Is fusion occurring in core?

Yes, No

Gravity crushes core smaller. Outer layers expand. Can fusion occur?

Yes, in H-burning shell & He core. No

He-burning star stage

red giant stage

main sequence

Gravity crushes core smaller. Outer layers expand. Can fusion occur?

Yes, in shell. H fusion adds He to core. No
He-burning star stage

Is He core degenerate?

- Yes
- No

He fusion begins rapidly throughout core: He flash.
He fusion begins in core slowly.

He fusion: 3 He make 1 C. Core expands, expanding H-burning shell. Shell fusion slows.

He-burning star.

Can fusion occur?

- Only in H-burning shell.
- Yes, in He core and H-burning shell.
double shell-burning red giant stage

Gravity crushes C core and He-burning shell smaller. Outer layers expand. Can fusion occur?

Yes: in H-burning shell and in He-burning shell beneath.

Only in H-burning shell.

H-burning shell adds He to He-burning shell. He-burning shell adds C to core.

Gravity crushes core and 2 shells smaller. Outer layers expand. Dust created. Can fusion occur?

No, core shrinks so much that shells and outer layers are blown away.

Yes, in 2 shells.

White dwarf inside planetary nebula.