement during such missions. Due to anatomical differences in gender, it is crucial to develop an inflight urination device for female fighter pilots.
Challenge Brief/ Definition	<p>Female fighter pilots are now part of each fleet of fighter aircraft of Indian Air Force. Multirole fighter aircraft are capable of long duration flying. During such sorties male fighter pilots wear condom catheters for in flight urination, however a female counterpart is not available. Off the shelf products are not compatible with the restraint system of ejection seats. In case any such product may be compatible, they are not tested for aircraft compatibility. In the absence of an effective in flight urination device female fighter pilots are unable to exploit full potential of these multirole aircraft.</p> <p>Due to the physiological restriction of relieving oneself during long duration sorties, long stretches of duty in harsh climatic conditions, the role of fighter pilots in these fleets are restricted.</p>
Existing Solution (if any)	Currently there are no solutions in the Indian market for this problem.
Technology Domain(s)	Advanced materials to channelize urine flow, suction pumps, battery packs and urobags to collect and solidify the excreted urine.
Application/Use Case	<p>The primary application is very specific to multi role combat fighter aircraft and female fighter pilots.</p> <p>As an offshoot the technology may help bedridden patients, minimizing long term catheterisation and associated infections.</p>

Project Outcome	Final product to be developed is a Urination Device designed for females which is wearable inside the Aircrew Equipment Assembly and is compatible with fighter cockpit. The product has to be NONINVASIVE .
Testing/ Certification	CEMILAC certification will be required for airworthiness. Appropriate MILSPEC/BIS/QCI/DGQA reference standards should be used for design & manufacture. The product is expected to meet DGAQA standards.
Future Expectation from the prototype development	The product should be compatible with five point harness system and ejection seat of all fighter aircraft available in Indian inventory. Future developments may look at its use for Human Space Missions.
Potential Market	The product will always be required in service for female fighter aircrew. The product may be adopted commercially for bedridden patients to exclude the need for invasive catheterization and hence infections. The developed product will be able to strengthen the defence export of India. A viable product has the likelihood of being in demand for export to other nations who use the same fighter aircraft for Air Defense.
Business Case	Currently a single use product would be required at the rate of at least 2/female fighter pilot/ month.