CLAIMS:

1. A water mist fire suppression device (30) comprising:

a nozzle body (32) having a water plenum (34) and disposed about a central axis (38);

a bulb cage (40) integrally formed with the nozzle body; and

a nozzle arrangement (42) formed proximate an end of the nozzle body (32) and configured to expel water, the nozzle arrangement comprising:

an annular groove (44) circumferentially extending about the central axis proximate an outlet of the nozzle arrangement and at least partially defined by an axial wall portion (48), a radially inner wall portion (50), and a radially outer wall portion (52);

a micro nozzle (46) extending from the water plenum (34) to the annular groove, wherein the micro nozzle is angularly oriented from the central axis at an angle of 15 to 50 degrees and extends through the axial wall portion (48) of the annular groove (44); and

a deflector lip (54) integrally formed with the nozzle body, and located proximate the outlet of the nozzle arrangement, wherein the deflector lip is formed on the radially outer wall portion and is positioned to contact water ejected from the micro nozzle and prior to exiting the outlet of the nozzle arrangement.

2. The water mist fire suppression device (30) of claim 1, wherein the micro nozzle (46) is aligned perpendicularly to the axial wall portion (48) of the annular groove (44).

3. The water mist fire suppression device (30) of claim 1 or 2, wherein a portion of the radially outer wall portion (52) is angularly oriented relative to the remainder of the radially outer wall portion to define the deflector lip (54).

4. The water mist fire suppression device (30) of any preceding claim, wherein the micro nozzle (46) is configured to route water from the water plenum (34) to the annular groove (44), the micro nozzle aligned to expel the water into the annular groove in a direction that contacts the deflector lip (54).

5. A method of manufacturing a water mist fire suppression device (30) comprising:

machining a bulb cage (40) to be integrally formed with a nozzle body (32);

machining an annular groove (44) about a central axis (38) of the nozzle body (32),

wherein machining the annular groove (44) comprises forming an axial wall portion (48), a radially inner wall portion (58), and a radially outer wall portion (52);

drilling at least one micro nozzle (46) through the nozzle body from the annular groove to a water plenum (34) of the nozzle body, wherein the micro nozzle is angularly oriented from the central axis at an angle of 15 to 50 degrees and extends through the axial wall portion (48) of the annular groove (44);

integrally forming a deflector lip (54) within the annular groove proximate an outlet of a nozzle arrangement (42), wherein the deflector lip is formed on the radially outer wall portion and is positioned to interfere with a water spray exiting the at least one micro nozzle.

6. The method of claim 5, wherein drilling the at least one micro nozzle (46) comprises drilling through the axial wall portion (48) to the water plenum (34) at an angle perpendicular to the axial wall portion.

7. The method of claim 5 or 6, wherein integrally forming the deflector lip (54) comprises pressure turning a portion of the radially outer wall portion (52).

8. The method of claim 5, 6 or 7, wherein integrally forming the deflector lip (54) forms a first segment of the radially outer wall portion (52) and a second segment of the radially outer wall portion, the second segment angularly oriented relative to the first segment.