

**CSIR-NAL Project Procurement Tentative List for 2020-21
as on December 1, 2020**

Sl No.	Item Description	Qty /Set / m2
1	Tecplot Software License Renewal / Windows OS Softwares	As per requirement
2	High power NdYAG Laser	1
3	Dry Cabinet (for storage media)	As per requirement
4	Paper Shredder	As per requirement
5	NI PXI voltage, counter & temperature cards	As per requirement
6	Flame proof lighting	As per requirement
7	Autocad - 2 Nos	2
8	WebEx set (web cam, head set and microphone) - 10 Nos	10
9	Electrical Heater (24 kW)	As per requirement
10	Instrumentation Control Panel	As per requirement
11	Mass air flow sensor with display unit & throttle position sensor	As per requirement
12	High temperature dynamic pressure sensor/spark plug sensor for in-cylinder pressure measurement	As per requirement
13	Programmable engine control unit	As per requirement
14	Fuel Control Valve/ Regulator	As per requirement
15	High pressure water pumps	As per requirement
16	Agitated thin film deaerator (ATFD)	As per requirement
17	S Series Main PCB (Configured), Part No. 99-999-1200 for H10KS model Hounsfield UTM (universal testing machine)	As per requirement
18	Instrument Air Compressor	As per requirement
19	Digital Upright Reflected Light Microscope	As per requirement
20	Mini Hot Press - 800° C, 20 Ton	As per requirement
21	wall side lab table	As per requirement
22	Airborne Particle Counter	As per requirement
23	Sputtering gun - 2 Nos	2
24	Spares for plasma spray	As per requirement
25	Electrode for analysis	As per requirement
26	Tilting adapter for spray pyrolysis system	As per requirement
27	Pressure sensor calibrator	As per requirement
28	Bias power supply	As per requirement
29	Digital temperature control unit along with heater	As per requirement
30	Automatic siever	As per requirement

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31	Hot water recirculation pump	As per requirement
32	Autoclave Mark II upgradation: Control & Electrical panel	As per requirement
33	Hand held Interrogator	As per requirement
34	Tufting Needles for robotic machine	As per requirement
35	Ultrasonic Flaw detector & transducers	As per requirement
36	AutoCAD Package - 3 license	3
37	Spar fabric cutting m/c	As per requirement
38	Lazer Line Reflector -3 Nos	3
39	Buffing m/c for Canopy	As per requirement
40	Vacuum Cleaners - 3 Nos	3
41	Anemometer, Data logger, controller, laptop and Accessories - 1 set	As per requirement
42	Hand held thermal imager	As per requirement
43	Measuring instruments and test equipment	As per requirement
44	Unity Pro PLC programming platform - 1 license	1
45	FPGA and Embedded system development kits	As per requirement
46	Equipment for Environmental testing	As per requirement
47	Additional data acquisition cards for miniature in-flight data acquisition system	As per requirement
48	High-Speed DAS onboard / off board	As per requirement
49	Dynamic Load Cell (100KN capacity)	As per requirement
50	Cooling chiller unit for power pack	As per requirement
51	Process control generator/calibrator/mv generator	As per requirement
52	hydraulic capital accessories	As per requirement
53	LVDTs	As per requirement
54	power pack human machine interphase	As per requirement
55	Servo valves	As per requirement
56	Oven for pre-heating	As per requirement
57	Megger	As per requirement
58	Anti-static Desiccator cabinet	As per requirement
59	Water Filter	As per requirement
60	Conference Projector with Screen	As per requirement
61	Handheld multimeter	As per requirement

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62	Portable Oil Temperature bath/Tacho Gen Calibrator	As per requirement
63	Hand Held ARINC 429 analyser	As per requirement
64	Push button Telephone instruments - 200 Nos (Procurement is under phased manner)	200
65	Multi subscriber license (MSL) for sip phones in Mytel IP PABX (50 Licenses)	50
66	IP to Analog convertor (50 ports)	As per requirement
67	C band waveguide calibration kit	As per requirement
68	Digital Multimeter, battery Operated Screw driver set etc	As per requirement
69	IBM Rhapsody Designer for Systems Engineers (New)	As per requirement
70	IBM Rational Publishing Engine (Reinstatement)	As per requirement
71	Rapid Prototyping Machine	As per requirement
72	U1620A Handheld Oscilloscope (Key Sight Technologies)	As per requirement
73	MTI 1510A Handheld Function Generator	As per requirement
74	Fluke 51 II Handheld Digital Probe Thermometer	As per requirement
75	Engine Hoist	As per requirement
76	Hydraulic Jacks 2 tonne capacity	As per requirement
77	Aircraft weighing Machine/scales	As per requirement
78	Ultrasonic Humidifier	As per requirement
79	Mobile storage Rack	As per requirement
80	Ultrasonic bath	As per requirement
81	Swaging tool kit	As per requirement
82	Mechanical Inclinator	As per requirement
83	Industrial Vacuum Cleaner	As per requirement
84	Hangar floor cleaning machine	As per requirement
85	Vernier calipers (150 mm and 300 mm) Qty: 3 each	6
86	Pipe bending tool	As per requirement
87	Nitrogen charging regulators	As per requirement
88	Height Gage	As per requirement
89	Paint Booth	As per requirement
90	Metallic Raw materials - Aluminum alloy billets, sheets, tubes, rods and extrusions, CM steel rods, tubes and blocks, Maraging steel blocks, stainless steel tubes and rods, copper strips and sheets	As per requirement

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91	Metallic Raw materials - Fasteners (rivets, bolts, wire lock, c-clip, washer etc.)	As per requirement
92	Composites Raw Materials	As per requirement
93	Aircraft fuel	As per requirement
94	Interiors and furnishing of aircraft	As per requirement
95	Paint, thinner, hardener, sealant, adhesive, grease, hydraulic oil, etc.	As per requirement
96	Design, Development, Testing and Supply of Landing gear	As per requirement
97	Design, Development, Testing and Supply of Environmental Control System(ECS)	As per requirement
98	Design, Development, Testing and Supply of Fuel System	As per requirement
99	Design, Development, Testing and Supply of Landing Gear, Wheels, brakes, brake systems, anti-skip, uplocks etc	As per requirement
100	Design, Development, Testing and Supply of Nacelle	As per requirement
101	High Reynolds Number Wind tunnel data generation	As per requirement
102	Design, Development, Testing and Supply of Actuators	As per requirement
103	Design, Development, Testing and Supply of Antiicing / deicing system	As per requirement
104	Design, Development, Testing and Supply of Electrical and Avionics systems	As per requirement
105	Power Plant - Engines	As per requirement
106	Power Plant - Propellers with spinner	As per requirement
107	Design, Development, Testing and Supply of Hydraulics Systems	As per requirement
108	Design, Development, Testing and Supply of Flight Control System	As per requirement
109	Special Testing	As per requirement
110	Fabrication of airworthy parts and test articles - Composites -- Wing	As per requirement
111	Fabrication of airworthy parts and test articles - Composites -- Flaps inboard, outboard, LH and RH	As per requirement
112	Fabrication of airworthy parts and test articles - Composites -- Aileron LH and RH	As per requirement
113	Fabrication of airworthy parts and test articles - Composites -- Fin	As per requirement
114	Fabrication of airworthy parts and test articles - Composites -- Rudder and Tabs	As per requirement
115	Fabrication of airworthy parts and test articles - Composites -- Horizontal Tail	As per requirement
116	Fabrication of airworthy parts and test articles - Composites -- Elevator and tabs(LH and RH)	As per requirement
117	Fabrication of airworthy parts and test articles - Composites -- Fuselage top skin	As per requirement

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118	Fabrication of airworthy parts and test articles - Composites -- Rear pressure bulkhead	As per requirement
119	Fabrication of airworthy parts and test articles - Composites -- Nacelle	As per requirement
120	Fabrication of metallic (sheet metal and machined parts and sub-assemblies) - Front fuselage	As per requirement
121	Fabrication of metallic (sheet metal and machined parts and sub-assemblies) - Centre fuselage	As per requirement
122	Fabrication of metallic (sheet metal and machined parts and sub-assemblies) - Rear fuselage	As per requirement
123	Fabrication of metallic (sheet metal and machined parts and sub-assemblies) - Stubwing	As per requirement
124	Equipping and Integration of Systems and Sub-Systems	As per requirement
125	Ground Test Facility for various aircraft systems	As per requirement
126	Pre-Installation Check Facility for LRUs	As per requirement
127	Metallic Tooling	As per requirement
128	Composite Tooling	As per requirement
129	Jigs and Fixtures	As per requirement
130	Ground Test Equipment	As per requirement
131	System / Structural Test Rigs and Simulator	As per requirement
132	Engine Fire Protection System	As per requirement
133	Cabin Fire Protection System	As per requirement
134	Lithium Battery System	As per requirement
135	Flight Control Mechanical System Trim Actuator	As per requirement
136	Design, Development, Qualification and Certification of IAFCC Chassis, Backplane and IO Termination Panel	As per requirement
137	Design, Development, Qualification and Certification of IO Module for IAFCC	As per requirement
138	Design, Development, Qualification and Certification of IAFCC Chassis, Backplane and IO Termination Panel	As per requirement
139	LED Lights	As per requirement
140	GHE/GSE	As per requirement
141	Design and Development of primary power distribution system	As per requirement
142	Design, Development and Supply of two liver throttle control box	As per requirement
143	Procurement of passenger and pilot seats	As per requirement
144	Procurement of Wind Shield	As per requirement
145	Procurement of Control Wheel	As per requirement

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146	Components for Auto Pilot and Stall Warning System	As per requirement
147	Procurement of Engineering Test Station	As per requirement
148	Aircraft Grade Angle of Attack Vane Sensors	As per requirement
149	Design, Development and Supply of Hydraulic Systems	As per requirement
150	Design, Development and Supply of Hydraulic Pack	As per requirement
151	Peddle Transducers, Pressure Transducers and Pressure Switch	As per requirement
152	Brake Manifold	As per requirement
153	Parking Brake Valve, Brake Accumulator, Parking Brake Cable and Liver	As per requirement
154	Flight Test Instrumentation and telemetry	As per requirement
155	Sealant tape Product code: AT 200Y & Product code: GS 43MR 1/2 inch 1 year Shelf Life	50 Cases (2000 Rolls i.e. 40 Rolls per Case)
156	Peel Ply – Product code: PES 90 / 1650 Product Code: 60BR Orange Unlimited shelf Life	12 Rolls (6 Rolls each)
157	Release film - (Porous) Product Code: A4000 – RP3 or Product Code: A5000 – RP3 Unlimited shelf Life	10 Rolls
158	Release Film - (Non-porous) Product Code: A4000 R Product Code: A5000 R One side Bondable Release film Product Code: A5000R one side bondable Unlimited shelf Life	15 Rolls
159	Bagging film Product code : KM 1300 Product code : FIPA205-20/155 Product code : HK7400 Unlimited shelf Life	20 Rolls
160	Breather Product Code: Airweave N10 Product Code: Resin Bleeder 3000-10 Unlimited shelf Life	80 Rolls

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161	Pressure sensitive Tape Product code : Tooltec A005 Product code : V7PT80AD/1000 Product code : Tooltec A007 Product code : Tooltec A012 Product code : V7PT250NP AD GLASS + PTER 225 1.5 Years Shelf Life	30 Rolls
162	Release Solution Product Code: HENKEL FREKOTE 770 NC Product Code: FREKOTE 700 NC Product Code: RELEASE ALL - SAFELEASE 30 1 Year Shelf Life	12 Gallon
163	Uncured Non-silicon Rubber Product code : Airpad 2 years Shelf Life	15 Rolls
164	Flash breaker Tape Product Code: Flash tape 1.5 Years Shelf Life	150 Rolls
165	Repair Paste Adhesive Product Code : Airfill 2 / Product Code : APF 7 1 Year Shelf Life	Repair Paste Adhesive 24 Kits (1 Kit = 1 Kg with Hardener Paste)
166	Tooling Resin Product Code : RENLAM 5210 Make : Huntsman Hardener for Tooling Resin Product code : REN HY 5211 IN Make : Huntsman Hardener for Tooling Resin Product code : REN HY 5212 IN Make : Huntsman Hardener for Tooling Resin Product code : REN HY 2954 / Aradur 2954 Make : Huntsman GEL COAT RESIN Product code : GEL COAT RESIN – REN GEL SW5200 IN Make : Huntsman 2 years Shelf Life	Tooling Resin 1000 Kgs (1 Tin = 25 Kgs) Tooling Hardener 400 Kgs (1 Tin = 20 Kgs) 300 Kgs 600 Kgs Gel Coat Resin 100 Kgs (1 Tin = 5 Kgs)
167	Laminating resin Product code : Araldite LY5052 Hardener for Laminating resin Product Code: Ardur HY 5052 1.5 Year Shelf Life	Laminating Resin 200 Kgs (1 Tin = 25 Kgs) Hardener 76 Kgs (1 Tin = 19 Kgs)

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Sl No.	Item Description	Qty /Set / m2
168	Structural Adhesive Product Code: Araldite 403 A/B Make : Huntsman 1.5 Year Shelf Life	Structural Adhesive Araldite 403 A/B 24 Kits (1 Kit = 1 Kg Resin with 75 grams Hardener)
169	Composite Repair Adhesive Product Code: Araldite 501 A/B Make : Huntsman 1.5 Year Shelf Life	Structural Adhesive Araldite 501 A/B 12 Kits (1 Kit = 1 Kg Resin with 75 grams Hardener)
170	Uncured fiber glass reinforced rubber Specification: AIRPAD HTS 5553 0.5 Year Shelf Life	05 Rolls
171	Thermoplastic Prepreg Specification: Toray Cetex TC1225 Carbon UD (T700)/12K/145 FAW/ LM PAEK	400 Sq.m
172	Thermalimide Ultra-high Temperature bagging Film For thermoplastic processing	3 Rolls
173	AIRKAP 1 Polyimide high temperature pressure sensitive tape Shelf Life: 18 months	5 Rolls
174	Carbon BD Prepreg : Specification: Hexply 914/40%/285H%/AS4C- 3K/1170 mm	1200
175	Carbon UD Prepreg – Specification: Hexply 914/ 34%/ UD 160/ AS4-12K/ 300 mm	9000
176	Copper Mesh Specification: Hexply 914–Copper Mesh-40 %	510
177	Film Adhesive – Product Code: HexBond 319A 400 GSM / Redux 319A 400 GSM	400

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178	Glass BD Prepreg Specification: Hexply 914G-120--45 % DP	600
179	Glass BD Prepreg Specification: Hexply 914G – 7781 – 37 %DP	180
180	Impregnated Peel Ply Prepreg Specification: Hexply 914/45%/9842/1300 mm	300
181	IM7 - Carbon UD Prepreg (IM7) Specification: Hexply 8552/33%/134/IM7 (12K) /1200 mm	6000
182	Copper Mesh Specification: HexPly® 8552/40%/72/Cu	600
183	BD E Glass Fabric Epoxy prepreg Hexply 8552/37%/7781 (Cured ply thickness 0.256mm)	600
184	IM7 - Carbon BD Prepreg (IM7) Specification: Hexply 8552/37%/370 (Cured Ply thickness 0.3 mm)	600
185	Tooling Prepreg LTM 217 – 100 T Specification : LTM 217-T-3KHS-4X4T-283-1250 mm	750
186	Tooling Prepreg LTM 217 – 700 T Specification : LTM 217-T-12KHS-2X2T-660-1250 mm	3000
187	Carbon BD Prepreg : Specification: Hexply 914/40%/285H%/AS4C- 3K/1170 mm	300
188	Carbon UD Prepreg Specification: Hexply 914/ 34%/ UD 160/ AS4-12K/ 300 mm	3000
189	Copper Mesh Specification: Hexply 914–Copper Mesh-40 %	510

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190	Film Adhesive – Specification; Hexbond 319A – 400 GSM	180
191	Glass BD Prepreg Specification: Hexply 914G-120--45 % DP	720
192	Glass BD Prepreg Specification: Hexply 914G – 7781 – 37 %	180
193	Carbon UD (IM7) Prepreg Specification: Cycom 977-3 IM7 145/32 49" (145 gsm FAW, Nominal CPT 0.0053")	500
194	FusePly™ (bonding Technology)	200
195	Adhesive Film FM® 309-1 M .05psf 36" (244 GSM)	200
196	3M™ Scotch-Weld™ Composite Surfacing and Lightning Protection Film AF 536 Specification AF 536, 077 SUR 000	200
197	3M™ Scotch-Weld™ EC-7272 B/A Two Part Liquid Shim	50 Kgs
198	Hysol® EA 9394 Epoxy Paste Adhesive Two Part Liquid Shim	50 Kgs
199	Carbon-polyimide prepreg	~300 m ²
200	High temperature sealants	As per requirement
201	ASTM standard test fixtures for testing of composite specimens at 300°C	As per requirement
202	Non porous release film	300 m ²
203	Porous release film	300 m ²
204	Breather	300 m ²
205	Air permeable membrane	250 m ²
206	Pressure sensitive tape (Flash breaker tape)	1" = 200 Roll 2" = 100 Roll
207	Desktop Computers	60
208	Workstations	30

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209	Printers	15
210	Copiers	5
211	Laptop	5
212	Video Conferencing Facility	5
213	Network Assisted Storage Box	5
214	Data Archival System	2
215	Webcam for online video conferencing (10 Nos)	10
216	Microphone and speakers for Webex/Googlemeet etc. (10 set)	10
217	Fax Machines	5
218	Printer Cartridges (HP, Canon, Brother, etc)	500

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