

DECLARED MATERIALS LIST				ORIGINATOR:				UK ATC							
SPACECRAFT / PROJECT				Herschel				Doc. Number:				SPIRE-ATC-PRJ-710			
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SYSTEM / EXPERIMENT				SPIRE				Issue/Rev:				1.0			
SUB-SYSTEM:				BSM				Date:				29.JAN.02			

BSM MatL ID	Part ID	Name & Type of Product, Form & Condition	Spec	Size Code	Processing Parameters	Corr	SCC	Flamm	Off-gas	Out-gas	OK to bake at 80°C ?	Thermal & Vacuum stable?	OK at 4°K?	Manufacturer	Remarks, Approval Reference
1.	Structure, Jiggle frame, Interface shoe, baffle	Aluminium SQUARE BAR	6082	To suit manuf	T6 BS L111 T6 Bar /BSL113 T6 Sheet / BS L114 T6 Tube / BSL 115 T6 Sheet	B	A	N/A	N/A	N/A	Y	Y	Y	ALCOA Extrusions	RAL DML list 1.01 composition Si 0.7-1.3, Fe 0.5, Cu 0.1, Mn 0.4-1, Mg 0.5-1.2, Cr 0.25, Ni 0.1, Zn 0.2, Ti 0.2
2.	Baffle	Aluminium Sheet, welded.	6082	N/A	T6	B	A	N/A	N/A	N/A	Y	Y	Y	N/A	NOT USED : Baffle now as per material ID 1
3.	Mirror	Aluminium, Bar	6061	To suit manuf	-T651	B	A	N/A	N/A	N/A	Y	Y	Y	British Al. Extrusions	Intermediate cycling per ATC Spec to provide stability. MSFC-HDBK-527F p88 ASTMB211 or ISO/UK equivalent
4.	Fasteners	stainless steel, austenitic	A2-70 to DIN 267	N/A	clean	A	A	A	N/A	N/A	Y	Y	Y	Reliance	Exact material within A2-70 per varies : will be AISI type 304, 305 or 321 MAPTIS code: (10351, 10334, 10098) CRES 304, 321)
5.	Locking inserts	stainless steel,	A2-70 to DIN 267	N/A	clean	A	A	A (GOX 500psi)	N/A	N/A	Y	Y	Y	Reliance (TBC)	Exact material within A2-70 per varies : will be AISI type 304, 305 or 321. MAPTIS code: (10351, 10334, 10098) CRES 304, 321)
6.	Flex pivots (TBC)	INCONEL	718	To suit manuf	TBD	A	A	A	N/A	N/A	Y	Y	Y	SPECIAL METALS CORP /	Inconel no longer baselined - see material 4, 28, 29 for replacement. MAPTIS 55750, 10406 REFERS

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														INCO ALLOYS INTL	
7.	Flex pivot sleeves	Aluminum plate, cold rolled. bar	6082	To suit manuf	T6 BS L111 T6 Bar /BSL113 T6 Sheet / BS L114 T6 Tube /BSL 115 T6 Sheet	B	A	N/A	U	N/A	Y	Y	Y	ALCOA or British Al. Extrusions	Baseline is Al 6082. As an option, may use matched grade material to flex pivots.
8.	Sensor targets	Soft iron	R Fe 120 TO DIN 17405	TBC	ANNEAL	?	?	?	?	?	Y	Y	Y	VACUUM SCHMEL ZE GmbH	USED ON ISOPHOT CHOPPER Corrosion protection GOLD PLATING,
9.	Sensor mount, motor housing	Glass fibre epoxy	G10/40	Sheet, 1/4" thick	Machined	N/A	N/A	A	A	A	Y	Y	Y	TUFNOL	MAPTIS 02776 TML 0.51, CVCM 0.015 Note: A cryogenic grade material consisting of 7628 fabric woven with continuous e-glass fiber in an amine-cure
10.	Potting compound / Adhesive	Stycast	2850FT	N/A	with Catalyst 11	N/A	N/A	A	A TML <0.5	A cvcm <0.02	Y	Y	TBC	Emerson & Cuming	Various grades in MAPTIS, MSFC-HDBK. Select correct one , EG 06451 NB - LIMITED LIFE MATERIAL
11.	Adhesive, cable run	Eccobond	285	N/A	with catalyst 11	N/A	N/A	A	A TML <0.3	A cvcm <0.03	Y	Y	TBC	Emerson & Cuming	MAPTIS 05475 NB - LIMITED LIFE MATERIAL

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12.	Motor screening	Mu-metal, sheet 0.125mm thick	N/A	N/A	N/A	A	A	N/A	N/A	N/A	TBC	Y	TBC	Goodfellow	Deleted from Baseline design - MAPTIS code 10118 MSFC-HDBK-527F p181 (spec AMS 7701) Corrosion rating 'B'
13.	Harness - wire core	Copper Alloy wire	ESA/SCC No.3901/013	21, 46	See spec	N/A	N/A	See spec			Y	Y	Y	TBD	Supply via RAL
14.	Harness - insulation	PTFE insulated wire	ESA/SCC No.3901/013	21, 46	See spec	N/A	N/A				Y	Y	Y	TBD	Supply via RAL
15.	Harness P-Clips	Brass	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	Y	Y	Y	TBD	TBC if required
16.	Solder	66 Tin Solder, 96 tin solder (eutectic)	ECSS-Q-70-08A	N/A	N/A	TBD	TBD	TBD	TBD	TBD	Y	Y	Y	TBD	ESA Space rated soldering certification available. Option will be RAL solder (RAL DML 7.03) Multicore Alloy SN63 TIN/LEAD 22 SWG
17.	Motor Core	NiFe Soft magnetics Laminated sheets	ULTRA PERM 250 or CryoPerm 10	Sheet	Annealed	A	U	N/A	N/A	TBD	Y	Y	Y	Zeiss	TBD by Zeiss/MPIA for PACS . MAPTIS 10118 refers to similar material
18.	Motor Winding	Aluminium, high purity	5N	TBD	TBD					TBD	Y	Y	Y	California Fine Wires	Zeiss, PACS approved
19.	Motor insulation	Varnish	TBD	N/A	TBD					TBD	Y	Y	Y	TBD	Zeiss, PACS approved

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20.	Motor winding frames	Vespel	SP-1	TBD	TBD	Y	Y	Y	Y	TBD	Y	Y	Y	DuPont	Weight loss <10e-10 gm/cm²/s in - vacuum <500°F
21.	Motor Permanent Magnet	NdFeB Permanent magnets	VACOD YM 344	10mm dia round	TBD	Y	Y	Y	Y	TBD	80°C MAX	Y	Y	VACUUM SCHMEL ZE GmbH	Non Vacodym grade being investigated (NdFeB grade N42)
22.	deleted	QMW Black	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not required in baseline design
23.	deleted	Anodize	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Alochrom added to DPL, deleted from DML
24.	Thermal end stops	Copper	OHFC	N/A	Sheet BS 2875 C 103	A	U	N/A	N/A	TBC	Y	Y	Y	TBC	TBC if required. MAPTIS 50836. RAL MATERIAL 2.06
25.	Surface plating	Copper flashing, Nickel Plate (TBD), Gold plate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Y	Y	Y	TBD	SEE DECLARED PROCESS LIST
26.	Motor Thermal shields	Copper	TBD	N/A	Electroformed	A	U	N/A	N/A	TBD	Y	Y	Y	Waveform Electro-forming	MAPTIS 10311.
27.	Magnetic Shielding (not baseline)	Niobium plate	TBD	N/A	plating	A	U	N/A	N/A	N/A	TBC	Y	Y	TBD	not baseline Potential use as superconducting magnetic shield, only if required by subsequent test . MAPTIS 50701 (wire)
28.	Flex Pivots TBC (baseline)	Martensitic Stainless Steel	AISI 420 & 429	To suit manufacture	TBC	B	U	A (GOX 750psi)	N/A	N/A	Y	Y	TBD	TBD	Included in Flex pivots (standard Lucas parts) - see Declared Component List. MAPTIS code 30136 (CRES 420)

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29.	Flex Pivots TBC (alternate)	Beryllium Copper	Uns 17200	Vari us bar, sheet	Induction brazed, heat treated 600°F	A	U	N/A	N/A	N/A	Y	Y	Y	C-FLEX	Not baseline, but under investigation for Flex Pivots. MAPTIS 10271
30.	Plating, misc	Gold	TBD	N/a	SEE DPL	A	A	N/A	N/A	N/A	Y	Y	Y	TBD	MAPTIS 10328. SEE DPL FOR PLATING SPEC