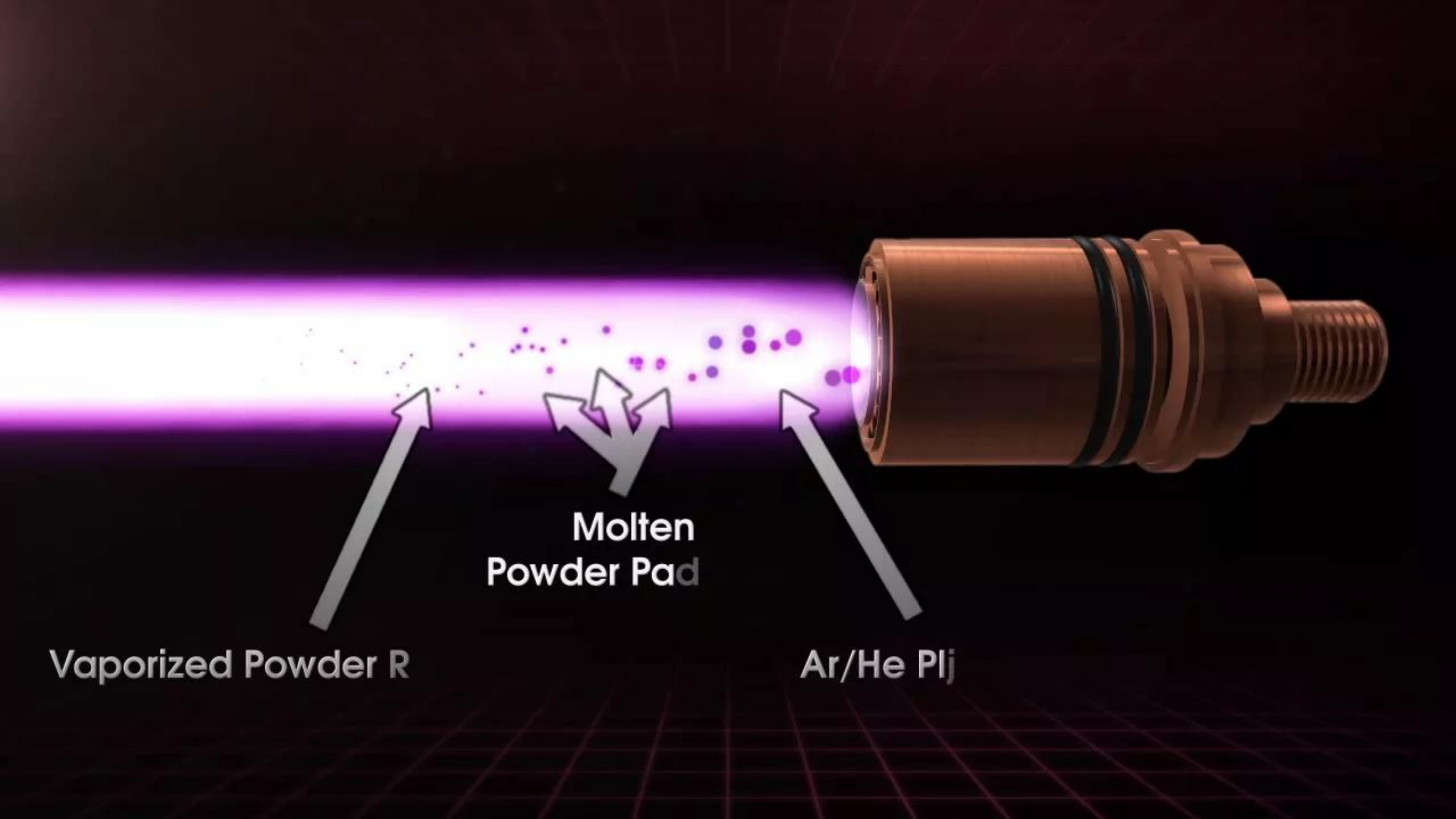
Molten
Powder Pad
Vaporized Powder R
Ar/He Plj

1
00:00:06,530 --> 00:00:02,960
the plasma spray chamber is about five

2
00:00:08,629 --> 00:00:06,540
feet in diameter and 15 feet long inside

3
00:00:11,540 --> 00:00:08,639
a plasma torch is mounted with a sample

4
00:00:13,339 --> 00:00:11,550
on the opposite side the plasma torch

5
00:00:16,070 --> 00:00:13,349
consists of a water-cooled anode and

6
00:00:18,470 --> 00:00:16,080
cathode an inert mixture of argon and

7
00:00:20,390 --> 00:00:18,480
helium gases flow around the cathode and

8
00:00:23,150 --> 00:00:20,400
through the anode with a high amperage

9
00:00:24,950 --> 00:00:23,160
electric arc formed between them this

10
00:00:26,509 --> 00:00:24,960
arc excites the gas to generate a

11
00:00:29,359 --> 00:00:26,519
thermal plasma reaching temperatures

12
00:00:32,150 --> 00:00:29,369
over 10,000 degrees Kelvin and creating

13
00:00:34,010 --> 00:00:32,160

a plasma plume over six feet long the

14
00:00:36,380 --> 00:00:34,020
plasma vaporizes coating material

15
00:00:38,750 --> 00:00:36,390
instantly and propels it at velocities

16
00:00:40,790 --> 00:00:38,760
as high as Mach two coatings are

17
00:00:42,260 --> 00:00:40,800
deposited as thin dense layers force