



CARLO GAVAZZI SPACE SpA

HERSCHEL DPU_s/ICU

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REGISTRAZIONE DELLE MODIFICHE / *CHANGE RECORD*

EDIZIONE <i>ISSUE</i>	DATA <i>DATE</i>	AUTORIZZAZIONE <i>CHANGE AUTHORITY</i>	OGGETTO DELLA MODIFICA E SEZIONI AFFETTE <i>REASON FOR CHANGE AND AFFECTED SECTIONS</i>
DRAFT			



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1. SCOPE

The scope of this document is to define all mechanical parts to be used in the SPIRE DPU Unit for HERSCHEL DPUs/ICU Program.

This document is based on the SPIRE DPU Unit architecture defined for the Critical Design Review.


2. APPLICABLE & REFERENCE DOCUMENTS

2.1 APPLICABLE DOCUMENTS

AD	DOC. N.	ISSUE	TITLE
1	HERS-GEN-PL-CGS-002	DRAFT	HERSCHEL DPUs/ICU Product Assurance Plan

2.2 REFERENCE DOCUMENTS

RD	DOC. N.	ISSUE	TITLE
1	ESA PSS-01-700	2	The technical reporting and approval procedure for materials, mechanical parts and processes

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3. RESPONSIBILITY

CGS shall be responsible where applicable for the selection, procurement and acceptance of mechanical parts which are in accordance with contractual specification.

4. METHODOLOGY FOR THE COMPILATION OF THE DMPL

The mechanical parts list consist of 11 columns which shall be completed as indicated below. Furthermore, mechanical shall be classified as specified in table:

GROUP	MECHANICAL PARTS
51	Spacing parts (washers, spacers, etc.)
52	Connecting parts (bolts, nuts, rivets, inserts, clips, etc.)
53	Bearing parts (ball-bearings, needle bearings, etc.)
54	Separating parts (pyrotechnics, springs, cutters, etc.)
55	Control parts (gears, etc.)
56	Fluid handling parts (diffusers, etc.)
57	Heating parts
58	Measuring instruments (gauges, Thermocouples, etc.)
59	Optical passive equipment
60	Magnetic parts
61	Other parts

Column 1:Group number/Item number

Identified number relevant to each group and sequential item number in each group of the list (one only per mechanical part type).

Column 2:Commercial identification

As follow:

- type and number.
- specification number.
- material.

Column 3:Type of part

Indicate a standard nomenclature.

Column 4:Procurement information

Manufacturer/supplier:this identifies the abbreviated name of the manufacturer and name of the supplier if different.

Proc. Spec.:reference of the procurement specification with issue and revision.

Column 5:Elementary function/Main characteristics

Function to be ensured by the mechanical part and relevant main characteristics.

Column 6:Use/location

Indicate in which subsystems, equipment or box the mechanical part is used.

Column 7:Environmental code

Radiation/UV/ATOX(1)		Ambiance	Temperature
G=Geostationary	S=Outside shadow	V=Vacuum	1=0 to 100 K
L=Low orbit	L=Outside light	H=Hermetic	2=101 to 200 K
B=Radiation belts		M=Manned	3=201 to 300 K
I=Interplanetary		E=Elevated pressure	etc.



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(1) For parts inside the spacecraft, choose a letter from the left-hand column.
For parts on the surface of the spacecraft, combine this letter with “L” or “S”.

Column 8:Criticality and hazards

Indicate all parts participating in a safety-critical and/or reliability-critical function.

Column 9:Justification for approval and Prime comments

The purpose of this column is to enter any additional information that may be necessary in order to achieve customer’s approval. This information is reference and issue of the Requests For Approval, reference of justificatory file for parts approved for other space or aeronautical programmes meeting the specific needs of the programme and waivers, reference NASA/MSFC MAPTIS databases codes, etc..

Column 10:Contractor’s approval (Prime App.)

A=Approved. All mechanical parts classified A may be used without restriction.

W=Approved with a waiver. The use of such mechanical parts shall be reduced to a minimum. These mechanical parts do not meet the requirements but are used for functional reasons. The waiver number shall be entered in column 9.

P=Pending a decision. Mechanical parts for which an evaluation report or a waiver is awaiting the Contractor’s provisional or definitive approval.

O=Open. New mechanical parts or mechanical parts for which investigations and qualification are in progress.

D=Deleted. This classification is used for a mechanical part which is no longer used in the spacecraft.

Column 11:Customer approval and comments (Customer App)

This column will be completed by Customer in accordance with the standard comments listed in [RD 1] annex F.

5. DECLARED MECHANICAL PARTS LIST

In the following pages (ANNEX A) are listed the mechanical parts envisaged during the manufacturing phase.

Declared Mechanical Parts List

1	2	3	4	5	6	7	8	9	10	11
Group No / Item No:	Commercial identification	Type of part	Procurement Info: 1) Manufacturer 2) Supplier 3) Proc. Spec. Issue/Rev	1) Elementary function 2) Main characteristics	1) Use 2) Location	Environment. Code 1) Radiation 2) Ambiance 3) Temp.	Criticality and hazards	Justification for approval and Prime comments	Prime App.	Customer App.
Group 51: SPACING PARTS										
51/01	Washer DIN 125A 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN125A	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
51/02	Washer DIN 433 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN433	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
51/03	Spring Washer DIN 127B 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN127B	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
Group 52: CONNECTING PARTS										
52/01	Hex nut DIN 439B 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN439B	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
52/02	Screw DIN 912 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN912 - ISO 4762	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		

Declared Mechanical Parts List

1	2	3	4	5	6	7	8	9	10	11
Group No / Item No:	Commercial identification	Type of part	Procurement Info: 1) Manufacturer 2) Supplier 3) Proc. Spec. Issue/Rev	1) Elementary function 2) Main characteristics	1) Use 2) Location	Environment. Code 1) Radiation 2) Ambiance 3) Temp.	Criticality and hazards	Justification for approval and Prime comments	Prime App.	Customer App.
52/03	Screw DIN 965A 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN965A	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
52/04	Screw DIN 85A 1.4401	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN85A - ISO 1580	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10370		
52/05	Card-lok retainer MHA260-4.80 ETM2L rev.:N/C	See column 2	CALMARK CORP. CA- USA / ASTM-B221	Blocking of PCBs in the box	Mechanical assembly of PCBs in the box	I V 3, 4		NASA/MSFC MAPTIS: 50643		
52/06	Elastic Pin DIN 1481 1.4301	See column 2	CNR-IFSI, CGS / Bossard Switzerland / DIN1481 (Passivation treatment as per QQ-P-35)	Blocking of Bonding Stud	Assembly of Bonding Stud	I V 3, 4		NASA/MSFC MAPTIS: 10351		
52/07	Heli-Coil self locking LN 9499 1,4301	See column 2	CNR-IFSI, CGS / Bolhoff Germany / LN9499 DIN29782	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10351		
52/08	Heli-Coil LN 9039 1,4301	See column 2	CNR-IFSI, CGS / Bolhoff Germany / LN9039	Assembly of mechanical parts	Assembly of mechanical parts	I V 3, 4		NASA/MSFC MAPTIS: 10351		

