CLAIMS

What is claimed is:

1. A shot sleeve for a die casting machine, comprising:

a shot sleeve body with a pour opening extending to spaced apart inner and outer diameters, the shot sleeve body is a first material; and

a liner is secured to the shot sleeve body beneath the pour opening, the liner is a second material, the shot sleeve body and the liner together providing a plunger surface defining a cavity configured to receive a molten shot of material.

2. The shot sleeve according to claim 1, wherein the shot sleeve body extends a first axial length, and the liner extends a second axial length that is less than the first axial length.

3. The shot sleeve according to claim 1, wherein the plunger surface is circular and circumscribes the cavity, and the liner is arcuate in shape.

4. The shot sleeve according to claim 3, wherein the liner is configured to extend at least to a level of a shot of molten material.

5. The shot sleeve according to claim 1, wherein the liner is received within a pocket in the shot sleeve body defined by an edge, and the liner includes a perimeter secured to the edge by a weld.

6. The shot sleeve according to claim 5, wherein the liner and the weld includes a machined surface providing a portion of the plunger surface.

7. The shot sleeve according to claim 1, wherein the shot sleeve body includes cooling holes configured to be in fluid communication with a cooling fluid source, at least one cooling hole arranged beneath the liner.

8. The shot sleeve according to claim 7, wherein the at least one cooling hole includes a cooling channel in fluid communication with a backside of the liner.

9. The shot sleeve according to claim 1, wherein the first and second materials are different than one another.

10. A method of manufacturing a shot sleeve, comprising the steps of:

providing a shot sleeve body with a pour opening in fluid communication with a cavity configured to receive a molten shot of material; and

securing a liner to the shot sleeve body within the cavity and beneath the pour opening, the liner, the shot sleeve body and the liner together providing a plunger surface.

11. The method according to claim 10, comprising the step of arranging the liner within a pocket provided in the shot sleeve body.

12. The method according to claim 11, wherein the securing step includes welding a perimeter of the liner to an edge of the pocket.

13. The method according to claim 12, wherein the shot sleeve body extends a first axial length, and the liner extends a second axial length that is less than the first axial length.

14. The method according to claim 12, wherein the plunger surface is circular and circumscribes the cavity, and the liner is arcuate in shape.

15. The method according to claim 14, wherein the liner is configured to extend at least to a level of a shot of molten material.

16. The method according to claim 12, wherein the liner includes an unmachined surface proud of shot sleeve body, and comprising the step of machining the unmachined surface after performing the securing step to provide a machined surface providing a portion of the plunger surface.

17. The method according to claim 1, comprising the step of providing cooling holes in the shot sleeve body configured to be in fluid communication with a cooling fluid source, at least one cooling hole arranged beneath the liner.

18. The method according to claim 17, wherein the at least one cooling hole includes a cooling channel in fluid communication with a backside of the liner.

19. The method according to claim 10, wherein the shot sleeve body and the liner are provided by first and second materials that are different than one another.

20. The method according to claim 10, comprising the step of removing a worn liner and performing the securing step to provide a replacement liner.

CLAIMS

1. A shot sleeve for a die casting machine, comprising:

a shot sleeve body with a pour opening extending to spaced apart inner and outer diameters, the shot sleeve body is a first material; and

a liner is secured to the shot sleeve body beneath the pour opening, the liner is a second material, the shot sleeve body and the liner together providing a plunger surface defining a cavity configured to receive a molten shot of material;

wherein the liner is received within a pocket in the shot sleeve body defined by an edge, and the liner includes a perimeter secured to the edge by a weld and wherein the liner and the weld includes a machined surface providing a portion of the plunger surface.

2. The shot sleeve according to claim 1, wherein the shot sleeve body extends a first axial length, and the liner extends a second axial length that is less than the first axial length.

3. The shot sleeve according to claim 1, wherein the plunger surface is circular and circumscribes the cavity, and the liner is arcuate in shape.

4. The shot sleeve according to claim 3, wherein the liner is configured to extend at least to a level of a shot of molten material.

5. The shot sleeve according to claim 1, wherein the shot sleeve body includes cooling holes configured to be in fluid communication with a cooling fluid source, at least one cooling hole arranged beneath the liner.

6. The shot sleeve according to claim 5, wherein the at least one cooling hole includes a cooling channel in fluid communication with a backside of the liner.

7. The shot sleeve according to claim 1, wherein the first and second materials are different than one another.

8. A method of manufacturing a shot sleeve, comprising the steps of:

providing a shot sleeve body with a pour opening in fluid communication with a cavity configured to receive a molten shot of material;

securing a liner to the shot sleeve body within the cavity and beneath the pour opening, the liner, the shot sleeve body and the liner together providing a plunger surface the liner including an unmachined surface proud of shot sleeve body; and

arranging the liner within a pocket provided in the shot sleeve body; and

machining the unmachined surface after performing the securing step to provide a machined surface providing a portion of the plunger surface;

wherein the securing step includes welding a perimeter of the liner to an edge of the pocket.

9. The method according to claim 8, wherein the shot sleeve body extends a first axial length, and the liner extends a second axial length that is less than the first axial length.

10. The method according to claim 8, wherein the plunger surface is circular and circumscribes the cavity, and the liner is arcuate in shape.

11. The method according to claim 10, wherein the liner is configured to extend at least to a level of a shot of molten material.

12. The method according to claim 1, comprising the step of providing cooling holes in the shot sleeve body configured to be in fluid communication with a cooling fluid source, at least one cooling hole arranged beneath the liner.

13. The method according to claim 12, wherein the at least one cooling hole includes a cooling channel in fluid communication with a backside of the liner.

14. The method according to claim 8, wherein the shot sleeve body and the liner are provided by first and second materials that are different than one another.

15. The method according to claim 8, comprising the step of removing a worn liner and performing the securing step to provide a replacement liner.