CLAIMS

What is claimed is:

1. A propulsion system for couplinged to a vehicle, the system comprising:

a diffusing structure;

a conduit portion configured to introduce to the diffusing structure through a first passage a primary fluid produced by the vehicle, ~~the first passage being defined by a first wall,~~ wherein the diffusing structure comprises a terminal end configured to provide egress from the system for the introduced primary fluid;

a first constricting element in form of a metallic and flexible shim or of an elastic shim that retains a life of at least 2000 cycles and its elasticity at high temperatures, the shim being disposed face to face ~~adjacent the~~to a first wall portion, the first passage being defined by the first wall portion and the first constricting element; and

an actuating apparatus coupled to the first constricting element and configured to urge and deflect in a horizontal direction the first constricting element toward the first wall portion, thereby reducing the cross-sectional area of the first passage.

2. The system of claim 1, further comprising:

an intake structure coupled to the diffusing structure and configured to introduce to the diffusing structure a secondary fluid accessible to the vehicle, the intake structure including the conduit portion configured to introduce to the diffusing structure through the first passage the primary fluid produced by the vehicle.

~~2~~3. The system of claim 1 or claim 2, wherein the actuating apparatus comprises:

a first translating component configured to engage the first constricting element and configured to move translationally; and

a first rotational component coupled to the first translating component and configured to move rotationally.

~~3~~4. The system of claim ~~2~~3, wherein the conduit portion is further configured to introduce the primary fluid to the diffusing structure through a second passage, the second passage being defined by a second wall portion,

the system further comprises a second constricting element in form of a second flexible shim disposed ~~adjacent~~ face to face to the second wall portion, whereby the actuating apparatus is coupled to the second constricting element and configured to urge and deflect in the same horizontal direction the second constricting element toward the second wall portion in a similar way as it does with the first constricting element, thereby reducing the cross-sectional area of the second passage, and

the actuating apparatus further comprises:

a second translating component configured to engage the second constricting element and configured to move translationally;

a second rotational component coupled to the second translating component and configured to move rotationally; and

a lever element coupled to the first and second rotational components and configured to rotate the first and second rotational components in unison.

~~4~~5. The system of claim 1 or claim 2, further comprising a convex surface coupled to the diffusing structure, wherein the conduit portion is configured to introduce the primary fluid to the convex surface through the first passage.

~~5~~6. The system of claim 1 or claim 2, wherein the primary fluid comprises compressor bleed air produced by a turbojet.

~~6~~7. The system of claim 1 or claim 2, wherein the diffusing structure is positioned downstream of a turbine of a turbocharger of the vehicle, and the primary fluid is supplied by the compressor of the turbocharger.

7. A propulsion system coupled to a vehicle, the system comprising:

a diffusing structure;

an intake structure coupled to the diffusing structure and configured to introduce to the diffusing structure a secondary fluid accessible to the vehicle, the intake structure including a conduit portion configured to introduce to the diffusing structure through a passage a primary fluid produced by the vehicle, the passage being defined by a wall, wherein the diffusing structure comprises a terminal end configured to provide egress from the system for the introduced primary fluid and secondary fluid;

a first constricting element disposed adjacent the wall; and

an actuating apparatus coupled to the constricting element and configured to urge the constricting element toward the wall, thereby reducing the cross-sectional area of the passage.

8. The system of claim 7, wherein the actuating apparatus comprises:

a first translating component configured to engage the first constricting element and configured to move translationally; and

a first rotational component coupled to the first translating component and configured to move rotationally.

9. The system of claim 8, wherein the conduit portion is further configured to introduce the primary fluid to the diffusing structure through a second passage, the second passage being defined by a second wall,

the system further comprises a second constricting element disposed adjacent the second wall, whereby the actuating apparatus is coupled to the second constricting element and configured to urge the second constricting element toward the second wall, thereby reducing the cross-sectional area of the second passage, and

the actuating apparatus further comprises:

a second translating component configured to engage the second constricting element and configured to move translationally;

a second rotational component coupled to the second translating component and configured to move rotationally; and

a lever element coupled to the first and second rotational components and configured to rotate the first and second rotational components in unison.

10. The system of claim 7, further comprising a convex surface coupled to the diffusing structure, wherein the conduit portion is configured to introduce the primary fluid to the convex surface through the first passage.

11. The system of claim 7, wherein the primary fluid comprises compressor bleed air produced by a turbojet.

12. The system of claim 7, wherein the diffusing structure is positioned downstream of a turbine of a turbocharger of the vehicle, and the primary fluid is supplied by the compressor of the turbocharger.

138. A vehicle comprising:

a primary-fluid source;

a diffusing structure;

a conduit portion configured to introduce to the diffusing structure through a first passage a primary fluid produced by the source, the first passage being defined by a first wall, wherein the diffusing structure comprises a terminal end configured to provide egress from the system for the introduced primary fluid;

a first constricting element disposed adjacent the first wall; and

an actuating apparatus coupled to the first constricting element and configured to urge the first constricting element toward the first wall, thereby reducing the cross-sectional area of the first passagethe propulsion system according to any one of claims 1 to 7.

14. The vehicle of claim 13, wherein the actuating apparatus comprises:

a first translating component configured to engage the first constricting element and configured to move translationally; and

a first rotational component coupled to the first translating component and configured to move rotationally.

15. The vehicle of claim 14, wherein the conduit portion is further configured to introduce the primary fluid to the diffusing structure through a second passage, the second passage being defined by a second wall,

the system further comprises a second constricting element disposed adjacent the second wall, whereby the actuating apparatus is coupled to the second constricting element and configured to urge the second constricting element toward the second wall, thereby reducing the cross-sectional area of the second passage, and

the actuating apparatus further comprises:

a second translating component configured to engage the second constricting element and configured to move translationally;

a second rotational component coupled to the second translating component and configured to move rotationally; and

a lever element coupled to the first and second rotational components and configured to rotate the first and second rotational components in unison.

16. The vehicle of claim 13, further comprising a convex surface coupled to the diffusing structure, wherein the conduit portion is configured to introduce the primary fluid to the convex surface through the first passage.

17<u>9</u>. The vehicle of claim 13<u>8</u>, wherein the vehicle comprises a turbojet, and the primary fluid comprises compressor bleed air produced by the turbojet.

~~18~~10. The vehicle of claim ~~13~~8, further comprising a turbocharger, and wherein the diffusing structure is positioned downstream of a turbine of the turbocharger, and the primary fluid is supplied by a compressor of the turbocharger.

~~19~~11. The vehicle of claim ~~13~~8, further comprising a cylinder, wherein the diffusing structure is located upstream of the cylinder.

~~20~~12. The vehicle of claim ~~13~~8, further comprising a cylinder, wherein the diffusing structure is located downstream of the cylinder.