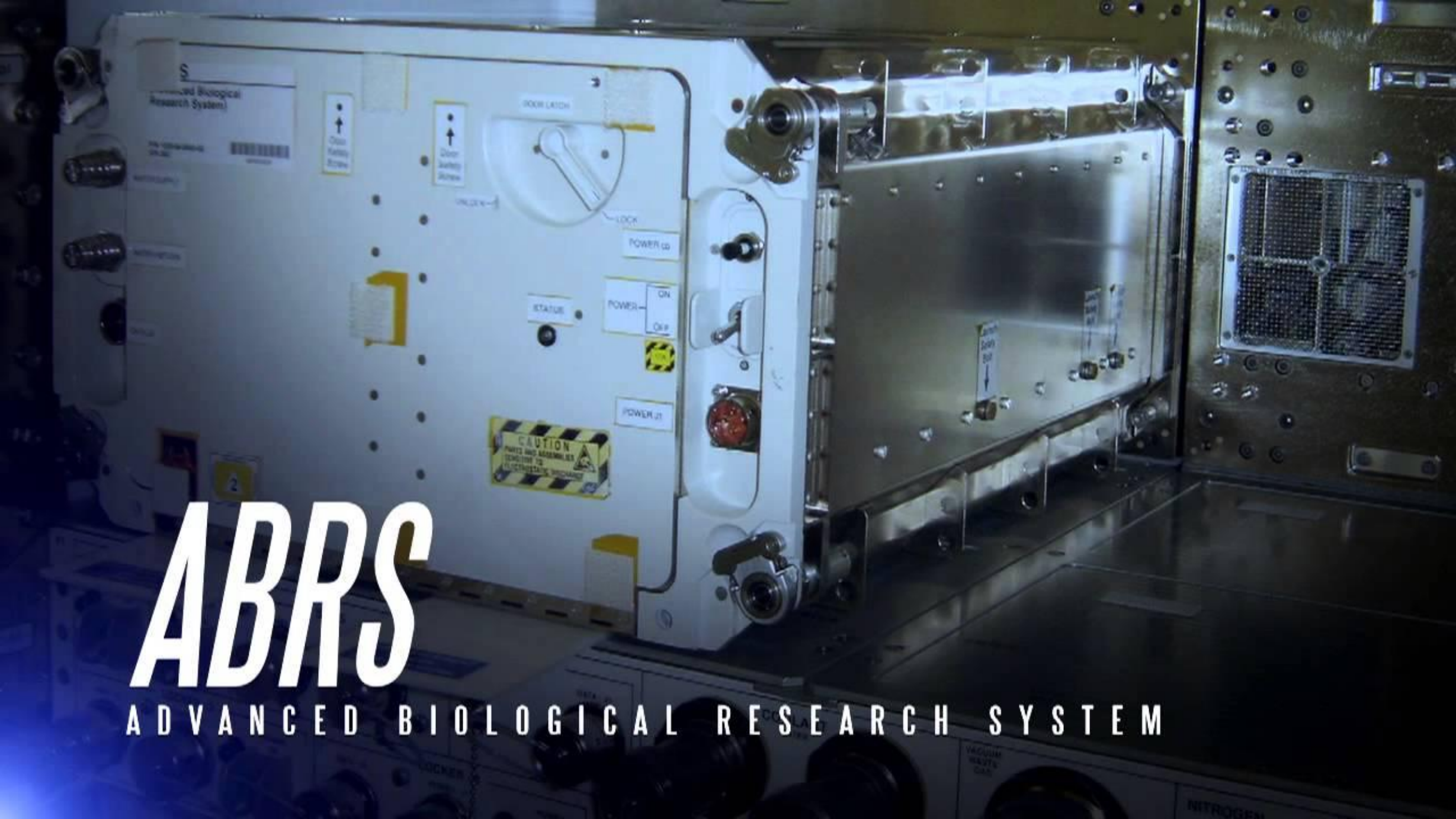
ABRS
ADVANCED BIOLOGICAL RESEARCH SYSTEM

1
00:00:04,950 --> 00:00:01,990
the most common rack design used on

2
00:00:07,829 --> 00:00:04,960
board the iss is a multi-purpose payload

3
00:00:09,990 --> 00:00:07,839
rack called express which stands for

4
00:00:12,629 --> 00:00:10,000
expedite the processing of experiments

5
00:00:14,549 --> 00:00:12,639
to space station

6
00:00:16,150 --> 00:00:14,559
there are eight modular express racks

7
00:00:18,230 --> 00:00:16,160
spread throughout the station's three

8
00:00:20,710 --> 00:00:18,240
laboratories

9
00:00:23,750 --> 00:00:20,720
each rack provides important resources

10
00:00:25,910 --> 00:00:23,760
such as power cooling water and data

11
00:00:28,550 --> 00:00:25,920
connections to support up to 10

12
00:00:30,550 --> 00:00:28,560
individual experiments

13
00:00:33,110 --> 00:00:30,560

the versatility of the express racks

14
00:00:35,670 --> 00:00:33,120
makes them ideal for conducting physical

15
00:00:38,069 --> 00:00:35,680
chemical and biological experiments in

16
00:00:41,670 --> 00:00:38,079
microgravity

17
00:00:43,510 --> 00:00:41,680
the binary colloidal alloy test or bcat

18
00:00:47,510 --> 00:00:43,520
researches how liquids and gases

19
00:00:49,670 --> 00:00:47,520
separate or alternately come together

20
00:00:51,830 --> 00:00:49,680
astronauts also study the patterns that

21
00:00:53,910 --> 00:00:51,840
emerge when solids are suspended in

22
00:00:55,670 --> 00:00:53,920
liquids

23
00:00:57,990 --> 00:00:55,680
what scientists learn from bcat

24
00:01:00,549 --> 00:00:58,000
observations may be used to create

25
00:01:03,270 --> 00:01:00,559
better stabilizers that extend the shelf

26
00:01:05,509 --> 00:01:03,280
life of food products and medicines here

27
00:01:07,990 --> 00:01:05,519
on earth

28
00:01:10,149 --> 00:01:08,000
biological science is also researched in

29
00:01:12,630 --> 00:01:10,159
the express racks

30
00:01:14,710 --> 00:01:12,640
the advanced biological research system

31
00:01:16,630 --> 00:01:14,720
has two growth chambers

32
00:01:18,630 --> 00:01:16,640
each with independent controls for

33
00:01:20,630 --> 00:01:18,640
temperature light and atmospheric

34
00:01:22,469 --> 00:01:20,640
conditions

35
00:01:25,670 --> 00:01:22,479
the chambers are used to grow various

36
00:01:28,070 --> 00:01:25,680
organisms like plants small insects and

37
00:01:30,149 --> 00:01:28,080
microorganisms

38
00:01:33,749 --> 00:01:30,159

the commercial generic bioprocessing

39
00:01:36,149 --> 00:01:33,759
apparatus or cgba enables automated

40
00:01:39,270 --> 00:01:36,159
processing for the microscopic study of

41
00:01:41,190 --> 00:01:39,280
protein crystal growth bacteria and cell

42
00:01:44,630 --> 00:01:41,200
cultures

43
00:01:47,429 --> 00:01:44,640
the cgba also houses insect habitats and

44
00:01:49,429 --> 00:01:47,439
plant development modules

45
00:01:51,749 --> 00:01:49,439
these two examples of biological

46
00:01:53,749 --> 00:01:51,759
research systems will help scientists

47
00:01:56,389 --> 00:01:53,759
gain a better understanding of how