

Тема занятия: «Сварочные процессы в аэрокосмических исследованиях»

Цель занятия: выучить новый лексический материал по теме «Сварочные процессы в аэрокосмических исследованиях»; совершенствовать навыки чтения и перевода текста профессионального направления; систематизировать знания, ответив на контрольные вопросы по теме занятия.

Уважаемые студенты! Ознакомьтесь с материалами практического занятия на тему «Сварочные процессы в аэрокосмических исследованиях». Конспект занятия выполняйте **в рабочей тетради письменно, обязательно указывая дату занятия, тему занятия, номер упражнения.** Ответы предоставить преподавателю на проверку **до 30. 03. 2023 г.** в электронном виде (**фотоотчёт**) на e-mail mikagol2605@mail.ru. Телефон преподавателя для консультации и возникающих вопросов: 072-14-15-816.

С уважением, Голодюк Марина Викторовна.

- 1. Выпишите в словарь и выучите новую лексику.**
- 2. Прочитайте и устно переведите текст «Space-Age Welding: The Past, Present and Future of Aerospace Join Processes».**
- 3. Выполните письменно упражнение к тексту (запишите, верны или не верны утверждения).**

Space-Age Welding:

The Past, Present and Future of Aerospace Join Processes

Vocabulary :

depressurized compartment – отсек под давлением

spaceship – космический корабль

semiautomatic unit – полуавтоматический агрегат

alloy – сплав

solidification – затвердевание

test chamber – тестовая камера

vehicle – аппарат

outer space – космическое пространство, открытый космос

On Oct. 16, 1969, astronauts performed the world's first welding and cutting experiment in a **depressurized compartment**. In flight aboard the Soyuz 6 **spaceship**, they tested three welding processes with a **semiautomatic** Vulkan **unit**: consumable electrode arc in vacuum, low-pressure plasma, and electron beam welding. They studied how to weld aluminum and titanium **alloys** and stainless steel. They verified the possibility of thermal-cutting these materials and investigated the behavior of molten metal and features of its **solidification**. This experiment convinced experts that they could use automatic welding to produce permanent, tight joints in space. They expanded this work with a series of investigations conducted under short-time microgravity conditions in flying laboratories and space simulation **test chambers**. In 1973 NASA experts conducted a flight experiment with electron beam cutting, brazing, and welding in the Skylab orbital station.

Space welding technologies have advanced since then. In-space repair and construction of space facilities and their equipment and instrumentation were defined in the 1980s. Another major area identified was producing advanced materials in space with new or improved properties using different heat sources.

Over the years scientists and specialists had to address construction of various experimental space **vehicles**, namely, orbital and interplanetary stations, radio telescopes, antennas, reflecting shields, and helium power generation systems - in **outer space**.

In addition to the original problems of assembly and erection in outer space, as well as their view of how long these vehicles would be used and increases in the vehicles' weight and dimensions, specialists focused more attention on preventive maintenance and repairs.

Запишите, верны или не верны следующие утверждения.

True or false?

1. The world's first welding and cutting experiment was carried out in the outer space.

2. Thermal-cutting of aluminum, titanium alloys and stainless steel is impossible in space.
3. Only automatic welding is of importance for aerospace.
4. Space welding is used for maintenance and repair purposes.
5. In 1973 NASA experts conducted a flight experiment with electron beam cutting, brazing, and welding in the Skylab orbital station.