CLAIMS:

1. An assembly for use in a gas turbine engine, the assembly comprising:

an inner diameter (ID) shroud having a plurality of ID slots;

an outer diameter (OD) shroud having a plurality of OD slots and positioned radially outward from the ID shroud; and

a first stator airfoil extending from the ID shroud to the OD shroud, wherein the first stator airfoil is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a first end of the first stator airfoil has one of a raised tab and an indented notch.

2. The assembly of claim 1, wherein the first end has both the raised tab and the indented notch.

3. The assembly of claim 1, and further comprising:

a second stator airfoil extending from the ID shroud to the OD shroud, wherein the second stator airfoil is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a second end of the second stator airfoil has one of a raised tab and an indented notch.

4. The assembly of claim 3, wherein the first end is a first radially outer edge of the first stator airfoil, wherein the second end is a second radially outer edge of the second airfoil, and wherein the first radially outer edge has a first profile different than a second profile of the second radially outer edge.

5. The assembly of claim 3, wherein the first end and the second end both have the raised tab and the indented notch.

6. The assembly of claim 3, wherein the first end has the raised tab and the second end has the indented notch.

7. The assembly of claim 3, and further comprising:

a third stator airfoil extending from the ID shroud to the OD shroud, wherein the third stator airfoil is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a third end of the third stator airfoil has a substantially straight free portion positioned radially outward of the OD slot.

8. The assembly of claim 1, wherein the first stator airfoil is connected to the ID shroud via a first potting material and to the OD shroud via a second potting material.

9. The assembly of claim 8, wherein the first and second potting materials hold the first stator airfoil to be spaced from and avoid contact with the ID shroud and the OD shroud.

10. A stator airfoil comprising:

a leading edge;

a trailing edge opposite the leading edge;

an inner edge; and

an outer edge opposite the inner edge, wherein an airfoil axis is defined as extending from the inner edge toward the outer edge substantially along a middle of the stator airfoil between the leading edge and the trialing edge, wherein the outer edge comprises:

a shoulder; and

a free portion extending outward from the shoulder, wherein the free portion comprises:

a reference surface; and

at least one of a raised tab extending outward of the reference surface and an indented notch indented inward of the reference surface.

11. The stator airfoil of claim 10, wherein the free portion comprises both the raised tab and the indented notch.

12. The stator airfoil of claim 11, wherein the leading edge is nearer the raised tab than the indented notch.

13. The stator airfoil of claim 11, wherein the leading edge is nearer the indented notch than the raised tab.

14. The stator airfoil of claim 11, wherein the indented notch is outward of the shoulder, wherein the reference surface is outward of the indented notch, and wherein the raised tab is outward of the reference surface.

15. The stator airfoil of claim 10, wherein the shoulder is an upstream shoulder nearest the leading edge, and further comprising:

a downstream shoulder nearest the trailing edge, wherein the free portion is defined between upstream shoulder and the downstream shoulder.

16. A method of assembly a stator assembly, the method comprising:

positioning an inner diameter (ID) shroud having first and second ID slots radially inward of an outer diameter (OD) shroud having first and second OD slots;

inserting a first stator airfoil through the first ID slot and the first OD slot, wherein the first stator airfoil has a first end edge with a first airfoil edge profile;

inserting a second stator airfoil through the second ID slot and the second OD slot, wherein the second stator airfoil has a second end edge with a second airfoil edge profile different from the first airfoil edge profile;

abutting the first end edge against a first airfoil locator; and

abutting the second end edge against a second airfoil locator.

17. The method of claim 16, and further comprising:

applying liquid potting material to each of the first and second ID slots and the first and second OD slots; and

solidifying the liquid potting material so as to hold the first and second stator airfoils in the first and second ID slots and the first and second OD slots.

18. The method of claim 16, wherein the first and second airfoil locators are connected to a base of an assembly fixture.

19. The method of claim 16, wherein the first airfoil locator has a first locator shape, wherein the second airfoil locator has a second locator shape that is different than the first locator shape.

20. The method of claim 16, wherein the first stator airfoil is inserted through the first ID slot before being inserted through the first OD slot, wherein the second stator airfoil is inserted through the second ID slot before being inserted through the second OD slot, and wherein the first and second end edges are radially outer edges of the first and second stator airfoils, respectively.

CLAIMS

1. An assembly for use in a gas turbine engine, the assembly comprising:

an inner diameter (ID) shroud having a plurality of ID slots;

an outer diameter (OD) shroud having a plurality of OD slots and positioned radially outward from the ID shroud; and

a first stator airfoil extending from the ID shroud to the OD shroud, wherein the first stator airfoil has a leading edge and a trailing edge and is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a first radially outer end of the first stator airfoil includes:

a shoulder; and

a free portion extending outward from the shoulder and having a leading end and a trailing end, wherein the free portion comprises:

a reference surface; and

at least one of:

a raised tab extending outward of the reference surface having a leading tab surface facing the leading end and a trailing tab surface facing the trailing end between the leading end and the trailing end of the free portion; and

an indented notch indented inward of the reference surface having a leading notch surface facing the trailing end and a trailing notch surface

facing the leading end between the leading end and the trailing end of the free portion.

2. The assembly of claim **1**, wherein the first radially outer end has both the raised tab and the indented notch.

3. The assembly of claim **1**, and further comprising:

a second stator airfoil extending from the ID shroud to the OD shroud, wherein the second stator airfoil is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a second radially outer end of the second stator airfoil has one of a raised tab and an indented notch.

4. The assembly of claim **3**, wherein the first radially outer end is a first radially outer edge of the first stator airfoil, wherein the second radially outer end is a second radially outer edge of the second airfoil, and wherein the first radially outer edge has a first profile different than a second profile of the second radially outer edge.

5. The assembly of claim **3**, wherein the first radially outer end and the second radially outer end both have the raised tab and the indented notch.

6. The assembly of claim **3**, wherein the first radially outer end has the raised tab and the second radially outer end has the indented notch.

7. The assembly of claim **3**, and further comprising:

a third stator airfoil extending from the ID shroud to the OD shroud, wherein the third stator airfoil is positioned at least partially in one of the ID slots and is positioned at least partially in one of the OD slots, and wherein a third end of the third stator airfoil has a substantially straight free portion positioned radially outward of the OD slot.

8. The assembly of claim **1**, wherein the first stator airfoil is connected to the ID shroud via a first potting material and to the OD shroud via a second potting material.

9. The assembly of claim **8**, wherein the first and second potting materials hold the first stator airfoil to be spaced from and avoid contact with the ID shroud and the OD shroud.

10. A stator airfoil comprising:

a leading edge;

a trailing edge opposite the leading edge;

a radially inner edge; and

a radially outer edge opposite the radially inner edge, wherein an airfoil axis is defined as extending from the radially inner edge toward the radially outer edge substantially along a middle of the stator airfoil between the leading edge and the trialing edge, wherein the radially outer edge comprises:

a shoulder; and

a free portion extending outward from the shoulder and having a leading end and a trailing end, wherein the free portion comprises:

a reference surface; and

at least one of:

a raised tab extending outward of the reference surface having a leading tab surface facing the leading end and a trailing edge tab surface facing the trailing end between the leading end and the trailing end of the free portion; and

an indented notch indented inward of the reference surface having a leading notch surface facing the trailing end and a trailing notch surface facing the leading end between the leading end and the trailing end of the free portion.

11. The stator airfoil of claim **10**, wherein the free portion on the radially outer edge comprises both the raised tab and the indented notch.

12. The stator airfoil of claim **11**, wherein the leading edge is nearer the raised tab than the indented notch.

13. The stator airfoil of claim **11**, wherein the leading edge is nearer the indented notch than the raised tab.

14. The stator airfoil of claim **11**, wherein the indented notch is outward of the shoulder, wherein the reference surface is outward of the indented notch, and wherein the raised tab is outward of the reference surface.

15. The stator airfoil of claim **10**, wherein the shoulder is an upstream shoulder nearest the leading edge, and further comprising:

a downstream shoulder nearest the trailing edge, wherein the free portion is defined between upstream shoulder and the downstream shoulder.

16. A method of assembling a stator assembly, the method comprising:

positioning an inner diameter (ID) shroud having first and second ID slots radially inward of an outer diameter (OD) shroud having first and second OD slots;

inserting a first stator airfoil through the first ID slot and then the first OD slot, wherein the first stator airfoil has a first end edge with a first airfoil edge profile;

inserting a second stator airfoil through the second ID slot and then the second OD slot, wherein the second stator airfoil has a second end edge with a second airfoil edge profile different from the first airfoil edge profile;

abutting the first end edge against a first airfoil locator; and

abutting the second end edge against a second airfoil locator.

17. The method of claim **16**, and further comprising:

applying liquid potting material to each of the first and second ID slots and the first and second OD slots; and

solidifying the liquid potting material so as to hold the first and second stator airfoils in the first and second ID slots and the first and second OD slots.

18. The method of claim **16**, wherein the first and second airfoil locators are connected to a base of an assembly fixture.

19. The method of claim **16**, wherein the first airfoil locator has a first locator shape, wherein the second airfoil locator has a second locator shape that is different than the first locator shape.

20. The method of claim **16**, wherein the first stator airfoil is inserted through the first ID slot before being inserted through the first OD slot, wherein the second stator airfoil is inserted through the second ID slot before being inserted through the second OD slot, and wherein the first and second end edges are radially outer edges of the first and second stator airfoils, respectively.