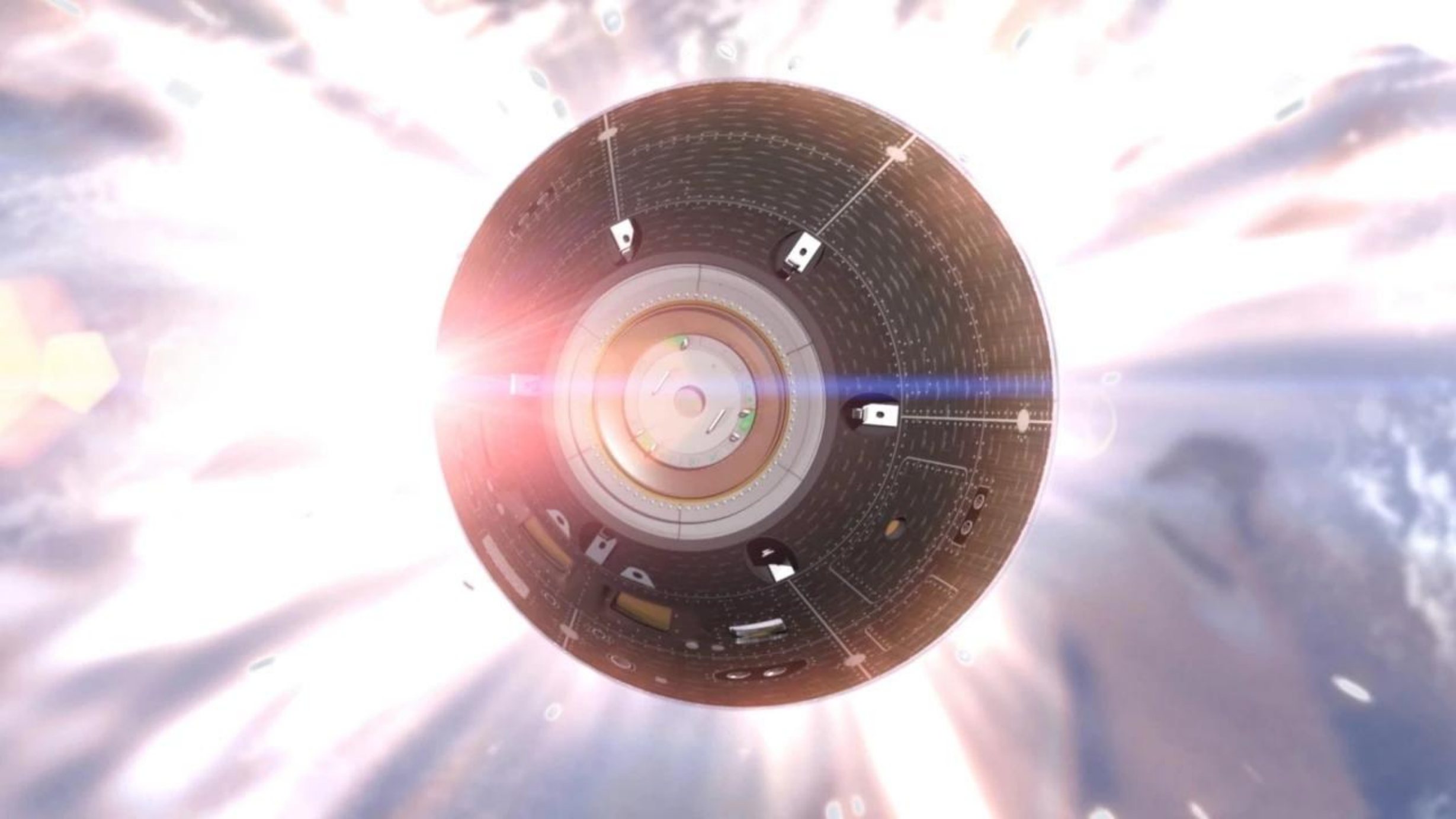

1
00:00:01,267 --> 00:00:03,102
>> Hi, my name is Molly White

2
00:00:03,102 --> 00:00:05,771
and I'm a heat shield
engineer for Orion.

3
00:00:05,771 --> 00:00:08,374
The Orion spacecraft is
designed to go further

4
00:00:08,374 --> 00:00:12,411
than humans ever have before,
and the further out you go,

5
00:00:12,411 --> 00:00:14,180
the faster you come back,

6
00:00:14,180 --> 00:00:16,482
and the faster you come
back, the hotter you get.

7
00:00:16,482 --> 00:00:19,351
So Orion needs a really,
really good heat shield

8
00:00:19,351 --> 00:00:21,754
to protect its crew
from that really,

9
00:00:21,754 --> 00:00:24,890
really hot air that's going to
be around it when it comes back.

10
00:00:24,890 --> 00:00:26,559
Why Orion needs a heat shield.

11
00:00:26,559 --> 00:00:29,195
If we think about friction

12
00:00:29,195 --> 00:00:31,464
and I'm moving my
hands past each other.

13
00:00:31,464 --> 00:00:33,432
just moving them pretty slowly,

14
00:00:33,432 --> 00:00:36,135
I can still feel heat
build up between my hands.

15
00:00:36,135 --> 00:00:37,436
It gets hotter.

16
00:00:37,436 --> 00:00:39,672
Well, if we think about
Orion, which is going 25

17
00:00:39,672 --> 00:00:43,576
to 30 times the speed of sound,
it has that same friction

18
00:00:43,576 --> 00:00:46,545
with the air, only it's going
way faster than my hands can.

19
00:00:46,545 --> 00:00:49,415
So there's a lot of heat
that is around Orion

20
00:00:49,415 --> 00:00:51,283
that it needs to
be protected from.

21
00:00:51,283 --> 00:00:54,720
The heat shield for Orion,
it's 16.5 feet in diameter.

22

00:00:54,720 --> 00:00:56,122
It's the largest,

23
00:00:56,122 --> 00:00:57,723
most innovative heat
shield of its kind.

24
00:00:57,723 --> 00:01:00,659
The heat shield weighs
about 1,000 pounds.

25
00:01:00,659 --> 00:01:03,395
The total vehicle mass
is about 20,000 pounds,

26
00:01:03,395 --> 00:01:06,232
so it's about 1/20th
the weight of Orion just

27
00:01:06,232 --> 00:01:07,733
for the heat shield itself.

28
00:01:07,733 --> 00:01:09,835
So Orion, for its
first flight test,

29
00:01:09,835 --> 00:01:14,240
will see surface temperatures at
around 4,000 degrees Fahrenheit.

30
00:01:14,240 --> 00:01:16,509
So we developed new
materials for Orion

31
00:01:16,509 --> 00:01:18,310
that can withstand those
higher temperatures.

32
00:01:18,310 --> 00:01:20,579
The material for Orion is

actually designed to withstand

33
00:01:20,579 --> 00:01:23,349
up to 6,000 degrees Fahrenheit.

34
00:01:23,349 --> 00:01:24,683
My favorite part of working

35
00:01:24,683 --> 00:01:27,820
on Orion is just the
fantastic group of really,

36
00:01:27,820 --> 00:01:30,256
really smart people that I
get to work with every day.

37
00:01:30,256 --> 00:01:32,591
They're excited and
passionate as I am

38
00:01:32,591 --> 00:01:36,328
about taking humans further
than we ever have before,

39
00:01:36,328 --> 00:01:38,330
bringing back all the
technology in everything

40
00:01:38,330 --> 00:01:39,765
that we've developed
out there back here

41
00:01:39,765 --> 00:01:41,233
to Earth just to
improve our lives.

42
00:01:41,233 --> 00:01:43,202
And that's the thing
that I get most excited