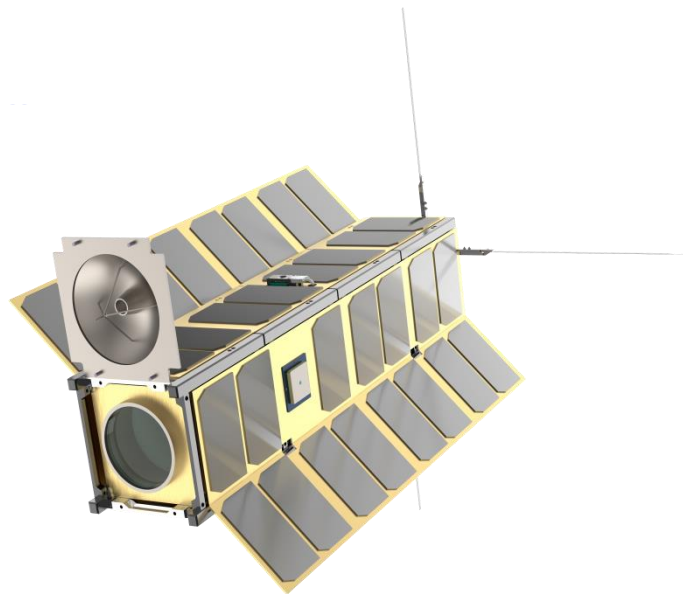




Products Manual

CubeSat Structures



COSATS Co., Ltd.

COSTR CubeSat Structure



Fig. 1 12U Structure

1. Brief introduction

COSTR is a kind of standard CubeSat structure based on modular concept design. COSTR uses the standard U (the envelope of 1U is $10\text{cm} \times 10\text{cm} \times 10\text{cm}$) as the unit and can provide 1U~16U structure at present. COSTR is compatible with “CubeSat Design Specification” published by Cal Poly SLO. It could install various types of CubeSat subsystems and has strong adaptability to the platform.

COSTR provides several built-in separation switches to ensure that the CubeSat is powered off before launch, as well as the ability to configure side panels according to the customer requirements. COSTR is shown in Fig. 1.



Fig. 2 COSTR CubeSat Structures series

2. Specifications

COSTR is made of 7075-T651 high strength aluminum alloy/high strength magnesium-lithium alloy (MA21), and the surface treatment process is hard anodizing.

The detailed specifications are shown in Tab. 1:

Tab. 1 Specifications of COSTR

	Envelope/mm ³	Mass/kg	Side panels
1U	100.0 × 100.0 × 113.5	0.15	○
1.5U	100.0 × 100.0 × 170.3	0.17	○
2U	100.0 × 100.0 × 227.0	0.28	○
3U	100.0 × 100.0 × 340.5	0.43/0.30 ¹	○
6U	100.0 × 226.3 × 340.5	0.87/0.61 ¹	○
8U	226.3 × 226.3 × 227.0	1.21/0.85 ¹	○
12U	226.3 × 226.3 × 340.5	1.78/1.25 ¹	○
16U	226.3 × 226.3 × 454.0	2.41/1.69 ¹	○

1. High strength magnesium-lithium alloy (MA21) is used.

○ Optional configuration: the side panel could use different thickness according to the requirement of the customer.

3. Features

- The design of COSTR is based on the international standard of CubeSat
- The structure uses high-performance aluminum alloy 7075-T6/ high strength and lightweight magnesium-lithium alloy MA21
- All screws are non-magnetic, high strength, corrosion-resistant TC4 titanium alloy screws
- Hard anodizing is used in the surface treatment
- Operation temperature: -40°C ~ + 80°C
- The subsystems that meet the standard of CubeSat could be directly mounted on the COSTR
- The internal space can be flexibly adjusted to adapt to the installation of the subsystem
- Support subsystem and payload in horizontal/ vertical installation configuration

4. Customized options

- The acceptance test can be carried out according to the needs of customers, and the test report would be issued by an authoritative third-party organization
- According to the needs of customers, we can carry out payload adaptability design and scheme design
- The components can be screened according to the needs of customers

5. Electrical interface

The microswitches are installed at the bottom of the frame. When the CubeSat is deployed in orbit, the microswitch is triggered, and the CubeSat can be powered on. As shown in Fig. 3, a microswitch is installed at the end of the side frame. when the CubeSat is put into the CubeSat deployer, the microswitch will be pressed. After the CubeSat is ejected from the POD, the microswitch are released, then the satellite can be powered on.

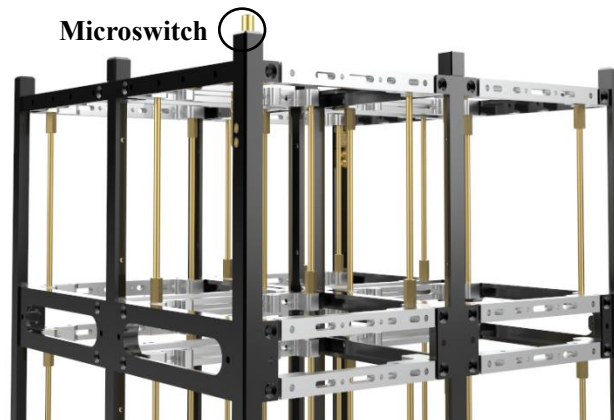


Fig. 3 Microswitch of COSTR

6. Flight heritage

The engineering team of COSATS is experienced. COSTR has flight heritage since 2016. Now, several CubeSat missions have used COSTR structures.

7. Lead time

- 8~10 weeks

Annex: COSTR CubeSat structure family

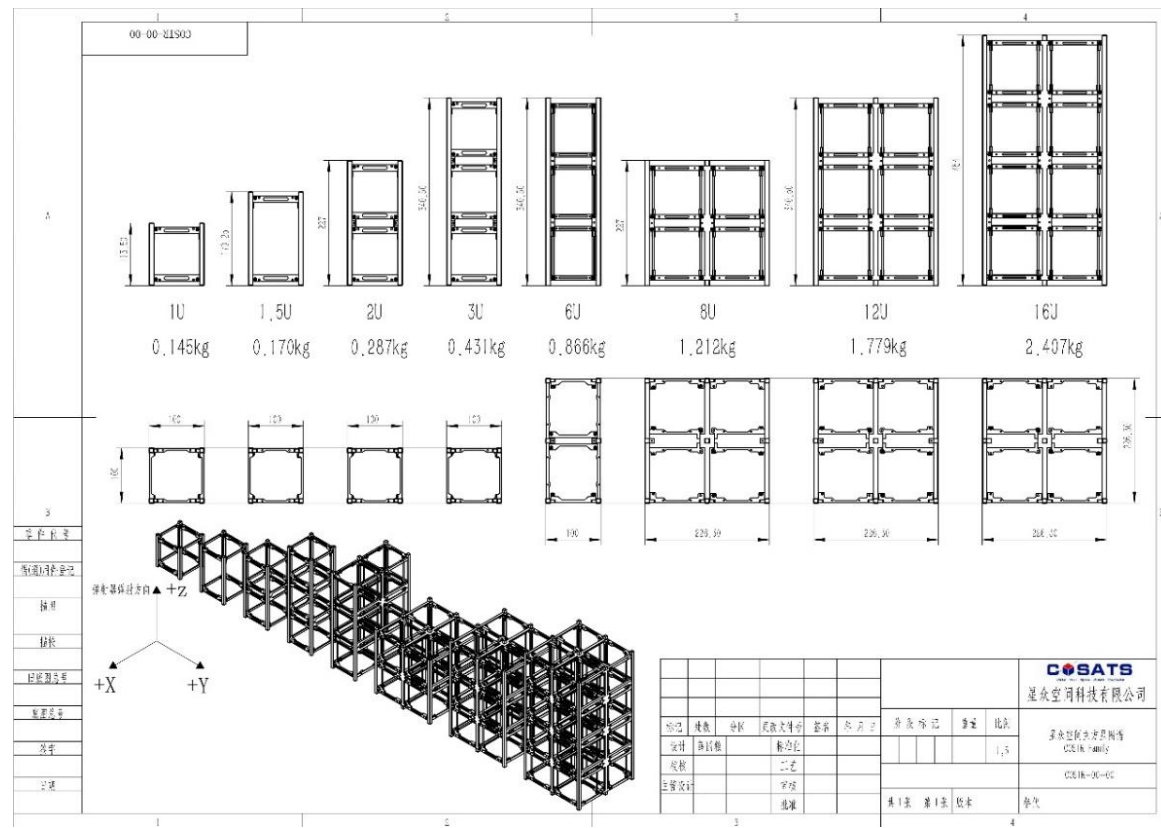


Fig. 4 COSTR Structures family