CLAIMS

1. A system, comprising:

   a composite crosshead, comprising:

   a crosshead body made of a first composite material, wherein the first composite material comprises a first reinforcing material distributed in a first matrix material, the first reinforcing material comprising a first ceramic material and the first matrix material comprising a second ceramic material, wherein the composite crosshead is configured to move in a reciprocating motion in a machine.

2. The system of claim 1, wherein the crosshead body is a one-piece structure made of the first composite material.

3. The system of claim 1, wherein the composite crosshead comprises a crosshead pin coupled to the crosshead body.

4. The system of claim 3, wherein the crosshead pin is made of a second composite material having a second reinforcing material distributed in a second matrix material.

5. The system of claim 4, wherein the first and second composite materials are different.

6. The system of claim 3, wherein the crosshead pin has a hollow interior, and the crosshead pin comprises end caps disposed on opposite ends of the crosshead pin.

7. The system of claim 1, wherein the first reinforcing material comprises a plurality of particles.

8. The system of claim 1, wherein the first reinforcing material is different than the first matrix material.

9. The system of claim 1, further comprising a composite piston made of a third composite material having a third reinforcing material distributed in a third matrix material.

10. The system of claim 1, wherein the machine has the composite crosshead.

11. The system of claim 1, wherein the first and second ceramic materials are different from one another.

12. A system, comprising:

    a composite crosshead, comprising:

    a body made of a first composite material comprising a first reinforcing ceramic material distributed in a first ceramic matrix material, wherein the body is configured to move in a reciprocating motion in a machine; and

    a pin made of a second composite material comprising a second reinforcing ceramic material distributed in a second matrix material, wherein the pin is configured to couple a connecting rod to the body.

13. The system of claim 12, wherein the first and second reinforcing ceramic materials each comprise a plurality of reinforcing particles.

14. The system of claim 12, wherein the first and second composite materials are the same as one another.

15. The system of claim 12, wherein the first and second composite materials are different from one another.

16. The system of claim 12, wherein the pin is hollow, the pin has end caps disposed on opposite ends of the pin, and the end caps are made of a metal.

17. The system of claim 12, comprising the machine having the composite crosshead.

18. A system, comprising:

    a crosshead pin configured to pivotally couple a connecting rod to a crosshead that moves in a reciprocating motion in a machine, wherein the crosshead pin comprises a first composite material having a first reinforcing material distributed in a first matrix material, the first reinforcing material comprising a first ceramic material and the first matrix material comprising a second ceramic material.

19. The system of claim 18, wherein the crosshead pin is hollow, the crosshead pin has end caps disposed on opposite ends of the crosshead pin, and the end caps are made of a metal.

20. The system of claim 18, comprising the machine having the crosshead pin connecting the crosshead to the connecting rod, and a piston coupled to the crosshead.